

FESTO

Automation Technology
Pneumatic and electrical components



Festo's entire product range on DVD-ROM



FESTO

Products

Minimum system requirements

- Pentium IV, 2.4 GHz+ or AMD 2400 xp+
- 1 GB RAM
- DVD-ROM drive
- Screen resolution set to 1024 x 768 pixels
- Windows Vista SP2
- Internet Explorer 8

Recommended system requirements

- PC, no more than 4 years old
- Laptop, no more than 2 years old
- Dual-core CPU with 2 GHz
- 2 GB RAM
- DVD-ROM drive
- Screen resolution set to 1280 x 1024 pixels
- Windows 7/8/8.1 (32 or 64 bit) incl. all Windows updates

Installation instructions

1. Insert the DVD-ROM into the drive. If the setup routine starts automatically, continue with Step 5.
2. If not:
Select the **Run** command from the Start menu.
3. Enter the drive letter of your DVD-ROM drive followed by **setup.exe**.
4. For example: **d:\setup.exe**
5. Then click on **OK** or **Enter**.
6. Follow the instructions.

For further information (installation in a network, FAQs), please read **Info_en.pdf**

Exclusion of liability

Festo provides this software to support you in the selection and ordering of Festo products. The data/results generated using the software are

exclusively intended to describe the products and do not constitute warranted properties in any legal sense. Festo accepts no liability for

damages caused through the use of this software, in particular in relation to consequential damage, whether



















personal injury, material damage or financial loss, directly related to the use of this DVD-ROM.

Marketing Instruments & Product
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Internet: www.festo.com



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Colour key

- Chapter tabs:
 -  Pneumatic components
 -  Electrical components
- Grey text on the catalogue pages: you will find these products online; see description → 7
- Blue text on the catalogue pages: Type code for Internet search(es)
- ★ Products for easy selection and quick ordering

Automation Technology –
Pneumatic and electrical components

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All technical data are correct at the
time of going to print.

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FESTO

Automation Technology
Pneumatic and electrical components



**We are pneumatic.
We are electric.
We are 30,000 technology-neutral solutions.**

**→ WE ARE THE ENGINEERS
OF PRODUCTIVITY.**

Dear customer,

Any company wishing to be globally successful needs to systematically increase its competitive advantage. We can support you in achieving this by focusing on our shared goal of **improving your productivity**.

We want to make it as easy as possible for you to achieve this goal. One way we do this is with our selected products **for automation**. They boast the following benefits:

- Fast: ready for dispatch in 24 hours
- Superb: Festo quality at an attractive price
- Easy: just 4 clicks to place an order

All the products that are easy to select and quick to order are marked with a star.



Wherever you see this star, you can count on the benefits listed above. That is our guarantee to you.

We recommend the following products:

- The individual valve VUVG, compact yet with very high flow rates
- The simple fieldbus connection CTEU, e.g. for the valve terminal VTUG
- The standard cylinder DSBC with the self-adjusting cushioning PPS
- The semi-rotary drive DRRD for extremely high loads

Thank you for your confidence in the Festo brand and its products. That is what motivates and drives us to make you even more successful. We take advantage of everything possible to make this happen – our knowledge, our capabilities, our performance. You can rely on our experts who use the four pillars to solve all your process and factory automation tasks:

security, efficiency, simplicity and competency.

Decide in favour of greater productivity!

We're there for you – we are the engineers of productivity!

Dr Ansgar Kriwet
Member of the Management Board Sales

**We drive automation for your success.
We are your partner to inspire you.
We shape the future together.**

→ WE ARE THE ENGINEERS OF PRODUCTIVITY.

Maximum productivity for you and your customers – this is our mission.

Our know-how, our holistic approach and our passion for detail have made us a global leader in automation technology – and the world market leader in industrial education.

With over 60 years' experience in factory and process automation, we are the right partner for you. Always able to provide an appropriate solution which is characterised by security, simplicity, efficiency and competency.

Security

We want you to feel secure during each and every phase of our collaboration. And confident that you are increasing your productivity. You can rely on our specialists as well as the quality of our products and processes – always and everywhere. This is what we stand for as a family-run company with a long tradition in factory and process automation.

Simplicity

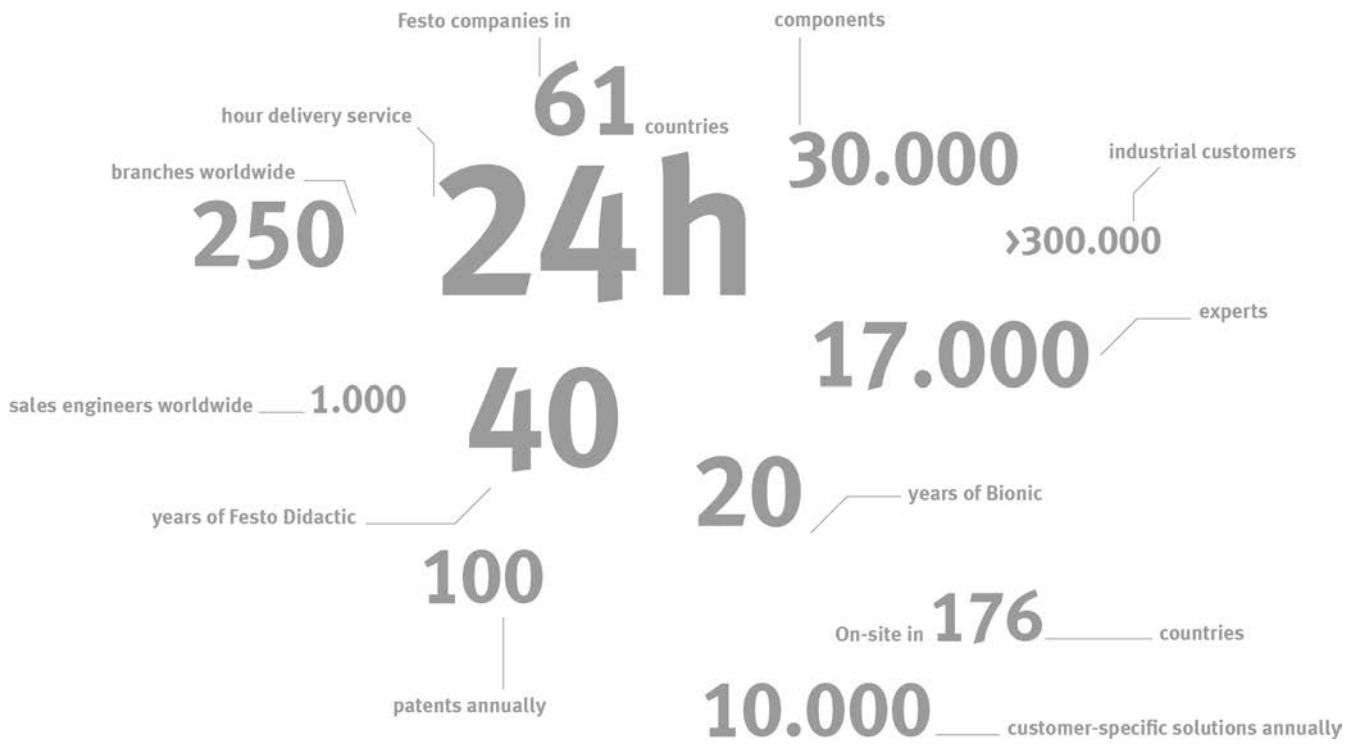
We make your work easier. From the first idea and product selection through to after sales. We reduce complexity with new product generations and software tools for quick product selection and configuration – simplicity is our philosophy. This gives you more time for the really important things: your core business and customers.

Efficiency

Save energy, materials and effort and reduce both your CO₂ emissions and your operating costs. With advice and services from Festo for tailored, economical and intelligent solutions. This is how you permanently increase the productivity of your company.

Competency

Work with experts who understand your industry. We have been setting trends in automation for decades. We smooth the way to maximum productivity with experience and dedication. Our experience is the key to your success: from consultation through to development, training, seminars and products. That is competency in action.



★ Quick to order

We are making things easy for you! We have created a quick and easy selection of products for you based on our new, global standard product range. It has been compiled by our Festo experts in line with customers' needs and it covers all the main automation applications and offers an optimum price/performance ratio.

Products with a star: guaranteed easy to select

You can recognise these outstanding products at a glance: they are marked in the catalogues with a star.

Quick and easy to order

You can order these products, pre-configured for an optimum price/performance ratio, quickly and easily via either a self-explanatory order code or a unique part number.

High level of availability

In stock and ready for immediate dispatch: these products are instantly available unless stated otherwise.

Ordering using the order code

The order code for each product can be found on the product pages. The appropriate accessories for each product are presented in tabular format at the end of each product description.

It couldn't be easier: to get the correct order code, complete the boxes in the first line starting from the left. Follow the connecting line from each box to the column with the associated sizes and variants and make your selection. There are three types of boxes:

- Mandatory data with predefined content [1]: in the example on the right, this is the first box containing the basic design DSNU
 - Mandatory data (blank box) [2]
 - Optional data (line only) [3]: if nothing is entered here, the basic design will be supplied (in this example this means a piston rod at one end)
- When making your selection, note the conditions associated with the variants [4] (shown as footnotes).

More variety or individually configured? No problem!

If your requirements go beyond the main applications of automation technology or you need individually configurable products such as valve terminals, you can choose from the full spectrum of Festo's automation portfolio with all of its technological diversity. You can find these star products in the overview in this printed catalogue, in our electronic catalogue or online on our website and in the online shop.



You can benefit from these advantages whenever you need core pneumatic functions. Wherever you see this symbol in our printed or electronic catalogue, it identifies a selected product which is perfect for the main applications of automation technology. The stars will help you to find what you are looking for more quickly and place orders more easily. These star products are in stock and ready for immediate delivery unless otherwise specified.

At a glance for you:

- Fast: ready for dispatch in 24 hours
- Superb: Festo quality at an attractive price
- Easy: just 4 clicks to place an order

Sample order code:

Order code – Double acting

Type	DSNU Double-acting standard cylinder	
Piston Ø [mm]	Stroke [mm]	
8, 10	10, 15, 20, 25, 30, 40, 50, 60, 80, 100	1 ... 100
12	10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 125, 160, 200	1 ... 200
16	10, 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 100, 125, 150, 160, 200	1 ... 200
20	10, 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 100, 125, 150, 160, 200, 250, 300, 320	1 ... 320
25	10, 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 100, 125, 150, 160, 200, 250, 300, 320, 400, 500	1 ... 500
Cushioning		
P	Elastic cushioning rings/plates at both ends	
PPV	Pneumatic cushioning, adjustable at both ends	[1]
PPS	Pneumatic cushioning, self-adjusting at both ends	[2]
Position sensing		
A	Via proximity sensor	[3]
Alternative end cap		
MO	Plain end cap, lateral connection	[4]
Piston rod type		
-	Single-ended piston rod	
S2	Through piston rod	
Extended piston rod [mm]		
... KB	1 ... 150	[5]
Temperature resistance		
S6	Heat resistant seals up to max. 120 °C	[6]

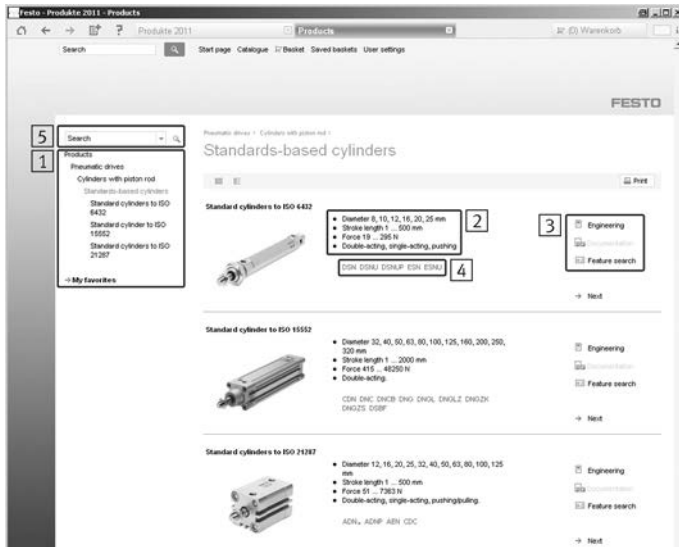
Order code: DSNU - - - A - - -

Footnotes:

[1] Not with piston Ø 8, 10 mm	[5] Piston Ø 8/10: 1 ... 50 mm
[2] Not with piston Ø 8, 10, 12 mm	Piston Ø 12/16: 1 ... 100 mm
[3] Minimum stroke: 10 mm	Piston Ø 20: 1 ... 110 mm
[4] Not with piston rod type S2	Piston Ø 25: 1 ... 150 mm
[6] Not for DSNU-12...PPV	

Online: Enter www.festo.com in your web browser, then choose your country in the "Automation" field. Click on "Go".
On the homepage, select the "Products" menu.

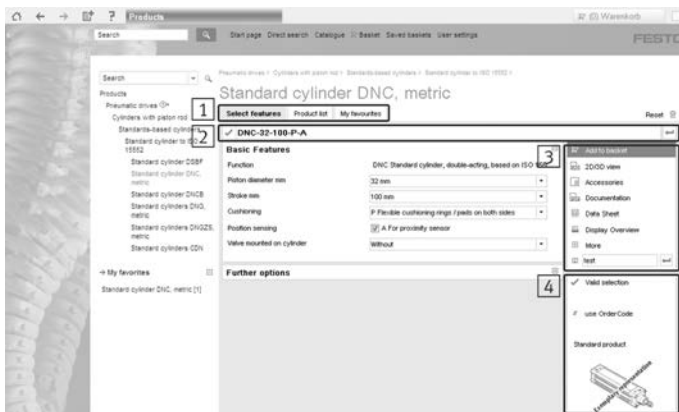
Offline: Insert the DVD and install the product catalogue.
On the start page, click on the "Products" link.



From the product group to the product

There are three options available:

1. Click on a product group **[1]** or product photo. A selection of products will then be displayed along with a list of the technical features **[2]** and selectable links **[3]**:
 - "Engineering" starts the selection and calculation software
 - "Documentation" provides detailed information in PDF format
 - "Feature search" lets you further narrow down the product selection
2. Full text search: Enter your search term in the search field **[5]**. This can be made up of complete or partial keywords, part numbers, type codes or names of favourites. Depending on your input, a selection of products as described in step 1 will be displayed or you will be taken directly to the product you searched for.
3. Quick link: Use the quick link **[4]** to take you directly to the required product by clicking on a type code.



Functions in the product configurator

1. Tab navigation **[1]**
 - "Select features": Select the appropriate features here
 - "Product list": Lists all products in the product group
2. Input field for type code **[2]**:
Enter the exact type code here.
3. Other actions **[3]** which are available following a correct configuration:
 - "Add to basket": Adds your product to the basket, see also the sections "Exporting your basket" and "Managing your basket"
 - "2D/3D view": Creates a CAD model, see the section "Viewing CAD models"
 - "Accessories": Lists suitable accessories
 - "Data Sheet": Contains all the relevant technical data
 - "Display Overview": Displays an overview of all selected models
4. Details **[4]**:
Here you will find information such as part number, price, product graphic, product illustration and circuit symbol.



Selecting product features in the product configurator

1. Select the product features:
 - Navigate using the tabs **[1]**.
 - Configure your product by selecting the required features **[2]** on the tabs **[1]** running from left to right.
 - The tabs **[1]** give you a quick overview of all the selected features. Missing features are marked with a blue exclamation mark and incorrect features are marked in red. Clicking on the feature takes you directly to it, so that you can then change it.
 2. Graphical representation **[3]**:
A dynamic graphic¹⁾ is created based on your current configuration.
 3. Add the product to the basket:
Once the configuration is complete, you can add products to the basket by clicking on "Add to basket". A message is displayed to confirm that the product has been added successfully.
To find out how to place an order, see the section "Managing your basket".
- 1) Available for the valve terminal and service unit product groups.

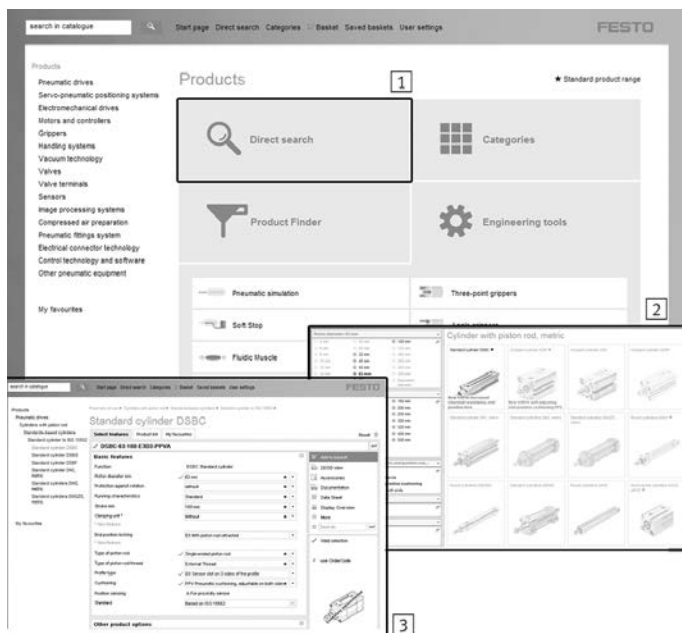
Online or offline – get the ideal solution fast

Online: Enter → www.festo.com in your web browser, then choose your country in the "Automation" field. Click on "Go".
On the homepage, select the "Products" menu.

Offline: Insert the DVD and install the product catalogue.
On the start page, click on the "Products" link.

Selecting product features in the product finder

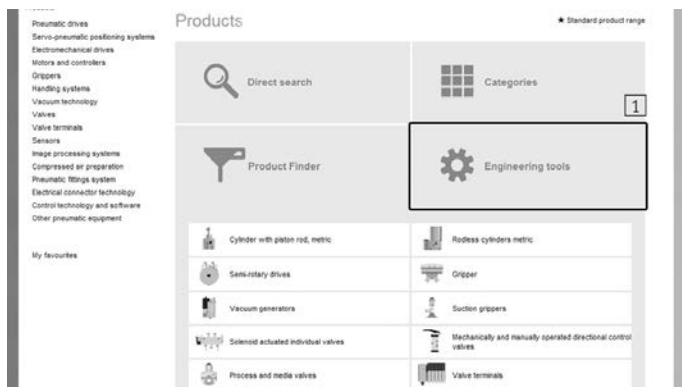
1. Click on the blue button "Product finder" [1] and select the required product group.
2. Select the required technical features in the selection field [2] on the left-hand side.
3. Select the required technical features in the selection field on the left-hand side.
4. Then click on a product photo. The configurator [3] opens with the features you selected.



Engineering tools for appropriate products for your applications

1. Click on the blue button "Engineering" [1] and select the required engineering tool.

This tool guides you step-by-step to the application simulation based on the technical features you selected and suggests the appropriate products for your application.



Finding the appropriate accessories quickly

1. Select the required features in the configurator.
2. Click on the "Accessories" button [1] on the right-hand side.
3. Select the required accessory from the accessories on offer [2].

The tool will bring you to the appropriate accessory selection list.

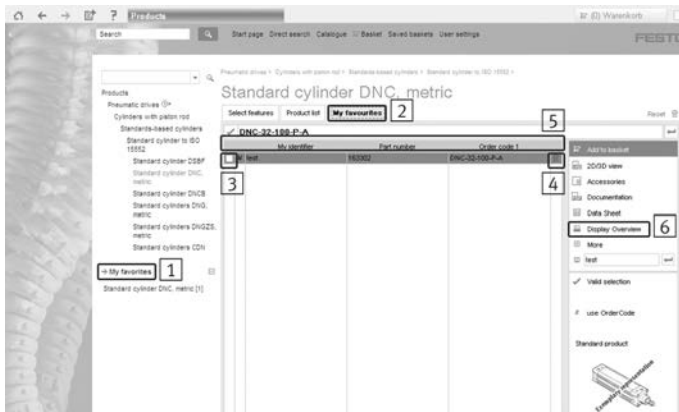
Tip:

For some cylinder series you can find the appropriate accessories faster by selecting "Recommended accessories" in the accessories on offer [2].
For some cylinder series you will also find "Recommended accessories" [3] after you have added your selection to the basket.



Online: Please register as a user to use the functions described on this page.

Offline: Registration is not required to use the functions on this page.



My favourites

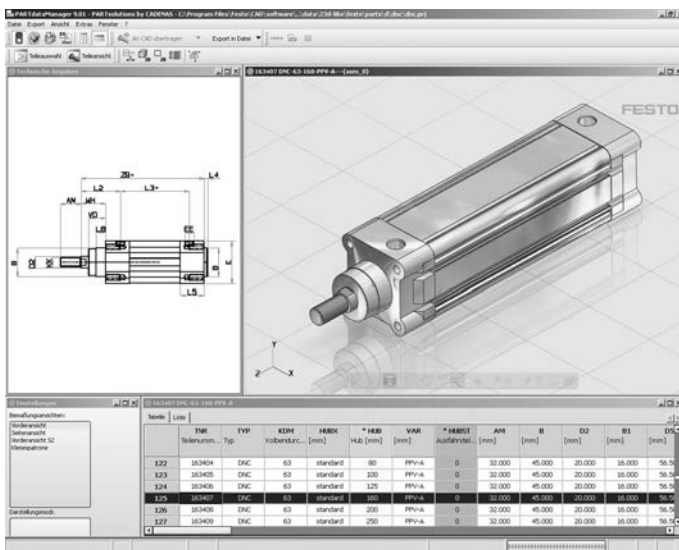
You can save as many product configurations as favourites as you want.

To display the list of all stored favourites [1]:

- Click on the "My favourites" tab [2]. A table containing your saved favourites is displayed.

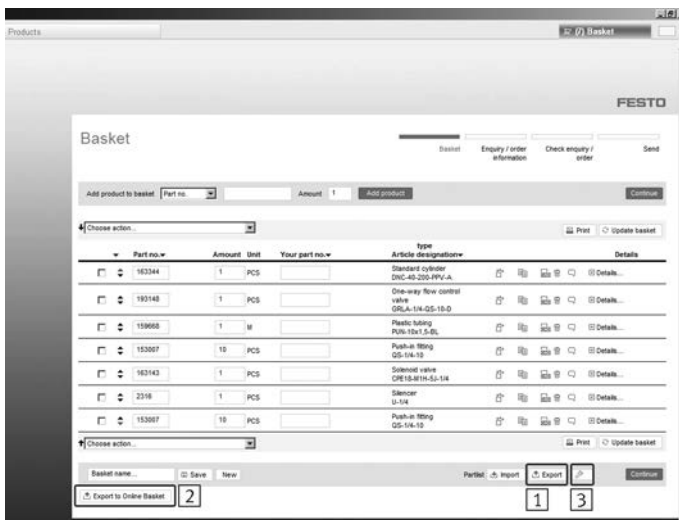
The name of the favourite, part number, type code and a button [4] for deleting the favourite are displayed.

- Double-clicking on a row in the configuration opens the corresponding configuration window [3].
- You can sort your favourites by clicking on the column headings [5].
- You can select multiple favourites and compare them by clicking on "Product compare" in the field on the right [6].



Viewing CAD models

Clicking on the "2D/3D view" button opens a window containing a CAD preview of the product. The "Export" function lets you export the files to your CAD system in the right format.



Exporting your basket...

1. ... as a csv file:
To do this, click on "Export" [1], choose "Save as" in the new window and specify where you want to save it to. This file can then be opened in Excel, for example, and edited.
2. ... to your required format: To do this, click "Settings" [3] and specify which information is to be exported.

To upload a basket directly to the online shop, simply click "Export to online basket" [2]. An Internet connection is established and the products are transferred to the online basket. After logging in via "Login", your net prices and delivery times are displayed. Now just place your order and you're done!

2. Place an order: To place an order, simply print out your basket and send it to Festo by fax or export it as an e-mail.

Managing your basket

1. Upload the basket directly to the online shop and place your order:

Online: **The Support Portal**
All product information can be accessed centrally → www.festo.com/sp

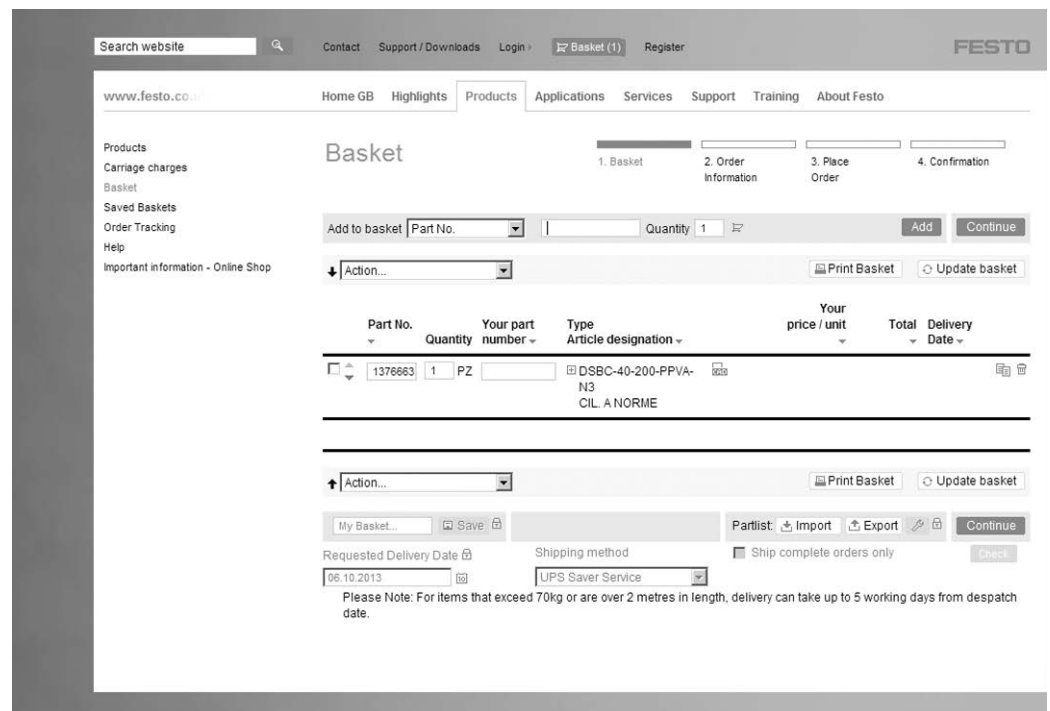
Round-the-clock benefits

- **One-step ordering process** – no waiting times between request, pricing information and order.
- **Share baskets** – Share your basket with colleagues which have an Online Shop access as well.
- **Continuous availability** – product information, documentation, prices, availability, ordering, etc.
- **Complete overview of all orders** – order tracking with search function, status display in lists and easy reordering.
- **Download documentation for a complete basket** – Get complete documentation for selected products in the basket.
- **Reliable and secure procurement processes** – import parts lists as a CSV file or by copying and pasting. Export to Office applications.

Always in control

When you register you have access to all the latest information on all the products and their availability at all times

You will find the online shop at
www.festo.com



Already registered?

Then you can log in directly via www.festo.com/login or by clicking on "Login".

If you have not registered yet, open the registration form by clicking on "Register".

Further information on the Festo online shop is also available via e-mail from onlineshop@de.festo.com.

Festo – Partner for automation

Integrated information ...

... is a prerequisite for successful pneumatic and electric automation. That's why Festo sees itself as a partner to its customers and maintains a continuous dialogue with them to provide and exchange expert and comprehensive information.

Directly

- Worldwide consultation provided by more than 1,000 sales engineers and project engineers with up-to-date product and industry knowledge
- Hotlines to answer all your questions
- Experts on components, modules, systems and industries

At events

- Over 120 trade fairs around the world each year
- Expotainer – the exhibition that comes to you
- Technology days – specialised presentations and exhibits concerning current topics in the field of automation
- Automation lectures – a series of specialised presentations based on actual applications

In printed form

- trends in automation – the customer magazine with application examples, news and innovations from the world of automation technology

Documentation

- The Festo printed catalogue. Automation in a compact volume and with a clear structure
- Industry catalogues
- Manuals and operating instructions
- System descriptions and product overview posters
- Specialist literature

Everything can be found on our Support Portal at www.festo.com

Electronically

- Always up-to-date: www.festo.com
- On the Internet or as a DVD-ROM: database-supported catalogue in 26 languages
- Spare parts catalogue
- Online shop
- Engineering tools for easier and faster design for energy-efficient solutions

Are you familiar with our basic and further training courses? Festo Didactic brings together and promotes the transfer of know-how: Festo Didactic → 12.

After all, productivity begins with training.



Festo Didactic is the world-leading equipment and solution provider for industrial education. The product and service portfolio offers solutions for rapid learning and retention in the entire spectrum of automation technologies. As an innovation leader and one of the world's largest supplier of automation technology Festo sets standards. This is also shown with the range of Festo Didactic's training courses on automation technology: pneumatics or hydraulics, PLC technology or troubleshooting.

Thus, the customers benefit twice: Close coordination between Festo Didactic and Festo Automation allows us deeper insights into key industry issues than other training providers. We practice what we teach.



No matter which training format you choose – whether public or in-house, a course, a workshop, a best-practice event or corporate strategy games – the focus is always on first-hand experience. In both public and customised training, the outcomes are transparent to all stakeholders, allowing them to track progress towards achieving the required competencies. Rapid transfer to daily practice is a key quality criterion – we help you to measure and optimise this.

Standard training

In public courses, a predefined set of competencies are transferred. Approximately 42,000 course participants attend over 3,000 of our public courses worldwide every year.

Our trainers deliver modular quality-assured training in 39 languages.

Customised training

There are three levels to customised training: Customised courses designed to achieve agreed outcomes are generally in-house to achieve greater focus on your business needs, increased flexibility and reduced cost, often with the added advantage that participants do not have to travel.

If you are not sure which skills profile a team needs, our Training Needs Analysis (TNA) will identify requirements and audit current skills in a report. To optimise transfer, a post course review can be run a few weeks after training – this audits the upgraded skills set against the agreed outcomes.

International available training courses:

Our current range of technical training courses covers the fields of

- Electricity Energy efficiency
- Handling Systems
- Hydraulics
- PLC
- Pneumatics
- Process Automation
- Safety
- Troubleshooting
- Water Management.

Moreover, we offer training courses for organizational topics such as Improvement management, Lean Production and Supply Chain Management.

Competence development programs

If your customised training exceeds the scope of a single course, qualification programs can be established. These comprise several courses with intervals between to transfer to the workplace and integration of inhouse projects with goals such as optimising setup time.

Competence programs

If your training requirements exceed the scope of a single course, qualification programs can be established. These comprise several courses with intervals between to transfer to the workplace and integration of inhouse projects with goals such as optimising setup time. We now offer brand-new competence programs for different job roles from industry in the fields of Supply Chain Management, Maintenance Management, Mechatronics, Energy management, Safety and Water Management. Using the example of our Supply Chain Management program, the participants firstly focus on the fundamentals, containing the best practices and tools in a global view of Supply Chain. In another section, dedicated to job specific learning, the main focus are job role activities thus enabling the participants to perform effectively in a specific position as part of the Supply Chain.

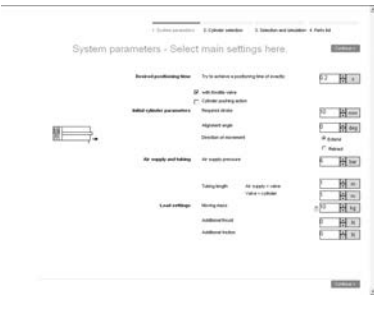

We now offer brand-new competence programs for Supply Chain Management, Maintenance Management, Mechatronics and Energy Management.

1 Pneumatic drives







Software tool





1

<p>Pneumatic dimensioning</p> 	<p>Perfect simulations replace expensive actual tests. The tool is an expert system that supports you in the selection and configuration of the entire pneumatic control chain. If one parameter is changed, the program automatically adapts all the others.</p>	<p>This tool can be found</p> <ul style="list-style-type: none"> • either in the electronic catalogue by clicking on the blue button "Engineering" • or on the DVD under Engineering Tools.
<p>Festo Design Tool 3D FDT 3D</p> 	<p>This Festo Design Tool 3D is a 3D product configurator for generating specific CAD product combinations from Festo. The configurator makes your search for the right accessory easier, more reliable and faster.</p> <p>You can then order the module that has been created with a single order code – either completely pre-assembled or as individual parts in a single box. As a result, your bill of materials is considerably shortened and downstream processes such as product ordering, order picking and assembly are significantly simplified.</p>	<p>All ordering options are available in the following countries: IT, IE, TR, DK, SE, NO, NL, FI, FR, DE, BE, CH, ES, GB, ZA, AT, SK, PL, CZ, HU, SI, RU.</p> <p>This tool can be found</p> <ul style="list-style-type: none"> • either in the electronic catalogue by clicking on the blue button "Engineering" • or on the DVD under Engineering Tools.




Standard cylinders

Type	 Compact cylinder ADN	 Compact cylinder AEN	 Compact cylinder ADNP	 Compact cylinder ADN-EL
Mode of operation	Double-acting	Pushing, single-acting, pulling	Double-acting	Double-acting
Piston diameter	12 mm, 16 mm, 20 mm, 25 mm, 32 mm, 40 mm, 50 mm, 63 mm, 80 mm, 100 mm, 125 mm	12 mm, 16 mm, 20 mm, 25 mm, 32 mm, 40 mm, 50 mm, 63 mm, 80 mm, 100 mm	20 mm, 25 mm, 32 mm, 40 mm, 50 mm	20 mm, 25 mm, 32 mm, 40 mm, 50 mm, 63 mm, 80 mm, 100 mm
Theoretical force at 6 bar, advancing	51 ... 7,363 N	56... 4,511 N	188 ... 1,178 N	188 ... 4,712 N
Stroke	1 ... 500 mm	1 ... 25 mm	5 ... 80 mm	10 ... 500 mm
Cushioning	P: elastic cushioning rings/pads at both ends, PPS: self-adjusting pneumatic end-position cushioning	P: elastic cushioning rings/pads at both ends	P: elastic cushioning rings/pads at both ends	P: elastic cushioning rings/pads at both ends
Description	<ul style="list-style-type: none"> • Piston diameter 12 ... 100 mm in accordance with ISO 21287 • Up to 50% less installation space than comparable standard cylinders to ISO 15552 • For position sensing • Piston rod with female or male thread • Wide range of variants 	<ul style="list-style-type: none"> • ISO 21287 • Up to 50% less installation space than comparable standard cylinders to ISO 15552 • For position sensing • Piston rod with female or male thread • Wide range of variants 	<ul style="list-style-type: none"> • ISO 21287 • Up to 50% less installation space than comparable standard cylinders to ISO 15552 • With polymer end cap and piston rod made from aluminium • Low-cost cylinder for standard applications • For position sensing • Piston rod with female or male thread 	<ul style="list-style-type: none"> • Standard hole pattern • With end-position locking at both ends, front or rear • For position sensing • Piston rod with female or male thread
→ Page/online	35	35	adnp	adn-el

Standard cylinders





Type	 Compact cylinder, Clean Design CDC	 Standard cylinder DSBC	 Standard cylinder DSBG	 Standard cylinder, Clean Design DSBF
Mode of operation	Double-acting	Double-acting	Double-acting	Double-acting
Piston diameter	20 mm, 25 mm, 32 mm, 40 mm, 50 mm, 63 mm, 80 mm	32 mm, 40 mm, 50 mm, 63 mm, 80 mm, 100 mm, 125 mm	32 mm, 40 mm, 50 mm, 63 mm, 80 mm, 100 mm, 125 mm, 160 mm, 200 mm	32 mm, 40 mm, 50 mm, 63 mm, 80 mm, 100 mm, 125 mm
Theoretical force at 6 bar, advancing	141 ... 3,016 N	415 ... 7,363 N	415 ... 18,850 N	415 ... 7,363 N
Stroke	1 ... 500 mm	1 ... 2,800 mm	1 ... 2,800 mm	1 ... 2,800 mm
Cushioning	P: elastic cushioning rings/pads at both ends	P: elastic cushioning rings/pads at both ends, PPS: self-adjusting pneumatic end-position cushioning, PPV: pneumatic cushioning, adjustable at both ends	P: elastic cushioning rings/pads at both ends, PPS: self-adjusting pneumatic end-position cushioning, PPV: pneumatic cushioning, adjustable at both ends	P: elastic cushioning rings/pads at both ends, PPS: self-adjusting pneumatic end-position cushioning, PPV: pneumatic cushioning, adjustable at both ends
Description	<ul style="list-style-type: none"> • ISO 21287 • Up to 50% less installation space than comparable standard cylinders to ISO 15552 • Easy-to-clean design • Increased corrosion protection • For position sensing • Wide range of variants • Piston rod with female or male thread 	<ul style="list-style-type: none"> • ISO 15552 (ISO 6431, VDMA 24562) • With self-adjusting pneumatic end-position cushioning PPS – adapts perfectly to changes in load and speed • For position sensing • High flexibility thanks to the wide range of variants • Extensive range of accessories makes it possible to install the cylinder virtually anywhere 	<ul style="list-style-type: none"> • ISO 15552 (ISO 6431, VDMA 24562) • Sturdy tie rod design • For contactless position sensing • Available with protection against rotation • Extensive range of accessories makes it possible to install the cylinder virtually anywhere 	<ul style="list-style-type: none"> • ISO 15552 with increased corrosion protection • Resistant to conventional cleaning agents • FDA-approved lubrication and sealing on the basic design • Long service life thanks to optional seal for unlubricated operation • Hygienic mounting of the sensors possible • Comprehensive range of mounting accessories for just about every type of installation
→ Page/online	cdc	54	65	81

Standard cylinders





Type	 Standard cylinder DNC	 Standard cylinder DNG	 Standard cylinder DNGZS
Mode of operation	Double-acting	Double-acting	Double-acting
Piston diameter	32 mm, 40 mm, 50 mm, 63 mm, 80 mm, 100 mm, 125 mm	250 mm, 320 mm	250 mm, 320 mm
Theoretical force at 6 bar, advancing	415 ... 7,363 N	29,450 ... 48,250 N	29,450 ... 48,250 N
Stroke	2 ... 2,000 mm	1 ... 2,000 mm	1 ... 1,100 mm
Cushioning	P: elastic cushioning rings/pads at both ends, PPV: pneumatic cushioning, adjustable at both ends	PPV: pneumatic cushioning, adjustable at both ends	PPV: pneumatic cushioning, adjustable at both ends
Description	<ul style="list-style-type: none"> • ISO 15552 (ISO 6431, VDMA 24562) • For position sensing • Saves up to 11% on fitting space compared with ordinary standard cylinders • Wide range of variants • Profile slot for proximity sensors on three sides • No protruding proximity sensors 	<ul style="list-style-type: none"> • ISO 15552 (ISO 6431, VDMA 24562) • Sturdy tie rod design • Proximity sensors mounted using kit • Wide range of accessories 	<ul style="list-style-type: none"> • ISO 15552 (ISO 6431, VDMA 24562) • With fixed central trunnion mounting • Sturdy tie rod design • Proximity sensors mounted using kit • Wide range of accessories
→ Page/online	88	dng	dngzs

Standard cylinders



1

Type	 Standard cylinder DSNU	 Standard cylinder ESNU	 Standard cylinder DSNUP	 Standard cylinder DSN, ESN
Mode of operation	Double-acting	Pushing, single-acting	Double-acting	Double-acting, pushing, single-acting
Piston diameter	8 mm, 10 mm, 12 mm, 16 mm, 20 mm, 25 mm	8 mm, 10 mm, 12 mm, 16 mm, 20 mm, 25 mm	16 mm, 20 mm, 25 mm	8 mm, 10 mm, 12 mm, 16 mm, 20 mm, 25 mm
Theoretical force at 6 bar, advancing	23 ... 295 N	19 ... 271 N	121 ... 295 N	24 ... 294.5 N
Stroke	1 ... 500 mm	1 ... 50 mm	25 ... 100 mm	1 ... 500 mm
Cushioning	P: elastic cushioning rings/pads at both ends, PPS: self-adjusting pneumatic end-position cushioning, PPV: pneumatic cushioning, adjustable at both ends	P: elastic cushioning rings/pads at both ends	P: elastic cushioning rings/pads at both ends	P: elastic cushioning rings/pads at both ends, PPV: pneumatic cushioning, adjustable at both ends
Description	<ul style="list-style-type: none"> • ISO 6432 • For position sensing • Wide range of variants • Good running performance and long service life • Piston rod with female or male thread 	<ul style="list-style-type: none"> • ISO 6432 • For position sensing • Wide range of variants • Good running performance and long service life • Piston rod with female or male thread 	<ul style="list-style-type: none"> • ISO 6432 • Cost-optimised round cylinder • Wrought aluminium alloy cylinder barrel • Polyamide bearing and end caps • For position sensing 	<ul style="list-style-type: none"> • ISO 6432 • Good running performance and long service life • Piston rod with female or male thread
→ Page/online	96	107	102	105





Round cylinders

Type	 Round cylinder DSNU	 Round cylinder ESNU	 Standard cylinder DSNUP	 Standard cylinder DSN, ESN
Mode of operation	Double-acting	Pushing, single-acting	Double-acting	Double-acting, pushing, single-acting
Piston diameter	32 mm, 40 mm, 50 mm, 63 mm	32 mm, 40 mm, 50 mm, 63 mm	16 mm, 20 mm, 25 mm	8 mm, 10 mm, 12 mm, 16 mm, 20 mm, 25 mm
Theoretical force at 6 bar, advancing	482.5 ... 1,870.3 N	406 ... 1,765 N	121 ... 295 N	24 ... 294.5 N
Stroke	1 ... 500 mm	1 ... 50 mm	25 ... 100 mm	1 ... 500 mm
Cushioning	P: elastic cushioning rings/pads at both ends, PPS: self-adjusting pneumatic end-position cushioning, PPV: pneumatic cushioning, adjustable at both ends	P: elastic cushioning rings/pads at both ends	P: elastic cushioning rings/pads at both ends	P: elastic cushioning rings/pads at both ends, PPV: pneumatic cushioning, adjustable at both ends
Description	<ul style="list-style-type: none"> • For position sensing • Wide range of variants • Good running performance and long service life • Piston rod with female or male thread 	<ul style="list-style-type: none"> • For position sensing • Wide range of variants • Good running performance and long service life • Piston rod with female or male thread 	<ul style="list-style-type: none"> • ISO 6432 • Cost-optimised round cylinder • Wrought aluminium alloy cylinder barrel • Polyamide bearing and end caps • For position sensing 	<ul style="list-style-type: none"> • ISO 6432 • Good running performance and long service life • Piston rod with female or male thread
→ Page/online	118	124	102	105

Round cylinders





Type	 Round cylinder DG, EG	 Round cylinder EG-PK
Mode of operation	Pushing, single-acting	Pushing, single-acting
Piston diameter	2.5 mm, 4 mm, 6 mm, 12 mm, 16 mm, 25 mm	2.5 mm, 4 mm, 6 mm
Theoretical force at 6 bar, advancing	1.9 ... 215 N	1.9 ... 11.8 N
Stroke	1 ... 80 mm	5... 25 mm
Cushioning	At one end, no cushioning, non-adjustable	No cushioning
Description	<ul style="list-style-type: none"> • Miniature cylinder • Good running performance • Piston rod with or without male thread 	<ul style="list-style-type: none"> • Micro cylinder with supply port • Barbed fitting for plastic tubing with standard I.D.
→ Page/online	dg	eg-pk

Stainless steel cylinders




Type	 Standard cylinder CRDSNU, CRDSNU-B	 Round cylinder CRDSNU, CRDSNU-B	 Standard cylinder CRDNG, CRDNGS	 Round cylinder CRHD
Mode of operation	Double-acting	Double-acting	Double-acting	Double-acting
Piston diameter	12 mm, 16 mm, 20 mm, 25 mm	32 mm, 40 mm, 50 mm, 63 mm	32 mm, 40 mm, 50 mm, 63 mm, 80 mm, 100 mm, 125 mm	32 mm, 40 mm, 50 mm, 63 mm, 80 mm, 100 mm
Theoretical force at 6 bar, advancing	68 ... 295 N	483 ... 1,870 N	483 ... 7,363 N	483 ... 4,712 N
Stroke	1 ... 500 mm	1 ... 500 mm	10 ... 2,000 mm	10 ... 500 mm
Cushioning	P: elastic cushioning rings/pads at both ends, PPS: self-adjusting pneumatic end-position cushioning, PPV: pneumatic cushioning, adjustable at both ends	P: elastic cushioning rings/pads at both ends, PPS: self-adjusting pneumatic end-position cushioning, PPV: pneumatic cushioning, adjustable at both ends	PPV: pneumatic cushioning, adjustable at both ends	PPV: pneumatic cushioning, adjustable at both ends
Description	<ul style="list-style-type: none"> • ISO 6432 • Corrosion-resistant in harsh environmental conditions • Easy-to-clean design • Long service life thanks to optional unlubricated seal • For position sensing • Wide range of variants • Wide range of accessories 	<ul style="list-style-type: none"> • Corrosion-resistant in harsh environmental conditions • Easy-to-clean design • Long service life thanks to optional unlubricated seal • For position sensing • Wide range of variants • Wide range of accessories 	<ul style="list-style-type: none"> • ISO 15552 (ISO 6431, VDMA 24562) • Corrosion-resistant in harsh environmental conditions • Easy-to-clean design • Threaded mounting, mounting via accessories • For position sensing • Variants: through piston rod, heat-resistant design 	<ul style="list-style-type: none"> • Corrosion-resistant in harsh environmental conditions • Easy-to-clean design, optimised for exacting demands • Great flexibility thanks to different end caps • For position sensing • Piston rod with male thread
→ Page/online	crdsnu-12	crdsnu-32	crdng	crhd

Compact, short-stroke and flat cylinders




1

Type	 Compact cylinder ADN	 Compact cylinder AEN	 Compact cylinder ADNGF	 Compact cylinder ADNP
Mode of operation	Double-acting	Pushing, single-acting, pulling	Double-acting	Double-acting
Piston diameter	12 mm, 16 mm, 20 mm, 25 mm, 32 mm, 40 mm, 50 mm, 63 mm, 80 mm, 100 mm, 125 mm	12 mm, 16 mm, 20 mm, 25 mm, 32 mm, 40 mm, 50 mm, 63 mm, 80 mm, 100 mm	12 mm, 16 mm, 20 mm, 25 mm, 32 mm, 40 mm, 50 mm, 63 mm, 80 mm, 100 mm	20 mm, 25 mm, 32 mm, 40 mm, 50 mm
Theoretical force at 6 bar, advancing	51 ... 7,363 N	56 ... 4,511 N	68 ... 4,712 N	188 ... 1,178 N
Stroke	1 ... 500 mm	1 ... 25 mm	1 ... 400 mm	5 ... 80 mm
Cushioning	P: elastic cushioning rings/pads at both ends, PPS: self-adjusting pneumatic end-position cushioning	P: elastic cushioning rings/pads at both ends	P: elastic cushioning rings/pads at both ends, PPS: self-adjusting pneumatic end-position cushioning	P: elastic cushioning rings/pads at both ends
Description	<ul style="list-style-type: none"> Piston diameter 12 ... 100 mm in accordance with ISO 21287 Up to 50% less installation space than comparable standard cylinders to ISO 15552 For position sensing Piston rod with female or male thread Wide range of variants 	<ul style="list-style-type: none"> ISO 21287 Up to 50% less installation space than comparable standard cylinders to ISO 15552 For position sensing Piston rod with female or male thread Wide range of variants 	<ul style="list-style-type: none"> Mounting hole pattern to ISO 21287 Piston rod secured against rotation by means of guide rod and yoke plate Plain-bearing guide For position sensing Available with through piston rod 	<ul style="list-style-type: none"> ISO 21287 Up to 50% less installation space than comparable standard cylinders to ISO 15552 With polymer end cap and piston rod made from aluminium Low-cost cylinder for standard applications For position sensing Piston rod with female or male thread
→ Page/online	35	35	132	adnp



Compact, short-stroke and flat cylinders

Type	 Compact cylinder ADN-EL	 Compact cylinder CDC	 Short-stroke cylinder ADVC, AEVC
Mode of operation	Double-acting	Double-acting	Double-acting, pushing, single-acting
Piston diameter	20 mm, 25 mm, 32 mm, 40 mm, 50 mm, 63 mm, 80 mm, 100 mm	20 mm, 25 mm, 32 mm, 40 mm, 50 mm, 63 mm, 80 mm	4 mm, 6 mm, 10 mm, 12 mm, 16 mm, 20 mm, 25 mm, 32 mm, 40 mm, 50 mm, 63 mm, 80 mm, 100 mm
Theoretical force at 6 bar, advancing	188 ... 4,712 N	141 ... 3,016 N	4.9 ... 4,712 N
Stroke	10 ... 500 mm	1 ... 500 mm	2.5 ... 25 mm
Cushioning	P: elastic cushioning rings/pads at both ends	P: elastic cushioning rings/pads at both ends	P: elastic cushioning rings/pads at both ends
Description	<ul style="list-style-type: none"> Standard hole pattern With end-position locking at both ends, front or rear For position sensing Piston rod with female or male thread 	<ul style="list-style-type: none"> ISO 21287 Up to 50% less installation space than comparable standard cylinders to ISO 15552 Easy-to-clean design Increased corrosion protection For position sensing Wide range of variants Piston rod with female or male thread 	<ul style="list-style-type: none"> Short-stroke cylinder with standard hole pattern to VDMA 24562 from diameter 32 mm Little space required High clamping forces in a compact size For position sensing via proximity sensor for T-slot and for C-slot Piston rod with female or male thread
→ Page/online	adn-el	cdc	140

Compact, short-stroke and flat cylinders

			
Type	Compact cylinder ADVU, AEVU, AEVUZ	Compact cylinder ADVUL	Flat cylinder DZF
Mode of operation	Double-acting, pushing, single-acting, pulling	Double-acting	Double-acting
Piston diameter	12 mm, 16 mm, 20 mm, 25 mm, 32 mm, 40 mm, 50 mm, 63 mm, 80 mm, 100 mm, 125 mm	12 mm, 16 mm, 20 mm, 25 mm, 32 mm, 40 mm, 50 mm, 63 mm, 80 mm, 100 mm	Equivalent diameter, 12 mm, 18 mm, 25 mm, 32 mm, 40 mm, 50 mm, 63 mm
Theoretical force at 6 bar, advancing	42 ... 7,363 N	51 ... 4,712 N	51 ... 1,870 N
Stroke	1 ... 2,000 mm	1 ... 400 mm	1 ... 320 mm
Cushioning	P: elastic cushioning rings/pads at both ends	P: elastic cushioning rings/pads at both ends	P: elastic cushioning rings/pads at both ends
Description	<ul style="list-style-type: none"> • 50% less installation space than comparable standard cylinders to ISO 15552 • For position sensing • Wide range of variants • Piston rod with female or male thread 	<ul style="list-style-type: none"> • Piston rod secured against rotation by means of guide rod and yoke plate • For position sensing • Plain-bearing guide • For position sensing • Available with through piston rod 	<ul style="list-style-type: none"> • Extremely flat design • Protected against rotation thanks to special piston shape • Ideal for manifold assembly • Wide range of mounting options • For position sensing • Piston rod with female or male thread
→ Page/online	advu	advul	dzf

Compact, short-stroke and flat cylinders




		
Type	Flat cylinder DZH	Flat cylinder EZH
Mode of operation	Double-acting	Pushing, single-acting
Piston diameter	Equivalent diameter, 16 mm, 20 mm, 25 mm, 32 mm, 40 mm, 50 mm, 63 mm	Equivalent diameter, 3 mm, 6 mm, 12 mm, 22 mm
Theoretical force at 6 bar, advancing	104 ... 1,870 N	3.8 ... 205 N
Stroke	1 ... 1,000 mm	10 ... 50 mm
Cushioning	PPV: pneumatic cushioning, adjustable at both ends	No cushioning
Description	<ul style="list-style-type: none"> • Flat design • Protected against rotation thanks to special piston shape • Ideal for manifold assembly • Wide range of mounting options • For position sensing • Piston rod with male thread 	<ul style="list-style-type: none"> • Extremely flat design • Protected against rotation thanks to special piston shape • Wide range of mounting options • For position sensing
→ Page/online	dzh	ezh

1



Cartridge cylinders and multimount cylinders

Type	 Multimount cylinder DMM, EMM, DMML, EMML	 Cartridge cylinder EGZ	 Flanged cylinder DFK, EFK
Mode of operation	Double-acting, pushing, single-acting	Pushing, single-acting	Double-acting, single-acting, pushing
Piston diameter	10 mm, 16 mm, 20 mm, 25 mm, 32 mm	6 mm, 10 mm, 16 mm	8 mm, 10 mm, 12 mm, 16 mm, 20 mm, 25 mm
Theoretical force at 6 bar, advancing	37 ... 483 N	13.9 ... 109 N	30 ... 295 N
Stroke	1 ... 50 mm	5 ... 15 mm	10 ... 80 mm
Cushioning	P: elastic cushioning rings/pads at both ends	No cushioning	P: elastic cushioning rings/pads at both ends
Description	<ul style="list-style-type: none"> • Wide range of mounting options • Wide selection of piston rod variants • For position sensing • Piston rod with male thread 	<ul style="list-style-type: none"> • Minimal fitting space • Installation with or without mounting components • Piston rod with male thread 	<ul style="list-style-type: none"> • Polymer design • Integrated mounting flange and connection • Piston rod with male thread
→ Page/online	dmm	egz	dfk





Cylinders with clamping unit

Type	 Compact cylinder with clamping unit ADN-KP	 Compact cylinder with clamping unit DSNU-KP	 Round cylinder with clamping unit DSNU-KP
Mode of operation	Double-acting	Double-acting	Double-acting
Piston diameter	20 mm, 25 mm, 32 mm, 40 mm, 50 mm, 63 mm, 80 mm, 100 mm	8 mm, 10 mm, 12 mm, 16 mm, 20 mm, 25 mm	32 mm, 40 mm, 50 mm, 63 mm
Theoretical force at 6 bar, advancing	188... 4,712 N	30 ... 295 N	482.5 ... 1,870.3 N
Stroke	10 ... 500 mm	1 ... 500 mm	1 ... 500 mm
Cushioning	P: elastic cushioning rings/pads at both ends	P: elastic cushioning rings/pads at both ends, PPS: self-adjusting pneumatic end-position cushioning, PPV: pneumatic cushioning, adjustable at both ends	P: elastic cushioning rings/pads at both ends, PPS: self-adjusting pneumatic end-position cushioning, PPV: pneumatic cushioning, adjustable at both ends
Description	<ul style="list-style-type: none"> • Mounting hole pattern to ISO 21287 • Piston rod can be held or clamped in any position during clamping, processing or handling operations • For position sensing • Piston rod with female or male thread 	<ul style="list-style-type: none"> • Mounting hole pattern to ISO 6432 • Piston rod can be held or clamped in any position • Piston rod can be held in position for long periods even with alternating loads, fluctuating operating pressure or leaks in the system • For position sensing 	<ul style="list-style-type: none"> • Piston rod can be held or clamped in any position • Piston rod can be held in position for long periods even with alternating loads, fluctuating operating pressure or leaks in the system • For position sensing
→ Page/online	40	103	122

Cylinders with clamping unit




Type	 Standard cylinder DNC-KP	 Cylinder with clamping unit DNCKE, DNCKE-S
Mode of operation	Double-acting	Double-acting
Piston diameter	32 mm, 40 mm, 50 mm, 63 mm, 80 mm, 100 mm, 125 mm	40 mm, 63 mm, 100 mm
Theoretical force at 6 bar, advancing	415 ... 7,363 N	754 ... 4,712 N
Stroke	10 ... 2,000 mm	10 ... 2,000 mm
Cushioning	P: elastic cushioning rings/pads at both ends, PPV: pneumatic cushioning, adjustable at both ends	PPV: pneumatic cushioning, adjustable at both ends
Description	<ul style="list-style-type: none"> Piston rod can be held or clamped in any position Piston rod can be held in position for long periods even with alternating loads, fluctuating operating pressure or leaks in the system Mounting hole pattern to ISO 15552 For position sensing Wide range of variants Piston rod with female or male thread 	<ul style="list-style-type: none"> Cylinder for holding, clamping and braking Mounting hole pattern to ISO 15552 Variant DNCKE-...-S approved for use in safety-oriented parts of control systems Piston rod can be clamped in any position For position sensing Piston rod with male thread
→ Page/online	dnc-kp	dncke

Rodless cylinders

Type	 Linear drive DGC-K	 Linear drive DGC-G, DGC-GF, DGC-KF	 Linear drive with heavy-duty guide DGC-HD	 Linear drive SLG
Piston diameter	18 mm, 25 mm, 32 mm, 40 mm, 50 mm, 63 mm, 80 mm	8 mm, 12 mm, 18 mm, 25 mm, 32 mm, 40 mm, 50 mm, 63 mm	18 mm, 25 mm, 40 mm	8 mm, 12 mm, 18 mm
Theoretical force at 6 bar, advancing	153 ... 3,016 N	30 ... 1,870 N	153 ... 754 N	30 ... 153 N
Stroke	1 ... 8,500 mm	1 ... 8,500 mm	1 ... 5,000 mm	100 ... 900 mm
Cushioning	PPV: pneumatic cushioning, adjustable at both ends	P: elastic cushioning rings/pads at both ends, PPV: pneumatic cushioning, adjustable at both ends, YSR: shock absorber, hard characteristic curve, YSRW: shock absorber, soft characteristic curve	YSR: shock absorber, hard characteristic curve, YSRW: shock absorber, soft characteristic curve	P: elastic cushioning rings/pads at both ends, YSR: shock absorber, hard characteristic curve
Position sensing	Via proximity sensor	Via proximity sensor	Via proximity sensor	Via proximity sensor
Description	<ul style="list-style-type: none"> Compact design: 30% narrower than the basic design DGC-G Low moving dead weight Without external guide, for simple drive functions Easy assembly and installation Fully interchangeable with the linear drive DGP 	<ul style="list-style-type: none"> Basic design, plain or recirculating ball bearing guide Optimised mounting options High-precision guide Optimised sealing system All settings accessible from one side Available with variable end stops and intermediate position module Exchangeable with DGPL thanks to foot mountings Software tool available for bearing calculation Optional: NSF-H1 lubricant for the food industry Optional: clamping unit for holding loads 	<ul style="list-style-type: none"> For maximum loads and torques thanks to duo rail guide Very good operating behaviour under torque load Long service life Ideal as a basic axis for linear gantries and cantilever axes Excellent price/performance ratio Wide range of options for mounting on drives 	<ul style="list-style-type: none"> Extremely flat design Integrated precision guide Adjustable end stops Choice of supply ports Available with intermediate position module
→ Page/online	161	173	173	slg


Rodless cylinders

1

			
Type	Linear drive DGPL	Linear drive DGO	Linear drive SLM
Piston diameter	18 mm, 25 mm, 32 mm, 40 mm, 50 mm, 63 mm, 80 mm	12 mm, 16 mm, 20 mm, 25 mm, 32 mm, 40 mm	12 mm, 16 mm, 20 mm, 25 mm, 32 mm, 40 mm
Theoretical force at 6 bar, advancing	153 ... 3,016 N	68 ... 754 N	68 ... 754 N
Stroke	10 ... 3,000 mm	10 ... 4,000 mm	10 ... 1,500 mm
Cushioning	PPV: pneumatic cushioning, adjustable at both ends, YSR: shock absorber, hard characteristic curve	P: elastic cushioning rings/pads at both ends, PPV: pneumatic cushioning, adjustable at both ends	P: elastic cushioning rings/pads at both ends, YSR: shock absorber, hard characteristic curve
Position sensing	Via proximity sensor, with attached displacement encoder, with integrated displacement encoder	Via proximity sensor	Via proximity sensor, via inductive sensor
Description	<ul style="list-style-type: none"> • Little space required • High precision and load capacity • Recirculating ball bearing or heavy-duty guide • Wide range of variants 	<ul style="list-style-type: none"> • Magnetic force transmission • Pressure-tight and zero leakage • Dirt-proof and dust-proof 	<ul style="list-style-type: none"> • Recirculating ball bearing guide • Magnetic force transmission • Individual choice of end-position cushioning and sensing
→ Page/online	dgpl	dgo	slm

Software tool

Mass moment of inertia







Juggling pencils and pocket calculators is now a thing of the past. No matter whether you have discs, blocks, push-on flanges, grippers, etc., this tool does the job of calculating all the mass moments of inertia. Just save, send or print and you're finished.



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- or on the DVD under Engineering Tools.



Semi-rotary drives

				
Type	Swivel module DSM, DSM-B, DSM-HD-B	Semi-rotary drive DSR, DSRL	Semi-rotary drive DRRD	Semi-rotary drive DRQ
Size	6, 8, 10, 12, 16, 25, 32, 40, 63	10, 12, 16, 25, 32, 40	8, 10, 12, 16, 20, 25, 32, 35, 40, 50, 63	16, 20, 25, 32, 40, 50, 63, 80, 100
Torque at 6 bar	0.15 ... 80 Nm	0.5 ... 20 Nm	0.2 ... 112 Nm	0.5 ... 150 Nm
Swivel angle	0 ... 270°	0 ... 180°	180°	90 ... 360°
Permissible mass moment of inertia	6.5 ... 5,000 kgcm ²	0 .. 150 kgcm ²	0.0015 ... 42 kgm ²	2 ... 2,000 kgcm ²
Position sensing	Via proximity sensor, none	None	Via proximity sensor	Via proximity sensor
Description	<ul style="list-style-type: none"> • Force transmitted directly to the drive shaft via a rotary vane • With spigot shaft, hollow flanged shaft, tandem rotary vane and spigot shaft, tandem rotary vane and flanged shaft or heavy-duty bearing (HD) 	<ul style="list-style-type: none"> • Force transmitted directly to the drive shaft via a rotary vane • With spigot or hollow flanged shaft 	<ul style="list-style-type: none"> • With twin pistons based on the rack and pinion principle • Very high accuracy in the end positions • Very high bearing load capacity • Very good axial run-out at the flanged shaft 	<ul style="list-style-type: none"> • Conversion of linear motion into rotary motion via a backlash-compensating gear unit • High precision thanks to backlash-free transmission of force from the gear rack to the pinion
→ Page/online	211	dsr	247	drq


Semi-rotary drives

		
Type	Semi-rotary drive DRQD, DRQD-B	Swivel/linear drive unit DSL-B
Size	6, 8, 12, 16, 20, 25, 32, 40, 50	16, 20, 25, 32, 40
Torque at 6 bar	0.16 ... 78.6 Nm	1.25 ... 20 Nm
Swivel angle	0 ... 360°	0 ... 272°
Permissible mass moment of inertia	0.075 ... 11,000 kgcm ²	0.35... 40 kgcm ²
Position sensing	Via proximity sensor	Via proximity sensor
Description	<ul style="list-style-type: none"> • With twin pistons based on the rack and pinion principle • High accuracy • Extremely good rigidity • Wide range of variants • With spigot or flanged shaft 	<ul style="list-style-type: none"> • Rotary and linear motion can be controlled individually or simultaneously • High repetition accuracy • With plain or recirculating ball bearing guide • Through piston rod
→ Page/online	263	dsl

Tandem and high-force cylinders





		
Type	High-force cylinder ADNH	Tandem cylinder DNCT
Piston diameter	25 mm, 40 mm, 63 mm, 100 mm	32 mm, 40 mm, 50 mm, 63 mm, 80 mm, 100 mm, 125 mm
Theoretical force at 6 bar, advancing	1,036 ... 18,281 N	898 ... 14,244 N
Stroke	1 ... 150 mm	2 ... 500 mm
Description	<ul style="list-style-type: none"> • Mounting hole pattern to ISO 21287 • Max. 4 cylinders can be combined • Thrust increase • Only 2 connections are required to pressurise all cylinders • For position sensing • Piston rod with female or male thread 	<ul style="list-style-type: none"> • Mounting hole pattern to ISO 15552 • Max. 2 cylinders can be combined • Thrust and return force increase • For position sensing • Piston rod with male thread
→ Page/online	adnh	dnct

Multi-position cylinders



	
Type	Multi-position cylinder ADNM
Piston diameter	25 mm, 40 mm, 63 mm, 100 mm
Theoretical force at 6 bar, advancing	295 ... 4,712 N
Max. total of all individual strokes	1,000 ... 2,000 mm
Description	<ul style="list-style-type: none"> • Mounting hole pattern to ISO 21287 • Piston rod with female or male thread • 2 ... 5 cylinders can be combined • Max. 5 positions can be approached • Piston rod with female or male thread • For position sensing
→ Page/online	adnm

Drives with slides





1

				
Type	Mini slide DGSC	Mini slide DGSL	Mini slide SLF	Mini slide SLS
Piston diameter	6 mm	6 mm, 8 mm, 10 mm, 12 mm, 16 mm, 20 mm, 25 mm, 32 mm	6 mm, 10 mm, 16 mm	6 mm, 10 mm, 16 mm
Theoretical force at 6 bar, advancing	17 N	17 ... 483 N	17 ... 121 N	17 ... 121 N
Stroke	10 mm	10 ... 200 mm	10 ... 80 mm	5 ... 30 mm
Cushioning	P: elastic cushioning rings/pads at both ends	E: short elastic cushioning rings/pads at both ends, P1: elastic cushioning rings/pads at both ends with fixed stop, P: elastic cushioning rings/pads at both ends, Y3: progressive shock absorber at both ends	P: elastic cushioning rings/pads at both ends	P: elastic cushioning rings/pads at both ends
Position sensing	None	Via proximity sensor	Via proximity sensor	Via proximity sensor
Description	<ul style="list-style-type: none"> • Smallest guided slide unit on the market • Precision ball bearing cage guide: reliable and high-quality process • Long service life thanks to housing made from high-alloy steel • Low break-away pressure and uniform movement thanks to minimal friction from guide and seal 	<ul style="list-style-type: none"> • High load capacity and positioning accuracy • Maximum movement precision thanks to ground-in ball bearing cage guide • Maximum flexibility thanks to eight sizes • Reliable in the event of pressure drop thanks to clamping cartridge or end-position locking • Versatile mounting options thanks to piggy-back • Compact 	<ul style="list-style-type: none"> • Flat design • Ball bearing guide • Versatile mounting options • Easy adjustment of end positions 	<ul style="list-style-type: none"> • Slim design • Ball bearing guide • Versatile mounting options
→ Page/online	dgsc	288	slf	sls





Drives with slides

		
Type	Mini slide SLT	Slide unit SPZ
Piston diameter	6 mm, 10 mm, 16 mm, 20 mm, 25 mm	10 mm, 16 mm, 20 mm, 25 mm, 32 mm
Theoretical force at 6 bar, advancing	34 ... 590 N	60 ... 724 N
Stroke	10 ... 200 mm	10 ... 100 mm
Cushioning	CC: shock absorber at both ends, P: elastic cushioning rings/pads at both ends	P: elastic cushioning rings/pads at both ends
Position sensing	Via proximity sensor	Via proximity sensor
Description	<ul style="list-style-type: none"> • Powerful twin piston drive • Ball bearing guide • Versatile mounting options • Easy adjustment of end positions 	<ul style="list-style-type: none"> • Twin piston • High force with excellent protection against rotation • Widely spaced piston rods for high load capacity • Plain or recirculating ball bearing guide
→ Page/online	309	spz

Drives with guide rods


Type	 Guided drive DGRF	 Guided drive DFP	 Compact cylinder ADNGF	 Compact cylinder ADVUL
Piston diameter	20 mm, 25 mm, 32 mm, 40 mm, 50 mm, 63 mm	10 mm, 16 mm, 25 mm, 32 mm, 50 mm, 80 mm	12 mm, 16 mm, 20 mm, 25 mm, 32 mm, 40 mm, 50 mm, 63 mm, 80 mm, 100 mm	12 mm, 16 mm, 20 mm, 25 mm, 32 mm, 40 mm, 50 mm, 63 mm, 80 mm, 100 mm
Theoretical force at 6 bar, advancing	189 ... 1,870 N	31 ... 3,016 N	68 ... 4,712 N	51 ... 4,712 N
Stroke	10 ... 400 mm	25 ... 500 mm	1 ... 400 mm	1 ... 400 mm
Cushioning	PPS: self-adjusting pneumatic end-position cushioning P: elastic cushioning rings/pads at both ends, PPV: pneumatic cushioning, adjustable at both ends	P: elastic cushioning rings/pads at both ends, PPV: pneumatic cushioning, adjustable at both ends	P: elastic cushioning rings/pads at both ends, PPS: self-adjusting pneumatic end-position cushioning	P: elastic cushioning rings/pads at both ends
Position sensing	Via proximity sensor	Via proximity sensor	Via proximity sensor	Via proximity sensor
Description	<ul style="list-style-type: none"> Designed completely according to Clean Design criteria Long service life thanks to optional seal for unlubricated operation FDA-approved lubrication and sealing on the basic design Good corrosion resistance and smooth surfaces for easy cleaning Hygienic mounting of the sensors possible Compact design with high guidance accuracy and load capacity 	<ul style="list-style-type: none"> High-precision guiding thanks to recirculating ball bearing guide on piston rod Able to absorb high torques Saves space in comparison with standard cylinders 	<ul style="list-style-type: none"> Mounting hole pattern to ISO 21287 Piston rod secured against rotation by means of guide rod and yoke plate Plain-bearing guide Available with through piston rod 	<ul style="list-style-type: none"> Piston rod secured against rotation by means of guide rod and yoke plate For position sensing Plain-bearing guide Available with through piston rod
→ Page/online	dgrf	dfp	adngf	advul

Drives with guide rods


Type	 Mini guided drive DFC	 Guided drive DFM, DFM-B	 Twin-piston cylinder DPZ	 Twin-piston cylinder DPZJ
Piston diameter	4 mm, 6 mm, 10 mm	12 mm, 16 mm, 20 mm, 25 mm, 32 mm, 40 mm, 50 mm, 63 mm, 80 mm, 100 mm	10 mm, 16 mm, 20 mm, 25 mm, 32 mm	10 mm, 16 mm, 20 mm, 25 mm, 32 mm
Theoretical force at 6 bar, advancing	7.5 ... 47 N	51 ... 4,712 N	94 ... 966 N	60 ... 724 N
Stroke	5 ... 30 mm	10 ... 400 mm	10 ... 100 mm	10 ... 100 mm
Cushioning	P: elastic cushioning rings/pads at both ends	P: elastic cushioning rings/pads at both ends, PPV: pneumatic cushioning, adjustable at both ends, YSRW: shock absorber, soft characteristic curve	P: elastic cushioning rings/pads at both ends	P: elastic cushioning rings/pads at both ends
Position sensing	Via proximity sensor, none	Via proximity sensor	Via proximity sensor	Via proximity sensor
Description	<ul style="list-style-type: none"> Smallest guided drive High precision and load capacity Minimal space requirement Drive and guide unit in a single housing Plain or recirculating ball bearing guide 	<ul style="list-style-type: none"> Drive and guide unit in a single housing Plain or recirculating ball bearing guide High resistance to torques and lateral forces Wide range of mounting options Wide range of variants 	<ul style="list-style-type: none"> Twin pistons provide twice the force in half the space Plain or recirculating ball bearing guide Precision stroke adjustment in the end position 	<ul style="list-style-type: none"> With yoke plate on rear of cylinder for higher lateral forces and precision Twin pistons provide twice the force in half the space Plain or recirculating ball bearing guide Precision stroke adjustment in the end position
→ Page/online	dfc	320	dpz	dpzj

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Drives with guide rods

	
Type	Linear unit SLE
Piston diameter	10 mm, 16 mm, 20 mm, 25 mm, 32 mm, 40 mm, 50 mm
Theoretical force at 6 bar, advancing	47 ... 1,178 N
Stroke	10 ... 500 mm
Cushioning	YSR: shock absorber, hard characteristic curve
Position sensing	Via proximity sensor, via inductive sensor
Description	<ul style="list-style-type: none"> • Combination of guide unit and standard cylinder • Multi-axis and drive combinations • Recirculating ball bearing guide
→ Page/online	sle


Linear modules

	
Type	Linear module HMP-B
Mode of operation	Double-acting
Piston diameter	16 mm, 20 mm, 25 mm, 32 mm
Stroke	50 ... 400 mm
Theoretical force at 6 bar, advancing	121 ... 483 N
Position sensing	Via proximity sensor
Description	<ul style="list-style-type: none"> • Precision, backlash-free guidance • High rigidity with a long stroke • Infinitely adjustable end stops • Flexible thanks to intermediate position • Adjustable end-position cushioning
→ Page/online	hmp


Stopper cylinders

			
Type	Stopper cylinder DFSP	Stopper cylinder DFST	Stopper cylinder STAF
Piston diameter	16 mm, 20 mm, 32 mm, 50 mm	50 mm, 63 mm, 80 mm	32 mm, 80 mm
Permissible impact force on the advanced piston rod	710 ... 6,280 N	3,000 ... 6,000 N	480... 14,600 N
Stroke	5 ... 30 mm	30 ... 40 mm	20 mm, 30 mm, 40 mm
Position sensing	Via proximity sensor	Via proximity sensor	Via proximity sensor
Toggle lever position sensing		Via inductive sensor	
Description	<ul style="list-style-type: none"> • Trunnion version with or without protection against rotation, with or without female thread • Roller version with protection against rotation • Compact design • Sensor slots on 3 sides • Long service life thanks to very good cushioning characteristics and sturdy piston rod guide • Safe stopping of workpiece carriers, pallets and packages weighing up to 90 kg 	<ul style="list-style-type: none"> • Toggle lever design • Integrated adjustable shock absorber for smooth and adapted stopping • Up to 800 kg impact load • For position sensing on the piston • For position sensing on the toggle lever by inductive sensor • Lever locking mechanism • Toggle lever deactivator 	<ul style="list-style-type: none"> • Roller version and toggle lever design • Absorption of high lateral forces • Direct mounting of solenoid valves on flange plate
→ Page/online	dfst	dfst	sta



Clamping cylinders

	
Type	Clamping module EV
Clamping area	10x30, 15x40, 15x63, 20x120, 20x180, 20x75, Ø 12, Ø 16, Ø 20, Ø 25, Ø 32, Ø 40, Ø 50, Ø 63
Stroke	3 ... 5 mm
Description	<ul style="list-style-type: none"> • Single-acting, with reset function • Clamping force 55 ... 1,690 N • Compact cylinders without piston rod, with diaphragm • Flat, space-saving design • Hermetically sealed • Pressure plates and foot mounting as accessories
→ Page/online	ev

Linear/swivel clamps


	
Type	Linear/swivel clamp CLR
Piston diameter	12 mm, 16 mm, 20 mm, 25 mm, 32 mm, 40 mm, 50 mm, 63 mm
Theoretical clamping force at 6 bar	51 ... 1,682 N
Clamping stroke	10 ... 50 mm
Swivel angle	90°±/ - 2°, 90°±/ - 3°, 90°±/ - 4°
Description	<ul style="list-style-type: none"> • Double-acting • Swivelling and clamping in one step • Swivel direction adjustable • Compact • Clamping fingers as accessories • Available with dust and welding spatter protection • For position sensing
→ Page/online	clr

Hinge cylinders


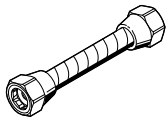
		
Type	Hinge cylinder DFAW	Hinge cylinder DW, DWA, DWB, DWC
Piston diameter	50 mm, 63 mm, 80 mm	50 mm, 63 mm, 80 mm
Stroke	10 ... 200 mm	10 ... 200 mm
Theoretical force at 6 bar, advancing	1,178 ... 3,016 N	1,178 ... 3,016 N
Position sensing	Via proximity sensor, none	Via proximity sensor, none
Cushioning	PPS: self-adjusting pneumatic end-position cushioning	PPV: pneumatic cushioning, adjustable at both ends
Description	<ul style="list-style-type: none"> • Hinge cylinder for clamping components during the welding process • Easy assembly thanks to swivel bearing on the bearing cap • Integrated flow control • Integrated, self-adjusting end-position cushioning 	<ul style="list-style-type: none"> • Hinge cylinder for clamping components during the welding process • Easy assembly thanks to swivel bearing on the bearing cap • Integrated flow control • Integrated end-position cushioning
→ Page/online	dfaw	dw

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Bellows actuators

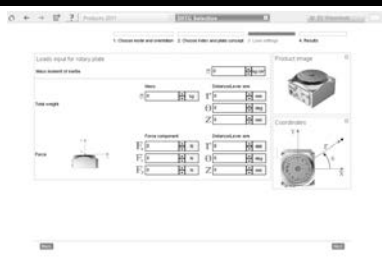
	
Type	Bellows actuator EB
Size	80, 145, 165, 215, 250, 325, 385
Stroke	20 ... 230 mm
Description	<ul style="list-style-type: none"> • Use as a spring element or for reducing oscillations • Single-bellows or double-bellows actuator • High forces with a short stroke • Uniform movement: no stick-slip effect • Use in dusty environments or in water • Maintenance-free
→ Page/online	eb

Fluidic muscle

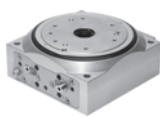
		
Type	Fluidic muscle DMSP	Fluidic muscle MAS
Size	10, 20, 40	10, 20, 40
Theoretical force at 6 bar	480 ... 6,000 N	480 ... 6,000 N
Nominal length	40 ... 9,000 mm	40 ... 9,000 mm
Max. contraction	25% of nominal length	25% of nominal length
Description	<ul style="list-style-type: none"> • With press-fitted connection • Up to 30% less weight: superb force/weight ratio • Single-acting, pulling • Three integrated adapter variants • Ten times the initial force of a comparable pneumatic cylinder • Judder-free movements • Hermetically sealed design offers protection against dust, dirt and moisture 	<ul style="list-style-type: none"> • With screwed connection • Available with force retention • Single-acting, pulling • Use of customised mounting options • Ten times the initial force of a comparable pneumatic cylinder • Judder-free movements • Hermetically sealed design offers protection against dust, dirt and moisture
→ Page/online	dmisp	mas

Software tool

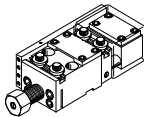
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Rotary indexing table		<p>This tool helps you to select the right rotary indexing table of the type DHTG from Festo for your application. Let yourself be guided by the program – enter the general parameters and you will receive at least one suggestion for the product best suited to your application.</p>	<p>This tool can be found</p> <ul style="list-style-type: none"> • either in the electronic catalogue by clicking on the blue button "Engineering" • or on the DVD under Engineering Tools.
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Rotary indexing tables



Type	 Rotary indexing table DHTG
Size	65, 90, 140, 220
Torque at 6 bar	2.1 ... 58.9 Nm
Indexing stations	2 ... 24
Description	<ul style="list-style-type: none"> • Sturdy mechanical system • Easy planning and commissioning • Rotary table diameters: 65, 90, 140, 220 mm • Various directions of rotation possible
→ Page/online	dhtg

Pneumatic feed units



Type	 Pneumatic feed unit BV
Size	50 mm, 100 mm, 200 mm
Working stroke	0 ... 350 mm
Theoretical force at 6 bar, advancing	240 ... 800 N
Theoretical force at 6 bar, retracting	180 ... 640 N
Mounting position	Any
Description	<ul style="list-style-type: none"> • Compact units for stepped feeding of belts, strips, rods, profiles and tubes • Infinitely adjustable feed force, feed length, clamping and feed force
→ Page/online	bv

Linear actuators for process automation


1

		
Type	Linear actuator with displacement encoder DFPI	Linear actuator Copac DLP
Piston diameter	100 mm, 125 mm, 160 mm, 200 mm, 250 mm, 320 mm	80 mm, 100 mm, 125 mm, 160 mm, 200 mm, 250 mm, 320 mm
Stroke	40 ... 990 mm	40 ... 600 mm
Theoretical force at 6 bar, advancing	4,712 ... 48,255 N	3,016 ... 48,255 N
Position sensing	Via integrated displacement encoder	Via proximity sensor
Description	<ul style="list-style-type: none"> • Closed-loop controlled actuator for all linear process valves • With optional integrated positioner and valve block • Position feedback via analogue 4...20 mA signal for simple diagnostics • Easy to integrate into existing control architecture • Sturdy and compact housing for use outdoors • Connection for process valves to DIN 3358 	<ul style="list-style-type: none"> • Integrated air supply • Port pattern to Namur for solenoid valves to VDI/VDE 3845 • Connection for process valves to DIN 3358
→ Page/online	dfpi	dlp

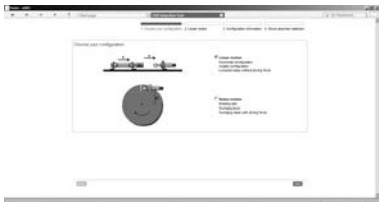
Quarter turn actuators for process automation

		
Type	Quarter turn actuator Sypar DAPS	Quarter turn actuator DFJB
Design	Scotch yoke system	Rack and pinion
Mode of operation	Double-acting, single-acting	Double-acting, single-acting
Size of valve actuator	0008, 0015, 0030, 0053, 0060, 0090, 0106, 0120, 0180, 0240, 0360, 0480, 0720, 0960, 1440, 1920, 2880, 3840, 4000, 5760, 8000	10, 15, 20, 30, 40, 45, 60, 65, 80, 110, 120, 150, 170, 180, 230, 270, 300, 330, 370, 420, 470, 520, 550, 670, 840, 1050
Flange hole pattern	F03, F04, F05, F07, F10, F12, F14, F16, F25	F03, F04, F05, F14, F0507, F0710, F1012
Operating pressure	1 ... 8.4 bar	1 ... 8 bar
Ambient temperature	-50 ... 80 °C	-20 ... 80 °C
Description	<ul style="list-style-type: none"> • High break-away torques • Approved in accordance with Directive 94/9/EC (ATEX) • Flange hole pattern to ISO 5211 • Mounting hole pattern to VDI/VDE 3845 • Port pattern as per NAMUR for solenoid valves to VDI/VDE 3845 • Available with handwheel as a manual emergency override • Corrosion-resistant variant made from stainless steel 	<ul style="list-style-type: none"> • Identical torque characteristic across the entire rotation angle range of 90° • Process valve connection to ISO 5211 on both sides • Can be mounted on all process valves using pressure relief slot • Mounting hole pattern to VDI/VDE 3845 • Sturdy, non-slip and easy-to-clean aluminium housing • Long service life, low wear • Increased corrosion protection
→ Page/online	daps	dfjb





Cylinder/valve combinations

Type	 Standard cylinder DNC-V
Mode of operation	Double-acting
Piston diameter	32 mm, 40 mm, 50 mm, 63 mm, 80 mm, 100 mm
Theoretical force at 6 bar, advancing	415 ... 4,712 N
Stroke	100... 2,000 mm
Cushioning	P: elastic cushioning rings/pads at both ends, PPV: pneumatic cushioning, adjustable at both ends
Description	<ul style="list-style-type: none"> • Standard hole pattern • Assembled and fitted with tubing ready for connection • Particularly suitable for decentralised use in larger systems • Valve variants: single or double solenoid valves, assembled on the right or left • For position sensing • Wide range of variants
→ Page/online	dnc-v

Software tool





Shock absorber selection		Whether diagonal or vertical, curved or straight, lever or disc, all types of cushioned movements are taken into account. The software tool always recommends the best shock absorber.	This tool can be found <ul style="list-style-type: none"> • either in the electronic catalogue by clicking on the blue button "Engineering" • or on the DVD under Engineering Tools.
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Shock absorbers



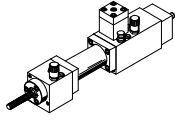
Type	 Shock absorber DYSR	 Shock absorber YSR-C	 Shock absorber YSRW	 Shock absorber YSRW-DGC
Stroke	8 ... 60 mm	4 ... 60 mm	8 ... 34 mm	for Ø 8 ... 63
Max. energy absorption per stroke	4 ... 384 J	0.6 ... 380 J	1.3 ... 70 J	
Cushioning	Adjustable	Self-adjusting	Self-adjusting, soft characteristic curve	Self-adjusting, soft characteristic curve
Description	<ul style="list-style-type: none"> • Hydraulic shock absorber with spring return • Adjustable cushioning hardness 	<ul style="list-style-type: none"> • Hydraulic shock absorber with path-controlled flow control function • Rapidly increasing cushioning force curve • Short cushioning stroke • Suitable for rotary drives 	<ul style="list-style-type: none"> • Hydraulic shock absorber with path-controlled flow control function • Gently increasing cushioning force curve • Long cushioning stroke • Suitable for low-vibration operation • Short cycle times possible 	<ul style="list-style-type: none"> • For linear drives DGC • Sizes 12, 18, 25, 32, 40, 50, 63
→ Page/online	dysr	ysr-c	ysrw	ysrw

Shock absorbers


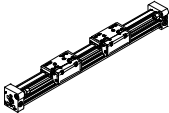


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Type	Shock absorber YSRWJ	Shock absorber DYEF-Y1, DYEF-Y1F	Shock absorber DYSC	Shock absorber DYSW
Stroke	8 ... 14 mm	0.9 ... 7 mm	4 ... 18 mm	6 ... 20 mm
Max. energy absorption per stroke	1 ... 3 J	0.005 ... 1.2 J	0.6 ... 25 J	0.8 ... 12 J
Cushioning	Self-adjusting, soft characteristic curve	P cushioning with metal fixed stop, P cushioning without metal fixed stop	Self-adjusting	Self-adjusting, soft characteristic curve
Description	<ul style="list-style-type: none"> Cushioning with self-adjusting, progressive hydraulic shock absorber Gently increasing cushioning force curve Adjustable cushioning stroke End-position sensing with proximity sensor SME/SMT-8 Precision end-precision adjustment 	<ul style="list-style-type: none"> Mechanical shock absorber with flexible rubber buffer Flexible rubber buffer allows a defined metal end position Adjustable cushioning hardness Ideal for cushioning low energy With precise metal end position 	<ul style="list-style-type: none"> Hydraulic shock absorber with path-controlled flow control function Rapidly increasing cushioning force curve Short cushioning stroke Suitable for rotary drives With metal fixed stop 	<ul style="list-style-type: none"> Hydraulic shock absorber with path-controlled flow control function Gently increasing cushioning force curve Long cushioning stroke Suitable for low-vibration operation Short cycle times possible With metal fixed stop
→ Page/online	ysrwj	dyef	dysc	dysw





Shock absorbers

			
Type	Hydraulic cushioning cylinder DYHR	Hydraulic cushioning cylinder YD	Hydraulic cushioning cylinder YZL
Stroke	20 ... 60 mm	70 ... 250 mm	80 ... 250 mm
Max. energy absorption per stroke	32 ... 384 J	80 N with flow control valve open ... 4,000 N	220 N retracting, 150 N advancing ... 4,000 N
Cushioning	Adjustable	Adjustable	Adjustable
Description	<ul style="list-style-type: none"> Hydraulic cushioning cylinder for constant, slow braking speeds across the entire stroke Braking speed can be precisely adjusted A built-in compression spring returns the piston rod to the initial position Suitable for slow feed speeds in the range up to 0.1 m/s 	<ul style="list-style-type: none"> With speed regulation in one direction (piston rod retracting) and rapid traverse (piston rod advancing) Infinitely adjustable, slow constant speed 	<ul style="list-style-type: none"> With speed regulation in both directions and pneumatic actuator for intermediate rapid traverse during advance and return Infinitely adjustable, slow constant speed
→ Page/online	dyhr	yd	yzl

Accessories for pneumatic drives

Type	 Guide unit FEN, FENG	 Passive guide axis DGC-FA	 Passive guide axis FDG	 Clamping cartridge KP
Size	8, 12, 20, 25, 32, 40, 50, 63, 80, 100	8, 12, 18, 25, 32, 40, 50, 63	18, 25, 32, 40, 50, 63	
Stroke	1 ... 500 mm	1 ... 8,500 mm	1 ... 5,100 mm	
Round material to be clamped				4 ... 32 mm
Static holding force				80 ... 7,500 N
Description	<ul style="list-style-type: none"> For protecting standard cylinders against rotation at high torque loads High guide precision for workpiece handling Plain or recirculating ball bearing guide 	<ul style="list-style-type: none"> Without drive With protected recirculating ball bearing guide With guide and freely movable slide Various cushioning options For supporting force and torque capacity in multi-axis applications Increased torsional resistance Reduced vibrations with dynamic loads Available with additional slide 	<ul style="list-style-type: none"> Without drive With recirculating ball bearing guide With guide and freely movable slide For supporting force and torque capacity in multi-axis applications Increased torsional resistance Reduced vibrations with dynamic loads 	<ul style="list-style-type: none"> For in-house assembly of clamping units Not certified for use in safety-relevant control systems
→ Page/online	fen	dgc-fa	fdg	kp

Accessories for pneumatic drives

Type	 Clamping unit KPE, KEC, KEC-S	 Clamping unit, Clamping component DADL	 Mounting components	 Piston rod attachments
Size		16, 20, 25, 32, 35, 40, 50, 63		
Stroke				
Round material to be clamped	4 ... 32 mm			
Static holding force	80 ... 8,000 N			
Description	<ul style="list-style-type: none"> KPE: ready-to-install combination of clamping cartridge KP and housing KEC: for use as a holding device (static application) KEC-S: for safety-related applications 	<ul style="list-style-type: none"> Clamping unit DADL-EL: for twin-piston semi-rotary drives DRRD, mechanical lock in the end positions to prevent unwanted movement in unpressurised condition Clamping component DADL-EC: for twin-piston semi-rotary drives DRRD, for securing an intermediate position in combination with the clamping unit DADL-EL 	<ul style="list-style-type: none"> Clevis feet LNG Trunnion supports LNZ Slot nuts NST/NSTL Centring pins/sleeves NSTH 	<ul style="list-style-type: none"> Rod eyes SGS Rod clevises SG, CRSG Self-aligning rod couplers FK Adapters AD Coupling pieces KSG
→ Page/online	kpe	dadl	n_015001	n_03150

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Customised components – for your specific requirements



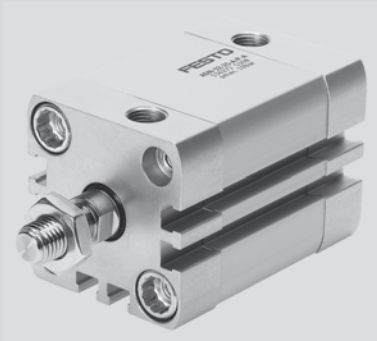
Drives with customised designs

Can't find the pneumatic drive you need in our catalogue? We can offer you customised components that are tailored to your specific requirements – from minor product modifications to complete new product developments.

Common product modifications:

- Materials for special ambient conditions
- Customised dimensions
- Special strokes
- Customised mounting options
- Implementation of special cylinder functions (cylinder/valve combinations, single-acting principle, etc.)

Many additional variants are possible. Ask your Festo sales engineer, who will be happy to help. Further information on customised components can be found on your local website at www.festo.com.



- Compact cylinders with standard dimensions
- More than the standard: Ø 12 to 125 mm
- Innovative technology for maximum speeds
- Flexible in use thanks to customisable variants
- Spare parts service
- Selected types in accordance with the ATEX Directive for explosive atmospheres → www.festo.com/catalogue/ex
- ★ Quick ordering of basic designs → 38

→ www.festo.com/catalogue/adn

Product range overview

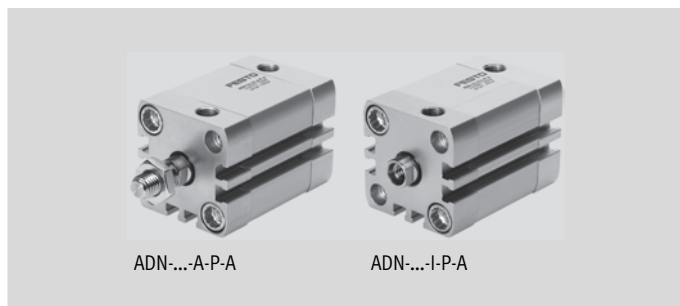
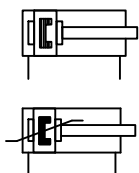
Type/function	Piston Ø [mm]	Stroke [mm]	Force [N]	Product options										→ Page/online	
				A	I	P	PPS	A	Q	S2	S6	TT			
Double-acting	ADN – Basic design														
	12, 16, 20, 25, 32, 40, 50, 63, 80, 100, 125	1 ... 500	68 ... 7363	■	■	■	■	■	■	■	■	■	■	36	
	ADN- ... -KP – With clamping unit														
	20, 25, 32, 40, 50, 63, 80, 100	10 ... 500	20 ... 100	■	■	■	-	■	-	-	-	-	-	40	
Double-acting	ADN- ... -EL – With end-position locking														
	20, 25, 32, 40, 50, 63, 80, 100	10 ... 500	20 ... 100	■	■	■	-	■	-	-	-	-	adn		
	Single-acting	AEN – Pushing													
		12, 16, 20, 25, 32, 40, 50, 63, 80, 100	1 ... 25	59 ... 4510	■	■	■	-	■	-	-	■	-	42	
AEN-...-Z – Pulling															
12, 16, 20, 25, 32, 40, 50, 63, 80, 100	1 ... 25	59 ... 4510	■	■	■	-	■	-	-	■	-	aen			
Single-acting	AEN-...-Q – Protected against rotation with square piston rod														
	16, 20, 25, 32, 40, 50, 63, 80, 100	1 ... 25	59 ... 4510	■	■	■	-	■	-	-	■	-	42		
	Double-acting	ADNP – With polymer end cap													
		20, 25, 32, 40, 50	5 ... 80	141 ... 1178	■	■	■	-	■	-	-	-	-	adnp	
ADNH – High-force cylinder															
25, 40, 63, 100		1 ... 150	542 ... 18,281	■	■	■	-	■	-	-	■	-	adnh		
Double-acting	ADNM – Multi-position cylinder														
	25, 40, 63, 100	1 ... 150	295 ... 4712	■	■	■	-	■	-	-	■	-	adnm		
	ADNGF – Non-rotating with yoke														
12, 16, 20, 25, 32, 40, 50, 63, 80, 100	1 ... 400	68 ... 4712	-	-	■	■	■	-	■	■	-	132			

Product options

A	Male thread	Q	Square piston rod	K5	Special piston rod thread	S10	Slow speed
I	Female thread	S1	Reinforced piston rod	K8	Extended piston rod	S11	Low friction
P	Elastic cushioning rings/plates at both ends	S2	Through piston rod	K10	Smooth anodised aluminium piston rod	R3	High corrosion protection
PPS	Pneumatic cushioning, self-adjusting at both ends	S20	Through, hollow piston rod	S6	Heat-resistant seals up to max. 120 °C	R8	Dust protection
A	Position sensing	K2	Extended male piston rod thread			TL	Laser etched rating plate
						TT	Low temperature

Compact cylinders ADN, to ISO 21287

1 Technical data – Double-acting



Technical data							Dimensions → 48
Piston Ø		12	16	20	25	32	40
Pneumatic connection		M5	M5	M5	M5	G $\frac{1}{8}$	G $\frac{1}{8}$
Piston rod thread	Female	M3	M4	M6	M6	M8	M8
	Male	M5	M6	M8	M8	M10x1.25	M10x1.25
Stroke	[mm]	1 ... 300				1 ... 400	
Cushioning	P	Elastic cushioning rings/plates at both ends					
	PPS	–			Pneumatic cushioning, self-adjusting at both ends		
Cushioning length	PPS [mm]	–		3	3.5	4	5
Theoretical force at 6 bar, advancing	[N]	68	121	188	295	483	754
	S2 [N]	51	90	141	247	415	686
Theoretical force at 6 bar, retracting	[N]	51	90	141	247	415	686
	S2 [N]	51	90	141	247	415	686

Piston Ø		50	63	80	100	125	
Pneumatic connection		G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{4}$	
Piston rod thread	Female	M10	M10	M12	M12	M16	
	Male	M12x1.25	M12x1.25	M16x1.5	M16x1.5	M20x1.5	
Stroke	[mm]	1 ... 400		1 ... 500			
Cushioning	P	Elastic cushioning rings/plates at both ends					
	PPS	Pneumatic cushioning, self-adjusting at both ends					–
Cushioning length	PPS [mm]	6	7	7.5	10	–	
Theoretical force at 6 bar, advancing	[N]	1178	1870	3016	4712	7363	
	S2 [N]	1057	1750	2827	4524	7069	
Theoretical force at 6 bar, retracting	[N]	1057	1750	2827	4524	7069	
	S2 [N]	1057	1750	2827	4524	7069	

Operating conditions		12	16	20	25	32	40	50	63	80	100	125
Operating pressure	[bar]	1 ... 10		0.6 ... 10								
	PPS [bar]	–		1.5 ... 10			1 ... 10			–		
	Q [bar]	1.3 ... 10		1 ... 10			0.8 ... 10			0.6 ... 10		
	S2 [bar]	1.5 ... 10	1.3 ... 10	1.2 ... 10		1 ... 10			0.8 ... 10			
	TT [bar]	–		1.5 ... 10			1 ... 10			–		
Ambient temperature ¹⁾	[°C]	–20 ... +80										
	S6 [°C]	0 ... +120										
	TT [°C]	–		–40 ... +80								

1) Note operating range of proximity sensors.

Materials		12	16	20	25	32	40	50	63	80	100	125
Piston rod		High-alloy steel										
Bearing cap		Anodised aluminium									Coated die-cast aluminium	Anodised aluminium
	Cylinder barrel	Smooth anodised wrought aluminium alloy										
End cap		Anodised aluminium									Coated die-cast aluminium	Anodised aluminium
	Seals	TPE-U (PUR)										
	S6	FPM										

Order code – Double-acting

1

Type		ADN	Double-acting compact cylinder
Piston Ø [mm]			
	Stroke [mm]		
12	5, 10, 15, 20, 25, 30, 40	1 ... 300	
16	5, 10, 15, 20, 25, 30, 40, 50	1 ... 300	
20, 25	5, 10, 15, 20, 25, 30, 40, 50, 60	1 ... 300	
32, 40, 50	5, 10, 15, 20, 25, 30, 40, 50, 60, 80	1 ... 400	
63	10, 15, 20, 25, 30, 40, 50, 60, 80	1 ... 400	
80, 100	10, 15, 20, 25, 30, 40, 50, 60, 80	1 ... 500	
125	–	1 ... 500	
Piston rod thread			
I	Female thread		
A	Male thread		
Cushioning			
P	Elastic cushioning rings/plates at both ends		
PPS	Pneumatic cushioning, self-adjusting at both ends	<input type="checkbox"/>	1
Position sensing			
A	Via proximity sensor		
Protection against rotation			
Q	Square piston rod		
Piston rod type			
–	Single-ended piston rod		
S2	Through piston rod		
Temperature resistance			
S6	Heat-resistant seals up to max. 120 °C		
Low temperature			
TT	Temperature resistance down to max. –40 °C	<input type="checkbox"/>	2

1 Only with piston Ø 20 ... 100 mm
Not with temperature resistance S6 and low temperature TT
Minimum stroke 5 mm

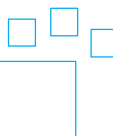
2 Only with piston Ø 20 ... 100 mm
Not with temperature resistance S6

Order example:

ADN-50-50-A-P-A

Double-acting compact cylinder ADN - piston diameter 50 mm - stroke 50 mm - male thread - elastic cushioning rings/plates at both ends - position sensing via proximity sensor - single-ended piston rod

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
→ www.festo.com/catalogue/...

Enter the type code in the search field.

Compact cylinders ADN, to ISO 21287

★ Quick ordering¹⁾

1

P – Elastic cushioning rings/plates at both ends

Part No.	Type
Piston Ø 12 mm	
536204	ADN-12-5-A-P-A
536205	ADN-12-10-A-P-A
536206	ADN-12-15-A-P-A
536207	ADN-12-20-A-P-A
536208	ADN-12-25-A-P-A
536209	ADN-12-30-A-P-A
536210	ADN-12-40-A-P-A
536211	ADN-12-5-I-P-A
536212	ADN-12-10-I-P-A
536213	ADN-12-15-I-P-A
536214	ADN-12-20-I-P-A
536215	ADN-12-25-I-P-A
536216	ADN-12-30-I-P-A
536217	ADN-12-40-I-P-A
Piston Ø 16 mm	
536219	ADN-16-5-A-P-A
536220	ADN-16-10-A-P-A
536221	ADN-16-15-A-P-A
536222	ADN-16-20-A-P-A
536223	ADN-16-25-A-P-A
536224	ADN-16-30-A-P-A
536225	ADN-16-40-A-P-A
536331	ADN-16-50-A-P-A
536226	ADN-16-5-I-P-A
536227	ADN-16-10-I-P-A
536228	ADN-16-15-I-P-A
536229	ADN-16-20-I-P-A
536230	ADN-16-25-I-P-A
536231	ADN-16-30-I-P-A
536232	ADN-16-40-I-P-A
536341	ADN-16-50-I-P-A
Piston Ø 20 mm	
536234	ADN-20-5-A-P-A
536235	ADN-20-10-A-P-A
536236	ADN-20-15-A-P-A
536237	ADN-20-20-A-P-A
536238	ADN-20-25-A-P-A
536239	ADN-20-30-A-P-A
536240	ADN-20-40-A-P-A
536241	ADN-20-50-A-P-A
536352	ADN-20-60-A-P-A
536242	ADN-20-5-I-P-A
536243	ADN-20-10-I-P-A
536244	ADN-20-15-I-P-A
536245	ADN-20-20-I-P-A
536246	ADN-20-25-I-P-A
536247	ADN-20-30-I-P-A
536248	ADN-20-40-I-P-A
536249	ADN-20-50-I-P-A
536362	ADN-20-60-I-P-A

Part No.	Type
Piston Ø 25 mm	
536251	ADN-25-5-A-P-A
536252	ADN-25-10-A-P-A
536253	ADN-25-15-A-P-A
536254	ADN-25-20-A-P-A
536255	ADN-25-25-A-P-A
536256	ADN-25-30-A-P-A
536257	ADN-25-40-A-P-A
536258	ADN-25-50-A-P-A
536373	ADN-25-60-A-P-A
536259	ADN-25-5-I-P-A
536260	ADN-25-10-I-P-A
536261	ADN-25-15-I-P-A
536262	ADN-25-20-I-P-A
536263	ADN-25-25-I-P-A
536264	ADN-25-30-I-P-A
536265	ADN-25-40-I-P-A
536366	ADN-25-50-I-P-A
536383	ADN-25-60-I-P-A
Piston Ø 32 mm	
536268	ADN-32-5-A-P-A
536269	ADN-32-10-A-P-A
536270	ADN-32-15-A-P-A
536271	ADN-32-20-A-P-A
536272	ADN-32-25-A-P-A
536273	ADN-32-30-A-P-A
536274	ADN-32-40-A-P-A
536275	ADN-32-50-A-P-A
536276	ADN-32-60-A-P-A
536277	ADN-32-80-A-P-A
536278	ADN-32-5-I-P-A
536279	ADN-32-10-I-P-A
536280	ADN-32-15-I-P-A
536281	ADN-32-20-I-P-A
536282	ADN-32-25-I-P-A
536283	ADN-32-30-I-P-A
536284	ADN-32-40-I-P-A
536285	ADN-32-50-I-P-A
536286	ADN-32-60-I-P-A
536287	ADN-32-80-I-P-A
Piston Ø 40 mm	
536289	ADN-40-5-A-P-A
536290	ADN-40-10-A-P-A
536291	ADN-40-15-A-P-A
536292	ADN-40-20-A-P-A
536293	ADN-40-25-A-P-A
536294	ADN-40-30-A-P-A
536295	ADN-40-40-A-P-A
536296	ADN-40-50-A-P-A
536297	ADN-40-60-A-P-A
536298	ADN-40-80-A-P-A

Part No.	Type
Piston Ø 40 mm	
536299	ADN-40-5-I-P-A
536300	ADN-40-10-I-P-A
536301	ADN-40-15-I-P-A
536302	ADN-40-20-I-P-A
536303	ADN-40-25-I-P-A
536304	ADN-40-30-I-P-A
536305	ADN-40-40-I-P-A
536306	ADN-40-50-I-P-A
536307	ADN-40-60-I-P-A
536308	ADN-40-80-I-P-A
Piston Ø 50 mm	
536310	ADN-50-5-A-P-A
536311	ADN-50-10-A-P-A
536312	ADN-50-15-A-P-A
536313	ADN-50-20-A-P-A
536314	ADN-50-25-A-P-A
536315	ADN-50-30-A-P-A
536316	ADN-50-40-A-P-A
536317	ADN-50-50-A-P-A
536318	ADN-50-60-A-P-A
536319	ADN-50-80-A-P-A
536320	ADN-50-5-I-P-A
536321	ADN-50-10-I-P-A
536322	ADN-50-15-I-P-A
536323	ADN-50-20-I-P-A
536324	ADN-50-25-I-P-A
536325	ADN-50-30-I-P-A
536326	ADN-50-40-I-P-A
536327	ADN-50-50-I-P-A
536328	ADN-50-60-I-P-A
536329	ADN-50-80-I-P-A
Piston Ø 63 mm	
536332	ADN-63-10-A-P-A
536333	ADN-63-15-A-P-A
536334	ADN-63-20-A-P-A
536335	ADN-63-25-A-P-A
536336	ADN-63-30-A-P-A
536337	ADN-63-40-A-P-A
536338	ADN-63-50-A-P-A
536339	ADN-63-60-A-P-A
536340	ADN-63-80-A-P-A
536342	ADN-63-10-I-P-A
536343	ADN-63-15-I-P-A
536344	ADN-63-20-I-P-A
536345	ADN-63-25-I-P-A
536346	ADN-63-30-I-P-A
536347	ADN-63-40-I-P-A
536348	ADN-63-50-I-P-A
536349	ADN-63-60-I-P-A
536350	ADN-63-80-I-P-A

1) All products in this table are easy to select and quick to order.

★ Quick ordering¹⁾

P – Elastic cushioning rings/plates at both ends

Part No.	Type
Piston Ø 80 mm	
536353	ADN-80-10-A-P-A
536354	ADN-80-15-A-P-A
536355	ADN-80-20-A-P-A
536356	ADN-80-25-A-P-A
536357	ADN-80-30-A-P-A
536358	ADN-80-40-A-P-A
536359	ADN-80-50-A-P-A
536360	ADN-80-60-A-P-A
536361	ADN-80-80-A-P-A

Part No.	Type
Piston Ø 80 mm	
536363	ADN-80-10-I-P-A
536364	ADN-80-15-I-P-A
536365	ADN-80-20-I-P-A
536366	ADN-80-25-I-P-A
536367	ADN-80-30-I-P-A
536368	ADN-80-40-I-P-A
536369	ADN-80-50-I-P-A
536370	ADN-80-60-I-P-A
536371	ADN-80-80-I-P-A

PPS – Pneumatic cushioning, self-adjusting at both ends

Part No.	Type
Piston Ø 32 mm	
572655	ADN-32-10-A-PPS-A
572656	ADN-32-15-A-PPS-A
572657	ADN-32-20-A-PPS-A
572658	ADN-32-25-A-PPS-A
572659	ADN-32-30-A-PPS-A
572660	ADN-32-40-A-PPS-A
572661	ADN-32-50-A-PPS-A
572662	ADN-32-60-A-PPS-A
572663	ADN-32-80-A-PPS-A
572646	ADN-32-10-I-PPS-A
572647	ADN-32-15-I-PPS-A
572648	ADN-32-20-I-PPS-A
572649	ADN-32-25-I-PPS-A
572650	ADN-32-30-I-PPS-A
572651	ADN-32-40-I-PPS-A
572652	ADN-32-50-I-PPS-A
572653	ADN-32-60-I-PPS-A
572654	ADN-32-80-I-PPS-A
Piston Ø 40 mm	
572673	ADN-40-10-A-PPS-A
572674	ADN-40-15-A-PPS-A
572675	ADN-40-20-A-PPS-A
572676	ADN-40-25-A-PPS-A
572677	ADN-40-30-A-PPS-A
572678	ADN-40-40-A-PPS-A
572679	ADN-40-50-A-PPS-A
572680	ADN-40-60-A-PPS-A
572681	ADN-40-80-A-PPS-A
572664	ADN-40-10-I-PPS-A
572665	ADN-40-15-I-PPS-A
572666	ADN-40-20-I-PPS-A
572667	ADN-40-25-I-PPS-A
572668	ADN-40-30-I-PPS-A
572669	ADN-40-40-I-PPS-A
572670	ADN-40-50-I-PPS-A
572671	ADN-40-60-I-PPS-A
572672	ADN-40-80-I-PPS-A

Part No.	Type
Piston Ø 50 mm	
572691	ADN-50-10-A-PPS-A
572692	ADN-50-15-A-PPS-A
572693	ADN-50-20-A-PPS-A
572694	ADN-50-25-A-PPS-A
572695	ADN-50-30-A-PPS-A
572696	ADN-50-40-A-PPS-A
572697	ADN-50-50-A-PPS-A
572698	ADN-50-60-A-PPS-A
572699	ADN-50-80-A-PPS-A
572682	ADN-50-10-I-PPS-A
572683	ADN-50-15-I-PPS-A
572684	ADN-50-20-I-PPS-A
572685	ADN-50-25-I-PPS-A
572686	ADN-50-30-I-PPS-A
572687	ADN-50-40-I-PPS-A
572688	ADN-50-50-I-PPS-A
572689	ADN-50-60-I-PPS-A
572690	ADN-50-80-I-PPS-A
Piston Ø 63 mm	
572709	ADN-63-10-A-PPS-A
572710	ADN-63-15-A-PPS-A
572711	ADN-63-20-A-PPS-A
572712	ADN-63-25-A-PPS-A
572713	ADN-63-30-A-PPS-A
572714	ADN-63-40-A-PPS-A
572715	ADN-63-50-A-PPS-A
572716	ADN-63-60-A-PPS-A
572717	ADN-63-80-A-PPS-A
572700	ADN-63-10-I-PPS-A
572701	ADN-63-15-I-PPS-A
572702	ADN-63-20-I-PPS-A
572703	ADN-63-25-I-PPS-A
572704	ADN-63-30-I-PPS-A
572705	ADN-63-40-I-PPS-A
572706	ADN-63-50-I-PPS-A
572707	ADN-63-60-I-PPS-A
572708	ADN-63-80-I-PPS-A

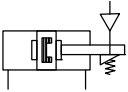
Part No.	Type
Piston Ø 80 mm	
572727	ADN-80-10-A-PPS-A
572728	ADN-80-15-A-PPS-A
572729	ADN-80-20-A-PPS-A
572730	ADN-80-25-A-PPS-A
572731	ADN-80-30-A-PPS-A
572732	ADN-80-40-A-PPS-A
572733	ADN-80-50-A-PPS-A
572734	ADN-80-60-A-PPS-A
572735	ADN-80-80-A-PPS-A
572718	ADN-80-10-I-PPS-A
572719	ADN-80-15-I-PPS-A
572720	ADN-80-20-I-PPS-A
572721	ADN-80-25-I-PPS-A
572722	ADN-80-30-I-PPS-A
572723	ADN-80-40-I-PPS-A
572724	ADN-80-50-I-PPS-A
572725	ADN-80-60-I-PPS-A
572726	ADN-80-80-I-PPS-A

1) All products in this table are easy to select and quick to order.

Compact cylinders ADN-...-KP, standard hole pattern, with clamping unit

FESTO

1 Technical data – Double-acting with clamping unit



Technical data		Dimensions → 52							
Piston Ø		20	25	32	40	50	63	80	100
Pneumatic connection		M5	M5	G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{8}$
Release connection		M5	M5	M5	G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{8}$
Female piston rod thread		M6		M8		M10		M12	
Male piston rod thread		M8		M10x1.25		M12x1.25		M16x1.5	
Stroke	[mm]	10 ... 300		10 ... 400				10 ... 500	
Cushioning		Elastic cushioning rings/plates at both ends							
Theoretical force at 6 bar, advancing	[N]	188	295	483	754	1178	1870	3016	4712
Theoretical force at 6 bar, retracting	[N]	141	247	415	633	990	1682	2721	4418
Holding force of the clamping unit	[N]	350	350	600	1000	1400	2000	5000	5000
Max. axial backlash with clamped piston rod without load	[mm]	0.5				0.8			

Operating conditions	
Operating pressure	[bar] 1.5 ... 10
Min. release pressure	[bar] 3
Ambient temperature ¹⁾	[°C] -10 ... +80

1) Note operating range of proximity sensors.

Materials	
Piston rod	High-alloy steel
Bearing cap	Anodised wrought aluminium alloy
Cylinder barrel	Smooth anodised wrought aluminium alloy
End cap	Anodised wrought aluminium alloy
Seals	NBR, TPE-U (PUR)

Compact cylinders ADN-...-KP, standard hole pattern, with clamping unit

FESTO

Order code – Double-acting with clamping unit

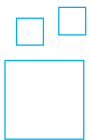
ADN		-		-		-	KP	-		-	P	-		-	A
Type															
ADN	Double-acting compact cylinder														
Piston Ø [mm]															
	Stroke [mm]														
20, 25	10 ... 300														
32, 40, 50, 63	10 ... 400														
80, 100	10 ... 500														
Clamping unit															
KP	Attached														
Piston rod thread															
A	Male thread														
I	Female thread														
Cushioning															
P	Elastic cushioning rings/plates at both ends														
Position sensing															
A	Via proximity sensor														

Order example:

ADN-20-50-KP-A-P-A

Double-acting compact cylinder ADN - piston diameter 20 mm - stroke 50 mm - clamping unit attached - male thread - elastic cushioning rings/plates at both ends - position sensing via proximity sensor

Ordering – Product options



Configurable product

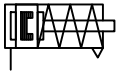
This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
 → www.festo.com/catalogue/...

Enter the type code in the search field.

Compact cylinders AEN, to ISO 21287

1 Technical data – Single-acting, pushing



Technical data		Dimensions → 48				
Piston Ø		12	16	20	25	32
Pneumatic connection		M5	M5	M5	M5	G $\frac{1}{8}$
Piston rod thread	Female	M3	M4	M6	M6	M8
	Male	M5	M6	M8	M8	M10x1.25
Stroke	[mm]	1 ... 10		1 ... 25		
Cushioning		Elastic cushioning rings/plates at both ends				
Theoretical force at 6 bar, advancing	[N]	56	95	162	259	441

Piston Ø		40	50	63	80	100
Pneumatic connection		G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{8}$
Piston rod thread	Female	M8	M10	M10	M12	M12
	Male	M10x1.25	M12x1.25	M12x1.25	M16x1.5	M16x1.5
Stroke	[mm]	1 ... 25				
Cushioning		Elastic cushioning rings/plates at both ends				
Theoretical force at 6 bar, advancing	[N]	702	1098	1783	2899	4511

Operating conditions		12	16	20	25	32	40	50	63	80	100	
Piston Ø												
Operating pressure	[bar]	1.5 ... 10		1 ... 10								
Ambient temperature ¹⁾	°C	-20 ... +80										
	S6 °C	0 ... +120										

1) Note operating range of proximity sensors.

Materials		12 ... 80	100
Piston Ø			
Piston rod		High-alloy steel	
Bearing cap		Anodised aluminium	Coated die-cast aluminium
Cylinder barrel		Smooth anodised wrought aluminium alloy	
End cap		Anodised aluminium	Coated die-cast aluminium
Seals		TPE-U (PUR)	

Order code – Single acting, pushing

1

AEN		–		–		–		–	P	–	A	–		–	
Type															
AEN	Single-acting compact cylinder, pushing														
Piston Ø [mm]															
	Stroke [mm]														
12	1 ... 10														
16, 20, 25, 32, 40, 50, 63, 80, 100	1 ... 25														
Piston rod thread															
A	Male thread														
I	Female thread														
Cushioning															
P	Elastic cushioning rings/plates at both ends														
Position sensing															
A	Via proximity sensor														
Protection against rotation															
Q	Square piston rod ¹														
Temperature resistance															
S6	Heat-resistant seals up to max. 120 °C														

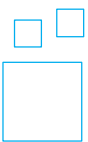
¹ Not with piston Ø 12 mm

Order example:

AEN-50-25-I-P-A-Q-S6

Single-acting compact cylinder AEN - piston diameter 50 mm - stroke 25 mm - female thread - elastic cushioning rings/plates at both ends - position sensing via proximity sensor - square piston rod - heat-resistant seals up to max. 120 °C

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

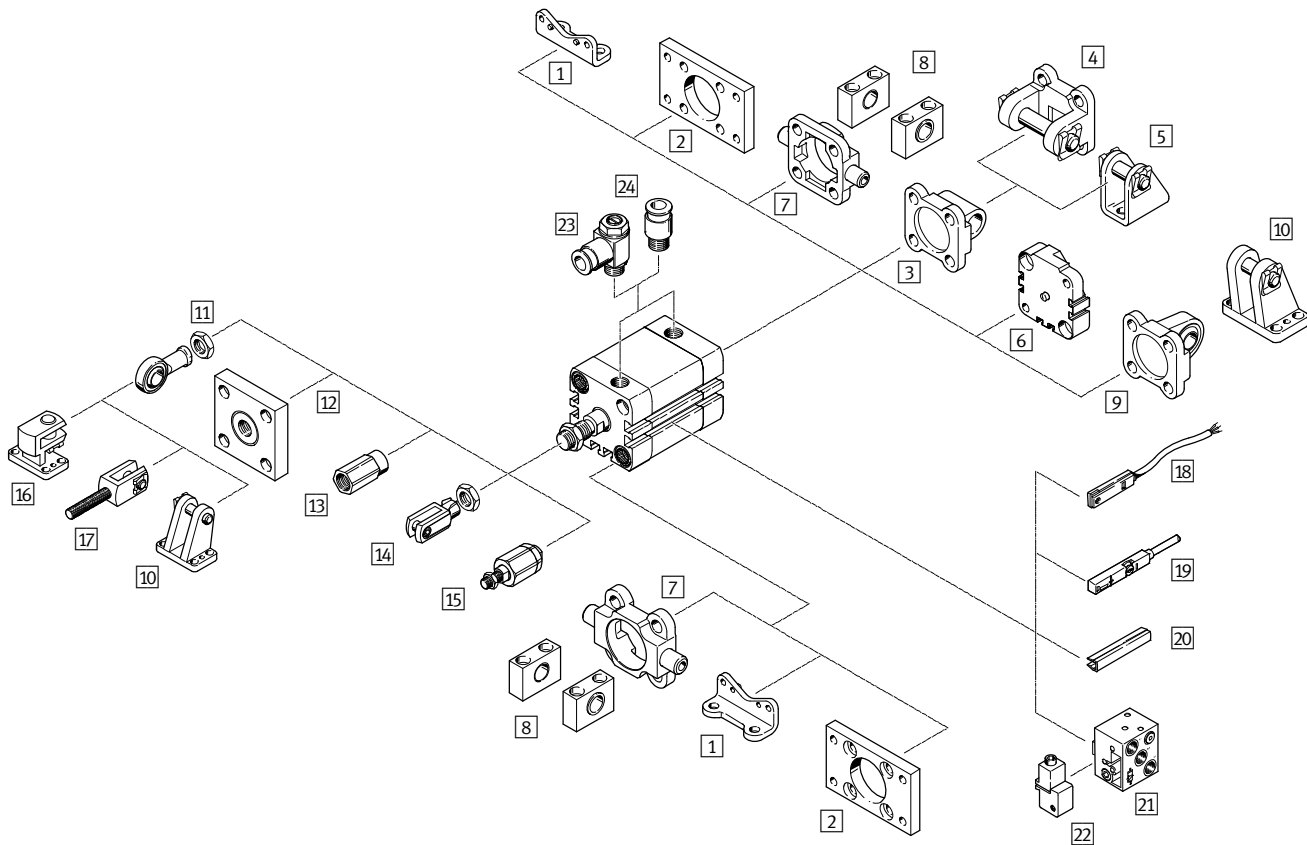
The configurator can be found under Products on the DVD or

→ www.festo.com/catalogue/...

Enter the type code in the search field.

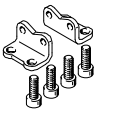
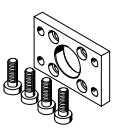
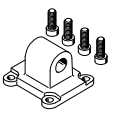
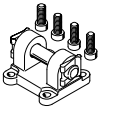

Accessories

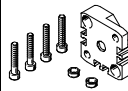
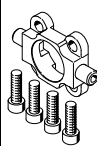
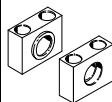
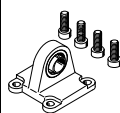
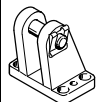
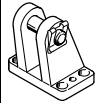

1



	Basic design	Q	S2	→ Page/online
1	Foot mounting HNA	■	■	45
2	Flange mounting FNC	■	■	45
3	Swivel flange SNCL	■	■	45
4	Swivel flange SNCB	■	■	45
5	Clevis foot LBN	■	■	45
	Clevis foot CRLBN	■	■	45
6	Multi-position kit DPNA	■	■	45
7	Trunnion flange ZNCF	■	■	45
	Trunnion flange CRZNG	■	■	45
8	Trunnion support LNZG	■	■	45
9	Swivel flange SNCS	■	■	45
10	Clevis foot LBG	■	■	45
11	Rod eye SGS	■	■	45
	Rod eye CRSGS	■	■	45
12	Coupling piece KSG/KSZ	■	■	46
13	Adapter AD	■	■	46
14	Rod clevis SG	■	■	46
	Rod clevis CRSG	■	■	46
15	Self-aligning rod coupler FK	■	■	46
	Self-aligning rod coupler CRFK	■	■	46
16	Right-angle clevis foot LQG	■	■	46
17	Rod clevis SGA	■	■	46
18	Proximity sensor SME-/SMT-8 and connecting cable NEBU	■	■	47
19	Proximity sensor SME-/SMT-8M and connecting cable NEBU	■	■	47
20	Slot cover ABP-5-S	■	■	47
21	Proximity sensor SMPO-8E	■	■	47
22	Mounting kit SMB-8E	■	■	47
23	One-way flow control valve GRLA/GRLZ	■	■	47
24	Push-in fitting QS	■	■	1006

Accessories – Ordering data

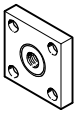
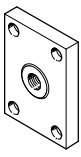

	For Ø	Part No.	Type
1 Foot mounting Dimensions online: → adn			
	12	537237	HNA-12
	16	537238	HNA-16
	20	537239	HNA-20
	25	537240	HNA-25
	32	537241	HNA-32
	40	537242	HNA-40
	50	537243	HNA-50
	63	537244	HNA-63
	80	537249	HNA-80
	100	537250	HNA-100
2 Flange mounting Dimensions online: → adn			
	12	537245	FNC-12
	16	537246	FNC-16
	20	537247	FNC-20
	25	537248	FNC-25
	32	★ 174376	FNC-32
	40	★ 174377	FNC-40
	50	★ 174378	FNC-50
	63	★ 174379	FNC-63
	80	★ 174380	FNC-80
	100	174381	FNC-100
	125	174382	FNC-125
3 Swivel flange Dimensions online: → adn			
	12	537790	SNCL-12
	16	537791	SNCL-16
	20	537792	SNCL-20
	25	537793	SNCL-25
	32	★ 174404	SNCL-32
	40	★ 174405	SNCL-40
	50	★ 174406	SNCL-50
	63	★ 174407	SNCL-63
	80	★ 174408	SNCL-80
	100	174409	SNCL-100
	125	174410	SNCL-125
4 Swivel flange Dimensions online: → adn			
	32	★ 174390	SNCB-32
	40	★ 174391	SNCB-40
	50	★ 174392	SNCB-50
	63	★ 174393	SNCB-63
	80	★ 174394	SNCB-80
	100	174395	SNCB-100
	125	174396	SNCB-125
	5 Clevis foot Technical data online: → lbn		
	12, 16	★ 6058	LBN-12/16
	20, 25	★ 6059	LBN-20/25




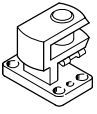

	For Ø	Part No.	Type
6 Multi-position kit Dimensions online: → adn			
	12	537263	DPNA-12
	16	537264	DPNA-16
	20	537265	DPNA-20
	25	537266	DPNA-25
	32	537267	DPNA-32
	40	537268	DPNA-40
	50	537269	DPNA-50
	63	532270	DPNA-63
	80	537271	DPNA-80
	100	537272	DPNA-100
7 Trunnion flange Dimensions online: → adn			
	32	174411	ZNCF-32
	40	174412	ZNCF-40
	50	174413	ZNCF-50
	63	174414	ZNCF-63
	80	174415	ZNCF-80
	100	174416	ZNCF-100
	125	174417	ZNCF-125
8 Trunnion support Dimensions online: → adn			
	32	32959	LNZG-32
	40, 50	32960	LNZG-40/50
	63, 80	32961	LNZG-63/80
	100, 125	32962	LNZG-100/125
9 Swivel flange Dimensions online: → adn			
	32	★ 174397	SNCS-32
	40	★ 174398	SNCS-40
	50	★ 174399	SNCS-50
	63	★ 174400	SNCS-63
	80	★ 174401	SNCS-80
	100	174402	SNCS-100
	125	174403	SNCS-125
	10 Clevis foot Technical data online: → lbg		
	32	31761	LBG-32
	40	31762	LBG-40
	50	31763	LBG-50
	63	31764	LBG-63
	80	31765	LBG-80
	100	31766	LBG-100
Clevis foot used with rod eye SGS Technical data online: → lbg			
	32, 40	31761	LBG-32
	50, 63	31762	LBG-40
	80, 100	31763	LBG-50
		31764	LBG-63
	125	31765	LBG-80
	31766	LBG-100	
11 Rod eye Technical data online: → sgs			
	16	★ 9254	SGS-M6
	20, 25	★ 9255	SGS-M8
	32, 40	★ 9261	SGS-M10x1,25
	50, 63	★ 9262	SGS-M12x1,25
	80, 100	★ 9263	SGS-M16x1,5
	125	★ 9264	SGS-M20x1,5

Compact cylinders ADN/AEN, to ISO 21287

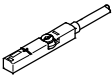
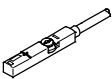
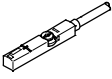







1

Accessories – Ordering data



	For Ø	Part No.	Type
12 Coupling piece Technical data online: → ksg			
	32, 40	32963	KSG-M10x1,25
	50, 63	32964	KSG-M12x1,25
	80, 100	32965	KSG-M16x1,5
	125	32966	KSG-M20x1,5
12 Coupling piece Technical data online: → ksz			
	16	36123	KSZ-M6
	20, 25	36124	KSZ-M8
	32, 40	36125	KSZ-M10x1,25
	50, 63	36126	KSZ-M12x1,25
	80, 100	36127	KSZ-M16x1,5
	125	36128	KSZ-M20x1,5
13 Adapter Technical data online: → ad			
	16	157328	AD-M6-M5
		157329	AD-M6-1/8
		157330	AD-M6-1/4
	20, 25	157331	AD-M8-1/8
		157332	AD-M8-1/4
	32, 40	157333	AD-M10x1,25-1/8
		157334	AD-M10x1,25-1/4
	50, 63	160256	AD-M12x1,25-1/4
		160257	AD-M12x1,25-3/8

	For Ø	Part No.	Type
14 Rod clevis Technical data online: → sg			
	16	★ 3110	SG-M6
	20, 25	★ 3111	SG-M8
	32, 40	★ 6144	SG-M10x1,25
	50, 63	★ 6145	SG-M12x1,25
	80, 100	★ 6146	SG-M16x1,5
	125	★ 6147	SG-M20x1,5
15 Self-aligning rod coupler Technical data online: → fk			
	12	30184	FK-M5
	16	★ 2061	FK-M6
	20, 25	★ 2062	FK-M8
	32, 40	★ 6140	FK-M10x1,25
	50, 63	★ 6141	FK-M12x1,25
	80, 100	★ 6142	FK-M16x1,5
	125	★ 6143	FK-M20x1,5
16 Right-angle clevis foot for rod eye SGS Technical data online: → lqg			
	32, 40	31768	LQG-32
	50, 63	31769	LQG-40
	80, 100	31770	LQG-50
		31771	LQG-63
	125	31772	LQG-80
		31773	LQG-100
17 Rod clevis Technical data online: → sga			
	32, 40	32954	SGA-M10x1,25
	50, 63	10767	SGA-M12x1,25
	80, 100	10768	SGA-M16x1,25
	125	10769	SGA-M20x1,5

Accessories – Ordering data

	For Ø		Part No.	Type	
18/19 Proximity sensor for T-slot, magneto-resistive – N/O contact Technical data → 808					
	PNP, cable	★	574335	SMT-8M-A-PS-24V-E-2,5-OE	
	PNP, plug	★	574334	SMT-8M-A-PS-24V-E-0,3-M8D	
	PNP, plug	★	574337	SMT-8M-A-PS-24V-E-0,3-M12	
	NPN, cable	★	574338	SMT-8M-A-NS-24V-E-2,5-OE	
	NPN, plug	★	574339	SMT-8M-A-NS-24V-E-0,3-M8D	
Magneto-resistive – N/C contact Technical data → 808					
	PNP, cable	★	574340	SMT-8M-A-PO-24V-E-7,5-OE	
Magnetic reed – N/O contact Technical data → 803					
	Cable	★	543862	SME-8M-DS-24V-K-2,5-OE	
	Cable	★	543863	SME-8M-DS-24V-K-5,0-OE	
	Cable	★	543872	SME-8M-ZS-24V-K-2,5-OE	
	Plug	★	543861	SME-8M-DS-24V-K-0,3-M8D	
Technical data → 805					
	Cable		150855	SME-8-K-LED-24	
	Plug		150857	SME-8-S-LED-24	
Magnetic reed – N/C contact Technical data → 805					
	Cable		160251	SME-8-O-K-LED-24	
18/19 Connecting cable, straight socket Technical data → 1053					
	2.5 m	★	541333	NEBU-M8G3-K-2.5-LE3	
	5 m	★	541334	NEBU-M8G3-K-5-LE3	
	2.5 m	★	541363	NEBU-M12G5-K-2.5-LE3	
	5 m	★	541364	NEBU-M12G5-K-5-LE3	
Angled socket Technical data → 1053					
	2.5 m	★	541338	NEBU-M8W3-K-2.5-LE3	
	5 m	★	541341	NEBU-M8W3-K-5-LE3	
	2.5 m		541367	NEBU-M12W5-K-2.5-LE3	
	5 m		541370	NEBU-M12W5-K-5-LE3	
20 Slot cover¹⁾					
			151680	ABP-5-S	

1) Packaging unit 2x 0.5 m.

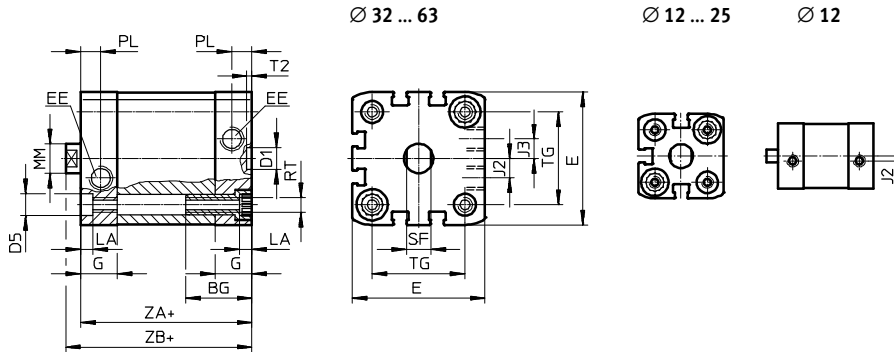
	For Ø	Connection		Part No.	Type
		Thread	O.D.		
23 One-way flow control valve with slotted head screw, metal²⁾ for exhaust air flow control Technical data → 689					
	12, 16, 20, 25	M5	3	★	193137 GRLA-M5-QS-3-D
	32	G $\frac{1}{8}$	4	★	193143 GRLA- $\frac{1}{8}$ -QS-4-D
	40, 50, 63, 80, 100		6	★	193144 GRLA- $\frac{1}{8}$ -QS-6-D
	125	G $\frac{1}{4}$	8	★	193147 GRLA- $\frac{1}{4}$ -QS-8-D
For supply air flow control Technical data → 689					
	12, 16, 20, 25	M5	3	★	193153 GRLZ-M5-QS-3-D
	32	G $\frac{1}{8}$	4	★	193157 GRLZ- $\frac{1}{8}$ -QS-4-D
	40, 50, 63, 80, 100		6	★	193158 GRLZ- $\frac{1}{8}$ -QS-6-D

2) The recommended flow control valves are based on a tubing length to the valve of 1 m. For deviations of ±50%, flow control valves with a bigger or smaller flow rate must be selected to guarantee the optimum flow control function and cylinder speed.

Compact cylinders ADN/AEN, to ISO 21287

Dimensions

1 Basic design – Ø 12 ... 63 mm



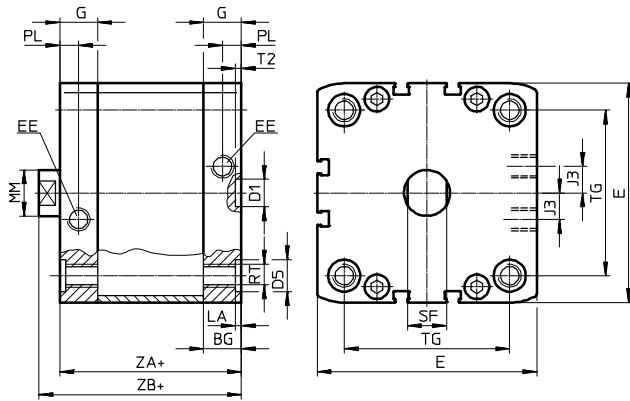
+ = plus stroke length

Ø [mm]	BG min.	D1 Ø H9	D5 Ø F9	E	EE	G	J2	J3	LA +0.2
12	17	9	6	27.5 ^{+0.3}	M5	10.5	2	–	3.5
16				29 ^{+0.3}		11	2.6		
20	35.5 ^{+0.3}		12	5					
25	39.5 ^{+0.3}								
32	26	12	12	47 ^{+0.3}	G1/8	15	6	8	
40				54.5 ^{+0.3}					
50	27	12	12	65.5 ^{+0.3}			11.5		
63				75.5 ^{+0.3}					

Ø [mm]	MM Ø	PL +0.2	RT	SF h13	T2 +0.1	TG ±0.2	ZA ±0.3	ZB +1.2	PPS +1.3
12	6	6	M4	5	2.1	16	35	39.2	–
16	8			7		18	39.7		
20	10		M5	9		22	37	42.5	42.5
25						26	39	44.5	45.3
32	12	8.2	M6	10	2.6	32.5	44	50	50.6
40						38	45	51.1	51.7
50	16		M8	13	46.5	53.2	53.2		
63					56.5	49	57.1	57	

Dimensions

Basic design – Ø 80 ... 125 mm



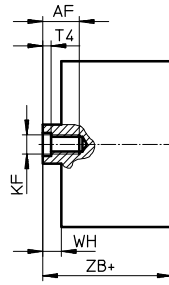
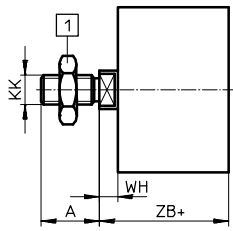
+ = plus stroke length

Ø	BG	D1	D5	E	EE	G	J2	J3	LA
[mm]	min.	Ø H9	Ø F9						+0.2
80	17	12	15	95.5 ^{+0.6}	G ¹ / ₈	16.5	11.5		2.6
100	21.5			113.5 ^{+0.6}		21.5	20		
125	20		–	134.6 ^{+0.3}	G ¹ / ₄	20	21.15		–

Ø	MM Ø	PL	RT	SF	T2	TG	ZA	ZB	PPS
[mm]		+0.2		h13	+0.1	±0.2	±0.3	+1.2	+1.3
80	20	8.2	M10	17	2.6	72	54	62.9	63.4
100		10.5				M12	21	89	67
125			M12	21		110	81	92	–

Dimensions

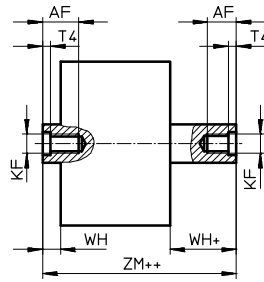
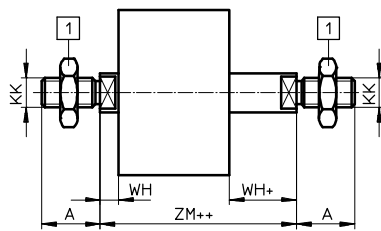
1 Basic design



1 Hex nut DIN 439-B
only with $\varnothing 32 \dots 125$

+ = plus stroke length

S2 – Through piston rod

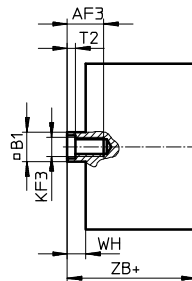
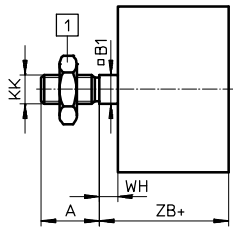


1 Hex nut DIN 439-B
only with $\varnothing 32 \dots 125$

+ = plus stroke length

++ = plus 2x stroke length

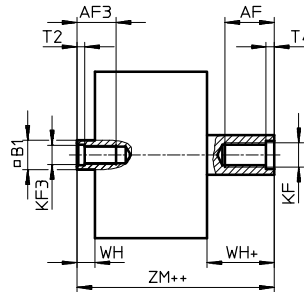
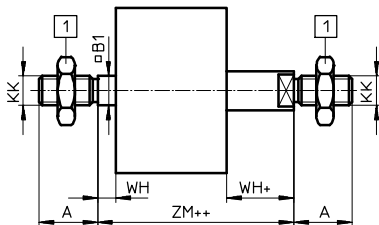
Q – Square piston rod



1 Hex nut DIN 439-B
only with $\varnothing 32 \dots 125$

+ = plus stroke length

Q-S2 – Square, through piston rod



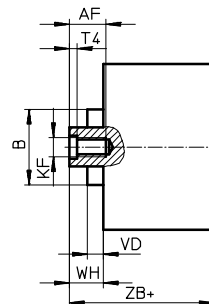
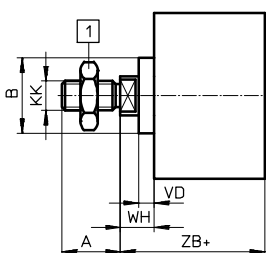
Note

The left-hand piston rod is square, the right-hand piston rod round.

+ = plus stroke length

++ = plus 2x stroke length

TT – Low temperature



1 Hex nut DIN 439-B
only with $\varnothing 32 \dots 125$

+ = plus stroke length

Dimensions

Download CAD data → www.festo.com

1

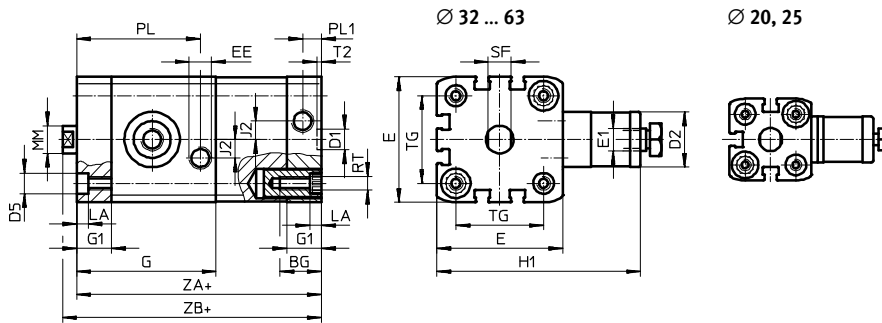
∅ [mm]	A -0.5	A1	A2	AF min.	AF3 min.	B ∅	B1 □	D7 ∅	D8	D9 ∅	L5	KF	KF3	KK
12	10	1 ... 10	1 ... 300	8	8	-	5.5	-	-	-	-	M3	M3	M5
16	12			10	10		7	4.5		3.2	3	M4	M4	M6
20	16	1 ... 20		14	12	18	9	6		3.8	2	M6	M5	M8
25			19	16	14	27	10	8	4.5	3	M8	M6	M10x1.25	
32	22	1 ... 40	20	16	31	12	10	6	3.5	M10	M8	M12x1.25		
40				20	35	16	-	G1/8	8	-	M12	M10	M16x1.5	
50			28	1 ... 30	1 ... 500	20	24	-	20	G1/4	11.7	-	M16	M12
63	40	1 ... 40	25	24		-	20	G1/4	11.7	-	M16	M12	M20x1.5	
80			28	1 ... 30		20	24	-	20	G1/4	11.7	-	M16	M12
100	40	1 ... 40	25	24	-	20	G1/4	11.7	-	M16	M12	M20x1.5		
125	40	1 ... 40	25	24	-	20	G1/4	11.7	-	M16	M12	M20x1.5		

∅ [mm]	T2	T3	T4	VD	WH			ZB			ZM	
					+1.3	PPS +1.4	TT +1.3	+1.2	PPS +1.3	TT +1.2		PPS
12	1.5	-	1.5	-	4.2	-	-	39.2	-	-	44.5 ^{+0.5}	-
16					4.7			39.7			45.7 ^{+0.5}	
20	2	2	2.6	5.2	5.5	5.5	10.5	42.5	42.5	47.5	49.5 ^{+0.5}	49.5 ^{+0.5}
25					44.5	45.3	49.5	51.5 ^{+0.5}	51.5 ^{+0.5}			
32	2.6	2.6	3.3	6.4	6	6.5	12.5	50	50.6	56.5	57.5 ^{+0.5}	58.6 ^{+0.6}
40					6.1	6.6		51.1	51.7	57.5	58.6 ^{+0.6}	59.7 ^{+0.7}
50	3.3	3.3	4.7		8.2	8.2	14.7	53.2	53.2	59.7	62.8 ^{+0.6}	63.1 ^{+0.7}
63					8.1	8	14.6	57.1	57	63.6	66.6 ^{+0.6}	66.5 ^{+0.7}
80	4.7	4.7	6.1		8.9	9.4	15.4	62.9	63.4	69.4	73.2 ^{+0.6}	74.3 ^{+0.7}
100					9	9.8	15.5	76	76.8	82.5	86.4 ^{+0.6}	88 ^{+0.7}
125	6.1	-	7	-	11	-	-	92	-	-	104.4 ^{+0.6}	-

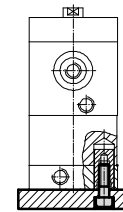
Compact cylinders ADN-...-KP, standard hole pattern, with clamping unit

Dimensions

1 Basic design – Ø 20 ... 63 mm

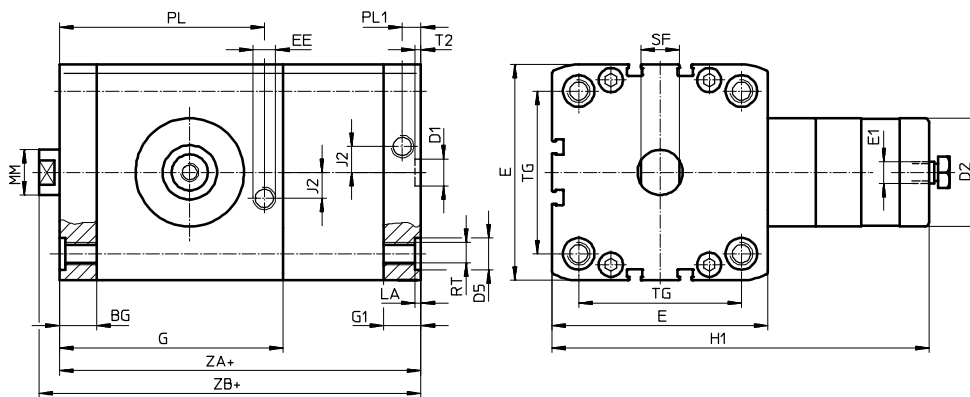


Only direct mounting is permitted with this variant.



+ = plus stroke length

Basic design – Ø 80, 100 mm



+ = plus stroke length

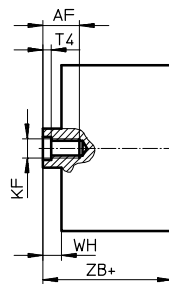
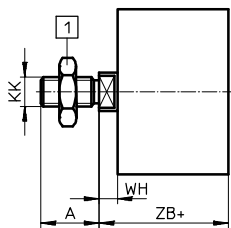
Ø	BG	D1	D2	D5	E	E1	EE	G	G1	H1	J2
[mm]	min.	Ø H9	Ø	Ø F9							
20	19.5	9	20	9	35.5 ^{+0.3}	M5	M5	49.8	12	63	2.6
25					39.5 ^{+0.3}			50.6		65	
32					47 ^{+0.3}			56.4		68	
40	26	12	24	12	54.5 ^{+0.3}	G1/8	G1/8	60.4	15	89	8
50			30		65.5 ^{+0.3}			67.4		108	
63	27	12	38	15	75.5 ^{+0.3}	G1/8	G1/8	76.8	16.5	120	11.5
80	17		48		95.5 ^{+0.6}			99		167	
100	21.5				113.5 ^{+0.6}			99.6		21.5	

Ø	LA	MM	PL	PL1	RT	SF	T2	TG	ZA	ZB
[mm]	+0.2	Ø	+0.2	+0.2		h13	+0.2	±0.2	±0.3	+1.2
20	5	10	42.8	6	M5	9	2.1	22	74.8	80.8
25			44.6					26	77.6	83.1
32			49.6					32.5	85.4	91.4
40	5	12	53.6	8.2	M6	13	2.6	38	90.4	96.5
50			60.6					46.5	97.4	105.6
63	2.6	20	70	10.5	M8	17	2.6	56.5	110.8	118.9
80			90.7					72	136.5	145.4
100			88.6					89	145.1	154.1

Compact cylinders ADN-...-KP, standard hole pattern, with clamping unit

Dimensions

Basic design



1 Hex nut DIN 439-B
only with \varnothing 32 ... 100

+ = plus stroke length

\varnothing [mm]	A	AF	KF	KK	T4	WH	ZB
20	-0.5	min.				+1.3	+1.2
25	16	14	M6	M8	2.6	5.5	80.8
32	19	16	M8	M10x1.25	3.3	6	91.4
40						6.1	96.5
50	22	20	M10	M12x1.25	4.7	8.2	105.6
63						8.1	118.9
80						8.9	145.4
100	28		M12	M16x1.5	6.1	9	154.1

Standard cylinders DSBC, to ISO 15552

1



- Strokes of up to 2800 mm
- PPS cushioning with ample cushioning capacity
- Wide range of variants for customised applications
- Comprehensive range of mounting accessories for just about every type of installation
- Spare parts service
- ★ Quick ordering of basic designs → 57

→ www.festo.com/catalogue/dsbc

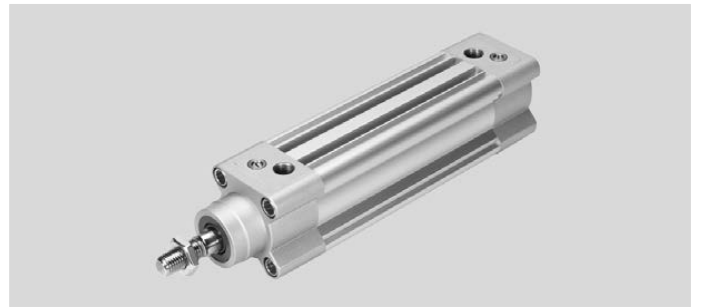
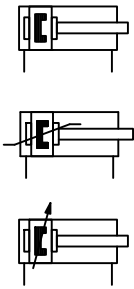
Product range overview

Type/function	Piston Ø [mm]	Stroke [mm]	Force [N]	Product options												
				Q	T	F	P	PPS	PPV	A	N3	T1	T3	T4	A3	...E
DSBC																
Double-acting	32, 40, 50, 63, 80, 100, 125	1 ... 2800	483 ... 7363	■	■	■	■	■	■	■	■	■	■	■	■	■

Product options

Q	With protection against rotation	T	Through piston rod	A	Position sensing	A1	Increased chemical resistance
L	Low friction	F	Female piston rod thread	N3	Standard conforms to ISO 15552	A2	Hard scraper
U	Uniformly slow movement	D3	Sensor slot on 3 sides	R3	High corrosion protection	A3	Suitable for unlubricated operation
C	Clamping unit attached	P	Elastic cushioning rings/plates at both ends	T1	Heat-resistant seals up to max. 120 °C	EX4	EU certification (II 2GD)
E1	End-position locking at both ends	PPS	Pneumatic cushioning, self-adjusting at both ends	T3	Low temperature	...E	Piston rod extension
E2	End-position locking with advanced piston rod	PPV	Pneumatic cushioning, adjustable at both ends	T4	Heat-resistant seals up to max. 150 °C	L	Piston rod thread extension
E3	End-position locking with retracted piston rod			P2	Bellows on bearing cap		

Technical data



Technical data		Dimensions → 63						
Piston Ø		32	40	50	63	80	100	125
Pneumatic connection		G1/8	G1/4	G1/4	G3/8	G3/8	G1/2	G1/2
Piston rod thread		M10x1.25	M12x1.25	M16x1.5	M16x1.5	M20x1.5	M20x1.5	M27x2
Stroke	[mm]	1 ... 2800						
	Q [mm]	1 ... 1500						
	E [mm]	1 ... 2000						
Cushioning	P	Elastic cushioning rings/plates at both ends						
	PPS	Pneumatic cushioning, self-adjusting at both ends						
	PPV	Pneumatic cushioning, adjustable at both ends						
Cushioning length	[mm]	17	19	22	22	31	31	45
Theoretical force at 6 bar, advancing	[N]	483	754	1178	1870	3016	4712	7363
Theoretical force at 6 bar, retracting	[N]	415	633	990	1682	2721	4418	6881
Max. impact energy in the end positions	[J]	0.4 ¹⁾	0.7	1.0	1.3	1.8	2.5	3.3
	T1/T3/T4 [J]	0.2 ¹⁾	0.35	0.5	0.65	0.9	1.25	1.65

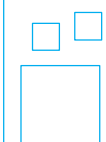
1) The max. impact energy in combination with the trunnion mounting kit DAMT is 0.1 J.

Operating conditions		Dimensions → 63						
Piston Ø		32	40	50	63	80	100	125
Operating pressure	[bar]	0.6 ... 12			0.4 ... 12			0.2 ... 10
	T3 [bar]	1 ... 12						1 ... 10
	A3 [bar]	1.5 ... 12			1 ... 12	0.6 ... 12		0.6 ... 10
Ambient temperature ²⁾	[°C]	-20 ... +80						
	T1 [°C]	0 ... +120						
	T3 [°C]	-40 ... +80						
	T4 [°C]	0 ... +150						

2) Note operating range of proximity sensors.

Materials	
Piston rod	High-alloy steel
Bearing cap	Coated die-cast aluminium
Cylinder barrel	Smooth anodised wrought aluminium alloy
End cap	Coated die-cast aluminium
Seals	TPE-U (PU)

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or

→ www.festo.com/catalogue/...

Enter the type code in the search field.

Standard cylinders DSBC, to ISO 15552

Order code

1

		DSBC	-	-	-	-	-	-	-	-	-	A	-	-	-	-	-	-	-
Type																			
DSBC	Double-acting standard cylinder																		
Protection against rotation																			
-	None																		
Q	With protection against rotation ^[1]																		
Piston Ø [mm]																			
		Stroke [mm]																	
32, 40, 50,	20, 25, 30, 40, 50, 60, 70, 80, 100, 1 ... 2800																		
63, 80, 100,	125, 150, 160, 200, 250, 300, 320,																		
125	400, 500																		
Piston rod type																			
-	Single-ended piston rod																		
T	Through piston rod																		
Piston rod thread type																			
-	Male thread																		
F	Female thread																		
Cushioning																			
P	Elastic cushioning rings/plates at both ends																		
PPS	Pneumatic cushioning, self-adjusting ^[2] at both ends																		
PPV	Pneumatic cushioning, adjustable at both ends																		
Position sensing																			
A	Via proximity sensor																		
Standard																			
-	Based on ISO 15552																		
N3	Conforms to ISO 15552																		
Temperature range																			
-	Standard																		
T1	Heat resistant up to max. 120 °C																		
T3	Low temperature																		
T4	Heat resistant up to max. 150 °C																		
Wiper seal variant																			
-	None																		
A3	Suitable for unlubricated operation ^[2]																		
Piston rod extension																			
-	None																		
...E	1 ... 500 mm ^[3]																		

^[1] Not with standard N3 or temperature range T3, T4 or wiper seal variant A3, only up to strokes of 1500 mm

^[2] Not with temperature range T1, T3, T4

^[3] Only up to strokes of 2000 mm

Order example:

DSBC-32-500-PPVA-N3T1
 Double-acting standard cylinder - without protection against rotation - piston diameter 32 mm - stroke 500 mm - single-ended piston rod - male thread - pneumatic cushioning, adjustable at both ends - position sensing via proximity sensor - standard conforms to ISO 15552 - heat resistant up to max. 120 °C - no wiper seal - without piston rod extension

★ Quick ordering¹⁾

PPS – Pneumatic cushioning, self-adjusting at both ends

Part No.	Type
Piston Ø 32 mm	
2123085	DSBC-32-20-PPSA-N3
1376467	DSBC-32-25-PPSA-N3
2123086	DSBC-32-30-PPSA-N3
1376468	DSBC-32-40-PPSA-N3
1376469	DSBC-32-50-PPSA-N3
2123087	DSBC-32-60-PPSA-N3
2123088	DSBC-32-70-PPSA-N3
1376470	DSBC-32-80-PPSA-N3
1376471	DSBC-32-100-PPSA-N3
1376472	DSBC-32-125-PPSA-N3
2123089	DSBC-32-150-PPSA-N3
1376473	DSBC-32-160-PPSA-N3
1376474	DSBC-32-200-PPSA-N3
1376475	DSBC-32-250-PPSA-N3
2123090	DSBC-32-300-PPSA-N3
1376476	DSBC-32-320-PPSA-N3
1376477	DSBC-32-400-PPSA-N3
1376478	DSBC-32-500-PPSA-N3
Piston Ø 40 mm	
2123780	DSBC-40-20-PPSA-N3
1376903	DSBC-40-25-PPSA-N3
2123781	DSBC-40-30-PPSA-N3
1376904	DSBC-40-40-PPSA-N3
1376905	DSBC-40-50-PPSA-N3
2123782	DSBC-40-60-PPSA-N3
2123783	DSBC-40-70-PPSA-N3
1376906	DSBC-40-80-PPSA-N3
1376907	DSBC-40-100-PPSA-N3
1376908	DSBC-40-125-PPSA-N3
2123784	DSBC-40-150-PPSA-N3
1376909	DSBC-40-160-PPSA-N3
1376910	DSBC-40-200-PPSA-N3
1376911	DSBC-40-250-PPSA-N3
2123785	DSBC-40-300-PPSA-N3
1376912	DSBC-40-320-PPSA-N3
1376913	DSBC-40-400-PPSA-N3
1376914	DSBC-40-500-PPSA-N3

Part No.	Type
Piston Ø 50 mm	
2102628	DSBC-50-20-PPSA-N3
1376301	DSBC-50-25-PPSA-N3
2102629	DSBC-50-30-PPSA-N3
1376304	DSBC-50-40-PPSA-N3
1376305	DSBC-50-50-PPSA-N3
2102630	DSBC-50-60-PPSA-N3
2102631	DSBC-50-70-PPSA-N3
1376306	DSBC-50-80-PPSA-N3
1376307	DSBC-50-100-PPSA-N3
1376308	DSBC-50-125-PPSA-N3
2102632	DSBC-50-150-PPSA-N3
1376309	DSBC-50-160-PPSA-N3
1376310	DSBC-50-200-PPSA-N3
1376311	DSBC-50-250-PPSA-N3
2102633	DSBC-50-300-PPSA-N3
1376312	DSBC-50-320-PPSA-N3
1376313	DSBC-50-400-PPSA-N3
1376314	DSBC-50-500-PPSA-N3
Piston Ø 63 mm	
2126684	DSBC-63-20-PPSA-N3
1383632	DSBC-63-25-PPSA-N3
2126685	DSBC-63-30-PPSA-N3
1383633	DSBC-63-40-PPSA-N3
1383634	DSBC-63-50-PPSA-N3
2126686	DSBC-63-60-PPSA-N3
2126687	DSBC-63-70-PPSA-N3
1383635	DSBC-63-80-PPSA-N3
1383636	DSBC-63-100-PPSA-N3
1383637	DSBC-63-125-PPSA-N3
2126688	DSBC-63-150-PPSA-N3
1383638	DSBC-63-160-PPSA-N3
1383639	DSBC-63-200-PPSA-N3
1383640	DSBC-63-250-PPSA-N3
2126689	DSBC-63-300-PPSA-N3
1383641	DSBC-63-320-PPSA-N3
1383642	DSBC-63-400-PPSA-N3
1383643	DSBC-63-500-PPSA-N3

Part No.	Type
Piston Ø 80 mm	
2126636	DSBC-80-20-PPSA-N3
1383366	DSBC-80-25-PPSA-N3
2126637	DSBC-80-30-PPSA-N3
1383367	DSBC-80-40-PPSA-N3
1383368	DSBC-80-50-PPSA-N3
2126638	DSBC-80-60-PPSA-N3
2126639	DSBC-80-70-PPSA-N3
1383369	DSBC-80-80-PPSA-N3
1383370	DSBC-80-100-PPSA-N3
1383371	DSBC-80-125-PPSA-N3
2126640	DSBC-80-150-PPSA-N3
1383372	DSBC-80-160-PPSA-N3
1383373	DSBC-80-200-PPSA-N3
1383374	DSBC-80-250-PPSA-N3
2126641	DSBC-80-300-PPSA-N3
1383375	DSBC-80-320-PPSA-N3
1383376	DSBC-80-400-PPSA-N3
1383377	DSBC-80-500-PPSA-N3

1) All products in this table are easy to select and quick to order.

Standard cylinders DSBC, to ISO 15552

★ Quick ordering¹⁾

1

PPV – Pneumatic cushioning, adjustable at both ends

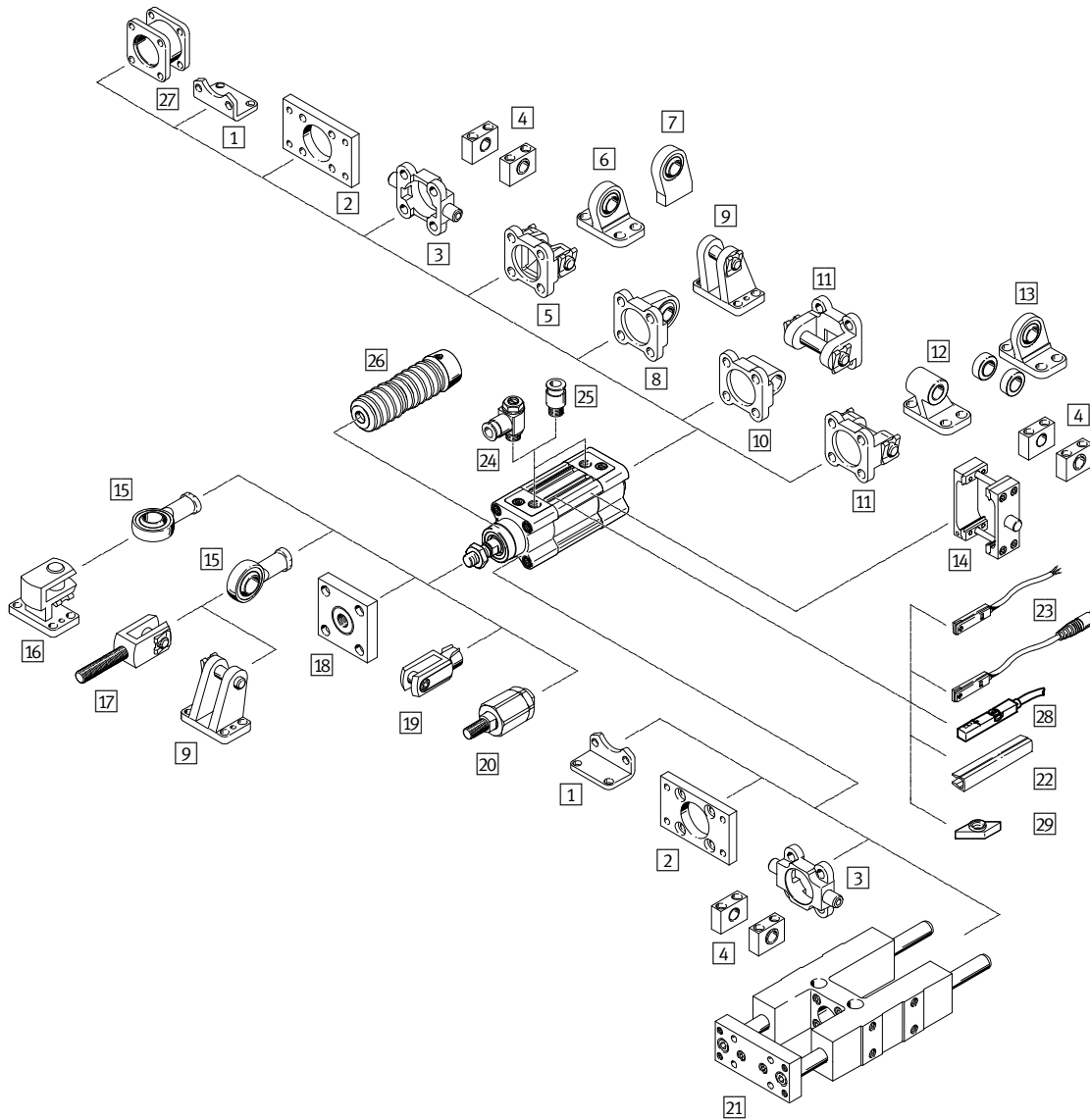
Part No.	Type
Piston Ø 32 mm	
2123069	DSBC-32-20-PPVA-N3
1376422	DSBC-32-25-PPVA-N3
2123070	DSBC-32-30-PPVA-N3
1376423	DSBC-32-40-PPVA-N3
1376424	DSBC-32-50-PPVA-N3
2123071	DSBC-32-60-PPVA-N3
2123072	DSBC-32-70-PPVA-N3
1376425	DSBC-32-80-PPVA-N3
1376426	DSBC-32-100-PPVA-N3
1376427	DSBC-32-125-PPVA-N3
2123073	DSBC-32-150-PPVA-N3
1376428	DSBC-32-160-PPVA-N3
1376429	DSBC-32-200-PPVA-N3
1376430	DSBC-32-250-PPVA-N3
2123074	DSBC-32-300-PPVA-N3
1376431	DSBC-32-320-PPVA-N3
1376432	DSBC-32-400-PPVA-N3
1376433	DSBC-32-500-PPVA-N3
Piston Ø 40 mm	
2123166	DSBC-40-20-PPVA-N3
1376656	DSBC-40-25-PPVA-N3
2123167	DSBC-40-30-PPVA-N3
1376657	DSBC-40-40-PPVA-N3
1376658	DSBC-40-50-PPVA-N3
2123224	DSBC-40-60-PPVA-N3
2123225	DSBC-40-70-PPVA-N3
1376659	DSBC-40-80-PPVA-N3
1376660	DSBC-40-100-PPVA-N3
1376661	DSBC-40-125-PPVA-N3
2123226	DSBC-40-150-PPVA-N3
1376662	DSBC-40-160-PPVA-N3
1376663	DSBC-40-200-PPVA-N3
1376664	DSBC-40-250-PPVA-N3
2123227	DSBC-40-300-PPVA-N3
1376665	DSBC-40-320-PPVA-N3
1376666	DSBC-40-400-PPVA-N3
1376667	DSBC-40-500-PPVA-N3

Part No.	Type
Piston Ø 50 mm	
2098969	DSBC-50-20-PPVA-N3
1366948	DSBC-50-25-PPVA-N3
2098970	DSBC-50-30-PPVA-N3
1366949	DSBC-50-40-PPVA-N3
1366950	DSBC-50-50-PPVA-N3
2098972	DSBC-50-60-PPVA-N3
2098973	DSBC-50-70-PPVA-N3
1366951	DSBC-50-80-PPVA-N3
1366952	DSBC-50-100-PPVA-N3
1366953	DSBC-50-125-PPVA-N3
2098974	DSBC-50-150-PPVA-N3
1366954	DSBC-50-160-PPVA-N3
1366955	DSBC-50-200-PPVA-N3
1366956	DSBC-50-250-PPVA-N3
2098975	DSBC-50-300-PPVA-N3
1366957	DSBC-50-320-PPVA-N3
1366958	DSBC-50-400-PPVA-N3
1366959	DSBC-50-500-PPVA-N3
Piston Ø 63 mm	
2125490	DSBC-63-20-PPVA-N3
1383578	DSBC-63-25-PPVA-N3
2125491	DSBC-63-30-PPVA-N3
1383579	DSBC-63-40-PPVA-N3
1383580	DSBC-63-50-PPVA-N3
2125492	DSBC-63-60-PPVA-N3
2125493	DSBC-63-70-PPVA-N3
1383581	DSBC-63-80-PPVA-N3
1383582	DSBC-63-100-PPVA-N3
1383583	DSBC-63-125-PPVA-N3
2125494	DSBC-63-150-PPVA-N3
1383584	DSBC-63-160-PPVA-N3
1383585	DSBC-63-200-PPVA-N3
1383586	DSBC-63-250-PPVA-N3
2125495	DSBC-63-300-PPVA-N3
1383587	DSBC-63-320-PPVA-N3
1383588	DSBC-63-400-PPVA-N3
1383589	DSBC-63-500-PPVA-N3

Part No.	Type
Piston Ø 80 mm	
2126594	DSBC-80-20-PPVA-N3
1383333	DSBC-80-25-PPVA-N3
2126595	DSBC-80-30-PPVA-N3
1383334	DSBC-80-40-PPVA-N3
1383335	DSBC-80-50-PPVA-N3
2126597	DSBC-80-60-PPVA-N3
2126598	DSBC-80-70-PPVA-N3
1383336	DSBC-80-80-PPVA-N3
1383337	DSBC-80-100-PPVA-N3
1383338	DSBC-80-125-PPVA-N3
2126599	DSBC-80-150-PPVA-N3
1383339	DSBC-80-160-PPVA-N3
1383340	DSBC-80-200-PPVA-N3
1383341	DSBC-80-250-PPVA-N3
2126600	DSBC-80-300-PPVA-N3
1383342	DSBC-80-320-PPVA-N3
1383343	DSBC-80-400-PPVA-N3
1383344	DSBC-80-500-PPVA-N3

1) All products in this table are easy to select and quick to order.

Accessories



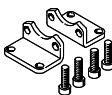
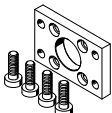
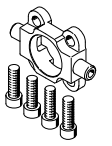
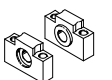
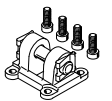
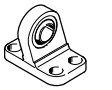
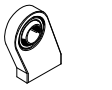
		→ Page/online
1	Foot mounting HNC	60
	Foot mounting CRHNC	dsbc
2	Flange mounting FNC	60
	Flange mounting CRFNG	dsbc
3	Trunnion flange ZNCF	60
	Trunnion flange CRZNG	dsbc
4	Trunnion support LNZG	60
	Trunnion support CRLNZG	dsbc
5	Swivel flange SNC	60
6	Clevis foot LSNG	60
7	Clevis foot LSNSG	60
8	Swivel flange SNCS	60
9	Clevis foot LBG	60
10	Swivel flange SNCL	60
11	Swivel flange SNCB	60
12	Clevis foot LNG	60
13	Clevis foot LSN	60
14	Trunnion mounting kit DAMT	61
15	Rod eye SGS	61
	Rod eye CRSGS	dsbc

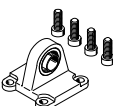
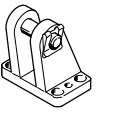
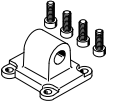
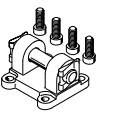
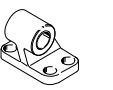
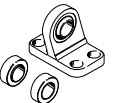
		→ Page/online
16	Right-angle clevis foot LQG	61
17	Rod clevis SGA	61
18	Coupling piece KSG	61
	Coupling piece KSZ	61
19	Rod clevis SG	61
	Rod clevis CRSG	dsbc
20	Self-aligning rod coupler FK	61
	Self-aligning rod coupler CRFK	dsbc
21	Guide unit FENG	61
22	Slot cover ABP-5-S	61
23	Proximity sensor SME/SMT-8M and connecting cable NEBU	61
24	One-way flow control valve GRLA	62
25	Push-in fitting QS	1006
26	Protective bellows kit DADB	dsbc
27	Multi-position kit DPNC	62
28	Position transmitter SMAT-8M	62
29	Slot nut ABAN	62

Standard cylinders DSBC, to ISO 15552

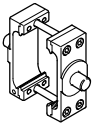




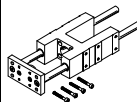

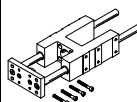
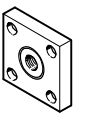

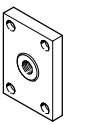
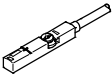
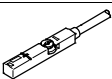
Accessories – Ordering data

1

	For Ø		Part No.	Type
1 Foot mounting Dimensions online: → dsbc				
	32	★	174369	HNC-32
	40	★	174370	HNC-40
	50	★	174371	HNC-50
	63	★	174372	HNC-63
	80	★	174373	HNC-80
	100		174374	HNC-100
	125		174375	HNC-125
2 Flange mounting Dimensions online: → dsbc				
	32	★	174376	FNC-32
	40	★	174377	FNC-40
	50	★	174378	FNC-50
	63	★	174379	FNC-63
	80	★	174380	FNC-80
	100		174381	FNC-100
	125		174382	FNC-125
3 Trunnion flange Dimensions online: → dsbc				
	32		174411	ZNCF-32
	40		174412	ZNCF-40
	50		174413	ZNCF-50
	63		174414	ZNCF-63
	80		174415	ZNCF-80
	100		174416	ZNCF-100
	125		174417	ZNCF-125
4 Trunnion support Dimensions online: → lnzg				
	32		32959	LNZG-32
	40, 50		32960	LNZG-40/50
	63, 80		32961	LNZG-63/80
	100, 125		32962	LNZG-100/125
5 Swivel flange Dimensions online: → dsbc				
	32	★	174383	SNC-32
	40	★	174384	SNC-40
	50	★	174385	SNC-50
	63	★	174386	SNC-63
	80	★	174387	SNC-80
	100		174388	SNC-100
	125		174389	SNC-125
6 Clevis foot Technical data online: → lsng				
	32		31740	LSNG-32
	40		31741	LSNG-40
	50		31742	LSNG-50
	63		31743	LSNG-63
	80		31744	LSNG-80
	100		31745	LSNG-100
125		31746	LSNG-125	
7 Clevis foot Technical data online: → lsnsg				
	32		31747	LSNSG-32
	40		31748	LSNSG-40
	50		31749	LSNSG-50
	63		31750	LSNSG-63
	80		31751	LSNSG-80
	100		31752	LSNSG-100
	125		31753	LSNSG-125

	For Ø		Part No.	Type
8 Swivel flange Dimensions online: → dsbc				
	32	★	174397	SNCS-32
	40	★	174398	SNCS-40
	50	★	174399	SNCS-50
	63	★	174400	SNCS-63
	80	★	174401	SNCS-80
	100		174402	SNCS-100
	125		174403	SNCS-125
9 Clevis foot Technical data online: → lbg				
	32		31761	LBG-32
	40		31762	LBG-40
	50		31763	LBG-50
	63		31764	LBG-63
	80		31765	LBG-80
	100		31766	LBG-100
	125		31767	LBG-125
10 Swivel flange Dimensions online: → dsbc				
	32	★	174404	SNCL-32
	40	★	174405	SNCL-40
	50	★	174406	SNCL-50
	63	★	174407	SNCL-63
	80	★	174408	SNCL-80
	100		174409	SNCL-100
	125		174410	SNCL-125
11 Swivel flange Dimensions online: → dsbc				
	32	★	174390	SNCB-32
	40	★	174391	SNCB-40
	50	★	174392	SNCB-50
	63	★	174393	SNCB-63
	80	★	174394	SNCB-80
	100		174395	SNCB-100
	125		174396	SNCB-125
12 Clevis foot Technical data online: → lng				
	32	★	33890	LNG-32
	40	★	33891	LNG-40
	50	★	33892	LNG-50
	63	★	33893	LNG-63
	80	★	33894	LNG-80
	100		33895	LNG-100
	125		33896	LNG-125
13 Clevis foot Technical data online: → lsn				
	32		5561	LSN-32
	40		5562	LSN-40
	50		5563	LSN-50
	63		5564	LSN-63
	80		5565	LSN-80
	100		5566	LSN-100
	125		6987	LSN-125

Accessories – Ordering data

	For Ø	Part No.	Type		For Ø	Part No.	Type	
14	Trunnion mounting kit		Dimensions online: → dsbc		19	Rod clevis		Technical data online: → sg
	32	★ 2213233	DAMT-V1-32-A			32	★ 6144	SG-M10x1,25
	40	★ 2214899	DAMT-V1-40-A			40	★ 6145	SG-M12x1,25
	50	★ 2214909	DAMT-V1-50-A			50, 63	★ 6146	SG-M16x1,5
	63	★ 2214971	DAMT-V1-63-A			80, 100	★ 6147	SG-M20x1,5
	80	★ 163529	DAMT-V1-80-A			125	14987	SG-M27x2-B
	100	163530	DAMT-V1-100-A					
	125	1812524	DAMT-V8-125-A					
15	Rod eye		Technical data online: → sgs		20	Self-aligning rod coupler		Technical data online: → fk
	32	★ 9261	SGS-M10x1,25			32	★ 6140	FK-M10x1,25
	40	★ 9262	SGS-M12x1,25			40	★ 6141	FK-M12x1,25
	50, 63	★ 9263	SGS-M16x1,5			50, 63	★ 6142	FK-M16x1,5
	80, 100	★ 9264	SGS-M20x1,5			80, 100	6143	FK-M20x1,5
	125	10774	SGS-M27x2			125	10485	FK-M27x2
16	Right-angle clevis foot		Technical data online: → lqg		21	Guide unit		Technical data online: → feng
	32	31768	LQG-32		for variable strokes from 10 ... 500 mm, with recirculating ball bearing guide			
	40	31769	LQG-40			32	34487	FENG-32-...-KF ¹⁾
	50	31770	LQG-50			40	34488	FENG-40-...-KF ¹⁾
	63	31771	LQG-63			50	34489	FENG-50-...-KF ¹⁾
	80	31772	LQG-80			63	34490	FENG-63-...-KF ¹⁾
	100	31773	LQG-100			80	34491	FENG-80-...-KF ¹⁾
	125	31774	LQG-125			100	34492	FENG-100-...-KF ¹⁾
17	Rod clevis		Technical data online: → sga		21	Guide unit		Technical data online: → feng
	32	32954	SGA-M10x1,25		for variable strokes from 10 ... 500 mm, with plain-bearing guide			
	40	10767	SGA-M12x1,25			32	34481	FENG-32-... ¹⁾
	50, 63	10768	SGA-M16x1,5			40	34482	FENG-40-... ¹⁾
	80, 100	10769	SGA-M20x1,5			50	34483	FENG-50-... ¹⁾
	125	10770	SGA-M27x2			63	34484	FENG-63-... ¹⁾
						80	34485	FENG-80-... ¹⁾
						100	34486	FENG-100-... ¹⁾
18	Coupling piece		Technical data online: → ksg		22	Slot cover²⁾		
	32	32963	KSG-M10x1,25			151680	ABP-5-S	
	40	32964	KSG-M12x1,25					
	50, 63	32965	KSG-M16x1,5					
	80, 100	32966	KSG-M20x1,5					
	125	32967	KSG-M20x1,5					
18	Coupling piece		Technical data online: → ksz					
	32	36125	KSZ-M10x1,25					
	40	36126	KSZ-M12x1,25					
	50, 63	36127	KSZ-M16x1,5					
	80, 100	36128	KSZ-M20x1,5					
23	Proximity sensor for T-slot, magneto-resistive – N/O contact		Technical data → 808					
	PNP, cable	★ 574335	SMT-8M-A-PS-24V-E-2,5-OE					
	PNP, plug	★ 574334	SMT-8M-A-PS-24V-E-0,3-M8D					
	PNP, plug	★ 574337	SMT-8M-A-PS-24V-E-0,3-M12					
	NPN, cable	★ 574338	SMT-8M-A-NS-24V-E-2,5-OE					
	NPN, plug	★ 574339	SMT-8M-A-NS-24V-E-0,3-M8D					
	Magneto-resistive – N/C contact		Technical data → 808					
	PNP, cable	★ 574340	SMT-8M-A-PO-24V-E-7,5-OE					

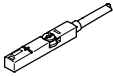






1) Enter required stroke. Order example: the order code for an appropriate guide unit for the standard cylinder DSBC-40-250 is FENG-40-250-KF (guide unit FENG - piston diameter 40 mm - stroke 250 mm - with recirculating ball bearing guide).


2) Packaging unit 2x 0.5 m.

Standard cylinders DSBC, to ISO 15552

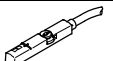

Accessories – Ordering data

1

	For Ø		Part No.	Type	
Magnetic reed – N/O contact					Technical data → 803
	Cable	★	543862	SME-8M-DS-24V-K-2,5-OE	
	Cable	★	543863	SME-8M-DS-24V-K-5,0-OE	
	Cable	★	543872	SME-8M-ZS-24V-K-2,5-OE	
	Plug	★	543861	SME-8M-DS-24V-K-0,3-M8D	
Magnetic reed – N/C contact					Technical data → 805
	Cable	★	546799	SME-8M-DO-24V-K-7,5-OE	
23 Connecting cable, straight socket					Technical data → 1053
	2.5 m	★	541333	NEBU-M8G3-K-2.5-LE3	
	5 m	★	541334	NEBU-M8G3-K-5-LE3	
	2.5 m	★	541363	NEBU-M12G5-K-2.5-LE3	
	5 m	★	541364	NEBU-M12G5-K-5-LE3	
Angled socket					Technical data → 1053
	2.5 m	★	541338	NEBU-M8W3-K-2.5-LE3	
	5 m	★	541341	NEBU-M8W3-K-5-LE3	
	2.5 m		541367	NEBU-M12W5-K-2.5-LE3	
	5 m		541370	NEBU-M12W5-K-5-LE3	
27 Multi-position kit					Technical data online: → dsbc
	32		174418	DPNC-32	
	40		174419	DPNC-40	
	50		174420	DPNC-50	
	63		174421	DPNC-63	
	80		174422	DPNC-80	
	100		174423	DPNC-100	
	125		174424	DPNC-125	

Function	For Ø	Connection		Part No.	Type
		Thread	O.D.		
24 One-way flow control valve for exhaust air flow control¹⁾ with slotted head screw, metal					
	32	G1/8	4	★ 193143	GRLA-1/8-QS-4-D
	40, 50	G1/4	6	★ 193146	GRLA-1/4-QS-6-D
	63, 80	G3/8	8	★ 193150	GRLA-3/8-QS-8-D
	100, 125	G1/2	12	★ 193152	GRLA-1/2-QS-12-D

1) The recommended flow control valves are based on a tubing length to the valve of 1 m. For deviations of ±50%, flow control valves with a bigger or smaller flow rate must be selected to guarantee the optimum flow control function and cylinder speed.

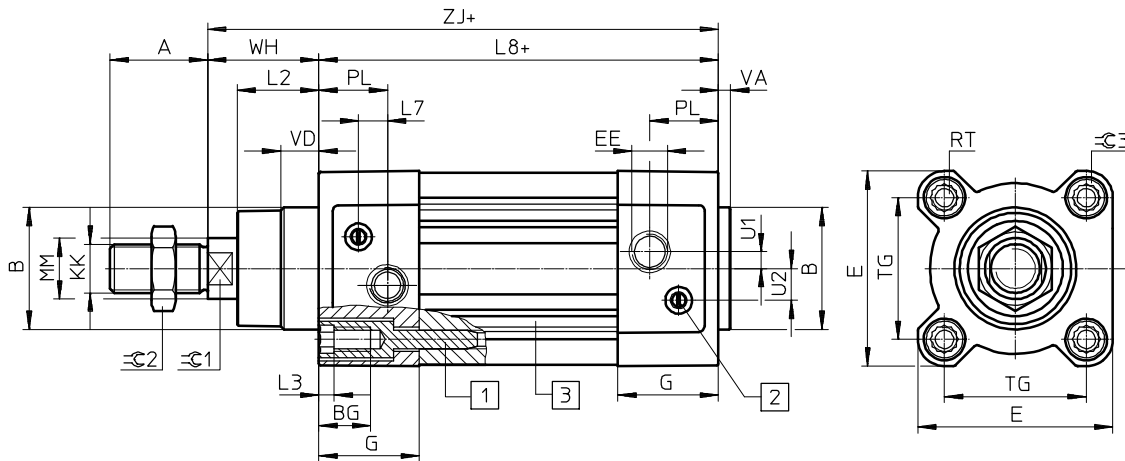
	For Ø		Part No.	Type
28 Position transmitter				
	32 ... 125		553744	SMAT-8M-U-E-0,3-M8D
29 Slot nut				
	32 ... 125		8028500	ABAN-8-1M4-5-P2 ²⁾
			8028501	ABAN-8-1M4-5-P100 ³⁾

2) Packaging unit 2 pieces.

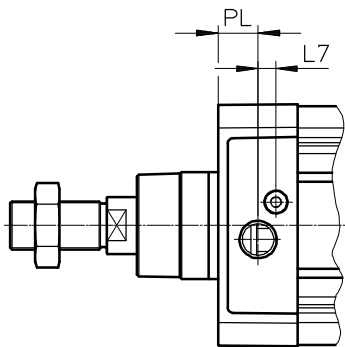
3) Packaging unit 100 pieces.

Dimensions

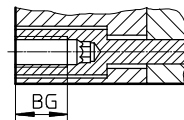
Basic design and A3 – Unlubricated operation



∅ 125



∅ 80/125



+ = plus stroke length

- 1 Socket head screw with female thread for mounting components
- 2 Regulating screw for adjustable end-position cushioning
- 3 Slot for proximity sensor

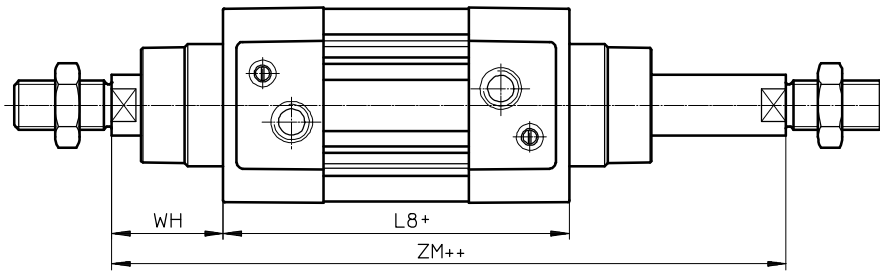
∅	A	B	BG	E	EE	G	U2	U1	KK	L2	L3	L7	L8
[mm]	-0.5	∅ d11	min.	+0.5		-0.2	±0.1	±0.1			max.		±0.4
32	22	30	16	45	G $\frac{1}{8}$	28	5.7	5.25	M10x1.25	18 $_{-0.2}$	5	6.5	94
40	24	35	16	54	G $\frac{1}{4}$	33	8	4	M12x1.25	21.3 $_{-0.2}$	5	7.5	105
50	32	40	16	64	G $\frac{1}{4}$	33	10.4	5.5	M16x1.5	26.8 $_{-0.2}$	5	9.5	106
63	32	45	16	75	G $\frac{3}{8}$	40.5	12.75	6.25	M16x1.5	27 $_{-0.2}$	5	9	121
80	40	45	17	93	G $\frac{3}{8}$	43	12.5	8	M20x1.5	34.2 $_{-0.2}$	-	11	128
100	40	55	17	110	G $\frac{1}{2}$	48	13.5	10	M20x1.5	38 $_{-0.2}$	-	7.5	138
125	54	60	20	136	G $\frac{1}{2}$	44.7	13	8	M27x2	45.5 $_{-0.3}$	-	10	160

∅	MM	PL	RT	TG	VA	VD	WH	ZJ	∅C1	∅C2	∅C3
[mm]	∅	±0.1		±0.3		+0.5	+2.2	+1.8			
32	12	19.5	M6	32.5	4 $_{-0.2}$	10	25	119.1	10	16	6
40	16	22.5	M6	38	4 $_{-0.2}$	10.5	28.7	133.9	13	18	6
50	20	22.5	M8	46.5	4 $_{-0.2}$	11.5	35.6	141.8	17	24	8
63	20	27.5	M8	56.5	4 $_{-0.2}$	15	35.9	157.1	17	24	8
80	25	30	M10	72	4 $_{-0.2}$	15.7	45.4	173.6	22	30	6
100	25	31.5	M10	89	4 $_{-0.2}$	19.2	49.3	187.5	22	30	6
125	32	22.5	M12	110	6 $_{-0.3}$	20.5	64.1	225	27	41	8

Standard cylinders DSBC, to ISO 15552

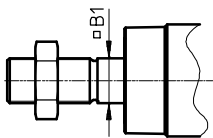
Dimensions

1 T – Through piston rod



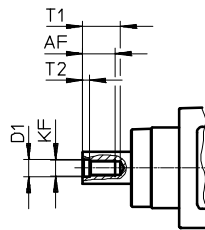
+ = plus stroke length
++ = plus 2x stroke length

Q – With protection against rotation



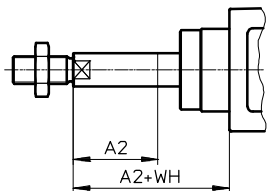
Note
Protection against rotation at one end in combination with the variant T.

F – Female thread



Note
Female thread at both ends in combination with the variant T.

...E – Piston rod extension



Note
Piston rod extension only at the square piston rod in combination with the variant T and Q.

+ = plus stroke length

∅	A2		AF	B1	D1	KF
	min.	max.	min.			
32	1	500	12	10	6.4	M6
40	1	500	12	12	8.4	M8
50	1	500	16	16	10.5	M10
63	1	500	16	16	10.5	M10
80	1	500	20	20	13	M12
100	1	500	20	20	13	M12
125	1	500	32	–	17	M16

∅	L8	T1	T2	WH	ZM
[mm]	±0.4	max.		+2.2	+1
32	94	16	2.6	25	146.1
40	105	16	3.3	28.7	164.8
50	106	21	4.7	35.6	179.8
63	121	21	4.7	35.9	195.4
80	128	26.5	6.1	45.4	221
100	138	26.5	6.1	49.3	238.8
125	160	40	8	64.1	290



- Sturdy tie rod design
- Strokes of up to 2800 mm
- PPS cushioning with ample cushioning capacity
- Wide range of variants for customised applications
- Comprehensive range of mounting accessories for just about every type of installation
- Spare parts service
- Piston Ø 160, 200 → 74

→ www.festo.com/catalogue/dsbg

Product range overview – Piston Ø 32 ... 125

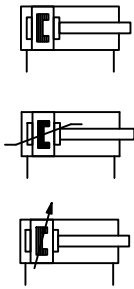
Type/function	Piston Ø [mm]	Stroke [mm]	Force [N]	Product options													
				Q	T	F	P	PPS	PPV	A	N3	T1	T3	T4	A3	V	...E
DSBG																	
Double-acting	32, 40, 50, 63, 80, 100, 125	1 ... 2800	483 ... 7363	■	■	■	■	■	■	■	■	■	■	■	■	■	■

Product options

Q	With protection against rotation	P	Elastic cushioning rings/plates at both ends	R3	High corrosion protection	A3	Suitable for unlubricated operation
L	Low friction	PPS	Pneumatic cushioning, self-adjusting at both ends	T1	Heat-resistant seals up to max. 120 °C	EX4	EU certification (II 2GD)
U	Uniformly slow movement	PPV	Pneumatic cushioning, adjustable at both ends	T3	Low temperature	V	Swivel mounting position
T	Through piston rod	A	Position sensing	T4	Heat-resistant seals up to max. 150 °C	...E	Piston rod extension
F	Female piston rod thread	N3	Standard conforms to ISO 15552	P2	Bellows on bearing cap	L	Piston rod thread extension
				A2	Hard scraper		

Standard cylinders DSBG, to ISO 15552

1 Technical data – Piston Ø 32 ... 125



Technical data		Dimensions → 72						
Piston Ø		32	40	50	63	80	100	125
Pneumatic connection		G1/8	G1/4	G1/4	G3/8	G3/8	G1/2	G1/2
Piston rod thread		M10x1.25	M12x1.25	M16x1.5	M16x1.5	M20x1.5	M20x1.5	M27x2
Stroke	[mm]	1 ... 2800						
	Q [mm]	1 ... 1500						
	E [mm]	1 ... 2000						
Cushioning	P	Elastic cushioning rings/plates at both ends						
	PPS	Pneumatic cushioning, self-adjusting at both ends						
	PPV	Pneumatic cushioning, adjustable at both ends						
Cushioning length	[mm]	17	19	22	22	31	31	45
Theoretical force at 6 bar, advancing	[N]	483	754	1178	1870	3016	4712	7363
Theoretical force at 6 bar, retracting	[N]	415	633	990	1682	2721	4418	6881
Max. impact energy in the end positions	[J]	0.4	0.7	1.0	1.3	1.8	2.5	3.3
	T1, T3, T4 [J]	0.2	0.35	0.5	0.65	0.9	1.25	1.65

Operating conditions		Dimensions → 72						
Piston Ø		32	40	50	63	80	100	125
Operating pressure	[bar]	0.6 ... 12			0.4 ... 12			
	T3 [bar]	1 ... 12			0.2 ... 10			
	A3 [bar]	1.5 ... 12		1 ... 12	0.6 ... 12		1 ... 10	
Ambient temperature ¹⁾	[°C]	-20 ... +80						
	T1 [°C]	0 ... +120						
	T3 [°C]	-40 ... +80						
	T4 [°C]	0 ... +150						

1) Note operating range of proximity sensors.

Materials	
Piston rod	High-alloy steel
Bearing cap	Coated die-cast aluminium
Cylinder barrel	Anodised wrought aluminium alloy
End cap	Coated die-cast aluminium
Seals	TPE-U (PU), NBR

Ordering – Product options

Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
[→ www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the type code in the search field.

Order code – Piston Ø 32 ... 125

1

DSBG - - - - - A - - -		
Type		
DSBG	Standard cylinder, double-acting	
Protection against rotation		
-	None	
Q	With protection against rotation [1]	
Piston Ø [mm]		
	Stroke [mm]	
32, 40, 50, 63, 80, 100, 125	25, 40, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500	1 ... 2800
Piston rod type		
-	Single-ended piston rod	
T	Through piston rod	
Piston rod thread type		
-	Male thread	
F	Female thread	
Cushioning		
P	Elastic cushioning rings/plates at both ends	
PPS	Pneumatic cushioning, self-adjusting at both ends [2]	
PPV	Pneumatic cushioning, adjustable at both ends	
Position sensing		
A	Via proximity sensor	
Standard		
-	Based on ISO 15552	
N3	Conforms to ISO 15552	
Temperature range		
-	Standard	
T1	Heat resistant up to max. 120 °C	
T3	Low temperature	
T4	Heat resistant up to max. 150 °C	
Wiper seal variant		
-	None	
A3	Suitable for unlubricated operation [2]	
Swivel mounting position		
-	None	
V	0 ... 2800 mm	
Piston rod extension		
-	None	
...E	1 ... 500 mm [3]	

[1] Not with piston Ø 125 mm, or wiper seal variant A3 not with standard N3 or temperature range T3, T4 only up to strokes of 1500 mm

[2] Not with temperature range T1, T3, T4

[3] Only up to strokes of 2000 mm

Order example:

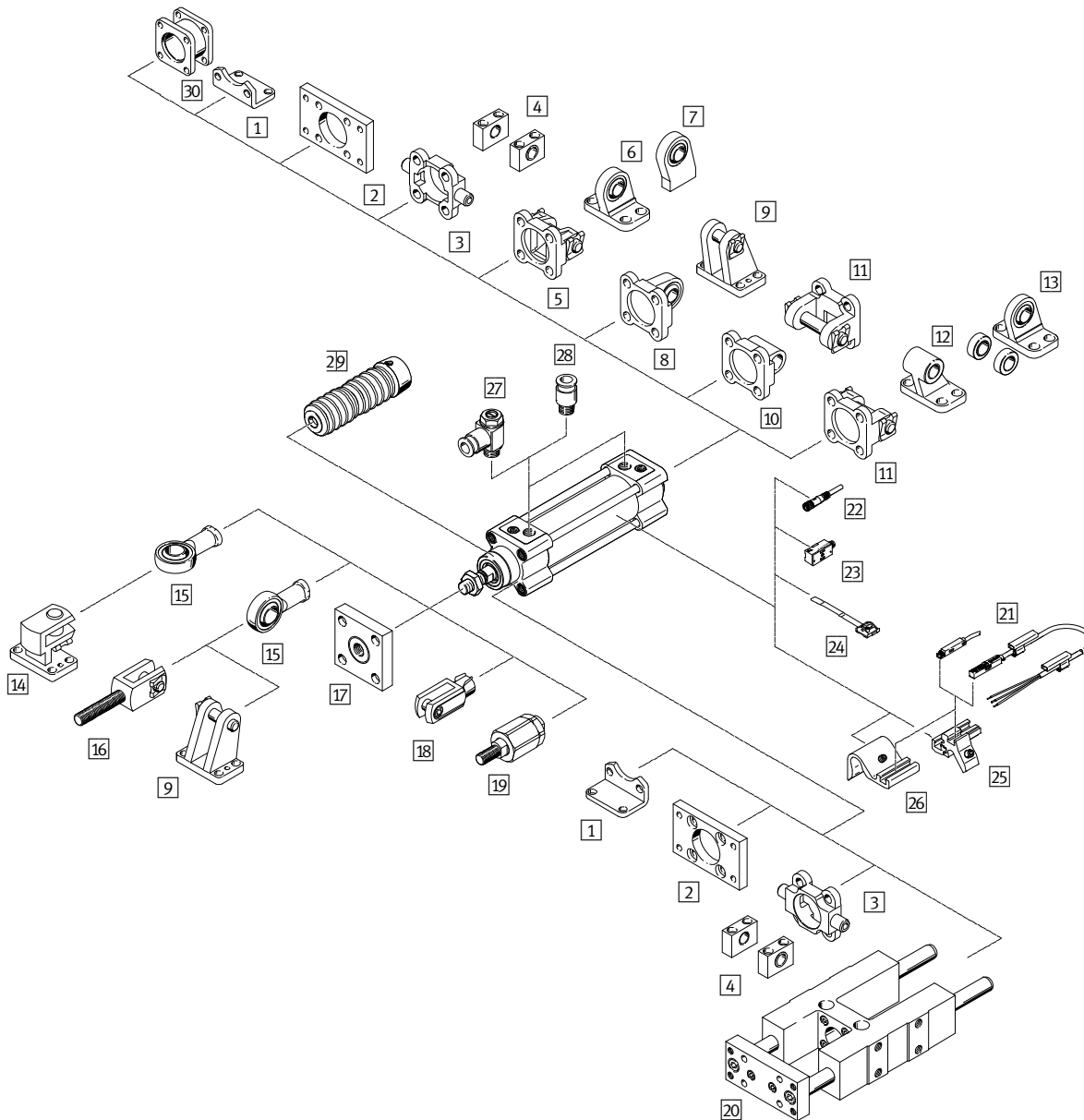
DSBG-32-500-PPVA-N3T1

Double-acting standard cylinder - without protection against rotation - piston diameter 32 mm - stroke 500 mm - single-ended piston rod - male thread - pneumatic cushioning, adjustable at both ends - position sensing via proximity sensor - standard conforms to ISO 15552 - heat resistant up to max. 120 °C - no wiper seal variant - without swivel mounting position - without piston rod extension

Standard cylinders DSBG, to ISO 15552

Accessories – Piston \varnothing 32 ... 125

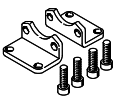
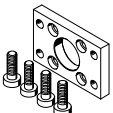
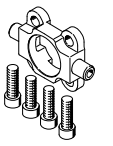
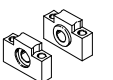
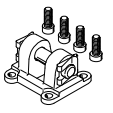
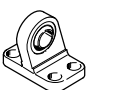

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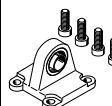
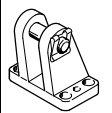
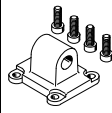
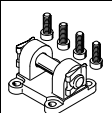
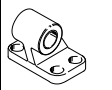
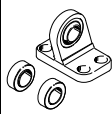


		→ Page/online
1	Foot mounting HNC Foot mounting CRHNC	69 dsbg
2	Flange mounting FNC Flange mounting CRFNG	69 dsbg
3	Trunnion flange ZNCF Trunnion flange CRZNG	69 dsbg
4	Trunnion support LNZG Trunnion support CRLNZG	69 dsbg
5	Swivel flange SNC	69
6	Clevis foot LSNG	69
7	Clevis foot LSNSG	69
8	Swivel flange SNCS	69
9	Clevis foot LBG	69
10	Swivel flange SNCL	69
11	Swivel flange SNCB	69
12	Clevis foot LNG	69
13	Clevis foot LSN	69
14	Right-angle clevis foot LQG	70
15	Rod eye SGS Rod eye CRSGS	70 dsbg

		→ Page/online
16	Rod clevis SGA	70
17	Coupling piece KSG Coupling piece KSZ	70 70
18	Rod clevis SG Rod clevis CRSG	70 dsbg
19	Self-aligning rod coupler FK Self-aligning rod coupler CRFK	70 dsbg
20	Guide unit FENG	70
21	Proximity sensor SME/SMT-8M	70
22	Connecting cable NEBU	71
23	Proximity sensor SMPO-1	71
24	Mounting kit SMBS	71
25	Mounting kit SMBZ	71
26	Mounting kit DASP	71
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28	Push-in fitting QS	1006
29	Protective bellows kit DADB	dsbg
30	Multi-position kit DPNC	71

Accessories – Ordering data – Piston \varnothing 32 ... 125




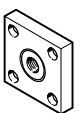
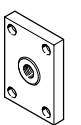
	For \varnothing		Part No.	Type
1 Foot mounting Dimensions online: → dsbg				
	32	★	174369	HNC-32
	40	★	174370	HNC-40
	50	★	174371	HNC-50
	63	★	174372	HNC-63
	80	★	174373	HNC-80
	100		174374	HNC-100
	125		174375	HNC-125
2 Flange mounting Dimensions online: → dsbg				
	32	★	174376	FNC-32
	40	★	174377	FNC-40
	50	★	174378	FNC-50
	63	★	174379	FNC-63
	80	★	174380	FNC-80
	100		174381	FNC-100
	125		174382	FNC-125
3 Trunnion flange Dimensions online: → dsbg				
	32		174411	ZNCF-32
	40		174412	ZNCF-40
	50		174413	ZNCF-50
	63		174414	ZNCF-63
	80		174415	ZNCF-80
	100		174416	ZNCF-100
	125		174417	ZNCF-125
4 Trunnion support Dimensions online: → lnzg				
	32		32959	LNZG-32
	40, 50		32960	LNZG-40/50
	63, 80		32961	LNZG-63/80
	100, 125		32962	LNZG-100/125
5 Swivel flange Dimensions online: → dsbg				
	32	★	174383	SNC-32
	40	★	174384	SNC-40
	50	★	174385	SNC-50
	63	★	174386	SNC-63
	80	★	174387	SNC-80
	100		174388	SNC-100
	125		174389	SNC-125
6 Clevis foot Technical data online: → lsng				
	32		31740	LSNG-32
	40		31741	LSNG-40
	50		31742	LSNG-50
	63		31743	LSNG-63
	80		31744	LSNG-80
	100		31745	LSNG-100
	125		31746	LSNG-125
7 Clevis foot Technical data online: → lsnsg				
	32		31747	LSNSG-32
	40		31748	LSNSG-40
	50		31749	LSNSG-50
	63		31750	LSNSG-63
	80		31751	LSNSG-80
	100		31752	LSNSG-100
	125		31753	LSNSG-125



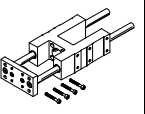
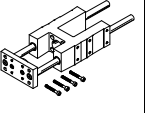
	For \varnothing		Part No.	Type
8 Swivel flange Dimensions online: → dsbg				
	32	★	174397	SNCS-32
	40	★	174398	SNCS-40
	50	★	174399	SNCS-50
	63	★	174400	SNCS-63
	80	★	174401	SNCS-80
	100		174402	SNCS-100
	125		174403	SNCS-125
9 Clevis foot Technical data online: → lbg				
	32		31761	LBG-32
	40		31762	LBG-40
	50		31763	LBG-50
	63		31764	LBG-63
	80		31765	LBG-80
	100		31766	LBG-100
	125		31767	LBG-125
10 Swivel flange Dimensions online: → dsbg				
	32	★	174404	SNCL-32
	40	★	174405	SNCL-40
	50	★	174406	SNCL-50
	63	★	174407	SNCL-63
	80	★	174408	SNCL-80
	100		174409	SNCL-100
	125		174410	SNCL-125
11 Swivel flange Dimensions online: → dsbg				
	32	★	174390	SNCB-32
	40	★	174391	SNCB-40
	50	★	174392	SNCB-50
	63	★	174393	SNCB-63
	80	★	174394	SNCB-80
	100		174395	SNCB-100
	125		174396	SNCB-125
12 Clevis foot Technical data online: → lng				
	32	★	33890	LNG-32
	40	★	33891	LNG-40
	50	★	33892	LNG-50
	63	★	33893	LNG-63
	80	★	33894	LNG-80
	100		33895	LNG-100
	125		33896	LNG-125
13 Clevis foot Technical data online: → lsn				
	32		5561	LSN-32
	40		5562	LSN-40
	50		5563	LSN-50
	63		5564	LSN-63
	80		5565	LSN-80
	100		5566	LSN-100
	125		6987	LSN-125

Standard cylinders DSBG, to ISO 15552

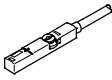
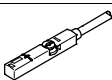
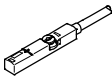
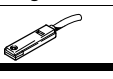
Accessories – Ordering data – Piston Ø 32 ... 125

1






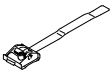


	For Ø	Part No.	Type
14 Right-angle clevis foot Technical data online: → lqg			
	32	31768	LQG-32
	40	31769	LQG-40
	50	31770	LQG-50
	63	31771	LQG-63
	80	31772	LQG-80
	100	31773	LQG-100
	125	31774	LQG-125
15 Rod eye Technical data online: → sgs			
	32	★ 9261	SGS-M10x1,25
	40	★ 9262	SGS-M12x1,25
	50, 63	★ 9263	SGS-M16x1,5
	80, 100	★ 9264	SGS-M20x1,5
	125	10774	SGS-M27x2
	16 Rod clevis Technical data online: → sga		
	32	32954	SGA-M10x1,25
	40	10767	SGA-M12x1,25
	50, 63	10768	SGA-M16x1,5
	80, 100	10769	SGA-M20x1,5
	125	10770	SGA-M27x2
	17 Coupling piece Technical data online: → ksg		
	32	32963	KSG-M10x1,25
	40	32964	KSG-M12x1,25
	50, 63	32965	KSG-M16x1,5
	80, 100	32966	KSG-M20x1,5
	125	32967	KSG-M27x2
17 Coupling piece Technical data online: → ksz			
	32	36125	KSZ-M10x1,25
	40	36126	KSZ-M12x1,25
	50, 63	36127	KSZ-M16x1,5
	80, 100	36128	KSZ-M20x1,5


	For Ø	Part No.	Type
18 Rod clevis Technical data online: → sg			
	32	★ 6144	SG-M10x1,25
	40	★ 6145	SG-M12x1,25
	50, 63	★ 6146	SG-M16x1,5
	80, 100	★ 6147	SG-M20x1,5
	125	14987	SG-M27x2-B
	19 Self-aligning rod coupler Technical data online: → fk		
	32	★ 6140	FK-M10x1,25
	40	★ 6141	FK-M12x1,25
	50, 63	★ 6142	FK-M16x1,5
	80, 100	★ 6143	FK-M20x1,5
	125	10485	FK-M27x2
20 Guide unit for variable strokes from 10 ... 500 mm, with recirculating ball bearing guide Technical data online: → feng			
	32	34487	FENG-32-...-KF ¹⁾
	40	34488	FENG-40-...-KF ¹⁾
	50	34489	FENG-50-...-KF ¹⁾
	63	34490	FENG-63-...-KF ¹⁾
	80	34491	FENG-80-...-KF ¹⁾
	100	34492	FENG-100-...-KF ¹⁾
	20 Guide unit for variable strokes from 10 ... 500 mm, with plain-bearing guide Technical data online: → feng		
	32	34481	FENG-32-... ¹⁾
	40	34482	FENG-40-... ¹⁾
	50	34483	FENG-50-... ¹⁾
	63	34484	FENG-63-... ¹⁾
	80	34485	FENG-80-... ¹⁾
	100	34486	FENG-100-... ¹⁾

1) Enter required stroke. Order example: the order code for an appropriate guide unit for the standard cylinder DSBG-40-250 is FENG-40-250-KF (guide unit FENG - piston diameter 40 mm - stroke 250 mm - with recirculating ball bearing guide).


	For Ø	Part No.	Type
21 Proximity sensor for T-slot, magneto-resistive – N/O contact Technical data → 808			
	PNP, cable	★ 574335	SMT-8M-A-PS-24V-E-2,5-OE
	PNP, plug	★ 574334	SMT-8M-A-PS-24V-E-0,3-M8D
	PNP, plug	★ 574337	SMT-8M-A-PS-24V-E-0,3-M12
	NPN, cable	★ 574338	SMT-8M-A-NS-24V-E-2,5-OE
	NPN, plug	★ 574339	SMT-8M-A-NS-24V-E-0,3-M8D
Magneto-resistive – N/C contact Technical data → 808			
	PNP, cable	★ 574340	SMT-8M-A-PO-24V-E-7,5-OE
21 Magnetic reed – N/O contact Technical data → 803			
	Cable	★ 543862	SME-8M-DS-24V-K-2,5-OE
	Cable	★ 543863	SME-8M-DS-24V-K-5,0-OE
	Cable	★ 543872	SME-8M-ZS-24V-K-2,5-OE
	Plug	★ 543861	SME-8M-DS-24V-K-0,3-M8D
Magnetic reed – N/C contact Technical data → 805			
	Cable	★ 546799	SME-8M-DO-24V-K-7,5-OE

Accessories – Ordering data – Piston \varnothing 32 ... 125

	For \varnothing		Part No.	Type	
22 Connecting cable, straight socket					Technical data → 1053
	2.5 m	★	541333	NEBU-M8G3-K-2.5-LE3	
	5 m	★	541334	NEBU-M8G3-K-5-LE3	
	2.5 m	★	541363	NEBU-M12G5-K-2.5-LE3	
	5 m	★	541364	NEBU-M12G5-K-5-LE3	
Angled socket					Technical data → 1053
	2.5 m	★	541338	NEBU-M8W3-K-2.5-LE3	
	5 m	★	541341	NEBU-M8W3-K-5-LE3	
	2.5 m		541367	NEBU-M12W5-K-2.5-LE3	
	5 m		541370	NEBU-M12W5-K-5-LE3	
23 Proximity sensor in block design, magnetic reed – N/O contact, pneumatic					Technical data online: → smeo
	–		31008	SMPO-1-H-B	
24 Mounting kit for proximity sensor SMPO-1					
	32, 40, 50, 63, 80, 100		151226	SMBS-2	
25 Mounting kit for proximity sensor SME/SMT-8					
	32, 40, 50, 63, 80, 100		537806	SMBZ-8-32/100	
	32, 40, 50, 63, 80, 100	★	538937	SMBR-8-8/100-S6	
26 Mounting kit for proximity sensor SME/SMT-8					
	125		1451483	DASP-M4-125-A	

Function	For \varnothing	Connection		Part No.	Type
		Thread	O.D.		
27 One-way flow control valve for exhaust air flow control¹⁾ with slotted head screw, metal					
	32	G $\frac{1}{8}$	4	★ 193143	GRLA- $\frac{1}{8}$ -QS-4-D
	40, 50	G $\frac{1}{4}$	6	★ 193146	GRLA- $\frac{1}{4}$ -QS-6-D
	63, 80	G $\frac{3}{8}$	8	★ 193150	GRLA- $\frac{3}{8}$ -QS-8-D
	100, 125	G $\frac{1}{2}$	12	★ 193152	GRLA- $\frac{1}{2}$ -QS-12-D

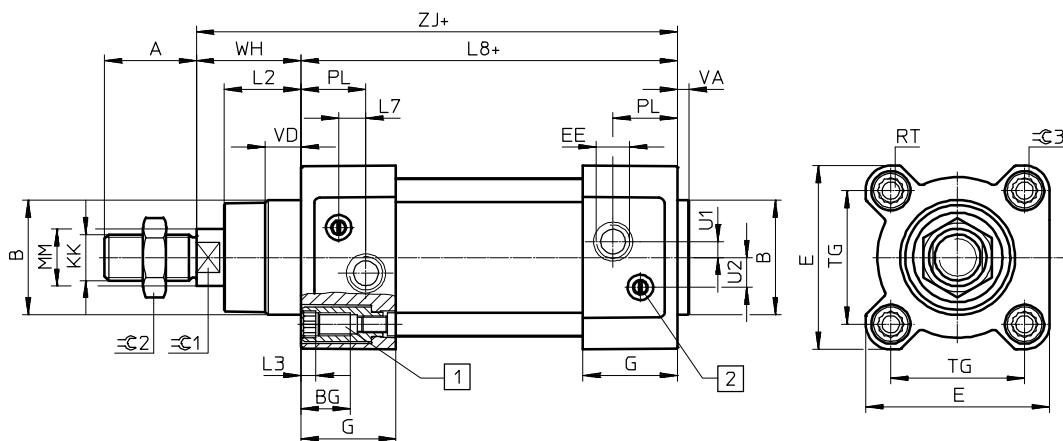
1) The recommended flow control valves are based on a tubing length to the valve of 1 m. For deviations of $\pm 50\%$, flow control valves with a bigger or smaller flow rate must be selected to guarantee the optimum flow control function and cylinder speed.

	For \varnothing		Part No.	Type	
30 Multi-position kit					Technical data online: → dsbg
	32		174418	DPNC-32	
	40		174419	DPNC-40	
	50		174420	DPNC-50	
	63		174421	DPNC-63	
	80		174422	DPNC-80	
	100		174423	DPNC-100	

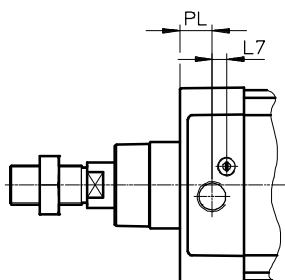
Standard cylinders DSBG, to ISO 15552

Dimensions – Piston Ø 32 ... 125

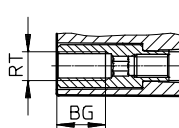
1 Basic design and A3 – Unlubricated operation



Ø 125



Ø 80 ... 125

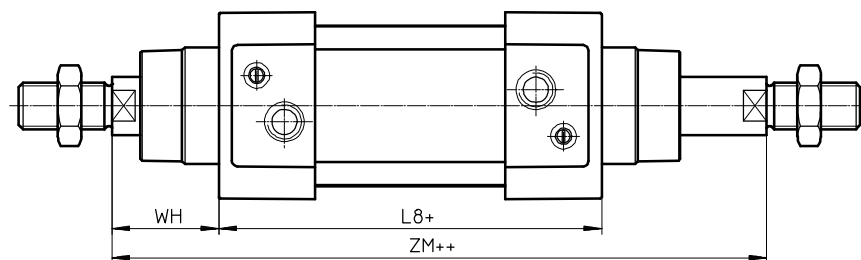


+ = plus stroke length

1 Socket head screw with female thread for mounting components

2 Regulating screw for adjustable end-position cushioning

T – Through piston rod



+ = plus stroke length

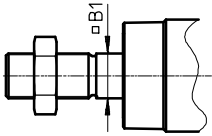
++ = plus 2x stroke length

Ø	A	B	BG	E	EE	G	U2	U1	KK	L2	L3	L7	L8
[mm]	-0.5	d11	min.	+0.5		-0.2	±0.1	±0.1			max.		±0.4
32	22	30	16	45	G $\frac{1}{8}$	28	5.7	5.25	M10x1.25	18 $_{-0.2}$	5	6.5	94
40	24	35	16	54	G $\frac{1}{4}$	33	8	4	M12x1.25	21.3 $_{-0.2}$	5	7.5	105
50	32	40	16	64	G $\frac{1}{4}$	33	10.4	5.5	M16x1.5	26.8 $_{-0.2}$	5	9.5	106
63	32	45	16	75	G $\frac{3}{8}$	40.5	12.75	6.25	M16x1.5	27 $_{-0.2}$	5	9	121
80	40	45	17	93	G $\frac{3}{8}$	43	12.5	8	M20x1.5	34.2 $_{-0.2}$	-	11	128
100	40	55	17	110	G $\frac{1}{2}$	48	13.5	10	M20x1.5	38 $_{-0.2}$	-	7.5	138
125	54	60	20	136	G $\frac{1}{2}$	44.7	13	8	M27x2	45 $_{-0.3}$	-	10	160

Ø	MM	PL	RT	TG	VA	VD	WH	ZJ	ZM	C1	C2	C3
[mm]	Ø	±0.1		±0.3		+0.5	+2.2	+1.8	+1			
32	12	19.5	M6	32.5	4 $_{-0.2}$	10	25	119.1	146.1	10	16	6
40	16	22.5	M6	38	4 $_{-0.2}$	10.5	28.7	133.9	164.8	13	18	6
50	20	22.5	M8	46.5	4 $_{-0.2}$	11.5	35.6	141.8	179.8	17	24	8
63	20	27.5	M8	56.5	4 $_{-0.2}$	15	35.9	157.1	195.4	17	24	8
80	25	30	M10	72	4 $_{-0.2}$	15.7	45.4	173.6	221	22	30	6
100	25	31.5	M10	89	4 $_{-0.2}$	19.2	49.3	187.5	238.8	22	30	6
125	32	22.5	M12	110	6 $_{-0.3}$	20.5	64.1	225	290	27	41	8

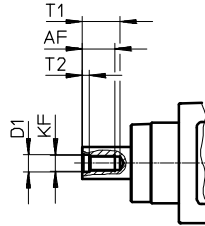
Dimensions – Piston Ø 32 ... 125

Q – With protection against rotation



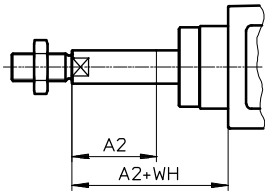
Note
Protection against rotation at one end in combination with the variant T.

F – Female thread



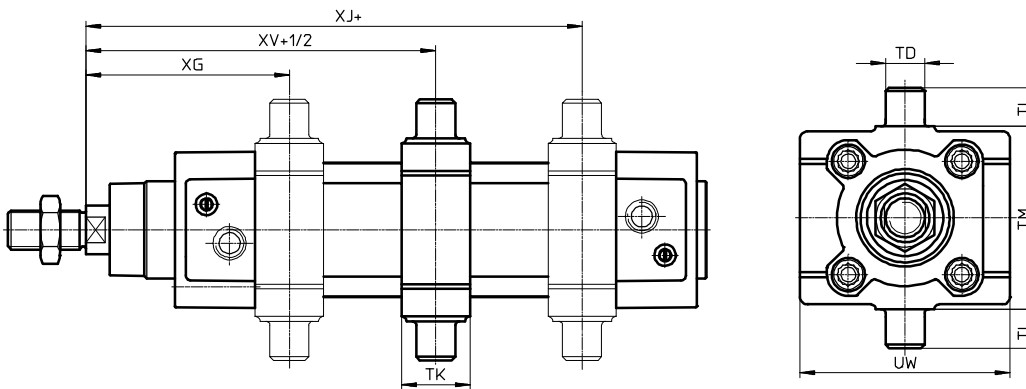
Note
Female thread at both ends in combination with the variant T.

...E – Piston rod extension



Note
Piston rod extension at one end in combination with the variant T.
Piston rod extension only at the square piston rod in combination with the variant T and Q.

...V – Swivel mounting position



Note
The dimensions for the swivel mounting position (...V) refer to the basic design without piston rod extension. The swivel mounting can be moved at any time.

+ = plus stroke length
+1/2 = plus half stroke length

Ø [mm]	A2		AF min.	B1	D1	KF	T1 max.	T2	WH +2.2
	min.	max.							
32	1	500	12	10	6.4	M6	16	2.6	25
40	1	500	12	12	8.4	M8	16	3.3	28.7
50	1	500	16	16	10.5	M10	21	4.7	35.6
63	1	500	16	16	10.5	M10	21	4.7	35.9
80	1	500	20	20	13	M12	26.5	6.1	45.4
100	1	500	20	20	13	M12	26.5	6.1	49.3
125	1	500	32	–	17	M16	40	8	64.1

Ø [mm]	TD Ø e9	TK	TL h14	TM h14	UW	XG min.	XJ max.	XV
40	16	25	16	63	72	74.2±1.4	88.4±1.4	81.2±1.4
50	16	28	16	75	86	82.6±1.4	94.8±1.4	88.6±1.4
63	20	30	20	90	98	91.4±1.8	101.6±1.8	96.4±1.8
80	20	32	20	110	110	104.4±1.8	114.6±1.8	109.4±1.8
100	25	38	25	132	136	116.3±1.8	120.5±1.8	118.3±1.8
125	25	44	25	160	160	131.7±1.8	158.3±1.8	145±1.8

Standard cylinders DSBG, to ISO 15552

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1



- Sturdy tie rod design
- Strokes of up to 2700 mm
- Wide range of variants for customised applications
- Comprehensive range of mounting accessories for just about every type of installation
- Spare parts service
- Piston Ø 32 ... 125 → 65

→ www.festo.com/catalogue/dsbg

Product range overview – Piston Ø 160, 200

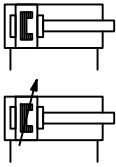
Type/function	Piston Ø [mm]	Stroke [mm]	Force [N]	Product options					
				V	T	P	PPV	A	N3
DSBG									
Double-acting	160, 200	1 ... 2700	12,064 ... 18,850	■	■	■	■	■	■

Type/function	Product options						
	T1	T4	...E	M36	B1	B2	B3
DSBG							
Double-acting	■	■	■	■	■	■	■

Product options

V	With central swivel mounting	A	Position sensing	EX4	EU certification (II 2GD)	B1	Integrated stud bolts at both ends
T	Through piston rod	N3	Standard conforms to ISO 15552	E	Piston rod extension	B2	Integrated stud bolts on bearing cap
P	Elastic cushioning rings/plates at both ends	R3	High corrosion protection	L	Piston rod thread extension	B3	Integrated stud bolts on end cap
PPV	Pneumatic cushioning, adjustable at both ends	T1	Heat-resistant seals up to max. 120 °C	M36	Piston rod thread M36		
		T4	Heat-resistant seals up to max. 150 °C				

Technical data – Piston Ø 160, 200



1

Technical data		Dimensions → 72	
Piston Ø		160	200
Pneumatic connection		G¾	G¾
Stroke ¹⁾	[mm]	1 ... 2700	
	E [mm]	1 ... 2000	
Cushioning	P	Elastic cushioning rings/plates at both ends	
	PPV	Pneumatic cushioning, adjustable at both ends	
Cushioning length	[mm]	48	
Theoretical force at 6 bar, advancing	[N]	12,064	18,850
Theoretical force at 6 bar, retracting	[N]	11,310	18,096
Max. impact energy in the end positions	[J]	3.3	4.8
	T1/-T4 [J]	2.3	4

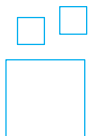
1) In combination with the position sensing option, the minimum stroke is 10 mm.

Operating conditions			
Piston Ø		160	200
Operating pressure	[bar]	0.6 ... 10	
Ambient temperature ¹⁾	[°C]	-20 ... +80	
	T1 [°C]	0 ... +120	
	T4 [°C]	0 ... +150	

1) Note operating range of proximity sensors.

Materials			
Piston rod		High-alloy steel	
Bearing cap		Coated die-cast aluminium/cast aluminium	
Cylinder barrel		Anodised wrought aluminium alloy	
End cap		Coated die-cast aluminium/cast aluminium	
Seals		TPE-U (PU), NBR	

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or

→ www.festo.com/catalogue/...

Enter the type code in the search field.

Standard cylinders DSBG, to ISO 15552

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Order code – Piston Ø 160, 200

1

Type		DSBG	-	-	-	-	-	-	-	N3	-	-	-	-
DSBG	Standard cylinder, double-acting													
Central swivel mounting		-	None											
V	Centrally clamped													
Piston Ø [mm]														
Stroke [mm]														
160, 200	25, 40, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500											1 ... 2700		
Piston rod type		-	Single-ended piston rod											
T	Through piston rod													
Cushioning		P	Elastic cushioning rings/plates at both ends											
PPV	Pneumatic cushioning, adjustable at both ends													
Position sensing		A	Via proximity sensor										[1]	
Standard		N3	Conforms to ISO 15552											
Temperature range		-	Standard											
T1	Heat resistant up to max. 120 °C													
T4	Heat resistant up to max. 150 °C													
Piston rod extension		-	None											
...E	1 ... 500 mm											[2]		
Piston rod thread		-	Standard											
M36	M36													
Integrated stud bolts		-	None											
B1	At both ends													
B2	On bearing cap													
B3	On end cap													

[1] Minimum stroke 10 mm

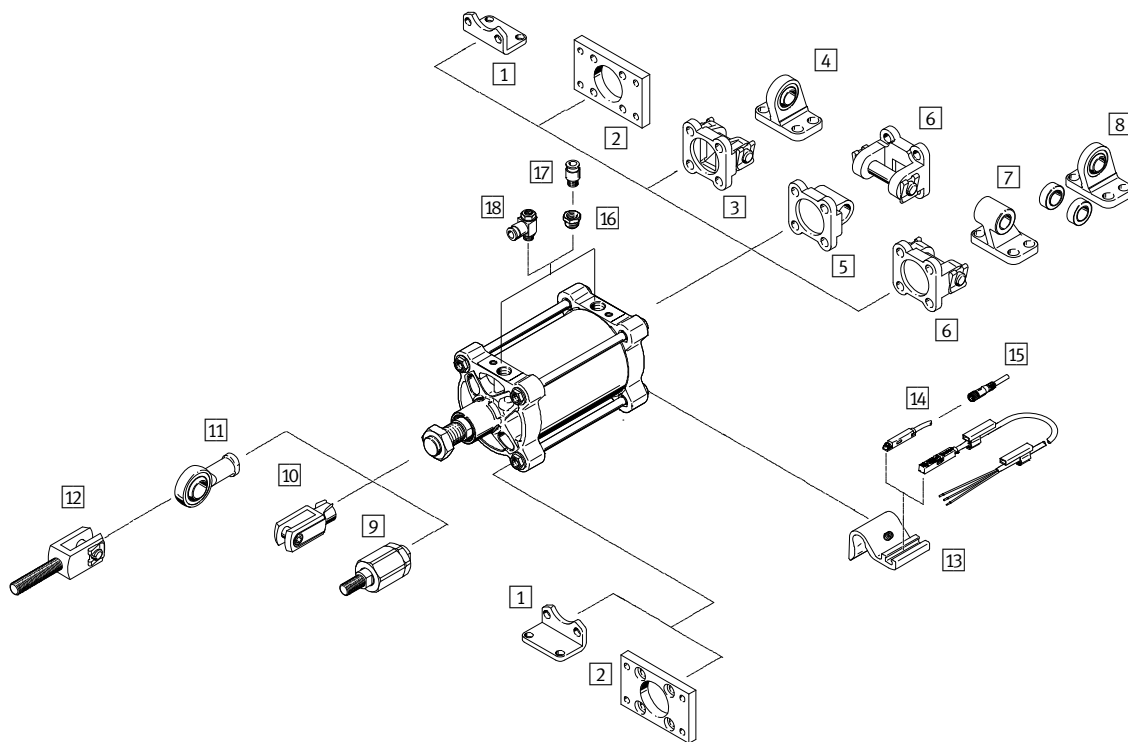
[2] Only up to strokes of 2000 mm

Order example:

DSBG-160-500-PPVA-N3T1-M36-B2

Double-acting standard cylinder - without central swivel mounting - piston diameter 160 mm - stroke 500 mm - single-ended piston rod - pneumatic cushioning, adjustable at both ends - position sensing via proximity sensor - standard conforms to ISO 15552 - heat resistant up to max. 120 °C - without piston rod extension - with piston rod thread M36 - with integrated stud bolts on bearing cap

Accessories – Piston Ø 160, 200



		→ Page/online
1	Foot mounting HNG	77
2	Flange mounting FNG	77
3	Swivel flange SNG	77
4	Clevis foot LSNG	77
5	Swivel flange SNGL	77
6	Swivel flange SNGB	77
7	Clevis foot LN/LNG	78
8	Clevis foot LSN	78
9	Self-aligning rod coupler FK	78

		→ Page/online
10	Rod clevis SG	78
11	Rod eye SGS	78
12	Rod clevis SGA	78
13	Sensor bracket DASP	78
14	Proximity sensor SME/SMT-8M	78
15	Connecting cable NEBU	78
16	Reducing nipple NPFC	78
17	Push-in fitting QS	1006
18	One-way flow control valve GRLA	gria

Accessories – Ordering data – Piston Ø 160, 200

	For Ø	Part No.	Type
1 Foot mounting Dimensions online: → dsbg			
	160	34476	HNG-160
	200	34477	HNG-200
2 Flange mounting Dimensions online: → dsbg			
	160	34478	FNG-160
	200	34479	FNG-200
3 Swivel flange Dimensions online: → dsbg			
	160	152597	SNG-160
	200	152598	SNG-200

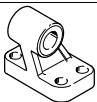
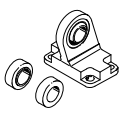


	For Ø	Part No.	Type
4 Clevis foot Dimensions online: → lsng			
	160	152599	LSNG-160
	200	152600	LSNG-200
5 Swivel flange Technical data online: → dsbg			
	160	151534	SNGL-160
	200	151535	SNGL-200
6 Swivel flange Dimensions online: → dsbg			
	160	34547	SNGB-160
	200	562455	SNGB-200-B




Standard cylinders DSBG, to ISO 15552

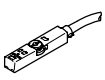
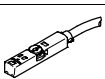
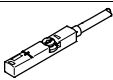
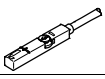



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Accessories – Ordering data – Piston Ø 160, 200

1

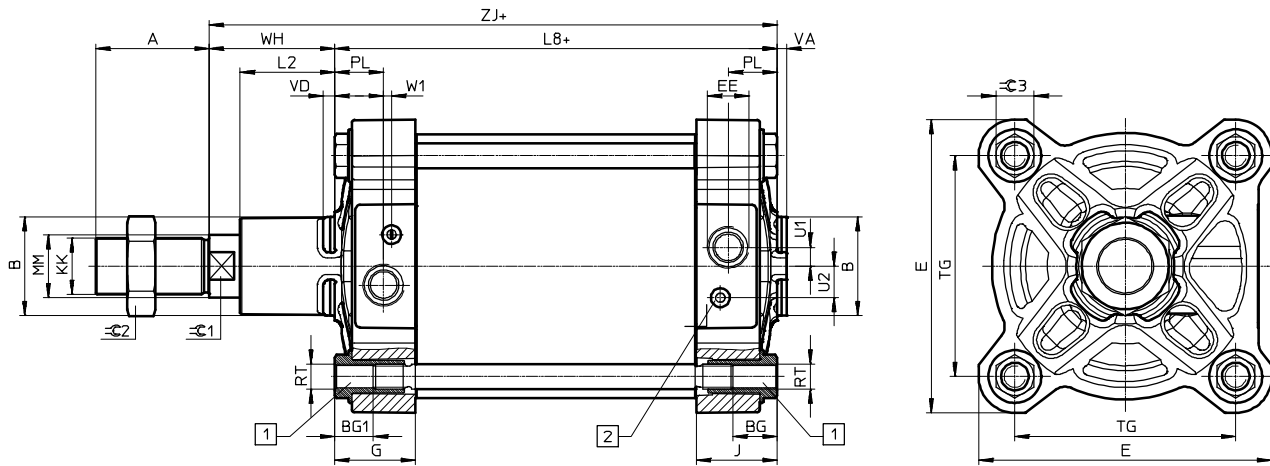
	For Ø	Part No.	Type
7 Clevis foot Dimensions online: → ln			
	160	9037	LN-160
	200	33898	LNG-200
8 Clevis foot Technical data online: → lsn			
	160	6988	LSN-160
	200	6989	LSN-200
9 Self-aligning rod coupler Technical data online: → fk			
	160, 200	10746	FK-M36x2
10 Rod clevis Technical data online: → sg			
	160, 200	9581	SG-M36x2

	For Ø	Part No.	Type
11 Rod eye Technical data online: → sgs			
	160, 200	10775	SGS-M36x2
12 Rod clevis Technical data online: → sga			
	160, 200	10771	SGA-M36x2
13 Mounting kit for proximity sensor SME/SMT-8 Technical data online: → dsbg			
	160, 200	155813	DASP-M4-125-A

	For Ø	Part No.	Type
14 Proximity sensor for T-slot, magneto-resistive – N/O contact Technical data → 808			
	PNP, cable	★ 574335	SMT-8M-A-PS-24V-E-2,5-OE
	PNP, plug	★ 574334	SMT-8M-A-PS-24V-E-0,3-M8D
	PNP, plug	★ 574337	SMT-8M-A-PS-24V-E-0,3-M12
	NPN, cable	★ 574338	SMT-8M-A-NS-24V-E-2,5-OE
	NPN, plug	★ 574339	SMT-8M-A-NS-24V-E-0,3-M8D
Magneto-resistive – N/C contact Technical data → 808			
	PNP, cable	★ 574340	SMT-8M-A-PO-24V-E-7,5-OE
Magnetic reed – N/O contact Technical data → 803			
	Cable	★ 543862	SME-8M-DS-24V-K-2,5-OE
	Cable	★ 543863	SME-8M-DS-24V-K-5,0-OE
	Cable	★ 543872	SME-8M-ZS-24V-K-2,5-OE
	Plug	★ 543861	SME-8M-DS-24V-K-0,3-M8D
Magnetic reed – N/C contact Technical data → 803			
	Cable	★ 546799	SME-8M-DO-24V-K-7,5-OE
15 Connecting cable, straight socket Technical data → 1053			
	2.5 m	★ 541333	NEBU-M8G3-K-2.5-LE3
	5 m	★ 541334	NEBU-M8G3-K-5-LE3
	2.5 m	★ 541363	NEBU-M12G5-K-2.5-LE3
	5 m	★ 541364	NEBU-M12G5-K-5-LE3
Connecting cable, angled socket Technical data → 1053			
	2.5 m	★ 541338	NEBU-M8W3-K-2.5-LE3
	5 m	★ 541341	NEBU-M8W3-K-5-LE3
	2.5 m	541367	NEBU-M12W5-K-2.5-LE3
	5 m	541370	NEBU-M12W5-K-5-LE3
16 Reducing nipple Technical data online: → npfc			
	160, 200	8030313	NPFC-R-G34-G12-MF

Dimensions – Piston Ø 160, 200

Basic design

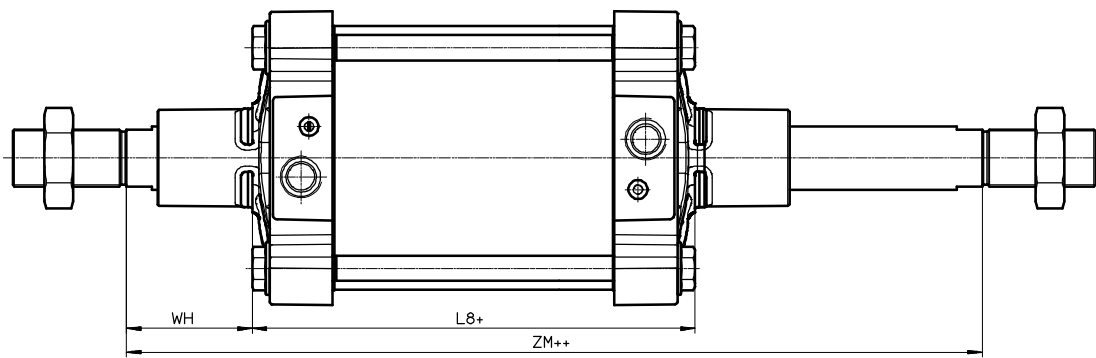


+ = plus stroke length

1 Socket head screw with female thread for mounting components

2 Regulating screw for adjustable end-position cushioning (PPV)

T – Through piston rod



+ = plus stroke length

++ = plus 2x stroke length

∅	A	B	BG	BG1	E	EE	G	J
[mm]	-0.5	d11	min.	±0.5	±0.5			
160	72	65	24	25	186	G¾	52	52
200	72	75	24	25	230	G¾	48.2	50.2

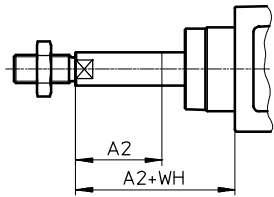
∅	KK		L2	L8	MM	PL	RT	TG	U1	U2
[mm]	DSBG...	DSBG...-M36						±1.1		
160	M36x2	M36	60	180±1.1	40	31	M16	140	12	20
200	M36x2	M36	70	180±1	40	30	M16	175	12	20

∅	VA	VD	W1	WH	ZJ	ZM	∅C1	∅C2	∅C3
[mm]	-1				±1		h14		h13
160	6	7.5	5	80±1.3	260	342±1	36	55	24
200	6	7.5	5	95±1.4	275	372±1.2	36	55	24

Dimensions – Piston Ø 160, 200

1

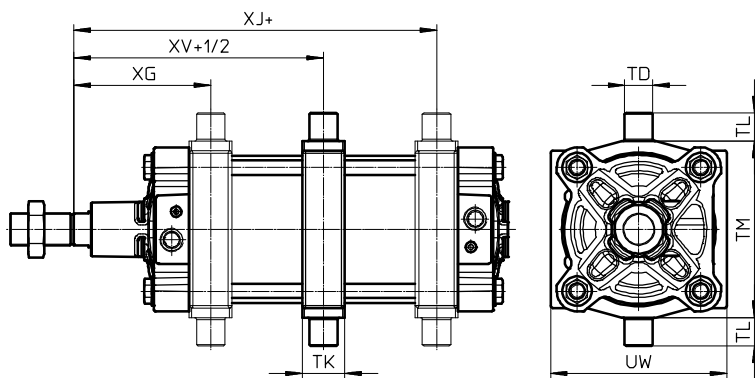
...E – Piston rod extension



Note
Piston rod extension at one end in combination with the variant T.

Ø [mm]	A2		WH
	min.	max.	
160	1	500	80±1.3
200	1	500	95±1.4

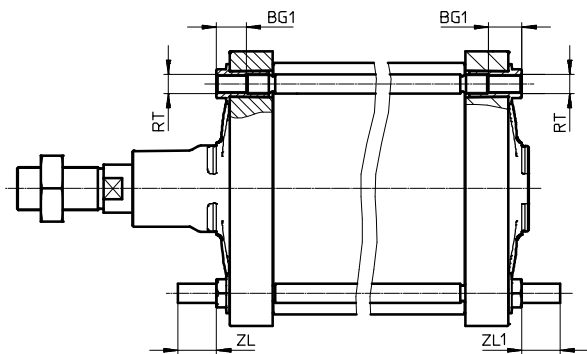
...V – Central swivel mounting



+ = plus stroke length
+1/2 = plus half stroke length

Ø	TD	TK	TL	TM	UW	XG	XJ	XV
[mm]	Ø e8		h14	h14		±0.5	±0.5	
160	32	48	32	200	200	161.5	178.5	170
200	32	48	32	250	240	176	194	185

...B1/B2/B3 – Integrated stud bolt



Ø	BG	BG1	RT	ZL	ZL1 ¹⁾
[mm]		±0.5		±0.5	
160	min. 24	25	M16	32	32
200	min. 24	25	M16	32	32

1) Tolerances depending on variant:
B1: ZL1 = +1/-2; B3: ZL1 = ±0.5

Standard cylinders DSBF-C, to ISO 15552, Clean Design



- Standard cylinder with increased corrosion protection
- Resistant to conventional cleaning agents
- Long service life thanks to optional seal for unlubricated operation
- Hygienic mounting of the proximity sensors possible
- Strokes of up to 2800 mm
- Comprehensive range of mounting accessories for just about every type of installation
- Spare parts service

→ www.festo.com/catalogue/dsbf

Product range overview

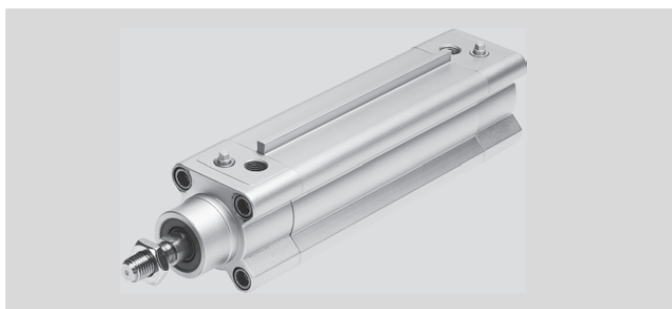
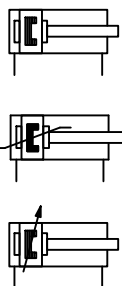
Type/function	Piston Ø [mm]	Stroke [mm]	Force [N]	Product options											
				T	F	P	PPV	PPS	N3	T1	T3	T4	A3	E	R
DSBF-C															
Double-acting	32, 40, 50, 63, 80, 100, 125	1 ... 2800	483 ... 7363	■	■	■	■	■	■	■	■	■	■	■	■

Product options

L	Low friction	P	Elastic cushioning rings/plates at both ends	T1	Heat-resistant seals up to max. 120 °C	A3	Suitable for unlubricated operation
U	Uniformly slow movement	PPS	Pneumatic cushioning, self-adjusting at both ends	T3	Low temperature	EX4	EU certification (II 2GD)
T	Through piston rod	PPV	Pneumatic cushioning, adjustable at both ends	T4	Heat-resistant seals up to max. 150 °C	...E	Piston rod extension
F	Female piston rod thread	A	Position sensing	A1	Increased chemical resistance	L	Piston rod thread extension
		N3	Standard conforms to ISO 15552	A2	Hard scraper	R	Mounting rail for sensors

Standard cylinders DSBF-C, to ISO 1552, Clean Design

1 Technical data



Technical data		Dimensions → 86						
Piston Ø		32	40	50	63	80	100	125
Pneumatic connection		G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{1}{2}$
Piston rod thread		M10x1.25	M12x1.25	M16x1.5	M16x1.5	M20x1.5	M20x1.5	M27x2
Stroke	[mm]	1 ... 2800						
	E [mm]	1 ... 2000						
Cushioning	P	Elastic cushioning rings/plates at both ends						
	PPS	Pneumatic cushioning, self-adjusting at both ends						
	PPV	Pneumatic cushioning, adjustable at both ends						
Cushioning length	PPV [mm]	17	19	22	22	31	31	45
Min. stroke with position sensing ¹⁾	[mm]	18	17	13	10	10	10	10
Theoretical force at 6 bar, advancing	[N]	483	754	1178	1870	3016	4712	7363
Theoretical force at 6 bar, retracting	[N]	415	633	990	1682	2721	4418	6881
Max. impact energy in the end positions	[J]	0.4	0.7	1.0	1.3	1.8	2.5	3.3
	T1/T3/T4 [J]	0.2	0.35	0.5	0.65	0.9	1.25	1.65

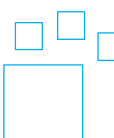
1) Values apply to proximity sensor SMT-C1, the minimum stroke for proximity sensor CRSMT-8M is 10 mm

Operating conditions		Dimensions → 86						
Piston Ø		32	40	50	63	80	100	125
Operating pressure	[bar]	0.6 ... 12		0.4 ... 12				0.2 ... 10
	T3 [bar]	1 ... 12						1 ... 10
	A3 [bar]	1.5 ... 12		1 ... 12	0.6 ... 12		0.6 ... 10	
Ambient temperature ²⁾	[°C]	-20 ... +80						
	T1 [°C]	0 ... +120						
	T3 [°C]	-40 ... +80						
	T4 [°C]	0 ... +150						

2) Note operating range of proximity sensors.

Materials	
Piston rod	High-alloy stainless steel
Bearing cap	Coated die-cast aluminium
Cylinder barrel	Anodised wrought aluminium alloy
End cap	Coated die-cast aluminium
Seals	NBR, PUR

Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
www.festo.com/catalogue/...

Enter the type code in the search field.

Order code

		DSBF - C - - - - - A - N3 - - - - R	
Type			
DSBF	Standard cylinder		
Version			
C	Easy-to-clean design		
Piston Ø [mm]			
	Stroke [mm]		
32, 40, 50, 63, 80, 100, 125	25, 40, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500	1 ... 2800	
Piston rod type			
-	Single-ended piston rod		
T	Through piston rod		
Piston rod thread type			
-	Male thread		
F	Female thread		
Cushioning			
P	Elastic cushioning rings/plates at both ends		
PPS	Pneumatic cushioning, self-adjusting at both ends 1		
PPV	Pneumatic cushioning, adjustable at both ends		
Position sensing			
A	Via proximity sensor		
Standard			
N3	Conforms to ISO 15552		
Temperature range			
-	Standard		
T1	Heat resistant up to max. 120 °C 2		
T3	Low temperature 2		
T4	Heat resistant up to max. 150 °C 2		
Wiper seal variant			
-	None		
A3	Suitable for unlubricated operation		
Piston rod extension			
... E	1 ... 500 mm		3
Sensor mounting			
R	Mounting rail for sensors		

- 1 Not with temperature range T1, T3, 2 Not with wiper seal variant A3 3 Only up to strokes of 2000 mm
T4

Order example:

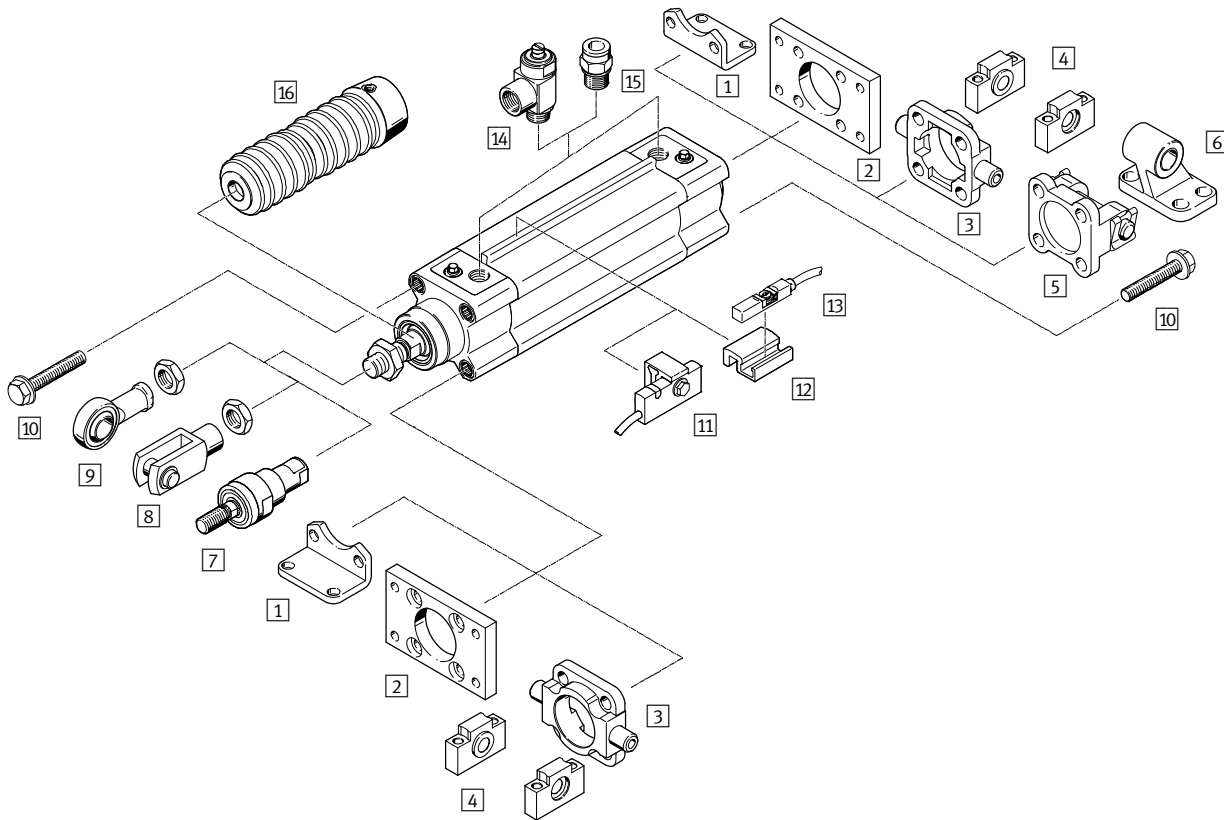
DSBF-C-32-500-PPVA-N3T1-200E-R

Standard cylinder - easy-to-clean design - piston diameter 32 mm - stroke 500 mm - single-ended piston rod - male thread - pneumatic cushioning, self-adjusting at both ends - position sensing via proximity sensor - standard conforms to ISO 15552 - heat resistant up to max. 120 °C - no wiper seal variant - piston rod extension 200 mm - mounting rail for sensors

Standard cylinders DSBF-C, to ISO 1552, Clean Design

Accessories

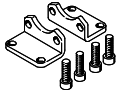
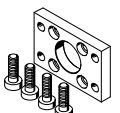
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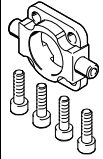
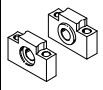


		→ Page/online
1	Foot mounting CRHNC	84
2	Flange mounting CRFNG	84
3	Trunnion flange CRZNG	84
4	Trunnion support CRLNZG	84
5	Swivel flange SNCB- ... -R3	85
6	Clevis foot CRLNG	85
7	Self-aligning rod coupler CRFK	85
8	Rod clevis CRSG	85

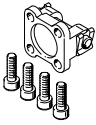


		→ Page/online
9	Rod eye CRSGS	85
10	Blanking screw DAMD	85
11	Proximity sensor SMT-C1	85
12	Mounting kit SMB-8-C	85
13	Proximity sensor CRSMT-8M	85
14	One-way flow control valve CRGRLA	85
15	Push-in fitting NPQH/CRQS/CRQSL	dsbf
16	Protective bellows kit DADB	dsbf



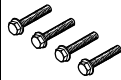
Accessories – Ordering data

	For Ø	Part No.	Type
	1 Foot mounting Dimensions online: → dsbf		
	32	176937	CRHNC-32
	40	176938	CRHNC-40
	50	176939	CRHNC-50
	63	176940	CRHNC-63
	80	176941	CRHNC-80
	100	176942	CRHNC-100
	125	176943	CRHNC-125
	2 Flange mounting Dimensions online: → dsbf		
	32	161846	CRFNG-32
	40	161847	CRFNG-40
	50	161848	CRFNG-50
	63	161849	CRFNG-63
	80	161850	CRFNG-80
	100	161851	CRFNG-100
	125	185363	CRFNG-125




	For Ø	Part No.	Type
	3 Trunnion flange Dimensions online: → dsbf		
	32	161852	CRZNG-32
	40	161853	CRZNG-40
	50	161854	CRZNG-50
	63	161855	CRZNG-63
	80	161856	CRZNG-80
	100	161857	CRZNG-100
	125	185362	CRZNG-125
	4 Trunnion support Dimensions online: → crlnzg		
	32	161874	CRLNZG-32
	40, 50	161875	CRLNZG-40/50
	63, 80	161876	CRLNZG-63/80
	100, 125	161877	CRLNZG-100/125



Accessories – Ordering data


	For Ø	Part No.	Type
5 Swivel flange			Dimensions online: → dsbf
	32	176944	SNCB-32-R3
	40	176945	SNCB-40-R3
	50	176946	SNCB-50-R3
	63	176947	SNCB-63-R3
	80	176948	SNCB-80-R3
	100	176949	SNCB-100-R3
	125	176950	SNCB-125-R3
6 Clevis foot			Technical data online: → crlng
	32	161840	CRLNG-32
	40	161841	CRLNG-40
	50	161842	CRLNG-50
	63	161843	CRLNG-63
	80	161844	CRLNG-80
	100	161845	CRLNG-100
	125	176951	CRLNG-125
7 Self-aligning rod coupler			Technical data online: → crfk
	32	2305778	CRFK-M10x1,25
	40	2305779	CRFK-M12x1,25
	50, 63	2490673	CRFK-M16x1,5
	80, 100	2545677	CRFK-M20x1,5

	For Ø	Part No.	Type
8 Rod clevis			Technical data online: → crrsg
	32	13569	CRSG-M10x1,25
	40	13570	CRSG-M12x1,25
	50, 63	13571	CRSG-M16x1,5
	80, 100	13572	CRSG-M20x1,5
	125	185361	CRSG-M27x2
9 Rod eye			Technical data online: → crsgs
	32	195582	CRSGS-M10x1,25
	40	195583	CRSGS-M12x1,25
	50, 63	195584	CRSGS-M16x1,5
	80, 100	195585	CRSGS-M20x1,5
	125	195586	CRSGS-M27x2
10 Blanking screw¹⁾			
	32, 40	1355016	DAMD-PS-M6-12-R1
	50, 63	650121	DAMD-PS-M8-16-R1
	80, 100	1355026	DAMD-PS-M10-16-R1

1) Packaging unit 4 pieces.

	For Ø	Part No.	Type
11 Proximity sensor, magneto-resistive – N/O contact			Technical data online: → smt
	PNP, cable	571339	SMT-C1-PS-24V-K-5,0-OE
	PNP, plug	571342	SMT-C1-PS-24V-K-0,3-M8D
	PNP, plug	571341	SMT-C1-PS-24V-K-0,3-M12
12 Mounting kit			Technical data online: → dsbf
	For mounting the proximity sensor CRSMT-8M on the mounting rail	1806790	SMB-8-C
13 Proximity sensor for T-slot, magneto-resistive – N/O contact			Technical data online: → crsmt-8m
	PNP, cable	574380	CRSMT-8M-PS-24V-K-5,0-OE
	PNP, cable	574381	CRSMT-8M-PS-24V-K-10,0-OE
	PNP, plug	574383	CRSMT-8M-PS-24V-K-0,3-M8D
	PNP, plug	574382	CRSMT-8M-PS-24V-K-0,3-M12

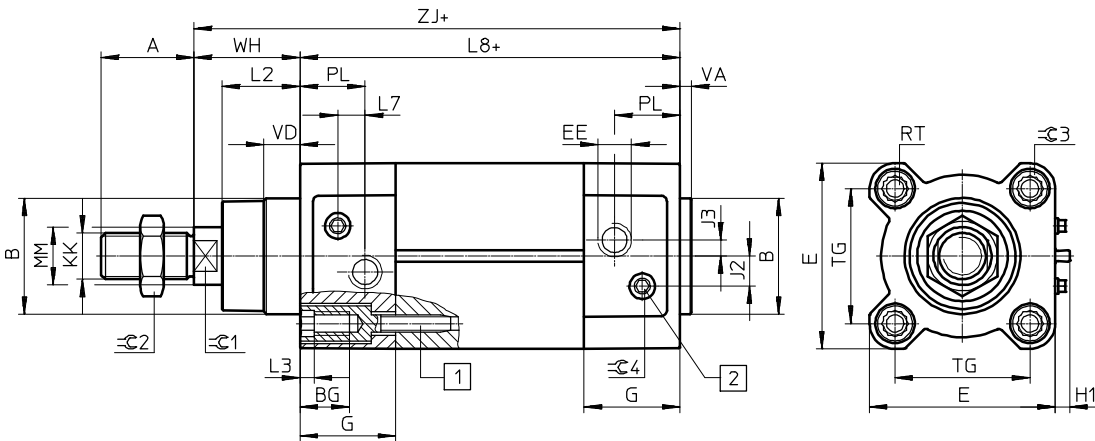
	For Ø	Part No.	Type
13 Connecting cable, straight socket			Technical data → 1053
	2.5	★ 541333	NEBU-M8G3-K-2.5-LE3
	5	★ 541334	NEBU-M8G3-K-5-LE3
	2.5	★ 541363	NEBU-M12G5-K-2.5-LE3
	5	★ 541364	NEBU-M12G5-K-5-LE3
Angled socket			Technical data → 1053
	2.5	★ 541338	NEBU-M8W3-K-2.5-LE3
	5	★ 541341	NEBU-M8W3-K-5-LE3
	2.5	541367	NEBU-M12W5-K-2.5-LE3
	5	541370	NEBU-M12W5-K-5-LE3

	For Ø	Connection Thread	Part No.	Type
14 One-way flow control valve with slotted head screw, stainless steel for exhaust air flow control				Technical data online: → grla
	32	G1/8	161404	CRGRLA-1/8-B
	40, 50	G1/4	161405	CRGRLA-1/4-B
	63, 80	G3/8	161406	CRGRLA-3/8-B
	100	G1/2	161407	CRGRLA-1/2-B

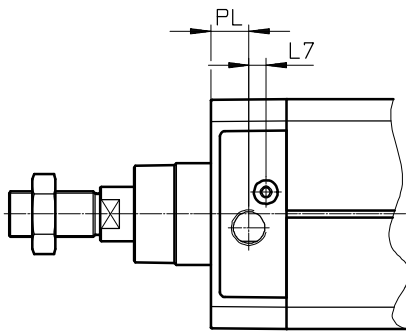
Standard cylinders DSBF-C, to ISO 1552, Clean Design

Dimensions

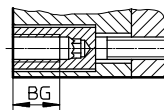
1 Basic design and A3 – Unlubricated operation



∅ 125



∅ 80 ... 125



+ = plus stroke length

- 1 Socket head screw with female thread for mounting components
- 2 Regulating screw for adjustable end-position cushioning

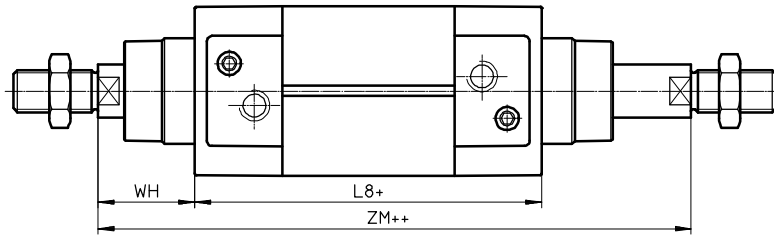
∅ [mm]	A	B ∅ d11	BG min.	E +0.5	EE	G -0.2	H1 ±0.2	J2 ±0.1	J3 ±0.1
32	22	30	16	45	G $\frac{1}{8}$	28	5	5.7	5.25
40	24	35	16	54	G $\frac{1}{4}$	33	5	8	4
50	32	40	16	64	G $\frac{1}{4}$	33	5	10.4	5.5
63	32	45	16	75	G $\frac{3}{8}$	40.5	5	12.75	6.25
80	40	45	17	93	G $\frac{3}{8}$	43	5	12.5	8
100	40	55	17	110	G $\frac{1}{2}$	48	5	13.5	10
125	54	60	20	136	G $\frac{1}{2}$	44.7	5	13	8

∅ [mm]	KK	L2	L3 max.	L7	L8 ±0.4	MM ∅	PL ±0.1	RT	TG ±0.3
32	M10x1.25	18 $_{-0.2}$	5	6.5	94	12	19.5	M6	32.5
40	M12x1.25	21.3 $_{-0.2}$	5	7.5	105	16	22.5	M6	38
50	M16x1.5	26.8 $_{-0.2}$	5	9.5	106	20	22.5	M8	46.5
63	M16x1.5	27 $_{-0.2}$	5	9	121	20	27.5	M8	56.5
80	M20x1.5	34.2 $_{-0.2}$	–	11	128	25	30	M10	72
100	M20x1.5	38 $_{-0.2}$	–	7.5	138	25	31.5	M10	89
125	M27x2	45.5 $_{-0.3}$	–	10	160	32	22.5	M12	110

∅ [mm]	VA	VD +0.5	WH +2.2	ZJ +1.8	∅C1	∅C2	∅C3	∅C4
32	4 $_{-0.2}$	10	25	119.1	10	16	6	4
40	4 $_{-0.2}$	10.5	28.7	133.9	13	18	6	4
50	4 $_{-0.2}$	11.5	35.6	141.8	17	24	8	4
63	4 $_{-0.2}$	15	35.9	157.1	17	24	8	4
80	4 $_{-0.2}$	15.7	45.4	173.6	22	30	6	4
100	4 $_{-0.2}$	19.2	49.3	187.5	22	30	6	5
125	6 $_{-0.3}$	20.5	64.1	225	27	41	8	5

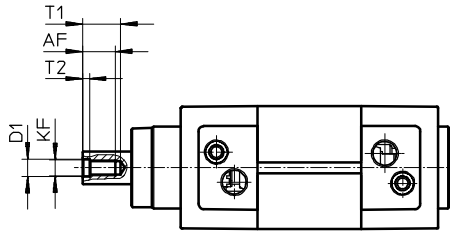
Dimensions

T – Through piston rod



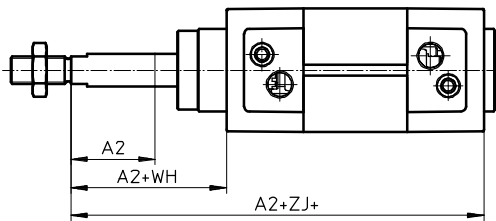
+ = plus stroke length
++ = plus 2x stroke length

F – Piston rod with female thread



Note
Female thread at both ends in combination with the variant T.

E – Piston rod extension



Note
Piston rod extension at one end in combination with the variant T.

+ = plus stroke length

∅ [mm]	A2 max.	AF	D1	KF	L8 ±0.4
32	500	12	6.4 ^{+0.2}	M6	94
40		12	8.4 ^{+0.2}	M8	105
50		16	10.5 ^{+0.2}	M10	106
63		16	10.5 ^{+0.2}	M10	121
80		20	13 ^{+0.1}	M12	128
100		20	13 ^{+0.1}	M12	138
125		32	17 ^{+0.1}	M16	160

∅ [mm]	T1	T2 +0.2	WH +2.2	ZJ +1.8	ZM +1
32	16	2.6	25	119.1	146.1
40	16	3.3	28.7	133.9	164.8
50	21	4.7	35.6	141.8	179.8
63	21	4.7	35.9	157.1	195.4
80	26.5	6.1	45.4	173.6	221
100	26.5	6.1	49.3	187.5	238.8
125	40	8	64.1	225	290

Standard cylinders DNC, to ISO 15552

1



- Strokes of up to 2000 mm
- Profile slot for proximity sensors on 3 sides
- Wide range of variants for customised applications
- Spare parts service
- Selected types in accordance with the ATEX Directive for explosive atmospheres → www.festo.com/catalogue/ex

→ www.festo.com/catalogue/dnc

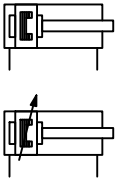
Product range overview

Type/function	Piston Ø [mm]	Stroke [mm]	Force [N]	Product options							→ Page/online	
				P	PPV	A	Q	S2	S6	TT		
Double-acting	DNC – Basic design											89
	32, 40, 50, 63, 80, 100, 125	10 ... 2000	415 ... 7363	■	■	■	■	■	■	■		
	DNC-...-KP – With clamping unit											dnc-kp
	32, 40, 50, 63, 80, 100, 125	10 ... 2000	415 ... 7363	■	■	■	■	■	-	-		
	DNC-...-EL – With end-position locking											dnc-el
32, 40, 50, 63, 80, 100	10 ... 2000	415 ... 4712	-	■	■	-	■	-	-			
DNC-...-V1 ... V6 – Cylinder/valve combination											dnc-v	
32, 40, 50, 63, 80, 100	10 ... 2000	415 ... 4712	■	■	■	■	■	-	-			

Product options

P	Elastic cushioning rings/plates at both ends	S20	Through, hollow piston rod	K7	Piston rod with external hexagon	TT	Low temperature
PPV	Pneumatic cushioning, adjustable at both ends	K2	Extended male piston rod thread	K8	Extended piston rod	S10	Slow speed
A	Position sensing	K3	Female piston rod thread	K10	Smooth anodised aluminium piston rod	S11	Low friction
Q	Square piston rod	K5	Special piston rod thread	S6	Heat-resistant seals up to max. 120 °C	R3	High corrosion protection
S2	Through piston rod					R8	Dust protection

Technical data



1

Technical data								Dimensions → 95
Piston Ø		32	40	50	63	80	100	125
Pneumatic connection		G1/8	G1/4	G1/4	G3/8	G3/8	G1/2	G1/2
Piston rod end		Male thread						
Piston rod thread		M10x1.25	M12x1.25	M16x1.5	M16x1.5	M20x1.5	M20x1.5	M27x2
Stroke	[mm]	10 ... 2000						
Cushioning	P	Elastic cushioning rings/plates at both ends						
	PPV	Pneumatic cushioning, adjustable at both ends						
Cushioning length	[mm]	20	20	22	22	32	32	42
Theoretical force at 6 bar, advancing	[N]	483	754	1178	1870	3016	4712	7363
	S2 [N]	415	633	990	1682	2721	4418	6881
Theoretical force at 6 bar, retracting	[N]	415	633	990	1682	2721	4418	6881
Max. torque at the piston rod	Q [Nm]	0.8	1.1	1.5	1.5	3	3	–

Operating conditions			
Piston Ø		32 ... 100	125
Operating pressure	[bar]	0.6 ... 12	
	S6 [bar]	0.6 ... 10	
	TT [bar]	1 ... 12	–
Ambient temperature ¹⁾	[°C]	–20 ... +80	
	S6 [°C]	0 ... +120	
	TT [°C]	–40 ... +80	–

1) Note operating range of proximity sensors.

Materials	
Piston rod	High-alloy steel
Bearing cap	Coated die-cast aluminium
Cylinder barrel	Smooth anodised aluminium
End cap	Coated die-cast aluminium
Seals	TPE-U (PU)

Standard cylinders DNC, to ISO 15552

Order code

1

Type		DNC	-	-	-	-	-	-	-	-
DNC	Double-acting standard cylinder									
Piston Ø [mm]										
Stroke [mm]										
32, 40, 50, 63, 80, 100, 125	25, 40, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500	10 ... 2000								
32, 40, 50, 63, 80, 100, 125	20, 30, 60, 70, 150, 300	1								
Cushioning										
P	Elastic cushioning rings/plates at both ends									
PPV	Pneumatic cushioning, adjustable at both ends									
Position sensing										
-	None									
A	Via proximity sensor									
Protection against rotation										
-	None									
Q	Square piston rod 2									
Piston rod type										
-	Single-ended piston rod									
S2	Through piston rod									
Temperature resistance										
-	Standard									
S6	Heat-resistant seals up to max. 120 °C									
Low temperature										
-	Standard									
TT	-40 ... +80 °C 3									

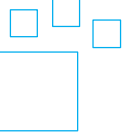
- 1 Only with position sensing A
- 2 Not with piston Ø 125 mm
Max. stroke: 10 ... 1500 mm
- 3 Not with piston Ø 125 mm

Order example:

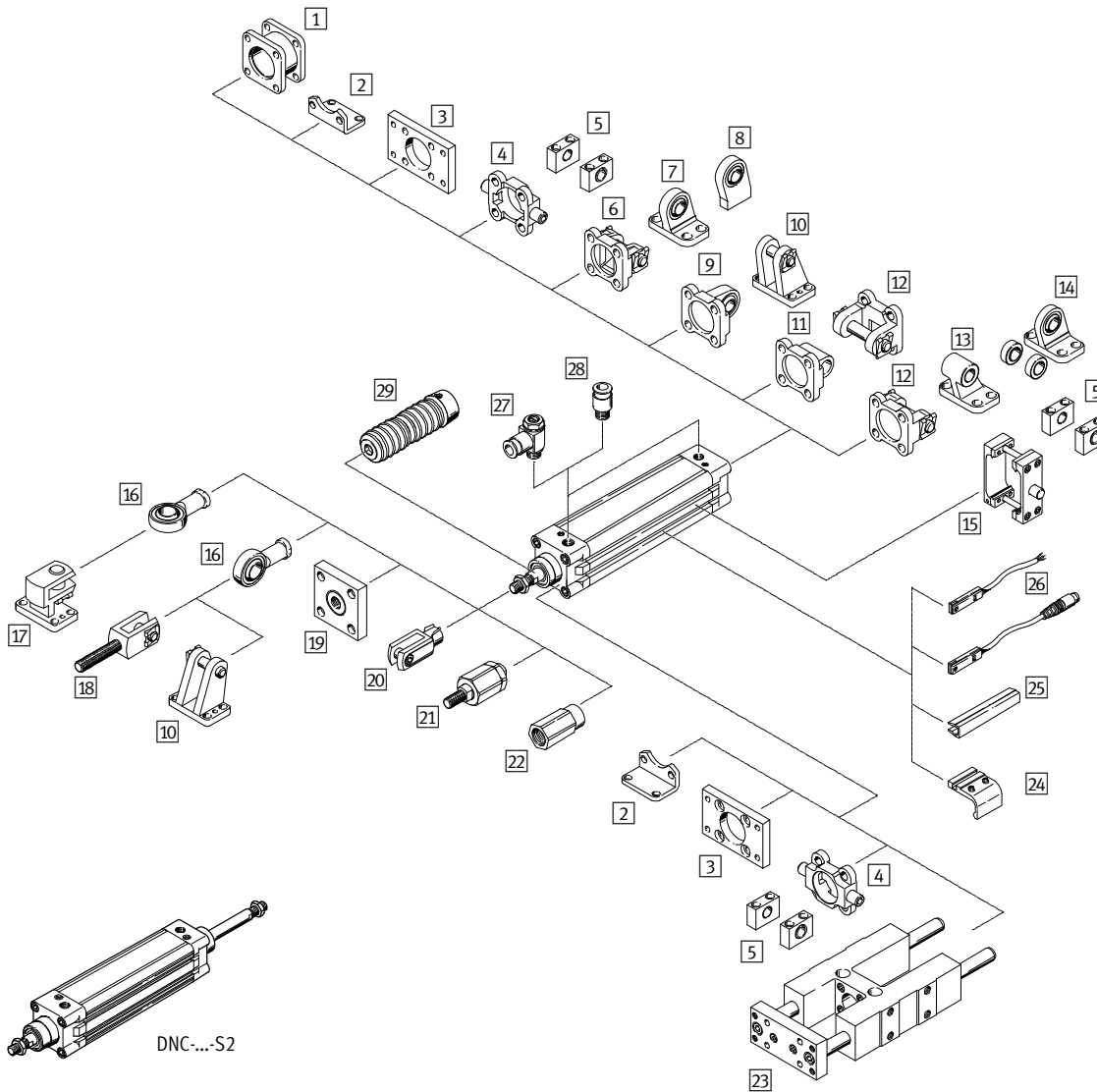
DNC-80-550-PPV-A-S2-S6

Double-acting standard cylinder DNC - piston diameter 80 mm - stroke 550 mm - pneumatic cushioning, adjustable at both ends - position sensing via proximity sensor - without protection against rotation - through piston rod - heat-resistant seals up to max. 120 °C - low temperature, standard

Ordering – Product options

	<p>Configurable product</p>	<p>This product and all its options can be ordered using the configurator.</p>	<p>The configurator can be found under Products on the DVD or www.festo.com/catalogue/...</p>	<p>Enter the type code in the search field.</p>
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Accessories




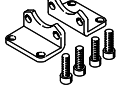
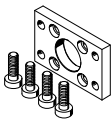
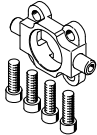
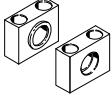
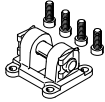

		→ Page/ online
1	Multi-position kit DPNC	92
2	Foot mounting HNC	92
	Foot mounting CRHNC	dnc
3	Flange mounting FNC	92
	Flange mounting CRFNG	dnc
4	Trunnion flange ZNCF	92
	Trunnion flange CRZNG	dnc
5	Trunnion support LNZG	92
	Trunnion support CRLNZG	dnc
6	Swivel flange SNC	92
7	Clevis foot LSNG	92
8	Clevis foot LSNSG	92
9	Swivel flange SNCS	92
11	Swivel flange SNCL	92
12	Swivel flange SNCB	92
	Swivel flange SNCB-R3	dnc
13	Clevis foot LNG	92
	Clevis foot CRLNG	dnc


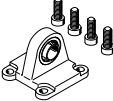
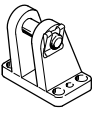
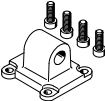
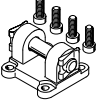

		→ Page/ online
14	Clevis foot LSN	93
15	Trunnion mounting kit DAMT	93
16	Rod eye SGS	93
	Rod eye CRSGS	dnc
17	Right-angle clevis foot LQG	93
18	Rod clevis SGA	93
19	Coupling piece KSG/KSZ	93
20	Rod clevis SG	93
	Rod clevis CRSG	dnc
21	Self-aligning rod coupler FK	93
22	Adapter AD	93
23	Guide unit FENG	93
24	Mounting kit SMB-8-FENG	93
25	Slot cover ABP-5-S	93
26	Proximity sensor SME/SMT and connecting cable NEBU	94
27	One-way flow control valve GRLA	94
28	Push-in fitting QS	1006
29	Protective bellows kit DADB	dnc

Standard cylinders DNC, to ISO 15552

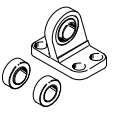
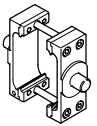



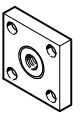
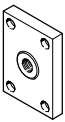
Accessories – Ordering data




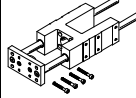
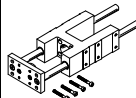


1

	For Ø	Part No.	Type
1 Multi-position kit Dimensions online: → dnc			
	32	174418	DPNC-32
	40	174419	DPNC-40
	50	174420	DPNC-50
	63	174421	DPNC-63
	80	174422	DPNC-80
	100	174423	DPNC-100
	125	174424	DPNC-125
2 Foot mounting Dimensions online: → dnc			
	32	★ 174369	HNC-32
	40	★ 174370	HNC-40
	50	★ 174371	HNC-50
	63	★ 174372	HNC-63
	80	★ 174373	HNC-80
	100	174374	HNC-100
	125	174375	HNC-125
3 Flange mounting Dimensions online: → dnc			
	32	★ 174376	FNC-32
	40	★ 174377	FNC-40
	50	★ 174378	FNC-50
	63	★ 174379	FNC-63
	80	★ 174380	FNC-80
	100	174381	FNC-100
	125	174382	FNC-125
4 Trunnion flange Dimensions online: → dnc			
	32	174411	ZNCF-32
	40	174412	ZNCF-40
	50	174413	ZNCF-50
	63	174414	ZNCF-63
	80	174415	ZNCF-80
	100	174416	ZNCF-100
	125	174417	ZNCF-125
5 Trunnion support Dimensions online: → lnzg			
	32	32959	LNZG-32
	40, 50	32960	LNZG-40/50
	63, 80	32961	LNZG-63/80
	100, 125	32962	LNZG-100/125
6 Swivel flange Dimensions online: → dnc			
	32	★ 174383	SNC-32
	40	★ 174384	SNC-40
	50	★ 174385	SNC-50
	63	★ 174386	SNC-63
	80	★ 174387	SNC-80
	100	174388	SNC-100
	125	174389	SNC-125
7 Clevis foot Technical data online: → lsng			
	32	31740	LSNG-32
	40	31741	LSNG-40
	50	31742	LSNG-50
	63	31743	LSNG-63
	80	31744	LSNG-80
	100	31745	LSNG-100
	125	31746	LSNG-125

	For Ø	Part No.	Type
8 Clevis foot Technical data online: → lsnsg			
	32	31747	LSNSG-32
	40	31748	LSNSG-40
	50	31749	LSNSG-50
	63	31750	LSNSG-63
	80	31751	LSNSG-80
	100	31752	LSNSG-100
	125	31753	LSNSG-125
9 Swivel flange Dimensions online: → dnc			
	32	★ 174397	SNCS-32
	40	★ 174398	SNCS-40
	50	★ 174399	SNCS-50
	63	★ 174400	SNCS-63
	80	★ 174401	SNCS-80
	100	174402	SNCS-100
	125	174403	SNCS-125
10 Clevis foot Technical data online: → lbg			
	32	31761	LBG-32
	40	31762	LBG-40
	50	31763	LBG-50
	63	31764	LBG-63
	80	31765	LBG-80
	100	31766	LBG-100
	125	31767	LBG-125
11 Swivel flange Dimensions online: → dnc			
	32	★ 174404	SNCL-32
	40	★ 174405	SNCL-40
	50	★ 174406	SNCL-50
	63	★ 174407	SNCL-63
	80	★ 174408	SNCL-80
	100	174409	SNCL-100
	125	174410	SNCL-125
12 Swivel flange Dimensions online: → dnc			
	32	★ 174390	SNCB-32
	40	★ 174391	SNCB-40
	50	★ 174392	SNCB-50
	63	★ 174393	SNCB-63
	80	★ 174394	SNCB-80
	100	174395	SNCB-100
	125	174396	SNCB-125
13 Clevis foot Technical data online: → lng			
	32	★ 33890	LNG-32
	40	★ 33891	LNG-40
	50	★ 33892	LNG-50
	63	★ 33893	LNG-63
	80	★ 33894	LNG-80
	100	33895	LNG-100
	125	33896	LNG-125

Accessories – Ordering data

	For Ø	Part No.	Type
14 Clevis foot Technical data online: → lsn			
	32	5561	LSN-32
	40	5562	LSN-40
	50	5563	LSN-50
	63	5564	LSN-63
	80	5565	LSN-80
	100	5566	LSN-100
	125	6987	LSN-125
15 Trunnion mounting kit Dimensions online: → dnc			
	32	2213233	DAMT-V1-32-A
	40	2214899	DAMT-V1-40-A
	50	2214909	DAMT-V1-50-A
	63	2214971	DAMT-V1-63-A
	80	163529	DAMT-V1-80-A
	100	163530	DAMT-V1-100-A
	125	163531	DAMT-V7-125-A
16 Rod eye Technical data online: → sgs			
	32	★ 9261	SGS-M10x1,25
	40	★ 9262	SGS-M12x1,25
	50, 63	★ 9263	SGS-M16x1,5
	80, 100	★ 9264	SGS-M20x1,5
	125	10774	SGS-M27x2
17 Clevis foot Technical data online: → lqg			
	32	31768	LQG-32
	40	31769	LQG-40
	50	31770	LQG-50
	63	31771	LQG-63
	80	31772	LQG-80
	100	31773	LQG-100
	125	31774	LQG-125
18 Rod clevis Technical data online: → sga			
	32	32954	SGA-M10x1,25
	40	10767	SGA-M12x1,25
	50, 63	10768	SGA-M16x1,5
	80, 100	10769	SGA-M20x1,5
	125	10770	SGA-M27x2
	19 Coupling piece Technical data online: → ksg		
	32	32963	KSG-M10x1,25
	40	32964	KSG-M12x1,25
	50, 63	32965	KSG-M16x1,5
	80, 100	32966	KSG-M20x1,5
	125	32967	KSG-M27x2
19 Coupling piece Technical data online: → ksz			
	32	36125	KSZ-M10x1,25
	40	32126	KSZ-M12x1,25
	50, 63	36127	KSZ-M16x1,5
	80, 100	36128	KSZ-M20x1,5

	For Ø	Part No.	Type
20 Rod clevis Technical data online: → sg			
	32	★ 6144	SG-M10x1,25
	40	★ 6145	SG-M12x1,25
	50, 63	★ 6146	SG-M16x1,5
	80, 100	★ 6147	SG-M20x1,5
	125	14987	SG-M27x2-B
	21 Self-aligning rod coupler Technical data online: → fk		
	32	★ 6140	FK-M10x1,25
	40	★ 6141	FK-M12x1,25
	50, 63	★ 6142	FK-M16x1,5
	80, 100	★ 6143	FK-M20x1,5
	125	10485	FK-M27x2
22 Adapter Technical data online: → ad			
	32	157333	AD-M10x1,25-1/8
		157334	AD-M10x1,25-1/4
	40	160256	AD-M12x1,25-1/4
		160257	AD-M12x1,25-3/8
23 Guide unit for variable strokes from 10 ... 500 mm, with recirculating ball bearing guide Technical data online: → feng			
	32	34487	FENG-32-...-KF ¹⁾
	40	34488	FENG-40-...-KF ¹⁾
	50	34489	FENG-50-...-KF ¹⁾
	63	34490	FENG-63-...-KF ¹⁾
	80	34491	FENG-80-...-KF ¹⁾
	100	34492	FENG-100-...-KF ¹⁾
23 Guide unit for variable strokes from 10 ... 500 mm, with plain-bearing guide Technical data online: → feng			
	32	34481	FENG-32-... ¹⁾
	40	34482	FENG-40-... ¹⁾
	50	34483	FENG-50-... ¹⁾
	63	34484	FENG-63-... ¹⁾
	80	34485	FENG-80-... ¹⁾
	100	34486	FENG-100-... ¹⁾
24 Mounting kit for proximity sensor, for SMT-/SME-8 in combination with guide unit FENG			
	32, 40	175705	SMB-8-FENG-32/40
	50, 63	175706	SMB-8-FENG-50/63
	80, 100	175707	SMB-8-FENG-80/100
25 Slot cover²⁾			
		151680	ABP-5-S

1) Enter required stroke. Order example: the order code for an appropriate guide unit for the standard cylinder DNC-40-250 is FENG-40-250-KF (guide unit FENG - piston diameter 40 mm - stroke 250 mm - with recirculating ball bearing guide).

2) Packaging unit 2x 0.5 m.

Standard cylinders DNC, to ISO 15552

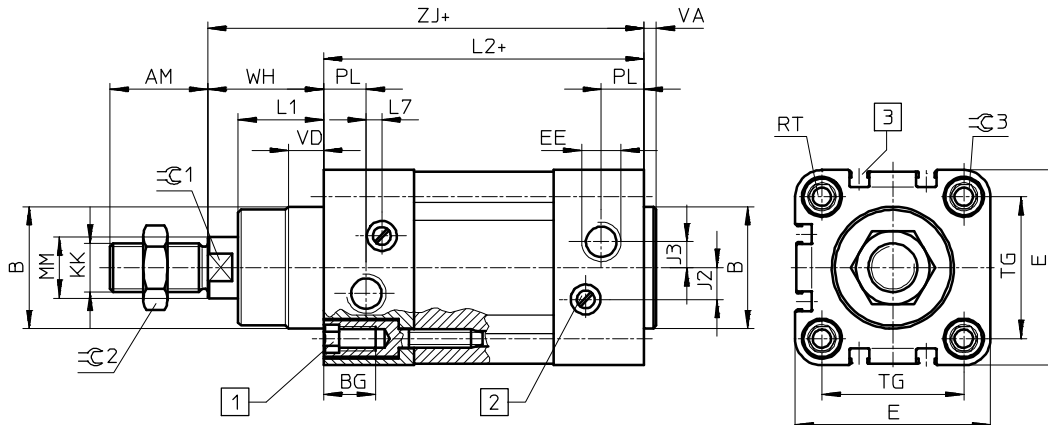
Accessories – Ordering data

1

	For Ø		Part No.	Type	
26 Proximity sensor for T-slot, magneto-resistive – N/O contact Technical data → 808					
	PNP, cable	★	574335	SMT-8M-A-PS-24V-E-2,5-OE	
	PNP, plug	★	574334	SMT-8M-A-PS-24V-E-0,3-M8D	
	PNP, plug	★	574337	SMT-8M-A-PS-24V-E-0,3-M12	
	NPN, cable	★	574338	SMT-8M-A-NS-24V-E-2,5-OE	
	NPN, plug	★	574339	SMT-8M-A-NS-24V-E-0,3-M8D	
Magneto-resistive – N/C contact Technical data → 808					
	PNP, cable	★	574340	SMT-8M-A-PO-24V-E-7,5-OE	
26 Magnetic reed – N/O contact Technical data → 803					
	Cable	★	543862	SME-8M-DS-24V-K-2,5-OE	
	Cable	★	543863	SME-8M-DS-24V-K-5,0-OE	
	Cable	★	543872	SME-8M-ZS-24V-K-2,5-OE	
	Plug	★	543861	SME-8M-DS-24V-K-0,3-M8D	
Technical data → 805					
	Cable		150855	SME-8-K-LED-24	
	Plug		150857	SME-8-S-LED-24	
Magnetic reed – N/C contact Technical data → 805					
	Cable		160251	SME-8-O-K-LED-24	
26 Connecting cable, straight socket Technical data → 1053					
	2.5 m	★	541333	NEBU-M8G3-K-2.5-LE3	
	5 m	★	541334	NEBU-M8G3-K-5-LE3	
	2.5 m	★	541363	NEBU-M12G5-K-2.5-LE3	
	5 m	★	541364	NEBU-M12G5-K-5-LE3	
Angled socket Technical data → 1053					
	2.5 m	★	541338	NEBU-M8W3-K-2.5-LE3	
	5 m	★	541341	NEBU-M8W3-K-5-LE3	
	2.5 m		541367	NEBU-M12W5-K-2.5-LE3	
	5 m		541370	NEBU-M12W5-K-5-LE3	
Function	For Ø	Connection		Part No.	Type
		Thread	O.D.		
27 One-way flow control valve for exhaust air flow control¹⁾ with slotted head screw, metal Technical data → 689					
	32	G1/8	4	★ 193143	GRLA-1/8-QS-4-D
	40, 50	G1/4	6	★ 193146	GRLA-1/4-QS-6-D
	63, 80	G3/8	8	★ 193150	GRLA-3/8-QS-8-D
	100, 125	G1/2	12	★ 193152	GRLA-1/2-QS-12-D

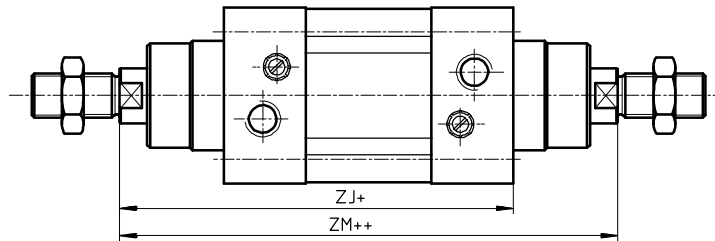
1) The recommended flow control valves are based on a tubing length to the valve of 1 m. For deviations of ±50%, flow control valves with a bigger or smaller flow rate must be selected to guarantee the optimum flow control function and cylinder speed.

Dimensions

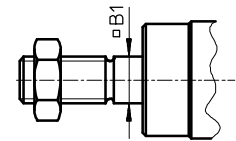


- 1 Socket head screw with female thread for mounting components
 - 2 Regulating screw for adjustable end-position cushioning
 - 3 Slot for proximity sensor SME/SMT-8
- + = plus stroke length

S2 – Through piston rod



Q – Square piston rod



Note

The thread types at both piston rod ends are identical. In combination with variant Q, the left-hand piston rod end is square, the right-hand piston rod end is round.

+ = plus stroke length
++ = plus 2x stroke length

∅ [mm]	AM	B ∅ d11	B1 □	BG	E	EE	J2		J3	KK	L1	L2	L7
								TT					
32	22	30	10	16	45	G1/8	6	6	5.2	M10x1.25	18	94	3.3
40	24	35	12	16	54	G1/4	8	8	6	M12x1.25	21.5	105	3.6
50	32	40	16	17	64	G1/4	10.4	11	8.5	M16x1.5	28	106	5.1
63	32	45	16	17	75	G3/8	12.4	12.4	10	M16x1.5	28.5	121	6.6
80	40	45	20	17	93	G3/8	12.5	12.5	8	M20x1.5	34.7	128	10.5
100	40	55	20	17	110	G1/2	12	12	10	M20x1.5	38.2	138	8
125	54	60	–	22	134	G1/2	13	13	8	M27x2	46	160	14

∅ [mm]	MM ∅	PL	RT	TG	VA	VD	WH	ZJ	ZM	C1	C2	C3
40	16	14	M6	38	4	10.5	30	135	167	13	18	6
50	20	14	M8	46.5	4	11.5	37	143	183	17	24	8
63	20	17	M8	56.5	4	15	37	158	199	17	24	8
80	25	16.4	M10	72	4	15.7	46	174	222	22	30	6
100	25	18.8	M10	89	4	19.2	51	189	240	22	30	6
125	32	18	M12	110	6	20.5	65	225	291	27	36	8

Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, to ISO 6432

1



- For the highest requirements for running characteristics, service life and load carrying ability
- Universal use thanks to individual product options
- Wide range of accessories
- Selected types in accordance with the ATEX Directive for explosive atmospheres → www.festo.com/catalogue/ex
- ★ Quick ordering of basic designs → 100

→ www.festo.com/catalogue/dsnu

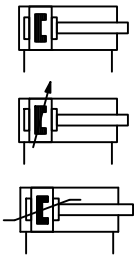
Product range overview

Type/function	Version	Piston Ø [mm]	Stroke [mm]	Force [N]	Product options										→ Page/online
					P	PPV	PPS	A	Q	S2	KP	K8	S6		
Double-acting	DSNU – Cylinder barrel: Stainless steel; End caps: Wrought aluminium alloy														
	Basic design	8, 10, 12, 16, 20, 25	1 ... 500	30 ... 295	■	■	■	■	■	■	■	■	■	■	97
	MQ – Plain end cap, lateral connection				■	■	■	■	■	–	■	■	■		
	MA – Plain end cap, axial connection				■	–	–	■	■	–	■	■	■	dsnu	
	MH – Direct mounting				■	■	–	■	■	–	–	■	■		
	DSNU – Round cylinder with piston Ø 32 ... 63														118
	DSNUP – Cylinder barrel: Wrought aluminium alloy; End caps: Polyamide														
	Basic design	16, 20, 25	25 ... 100	121 ... 295	■	–	–	■	–	–	–	–	–	–	102
	DSN														
	Basic design	8, 10, 12, 16, 20, 25	1 ... 500	30 ... 295	■	■	–	–	–	■	–	–	–	–	105
Single-acting	ESNU														
	Basic design	8, 10, 12, 16, 20, 25	1 ... 50	24 ... 270	■	–	–	■	–	–	–	■	–	107	
	MA – Plain end cap, axial connection				■	–	–	■	–	–	–	■	–	esnu	
	ESNU – Round cylinder with piston Ø 32 ... 63														118
	ESN														
Basic design	8, 10, 12, 16, 20, 25	1 ... 50	24 ... 270	■	–	–	–	–	–	–	–	–	–	109	

Product options

P	Elastic cushioning rings/plates at both ends	MQ	Alternative plain end cap, lateral connection	Q	With protection against rotation	K3	Female piston rod thread
PPV	Pneumatic cushioning, adjustable at both ends	MA	Alternative plain end cap, axial connection	S2	Through piston rod	K5	Special piston rod thread
PPS	Pneumatic cushioning, self-adjusting at both ends	MH	Alternative end cap, direct mounting	KP	With clamping unit	K6	Shortened male piston rod thread
A	Position sensing			K8	Extended piston rod	S10	Slow speed
				S6	Heat-resistant seals up to max. 120 °C	S11	Low friction
				K2	Extended male piston rod thread	R3	High corrosion protection

Technical data – Double-acting



Technical data		Dimensions → 115					
Piston Ø		8	10	12	16	20	25
Pneumatic connection		M5	M5	M5	M5	G $\frac{1}{8}$	G $\frac{1}{8}$
Piston rod end		Male thread					
Piston rod thread		M4	M4	M6	M6	M8	M10x1.25
Stroke	[mm]	1 ... 100		1 ... 200		1 ... 320	1 ... 500
Cushioning	P	Elastic cushioning rings/plates at both ends					
	PPV	-		Pneumatic cushioning, adjustable at both ends			
	PPS	-		Pneumatic cushioning, self-adjusting at both ends			
Cushioning length	PPV [mm]	-		9	12	15	17
	PPS [mm]	-			12	15	17
Theoretical force at 6 bar, advancing	[N]	30	47	68	121	189	295
Theoretical force at 6 bar, retracting	[N]	23	40	51	104	158	247
Max. torque at the piston rod ¹⁾	[Nm]	-	-	0.10	0.10	0.20	0.45

1) Only applies to variants with protection against rotation Q.

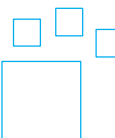
Operating conditions		Basic design, product options		S6	
Piston Ø		8 ... 12	16 ... 25	8 ... 12	16 ... 25
Operating pressure	[bar]	1.5 ... 10 ²⁾	1 ... 10	1.5 ... 10 ²⁾	1 ... 10
Ambient temperature ³⁾	[°C]	-20 ... +80		0 ... +120	

2) Piston Ø: 12 mm, PPV – pneumatic cushioning, adjustable at both ends 2 ... 10 bar.

3) Note operating range of proximity sensors.

Materials	
Piston rod	High-alloy stainless steel
Bearing cap	Clear anodised wrought aluminium alloy
Cylinder barrel	High-alloy stainless steel
End cap	Clear anodised wrought aluminium alloy
Seals	NBR, TPE-U (PU)

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or

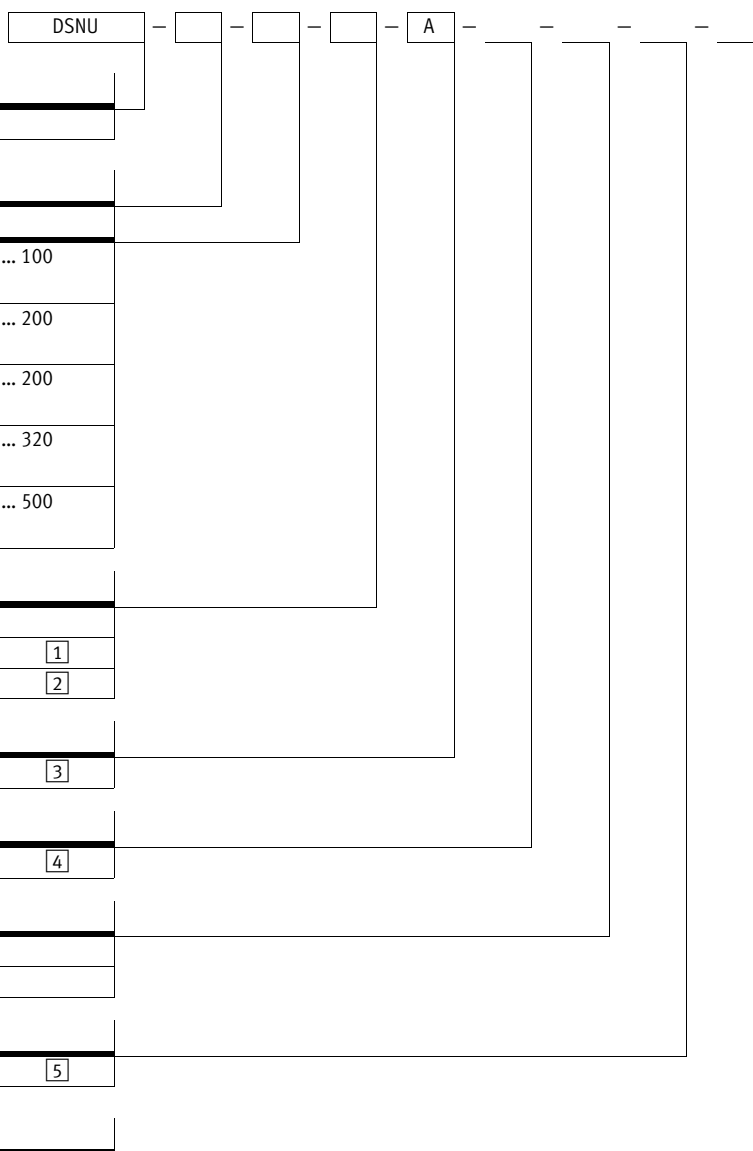
→ www.festo.com/catalogue/...

Enter the type code in the search field.

Standard cylinders DSNU, to ISO 6432

Order code – Double-acting

1



Type	
DSNU	Double-acting standard cylinder

Piston Ø [mm]		
	Stroke [mm]	
8, 10	10, 15, 20, 25, 30, 40, 50, 60, 80, 100	1 ... 100
12	10, 15, 20, 25, 30, 40, 50, 60, 80, 100, 125, 160, 200	1 ... 200
16	10, 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 100, 125, 150, 160, 200	1 ... 200
20	10, 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 100, 125, 150, 160, 200, 250, 300, 320	1 ... 320
25	10, 15, 20, 25, 30, 35, 40, 50, 60, 70, 80, 100, 125, 150, 160, 200, 250, 300, 320, 400, 500	1 ... 500

Cushioning	
P	Elastic cushioning rings/plates at both ends
PPV	Pneumatic cushioning, adjustable at both ends 1
PPS	Pneumatic cushioning, self-adjusting at both ends 2

Position sensing	
A	Via proximity sensor 3

Alternative end cap	
MQ	Plain end cap, lateral connection 4

Piston rod type	
-	Single-ended piston rod
S2	Through piston rod

Extended piston rod [mm]	
... K8	1 ... 150 5

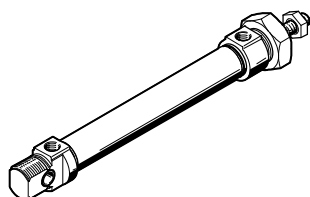
Temperature resistance	
S6	Heat-resistant seals up to max. 120 °C 6

- 1 Not with piston Ø 8, 10 mm
- 2 Not with piston Ø 8, 10, 12 mm
- 3 Minimum stroke: 10 mm
- 4 Not with piston rod type S2
- 5 Piston Ø 8/10: 1 ... 50 mm
Piston Ø 12/16: 1 ... 100 mm
Piston Ø 20: 1 ... 110 mm
Piston Ø 25: 1 ... 150 mm
- 6 Not for DSNU-12-...-PPV

Ordering aid

Basic design

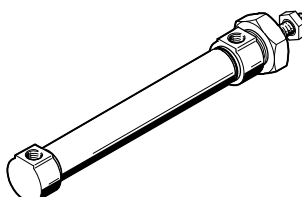
MQ – Plain end cap, lateral air connection



Order example:

DSNU-25-40-PPV-A

Double-acting standard cylinder DSNU - piston diameter 25 mm - stroke 40 mm - pneumatic cushioning, adjustable at both ends - position sensing via proximity sensor - single-ended piston rod - no extended piston rod - no heat-resistant seal

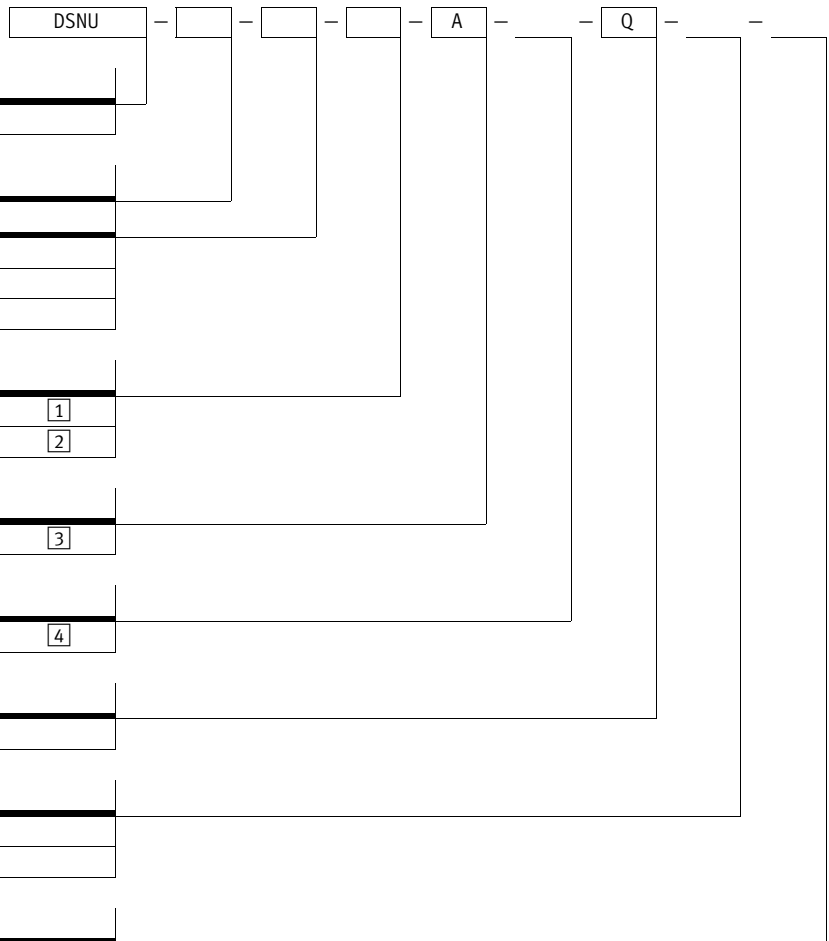


Order example:

DSNU-25-40-PPV-A-MQ

Double-acting standard cylinder DSNU - piston diameter 25 mm - stroke 40 mm - pneumatic cushioning, adjustable at both ends - position sensing via proximity sensor - plain end cap, lateral connection - single-ended piston rod - no extended piston rod - no heat-resistant seal

Order code – Double-acting with protection against rotation



Type	
DSNU	Double-acting standard cylinder

Piston Ø [mm]	
Stroke [mm]	
12, 16	5 ... 160
20	5 ... 200
25	5 ... 250

Cushioning	
P	Elastic cushioning rings/plates at both ends 1
PPV	Pneumatic cushioning, adjustable at both ends 2

Position sensing	
A	Via proximity sensor 3

Alternative end cap	
MQ	Plain end cap, lateral connection 4

Protection against rotation	
Q	Square piston rod

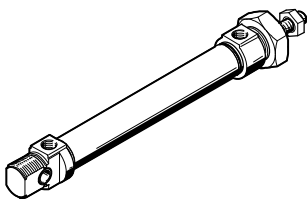
Piston rod type	
-	Single-ended piston rod
S2	Through piston rod

Extended piston rod [mm]	
... K8	1 ... 150 5

- 1 Only with piston Ø 12 mm
- 2 Only with piston Ø 16, 20, 25 mm
- 3 Minimum stroke: 10 mm
- 4 Not with piston rod type S2
- 5 Piston Ø 12/16: 1 ... 100 mm
Piston Ø 20: 1 ... 110 mm
Piston Ø 25: 1 ... 150 mm

Ordering aid

Basic design

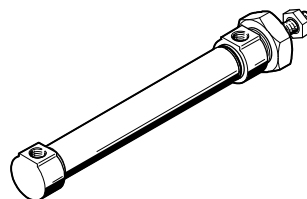


Order example:

DSNU-25-40-PPV-A-Q

Double-acting standard cylinder DSNU - piston diameter 25 mm - stroke 40 mm - pneumatic cushioning, adjustable at both ends - position sensing via proximity sensor - square piston rod - single-ended piston rod - no extended piston rod - no heat-resistant seal

MQ – Plain end cap, lateral air connection

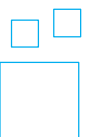


Order example:

DSNU-25-40-PPV-A-MQ-Q

Double-acting standard cylinder DSNU - piston diameter 25 mm - stroke 40 mm - pneumatic cushioning, adjustable at both ends - position sensing via proximity sensor - plain end cap, lateral connection - square piston rod - single-ended piston rod - no extended piston rod - no heat-resistant seal

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
www.festo.com/catalogue/...

Enter the type code in the search field.

Standard cylinders DSNU, to ISO 6432

★ Quick ordering¹⁾

1

P – Elastic cushioning rings/plates at both ends

Part No.	Type
Piston Ø 12 mm	
19189	DSNU-12-10-P-A
1908255	DSNU-12-15-P-A
1908256	DSNU-12-20-P-A
19190	DSNU-12-25-P-A
1908257	DSNU-12-30-P-A
19191	DSNU-12-40-P-A
19192	DSNU-12-50-P-A
1908258	DSNU-12-60-P-A
19193	DSNU-12-80-P-A
19194	DSNU-12-100-P-A
19195	DSNU-12-125-P-A
19196	DSNU-12-160-P-A
19197	DSNU-12-200-P-A
Piston Ø 16 mm	
19198	DSNU-16-10-P-A
1908259	DSNU-16-15-P-A
1908260	DSNU-16-20-P-A
19199	DSNU-16-25-P-A
1908261	DSNU-16-30-P-A
1908262	DSNU-16-35-P-A
19200	DSNU-16-40-P-A
19201	DSNU-16-50-P-A
1908263	DSNU-16-60-P-A
1908264	DSNU-16-70-P-A
19202	DSNU-16-80-P-A
19203	DSNU-16-100-P-A
19204	DSNU-16-125-P-A
19205	DSNU-16-160-P-A
1908265	DSNU-16-150-P-A
19206	DSNU-16-200-P-A

Part No.	Type
Piston Ø 20 mm	
19207	DSNU-20-10-P-A
1908282	DSNU-20-15-P-A
1908283	DSNU-20-20-P-A
19208	DSNU-20-25-P-A
1908284	DSNU-20-30-P-A
1908285	DSNU-20-35-P-A
19209	DSNU-20-40-P-A
19210	DSNU-20-50-P-A
1908286	DSNU-20-60-P-A
1908287	DSNU-20-70-P-A
19211	DSNU-20-80-P-A
19212	DSNU-20-100-P-A
19213	DSNU-20-125-P-A
1908311	DSNU-25-150-P-A
19214	DSNU-20-160-P-A
19215	DSNU-20-200-P-A
19216	DSNU-20-250-P-A
19217	DSNU-20-300-P-A
34718	DSNU-20-320-P-A

Part No.	Type
Piston Ø 25 mm	
19218	DSNU-25-10-P-A
1908305	DSNU-25-15-P-A
1908306	DSNU-25-20-P-A
19219	DSNU-25-25-P-A
1908307	DSNU-25-30-P-A
1908308	DSNU-25-35-P-A
19220	DSNU-25-40-P-A
19221	DSNU-25-50-P-A
1908309	DSNU-25-60-P-A
1908310	DSNU-25-70-P-A
19222	DSNU-25-80-P-A
19223	DSNU-25-100-P-A
19224	DSNU-25-125-P-A
1908288	DSNU-20-150-P-A
19225	DSNU-25-160-P-A
19226	DSNU-25-200-P-A
19227	DSNU-25-250-P-A
19228	DSNU-25-300-P-A
34719	DSNU-25-320-P-A

1) All products in this table are easy to select and quick to order.

★ Quick ordering¹⁾

PPV – Pneumatic cushioning, adjustable at both ends

Part No.	Type
Piston Ø 16 mm	
1908266	DSNU-16-10-PPV-A
1908267	DSNU-16-15-PPV-A
1908268	DSNU-16-20-PPV-A
33973	DSNU-16-25-PPV-A
1908269	DSNU-16-30-PPV-A
1908270	DSNU-16-35-PPV-A
19229	DSNU-16-40-PPV-A
19230	DSNU-16-50-PPV-A
1908271	DSNU-16-60-PPV-A
1908272	DSNU-16-70-PPV-A
19231	DSNU-16-80-PPV-A
19232	DSNU-16-100-PPV-A
19233	DSNU-16-125-PPV-A
1908273	DSNU-16-150-PPV-A
19234	DSNU-16-160-PPV-A
19235	DSNU-16-200-PPV-A

Part No.	Type
Piston Ø 20 mm	
1908289	DSNU-20-10-PPV-A
1908290	DSNU-20-15-PPV-A
1908291	DSNU-20-20-PPV-A
33974	DSNU-20-25-PPV-A
1908292	DSNU-20-30-PPV-A
1908293	DSNU-20-35-PPV-A
19236	DSNU-20-40-PPV-A
19237	DSNU-20-50-PPV-A
1908294	DSNU-20-60-PPV-A
1908295	DSNU-20-70-PPV-A
19238	DSNU-20-80-PPV-A
19239	DSNU-20-100-PPV-A
19240	DSNU-20-125-PPV-A
1908296	DSNU-20-150-PPV-A
19241	DSNU-20-160-PPV-A
19242	DSNU-20-200-PPV-A
19243	DSNU-20-250-PPV-A
19244	DSNU-20-300-PPV-A
34720	DSNU-20-320-PPV-A

Part No.	Type
Piston Ø 25 mm	
1908312	DSNU-25-10-PPV-A
1908313	DSNU-25-15-PPV-A
1908314	DSNU-25-20-PPV-A
33975	DSNU-25-25-PPV-A
1908315	DSNU-25-30-PPV-A
1908316	DSNU-25-35-PPV-A
19245	DSNU-25-40-PPV-A
19246	DSNU-25-50-PPV-A
1908317	DSNU-25-60-PPV-A
1908318	DSNU-25-70-PPV-A
19247	DSNU-25-80-PPV-A
19248	DSNU-25-100-PPV-A
19249	DSNU-25-125-PPV-A
1908319	DSNU-25-150-PPV-A
19250	DSNU-25-160-PPV-A
19251	DSNU-25-200-PPV-A
19252	DSNU-25-250-PPV-A
19253	DSNU-25-300-PPV-A
34721	DSNU-25-320-PPV-A

PPS – Pneumatic cushioning, self-adjusting at both ends

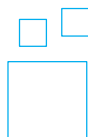
Part No.	Type
Piston Ø 16 mm	
1908274	DSNU-16-10-PPS-A
1908275	DSNU-16-15-PPS-A
1908276	DSNU-16-20-PPS-A
559263	DSNU-16-25-PPS-A
1908277	DSNU-16-30-PPS-A
1908278	DSNU-16-35-PPS-A
559264	DSNU-16-40-PPS-A
559265	DSNU-16-50-PPS-A
1908279	DSNU-16-60-PPS-A
1908280	DSNU-16-70-PPS-A
559266	DSNU-16-80-PPS-A
559267	DSNU-16-100-PPS-A
559268	DSNU-16-125-PPS-A
1908281	DSNU-16-150-PPS-A
559269	DSNU-16-160-PPS-A
559270	DSNU-16-200-PPS-A

Part No.	Type
Piston Ø 20 mm	
1908297	DSNU-20-10-PPS-A
1908298	DSNU-20-15-PPS-A
1908299	DSNU-20-20-PPS-A
559271	DSNU-20-25-PPS-A
1908300	DSNU-20-30-PPS-A
1908301	DSNU-20-35-PPS-A
559272	DSNU-20-40-PPS-A
559273	DSNU-20-50-PPS-A
1908302	DSNU-20-60-PPS-A
1908303	DSNU-20-70-PPS-A
559274	DSNU-20-80-PPS-A
559275	DSNU-20-100-PPS-A
559276	DSNU-20-125-PPS-A
1908304	DSNU-20-150-PPS-A
559277	DSNU-20-160-PPS-A
559278	DSNU-20-200-PPS-A
559279	DSNU-20-250-PPS-A
559280	DSNU-20-300-PPS-A
559281	DSNU-20-320-PPS-A

Part No.	Type
Piston Ø 25 mm	
1908320	DSNU-25-10-PPS-A
1908321	DSNU-25-15-PPS-A
1908322	DSNU-25-20-PPS-A
559282	DSNU-25-25-PPS-A
1908323	DSNU-25-30-PPS-A
1908324	DSNU-25-35-PPS-A
559283	DSNU-25-40-PPS-A
559284	DSNU-25-50-PPS-A
1908325	DSNU-25-60-PPS-A
1908326	DSNU-25-70-PPS-A
559285	DSNU-25-80-PPS-A
559286	DSNU-25-100-PPS-A
559287	DSNU-25-125-PPS-A
1908327	DSNU-25-150-PPS-A
559288	DSNU-25-160-PPS-A
559289	DSNU-25-200-PPS-A
559290	DSNU-25-250-PPS-A
559291	DSNU-25-300-PPS-A
559292	DSNU-25-320-PPS-A

1) All products in this table are easy to select and quick to order.

Ordering – Product options



Configurable product

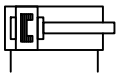
This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
 → www.festo.com/catalogue/...

Enter the type code in the search field.

Standard cylinders DSNUP, to ISO 6432

1 Technical data – Double-acting



Technical data		Dimensions → 117	
Piston Ø	16	20	25
Pneumatic connection	M5	G $\frac{1}{8}$	G $\frac{1}{8}$
Piston rod end	Male thread		
Piston rod thread	M6	M8	M10x1.25
Stroke [mm]	25, 50, 100		
Cushioning	Elastic cushioning rings/plates at both ends		
Theoretical force at 6 bar, advancing [N]	121	189	295
Theoretical force at 6 bar, retracting [N]	104	158	247

Operating conditions	
Operating pressure [bar]	1 ... 8
Ambient temperature ¹⁾ [°C]	-10 ... +60

1) Note operating range of proximity sensors.

Materials	
Piston rod	High-alloy steel
Bearing cap	PA reinforced
Cylinder barrel	Anodised wrought aluminium alloy
End cap	PA reinforced
Seals	NBR, TPE-U (PU)

Order code – Double-acting

DSNUP – [] – [] – P – A

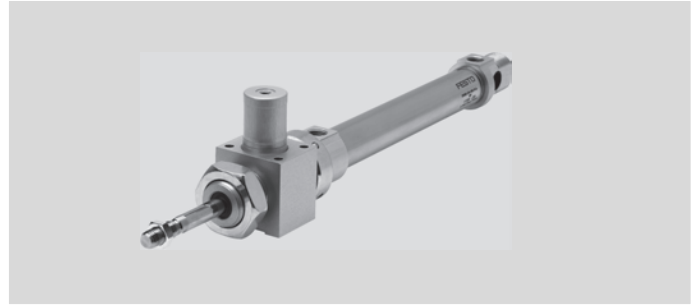
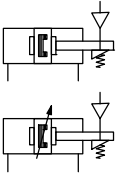
Type	
DSNUP	Double-acting standard cylinder
Piston Ø [mm]	
	Stroke [mm]
16, 20, 25	25, 50, 100
Cushioning	
P	Elastic cushioning rings/plates at both ends
Position sensing	
A	Via proximity sensor

Order example:

DSNUP-20-50-P-A

Double-acting standard cylinder DSNUP - piston diameter 20 mm - stroke 50 mm - elastic cushioning rings/plates at both ends - position sensing via proximity sensor

Technical data – Double-acting with clamping unit



Technical data		Dimensions → 116						
Piston Ø		8	10	12	16	20	25	
Pneumatic connection		M5	M5	M5	M5	G $\frac{3}{8}$	G $\frac{3}{8}$	
Release connection		M5	M5	M5	M5	M5	M5	
Piston rod end		Male thread						
Piston rod thread		M4	M4	M6	M6	M8	M10x1.25	
Stroke	[mm]	1 ... 100		1 ... 200		1 ... 320	1 ... 500	
Cushioning	P	Elastic cushioning rings/plates at both ends						
	PPV	–			Pneumatic cushioning, adjustable at both ends			
	PPS	–			Pneumatic cushioning, self-adjusting at both ends			
Cushioning length	PPV [mm]	–		9	12	15	17	
	PPS [mm]	–			12	15	17	
Theoretical force at 6 bar, advancing	[N]	30	47	68	121	189	295	
Theoretical force at 6 bar, retracting	[N]	23	40	51	104	158	247	
Holding force of the clamping unit	[N]	80	80	180	180	350	350	
Max. axial backlash with clamped piston rod without load	[mm]	0.2	0.2	0.3	0.3	0.3	0.5	

Operating conditions

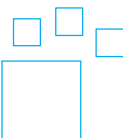
Operating pressure	[bar]	3 ... 10
Ambient temperature ¹⁾	[°C]	–10 ... +80

1) Note operating range of proximity sensors.

Materials

Piston rod	High-alloy stainless steel
Bearing cap	Clear anodised wrought aluminium alloy
Cylinder barrel	High-alloy stainless steel
End cap	Clear anodised wrought aluminium alloy
Seals	NBR, TPE-U (PU)

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

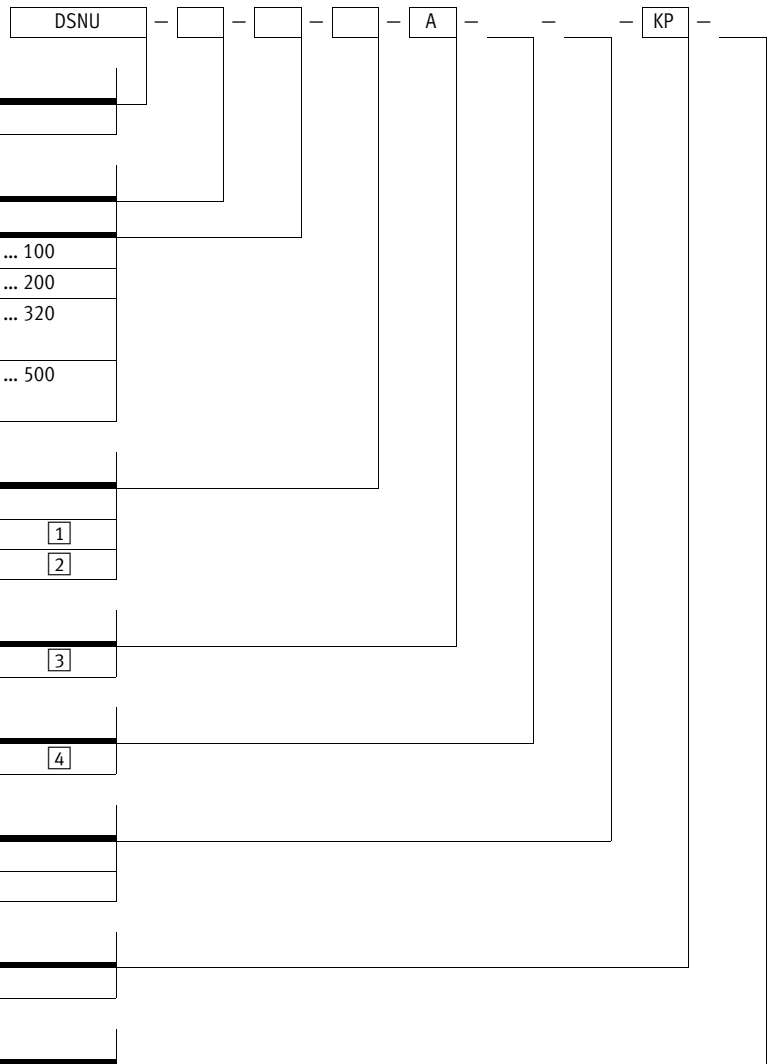
The configurator can be found under Products on the DVD or
→ www.festo.com/catalogue/...

Enter the type code in the search field.

Standard cylinders DSNU-...-KP, with clamping unit

1

Order code – Double-acting with clamping unit



Type	
DSNU	Double-acting standard cylinder

Piston Ø [mm]		
	Stroke [mm]	
8, 10	10, 25, 40, 50, 80, 100	1 ... 100
12, 16	10, 25, 40, 50, 80, 100, 125, 160, 200	1 ... 200
20	10, 25, 40, 50, 80, 100, 125, 160, 200, 250, 300, 320	1 ... 320
25	10, 25, 40, 50, 80, 100, 125, 160, 200, 250, 300, 320, 400, 500	1 ... 500

Cushioning	
P	Elastic cushioning rings/plates at both ends
PPV	Pneumatic cushioning, adjustable at both ends 1
PPS	Pneumatic cushioning, self-adjusting at both ends 2

Position sensing	
A	Via proximity sensor 3

Alternative end cap	
MQ	Plain end cap, lateral connection 4

Piston rod type	
-	Single-ended piston rod
S2	Through piston rod

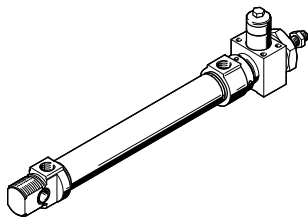
Clamping unit	
KP	Attached

Temperature resistance	
S6	Heat-resistant seals up to max. 120 °C

- 1 Not with piston Ø 8 and 10 mm
- 2 Not with piston Ø 8, 10, 12 mm
- 3 Minimum stroke: 10 mm
- 4 Not with piston rod S2

Ordering aid

Basic design

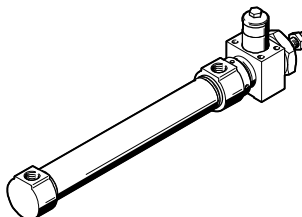


Order example:

DSNU-25-40-PPV-A-KP

Double-acting standard cylinder DSNU - piston diameter 25 mm - stroke 40 mm - pneumatic cushioning, adjustable at both ends - position sensing via proximity sensor - single-ended piston rod - clamping unit attached

MQ – Plain end cap, lateral air connection

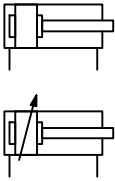


Order example:

DSNU-25-40-PPV-A-MQ-KP

Double-acting standard cylinder DSNU - piston diameter 25 mm - stroke 40 mm - pneumatic cushioning, adjustable at both ends - position sensing via proximity sensor - plain end cap, lateral connection - single-ended piston rod - clamping unit attached

Technical data – Double-acting



1

Technical data		Dimensions → 115					
Piston Ø		8	10	12	16	20	25
Pneumatic connection		M5	M5	M5	M5	G $\frac{1}{8}$	G $\frac{1}{8}$
Piston rod end		Male thread					
Piston rod thread		M4	M4	M6	M6	M8	M10x1.25
Stroke	[mm]	1 ... 100		1 ... 200		1 ... 320	1 ... 300
Cushioning	P	Elastic cushioning rings/plates at both ends					
	PPV	–			Pneumatic cushioning, adjustable at both ends		
Cushioning length	PPV	[mm]	–		14	17	17
Theoretical force at 6 bar, advancing	[N]	30	47	68	121	189	295
Theoretical force at 6 bar, retracting	[N]	23	40	51	104	158	247

Operating conditions

Piston Ø		8	10	12	16	20	25
Operating pressure	[bar]	1.5 ... 10			1 ... 10		
Ambient temperature	[°C]	–20 ... +80					

Materials

Piston rod	High-alloy stainless steel
Bearing cap	Clear anodised wrought aluminium alloy
Cylinder barrel	High-alloy stainless steel
End cap	Clear anodised wrought aluminium alloy
Seals	NBR, TPE-U (PU)

Order code – Double-acting

DSN		–		–		–	
Type							
DSN	Double-acting standard cylinder						
Piston Ø [mm]							
	Stroke [mm]						
8, 10	10, 25, 40, 50, 80, 100	1 ... 100					
12, 16	10, 25, 40, 50, 80, 100, 125, 160, 200	1 ... 200					
20	10, 25, 40, 50, 80, 100, 125, 160, 200, 250, 300, 320	1 ... 320					
25	10, 25, 40, 50, 80, 100, 125, 160, 200, 250, 300, 320, 400, 500	1 ... 500					
Cushioning							
P	Elastic cushioning rings/plates at both ends						
PPV	Pneumatic cushioning, adjustable at both ends 1						

1 Not with piston Ø 8, 10, 12

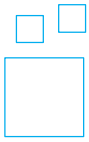
Order example:

DSN-25-50-PPV

Double-acting standard cylinder DSN - piston diameter 25 mm - stroke 50 mm - pneumatic cushioning, adjustable at both ends

1

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or

→ www.festo.com/catalogue/...

Enter the type code in the search field.

★ Quick ordering¹⁾

P – Elastic cushioning rings/plates at both ends

Part No.	Type
Piston Ø 12 mm	
5047	DSN-12-10-P
5048	DSN-12-25-P
5049	DSN-12-40-P
5050	DSN-12-50-P
5051	DSN-12-80-P
5052	DSN-12-100-P
8519	DSN-12-125-P
5053	DSN-12-160-P
5054	DSN-12-200-P
Piston Ø 16 mm	
5056	DSN-16-10-P
5057	DSN-16-25-P
5058	DSN-16-40-P
5059	DSN-16-50-P
5060	DSN-16-80-P
5061	DSN-16-100-P
8520	DSN-16-125-P
5062	DSN-16-160-P
5063	DSN-16-200-P

Part No.	Type
Piston Ø 20 mm	
5065	DSN-20-10-P
5066	DSN-20-25-P
5067	DSN-20-40-P
5068	DSN-20-50-P
5069	DSN-20-80-P
5070	DSN-20-100-P
8521	DSN-20-125-P
5071	DSN-20-160-P
5072	DSN-20-200-P
8522	DSN-20-250-P
5073	DSN-20-300-P
34710	DSN-20-320-P

Part No.	Type
Piston Ø 25 mm	
5075	DSN-25-10-P
5076	DSN-25-25-P
5077	DSN-25-40-P
5078	DSN-25-50-P
5079	DSN-25-80-P
5080	DSN-25-100-P
8523	DSN-25-125-P
5081	DSN-25-160-P
5082	DSN-25-200-P
8524	DSN-25-250-P
5083	DSN-25-300-P
34711	DSN-25-320-P

1) All products in this table are easy to select and quick to order.

Technical data – Single-acting



1

Technical data			Dimensions → 115					
Piston Ø			8	10	12	16	20	25
Pneumatic connection			M5	M5	M5	M5	G $\frac{1}{8}$	G $\frac{1}{8}$
Piston rod end			Male thread					
Piston rod thread			M4	M4	M6	M6	M8	M10x1.25
Stroke	[mm]		1 ... 50					
Cushioning			Elastic cushioning rings/plates at both ends					
Theoretical force at 6 bar, advancing	[N]		24	41	61	107	169	270
Theoretical spring return force	10 mm stroke	[N]	4.9	4.9	6.3	13.2	18.3	22.9
	25 mm stroke	[N]	4.1	4.1	5.4	11.9	16.5	21.2
	50 mm stroke	[N]	2.8	4.8	3.9	9.8	13.6	18.5

Operating conditions			Dimensions → 115					
Piston Ø			8	10	12	16	20	25
Operating pressure	[bar]		1.5 ... 10			1.2 ... 10		
Ambient temperature ¹⁾	[°C]		-20 ... +80					

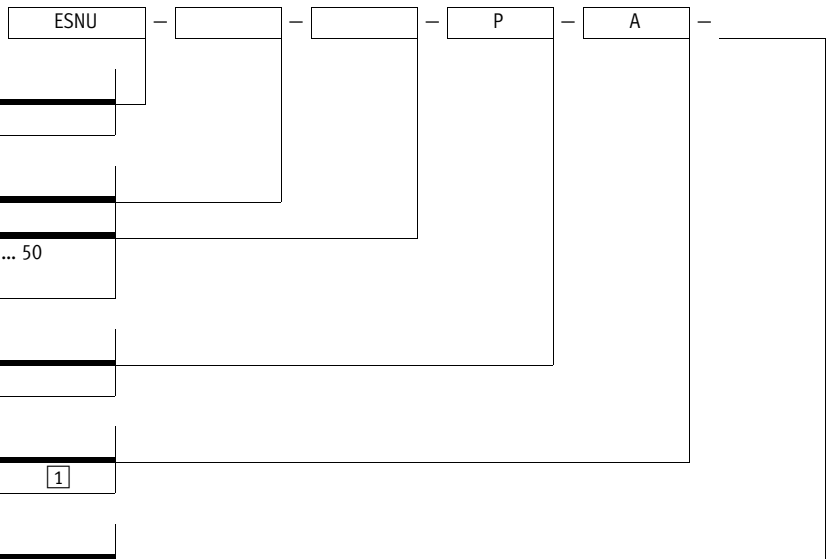
1) Note operating range of proximity sensors.

Materials	
Piston rod	High-alloy stainless steel
Bearing cap	Clear anodised wrought aluminium alloy
Cylinder barrel	High-alloy stainless steel
End cap	Clear anodised wrought aluminium alloy
Seals	NBR, TPE-U (PU)

Standard cylinders ESNU, to ISO 6432

1

Order code – Single acting



Type		
ESNU	Single-acting standard cylinder	
Piston Ø [mm]		
	Stroke [mm]	
8, 10, 12, 16, 20, 25	10, 25, 50	1 ... 50
Cushioning		
P	Elastic cushioning rings/plates at both ends	
Position sensing		
A	Via proximity sensor ¹	
Extended piston rod [mm]		
... K8	1 ... 50	

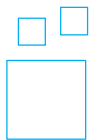
¹ Minimum stroke: 10 mm

Order example:

ESNU-25-50-P-A

Single-acting standard cylinder ESNU - piston diameter 25 mm - stroke 50 mm - elastic cushioning rings/plates at both ends - position sensing via proximity sensor

Ordering – Product options



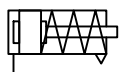
Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
 → www.festo.com/catalogue/...

Enter the type code in the search field.

Technical data – Single-acting



1

Technical data			Dimensions → 115					
Piston Ø			8	10	12	16	20	25
Pneumatic connection			M5	M5	M5	M5	G $\frac{1}{8}$	G $\frac{1}{8}$
Piston rod end			Male thread					
Piston rod thread			M4	M4	M6	M6	M8	M10x1.25
Stroke	[mm]		1 ... 50					
Cushioning			Elastic cushioning rings/plates at both ends					
Theoretical force at 6 bar, advancing	[N]		24	41	61	107	169	270
Theoretical spring return force	10 mm stroke	[N]	4.9	4.9	6.3	13.2	18.3	22.9
	25 mm stroke	[N]	4.1	4.1	5.4	11.9	16.5	21.2
	50 mm stroke	[N]	2.8	4.8	3.9	9.8	13.6	18.5

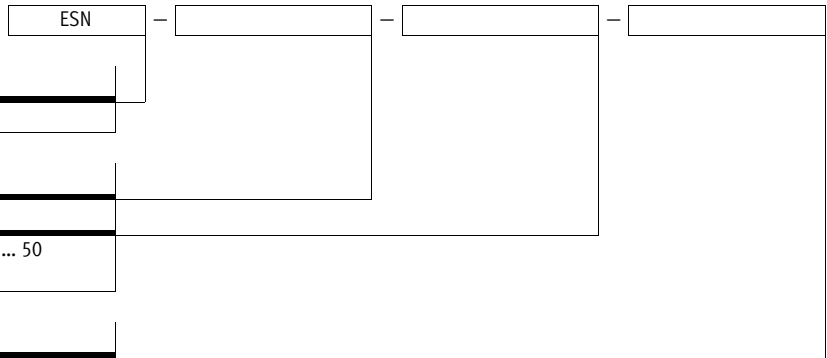
Operating conditions								
Piston Ø			8	10	12	16	20	25
Operating pressure	[bar]		1.5 ... 10			1.2 ... 10		
Ambient temperature	[°C]		-20 ... +80					

Materials							
Piston rod		High-alloy stainless steel					
Bearing cap		Clear anodised wrought aluminium alloy					
Cylinder barrel		High-alloy stainless steel					
End cap		Clear anodised wrought aluminium alloy					
Seals		NBR, TPE-U (PU)					
Spring		Spring steel					

Standard cylinders ESN, to ISO 6432

1

Order code – Single acting



Order example:

ESN-10-50-P

Single-acting standard cylinder ESN - piston diameter 10 mm - stroke 50 mm - elastic cushioning rings/plates at both ends

Ordering – Product options

Configurable product

This product and all its options can be ordered using the configurator.

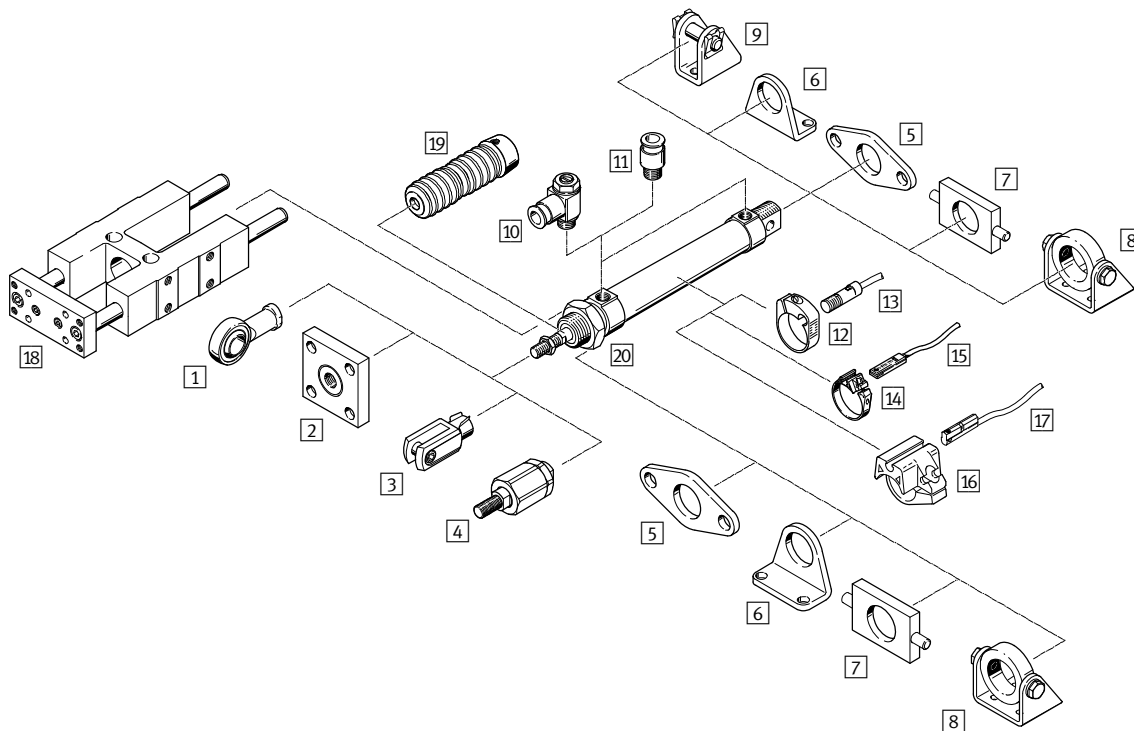
The configurator can be found under Products on the DVD or

→ www.festo.com/catalogue/...

Enter the type code in the search field.

Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, to ISO 6432

Accessories


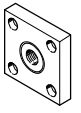
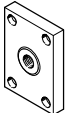



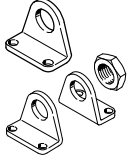






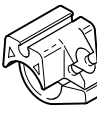

	DSNU/ESNU	DSNU-				DSNUP	DSN/ESN	→ Page/online
		MQ	Q	S2	KP			
1 Rod eye SGS Rod eye CRSGS	■	■	■	■	■	■	■	112 dsnu
2 Coupling piece KSG/KSZ	■	■	■	■	■	■	■	112
3 Rod clevis SG Rod clevis CRSG	■	■	■	■	■	■	■	112 dsnu
4 Self-aligning rod coupler FK	■	■	■	■	■	■	■	112
5 Flange mounting FBN Flange mounting CRFBN	■	■	■	■	■	■	■	112 dsnu
6 Foot mounting HBN Foot mounting CRHBN	■	■	■	■	■	■	■	112 dsnu
7 Swivel mounting WBN	■	■	■	■	■	■	■	112
8 Swivel mounting SBN	■	■	■	■	■	-	■	112
9 Clevis foot LBN Clevis foot CRLBN	■	-	■	-	■	■	■	112 dsnu
10 One-way flow control valve GRLA/GRLZ ¹⁾ One-way flow control valve CRGRLA ¹⁾	■	■	■	■	■	■	■	112 dsnu
11 Push-in fitting QS	■	■	■	■	■	■	■	1006
12 Mounting kit SMBR Mounting kit CRSMBR	■	■	■	■	■	-	-	112 dsnu
13 Proximity sensor SMEO/SMT0-4 Proximity sensor CRSMEO-4	■	■	■	■	■	-	-	113 dsnu
14 Mounting kit SMBR-8	■	■	■	■	■	■	-	112
15 Proximity sensor SME/SMT-8	■	■	■	■	■	■	-	113
16 Mounting kit SMBR-10	■	■	■	■	■	-	-	112
17 Proximity sensor SME/SMT-10	■	■	■	■	■	-	-	113
18 Guide unit FEN	■	■	-	■	-	-	■	114
19 Protective bellows kit DADB	■	■	-	■	-	-	-	dsnu
20 Hex nut MSK	■	■	■	■	■	-	■	114



1) Only push-in fittings or one-way flow control valves with cylindrical connecting thread (M or G thread) should be used for the supply ports in combination with DSNUP.

Accessories – Ordering data

1



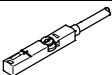
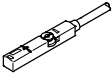
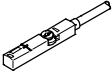







	For Ø	Part No.	Type
1 Rod eye Technical data online: → sgs			
	8, 10	9253	SGS-M4
	12, 16	★ 9254	SGS-M6
	20	★ 9255	SGS-M8
	25	★ 9261	SGS-M10x1,25
2 Coupling piece Technical data online: → ksg			
	25	32963	KSG-M10x1,25
2 Coupling piece Technical data online: → ksz			
	12, 16	36123	KSZ-M6
	20	36124	KSZ-M8
	25	36125	KSZ-M10x1,25
3 Rod clevis Technical data online: → sg			
	8, 10	6532	SG-M4
	12, 16	★ 3110	SG-M6
	20	★ 3111	SG-M8
	25	★ 6144	SG-M10x1,25
4 Self-aligning rod coupler Technical data online: → fk			
	8, 10	6528	FK-M4
	12, 16	★ 2061	FK-M6
	20	★ 2062	FK-M8
	25	★ 6140	FK-M10x1,25
5 Flange mounting Dimensions online: → dsnu			
	8, 10	5129	FBN-8/10
	12, 16	5130	FBN-12/16
	20, 25	5131	FBN-20/25
6 Foot mounting Dimensions online: → dsnu			
	8, 10	5123	HBN-8/10x1
		5124	HBN-8/10x2
	12, 16	★ 5125	HBN-12/16x1
		★ 5126	HBN-12/16x2
	20, 25	★ 5127	HBN-20/25x1
		★ 5128	HBN-20/25x2

	For Ø	Part No.	Type
7 Swivel mounting Dimensions online: → dsnu			
	8, 10	8608	WBN-8/10x1
	12, 16	8609	WBN-12/16
	20, 25	8610	WBN-20/25
8 Swivel mounting Dimensions online: → dsnu			
	20, 25	539927	SBN-20/25
9 Clevis foot Technical data online: → lbn			
	8, 10	6057	LBN-8/10
	12, 16	★ 6058	LBN-12/16
	20, 25	★ 6059	LBN-20/25
12/14/16 Mounting kit for proximity sensor			
	8	175091	SMBR-8-8
	10	175092	SMBR-8-10
	12	★ 175093	SMBR-8-12
	16	★ 175094	SMBR-8-16
	20	★ 175095	SMBR-8-20
	25	★ 175096	SMBR-8-25
SMT/SME-10			
	8	175101	SMBR-10-8
	10	173227	SMBR-10-10
	12	175102	SMBR-10-12
	16	173228	SMBR-10-16
	20	175103	SMBR-10-20
Round design SMT0/SME0-4			
	8	19272	SMBR-8
	10	19273	SMBR-10
	12	19274	SMBR-12
	16	19275	SMBR-16
	20	19276	SMBR-20
25			
19277			
SMBR-25			

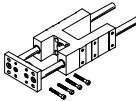

	For Ø	Connection		Part No.	Type
		Thread	O.D.		
10 One-way flow control valve with slotted head screw, metal¹⁾ for exhaust air flow control Technical data → 689					
	12, 16	M5	3	★ 193137	GRLA-M5-QS-3-D
	20, 25	G1/8	4	★ 193143	GRLA-1/8-QS-4-D
For supply air flow control Technical data → 689					
	12, 16	M5	3	★ 193153	GRLZ-M5-QS-3-D
	20, 25	G1/8	4	★ 193157	GRLZ-1/8-QS-4-D

1) The recommended flow control valves are based on a tubing length to the valve of 1 m. For deviations of ±50%, flow control valves with a bigger or smaller flow rate must be selected to guarantee the optimum flow control function and cylinder speed.

Accessories – Ordering data

	For Ø		Part No.	Type	
13 Proximity sensor, round design, magneto-resistive – N/O contact					Technical data online: → smt0
	PNP, cable		152836	SMT0-4U-PS-K-LED-24	
	PNP, plug		152742	SMT0-4U-PS-S-LED-24	
	NPN, cable		152837	SMT0-4U-NS-K-LED-24	
	NPN, plug		152743	SMT0-4U-NS-S-LED-24	
Magnetic reed – N/O contact					Technical data online: → sme0
	Cable		36198	SME0-4U-K-LED-24	
	Cable		175401	SME0-4U-K5-LED-24	
	Plug		151526	SME0-4U-S-LED-24-B	
15 Proximity sensor for T-slot, magneto-resistive – N/O contact					Technical data → 808
	PNP, cable	★	574335	SMT-8M-A-PS-24V-E-2,5-OE	
	PNP, plug	★	574334	SMT-8M-A-PS-24V-E-0,3-M8D	
	PNP, plug	★	574337	SMT-8M-A-PS-24V-E-0,3-M12	
	NPN, cable	★	574338	SMT-8M-A-NS-24V-E-2,5-OE	
	NPN, plug	★	574339	SMT-8M-A-NS-24V-E-0,3-M8D	
Magneto-resistive – N/C contact					Technical data → 808
	PNP, cable	★	574340	SMT-8M-A-PO-24V-E-7,5-OE	
Magnetic reed – N/O contact					Technical data → 803
	Cable	★	543862	SME-8M-DS-24V-K-2,5-OE	
	Cable	★	543863	SME-8M-DS-24V-K-5,0-OE	
	Cable	★	543872	SME-8M-ZS-24V-K-2,5-OE	
	Plug	★	543861	SME-8M-DS-24V-K-0,3-M8D	
Magnetic reed – N/C contact					Technical data → 805
	Cable		160251	SME-8-O-K-LED-24	
17 Proximity sensor for C-slot, magneto-resistive – N/O contact					Technical data → 821
	PNP, cable	★	551373	SMT-10M-PS-24V-E-2,5-L-OE	
	PNP, plug	★	551375	SMT-10M-PS-24V-E-0,3-L-M8D	
Magnetic reed – N/O contact					Technical data → 821
	Plug	★	551367	SME-10M-DS-24V-E-0,3-L-M8D	
	Cable	★	551365	SME-10M-DS-24V-E-2,5-L-OE	
	Cable	★	551369	SME-10M-ZS-24V-E-2,5-L-OE	
13/15/17 Connecting cable, straight socket					Technical data → 1053
	2.5 m	★	541333	NEBU-M8G3-K-2.5-LE3	
	5 m	★	541334	NEBU-M8G3-K-5-LE3	
	2.5 m	★	541363	NEBU-M12G5-K-2.5-LE3	
	5 m	★	541364	NEBU-M12G5-K-5-LE3	
Angled socket					Technical data → 1053
	2.5 m	★	541338	NEBU-M8W3-K-2.5-LE3	
	5 m	★	541341	NEBU-M8W3-K-5-LE3	
	2.5 m		541367	NEBU-M12W5-K-2.5-LE3	
	5 m		541370	NEBU-M12W5-K-5-LE3	

1 Accessories – Ordering data

	For Ø	Stroke	Part No.	Type	
18 Guide unit for variable strokes					
	With recirculating ball bearing guide			Technical data online: → fen	
	8, 10	1 ... 100	35197	FEN-8/10-...-KF	
	12, 16	1 ... 200	33481	FEN-12/16-...-KF	
	20	2 ... 250	33482	FEN-20-...-KF	
	25	2 ... 250	33483	FEN-25-...-KF	
	With plain-bearing guide			Technical data online: → fen	
	8, 10	1 ... 100	35196	FEN-8/10-...	
	12, 16	1 ... 200	19168	FEN-12/16-...	
	20	2 ... 250	19169	FEN-20-...	
	25	2 ... 250	19170	FEN-25-...	
20 Hex nut					
	16		189007	MSK-M16X1,5	
	20, 25		★ 189009	MSK-M22X1,5	

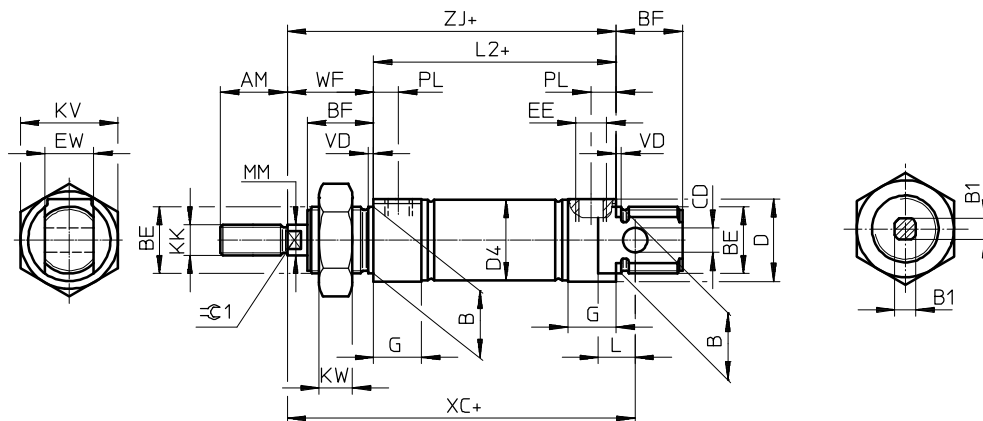
Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, to ISO 6432



Download CAD data → www.festo.com

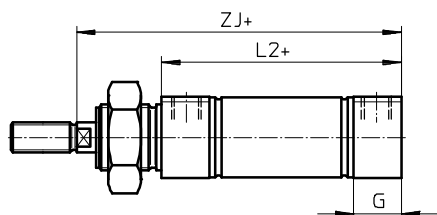
Dimensions

Basic design

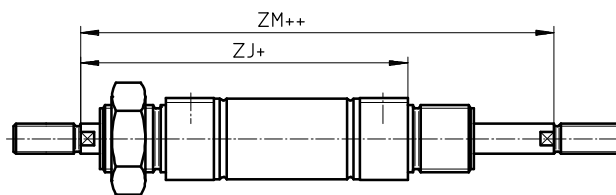


Note
Piston rod nut is not included in the scope of delivery with $\varnothing 8 \dots 20$.

MQ – Lateral air connection

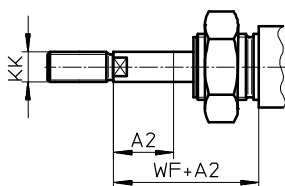


S2 – Through piston rod



Note
The thread types at both piston rod ends are identical. In combination with variant Q, the left-hand piston rod end is square, the right-hand piston rod end round.

K8 – Extended piston rod



Note
If variant K8 is required in combination with S2, the piston rod will only be extended on one side.

+ = plus stroke length
++ = plus 2x stroke length

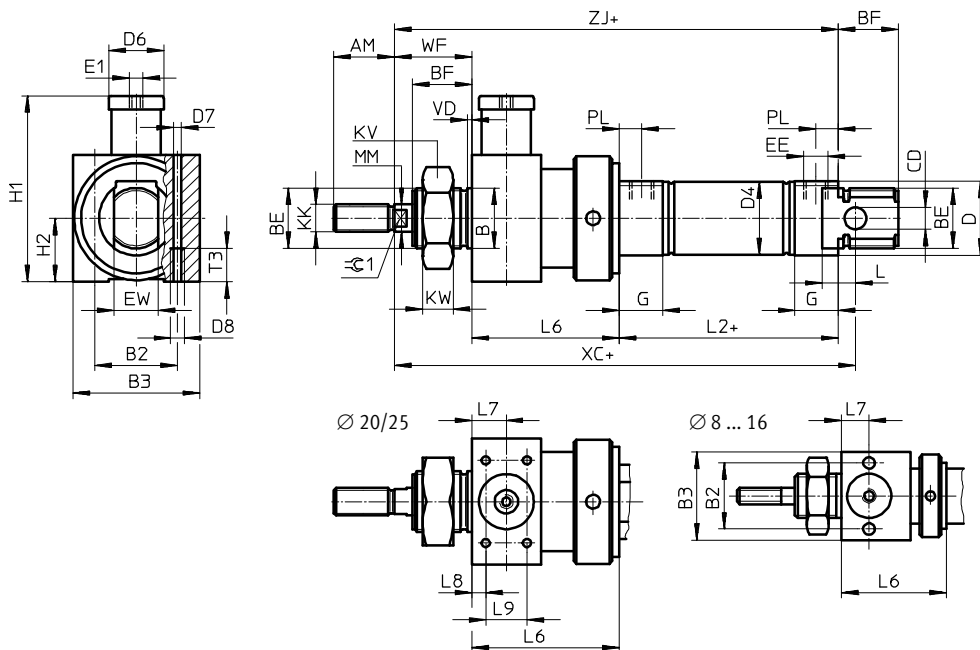
\varnothing [mm]	A2 max.	AM	B \varnothing h9	B1 \square	BE	BF	CD \varnothing H9	D \varnothing	D4 \varnothing	EE	EW	G	KK
8	50	12	12	-	M12x1.25	12	4	15	9.3	M5	8	10	M4
10				11.3									
12	100	16	16	5.5	M16x1.5	17	6	20	13.3	G1/8	12	16	M6
16				17.3									
20	110	20	22	7	M22x1.5	20	8	27	21.3	16	16	16	M8
25	150	22		9		22			26.5				M10x1.25

\varnothing [mm]	KV	KW	L	L2	MM \varnothing	PL	VD	WF	XC ± 1	ZM	ZJ	$\approx C1$
8	19	6	6	46	4	6	2	16	64	78.4	62	-
10				50								
12	24	8	9	56	6	8.2	22	75	94	100	78	5
16				68				8	24	95	116	92
20	32	11	12	69.5	10	8.2	28	104	125.5	97.2	9	
25												

Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, to ISO 6432

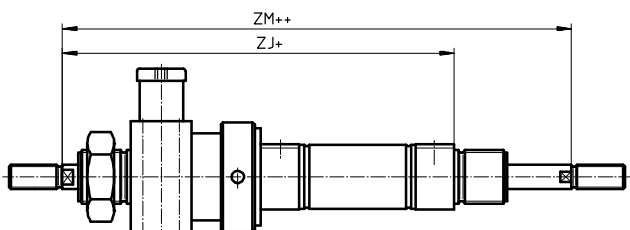
Dimensions

1 Basic design KP – With clamping unit



Note
Piston rod nut is not included in the scope of delivery with Ø 8 ... 20.

S2 – Through piston rod



Note
The thread types at both piston rod ends are identical. The clamping unit is mounted on only one side. In combination with variant Q, the right-hand piston rod is square, the left-hand piston rod round. The clamping unit is mounted on the left-hand, round piston rod.

+ = plus stroke length
++ = plus 2x stroke length

Ø	AM	B	B2	B3	BE	BF	CD	D	D4	D6	D7	D8	E1	EE	EW	G	H1	H2
[mm]		Ø h9					Ø H9	Ø	Ø	Ø	Ø							
8	12	12	19.5	27	M12x1.25	12	4	15	9.3	12	4.2	M5	M5	M5	8	10	34.5	13.5
10									11.3									
12	16	16	24	32	M16x1.5	17	6	20	13.3	16	4.2	M5	M5	M5	12	10	41	16
16									17.3									
20	20	22	27	36	M22x1.5	20	8	27	21.3	20	4.2	M5	M5	M5	16	16	62.5	18
25									26.5									

Ø	KK	KV	KW	MM	L	L2	L6	L7	L8	L9	T3	PL	VD	WF	XC	ZJ	ZM	≅C1
[mm]				Ø											±1			
8	M4	19	6	4	6	46	29 ±0.65	8	-	-	11	6	2	16	93	91	107	-
10									-	-								-
12	M6	24	8	6	9	50	38 ±0.75	10	-	-	11	6	2	22	113	110	132	5
16									-	-								-
20	M8	32	11	8	12	68	47 ±0.75	13	4.5	20	11	8.2	2	24	142	139	163	7
25																		M10x1.25

Standard cylinders DSNU/DSNUP/DSN/ESNU/ESN, to ISO 6432

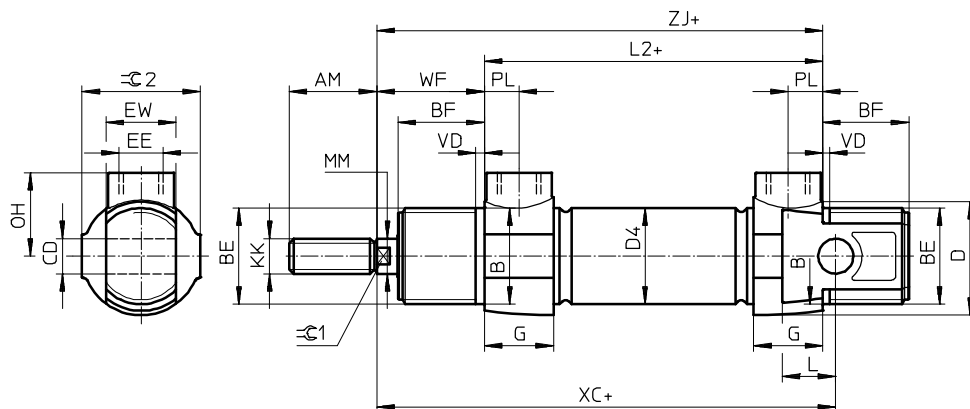


Dimensions

DSNUP-...

Download CAD data → www.festo.com

1



Note

Only push-in fittings or one-way flow control valves with cylindrical connecting thread (M or G thread) should be used for the supply ports. Piston rod nut is not included in the scope of delivery with Ø 16/20.

+ = plus stroke length

Ø [mm]	AM	B Ø h9	BE	BF	CD Ø H9	D Ø	D4 Ø	EE
16	16	16	M16x1.5	17	6	20	18	M5
20	20	22	M22x1.5	20	8	27	22	G ¹ / ₈
25	22	22	M22x1.5	22	8	27	27	G ¹ / ₈

Ø [mm]	EW	G	KK	L	L2	MM Ø	OH	PL	VD
16	12	10	M6	8	56	6	14	4.9	2
20	16	16	M8	12	68	8	19	7.9	2
25	16	16	M10x1.25	12	70	10	19	7.9	2

Ø [mm]	WF	XC ±1	ZJ	Ø 1	Ø 2	Max. tightening torque of thread [Nm]	
						BE ¹⁾	EE
16	22	82	78	5	19	12/8	1.3
20	24	95	92	7	27	22/15	6
25	28	104	98	9	27	22/15	6

1) Bearing cap/end cap.

Round cylinders DSNU/ESNU

1



- For the highest requirements for running characteristics, service life and load carrying ability
- Universal use thanks to individual variants
- Comprehensive range of accessories
- Selected types in accordance with the ATEX Directive for explosive atmospheres → www.festo.com/catalogue/ex

→ www.festo.com/catalogue/dsnu

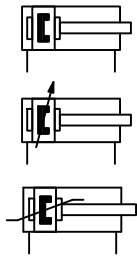
Product range overview

Type/function	Version	Piston Ø [mm]	Stroke [mm]	Force [N]	Product options									→ Page/online	
					P	PPV	PPS	A	Q	S2	KP	K8	S6		
Double-acting	DSNU														
	Basic design	32, 40, 50, 63	1 ... 500	483 ... 1870	■	■	■	■	■	■	■	■	■	■	119
	MQ – Plain end cap, lateral connection				■	■	■	■	■	-	■	■	■		
	MA – Plain end cap, axial connection				■	-	-	■	■	-	■	■	■	dsnu	
	MH – Direct mounting				■	■	-	■	■	-	-	■	■		
DSNU – Standard cylinder with piston Ø 8 ... 25														96	
Single-acting	ESNU														
	Basic design	32, 40, 50, 63	1 ... 50	442 ... 1763	■	-	-	■	-	-	-	■	-	124	
	MA – Plain end cap, axial connection				■	-	-	■	-	-	-	■	-	esnu	
	ESNU – Standard cylinder with piston Ø 8 ... 25														96

Product options

P	Elastic cushioning rings/plates at both ends	MQ	Alternative plain end cap, lateral connection	S2	Through piston rod	K3	Female piston rod thread
PPV	Pneumatic cushioning, adjustable at both ends	MA	Alternative plain end cap, axial connection	KP	With clamping unit	K5	Special piston rod thread
PPS	Pneumatic cushioning, self-adjusting at both ends	MH	Alternative end cap, direct mounting	K8	Extended piston rod	K6	Shortened male piston rod thread
A	Position sensing	Q	With protection against rotation	S6	Heat-resistant seals up to max. 120 °C	S10	Slow speed
				K2	Extended male piston rod thread	S11	Low friction
						R3	High corrosion protection
						R8	Wiper seal

Technical data – Double-acting



1

Technical data		Dimensions → 130			
Piston Ø		32	40	50	63
Pneumatic connection		G1/8	G1/4	G1/4	G3/8
Piston rod end		Male thread			
Piston rod thread		M10x1.25	M12x1.25	M16x1.5	M16x1.5
Stroke	[mm]	1 ... 500			
Cushioning	P	Elastic cushioning rings/plates at both ends			
	PPV	Pneumatic cushioning, adjustable at both ends			
	PPS	Pneumatic cushioning, self-adjusting at both ends			
Cushioning length	PPV [mm]	14	18	20	21
	PPS [mm]	14	18	20	21
Theoretical force at 6 bar, advancing	[N]	483	753	1178	1870
Theoretical force at 6 bar, retracting	[N]	415	633	990	1682
Max. torque at the piston rod ¹⁾	[Nm]	0.8	1.1	1.5	1.5

1) Only applies to variants with protection against rotation Q.

Operating conditions		Basic design, product options		S6
Operating pressure	[bar]	1 ... 10		
Ambient temperature ²⁾	[°C]	-20 ... +80		0 ... +120

2) Note operating range of proximity sensors.

Materials	
Piston rod	High-alloy steel
Bearing cap	Wrought aluminium alloy
Cylinder barrel	High-alloy stainless steel
End cap	Wrought aluminium alloy
Seals	NBR, TPE-U (PU)

Round cylinders DSNU

1 Order code – Double-acting

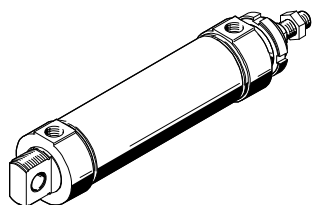
Type		DSNU	Double-acting round cylinder
Piston Ø [mm]			
Stroke [mm]		32, 40, 50, 63	25, 40, 50, 80, 100, 125, 160, 200, 250, 320
Cushioning			
P	Elastic cushioning rings/plates at both ends		
PPV	Pneumatic cushioning, adjustable at both ends		
PPS	Pneumatic cushioning, self-adjusting at both ends		
Position sensing		A	Via proximity sensor 1
Alternative end cap		MQ	Plain end cap, lateral connection 2
Piston rod type		-	Single-ended piston rod
		S2	Through piston rod
Extended piston rod [mm]		... K8	1 ... 500
Temperature resistance		S6	Heat-resistant seals up to max. 120 °C

- 1 Minimum stroke: 10 mm
- 2 Not with piston rod type S2

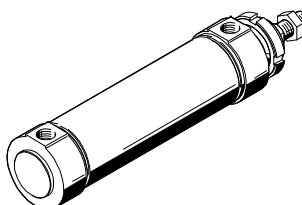
Ordering aid

Basic design

MQ – Plain end cap, lateral air connection



Order example:
 DSNU-32-40-PPV-A
 Double-acting round cylinder DSNU - piston diameter 32 mm - stroke 40 mm - pneumatic cushioning, adjustable at both ends - position sensing via proximity sensor - single-ended piston rod



Order example:
 DSNU-32-40-PPV-A-MQ
 Double-acting round cylinder DSNU - piston diameter 32 mm - stroke 40 mm - pneumatic cushioning, adjustable at both ends - position sensing via proximity sensor - plain end cap, lateral connection - single-ended piston rod

Ordering – Product options

	<p>Configurable product</p>	<p>This product and all its options can be ordered using the configurator.</p>	<p>The configurator can be found under Products on the DVD or → www.festo.com/catalogue/...</p>
			<p>Enter the type code in the search field.</p>

Order code – Double-acting with protection against rotation

1

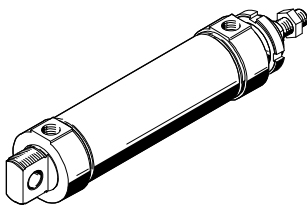
DSNU					A		Q		
Type									
DSNU	Double-acting round cylinder								
Piston Ø [mm]									
	Stroke [mm]								
32	5 ... 300								
40, 50	5 ... 400								
63	5 ... 500								
Cushioning									
P	Elastic cushioning rings/plates at both ends								
PPV	Pneumatic cushioning, adjustable at both ends								
Position sensing									
A	Via proximity sensor								1
Alternative end cap									
MQ	Plain end cap, lateral connection								2
Protection against rotation									
Q	Square piston rod								
Piston rod type									
-	Single-ended piston rod								
S2	Through piston rod								
Extended piston rod [mm]									
... K8	1 ... 500								

1 Minimum stroke: 10 mm

2 Not with piston rod type S2

Ordering aid

Basic design

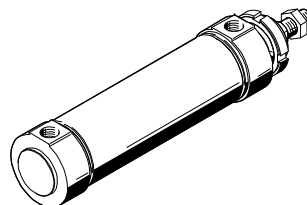


Order example:

DSNU-32-40-PPV-A-Q

Double-acting round cylinder DSNU - piston diameter 32 mm - stroke 40 mm - pneumatic cushioning, adjustable at both ends - position sensing via proximity sensor - square piston rod - single-ended piston rod

MQ – Plain end cap, lateral air connection

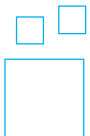


Order example:

DSNU-32-40-PPV-A-MQ-Q

Double-acting round cylinder DSNU - piston diameter 32 mm - stroke 40 mm - pneumatic cushioning, adjustable at both ends - position sensing via proximity sensor - plain end cap, lateral connection - square piston rod - single-ended piston rod

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or

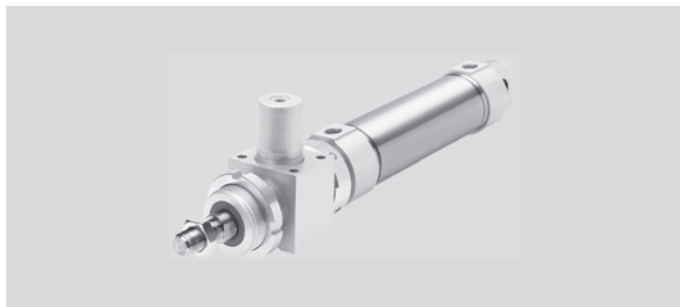
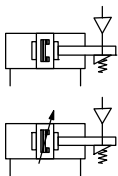
→ www.festo.com/catalogue/...

Enter the type code in the search field.

Round cylinders DSNU-...-KP, with clamping unit

FESTO

1 Technical data – Double-acting with clamping unit



Technical data		Dimensions → 131			
Piston Ø		32	40	50	63
Pneumatic connection		G1/8	G1/4	G1/4	G3/8
Release connection		M5	G1/8	G1/8	G1/8
Piston rod end		Male thread			
Piston rod thread		M10x1.25	M12x1.25	M16x1.5	M16x1.5
Stroke	[mm]	1 ... 500			
Cushioning	P	Elastic cushioning rings/plates at both ends			
	PPV	Pneumatic cushioning, adjustable at both ends			
	PPS	Pneumatic cushioning, self-adjusting at both ends			
Cushioning length	PPV [mm]	14	18	20	21
	PPS [mm]	14	18	20	21
Theoretical force at 6 bar, advancing	[N]	483	753	1178	1870
Theoretical force at 6 bar, retracting	[N]	415	633	990	1682
Holding force of the clamping unit	[N]	600	1000	1400	2000
Max. axial backlash with clamped piston rod without load	[mm]	0.5	0.5	0.7	0.7

Operating conditions

Operating pressure	[bar]	3 ... 10
Ambient temperature ¹⁾	[°C]	-10 ... +80

1) Note operating range of proximity sensors.

Materials

Piston rod	High-alloy steel
Bearing cap	Wrought aluminium alloy
Cylinder barrel	High-alloy stainless steel
End cap	Wrought aluminium alloy
Seals	NBR, TPE-U (PU)

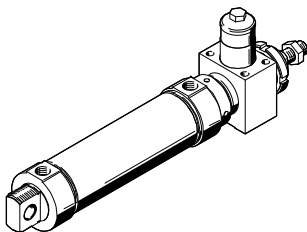
Order code – Double-acting with clamping unit

		DSNU	-		-		-		-	A	-		-		-	KP	-	
Type																		
DSNU	Double-acting round cylinder																	
Piston Ø [mm]																		
	Stroke [mm]																	
32, 40, 50, 63	25, 40, 50, 80, 100, 125, 160, 200, 250, 320	1 ... 500																
Cushioning																		
P	Elastic cushioning rings/plates at both ends																	
PPV	Pneumatic cushioning, adjustable at both ends																	
PPS	Pneumatic cushioning, self-adjusting at both ends																	
Position sensing																		
A	Via proximity sensor															1		
Alternative end cap																		
MQ	Plain end cap, lateral connection															2		
Piston rod																		
-	Single-ended piston rod																	
S2	Through piston rod																	
Clamping unit																		
KP	Attached																	
Temperature resistance																		
S6	Heat-resistant seals up to max. 120 °C																	

- 1 Minimum stroke: 10 mm
- 2 Not with piston rod S2

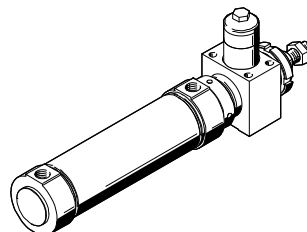
Ordering aid

Basic design



Order example:
 DSNU-32-40-PPV-A-KP
 Double-acting round cylinder DSNU - piston diameter 32 mm - stroke 40 mm - pneumatic cushioning, adjustable at both ends - position sensing via proximity sensor - single-ended piston rod - clamping unit attached

MQ – Plain end cap, lateral air connection



Order example:
 DSNU-32-40-PPV-A-MQ-KP
 Double-acting round cylinder DSNU - piston diameter 32 mm - stroke 40 mm - pneumatic cushioning, adjustable at both ends - position sensing via proximity sensor - plain end cap, lateral connection - single-ended piston rod - clamping unit attached

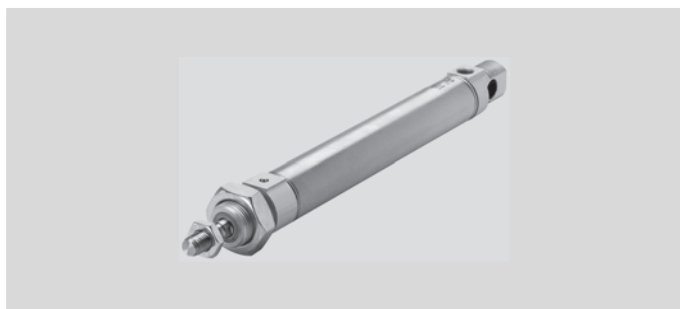
Ordering – Product options

	<p>Configurable product</p>	<p>This product and all its options can be ordered using the configurator.</p>	<p>The configurator can be found under Products on the DVD or → www.festo.com/catalogue/...</p>	<p>Enter the type code in the search field.</p>
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Round cylinders ESNU

FESTO

1 Technical data – Single-acting



Technical data			Dimensions → 130			
Piston Ø			32	40	50	63
Pneumatic connection			G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$
Piston rod end			Male thread			
Piston rod thread			M10x1.25	M12x1.25	M16x1.5	M16x1.5
Stroke	[mm]		1 ... 50			
Cushioning			Elastic cushioning rings/plates at both ends			
Theoretical force at 6 bar, advancing	[N]		442	688	1071	1763
Max. spring return force	10 mm stroke	[N]	36	60	95	95
Max. spring return force	25 mm stroke	[N]	30	50	82	82
Max. spring return force	50 mm stroke	[N]	20	30	60	60

Operating conditions		
Operating pressure	[bar]	1.2 ... 10
Ambient temperature ¹⁾	[°C]	-20 ... +80

1) Note operating range of proximity sensors.

Materials	
Piston rod	High-alloy steel
Bearing cap	Wrought aluminium alloy
Cylinder barrel	High-alloy stainless steel
End cap	Wrought aluminium alloy
Seals	NBR, TPE-U (PU)

Order code – Single acting

Type		ESNU		Single-acting round cylinder	
Piston Ø [mm]		32, 40, 50, 63		Stroke [mm] 10, 25, 50	
Cushioning		P		Elastic cushioning rings/plates at both ends	
Position sensing		A		Via proximity sensor 1	
Extended piston rod [mm]		... K8		1 ... 50	


1 Minimum stroke: 10 mm

Order example:

ESNU-50-50-P-A

Single-acting round cylinder ESNU - piston diameter 50 mm - stroke 50 mm - elastic cushioning rings/plates at both ends - position sensing via proximity sensor

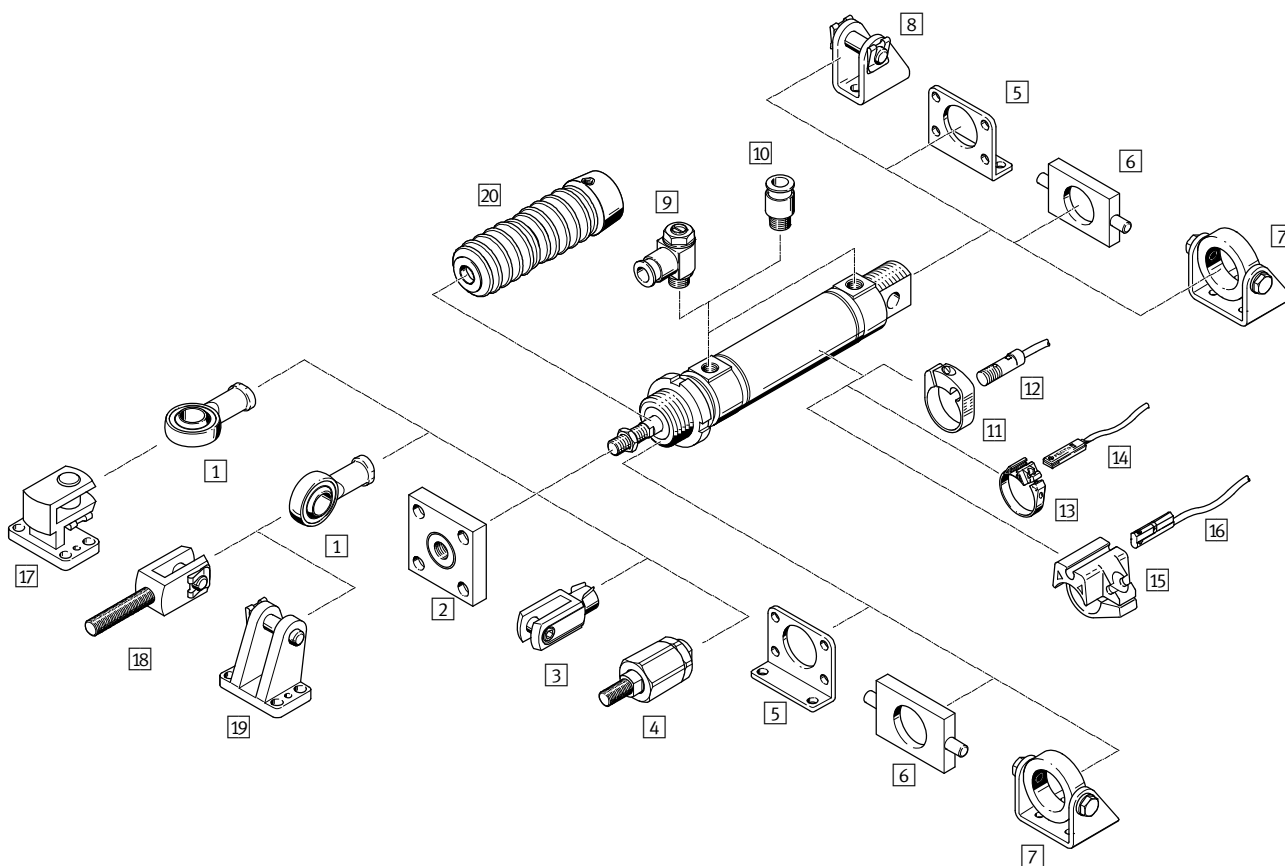
Ordering – Product options

	<p>Configurable product</p>	<p>This product and all its options can be ordered using the configurator.</p>	<p>The configurator can be found under Products on the DVD or → www.festo.com/catalogue/...</p>	<p>Enter the type code in the search field.</p>
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Round cylinders DSNU/ESNU


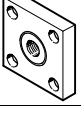
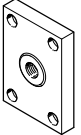


Accessories

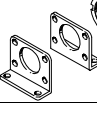
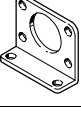



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


	DSNU/ESNU	DSNU-				→ Page/ online
		MQ	Q	S2	KP	
1 Rod eye SGS Rod eye CRSGS	■ ■	■ ■	■ ■	■ ■	■ ■	127 dsnu
2 Coupling piece KSG/KSZ	■	■	■	■	■	127
3 Rod clevis SG Rod clevis CRSG	■ ■	■ ■	■ ■	■ ■	■ ■	127 dsnu
4 Self-aligning rod coupler FK	■	■	■	■	■	127
5 Flange mounting FBN Flange mounting CRFV Foot mounting HBN Foot mounting CRH	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ - -	127 dsnu 127 -
6 Swivel mounting WBN	■	■	■	■	■	127
7 Swivel mounting SBN	■	■	■	■	■	127
8 Clevis foot LBN Clevis foot CRLBN	■ ■	- -	■ ■	- -	■ ■	127 dsnu
9 One-way flow control valve GRLA/GRLZ One-way flow control valve CRGRLA	■ ■	■ ■	■ ■	■ ■	■ ■	127 dsnu
10 Push-in fitting QS	■	■	■	■	■	1006
11 Mounting kit CRSMBR	■	■	■	■	■	128
12 Proximity sensor SMEO/SMT-4 Proximity sensor CRSMEO-4	■ ■	■ ■	■ ■	■ ■	■ ■	128 dsnu
13 Mounting kit SMBR-8	■	■	■	■	■	128
14 Proximity sensor SME/SMT-8	■	■	■	■	■	128
15 Mounting kit SMBR-10	■	■	■	■	■	128
16 Proximity sensor SME/SMT-10	■	■	■	■	■	129
17 Right-angle clevis foot LQG	■	■	■	■	■	129
18 Rod clevis SGA	■	■	■	■	■	129
19 Clevis foot LBG	■	■	■	■	■	129
20 Protective bellows kit DADB	■	■	-	■	-	dsnu

Accessories – Ordering data

	For Ø		Part No.	Type
1 				Technical data online: → sgs
	32	★	9261	SGS-M10x1,25
	40	★	9262	SGS-M12x1,25
	50, 63	★	9263	SGS-M16x1,5
2 				Technical data online: → ksg
	32		32963	KSG-M10x1,25
	40		32964	KSG-M12x1,25
	50, 63		32965	KSG-M16x1,5
2 				Technical data online: → ksz
	32		36125	KSZ-M10x1,25
	40		36126	KSZ-M12x1,25
	50, 63		36127	KSZ-M16x1,5
3 				Technical data online: → sg
	32	★	6144	SG-M10x1,25
	40	★	6145	SG-M12x1,25
	50, 63	★	6146	SG-M16x1,5
4 				Technical data online: → fk
	32	★	6140	FK-M10x1,25
	40	★	6141	FK-M12x1,25
	50, 63	★	6142	FK-M16x1,5

	For Ø		Part No.	Type
5 				Dimensions online: → dsnu
	32		195851	HBN-32x2
	40		195852	HBN-40x2
	50		195853	HBN-50x2
	63		195854	HBN-63x2
5 				Dimensions online: → dsnu
	32		195855	FBN-32
	40		195856	FBN-40
	50		195857	FBN-50
	63		195858	FBN-63
6 				Dimensions online: → dsnu
	32		195863	WBN-32
	40		195864	WBN-40
	50, 63		195865	WBN-50/63
7 				Dimensions online: → dsnu
	32		539924	SBN-32
	40		539925	SBN-40
	50, 63		539926	SBN-50/63
8 				Technical data online: → lbn
	32		195860	LBN-32
	40		195861	LBN-40
	50, 63		195862	LBN-50/63



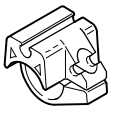


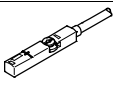
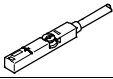
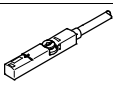


	For Ø	Connection			Part No.	Type
		Thread	O.D.			
9 						Technical data → 689
for exhaust air flow control						
	32	G $\frac{1}{8}$	6	★	193144	GRLA- $\frac{1}{8}$ -QS-6-D
	40	G $\frac{1}{4}$	6	★	193146	GRLA- $\frac{1}{4}$ -QS-6-D
	50		8	★	193147	GRLA- $\frac{1}{4}$ -QS-8-D
	63	G $\frac{3}{8}$	8	★	193150	GRLA- $\frac{3}{8}$ -QS-8-D
For supply air flow control						
	32	G $\frac{1}{8}$	6	★	193158	GRLZ- $\frac{1}{8}$ -QS-6-D

1) The recommended flow control valves are based on a tubing length to the valve of 1 m. For deviations of $\pm 50\%$, flow control valves with a bigger or smaller flow rate must be selected to guarantee the optimum flow control function and cylinder speed.











Round cylinders DSNU/ESNU

Accessories – Ordering data

1

	For Ø	Part No.	Type	
11/13/15 Mounting kit for proximity sensor, round design SMTO/SMEO-4				
	32	163888	CRSMBR-32	
	40	163889	CRSMBR-40	
	50	163890	CRSMBR-50	
	63	163891	CRSMBR-63	
SMT/SME-8				
	32	175097	SMBR-8-32	
	40	175098	SMBR-8-40	
	50	175099	SMBR-8-50	
	63	175100	SMBR-8-63	
SMT/SME-10				
	32	175105	SMBR-10-32	
	40	175106	SMBR-10-40	
	50	175107	SMBR-10-50	
	63	175108	SMBR-10-63	
12 Proximity sensor, round design, magneto-resistive – N/O contact Technical data online: smt0				
	PNP, cable	152836	SMT0-4U-PS-K-LED-24	
	PNP, plug	152742	SMT0-4U-PS-S-LED-24	
	NPN, cable	152837	SMT0-4U-NS-K-LED-24	
	NPN, plug	152743	SMT0-4U-NS-S-LED-24	
Magnetic reed – N/O contact Technical data online: smeo				
	Cable	36198	SMEO-4U-K-LED-24	
	Cable	175401	SMEO-4U-K5-LED-24	
	Plug	151526	SMEO-4U-S-LED-24-B	
14 Proximity sensor for T-slot, magneto-resistive – N/O contact Technical data → 808				
	PNP, cable	★ 574335	SMT-8M-A-PS-24V-E-2,5-OE	
	PNP, plug	★ 574334	SMT-8M-A-PS-24V-E-0,3-M8D	
	PNP, plug	★ 574337	SMT-8M-A-PS-24V-E-0,3-M12	
	NPN, cable	★ 574338	SMT-8M-A-NS-24V-E-2,5-OE	
	NPN, plug	★ 574339	SMT-8M-A-NS-24V-E-0,3-M8D	
Magnetic reed – N/C contact Technical data → 803				
	PNP, cable	★ 574340	SMT-8M-A-PO-24V-E-7,5-OE	
Magnetic reed – N/O contact Technical data → 803				
	Cable	★ 543862	SME-8M-DS-24V-K-2,5-OE	
	Cable	★ 543863	SME-8M-DS-24V-K-5,0-OE	
	Cable	★ 543872	SME-8M-ZS-24V-K-2,5-OE	
	Plug	★ 543861	SME-8M-DS-24V-K-0,3-M8D	
Magnetic reed – N/O contact Technical data → 805				
	Cable	150855	SME-8-K-LED-24	
	Plug	150857	SME-8-S-LED-24	
Magnetic reed – N/C contact Technical data → 805				
	Cable	160251	SME-8-O-K-LED-24	

Accessories – Ordering data

	For Ø		Part No.	Type	
16 Proximity sensor for C-slot, magneto-resistive – N/O contact					Technical data → 821
	PNP, cable	★	551373	SMT-10M-PS-24V-E-2,5-L-OE	
	PNP, plug	★	551375	SMT-10M-PS-24V-E-0,3-L-M8D	
	PNP, plug	★	551376	SMT-10M-PS-24V-E-0,3-Q-M8D	
Magnetic reed – N/O contact					Technical data → 817
	Plug	★	551367	SME-10M-DS-24V-E-0,3-L-M8D	
	Cable	★	551365	SME-10M-DS-24V-E-2,5-L-OE	
	Cable	★	551369	SME-10M-ZS-24V-E-2,5-L-OE	
	Plug		173212	SME-10-SL-LED-24	
	Cable		173210	SME-10-KL-LED-24	
12/14/16 Connecting cable, straight socket					Technical data → 1053
	2.5 m	★	541333	NEBU-M8G3-K-2.5-LE3	
	5 m	★	541334	NEBU-M8G3-K-5-LE3	
	2.5 m	★	541363	NEBU-M12G5-K-2.5-LE3	
	5 m	★	541364	NEBU-M12G5-K-5-LE3	
Angled socket					Technical data → 1053
	2.5 m	★	541338	NEBU-M8W3-K-2.5-LE3	
	5 m	★	541341	NEBU-M8W3-K-5-LE3	
	2.5 m		541367	NEBU-M12W5-K-2.5-LE3	
	5 m		541370	NEBU-M12W5-K-5-LE3	
17 Right-angle clevis foot					Technical data online: → lqg
	32		31768	LQG-32	
	40		31769	LQG-40	
	50		31770	LQG-50	
	63		31771	LQG-63	
18 Rod clevis					Technical data online: → sga
	32		32954	SGA-M10x1,25	
	40		10767	SGA-M12x1,25	
	50, 63		10768	SGA-M16x1,5	
19 Clevis foot					Technical data online: → lbg
	32		31761	LBG-32	
	40		31762	LBG-40	
	50		31763	LBG-50	
	63		31764	LBG-63	

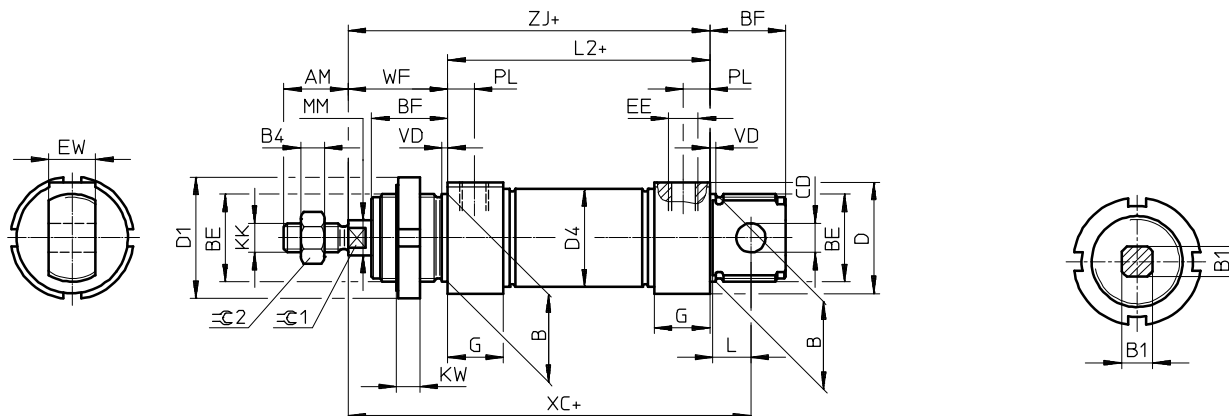
Round cylinders DSNU/ESNU

Dimensions

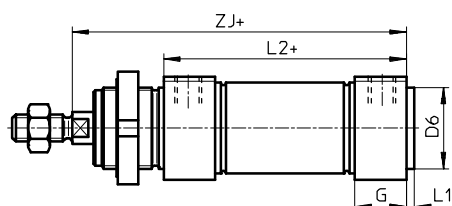
1 Basic design

Download CAD data → www.festo.com

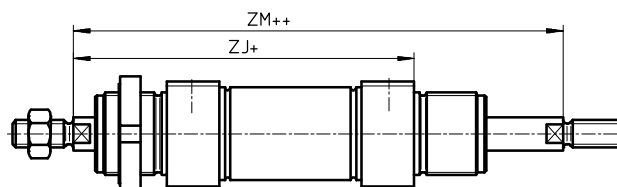
Q – Square piston rod



MQ – Lateral air connection



S2 – Through piston rod



Note

The thread types at both piston rod ends are identical. In combination with variant Q, the left-hand piston rod end is square, the right-hand piston rod end round.

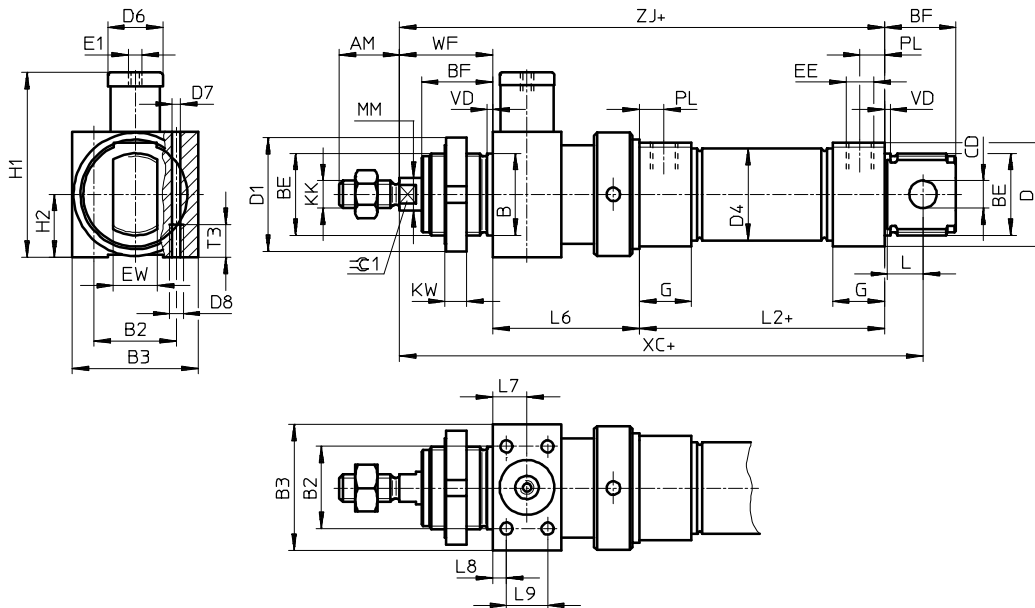
+ = plus stroke length
++ = plus 2x stroke length

∅	AM	B	B1	B4	BE	BF	CD	D	D1	D4	D6	EE	EW	G
[mm]		∅ h9	□				∅ E10	∅	∅	∅	∅			
32	22	30	10	5	M30x1.5	26	10	38	42	33.6	30	G1/8	16	19
40	24	38	12	6	M38x1.5	30	12	46	50	41.6	38	G1/4	18	25
50	32	45	16	8	M45x1.5	33	16	57	60	52.4	45		21	
63								70				65.4		G3/8

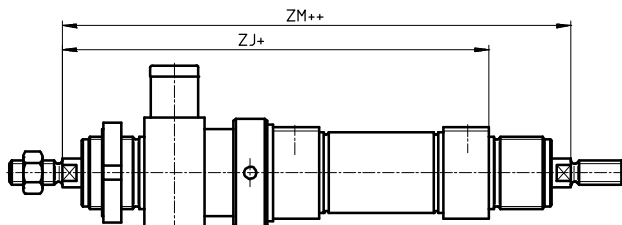
∅	KK	KW	L	L1	L2	MM	PL	VD	WF	XC	ZJ	ZM	∅C1	∅C2
[mm]						∅				±1				
32	M10x1.25	8	13	3	69.5	12	9	2	34	117.5	103.5	137.5	10	16
40	M12x1.25		15		84.6	16	12		39	139.6	123.6	162.6	13	18
50	M16x1.5	10	16	4	86.2	20	13	3	44	147.2	130.2	174.2	17	24
63					94.2				45	156.2	139.2	184.2		

Dimensions

Basic design KP – With clamping unit



S2 – Through piston rod



Note

The thread types at both piston rod ends are identical. The clamping unit is mounted on only one side. In combination with variant Q, the right-hand piston rod is square, the left-hand piston rod round. The clamping unit is mounted on the left-hand, round piston rod.

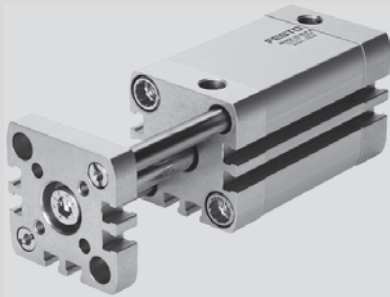
+ = plus stroke length
++ = plus 2x stroke length

∅	AM	B	B2	B3	BE	BF	CD	D	D1	D4	D6	D7	D8	E1	EE	EW	G	H1	
[mm]		∅ h9					∅ E10	∅	∅	∅									
32	22	30	30	46	M30x1.5	26	10	38	42	33.6	20	4.4	M5	M5	G $\frac{1}{8}$	16	19	67.5	
40	24	38	36	56	M38x1.5	30	12	46	50	41.6	24	6.8	M8	G $\frac{1}{8}$	G $\frac{1}{4}$	18	25	89	
50	32	45	50	65	M45x1.5	33	16	57	60	52.4	30	8.5	M10			G $\frac{3}{8}$	21	28	107.5
63			54	72			70	38										28	121.5

∅	H2	KK	KW	MM	L	L2	L6	L7	L8	L9	T3	PL	VD	WF	XC	ZJ	ZM	≈C1
[mm]				∅			±0.75								±1			
32	23	M10x1.25	8	12	13	69.5	55	12.5	5	15	12	9	2	34.5	173	159	191	10
40	28	M12x1.25	10	16	15	84.6	69	17	7	20	18	12	3	40.5	210.1	194.1	230.1	13
50	32.5	M16x1.5		20	16	86.2	78	20						26	20	21	13	45.5
63	36			20	24	8	32	21	46.5	243.7	226.7	268.7						

Compact cylinders ADNGF, standard hole pattern

1



- Compact cylinder with standard hole pattern, based on ISO 21287
- Piston rod secured against rotation by means of two guide rods and a yoke plate
- Mounting accessories from the standard range for ADN
- Spare parts service

→ www.festo.com/catalogue/adngf

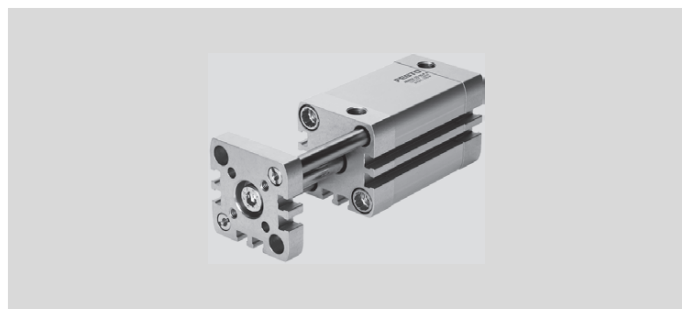
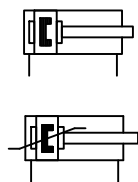
Product range overview

Type/function	Version	Piston Ø [mm]	Stroke [mm]	Force [N]	Product options				
					P	PPS	A	S2	S6
ADNGF									
Double-acting	Non-rotating with yoke	12, 16, 20, 25, 32, 40, 50, 63, 80, 100	1 ... 400	68 ... 4712	■	■	■	■	■

Product options

P	Elastic cushioning rings/plates at both ends	A	Position sensing	S6	Heat-resistant seals up to max. 120 °C
PPS	Pneumatic cushioning, self-adjusting at both ends	S2	Through piston rod	TL	Laser etched rating plate

Technical data – Double-acting



1

Technical data			Dimensions → 138									
Piston Ø			12	16	20	25	32	40	50	63	80	100
Pneumatic connection			M5	M5	M5	M5	G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{8}$
Stroke			1 ... 200		3 ... 200		5 ... 300					5 ... 400
Cushioning	P		Elastic cushioning rings/plates at both ends									
	PPS		Pneumatic cushioning, self-adjusting at both ends									
Cushioning length	PPS	[mm]	–		3	3.5	4	5	6	7	7.5	10
Theoretical force at 6 bar, advancing		[N]	68	121	188	295	483	754	1178	1870	3016	4712
	S2	[N]	51	90	141	247	415	686	1057	1750	2827	4524
Theoretical force at 6 bar, retracting		[N]	51	90	141	247	415	686	1057	1750	2827	4524
	S2	[N]	51	90	141	247	415	686	1057	1750	2827	4524

Operating conditions

			12	16	20	25	32	40	50	63	80	100	
Operating pressure		[bar]	1.5 ... 10			1 ... 10							
	PPS	[bar]	–			1.9 ... 10			1.4 ... 10				
	S2	[bar]	1.5 ... 10				1 ... 10						
Ambient temperature ¹⁾		[°C]	–20 ... +80										
	S6	[°C]	0 ... +120										

1) Note operating range of proximity sensors.

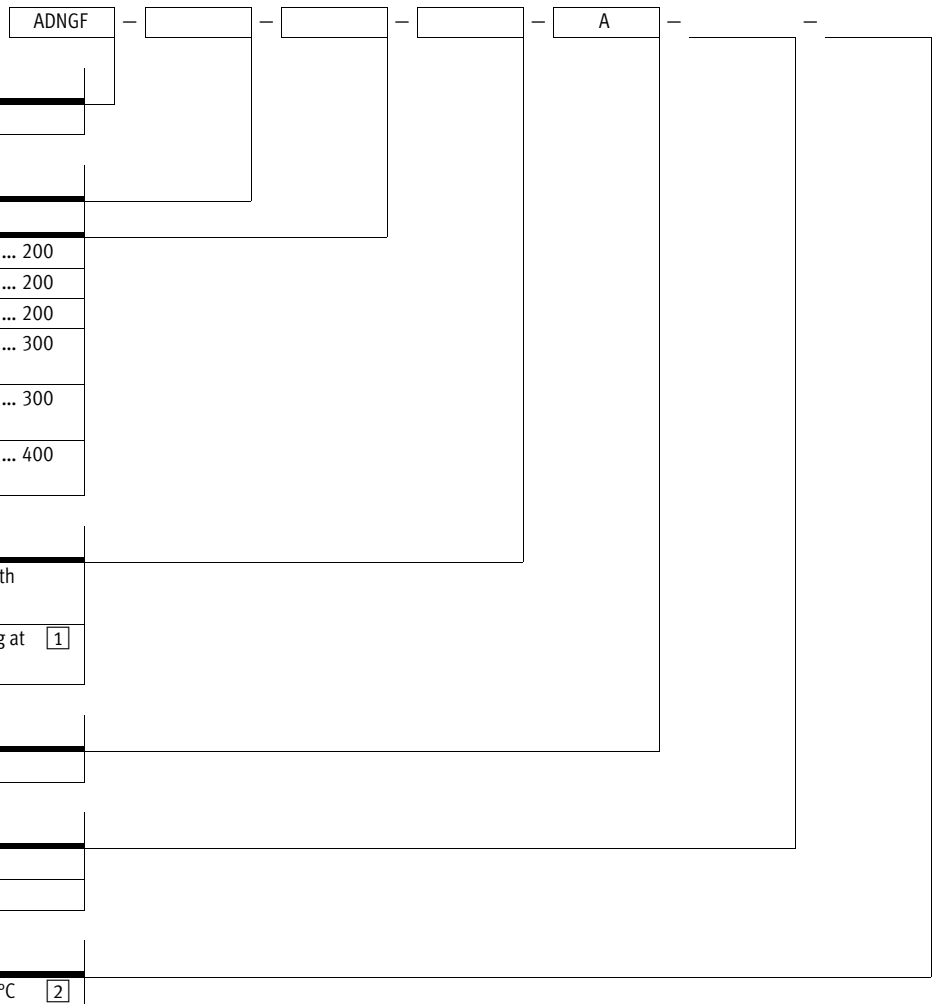
Materials

Piston Ø		12 ... 80	100
End cap		Anodised aluminum	Coated die-cast aluminium
Cylinder barrel		Smooth anodised wrought aluminium alloy	
Piston rod		High-alloy steel	
Seals		TPE-U(PUR)	
	S6	FPM	

Compact cylinders ADNGF, standard hole pattern

1

Order code



Type	
ADNGF	Double-acting compact cylinder

Piston Ø [mm]		
	Stroke [mm]	
12	5, 10, 15, 20, 25, 30, 40	1 ... 200
16	5, 10, 15, 20, 25, 30, 40, 50	1 ... 200
20, 25	5, 10, 15, 20, 25, 30, 40, 50, 60	3 ... 200
32, 40, 50	5, 10, 15, 20, 25, 30, 40, 50, 60, 80	5 ... 300
63, 80	10, 15, 20, 25, 30, 40, 50, 60, 80	5 ... 300
100	10, 15, 20, 25, 30, 40, 50, 60, 80	5 ... 400

Cushioning	
P	Elastic cushioning rings/plates at both ends
PPS	Pneumatic cushioning, self-adjusting at both ends ^[1]

Position sensing	
A	Via proximity sensor

Piston rod type	
-	Yoke plate at one end
S2	Through piston rod

Temperature resistance	
S6	Heat-resistant seals up to max. 120 °C ^[2]

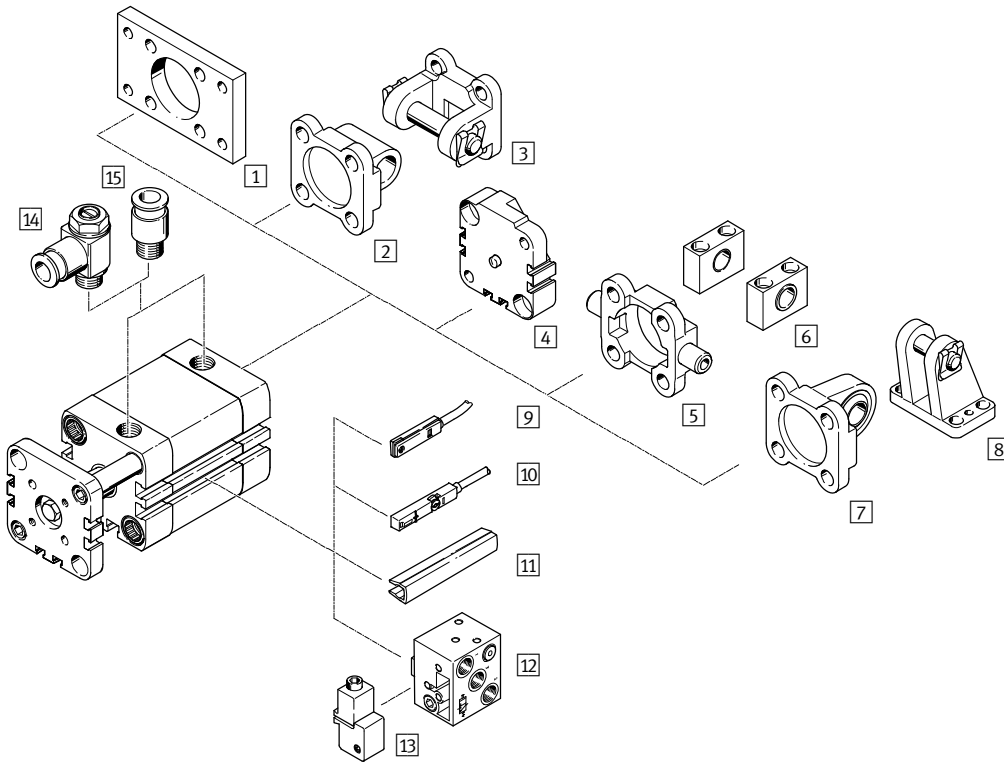
- ^[1] Not with piston Ø 12, 16
Not with temperature resistance S6
Minimum stroke 5 mm
- ^[2] Max. stroke: 250 mm

Order example:

ADNGF-50-50-P-A-S2-S6

Double-acting compact cylinder ADNGF - piston diameter 50 mm - stroke 50 mm - elastic cushioning rings/plates at both ends - position sensing via proximity sensor - through piston rod - heat-resistant seals up to max. 120 °C

Accessories



		Basic design	S2	→ Page/online
1	Flange mounting FNC	■	■	135
2	Swivel flange SNCL	■	-	135
3	Swivel flange SNCB	■	-	135
4	Multi-position kit DPNA	■	-	136
5	Trunnion flange ZNCF	■	■	136
6	Trunnion support LNZG	■	■	136
7	Swivel flange SNCS	■	-	136
8	Clevis foot LBG	■	-	136

		Basic design	S2	→ Page/online
9	Proximity sensor SME-/SMT-8	■	■	136
10	Proximity sensor SME-/SMT-8M	■	■	136
11	Slot cover ABP-5-S	■	■	137
12	Proximity sensor SMPO-8E	■	■	smpo-8e
13	Mounting kit SMB-8E	■	■	smb-8e
14	One-way flow control valve GRLA/GRLZ	■	■	137
15	Push-in fitting QS	■	■	1006
-	Connecting cable NEBU	■	■	136

Accessories – Ordering data

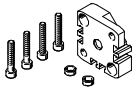
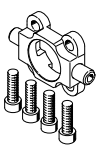
	For Ø	Part No.	Type
1 Flange mounting 	Dimensions online: → adngf		
	12	537245	FNC-12
	16	537246	FNC-16
	20	537247	FNC-20
	25	537248	FNC-25
	32	★ 174376	FNC-32
	40	★ 174377	FNC-40
	50	★ 174378	FNC-50
	63	★ 174379	FNC-63
	80	★ 174380	FNC-80
100	174381	FNC-100	
2 Swivel flange 	Dimensions online: → adn		
	12	537790	SNCL-12
	16	537791	SNCL-16
	20	537792	SNCL-20
	25	537793	SNCL-25

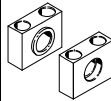
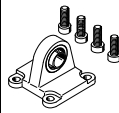
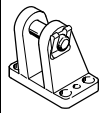
	For Ø	Part No.	Type
2 Swivel flange 	Dimensions online: → adn		
	32	★ 174404	SNCL-32
	40	★ 174405	SNCL-40
	50	★ 174406	SNCL-50
	63	★ 174407	SNCL-63
	80	★ 174408	SNCL-80
	100	174409	SNCL-100
3 Swivel flange 	Dimensions online: → adn		
	32	★ 174390	SNCB-32
	40	★ 174391	SNCB-40
	50	★ 174392	SNCB-50
	63	★ 174393	SNCB-63
	80	★ 174394	SNCB-80
100	174395	SNCB-100	

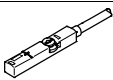
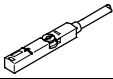
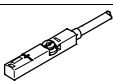






Compact cylinders ADNGF, standard hole pattern

Accessories – Ordering data


1

	For Ø	Part No.	Type
4 Multi-position kit Dimensions online: → adn			
	12	537263	DPNA-12
	16	537264	DPNA-16
	20	537265	DPNA-20
	25	537266	DPNA-25
	32	537267	DPNA-32
	40	537268	DPNA-40
	50	537269	DPNA-50
	63	537270	DPNA-63
	80	537271	DPNA-80
	100	537272	DPNA-100
5 Trunnion flange Dimensions online: → adn			
	32	174411	ZNCF-32
	40	174412	ZNCF-40
	50	174413	ZNCF-50
	63	174414	ZNCF-63
	80	174415	ZNCF-80
	100	174416	ZNCF-100



	For Ø	Part No.	Type
6 Trunnion support Dimensions online: → adn			
	32	32959	LNZG-32
	40, 50	32960	LNZG-40/50
	63, 80	32961	LNZG-63/80
	100	32962	LNZG-100/125
7 Swivel flange Dimensions online: → adn			
	32	★ 174397	SNCS-32
	40	★ 174398	SNCS-40
	50	★ 174399	SNCS-50
	63	★ 174400	SNCS-63
	80	★ 174401	SNCS-80
	100	174402	SNCS-100
8 Clevis foot Dimensions online: → adn			
	32	31761	LBG-32
	40	31762	LBG-40
	50	31763	LBG-50
	63	31764	LBG-63
	80	31765	LBG-80
	100	31766	LBG-100

	For Ø	Part No.	Type
9/10 Proximity sensor for T-slot, magneto-resistive – N/O contact Technical data → 808			
	PNP, cable	★ 574335	SMT-8M-PS-24V-K-2,5-OE
	PNP, plug	★ 574334	SMT-8M-PS-24V-K-0,3-M8D
	PNP, plug	★ 574337	SMT-8M-PS-24V-K-0,3-M12
	NPN, cable	★ 574338	SMT-8M-NS-24V-K-2,5-OE
	NPN, plug	★ 574339	SMT-8M-NS-24V-K-0,3-M8D
Magneto-resistive – N/C contact Technical data → 808			
	PNP, cable	★ 574340	SMT-8M-A-PO-24V-K7,5-OE
Magnetic reed – N/O contact Technical data → 803			
	Cable	★ 543862	SME-8M-DS-24V-K-2,5-OE
	Cable	★ 543863	SME-8M-DS-24V-K-5,0-OE
	Cable	★ 543872	SME-8M-ZS-24V-K-2,5-OE
	Plug	★ 543861	SME-8M-DS-24V-K-0,3-M8D
	Cable	150855	SME-8-K-LED-24
	Plug	150857	SME-8-S-LED-24
Magnetic reed – N/C contact Technical data → 805			
	Cable	160251	SME-8-O-K-LED-24
Connecting cable, straight socket Technical data → 1053			
	2.5 m	★ 541333	NEBU-M8G3-K-2.5-LE3
	5.0 m	★ 541334	NEBU-M8G3-K-5-LE3
	2.5 m	★ 541363	NEBU-M12G5-K-2.5-LE3
	5.0 m	★ 541364	NEBU-M12G5-K-5-LE3
Angled socket Technical data → 1053			
	2.5 m	★ 541338	NEBU-M8W3-K-2.5-LE3
	5.0 m	★ 541341	NEBU-M8W3-K-5-LE3
	2.5 m	541367	NEBU-M12W5-K-2.5-LE3
	5.0 m	541370	NEBU-M12W5-K-5-LE3

Accessories – Ordering data

	For Ø	Part No.	Type
11 Slot cover ¹⁾			
		151680	ABP-5-S

1) Packaging unit 2x 0.5 m.

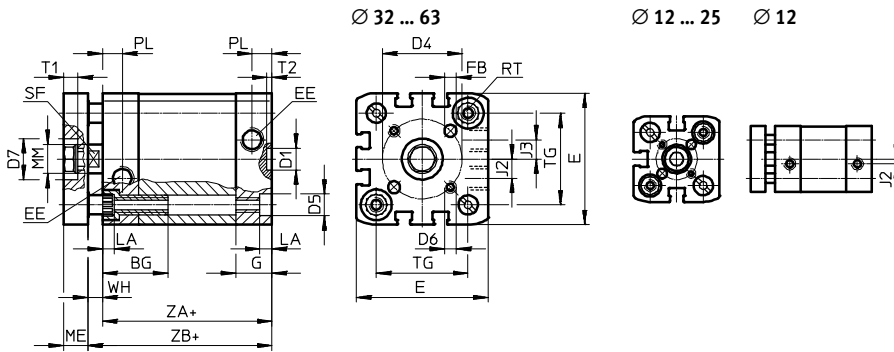
Function	For Ø	Connection		Part No.	Type
		Thread	O.D.		
14 One-way flow control valve with slotted head screw, metal ²⁾					
for exhaust air flow control					Technical data → 687
	12, 16, 20, 25	M5	3	★ 193137	GRLA-M5-QS-3-D
	32	G1/8	4	★ 139143	GRLA-1/8-QS-4-D
	40, 50, 63, 80, 100		6	★ 139144	GRLA-1/8-QS-6-D
For supply air flow control					Technical data → 687
	12, 16, 20, 25	M5	3	★ 193153	GRLZ-M5-QS-3-D
	32	G1/8	4	★ 193157	GRLZ-1/8-QS-4-D
	40, 50, 63, 80, 100		6	★ 193158	GRLZ-1/8-QS-6-D

2) The recommended flow control valves are based on a tubing length to the valve of 1 m. For deviations of ±50%, flow control valves with a bigger or smaller flow rate must be selected to guarantee the optimum flow control function and cylinder speed.

Compact cylinders ADNGF, standard hole pattern

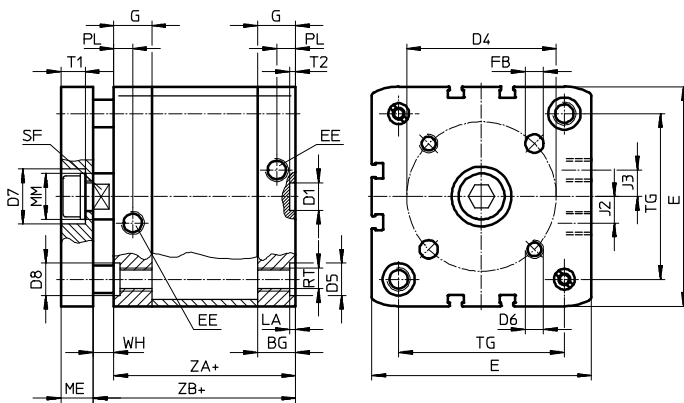
Dimensions

1 Basic design – Ø 12 ... 63



+ = plus stroke length

Basic design – Ø 80 ... 100



+ = plus stroke length

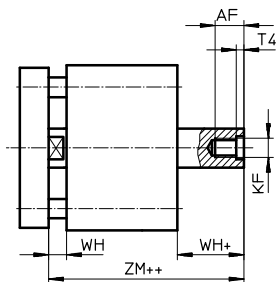
Ø	BG	D1	D4	D5	D6	D7	D8	E	EE	FB	G	J2	J3	LA
[mm]	min.	Ø H9	±0.1	Ø F9		Ø H9				Ø H8				+0.2
12	17	9	12	6	M3	-	-	27.5 ^{+0.3}	M5	3	10.5	2	-	3.5
16			14		M4			29 ^{+0.3}			11			
20	17		9	M5	14	35.5 ^{+0.3}		12		6	5			
25	19.5			17	39.5 ^{+0.3}									
32	26	12	28	12	M6	22	47 ^{+0.3}	G1/8	6	15	8	11.5	5	
40			33		M8		54.5 ^{+0.3}							
50	27	12	42	15	M10	24	65.5 ^{+0.3}		8	16.5	20	2.6		
63			50		M8		75.5 ^{+0.3}							
80	17	12	65	15	M8	24	14	95.5 ^{+0.6}	10	21.5	2.6			
100	21.5	12	80	15	M10	24	14	113.5 ^{+0.6}	10	21.5	20	2.6		

Ø	ME	MM	PL	RT	SF	T1	T2	TG	WH		ZA	ZB		
[mm]		Ø h8	+0.2		h13		+0.1	±0.2	+1.3	PPS +1.4	±0.3	+1.2	PPS +1.3	
12	6	6	6	M4	5	-	2.1	16	4.2	-	35	39.2	-	
16		8			7			18	4.7			39.7		
20	8	10		M5	9	5		2.1	22	5.5	5.5	37	42.5	42.5
25					26				6	6.5			44	50
32	10	12	M6	10	6	2.1	32.5	6.1	6.6	45	51.1	51.7		
40				38			7.7	8.2			52.7	53.2		
50	12	16	8.2	M8	13	7.5	2.6	46.5	7.5	8	49	56.5	57	
63					56.5			7.5	8			49	56.5	57
80	14	20	10.5	M10	17	10.5	2.6	72	8.9	9.4	54	62.9	63.4	
100					89			9	9.8			67	76	76.8

Compact cylinders ADNGF, standard hole pattern

Dimensions

S2 – Through piston rod

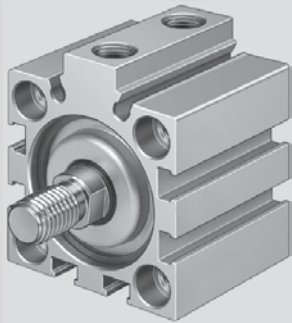


+ = plus stroke length
++ = plus 2x stroke length

Ø [mm]	AF min.	KF	T4	WH		ZM	
				P +1.3	PPS +1.4	P	PPS
12	8	M3	1.5	4.2	-	44.5 ^{+0.5}	-
16	10	M4		4.7		45.7 ^{+0.5}	
20	14	M6	2.6	5.5	5.5	49.5 ^{+0.5}	49.5 ^{+0.5}
25						51.5 ^{+0.5}	51.5 ^{+0.5}
32	16	M8	3.3	6	6.5	57.5 ^{+0.5}	58.6 ^{+0.6}
40				6.1	6.6	58.6 ^{+0.6}	59.7 ^{+0.7}
50	20	M10	4.7	8.2	8.2	62.0 ^{+0.6}	63.1 ^{+0.7}
63				8.1	8	65.4 ^{+0.6}	66.5 ^{+0.7}
80		M12	6.1	8.9	9.4	73.2 ^{+0.6}	74.3 ^{+0.7}
100				9	9.8	86.4 ^{+0.6}	88 ^{+0.7}

Short-stroke cylinders ADVC/AEVC

1



- Compact cylinders for short strokes and tight fitting spaces
- Mounting hole pattern to ISO 15552 from Ø 32 mm
- Application-oriented housing and piston rod options
- Supply ports and profile slot for proximity sensors on one side
- ★ Quick ordering of basic designs → 143

→ www.festo.com/catalogue/advc

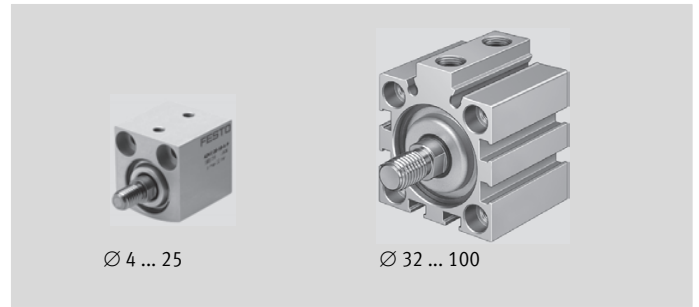
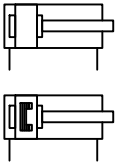
Product range overview

Type/function	Piston Ø [mm]	Stroke [mm]	Force [N]	Product options					→ Page/ online
				Piston rod thread			P	A	
				A	I	-			
Double-acting	ADVC								
	4	2.5, 5	7.5	■	-	■	■	-	141
	6, 10	5, 10	17 ... 47	■	-	■	■	■	
	12	5, 10	68	■	■	■	■	■	
	16, 20, 25	5, 10, 15, 20, 25	121 ... 295	■	■	-	■	■	
	32, 40	5, 10, 15, 20, 25	483, 754	■	■	-	■	■	
50, 63, 80, 100	10, 15, 20, 25	1178 ... 4712	■	■	-	■	■		
Single-acting	AEVC								
	4	2.5, 5	5	■	-	■	■	-	145
	6, 10	5, 10	11 ... 41	■	-	■	■	■	
	12	5, 10	59	■	■	■	■	■	
	16, 20, 25	5, 10, 25	105 ... 270	■	■	-	■	■	
	32	5, 10, 25	450	■	■	-	■	■	
40, 50, 63, 80, 100	10, 25	700 ... 4500	■	■	-	■	■		

Product options

- | | | | |
|---|----------------|---|--|
| A | Male thread | P | Elastic cushioning rings/plates at both ends |
| I | Female thread | A | Position sensing |
| - | Without thread | | |

Technical data – Double-acting



Ø 4 ... 25

Ø 32 ... 100

Technical data		Dimensions → 152						
Piston Ø		4	6	10	12	16	20	25
Pneumatic connection		M3	M3	M5	M5	M5	M5	M5
Female piston rod thread		–	–	–	M3	M4	M5	M5
Male piston rod thread		M2	M3	M4	M5	M6	M8	M8
Stroke		2.5, 5	5, 10			5, 10, 15, 20, 25		
Cushioning		Elastic cushioning rings/plates at both ends						
Theoretical force at 6 bar, advancing	[N]	7.5	17	47	68	121	189	295
Theoretical force at 6 bar, retracting	[N]	5.7	13	40	51	91	141	247
Piston Ø		32	40	50	63	80	100	
Pneumatic connection		G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{4}$	
Female piston rod thread		M6	M6	M8	M8	M10	M12	
Male piston rod thread		M10x1.25	M10x1.25	M12x1.25	M12x1.25	M16x1.5	M20x1.5	
Stroke		5, 10, 15, 20, 25		10, 15, 20, 25				
Cushioning		Elastic cushioning rings/plates at both ends						
Theoretical force at 6 bar, advancing	[N]	483	754	1178	1870	3016	4712	
Theoretical force at 6 bar, retracting	[N]	415	686	1056	1750	2847	4418	

Operating conditions														
Piston Ø		4	6	10	12	16	20	25	32	40	50	63	80	100
Operating pressure	[bar]	2 ... 8	1.5 ... 8	1 ... 8	1 ... 10				0.6 ... 10					
Ambient temperature ¹⁾	[°C]	–20 ... +80												

1) Note operating range of proximity sensors.

Materials														
Piston Ø		4											6 ... 100	
Piston rod		Anodised wrought aluminium alloy						High-alloy steel						
Bearing cap		Anodised wrought aluminium alloy												
Cylinder barrel		Anodised wrought aluminium alloy												
End cap		Anodised wrought aluminium alloy												
Seals		HNBR, NBR						HNBR, TPE-U (PU)						

Short-stroke cylinders ADVC

1

Order code – Double-acting

ADVC		–		–		–		–	P	–	
Type											
ADVC		Double-acting short-stroke cylinder									
Piston Ø [mm]											
		Stroke [mm]									
4		2.5, 5									
6, 10, 12		5, 10									
16, 20, 25		5, 10, 15, 20, 25									
32, 40		5, 10, 15, 20, 25									
50, 63, 80, 100		10, 15, 20, 25									
Piston rod thread											
A		Male thread									
I		Female thread 1									
–		Without thread 2									
Cushioning											
P		Elastic cushioning rings/plates at both ends									
Position sensing											
–		None									
A		Via proximity sensor 3									

- 1 Not with piston Ø 4, 6 and 10 mm
- 2 Only for piston Ø 4, 6, 10 and 12 mm
- 3 From piston Ø 6 mm

Order example:

ADVC-12-10-A-P-A

Double-acting short-stroke cylinder ADVC - piston diameter 12 mm - stroke 10 mm - male thread - elastic cushioning rings/plates at both ends - position sensing via proximity sensor

Ordering – Product options

Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
[→ www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the type code in the search field.

★ Quick ordering¹⁾

Male thread

Part No.	Type
Piston Ø 12 mm	
188094	ADVC-12-5-A-P
188095	ADVC-12-10-A-P
188092	ADVC-12-5-A-P-A
188093	ADVC-12-10-A-P-A
Piston Ø 16 mm	
188123	ADVC-16-5-A-P
188124	ADVC-16-10-A-P
188125	ADVC-16-15-A-P
188126	ADVC-16-20-A-P
188127	ADVC-16-25-A-P
188118	ADVC-16-5-A-P-A
188119	ADVC-16-10-A-P-A
188120	ADVC-16-15-A-P-A
188121	ADVC-16-20-A-P-A
188122	ADVC-16-25-A-P-A
Piston Ø 20 mm	
188155	ADVC-20-5-A-P
188156	ADVC-20-10-A-P
188157	ADVC-20-15-A-P
188158	ADVC-20-20-A-P
188159	ADVC-20-25-A-P
188150	ADVC-20-5-A-P-A
188151	ADVC-20-10-A-P-A
188152	ADVC-20-15-A-P-A
188153	ADVC-20-20-A-P-A
188154	ADVC-20-25-A-P-A

Part No.	Type
Piston Ø 25 mm	
188187	ADVC-25-5-A-P
188188	ADVC-25-10-A-P
188189	ADVC-25-15-A-P
188190	ADVC-25-20-A-P
188191	ADVC-25-25-A-P
188182	ADVC-25-5-A-P-A
188183	ADVC-25-10-A-P-A
188184	ADVC-25-15-A-P-A
188185	ADVC-25-20-A-P-A
188186	ADVC-25-25-A-P-A
Piston Ø 32 mm	
188219	ADVC-32-5-A-P
188220	ADVC-32-10-A-P
188221	ADVC-32-15-A-P
188222	ADVC-32-20-A-P
188223	ADVC-32-25-A-P
188214	ADVC-32-5-A-P-A
188215	ADVC-32-10-A-P-A
188216	ADVC-32-15-A-P-A
188217	ADVC-32-20-A-P-A
188218	ADVC-32-25-A-P-A

Part No.	Type
Piston Ø 40 mm	
188247	ADVC-40-5-A-P
188248	ADVC-40-10-A-P
188249	ADVC-40-15-A-P
188250	ADVC-40-20-A-P
188251	ADVC-40-25-A-P
188242	ADVC-40-5-A-P-A
188243	ADVC-40-10-A-P-A
188244	ADVC-40-15-A-P-A
188245	ADVC-40-20-A-P-A
188246	ADVC-40-25-A-P-A
Piston Ø 50 mm	
188272	ADVC-50-10-A-P
188273	ADVC-50-15-A-P
188274	ADVC-50-20-A-P
188275	ADVC-50-25-A-P
188268	ADVC-50-10-A-P-A
188269	ADVC-50-15-A-P-A
188270	ADVC-50-20-A-P-A
188271	ADVC-50-25-A-P-A
Piston Ø 63 mm	
188296	ADVC-63-10-A-P
188297	ADVC-63-15-A-P
188298	ADVC-63-20-A-P
188299	ADVC-63-25-A-P
188292	ADVC-63-10-A-P-A
188293	ADVC-63-15-A-P-A
188294	ADVC-63-20-A-P-A
188295	ADVC-63-25-A-P-A

1) All products in this table are easy to select and quick to order.

Short-stroke cylinders ADVC

★ Quick ordering¹⁾

1

Female thread

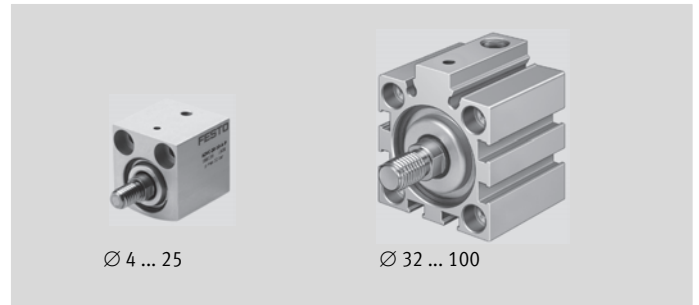
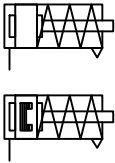
Part No.	Type
Piston Ø 12 mm	
188090	ADVC-12-5-I-P
188091	ADVC-12-10-I-P
188088	ADVC-12-5-I-P-A
188089	ADVC-12-10-I-P-A
Piston Ø 16 mm	
188113	ADVC-16-5-I-P
188114	ADVC-16-10-I-P
188115	ADVC-16-15-I-P
188116	ADVC-16-20-I-P
188117	ADVC-16-25-I-P
188108	ADVC-16-5-I-P-A
188109	ADVC-16-10-I-P-A
188110	ADVC-16-15-I-P-A
188111	ADVC-16-20-I-P-A
188112	ADVC-16-25-I-P-A
Piston Ø 20 mm	
188145	ADVC-20-5-I-P
188146	ADVC-20-10-I-P
188147	ADVC-20-15-I-P
188148	ADVC-20-20-I-P
188149	ADVC-20-25-I-P
188140	ADVC-20-5-I-P-A
188141	ADVC-20-10-I-P-A
188142	ADVC-20-15-I-P-A
188143	ADVC-20-20-I-P-A
188144	ADVC-20-25-I-P-A

Part No.	Type
Piston Ø 25 mm	
188177	ADVC-25-5-I-P
188178	ADVC-25-10-I-P
188179	ADVC-25-15-I-P
188180	ADVC-25-20-I-P
188181	ADVC-25-25-I-P
188172	ADVC-25-5-I-P-A
188173	ADVC-25-10-I-P-A
188174	ADVC-25-15-I-P-A
188175	ADVC-25-20-I-P-A
188176	ADVC-25-25-I-P-A
Piston Ø 32 mm	
188209	ADVC-32-5-I-P
188210	ADVC-32-10-I-P
188211	ADVC-32-15-I-P
188212	ADVC-32-20-I-P
188213	ADVC-32-25-I-P
188204	ADVC-32-5-I-P-A
188205	ADVC-32-10-I-P-A
188206	ADVC-32-15-I-P-A
188207	ADVC-32-20-I-P-A
188208	ADVC-32-25-I-P-A

Part No.	Type
Piston Ø 40 mm	
188237	ADVC-40-5-I-P
188238	ADVC-40-10-I-P
188239	ADVC-40-15-I-P
188240	ADVC-40-20-I-P
188241	ADVC-40-25-I-P
188232	ADVC-40-5-I-P-A
188233	ADVC-40-10-I-P-A
188234	ADVC-40-15-I-P-A
188235	ADVC-40-20-I-P-A
188236	ADVC-40-25-I-P-A
Piston Ø 50 mm	
188264	ADVC-50-10-I-P
188265	ADVC-50-15-I-P
188266	ADVC-50-20-I-P
188267	ADVC-50-25-I-P
188260	ADVC-50-10-I-P-A
188261	ADVC-50-15-I-P-A
188262	ADVC-50-20-I-P-A
188263	ADVC-50-25-I-P-A
Piston Ø 63 mm	
188288	ADVC-63-10-I-P
188289	ADVC-63-15-I-P
188290	ADVC-63-20-I-P
188291	ADVC-63-25-I-P
188284	ADVC-63-10-I-P-A
188285	ADVC-63-15-I-P-A
188286	ADVC-63-20-I-P-A
188287	ADVC-63-25-I-P-A

1) All products in this table are easy to select and quick to order.

Technical data – Single-acting



1

Technical data		Dimensions → 159						
Piston Ø		4	6	10	12	16	20	25
Pneumatic connection		M3	M3	M5	M5	M5	M5	M5
Female piston rod thread		–	–	–	M3	M4	M5	M5
Male piston rod thread		M2	M3	M4	M5	M6	M8	M8
Stroke [mm]		2.5, 5	5, 10			5, 10, 25		
Cushioning		Elastic cushioning rings/plates at both ends						
Theoretical force at 6 bar, advancing [N]		5	11	41	59	105	170	270
Theoretical force at 6 bar, retracting [N]		1	3	3	4	5	10 ¹⁾	15
Piston Ø		32	40	50	63	80	100	
Pneumatic connection		G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{8}$	G $\frac{1}{4}$	
Female piston rod thread		M6	M6	M8	M8	M10	M12	
Male piston rod thread		M10x1.25	M10x1.25	M12x1.25	M12x1.25	M16x1.5	M20x1.5	
Stroke		5, 10, 25	10, 25					
Cushioning		Elastic cushioning rings/plates at both ends						
Theoretical force at 6 bar, advancing [N]		450	700	1120	1800	2900	4500	
Theoretical force at 6 bar, retracting [N]		22	28	40	50	85	140	

1) AEVC-63-5 = 5 N.

Operating conditions		4	6	10	12	16	20	25	32	40	50	63	80	100
Operating pressure [bar]		2.5 ... 8	2 ... 8	1.5 ... 8	1.5 ... 10				1 ... 10					
Ambient temperature ²⁾ [°C]		–20 ... +80												

2) Note operating range of proximity sensors.

Materials		4	6 ... 100
Piston Ø			
Piston rod		Anodised wrought aluminium alloy	High-alloy steel
Bearing cap		Anodised wrought aluminium alloy	
Cylinder barrel		Anodised wrought aluminium alloy	
End cap		Anodised wrought aluminium alloy	
Seals		HNBR, NBR	HNBR, TPE-U (PU)

Short-stroke cylinders AEVC

1

Order code – Single acting

AEVC		–		–		–		–	P	–		
Type												
AEVC		Single-acting short-stroke cylinder										
Piston Ø [mm]												
		Stroke [mm]										
4		2,5, 5										
6, 10, 12		5, 10										
16, 20, 25		5, 10, 25										
32		5, 10, 25										
40, 50, 63, 80, 100		10, 25										
Piston rod thread												
A		Male thread										
I		Female thread										1
–		Without thread										2
Cushioning												
P		Elastic cushioning rings/plates at both ends										
Position sensing												
–		None										
A		Via proximity sensor										3

1 Not with piston Ø 4, 6 and 10 mm

2 Only with piston Ø 4, 6, 10 and 12 mm

3 From piston Ø 6 mm

Order example:

AEVC-63-10-I-P-A

Single-acting short-stroke cylinder AEVC - piston diameter 63 - stroke 10 mm - female thread - elastic cushioning rings/plates at both ends - position sensing via proximity sensor

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
[→ www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the type code in the search field.

★ Quick ordering¹⁾

Male thread

Part No.	Type
Piston Ø 12 mm	
188086	AEVC-12-5-A-P
188087	AEVC-12-10-A-P
Piston Ø 16 mm	
188105	AEVC-16-5-A-P
188106	AEVC-16-10-A-P
188107	AEVC-16-25-A-P
Piston Ø 20 mm	
188137	AEVC-20-5-A-P
188138	AEVC-20-10-A-P
188139	AEVC-20-25-A-P

Part No.	Type
Piston Ø 25 mm	
188169	AEVC-25-5-A-P
188170	AEVC-25-10-A-P
188171	AEVC-25-25-A-P
Piston Ø 32 mm	
188201	AEVC-32-5-A-P
188202	AEVC-32-10-A-P
188203	AEVC-32-25-A-P
Piston Ø 40 mm	
188230	AEVC-40-10-A-P
188231	AEVC-40-25-A-P

Part No.	Type
Piston Ø 50 mm	
188258	AEVC-50-10-A-P
188259	AEVC-50-25-A-P
Piston Ø 63 mm	
188282	AEVC-63-10-A-P
188283	AEVC-63-25-A-P

Female thread

Part No.	Type
Piston Ø 12 mm	
188082	AEVC-12-5-I-P
188083	AEVC-12-10-I-P
Piston Ø 16 mm	
188099	AEVC-16-5-I-P
188100	AEVC-16-10-I-P
188101	AEVC-16-25-I-P
Piston Ø 20 mm	
188131	AEVC-20-5-I-P
188132	AEVC-20-10-I-P
188133	AEVC-20-25-I-P

Part No.	Type
Piston Ø 25 mm	
188163	AEVC-25-5-I-P
188164	AEVC-25-10-I-P
188165	AEVC-25-25-I-P
Piston Ø 32 mm	
188195	AEVC-32-5-I-P
188196	AEVC-32-10-I-P
188197	AEVC-32-25-I-P

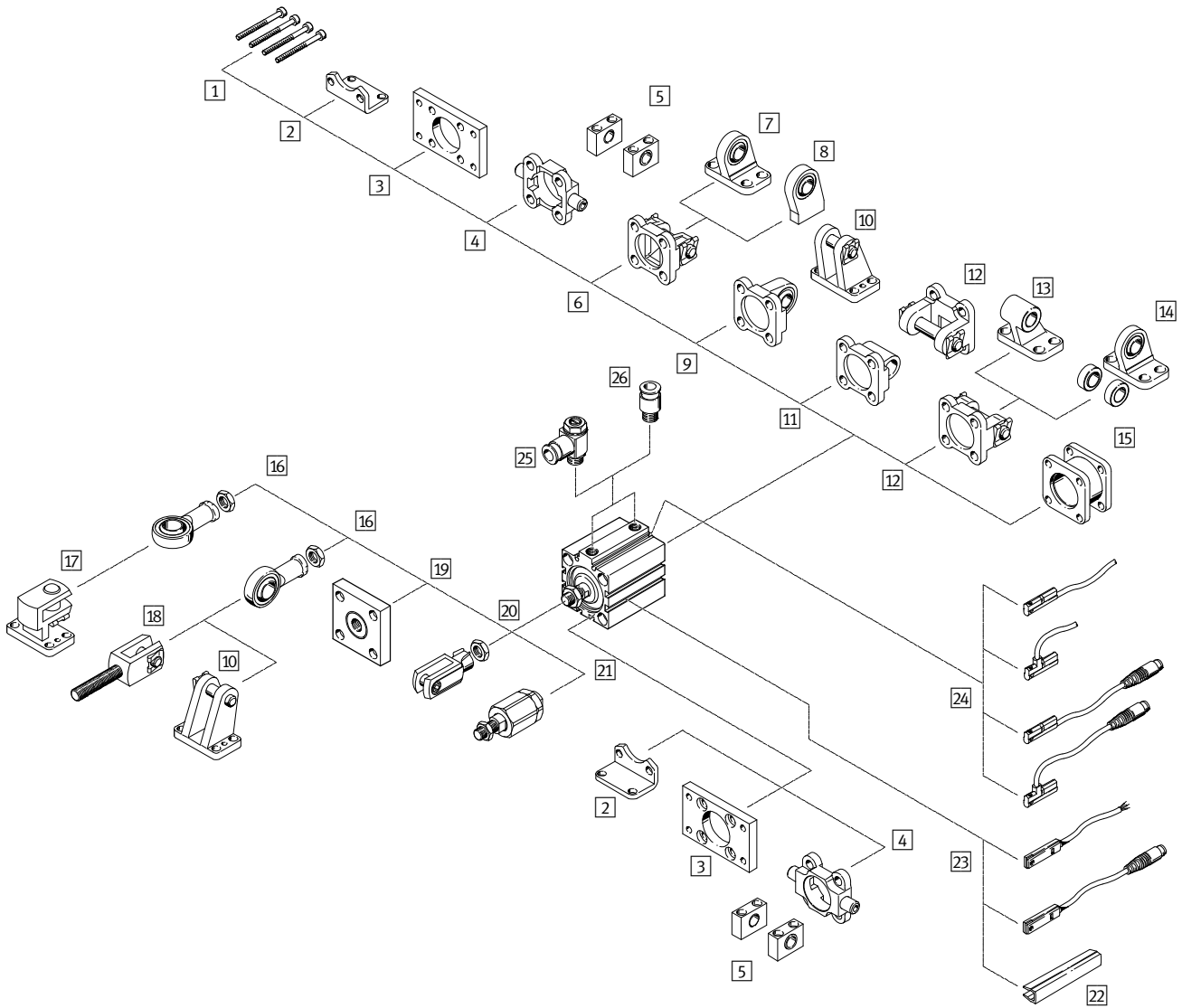
Part No.	Type
Piston Ø 40 mm	
188226	AEVC-40-10-I-P
188227	AEVC-40-25-I-P
Piston Ø 50 mm	
188254	AEVC-50-10-I-P
188255	AEVC-50-25-I-P
Piston Ø 63 mm	
188278	AEVC-63-10-I-P
188279	AEVC-63-25-I-P

1) All products in this table are easy to select and quick to order.

Short-stroke cylinders ADVC/AEVC

Accessories

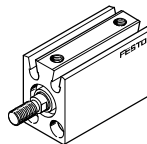
1 Ø 32 ... 100 mm



Ø 4 ... 25 mm
Without position sensing




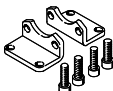
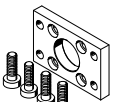
Ø 6 ... 25 mm
With position sensing

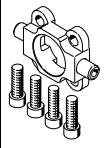
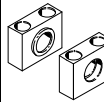
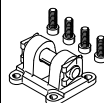


Accessories

		Piston Ø			→ Page/online
		4, 6, 12	10, 16 ... 25	32 ... 100	
1	Mounting screws (not included in the scope of delivery)	■ DIN 84	■ DIN 912	■ DIN 912	–
1	Mounting screws for Ø 80, 100 (not included in the scope of delivery)	–	–	■	149
2	Foot mounting HNC	–	–	■	149
3	Flange mounting FNC	–	–	■	149
4	Trunnion flange ZNCF	–	–	■	149
5	Trunnion support LNZG	–	–	■	149
6	Swivel flange SNC	–	–	■	149
7	Clevis foot LSNG	–	–	■	150
8	Clevis foot LSNSG	–	–	■	150
9	Swivel flange SNCS	–	–	■	150
10	Clevis foot LBG	–	–	■	150
11	Swivel flange SNCL	–	–	■	150
12	Swivel flange SNCB	–	–	■	150
13	Clevis foot LNG	–	–	■	150
14	Clevis foot LSN	–	–	■	150
15	Multi-position kit DPNC	–	–	■	150
16	Rod eye SGS	–	■	■	150
17	Right-angle clevis foot LQG	–	■	■	150
18	Rod clevis SGA	–	–	■	150
19	Coupling piece KSG	–	–	■	150
20	Rod clevis SG	–	■	■	150
21	Self-aligning rod coupler FK	■ Ø 12	■	■	151
22	Slot cover ABP-5-S	–	–	■	151
23	Proximity sensor SMT-/SME-8 and connecting cable NEBU	–	–	■	151
24	Proximity sensor SMT-/SME-10 and connecting cable NEBU	–	■	■	151
25	One-way flow control valve GRLA	■	■	■	151
26	Push-in fitting QS	■	■	■	1006

Accessories – Ordering data

	For Ø	Part No.	Type
1 Screw¹⁾			
	80, 100		HNC, FNC, SNC, SNCS, SNCL, SNCB M10x30
	80		ZNCF M10x40
	100		ZNCF M10x50
2 Foot mounting			Dimensions online: → advc
	32	★ 174369	HNC-32
	40	★ 174370	HNC-40
	50	★ 174371	HNC-50
	63	★ 174372	HNC-63
	80	★ 174373	HNC-80
	100	174374	HNC-100
3 Flange mounting			Dimensions online: → advc
	32	★ 174376	FNC-32
	40	★ 174377	FNC-40
	50	★ 174378	FNC-50
	63	★ 174379	FNC-63
	80	★ 174380	FNC-80
	100	174381	FNC-100



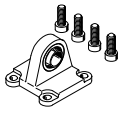
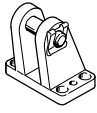
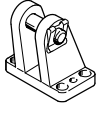
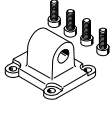
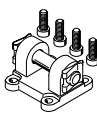
	For Ø	Part No.	Type
4 Trunnion flange			Dimensions online: → advc
	32	174411	ZNCF-32
	40	174412	ZNCF-40
	50	174413	ZNCF-50
	63	174414	ZNCF-63
	80	174415	ZNCF-80
	100	174416	ZNCF-100
5 Trunnion support			Dimensions online: → lnzg
	32	32959	LNZG-32
	40, 50	32960	LNZG-40/50
	63, 80	32961	LNZG-63/80
	100	32962	LNZG-100/125
6 Swivel flange			Dimensions online: → advc
	32	★ 174383	SNC-32
	40	★ 174384	SNC-40
	50	★ 174385	SNC-50
	63	★ 174386	SNC-63
	80	★ 174387	SNC-80
	100	174388	SNC-100


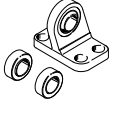
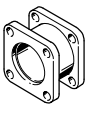



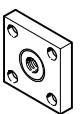

1) Packaging unit 1 piece.

Short-stroke cylinders ADVC/AEVC



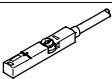
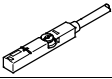
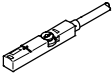





Accessories – Ordering data

1

	For Ø	Part No.	Type
7 Clevis foot Technical data online: → lsng			
	32	31740	LSNG-32
	40	31741	LSNG-40
	50	31742	LSNG-50
	63	31743	LSNG-63
	80	31744	LSNG-80
	100	31745	LSNG-100
8 Clevis foot Technical data online: → lsnsg			
	32	31747	LSNSG-32
	40	31748	LSNSG-40
	50	31749	LSNSG-50
	63	31750	LSNSG-63
	80	31751	LSNSG-80
	100	31752	LSNSG-100
9 Swivel flange Dimensions online: → advc			
	32	★ 174397	SNCS-32
	40	★ 174398	SNCS-40
	50	★ 174399	SNCS-50
	63	★ 174400	SNCS-63
	80	★ 174401	SNCS-80
	100	174402	SNCS-100
10 Clevis foot used with swivel flange SNCS Technical data online: → lbg			
	32	31761	LBG-32
	40	31762	LBG-40
	50	31763	LBG-50
	63	31764	LBG-63
	80	31765	LBG-80
	100	31766	LBG-100
10 Clevis foot used with rod eye SGS Technical data online: → lbg			
	32, 40	31761	LBG-32
	50, 63	31762	LBG-40
	80	31763	LBG-50
		31764	LBG-63
	100	31765	LBG-80
		31766	LBG-100
11 Swivel flange Dimensions online: → advc			
	32	★ 174404	SNCL-32
	40	★ 174405	SNCL-40
	50	★ 174406	SNCL-50
	63	★ 174407	SNCL-63
	80	★ 174408	SNCL-80
	100	174409	SNCL-100
12 Swivel flange Dimensions online: → advc			
	32	★ 174390	SNCB-32
	40	★ 174391	SNCB-40
	50	★ 174392	SNCB-50
	63	★ 174393	SNCB-63
	80	174394	SNCB-80
	100	174395	SNCB-100

	For Ø	Part No.	Type
13 Clevis foot Technical data online: → lng			
	32	★ 33890	LNG-32
	40	★ 33891	LNG-40
	50	★ 33892	LNG-50
	63	★ 33893	LNG-63
	80	★ 33894	LNG-80
	100	33895	LNG-100
14 Clevis foot Technical data online: → lsn			
	32	5561	LSN-32
	40	5562	LSN-40
	50	5563	LSN-50
	63	5564	LSN-63
	80	5565	LSN-80
	100	5566	LSN-100
15 Multi-position kit Dimensions online: → advc			
	32	174418	DPNC-32
	40	174419	DPNC-40
	50	174420	DPNC-50
	63	174421	DPNC-63
	80	174422	DPNC-80
	100	174423	DPNC-100
16 Rod eye Technical data online: → sgs			
	10	9253	SGS-M4
	16	★ 9254	SGS-M6
	20, 25	★ 9255	SGS-M8
	32, 40	★ 9261	SGS-M10x1,25
	50, 63	★ 9262	SGS-M12x1,25
	80	★ 9263	SGS-M16x1,5
	100	★ 9264	SGS-M20x1,5
17 Right-angle clevis foot Technical data online: → lqg			
	32, 40	31768	LQG-32
	50, 63	31769	LQG-40
	80	31770	LQG-50
		31771	LQG-63
		31772	LQG-80
	100	31773	LQG-100
18 Rod clevis Technical data online: → sga			
	32, 40	32954	SGA-M10x1,25
	50, 63	10767	SGA-M12x1,25
	80	10768	SGA-M16x1,5
	100	10769	SGA-M20x1,5
19 Coupling piece Technical data online: → ksg			
	32, 40	32963	KSG-M10x1,25
	50, 63	32964	KSG-M12x1,25
	80	32965	KSG-M16x1,5
	100	32966	KSG-M20x1,5
20 Rod clevis Technical data online: → sg			
	10	6532	SG-M4
	16	★ 3110	SG-M6
	20, 25	★ 3111	SG-M8
	32, 40	★ 6144	SG-M10x1,25
	50, 63	★ 6145	SG-M12x1,25
	80	★ 6146	SG-M16x1,5
	100	★ 6147	SG-M20x1,5

Accessories – Ordering data

	For Ø	Part No.	Type		For Ø	Part No.	Type
21 Self-aligning rod coupler				Technical data online: → fk			
	10	6528	FK-M4				
	12	30984	FK-M5				
	16	★ 2061	FK-M6				
	20, 25	★ 2062	FK-M8				
	32, 40	★ 6140	FK-M10x1,25				
	50, 63	★ 6141	FK-M12x1,25				
	80	★ 6142	FK-M16x1,5				
	100	6143	FK-M20x1,5				
22 Slot cover¹⁾							
	32, 40, 50, 63,	151680	ABP-5-S				
	80, 100						
23 Proximity sensor for T-slot, magneto-resistive – N/O contact				Technical data → 808			
	PNP, cable	★ 574335	SMT-8M-A-PS-24V-E-2,5-OE				
	PNP, plug	★ 574334	SMT-8M-A-PS-24V-E-0,3-M8D				
	PNP, plug	★ 574337	SMT-8M-A-PS-24V-E-0,3-M12				
	NPN, cable	★ 574338	SMT-8M-A-NS-24V-E-2,5-OE				
	NPN, plug	★ 574339	SMT-8M-A-NS-24V-E-0,3-M8D				
Magneto-resistive – N/C contact				Technical data → 808			
	PNP, cable	★ 574340	SMT-8M-A-PO-24V-E-7,5-OE				
Magnetic reed – N/O contact				Technical data → 803			
	Cable	★ 543862	SME-8M-DS-24V-K-2,5-OE				
	Cable	★ 543863	SME-8M-DS-24V-K-5,0-OE				
	Cable	★ 543872	SME-8M-ZS-24V-K-2,5-OE				
	Plug	★ 543861	SME-8M-DS-24V-K-0,3-M8D				
Magnetic reed – N/C contact				Technical data → 805			
	Cable	160251	SME-8-O-K-LED-24				
24 Proximity sensor for C-slot, magneto-resistive – N/O contact				Technical data → 821			
	PNP, plug	★ 551375	SMT-10M-PS-24V-E-0,3-L-M8D				
	PNP, cable	★ 551373	SMT-10M-PS-24V-E-2,5-L-OE				
Magnetic reed – N/O contact				Technical data → 819			
	Plug	173212	SME-10-SL-LED-24				
	Cable	173210	SME-10-KL-LED-24				
Function	For Ø	Connection		Part No.	Type		
		Thread	O.D.				
25 One-way flow control valve with slotted head screw, metal²⁾ for exhaust air flow control							Technical data → 687
	10, 12, 16, 20	M5	3	★ 193137	GRLA-M5-QS-3-D		
	25		4	★ 193138	GRLA-M5-QS-4-D		
	32	G1/8	6	★ 193144	GRLA-1/8-QS-6-D		
	40, 50, 63, 80		8	★ 193145	GRLA-1/8-QS-8-D		
	100		8	★ 193147	GRLA-1/4-QS-8-D		
For supply air flow control							Technical data → 687
	10, 12, 16, 20	M5	3	★ 193153	GRLZ-M5-QS-3-D		
	25		4	★ 193154	GRLZ-M5-QS-4-D		
	32	G1/8	6	★ 193158	GRLZ-1/8-QS-6-D		
	40, 50, 63, 80		8	★ 193159	GRLZ-1/8-QS-8-D		

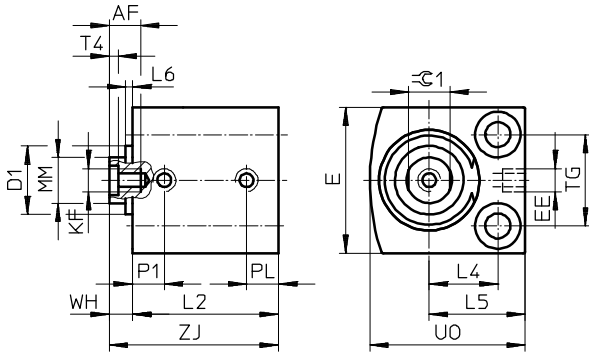
2) The recommended flow control valves are based on a tubing length to the valve of 1 m. For deviations of ±50%, flow control valves with a bigger or smaller flow rate must be selected to guarantee the optimum flow control function and cylinder speed.

Short-stroke cylinders ADVC

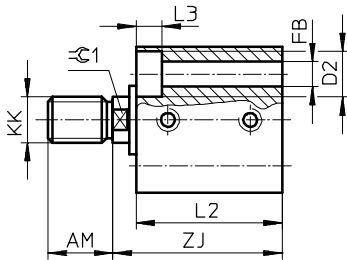
Dimensions

1 Without position sensing – Ø 4 ... 25 mm

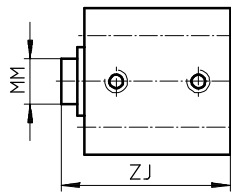
ADVC-...-I-P – With female thread



ADVC-...-A-P – With male thread



ADVC-...-P – Without thread



Note

Ø 4

Do not exceed the maximum screw-in depth of 3 mm and maximum tightening torque of 0.7 Nm.

Ø 10

The bearing cap can protrude up to 0.65 mm depending on the tolerance position.

Ø 12

The bearing cap can protrude up to 0.35 mm depending on the tolerance position.

Ø	Stroke	AF	AM	D1	D2	E	EE	FB	KF	KK	L2	L3
[mm]	[mm]	min.	-0.5	Ø max.	Ø	max.		Ø			+0.2	
4	2.5	-	6	-	3.3 ^{+0.1}	10	M3	1.8	-	M2	13	1.8
	5										15.5	
6	5	-	6	-	5 ^{+0.1}	13	M3	2.9	-	M3	16	2.9
	10										21	
10	5	-	8	7.5	5.8 ^{+0.1}	18	M5	3.4	-	M4	21	3.4
	10										24	
12	5	8	8	10.7	6 ^{H13}	20	M5	3.4	M3	M5	23	3.4
	10										28	
16	5	10	12	-	8 ^{H13}	25	M5	4.5	M4	M6	23	4.6
	10										28	
	15										33	
	20										38	
	25										43	
20	5	12	12	-	10 ^{H13}	32	M5	5.5	M5	M8	27	5.7
	10										32	
	15										37	
	20										42	
	25										47	
25	5	12	12	-	10 ^{H13}	38	M5	5.5	M5	M8	27.5	5.7
	10										32.5	
	15										37.5	
	20										42.5	
	25										47.5	

Dimensions

Download CAD data → www.festo.com

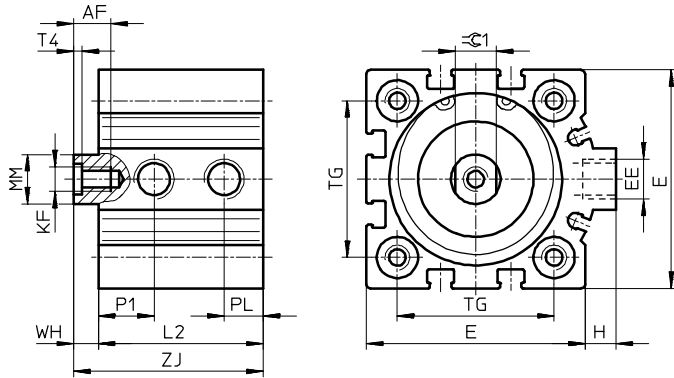
∅	Stroke	L4	L5	L6	MM	P1	PL	T4	TG	UO	WH	ZJ	≅C1
[mm]	[mm]			max.	∅				±0.1	max.		±0.8	
4	2.5	4	6.5	-	2	3.7	3.2	-	5.8	10	1	14	-
	5											16.5	
6	5	6	9	-	3	4.7	3	-	7	14	1	17	-
	10											22	
10	5	8	11.5	0.7	4	5.2	5.2	-	11	19	1.5	22.5	-
	10					6	5.5					25.5	
12	5	9	13	0.4	6	5.75	5.75	1.5	13	22	4	27	5
	10					9	6					32	
16	5	11.5	16.5	-	8	6	6	2	15	27	4	27	7
	10					32							
	15					37							
	20					42							
	25					47							
20	5	15	21	-	10	7.5	7	2	20	34	5	32	9
	10											37	
	15											42	
	20											47	
	25											52	
25	5	15.5	21.5	-	10	8	6.5	2	26	37	5	32.5	9
	10											37.5	
	15											42.5	
	20											47.5	
	25											52.5	

Short-stroke cylinders ADVC

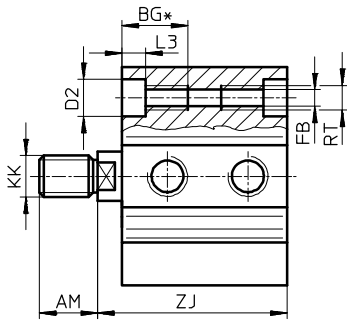
Dimensions

1 Without position sensing – Ø 32 ... 100 mm

ADVC-...-I-P – With female thread



ADVC-...-A-P – With male thread



Ø	AF	AM	BG*	D2	E	EE	FB	H	KF	KK**
[mm]	min.	-0.5	min.	Ø F9	max.		Ø			
32	12	14	21.7	9	45	G $\frac{1}{8}$	5.2	7	M6	M10x1.25
40	12	14	21.7	9	53.5	G $\frac{1}{8}$	5.2	7	M6	M10x1.25
50	16	16	22.8	11	63.5	G $\frac{1}{8}$	6.8	7	M8	M12x1.25
63	16	16	22.8	11	75	G $\frac{1}{8}$	6.8	7.5	M8	M12x1.25
80	20	22	25	14	93	G $\frac{1}{8}$	8.5	7	M10	M16x1.5
100	24	28	25	14	113	G $\frac{1}{4}$	8.5	13	M12	M20x1.5

* Continuous thread with shorter sizes.

** Nut for piston rod thread included in the scope of delivery.

Dimensions

Download CAD data → www.festo.com

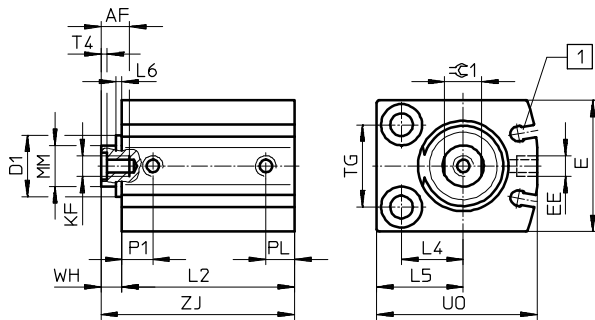
∅	Stroke	L2	L3	MM ∅	P1	PL	RT	T4	TG	WH	ZJ	≈1
[mm]	[mm]	+0.2							±0.1		±0.8	
32	5	34	5.7	12	9	8.5	M6	2.6	32.5	6	40	10
	10	39									45	
	15	44									50	
	20	49									55	
	25	54									60	
40	5	34.5	5.7	12	11	9	M6	2.6	38	6	40.5	10
	10	39.5									45.5	
	15	44.5									50.5	
	20	49.5									55.5	
	25	54.5									60.5	
50	10	38	6.8	16	11.3	9.5	M8	3.3	46.5	8	46	13
	15	43									51	
	20	48									56	
	25	53									61	
63	10	45	6.8	16	12.5	11.5	M8	3.3	56.5	8	53	13
	15	50									58	
	20	55									63	
	25	60									68	
80	10	50	9	20	15	15	M10	4.7	72	8	58	17
	15	55									63	
	20	60									68	
	25	65									73	
100	10	59	9	25	16.5	19	M10	6.1	89	10	69	22
	15	64									74	
	20	69									79	
	25	74									84	

Short-stroke cylinders ADVC

Dimensions

1 With position sensing – Ø 6 ... 25 mm

ADVC-...-I-P-A – With female thread



Note

Ø 10

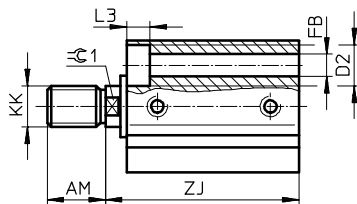
The bearing cap can protrude up to 0.65 mm depending on the tolerance position.

Ø 12

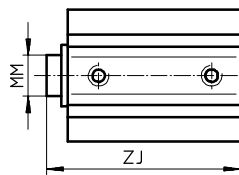
The bearing cap can protrude up to 0.35 mm depending on the tolerance position.

1 Slot for proximity sensor SME/SMT-10

ADVC-...-A-P-A – With male thread



ADVC-...-P-A – Without thread



Ø [mm]	Stroke [mm]	AF min.	AM -0.5	D1 Ø max.	D2 Ø	E max.	EE	FB Ø	KF	KK	L2 +0.2	L3
6	5	-	6	-	5 +0.1	16	M3	2.9	-	M3	25.5	2.9
	10										30.5	
10	5	-	8	7.5	5.8 +0.1	21	M5	3.4	-	M4	27	3.4
	10										32	
12	5	8	8	10.7	6 H13	24	M5	3.4	M3	M5	36	3.4
	10										41	
16	5	10	12	-	8 H13	28	M5	4.5	M4	M6	35	4.6
	10										40	
	15										45	
	20										50	
20	5	12	12	-	10 H13	32	M5	5.5	M5	M8	37	5.7
	10										42	
	15										47	
	20										52	
25	5	12	12	-	10 H13	38	M5	5.5	M5	M8	37	5.7
	10										42	
	15										47	
	20										52	
25	20	12	12	-	10 H13	38	M5	5.5	M5	M8	52	5.7
	25										57	

Dimensions

Download CAD data → www.festo.com

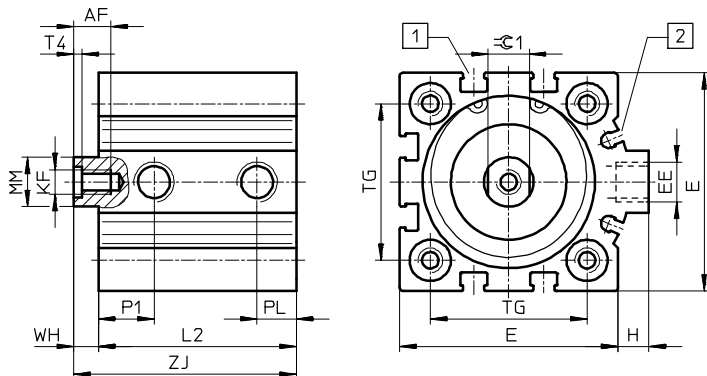
∅ [mm]	Stroke [mm]	L4	L5	L6 max.	MM ∅	P1	PL	T4	TG ±0.1	UO max.	WH	ZJ ±0.8	≅1
6	5	5	8	-	3	5.2	3	-	10	16	1	26.5	-
	10											31.5	
10	5	7	10.5	0.7	4	6	6	-	14	22	1.5	28.5	-
	10											33.5	
12	5	8	12	0.4	6	7	6	1.5	16	26	4	40	5
	10											45	
16	5	12	17	-	8	8	6	2	18	32	4	39	7
	10											44	
	15											49	
	20											54	
	25											59	
20	5	15	21	-	10	7.5	7	2	20	39	5	42	9
	10											47	
	15											52	
	20											57	
	25											62	
25	5	15.5	21.5	-	10	10	6	2	26	42	5	42	9
	10											47	
	15											52	
	20											57	
	25											62	

Short-stroke cylinders ADVC

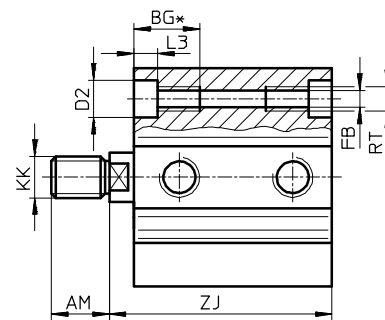
Dimensions

1 With position sensing – Ø 32 ... 100 mm

ADVC-...-I-P-A – With female thread



ADVC-...-A-P-A – With male thread



- 1 Slot for proximity sensor SME/SMT-8
- 2 Slot for proximity sensor SME/SMT-10

Ø	AF	AM	BG*	D2	E	EE	FB	H	KF	KK**
[mm]	min.	-0.5	min.	Ø F9	max.		Ø			
32	12	14	21.7	9	45	G $\frac{1}{8}$	5.2	7	M6	M10x1.25
40	12	14	21.7	9	53.5	G $\frac{1}{8}$	5.2	7	M6	M10x1.25
50	16	16	22.8	11	63.5	G $\frac{1}{8}$	6.8	7	M8	M12x1.25
63	16	16	22.8	11	75	G $\frac{1}{8}$	6.8	7.5	M8	M12x1.25
80	20	22	25	14	93	G $\frac{1}{8}$	8.5	7	M10	M16x1.5
100	24	28	25	14	113	G $\frac{1}{4}$	8.5	13	M12	M20x1.5

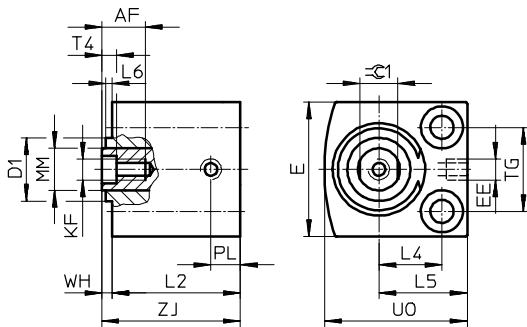
* Continuous thread with shorter sizes.
 ** Nut for piston rod thread included in the scope of delivery.

Ø	Stroke	L2	L3	MM	P1	PL	RT	T4	TG	WH	ZJ	⊖C1
[mm]	[mm]	+0.2		Ø					±0.1		±0.8	
32	5	38	5.7	12	9	8.5	M6	2.6	32.5	6	44	10
	10	43									49	
	15	48									54	
	20	53									59	
	25	58									64	
40	5	43	5.7	12	13.5	9.5	M6	2.6	38	6	49	10
	10	48									54	
	15	53									59	
	20	58									64	
	25	63									69	
50	10	48	6.8	16	11.3	9.5	M8	3.3	46.5	8	56	13
	15	53									61	
	20	58									66	
	25	63									71	
63	10	51	6.8	16	12.5	10.5	M8	3.3	56.5	8	59	13
	15	56									64	
	20	61									69	
	25	66									74	
80	10	59	9	20	15	8.5	M10	4.7	72	8	67	17
	15	64									72	
	20	69									77	
	25	74									82	
100	10	68	9	25	16.5	10.5	M10	6.1	89	10	78	22
	15	73									83	
	20	78									88	
	25	83									93	

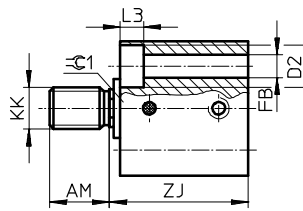
Dimensions

Without position sensing – Ø 4 ... 25 mm

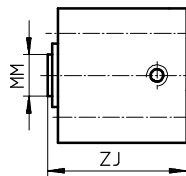
AEVC-...-I-P – With female thread



AEVC-...-A-P – With male thread



AEVC-...-P – Without thread



Note

Ø 10

The bearing cap can protrude up to 0.65 mm depending on the tolerance position.

Ø 12

The bearing cap can protrude up to 0.35 mm depending on the tolerance position.

Ø [mm]	Stroke [mm]	AF min.	AM -0.5	D1 Ø max.	D2 Ø	E max.	EE	FB Ø	KF	KK	L2 +0.2	L3
4	2.5	-	6	-	3.3 ^{+0.1}	10	M3	1.8	-	M2	13	1.8
	5										15.5	
6	5	-	6	-	5 ^{+0.1}	13	M3	2.9	-	M3	16	2.9
	10										23.4	
10	5	-	8	7.5	5.8 ^{+0.1}	18	M5	3.4	-	M4	16	3.4
	10										23	
12	5	8	8	10.7	6 H ¹³	20	M5	3.4	M3	M5	16	3.4
	10										27.5	
16	5	10	12	-	8 H ¹³	25	M5	4.5	M4	M6	20	4.6
	10										27.5	
	25										47	
20	5	8	12	-	10 H ¹³	32	M5	5.5	M5	M8	20	5.7
	10										30.5	
	25	48.5										
25	5	12	12	-	10 H ¹³	38	M5	5.5	M5	M8	26.1	5.7
	10										31.1	
	25										50.2	

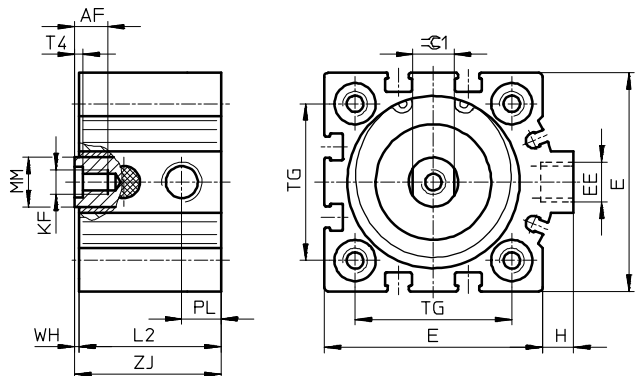
Ø [mm]	Stroke [mm]	L4	L5	L6 max.	MM Ø	PL	T4	TG ±0.1	UO max.	WH	ZJ ±0.8	≈G1
4	2.5	4	6.5	-	2	3.2	-	5.8	10	1	14	-
	5										16.5	
6	5	6	9	-	3	3	-	7	14	1	17	-
	10										24.4	
10	5	8	11.5	0.7	4	5.5	-	11	19	1	17	-
	10										24	
12	5	9	13	0.4	6	6	1.5	13	22	1	17	-
	10										28.5	
16	5	11.5	16.5	-	8	6	2	15	27	1	21	7
	10										28.5	
	25										48	
20	5	15	21	-	10	7	2	20	34	1	21	9
	10										31.5	
	25										49.5	
25	5	15.5	21.5	-	10	6.5	2	26	37	1	27.1	9
	10										32.1	
	25										51.2	

Short-stroke cylinders AEVC

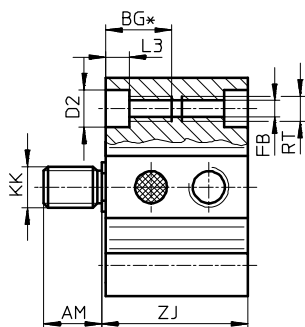
Dimensions

1 Without position sensing – Ø 32 ... 100 mm

AEVC-...-I-P – With female thread



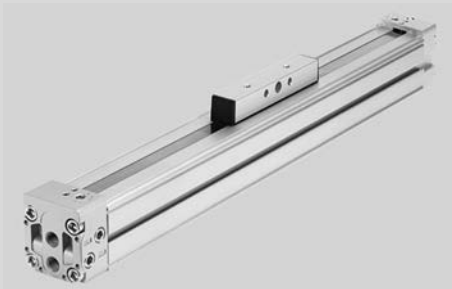
AEVC-...-A-P – With male thread



Ø	Stroke	AF	AM	BG*	D2	E	EE	FB	H	KF	KK**	L2	L3	MM	PL	RT	T4	TG	WH	ZJ	≈C1
[mm]	[mm]	min.	-0.5	min.	Ø F9	max.		Ø				+0.2		Ø				±0.1		±0.8	
32	5											26								27	10
	10	12	14	21.7	9	45	G $\frac{1}{8}$	5.2	7	M6	M10x1.25	35	5.7	12	9.5	M6	2.6	32.5	1	36	
	25											50								51	
40	10	12	14	21.7	9	53.5	G $\frac{1}{8}$	5.2	7	M6	M10x1.25	34.5	5.7	12	9.5	M6	2.6	38	1	35.5	10
	25											54.5								55.5	
50	10	16	16	22.8	11	63.5	G $\frac{1}{8}$	6.8	7	M8	M12x1.25	30.6	6.8	16	9.5	M8	3.3	46.5	0.5	31.1	13
	25											53								53.5	
63	10	16	16	22.8	11	75	G $\frac{1}{8}$	6.8	7.5	M8	M12x1.25	35	6.8	16	11.5	M8	3.3	56.5	1	36	13
	25											57								58	
80	10	20	22	25	14	93	G $\frac{1}{8}$	8.5	7	M10	M16x1.5	52	9	20	15	M10	4.7	72	1	53	17
	25											67								68	
100	10	24	28	25	14	113	G $\frac{1}{4}$	8.5	13	M12	M20x1.5	59	9	25	19	M10	6.1	89	1	60	22
	25											74								75	

* Continuous thread with shorter sizes.

** Nut for male piston rod thread included in the scope of delivery.



- Compact dimensions
- Without external guide, for simple drive functions
- Easy assembly and installation
- Low moving dead weight
- Symmetrical design
- Spare parts service

→ www.festo.com/catalogue/dgc

Product range overview

Type/function	Piston Ø [mm]	Stroke [mm]	Force [N]	Product options					→ Page/ online
				PPV	A	GK	D2	FK	
Double-acting	DGC-...-K – Compact design								
	18, 25, 32, 40, 50, 63, 80	1 ... 8500	153 ... 3016	■	■	■	■	■	162
	DGC-...-G – Basic design								
	8, 12, 18, 25, 32, 40, 50, 63	1 ... 8500	30 ... 1870	■	■	-		■	174
	DGC-...-GF – Plain-bearing guide								
	18, 25, 32, 40, 50, 63	1 ... 8500	153 ... 1870	■	■	-	-	-	177
Double-acting	DGC-...-KF – Recirculating ball bearing guide								
	8, 12, 18, 25, 32, 40, 50, 63	1 ... 8500	30 ... 1870	■	■	-	-	-	180
	DGC-...-HD – Heavy-duty design								
	18, 25, 40	10 ... 5000	153 ... 754	-	-	-	-	-	202
Without drive	DGC-FA – Passive guide axis								
	8, 12, 18, 25, 32, 40, 50, 63	1 ... 5000	-	-	-	-	-	-	dgc-fa

Product options

PPV Pneumatic cushioning, adjustable at both ends

A Position sensing

GK Basic design

GV Extended piston rod

D2 Supply port at both ends

H1 Lubrication approved for use in food applications

FK Moment compensator

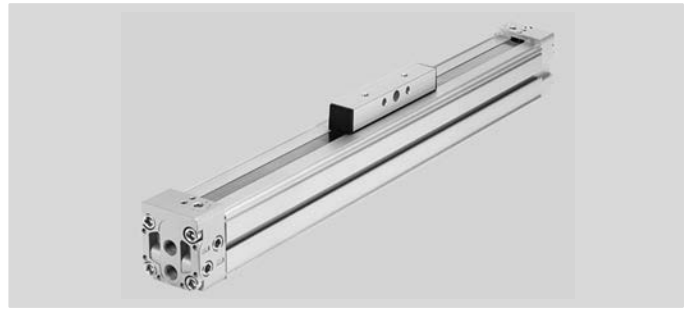
EX2 EU certification (II 3GD)

EX3 EU certification (II 2G)

Linear drives DGC-K

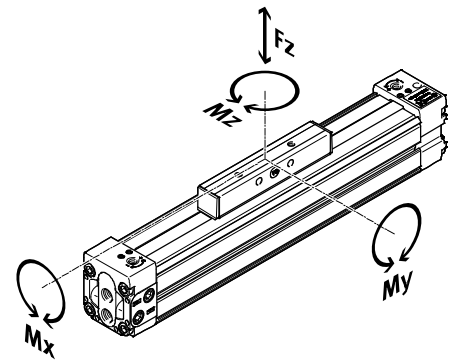
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1 Technical data



Technical data

Dimensions → 168



Piston Ø	18	25	32	40	50	63	80
Pneumatic connection	M5	G1/8		G1/4		G3/8	G1/2
Stroke [mm]	1 ... 3000	1 ... 8500			1 ... 6000	1 ... 5000	1 ... 3000
Cushioning	Pneumatic cushioning, adjustable at both ends						
Cushioning length [mm]	16	18	20	30			83
Theoretical force at 6 bar [N]	153	295	483	754	1178	1870	3016
Max. permissible force F_z [N]	120	330	480	800	1200	1600	2500
Max. permissible torque M_x [Nm]	0.8	1.2	1.9	3.8	6	5.7	30.6
Max. permissible torque M_y [Nm]	11	20	40	60	120	150	400
Max. permissible torque M_z [Nm]	1	3	5	8	15	24	100

Operating conditions

Piston Ø	18	25	32	40	50	63	80
Operating pressure [bar]	2 ... 8				1.5 ... 8		
Ambient temperature ¹⁾ [°C]	-10 ... +60						

1) Note operating range of proximity sensors.

Materials

Piston Ø	18	25	32	40	50	63	80
End cap	Die-cast aluminium				Gravity die-cast aluminium		
Seals	NBR						
	TPE-U (PU)						

Order code

1

DGC		-	K	-		-		-	PPV	-	A	-		-	
Type															
DGC	Linear drive														
Guide															
K	Compact														
Piston Ø [mm]															
	Stroke [mm]														
18	1 ... 3000														
25, 32, 40	1 ... 8500														
50	1 ... 6000														
63	1 ... 5000														
80	1 ... 3000														
Cushioning															
PPV	Pneumatic cushioning, adjustable at both ends														
Position sensing															
A	Via proximity sensor														
Basic design															
GK	Standard piston														
Supply port															
	At one end														
D2	At both ends														

Order example:

DGC-K-25-200-PPV-A-GK

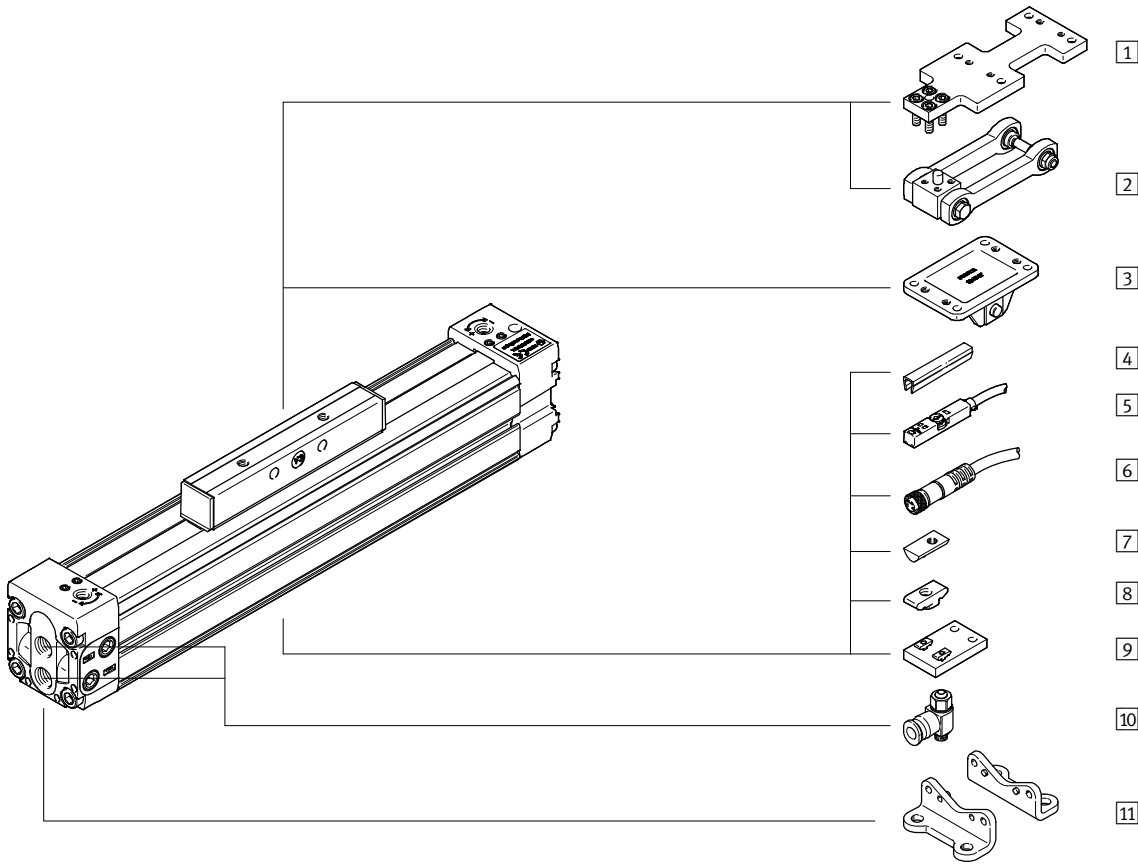
Linear drive DGC - compact - piston diameter 25 mm - stroke 200 mm - pneumatic cushioning, adjustable at both ends - position sensing via proximity sensor - standard piston - supply port at one end

Ordering – Product options

	<p>Configurable product</p>	<p>This product and all its options can be ordered using the configurator.</p>	<p>The configurator can be found under Products on the DVD or → www.festo.com/catalogue/...</p>	<p>Enter the type code in the search field.</p>
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Accessories

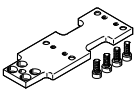
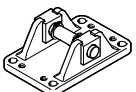
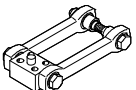



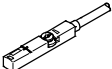



1



		→ Page/online
1	Adapter plate DAMF	165
2	Moment compensator DARD...-M	165
3	Moment compensator DARD...-S	165
4	Slot cover ABP	165
5	Proximity sensor SMT-8M/SME-8M	165
6	Connecting cable NEBU	165

		→ Page/online
7	Slot nut for mounting slot NST	165
8	Slot nut for mounting slot ABAN	166
9	Central support MUP	166
10	One-way flow control valve GRLA	166
11	Foot mounting HP	166




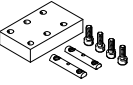
Accessories – Ordering data


	For Ø	Part No.	Type		For Ø	Part No.	Type
1 Adapter plate				Dimensions online: → dgc			
	18	2349281	DAMF-18-FKP		18	8001411	DARD-L1-18-S
	25	2349282	DAMF-25-FKP		25	8001412	DARD-L1-32-S
	32	2349283	DAMF-32-FKP		32	8001412	DARD-L1-32-S
	40	2349284	DAMF-40-FKP		40	8001413	DARD-L1-40-S
	50	2349285	DAMF-50-FKP		50	8001414	DARD-L1-63-S
	63	2349286	DAMF-63-FKP		63	8001414	DARD-L1-63-S
	80	2349287	DAMF-80-FKP		80	8001415	DARD-L1-80-S
2 Moment compensator				Dimensions online: → dgc			
	18	2349274	DARD-L1-18-M	4 Slot cover¹⁾			
	25	2349275	DARD-L1-25-M		32, 40	151681	ABP-5
	32	2349276	DARD-L1-32-M		50, 63, 80	151682	ABP-8
	40	2349277	DARD-L1-40-M		18, 25, 32, 40,	563360	ABP-5-S1
	50	2349278	DARD-L1-50-M		50, 63, 80		
	63	2349279	DARD-L1-63-M				
	80	2349280	DARD-L1-80-M				
5 Proximity sensor for T-slot, magneto-resistive – N/O contact				Technical data → 808			
	PNP, cable	★	574335	SMT-8M-A-PS-24V-E-2,5-OE			
	PNP, plug	★	574334	SMT-8M-A-PS-24V-E-0,3-M8D			
	PNP, plug	★	574337	SMT-8M-A-PS-24V-E-0,3-M12			
	NPN, cable	★	574338	SMT-8M-A-NS-24V-E-2,5-OE			
	NPN, plug	★	574339	SMT-8M-A-NS-24V-E-0,3-M8D			
Magneto-resistive – N/C contact				Technical data → 808			
	PNP, cable	★	574340	SMT-8M-A-PO-24V-E-7,5-OE			
Magnetic reed – N/O contact				Technical data → 803			
	Cable	★	543862	SME-8M-DS-24V-K-2,5-OE			
	Cable	★	543863	SME-8M-DS-24V-K-5,0-OE			
	Cable	★	543872	SME-8M-ZS-24V-K-2,5-OE			
	Plug	★	543861	SME-8M-DS-24V-K-0,3-M8D			
Magnetic reed – N/C contact				Technical data → 805			
	Cable	★	546799	SME-8M-DO-24V-K-7,5-OE			
6 Connecting cable, straight socket				Technical data → 1053			
	2.5 m	★	541333	NEBU-M8G3-K-2.5-LE3			
	5.0 m	★	541334	NEBU-M8G3-K-5-LE3			
	2.5 m	★	541363	NEBU-M12G5-K-2.5-LE3			
	5.0 m	★	541364	NEBU-M12G5-K-5-LE3			
Angled socket				Technical data → 1053			
	2.5 m	★	541338	NEBU-M8W3-K-2.5-LE3			
	5.0 m	★	541341	NEBU-M8W3-K-5-LE3			
	2.5 m		541367	NEBU-M12W5-K-2.5-LE3			
	5.0 m		541370	NEBU-M12W5-K-5-LE3			

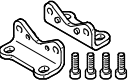
1) Packaging unit 2x 0.5 m.

Accessories – Ordering data

1

	For Ø	Part No.	Type	
7/8 Slot nut Dimensions online: → dgc				
	18, 25	526091	NST-HMV-M4-2),3)	
	32, 40	150914	NST-5-M5	
	50, 63, 80	150915	NST-8-M6	
	18, 25	8003032	ABAN-1M4-5-1)	
9 Central support Dimensions online: → dgc				
	18	150736	MUP-18/25	
		1711704	MUP-18/25-P	
	25	150736	MUP-25/25	
		1711704	MUP-18/25-P	
	32	150737	MUP-32	
	40	150738	MUP-40	
	50	150739	MUP-50	
	63	150800	MUP-63	
80	158455	MUP-80		

	For Ø	Connection		Part No.	Type	
		Thread	O.D.			
10 One-way flow control valve with slotted head screw, metal⁴⁾ Technical data → 687						
	18	M5	3	★	193137	GRLA-M5-QS-3-D
			6	★	193139	GRLA-M5-QS-6-D
	25, 32	G ¹ / ₈	8		162966	GRLA-1/8-QS-8-RS-B
	40, 50	G ¹ / ₄	8		162968	GRLA-1/4-QS-8-RS-B
	63	G ³ / ₈	8		162970	GRLA-3/8-QS-8-RS-B
	80	G ¹ / ₂	12	★	193152	GRLA-1/2-QS-12-D

	For Ø	Part No.	Type	
11 Foot mounting Dimensions online: → dgc				
	18	158472	HP-18	
	25	150731	HP-25	
	32	150732	HP-32	
	40	150733	HP-40	
	50	150734	HP-50	
	63	150735	HP-63	
	80	158453	HP-80	

1) Packaging unit 4 pieces.

2) Packaging unit 10 pieces.

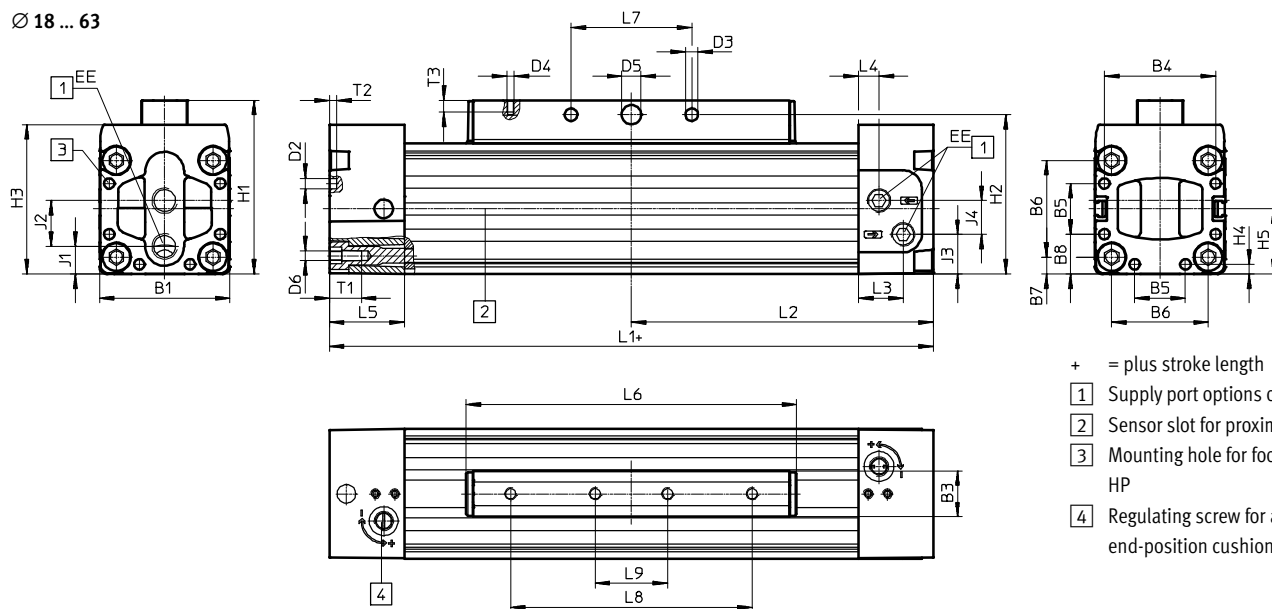
3) Piston size 18 and 25 cannot be used with DGC...-D2 (supply port at both ends).

4) The recommended flow control valves are based on a tubing length to the valve of 1 m. For deviations of ±50%, flow control valves with a bigger or smaller flow rate must be selected to guarantee the optimum flow control function and cylinder speed.

Dimensions

Download CAD data → www.festo.com

∅ 18 ... 63



- + = plus stroke length
- 1 Supply port options on 3 sides
- 2 Sensor slot for proximity sensor
- 3 Mounting hole for foot mounting HP
- 4 Regulating screw for adjustable end-position cushioning

∅	B1	B3	B4	B5	B6	B7	B8	D2	D3
[mm]		±0.2						∅	∅
18	34 ^{+0.2/-0.05}	12	28	7	24	5	13.5	3	5.2
25	45 ^{+0.4}	19	39.1	18	32.5	6.3	13.5	3.3	5.2
32	54 ^{+0.4}	19	46	21	40	7	16.5	4.3	5.2
40	64 ^{+0.4}	21	53	28	49	7.5	18	4.3	6.5
50	90 ^{+0.4}	24	76	44	72	9	23	6.3	8.5
63	106 ^{+0.4}	24	89	44	83	11.5	31	6.3	8.5

∅	D4	D5	D6	EE	H1	H2	H3	H4	H5
[mm]		∅							
18	M5	6 ^{H7}	M5	M5	49.8	43.8	37.6	3	17
25	M5	8 ^{H7}	M4	G1/8	63	57	51	3	22.5
32	M5	8 ^{H7}	M5	G1/8	72	66	61.8	4	27
40	M6	10 ^{H7}	M5	G1/4	86	78	71.8	5.5	32
50	M8	12 ^{H7}	M6	G1/4	115	106	99	7	45
63	M8	12 ^{H7}	M8	G3/8	131	122	115	8.5	53

∅	J1	J2	J3	J4	L1	L2	L3	L4	L5
[mm]									
18	10.7	11.1	12.2	10.4	150	75	5	5	15.5
25	9	16.7	15.7	13	200	100	17	7	25
32	11.4	19	17.1	14	250	125	18.5	8.5	31
40	13.5	22	19.5	21	300	150	11.5	11.5	31
50	21	30.8	27	29.3	350	175	14	14	34
63	25	36	32	33	400	200	13.5	13.5	34

∅	L6	L7	L8	L9	T1	T2	T3
[mm]							
18	85	30±0.1	60±0.1	-	11	2	10
25	109	30±0.1	50±0.1	-	13	2	7.5
32	135	50±0.1	100±0.1	30±0.1	13.2	3	7.5
40	171	70±0.1	130±0.1	40±0.1	13.2	4	10.5
50	206	80±0.1	150±0.1	50±0.1	15.2	6	12.5
63	234	110±0.1	190±0.1	70±0.1	21.2	6	12.5

Linear drives DGC-K

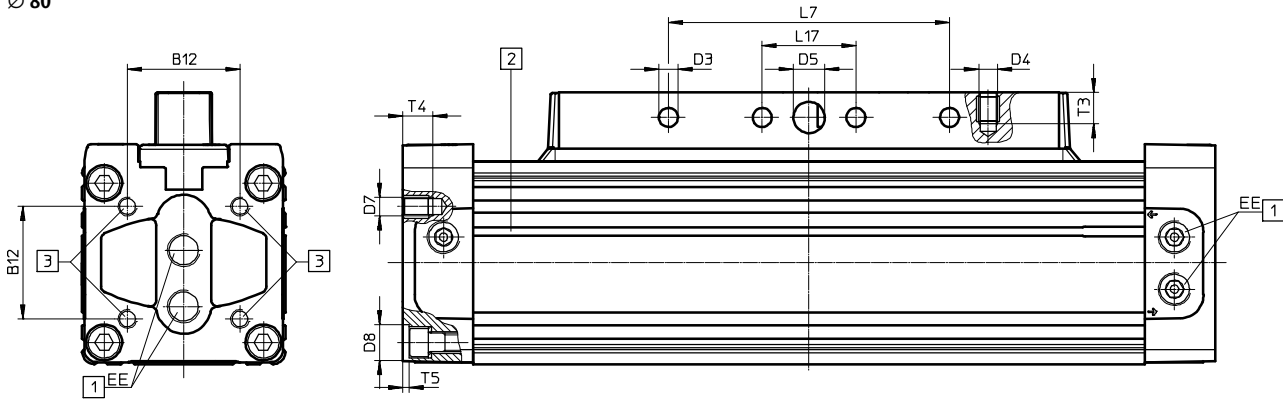
FESTO

Download CAD data → www.festo.com

Dimensions

1

∅ 80



+ = plus stroke length

1 Supply port options on 3 sides

2 Slot for proximity sensor

3 Mounting hole for foot mounting HP

∅	B1	B3	B6	B7	B8	B12	D3 ∅	D4
[mm]		±0.2					+0.2	
80	130 ^{+0.8}	36	102	14	29	72	12.2	M12

∅	D5 ∅	D7	D8 ∅	EE	H1	H2	H3	H5
[mm]								
80	20 ^{H10}	M12	23	G½	174	158	140.5	85

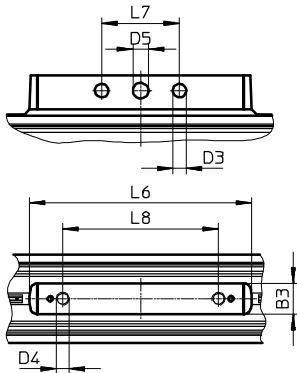
∅	J1	J2	J3	J4	L1	L2	L3	L4
[mm]								
80	37	36	48.1	33.3	520	260	19	19

∅	L5	L6	L7	L8	L9	L17	T3	T4	T5
[mm]						±0.15			
80	45	334	180±0.15	230±0.15	115±0.15	60	19	18	4

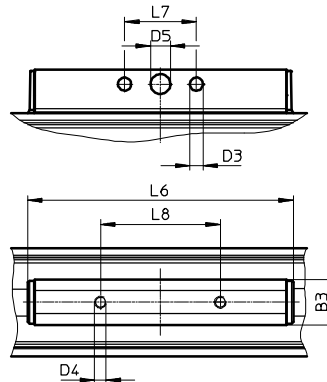
Dimensions

Moment compensator

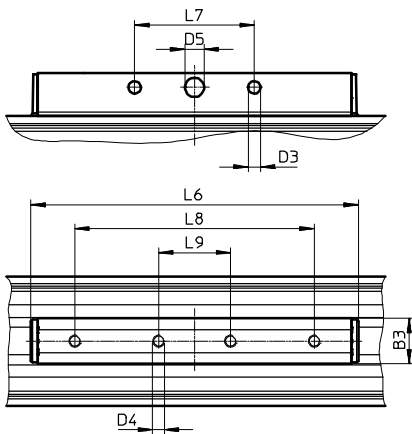
Ø 18



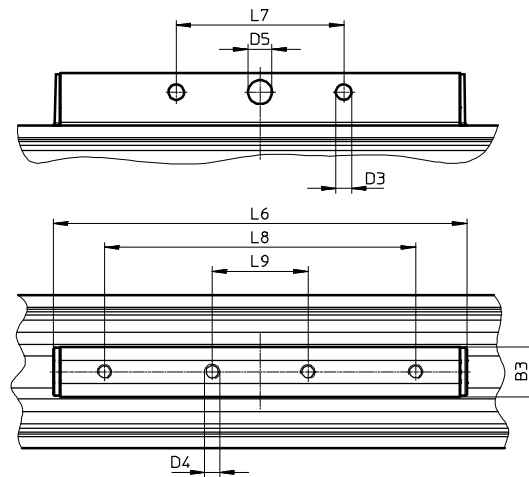
Ø 25



Ø 32

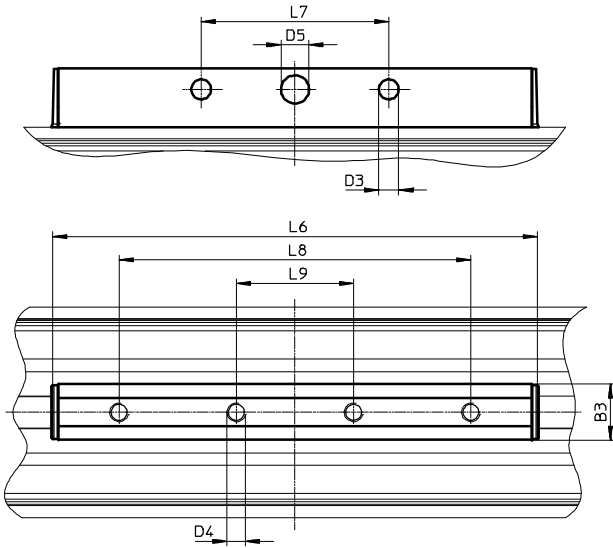


Ø 40

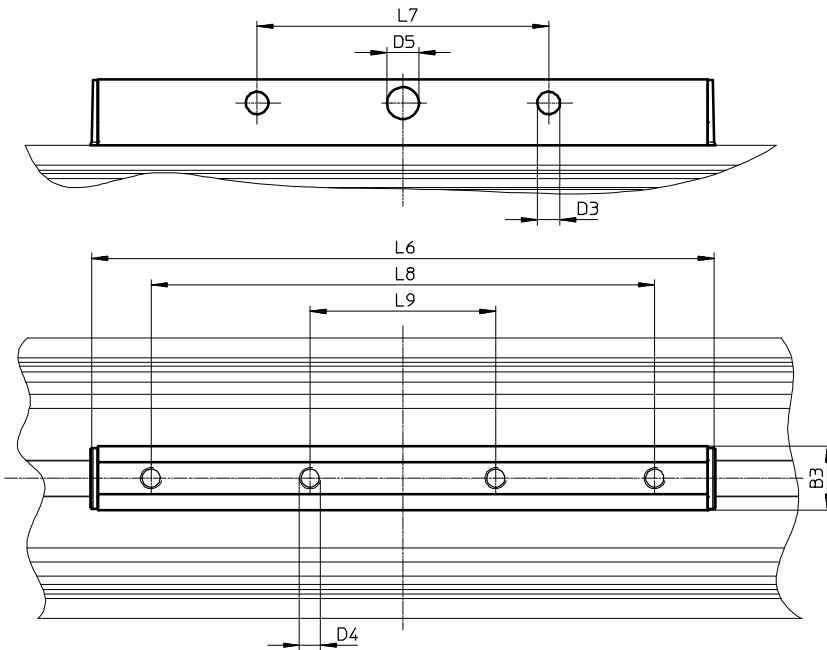


Ø	B3	D3	D4	D5	L6	L7	L8	L9
[mm]	±0.2	Ø +0.2		Ø H7		±0.1	±0.1	±0.1
18	12	5.2	M5	6	85	30	60	-
25	19	5.2	M5	8	109	30	50	-
32	19	5.2	M5	8	135	50	100	30
40	21	6.5	M6	10	171	70	130	40

1 Dimensions
Moment compensator
Ø 50



Ø 63

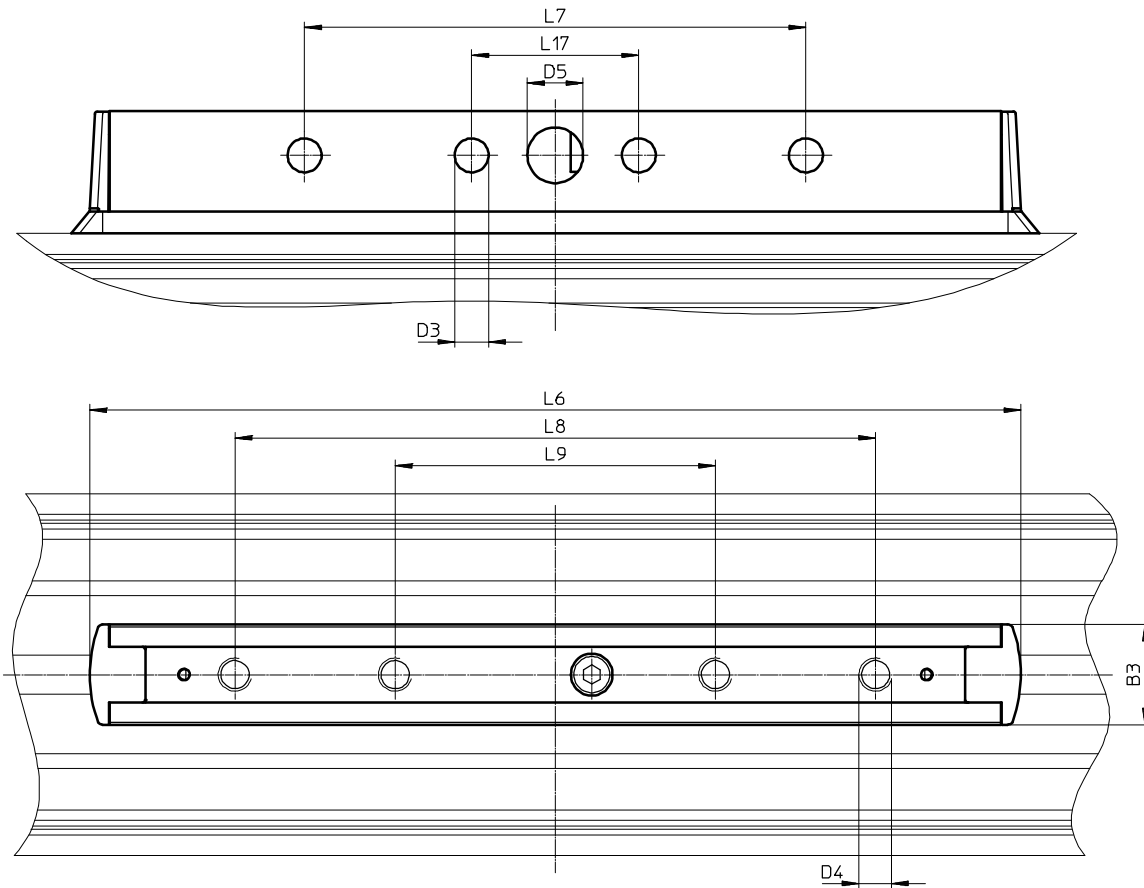


Ø	B3	D3	D4	D5	L6	L7	L8	L9
[mm]	±0.2	Ø +0.2		Ø H7		±0.1	±0.1	±0.1
50	24	8.5	M8	12	206	80	150	50
63	24	8.5	M8	12	234	110	190	70

Dimensions

Moment compensator

∅ 80



∅	B3	D3	D4	D5	L6	L7	L8	L9	L17
[mm]	±0.2	∅ +0.2		∅ H10		±0.15	±0.15	±0.15	
80	36	12.2	M12	20	334	180	230	115	60

Linear drives DGC-K

FESTO

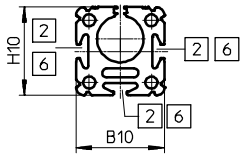
Download CAD data → www.festo.com

Dimensions

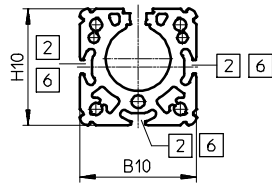
1

Profile barrel

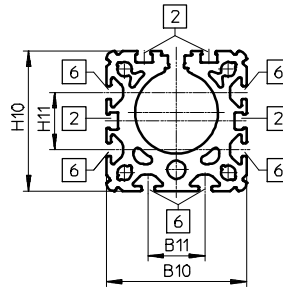
Ø 18



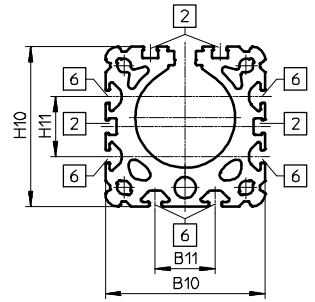
Ø 25



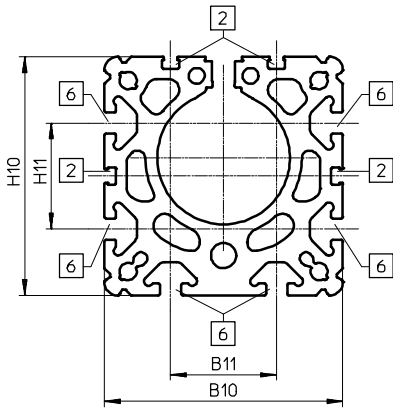
Ø 32



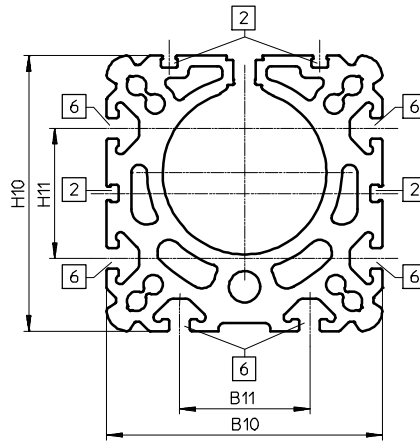
Ø 40



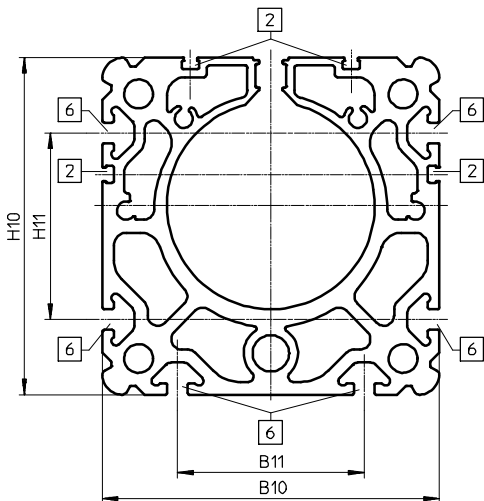
Ø 50



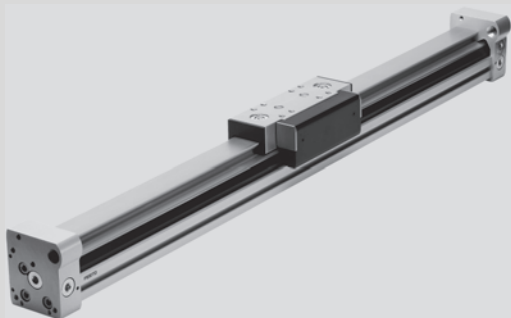
Ø 63



Ø 80



Ø	B10	B11	H10	H11
[mm]				
18	34	-	34	-
25	45	-	45	-
32	54	22	54	22
40	64	24	64	24
50	90	40	90	40
63	106	50	106	50
80	130	72	130	72



- Compact dimensions
- Quick and sturdy installation and mounting
- High precision and load carrying ability
- Excellent running characteristics and low air consumption
- Precision interfaces
- Many additional features
- Spare parts service

→ www.festo.com/catalogue/dgc

Product range overview

Type/function	Piston Ø [mm]	Stroke [mm]	Force [N]	Product options					→ Page/ online
				P	PPV	YSR	YSRW	A	
Double-acting	DGC-...-K – Compact design								
	18, 25, 32, 40, 50, 63, 80	1 ... 8500	153 ... 3016	–	■	–	–	■	162
	DGC-...-G – Basic design								
	8, 12, 18, 25, 32, 40, 50, 63	1 ... 8500	30 ... 1870	■	■	■	■	■	174
	DGC-...-GF – Plain-bearing guide								
	18, 25, 32, 40, 50, 63	1 ... 8500	153 ... 1870	–	■	■	■	■	177
DGC-...-KF – Recirculating ball bearing guide									
8, 12, 18, 25, 32, 40, 50, 63	1 ... 8500	30 ... 1870	■	■	■	■	■	180	
DGC-...-HD – Heavy-duty design									
18, 25, 40	10 ... 5000	153 ... 754	–	–	■	■	■	202	
Without drive	DGC-FA – Passive guide axis								
	8, 12, 18, 25, 32, 40, 50, 63	1 ... 5000	–	■	–	■	■	–	dgc-fa

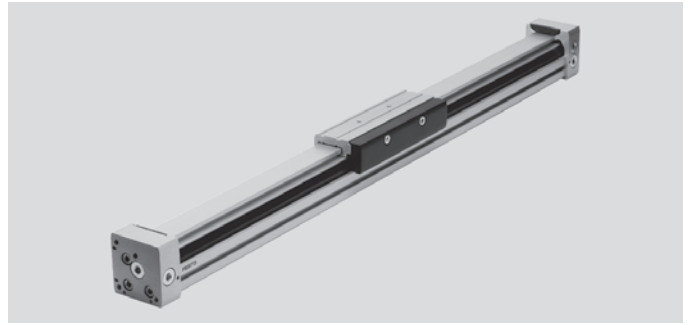
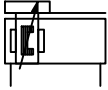
Product options

N	NPT thread	YSRW	Self-adjusting shock absorber, progressive	H1	Lubrication approved for use in food applications	1H	Clamping unit
P	Elastic cushioning rings/plates at both ends	A	Position sensing	C	Lubrication adapter	PN	Pneumatically actuated clamping unit
PPV	Pneumatic cushioning, adjustable at both ends	DL	Supply port at the left end or at both ends	KL	Additional slide on left		
YSR	Self-adjusting shock absorber	GP	Protected recirculating ball bearing guide	KR	Additional slide on right		

Linear drives DGC-G, basic design

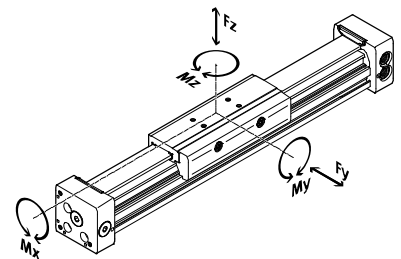
1

Technical data



Technical data

Dimensions → 185



Piston Ø	8	12	18	25	32	40	50	63
Pneumatic connection	M5			G1/8		G1/4		G3/8
Stroke [mm]	1 ... 1500	1 ... 2000	1 ... 3000	1 ... 8500				1 ... 5000
Cushioning	P	Elastic cushioning rings/plates at both ends		-				
	PPV	-		Pneumatic cushioning, adjustable at both ends				
	YSR...	Self-adjusting shock absorber at both ends		-				
Cushioning length ¹⁾ [mm]	-		16.5	15.5	17.5	29.5	29.8	31.1
Theoretical force at 6 bar [N]	30	68	153	295	483	754	1178	1870
Max. permissible force F_y [N]	150	300	70	180	250	370	480	650
Max. permissible force F_z [N]	150	300	340	540	800	1100	1600	2000
Max. permissible torque M_x [Nm]	0.5	1.3	1.9	4	9	12	20	26
Max. permissible torque M_y [Nm]	2	5	12	20	40	60	150	150
Max. permissible torque M_z [Nm]	2	5	4	5	12	25	37	48

1) With PPV cushioning.

Operating conditions

Piston Ø	8	12	18	25	32	40	50	63
Operating pressure [bar]	2.5 ... 8		2 ... 8			1.5 ... 8		
Ambient temperature ²⁾ [°C]	+5 ... +60	-10 ... +60						

2) Note operating range of proximity sensors.

Materials

Guide rail	Anodised aluminum
Slide	Anodised aluminum
End cap	Anodised aluminum
Cylinder barrel	Anodised aluminum
Piston seal	TPE-U (PU)
Sealing band/cover strip	TPE-U (PU)
Slide elements	PA

Order code

1

DGC		-		-		-	G	-		-	A
Type											
DGC	Linear drive										
Piston Ø [mm]											
	Stroke [mm]										
8	1 ... 1500										
12	1 ... 2000										
18	1 ... 3000										
25, 32, 40	1 ... 8500										
50, 63	1 ... 5000										
Guide											
G	Basic design										
Cushioning											
P	Elastic cushioning rings/ plates at both ends										1
PPV	Pneumatic cushioning, adjustable at both ends										2
YSR	Self-adjusting shock absorber at both ends										1
YSRW	Self-adjusting, progressive shock absorber at both ends										1
Position sensing											
A	Via proximity sensor										


- 1 Only with piston Ø 8 and 12 mm
- 2 Not with piston Ø 8 and 12 mm

Order example:

DGC-25-200-G-PPV-A

Linear drive DGC - piston diameter 25 mm - stroke 200 mm - basic design - pneumatic cushioning, adjustable at both ends - position sensing via proximity sensor

Ordering – Product options

	<p>Configurable product</p>	<p>This product and all its options can be ordered using the configurator.</p>	<p>The configurator can be found under Products on the DVD or → www.festo.com/catalogue/...</p>	<p>Enter the type code in the search field.</p>
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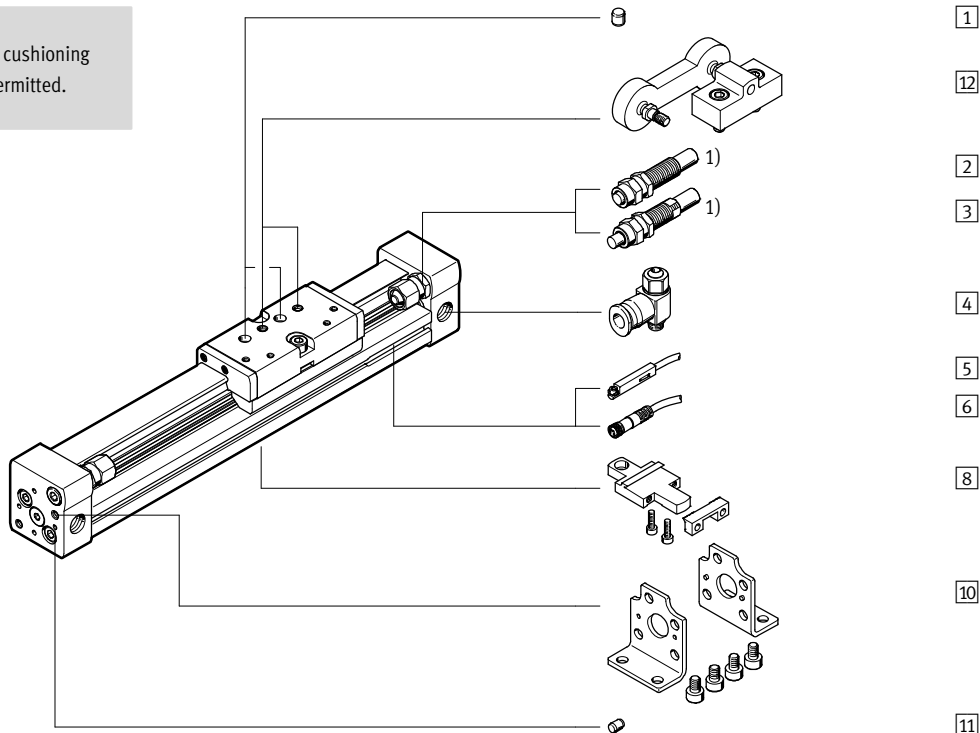
Linear drives DGC-G, basic design

Accessories

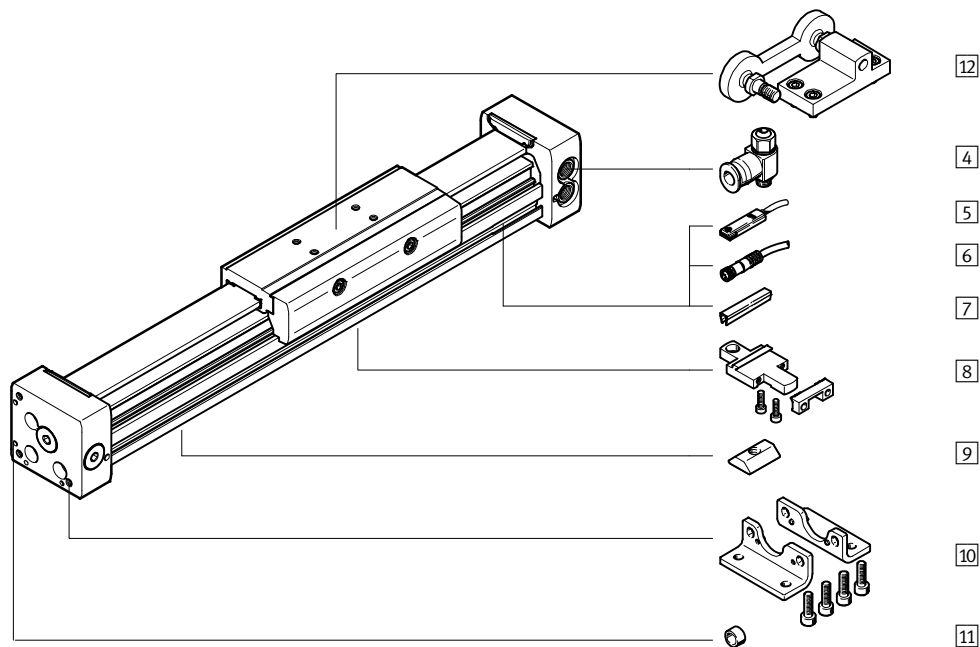
1 DGC-8/-12

Note

1) Operation without cushioning components is not permitted.



DGC-18 ... 63

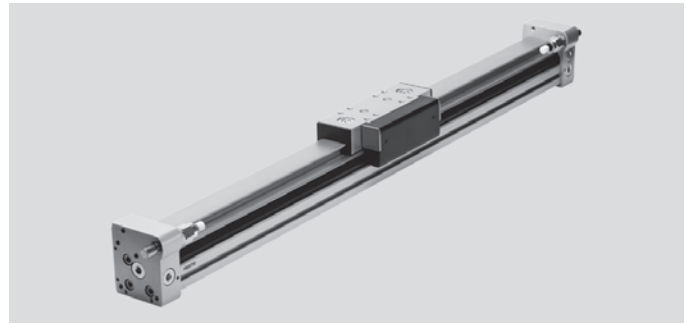
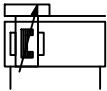


		→ Page/online
1	Centring pin ZBS ¹⁾	183
2	Shock absorber YSR	175
3	Shock absorber YSRW-DGC	183
4	One-way flow control valve GRLA	183
5	Proximity sensor SME/SMT	183
6	Connecting cable NEBU	184

		→ Page/online
7	Slot cover ABP-S	184
8	Profile mounting MUC	184
9	Slot nut HMBN	184
10	Foot mounting HPC	184
11	Centring pin ZBS/centring sleeve ZBH	183
12	Moment compensator FKC	184

1) Included in the scope of delivery of the drive.

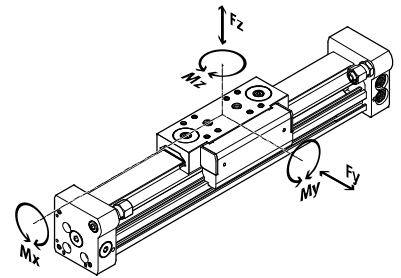
Technical data



1

Technical data

Dimensions → 190



Piston Ø	18	25	32	40	50	63
Pneumatic connection	M5	G $\frac{1}{8}$		G $\frac{1}{4}$		G $\frac{3}{8}$
Stroke [mm]	1 ... 3000		1 ... 8500			1 ... 5000
Cushioning	PPV	Pneumatic cushioning, adjustable at both ends				
	YSR...	Self-adjusting shock absorber at both ends				
Cushioning length ¹⁾ [mm]	16.5	15.5	17.5	29.5	29.8	31.1
Theoretical force at 6 bar [N]	153	295	483	754	1178	1870
Max. permissible force F_y [N]	440	640	900	1380	1500	2300
Max. permissible force F_z [N]	540	1300	1800	2000	2870	4460
Max. permissible torque M_x [Nm]	3.4	8.5	15	28	54	96
Max. permissible torque M_y [Nm]	20	40	70	110	270	450
Max. permissible torque M_z [Nm]	8.5	20	33	54	103	187

1) With PPV cushioning.

Operating conditions						
Piston Ø	18	25	32	40	50	63
Operating pressure [bar]	2 ... 8			1.5 ... 8		
Ambient temperature ²⁾ [°C]	-10 ... +60					

2) Note operating range of proximity sensors.

Materials	
Guide rail	Anodised aluminum
Slide	Anodised aluminum
End cap	Anodised aluminum
Cylinder barrel	Anodised aluminum
Piston seal	TPE-U (PU)
Sealing band/cover strip	TPE-U (PU)
Slide elements	PA

Linear drives DGC-GF, with plain-bearing guide

1

Order code


DGC		-		-		-	GF	-		-	A
Type											
DGC	Linear drive										
Piston Ø [mm]											
	Stroke [mm]										
18	1 ... 3000										
25, 32, 40	1 ... 8500										
50, 63	1 ... 5000										
Guide											
GF	Plain-bearing guide										
Cushioning											
PPV	Pneumatic cushioning, adjustable at both ends										
YSR	Self-adjusting shock absorber at both ends										
YSRW	Self-adjusting progressive shock absorber at both ends										
Position sensing											
A	Via proximity sensor										

Order example:

DGC-18-250-GF-PPV-A

Linear drive DGC - piston diameter 18 mm - stroke 250 mm - plain-bearing guide - pneumatic cushioning, adjustable at both ends - position sensing via proximity sensor

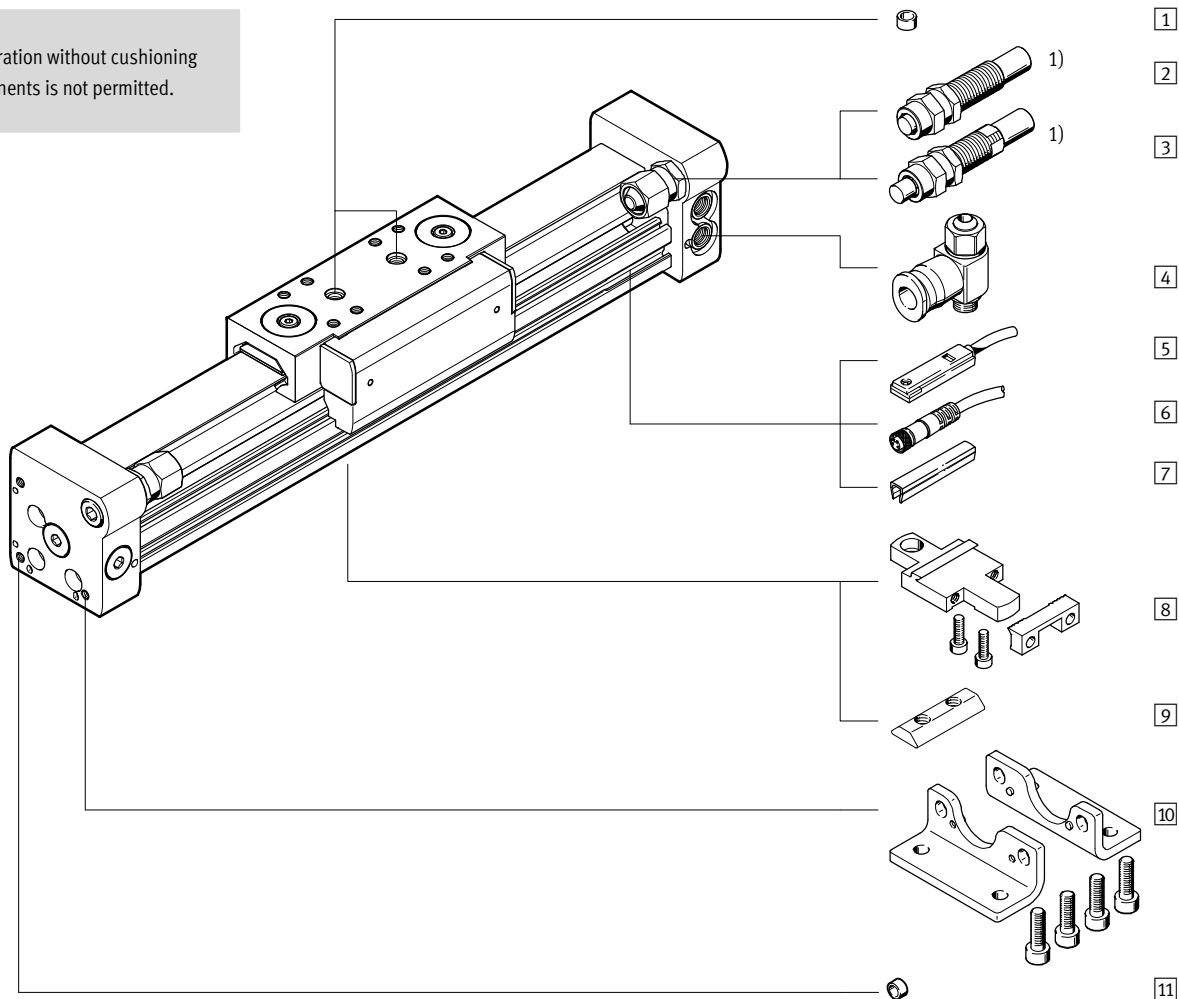
Ordering – Product options

	<p>Configurable product</p>	<p>This product and all its options can be ordered using the configurator.</p>	<p>The configurator can be found under Products on the DVD or → www.festo.com/catalogue/...</p>	<p>Enter the type code in the search field.</p>
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Accessories

Note

1) Operation without cushioning components is not permitted.



		→ Page/online
1	Centring pin ZBS/centring sleeve ZBH ¹⁾	183
2	Shock absorber YSR	178
3	Shock absorber YSRW-DGC	183
4	One-way flow control valve GRLA	183
5	Proximity sensor SME-/SMT-8	184
6	Connecting cable NEBU	184

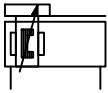
		→ Page/online
7	Slot cover ABP-S	184
8	Profile mounting MUC	184
9	Slot nut HMBN	184
10	Foot mounting HPC	184
11	Centring sleeve ZBH	183

1) Included in the scope of delivery of the axis.

Linear drives DGC-KF, with recirculating ball bearing guide

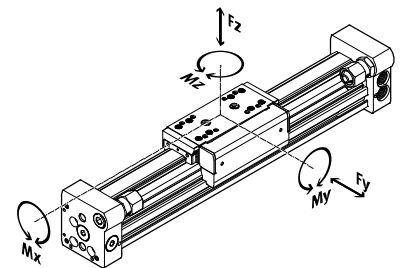
1

Technical data



Technical data

Dimensions → 195



Piston Ø	8	12	18	25	32	40	50	63
Pneumatic connection	M5			G $\frac{1}{8}$		G $\frac{1}{4}$		G $\frac{3}{8}$
Stroke [mm]	1 ... 1300	1 ... 1900	1 ... 3000	1 ... 8500		1 ... 5000		
Cushioning	P	Elastic cushioning rings/plates at both ends		-				
	PPV	-		Pneumatic cushioning, adjustable at both ends				
	YSR...	Self-adjusting shock absorber at both ends						
Cushioning length ¹⁾ [mm]	-		16.5	15.5	17.5	29.5	29.8	31.1
Theoretical force at 6 bar [N]	30	68	153	295	483	754	1178	1870
Max. permissible force F_y [N]	300	650	1850	3050	3310	6890	6890	15,200
Max. permissible force F_z [N]	300	650	1850	3050	3310	6890	6890	15,200
Max. permissible torque M_x [Nm]	1.7	3.5	16	36	54	144	144	529
Max. permissible torque M_y [Nm]	4.5	10	51	97	150	380	634	1157
Max. permissible torque M_z [Nm]	4.5	10	51	97	150	380	634	1157

1) With PPV cushioning.

Operating conditions								
Piston Ø	8	15	18	25	32	40	50	63
Operating pressure [bar]	2.5 ... 8		2 ... 8			1.5 ... 8		
Ambient temperature ²⁾ [°C]	-10 ... +60							

2) Note operating range of proximity sensors.

Materials	
Guide rail	High-alloy steel
Slide	High-alloy steel
End cap	Anodised aluminum
Cylinder barrel	Anodised aluminum
Piston seal	TPE-U (PU)
Sealing band/cover strip	TPE-U (PU)
Slide elements	PA

Linear drives DGC-KF, with recirculating ball bearing guide

Order code

1

		DGC	-		-		-	KF	-		-	A
Type												
DGC	Linear drive											
Piston Ø [mm]												
	Stroke [mm]											
8	1 ... 1300											
12	1 ... 1900											
18	1 ... 3000											
25, 32, 40	1 ... 8500											
50, 63	1 ... 5000											
Guide												
KF	Recirculating ball bearing guide											
Cushioning												
P	Elastic cushioning rings/ plates at both ends											1
PPV	Pneumatic cushioning, adjustable at both ends											2
YSR	Self-adjusting shock absorber at both ends											
YSRW	Self-adjusting progressive shock absorber at both ends											
Position sensing												
A	Via proximity sensor											

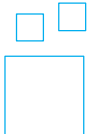
- 1 Only with piston Ø 8 and 12 mm.
- 2 Not with piston Ø 8 and 12 mm

Order example:

DGC-12-200-KF-YSRW-A

Linear drive DGC - piston diameter 12 mm - stroke 200 mm - recirculating ball bearing guide - shock absorber at both ends, self-adjusting, progressive - position sensing via proximity sensor

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
[→ www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the type code in the search field.

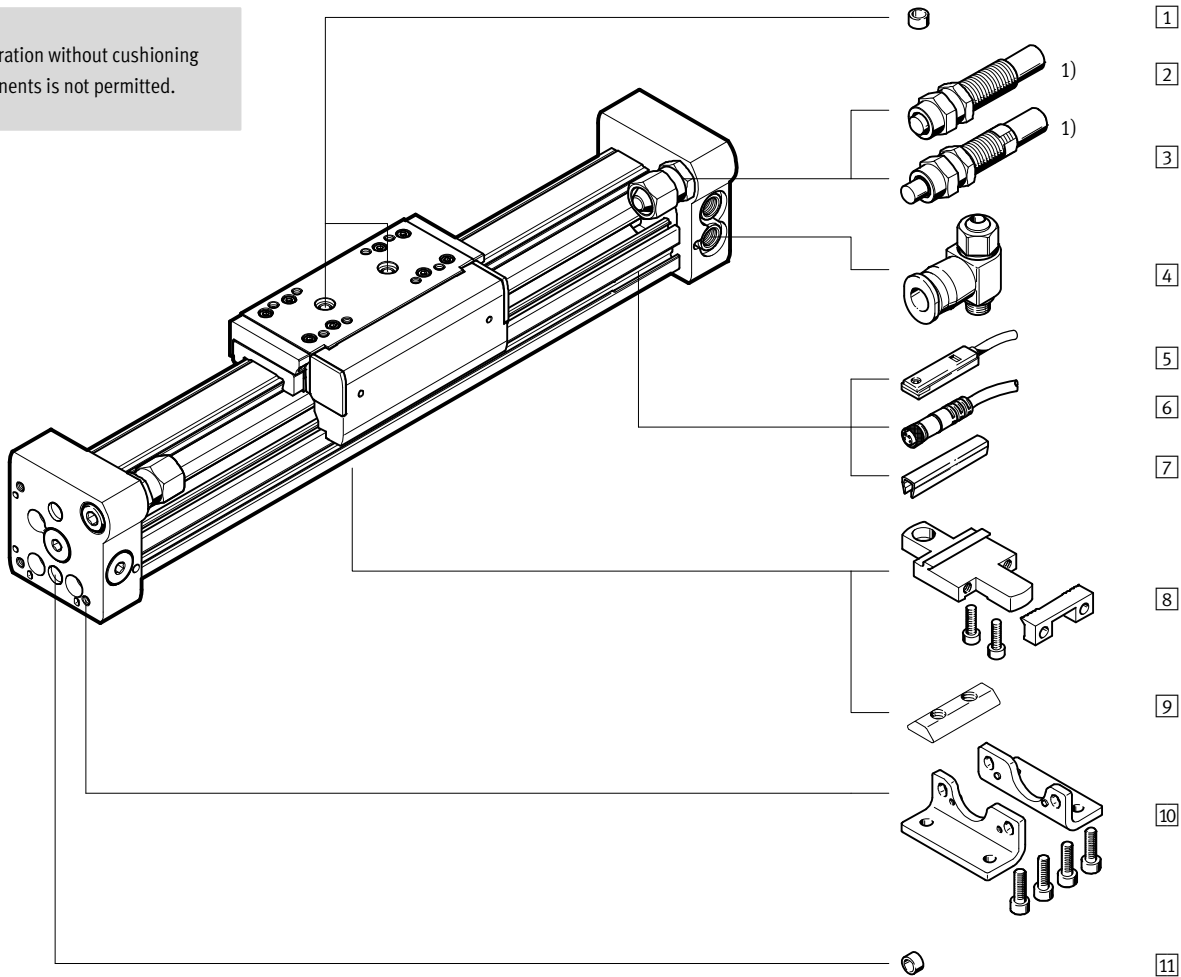
Linear drives DGC-KF, with recirculating ball bearing guide

Accessories

1

Note

1) Operation without cushioning components is not permitted.





		→ Page/online
1	Centring pin ZBS/centring sleeve ZBH ¹⁾	183
2	Shock absorber YSR	181
3	Shock absorber YSRW-DGC	183
4	One-way flow control valve GRLA	183
5	Proximity sensor SME-/SMT-8	184
6	Connecting cable NEBU	184

		→ Page/online
7	Slot cover ABP-S	184
8	Profile mounting MUC	184
9	Slot nut HMBN	184
10	Foot mounting HPC	184
11	Centring pin ZBS/centring sleeve ZBH	183


1) Included in the scope of delivery of the axis.

Accessories – Ordering data



1

	For Ø	Description	Part No.	Type
1 Centring pin/sleeve¹⁾ Technical data online: → zbh				
	For DGC-G			
	8, 12	For slide	150928	ZBS-5
	8, 12	For end cap	525273	ZBS-2
	50, 63		150927	ZBH-9
	For DGC-GF			
	18	For slide	150928	ZBS-5
	25 ... 63		150927	ZBH-9
	50, 63	For end cap	150927	ZBH-9
	For DGC-KF			
	8, 12, 18	For slide	150928	ZBS-5
	25 ... 63		150927	ZBH-9
	8, 12	For end cap	525273	ZBS-2
18		150928	ZBS-5	
25 ... 63		150927	ZBH-9	
3 Shock absorber				
	For DGC-G			
	8		540344	YSRW-DGC-8
	12		540345	YSRW-DGC-12
	For DGC-GF			
	18		540346	YSRW-DGC-18-GF
	25		540348	YSRW-DGC-25-GF
	32		540350	YSRW-DGC-32-GF
	40		540352	YSRW-DGC-40-GF
	50		1232870	YSRW-DGC-40/50-B
	63		543069	YSRW-DGC-63
	For DGC-KF			
	18		540347	YSRW-DGC-18-KF
	25		540349	YSRW-DGC-25-KF
	32		540351	YSRW-DGC-32-KF
40		1232870	YSRW-DGC-40/50-B	
50		1232870	YSRW-DGC-40/50-B	
63		543069	YSRW-DGC-63	

1) Packaging unit 10 pieces.

	For Ø	Connection		Part No.	Type
		Thread	O.D.		
4 One-way flow control valve with slotted head screw, metal²⁾ Technical data → 687					
	8, 12	M5	3	★ 193137	GRLA-M5-QS-3-D
	18		6	★ 193139	GRLA-M5-QS-6-D
	25, 32	G1/8	8	162966	GRLA-1/8-QS-8-RS-B
	40, 50	G1/4		162968	GRLA-1/4-QS-8-RS-B
	63	G3/8	8	162970	GRLA-3/8-QS-8-RS-B

2) The recommended flow control valves are based on a tubing length to the valve of 1 m. For deviations of ±50%, flow control valves with a bigger or smaller flow rate must be selected to guarantee the optimum flow control function and cylinder speed.

	For Ø	Part No.	Type
5 Proximity sensor for C-slot for piston Ø 8/12, magneto-resistive – N/O contact Technical data → 821			
	PNP, cable	★ 551373	SMT-10M-PS-24V-E-2,5-L-OE
	PNP, plug	★ 551375	SMT-10M-PS-24V-E-0,3-L-M8D
Magnetic reed – N/O contact Technical data → 819			
	Cable	★ 551365	SME-10M-DS-24V-E-2,5-L-OE
	Plug	★ 551367	SME-10M-DS-24V-E-0,3-L-M8D
	Cable	★ 551369	SME-10M-ZS-24V-E-2,5-L-OE
	Cable	173210	SME-10-KL-LED-24
	Plug	173212	SME-10-SL-LED-24

Accessories – Ordering data

1

	For Ø		Part No.	Type	
5 Proximity sensor for T-slot for piston Ø 18 ... 63, magneto-resistive – N/O contact Technical data → 808					
	PNP, cable	★	574335	SMT-8M-A-PS-24V-E-2,5-OE	
	PNP, plug	★	574334	SMT-8M-A-PS-24V-E-0,3-M8D	
	PNP, plug	★	574337	SMT-8M-A-PS-24V-E-0,3-M12	
	NPN, cable	★	574338	SMT-8M-A-NS-24V-E-2,5-OE	
	NPN, plug	★	574339	SMT-8M-A-NS-24V-E-0,3-M8D	
Magneto-resistive – N/C contact Technical data → 808					
	PNP, cable	★	574340	SMT-8M-A-PO-24V-E-7,5-OE	
Magnetic reed – N/O contact Technical data → 803					
	Cable	★	543862	SME-8M-DS-24V-K-2,5-OE	
	Cable	★	543863	SME-8M-DS-24V-K-5,0-OE	
	Cable	★	543872	SME-8M-ZS-24V-K-2,5-OE	
	Plug	★	543861	SME-8M-DS-24V-K-0,3-M8D	
Magnetic reed – N/C contact Technical data → 805					
	Cable	★	546799	SME-8M-DO-24V-K-7,5-OE	
6 Connecting cable, straight socket Technical data → 1053					
	2.5 m	★	541333	NEBU-M8G3-K-2.5-LE3	
	5.0 m	★	541334	NEBU-M8G3-K-5-LE3	
	2.5 m	★	541363	NEBU-M12G5-K-2.5-LE3	
	5.0 m	★	541364	NEBU-M12G5-K-5-LE3	
Angled socket Technical data → 1053					
	2.5 m	★	541338	NEBU-M8W3-K-2.5-LE3	
	5.0 m	★	541341	NEBU-M8W3-K-5-LE3	
	2.5 m		541367	NEBU-M12W5-K-2.5-LE3	
	5.0 m		541370	NEBU-M12W5-K-5-LE3	

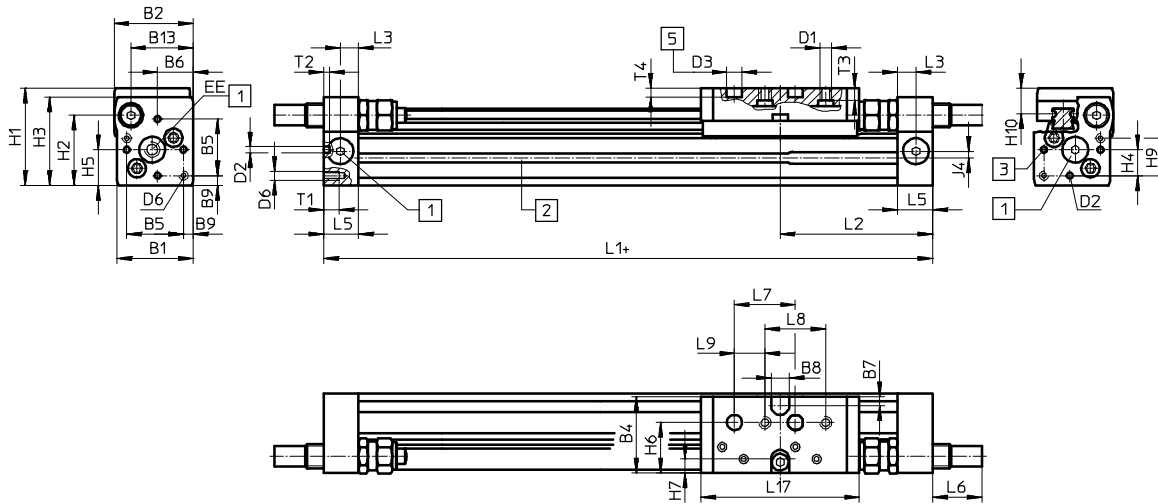
	For Ø		Part No.	Type
7 Slot cover¹⁾				
	18, 25, 32, 40,		151680	ABP-5-S
	50, 63			
8 Profile mounting Dimensions online: → dgc				
	8		526384	MUC-8
	12		526387	MUC-12
	18		531752	MUC-18
	25		531753	MUC-25
	32		531754	MUC-32
	40		531755	MUC-40
	50		531756	MUC-50
63		531757	MUC-63	
9 Slot nut²⁾ Dimensions online: → dgc				
	25, 32, 40		547264	HMBN-5-1M5
	50, 63		186566	HMBN-5-2M5

	For Ø		Part No.	Type
10 Foot mounting Dimensions online: → dgc				
	8		526385	HPC-8
	12		526388	HPC-12
	18		533667	HPC-18
	25		533668	HPC-25
	32		533669	HPC-32
	40		533670	HPC-40
	50		545236	HPC-50
63		545237	HPC-63	
12 Moment compensator Dimensions online: → dgc				
	8		529350	FKC-8/12
	12		529350	FKC-8/12
	18		538714	FKC-18
	25		538715	FKC-25
	32		538961	FKC-32
	40		538962	FKC-40
	50		545240	FKC-50/63
	63		545240	FKC-50/63

1) Packaging unit 2x 0.5 m.
2) Packaging unit 10 pieces.

Dimensions

∅ 8 ... 12



- 1 Supply port options on 3 sides
- 2 Slot for proximity sensor
- 3 Mounting hole for foot mounting or centring pin
- 5 Hole for centring pin ZBS
+ = plus stroke length

∅	B1	B2	B4	B5	B6	B7	B8	B9	B13	D1	D2	D3	D6
[mm]							±0.05	±0.1			∅ H8	∅ H7	
8	25	26	25.5	18.6	11.7	3	6	3.2	20.5	M4	2	5	M3
12	30.2	31	30.5	20.6	13.5	3	8	4.8	25	M4	2	5	M4

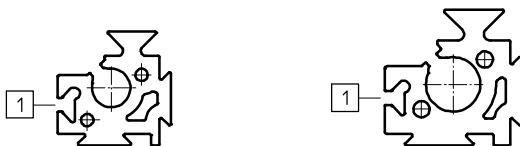
∅	EE	H1	H2	H3	H4	H5	H6	H7	H9	H10	J4	L1	L2
[mm]													
8	M5	32	23	29	8.5	11.7	16.5	4.5	12.3	8.7	2.2	100	50.1
12	M5	37.5	28.5	34.5	8.7	13.5	20.5	5	14.7	9.8	3	125	62.1

∅	L3	L5	L6			L7	L8	L9	L17	T1	T2	T3	T4	Stroke tolerance
			P	YSR	YSRW									
[mm]						±0.03	±0.1	±0.1					+0.2	
8	6	11.5	0	16	16.2	20	20	10	52	5	2	4	3	0 ... 1.7
12	8	16	0	11.3	12.3	20	20	10	65	6	2	5	3	

Profile

∅ 8

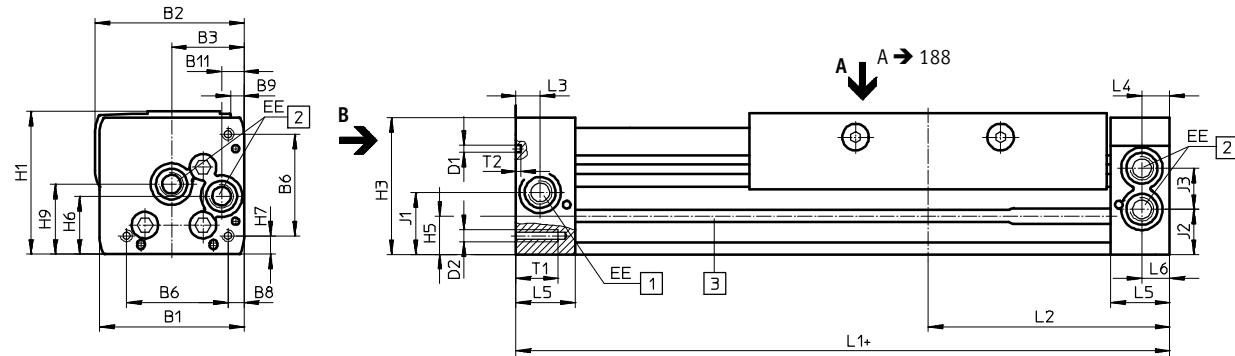
∅ 12



- 1 Slot for proximity sensor

Linear drives DGC-G, basic design

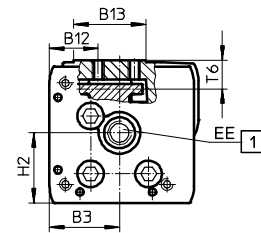
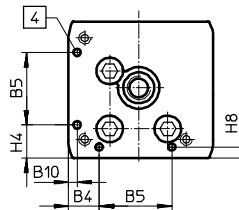
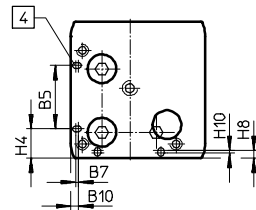
1 Ø 18 ... 40



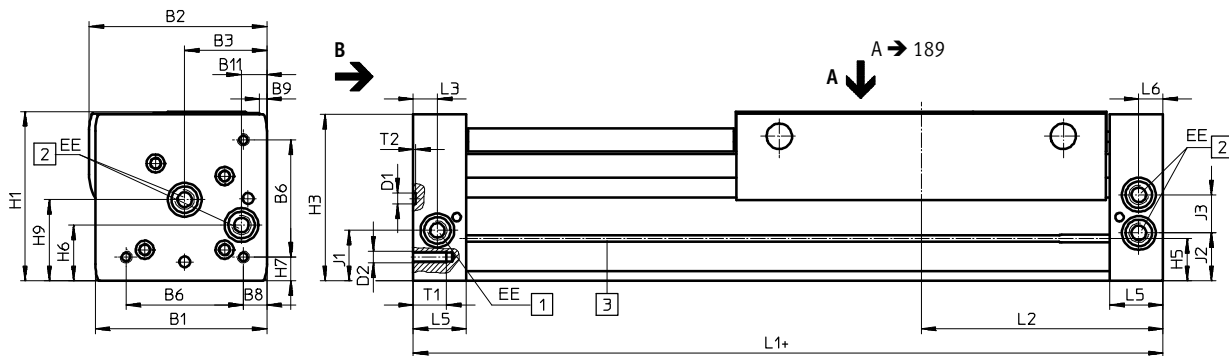
View B
Ø 18

Ø 25 ... 40

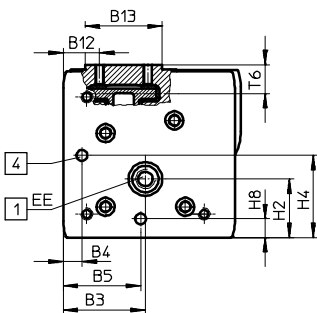
Ø 18 ... 40



Ø 50/63



View B



+ = plus stroke length

- 1 Supply port options on 2 sides
- 2 Supply port options on 2 sides, for supply port at one end
- 3 Slot for proximity sensor
- 4 Mounting hole for foot mounting HPC

Dimensions

Download CAD data → www.festo.com

1

∅	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10
[mm]					±0.05					
18	44.5	46.3	19.5	8.8	21	31	0.3	3.8	3.3	2.4
25	59.8	61.6	30	12.65	30	42		6.65	5.6	3.5
32	73	75.5	38.5	5.7	63.1	57.5		8.5	5	14
40	91	94.5	45	17.2	55	65		12.2	5.3	8
50	113	122	60	8	52.8	81.6	–	12	0	–
63	142	147	68	15.5	68	97	–	19.5	6	–

∅	B11	B12	B13	D1	D2	EE	H1	H2	H3	H4
[mm]				∅						±0.2
18	5.5	19.3	20	2±0.05	M4	M5	49.8	23.1	48.3	10.3
25	9.3	20.15	30	3±0.05	M5	G $\frac{1}{8}$	58.5	29	56.5	13
32	14.9	20.5	35	3±0.05	M6	G $\frac{1}{8}$	73	30	71.5	5.7
40	16.5	19.8	45	4±0.05	M6	G $\frac{1}{4}$	88	41.5	85	17.2
50	21	24	64	9 ^{H7}	M8	G $\frac{1}{4}$	120	38.5	116	52.8
63	21	30	64	9 ^{H7}	M10	G $\frac{3}{8}$	140	48.5	137.5	68

∅	H5	H6	H7	H8	H9	H10	J1	J2	J3	L1
[mm]										
18	13.4	20	5.3	2.4	25.2	0.4	20	16.5	11	150
25	15.8	24	7	4.5	29		26.1	18.6	17	200
32	17	27.7	8.5	14	35.2		30	22	18.5	250
40	25	36.5	12.2	8	44		35	26	26	300
50	29.3	36	12	8	53	–	30.5	30.5	28	350
63	34.8	46	19.5	15.5	67	–	41.5	39.5	31.5	400

∅	L2	L3	L4	L5	L6	T1	T2	T6	Stroke tolerance
[mm]									
18	74.5	5.7	5.8	15	5.5	9	2	10.7	0 ... 2.5
25	100	10.5	10.6	24.5	10.6	17.5	2	12	
32	124.8	14.5	14.5	30.5	14.5	15	2	13.8	
40	150	14.6	14.6	33.5	14.6	20	3	16.8	
50	175	17	–	41	17	24	2.1 ^{+0.2}	20.75	
63	200	20	–	44	20	27.5	2.1 ^{+0.2}	20.75	

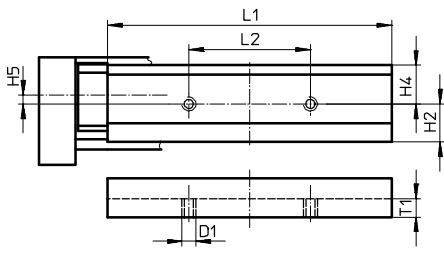
† Note: This product conforms to ISO 1179-1 and ISO 228-1.

Linear drives DGC-G, basic design

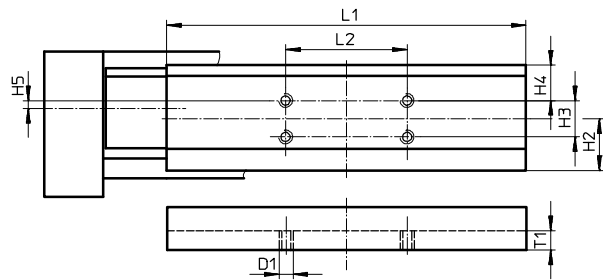
1 Dimensions

Slide – View A

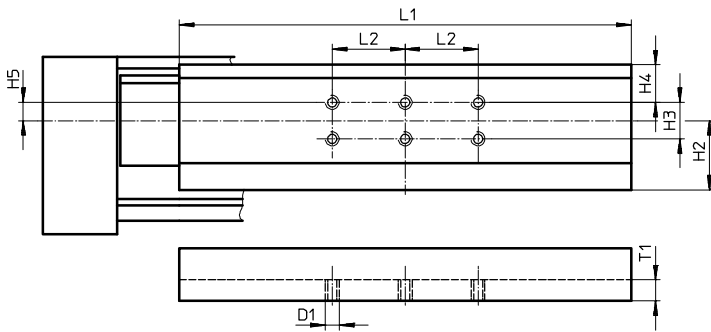
Ø 18



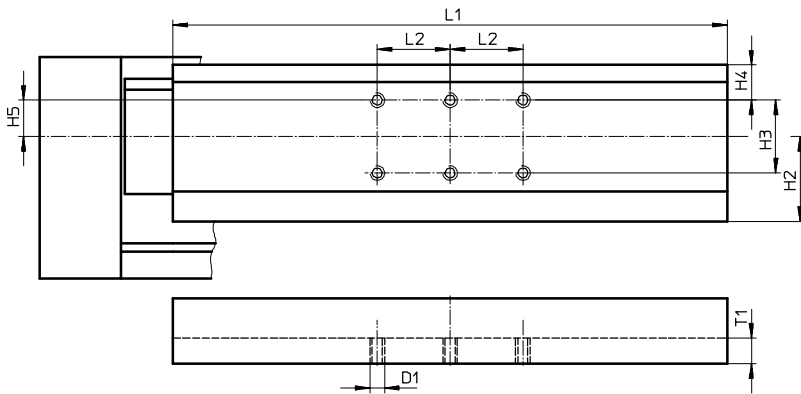
Ø 25



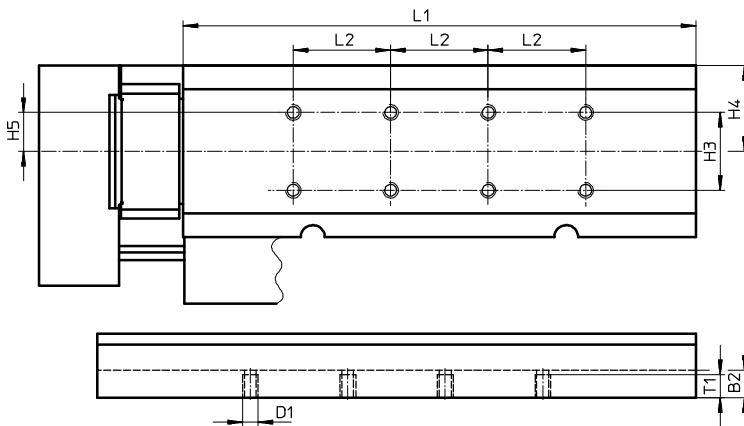
Ø 32



Ø 40



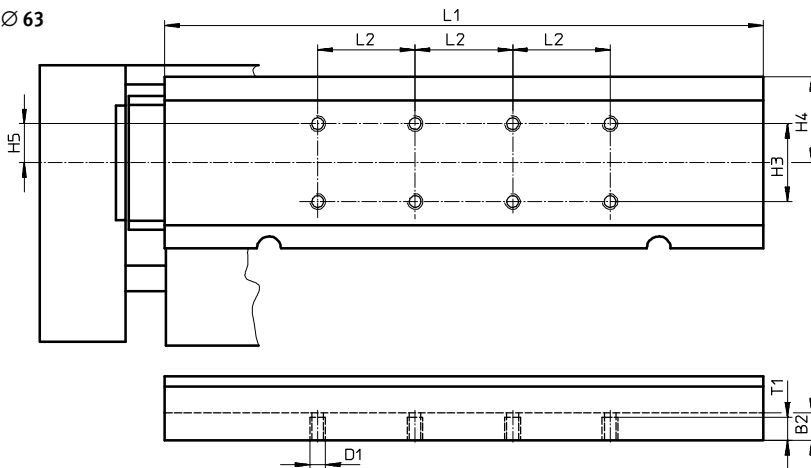
Ø 50



Dimensions

Slide – View A

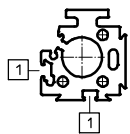
Ø 63



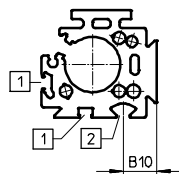
Ø	B2	D1	H2	H3	H4	H5	L1	L2	T1
[mm]			±0.1	±0.1				±0.1	
18	-	M5	15.6	-	16	2	117±0.05	50	7
25	-	M5	21.35	15	14.55	4.85	148±0.05	50	8
32	-	M5	28.5	15	15.5	7.5	186±0.05	30	8.6
40	-	M6	35	30	14.5	15	228±0.05	30	10.5
50	14	M8	-	40	44	20	263±0.1	50	13
63	14	M8	-	40	44	20	307±0.1	50	13

Profile barrel

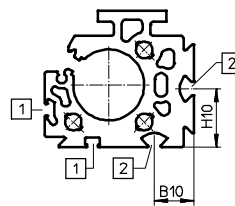
Ø 18



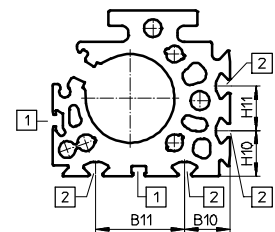
Ø 25



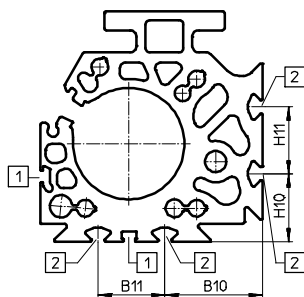
Ø 32



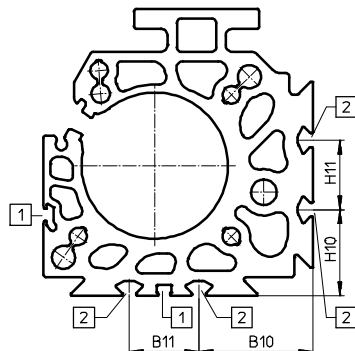
Ø 40



Ø 50



Ø 63



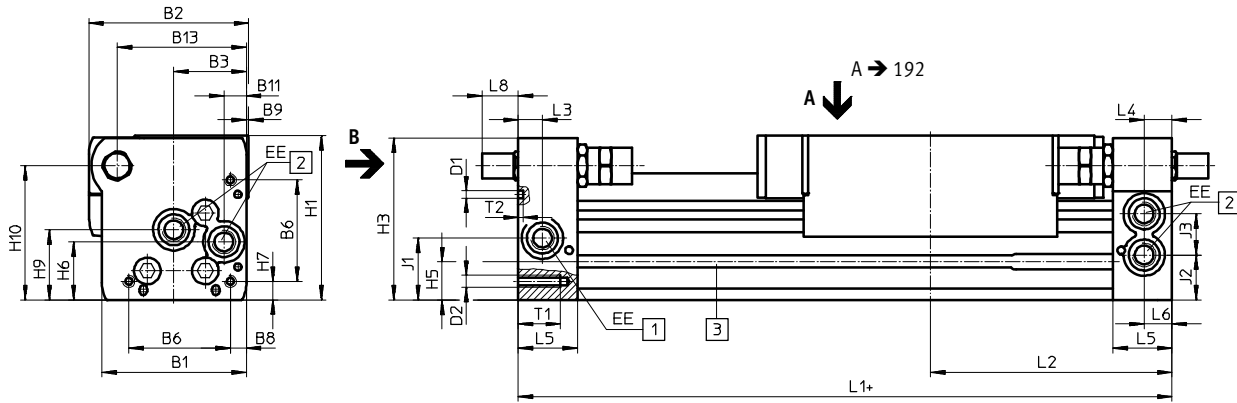
- 1 Slot for proximity sensor
- 2 Mounting slot for slot nut

Ø	B10	B11	H10	H11
[mm]				
25	15.23	-	-	-
32	18	-	26.5	-
40	20.5	40	20.5	20
50	43.8	30	30.5	30
63	49	30	37	30

Linear drives DGC-GF, with plain-bearing guide

Dimensions

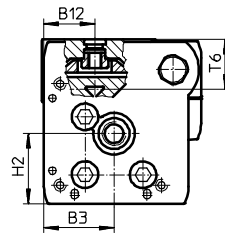
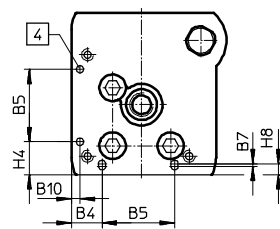
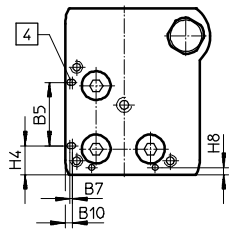
1 Ø 18 ... 40



View B
Ø 18

Ø 25 ... 40

Ø 18 ... 40



+ = plus stroke length

- 1 Supply port options on 2 sides
- 2 Supply port options on 2 sides, for supply port at one end
- 3 Slot for proximity sensor
- 4 Mounting hole for foot mounting HPC

Ø	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11
[mm]					±0.05						
18	44.5	49.9	19.5	8.8	21	31	0.8	3.8	1	2.4	5.5
25	59.8	66	30	12.65	30	42	1	6.65	1	3.5	9.3
32	73	79	38.5	5.7	63.1	57.5	-	8.5	1.5	14	14.9
40	91	98.5	45	17.2	55	65	-	12.2	2	8	16.5

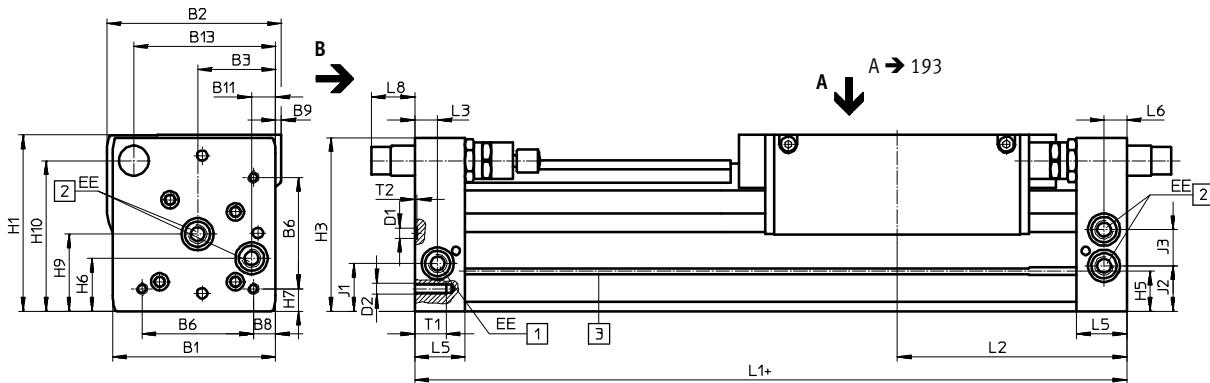
Ø	B12	B13	D1	D2	EE	H1	H2	H3	H4	H5	H6
[mm]			±0.05						±0.2		
18	15.5	39	2	M4	M5	56.3	23.1	55	9.6	13.4	20
25	21	53.5	3	M5	G1/8	68	29	67	13.65	15.8	24
32	18	66.5	3	M6	G1/8	78.5	30	77	5.7	17	27.7
40	24.8	80.5	4	M6	G1/4	99.5	41.5	97.5	17.2	25	36.5

Ø	H7	H8	H9	H10	J1	J2	J3	L1	L2	L3	L4
[mm]											
18	4.6	2.4	25.2	46	20	16.5	11	150	74.5	5.7	5.8
25	7.65	4.5	29	55.5	26.1	18.6	17	200	100	10.5	10.6
32	8.5	14	35.2	63.8	30	22	18.5	250	124.8	14.5	14.5
40	12.2	8	44	81.5	35	26	26	300	150	14.6	14.6

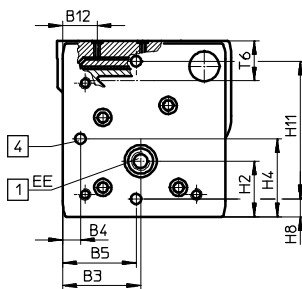
Ø	L5	L6	L8			T1	T2	T6	Stroke tolerance
			PPV	YSR	YSRW				
[mm]									
18	15	5.5	0	15.9	19.4	9	2	17.1	0 ... 2.5
25	24.5	10.6	0	12.5	15	17.5	2	20.5	
32	30.5	14.5	0	8.5	15.5	15	2	21.3	
40	33.5	14.6	0	12.8	21	20	3	30.7	

Dimensions

∅ 50/63



View B



- + = plus stroke length
- 1 Supply port options on 2 sides
- 2 Supply port options on 2 sides, for supply port at one end
- 3 Slot for proximity sensor
- 4 Mounting hole for foot mounting HPC

∅	B1	B2	B3	B4	B5	B6	B8	B9	B11	B12	B13	D1	D2
[mm]					±0.05							∅	
50	113	126.5	60	8	52.8	81.6	12	–	21	24	97	9	M8
63	142	149	68	15.5	68	97	19.5	5	21	30	123.5	9	M10

∅	EE	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11	J1
[mm]												±0.05	
50	G1/4	124.5	38.5	122.5	52.8	29.3	36	12	8	53	104.5	100	30.5
63	G3/8	153.5	48.5	151	68	34.8	46	19.5	15.5	67	131	120	41.5

∅	J2	J3	L1	L2	L3	L5	L6	L8			T1	T2	T6	Stroke tolerance
								PPV	YSR	YSRW				
[mm]												+0.2		
50	30.5	28	350	175	17	41	17	0	31	36.3	24	2.1	30.4	0 ... 2.5
63	39.5	31.5	400	200	20	44	20	0	38.3	48.3	27.5	2.1	36.2	

Note: This product conforms to ISO 1179-1 and ISO 228-1.

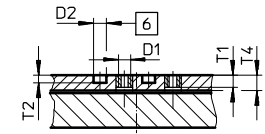
Linear drives DGC-GF, with plain-bearing guide

1

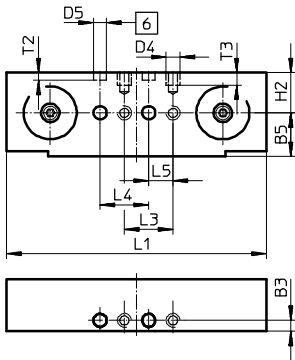
Dimensions

Slide

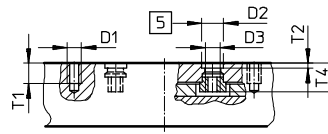
Ø 18



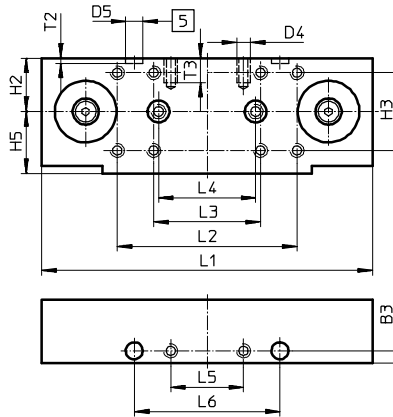
View A



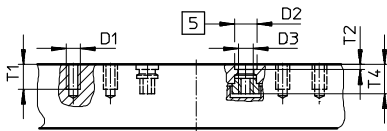
Ø 25



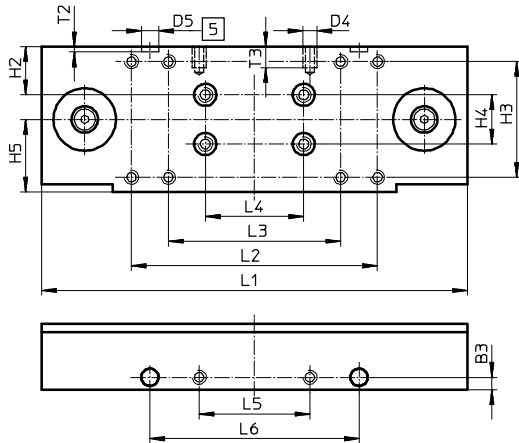
View A



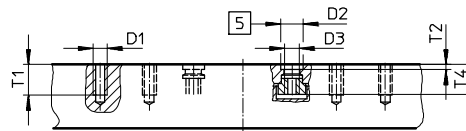
Ø 32



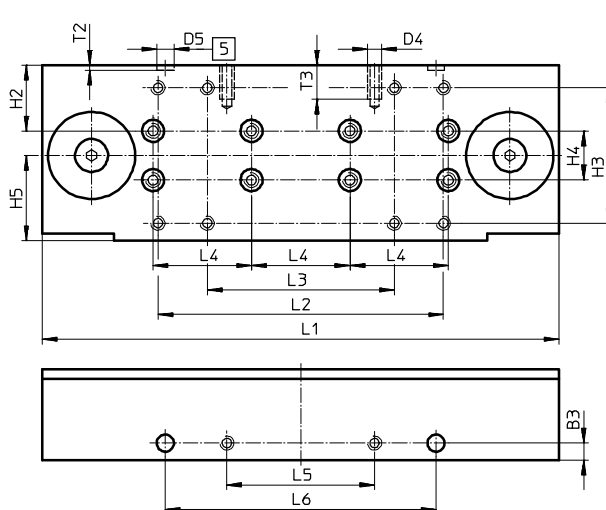
View A



Ø 40



View A

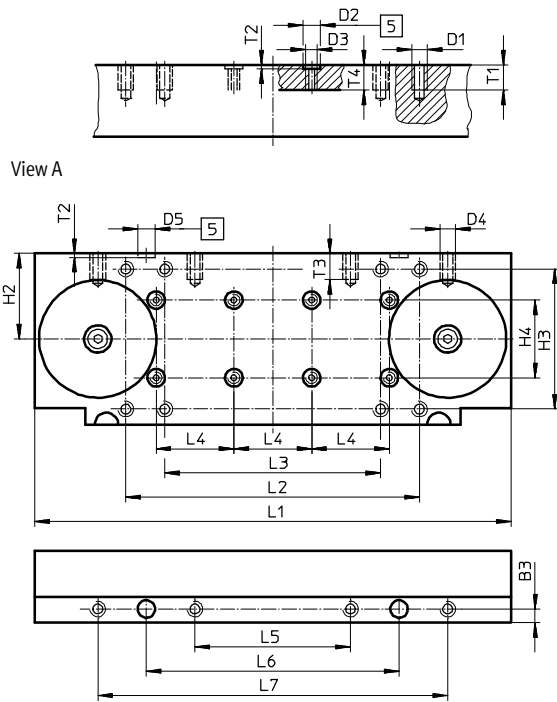


- 5 Hole for centring sleeve ZBH
- 6 Hole for centring pin ZBS

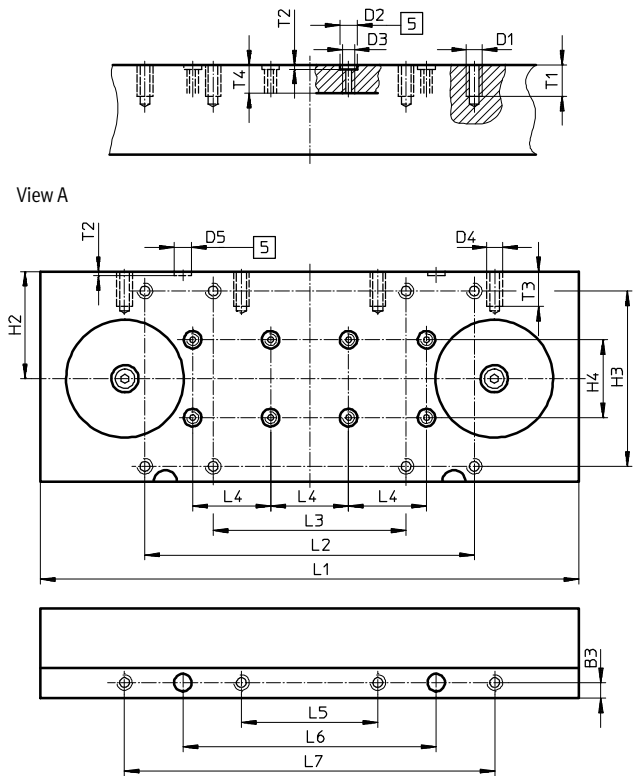
Dimensions

Slide

Ø 50



Ø 63



[5] Hole for centring sleeve ZBH

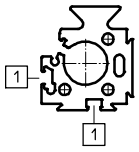
Ø	B3	D1	D2 Ø H7	D3	D4	D5 Ø H7	H2	H3	H4	H5	L1
[mm]	±0.05								±0.03	±0.1	±0.1
18	4.5	M5	5	-	M5	5	16.5	-	-	18	107
25	5	M5	9	M6	M5	7	22	32±0.2	-	25.5	136
32	5	M5	9	M6	M5	7	19.5	47±0.2	20	29.5	173
40	7	M5	9	M6	M6	7	26.8	55±0.2	20	34.7	210
50	7	M8	9	M6	M8	9	44	72±0.3	40	-	245
63	8	M8	9	M6	M8	9	55	90±0.3	40	-	276

Ø	L2	L3	L4	L5	L6	L7	T1	T2	T3	T4
[mm]	±0.1		±0.03	±0.1	±0.05	±0.1				
18	-	20±0.1	20	10	-	-	5	3.1±0.1	5	6.3
25	74	44±0.2	40	30	60	-	8.5	2.1±0.2	10	11.8
32	100	70±0.2	40	45	85	-	10	2.1±0.2	8.5	11.8
40	116	76±0.2	40	60	110	-	12.5	2.1±0.2	14	12.1
50	151	111±0.2	40	80	130	180	13	2.1±0.2	13.5	13
63	169	99±0.2	40	70	130	190	16	2.1±0.2	18	14.5

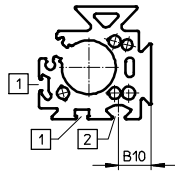
Linear drives DGC-GF, with plain-bearing guide

Dimensions

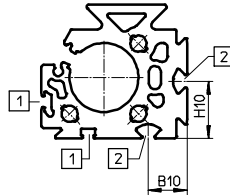
1 Profile barrel Ø 18



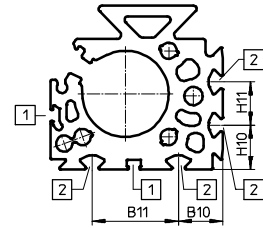
Ø 25



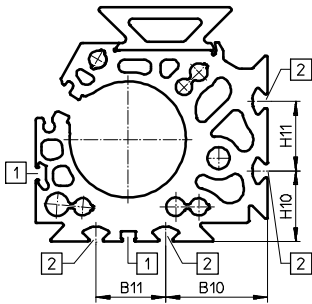
Ø 32



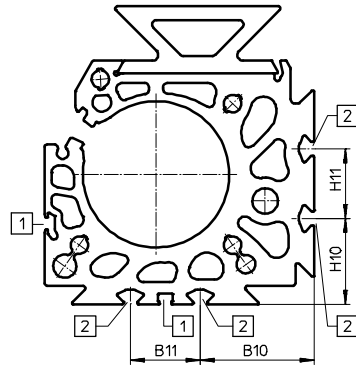
Ø 40



Ø 50



Ø 63



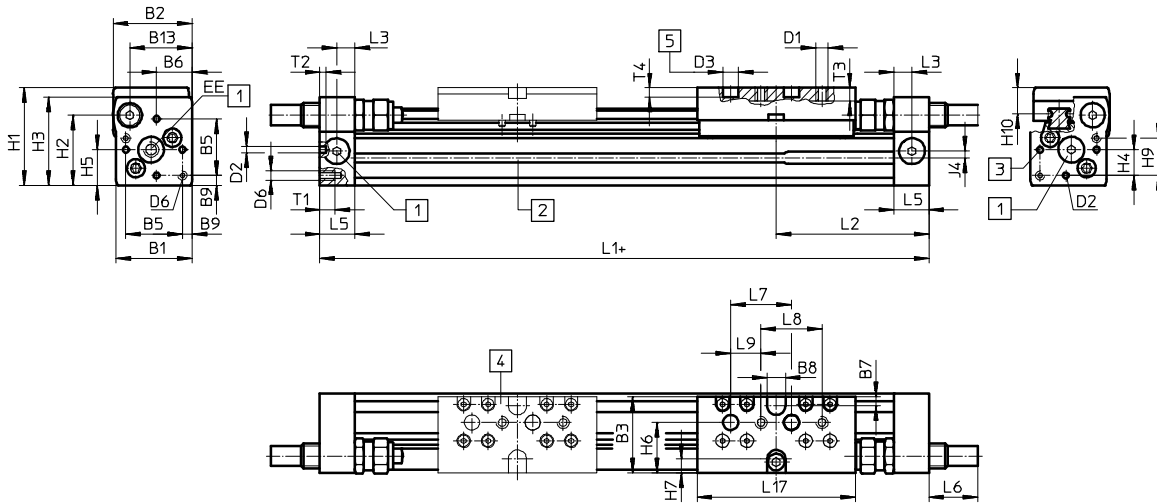
- 1 Slot for proximity sensor
- 2 Mounting slot for slot nut

Ø	B10	B11	H10	H11
[mm]				
25	15.23	-	-	-
32	18	-	26.5	-
40	20.5	40	20.5	20
50	43.8	30	30.5	30
63	49	30	37	30

Linear drives DGC-KF, with recirculating ball bearing guide

Dimensions

Ø 8 ... 12



- 1 Supply port options on 3 sides
- 2 Slot for proximity sensor
- 3 Mounting hole for foot mounting or centring pin
- 4 Additional slide KL
- 5 Hole for centring pin ZBS
- + = plus stroke length

Ø	B1	B2	B3	B5	B6	B7	B8	B9	B13	D1	D2	D3	D6
[mm]							±0.05	±0.1			Ø H8	Ø H7	
8	25	26	25	18.6	11.7	3	6	3.2	20.5	M4	2	5	M3
12	30.2	31	31	20.6	13.5	3	8	4.8	25	M4	2	5	M4

Ø	EE	H1	H2	H3	H4	H5	H6	H7	H9	H10	J4	L1	L2
[mm]													
8	M5	32	23	29	8.5	11.7	16.5	4.5	12.3	8.7	2.2	100	50.1
12	M5	37.5	28.5	34.5	8.7	13.5	20.5	5	14.7	9.8	3	125	62.1

Ø	L3	L5	L6			L7	L8	L9	L17	T1	T2	T3	T4	Stroke tolerance
			P	YSR	YSRW									
[mm]						±0.03	±0.1	±0.1					+0.2	
8	6	11.5	0	16	16.2	20	20	10	52	5	2	4.3	3	0 ... 1.7
12	8	16	0	11.3	12.3	20	20	10	65	6	2	5	3	

Profile barrel

Ø 8

Ø 12

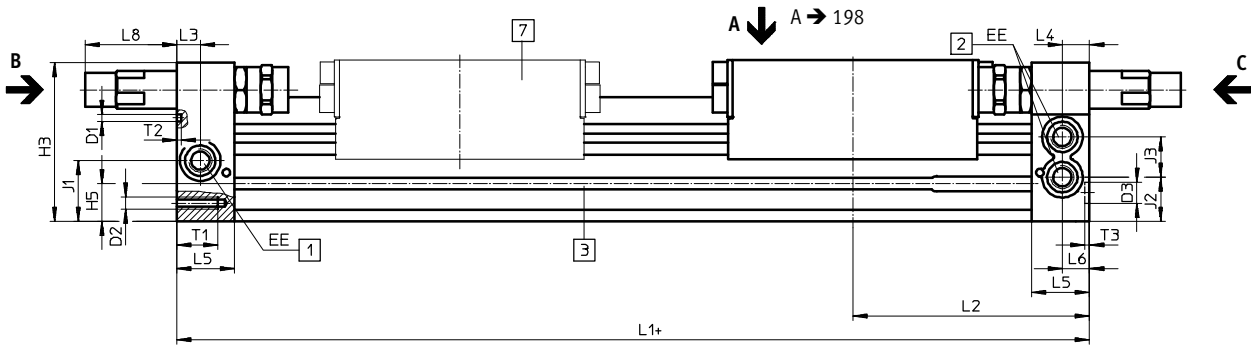


- 1 Slot for proximity sensor

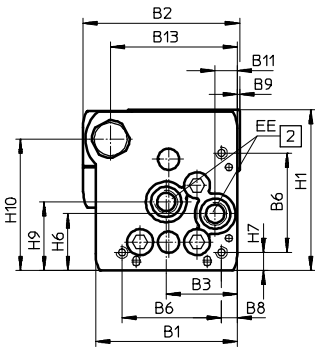
Linear drives DGC-KF, with recirculating ball bearing guide

1 Dimensions

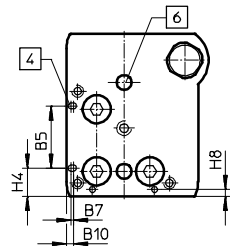
Ø 18 ... 40



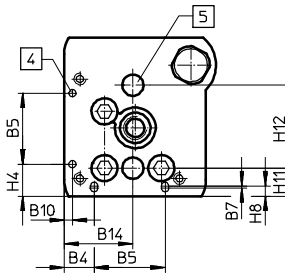
View C
Ø 18 ... 40



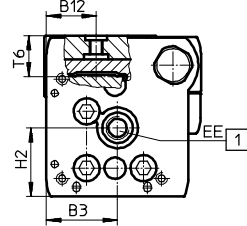
View B
Ø 18



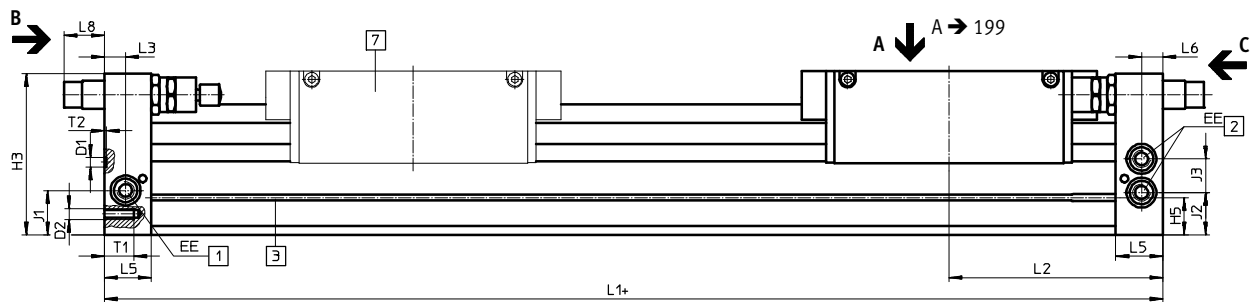
Ø 25 ... 40



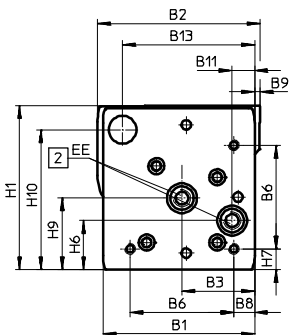
Ø 18 ... 40



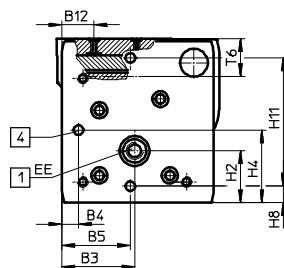
Ø 50/63



View C



View B



- + = plus stroke length
- 1 Supply port options on 2 sides
- 2 Supply port options on 2 sides, for supply port at one end
- 3 Slot for proximity sensor
- 4 Mounting hole for foot mounting HPC
- 5 Hole for centring sleeve ZBH
- 6 Hole for centring pin ZBS
- 7 Additional slide

Linear drives DGC-KF, with recirculating ball bearing guide

FESTO

Dimensions

Download CAD data → www.festo.com

1

∅	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
[mm]					±0.05							
18	44.5	49.9	19.5	8.8	21	31	0.8	3.8	1	2.4	5.5	15.5
25	59.8	66	30	12.65	30	42	1	6.65	1	3.5	9.3	21
32	73	79	38.5	5.7	63.1	57.5	–	8.5	1.5	14	14.9	18
40	91	98.5	45	17.2	55	65	–	12.2	2	8	16.5	24.8
50	113	126.5	60	8	52.8	81.6	–	12	–	–	21	24
63	142	149	68	15.5	68	97	–	19.5	5	–	21	30

∅	B13	B14	D1	D2	D3	EE	H1	H2	H3	H4	H5	H6
[mm]			∅		∅					±0.2		
18	39	19.5	2±0.05	M4	5	M5	56.3	23.1	55	9.6	13.4	20
25	53	29	3±0.05	M5	9	G1/8	68	29	67	13.65	15.8	24
32	65	38.5	3±0.05	M6	9	G1/8	78.5	30	77	5.7	17	27.7
40	80.5	45	4±0.05	M6	9	G1/4	99.5	41.5	97.5	17.2	25	36.5
50	97	–	9 ^{H7}	M8	–	G1/4	124.5	38.5	122.5	52.8	29.3	36
63	123.5	–	9 ^{H7}	M10	–	G3/8	153.5	48.5	151	68	34.8	46

∅	H7	H8	H9	H10	H11	H12	J1	J2	J3	L1
[mm]						±0.05				
18	4.6	2.4	25.2	46	8.5±0.15	30	20	16.5	11	150
25	7.65	4.5	29	55.5	12±0.15	35	26.1	18.6	17	200
32	8.5	14	35.2	63.8	11.45±0.15	50	30	22	18.5	250
40	12.2	8	44	81.5	15±0.15	60	35	26	26	300
50	12	8	53	104.5	100±0.05	–	30.5	30.5	28	350
63	19.5	15.5	67	131	120±0.05	–	41.5	39.5	31.5	400

∅	L2	L3	L4	L5	L6	L8			T1	T2	T3	T6	Stroke tolerance
						PPV	YSR	YSRW					
[mm]											±0.2		
18	74.5	5.7	5.8	15	5.5	0	29.9	32.4	9	2	3.1	15	0 ... 2.5
25	100	10.5	10.6	24.5	10.6	0	35.6	38.6	17.5	2	2.1	17.3	
32	124.8	14.5	14.5	30.5	14.5	0	19.5	28	15	2	2.1	20	
40	150	14.6	14.6	33.5	14.6	0	38.5	43.5	20	3	2.1	25.7	
50	175	17	–	41	17	0	31	36.3	24	2.1 ^{+0.2}	–	28.75	
63	200	20	–	44	20	0	38.3	48.3	27.5	2.1 ^{+0.2}	–	36.1	

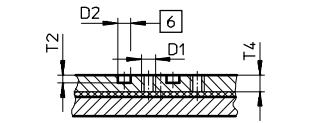
Linear drives DGC-KF, with recirculating ball bearing guide

1

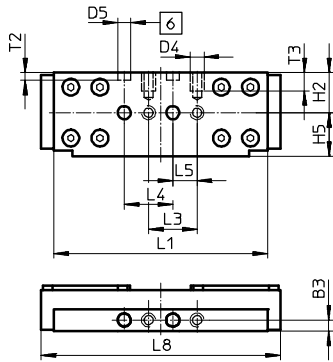
Dimensions

Slide

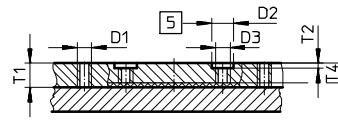
Ø 18



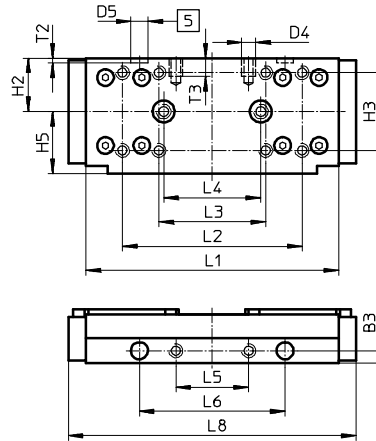
View A



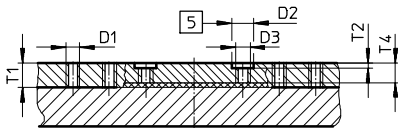
Ø 25



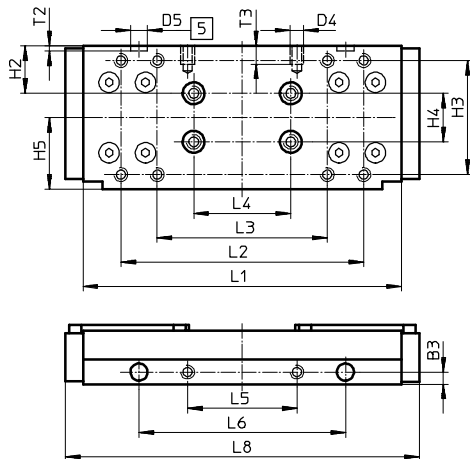
View A



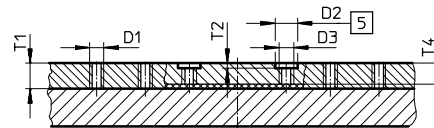
Ø 32



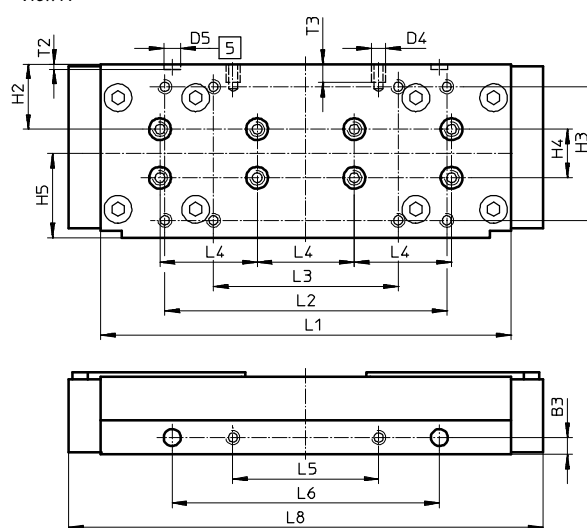
View A



Ø 40



View A



5 Hole for centring sleeve ZBH

6 Hole for centring pin ZBS

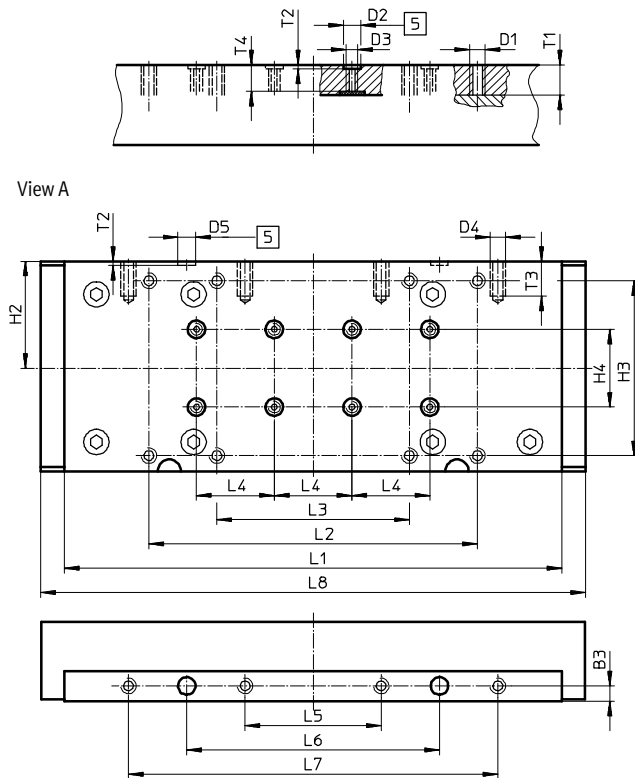
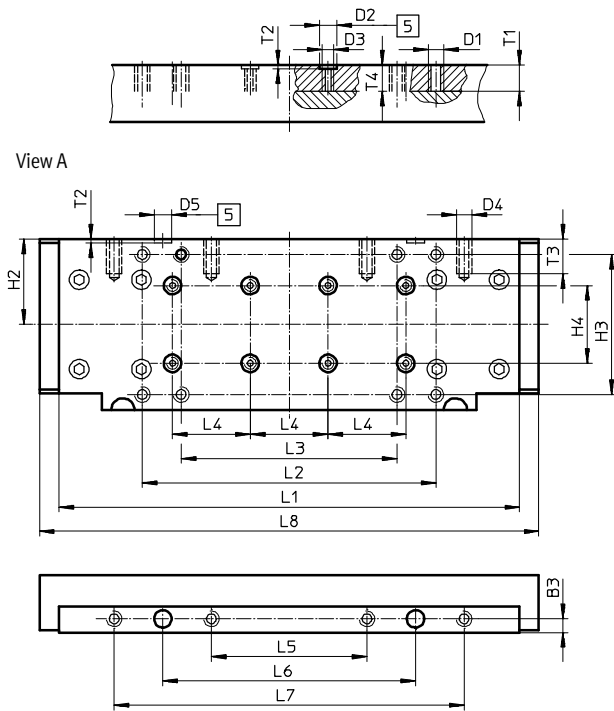
Linear drives DGC-KF, with recirculating ball bearing guide

Dimensions

Slide

Ø 50

Ø 63



5 Hole for centring sleeve ZBH

Ø	B3	D1	D2	D3	D4	D5	H2	H3	H4	H5	L1
[mm]	±0.05		Ø H7			Ø H7			±0.03	±0.1	
18	4.5	M5	5	-	M5	5	16.5	-	-	18	88±0.1
25	5	M5	9	M6	M5	7	22	32±0.2	-	25.5	104±0.2
32	5	M5	9	M6	M5	7	19.5	47±0.2	20	29.5	131±0.2
40	7	M5	9	M6	M6	7	26.8	55±0.2	20	34.7	169±0.2
50	7	M8	9	M6	M8	9	44	72±0.3	40	-	237±0.1
63	8	M8	9	M6	M8	9	55	90±0.3	40	-	256±0.1

Ø	L2	L3	L4	L5	L6	L7	L8	T1	T2	T3	T4
[mm]	±0.1		±0.03	±0.1	±0.05	±0.1					
18	-	20±0.1	20	10	-	-	99	-	3.1±0.1	7.5	6.7
25	74	44±0.2	40	30	60	-	118.5	10	2.1±0.2	7.5	8
32	100	70±0.2	40	45	85	-	145.7	10	2.1±0.2	7.5	8
40	116	76±0.2	40	60	110	-	195.4	10.5	2.1±0.2	7.5	8.5
50	151	111±0.2	40	80	130	180	256.8	13.5	2.1±0.2	18	13.5
63	169	99±0.2	40	70	130	190	280	15.5	2.1±0.2	18	13.6

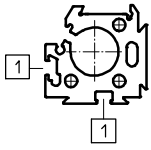
Linear drives DGC-KF, with recirculating ball bearing guide

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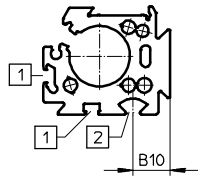
Dimensions

1 Profile barrel

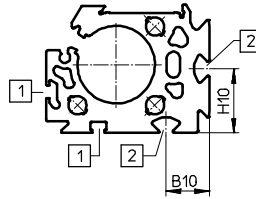
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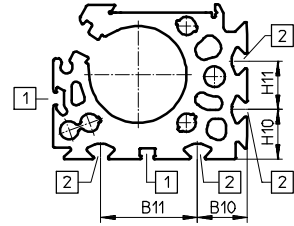
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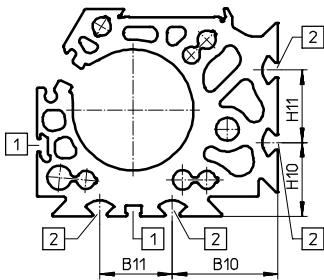
Ø 32



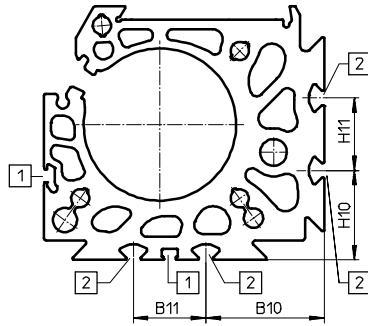
Ø 40



Ø 50

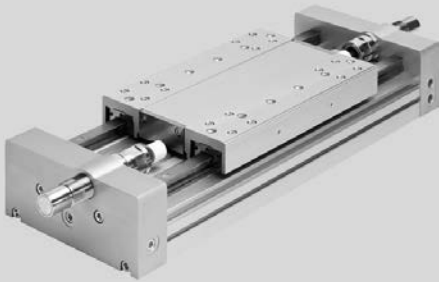


Ø 63



- 1 Slot for proximity sensor
- 2 Mounting slot for slot nut

Ø	B10	B11	H10	H11
25	15.23	-	-	-
32	18	-	26.5	-
40	20.5	40	20.5	20
50	43.8	30	30.5	30
63	49	30	37	30



- Maximum loads and torques
- Long service life
- Ideal as a basic axis for linear gantries and cantilever axes
- Spare parts service

→ www.festo.com/catalogue/dgc-hd

Product range overview

Type/function	Piston Ø [mm]	Stroke [mm]	Force [N]	Product options		→ Page/ online
				YSR	YSRW	
Double-acting	DGC-...-K – Compact design					
	18, 25, 32, 40, 50, 63, 80	1 ... 8500	153 ... 3016	-	-	162
	DGC-...-G – Basic design					
	8, 12, 18, 25, 32, 40, 50, 63	1 ... 8500	30 ... 1870	■	■	174
	DGC-...-GF – Plain-bearing guide					
	18, 25, 32, 40, 50, 63	1 ... 8500	153 ... 1870	■	■	177
Double-acting	DGC-...-KF – Recirculating ball bearing guide					
	8, 12, 18, 25, 32, 40, 50, 63	1 ... 8500	30 ... 1870	■	■	180
	DGC-...-HD – Heavy-duty design					
	18, 25, 40	10 ... 5000	153 ... 754	■	■	202
Without drive	DGC-FA – Passive guide axis					
	8, 12, 18, 25, 32, 40, 50, 63	1 ... 5000	-	■	■	dgc-fa

Product options

YSR Linear shock absorber, self-adjusting

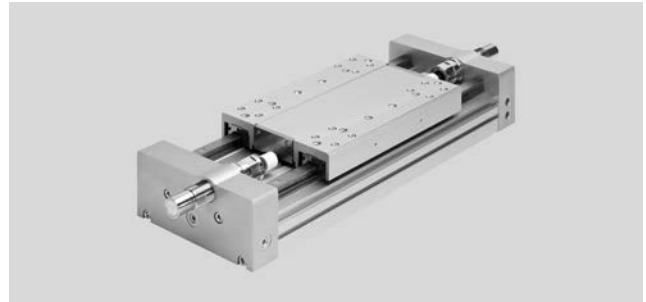
YSRW Progressive shock absorber, self-adjusting

GP Standard slide, protected
 KL Standard slide, left

KR Standard slide, right

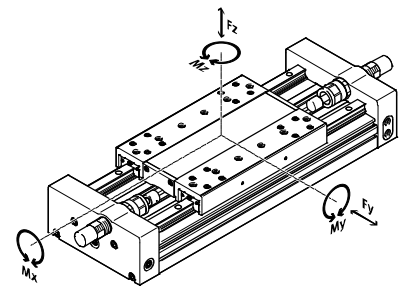
Linear drives DGC-HD, with heavy-duty guide

1 Technical data



Technical data

Dimensions → 207



Technical data				
Piston Ø		18	25	40
Pneumatic connection		M5	G $\frac{1}{8}$	G $\frac{1}{4}$
Stroke	[mm]	10 ... 3000	10 ... 5000	10 ... 3500
Cushioning				
DGC-...-YSR		Linear shock absorber, self-adjusting		
DGC-...-YSRW		Progressive shock absorber, self-adjusting		
Theoretical force at 6 bar	[N]	153	295	754
Max. permissible force F_y	[N]	3650	5600	13,000
Max. permissible force F_z	[N]	3650	5600	13,000
Max. permissible torque M_x	[Nm]	140	300	900
Max. permissible torque M_y	[Nm]	275	500	1450
Max. permissible torque M_z	[Nm]	275	500	1450

Operating conditions				
Piston Ø		18	25	40
Operating pressure	[bar]	2.5 ... 8		1.5 ... 8
Ambient temperature ¹⁾	[°C]	-10 ... +60		

1) Note operating range of proximity sensors.

Materials	
End cap	Anodised aluminum
Slide	Anodised aluminum
Cylinder barrel	Anodised aluminum
Seals	NBR, TPE-U (PU)
Sealing band/cover strip	PU/steel

Order code

1

DGC		—		—		—	HD	—	
Type									
DGC	Linear drive								
Piston Ø [mm]									
	Stroke [mm]								
18	10 ... 3000								
25	10 ... 5000								
40	10 ... 3500								
Guide									
HD	Heavy-duty guide								
Cushioning									
YSR	Linear shock absorber, self-adjusting								
YSRW	Progressive shock absorber, self-adjusting								

Order example:

DGC-18-200-HD-YSRW

Linear drive DGC - piston diameter 18 mm - stroke 200 mm - heavy-duty guide - shock absorber, progressive, self-adjusting

Ordering – Product options

Configurable product

This product and all its options can be ordered using the configurator.

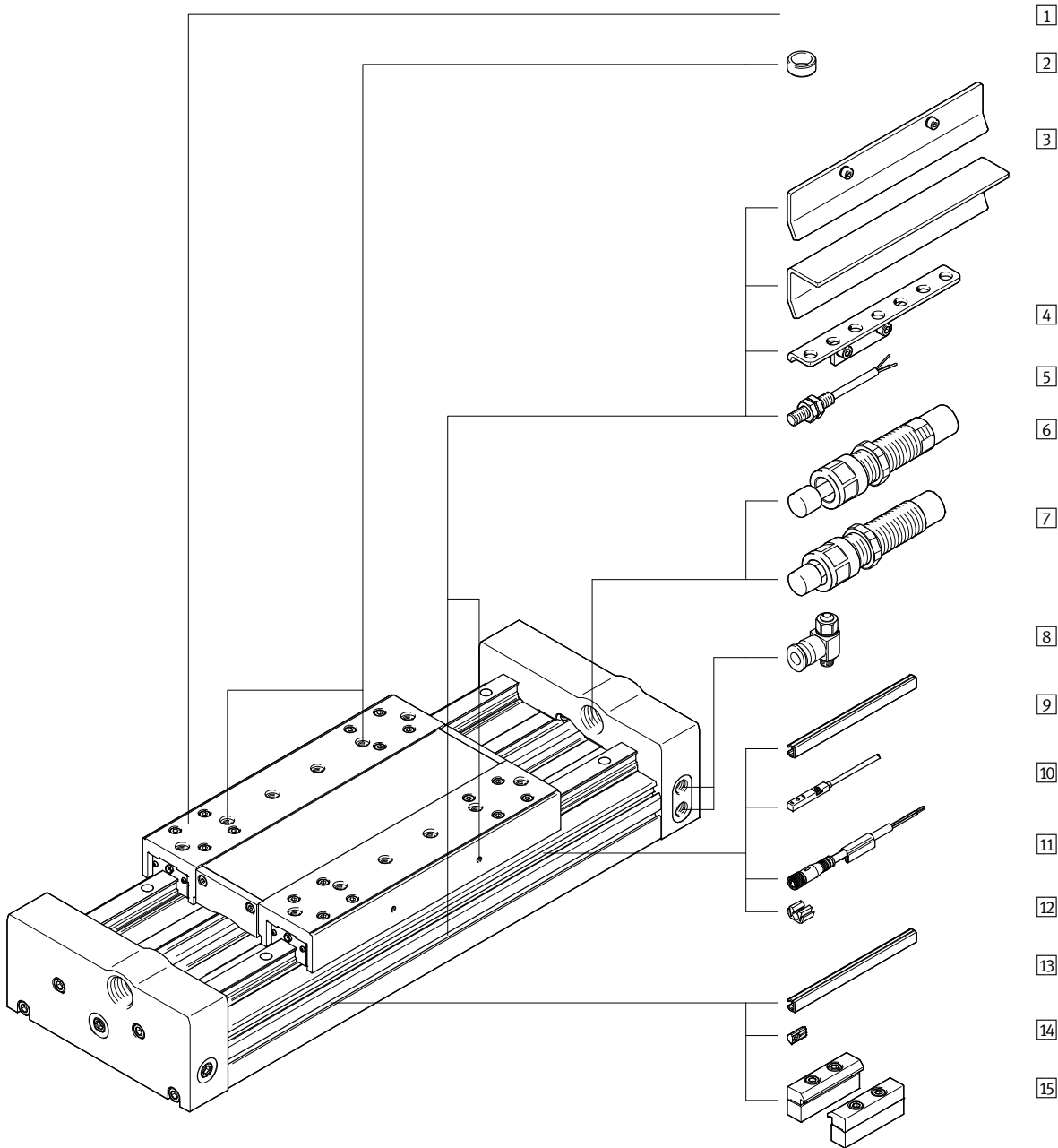
The configurator can be found under Products on the DVD or
[→ www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the type code in the search field.

Linear drives DGC-HD, with heavy-duty guide

Accessories

1


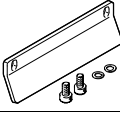
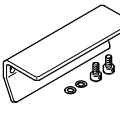
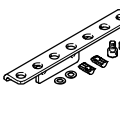
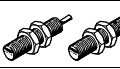
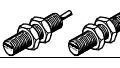
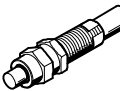
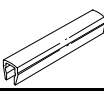


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		→ Page/online
1	Linear drive DGC-HD	202
2	Centring sleeve ZBH	205
3	Switch lug SF-EGC-HD	205
4	Sensor bracket HWS-EGC	205
5	Proximity sensor, M8 SIEN	205
6	Shock absorber YSR	-
7	Shock absorber YSRW	205
8	One-way flow control valve GRLA	205

		→ Page/online
9	Slot cover ABP-S	205
10	Proximity sensor, T-slot SIES	206
10	Proximity sensor, T-slot SMT/SME-8	206
11	Connecting cable NEBU	206
12	Clip SMBK	206
13	Slot cover ABP	206
14	Slot nut NST	206
15	Profile mounting MUE	206

Accessories – Ordering data

	For Ø	Part No.	Type	
2 Centring pin/sleeve¹⁾²⁾ Technical data online: → zbh				
	18	150928	ZBS-5	
	25, 40	150927	ZBH-9	
3 Switch lug³⁾ Dimensions online: → dgc-hd				
	18	570027	SF-EGC-HD-1-125	
	25	1645872	SF-EGC-HD-1-160	
	40	1645866	SF-EGC-HD-1-220	
3 Switch lug⁴⁾ Dimensions online: → dgc-hd				
	18	570030	SF-EGC-HD-2-125	
	25	1645865	SF-EGC-HD-2-160	
	40	1645868	SF-EGC-HD-2-220	
4 Sensor bracket⁵⁾ Dimensions online: → dgc-hd				
	18	558057	HWS-EGC-M5	
	25	558057	HWS-EGC-M5	
	40	570365	HWS-EGC-M8-B	
5 Inductive proximity sensor, N/O contact, M8 Technical data → 827				
	PNP, cable	★ 150386	SIEN-M8B-PS-K-L	
	PNP, plug	★ 150387	SIEN-M8B-PS-S-L	
N/C contact, M8 Technical data → 827				
	PNP, cable	150390	SIEN-M8B-PO-K-L	
	PNP, plug	150391	SIEN-M8B-PO-S-L	
7 Shock absorber				
	18	540351	YSRW-DGC-32-KF	
	25	1232870	YSRW-DGC-40/50-B	
	40	543069	YSRW-DGC-63	
9 Slot cover⁶⁾				
	18, 25, 40	563360	ABP-5-S1	

- 1) Packaging unit 10 pieces.
- 2) 2 centring pins/sleeves included in the scope of delivery of the axis.
- 3) For sensing via proximity sensor SIES-8M.
- 4) For sensing via proximity sensor SIEN-M8B or SIES-8M.
- 5) For proximity sensor SIEN-M8B.
- 6) Packaging unit 2x 0.5 m.

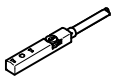
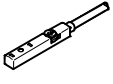
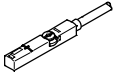
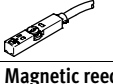
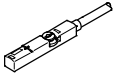
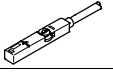




Function	For Ø	Connection		Part No.	Type
		Thread	O.D.		
8 One-way flow control valve with slotted head screw, metal⁷⁾ Technical data → 687					
	8, 12	M5	3	★ 193137	GRLA-M5-QS-3-D
	18		6	★ 193139	GRLA-M5-QS-6-D
	25, 32	G1/8	8	162966	GRLA-1/8-QS-8-RS-B
	40, 50	G1/4		162968	GRLA-1/4-QS-8-RS-B
	63	G3/8		162970	GRLA-3/8-QS-8-RS-B


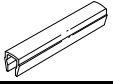
7) The recommended flow control valves are based on a tubing length to the valve of 1 m. For deviations of ±50%, flow control valves with a bigger or smaller flow rate must be selected to guarantee the optimum flow control function and cylinder speed.

Linear drives DGC-HD, with heavy-duty guide


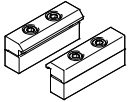
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Accessories – Ordering data

	For Ø	Part No.	Type	
10 Proximity sensor for T-slot, inductive, N/O contact				Technical data → 831
	PNP, cable	551386	SIES-8M-PS-24V-K-7,5-OE	
	PNP, plug	551387	SIES-8M-PS-24V-K-0,3-M8D	
	NPN, cable	551396	SIES-8M-NS-24V-K-7,5-OE	
	NPN, plug	551397	SIES-8M-NS-24V-K-0,3-M8D	
Inductive – N/C contact				Technical data → 831
	PNP, cable	551391	SIES-8M-PO-24V-K-7,5-OE	
	PNP, plug	551392	SIES-8M-PO-24V-K-0,3-M8D	
	NPN, cable	551401	SIES-8M-NO-24V-K-7,5-OE	
	NPN, plug	551402	SIES-8M-NO-24V-K-0,3-M8D	
Magneto-resistive – N/O contact				Technical data → 808
	PNP, cable	★ 574335	SMT-8M-A-PS-24V-E-2,5-OE	
	PNP, plug	★ 574334	SMT-8M-A-PS-24V-E-0,3-M8D	
	PNP, plug	★ 574337	SMT-8M-A-PS-24V-E-0,3-M12	
	NPN, cable	★ 574338	SMT-8M-A-NS-24V-E-2,5-OE	
	NPN, plug	★ 574339	SMT-8M-A-NS-24V-E-0,3-M8D	
Magneto-resistive – N/C contact				Technical data → 808
	PNP, cable	★ 574340	SMT-8M-A-PO-24V-E-7,5-OE	
Magnetic reed – N/O contact				Technical data → 803
	Cable	★ 543862	SME-8M-DS-24V-K-2,5-OE	
	Cable	★ 543863	SME-8M-DS-24V-K-5,0-OE	
	Cable	★ 543872	SME-8M-ZS-24V-K-2,5-OE	
	Plug	★ 543861	SME-8M-DS-24V-K-0,3-M8D	
Magnetic reed – N/C contact				Technical data → 805
	Cable	★ 546799	SME-8M-DO-24V-K-7,5-OE	
11 Connecting cable, straight socket				Technical data → 1053
	2.5 m	★ 541333	NEBU-M8G3-K-2.5-LE3	
	5.0 m	★ 541334	NEBU-M8G3-K-5-LE3	
	2.5 m	★ 541363	NEBU-M12G5-K-2.5-LE3	
	5.0 m	★ 541364	NEBU-M12G5-K-5-LE3	
Angled socket				Technical data → 1053
	2.5 m	★ 541338	NEBU-M8W3-K-2.5-LE3	
	5.0 m	★ 541341	NEBU-M8W3-K-5-LE3	
	2.5 m	541367	NEBU-M12W5-K-2.5-LE3	
	5.0 m	541370	NEBU-M12W5-K-5-LE3	

	For Ø	Part No.	Type
12 Clip			
	18, 25, 40	534254	SMBK-8
13 Slot cover¹⁾			
	18	151681	ABP-5
	25	151680	ABP-5-S
	40	151682	ABP-8

1) Packaging unit 2x 0.5 m.

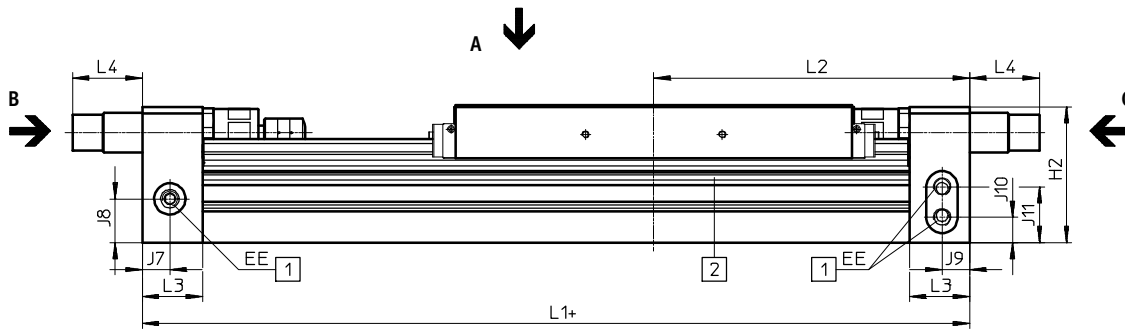
	For Ø	Part No.	Type
14 Slot nut			
	18, 25 ²⁾	150914	NST-5-M5
	25 ³⁾ , 40	150915	NST-5-M6
15 Profile mounting			
	18, 25	★ 558043	MUE-70/80
	40	558044	MUE-120/185

2) For mounting slot at side.
3) For mounting slot underneath.

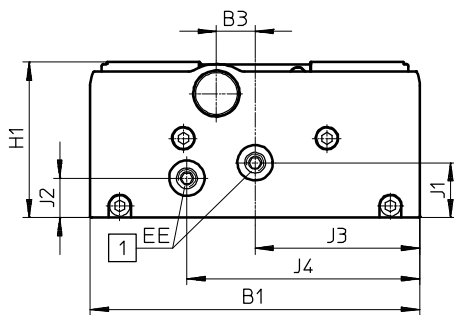
Dimensions

Download CAD data → www.festo.com

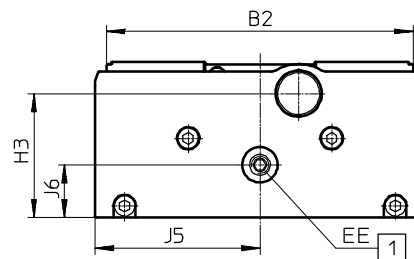
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View C



View B

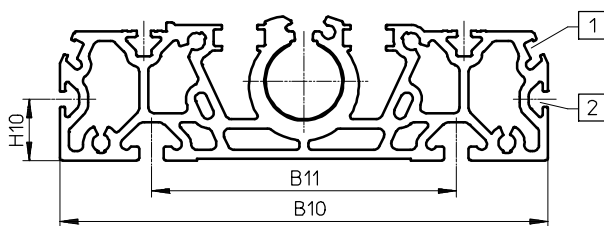


+ = plus stroke length
 1 Supply port
 2 Sensor slot for proximity sensor

∅	B1	B2	B3	EE	H1	H2	H3	J1	J2	J3	J4
[mm]											
18	124	120	10	M5	64	63.1	51.7	25.5	15	59	88
25	162	150.7	19	G1/8	76.5	75.5	61	27	19.4	81	114.5
40	222	204	12	G1/4	111.5	109.5	91	43	25	105	157

∅	J5	J6	J7	J8	J9	J10	J11	L1	L2	L3	L4	
[mm]											YSR	YSRW
18	59	25.5	14.9	21.6	14.9	15	25.6	306.5	153	24.5	34	20.5
25	81	26	15.4	24.3	15.4	14	31	351.5	175.5	33.5	43.8	38.8
40	111	37	25.1	31	25.1	23	45	472.5	236	44	48.3	38.3

Profile barrel



1 Sensor slot for proximity sensor
 2 Mounting slot for slot nut

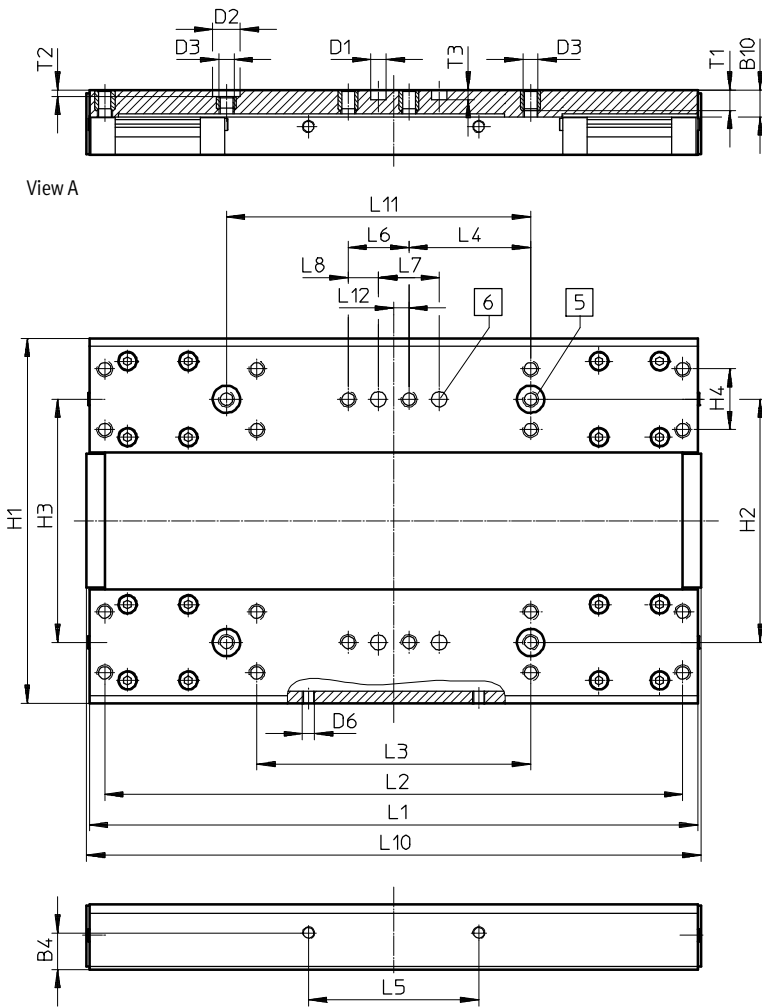
∅	B10	B11	H10
[mm]			
18	122	80	20
25	160	100	20
40	220	140	20

Linear drives DGC-HD, with heavy-duty guide

Dimensions

1

∅ 18



- 5 Hole for centring sleeve ZBH
- 6 Hole for centring pin ZBS

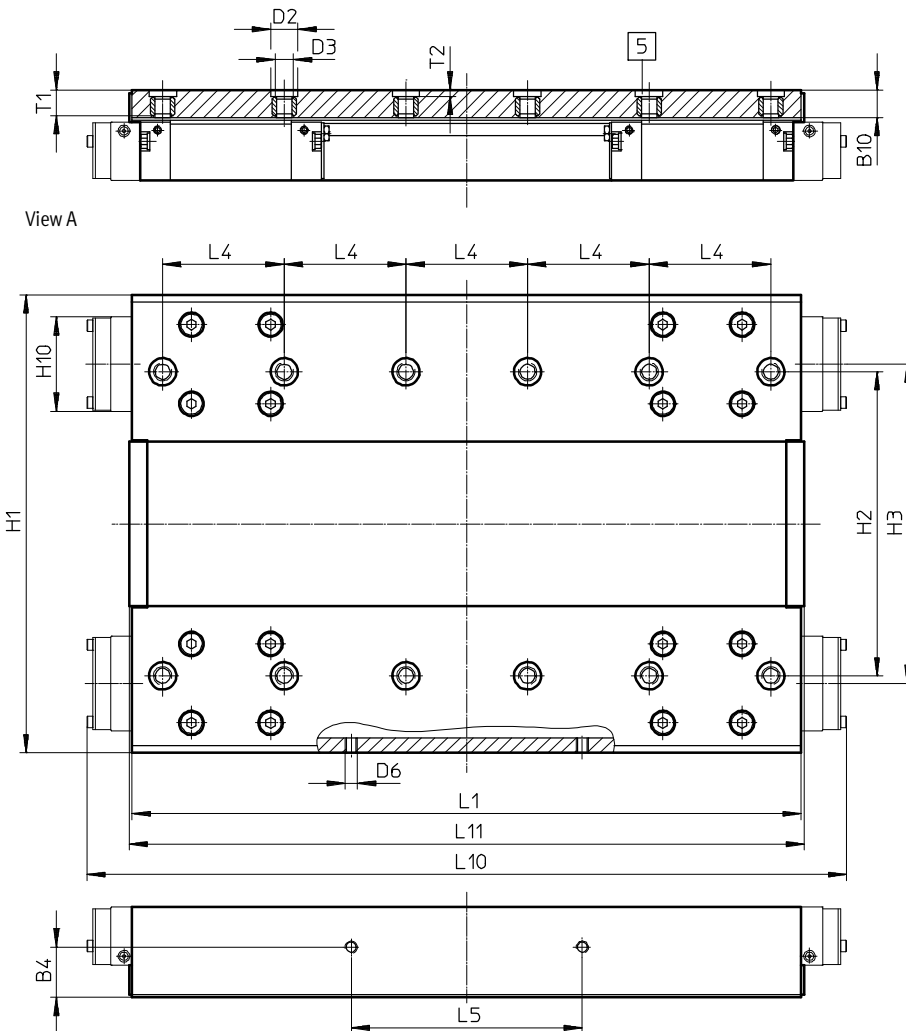
∅	B4	B10	D1	D2	D3	D6	H1	H2	H3	H4	L1	L2
[mm]	±0.1		∅ H7	∅ H7			±0.3	±0.05		±0.1	±0.1	±0.2
18	12	8.8	5	9	M5	M4	120	80	80	20	200	190

∅	L3	L4	L5	L6	L7	L8	L10	L11	L12	T1	T2	T3
[mm]	±0.2	±0.1	±0.2	±0.1	±0.03	±0.1		±0.03			+0.1	+0.1
18	90	40	56	20	20	10	202	100	5	7.8	2.1	3.1

Dimensions

∅ 25

1



[5] Hole for centring sleeve ZBH

∅	B4	B10*	D2	D3	D6	H1	H2	H3
[mm]	±0.1		∅ H7			±0.3	±0.05	
25	16.5	10	9	M6	M4	150.7	100	105

∅	H10*	L1	L4	L5	L10*	L11	T1	T2
[mm]		±0.1	±0.03	±0.1				+0.1
25	31	220	40	76	249.8	222	9	2.1

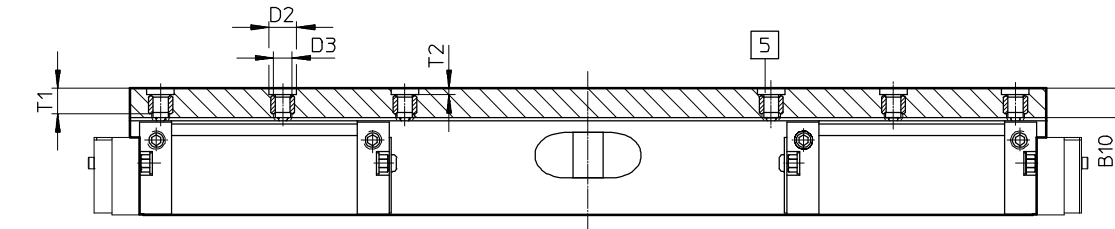
* Protected version

Linear drives DGC-HD, with heavy-duty guide

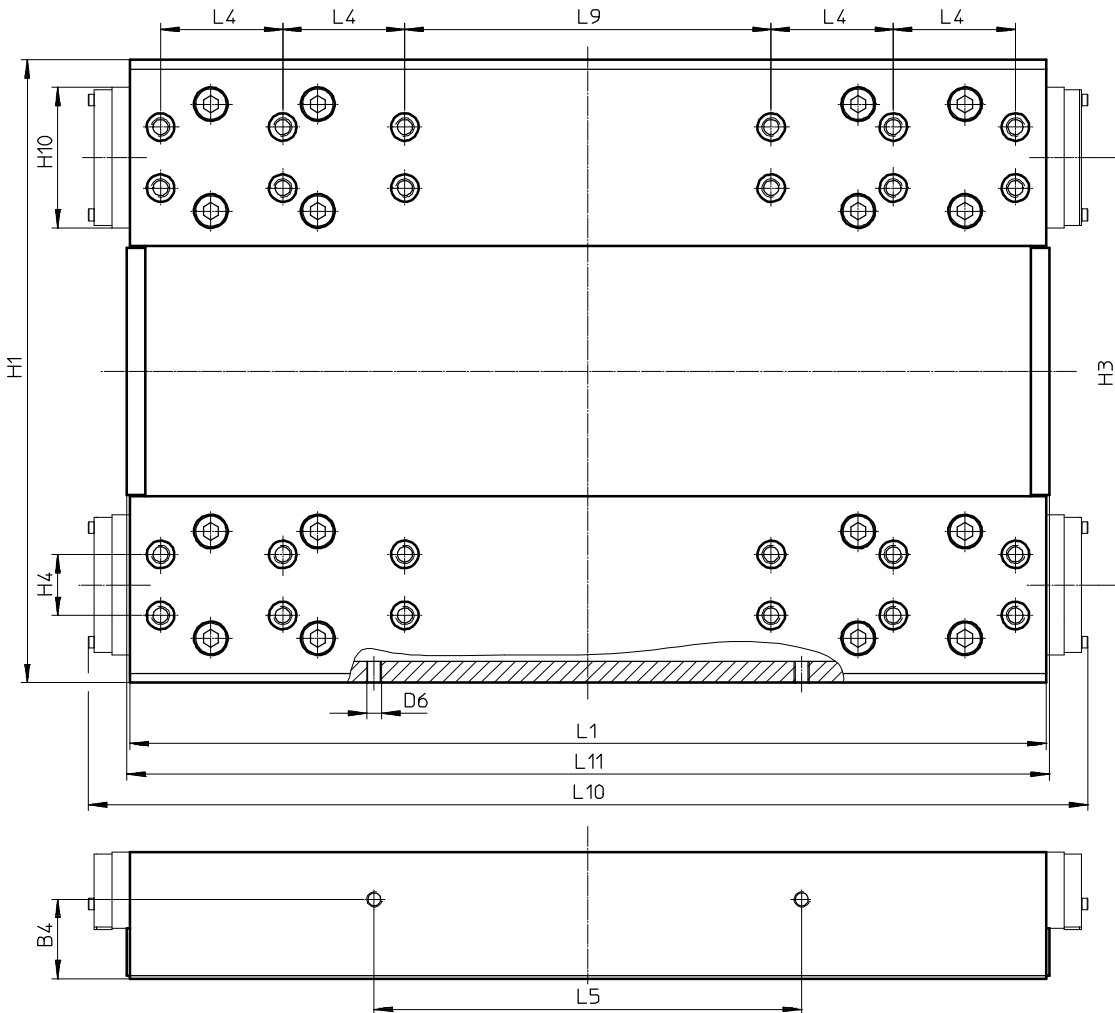
Dimensions

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∅ 40



View A

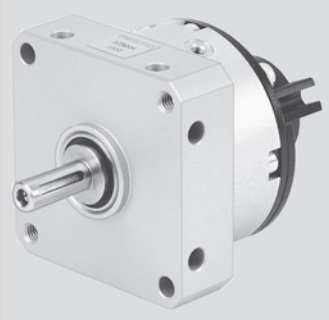


5 Hole for centring sleeve ZBH

∅	B4	B10*	D2	D3	D6	H1	H3	H4
[mm]	±0.1		∅ H7			±0.3		±0.05
40	26	10.5	9	M6	M5	204	140	20

∅	H10*	L1	L4	L5	L9	L10*	L11	T1	T2
[mm]		±0.1	±0.05	±0.1	±0.05				+0.1
40	46	300	40	140	120	327.3	302	9.5	2.1

* Protected version



- Compact swivel modules with adjustable swivel angles up to 240°
- Flexible cushioning rings in the end positions
- With mounting flange
- Spare parts service
- Selected types in accordance with the ATEX Directive for explosive atmospheres → www.festo.com/catalogue/ex

→ www.festo.com/catalogue/dsm

Product range overview – Size 6 ... 10

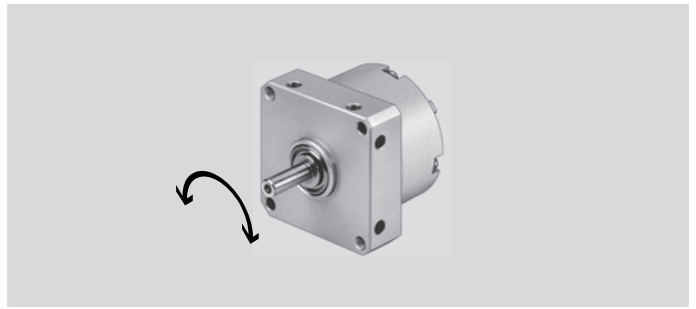
Type/function	Version	Size	Swivel angle [°]	Torque [Nm]	Product options			
					P	A	FF	FW
Double-acting	DSM							
	With fixed swivel angle	6, 8	90, 180	0.15 ... 0.35	■	■	-	■
		10	90, 180, 240	0.85	■	■	-	■
	DSM-...-FF							
	With adjustable swivel angle	6, 8	180	0.15 ... 0.35	■	■	■	■
		10	200	0.85	■	■	■	■
	DSM-T...							
	With tandem rotary vanes	6, 8	90, 180	0.3 ... 0.7	■	■	■	■
10		90, 180, 240	1.7	■	■	■	■	

Product options – Size 6 ... 10

P Elastic cushioning components at both ends A Position sensing FF Adjustable swivel angle FW Flanged shaft

Swivel modules DSM

1 Technical data – Size 6 ... 10



Technical data			Dimensions → 217		
Size			6	8	10
Pneumatic connection			M3		
Cushioning			Elastic cushioning rings/plates at both ends		
Swivel angle	Fixed	[°]	90 or 180	90 or 180	90, 180 or 240
	Adjustable	[°]	0 ... 180		0 ... 200
Torque at 6 bar		[Nm]	0.15	0.35	0.85
Max. perm. swivel frequency		[Hz]	3		3 (at 240°: 2 Hz)
Max. perm. radial force ¹⁾		[N]	15	20	30
Max. perm. axial force ¹⁾		[N]	10		
Max. cushioning angle		[°]	0.5		
Max. perm. mass moment of inertia ²⁾		[kgm ²]	0.00065	0.0013	0.0026

1) On the drive shaft.

2) Maximum value → Graphs.

Operating conditions					
Size			6	8	10
Operating pressure		[bar]	3.5 ... 8		2.5 ... 8
Temperature range ³⁾		[°C]	0 ... +60		

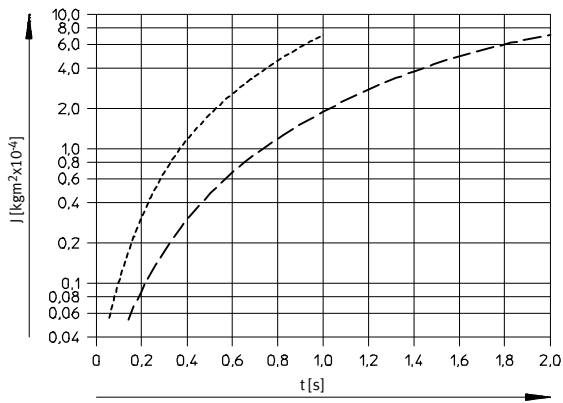
3) Note operating range of proximity sensors.

Materials		
Drive shaft		High-alloy stainless steel
End cap		Aluminium
Housing		Anodised aluminum
Rotary vane		Glass fibre-reinforced plastic
Screws		Galvanised steel
Seals		NBR, TPE-U (PUR)

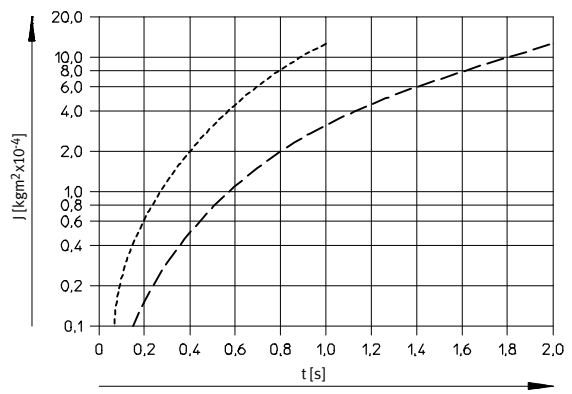
Technical data – Size 6 ... 10

Mass moment of inertia J on the drive shaft as a function of swivel time t

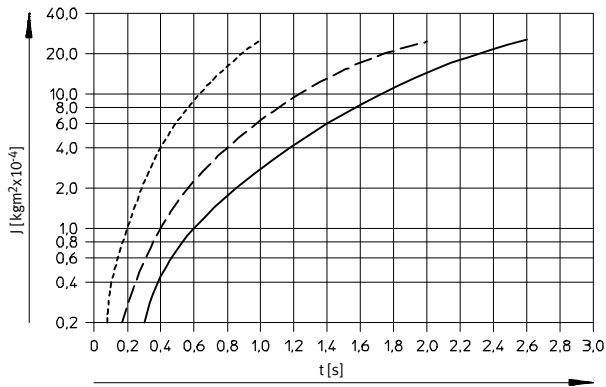
DSM-6



DSM-8



DSM-10

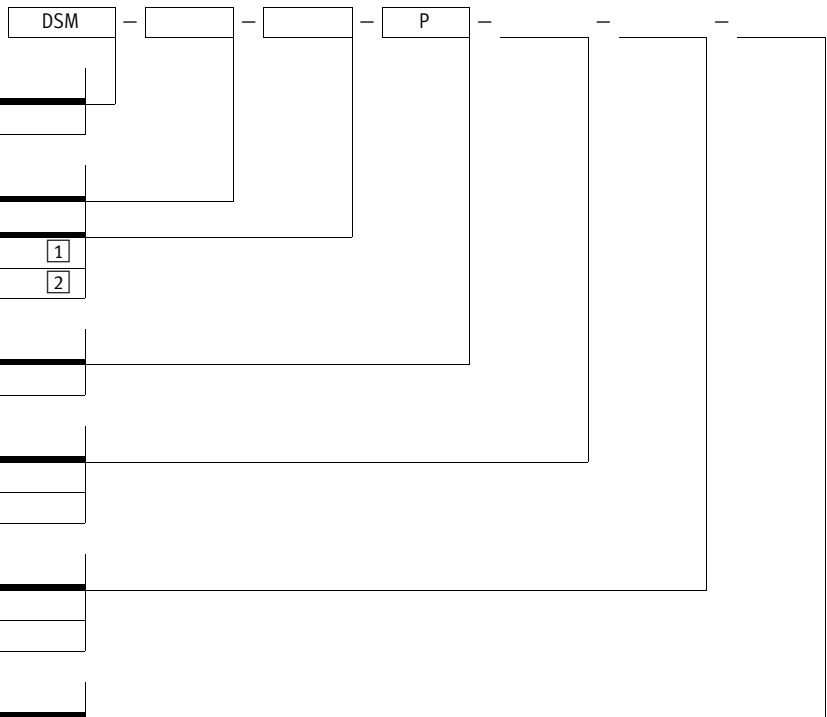


- - - 90°
- - - 180°
- 240°

Swivel modules DSM

1

Order code – Size 6 ... 10



Type	
DSM	Swivel module

Size	
	Max. swivel angle [°]
6, 8	90, 180 1
10	90, 180, 240 2

Cushioning	
P	Elastic cushioning rings/plates at both ends

Position sensing	
-	None
A	Via proximity sensor

Swivel angle	
-	Fixed
FF	Adjustable

Shaft	
-	Spigot shaft
FW	Flanged shaft

1 With adjustable swivel angle only 180°

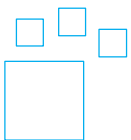
2 With adjustable swivel angle only 200°

Order example:

DSM-8-180-P-A-FF

Swivel angle DSM - size 8 - max. swivel angle 180° - elastic cushioning at both ends - position sensing via proximity sensor - swivel angle adjustable - spigot shaft

Ordering – Product options



Configurable product

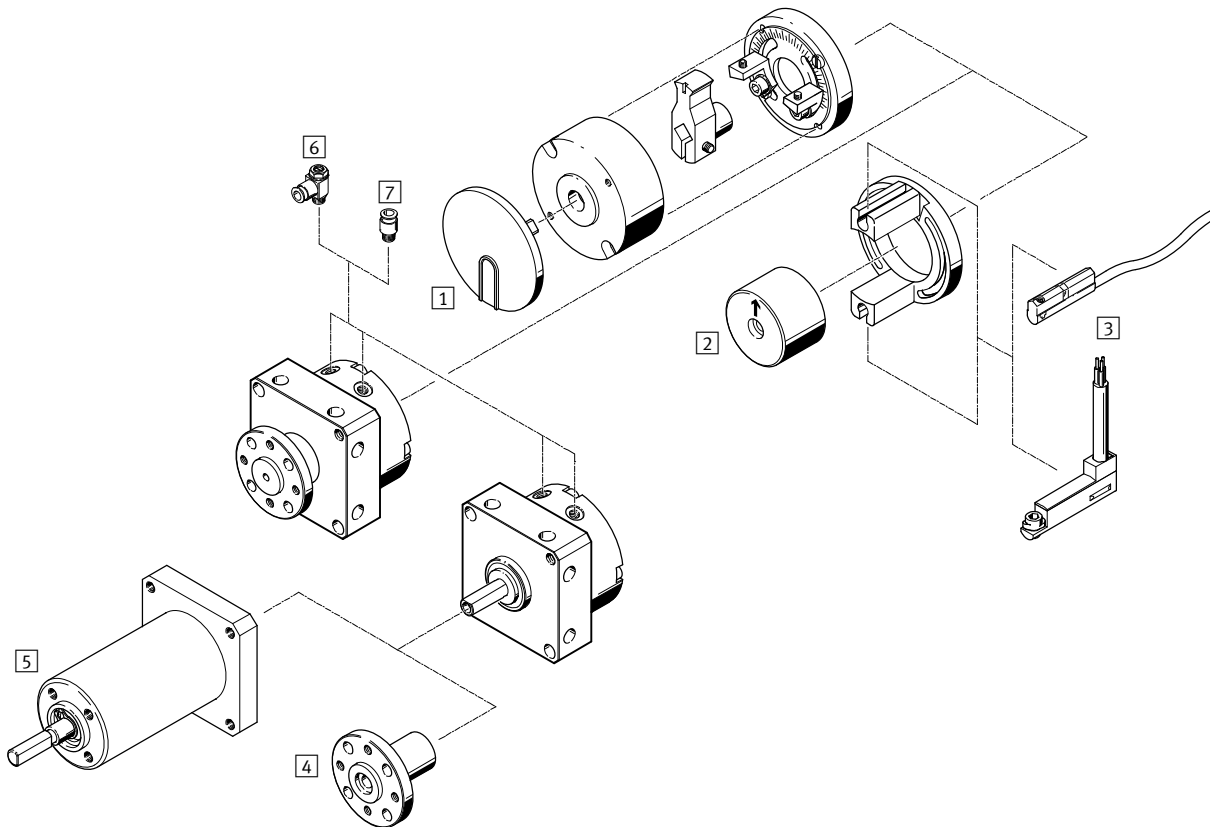
This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
 → www.festo.com/catalogue/...

Enter the type code in the search field.

Accessories – Size 6 ... 10

1

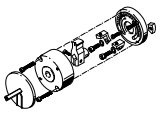


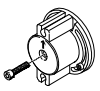
		→ Page/online
1	Stop kit KSM	216
2	Mounting kit WSM-...-SME-10	216
3	Proximity sensor SME-/SMT-10	216
4	Push-on flange FWSR	216
5	Freewheel unit FLSM	216
6	One-way flow control valve GRLA	216
-	Drive/gripper connections	dsm
-	Kit accessories DSM	216




Swivel modules DSM

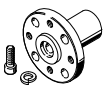
Accessories – Ordering data – Size 6 ... 10

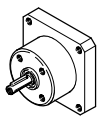
1

	For size	Part No.	Type
	6	175833	KSM-6
	8	175834	KSM-8
	10	175835	KSM-10


	For size	Part No.	Type
	6	173205	WSM-6-SME-10
	8	173206	WSM-8-SME-10
	10	173207	WSM-10-SME-10

	For size	Part No.	Type
3 Proximity sensor for C-slot, magneto-resistive – N/O contact Technical data → 821			
	PNP, cable	★ 551373	SMT-10M-PS-24V-E-2,5-L-OE
	PNP, plug	★ 551375	SMT-10M-PS-24V-E-0,3-L-M8D
Magnetic reed – N/O contact Technical data → 817			
	Cable	★ 551365	SME-10M-DS-24V-E-2,5-L-OE
	Plug	★ 551367	SME-10M-DS-24V-E-0,3-L-M8D
Technical data → 819			
	Cable	173210	SME-10-KL-LED-24
	Plug	173212	SME-10-SL-LED-24

	For size	Part No.	Type
4 Push-on flange Dimensions online: → dsm			
	6	185948	FWSR-6
	8	185949	FWSR-8
	10	32798	FWSR-10

	For size	Direction of rotation ¹⁾	Part No.	Type
5 Freewheel unit Dimensions online: → dsm				
	6	Anticlockwise	188253	FLSM-6-L
		Clockwise	188522	FLSM-6-R
	8	Anticlockwise	188525	FLSM-8-L
		Clockwise	188524	FLSM-8-R
	10	Anticlockwise	188527	FLSM-10-L
		Clockwise	188526	FLSM-10-R

1) Viewed towards drive shaft side.

Function	For size	Connection	Part No.	Type
		Thread	O.D.	
6 One-way flow control valve with slotted head screw, metal²⁾ for exhaust air flow control Technical data → 687				
	6, 8, 10	M3	3	175041 GRLA-M3-QS-3

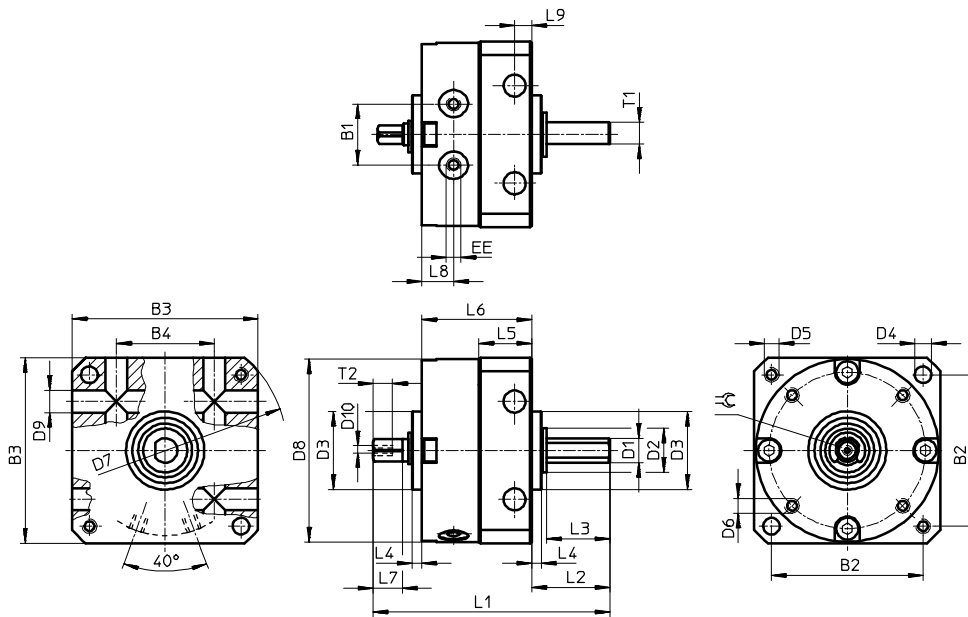
2) The recommended flow control valves are based on a tubing length to the valve of 1 m. For deviations of ±50%, flow control valves with a bigger or smaller flow rate must be selected to guarantee the optimum flow control function and cylinder speed.

For size	Comment	Part No.	Type
Kit accessories			
6	Adapter for attaching the stop kit KSM or mounting kit WSM-...-SME-10	175830	DSM-6-180-P-A-FF
8		175831	DSM-8-180-P-A-FF
10		175832	DSM-10-240-P-A-FF
6	Socket head screw for attaching the stop kit KSM or mounting kit WSM-...-SME-10	–	DIN 84-M2x25-4.8
8		–	DIN 84-M2x30-4.8
10		–	M2.5x32 ³⁾

3) Screw similar to DIN 84.

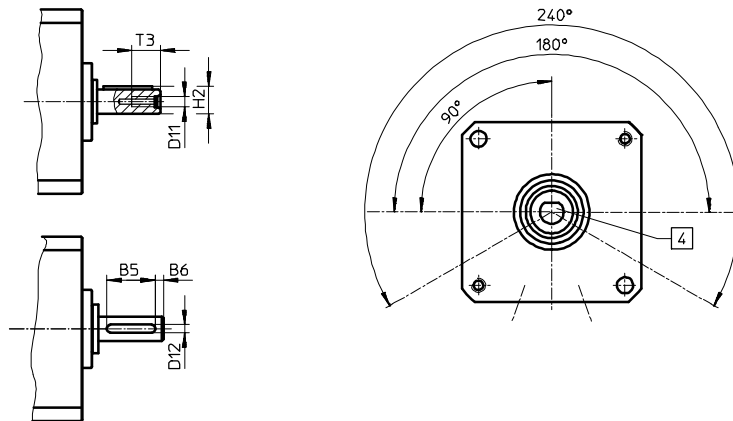
Dimensions – Size 6 ... 10

With spigot shaft and fixed stop



Ø 10

Shaft position



Note

For swivel angle tolerance → table below. The supply ports are at the bottom in this drawing.

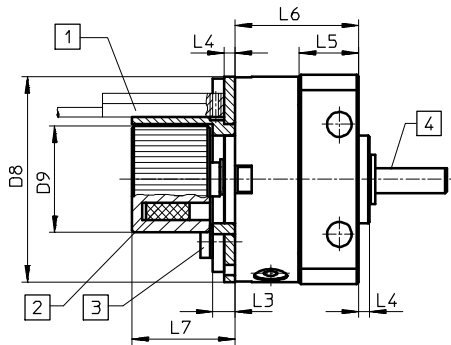
Size	B1	B2	B3	B4	B5	B6	D1 Ø g7	D2 Ø	D3 Ø f8	D4 Ø H12	D5	D6	D7 Ø H12	D8 Ø	D9 Ø H12	D10	D11	D12 h9
6	10	25	30	17	–	–	4	8	14	3.2	M3	M2	40	29.4	3.5	M2	–	–
8	12.8	31	38	20	–	–	5	9	16	3.2	M3	M2.5	50	37.4	3.5	M2	–	–
10	15.9	38	47	26	12	2	6	12	19	4.3	M4	M3	62	46.4	4.5	M2.5	M2.5	2

Size	EE	H2 max.	L1	L2	L3	L4	L5	L6	L7	L8	L9	T1	T2 h12	T3	⊕	Swivel angle tolerance
6	M3	–	43	13	10	2	9.8	21	5	6	3	3.5	4	–	3	0/+5°
8	M3	–	50	16	13	2	11.3	23	6	6.5	3	4.5	4.3	–	3.5	0/+5°
10	M3	6.8	61	19.6	16	2	14.3	28.4	8	7.5	4	–	5	7	4.5	0/+5°

Swivel modules DSM

Dimensions – Size 6 ... 10

1 With spigot shaft, fixed stop and position sensing



- 1 Proximity sensor not included in the scope of delivery. Observe fitting space for proximity sensor and cable
- 2 Magnet position
- 3 Max. tightening torque for sensor bracket screws → table below
- 4 The flat or the feather key on the shaft indicates the position of the rotary vane

Size	D8 Ø	D9 Ø	L3	L4	L5	L6	L7	Tightening torque [Nm]
6	29.4	17.3	4	2	9.8	21	19.5	0.19
8	37.4	19.3	4	2	11.3	23	19.5	0.32
10	46.4	22.3	4	2	14.3	28	19.5	0.44

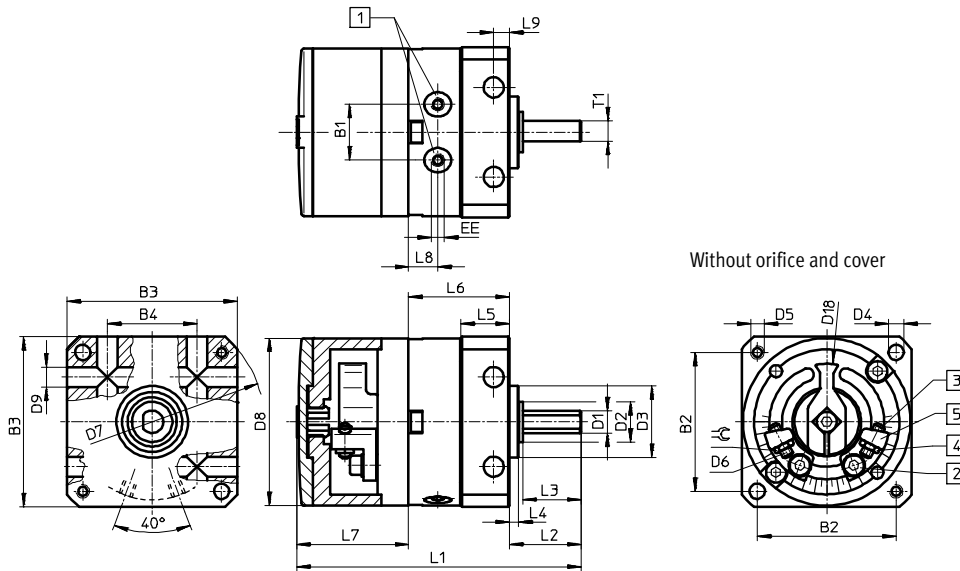
Dimensions – Size 6 ... 10

With spigot shaft, fixed stop and adjustable swivel angle

Download CAD data → www.festo.com

Note
The swivel angle is infinitely adjustable over the entire swivel range.
Size 6 can only be adjusted symmetrically around the centre position.

- 1 Supply ports
- 2 Locking screw for clamping the stop
- 3 End-position adjustment
- 4 Lock nut for end-position adjustment
- 5 Infinitely adjustable stops

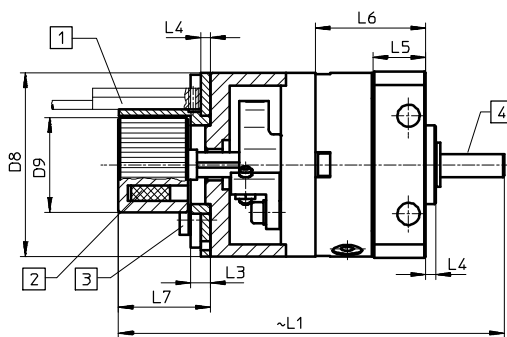


Without orifice and cover

Size	B1	B2	B3	B4	D1 ∅ g7	D2 ∅	D3 ∅ f8	D4 ∅ H12	D5	D6	D7 ∅ H12	D8 ∅	D9 ∅ H12	D18 ∅	EE
6	10	25	30	17	4	8	14	3.2	M3	M2	40	29.4	3.5	22	M3
8	12.8	31	38	20	5	9	16	3.2	M3	M2.5	50	37.4	3.5	26	M3
10	15.9	38	47	26	6	12	19	4.3	M4	M3	62	46.4	4.5	35.8	M3

Size	L1	L2	L3	L4	L5	L6	L7	L8	L9	T1	∅	Max. swivel angle	Precision adjustment per side
6	52	13	10	2	9.8	21	17.8	6	3	3.5	4	180°+5°	+1°/-5°
8	64	16	13	2	11.3	23	24.9	6.5	3	4.5	5	180°+5°	+1°/-5°
10	76	19.6	16	2	14.3	28.4	28.2	7.5	4	-	5.5	200°+5°	+1°/-5°

With spigot shaft, fixed stop, adjustable swivel angle and position sensing – Size 6 ... 10



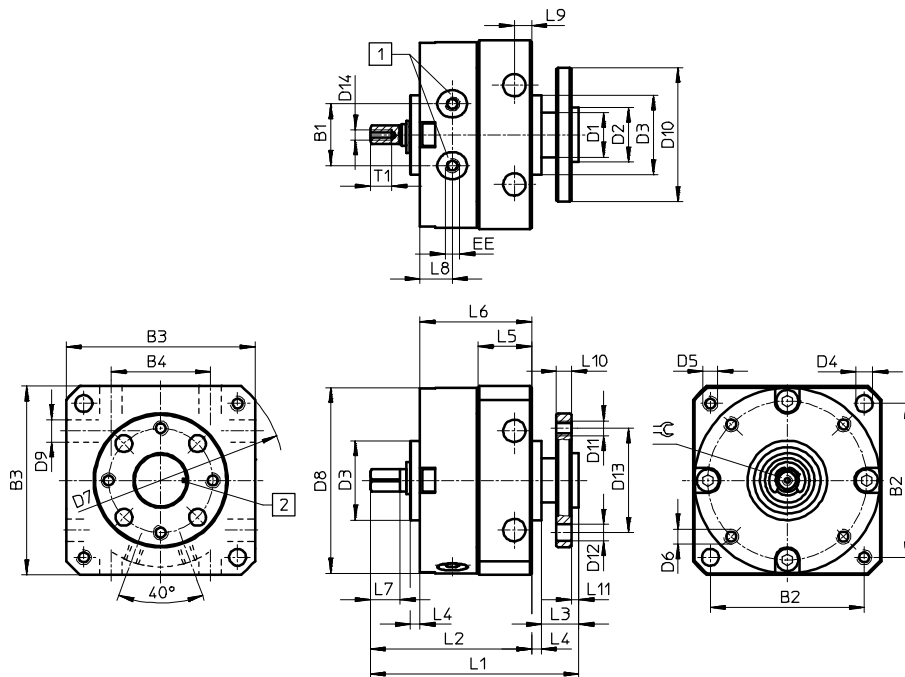
- 1 Sensor not included in the scope of delivery. Observe fitting space for proximity sensor and cable
- 2 Magnet position
- 3 Max. tightening torque for sensor bracket screw → table below
- 4 The flat or the feather key on the shaft indicates the position of the rotary vane

Size	D8 ∅	D9	L1	L3	L4	L5	L6	L7	Tightening torque [Nm]
6	29.4	17.3	68.5	4	2	9.8	21	19.5	0.19
8	37.4	19.3	80	4	2	11.3	23	19.5	0.32
10	46.4	22.3	91.5	4	2	14.3	28.4	19.5	0.44

Swivel modules DSM

Dimensions – Size 6 ... 10

1 With flanged shaft and fixed stop

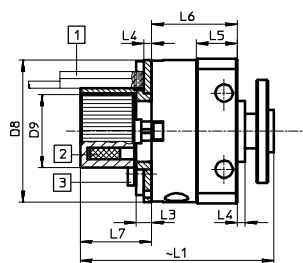


- 1 Supply ports
- 2 Mark indicating rotary vane position

Size	B1	B2	B3	B4	D1 ∅	D2 ∅ g7	D3 ∅ f8	D4 ∅	D5	D6	D7 ∅ H12	D8 ∅	D9 ∅ H12	D10 ∅	D11	D12 ∅ H13	D13 ∅
6	10	25	30	17	8	8	14	3.2	M3	M2	40	29.4	3.5	23	M3	3.4	16
8	12.8	31	38	20	9	11	16	3.2	M3	M2.5	50	37.4	3.5	27	M3	3.4	21
10	15.9	38	47	26	10	11	19	4.3	M4	M3	62	46.4	4.5	30	M3	3.4	21

Size	D14	EE	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	T1	∠	Swivel angle tolerance
6	M2	M3	39.5	30	7.5	2	9.8	21	5	6	3	3	1.5	4	3	0/+5°
8	M2	M3	43.5	34	7.5	2	11.3	23	6	6.5	3	3	1.5	4.3	3.5	0/+5°
10	M2.5	M3	53	41.4	9.6	2	14.3	28.4	8	7.5	4	3	1.6	5	4.5	0/+5°

With flanged shaft, fixed stop and position sensing – Size 6 ... 10

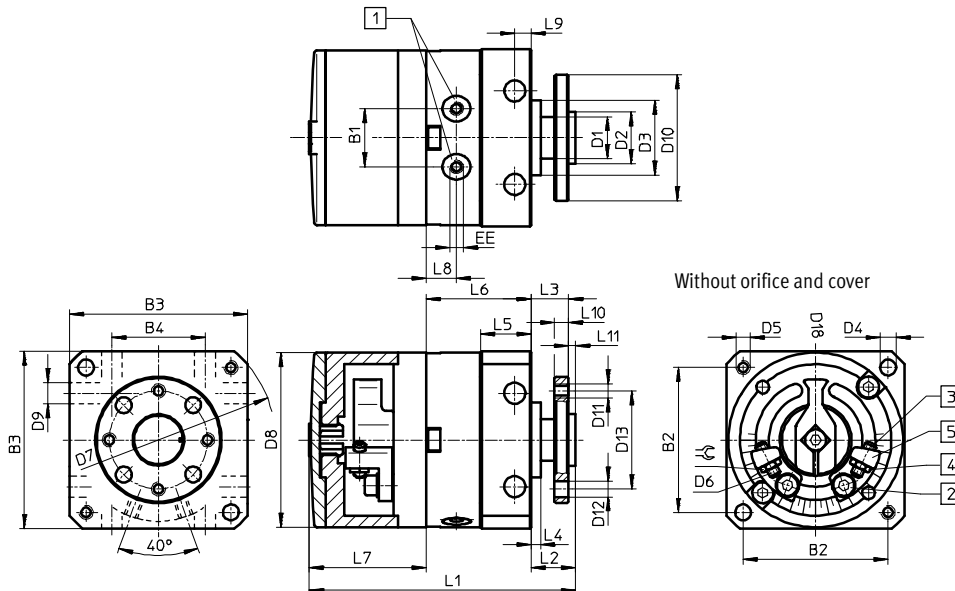


- 1 Proximity sensor not included in the scope of delivery. Observe fitting space for proximity sensor and cable
- 2 Magnet position
- 3 Max. tightening torque for sensor bracket screw → table below

Size	D8 ∅	D9 ∅	L1	L3	L4	L5	L6	L7	Tightening torque [Nm]
6	29.4	17.3	50	4	2	9.8	21	19.5	0.19
8	37.4	19.3	52	4	2	11.3	23	19.5	0.32
10	46.4	22.3	59.5	4	2	14.3	28.4	19.5	0.44

Dimensions – Size 6 ... 10

With flanged shaft, fixed stop and adjustable swivel angle



Note

The swivel angle is infinitely adjustable over the entire swivel range. Size 6 can only be adjusted symmetrically around the centre position.

- | | | | |
|---|-------------------------------------|---|--------------------------------------|
| 1 | Supply ports | 3 | End-position adjustment |
| 2 | Locking screw for clamping the stop | 4 | Lock nut for end-position adjustment |
| | | 5 | Infinitely adjustable stops |

Size	B1	B2	B3	B4	D1 ∅	D2 ∅ g7	D3 ∅ f8	D4 ∅ H12	D5	D6	D7 ∅ H12	D8 ∅
6	10	25	30	17	8	8	14	3.2	M3	M2	40	29.4
8	12.8	31	38	20	9	11	16	3.2	M3	M2.5	50	37.4
10	15.9	38	47	26	10	11	19	4.3	M4	M3	62	46.4

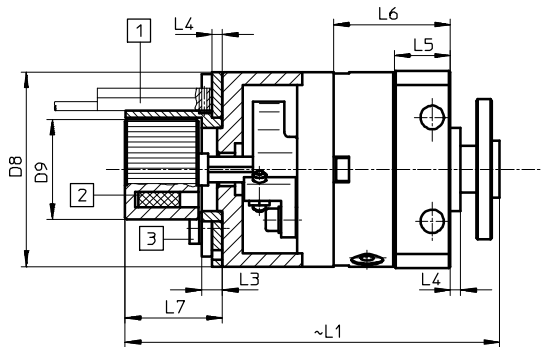
Size	D9 ∅ H12	D10 ∅	D11	D12 ∅ H13	D13 ∅	D18 ∅	EE	L1	L2	L3	L4
6	3.5	23	M3	3.4	16	22	M3	48	9.5	8	2
8	3.5	27	M3	3.4	21	26	M3	58	9.5	8	2
10	4.5	30	M3	3.4	21	35.8	M3	68	11.6	10	2

Size	L5	L6	L7	L8	L9	L10	L11	≈	Max. swivel angle	Precision adjust- ment per side
6	9.8	21	17.8	6	3	3	1.5	4	180° +5°	+1°/-5°
8	11.3	23	24.9	6.5	3	3	1.5	5	180° +5°	+1°/-5°
10	14.3	28.4	28.2	7.5	4	3	1.6	5.5	200° +5°	+1°/-5°

Swivel modules DSM

Dimensions – Size 6 ... 10

1 With flanged shaft, fixed stop, adjustable swivel angle and position sensing

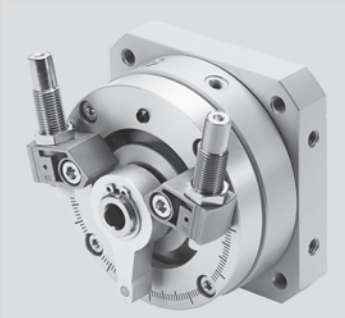


Note

The swivel angle is infinitely adjustable over the entire swivel range.
Size 6 can only be adjusted symmetrically around the centre position.

- 1 Proximity sensor not included in the scope of delivery. Observe fitting space for proximity sensor and cable
- 2 Magnet position
- 3 Max. tightening torque for sensor bracket screws → table below

Size	D8 Ø	D9 Ø	L1	L3	L4	L5	L6	L7	Tightening torque [Nm]
6	29.4	17.3	65	4	2	9.8	21	19.5	0.19
8	37.4	19.3	73.5	4	2	11.3	23	19.5	0.32
10	46.4	22.3	83	4	2	14.3	28.4	19.5	0.44



- Swivel modules with minimum space requirement
- Swivel modules with tandem rotary vanes
- Simple basic and precision adjustment of the swivel angle
- High-performance cushioning
- Compact, low-cost sensing
- ★ Quick ordering of basic designs → 229

→ www.festo.com/catalogue/dsm

Product range overview – Size 12 ... 63-B

Type/function	Version	Size	Swivel angle [°]	Torque [Nm]	Product options					
					P	P1	CC	–	FW	A
Double-acting	DSM- ... -B									
	Basic design	12, 16, 25, 32, 40, 63	270	1.25 ... 40	■	–	–	■	■	■
		12, 16, 25, 32	246	1.25 ... 10	–	■	■	■	■	■
		40, 63	240	20 ... 40	–	■	■	■	■	■
	DSM-T- ... -B									
	Tandem rotary vanes	12, 16, 25, 32, 40, 63	270	2.5 ... 80	■	–	–	■	■	■
		12, 16, 25, 32	246	2.5 ... 20	–	–	■	■	■	■
		40, 63	240	40 ... 80	–	–	■	■	■	■
	DSM- ... -HD- ... -B									
	Heavy-duty bearing	12, 16, 25, 32, 40, 63	270	1.25 ... 40	–	–	–	–	–	■
		12, 16, 25, 32	246	1.25 ... 10	–	■	■	–	–	■
		40, 63	240	20 ... 40	–	■	■	–	–	■

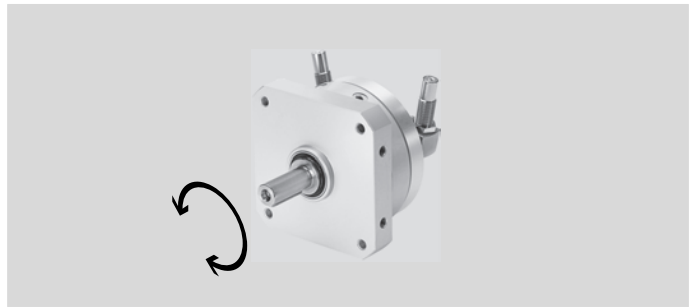
Product options – Size 12 ... 63-B

P	Elastic cushioning components at both ends, with fixed stop	P1	Adjustable elastic cushioning components at both ends, with fixed stop	CC	Self-adjusting shock absorber at both ends, with fixed stop	FW	Flanged shaft
				–	Shaft with feather key	HD	Heavy-duty bearing
						A	Position sensing
						B	B series

Swivel modules DSM-B

FESTO

1 Technical data – Size 12 ... 63-B



Technical data							Dimensions → 234
Size		12	16	25	32	40	63
Pneumatic connection		M5			G1/8		G1/4
Cushioning							
DSM-...-P		Elastic cushioning components at both ends					
DSM-...-P1		Elastic cushioning components, adjustable at both ends					
DSM-...-CC		Self-adjusting shock absorber at both ends					
Torque at 6 bar							
DSM-...	[Nm]	1.25	2.5	5	10	20	40
DSM-...-T	[Nm]	2.5	5	10	20	40	80
Swivel angle							
DSM-...-P	[°]	270/262 ¹⁾		270			
DSM-...-P1	[°]	246				240	
DSM-...-CC	[°]	246				240	
Swivel frequency (at max. swivel angle)							
DSM-...-P	[Hz]	2					1.6
DSM-...-P1	[Hz]	2					1.6
DSM-...-CC	[Hz]	1.5	1	0.7		0.6	
Max. perm. radial force ²⁾	[N]	45	75	120	200	350	500
Max. perm. axial force ²⁾	[N]	18	30	50	75	120	500
Max. cushioning angle							
DSM-...-P1	[°]	10	9	7.5	6.5	6.5	6
DSM-...-CC	[°]	15	12	10	12	16	17.5
Max. perm. mass moment of inertia	[kgm ²]	→ 225					

1) Restricted swivel angle in combination with sensor bracket SL-DSM-S-....

2) On the drive shaft.

Operating conditions							
Size		12	16	25	32	40	63
Operating pressure							
DSM-...	[bar]	2 ... 10	1.8 ... 10	1.5 ... 10			
DSM-...-T	[bar]	2.5 ... 10		2 ... 10			
Ambient temperature ³⁾	[°C]	-10 ... +60					

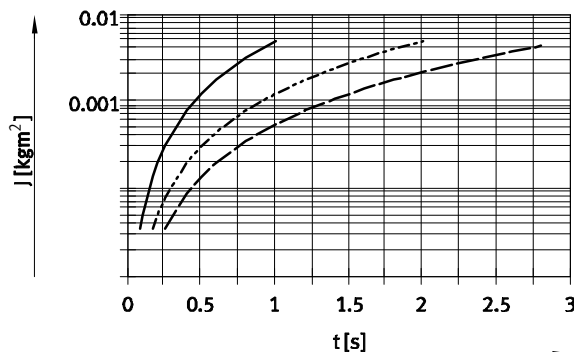
3) Note operating range of proximity sensors.

Materials	
Drive shaft	Nickel-plated steel
Housing	Anodised aluminum
Flange	Anodised aluminum
Stop lever	Anodised aluminum
Rotary vane	Glass fibre-reinforced plastic
Fixed stops	Galvanised steel
Seals	TPE-U (PUR)

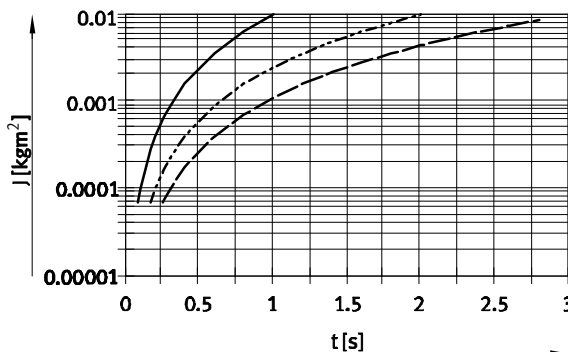
Technical data – Size 12 ... 63-B

Mass moment of inertia J on the drive shaft as a function of swivel time t
 With elastic cushioning components (P)

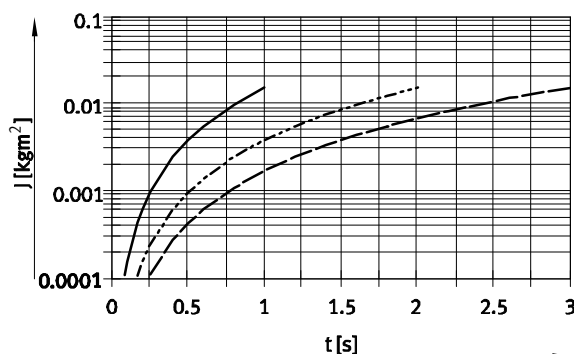
DSM-12-270-P-...



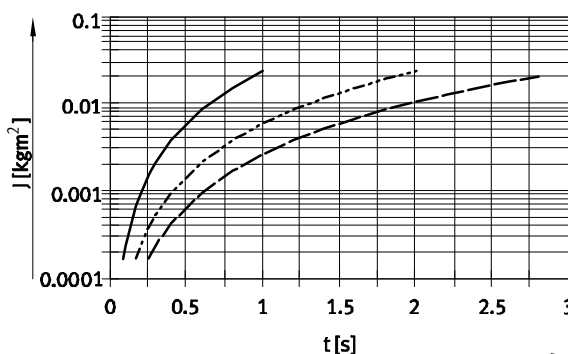
DSM-16-270-P-...



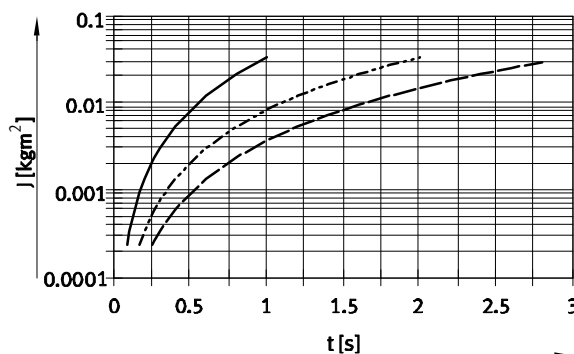
DSM-25-270-P-...



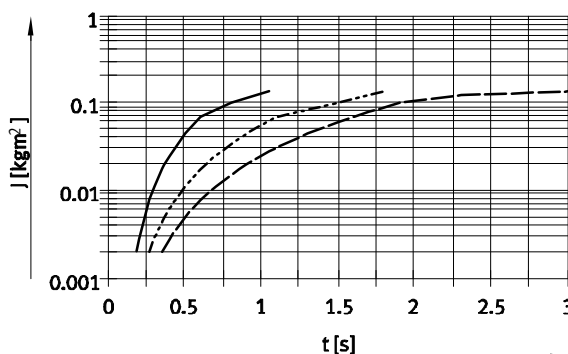
DSM-32-270-P-...



DSM-40-270-P-...



DSM-63-270-P-...



- 90°
- - - 180°
- · - 270°

Note
 Configuration software for
 calculating the mass moment of inertia
 → www.festo.com

Swivel modules DSM-B

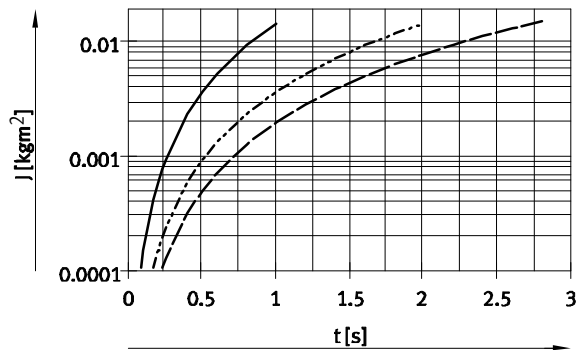
Technical data – Size 12 ... 63-B

1

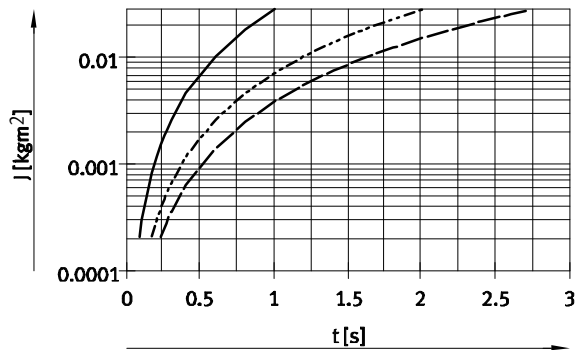
Mass moment of inertia J on the drive shaft as a function of swivel time t

With adjustable, elastic cushioning components (P1)

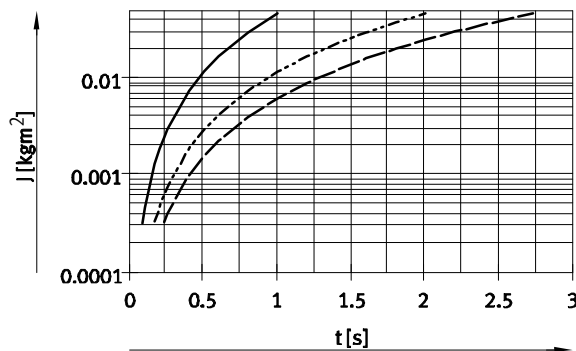
DSM-12-270-P1-...



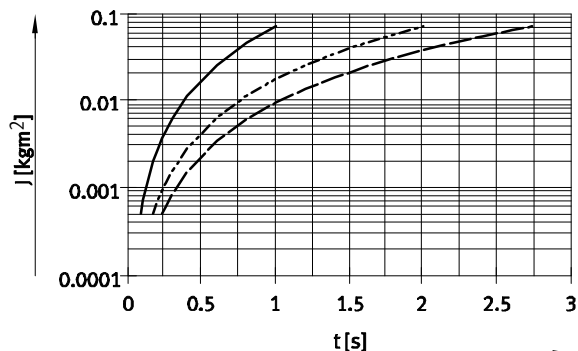
DSM-16-270-P1-...



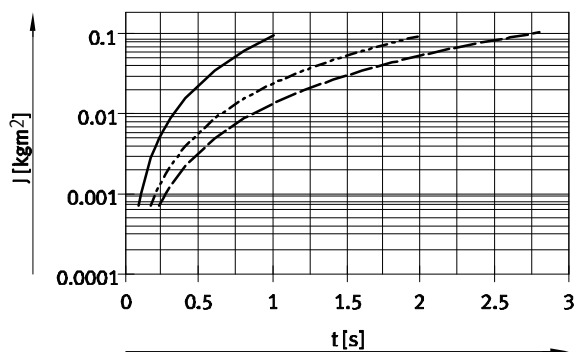
DSM-25-270-P1-...



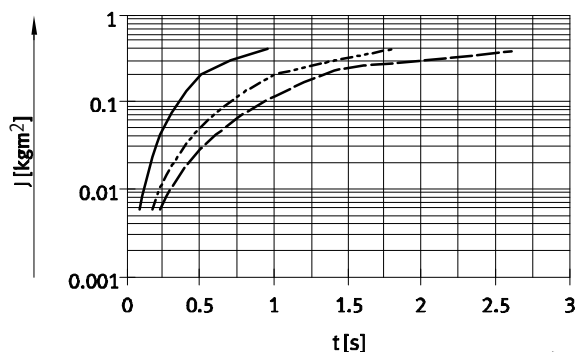
DSM-32-270-P1-...



DSM-40-270-P1-...



DSM-63-270-P1-...



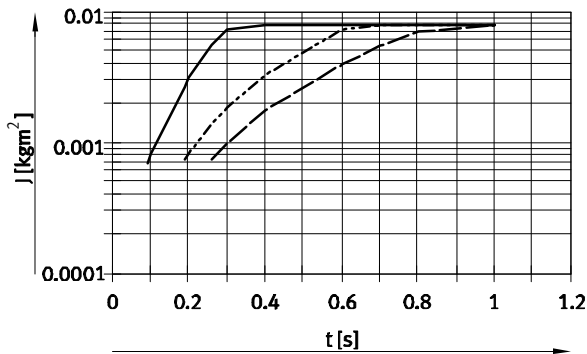
- 90°
- - - 180°
- · - 240°

Technical data – Size 12 ... 63-B

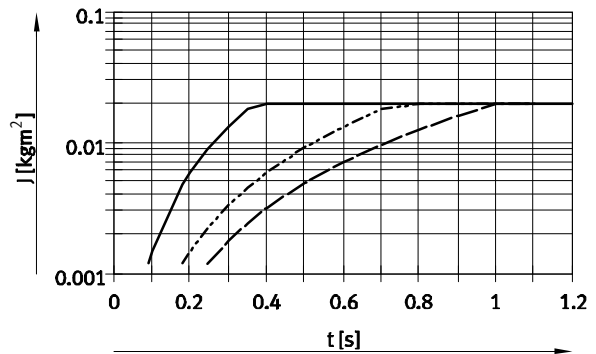
Mass moment of inertia J on the drive shaft as a function of swivel time t

With shock absorbers (CC)

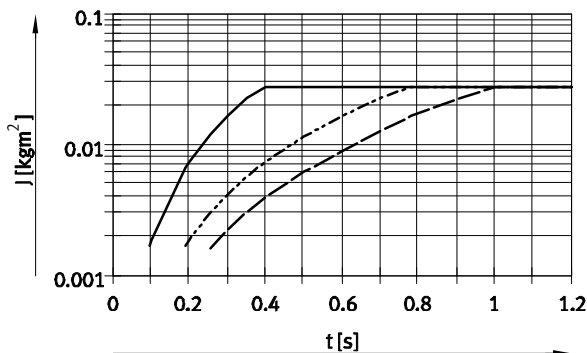
DSM-12-270-CC-...



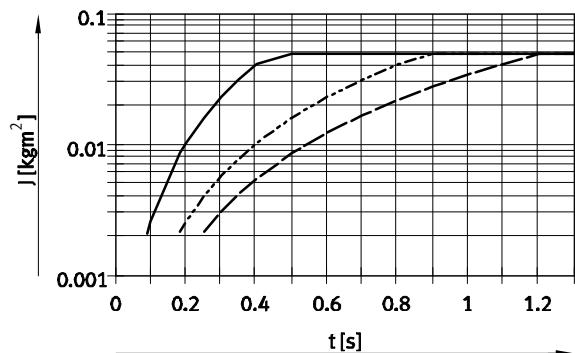
DSM-16-270-CC-...



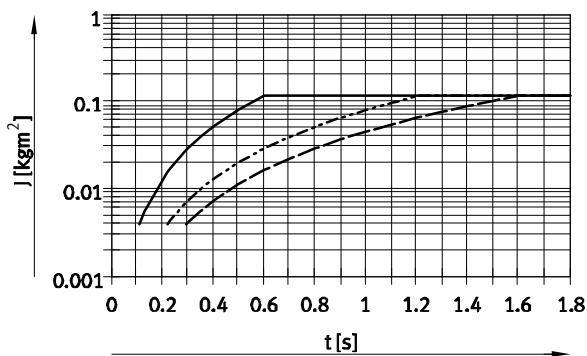
DSM-25-270-CC-...



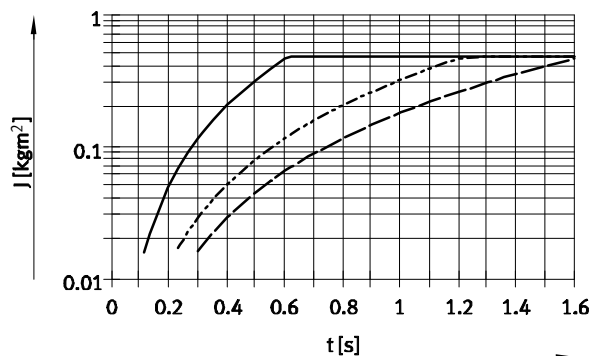
DSM-32-270-CC-...



DSM-40-270-CC-...



DSM-63-270-CC-...



- 90°
- - - 180°
- · - 240°

The graphs for the DSM-...-CC show the swivel time up to the point where the stop lever meets the shock absorber. The cushioning time of the shock absorber must be added in order to obtain the total swivel time.

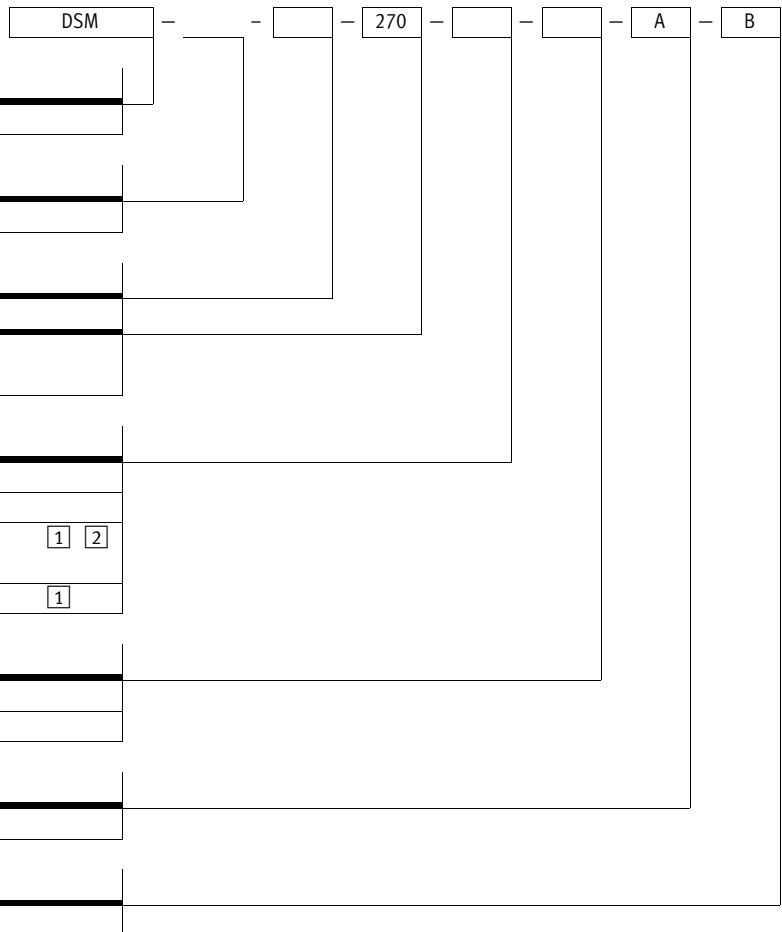
Cushioning time of the shock absorber

Size	12/16/25	32	40	63
Cushioning time [s]	0.1	0.25	0.3	0.4

Swivel modules DSM-B

1

Order code – Size 12 ... 63-B



Type	
DSM	Swivel module
Design	
T	Tandem rotary vanes
Size	
	Max. swivel angle [°]
12, 16, 25, 32, 40, 63	270
Cushioning	
-	Without cushioning components
P	Elastic cushioning components at both ends
P1	Adjustable elastic cushioning components at both ends 1 2
CC	Shock absorber at both ends 1
Shaft	
-	Spigot shaft
FW	Flanged shaft
Position sensing	
A	Via proximity sensor
Variant	
B	B series

- 1 Max. swivel angle 246° with size 12 ... 32
Max. swivel angle 240° with size 40, 63
- 2 Not with tandem rotary vanes T

Order example:

DSM-12-270-CC-A-B

Swivel module DSM - without tandem rotary vanes - size 12 - swivel angle 270° - shock absorber at both ends - spigot shaft - position sensing via proximity sensor - B series

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
[→ www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the type code in the search field.

★ Quick ordering – Size 12 ... 63-B¹⁾

Spigot shaft			
Piston Ø	Swivel angle	Part No.	Type
Without cushioning components			
12	270°	547591	DSM-12-270-A-B
16		547592	DSM-16-270-A-B
25		547593	DSM-25-270-A-B
32		547594	DSM-32-270-A-B
40		547595	DSM-40-270-A-B
P – Elastic cushioning components at both ends			
12	270°	547570	DSM-12-270-P-A-B
16		547574	DSM-16-270-P-A-B
25		547578	DSM-25-270-P-A-B
32		547582	DSM-32-270-P-A-B
40		547586	DSM-40-270-P-A-B
P1 – Adjustable elastic cushioning components at both ends			
12	246°	566203	DSM-12-270-P1-A-B
16		566205	DSM-16-270-P1-A-B
25		566207	DSM-25-270-P1-A-B
32		566209	DSM-32-270-P1-A-B
40	240°	566211	DSM-40-270-P1-A-B
CC – Shock absorber at both ends			
12	246°	547572	DSM-12-270-CC-A-B
16		547576	DSM-16-270-CC-A-B
25		547580	DSM-25-270-CC-A-B
32		547584	DSM-32-270-CC-A-B
40	240°	547588	DSM-40-270-CC-A-B

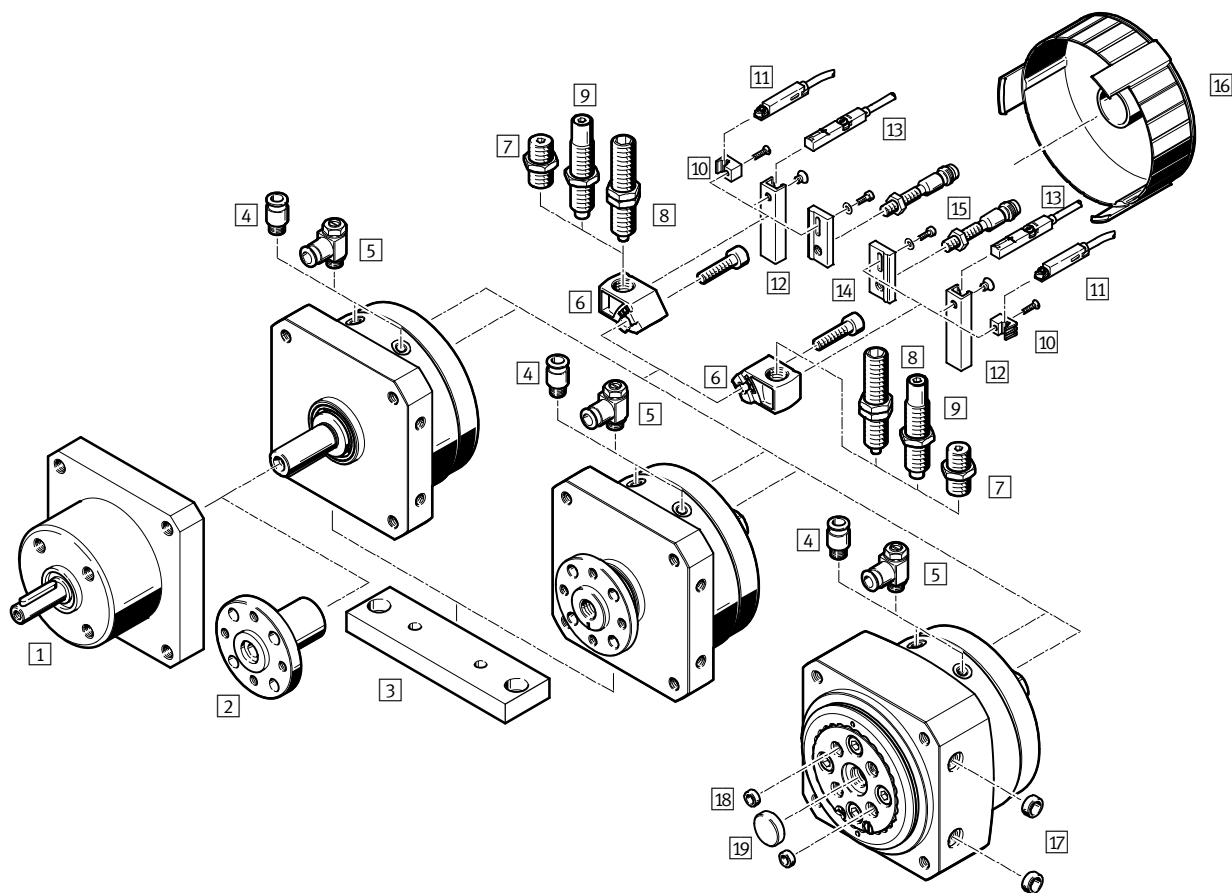
Flanged shaft			
Piston Ø	Swivel angle	Part No.	Type
Without cushioning components			
12	270°	547596	DSM-12-270-FW-A-B
16		547597	DSM-16-270-FW-A-B
25		545598	DSM-25-270-FW-A-B
32		545599	DSM-32-270-FW-A-B
40		545600	DSM-40-270-FW-A-B
P-FW – Elastic cushioning components at both ends			
12	270°	547571	DSM-12-270-P-FW-A-B
16		547575	DSM-16-270-P-FW-A-B
25		547579	DSM-25-270-P-FW-A-B
32		547583	DSM-32-270-P-FW-A-B
40		547587	DSM-40-270-P-FW-A-B
P1-FW – Adjustable elastic cushioning components at both ends			
12	246°	566204	DSM-12-270-P1-FW-A-B
16		566206	DSM-16-270-P1-FW-A-B
25		566208	DSM-25-270-P1-FW-A-B
32		556210	DSM-32-270-P1-FW-A-B
40	240°	556212	DSM-40-270-P1-FW-A-B
CC-FW – Shock absorber at both ends			
12	246°	547573	DSM-12-270-CC-FW-A-B
16		547577	DSM-16-270-CC-FW-A-B
25		547581	DSM-25-270-CC-FW-A-B
32		547585	DSM-32-270-CC-FW-A-B
40	240°	547589	DSM-40-270-CC-FW-A-B

1) All products in this table are easy to select and quick to order.

Swivel modules DSM-B

Accessories – Size 12 ... 63-B

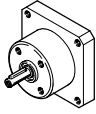
1


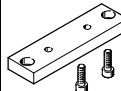


		→ Page/ online
1	Freewheel unit FLSM	231
2	Push-on flange FWSR	231
3	Mounting plate HSM	231
4	Push-in fitting QS	1006
5	One-way flow control valve GRLA	231
6	Cushioning mount DSM-...-B	231
7	Cushioning kit DSM-...-P-B (P cushioning)	231
8	Shock absorber DYEF (P1 cushioning)	231
9	Shock absorber DYSC (CC cushioning)	231
10	Sensor bracket SL-DSM-B	231
11	Proximity sensor SME-/SMT-10 for size 12 ... 40	232


		→ Page/ online
12	Sensor bracket SL-DSM-63-B	231
13	Proximity sensor SME-/SMT-8 for size 63	232
14	Sensor bracket SL-DSM-S	231
15	Inductive proximity sensor SIEN	233
16	Cover cap AKM	233
17	Centring sleeve ZBH (for centring drive)	-
18	Centring sleeve ZBH (for centring attachments)	-
19	Centring sleeve ZBH/disc SLZZ	-
-	Connecting cable NEBU	233
-	Drive/gripper connections	dsm

Accessories – Ordering data – Size 12 ... 63-B

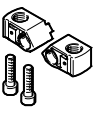


	For size	Direction of rotation ¹⁾	Part No.	Type
1	Freewheel unit Dimensions online: → dsm			
	12	Anticlockwise	164229	FLSM-12-L
		Clockwise	164234	FLSM-12-R
	16	Anticlockwise	164230	FLSM-16-L
		Clockwise	164235	FLSM-16-R
	25	Anticlockwise	164231	FLSM-25-L
		Clockwise	164236	FLSM-25-R
	32	Anticlockwise	164232	FLSM-32-L
		Clockwise	164237	FLSM-32-R
	40	Anticlockwise	164233	FLSM-40-L
		Clockwise	164238	FLSM-40-R




	For size	Part No.	Type
2	Push-on flange Dimensions online: → dsm		
	12	14659	FWSR-12
	16	13239	FWSR-16
	25	13240	FWSR-25
	32	13241	FWSR-32
	40	14656	FWSR-40
3	Mounting plate Dimensions online: → dsm		
	12	165571	HSM-12
	16	165572	HSM-16
	25	165573	HSM-25
	32	165574	HSM-32
	40	165575	HSM-40

1) Viewed towards drive shaft side.

Function	For size	Connection	Part No.	Type
		Thread	O.D.	
5	One-way flow control valve with slotted head screw, metal²⁾ for exhaust air flow control Technical data → 687			
	12, 16	M5	3	★ 193137 GRLA-M5-QS-3-D
	25		4	★ 193138 GRLA-M5-QS-4-D
	32, 40	G $\frac{1}{8}$	6	★ 193144 GRLA- $\frac{1}{8}$ -QS-6-D
	63	G $\frac{1}{4}$	8	★ 193147 GRLA- $\frac{1}{4}$ -QS-8-D
	63	G $\frac{1}{4}$	10	★ 193148 GRLA- $\frac{1}{4}$ -QS-10-D

2) The recommended flow control valves are based on a tubing length to the valve of 1 m. For deviations of $\pm 50\%$, flow control valves with a bigger or smaller flow rate must be selected to guarantee the optimum flow control function and cylinder speed.

	For size	Part No.	Type
6	Cushioning mount³⁾		
	12	547900	DSM-12-B
	16	547901	DSM-16-B
	25	547902	DSM-25-B
	32	547903	DSM-32-B
	40	547904	DSM-40-B
	63	552085	DSM-63-B
7	Cushioning kit³⁾, P cushioning		
	12	550657	DSM-12-P-B
	16, 25	550658	DSM-16/25-P-B
	32	550659	DSM-32-P-B
	40	550060	DSM-40-P-B
	63	552086	DSM-63-P-B
8	Shock absorber⁴⁾, P1 cushioning Technical data online: → dye		
	12	548373	DYEF-M8-Y1F
	16, 25	548374	DYEF-M10-Y1F
	32	548375	DYEF-M12-Y1F
	40	548377	DYEF-M16-Y1F
	63	1113706	DYEF-M22-Y1F

	For size	Part No.	Type
9	Shock absorber⁴⁾, CC cushioning Technical data online: → dysc		
	12	548011	DYSC-5-5-Y1F
	16/25	548012	DYSC-7-5-Y1F
	32	548013	DYSC-8-8-Y1F
	40	548014	DYSC-12-12-Y1F
	63	553593	DYSC-16-18-Y1F
	10/12/14	Sensor bracket	
	12, 16, 25, 32, 40	★ 550661	SL-DSM-B ³⁾ , ⁵⁾
	63	552088	SL-DSM-63-B ³⁾ , ⁶⁾
	12, 16, 25, 32, 40	★ 1130882	SL-DSM-S-M5-B ³⁾ , ⁷⁾
		★ 1132360	SL-DSM-S-M8-B ³⁾ , ⁸⁾








3) Packaging unit 2 pieces.
 4) Packaging unit 1 piece.
 5) For proximity sensor SME-/SMT-10.
 6) For proximity sensor SME-/SMT-8.

7) For inductive proximity sensor SIEN-M5.
 8) For inductive proximity sensor SIEN-M8.

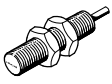



Swivel modules DSM-B

Accessories – Ordering data – Size 12 ... 63-B

1

	For size		Part No.	Type	
	PNP, cable	★	551373	SMT-10M-PS-24V-E-2,5-L-OE	Technical data → 821
	PNP, plug	★	551375	SMT-10M-PS-24V-E-0,3-L-M8D	
Magnetic reed – N/O contact					Technical data → 817
	Cable	★	551365	SME-10M-DS-24V-E-2,5-L-OE	Technical data → 819
	Plug	★	551367	SME-10M-DS-24V-E-0,3-L-M8D	
	Cable		173210	SME-10-KL-LED-24	Technical data → 819
	Plug		173212	SME-10-SL-LED-24	
	PNP, cable	★	574335	SMT-8M-A-PS-24V-E-2,5-OE	Technical data → 808
	PNP, plug	★	574334	SMT-8M-A-PS-24V-E-0,3-M8D	
	PNP, plug	★	574337	SMT-8M-A-PS-24V-E-0,3-M12	
	NPN, cable	★	574338	SMT-8M-A-NS-24V-E-2,5-OE	
	NPN, plug	★	574339	SMT-8M-A-NS-24V-E-0,3-M8D	
Magneto-resistive – N/C contact					Technical data → 808
	PNP, cable	★	574340	SMT-8M-A-PO-24V-E-7,5-OE	
Magnetic reed – N/O contact					Technical data → 803
	Cable	★	543862	SME-8M-DS-24V-K-2,5-OE	Technical data → 805
	Cable	★	543863	SME-8M-DS-24V-K-5,0-OE	
	Cable	★	543872	SME-8M-ZS-24V-K-2,5-OE	
	Plug	★	543861	SME-8M-DS-24V-K-0,3-M8D	
	Cable		150855	SME-8-K-LED-24	Technical data → 805
	Plug		150857	SME-8-S-LED-24	

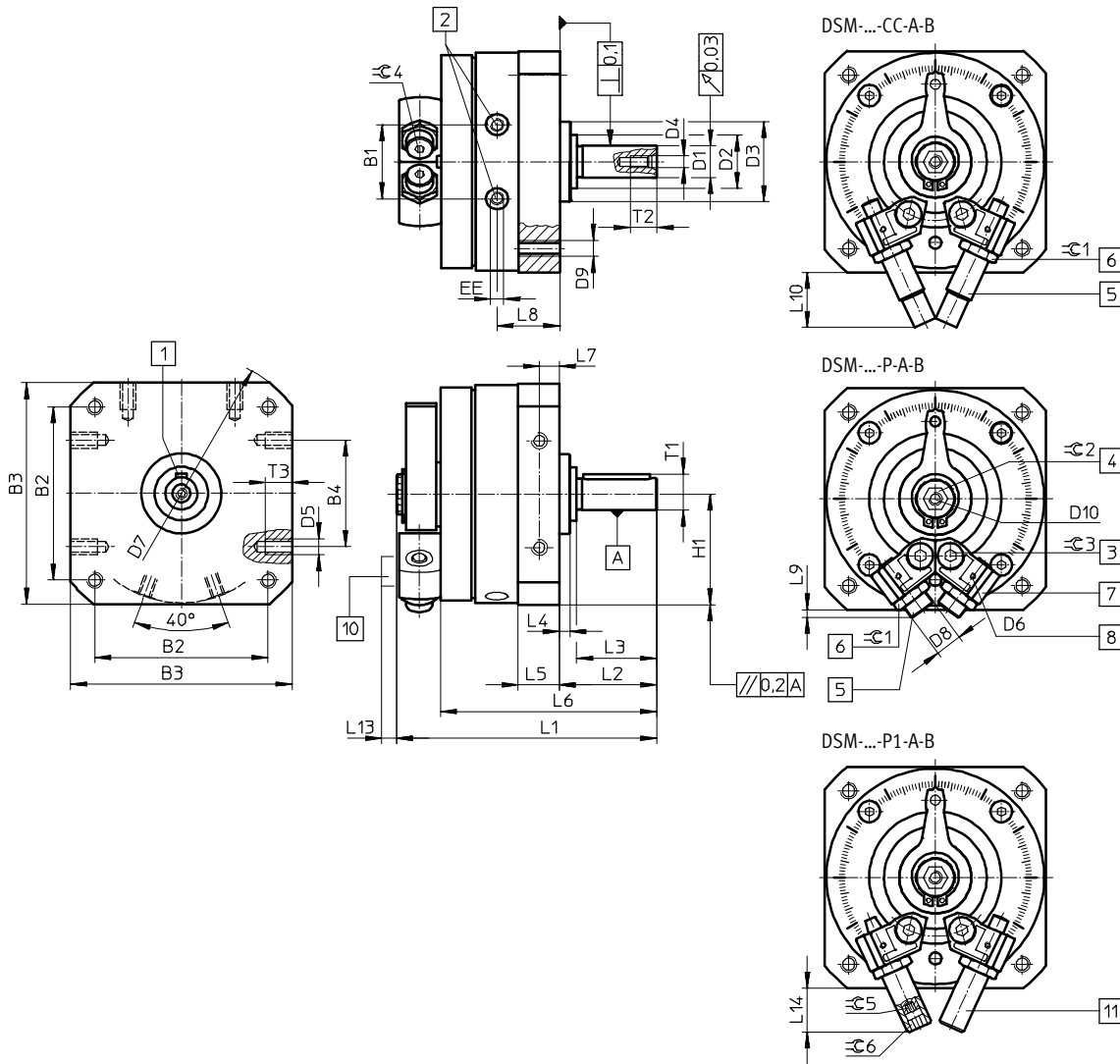
Accessories – Ordering data – Size 12 ... 63-B

	For size		Part No.	Type	
	15 Inductive proximity sensor, for size 12 ... 40				Technical data → 827
	M5, cable	★	150370	SIEN-M5B-PS-K-L	
	M5, plug	★	150371	SIEN-M5B-PS-S-L	
	M8, cable	★	150386	SIEN-M8B-PS-K-L	
	M8, plug	★	150387	SIEN-M8B-PS-S-L	
	11/13/15 Connecting cable, straight socket				Technical data → 1053
	2.5 m	★	541333	NEBU-M8G3-K-2.5-LE3	
	5 m	★	541334	NEBU-M8G3-K-5-LE3	
	Angled socket				Technical data → 1053
	2.5 m	★	541338	NEBU-M8W3-K-2.5-LE3	
	5 m	★	541341	NEBU-M8W3-K-5-LE3	
	16 Cover cap				Dimensions online: → dsm
	12	★	549194	AKM-12	
	16	★	549195	AKM-16	
	25	★	549196	AKM-25	
	32	★	549197	AKM-32	
	40	★	549198	AKM-40	

Swivel modules DSM-B

Dimensions – Size 12 ... 63-B

1 DSM-...-B – With spigot shaft



- | | | | |
|--|--|---|--|
| <p>1 Feather key position at 0°</p> <p>2 Supply ports</p> <p>3 Locking screw for clamping the stop</p> | <p>4 Manual override (internal hex).
The position of the internal hex is not defined</p> | <p>5 End-position adjustment</p> <p>6 Lock nut for end-position adjustment</p> <p>7 Infinitely adjustable stops</p> | <p>8 Mounting thread for sensor bracket</p> <p>10 Sensor bracket</p> <p>11 End-position adjustment</p> |
|--|--|---|--|

Dimensions – Size 12 ... 63-B

Download CAD data → www.festo.com

1

Size	B1 ±0.5	B2	B3	B4	D1 ∅ g7	D2 ∅	D3 ∅ f8	D4
12	19.8	48±0.3	59±0.3	30±0.2	8	15±0.2	24	M3
16	23.5	57±0.3	70±0.3	40±0.2	10	18 _{-0.3}	28	M3
25	28	65±0.3	83±0.3	40±0.2	12	20 _{-0.3}	30	M4
32	35.5	85±0.3	105±0.3	60±0.3	16	27 _{-0.4}	42	M5
40	43.8	105±0.3	130±0.5	80±0.3	20	36 _{-0.4}	52	M6
63	50.3	125±0.5	152 ^{+0.2}	80±0.3	25	40±0.3	70	M10

Size	D5	D6	D7 ∅	D8	D9	D10	EE
12	M4	M2	78±0.3	M8x1	M4	M4	M5
16	M5	M2	91±0.3	M10x1	M5	M5	M5
25	M6	M2	106±0.3	M10x1	M6	M5	M5
32	M8	M2	135±0.3	M12x1	M8	M5	G1/8
40	M10	M2	168±0.5	M16x1	M10	M6	G1/8
63	M10	M3	200±0.5	M22x1.5	M12	M6	G1/4

Size	H1 ±0.2	L1	L2 +0.6 -0.7	L3	L4 ±0.4	L5	L6	L7
12	29.5	68.3±0.3	24.5	20±0.2	3	10.3 ^{+0.2/-0.3}	55.5±0.8	5±0.1
16	35	82.7±1	28	23±0.2	2.6	13 ^{+0.2/-0.4}	67.1±0.9	6.5±0.2
25	41.5	97.5±0.5	36.5	30±0.2	4	15.2 ^{+0.2/-0.4}	81±1	7.5±0.2
32	52.5	127.1±0.5	51	40±0.2	8	19.2 ^{+0.2/-0.4}	107±1.1	9.5±0.2
40	65	155.5±0.6	62	50±0.3	8	23.7 ^{+0.2/-0.4}	131±1.2	12±0.2
63	76	197 ^{+0.4/-0.55}	75.5	60±0.3	10.5	28.5 ^{+0.3/-0.5}	159.5±1.2	14±0.2

Size	L8	L9	L10	L13	L14 max.	T1 max.	T2 +2	T3 +0.2
12	16.5	3	22.7	6.5	21.2	8.8	9	8
16	20.2	7.2	26.1	6.5	22	11.2	9	8
25	23.5	2.9	20.7	6.5	17	13.5	10	10
32	30.5	3.8	29.1	6.5	23	18	12.5	12
40	36	3.4	43.5	6.5	36.5	22.5	16	15
63	45	10	72.5	4.5	–	28	22	16

Size	⌀ 1	⌀ 2	⌀ 3	⌀ 4	⌀ 5	⌀ 6	Feather key to DIN 6885 ¹⁾
12	10	6	2.5	2.5	2.5	2.5	A2x2x16
16	13	8	3	3	3	5	A3x3x18
25	13	8	4	3	3	6	A4x4x25
32	15	10	5	4	4	8	A5x5x36
40	19	10	6	5	5	10	A6x6x45
63	27	10	8	5	–	–	A8x7x50

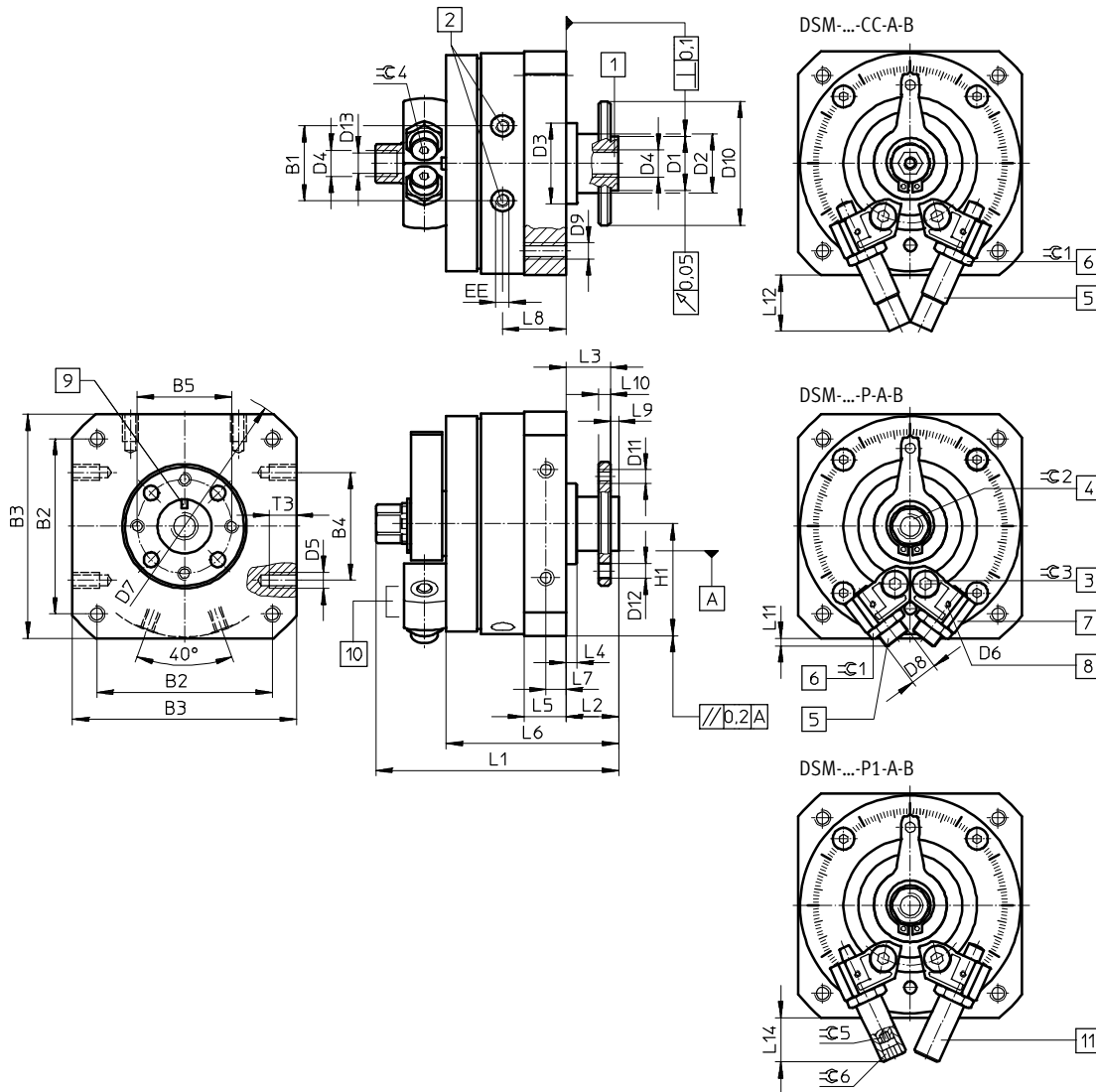
1) Included in the scope of delivery.

Note: This product conforms to ISO 1179-1 and ISO 228-1.

Swivel modules DSM-B

Dimensions – Size 12 ... 63-B

1 DSM-...-B – With flanged shaft



- | | | | |
|---|--|---|---|
| <p>1 Flanged shaft with through-hole</p> <p>2 Supply ports</p> <p>3 Locking screw for clamping the stop</p> | <p>4 Manual override (internal hex).
The position of the internal hex is not defined</p> | <p>5 End-position adjustment</p> <p>6 Lock nut for end-position adjustment</p> <p>7 Infinitely adjustable stops</p> | <p>8 Mounting thread for sensor bracket</p> <p>9 Position of marking corresponds to position of stop</p> <p>10 Sensor bracket</p> <p>11 End-position adjustment</p> |
|---|--|---|---|

Dimensions – Size 12 ... 63-B

Download CAD data → www.festo.com

1

Size	B1 ±0.5	B2	B3	B4	B5	D1 ∅ f8	D2 ∅	D3 ∅ f8	D4	D5
12	19.8	48±0.3	59±0.3	30±0.2	25	14	15±0.2	24	M5	M4
16	23.5	57±0.3	70±0.3	40±0.2	28	16	18 _{-0.3}	28	M5	M5
25	28	65±0.3	83±0.3	40±0.2	35	20	20 _{-0.3}	30	G $\frac{1}{8}$	M6
32	35.5	85±0.3	105±0.3	60±0.3	45	28	27 _{-0.4}	42	G $\frac{1}{8}$	M8
40	43.8	105±0.3	130±0.5	80±0.3	54	36	36 _{-0.4}	52	G $\frac{1}{4}$	M10
63	50.3	125±0.5	152±0.2	80±0.3	64	38	40±0.3	70	G $\frac{1}{4}$	M10

Size	D6	D7 ∅	D8	D9	D10 ∅	D11	D12 H13	D13	EE	H1 ±0.2
12	M2	78±0.3	M8x1	M4	33	M3	3.4	4.2	M5	29.5
16	M2	91±0.3	M10x1	M5	38	M4	4.5	4.2	M5	35
25	M2	106±0.3	M10x1	M6	46	M5	5.5	8.6	M5	41.5
32	M2	135±0.3	M12x1	M8	60	M6	6.5	8.6	G $\frac{1}{8}$	52.5
40	M2	168±0.5	M16x1	M10	70	M8	9	11.5	G $\frac{1}{8}$	65
63	M3	200±0.5	M22x1.5	M12	88	M8	12	11.5	G $\frac{1}{4}$	76

Size	L1	L2 +0.5 -0.85	L3 +0.5 -0.62	L4 ±0.4	L5	L6 ±1	L7	L8	L9 -0.2	L10
12	67.3 _{+0.4/-0.65}	13	11	3	10.3 _{+0.2/-0.3}	44	5±0.1	16.5	2	3±0.1
16	79 _{+0.4/-0.65}	15	13	2.6	13 _{+0.2/-0.4}	54.1	6.5±0.2	20.2	2	4±0.1
25	90 _{+0.4/-0.65}	19.5	16.5	4	15.2 _{+0.2/-0.4}	64	7.5±0.2	23.5	3	4.5±0.1
32	115.8 _{+0.4/-0.65}	27	23	8	19.2 _{+0.2/-0.4}	83	9.5±0.2	30.5	4	6±0.1
40	143.8 _{+0.4/-0.7}	33	28	8	23.7 _{+0.2/-0.4}	102	12±0.2	36	5	7.5±0.1
63	177.4 _{+0.2/-0.55}	37.5	31.5	10.5	28.5 _{+0.3/-0.5}	121.5	14±0.2	45	6	9±0.2

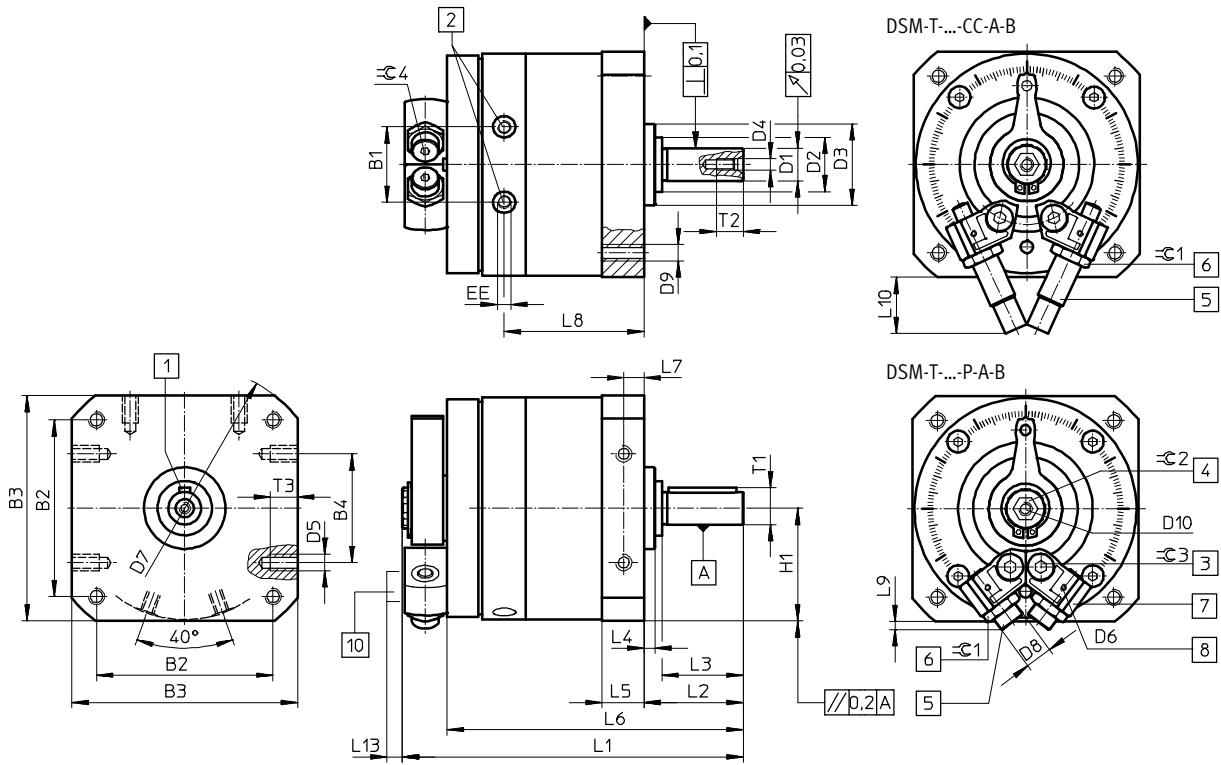
Size	L11	L12	L14 max.	T3 +0.2	⊖ 1	⊖ 2	⊖ 3	⊖ 4	⊖ 5	⊖ 6
12	3	22.7	21.2	8	10	8	2.5	2.5	2.5	2.5
16	7.2	26.1	22	8	13	11	3	3	3	5
25	2.9	20.7	17	10	13	13	4	3	3	6
32	3.8	29.1	23	12	15	13	5	4	4	8
40	3.4	43.5	36.5	15	19	19	6	5	5	10
63	10	72.5	-	16	27	22	8	5	-	-

• Note: This product conforms to ISO 1179-1 and ISO 228-1.

Swivel modules DSM-B

Dimensions – Size 12 ... 63-B

1 DSM-T-...-B – With tandem rotary vanes and spigot shaft



- | | | | |
|---------------------------------------|--|--|--------------------------------------|
| 1 Feather key position at 0° | 4 Manual override (internal hex).
The position of the internal hex is not defined | 5 End-position adjustment | 8 Mounting thread for sensor bracket |
| 2 Supply ports | | 6 Lock nut for end-position adjustment | 10 Sensor bracket |
| 3 Locking screw for clamping the stop | | 7 Infinitely adjustable stops | |

Dimensions – Size 12 ... 63-B

Download CAD data → www.festo.com

1

Size	B1 ±0.5	B2	B3	B4	D1 ∅ g7	D2 ∅	D3 ∅ f8
12	19.8	48±0.3	59±0.3	30±0.2	8	15±0.2	24
16	23.5	57±0.3	70±0.3	40±0.2	10	18 _{-0.3}	28
25	28	65±0.3	83±0.3	40±0.2	12	20 _{-0.3}	30
32	35.5	85±0.3	105±0.3	60±0.3	16	27 _{-0.4}	42
40	43.8	105±0.3	130±0.5	80±0.3	20	36 _{-0.4}	52
63	50.3	125±0.5	152 ^{+0.2}	80±0.3	25	40±0.3	70

Size	D4	D5	D6	D7 ∅	D8	D9	D10
12	M3	M4	M2	78±0.3	M8x1	M4	M4
16	M3	M5	M2	91±0.3	M10x1	M5	M5
25	M4	M6	M2	106±0.3	M10x1	M6	M5
32	M5	M8	M2	135±0.3	M12x1	M8	M5
40	M6	M10	M2	168±0.5	M16x1	M10	M6
63	M10	M10	M3	200±0.5	M22x1.5	M12	M6

Size	EE	H1 ±0.2	L1	L2 +0.6 -0.7	L3	L4 ±0.4	L5
12	M5	29.5	87.3±0.3	24.5	20±0.2	3	10.3±0.2/-0.3
16	M5	35	106.6±1	28	23±0.2	2.6	13±0.2/-0.4
25	M5	41.5	125.5±0.5	36.5	30±0.2	4	15.2±0.2/-0.4
32	G1/8	52.5	164±0.5	51	40±0.2	8	19.2±0.2/-0.4
40	G1/8	65	200.5±0.6	62	50±0.3	8	23.7±0.2/-0.4
63	G1/4	76	254.4±0.4/-0.55	75.5	60±0.3	10.5	28.5±0.3/-0.5

Size	L6	L7	L8	L9	L10	L13	T1 max.
12	74.5±0.8	5±0.1	35.5	3	22.7	6.5	8.8
16	91±0.9	6.5±0.2	44.1	7.2	26.1	6.5	11.2
25	109±1	7.5±0.2	51.5	2.9	20.7	6.5	13.5
32	144±1.1	9.5±0.2	67.4	3.8	29.1	6.5	18
40	176±1.2	12±0.2	81	3.4	43.5	6.5	22.5
63	216.5±1.2	14±0.2	99	10	72.5	4.5	28

Size	T2 +2	T3 +0.2	⊕ 1	⊕ 2	⊕ 3	⊕ 4	Feather key to DIN 6885 ¹⁾
12	9	8	10	6	2.5	2.5	A2x2x16
16	9	8	13	8	3	3	A3x3x18
25	10	10	13	8	4	3	A4x4x25
32	12.5	12	15	10	5	4	A5x5x36
40	16	15	19	10	6	5	A6x6x45
63	22	16	27	10	8	5	A8x7x50

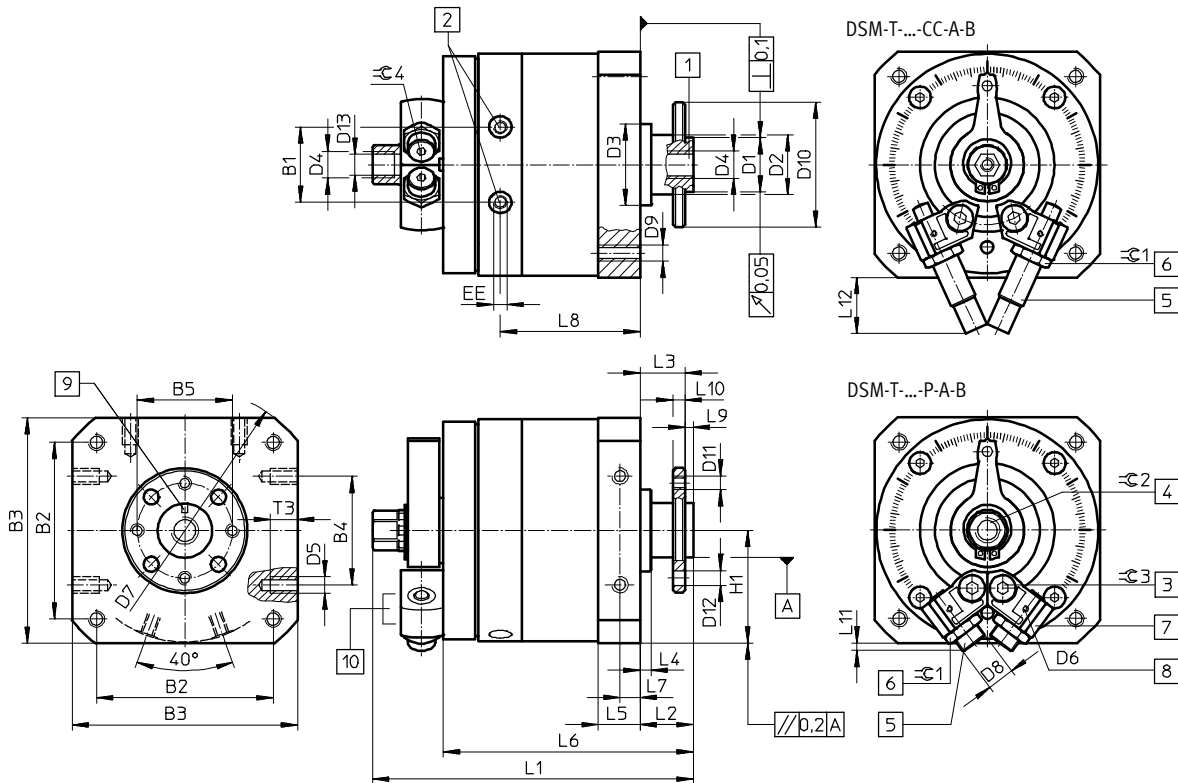
1) Included in the scope of delivery.

Note: This product conforms to ISO 1179-1 and ISO 228-1.

Swivel modules DSM-B

Dimensions – Size 12 ... 63-B

1 DSM-T-...-B – With tandem rotary vanes and flanged shaft



- | | | | |
|---|--|---|---|
| <p>1 Flanged shaft with through-hole</p> <p>2 Supply ports</p> <p>3 Locking screw for clamping the stop</p> | <p>4 Manual override (internal hex).
The position of the internal hex is not defined</p> | <p>5 End-position adjustment</p> <p>6 Lock nut for end-position adjustment</p> <p>7 Infinitely adjustable stops</p> | <p>8 Mounting thread for sensor bracket</p> <p>9 Position of marking corresponds to position of stop</p> <p>10 Sensor bracket</p> |
|---|--|---|---|

Dimensions – Size 12 ... 63-B

Download CAD data → www.festo.com

1

Size	B1 ±0.5	B2	B3	B4	B5	D1 ∅ f8	D2 ∅	D3 ∅ f8	D4
12	19.8	48±0.3	59±0.3	30±0.2	25	14	15±0.2	24	M5
16	23.5	57±0.3	70±0.3	40±0.2	28	16	18 _{-0.3}	28	M5
25	28	65±0.3	83±0.3	40±0.2	35	20	20 _{-0.3}	30	G $\frac{1}{8}$
32	35.5	85±0.3	105±0.3	60±0.3	45	28	27 _{-0.4}	42	G $\frac{1}{8}$
40	43.8	105±0.3	130±0.5	80±0.3	54	36	36 _{-0.4}	52	G $\frac{1}{4}$
63	50.3	125±0.5	152±0.2	80±0.3	64	38	40±0.3	70	G $\frac{1}{4}$

Size	D5	D6	D7 ∅	D8	D9	D10 ∅	D11	D12 H13	D13
12	M4	M2	78±0.3	M8x1	M4	33	M3	3.4	4.2
16	M5	M2	91±0.3	M10x1	M5	38	M4	4.5	4.2
25	M6	M2	106±0.3	M10x1	M6	46	M5	5.5	8.6
32	M8	M2	135±0.3	M12x1	M8	60	M6	6.5	8.6
40	M10	M2	168±0.5	M16x1	M10	70	M8	9	11.5
63	M10	M3	200±0.5	M22x1.5	M12	88	M8	12	11.5

Size	EE	H1 ±0.2	L1	L2 +0.5 -0.85	L3 +0.5 -0.62	L4 ±0.4	L5	L6 ±1	L7
12	M5	29.5	86.3 _{+0.4/-0.65}	13	11	3	10.3 _{+0.2/-0.3}	63	5±0.1
16	M5	35	103 _{+0.4/-0.65}	15	13	2.6	13 _{+0.2/-0.4}	78	6.5±0.2
25	M5	41.5	118 _{+0.4/-0.65}	19.5	16.5	4	15.2 _{+0.2/-0.4}	92	7.5±0.2
32	G $\frac{1}{8}$	52.5	152.8 _{+0.4/-0.65}	27	23	8	19.2 _{+0.2/-0.4}	120	9.5±0.2
40	G $\frac{1}{8}$	65	188.8 _{+0.4/-0.7}	33	28	8	23.7 _{+0.2/-0.4}	147	12±0.2
63	G $\frac{1}{4}$	76	234.4 _{+0.2/-0.55}	37.5	31.5	10.5	28.5 _{+0.3/-0.5}	178.5	14±0.2

Size	L8	L9 -0.2	L10	L11	L12	T3 +0.2	∅ 1	∅ 2	∅ 3	∅ 4
12	35.5	2	3±0.1	3	22.7	8	10	8	2.5	2.5
16	44.1	2	4±0.1	7.2	26.1	8	13	11	3	3
25	51.5	3	4.5±0.1	2.9	20.7	10	13	13	4	3
32	67.4	4	6±0.1	3.8	29.1	12	15	13	5	4
40	81	5	7.5±0.1	3.4	43.5	15	19	19	6	5
63	99	6	9±0.2	10	72.5	16	27	22	8	5

Note: This product conforms to ISO 1179-1 and ISO 228-1.

Twin piston semi-rotary drives DRRD

1



- Very high accuracy in the end positions
- Very high bearing load capacity
- Very good axial run-out at the flanged shaft
- High mass moments of inertia
- Low-backlash and dynamic
- Spare parts service
- Repair service
- ★ Quick ordering of basic designs → 245

→ www.festo.com/catalogue/drrd

Product range overview

Type/function	Version	Size	Max. nominal swivel angle [°]	Torque [Nm]	Product options										→ Page/on-line
					FH	P	Y9	Y10	Y12	A	E1	R	SG	DN	
DRRD															
Double-acting	Basic design	8, 10	200	0.2 ... 0.4	■	■	-	-	-	■	-	-	-	■	243
		12	200	0.8	■	■	■	-	■	■	-	-	-	■	
		16, 20	200	1.6 ... 2.4	■	■	■	-	■	■	■	■	■	■	247
		25	200	5.1	■	■	■	■	■	■	■	■	■	■	
		32	200	10.1	■	■	■	-	■	■	■	■	■	■	
		35, 40	200	15.8 ... 24.1	■	■	■	■	■	■	■	■	■	■	
		50	200	53	■	-	■	■	■	■	■	■	■	■	
63	200	112	■	-	■	■	■	■	■	■	■	■			

Product options

FH	Hollow flanged shaft	P8	Pneumatic energy through-feed, 8 channels	Y10	Linear shock absorber, self-adjusting at both ends, hard	E1	End-position locking at both ends
P2	Pneumatic energy through-feed, 2 channels	P8E8	Pneumatic energy through-feed, 8 channels and electrical, 8 signals	Y12	Linear shock absorber, self-adjusting at both ends, external	R	Sensor mounting, external
P2E2	Pneumatic energy through-feed, 2 channels and electrical, 2 signals	P	Elastic cushioning rings/plates at both ends	A	Position sensing	SG	Splash-proof
P4	Pneumatic energy through-feed, 4 channels	Y9	Linear shock absorber, self-adjusting at both ends	EX4	EU certification (II 2 GD)	DN	Without operating instructions
P4E6	Pneumatic energy through-feed, 4 channels and electrical, 6 signals			PS1	Intermediate position		

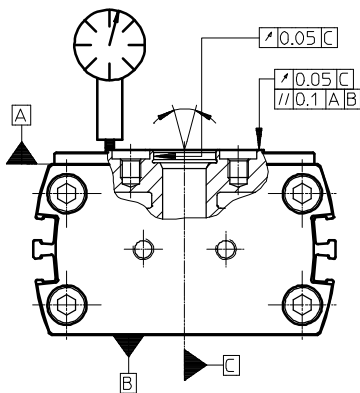
Technical data – Size 8 ... 12



1

Technical data		Dimensions → 256		
Size		8	10	12
Pneumatic connection		M3	M3	M5
Type of mounting		Via through-hole Via female thread		
Max. nominal swivel angle	[°]	200		
Cushioning with fixed stop		Elastic cushioning rings/plates at both ends		
DRRD-...-P		Elastic cushioning rings/plates at both ends		
DRRD-...-Y9		-		Linear shock absorber, self-adjusting at both ends
DRRD-...-Y12		-		Linear shock absorber, self-adjusting at both ends, external
Theoretical torque at 6 bar	[Nm]	0.2	0.4	0.8
Max. permissible mass moment of inertia		Elastic cushioning rings/plates at both ends		
DRRD-...-P	[kgcm ²]	15	20	80
DRRD-...-Y9	[kgcm ²]	-	-	300
DRRD-...-Y12	[kgcm ²]	-	-	300
Max. axial load (static)		Elastic cushioning rings/plates at both ends		
Pulling	[N]	260	260	330
Pushing	[N]	700	1100	1400

Axial run-out in new condition < 0.02 mm



Note

If, in the end positions, a torque which exceeds 50% of the theoretical torque acts against the direction of rotation, no exact end position is

guaranteed. This can be avoided by using external shock absorbers (Y12) or a semi-rotary drive with double the torque.

Operating conditions

Operating pressure		
DRRD-...-P	[bar]	3 ... 8
DRRD-...-Y9/-Y12	[bar]	2 ... 10
Ambient temperature	[°C]	-10 ... +60
Storage temperature	[°C]	-20 ... +60
Degree of protection based on EN 60529		
DRRD-...-SG		IP65

Twin piston semi-rotary drives DRRD

Technical data – Size 8 ... 12

1

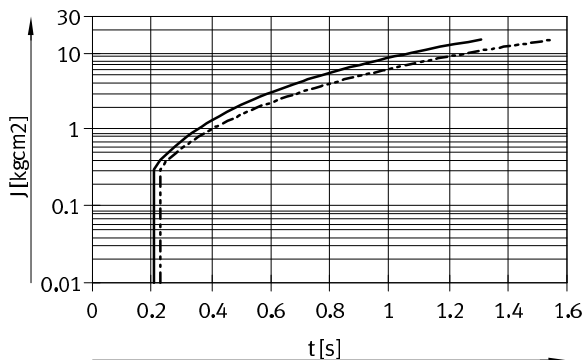
Materials

Drive shaft	High-alloy stainless steel
Housing	Smooth anodised wrought aluminium alloy
Piston	Copper base alloy
Seals	TPE-U (PU), NBR

Max. permissible mass moment of inertia J at the flanged shaft as a function of swivel time s
(at room temperature and operating pressure of 6 bar)

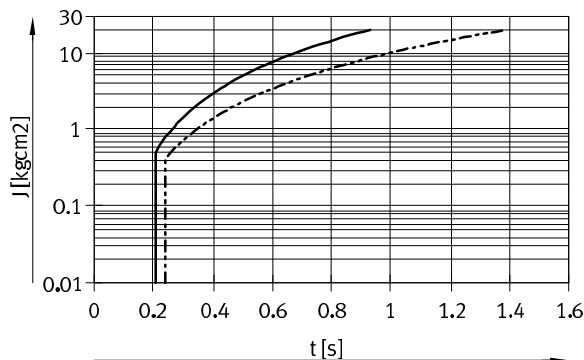
Cushioning P

Size 8



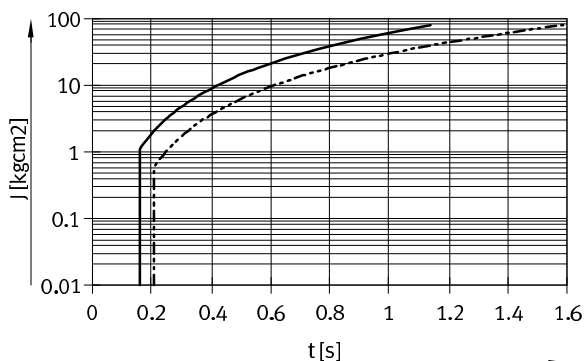
- Ranges
- DRRD-8-...-P (90°) → 0 ... 15 kgcm²
 - - - DRRD-8-...-P (180°) → 0 ... 15 kgcm²

Size 10



- Ranges
- DRRD-10-...-P (90°) → 0 ... 20 kgcm²
 - - - DRRD-10-...-P (180°) → 0 ... 20 kgcm²

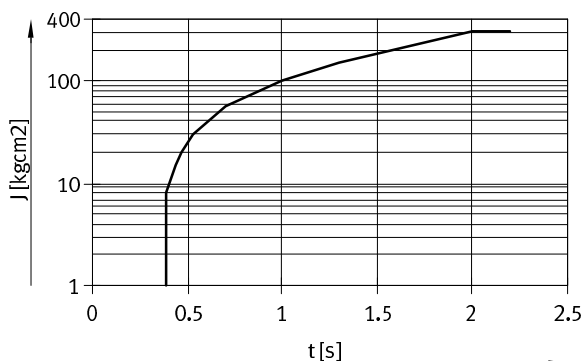
Size 12



- Ranges
- DRRD-12-...-P (90°) → 0 ... 80 kgcm²
 - - - DRRD-12-...-P (180°) → 0 ... 80 kgcm²

Cushioning Y9

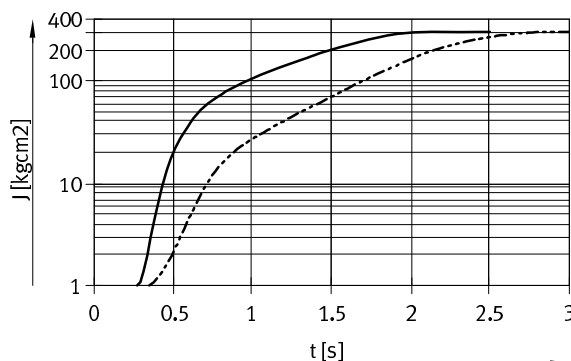
Size 12



- Ranges
- DRRD-12-180-...-Y9 (180°) → 1 ... 300 kgcm²

Cushioning Y12

Size 12



- Ranges
- DRRD-12-...-Y12 (90°) → 1 ... 300 kgcm²
 - - - DRRD-12-...-Y12 (180°) → 1 ... 300 kgcm²

Order code – Size 8 ... 12

1

Product type		DRRD	-		-	180	-	FH	-		-	A
DRRD	Double-acting semi-rotary drive											
Size												
Nominal swivel angle [°]												
8, 10, 12	180											
Output shaft												
FH	Flanged shaft, hollow											
Cushioning												
P	Elastic cushioning rings/plates at both ends											
Y9	Linear shock absorber, self-adjusting at both ends											1
Y12	Linear shock absorber, self-adjusting at both ends, external											1
Position sensing												
A	Via proximity sensor											
Operating instructions												
-	With operating instructions											
DN	Without operating instructions											1

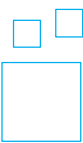
1) Not with size 8, 10

Order example:

DRRD-12-180-FH-Y9A-DN

Semi-rotary drive DRRD - size 12 mm - swivel angle 180° - hollow flanged shaft - linear shock absorber, at both ends, self-adjusting - position sensing via proximity sensor - without operating instructions

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or

→ www.festo.com/catalogue/...

Enter the type code in the search field.

★ Quick ordering¹⁾ – Size 8 ... 12

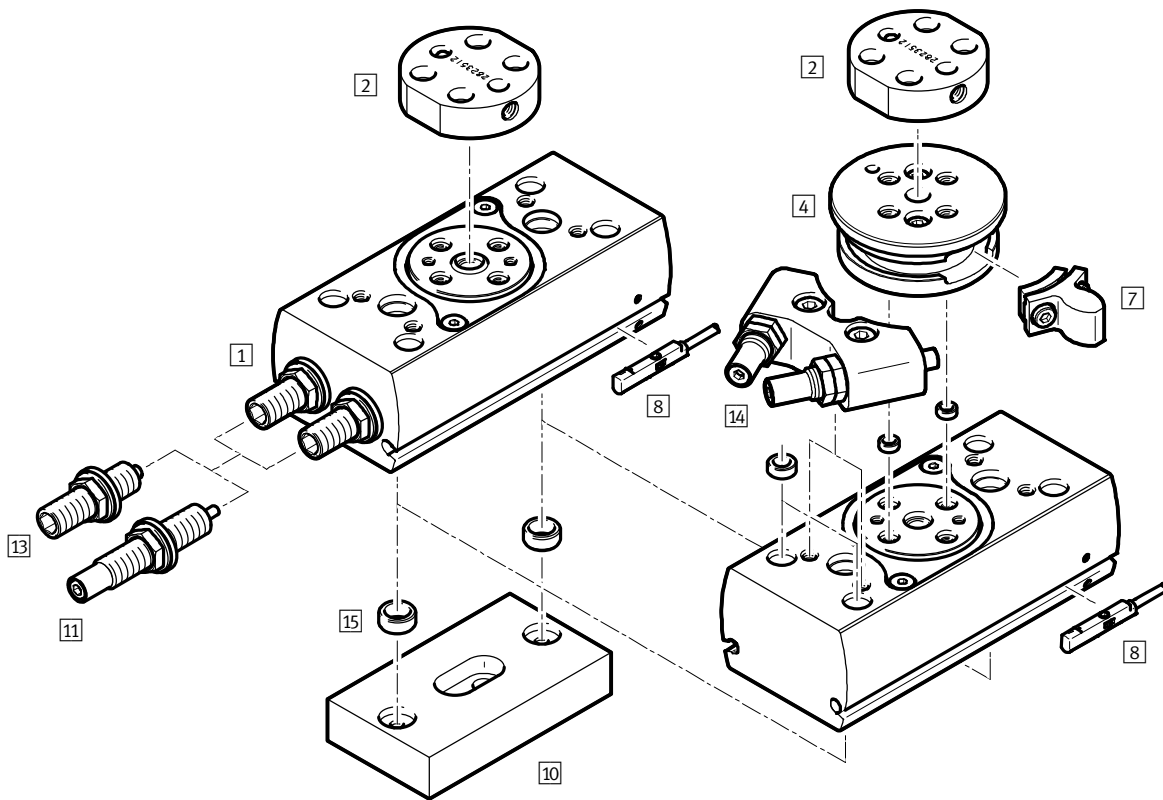
P – Elastic cushioning rings/plates at both ends				Y9 – Linear shock absorber, self-adjusting at both ends			
Piston Ø	Nominal swivel angle	Part No.	Type	Piston Ø	Nominal swivel angle	Part No.	Type
8	180°	2223060	DRRD-8-180-FH-PA	12	180°	2399248	DRRD-12-180-FH-Y9A
10		2350968	DRRD-10-180-FH-PA				
12		2282067	DRRD-12-180-FH-PA				

1) All products in this table are easy to select and quick to order.

Twin piston semi-rotary drives DRRD

Accessories – Size 8 ... 12

1



	→ Page/on-line
1	245
2	drrd
4	254
7	254
8	255

	→ Page/on-line
10	drrd
11	245
13	245
14	245
15	254

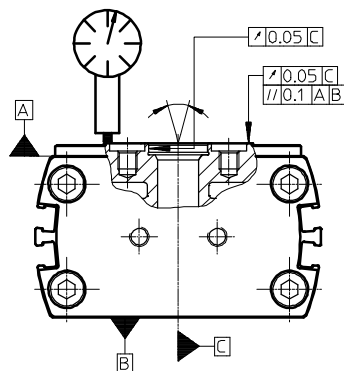
Technical data – Size 16 ... 63



1

Technical data		Dimensions → 256								
Size		16	20	25	32	35	40	50	63	
Pneumatic connection										
Semi-rotary drive		M5			G1/8		G1/4		G3/8	
Clamping unit DADL-EL		M5								
Type of mounting		Via through-hole								
		Via female thread								
Swivel angle										
Nominal swivel angle	[°]	180								
Max. swivel angle	[°]	200								
With clamping unit DADL-EL	[°]	60 ... 200			55 ... 200		57 ... 200		62 ... 200	55 ... 200
Cushioning with fixed stop										
DRRD-...-P		Elastic cushioning rings/plates at both ends							-	
DRRD-...-Y9		Linear shock absorber, self-adjusting at both ends								
DRRD-...-Y10		-		Linear shock absorber, self-adjusting at both ends, hard		-		Linear shock absorber, self-adjusting at both ends, hard		
DRRD-...-Y12		Linear shock absorber, self-adjusting at both ends, external								
Theoretical torque at 6 bar	[Nm]	1.6	2.4	5.1	10.1	15.8	24.1	53	112	
Max. permissible mass moment of inertia										
DRRD-...-P	[kgcm ²]	175	400	900	1500	2500	6700	-	-	
DRRD-...-Y9	[kgcm ²]	700	1250	1500	26,000	15,000	23,000	40,000	40,000	
DRRD-...-Y10	[kgcm ²]	-	-	5500	-	45,000	67,000	200,000	420,000	
DRRD-...-Y12	[kgcm ²]	900	1500	5500	26,000	45,000	67,000	200,000	420,000	
Max. axial load (static)	[N]	1500	2400	2400	3750	6100	6100	9000	11,000	

Axial run-out in new condition < 0.05 mm



Twin piston semi-rotary drives DRRD

1

Technical data – Size 16 ... 63

Operating conditions

Operating pressure		
DRRD-...-P	[bar]	3 ... 8
DRRD-...-Y9/-Y10/-Y12	[bar]	2 ... 10
DRRD-... E1	[bar]	5 ... 8
DADL-EL		
Ambient temperature	[°C]	-10 ... +60
Degree of protection based on EN 60529		
DRRD-...-SG		IP65

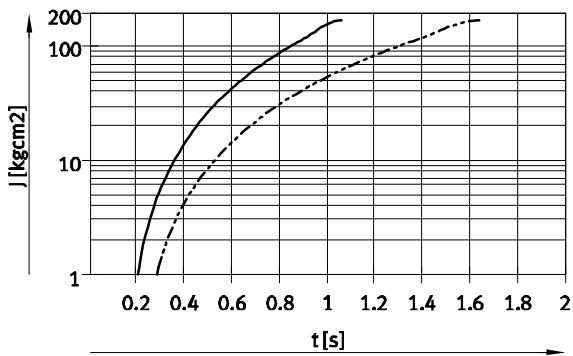
Materials

Drive shaft	Tempered steel
End cap	Anodised wrought aluminium alloy
Housing	Smooth anodised wrought aluminium alloy
Piston	Stainless steel
Seals	TPE-U (PU), NBR

Max. permissible mass moment of inertia J at the flanged shaft as a function of swivel time s
(at room temperature and operating pressure of 6 bar)

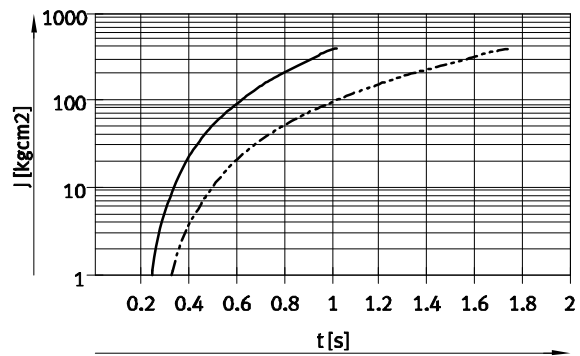
Cushioning P

Size 16



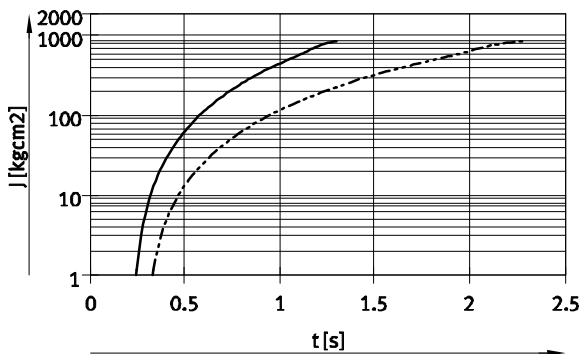
— DRRD-16-...-P (90°) Ranges
 → 1 ... 175 kgcm²
 - - - DRRD-16-...-P (180°) → 1 ... 175 kgcm²

Size 20



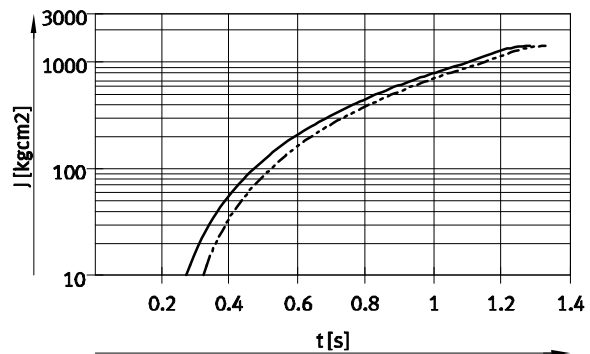
— DRRD-20-...-P (90°) Ranges
 → 1 ... 400 kgcm²
 - - - DRRD-20-...-P (180°) → 1 ... 400 kgcm²

Size 25



— DRRD-25-...-P (90°) Ranges
 → 1 ... 900 kgcm²
 - - - DRRD-25-...-P (180°) → 1 ... 900 kgcm²

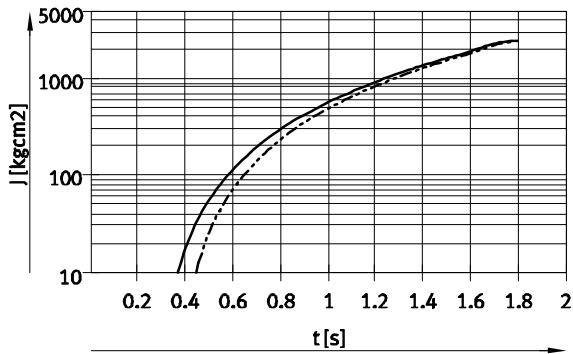
Size 32



— DRRD-32-...-P (90°) Ranges
 → 10 ... 1500 kgcm²
 - - - DRRD-32-...-P (180°) → 10 ... 1500 kgcm²

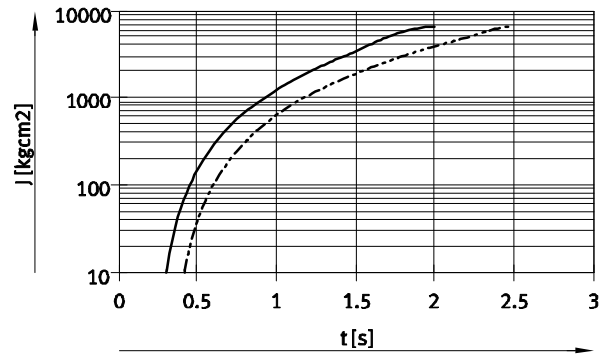
Technical data – Size 16 ... 63

Size 35



— DRRD-35-...-P (90°) Ranges → 10 ... 2500 kgcm²
 - - - DRRD-35-...-P (180°) Ranges → 10 ... 2500 kgcm²

Size 40

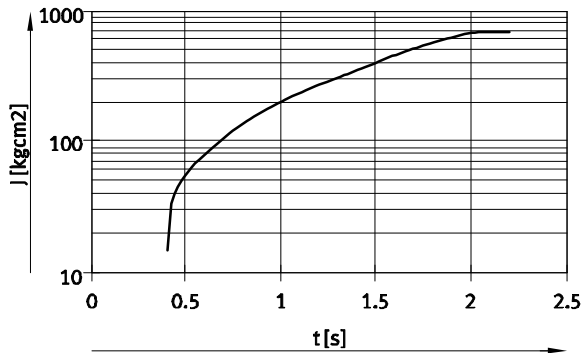


— DRRD-40-...-P (90°) Ranges → 10 ... 6700 kgcm²
 - - - DRRD-40-...-P (180°) Ranges → 10 ... 6700 kgcm²

Max. permissible mass moment of inertia J at the flanged shaft as a function of swivel time s
(at room temperature and operating pressure of 6 bar)

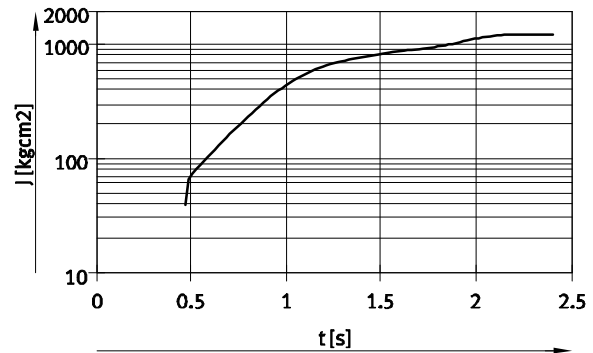
Cushioning Y9/Y10

Size 16



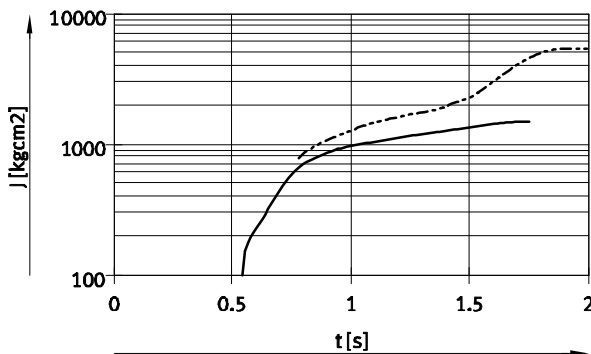
— DRRD-16-180-...-Y9 (180°) Ranges → 15 ... 700 kgcm²

Size 20



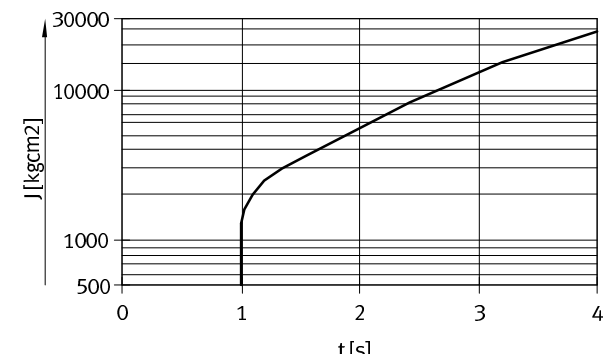
— DRRD-20-180-...-Y9 (180°) Ranges → 40 ... 1250 kgcm²

Size 25



— DRRD-25-180-...-Y9 (180°) Ranges → 100 ... 1500 kgcm²
 - - - DRRD-25-180-...-Y10 (180°) Ranges → 800 ... 5500 kgcm²

Size 32

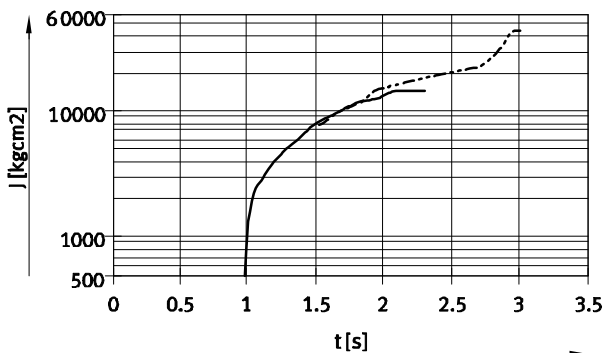


— DRRD-32-180-...-Y9 (180°) Ranges → 100 ... 26,000 kgcm²

Twin piston semi-rotary drives DRRD

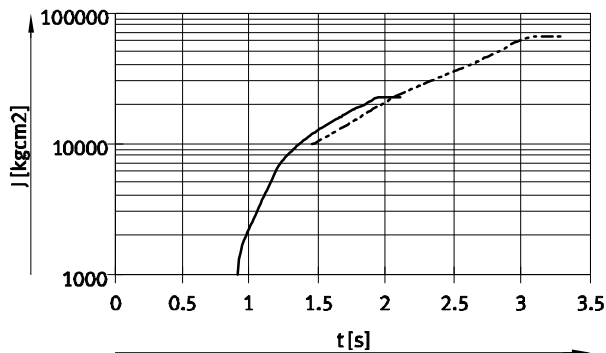
1 Technical data – Size 16 ... 63

Size 35



—	DRRD-35-180-...-Y9 (180°)	Ranges	→ 500 ... 15,000 kgcm ²
- - -	DRRD-35-180-...-Y10 (180°)		→ 8,000 ... 45,000 kgcm ²

Size 40



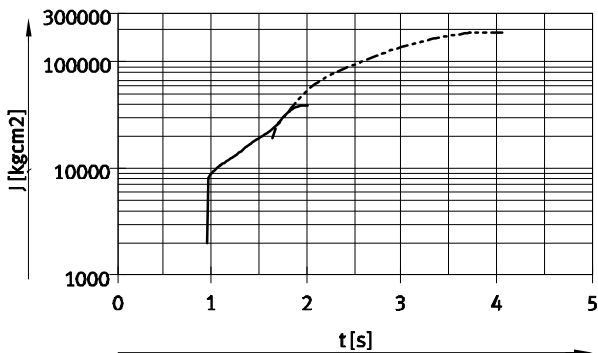
—	DRRD-40-180-...-Y9 (180°)	Ranges	→ 1,000 ... 23,000 kgcm ²
- - -	DRRD-40-180-...-Y10 (180°)		→ 10,000 ... 67,000 kgcm ²

Max. permissible mass moment of inertia J at the flanged shaft as a function of swivel time s

(at room temperature and operating pressure of 6 bar)

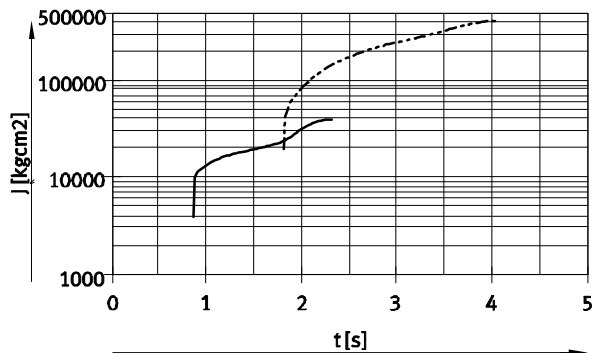
Cushioning Y9/Y10

Size 50



—	DRRD-50-180-...-Y9 (180°)	Ranges	→ 2,000 ... 40,000 kgcm ²
- - -	DRRD-50-180-...-Y10 (180°)		→ 20,000 ... 200,000 kgcm ²

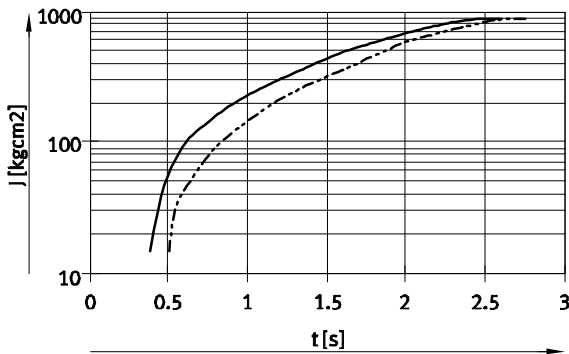
Size 63



—	DRRD-63-180-...-Y9 (180°)	Ranges	→ 4,000 ... 40,000 kgcm ²
- - -	DRRD-63-180-...-Y10 (180°)		→ 20,000 ... 420,000 kgcm ²

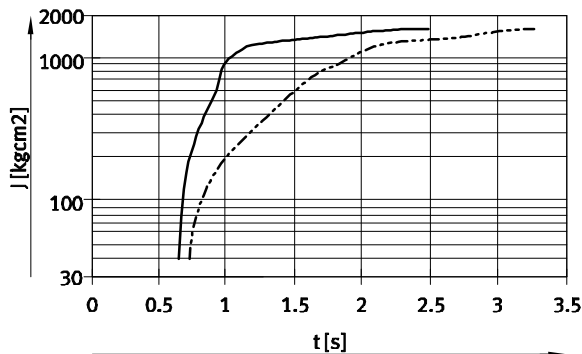
Cushioning Y12

Size 16



—	DRRD-16-...-Y12 (90°)	Ranges	→ 15 ... 900 kgcm ²
- - -	DRRD-16-...-Y12 (180°)		→ 15 ... 900 kgcm ²

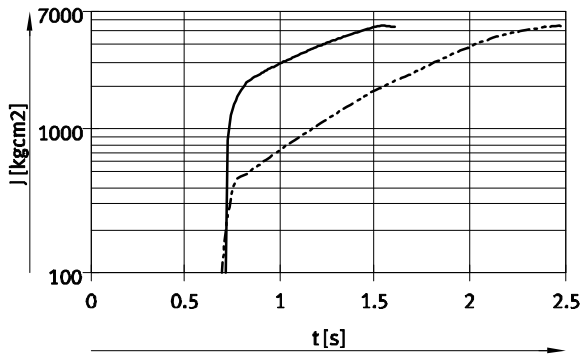
Size 20



—	DRRD-20-...-Y12 (90°)	Ranges	→ 40 ... 1500 kgcm ²
- - -	DRRD-20-...-Y12 (180°)		→ 40 ... 1500 kgcm ²

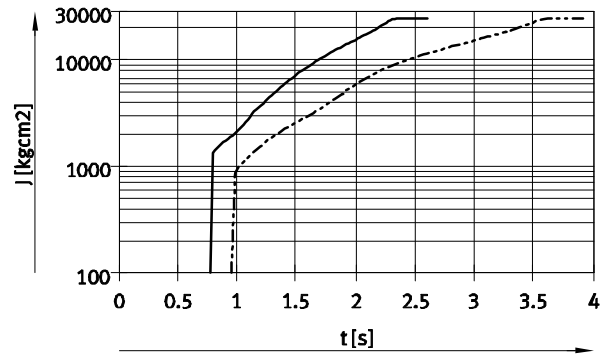
Technical data – Size 16 ... 63

Size 25



—	DRRD-25-...-Y12 (90°)	Ranges	→ 100 ... 5500 kgcm ²
- - -	DRRD-25-...-Y12 (180°)		→ 100 ... 5500 kgcm ²

Size 32



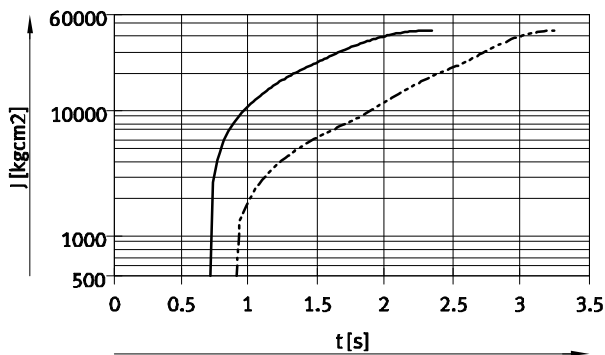
—	DRRD-32-...-Y12 (90°)	Ranges	→ 100 ... 26,000 kgcm ²
- - -	DRRD-32-...-Y12 (180°)		→ 100 ... 26,000 kgcm ²

Max. permissible mass moment of inertia J at the flanged shaft as a function of swivel time s

(at room temperature and operating pressure of 6 bar)

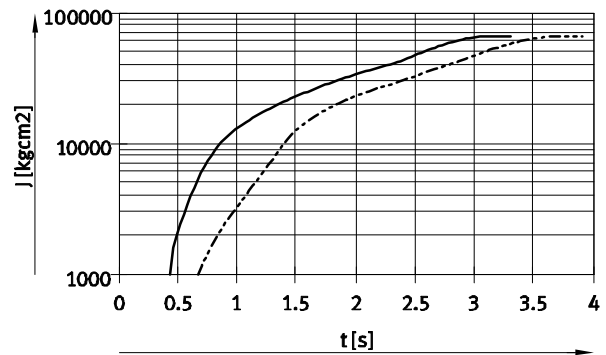
Cushioning Y12

Size 35



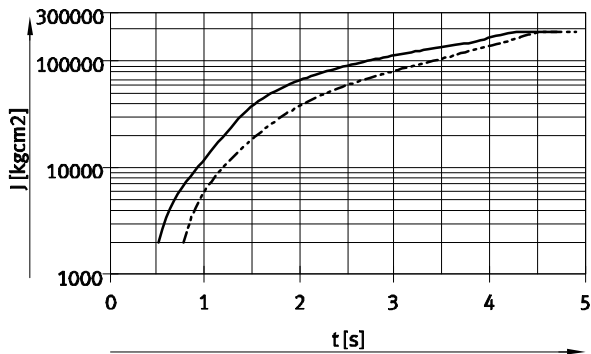
—	DRRD-35-...-Y12 (90°)	Ranges	→ 500 ... 45,000 kgcm ²
- - -	DRRD-35-...-Y12 (180°)		→ 500 ... 45,000 kgcm ²

Size 40



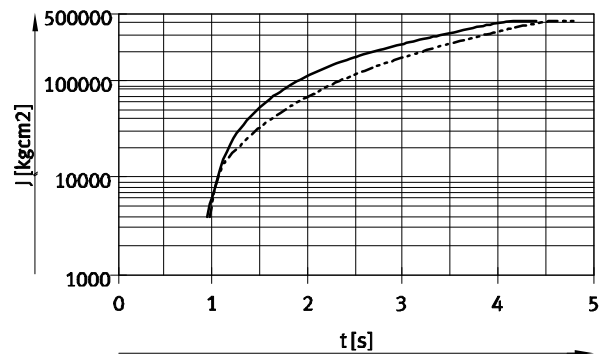
—	DRRD-40-...-Y12 (90°)	Ranges	→ 1,000 ... 67,000 kgcm ²
- - -	DRRD-40-...-Y12 (180°)		→ 1,000 ... 67,000 kgcm ²

Size 50



—	DRRD-50-...-Y12 (90°)	Ranges	→ 2,000 ... 200,000 kgcm ²
- - -	DRRD-50-...-Y12 (180°)		→ 2,000 ... 200,000 kgcm ²

Size 63



—	DRRD-63-...-Y12 (90°)	Ranges	→ 4,000 ... 420,000 kgcm ²
- - -	DRRD-63-...-Y12 (180°)		→ 4,000 ... 420,000 kgcm ²

Twin piston semi-rotary drives DRRD

Order code – Size 16 ... 63

1

DRRD - [] - 180 - FH - [] - A - [] - [] - [] - [] - [] - []

Product type	
Double-acting	
DRRD	Semi-rotary drive
Size	
	Nominal swivel angle [°]
16, 20, 25, 32, 35, 40, 50, 63	180
Output shaft	
FH	Flanged shaft, hollow
Cushioning	
P	Elastic cushioning rings/plates at both ends
Y9	Linear shock absorber, self-adjusting at both ends
Y10	Linear shock absorber, self-adjusting at both ends, hard 1
Y12	Linear shock absorber, self-adjusting at both ends, external 2
Position sensing	
A	Via proximity sensor
End-position locking	
-	None
E1	At both ends 3
Sensor mounting, external	
-	None
R	Mounting rail for proximity sensor
Version	
-	Standard
SG	Splash-proof design
Operating instructions	
-	With operating instructions
DN	Without operating instructions


- 1 Not with size 16, 20, 32
- 2 Not with end-position locking E1 and splash-proof design SG
- 3 Not with sensor mounting R and splash-proof design SG

Order example:

DRRD-32-180-FH-Y9A-E1-DN

Semi-rotary drive DRRD - size 32 mm - swivel angle 180° - hollow flanged shaft - linear shock absorber, self-adjusting at both ends - position sensing via proximity sensor - end-position locking at both ends - not splash-proof - without operating instructions

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
➔ www.festo.com/catalogue/...

Enter the type code in the search field.

★ Quick ordering¹⁾ – Size 16 ... 63

P – Elastic cushioning rings/plates at both ends

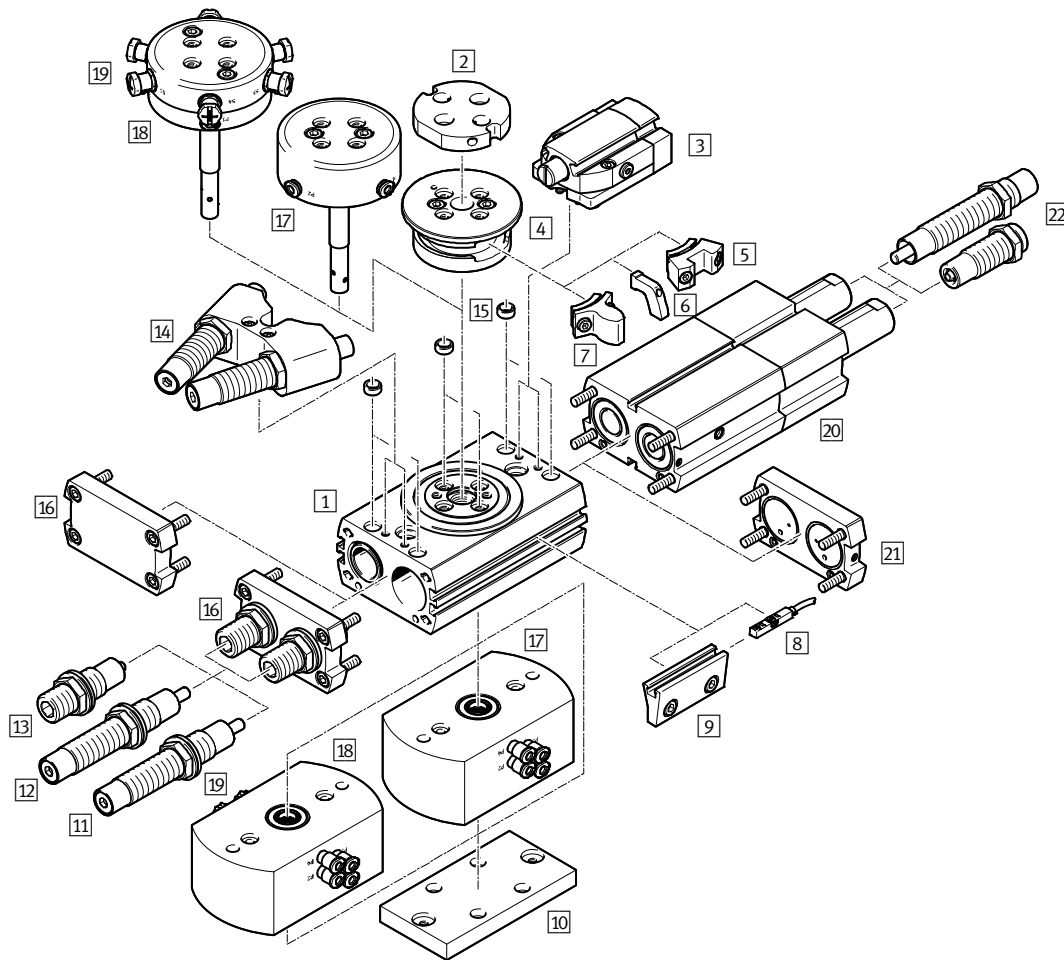
Piston Ø	Nominal swivel angle	Part No.	Type
16	180°	1577238	DRRD-16-180-FH-PA
20		1395606	DRRD-20-180-FH-PA
25		1359980	DRRD-25-180-FH-PA
32		1578512	DRRD-32-180-FH-PA
35		1526825	DRRD-35-180-FH-PA
40		1503269	DRRD-40-180-FH-PA

Y9 – Linear shock absorber, self-adjusting at both ends

Piston Ø	Nominal swivel angle	Part No.	Type
16	180°	1644389	DRRD-16-180-FH-Y9A
20		1427379	DRRD-20-180-FH-Y9A
25		1360248	DRRD-25-180-FH-Y9A
32		1578518	DRRD-32-180-FH-Y9A
35		1547102	DRRD-35-180-FH-Y9A
40		1526986	DRRD-40-180-FH-Y9A

1) All products in this table are easy to select and quick to order.

Accessories – Size 16 ... 63



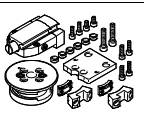
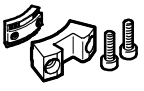

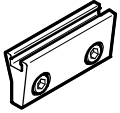
	→ Page/on-line
1 Semi-rotary drive DRRD	243
2 Adapter kit DHAA	drrd
3 End-position locking E1 (clamping unit DADL-...-EL as an accessory)	254
4 Flange assembly	254
5 Clamping component (type: DADL-EC)	254
6 Switch lug DASI-Q11-...-SL	254
7 Stop element	–
8 Proximity sensor SMT-/SME-8	255
9 Sensor mounting kit R (sensing kit DASI-...-KT as an accessory)	254
10 Adapter kit DHAA	drrd
11 Shock absorber Y9	245
12 Shock absorber, hard Y10	245

	→ Page/on-line
13 Shock absorber P	245
14 Shock absorber, external Y12	245
15 Centring sleeve ZBH	254
16 End cap	–
17 Pneumatic energy throughfeed	drrd
18 Pneumatic/electric energy throughfeed	drrd
19 Connecting cable NEBU	drrd
20 Intermediate position	drrd
21 Connection cap	drrd
22 Shock absorber	drrd
– Non-return valves GRLA	254

Twin piston semi-rotary drives DRRD

Accessories – Ordering data

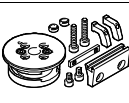



1

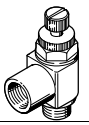
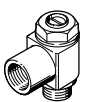
	For Ø	Part No.	Type
3 Clamping unit DADL-EL Technical data online: → drrd			
	16	1692770	DADL-EL-Q11-16
	20	1579786	DADL-EL-Q11-20
	25	1568183	DADL-EL-Q11-25
	32	1631139	DADL-EL-Q11-32
	35	1544900	DADL-EL-Q11-35/40
	40	1544900	DADL-EL-Q11-35/40
	50	1796637	DADL-EL-Q11-50
	63	1941568	DADL-EL-Q11-63
5 Clamping component DADL-EC Technical data online: → drrd			
	16	1692496	DADL-EC-Q11-16
	20, 25	1435411	DADL-EC-Q11-20/25
	32	1631170	DADL-EC-Q11-32
	35, 40	1535091	DADL-EC-Q11-35/40
	50	1796626	DADL-EC-Q11-50
	63	1941355	DADL-EC-Q11-63
6 Switch lug DASI-...-SL Technical data online: → drrd			
	16	1692969	DASI-Q11-16-A-SL
	20, 25	1568436	DASI-Q11-20/25-A-SL
	32	1631824	DASI-Q11-32-A-SL
	35, 40	1548155	DASI-Q11-35/40-A-SL
	50	1797021	DASI-Q11-50-A-SL
63	1971550	DASI-Q11-63-A-SL	
9 Sensor bracket DASI-...-SR¹⁾ Technical data online: → drrd			
	16	1692983	DASI-Q11-16-A-SR
	20	1581420	DASI-Q11-20-A-SR
	25	1568451	DASI-Q11-25-A-SR
	32	1631997	DASI-Q11-32-A-SR
	35	1550870	DASI-Q11-35-A-SR
	40	1548054	DASI-Q11-40-A-SR
	50	1797071	DASI-Q11-50-A-SR
	63	1971563	DASI-Q11-63-A-SR

1) Packaging unit 2 pieces.

2) Packaging unit 10 pieces.

2 included in the scope of delivery of the semi-rotary drive or attachments.

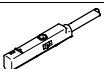

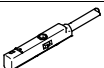
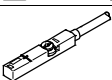
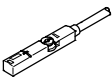
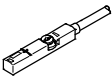

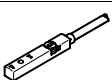
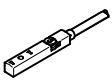


	For Ø	Part No.	Type
9 Sensing kit DASI-...-KT Technical data online: → drrd			
	16	1693008	DASI-Q11-16-A-KT
	20	1580899	DASI-Q11-20-A-KT
	25	1568461	DASI-Q11-25-A-KT
	32	1632097	DASI-Q11-32-A-KT
	35	1551144	DASI-Q11-35-A-KT
	40	1550027	DASI-Q11-40-A-KT
	50	1797135	DASI-Q11-50-A-KT
	63	1946877	DASI-Q11-63-A-KT
14 Shock absorber DYSC Technical data online: → drrd			
	12	548011	DYSC-5-5-Y1F
	16	548012	DYSC-7-5-Y1F
	20	548013	DYSC-8-8-Y1F
	25	548014	DYSC-12-12-Y1F
	32, 35, 40	553593	DYSC-16-18-Y1F
	50	2479149	DYSC-20-18-Y1F
	63	2480234	DYSC-25-25-Y1F
15 Centring sleeve²⁾ Technical data online: → zbh			
For housing			
	8, 10	186717	ZBH-7
	12, 16, 20	150927	ZBH-9
	25	189653	ZBH-12
	32 ... 50	191409	ZBH-15
	63	8023856	ZBH-25
For flanged shaft			
	8, 10, 12	189652	ZBH-5
	16, 20	186717	ZBH-7
	25 ... 40	150927	ZBH-9
	50	189653	ZBH-12
	63	191409	ZBH-15

	For Ø	Part No.	Type
One-way flow control valve GRLA¹⁾			
	16 ²⁾ , 20, 25	★ 197576	GRLA-M5-QS-3-RS-D
		★ 197577	GRLA-M5-QS-4-RS-D
	32, 35, 40	151169	GRLA-1/8-RS-B
	50	151175	GRLA-1/4-RS-B
	63	151178	GRLA-3/8-B

1) Packaging unit 1 piece.

2) Strongly recommended for this size.

Accessories – Ordering data

	For Ø		Part No.	Type	
8 Proximity sensor for C-slot for piston Ø 8 ... 12, magneto-resistive – N/O contact Technical data → 808					
	PNP	★	551373	SMT-10M-PS-24V-E-2,5-L-OE	
		★	551375	SMT-10M-PS-24V-E-0,3-L-M8D	
		★	551376	SMT-10M-PS-24V-E-0,3-Q-M8D	
	PNP	★	547862	SMT-10G-PS-24V-E-2,5Q-OE	
		★	547863	SMT-10G-PS-24V-E-0,3Q-M8D	
Magnetic reed – N/O contact Technical data → 808					
	Contacting	★	551367	SME-10M-DS-24V-E-0,3-L-M8D	
		★	551365	SME-10M-DS-24V-E-2,5-L-OE	
		★	551369	SME-10M-ZS-24V-E-2,5-L-OE	
8 Proximity sensor for T-slot, for piston Ø 16 ... 63, magneto-resistive – N/O contact Technical data → 808					
	PNP, cable	★	574335	SMT-8M-A-PS-24V-K-2,5-OE	
	PNP, plug	★	574334	SMT-8M-A-PS-24V-K-0,3-M8D	
	PNP, plug	★	574337	SMT-8M-A-PS-24V-K-0,3-M12	
	NPN, cable	★	574338	SMT-8M-A-NS-24V-K-2,5-OE	
	NPN, plug	★	574339	SMT-8M-A-NS-24V-K-0,3-M8D	
Magneto-resistive – N/C contact Technical data → 808					
	PNP, cable	★	574340	SMT-8M-A-PO-24V-E-7,5-OE	
Magnetic reed – N/O contact Technical data → 803					
	Cable	★	543862	SME-8M-DS-24V-K-2,5-OE	
	Cable	★	543863	SME-8M-DS-24V-K-5,0-OE	
	Cable	★	543872	SME-8M-ZS-24V-K-2,5-OE	
	Plug	★	543861	SME-8M-DS-24V-K-0,3-M8D	
Technical data → 805					
	Cable		150855	SME-8-K-LED-24	
	Plug		150857	SME-8-S-LED-24	
Proximity sensor, for T-slot, inductive – N/O contact Technical data → 831					
	PNP, M8, cable		551386	SIES-8M-PS-24V-K-7,5-OE	
	PNP, M8, plug		551387	SIES-8M-PS-24V-K-0,3-M8D	
	NPN, M8, cable		551396	SIES-8M-NS-24V-K-7,5-OE	
	NPN, M8, plug		551397	SIES-8M-NS-24V-K-0,3-M8D	
Inductive – N/C contact Technical data → 831					
	PNP, M8, cable		551391	SIES-8M-PO-24V-K-7,5-OE	
	PNP, M8, plug		551392	SIES-8M-PO-24V-K-0,3-M8D	
	NPN, M8, cable		551401	SIES-8M-NO-24V-K-7,5-OE	
	NPN, M8, plug		551402	SIES-8M-NO-24V-K-0,3-M8D	
Connecting cable, straight socket Technical data → 1053					
	2.5 m	★	541333	NEBU-M8G3-K-2.5-LE3	
	5 m	★	541334	NEBU-M8G3-K-5-LE3	
Angled socket Technical data → 1053					
	2.5 m	★	541338	NEBU-M8W3-K-2.5-LE3	
	5 m	★	541341	NEBU-M8W3-K-5-LE3	

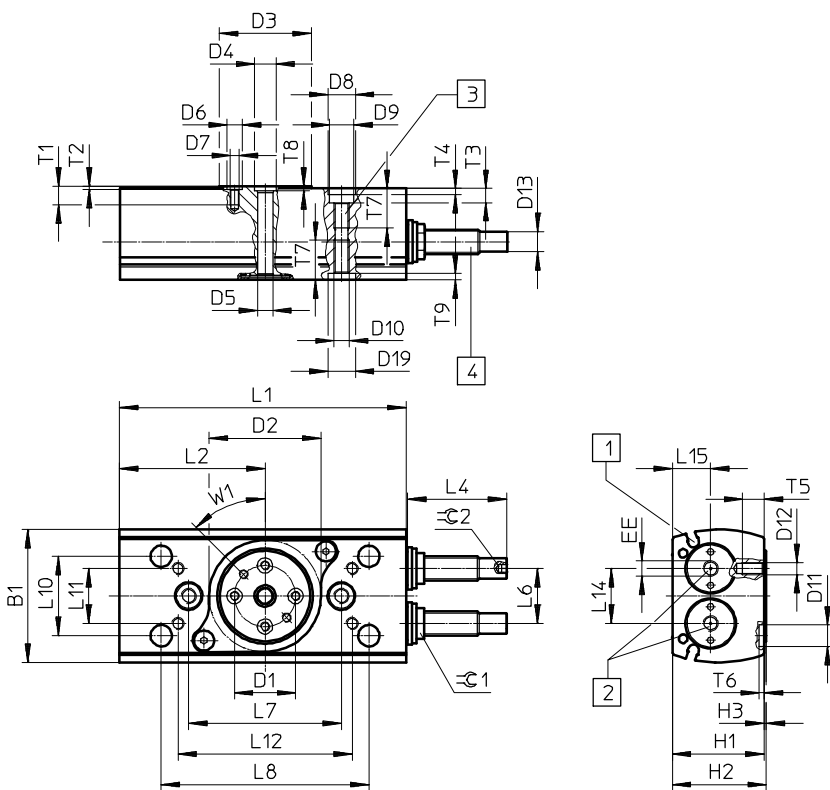
Note

The inductive proximity sensors SIES can only be used in combination with the sensing kit DASI-...-KT.

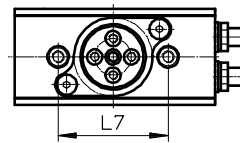
Twin piston semi-rotary drives DRRD

Dimensions – Size 8 ... 12

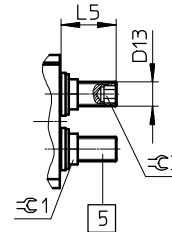
1



DRRD-8/10



DRRD-...-P



- 1 Slot for proximity sensor
- 2 Supply ports
- 3 Mounting thread
- 4 Shock absorber (DRRD-...-Y9)
- 5 Cushioning components (DRRD-...-P)

Size	B1	D1	D2	D3	D4	D5	D6	D7	D8	D9
	±0.25	∅ ±0.025	∅ +0.1	∅	∅ H7	∅	∅ H7		∅ H7	∅
8	31.5	12	26	20.4	5	3	5	M3	7	6
10	38	15	32	24	5	3	5	M3	7	6
12	43.5	20	37	30	7	5	5	M3	9	8

Size	D10	D11	D12	D13	D19	H1	H2	H3	L1	L2
		∅ H7			∅ H7	+0.4			±0.1	+0.1
8	M4	-	-	M6x0.5	7	24.5	25.3	0.8	65.6	32.2
10	M4	-	-	M6x0.5	7	27.5	28.3	0.8	74	38.3
12	M5	7	M4	M8x1	9	30	30.8	0.8	93.9	47.7

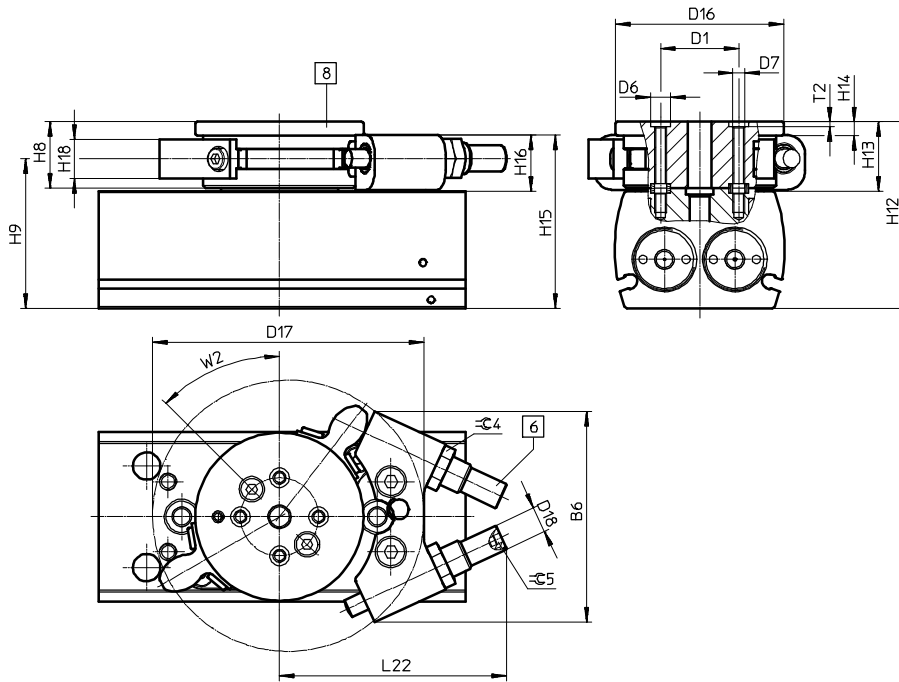
Size	L6	L7	L8	L10	L11	L12	L14	L15	T1	T2	T3
		±0.02	±0.2	±0.02	±0.15	±0.2		-0.1		+0.1	
8	13 _{-0.1}	36	-	-	-	-	13	11.1	4.8	1.2	3.4
10	15.2 _{-0.1}	44	-	-	-	-	15.2	11.1	6.2	1.2	3.4
12	18 ^{+0.1}	50	68	26	18	57	18	12.5	5.4	1.2	4.7

Size	T4	T5	T6	T7	T8	T9	EE	W1	∅ 1	∅ 2	∅ 3
	+0.4/-0.1		+0.4/-0.1		+0.1	+0.1					
8	1.5	-	-	10.5	1.2	1.6	M3	-	10	-	3
10	1.5	-	-	10	1.2	1.6	M3	-	10	-	3
12	2.1	7	1.6	13	1.6	2.1	M5	45°	10	2.5	5

Size	Dimension with 180° swivel angle		Swivel angle adjustment range		
	L4	L5	L4 min./max.	L5 min./max.	1 mm = ...°
8	-	11.1	-	-6.1/+0.8	16.4
10	-	12.6	-	-7.6/+1.2	13.64
12	28	17	-19/+1.9	-11/+1.8	9.6

Dimensions – Size 8 ... 12

Y12 – With external shock absorber



- 6 Shock absorber
- 8 Flange assembly

Size	B6	D1	D6	D7	D16	D17	D18	H8	H9	H12
	±0.2	∅ ±0.025	∅ H7		∅			±0.1		
12	54	20	5	M3	43	69.4	M8x1	17	38.3	47.8

Size	H13	H14	H15	H16	H18	L22	T2	W2	∠ 4	∠ 5
						max.	+0.1			
12	17.8	3.5	44	14	10	58.2	1.2	45°	10	2.5

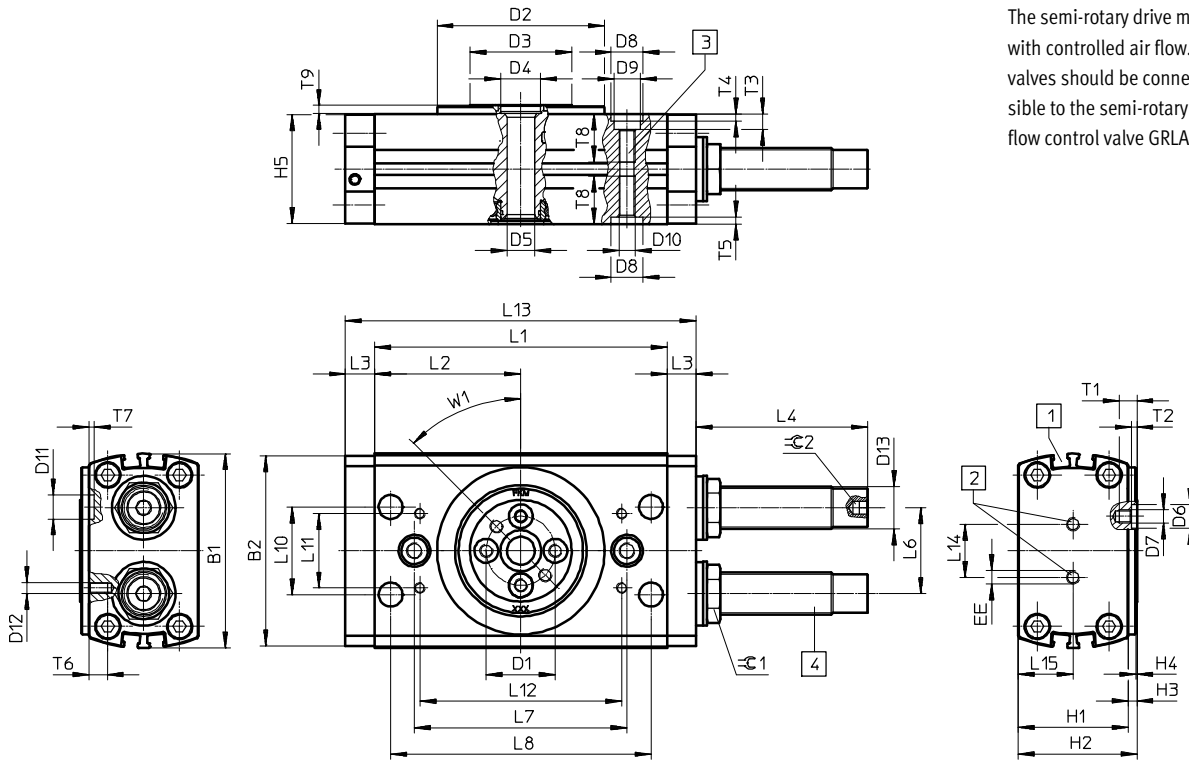
Twin piston semi-rotary drives DRRD

Dimensions – Size 16 ... 63

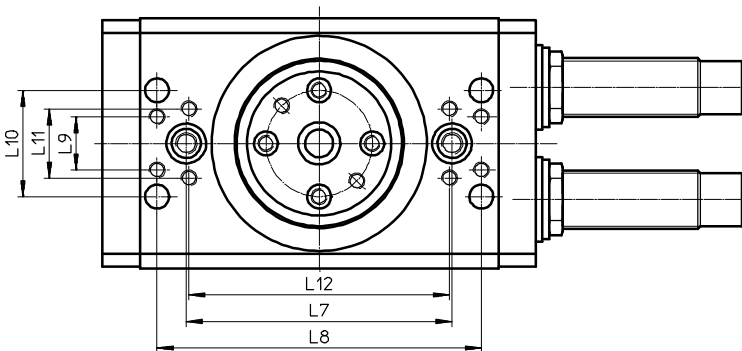
Download CAD data → www.festo.com

1

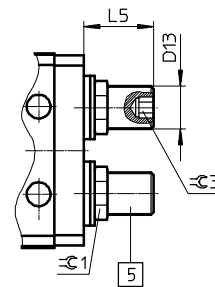
The semi-rotary drive must only be operated with controlled air flow. The flow control valves should be connected as close as possible to the semi-rotary drive (e.g. one-way flow control valve GRLA-...).



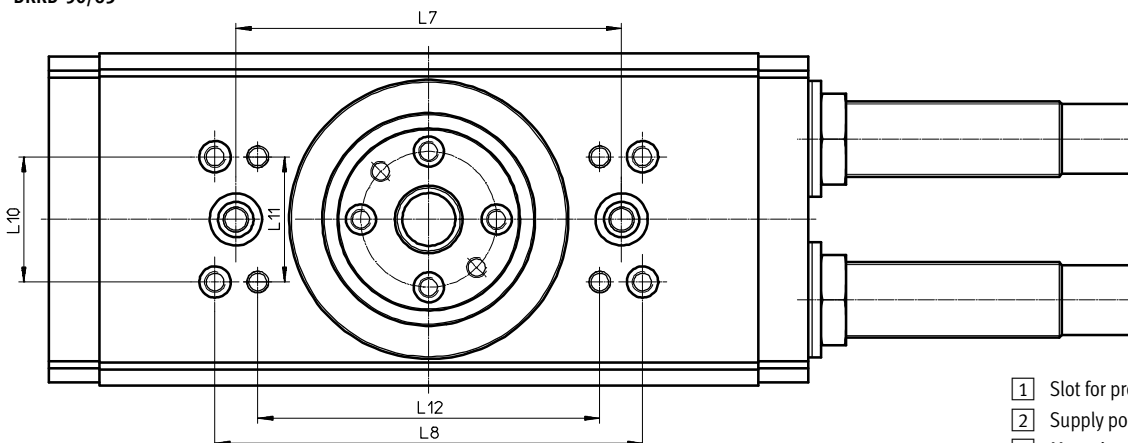
DRRD-32 ... 40



DRRD-...-P



DRRD-50/63



- 1 Slot for proximity sensor
- 2 Supply ports
- 3 Mounting thread
- 4 Shock absorber (DRRD-...-Y9/-Y10)
- 5 Cushioning component (DRRD-...-P)

Dimensions – Size 16 ... 63

Download CAD data → www.festo.com

1

Size	B1 ±0.25	B2	D1 ∅ ±0.025	D2 ∅ h7	D3 ∅	D4 ∅	D5 ∅ +0.15/-0.05	D6 ∅ H7	D7	D8 ∅ H7	D9 ∅	D10
16	58	56.2	21	50	32	12	8	7	M4	9	8	M5
20	65	63.4	24	56	34.9	12	8	7	M4	9	8	M5
25	73.2	71.5	26	63	38.3	15	10.5	9	M5	12	10	M6
32	94	92.6	40	81	54.2	15	10.5	9	M6	15	11	M8
35	106	104	45	91	59.9	25	10.5	9	M6	15	11	M8
40	113	111	45	91	59.9	25	21	9	M6	15	14	M10
50	132	139.7	54	110	73	25	21	12	M8	15	14	M10
63	159	157	63	135	82.8	25	21	15	M10	25	17	M12

Size	D11 ∅ H7	D12	D13	H1 ±0.1	H2 +0.2/-0.1	H3 +0.3/-0.2	H4	H5	L1 ±0.1	L2	L3 ±0.1
16	7	M3	M10x1	33	35.6	2.6	0.5	32.6	84	42	10.5
20	9	M4	M12x1	36	39.6	3.6	0.5	35.6	86	43	11
25	9	M4	M16x1	41.4	44.7	3.3	0.5	41	110	55	11
32	9	M6	M22x1.5	50	55.5	5.5	1	49.6	135	67.5	14
35	9	M6	M26x1.5	63	67	4	1	62.2	148	74	15
40	9	M6	M26x1.5	68	72	4	1	67.2	199	99.5	15
50	15	M8	M30x1.5	78	83	5	1	77.2	262	131	20
63	15	M10	M37x1.5	100	107	7	2	99.2	335	167.5	25

Size	L6	L7 ±0.02	L8 ±0.2	L9 ±0.15	L10 ±0.02	L11 ±0.15	L12 ±0.2	L13	L14	L15 -0.1	T1	T2 +0.1
16	23.2	64	74	-	26	22	61	105	20	16.3	5.6	1.6
20	26	70	74	-	33	14	80	108	20	17.8	6	1.6
25	32.4	80	98	-	33	14	98	132	20	20.5	6.6	2.1
32	42.2	100	122	20	40	26	98	163	30	24.8	8	2.1
35	49.6	120	130	44	26	44	105	178	42	31.1	8	2.1
40	56	120	130	44	26	44	105	229	42	33.6	8	2.1
50	64	160	160	34	34	54	132	302	50	39	10.6	2.6
63	78	170	190	60	60	60	149	385	50	49.6	14	3.1

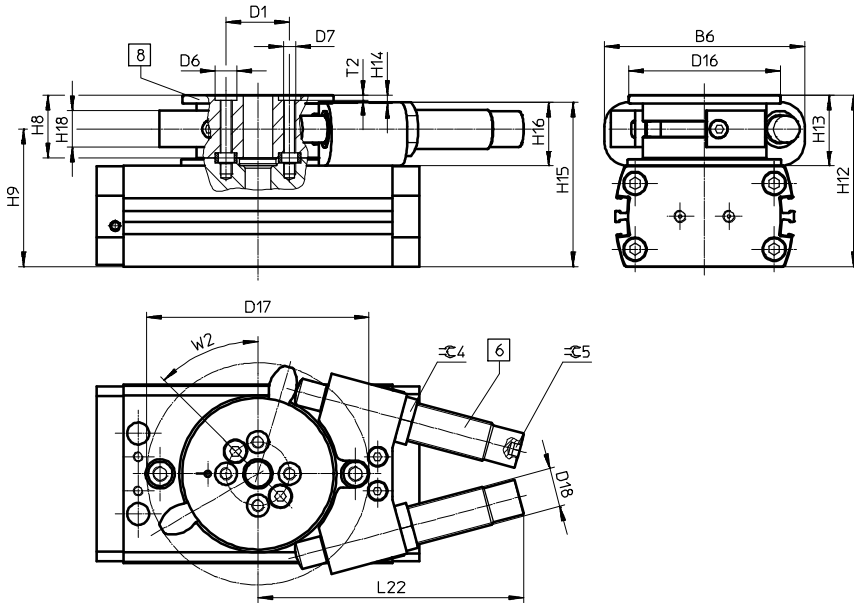
Size	T3	T4 +0.1	T5 +0.3/-0.2	T6	T7 +0.1	T8	T9	EE	W1	∠ 1	∠ 2	∠ 3
16	4.7	2.1	2.1	6.3	1.6	15	2.6	M5	45°	13	3	5
20	4.7	2.1	2.1	6.3	2.1	15	2.6	M5	45°	15	4	6
25	5.7	2.6	2.6	7	2.1	18	3.1	M5	45°	19	5	8
32	6.5	3.1	3.1	7.8	2.1	23.1	3.1	G $\frac{1}{8}$	45°	27	5	10
35	6.5	3.1	3.1	8.5	2.1	22.6	3.5	G $\frac{1}{8}$	45°	32	6	10
40	8.6	3.1	3.1	9	2.1	32	3.5	G $\frac{1}{8}$	45°	32	6	10
50	8.6	3.1	3.1	10.5	3.1	30	3.5	G $\frac{1}{4}$	45°	36	8	-
63	11	3.5	3.5	14	3.1	40	3.5	G $\frac{3}{8}$	45°	46	8	-

Size	Dimension with 180° swivel angle		Swivel angle adjustment range		
	L4	L5	L4 min./max.	L5 min./max.	1 mm = ...°
16	37	17.6	-20/+1.5	-12/+1.4	8.7
20	41.8	18	-21.1/+1.5	-11/+1.4	9
25	63	24.3	-28.9/+1.9	-15/+1.8	6.6
32	78.3	29.5	-34.7/+2.4	-19/+2.3	5.6
35	97.5	40.9	-34.7/+2.4	-27/+2.3	5.6
40	98.2	41.6	-53/+3.2	-28/+3.1	3.6
50	126	-	-74.5/+4.4	-	2.6
63	120	-	-71.7/+7.1	-	1.9

Twin piston semi-rotary drives DRRD

1 Dimensions – Size 16 ... 63

Y12 – With external shock absorber



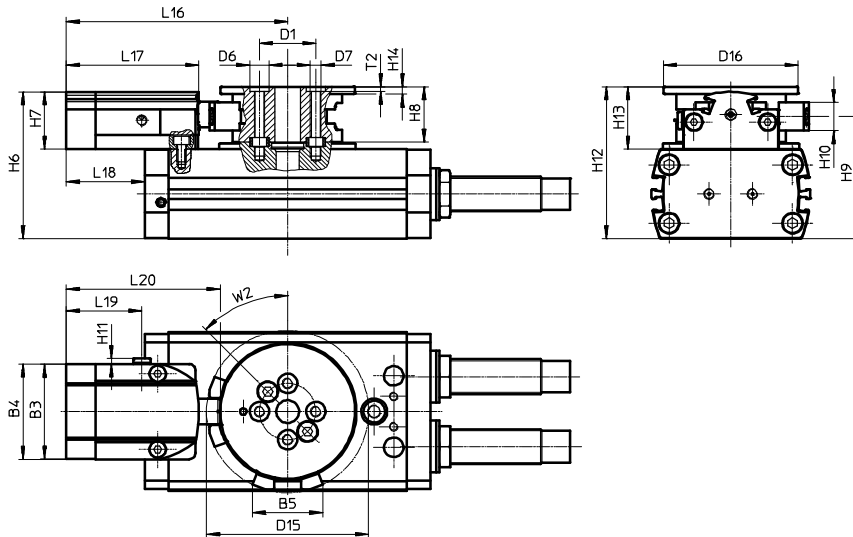
- 6 Shock absorber
- 8 Flange assembly

Size	B6	D1 ∅	D6 ∅	D16 ∅	D17	D18	H8	H9	H12
	±0.2	±0.025	H7				±0.1		
16	58	21	7	49	69.4	M10x1	17	43.1	52.6
20	75	24	7	62	91	M12x1	25.6	51.2	65.2
25	82	26	9	62	91	M16x1	25.6	56.5	70.3
32	120	40	9	79	126.2	M22x1.5	31.5	68.5	87
35	133	45	9	89	146.7	M22x1.5	34	83	101
40	133	45	9	89	146.7	M22x1.5	34	88	106
50	152	54	12	110	165.2	M26x1.5	42	101.5	125
63	186	63	15	130	212.2	M30x1.5	52	129.5	159

Size	H13	H14	H15	H16	H18	L22	T2	W2	∠ 4	∠ 5
						max.	+0.1			
16	19.6	3.5	51	18	10	65.2	1.6	45°	13	3
20	29.2	3.5	59.5	23.5	15	85.3	1.6	45°	15	4
25	28.9	3.5	67.4	26	15	108.9	2.1	45°	19	5
32	37	4	85	35	22	149.7	2.1	45°	27	5
35	38	5	99	36	21	155.5	2.1	45°	27	5
40	38	5	104	36	21	155.5	2.1	45°	27	5
50	47	6	123	45	30	171.6	2.6	45°	32	6
63	59	6	155.5	55.5	36	228	3.1	45°	36	8

Dimensions – Size 16 ... 63

Clamping unit



Note

The cylinder can be mounted on both sides.

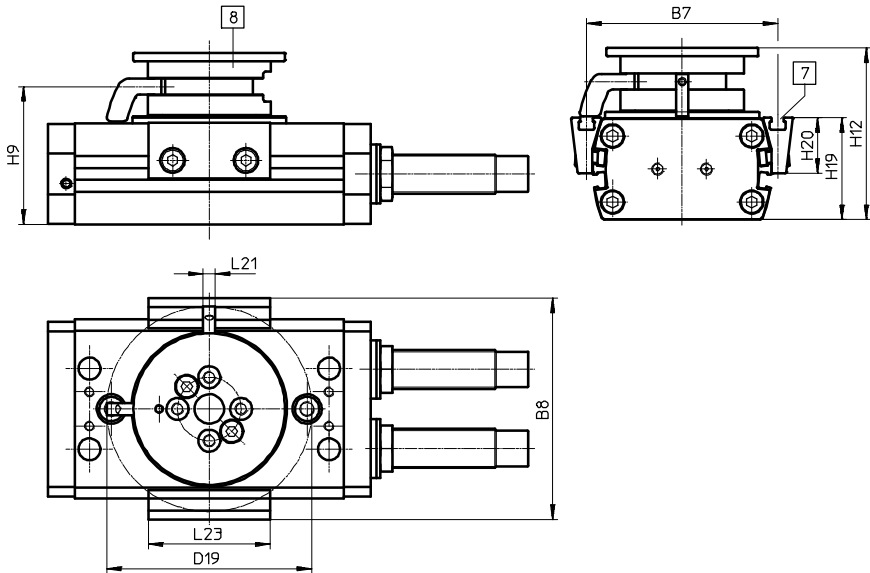
For size	B3	B4	B5	D1 ∅	D6 ∅	D7	D15 ∅	D16 ∅	H6	H7	H8	H9
	±0.2	±0.2		±0.025	H7					±0.15	±0.1	
16	37.6	38	26.9	21	7	M4	61.9	49	51	18	17	43.1
20	43.6	44	32.4	24	7	M4	74.9	62	62.5	26.5	25.6	51.2
25	43.6	44	32.4	26	9	M5	74.9	62	67.9	26.5	25.6	56.5
32	43.6	44	39.4	40	9	M6	95.4	79	79	26.7	31.5	68.5
35	57.6	58	50.2	45	9	M6	110.9	89	98	35	34	83
40	57.6	58	50.2	45	9	M6	110.9	89	103	35	34	88
50	71.4	72	59.6	54	12	M8	124.3	110	123	45	42	101.5
63	71.4	72	65.8	63	15	M10	148.5	130	149	49	52	129.5

For size	H10	H11	H12	H13	H14	L16	L17	L18	L19	L20	T2	W2
											+0.1	
16	9	2.5	52.6	19.6	3.5	83	50	30.5	34	58.3	1.6	45°
20	13	2.5	65.2	29.2	3.5	102.2	61.2	48.2	34.8	71.1	1.6	45°
25	13	2.5	70.3	28.9	3.5	102.2	61.2	36.2	34.8	71.1	2.1	45°
32	17	2.5	87	37	4	112.2	61.2	30.7	34.8	71.1	2.1	45°
35	14.8	2.5	101	38	5	132.5	70.6	43.5	42.6	85.4	2.1	45°
40	14.8	2.5	106	38	5	132.5	70.6	18	42.6	85.4	2.1	45°
50	19	4.6	125	47	6	151	81	0	46	98	2.6	45°
63	22	4.6	159	59	6	163	81	-29.5	46	99.5	3.1	45°

Twin piston semi-rotary drives DRRD

1 Dimensions – Size 16 ... 63

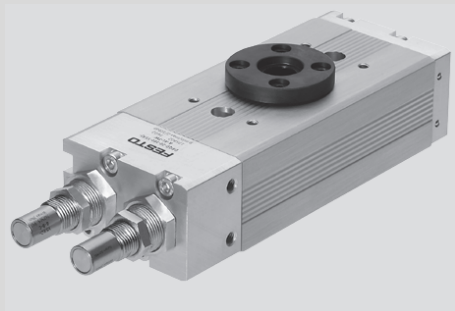
Sensing kit



- 7 Slot for proximity sensor
- 8 Flange assembly

For size	B7	B8	D19 ∅	H9	H12
16	64.4	76.1	70.9	43.1	52.6
20	74	85.7	84	51.2	65.2
25	78.2	90.7	84	56.5	70.3
32	100	113.5	107.5	68.5	87
35	116	132.9	125.2	83	101
40	118	135.8	125.2	88	106
50	136	155.3	146.6	101.5	125
63	163	185.3	173.9	129.5	159

For size	H19	H20 ±0.1	L21	L23
16	33.5	18.5	5	50
20	36.4	20.2	5	50
25	41.8	22.8	5	50
32	50.5	26.5	7	50
35	63.5	33.1	7	50
40	68.5	35.5	7	50
50	79.1	43	7	50
63	101	55	7	50



- Modular structure with a variety of functions
- Sturdy and precise with high torque resistance
- Spare parts service
- Selected types in accordance with the ATEX Directive for explosive atmospheres → www.festo.com/catalogue/ex

→ www.festo.com/catalogue/drqd

Product range overview

Type/function	Size [mm]	Swivel angle [°]	Torque [Nm]	Product options												→ Page/ online
				B	J20	J60	PPVJ	P1J	YSRJ	A	AL	AR	ZW	FW	Z1	
DRQD																
Double-acting	6, 8, 12	0 ... 180	0.16 ... 0.76	-	■	■	-	-	-	■	-	-	■	■	-	264
	16, 20, 25, 32	0 ... 360	1.7 ... 13.5	■	-	-	■	■	■	■	■	■	■	■	■	267
	40, 50	0 ... 360	25 ... 50	-	-	-	■	-	■	■	■	■	■	■	■	267

Product options

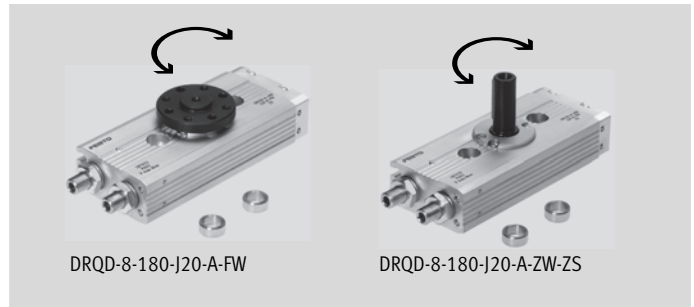
B	Function-optimised design	AR	Supply port on right	SD42	Flanged shaft with energy through-feed, 2 tubes, tubing O.D. 4 mm	E422	2 tubes with 4 mm O.D. and 1x 4-pin cable to 2x 3-pin cables
J20	End-position adjustment, adjustment range +6°/-20°	ZW	Spigot type output shaft	SD48	Flanged shaft with energy through-feed, 8 tubes, tubing O.D. 4 mm	E444	4 tubes with 4 mm O.D. and 2x 4-pin cables to 4x 3-pin cables
J60	End-position adjustment, adjustment range +6°/-60°	Z1	1 intermediate position	SD62	Flanged shaft with energy through-feed, 2 tubes, tubing O.D. 6 mm	E644	Flanged shaft with energy through-feed, 4 tubes, tubing O.D. 6 mm, 4 electrical cables
PPVJ	Pneumatic cushioning, adjustable at both ends	A08	Adapter for HGPM-08/HGWM-08	SD64	Flanged shaft with energy through-feed, 4 tubes, tubing O.D. 6 mm	ZS	Socket head screw
P1J	Elastic cushioning components, adjustable at both ends	A12	Adapter for HGPM-12/HGWM-12			HS	Hollow bolt
YSRJ	Shock absorber, self-adjusting at both ends	AS1	Adapter for DHWS/DHRS-10, DHPS-06			B1	Mounting type 1
A	Position sensing	AS2	Adapter for DHDS-16			B2	Mounting type 2
AL	Supply port on left	SD32	Flanged shaft with energy through-feed, 2 tubes, tubing O.D. 3 mm			B3	Mounting type 3

Twin piston semi-rotary drives DRQD

FESTO

Technical data – Size 6 ... 12

1



DRQD-8-180-J20-A-FW

DRQD-8-180-J20-A-ZW-ZS

Technical data		Dimensions → 274		
Size		6	8	12
Pneumatic connection		M3		
Swivel angle	[°]	90, 180		
Cushioning		Elastic cushioning rings/plates at both ends		
Theoretical torque at 6 bar ¹⁾	[Nm]	0.16	0.33	0.76
Max. perm. swivel frequency at 6 bar	[Hz] 90°	5	4	3
	180°	3.5	2.5	2
Adjustable end-position range per end position	[°] J20	-20 ... +6		
	J60	-60 ... +6		
Repetition accuracy	[°]	< 0.2		
Max. perm. mass moment of inertia ²⁾	[kgm ²]	0.075 x 10 ⁻⁴	0.25x 10 ⁻⁴	0.7x 10 ⁻⁴

- 1) If torque acts against the direction of rotation in the end position, a drive with a rating of twice the maximum theoretical torque should be selected.
 2) The data applies to the variants ZW, FW, A... without grippers, unthrottled.

Operating conditions

Operating pressure	[bar]	1 ... 8
Ambient temperature ³⁾	[°C]	-10 ... +60

- 3) Note operating range of proximity sensors.

Materials

Drive shaft	Aluminium
Cylinder barrel	Anodised aluminium
Connection cap	Anodised aluminium
Gear rack	Anodised aluminium
Piston	Anodised aluminium
Housing	Aluminium
Pinion	Stainless steel
Seals	NBR, TPE-U (PUR)

Order code – Size 6 ... 12

1

		DRQD	-		-		-		-	A	-	
Type		DRQD	Semi-rotary drive									
Size												
		Swivel angle [°]										
6, 8, 12		90, 180										
End-position adjustment [°]												
J20		-20 ... +6										
J60		-60 ... +6										
Position sensing												
A		Via proximity sensor										
Output shaft												
ZW		Spigot shaft										
FW		Flanged shaft										

Order example:

DRQD-12-180-J20-A-FW

Semi-rotary drive DRQD - size 12 mm - swivel angle 180° - end-position adjustment -20° ... +6° - position sensing via proximity sensor - flanged type output shaft

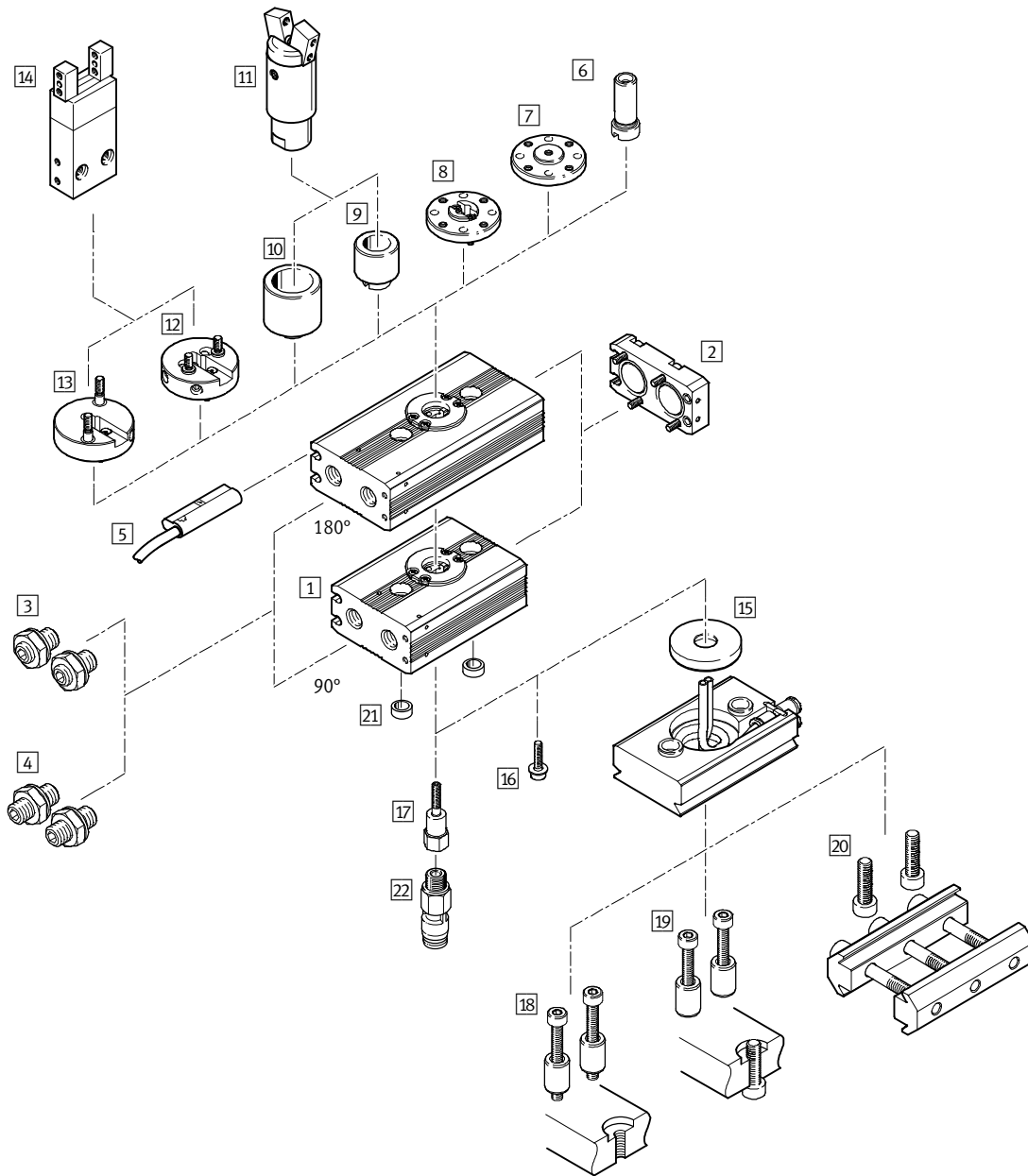
Ordering – Product options

<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<p>Configurable product</p>	<p>This product and all its options can be ordered using the configurator.</p>	<p>The configurator can be found under Products on the DVD or → www.festo.com/catalogue/...</p>	<p>Enter the type code in the search field.</p>
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Twin piston semi-rotary drives DRQD

Accessories – Size 6 ... 12

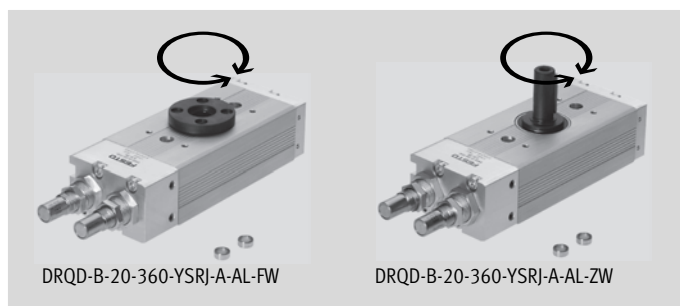
1



		→ Page/online
1	Centre section	265
2	Connection cap	265
3	End-position adjustment J20	265
4	End-position adjustment J60	265
5	Position sensor A	265
6	Spigot shaft ZW	265
7	Flanged shaft FW	265
8	Flanged shaft FW-SD32	drqd
9	Adapter A08	drqd
10	Adapter A12	drqd
11	Parallel/angle gripper (micro)	gripper
12	Adapter AS1	drqd
13	Adapter AS2	drqd
14	Parallel/angle/radial/three-point gripper	550

		→ Page/online
15	Flanged shaft with energy through-feed SD32	drqd
16	Socket head screw ZS	drqd
17	Hollow bolt HS	drqd
18	Mounting type B1	drqd
19	Mounting type B2	drqd
20	Mounting type B3	drqd
21	Centring sleeve ZBH	272
22	Rotary push-in fitting	272
-	Connecting cable NEBU	273
-	One-way flow control valve GRLA	273
-	Slot cover ABP-5-S	273
-	Drive/drive connections	drqd
-	Drive/gripper connections	drqd

Technical data – Size 16 ... 50



1

Technical data		Dimensions → 274						
Size		16	20	25	32	40	50	
Pneumatic connection		M5			G $\frac{1}{8}$		G $\frac{1}{4}$	
Swivel angle	[°]	0 ... 360						
Cushioning	PPV)	Pneumatic cushioning, adjustable at both ends						
	P1J)	Elastic cushioning components, adjustable at both ends					–	
	YSRJ)	Self-adjusting shock absorber at both ends						
Theoretical torque at 6 bar ¹⁾	[Nm]							
	PPV)	1.6	3.1	6.1	12.5	25	50	
	P1J)	1.6	3.1	6.1	12.5	–	–	
	YSRJ)	1.6	3.1	6.1	12.5	25	50	
Max. perm. swivel frequency at 6 bar	PPV)	90°	4	3	2	1.2	1.2	1.2
		180°	3	2.2	1.3	0.8	0.9	0.9
		360°	1.5	1.2	0.8	0.5	0.5	0.5
	P1J)	90°	3.6	3	2.5	2.2	–	–
		180°	2.5	2.2	1.9	1.6	–	–
		360°	1.5	1.2	1	0.8	–	–
	YSRJ ²⁾	90°	2	2	1.5	1.2	1	0.9
		180°	1.8	1.8	1.5	1.2	1	0.8
		360°	1	1	0.9	0.8	0.7	0.6
Adjustable end-position range for each end position	[°]							
	PPV)	–20 ... +6						
	P1J)	–270 ... +6	–320 ... +6	–280 ... +6	–210 ... +6	–	–	
Repetition accuracy (approached from both ends)	[°]	≤ 0.05						
	Z1)	≤ 0.15			≤ 0.25	≤ 0.20	≤ 0.30	
Max. perm. mass moment of inertia ³⁾	[kgm ²]							
	PPV)	5x 10 ^{–4}	10x 10 ^{–4}	20x 10 ^{–4}	40x 10 ^{–4}	200x 10 ^{–4}	500x 10 ^{–4}	
	P1J)	→ 268						
YSRJ)	→ 269							

1) If torque acts against the direction of rotation in the end position, a drive with a rating of twice the maximum theoretical torque should be selected.

2) At temperatures <0 °C, a max. frequency of 1 Hz applies.

3) The data applies to the variants ZW, FW, A... without grippers, unthrottled.

Operating conditions

Operating pressure	[bar]					
	PPV)	1 ... 10				
	P1J)	3 ... 10				
	YSRJ)	2 ... 10				
Ambient temperature ⁴⁾	[°C]					
	Z1)	1 ... 10				
		–10 ... +60				

4) Note operating range of proximity sensors.

Twin piston semi-rotary drives DRQD-B/DRQD

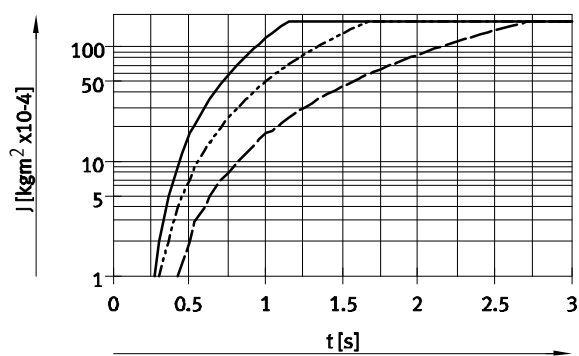
Technical data – Size 16 ... 50

1

Materials	16 ... 32	40 ... 50
Size	16 ... 32	40 ... 50
Drive shaft	Tempered steel	Tempered steel
Cylinder barrel	Anodised aluminium	Wrought aluminium alloy
Connection cap	Anodised aluminium	Anodised aluminium
Piston	Anodised aluminium	Anodised aluminium
End cap	Aluminium	Anodised wrought aluminium alloy
Housing	Aluminium	Smooth anodised wrought aluminium alloy
Gear rack	High-alloy steel	High-alloy steel
Pinion	Tempered steel	Tempered steel
Seals	NBR, TPE-U (PUR)	NBR, TPE-U (PUR)

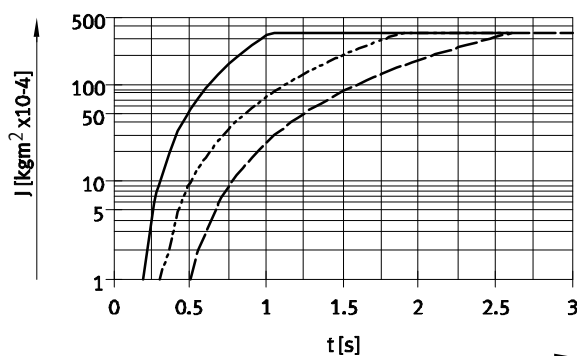
Max. permissible mass moment of inertia J on the drive shaft as a function of swivel time t

DRQD-B-16-...-P1J



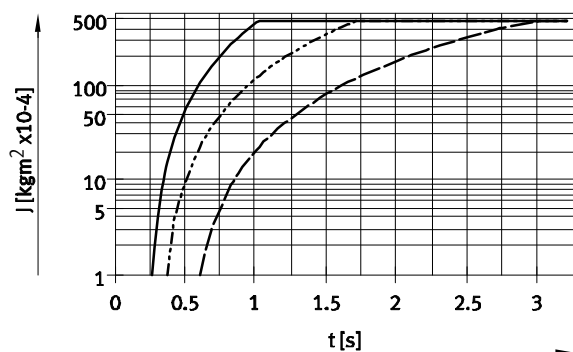
Max. mass moment of inertia = $175 \text{ kgm}^2 \times 10^{-4}$

DRQD-B-20-...-P1J



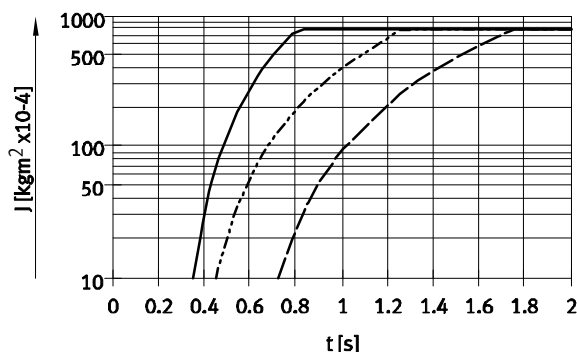
Max. mass moment of inertia = $350 \text{ kgm}^2 \times 10^{-4}$

DRQD-B-25-...-P1J



Max. mass moment of inertia = $500 \text{ kgm}^2 \times 10^{-4}$

DRQD-B-32-...-P1J



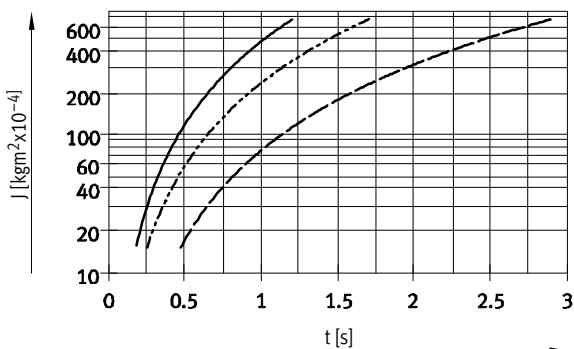
Max. mass moment of inertia = $800 \text{ kgm}^2 \times 10^{-4}$

- 90°
- - - 180°
- · — 360°

Technical data – Size 16 ... 50

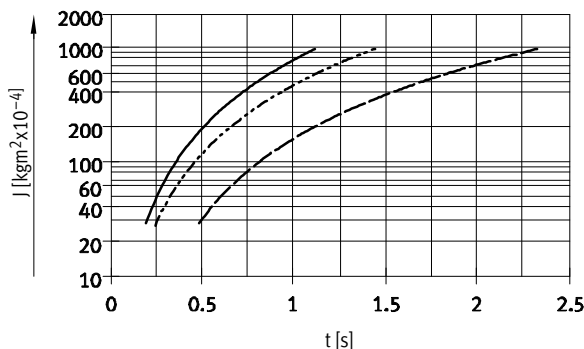
Max. permissible mass moment of inertia J on the drive shaft as a function of swivel time t

DRQD-B-16-...-YSRJ



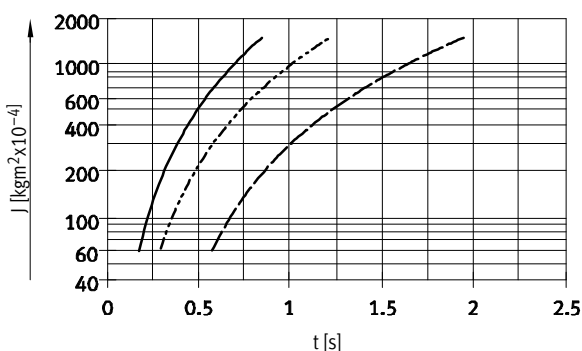
Max. mass moment of inertia = $700 \text{ kgm}^2 \times 10^{-4}$

DRQD-B-20-...-YSRJ



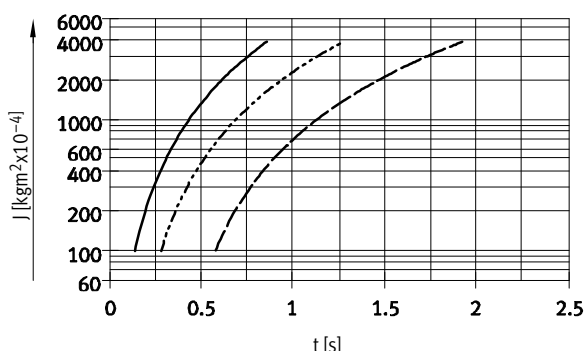
Max. mass moment of inertia = $1000 \text{ kgm}^2 \times 10^{-4}$

DRQD-B-25-...-YSRJ



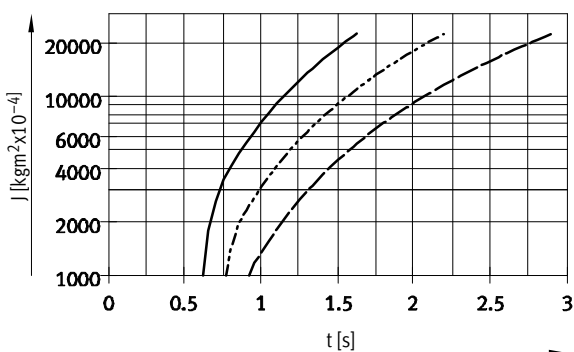
Max. mass moment of inertia = $1500 \text{ kgm}^2 \times 10^{-4}$

DRQD-B-32-...-YSRJ



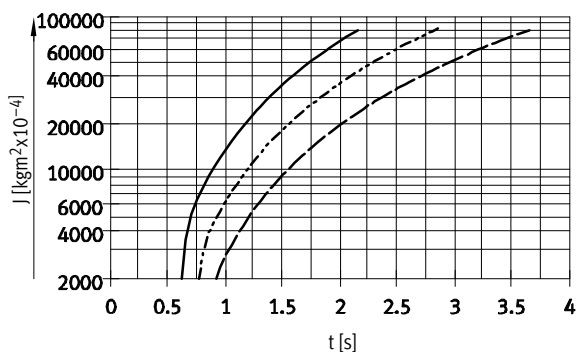
Max. mass moment of inertia = $4000 \text{ kgm}^2 \times 10^{-4}$

DRQD-40-...-YSRJ



Max. mass moment of inertia = $23,000 \text{ kgm}^2 \times 10^{-4}$

DRQD-50-...-YSRJ



Max. mass moment of inertia = $83,000 \text{ kgm}^2 \times 10^{-4}$

- 90°
- - - 180°
- · - · 360°

Twin piston semi-rotary drives DRQD-B/DRQD

Order code – Size 16 ... 50

1

Type		DRQD	–		–		–		–		–	A	–		–		–		
DRQD	Semi-rotary drive																		
Product version																			
B	Function-optimised																	1	
Size																			
		Swivel angle [°]																	
16, 20, 25, 32, 40, 50	90, 180, 360																0 ... 340		
Cushioning																			
PPVJ	Pneumatic cushioning, adjustable at both ends																		
P1J	Elastic cushioning components, adjustable at both ends																	2	
YSRJ	Self-adjusting shock absorber at both ends																		
Position sensing																			
A	Via proximity sensor																		
Pneumatic connection																			
AL	Supply port on left																		
AR	Supply port on right																		
Output shaft																			
ZW	Spigot shaft																		
FW	Flanged shaft																		
Intermediate position																			
Z1	1 intermediate position (mid-position)																		

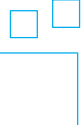
- 1 Only with piston Ø 16 ... 32 mm
- 2 Only with piston Ø 16 ... 32 mm
Not with Z1, only with swivel angle 90°, 180°, 360°

Order example:

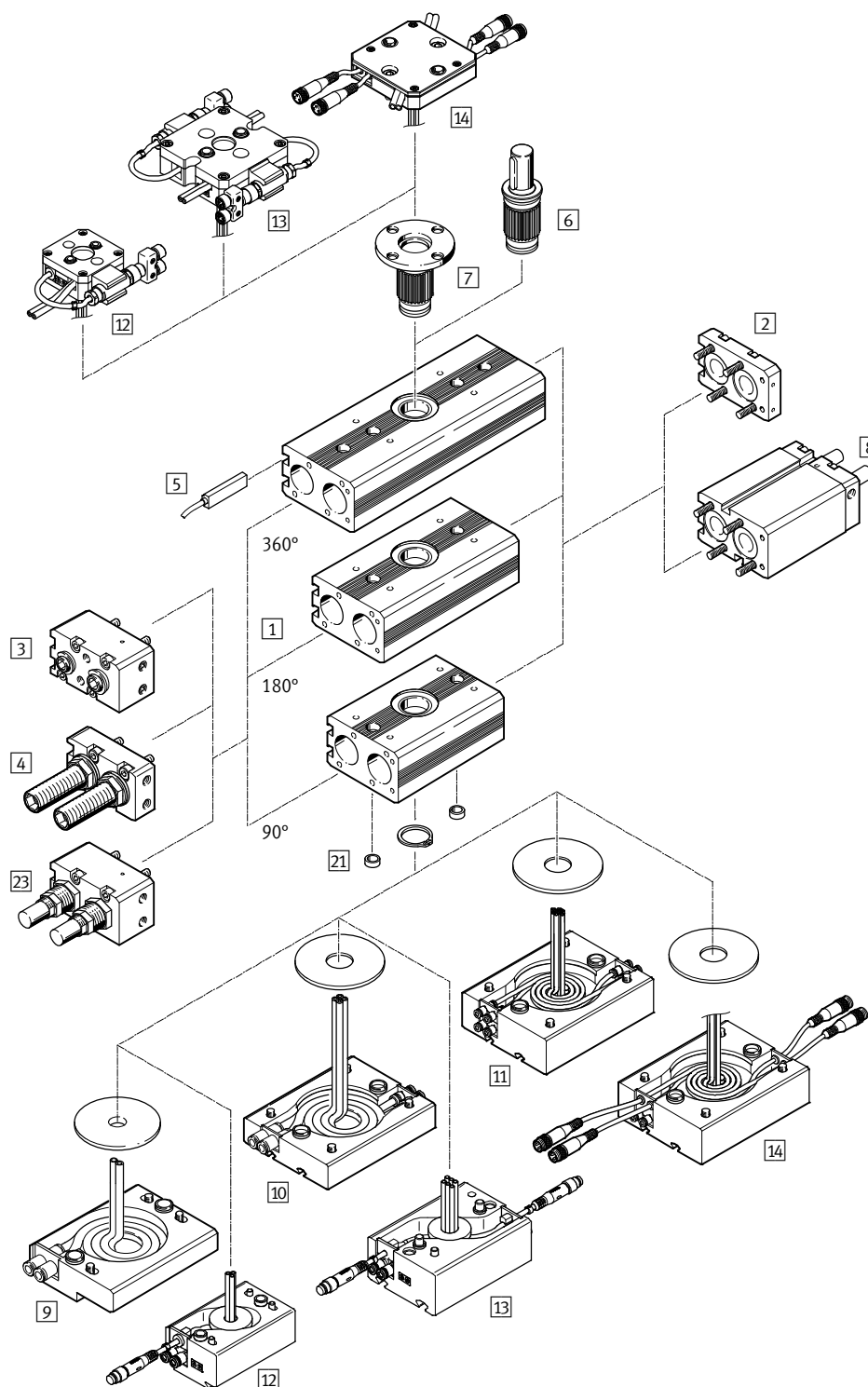
DRQD-B-16-180-YSRJ-A-AR-FW-Z1

Semi-rotary drive DRQD - function-optimised - size 16 mm - swivel angle 180° - self-adjusting shock absorber at both ends - position sensing via proximity sensor - supply port on right - flanged type output shaft - 1 intermediate position (mid-position)

Ordering – Product options

	<p>Configurable product</p>	<p>This product and all its options can be ordered using the configurator.</p>	<p>The configurator can be found under Products on the DVD or → www.festo.com/catalogue/...</p>	<p>Enter the type code in the search field.</p>
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Accessories – Size 16 ... 50



		→ Page/online
1	Centre section	267
2	End cap	267
3	Connection cap PPVJ	267
4	Connection cap YSRJ	267
5	Position sensor A	267
6	Spigot shaft ZW	267
7	Flanged shaft FW	267
8	Intermediate position Z1	270
9	Flanged shaft with energy through-feed SD32, SD42, SD62	drqd
10	Flanged shaft with energy through-feed SD64	drqd
11	Flanged shaft with energy through-feed SD48	drqd

		→ Page/online
12	Flanged shaft with energy through-feed E422	drqd
13	Flanged shaft with energy through-feed E444	drqd
14	Flanged shaft with energy through-feed E644	drqd
21	Centring sleeve ZBH	272
23	Connection cap P1J	267
-	Connecting cable NEBU	273
-	One-way flow control valve GRLA	273
-	Slot cover ABP-5-S	273
-	Drive/drive connections	drqd
-	Drive/gripper connections	drqd

Twin piston semi-rotary drives DRQD/DRQD-B

Accessories – Ordering data

1

	For Ø		Part No.	Type	
5 Proximity sensor for T-slot, for Ø 6 ... 12, magneto-resistive – N/O contact Technical data → 808					
	PNP, cable	★	574335	SMT-8M-A-PS-24V-E-2,5-OE	
	PNP, plug	★	574334	SMT-8M-A-PS-24V-E-0,3-M8D	
	PNP, plug	★	574337	SMT-8M-A-PS-24V-E-0,3-M12	
	NPN, cable	★	574338	SMT-8M-A-NS-24V-E-2,5-OE	
	NPN, plug	★	574339	SMT-8M-A-NS-24V-E-0,3-M8D	
Magneto-resistive – N/C contact Technical data → 808					
	PNP, cable	★	574340	SMT-8M-A-PO-24V-E-7,5-OE	
Magnetic reed – N/O contact Technical data → 803					
	Cable	★	543862	SME-8M-DS-24V-K-2,5-OE	
	Cable	★	543863	SME-8M-DS-24V-K-5,0-OE	
	Cable	★	543872	SME-8M-ZS-24V-K-2,5-OE	
	Plug	★	543861	SME-8M-DS-24V-K-0,3-M8D	
Technical data → 805					
	Cable		150855	SME-8-K-LED-24	
	Plug		150857	SME-8-S-LED-24	
Magnetic reed – N/C contact Technical data → 805					
	Cable		160251	SME-8-O-K-LED-24	
5 Proximity sensor for C-slot, for Ø 16 ... 50, magneto-resistive – N/O contact Technical data → 821					
	PNP, cable	★	551373	SMT-10M-PS-24V-E-2,5-L-OE	
	PNP, plug	★	551375	SMT-10M-PS-24V-E-0,3-L-M8D	
	PNP, plug	★	551376	SMT-10M-PS-24V-E-0,3-Q-M8D	
Magnetic reed – N/O contact Technical data → 817					
	Plug	★	551367	SME-10M-DS-24V-E-0,3-L-M8D	
	Cable	★	551365	SME-10M-DS-24V-E-2,5-L-OE	
	Cable	★	551369	SME-10M-ZS-24V-E-2,5-L-OE	
Technical data → 819					
	Plug		173212	SME-10-SL-LED-24	
	Cable		173210	SME-10-KL-LED-24	





	For Ø	Description	Part No.	Type	
21 Centring sleeve¹⁾ Technical data online: → zbh					
	6	For centring the drive on attachments	186717	ZBH-7	
	8 ... 32		150927	ZBH-9	
	40, 50		191409	ZBH-15	
	16, 20	For centring attachments on the flanged shaft FW	186717	ZBH-7	
	25, 32		150927	ZBH-9	
	40, 50		189653	ZBH-12	
22 Rotary push-in fitting²⁾					
	6 ... 12	Straight	153526	QSR-M5-4	
		L-shape	153529	QSRL-M5-4	



1) Packaging unit 10 pieces.

2) In combination with hollow bolt HS.


Accessories – Ordering data

1

	For Ø		Part No.	Type
Connecting cable, straight socket				
Technical data → 1053				
	2.5 m	★	541333	NEBU-M8G3-K-2.5-LE3
	5 m	★	541334	NEBU-M8G3-K-5-LE3
	2.5 m	★	541363	NEBU-M12G5-K-2.5-LE3
	5 m	★	541364	NEBU-M12G5-K-5-LE3
Angled socket				
Technical data → 1053				
	2.5 m	★	541338	NEBU-M8W3-K-2.5-LE3
	5 m	★	541341	NEBU-M8W3-K-5-LE3
	2.5 m		541367	NEBU-M12W5-K-2.5-LE3
	5 m		541370	NEBU-M12W5-K-5-LE3

Function	For Ø	Connection		Part No.	Type
		Thread	O.D.		
One-way flow control valve with slotted head screw, metal¹⁾ for exhaust air flow control					
Technical data → 687					
	6, 8, 12	M3	3	175041	GRLA-M3-QS-3
	16	M5	3	★ 193137	GRLA-M5-QS-3-D
	20, 25		6	★ 193139	GRLA-M5-QS-6-D
	32, 40	G ¹ / ₈	–	151165	GRLA- ¹ / ₈ -B
	50	G ¹ / ₄	–	151172	GRLA- ¹ / ₄ -B

1) The recommended flow control valves are based on a tubing length to the valve of 1 m. For deviations of ±50%, flow control valves with a bigger or smaller flow rate must be selected to guarantee the optimum flow control function and cylinder speed.

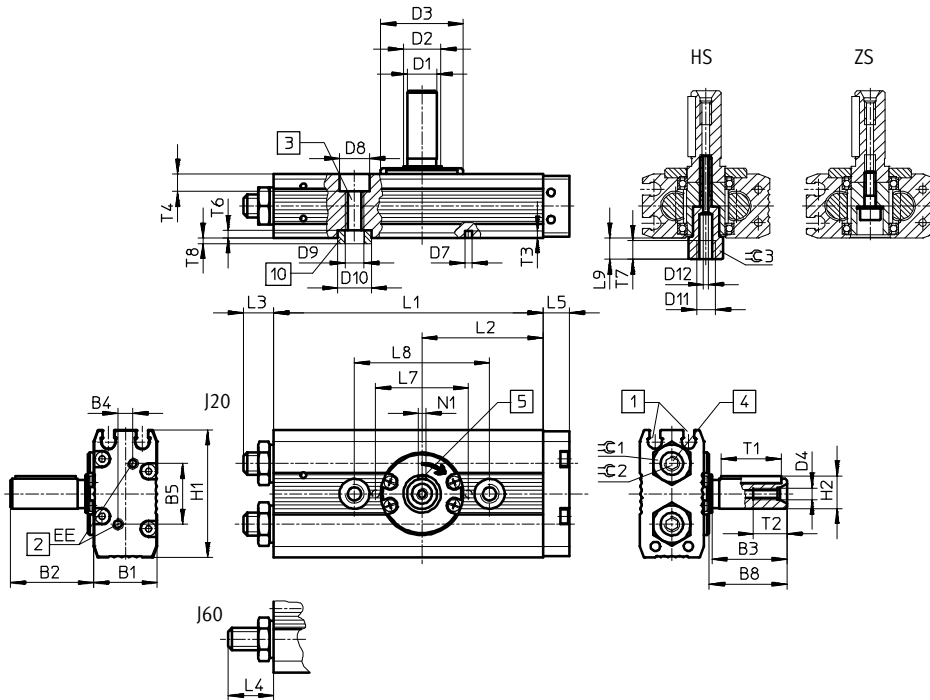
	For Ø	Part No.	Type
Slot cover²⁾			
	16 ... 50	151680	ABP-5-S

2) Packaging unit 2x 0.5 m.

Twin piston semi-rotary drives DRQD

1 Dimensions – Size 6 ... 12

ZW – With spigot shaft



- 1 Slots for proximity sensor SME-/SMT-10
- 2 Supply ports
- 3 Mounting thread
- 4 Socket head screw for end-position adjustment
- 5 Feather key position at 0°
- 10 Centring sleeves (2 included in the scope of delivery)

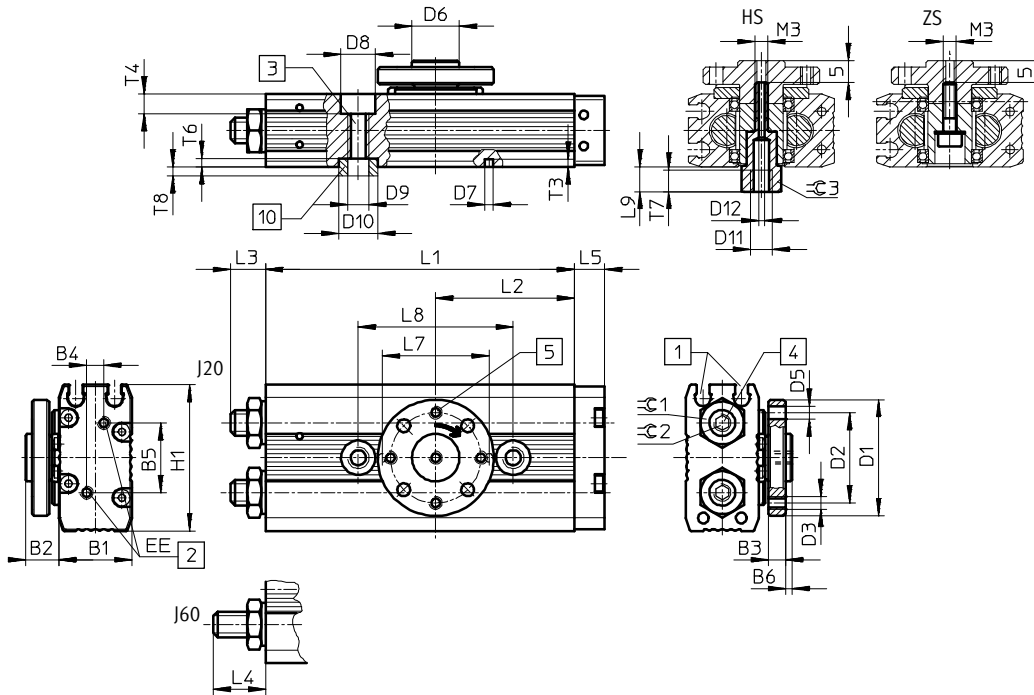
∅	Swivel angle	B1	B2	B3	B4	B5	B8	D1	D2	D3 ¹⁾	D4	D7	D8	D9	D10	D11	D12	EE	H1	H2
[mm]	[°]							∅ g7	∅ g6	∅ f7		∅ H8	∅ H8		∅ H7					
6	90	15.4	18.2	16	2	13.6	16.7	6	8	20	M2.5	2	6	M4	7	M5	1.3	M3	31	6.8
	180																			
8	90	17	22.2	20	4	16.2	20.7	8	10	22	M3	-	8	M5	9	M5	1.3	M3	34	8.8
	180																			
12	90	21	22.2	20	6	18.2	20.7	8	10	22	M3	-	8	M5	9	M5	1.3	M3	41	8.8
	180																			

∅	Swivel angle	L1	L2	L3	L4	L5	L7	L8	L9	N1	T1	T2	T3	T4	T6	T7	T8	≡C1	≡C2	≡C3
[mm]	[°]			max.	max.		±0.03	±0.03		P9										
6	90	46.7	20.2	7.1	11.1	7.5	20	30	6.2	2	12	7	1.8	3.4	1.6	5	1.4	8	2.5	8
	180																			
8	90	54.2	23.45	8.1	12.1	7	-	36	5.7	2	16	9	-	4.6	2	5	2	10	3	8
	180																			
12	90	59.2	25.95	9.1	13.1	8	-	36	5.7	2	16	9	-	4.6	2	5	2	13	4	8
	180																			

1) Centring possible with D3.

Dimensions – Size 6 ... 12

FW – With flanged shaft



- 1 Slots for proximity sensor
SME-/SMT-10
- 2 Supply ports
- 3 Mounting thread
- 4 Socket head screw for end-position adjustment
- 5 Position of designated thread hole at 0°
- 10 Centring sleeves (2 included in the scope of delivery)

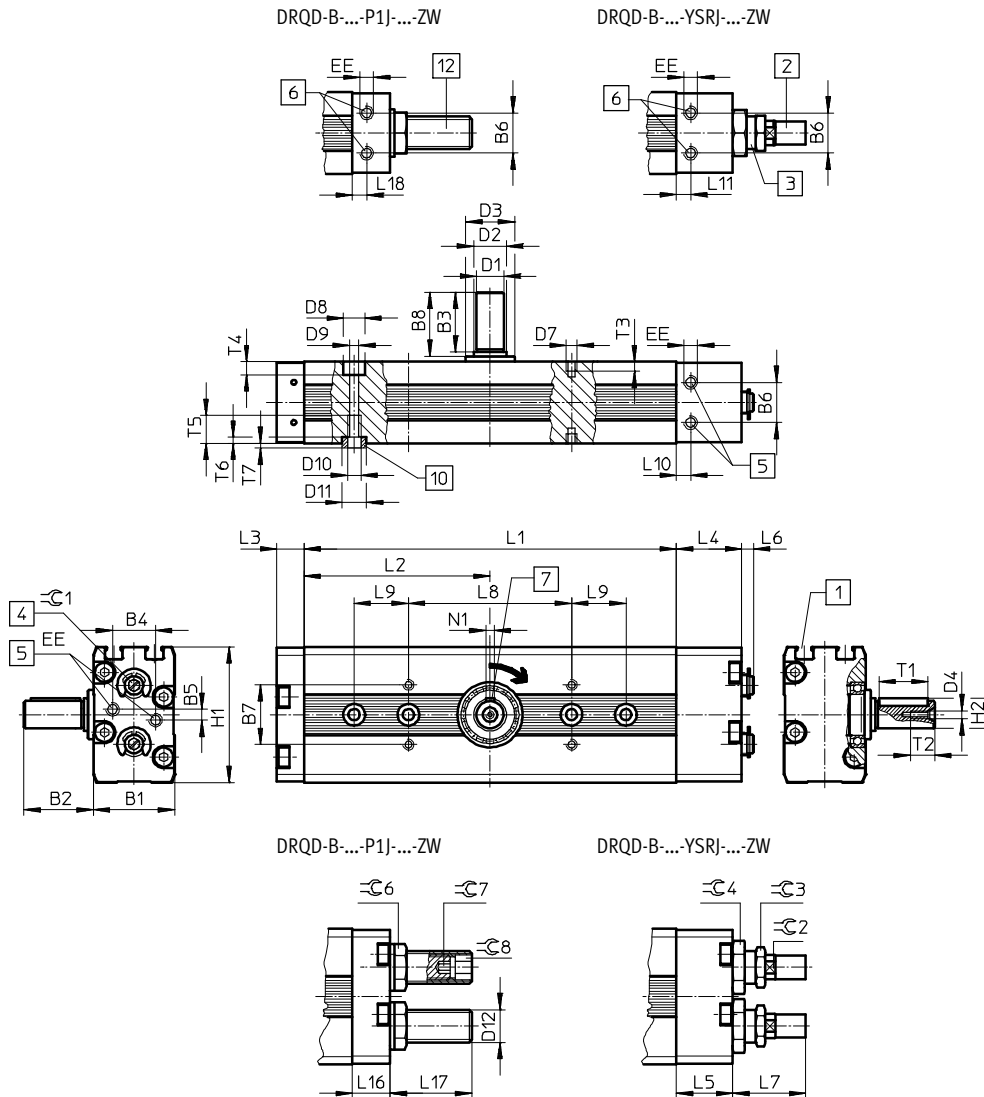
∅	Swivel angle [°]	B1	B2	B3	B4	B5	B6	D1 ∅	D2 ∅	D3	D5 ∅ H7	D6 ∅ g7	D7 ∅ H8	D8 ∅ H8	D9	D10 ∅ H7	D11	D12 ∅
6	90	15.4	7.7	4	2	13.6	1.5	23	16	M3	3	8	2	6	M4	7	M5	1.3
	180																	
8	90	17	7.7	4	4	16.2	1.5	27	21	M3	3	11	-	8	M5	9	M5	1.3
	180																	
12	90	21	7.7	4	6	18.2	1.5	27	21	M3	3	11	-	8	M5	9	M5	1.3
	180																	

∅	Swivel angle [°]	EE	H1	L1	L2	L3 max.	L4 max.	L5	L7 ±0.03	L8 ±0.03	L9	T3	T4	T6	T7	T8	⊖C1	⊖C2	⊖C3
6	90	M3	31	46.7	20.20	7.1	11.1	7.5	20	30	6.2	1.8	3.4	1.6	5	1.4	8	2.5	8
	180			61.8	27.75														
8	90	M3	34	54.2	23.45	8.1	12.1	7	-	36	5.7	-	4.6	2	5	2	10	3	8
	180			71.8	32.25														
12	90	M3	41	59.2	25.95	9.1	13.1	8	-	36	5.7	-	4.6	2	5	2	13	4	8
	180			76.8	34.75														

Twin piston semi-rotary drives DRQD-B

Dimensions – Size 16 ... 32

1 ZW – With spigot shaft



- | | | | |
|--|---|--|--|
| <p>1 Slots for proximity sensor SME/SMT-8</p> <p>2 Self-adjusting shock absorber for end-position cushioning</p> | <p>3 Adjustment sleeve for end-position adjustment with DRQD-B-...-YSRJ</p> <p>4 Socket head screw for end-position adjustment with integrated regulating screw for end-position cushioning</p> | <p>5 Variant PPVJ: both supply ports on one end cap, optionally on front or side</p> <p>6 Variant YSRJ: both supply ports on one end cap, on side only</p> | <p>7 Feather key position at 0°</p> <p>10 Centring sleeves (2 included in the scope of delivery)</p> <p>12 Adjustable cushioning component for end-position cushioning</p> |
|--|---|--|--|

Twin piston semi-rotary drives DRQD-B

FESTO

Dimensions – Size 16 ... 32

Download CAD data → www.festo.com

1

∅ [mm]	Swivel angle [°]	B1	B2	B3	B4	B5	B6	B7	B8	D1 ∅ g6	D2 ∅	D3 ∅	D4	D7	D8 ∅ H13	D9 ∅	D10	D11 ∅ H7	D12
16	90	30	25.5	23	17.8	4	14.8	22	23.5	10	12	18	M3	M4	8	4.2	M5	9	M12
	180																		
	360																		
20	90	36	32.5	30	21.8	4	19.8	26	30.5	12	15	24	M4	M4	8	4.2	M5	9	M14
	180																		
	360																		
25	90	42	42.5	40	24.8	4	24.8	30	40.5	16	20	30	M5	M5	10	5.3	M6	9	M16
	180																		
	360																		
32	90	51	52.5	50	29.8	2	29.8	36	50.5	20	25	35	M6	M5	10	5.3	M6	9	M22
	180																		
	360																		

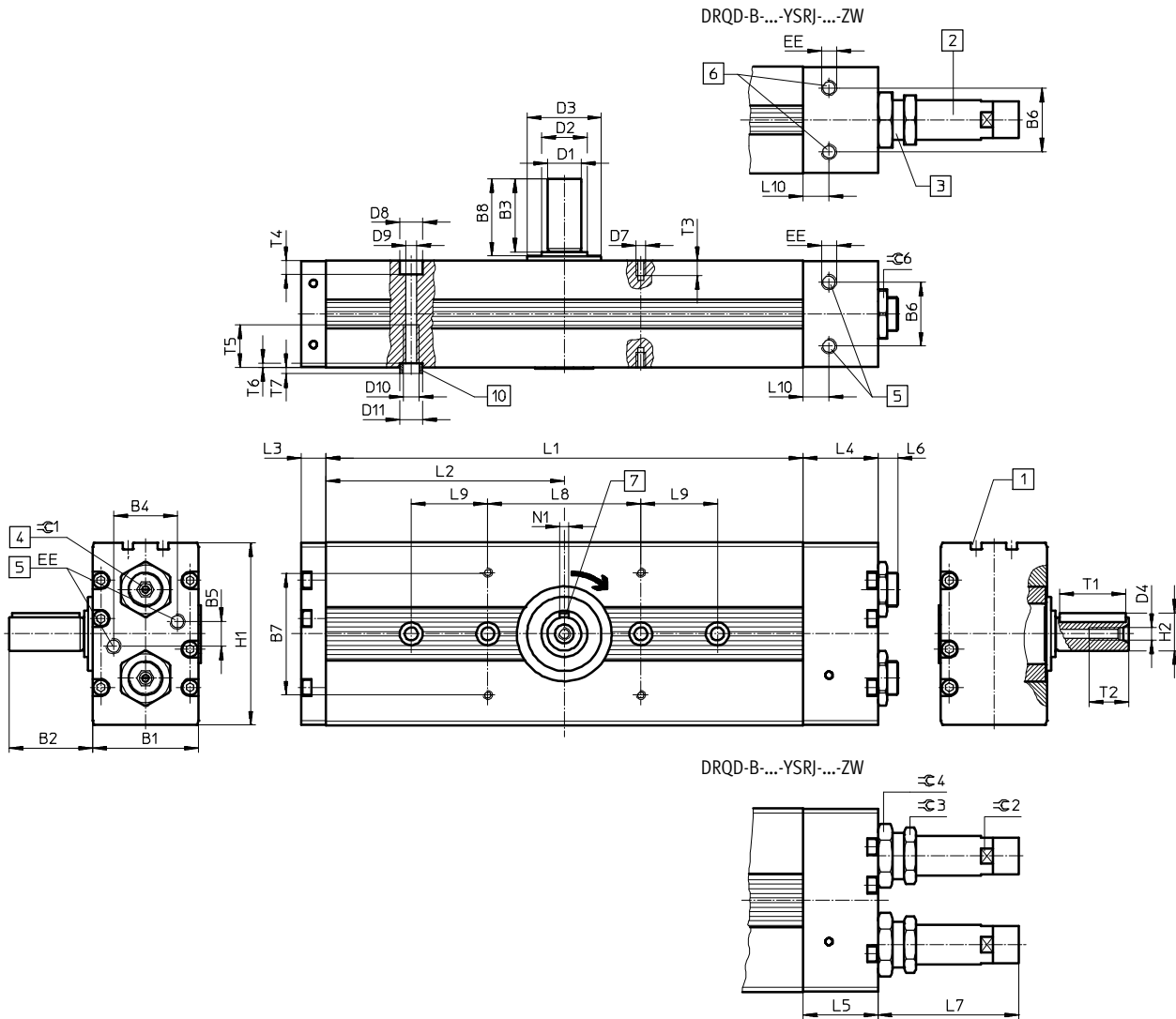
∅ [mm]	Swivel angle [°]	EE	H1	H2	L1	L2	L3	L4	L5	L6		L7		L8	L9	L10	L11	L16
										min.	max.	min.	max.					
16	90	M5	50	11.2	71	35.5	10	24	20.8	1.7	5.7	23.4	28.2	60	–	7.6	5.3	14
	180				93	46.5									–			
	360				137	68.5									20			
20	90	M5	56	13.5	78.4	39.2	10	31.5	27	2.4	7	28.6	35.9	60	–	8	5	13.5
	180				104.8	52.4									–			
	360				157.6	78.8									20			
25	90	M5	67	18	91.2	45.6	11	36.5	33	2.6	8.9	42	50.2	60	–	11	5	15
	180				124	62									–			
	360				189.2	94.6									20			
32	90	G $\frac{1}{8}$	79	22.5	114.8	57.4	13	39	39	4.3	11.8	59.4	70.1	80	–	13.1	8	20
	180				155.6	77.8									20			
	360				237.4	118.7									20			

∅ [mm]	Swivel angle [°]	L17		L18	N1 P9	T1	T2	T3	T4	T5	T6	T7	≈C1	≈C2	≈C3	≈C4	≈C6	≈C7	≈C8
		min.	max.																
16	90	6.7	41	5.8	3	18.1	9	3.5	5	10	2	2	4	9	13	17	15	4	8
	180																		
	360																		
20	90	8.5	59.5	5	4	25.1	10	3.5	5	12	2	2	7	11	15	19	17	4	8
	180																		
	360																		
25	90	9	61.4	5	5	36.1	12.5	5	6	12	2	2	7	15	19	24	19	5	10
	180																		
	360																		
32	90	10	60	8	6	45.1	16	5	6	14	2	2	8	20	27	32	27	5	10
	180																		
	360																		

Twin piston semi-rotary drives DRQD

Dimensions – Size 40 ... 50

1 ZW – With spigot shaft



- 1 Slots for proximity sensor SME-/SMT-8
- 2 Self-adjusting shock absorber for end-position cushioning
- 3 Adjustment sleeve for end-position adjustment with DRQD-...-YSRJ
- 4 Socket head screw for end-position adjustment with integrated regulating screw for end-position cushioning
- 5 Variant PPVJ: both supply ports on one end cap, optionally on front or side
- 6 Variant YSRJ: both supply ports on one end cap, on side only
- 7 Feather key position at 0°
- 10 Centring sleeves (2 included in the scope of delivery)

Dimensions – Size 40 ... 50

Download CAD data → www.festo.com

1

∅ [mm]	Swivel angle [°]	B1	B2	B3	B4	B5	B6	B7	B8	D1 ∅ g6	D2 ∅	D3 ∅	D4	D7	D8 ∅ H13	D9 ∅
40	90	70	53.5	50	42	4	42	80	50.5	22	30	48.5	M8	M6	15	8.5
	180															
	360															
50	90	86	63.5	60	50	16	50	80	60.9	28	38	58.5	M12	M6	15	8.5
	180															
	360															

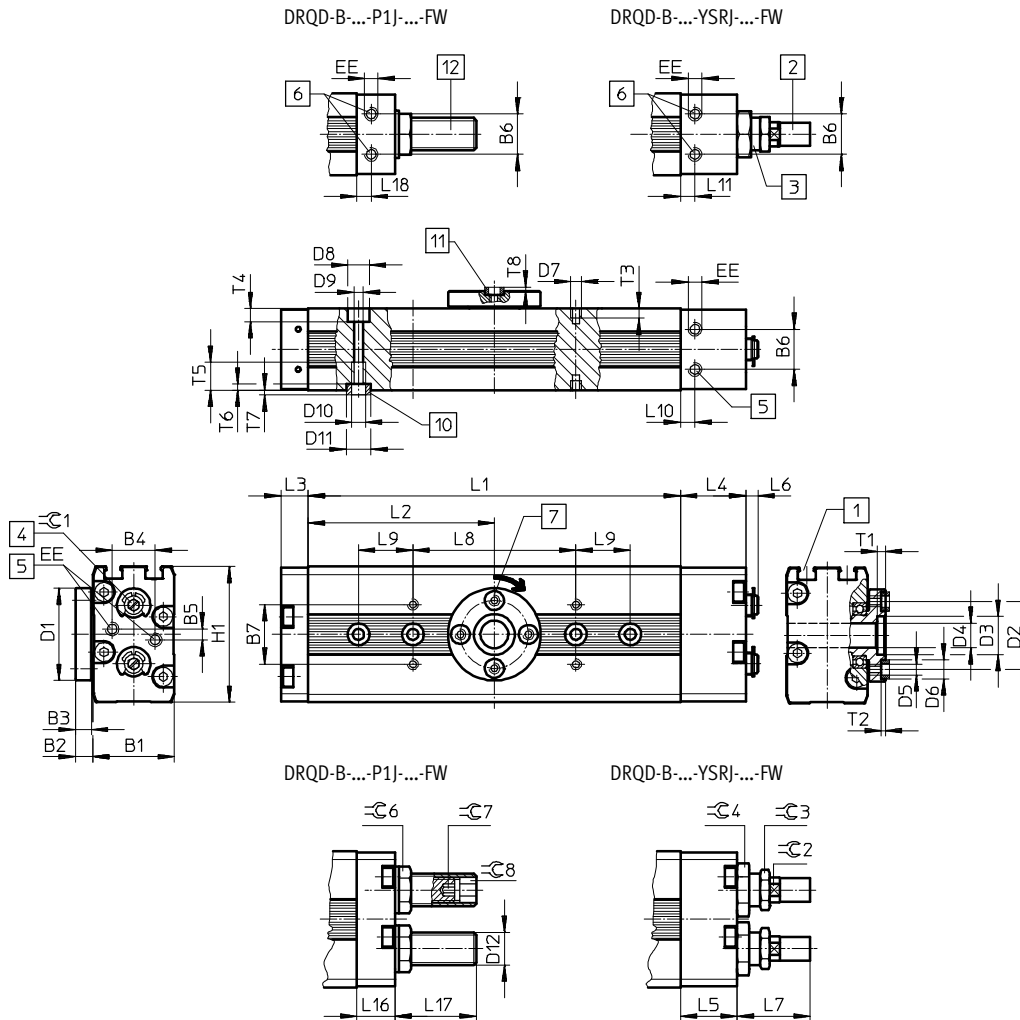
∅ [mm]	Swivel angle [°]	D10	D11 ∅ H7	EE	H1	H2	L1	L2	L3	L4	L5	L6		L7		L8 ±0.03
												min.	max.	min.	max.	
40	90	M10	15	G1/8	120	24.5	146.8	73.4	16	49	41.5	5	14.6	85.1	96.4	100
	180						201.8	100.9								
	360						311.8	155.9								
50	90	M10	15	G1/4	144	31	191.4	95.7	18	64	55	8	20.7	107.8	120.6	100
	180						262.8	131.4								
	360						405.8	202.9								

∅ [mm]	Swivel angle [°]	L9 ±0.03	L10	N1 P9	T1	T2 +2	T3	T4	T5	T6	T7	≈C1	≈C2	≈C3	≈C4	≈C6
40	90	–	17	6	45.1	26	10	10	28	3	3	10	24	32	36	27
	180	–														
	360	50														
50	90	–	21.2	8	56.1	28	10	11	28	3	3	14	28	36	46	41
	180	50														
	360	100														

Twin piston semi-rotary drives DRQD-B

Dimensions – Size 16 ... 32

1 FW – With flanged shaft



- | | | | |
|--|---|--|--|
| <p>1 Slots for proximity sensor SME/SMT-8</p> <p>2 Self-adjusting shock absorber for end-position cushioning</p> | <p>3 Adjustment sleeve for end-position adjustment with DRQD-B-...-YSRJ</p> <p>4 Socket head screw for end-position adjustment with integrated regulating screw for end-position cushioning</p> | <p>5 Variant PPVJ: both supply ports on one end cap, optionally on front or side</p> <p>6 Variant YSRJ: both supply ports on one end cap, on side only</p> | <p>7 Position of centring hole at 0°</p> <p>10 Centring sleeves (2 included in the scope of delivery)</p> <p>11 Centring sleeves (not included in the scope of delivery)</p> <p>12 Adjustable cushioning component for end-position cushioning</p> |
|--|---|--|--|

Twin piston semi-rotary drives DRQD-B

FESTO

Dimensions – Size 16 ... 32

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1

∅ [mm]	Swivel angle [°]	B1	B2	B3	B4	B5	B6	B7	D1 ∅	D2 ∅ ±0.025	D3 ∅ H8	D4 ∅	D5	D6 ∅ H7	D7	D8 ∅ H13	D9 ∅	D10	D11 ∅ H7
16	90	30	6.5	6	17.8	4	14.8	22	34	25	14	9	M4	7	M4	8	4.2	M5	9
	180																		
	360																		
20	90	36	6.5	6	21.8	4	19.8	26	38	28	16	11	M4	7	M4	8	4.2	M5	9
	180																		
	360																		
25	90	42	9.5	9	24.8	4	24.8	30	48	34	16	12	M6	9	M5	10	5.3	M6	9
	180																		
	360																		
32	90	51	9.5	9	29.8	2	29.8	36	58	45	19	14	M6	9	M5	10	5.3	M6	9
	180																		
	360																		

∅ [mm]	Swivel angle [°]	D12	EE	H1	L1	L2	L3	L4	L5	L6		L7		L8	L9	L10	L11	L16
										min.	max.	min.	max.					
16	90	M12	M5	50	71	35.5	10	24	20.8	1.7	5.7	23.4	28.2	60	–	7.6	5.3	14
	180				93	46.5									–			
	360				137	68.5									20			
20	90	M14	M5	56	78.4	39.2	10	31.5	27	2.4	7	28.6	35.9	60	–	8	5	13.5
	180				104.8	52.4									–			
	360				157.6	78.8									20			
25	90	M16	M5	67	91.2	45.6	11	36.5	33	2.6	8.9	42	50.2	60	–	11	5	15
	180				124	62									–			
	360				189.2	94.6									20			
32	90	M22	G ¹ / ₈	79	114.8	57.4	13	39	39	4.3	11.8	59.4	70.1	80	–	13.1	8	20
	180				155.6	77.8									20			
	360				237.4	118.7									20			

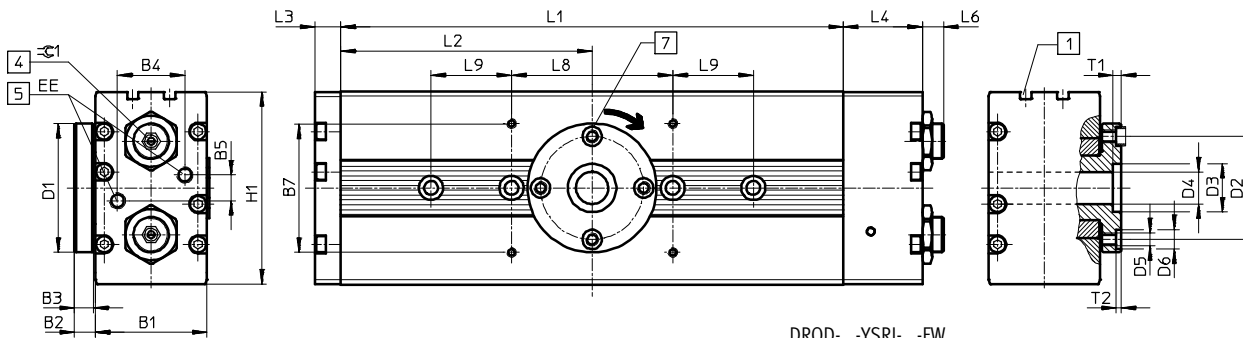
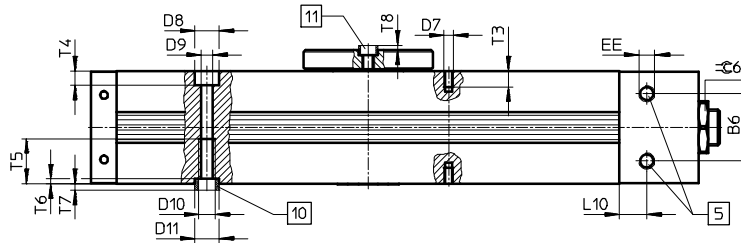
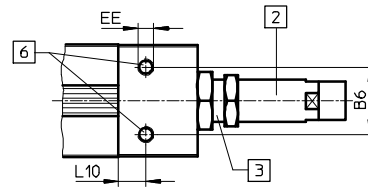
∅ [mm]	Swivel angle [°]	L17		L18	T1	T2	T3	T4	T5	T6	T7	T8	≈C1	≈C2	≈C3	≈C4	≈C6	≈C7	≈C8
		min.	max.																
16	90	6.7	41	5.8	3	1.6	3.5	5	10	2	2	1.4	4	9	13	17	15	4	8
	180																		
	360																		
20	90	8.5	59.5	5	3	1.6	3.5	5	12	2	2	1.4	7	11	15	19	17	4	8
	180																		
	360																		
25	90	9	61.4	5	3	2	5	6	12	2	2	2	7	15	19	24	19	5	10
	180																		
	360																		
32	90	10	60	8	3	2	5	6	14	2	2	2	8	20	27	32	27	5	10
	180																		
	360																		

Twin piston semi-rotary drives DRQD

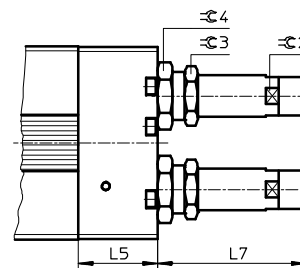
Dimensions – Size 40 ... 50

1 FW – With flanged shaft

DRQD-...-YSRJ-...-FW



DRQD-...-YSRJ-...-FW



- | | | | |
|---|---|---|---|
| <p>1 Slots for proximity sensor SME-/SMT-8</p> <p>2 Self-adjusting shock absorber for end-position cushioning</p> | <p>3 Adjustment sleeve for end-position adjustment with DRQD-...-YSRJ</p> <p>4 Socket head screw for end-position adjustment with integrated regulating screw for end-position cushioning</p> | <p>5 Variant PPV: both supply ports on one end cap, optionally on front or side</p> <p>6 Variant YSRJ: both supply ports on one end cap, on side only</p> | <p>7 Feather key position at 0°</p> <p>10 Centring sleeves (2 included in the scope of delivery)</p> <p>11 Centring sleeves (not included in the scope of delivery)</p> |
|---|---|---|---|

Dimensions – Size 40 ... 50

Download CAD data → www.festo.com

1

∅ [mm]	Swivel angle [°]	B1	B2	B3	B4	B5	B6	B7	D1 ∅	D2 ∅ ±0.025	D3 ∅ H7	D4	D5	D6 ∅ H7	D7	D8 ∅ H13
40	90	70	13	12	42	4	42	80	80	64	30	20	M8	12	M6	15
	180															
	360															
50	90	86	13	12	50	16	50	80	85	64	30	24	M8	12	M6	15
	180															
	360															

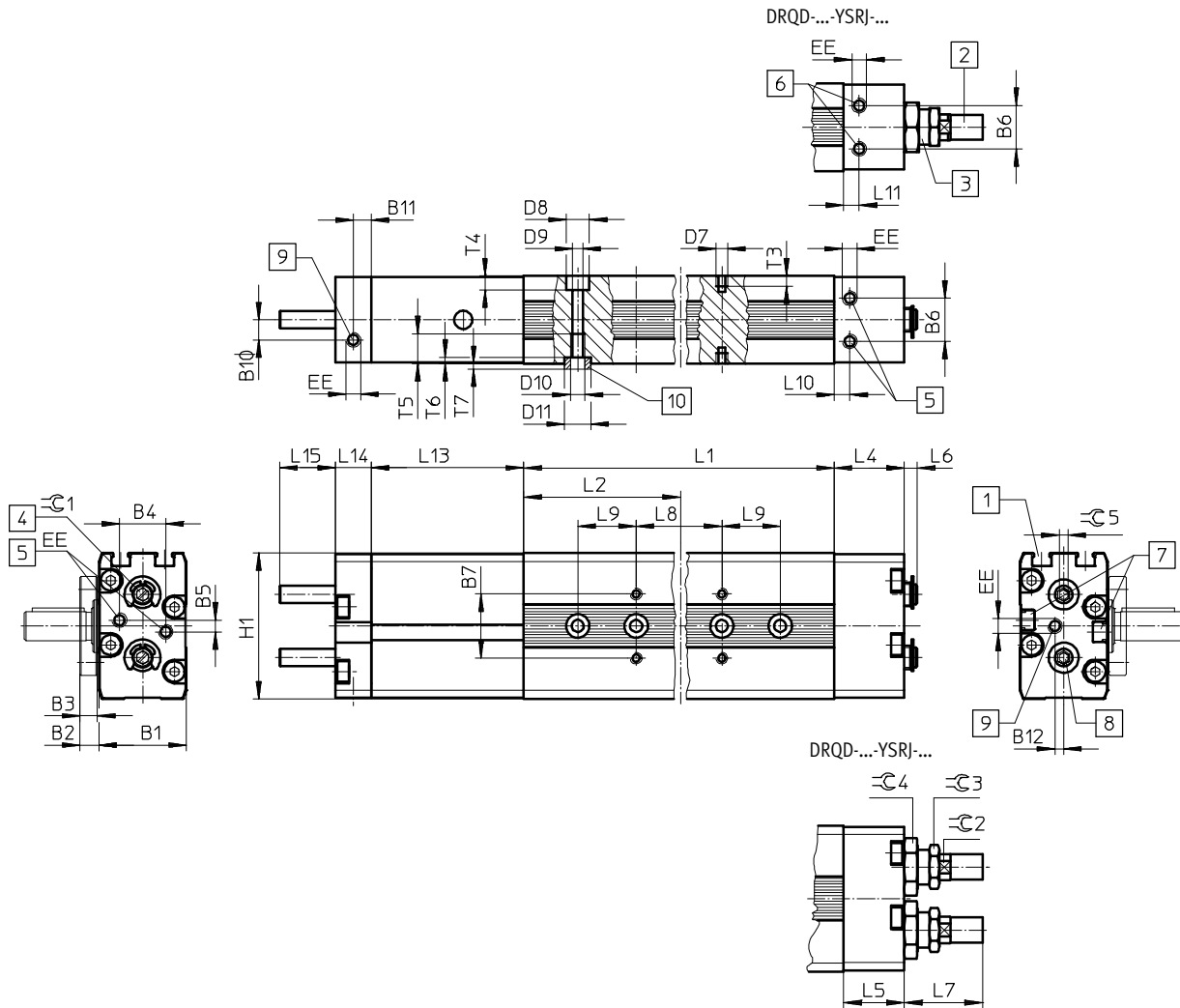
∅ [mm]	Swivel angle [°]	D9 ∅	D10	D11 ∅ H7	EE	H1	L1	L2	L3	L4	L5	L6		L7	
												min.	max.	min.	max.
40	90	8.5	M10	15	G1/8	120	146.8	73.4	16	49	41.5	5	14.6	85.1	96.4
	180						201.8	100.9							
	360						311.8	155.9							
50	90	8.5	M10	15	G1/4	144	191.4	95.7	18	64	55	8	20.7	107.8	120.6
	180						262.8	131.4							
	360						405.8	202.9							

∅ [mm]	Swivel angle [°]	L8 ±0.03	L9 ±0.03	L10	T1	T2	T3	T4	T5	T6	T7	≈C1	≈C2	≈C3	≈C4	≈C6
180	–															
360	50															
50	90	100	–	21.2	4	2.7	10	11	28	3	3	14	28	36	46	41
	180		50													
	360		100													

Twin piston semi-rotary drives DRQD-B

Dimensions – Size 16 ... 32

1 Z1 – Intermediate position



- | | | | |
|--|--|---|---|
| <p>1 Slots for proximity sensor SME-/SMT-8 for end-position sensing</p> <p>2 Self-adjusting shock absorber for end-position cushioning</p> <p>3 Adjustment sleeve for end-position adjustment with DRQD-...-YSRJ</p> | <p>4 Socket head screw for end-position adjustment with integrated regulating screw for end-position cushioning</p> <p>5 Variant PPVJ: both supply ports on one end cap, optionally on front or side</p> | <p>6 Variant YSRJ: both supply ports on one end cap, on side only</p> <p>7 Slots for proximity sensor SME-/SMT-8 for end-position sensing</p> <p>8 Socket head screw for intermediate-position adjustment (slightly recessed)</p> | <p>9 Supply port for intermediate position on end cap, optionally on side or front</p> <p>10 Centring sleeves (2 included in the scope of delivery)</p> |
|--|--|---|---|

Dimensions – Size 16 ... 32

Download CAD data → www.festo.com

1

∅ [mm]	Swivel angle [°]	B1	B2	B3	B4	B5	B6	B7	B10	B11	B12	D7	D8 ∅ H13	D9 ∅	D10	D11 ∅ H7
16	90	30	6.5	6	17.8	4	14.8	22	6.4	4.5	3	M4	8	4.2	M5	9
	180															
20	90	36	6.5	6	21.8	4	19.8	26	6.5	4.5	5.6	M4	8	4.2	M5	9
	180															
25	90	42	9.5	9	24.8	4	24.8	30	9.1	6.9	8.2	M5	10	5.3	M6	9
	180															
32	90	51	9.5	9	29.8	2	29.8	36	9	8	9	M5	10	5.3	M6	9
	180															

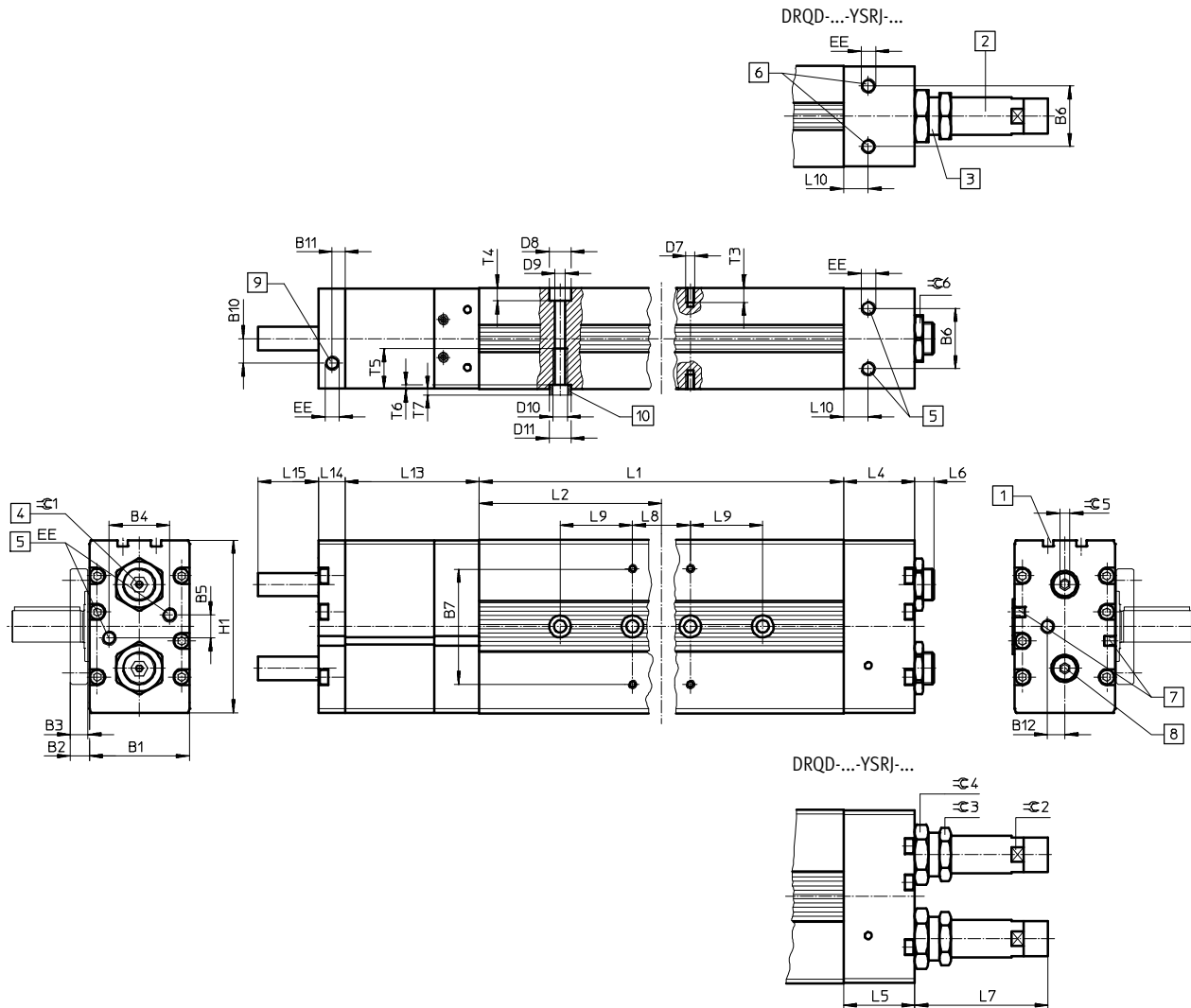
∅ [mm]	Swivel angle [°]	EE	H1	L1	L2	L4	L5	L6		L7		L8 ±0.03	L9 ±0.03	L10	L11
								min.	max.	min.	max.				
16	90	M5	50	71	35.5	24	20.8	1.7	5.7	23.4	28.2	60	–	7.6	5.3
	180			93	46.5								–		
20	90	M5	56	78.4	39.2	31.5	27	2.4	7	28.6	35.9	60	–	8	5
	180			104.8	52.4								–		
25	90	M5	67	91.2	45.6	36.5	33	2.6	8.9	42	50.2	60	–	11	5
	180			124	62								–		
32	90	G $\frac{1}{8}$	79	114.8	57.4	39	39	4.3	11.8	59.4	70.1	80	–	13.1	8
	180			155.6	77.8								20		

∅ [mm]	Swivel angle [°]	L13	L14	L15		T3	T4	T5	T6	T7	≈C1	≈C2	≈C3	≈C4	≈C5
				min.	max.										
16	90	52.2	12.3	0	19.1	3.5	5	10	2	2	4	9	13	17	3
	180														
20	90	55.4	12.3	0	21.8	3.5	5	12	2	2	7	11	15	19	3
	180														
25	90	62.1	15	0	26	5	6	12	2	2	7	15	19	24	4
	180														
32	90	68.2	15.5	0	31.5	5	6	14	2	2	8	20	27	32	4
	180														

Twin piston semi-rotary drives DRQD

Dimensions – Size 40 ... 50

1 Z1 – Intermediate position



- | | | | |
|--|--|---|---|
| <p>1 Slots for proximity sensor SME-/SMT-8 for end-position sensing</p> <p>2 Self-adjusting shock absorber for end-position cushioning</p> <p>3 Adjustment sleeve for end-position adjustment with DRQD-...-YSRJ</p> | <p>4 Socket head screw for end-position adjustment with integrated regulating screw for end-position cushioning</p> <p>5 Variant PPVJ: both supply ports on one end cap, optionally on front or side</p> | <p>6 Variant YSRJ: both supply ports on one end cap, on side only</p> <p>7 Slots for proximity sensor SME-/SMT-8 for end-position sensing</p> <p>8 Socket head screw for intermediate-position adjustment (slightly recessed)</p> | <p>9 Supply port for intermediate position on end cap, optionally on side or front</p> <p>10 Centring sleeves (2 included in the scope of delivery)</p> |
|--|--|---|---|

Dimensions – Size 40 ... 50

Download CAD data → www.festo.com

1

∅ [mm]	Swivel angle [°]	B1	B2	B3	B4	B5	B6	B7	B10	B11	B12	D7	D8 ∅ H13	D9 ∅	D10
40	90	70	13	12	42	4	42	80	92.5	9	12	M6	15	8.5	M10
	180														
	360														
50	90	86	13	12	50	16	50	80	105.7	9	14	M6	15	8.5	M10
	180														
	360														

∅ [mm]	Swivel angle [°]	D11 ∅ H7	EE	H1	L1	L2	L4	L5	L6		L7		L8 ±0.03	L9 ±0.03	L10
									min.	max.	min.	max.			
40	90	15	G $\frac{1}{8}$	120	146.8	73.4	49	41.5	5	14.6	85.1	96.4	100	-	17
	180				201.8	100.9								-	
	360				311.8	155.9								50	
50	90	15	G $\frac{1}{4}$	144	191.4	95.7	64	55	8	20.7	107.8	120.6	100	-	21.2
	180				262.8	131.4								50	
	360				405.8	202.9								100	

∅ [mm]	Swivel angle [°]	L13	L14	L15		T3	T4	T5	T6	T7	≈C1	≈C2	≈C3	≈C4	≈C5	≈C6
				min.	max.											
40	90	92.5	18.5	0	41.95	10	10	28	3	3	10	24	32	36	7	27
	180															
	360															
50	90	105.7	20.5	0	52.95	10	11	28	3	3	14	28	36	46	7	41
	180															
	360															

Mini slides DGSL

1



- High load capacity and positioning accuracy
- Maximum flexibility thanks to 8 sizes
- Guide unit with very precise linearity and parallelism
- Simple basic setting plus precision final adjustment of the end positions
- ★ Quick ordering of basic designs → 291

→ www.festo.com/catalogue/dgsl

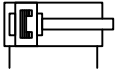
Product range overview

Type/function	Size	Stroke [mm]	Force [N]	Product options								
				C	E3	P	P1	Y3	E	Y11	N	A
DGSL												
Double-acting	4, 6, 8, 10, 12, 16, 20, 25	10 ... 200	17 ... 483	■	■	■	■	■	■	■	■	■

Product options

N	NPT thread	P	Elastic cushioning without metal end position, adjustable	Y3	Progressive shock absorber, at both ends	Y11	Progressive shock absorber with reducing sleeve, at both ends
C	Clamping unit	P1	Elastic cushioning with metal end position, adjustable	E	Elastic cushioning without metal end position, adjustable, short design	N	No cushioning
E3	End-position locking					A	Position sensing design

Technical data



Note

Operation without cushioning components is not permitted.



1

Technical data		Dimensions → 296							
Size		4	6	8	10	12	16	20	25
Pneumatic connection		M3			M5			G1/8	
Stroke	[mm]	10, 20, 30	10, 20, 30, 40, 50	10, 20, 30, 40, 50, 80	10, 20, 30, 40, 50, 80, 100	10, 20, 30, 40, 50, 80, 100, 150		10, 20, 30, 40, 50, 80, 100, 150, 200	
Cushioning	P	Elastic cushioning without metal end position, adjustable							
	E	Elastic cushioning without metal end position, adjustable, short design							
	P1	Elastic cushioning with metal end position, adjustable							
	Y3	–			Progressive shock absorber, at both ends				
	Y11	–			Progressive shock absorber with reducing sleeve, at both ends				
	N	–			No cushioning				
Theoretical force at 6 bar, advancing	[N]	17	30	47	68	121	188	295	483
Theoretical force at 6 bar, retracting	[N]	13	23	40	51	104	158	247	415

Technical data – Clamping unit		Dimensions → 296						
Size		6	8	10	12	16	20	25
Clamping type with effective direction		At both ends						
		Clamping via spring force, air to release						
Static holding force	[N]	80	80	180	180	350	350	600

Technical data – End-position locking		Dimensions → 296						
Size		6	8	10	12	16	20	25
Clamping type with effective direction		At both ends						
		Clamping via spring force, air to unlock						
Static holding force	[N]	60	60	160	160	250	380	640

Operating conditions		Dimensions → 296							
Size		4	6	8	10	12	16	20	25
Mini slide									
Min. operating pressure	[bar]	2.5	1.5				1		
Max. operating pressure	[bar]	8							
Clamping unit									
Min. release pressure	[bar]	3							
Max. operating pressure	[bar]	≤ 10							
End-position locking									
Operating pressure	[bar]	3 ... 8							
Ambient temperature ¹⁾	[°]	0 ... +60							

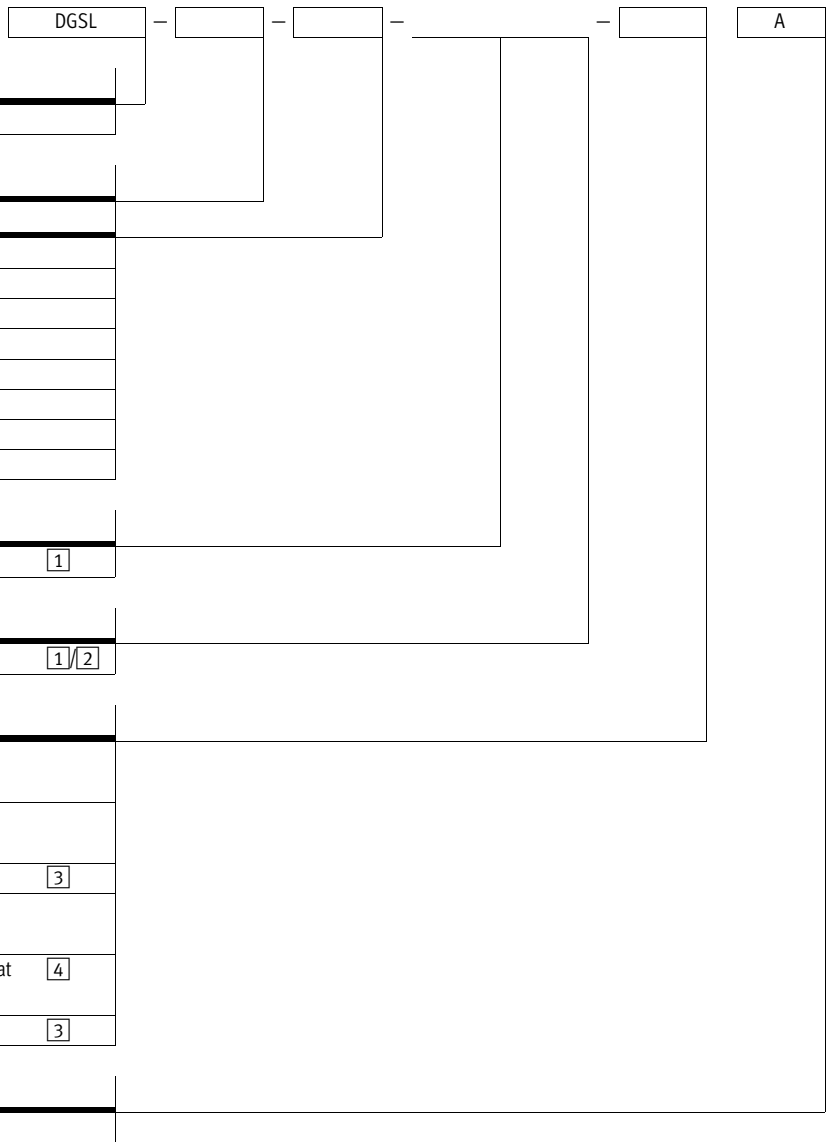
1) Note operating range of proximity sensors.

Materials	
Housing	Wrought aluminium alloy
End cap	Wrought aluminium alloy
Guide rail	Tempered steel
Piston rod	High-alloy stainless steel
Seals	HNBR

Mini slides DGSL

1

Order code



Type	
DGSL	Mini slide

Size	
	Stroke [mm]
4	10, 20, 30
6	10, 20, 30, 40, 50
8	10, 20, 30, 40, 50, 80
10	10, 20, 30, 40, 50, 80, 100
12	10, 20, 30, 40, 50, 80, 100, 150
16	10, 20, 30, 40, 50, 80, 100, 150
20	10, 20, 30, 40, 50, 80, 100, 150, 200
25	10, 20, 30, 40, 50, 80, 100, 150, 200

Clamping unit	
C	Attached 1

End-position locking	
E3	With piston rod in retracted position 1 / 2

Cushioning	
P	Elastic cushioning without metal end position, adjustable
P1	Elastic cushioning with metal end position, adjustable
Y3	Progressive shock absorber, at both ends 3
E	Elastic cushioning without metal end position, adjustable, short design
Y11	Progressive shock absorber with reducing sleeve, at both ends 4
N	No cushioning 3

Position sensing	
A	Via proximity sensor


- 1 Not with size 4
- 2 Not with clamping unit C
- 3 Not with size 4 and 6, minimum stroke 30 mm
- 4 Not with size 4 ... 8, minimum stroke 30 mm

Order example:

DGSL-12-100-C-Y3A

Mini slide DGSL - size 12 - stroke 100 mm - clamping unit attached - without end-position locking - progressive shock absorber at both ends - position sensing via proximity sensor

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
[→ www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the type code in the search field.

★ Quick ordering¹⁾

PA – Elastic cushioning without metal end position, adjustable

Part No.	Type
Piston Ø 12 mm	
543961	DGSL-12-10-PA
543962	DGSL-12-20-PA
543963	DGSL-12-30-PA
543964	DGSL-12-40-PA
543965	DGSL-12-50-PA
543966	DGSL-12-80-PA
543967	DGSL-12-100-PA
543968	DGSL-12-150-PA
Piston Ø 16 mm	
543983	DGSL-16-10-PA
543984	DGSL-16-20-PA
543985	DGSL-16-30-PA
543986	DGSL-16-40-PA
543987	DGSL-16-50-PA
543988	DGSL-16-80-PA
543989	DGSL-16-100-PA
543990	DGSL-16-150-PA

Part No.	Type
Piston Ø 20 mm	
544005	DGSL-20-10-PA
544006	DGSL-20-20-PA
544007	DGSL-20-30-PA
544008	DGSL-20-40-PA
544009	DGSL-20-50-PA
544010	DGSL-20-80-PA
544011	DGSL-20-100-PA
544012	DGSL-20-150-PA
544013	DGSL-20-200-PA

Part No.	Type
Piston Ø 25 mm	
544030	DGSL-25-10-PA
544031	DGSL-25-20-PA
544032	DGSL-25-30-PA
544033	DGSL-25-40-PA
544034	DGSL-25-50-PA
544035	DGSL-25-80-PA
544036	DGSL-25-100-PA
544037	DGSL-25-150-PA
544038	DGSL-25-200-PA

EA – Elastic cushioning without metal end position, adjustable, short design

Part No.	Type
Piston Ø 12 mm	
570179	DGSL-12-10-EA
570180	DGSL-12-20-EA
570181	DGSL-12-30-EA
570182	DGSL-12-40-EA
570183	DGSL-12-50-EA
570184	DGSL-12-80-EA
570185	DGSL-12-100-EA
570186	DGSL-12-150-EA
Piston Ø 16 mm	
570187	DGSL-16-10-EA
570188	DGSL-16-20-EA
570189	DGSL-16-30-EA
570190	DGSL-16-40-EA
570191	DGSL-16-50-EA
570192	DGSL-16-80-EA
570193	DGSL-16-100-EA
570194	DGSL-16-150-EA

Part No.	Type
Piston Ø 20 mm	
570195	DGSL-20-10-EA
570196	DGSL-20-20-EA
570197	DGSL-20-30-EA
570198	DGSL-20-40-EA
570199	DGSL-20-50-EA
570200	DGSL-20-80-EA
570201	DGSL-20-100-EA
570202	DGSL-20-150-EA
570203	DGSL-20-200-EA

Part No.	Type
Piston Ø 25 mm	
570204	DGSL-25-10-EA
570205	DGSL-25-20-EA
570206	DGSL-25-30-EA
570207	DGSL-25-40-EA
570208	DGSL-25-50-EA
570209	DGSL-25-80-EA
570210	DGSL-25-100-EA
570211	DGSL-25-150-EA
570212	DGSL-25-200-EA

1) All products in this table are easy to select and quick to order.

★ Quick ordering¹⁾

1

P1A – Elastic cushioning with metal end position, adjustable

Part No.	Type
Piston Ø 12 mm	
543969	DGSL-12-10-P1A
543970	DGSL-12-20-P1A
543971	DGSL-12-30-P1A
543972	DGSL-12-40-P1A
543973	DGSL-12-50-P1A
543974	DGSL-12-80-P1A
543975	DGSL-12-100-P1A
543976	DGSL-12-150-P1A
Piston Ø 16 mm	
543991	DGSL-16-10-P1A
543992	DGSL-16-20-P1A
543993	DGSL-16-30-P1A
543994	DGSL-16-40-P1A
543995	DGSL-16-50-P1A
543996	DGSL-16-80-P1A
543997	DGSL-16-100-P1A
543998	DGSL-16-150-P1A

Part No.	Type
Piston Ø 20 mm	
544014	DGSL-20-10-P1A
544015	DGSL-20-20-P1A
544016	DGSL-20-30-P1A
544017	DGSL-20-40-P1A
544018	DGSL-20-50-P1A
544019	DGSL-20-80-P1A
544020	DGSL-20-100-P1A
544021	DGSL-20-150-P1A
544022	DGSL-20-200-P1A

Part No.	Type
Piston Ø 25 mm	
544039	DGSL-25-10-P1A
544040	DGSL-25-20-P1A
544041	DGSL-25-30-P1A
544042	DGSL-25-40-P1A
544043	DGSL-25-50-P1A
544044	DGSL-25-80-P1A
544045	DGSL-25-100-P1A
544046	DGSL-25-150-P1A
544047	DGSL-25-200-P1A

Y3A – Progressive shock absorber, at both ends

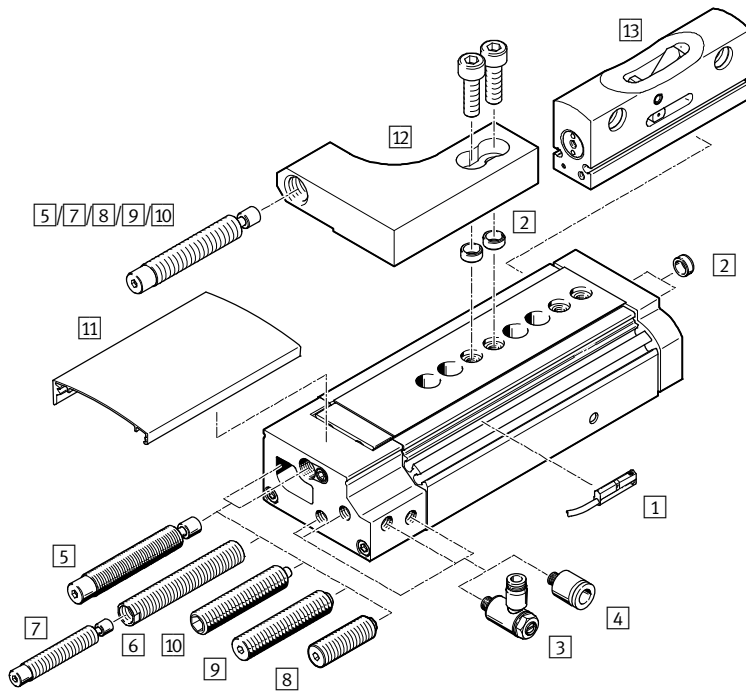
Part No.	Type
Piston Ø 12 mm	
543977	DGSL-12-30-Y3A
543978	DGSL-12-40-Y3A
543979	DGSL-12-50-Y3A
543980	DGSL-12-80-Y3A
543981	DGSL-12-100-Y3A
543982	DGSL-12-150-Y3A
Piston Ø 16 mm	
543999	DGSL-16-30-Y3A
544000	DGSL-16-40-Y3A
544001	DGSL-16-50-Y3A
544002	DGSL-16-80-Y3A
544003	DGSL-16-100-Y3A
544004	DGSL-16-150-Y3A

Part No.	Type
Piston Ø 20 mm	
544023	DGSL-20-30-Y3A
544024	DGSL-20-40-Y3A
544025	DGSL-20-50-Y3A
544026	DGSL-20-80-Y3A
544027	DGSL-20-100-Y3A
544028	DGSL-20-150-Y3A
544029	DGSL-20-200-Y3A

Part No.	Type
Piston Ø 25 mm	
544048	DGSL-25-30-Y3A
544049	DGSL-25-40-Y3A
544050	DGSL-25-50-Y3A
544051	DGSL-25-80-Y3A
544052	DGSL-25-100-Y3A
544053	DGSL-25-150-Y3A
544054	DGSL-25-200-Y3A

1) All products in this table are easy to select and quick to order.

Accessories



Note

End stops must not be removed.

1

		→ Page/online
1	Proximity sensor SME-/SMT-10	294
2	Centring sleeve ZBH	294
3	One-way flow control valve GRLA	294
4	Push-in fitting QSM	1006
5	Cushioning Y3	294
6	Reducing sleeve DAYH	294
7	Shock absorber DYSW	294
8	Cushioning E	294
9	Cushioning P	294
10	Cushioning P1	294

		→ Page/online
11	Cover DADS	295
12	Shock absorber retainer DADP	dgs1
13	Intermediate position module DADM	dgs1
-	Connector sleeve ZBV	295
-	Connecting cable NEBU	295
-	Drive/drive connections	dgs1
-	Drive/gripper connections	dgs1

Shock absorber selection

With the mini slide DGSL, the shock absorber can be replaced and the cushioning behaviour can thus be influenced (depending on the payload).

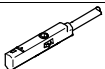
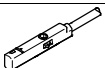

This is done by removing the existing shock absorbers on the DGSL and replacing them with a smaller shock absorber as appropriate to the application.

With smaller loads, the next smaller shock absorber DYSW can be installed with the help of the reducing sleeve DAYH.

With very small loads, the shock absorber DYEF can be installed.

Accessories – Ordering data



1

	For size		Part No.	Type	
1	Proximity sensor for C-slot, magneto-resistive – N/O contact				Technical data → 821
	PNP, cable	★	551373	SMT-10M-PS-24V-E-2,5-L-OE	
	PNP, plug	★	551375	SMT-10M-PS-24V-E-0,3-L-M8D	
	Magnetic reed – N/O contact				Technical data → 821
	Plug	★	551367	SME-10M-DS-24V-E-0,3-L-M8D	
	Cable	★	551365	SME-10M-DS-24V-E-2,5-L-OE	
	Cable	★	551369	SME-10M-ZS-24V-E-2,5-L-OE	
2	Centring sleeve¹⁾				
	4, 6		189652	ZBH-5	
	8, 10, 12, 16		186717	ZBH-7	
	20, 25		150927	ZBH-9	

1) Packaging unit 10 pieces.




Note



Proximity sensors SME are not permitted with size 4.

Function	For size	Connection		Part No.	Type	
		Thread	O.D.			
3	One-way flow control valve with slotted head screw, metal²⁾ for exhaust air flow control				Technical data → 687	
	4, 6, 8	M3	3	175041	GRLA-M3-QS-3 ³⁾	
			–	175038	GRLA-M3	
	10, 12, 16	M5	4	★	193138	GRLA-M5-QS-4-D
	20, 25	G1/8	6	★	193144	GRLA-1/8-QS-6-D
			6	162965	GRLA-1/8-QS-6-RS-B	
	8	162966	GRLA-1/8-QS-8-RS-B			

2) The recommended flow control valves are based on a tubing length to the valve of 1 m. For deviations of ±50%, flow control valves with a bigger or smaller flow rate must be selected to guarantee the optimum flow control function and cylinder speed.

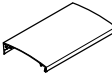
3) Only one GRLA-M3-QS-3 can be mounted on the front with size 4.

	For size		Part No.	Type
5/7	Shock absorber Y3			
	8		548070	DYSW-4-6-Y1F
	10		548071	DYSW-5-8-Y1F
	12		548072	DYSW-7-10-Y1F
	16		548073	DYSW-8-14-Y1F
	20		548074	DYSW-10-17-Y1F
	25		548075	DYSW-12-20-Y1F
6	Reducing sleeve DAYH			
	10		1165476	DAYH-4
	12		1165480	DAYH-5
	16		1165484	DAYH-7
	20		1165488	DAYH-8
	25		1165491	DAYH-10
8	Shock absorber P1			
	4		548370	DYEF-M4-Y1F
	6		548371	DYEF-M5-Y1F
	8		548372	DYEF-M6-Y1F
	10		548373	DYEF-M8-Y1F
	12		548374	DYEF-M10-Y1F
	16		548375	DYEF-M12-Y1F
	20		548376	DYEF-M14-Y1F
	25		548377	DYEF-M16-Y1F




	For size		Part No.	Type	
9	Shock absorber P				
	4		1152500	DYEF-M4-Y1	
	6		1152507	DYEF-M5-Y1	
	8		1152524	DYEF-M6-Y1	
	10		1152536	DYEF-M8-Y1	
	12		1179837	DYEF-M10-Y1	
	16		1179840	DYEF-M12-Y1	
	20		1179863	DYEF-M14-Y1	
	25		1179879	DYEF-M16-Y1	
	10	Shock absorber E			
		4		1152500	DYEF-S-M4-Y1
6			1152507	DYEF-S-M5-Y1	
8			1152524	DYEF-S-M6-Y1	
10			1152536	DYEF-S-M8-Y1	
12			1152959	DYEF-S-M10-Y1	
16			1153004	DYEF-S-M12-Y1	
20			1153017	DYEF-S-M14-Y1	
25			1153023	DYEF-S-M16-Y1	

Accessories – Ordering data

1

	For size	Length [mm]	Part No.	Type
11 Cover				
	4	30	1086663	DADS-AB-G6-4-30
		500	1212468	DADS-AB-G6-4-500
	6	50	1066625	DADS-AB-G6-6-50
		500	1212476	DADS-AB-G6-6-500
	8	80	1087413	DADS-AB-G6-8-80
		500	1212478	DADS-AB-G6-8-500
	10	50	1162400	DADS-AB-G6-10-50
		100	1090689	DADS-AB-G6-10-100
		500	1212479	DADS-AB-G6-10-500
	12	50	1162406	DADS-AB-G6-12-50
		150	1090732	DADS-AB-G6-12-150
		500	1212480	DADS-AB-G6-12-500
	16	50	1162410	DADS-AB-G6-16-50
		150	1066591	DADS-AB-G6-16-150
		500	1212503	DADS-AB-G6-16-500
	20	50	1162412	DADS-AB-G6-20-50
		100	1162415	DADS-AB-G6-20-100
		200	1090823	DADS-AB-G6-20-200
		500	1212521	DADS-AB-G6-20-500
	25	50	1162417	DADS-AB-G6-25-50
100		1162419	DADS-AB-G6-25-100	
200		1090895	DADS-AB-G6-25-200	
500		1212523	DADS-AB-G6-25-500	

Dimensions online: → [dgs1](#)

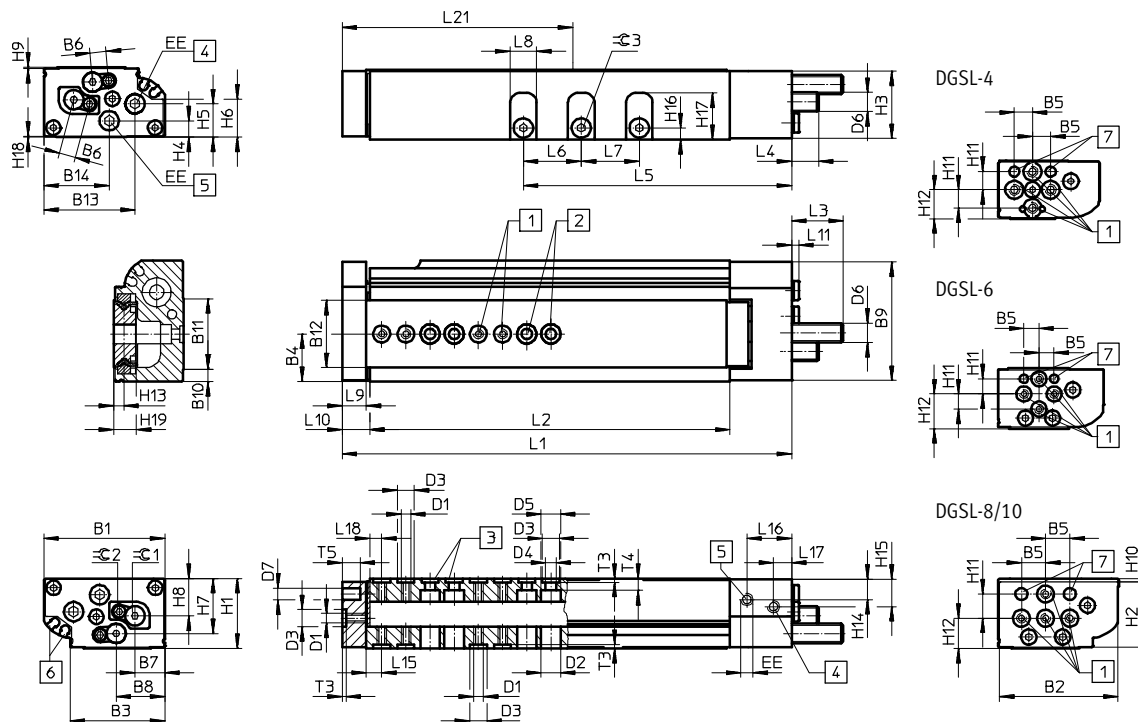
	For size		Part No.	Type
Connector sleeve¹⁾				
	8, 10		548802	ZBV-M4-7
	12, 16		548803	ZBV-M5-7
	20, 25		548804	ZBV-M6-9
Connecting cable, straight socket				Technical data → 1053
	2.5 m	★	541333	NEBU-M8G3-K-2.5-LE3
	5.0 m	★	541334	NEBU-M8G3-K-5-LE3
Angled socket				Technical data → 1053
	2.5 m	★	541338	NEBU-M8W3-K-2.5-LE3
	5.0 m	★	541341	NEBU-M8W3-K-5-LE3

1) Packaging unit 3 pieces.

Mini slides DGSL

Dimensions

1 Size 4 ... 10



- 1 Mounting thread (centring sleeves included in the scope of delivery)
- 2 Through-holes for mounting the drive
- 3 Centring holes (centring sleeves included in the scope of delivery)
- 4 Supply port, advancing
- 5 Supply port, retracting
- 6 Slots for proximity sensor SME/SMT-10
- 7 Centring hole
- L10 Distance between outer edge of yoke plate and housing
- L15 Distance between centre of centring hole and outer edge of slide
- L18 Distance between centre of centring hole and outer edge of housing

Size	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	D1
4	28	27.4	18.1	9.4	5	3.55	6.3	11.95	27.5	2	17.2	12.4	23.15	16.15	M3
6	35	34.5	26	13.5	5	5	8.2	13.5	34.5	3.5	19.9	20	28.1	18.9	M3
8	42	41.3	31.2	16.6	10	6	10.3	16.25	41.5	4.5	24	24.1	33	24.4	M4
10	50	49	39.2	19.65	10	6.8	12.35	20.1	49	5	29.2	28	37.7	27	M4

Size	D2	D3	D4	D5	D6	D7	EE	H1	H2	H3	H4	H5	H6	H7	H8
	∅	∅	∅	∅		∅		±0.08							
4	6.2	5 ^{H7}	3.3	6	M4x0.5	3 ^{H7}	M3	16	15.4	15.1	3.85	6.3	8.6	8.4	8.1
6	6.2	5 ^{H7}	3.3	6	M5x0.5	3 ^{H7}	M3	20	19	19.25	4.7	7.8	10.2	16	10.55
8	8	7 ^{H7}	4.3	8	M6x0.5	5 ^{H7}	M3	24	22.7	23	6.5	10.6	14	18.9	13.3
10	8	7 ^{H7}	4.3	8	M8x1	5 ^{H7}	M5	29	27.1	28	6.8	13.8	15.8	22.8	15.5

Size	H9	H10	H11	H12	H13	H14	H15	H16	H17	H18	H19	T3	T4	T5	∅ 2	∅ 3
												+0.1				
4	0.65	0.3	5	8	2.7	5.35	5.85	3	10.6	0.25	5.3	1.3	2.3	4	1.3	2
6	0.5	0.5	5	11.5	3.4	6.5	7.2	3.7	13.1	0.27	6.5	1.3	3.3	6	1.5	2.5
8	0.6	0.9	10	8.7	3.25	7.8	10.5	4.1	16.8	0.35	6.6	1.6	3.8	7.5	2	2.5
10	0.6	1.4	10	12.5	4.2	8.75	11.75	4.8	19.25	0.4	9	1.6	5	7.5	2.5	3

Dimensions

Download CAD data → www.festo.com

Size	Stroke	L1	L2	L5	L6	L7	L8	L9	L10	L11	L15 ±0.05	L16	L17	L18 ±0.05	L21
4	10	72.1	48	28.85	–	–	6.5	5.5	6.6	2.5	4	13.25	4.95	3	31
	20	81.2	57.1	37.95	10										36
	30	91.2	67.1	47.95	11										42
6	10	81.1	54	33.1	–	–	8	8	9.6	2.5	5.1	13.25	4.95	3.5	37
	20	91.1	64	43.1	14										42
	30	101.1	74	53.1											47
	40	111.1	84	63.1											52
	50	121.1	94	73.1											57
8	10	90.2	59.6	34.6	–	–	8	10	11.6	2.5	7	14.65	6.1	5.5	41
	20	100.2	69.6	44.6	10										46
	30	110.2	79.6	54.6	16										51
	40	120.2	89.6	64.6											56
	50	142.2	111.6	74.6											67
	80	172.2	141.6	104.6											82
10	10	103.1	66	41.3	–	–	11	10	11.6	2.5	6.4	18.5	7.5	5	43
	20	112.8	75.7	51	46										
	30	122.8	85.7	61	51										
	40	132.8	95.7	71	56										
	50	142.8	105.7	81	61										
	80	186.2	149.1	111	24										83
	100	206.2	169.1	131	24										24

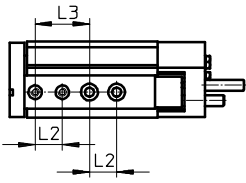
Size	Cushioning	L3 max.	L4 max.	≈ 1	
				For adjusting the cushioning stroke	For adjusting the end position
4	P	15.2	7.8	–	1.3
	E	5.7	0	–	1.3
	P1	14	6	1.3	2.5
6	P	17.6	8.1	–	1.5
	E	6.6	0	–	1.5
	P1	15.5	5.8	1.5	3
8	P	21.1	10.7	–	2
	E	6.6	0	–	2
	P1	19	9.1	2	4
	Y3	24.3	23.9	–	2
10	P	22.8	12.5	–	2.5
	E	8.8	0	–	2.5
	P1	20.5	10.2	2.5	5
	Y3	25.5	14.9	–	2.5
	Y11	30.4	19.9	–	2

Mini slides DGSL

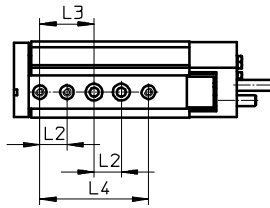
Dimensions

1 Hole pattern for mounting threads and centring holes

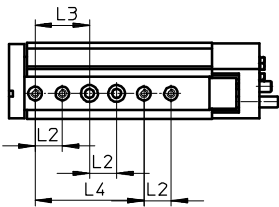
DGSL-4-10



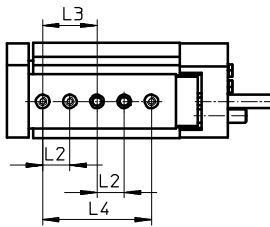
DGSL-4-20



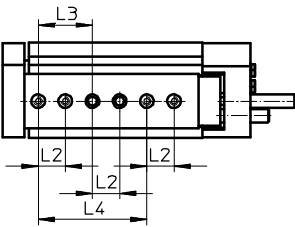
DGSL-4-30



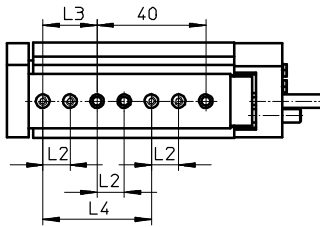
DGSL-6-10



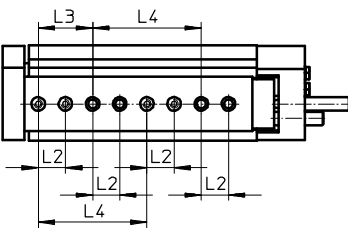
DGSL-6-20



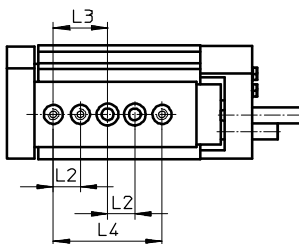
DGSL-6-30



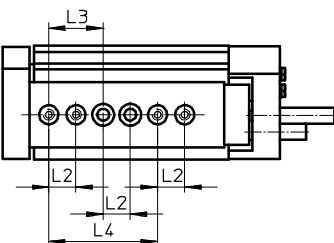
DGSL-6-40/50



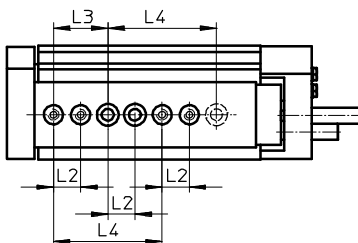
DGSL-8-10



DGSL-8-20



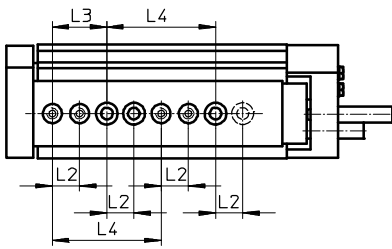
DGSL-8-30



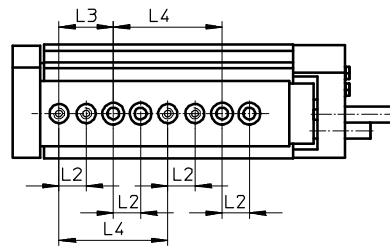
Dimensions

Hole pattern for mounting threads and centring holes

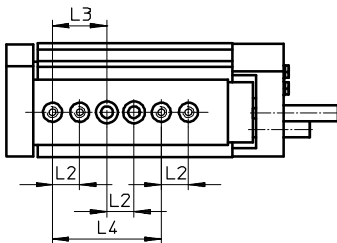
DGSL-8-40



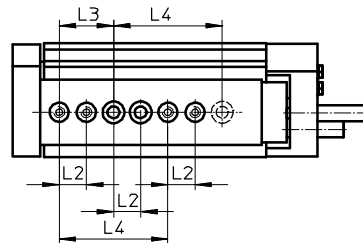
DGSL-8-50/80



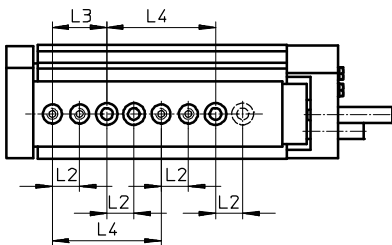
DGSL-10-10



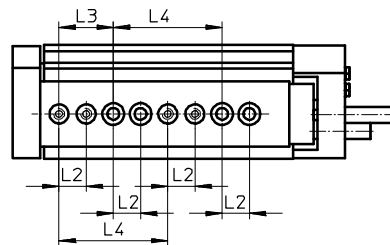
DGSL-10-20



DGSL-10-30

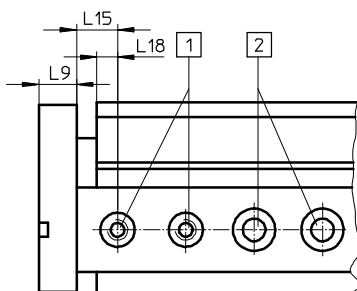


DGSL-10-40 ... 100



Distances from the yoke plate to the mounting threads and centring holes

DGSL-4 ... 10



- 1 Centring holes with thread
- 2 Through-holes for mounting the drive

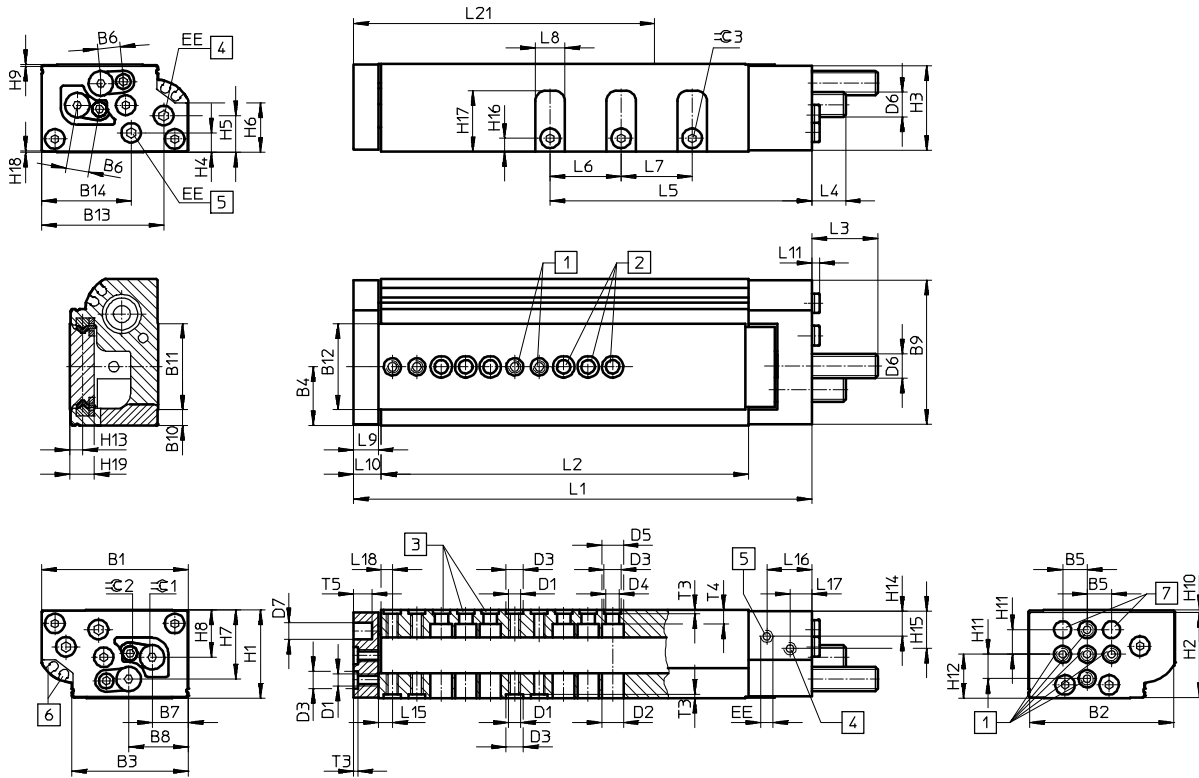
Size	L2 ¹⁾	L3 ¹⁾	L4 ¹⁾	L9	L15 ±0.05	L18
4	10	20	40	5.5	4	3
6				8	5.1	3.5
8				10	7	5.5
10				10	6.4	5

1) Tolerance for centring hole ±0.02.
Tolerance for through-hole ±0.1.

Mini slides DGSL

Dimensions

1 Size 12/16



- 1 Mounting thread (centring sleeves included in the scope of delivery)
- 2 Through-holes for mounting the drive
- 3 Centring holes (centring sleeves included in the scope of delivery)
- 4 Supply port, advancing
- 5 Supply port, retracting
- 6 Slots for proximity sensor SME/SMT-10
- 7 Centring hole
- L10 Distance between outer edge of yoke plate and housing
- L15 Distance between centre of centring hole and outer edge of slide
- L18 Distance between centre of centring hole and outer edge of housing

Size	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	D1
12	60	59	47.6	24	10	9.2	14.7	24.3	59	6.4	35.35	35.2	50	36.7	M5
16	66	65	53.5	26.7	10	11.1	16.7	27.5	65	7.75	37.9	38	50.4	36.7	M5

Size	D2	D3	D4	D5	D6	D7	EE	H1	H2	H3	H4	H5	H6	H7	H8
	∅	∅	∅	∅		∅		±0.08							
12	8.8	7 ^{H7}	5.5	8.8	M10x1	8 ^{H7}	M5	36	34.8	34.7	8	15.1	20.35	28.2	19.3
16	8.8	7 ^{H7}	5.5	9.2	M12x1	8 ^{H7}	M5	40	38	39	8.5	16.7	20.6	31.7	20.8

Size	H9	H10	H11	H12	H13	H14	H15	H16	H17	H18	H19	T3	T4	T5	∅ 2	∅ 3
12	0.8	0.95	10	17.9	5.2	10.75	15.75	5.5	24.9	0.5	10	1.6	5.6	7.5	3	3
16	0.5	1.5	10	20	6.4	10.5	16.7	7	26.6	0.5	12.4	1.6	6.1	9	4	4

Dimensions

Download CAD data → www.festo.com

Size	Stroke	L1	L2	L5	L6	L7	L8	L9	L10	L11	L15 ±0.05	L16	L17	L18 ±0.05	L21	
12	10	106.2	68.6	42.4	-	-	12	10	11.6	2.5	5.8	18.5	9	4.5	44	
	20	116.2	78.6	52.4											49	
	30	126.2	88.6	62.4											54	
	40	136.2	98.6	72.4											59	
	50	146.2	108.6	82.4	29										29	64
	80	197.6	160	112.4												88
	100	217.6	180	132.4												98
	150	267.6	230	182.4												124
16	10	124.1	82.5	45	-	-	14	12	13.6	2.5	6.8	21	10	5.5		54
	20	134.6	93	54.6												59
	30	144.6	103	64.6												64
	40	154.6	113	74.6												69
	50	164.6	123	84.6	35										74	
	80	194.6	153	114.6											89	
	100	243.6	202	134.6											113	
	150	293.6	252	184.6											138	

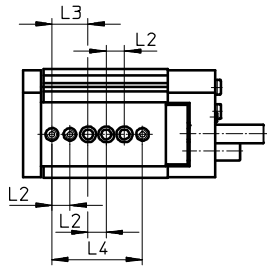
Size	Cushioning	L3 max.	L4 max.	≈ 1	
				For adjusting the cushioning stroke	For adjusting the end position
12	P	28.1	14.9	-	3
	E	8.8	0	-	3
	P1	26	12.8	3	6
	Y3	36.9	23.7	-	3
	Y11	42.2	18.7	-	2.5
16	P	42.3	26.1	-	4
	E	8.8	0	-	4
	P1	40	23.8	4	8
	Y3	51.9	35.7	-	4
	Y11	55.4	38.9	-	3

Mini slides DGSL

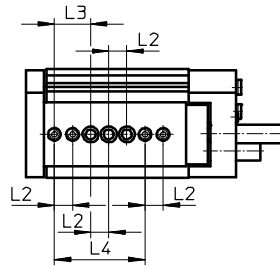
Dimensions

1 Hole pattern for mounting threads and centring holes

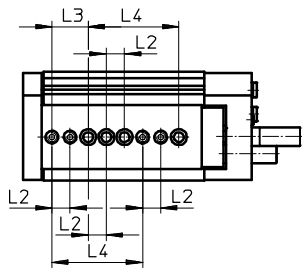
DGSL-12-10



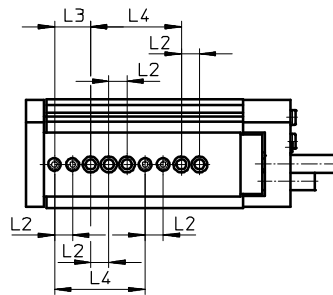
DGSL-12-20



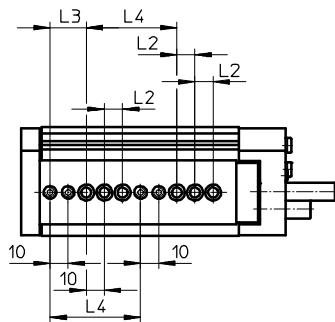
DGSL-12-30



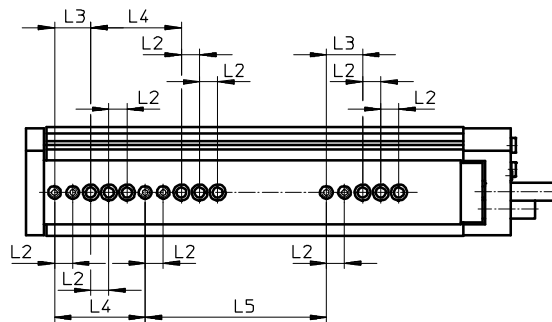
DGSL-12-40



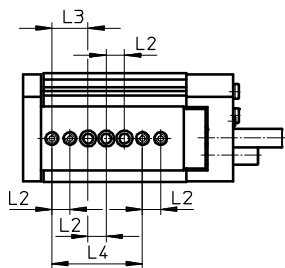
DGSL-12-50 ... 100



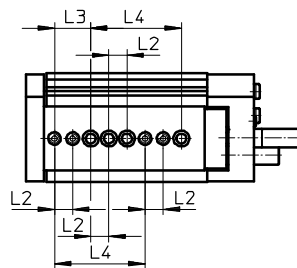
DGSL-12-150



DGSL-16-10



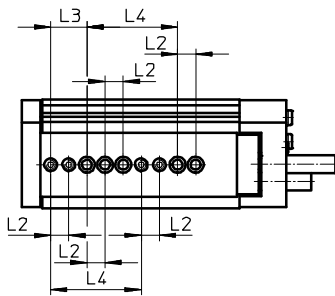
DGSL-16-20



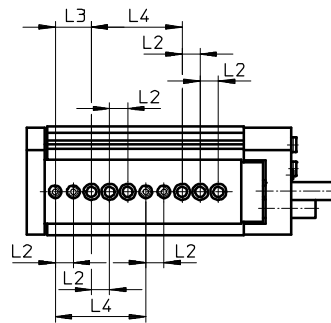
Dimensions

Hole pattern for mounting threads and centring holes

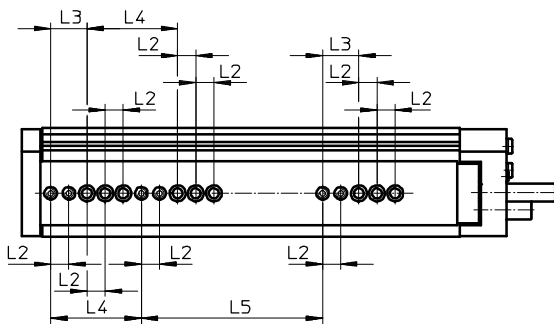
DGSL-16-30



DGSL-16-40 ... 100

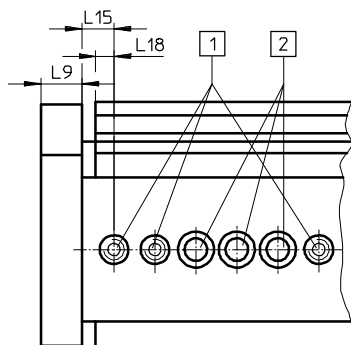


DGSL-16-150



Distances from the yoke plate to the mounting threads and centring holes

DGSL-12/16



- 1 Centring holes with thread
- 2 Through-holes for mounting the drive

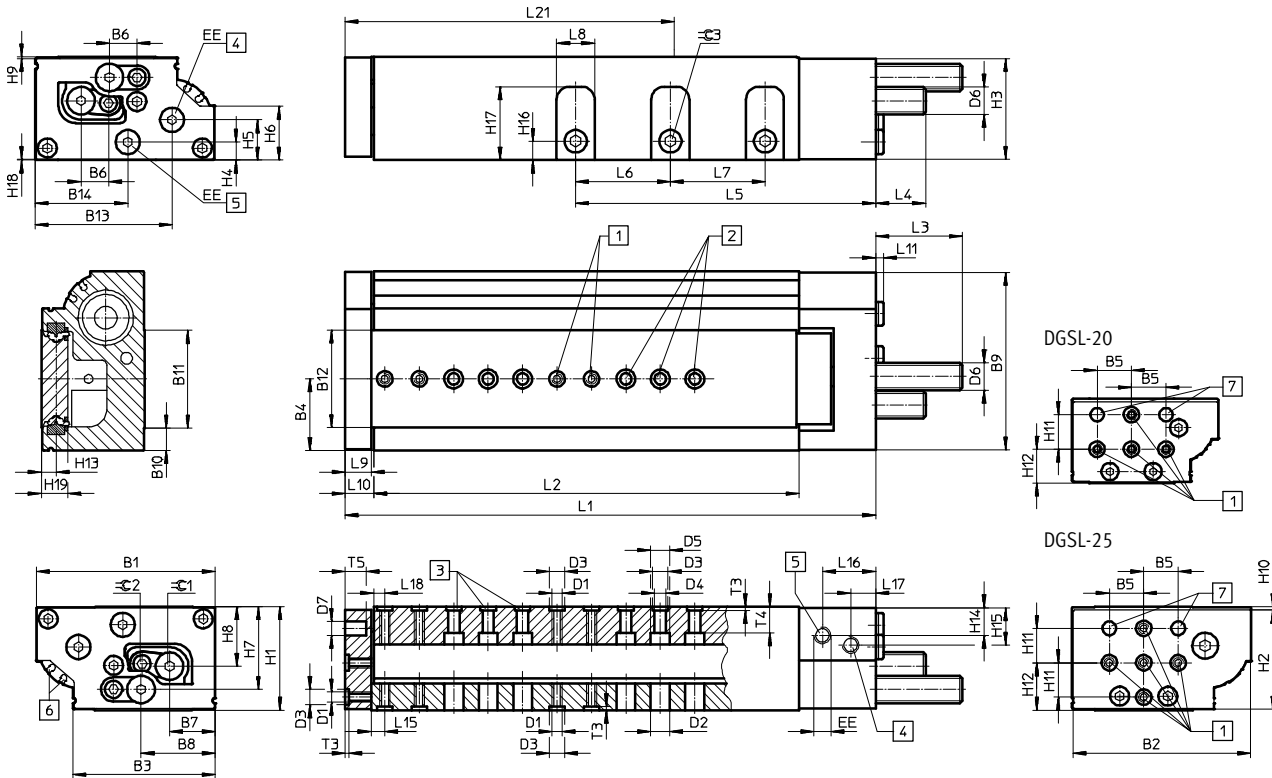
Size	L2 ¹⁾	L3 ¹⁾	L4 ¹⁾	L5 ¹⁾	L9	L15 ±0.05	L18
12	10	20	50	100	10	5.8	4.5
16					12	6.8	5.5

1) Tolerance for centring hole ±0.02.
Tolerance for through-hole ±0.1.

Mini slides DGSL

Dimensions

1 Size 20/25



- 1 Mounting thread (centring sleeves included in the scope of delivery)
- 2 Through-holes for mounting the drive
- 3 Centring holes (centring sleeves included in the scope of delivery)
- 4 Supply port, advancing
- 5 Supply port, retracting
- 6 Slots for proximity sensor SME/SMT-10
- 7 Centring hole
- L10 Distance between outer edge of yoke plate and housing
- L15 Distance between centre of centring hole and outer edge of slide
- L18 Distance between centre of centring hole and outer edge of housing

Size	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	D1
20	85	84	68.85	34.5	20	14	21.4	36.35	83.4	10	48.9	49.2	64.1	48.6	M6
25	104	103	82.6	41.6	20	16.2	26.4	43.1	103	13.25	56.5	56.7	79.4	53.7	M6

Size	D2	D3	D4	D5	D6	D7	EE	H1	H2	H3	H4	H5	H6	H7	H8
	∅	∅	∅	∅		∅		±0.08							
20	11	9 ^{H7}	6.6	11	M14x1	8 ^{H7}	G ¹ / ₈	49	46.5	47.7	10.3	20.6	23.2	38.2	26.1
25	11	9 ^{H7}	6.6	11	M16x1	8 ^{H7}	G ¹ / ₈	60	57.5	58.5	10.5	23.4	31.2	48	34.5

Size	H9	H10	H11	H12	H13	H14	H15	H16	H17	H18	H19	T3	T4	T5	∅ 2	∅ 3
20	0.5	2	20	19.6	7.55	14.7	14.7	10	33.3	0.8	14.5	2.1	8.8	10	4	5
25	1	2	20	27.5	8.55	16.6	22.2	11	42.7	0.5	15.5	2.1	15.1	12	5	6

Dimensions

Download CAD data → www.festo.com

Size	Stroke	L1	L2	L5	L6	L7	L8	L9	L10	L11	L15 ±0.05	L16	L17	L18 ±0.05	L21
20	10	141.2	84.6	59.1	-	-	17	14	15.6	4.6	7.8	29.3	10.5	6.5	56
	20	151.2	94.6	69.1											61
	30	161.2	104.6	79.1											66
	40	171.2	114.6	89.1											71
	50	183.2	126.6	99.1											76
	80	211.2	154.6	129.1	44	44	91								
	100	270.2	213.6	149.1			121								
	150	333.2	276.6	199.1			152								
	200	383.2	326.6	252.1			177								
25	10	157.1	96	63.7	-	-	22	15	16.6	4.6	8	30.9	12.2	6.5	64
	20	167.1	106	72.2											69
	30	177.1	116	82.2											74
	40	187.1	126	92.2											79
	50	197.1	136	102.2											84
	80	253.1	192	132.2	55	55	112								
	100	286.1	225	152.2			129								
	150	338.1	277	202.2			154								
	200	388.1	327	254.2			179								

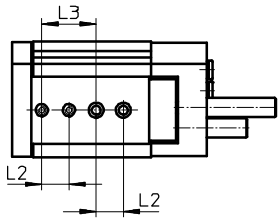
Size	Cushioning	L3 max.	L4 max.	≈ 1	
				For adjusting the cushioning stroke	For adjusting the end position
20	P	52.4	31.2	-	4
	E	8.8	0	-	4
	P1	50.1	28.9	4	8
	Y3	55.5	34.3	-	4
	Y11	67.4	45.9	-	4
25	P	51.9	30.5	-	5
	E	8.8	0	-	5
	P1	49.6	28.2	5	10
	Y3	65.2	43.8	-	5
	Y11	78.4	56.9	-	4

Mini slides DGSL

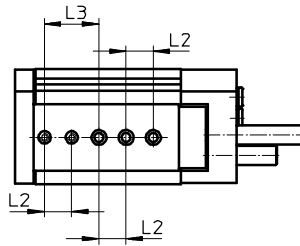
Dimensions

1 Hole pattern for mounting threads and centring holes

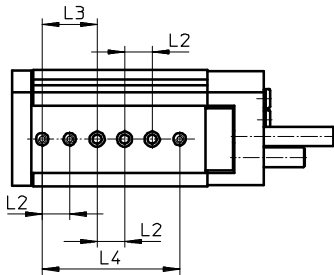
DGSL-20-10/20



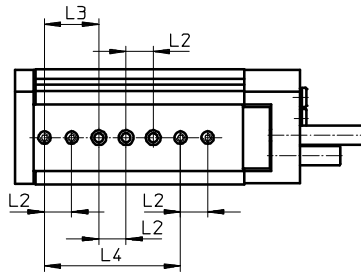
DGSL-20-30/40



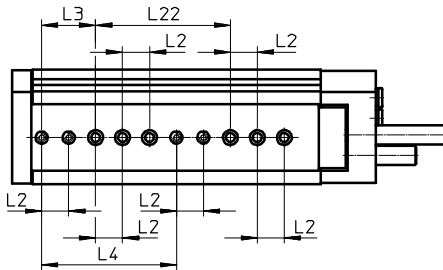
DGSL-20-50



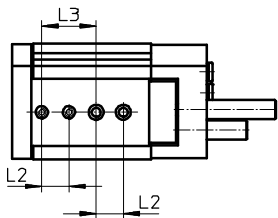
DGSL-20-80



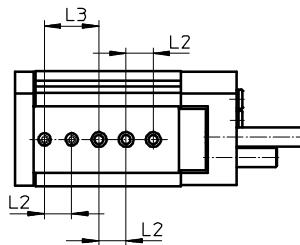
DGSL-20-100 ... 200



DGSL-25-10



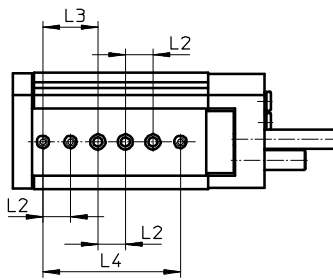
DGSL-25-20



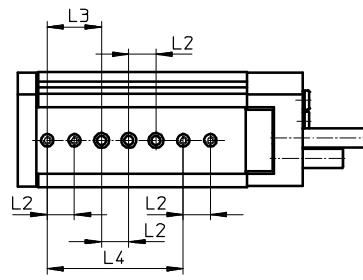
Dimensions

Hole pattern for mounting threads and centring holes

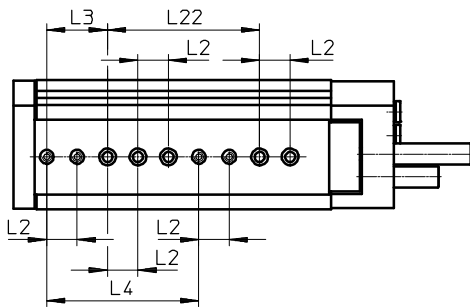
DGSL-25-30/40



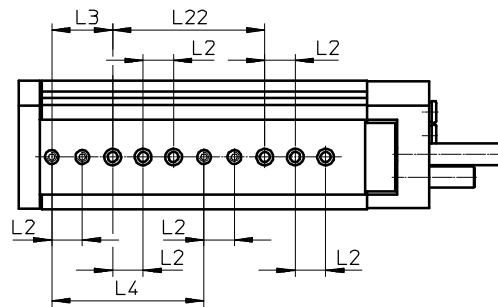
DGSL-25-50



DGSL-25-80

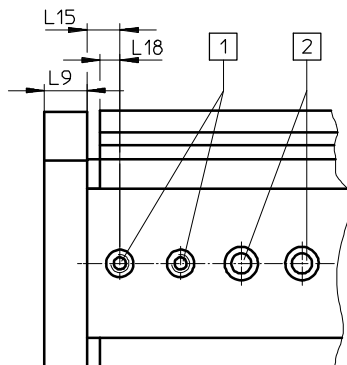


DGSL-25-100 ... 200



Distances from the yoke plate to the mounting threads and centring holes

DGSL-20/25



- 1 Centring holes with thread
- 2 Through-holes for mounting the drive

Size	L2 ¹⁾	L3 ¹⁾	L4	L9	L15 ±0.05	L18	L22
20	20	40	100 ¹⁾	14	7.8	6.5	100±0.03
25	20	40	100±0.03	15	8	6.5	100 ¹⁾

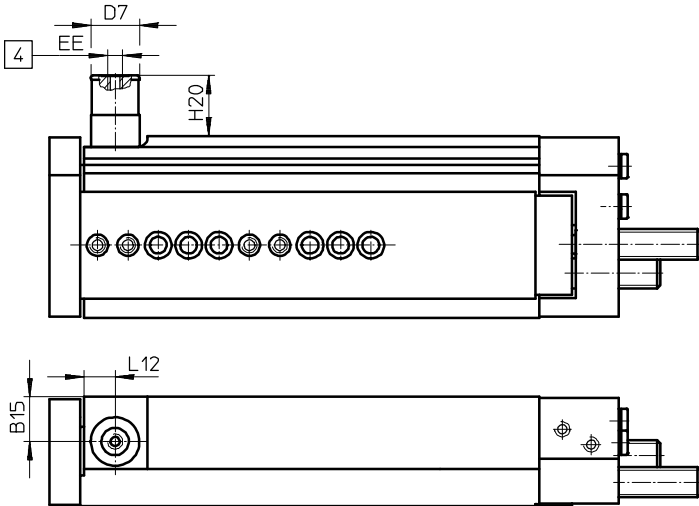
1) Tolerance for centring hole ±0.02.
Tolerance for through-hole ±0.1.

Mini slides DGSL

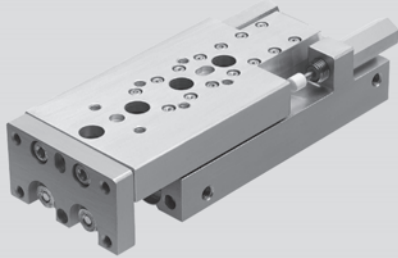
Dimensions

1 C – Clamping unit/E3 – End-position locking

4 Supply port



Size	B15	D7 Ø	EE	H20		L12
				C	E3	
6	7.2	12	M5	10.7	21.2	7.3
8	9.9	12		10.5	21	7.3
10	11.2	16		11.8	21.2	10.5
12	14.8	16		10.5	19.9	10.3
16	14	20		27.5	30.5	13
20	17	20		21.3	24.3	14
25	22.55	20		17.75	20.65	14



- Double-acting drives
- Precise and rigid guide
- Powerful
- Highly adaptable thanks to wide choice of mounting and attachment options
- Spare parts service

→ www.festo.com/catalogue/slt

Product range overview

Type/function	Size	Stroke [mm]	Force [N]	Product options			
				A	P	CC	B
SLT							
Double-acting	6	10 ... 200	34 ... 590	■	■	–	–
	10, 16, 20, 25			■	■	■	■

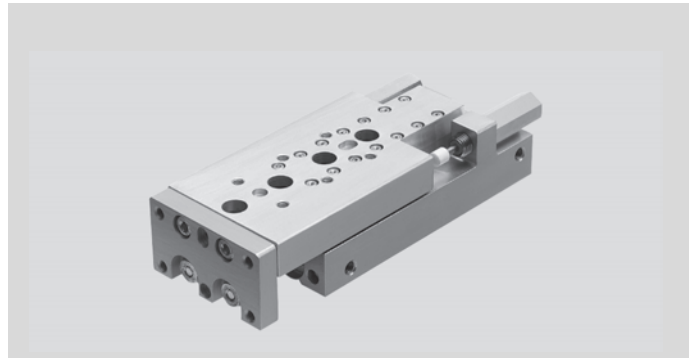
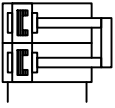
Product options

A	Position sensing	CC	Linear, self-adjusting shock absorber
P	Elastic cushioning, non-adjustable	B	B series

Mini slides SLT

1

Technical data



Technical data		Dimensions → 314				
Size		6	10	16	20	25
Pneumatic connection		M5			G1/8	
Stroke	[mm]	10, 20, 30, 40, 50	10, 20, 30, 40, 50, 80	10, 20, 30, 40, 50, 80, 100, 125, 150	10, 20, 30, 40, 50, 80, 100, 125, 150, 200	10, 20, 30, 40, 50, 80, 100, 125, 150, 200
Cushioning	P	Elastic cushioning, non-adjustable				
	CC	–	Linear, self-adjusting shock absorber			
Theoretical force at 6 bar, advancing	[N]	34	94	242	376	590
Theoretical force at 6 bar, retracting	[N]	25	79	218	317	495

Operating conditions						
Size		6	10	16	20	25
Min. operating pressure	[bar]	1.5 ... 10		1 ... 10		
Ambient temperature ¹⁾	[°]	–20 ... +60				

1) Note operating range of proximity sensors.

Materials	
Housing	Wrought aluminium alloy
End cap	Wrought aluminium alloy
Guide rail	Tempered steel
Piston rod	High-alloy stainless steel
Seals	HNBR

Order code – With cushioning P: elastic cushioning

		SLT	-		-		-	P	-	A	
Type											
SLT	Mini slide										
Size											
	Stroke [mm]										
6	10, 20, 30, 40, 50										
10	10, 20, 30, 40, 50, 80										
16	10, 20, 30, 40, 50, 80, 100, 125, 150										
20	10, 20, 30, 40, 50, 80, 100, 125, 150, 200										
25	10, 20, 30, 40, 50, 80, 100, 125, 150, 200										
Cushioning											
P	Elastic cushioning, non-adjustable										
Position sensing											
A	Via proximity sensor										

Order code – With cushioning CC: self-adjusting shock absorber

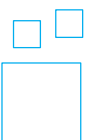
		SLT	-		-		-	A	-	CC	-	B
Type												
SLT	Mini slide											
Size												
	Stroke [mm]											
10	30, 40, 50, 80											
16	30, 40, 50, 80, 100, 125, 150											
20	30, 40, 50, 80, 100, 125, 150, 200											
25	30, 40, 50, 80, 100, 125, 150, 200											
Position sensing												
A	Via proximity sensor											
Cushioning												
CC	Linear, self-adjusting shock absorber											
Version												
B	B series											

Order example:

SLT-20-150-A-CC-B

Mini slide SLT - size 20 - stroke 150 mm - position sensing via proximity sensor - linear, self-adjusting shock absorber - B series

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or

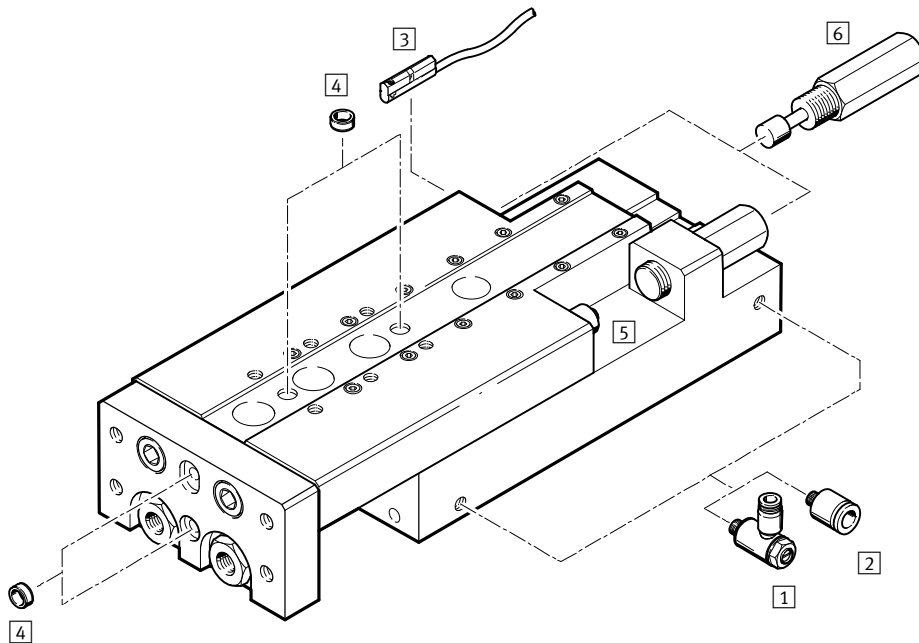
→ www.festo.com/catalogue/...

Enter the type code in the search field.

Mini slides SLT

Accessories

1



Note
End stops must not be removed.

		→ Page/online
1	One-way flow control valve GRLA	313
2	Push-in fitting QS	1006
3	Proximity sensor SME-/SMT-10	313
4	Centring pin ZBS/centring sleeve ZBH	313
5	Cushioning with stop PF	313

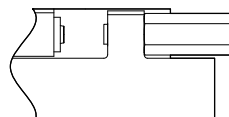
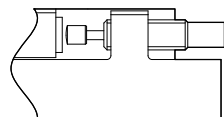
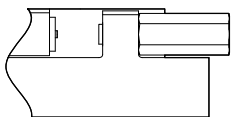
		→ Page/online
6	Cushioning with shock absorber YSRT	311
-	Cushioning P	311
-	Connecting cable NEBU	313
-	Drive/drive connections	slt
-	Drive/gripper connections	slt

Cushioning variants


5 SLT...-P-A
with cushioning PF
Precision metal stop for small loads at low speed. At an operating pressure > 3 bar, the stop ensures precise, metal-to-metal contact. The stop can be retrofitted.

6 SLT...-CC-B
with cushioning YSRT
For large loads and high speed. Ensures precise, metal-to-metal contact after the cushioning.




- SLT...-P-A
with cushioning P
Standard version with elastic cushioning components. Low-cost, no metal-to-metal contact.





Accessories – Ordering data

	Connection		Part No.	Type
	Thread	O.D.		
1 One-way flow control valve with slotted head screw, metal²⁾ for exhaust air flow control	Technical data → 687			
	M5	3	★ 193137	GRLA-M5-QS-3-D
		4	★ 193138	GRLA-M5-QS-4-D
	G ¹ / ₈	4	★ 193143	GRLA-1/8-QS-4-D
		6	★ 193144	GRLA-1/8-QS-6-D



2) The recommended flow control valves are based on a tubing length to the valve of 1 m. For deviations of ±50%, flow control valves with a bigger or smaller flow rate must be selected to guarantee the optimum flow control function and cylinder speed.

	For size	Part No.	Type
3 Proximity sensor for C-slot, magneto-resistive – N/O contact	Technical data → 821		
	PNP, cable	★ 551373	SMT-10M-PS-24V-E-2,5-L-OE
	PNP, plug	★ 551375	SMT-10M-PS-24V-E-0,3-L-M8D
	PNP, plug	★ 551376	SMT-10M-PS-24V-E-0,3-Q-M8D
Magnetic reed – N/O contact	Technical data → 821		
	Plug	★ 551367	SME-10M-DS-24V-E-0,3-L-M8D
	Cable	★ 551365	SME-10M-DS-24V-E-2,5-L-OE
	Cable	★ 551369	SME-10M-ZS-24V-E-2,5-L-OE
	Plug	173212	SME-10-SL-LED-24
	Cable	173210	SME-10-KL-LED-24

	For size	Housing		Slide		Yoke	
		Part No.	Type	Part No.	Type	Part No.	Type
4 Centring pin/sleeve¹⁾	Technical data online: → zbh						
	6	189652	ZBH-5	189652	ZBH-5	525273	ZBS-02
	10	186717	ZBH-7	189652	ZBH-5	189652	ZBH-5
	16	150927	ZBH-9	189652	ZBH-5	186717	ZBH-7
	20	189653	ZBH-12	150927	ZBH-9	150927	ZBH-9
	25	189653	ZBH-12	189653	ZBH-12	189653	ZBH-12
5 Stop, metal for SLT-...-P-A²⁾							
	6	539278	PF-06-SLT	–	–	–	–
	10	539279	PF-10-SLT	–	–	–	–
	16	539280	PF-16-SLT	–	–	–	–
	20	539281	PF-20-SLT	–	–	–	–
	25	539282	PF-25-SLT	–	–	–	–

1) Packaging unit 10 pieces.

2) Packaging unit 2 pieces.

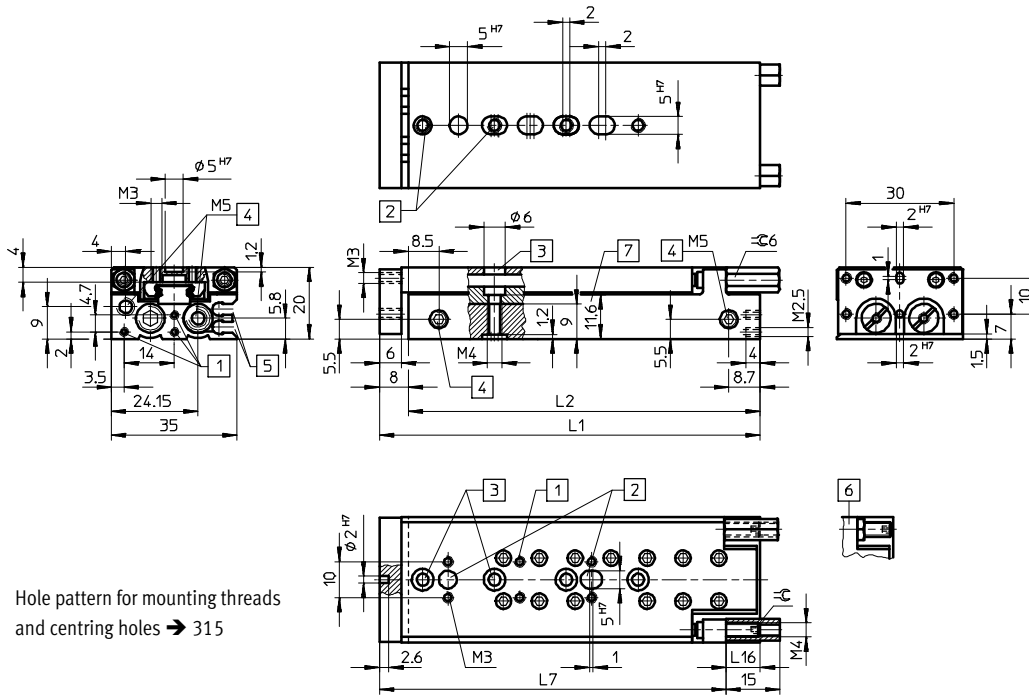
	For size	Part No.	Type
Connecting cable, straight socket	Technical data → 1053		
	2.5 m	★ 541333	NEBU-M8G3-K-2.5-LE3
	5.0 m	★ 541334	NEBU-M8G3-K-5-LE3
Angled socket	Technical data → 1053		
	2.5 m	★ 541338	NEBU-M8W3-K-2.5-LE3
	5.0 m	★ 541341	NEBU-M8W3-K-5-LE3

Mini slides SLT

1

Dimensions

Size 6



Hole pattern for mounting threads and centring holes → 315

- 1) Mounting thread
- 2) Centring holes (centring sleeves included in the scope of delivery)
- 3) Through-holes for mounting the drive
- 4) Supply ports
- 5) Slots for proximity sensor SME/SMT-10
- 6) Flat lock nuts are supplied loose
- 7) Through-hole length for mounting screws

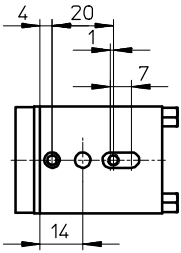
Ø	Stroke	L1	L2	L7	L16	☞
[mm]	[mm]				1)	1)
6	10	48	40	38	14	2
	20	58	50	48		
	30	68	60	58		
	40	85	77	75		
	50	106	98	96		

1) With elastic cushioning.

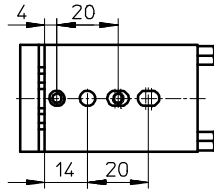
Dimensions

Hole pattern for mounting threads and centring holes

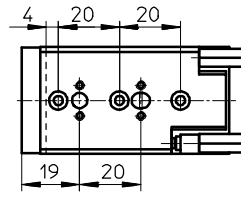
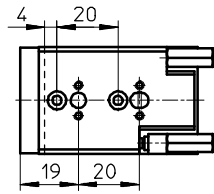
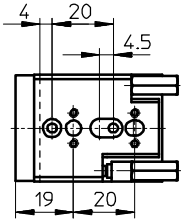
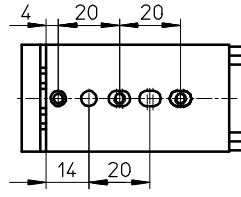
SLT-6-10



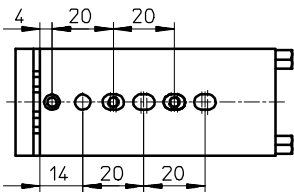
SLT-6-20



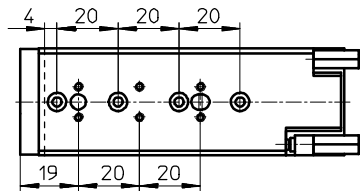
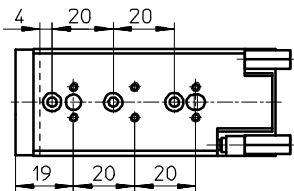
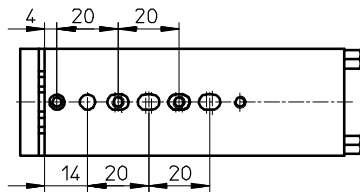
SLT-6-30



SLT-6-40



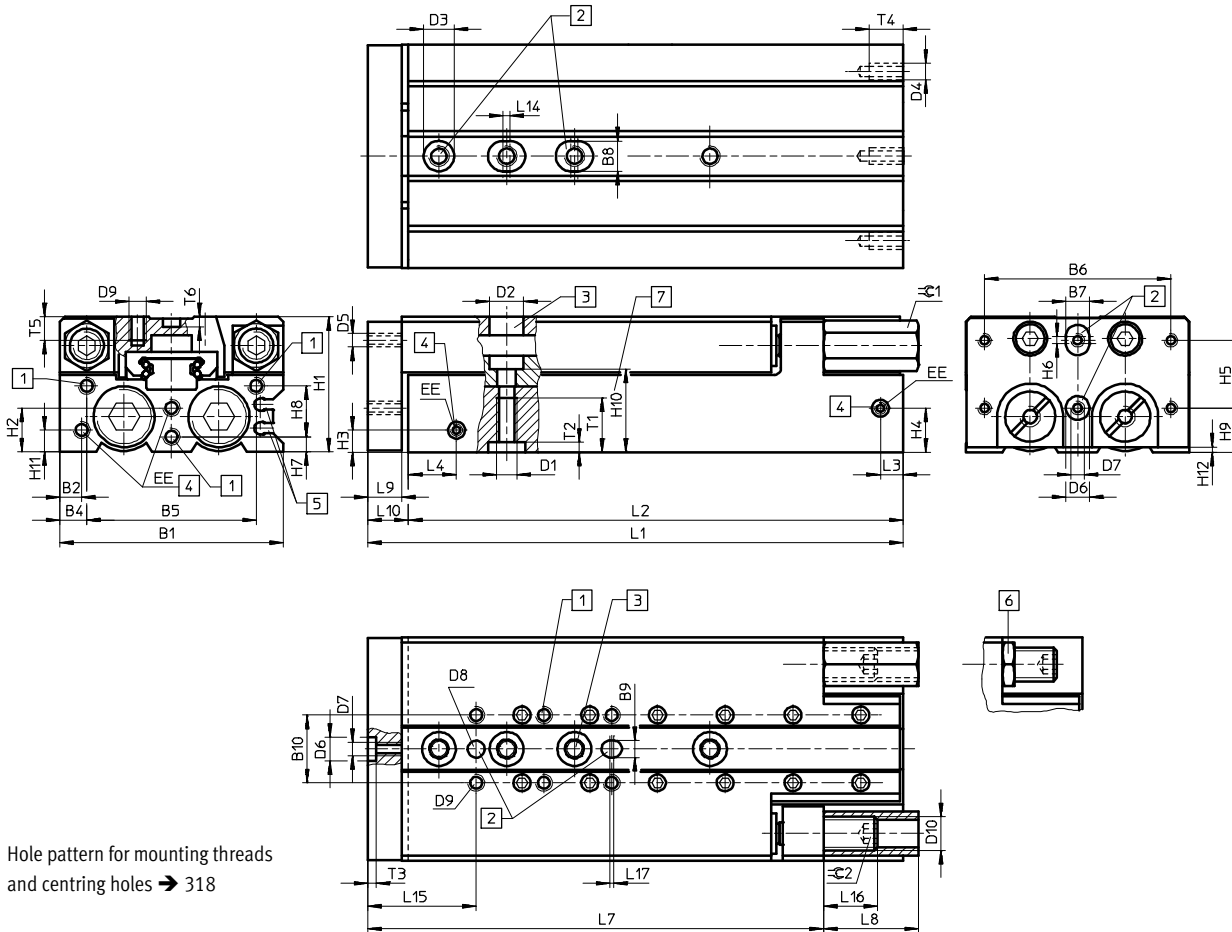
SLT-6-50



Mini slides SLT

Dimensions

1 Size 10-...-25



Hole pattern for mounting threads and centring holes → 318

- 1 Mounting thread
- 2 Centring holes (centring sleeves included in the scope of delivery)
- 3 Through-holes for mounting the drive
- 4 Supply ports
- 5 Slots for proximity sensor SME/SMT-10
- 6 Flat lock nuts are supplied loose
- 7 Through-hole length for mounting screws

∅	B1	B2	B4	B5	B6	B7	B8	B9	B10	D1	D2	D3	D4	D5	D6	D7
[mm]						H7	H7	H7			∅	∅			∅	H7
10	50	5.5	10	30	40	5	7	5	20	M5	8	7	M3	M4	5	M3
16	66	6.5	8	50	55	7	9			M6	10	9	M5	M5	7	M4
20	85	7	15	55	70	9	12	9	40	M8	11	12			9	M5
25	104	8	12	80	80	12	12	12	40	M8	11	12	M6	M6	12	M6

∅	D8	D9	D10	EE	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11	H12
[mm]	∅															
	∅															
	H7															
10	5	M4	M8x1	M5	30	9.4	5.5	11	20	2	4	10	5	15.15	5.5	1.5
16	5	M5	M10x1	G1/8	40	13	6.5	13	40	2	4.5	15	13	20	6.5	1.5
20	9	M12x1	49		19.5	9	19.7	6			19	16	30.5	9	2.5	
25	12	M6	M16x1		60	21	10	21			5	25	10	34.5	10	1.5

Dimensions

Download CAD data → www.festo.com

1

∅	Stroke	L1	L2	L3	L4	L7	L8	L9	L10	L14	L15	
[mm]	[mm]									min.		
10	10	72	62	7	11.7	62.5	15	8	10	2	25	
	20	72				72.5						
	30	82	82			25						
	40	92	82									
	50	112	102			140.5						
	80	162	152									
16	10	80	68	6.7	14.2	63.5	22	10	12	2	32	
	20					70.5						
	30	87	75									
	40	97	85			28						
	50	112	100									
	80	158	146									
	100	199	187			8.2	16.6					233.5
	125	257	245									258.5
	150	282	270									
20	10	97	85	11.5	15.2	74	28	10	12	2	25	
	20					84						
	30					92	37					
	40	107	95									
	50	122	110									
	80	167	155			59						
	100	203	191									
	125	262	250									
	150	302	290			10.3	17.5					249
	200	377	365									323
25	10	108	94	10.7	18.7	88.5	25	12	14	2	30	
	20					92.5						
	30					102.5	34					
	40	118	104									
	50	131	117									
	80	177	163			57						
	100	210	196									
	125	264	250									
	150	304	290			10	21.5					252.5
	200	379	365									328.5

∅	L16		L17	T1	T2	T3	T4	T5	T6	≈ 1	≈ 2	
	1)	2)	min.								1)	2)
10	21.7	8	1	12	1.5	1.3	7	8	1.2	10	2.5	4
16	23.5	16		16	2.1	1.6	10	7		13	3	5
20	34	17.5		20	2.6	2.1		10	10	2.1	15	4
25	49.5	18		20		2.6	2.6	12	11	2.6	19	5

1) With hydraulic shock absorbers.

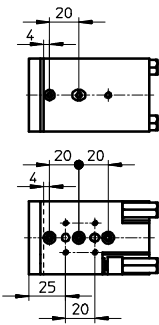
2) With elastic cushioning.

Mini slides SLT

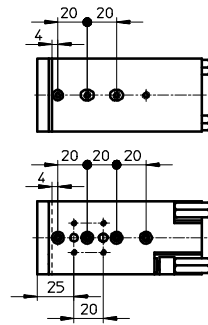
Dimensions

1 Hole pattern for mounting threads and centring holes

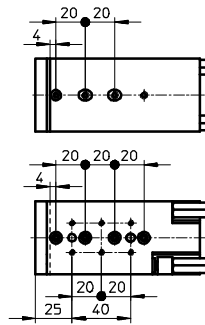
SLT-10-10 ... 30



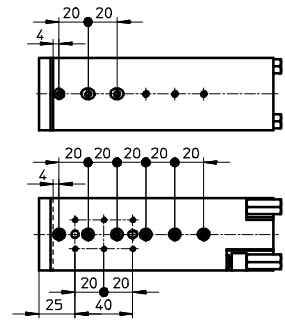
SLT-10-40



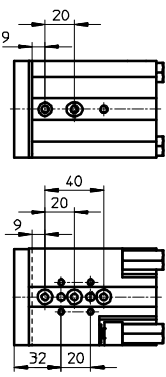
SLT-10-50



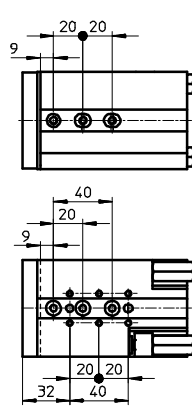
SLT-10-80



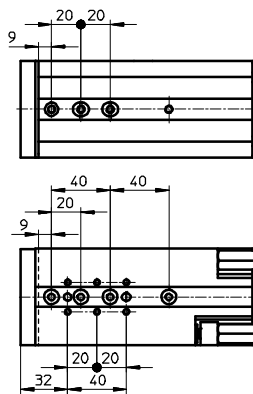
SLT-16-10 ... 40



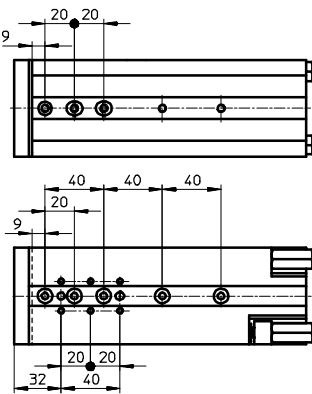
SLT-16-50



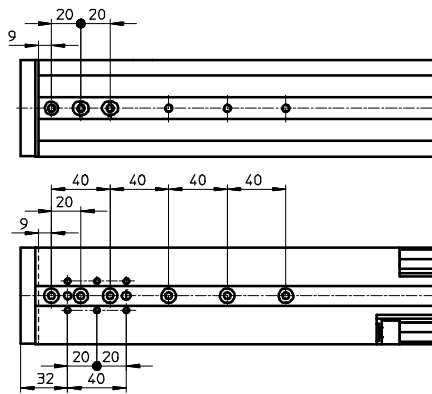
SLT-16-80



SLT-16-100



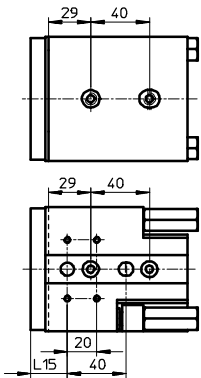
SLT-16-125/-150



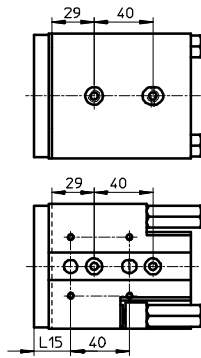
Dimensions

Hole pattern for mounting threads and centring holes

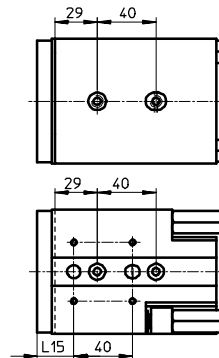
SLT-20-10 ... 40



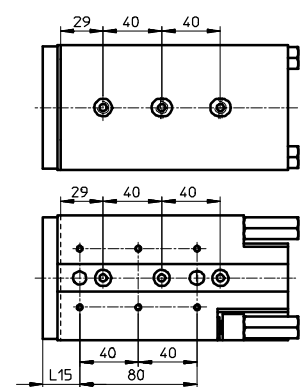
SLT-25-10 ... 40



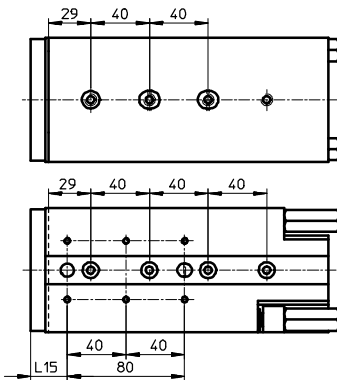
SLT-20/-25-50



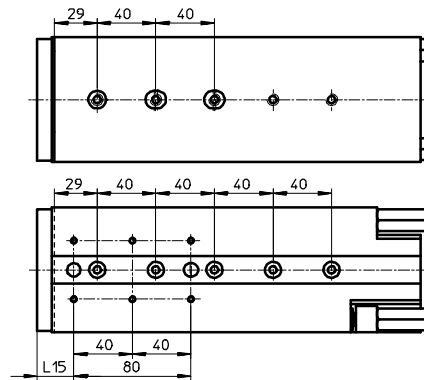
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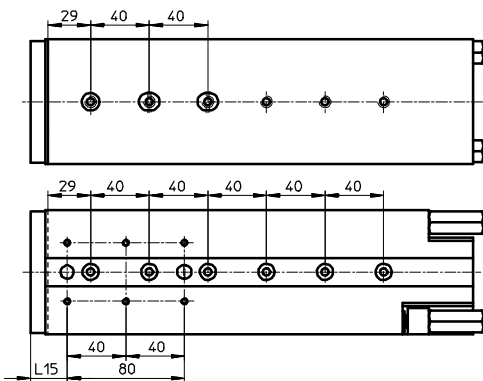
SLT-20/-25-100



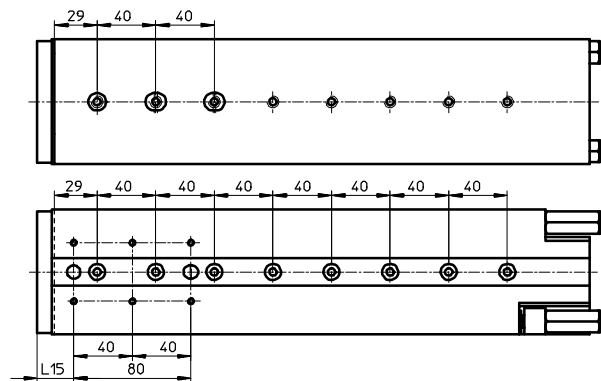
SLT-20/-25-125



SLT-20/-25-150

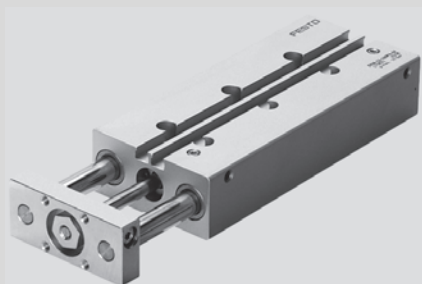


SLT-20/-25-200



Guided drives DFM

1



- Sturdy and precise
- With plain-bearing or recirculating ball bearing guide
- High resistance to torques and lateral forces
- Wide range of applications
- Spare parts service
- ★ Quick ordering of basic designs → 322

→ www.festo.com/catalogue/dfm

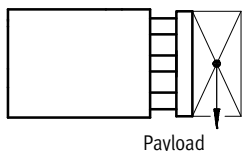
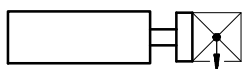
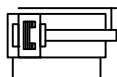
Product range overview

Type/function	Piston Ø [mm]	Stroke [mm]	Force [N]	Product options	
				P	A
Double-acting	DFM-...-GF – Plain-bearing guide				
	12, 16, 20, 25, 32, 40, 50, 63, 80, 100	10 ... 200	68 ... 4712	■	■
Double-acting	DFM-...-KF – Recirculating ball bearing guide				
	12, 16, 20, 25, 32, 40, 50, 63, 80, 100	10 ... 200	68 ... 4712	■	■

Product options

- P Elastic cushioning rings/plates at both ends A Position sensing

Technical data



Payload

Technical data	Dimensions → 326				
	12	16	20	25	32
Piston Ø	12	16	20	25	32
Pneumatic connection	M5	M5	M5	G1/8	G1/8
Stroke [mm]	10 ... 100		20 ... 100		20 ... 200
Cushioning	Elastic cushioning rings/plates at both ends				
Theoretical force at 6 bar, advancing [N]	68	121	188	295	482
Theoretical force at 6 bar, retracting [N]	51	90	141	247	415
Max. payload ¹⁾ [N]	19 ... 28	24 ... 73	35 ... 110	84 ... 123	112 ... 188
Torque load ¹⁾ [Nm]	0.38 ... 0.65	0.55 ... 1.68	1.01 ... 3	2.85 ... 4.2	4.25 ... 7.3
Protection against rotation	Guide rods with yoke, with plain-bearing or recirculating ball bearing guide				

Technical data	Dimensions → 326				
	40	50	63	80	100
Piston Ø	40	50	63	80	100
Pneumatic connection	G1/8	G1/4	G1/4	G3/8	G3/8
Stroke [mm]	25 ... 200				
Cushioning	Elastic cushioning rings/plates at both ends				
Theoretical force at 6 bar, advancing [N]	754	1178	1870	3016	4712
Theoretical force at 6 bar, retracting [N]	686	1057	1750	2827	4418
Max. payload ¹⁾ [N]	109 ... 180	168 ... 257	168 ... 257	220 ... 352	332 ... 568
Torque load ¹⁾ [Nm]	4.80 ... 7.90	9.30 ... 14.15	10.50 ... 15.90	17.10 ... 27.20	25.70 ... 53.40
Protection against rotation	Guide rods with yoke, with plain-bearing or recirculating ball bearing guide				

1) Dependent on stroke.

Technical data

Operating conditions		12	16	20	25	32	40	50	63	80	100	
Piston Ø												
Operating pressure	[bar]	2 ... 10				1.5 ... 10			1 ... 10		0.5 ... 10	
Ambient temperature ²⁾	GF	[°C] -20 ... +80										
	KF	[°C] -5 ... +60										

2) Note operating range of proximity sensors.

Materials

Piston rod	High-alloy stainless steel
Housing	Wrought aluminium alloy
End cap	Wrought aluminium alloy
Yoke plate	Galvanised steel
Seals	NBR

Order code

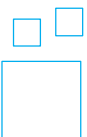
		DFM	-		-		-	P	-	A	-	
Type												
DFM	Double-acting guided drive											
Piston Ø [mm]												
	Stroke [mm]											
12, 16	10, 20, 25, 30, 40, 50, 80, 100	10 ... 100										
20, 25	20, 25, 30, 40, 50, 80, 100	20 ... 100										
32	20, 25, 30, 40, 50, 80, 100, 125, 160, 200	20 ... 200										
40, 50, 63, 80, 100	25, 50, 80, 100, 125, 160, 200	25 ... 200										
Cushioning												
P	Elastic cushioning rings/plates at both ends											
Position sensing												
A	Via proximity sensor											
Guide												
GF	Plain-bearing guide											
KF	Recirculating ball bearing guide											

Order example:

DFM-12-10-P-A-GF

Double-acting guided drive DFM - piston diameter 12 mm - stroke 10 mm - elastic cushioning rings/plates at both ends - position sensing via proximity sensor - plain-bearing guide

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or

→ www.festo.com/catalogue/...

Enter the type code in the search field.

Guided drives DFM

★ Quick ordering¹⁾

GF – Plain-bearing guide

Part No.	Type
Piston Ø 12 mm	
170824	DFM-12-10-P-A-GF
170825	DFM-12-20-P-A-GF
170826	DFM-12-25-P-A-GF
170827	DFM-12-30-P-A-GF
170828	DFM-12-40-P-A-GF
170829	DFM-12-50-P-A-GF
170830	DFM-12-80-P-A-GF
170831	DFM-12-100-P-A-GF
Piston Ø 16 mm	
170832	DFM-16-10-P-A-GF
170833	DFM-16-20-P-A-GF
170834	DFM-16-25-P-A-GF
170835	DFM-16-30-P-A-GF
170836	DFM-16-40-P-A-GF
170837	DFM-16-50-P-A-GF
170838	DFM-16-80-P-A-GF
170839	DFM-16-100-P-A-GF
Piston Ø 20 mm	
170840	DFM-20-20-P-A-GF
170841	DFM-20-25-P-A-GF
170842	DFM-20-30-P-A-GF
170843	DFM-20-40-P-A-GF
170844	DFM-20-50-P-A-GF
170845	DFM-20-80-P-A-GF
170846	DFM-20-100-P-A-GF

Part No.	Type
Piston Ø 25 mm	
170847	DFM-25-20-P-A-GF
170848	DFM-25-25-P-A-GF
170849	DFM-25-30-P-A-GF
170850	DFM-25-40-P-A-GF
170851	DFM-25-50-P-A-GF
170852	DFM-25-80-P-A-GF
170853	DFM-25-100-P-A-GF
Piston Ø 32 mm	
170854	DFM-32-20-P-A-GF
170855	DFM-32-25-P-A-GF
170856	DFM-32-30-P-A-GF
170857	DFM-32-40-P-A-GF
170858	DFM-32-50-P-A-GF
170859	DFM-32-80-P-A-GF
170860	DFM-32-100-P-A-GF
170861	DFM-32-125-P-A-GF
170862	DFM-32-160-P-A-GF
170863	DFM-32-200-P-A-GF

Part No.	Type
Piston Ø 40 mm	
170864	DFM-40-25-P-A-GF
170865	DFM-40-50-P-A-GF
170866	DFM-40-80-P-A-GF
170867	DFM-40-100-P-A-GF
170868	DFM-40-125-P-A-GF
170869	DFM-40-160-P-A-GF
170870	DFM-40-200-P-A-GF
Piston Ø 50 mm	
170871	DFM-50-25-P-A-GF
170872	DFM-50-50-P-A-GF
170873	DFM-50-80-P-A-GF
170874	DFM-50-100-P-A-GF
170875	DFM-50-125-P-A-GF
170876	DFM-50-160-P-A-GF
170877	DFM-50-200-P-A-GF
Piston Ø 63 mm	
170878	DFM-63-25-P-A-GF
170879	DFM-63-50-P-A-GF
170880	DFM-63-80-P-A-GF
170881	DFM-63-100-P-A-GF
170882	DFM-63-125-P-A-GF
170883	DFM-63-160-P-A-GF
170884	DFM-63-200-P-A-GF

1) All products in this table are easy to select and quick to order.

★ Quick ordering¹⁾

KF – Recirculating ball bearing guide

Part No.	Type
Piston Ø 12 mm	
170899	DFM-12-10-P-A-KF
170900	DFM-12-20-P-A-KF
170901	DFM-12-25-P-A-KF
170902	DFM-12-30-P-A-KF
170903	DFM-12-40-P-A-KF
170904	DFM-12-50-P-A-KF
170905	DFM-12-80-P-A-KF
170906	DFM-12-100-P-A-KF
Piston Ø 16 mm	
170907	DFM-16-10-P-A-KF
170908	DFM-16-20-P-A-KF
170909	DFM-16-25-P-A-KF
170910	DFM-16-30-P-A-KF
170911	DFM-16-40-P-A-KF
170912	DFM-16-50-P-A-KF
170913	DFM-16-80-P-A-KF
170914	DFM-16-100-P-A-KF
Piston Ø 20 mm	
170915	DFM-20-20-P-A-KF
170916	DFM-20-25-P-A-KF
170917	DFM-20-30-P-A-KF
170918	DFM-20-40-P-A-KF
170919	DFM-20-50-P-A-KF
170920	DFM-20-80-P-A-KF
170921	DFM-20-100-P-A-KF

Part No.	Type
Piston Ø 25 mm	
170922	DFM-25-20-P-A-KF
170923	DFM-25-25-P-A-KF
170924	DFM-25-30-P-A-KF
170925	DFM-25-40-P-A-KF
170926	DFM-25-50-P-A-KF
170927	DFM-25-80-P-A-KF
170928	DFM-25-100-P-A-KF
Piston Ø 32 mm	
170929	DFM-32-20-P-A-KF
170930	DFM-32-25-P-A-KF
170931	DFM-32-30-P-A-KF
170932	DFM-32-40-P-A-KF
170933	DFM-32-50-P-A-KF
170934	DFM-32-80-P-A-KF
170935	DFM-32-100-P-A-KF
170936	DFM-32-125-P-A-KF
170937	DFM-32-160-P-A-KF
170938	DFM-32-200-P-A-KF

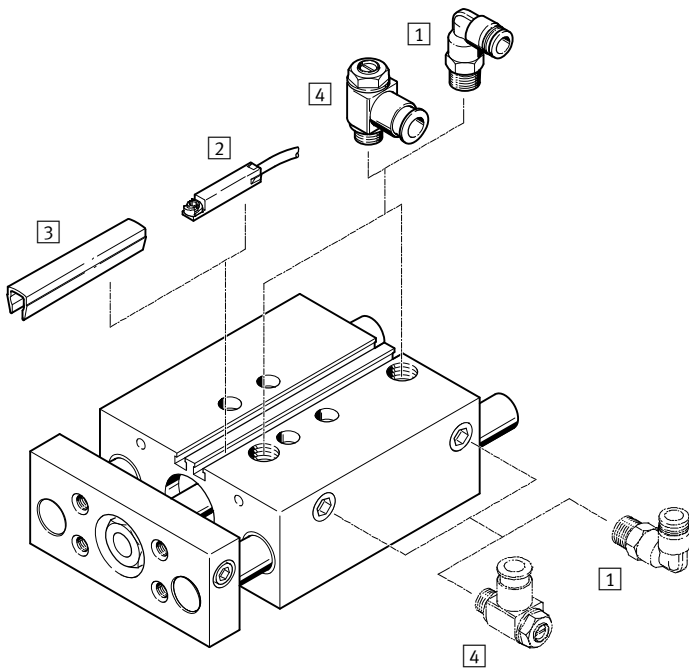
Part No.	Type
Piston Ø 40 mm	
170939	DFM-40-25-P-A-KF
170940	DFM-40-50-P-A-KF
170941	DFM-40-80-P-A-KF
170942	DFM-40-100-P-A-KF
170943	DFM-40-125-P-A-KF
170944	DFM-40-160-P-A-KF
170945	DFM-40-200-P-A-KF
Piston Ø 50 mm	
170946	DFM-50-25-P-A-KF
170947	DFM-50-50-P-A-KF
170948	DFM-50-80-P-A-KF
170949	DFM-50-100-P-A-KF
170950	DFM-50-125-P-A-KF
170951	DFM-50-160-P-A-KF
170952	DFM-50-200-P-A-KF
Piston Ø 63 mm	
170953	DFM-63-25-P-A-KF
170954	DFM-63-50-P-A-KF
170955	DFM-63-80-P-A-KF
170956	DFM-63-100-P-A-KF
170957	DFM-63-125-P-A-KF
170958	DFM-63-160-P-A-KF
170959	DFM-63-200-P-A-KF

1) All products in this table are easy to select and quick to order.

Guided drives DFM

Accessories

1




		→ Page/online
1	Push-in fitting QS	1006
2	Proximity sensor SME-/SMT-8	324
3	Slot cover ABP-5-S	324
4	One-way flow control valve GRLA	325
-	Centring sleeve ZBH	325
-	Connecting cable NEBU	325
-	Drive/drive connections	dfm

Accessories – Ordering data


	For Ø	Part No.	Type	
2 Proximity sensor for T-slot, magneto-resistive – N/O contact				Technical data → 808
	PNP, cable	★ 574335	SMT-8M-A-PS-24V-E-2,5-OE	
	PNP, plug	★ 574334	SMT-8M-A-PS-24V-E-0,3-M8D	
	PNP, plug	★ 574337	SMT-8M-A-PS-24V-E-0,3-M12	
	NPN, cable	★ 574338	SMT-8M-A-NS-24V-E-2,5-OE	
	NPN, plug	★ 574339	SMT-8M-A-NS-24V-E-0,3-M8D	
Magneto-resistive – N/C contact				Technical data → 808
	PNP, cable	★ 574340	SMT-8M-A-PO-24V-E-7,5-OE	
Magnetic reed – N/O contact				Technical data → 803
	Cable	★ 543862	SME-8M-DS-24V-K-2,5-OE	
	Cable	★ 543863	SME-8M-DS-24V-K-5,0-OE	
	Cable	★ 543872	SME-8M-ZS-24V-K-2,5-OE	
	Plug	★ 543861	SME-8M-DS-24V-K-0,3-M8D	
				Technical data → 805
	Cable	150855	SME-8-K-LED-24	
	Plug	150857	SME-8-S-LED-24	
Magnetic reed – N/C contact				Technical data → 805
	Cable	160251	SME-8-O-K-LED-24	
3 Slot cover¹⁾				
		151680	ABP-5-S	

1) Packaging unit 2x 0.5 m.





Accessories – Ordering data

Function	For Ø	Connection		Part No.	Type	
		Thread	O.D.			
4 One-way flow control valve with slotted head screw, metal²⁾ for exhaust air flow control						Technical data → 687
	12, 16, 20	M5	3	★ 193137	GRLA-M5-QS-3-D	
	25	G $\frac{1}{8}$	3	★ 193142	GRLA- $\frac{1}{8}$ -QS-3-D	
	32	G $\frac{1}{8}$	4	★ 193143	GRLA- $\frac{1}{8}$ -QS-4-D	
	40	G $\frac{1}{8}$	6	★ 193144	GRLA- $\frac{1}{8}$ -QS-6-D	
	50, 63	G $\frac{1}{4}$	6	★ 193146	GRLA- $\frac{1}{4}$ -QS-6-D	
	80, 100	G $\frac{3}{8}$	8	★ 193145	GRLA- $\frac{3}{8}$ -QS-8-D	

2) The recommended flow control valves are based on a tubing length to the valve of 1 m. For deviations of $\pm 50\%$, flow control valves with a bigger or smaller flow rate must be selected to guarantee the optimum flow control function and cylinder speed.

Centring sleeves ¹⁾	For Ø	For housing		For yoke plate		Technical data online: → zbh
		Part No.	Type	Part No.	Type	
	12	189652	ZBH-5	189652	ZBH-5	
		150927	ZBH-9			
	16	189652	ZBH-5	189652	ZBH-5	
		150927	ZBH-9			
	20	186717	ZBH-7	150927	ZBH-9	
		150927	ZBH-9			
	25	186717	ZBH-7	150927	ZBH-9	
		150927	ZBH-9			
	32	150927	ZBH-9	150927	ZBH-9	
		189653	ZBH-12			
	40	150927	ZBH-9	150927	ZBH-9	
		189653	ZBH-12			
	50	189653	ZBH-12	189653	ZBH-12	
	63	189653	ZBH-12	189653	ZBH-12	
80	189653	ZBH-12	189653	ZBH-12		
100	191409	ZBH-15	191409	ZBH-15		

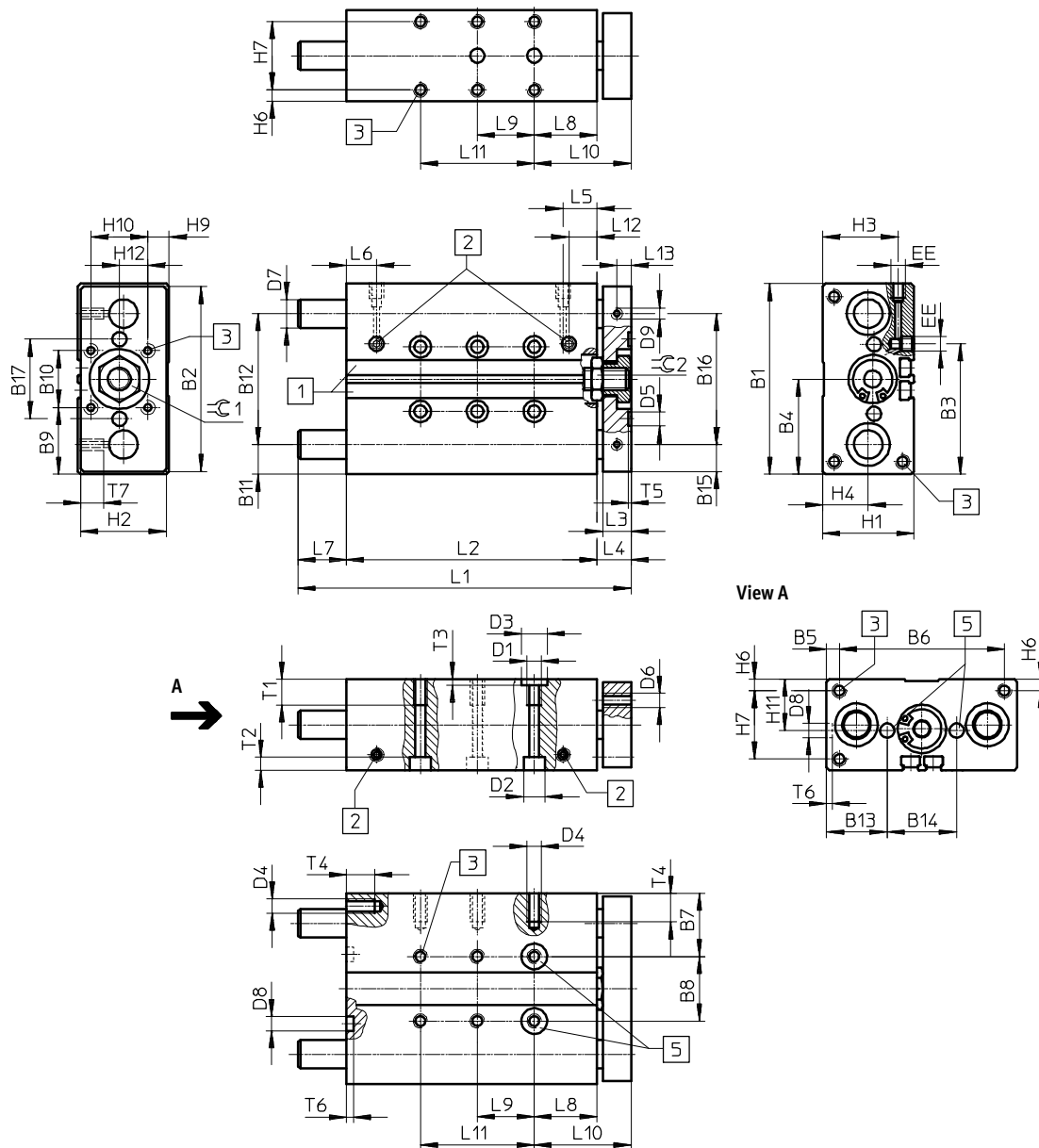
1) 2 included in the scope of delivery in each case. Supplied in packs of 10 for repeat orders.

	For Ø		Part No.	Type	
Connecting cable, straight socket					Technical data → 1053
	2.5 m	★	541333	NEBU-M8G3-K-2.5-LE3	
	5.0 m	★	541334	NEBU-M8G3-K-5-LE3	
	2.5 m	★	541363	NEBU-M12G5-K-2.5-LE3	
	5.0 m	★	541364	NEBU-M12G5-K-5-LE3	
Angled socket					Technical data → 1053
	2.5 m	★	541338	NEBU-M8W3-K-2.5-LE3	
	5.0 m	★	541341	NEBU-M8W3-K-5-LE3	
	2.5 m		541367	NEBU-M12W5-K-2.5-LE3	
	5.0 m		541370	NEBU-M12W5-K-5-LE3	

Guided drives DFM

Dimensions

1 Ø 12 ... 16 mm



1 Mounting slot for proximity sensor SME/SMT-8

2 Supply port options on side or top

3 Mounting thread

5 Tolerance between the centring holes ±0.02 mm

Note

If the guide rods project beyond the housing when the unit is in its retracted end position (→ dimension L7), a recess must be provided in the mounting

surface if the unit is to be mounted on the end face so that the guide rods can move freely.

Dimensions

Download CAD data → www.festo.com

1

∅ [mm]	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	B17	D1	D2 ∅	D3 ∅ H7
12	60	58	42.4	30	4.5	51	20.5	19	20	20	9.5	41	19.5	21	8.5	41	25	M5	8	9
16	67	65	45.9	33.5	4.5	58	22	23	23.5	20	10.5	46	21.3	24.4	-	-	28	M5	7.5	9

∅ [mm]	D4	D5 ∅ H7	D6	D7 ∅		D8 ∅ H7	D9	EE	H1	H2	H3	H4	H6	H7	H9	H10	H11	H12
				GF	KF													
12	M4	5	M4	10 _{h8}	8 _{h6}	5	M4	M5	28	26	24	14	4	20	4	20	14	10
16	M5	5	M5	12 _{h8}	10 _{h6}	5	-	M5	32	30	26.5	16	4	24	7.4	20	16	10

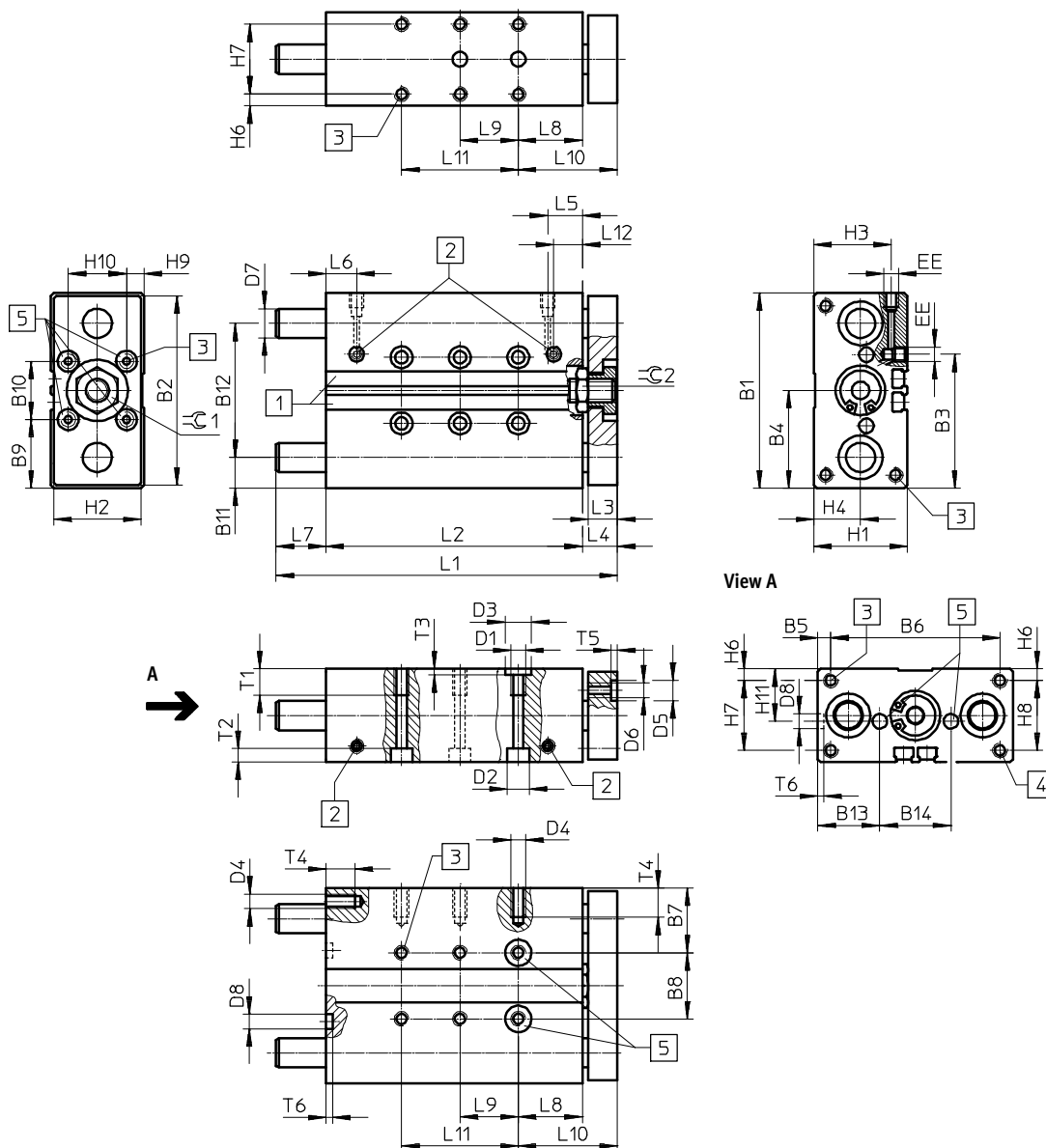
∅ [mm]	Stroke [mm]	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10 ±0.1	L11
	20	69	56	-	-							
	25	74	61	-	20	-						
	30	79	66	-	20	-						
	40	95	76	6	20	-						
	50	105	86	6	40	-						
	80	135	116	6	40	-						
	100	155	136	6	40	80						
16	10	60	48	10	12	11.9	10.6	-	22	-	34	-
	20	70	58					-		-		
	25	75	63					-		20		-
	30	80	68					-		20		-
	40	107	78					17		20		-
	50	117	88					17		40		-
	80	147	118					17		40		-
	100	167	138					17		40		80

∅ [mm]	Stroke [mm]	L12	L13	T1	T2	T3	T4	T5	T6	T7	⊕C1	⊕C2
	20											
	25											
	30											
	40											
	50											
	80											
	100											
16	10	11.9	-	9	4.6	2.1	10	1.2	1	-	14	14
	20											
	25											
	30											
	40											
	50											
	80											
	100											

Guided drives DFM

Dimensions

1 Ø 20 ... 25 mm



- 1** Mounting slot for proximity sensor SME-/SMT-8
- 2** Supply port options on side or top
- 3** Mounting thread
- 4** Mounting thread (not with Ø20)
- 5** Tolerance between the centring holes ±0.02 mm

Note
 If the guide rods project beyond the housing when the unit is in its retracted end position (→ dimension L7), a recess must be provided in the mounting surface if the unit is to be mounted on the end face so that the guide rods can move freely.

Dimensions

Download CAD data → www.festo.com

1

∅ [mm]	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	D1	D2 ∅	D3 ∅ H7	D4
20	83	81	53.6	41.5	6.5	70	26.5	30	26.5	30	12.5	58	26	31	M6	9	9	M5
25	95	93	70	47.5	15.5	64	30	35	27.5	40	13.5	68	29	37	M6	9	9	M6

∅ [mm]	D5 ∅ H7	D6	D7 ∅		D8 ∅ H7	EE	H1	H2	H3	H4	H6	H7	H8	H9	H10	H11
			GF	KF												
20	9	M5	14 _{h8}	12 _{h6}	7	M5	36	34	29.5	17	4.5	27	–	7	20	18
25	9	M6	16 _{h8}	14 _{h6}	7	G ¹ / ₈	44	42	34.8	19	4.5	35	35	12	20	22

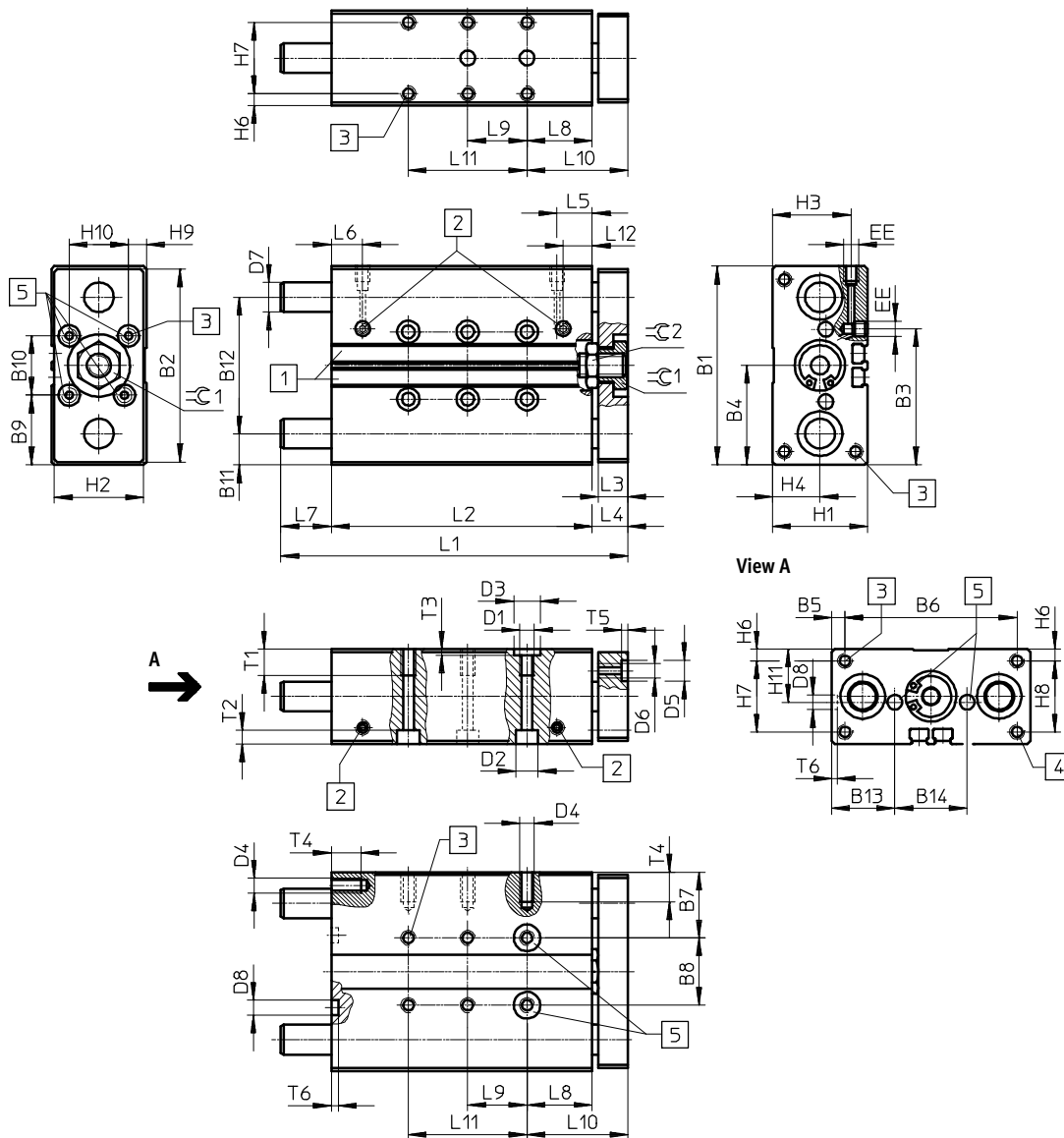
∅ [mm]	Stroke [mm]	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10 ±0.1
20	20	75	61	12	14	14	10.5	–	26	–	40
	25	80	66					20			
	30	85	71					20			
	40	121	81					20			
	50	131	91					40			
	80	161	121					40			
	100	181	141					40			
25	20	93	65.6	12	14	17.5	9.5	13.4	26	–	40
	25	98	70.6					20			
	30	103	75.6					20			
	40	123	85.6					20			
	50	133	95.6					40			
	80	163	125.6					40			
	100	183	145.6					40			

∅ [mm]	Stroke [mm]	L11	L12	T1	T2	T3	T4	T5	T6	≈C1	≈C2
20	20	–	14	12	5.7	2.1	10	2.1	1.6	17	17
	25	–									
	30	–									
	40	–									
	50	–									
	80	–									
	100	80									
25	20	–	15	14	5.7	2.1	12	2.1	1.6	17	17
	25	–									
	30	–									
	40	–									
	50	–									
	80	–									
	100	80									

Guided drives DFM

Dimensions

1 Ø 32 ... 63 mm



- 1 Mounting slot for proximity sensor SME-/SMT-8
- 2 Supply port options on side or top
- 3 Mounting thread
- 4 Mounting thread
- 5 Tolerance between the centring holes ±0.02 mm

Note
 If the guide rods project beyond the housing when the unit is in its retracted end position (→ dimension L7), a recess must be provided in the mounting surface if the unit is to be mounted on the end face so that the guide rods can move freely.

Dimensions

Download CAD data → www.festo.com

1

∅ [mm]	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	D1	D2 ∅	D3 ∅ H7	D4
32	110	108	81	55	20	70	33.5	43	35	40	16	78	32.5	45	M8	11	12	M6
40	120	118	94	60	15	90	34.5	51	35	50	16	88	32.5	55	M8	11	12	M8
50	148	146	116.5	74	19	110	42	64	44	60	19	110	40	68	M8	11	12	M8
63	162	160	139	81	9	144	41	80	41	80	18.4	125	39.5	83	M10	15	12	M10

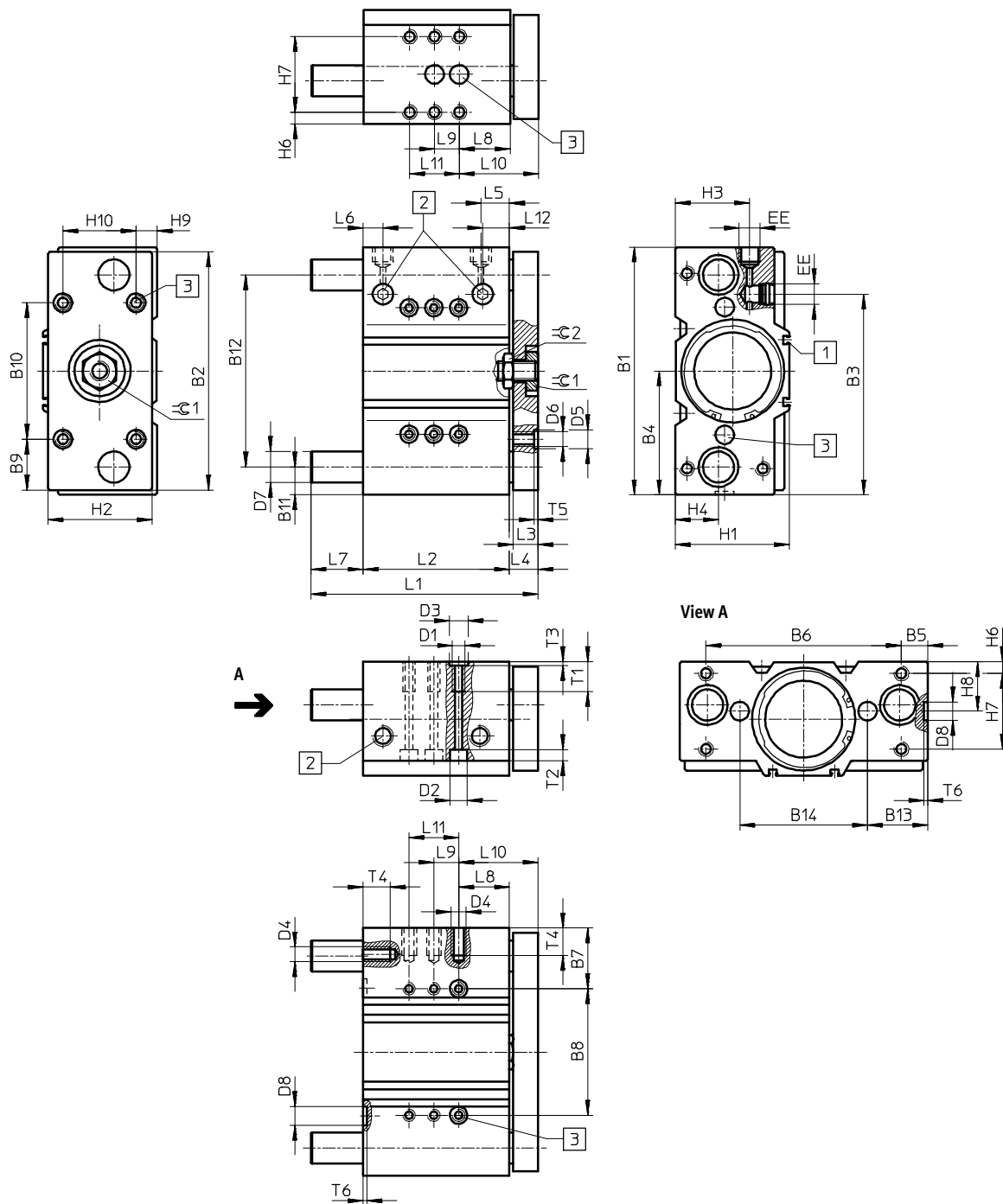
∅ [mm]	D5 ∅ H7	D6	D7 ∅		D8 ∅ H7	EE	H1	H2	H3	H4	H6	H7	H8	H9	H10	H11
			GF	KF												
32	9	M6	20 _{h8}	16 _{h6}	9	G $\frac{1}{8}$	49	47	38.5	22	6	37	37	8.5	30	24.5
40	9	M6	20 _{h8}	16 _{h6}	9	G $\frac{1}{8}$	54	52	40.5	24	6	42	42	10	30	27
50	12	M8	25 _{h8}	20 _{h6}	12	G $\frac{1}{4}$	64	62	50.5	29.5	7	50	50	12	40	32
63	12	M8	25 _{h8}	20 _{h6}	12	G $\frac{1}{4}$	78	76	55	32	9	60	60	19	40	39

∅ [mm]	Stroke [mm]	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10 ±0.1	L11	L12	T1	T2	T3	T4	T5	T6	≈C1	≈C2		
																						32	20
25	106	73	17	20	-																		
30	111	78	17	20	-																		
40	121	88	17	20	-																		
50	131	98	17	40	-																		
80	179	128	35	40	-																		
100	199	148	35	40	80																		
125	244	173	55	40	80																		
160	279	208	55	40	120																		
200	319	248	55	40	160																		
40	25	106	76	14	16	17.8	13.1	14	29	20	45	-	17.8	15	6.8	2.6	16	2.1	2.1	17	22		
50	131	101	14																			40	-
80	179	131	32																			40	-
100	199	151	32																			40	80
125	244	176	52																			40	80
160	279	211	52																			40	120
200	319	251	52																			40	160
50	25	118	77	16	18	17.8	14.2	23	32	20	50	-	17.8	15	6.8	2.6	16	2.6	2.6	19	24		
50	143	102	23																			40	-
80	194	132	44																			40	-
100	214	152	44																			40	80
125	259	177	64																			40	80
160	294	212	64																			40	120
200	334	252	64																			40	160
63	25	118	83	16	18	18.5	14.8	17	32	20	50	-	18.5	20	9	2.6	20	2.6	2.6	19	24		
50	143	108	17																			40	-
80	194	138	38																			40	80
100	214	158	38																			40	80
125	259	183	58																			40	120
160	294	218	58																			40	160
200	334	258	58																			40	200

Guided drives DFM

Dimensions

1 Ø 80 ... 100 mm



1 Mounting slot for proximity sensor SME-/SMT-8

2 Supply port options on side or top

3 Tolerance between the centring holes ±0.02 mm

Note

If the guide rods project beyond the housing when the unit is in its retracted end position (→ dimension L7), a recess must be provided in the mounting

surface if the unit is to be mounted on the end face so that the guide rods can move freely.

Dimensions

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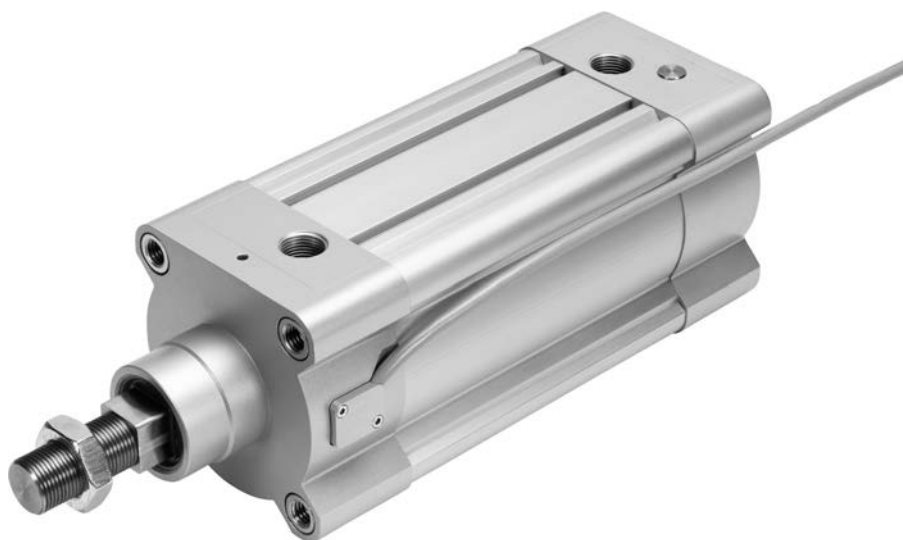
1

∅	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	D1	D2 ∅	D3 ∅ H7
[mm]																	
80	200	192	162.5	100	21.5	157	48.5	103	41	110	22.5	155	48.5	103	M10	15	12
100	240	232	201	120	21	198	54	132	56	120	26	188	57	126	M12	18	15

∅	D4	D5 ∅ H7	D6	D7 ∅		D8 ∅ H7	EE	H1	H2	H3	H4	H6	H7	H8	H9	H10
				GF	KF											
[mm]																
80	M10	12	M10	30 _{h8}	25 _{h6}	12	G ³ / ₈	92	84	61	35	9	62	40	16	60
100	M12	15	M12	35 _{h8}	30 _{h6}	15	G ³ / ₈	112	104	66	39.5	10	68	44	16	80


∅	Stroke [mm]	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10 ±0.1	L11	L12	T1	T2	T3	T4	T5	T6	⊕C1	⊕C2			
80	25	137	93	20	23	23	16	21	41	20	64	40	23	20	9	2.6	20	2.6	2.6	27	30			
	50	183	118																			42	40	-
	80	243	148																			72	40	-
	100	263	168																			72	40	80
	125	288	193																			72	40	80
	160	323	228																			72	40	120
	200	363	268																			72	40	160
100	25	150	109	20	23	29	20	18	13	40	36	40	29	25	11	3.1	24	3.1	3.1	32	30			
	50	197	134																			40	40	80
	80	257	164																			70	40	80
	100	277	184																			70	40	120
	125	302	209																			70	40	160
	160	337	244																			70	40	160
	200	377	284																			70	40	200

2 Servopneumatic positioning systems







Software tool


2

Soft Stop		Soft Stop virtually makes the impossible possible. Travel times are reduced by as much as 30% for pneumatic drives and vibration is also greatly reduced. The selection program performs all of the necessary calculations.	This tool can be found <ul style="list-style-type: none"> • either in the electronic catalogue by clicking on the blue button "Engineering" • or on the DVD under Engineering Tools.
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Linear drives with displacement encoder

Type	 Linear drive, integrated displacement encoder DDLI	 Standard cylinder, integrated displacement encoder DDPC	 Standard cylinder with displacement encoder DNCI	 Linear drive with displacement encoder DGCI
Piston diameter	25 mm, 32 mm, 40 mm, 63 mm	100 mm, 80 mm	32 mm, 40 mm, 50 mm, 63 mm	18 mm, 25 mm, 32 mm, 40 mm, 63 mm
Theoretical force at 6 bar, advancing	295... 1,870 N	3,016 ... 4,712 N	415 ... 1,870 N	153 ... 1,870 N
Max. load, horizontal	30 ... 180 kg	300 ... 450 kg	45 ... 180 kg	1 ... 180 kg
Max. load, vertical	10 ... 60 kg	100 ... 150 kg	15 ... 60 kg	1 ... 60 kg
Stroke	100 ... 2000 mm	10 ... 2,000 mm	10 ... 2,000 mm	100 ... 2,000 mm
Description	<ul style="list-style-type: none"> • Without guide • With contactless displacement encoder • Based on linear drive DGC-K • Supply ports on end face • Can be used as a measuring cylinder • With axis controller CPX-CMAX suitable for positioning • With end-position controller CPX-CMPX, SPC11 suitable for end-position control 	<ul style="list-style-type: none"> • Standard cylinder to ISO 15552 • With contactless displacement encoder • Can be used as a measuring cylinder • With axis controller CPX-CMAX suitable for positioning • With end-position controller CPX-CMPX, SPC11 suitable for end-position control • Piston rod variants • Fixed cushioning 	<ul style="list-style-type: none"> • Standard cylinder to ISO 15552 • With integrated displacement encoder for relative analogue, contactless measuring • Suitable for servopneumatic applications with axis controller CPX-CMAX, end-position controller • CPX-CMPX, SPC11 and measuring module CPX-CMIX • Piston rod variants • Male piston rod thread 	<ul style="list-style-type: none"> • With displacement encoder for absolute and contactless measuring • Suitable for servopneumatic applications with axis controller CPX-CMAX, end-position controller CPX-CMPX, SPC11 and measuring module CPX-CMIX • With guide • Supply ports optionally on end face or front
→ Page/online	ddli	ddpc	dnci	dgci





Linear drives with displacement encoder

Type	 Linear drive with displacement encoder DGPI, DGPIL
Piston diameter	25 mm, 32 mm, 40 mm, 50 mm, 63 mm
Theoretical force at 6 bar, advancing	295 ... 1,870 N
Max. load, horizontal	2 ... 180 kg
Max. load, vertical	10 ... 60 kg
Stroke	225 ... 2,000 mm
Description	<ul style="list-style-type: none"> • With integrated displacement encoder for absolute and contactless measuring • Suitable for servopneumatic applications with axis controller CPX-CMAX, end-position controller CPX-CMPX, SPC11 and measuring module CPX-CMIX • Available with or without guide
→ Page/online	dgpi

Swivel modules with displacement encoder

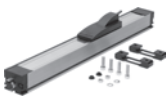


	
Type	Swivel module with angular displacement encoder DSMI-B
Piston diameter	25 mm, 40 mm, 63 mm
Torque at 6 bar	5 ... 40 Nm
Max. mass moment of inertia, horizontal	0.03 ... 0.6 kgm ²
Max. mass moment of inertia, vertical	0.03 ... 0.6 kgm ²
Swivel angle	0 ... 272°
Description	<ul style="list-style-type: none"> • Integrated rotary encoder • Suitable for servopneumatic applications with CPX-CMAX, CPX-CMPX, CPX-CMIX and SPC11 • With rotary vane • Compact design
→ Page/online	dsmi

Axis controllers



				
Type	Axis controller CPX-CMAX	End-position controller CPX-CMPX	End-position controller SPC11	Measuring module CPX-CMIX
No. of axis strings	1	1	1	1
Axes per string	1	1	1	1
Description	<ul style="list-style-type: none"> • Axis controller as CPX module, supports pneumatic drives with piston rod, rodless drives and semi-rotary drives • Force and position control • Use with all fieldbus/Ethernet and CEC controllers available in CPX • Easy commissioning thanks to auto identification function • Rapid commissioning and comprehensive diagnostics with the parameterisation software FCT 	<ul style="list-style-type: none"> • Electronic end-position control for pneumatic drives • Soft Stop for smooth braking and quick acceleration • Use with all fieldbus/Ethernet available in CPX • Easy commissioning, Festo plug and work • Approx. 30% shorter travel times and 30% less air consumption than with comparable standard pneumatics 	<ul style="list-style-type: none"> • Quickly and smoothly into the end position with two additional intermediate positions • Electronic end-position cushioning • Quick and easy commissioning: configure, teach, done • Supports pneumatic drives with piston rod, rodless drives and semi-rotary drives 	<ul style="list-style-type: none"> • Movement and measurement with measuring module CPX-CMIX • Records the position and speed of a drive with displacement encoder • Standardised digital signal processing • Use with all fieldbus/Ethernet and CEC controllers available in CPX • Measurement accuracy ±0.01 ... 0.02 mm • Quick and easy commissioning
→ Page/online	cpx-cmax	cpx-cmpx	spc11	cpx-cmix

Displacement encoders



2

			
Type	Displacement encoder MLO-POT-TLF	Displacement encoder MLO-POT-LWG	Displacement encoder MME-MTS-TLF
Stroke	225 ... 2,000 mm	100 ... 750 mm	225 ... 2,000 mm
Measuring principle of displacement encoder	Analogue	Analogue	Digital
Output signal	Analogue	Analogue	CAN protocol type SPC-AIF
Displacement resolution	0.01 mm	0.01 mm	0 ... 0.01 mm
Description	<ul style="list-style-type: none"> • Conductive plastic potentiometer • Absolute measurement with high resolution • High travel speed and long service life • Several mounting options on pneumatic linear drives DGPL • Plug-in connections 	<ul style="list-style-type: none"> • Connecting rod potentiometer • Absolute measurement with high resolution • Long service life • High protection class • Plug-in connections 	<ul style="list-style-type: none"> • Measuring principle: magnetostrictive • Contactless with absolute measurement • High travel speed • System product for servopneumatic • Positioning technology and Soft Stop
→ Page/online	mlo	mlo	mme

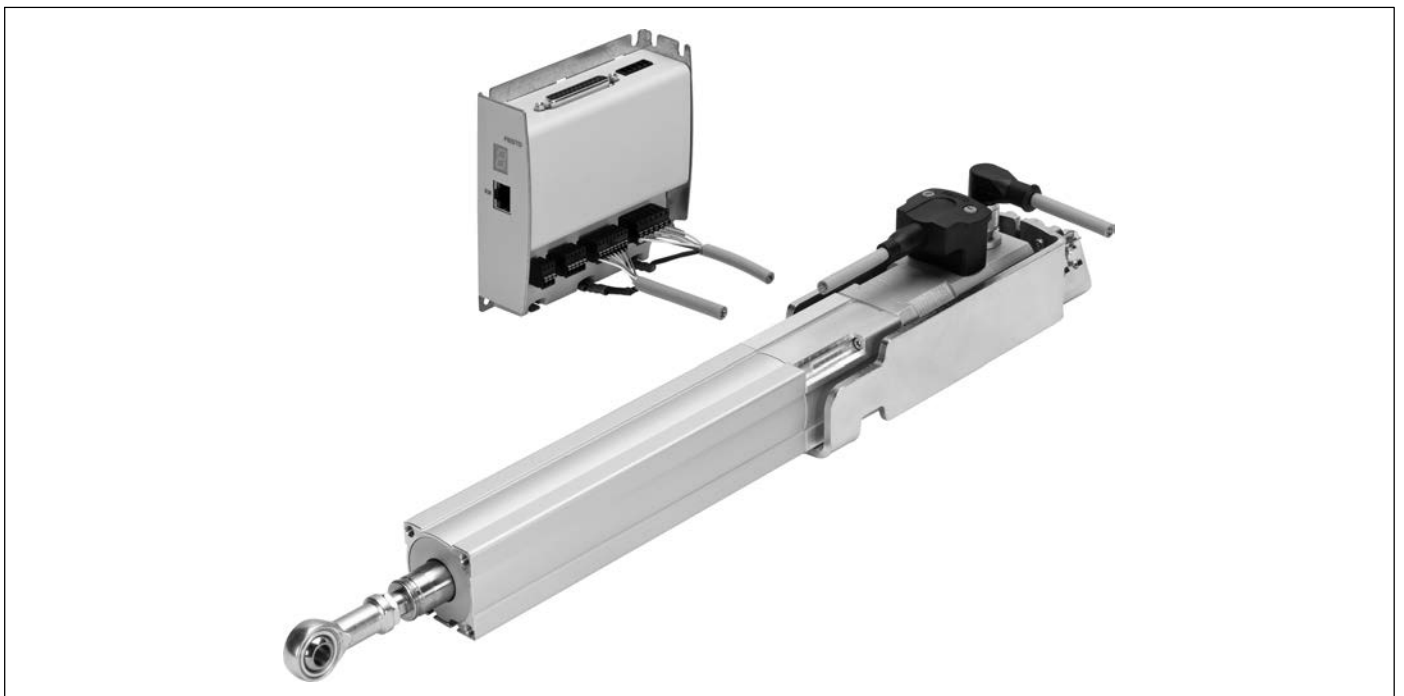
Proportional valves

		
Type	Proportional directional control valve VPWP	Proportional directional control valve MPYE
Valve function	5/3-way proportional directional control valve, closed	5/3-way, closed
Pneumatic connection 1	G1/8, G1/4, G3/8	G1/8, G1/4, G3/8, M5
Operating pressure	0 ... 10 bar	0 ... 10 bar
Standard nominal flow rate	350 ... 2,000 l/min	100 ... 2,000 l/min
Description	<ul style="list-style-type: none"> • Controlled piston spool valve • Digital actuation • Integrated pressure sensors for monitoring function and force control • With auto identification • Diagnostic function • Integrated digital output, e.g. for a clamping/brake unit • Suitable for servopneumatic applications with CPX-CMAX and CPX-CPMX 	<ul style="list-style-type: none"> • Controlled piston spool valve • Analogue actuation • Setpoint value input as voltage signal (0 ... 10 V) • Suitable for servopneumatic applications with SPC11
→ Page/online	vpwp	mpye

Sensor interfaces


Type	 Sensor interface CASM	 Measured-value transducer DADE
Diagnostic function	Display via LED	Display via LED
Electrical connection, displacement encoder	5-pin, 8-pin, socket, M12	8-pin, socket, M12
Electrical connection, control interface	5-pin, M9, plug	
Control interface	CAN Bus with Festo protocol, digital, without terminating resistor	
Description	<ul style="list-style-type: none"> • For actuating pneumatic positioning drives with the latest servopneumatic systems such as CPX-CMAX, CPX-CMPX and CPX-CMIX • Short cables for analogue signals, secure digitised bus transmission • Convenient plug and work concept with auto identification and comprehensive diagnostics • High protection class IP67 	<ul style="list-style-type: none"> • For standard cylinder DNCI, DDPC • Converts sensor signals into voltage or current signals • Mounting via through-holes • Diagnostic display via LED
→ Page/online	casm	dade

3 Electromechanical drives







Software tool





3

PositioningDrives		Which electromechanical linear drive best meets your needs? Enter the data for your application, such as position values, effective loads and mounting position, and the software suggests a number of solutions.	This tool can be found <ul style="list-style-type: none"> • either in the electronic catalogue by clicking on the blue button "Engineering" • or on the DVD under Engineering Tools.
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Linear drives and slide units

Type	 Electric cylinder EPCO	 Electric cylinder ESBF	 Electric cylinder DNCE	 Spindle axis EGC-BS-KF
Size	16, 25, 40	63, 80, 100	32, 40, 63	50, 70, 80, 120, 185
Max. feed force Fx	50 ... 650 N	6,000 ... 17,000 N	300 ... 2,500 N	300 ... 3,000 N
Repetition accuracy	+/-0.02 mm	+/-0.01 mm, +/-0.015 mm	+/-0.02 +/-0.03 mm, +/-0.02 mm, +/-0.07 mm	+/-0.02 mm
Working stroke	50 ... 400 mm	100 ... 400 mm	100 ... 800 mm	50 ... 3,000 mm
Description	<ul style="list-style-type: none"> • Linear drive with permanently attached motor • With recirculating ball spindle • Available with female thread • Available with holding brake • Protection class IP40 • Compact dimensions • Extensive mounting accessories for various installation situations • Suitable for simple applications in factory automation that in the past were mostly carried out using pneumatic solutions 	<ul style="list-style-type: none"> • With spindle drive • Optional: high corrosion protection, protection class IP65, suitable for use in the food industry, piston rod extension • Wide range of accessories 	<ul style="list-style-type: none"> • Lead screw or ball screw • Standard hole pattern to ISO 15552 • Available with high corrosion protection • Available with lubrication approved for food use • Axial or parallel motor mounting • Integrated reference switch • Freely positionable • Non-rotating piston rod • Larger strokes available on request 	<ul style="list-style-type: none"> • Recirculating ball bearing guide for high loads and torques • Available with clamping unit, at one or both ends • Profile with optimised rigidity • High dynamic response and minimum vibration • Various spindle pitches • Reference switch optional • Freely positionable
→ Page/online	347	356	365	375

Linear drives and slide units



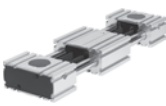
Type	 Spindle axis EGC-HD-BS	 Toothed belt axis EGC-TB-KF	 Toothed belt axis EGC-HD-TB	 Mini slide EGSL
Size	125, 160, 220	50, 70, 80, 120, 185	125, 160, 220	35, 45, 55, 75
Max. feed force Fx	300 ... 1,300 N	50 ... 2,500 N	450 ... 1,800 N	75 ... 450 N
Repetition accuracy	+/-0.02 mm	+/-0.08 mm, +/-0.1 mm	+/-0.08 mm, +/-0.1 mm	+/-0.015 mm
Working stroke	50 ... 2,400 mm	50 ... 8,500 mm	50 ... 5,000 mm	50 ... 300 mm
Description	<ul style="list-style-type: none"> • With heavy-duty guide • With integrated ball screw • For maximum loads and torques, high feed forces and speeds and long service life • Precise and resilient duo rail guide • Excellent price/performance ratio • Flexible motor mounting 	<ul style="list-style-type: none"> • Recirculating ball bearing guide for high loads and torques • Available with clamping unit, at one or both ends • Profile with optimised rigidity • High dynamic response and minimum vibration • Small toothed disc diameter • Reference switch optional • Freely positionable 	<ul style="list-style-type: none"> • With heavy-duty guide • For maximum loads and torques, high feed forces and speeds and long service life • Precise and resilient duo rail guide • Excellent price/performance ratio • Flexible motor mounting 	<ul style="list-style-type: none"> • Very high rated slide loads, ideal for vertical applications such as press-fitting or joining • Reliable: the completely closed spindle stops dirt or stray small parts getting into the guide area • Flexible: motor can be attached laterally or axially, in this case turned by 4 x 90° • Matching software tools in the FCT software package from Festo
→ Page/online	386	396	406	416

Linear drives and slide units

				
Type	Mini slide SLTE	Electric slide EGSK	Electric slide EGSP	Toothed belt axis ELGA-TB-G
Size	10, 16	15, 20, 26, 33, 46	20, 26, 33, 46	70, 80, 120
Max. feed force F _x		19 ... 392 N	69 ... 466 N	350 ... 1,300 N
Repetition accuracy	+/-100,000 µm	+/-0.003, +/-0.004 mm, +/-0.003 +/-0.01 mm, +/-0.01 mm	+/-0.003, +/-0.01 mm	+/-0.08 mm
Working stroke	50 ... 150 mm	25 ... 840 mm	25 ... 840 mm	50 ... 8,500 mm
Description	<ul style="list-style-type: none"> • Electromechanical linear axis with lead screw spindle • With DC servo motor • Easy actuation via I/O interface, PROFIBUS, CANopen, DeviceNet • Precise and rigid guide • Freely positionable • Fast positioning times 	<ul style="list-style-type: none"> • Electromechanical linear axis with recirculating ball bearing spindle • Recirculating ball bearing guide and ball screw without caged ball bearings • Standardised mounting interfaces • Compact design • High rigidity • Long service life 	<ul style="list-style-type: none"> • Electromechanical linear axis with recirculating ball bearing spindle • Recirculating ball bearing guide with caged ball bearings • Size 33, 46 features a ball screw with caged ball bearings • Low-maintenance • Uniform operating behaviour with very low noise levels • Standardised mounting interfaces • Compact design • High rigidity • Long service life 	<ul style="list-style-type: none"> • Integrated plain-bearing guide • For small and medium loads • Low guide backlash • Actuator for external guides • Speeds up to 5 m/s with high acceleration up to 50 m/s² • Flexible motor mounting
→ Page/online	slte	egsk	egsp	427

3


Linear drives and slide units

			
Type	Toothed belt axis ELGA-TB-RF	Toothed belt axis ELGG	Toothed belt axis ELGR
Size	70, 80, 120	35, 45, 55	35, 45, 55
Max. feed force F _x	350 ... 1,300 N	50 ... 350 N	50 ... 350 N
Repetition accuracy	+/-0.08 mm	+/-0.1 mm	+/-0.1 mm
Working stroke	50 ... 7,400 mm	50 ... 1,200 mm	50 ... 1,500 mm
Description	<ul style="list-style-type: none"> • Integrated roller bearing guide • High speeds up to 10 m/s with high acceleration up to 50 m/s² • Guide backlash = 0 mm • Very good operating behaviour under torque load • Sturdy alternative to the recirculating ball bearing guide • Actuator for external guides, especially at high speeds 	<ul style="list-style-type: none"> • For universal use with opposing movement • The different guide variants, the optional long slide and the central support enable solutions that are technically appropriate, reliable and at the same time economical • Long service life of over 2,500 km per slide • Easy and reliable sizing with PositioningDrives • Fast and user-friendly commissioning with the Festo Configuration Tool (FCT) 	<ul style="list-style-type: none"> • Optimum price/performance ratio • Ready-to-install unit for quick and easy design • High reliability thanks to tested service life of 5,000 km • Motor can be mounted on any one of 4 sides • With plain or recirculating ball bearing guide • Kit for easy and space-saving end-position sensing • Quick commissioning following easy sizing using the PositioningDrives software as well as pre-defined parameter sets in the parameterisation software FCT
→ Page/online	elga	elgg	440


Linear drives and slide units

				
Type	Cantilever axis DGEA-ZR	Toothed belt axis DGE-ZR, DGE-ZR-KF, DGE-ZR-HD	Linear drive DGE-ZR-RF	Spindle axis DGE-SP
Size	18, 25, 40	8, 12, 18, 25, 40, 63	25, 40, 63	18, 25, 40, 63
Max. feed force F _x	230 ... 1,000 N	15 ... 1,500 N	260... 1,500 N	140 ... 1,600 N
Repetition accuracy	+/-0.05 mm	+/-0.08 mm, +/-0.1 mm	+/-0.1 mm	+/-0.02 mm
Working stroke	1 ... 1,000 mm	1 ... 4,500 mm	1 ... 5,000 mm	100 ... 2,000 mm
Description	<ul style="list-style-type: none"> • Toothed belt drive with recirculating ball bearing guide • Dynamic cantilever operation • Stationary drive head • Reference switch optional • Freely positionable 	<ul style="list-style-type: none"> • Electromechanical axis with toothed belt DGE-ZR: without guide; DGE-ZR-KF: with recirculating ball bearing guide; DGE-ZRHD: with heavy-duty guide, recirculating ball bearing guide • Highly adaptable thanks to wide choice of mounting and attachment options • Wide range of options for mounting on drives • Comprehensive range of mounting accessories for multi-axis combinations • Optional protected version 	<ul style="list-style-type: none"> • Electromechanical axis with toothed belt and internal roller bearing guide • High speeds possible • Highly adaptable thanks to wide choice of mounting and attachment options • Wide range of options for mounting on drives • Comprehensive range of mounting accessories for multi-axis combinations 	<ul style="list-style-type: none"> • Without guide, recirculating ball bearing guide or heavy-duty guide • Optional protected version • Compact dimensions • Reference switch optional • Freely positionable
→ Page/online	dgea	dge-zr	dge-zr	dge-sp


Linear drives and slide units

	
Type	Positioning axis DMES
Size	18, 25, 40, 63
Max. feed force F _x	240 ... 3,000 N
Repetition accuracy	+/-0.05 mm, +/-0.07 mm
Working stroke	50 ... 1,800 mm
Description	<ul style="list-style-type: none"> • Mechanical linear drive • Without guide, plain guide or recirculating ball bearing guide • High mechanical torques • High feed forces of up to 3,000 N • Compact dimensions • Reference switch optional • Freely positionable
→ Page/online	dmes

Semi-rotary drives





	
Type	Rotary module ERMB
Size	20, 25, 32
Max. driving torque	0.7 ... 8.5 Nm
Max. input speed	900 ... 1,350 rpm
Rotation angle	Infinite
Description	<ul style="list-style-type: none"> • Electromechanical rotary module with toothed belt • Compact design • Mounting interfaces on all sides • Stable arrangement of the output shaft bearings • Unlimited and flexible rotation angle
→ Page/online	446

Electric handling modules

	Rotary/lifting module EHMB
Type	
Size	20, 25, 32
Max. driving torque	0.7 ... 6.7 Nm
Max. input speed	900 ... 1,350 rpm
Rotation angle	Infinite
Description	<ul style="list-style-type: none"> • Complete module with combined and configurable rotary/lifting movement • Dynamic, flexible, economical thanks to the modular drive concept for the linear movement • Hollow axis with large internal diameter makes laying power supply lines easy, convenient and safe • Extremely short positioning times thanks to high dynamic response during rotation, e.g. 0.25 s when swivelling a 1 kg load by 180°
→ Page/online	452

3

Direct drives

				
Short-stroke cylinder ADNE-LAS	Guided drive DFME-LAS	Electric cylinder DNCE-LAS	Linear drive ELGL-LAS	
Type				
Size	32, 40	32, 40	32, 40	30, 64, 120
Max. feed force Fx	8 ... 55 N	94 ... 202 N	93.7 ... 202 N	56 ... 475 N
Repetition accuracy	+/-0.01 mm	+/-0.015 mm	+/-0.02, +/-0.03 mm, +/-0.02 mm, +/-0.07 mm	+/-0.01 mm
Working stroke	15 ... 45 mm	100 ... 400 mm	100 ... 400 mm	1 ... 5,750 mm
Description	<ul style="list-style-type: none"> • Electric short-stroke cylinder with integrated linear motor • Highly dynamic movement between two end positions • Electronic end-position cushioning • Easy commissioning, Festo plug and work • Also for harsh ambient conditions 	<ul style="list-style-type: none"> • Recirculating ball bearing guide • Consisting of freely positionable linear motor, integrated displacement encoder and reference switch • Enables positioning with very high dynamic response for small loads • Long service life and maintenance-free operation • Easy actuation via I/O interface, PROFIBUS, CANopen including interpolated position mode, DeviceNet • Configuration and commissioning with the parameterisation software FCT • Festo plug and work for smooth logistics and assembly 	<ul style="list-style-type: none"> • Linear motor axis with piston rod • Consisting of freely positionable linear motor, integrated displacement encoder, reference switch and plain bearings • Positioning with very high dynamic response for small loads • Easy actuation via I/O interface, PROFIBUS, CANopen including interpolated position mode, DeviceNet • Festo plug and work for clear logistics and rapid assembly • Configuration and commissioning with the parameterisation software FCT 	<ul style="list-style-type: none"> • Electric linear drive with linear motor, air cushion bearing and displacement encoder • Ready-to-install system offering greater flexibility, precision and dynamic response • Air cushion bearing provides high precision, high linearity and wear-free characteristics • Actuation via motor controller CMMP-AS
→ Page/online	adne	dfme	dnce	elgl

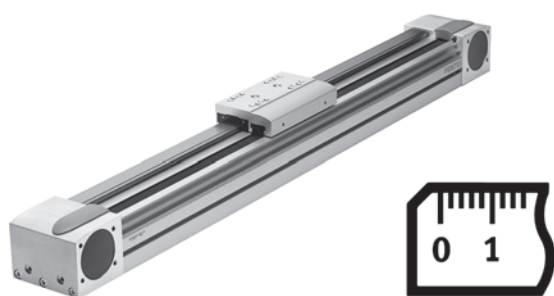
Linear guides

Type	Guide unit EAGF	Passive guide axis ELFR	Passive guide axis EGC-FA	Passive guide axis FDG-ZR-RF
Size	63, 80, 100	35, 45, 55	70, 80, 120, 185	25, 40, 63
Stroke	1 ... 500 mm	50 ... 1,500 mm	50 ... 8,500 mm	1 ... 5,000 mm
Guide	Recirculating ball bearing guide	Plain-bearing guide, recirculating ball bearing guide	Recirculating ball bearing guide	Internal roller guide
Description	<ul style="list-style-type: none"> For protecting electric cylinder ESBF against rotation at high torques High guide precision 	<ul style="list-style-type: none"> Driveless guide unit with guide and freely movable slide For supporting force and torque capacity in multi-axis applications Increased torsional resistance Reduced vibrations with dynamic loads 	<ul style="list-style-type: none"> Driveless guide unit with guide and freely movable slide For supporting force and torque capacity in multi-axis applications Increased torsional resistance Reduced vibrations with dynamic loads 	<ul style="list-style-type: none"> Driveless linear guide unit with guide and freely movable slide For supporting force and torque capacity in multi-axis applications Increased torsional resistance Reduced vibrations with dynamic loads
→ Page/online	eagf	elfr	egc	fdg

Accessories for electromechanical drives

Type	Bellows and gear coupling EAMC/EAMD	Connecting shaft KSK
Description	<ul style="list-style-type: none"> System product for positioning technology For force-locked and backlash-free transmission of small and medium torques between electric motors and axes 	<ul style="list-style-type: none"> For synchronising toothed belt axes DGE and EGC For torsion-resistant transmission of the necessary torque For slip-free transmission of the feed speed
→ Page/online	eamc	ksk

Customised components – for your specific requirements



Drives with customised designs

Can't find the electromechanical drive you need in our catalogue?
We can offer you customised components that are tailored to your specific requirements – from minor product modifications to complete new product developments.

Common product modifications:

- Special strokes
- Design for special ambient conditions
- Design optimised for the fitting space
- Design with opposing carriages
- Design with absolute encoder

Many additional variants are possible. Ask your Festo sales engineer, who will be happy to help. Further information on customised components can be found on your local website at www.festo.com.



- Electromechanical linear axis with piston rod and permanently attached motor
- Recirculating ball spindle
- Axial motor mounting
- Easy commissioning and operation
- Wide range of accessories for various installation situations
- Spare parts service
- ★ Quick ordering of basic designs → 349

→ www.festo.com/catalogue/epco

Product range overview

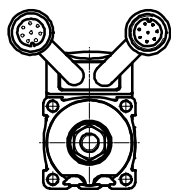
Type/version	Size	Stroke [mm]	Feed force [N]	Spindle pitch [mm/rev]	Product options									
					A	E	B	D	L	R	C5	DIO	N	P
EPCO														
Recirculating ball spindle	16, 25, 40	50 ... 400	50 ... 650	3 ... 12.7	■	■	■	■	■	■	■	■	■	■

Product options

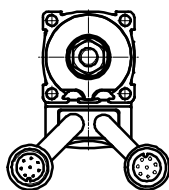
- | | | | | | | | |
|---|--------------------------|---|------------------|---|---------------------------|-----|----------------------------|
| F | Female piston rod thread | A | Position sensing | D | Cable outlet underneath | C5 | Controller type |
| E | Piston rod extension | E | With encoder | L | Cable outlet to the left | DIO | Actuation |
| | | B | With brake | R | Cable outlet to the right | N | Switching input/output NPN |
| | | | | | | P | Switching input/output PNP |

Motor mounting variants

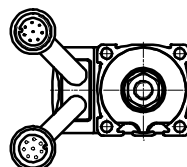
EPCO-16
Standard



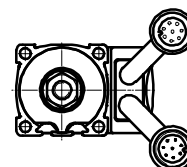
Underneath (feature D)



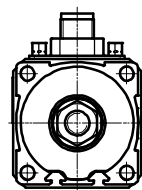
Left (feature L)



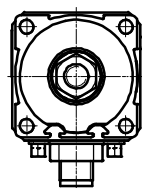
Right (feature R)



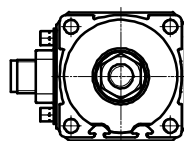
EPCO-25/-40
Standard



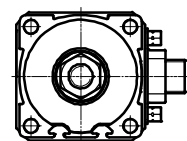
Underneath (feature D)



Left (feature L)

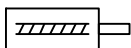


Right (feature R)

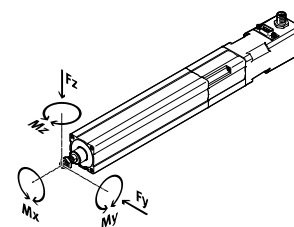


Electric cylinders EPCO, with spindle drive

Technical data



Dimensions → 355



Technical data

Note

PositioningDrives
sizing software
→ www.festo.com

Size	16		25		40	
Spindle design	3P	8P	3P	10P	5P	12.7P
Working stroke	[mm] 50 ... 200		50 ... 300		50 ... 400	
Spindle pitch ¹⁾	[mm/rev] 3	8	3	10	5	12.7
Spindle diameter	[mm] 8	8	10	10	12	12.7
Max. payload						
Horizontal ²⁾	[kg] 24	8	60	20	120	40
Vertical	[kg] 12	4	30	10	60	20
Max. feed force F_x	[N] 125	50	350	105	650	250
Max. speed	[mm/s] 125	300	150	500	180	460
Max. acceleration	[m/s ²] 10					
Reversing backlash ³⁾	[mm] ≤ 0.1					
Repetition accuracy	[mm] ±0.02					
Nominal voltage	[V DC] 24					
Nominal current	[A] 1.4	3		4.2		
Encoder						
Pulses/revolution	500					
Zero pulse	Yes					
Line driver	RS422 protocol					
Operating voltage of encoder	[V] 5					
$F_{x_{max}}$ (static)	[N] 125	50	350	105	650	250
$M_{x_{max}}$	[Nm] 0	1.0		0		
$M_{y_{max}}, M_{z_{max}}$	[Nm] 0.6	1.0		3.3		

- 1) Nominal value varies due to component tolerances.
- 2) Note max. lateral force.
- 3) In new condition.

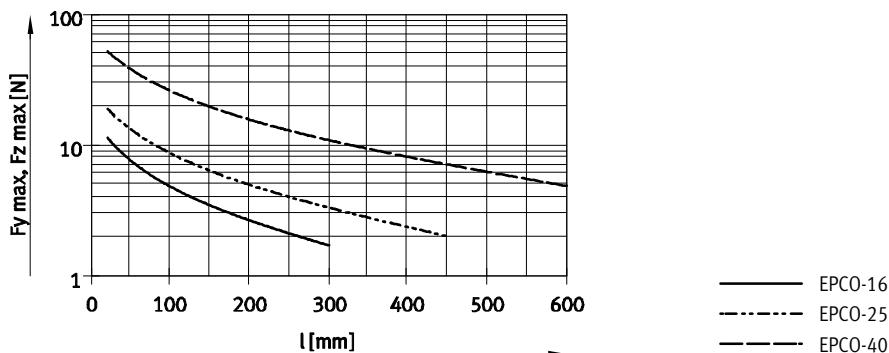
Mass moment of inertia

Size	16		25		40	
Spindle design	3P	8P	3P	10P	5P	12.7P
J_0 with 0 mm stroke						
EPCO-...-ST	[kg mm ²] 2.28	2.29	9.33	9.40	33.25	33.75
EPCO-...-ST-B	[kg mm ²] 2.97	2.98	10.63	10.70	34.55	35.05
j_s per meter stroke	[kg mm ² /m] 2.53	2.65	4.87	5.78	11.66	16.70
j_L per kg payload	[kg mm ² /kg] 0.23	1.62	0.23	2.54	0.64	4.09

The mass moment of inertia J_A of the electric cylinder is calculated as follows:
 $J_A = J_0 + j_s \times \text{working stroke [m]} + j_L \times m_{\text{moving payload [kg]}$

Technical data

Maximum permissible lateral forces $F_{y\max}$ and $F_{z\max}$ on the piston rod as a function of projection l



Operating conditions

Ambient temperature ⁴⁾	[°C]	0 ... +50
Degree of protection		IP40

4) Note operating range of proximity sensors and motors.

Materials

Bearing cap	Smooth anodised wrought aluminium alloy
Cylinder barrel	Smooth anodised wrought aluminium alloy
Piston rod	High-alloy stainless steel
Spindle	Rolled steel
Spindle nut	Steel
Drive cover	Smooth anodised wrought aluminium alloy

Ordering – Product options

Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
www.festo.com/catalogue/...

Enter the type code in the search field.

★ Quick ordering¹⁾

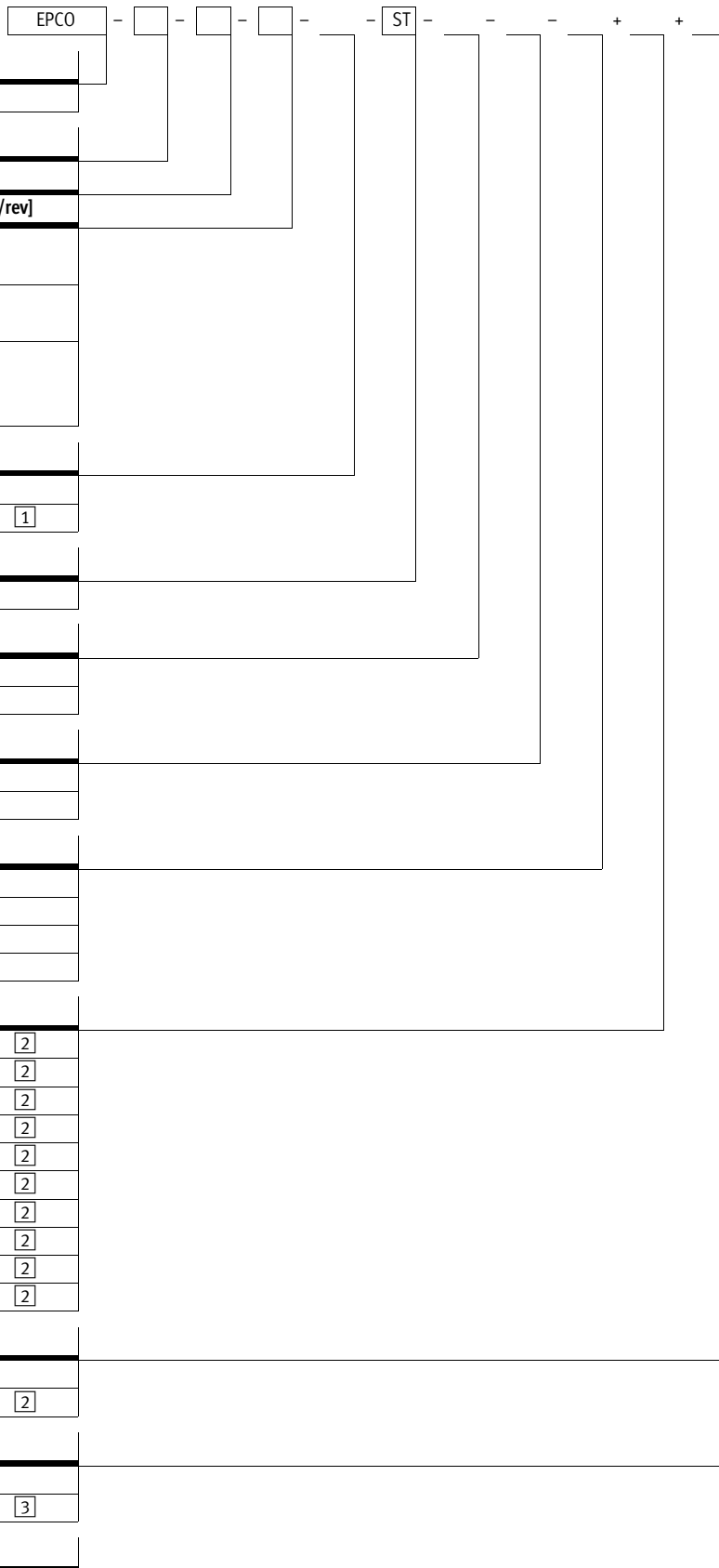
EPCO-16			EPCO-25			EPCO-40		
Stroke [mm]	Part No.	Type	Stroke [mm]	Part No.	Type	Stroke [mm]	Part No.	Type
Spindle pitch 3 mm/rev, with encoder			Spindle pitch 3 mm/rev, with encoder			Spindle pitch 5 mm/rev, with encoder		
50	1476415	EPCO-16-50-3P-ST-E	50	1470698	EPCO-25-50-3P-ST-E	50	1472501	EPCO-40-50-5P-ST-E
100	1476417	EPCO-16-100-3P-ST-E	100	1470700	EPCO-25-100-3P-ST-E	100	1472503	EPCO-40-100-5P-ST-E
150	1476419	EPCO-16-150-3P-ST-E	150	1470702	EPCO-25-150-3P-ST-E	150	1472505	EPCO-40-150-5P-ST-E
200	1476421	EPCO-16-200-3P-ST-E	200	1470704	EPCO-25-200-3P-ST-E	200	1472507	EPCO-40-200-5P-ST-E
			300	1470706	EPCO-25-300-3P-ST-E	300	1472509	EPCO-40-300-5P-ST-E
Spindle pitch 8 mm/rev, with encoder			Spindle pitch 10 mm/rev, with encoder			Spindle pitch 12.7 mm/rev, with encoder		
50	1476522	EPCO-16-50-8P-ST-E	50	1470769	EPCO-25-50-10P-ST-E	50	1472617	EPCO-40-50-12.7P-ST-E
100	1476524	EPCO-16-100-8P-ST-E	100	1470771	EPCO-25-100-10P-ST-E	100	1472619	EPCO-40-100-12.7P-ST-E
150	1476526	EPCO-16-150-8P-ST-E	150	1470773	EPCO-25-150-10P-ST-E	150	1472621	EPCO-40-150-12.7P-ST-E
200	1476528	EPCO-16-200-8P-ST-E	200	1470775	EPCO-25-200-10P-ST-E	200	1472623	EPCO-40-200-12.7P-ST-E
			300	1470777	EPCO-25-300-10P-ST-E	300	1472625	EPCO-40-300-12.7P-ST-E

1) All products in this table are easy to select and quick to order.

Electric cylinders EPCO, with spindle drive

Order code

3



Type	
EPCO	Electric cylinder

Size		
	Stroke [mm]	Spindle pitch [mm/rev]
16	50, 75, 100, 125, 150, 175, 200	3P, 8P
25	50, 75, 100, 125, 150, 175, 200, 250, 300	3P, 10P
40	50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400	5P, 12.7P

Position sensing	
-	None
A	Via proximity sensor 1

Motor type	
ST	Stepper motor

Measuring unit	
-	None
E	With encoder

Brake	
-	None
B	With brake

Cable outlet direction	
-	Standard
D	Underneath
L	To the left
R	To the right

Connecting cable		
1.5E	1.5 m, straight plug	2
1.5EA	1.5 m, angled plug	2
2.5E	2.5 m, straight plug	2
2.5EA	2.5 m, angled plug	2
5E	5 m, straight plug	2
5EA	5 m, angled plug	2
7E	7 m, straight plug	2
7EA	7 m, angled plug	2
10E	10 m, straight plug	2
10EA	10 m, angled plug	2

Controller type	
-	None
C5	CMMO-ST 2

Bus protocol/actuation	
-	None
DIO	Digital I/O interface 3

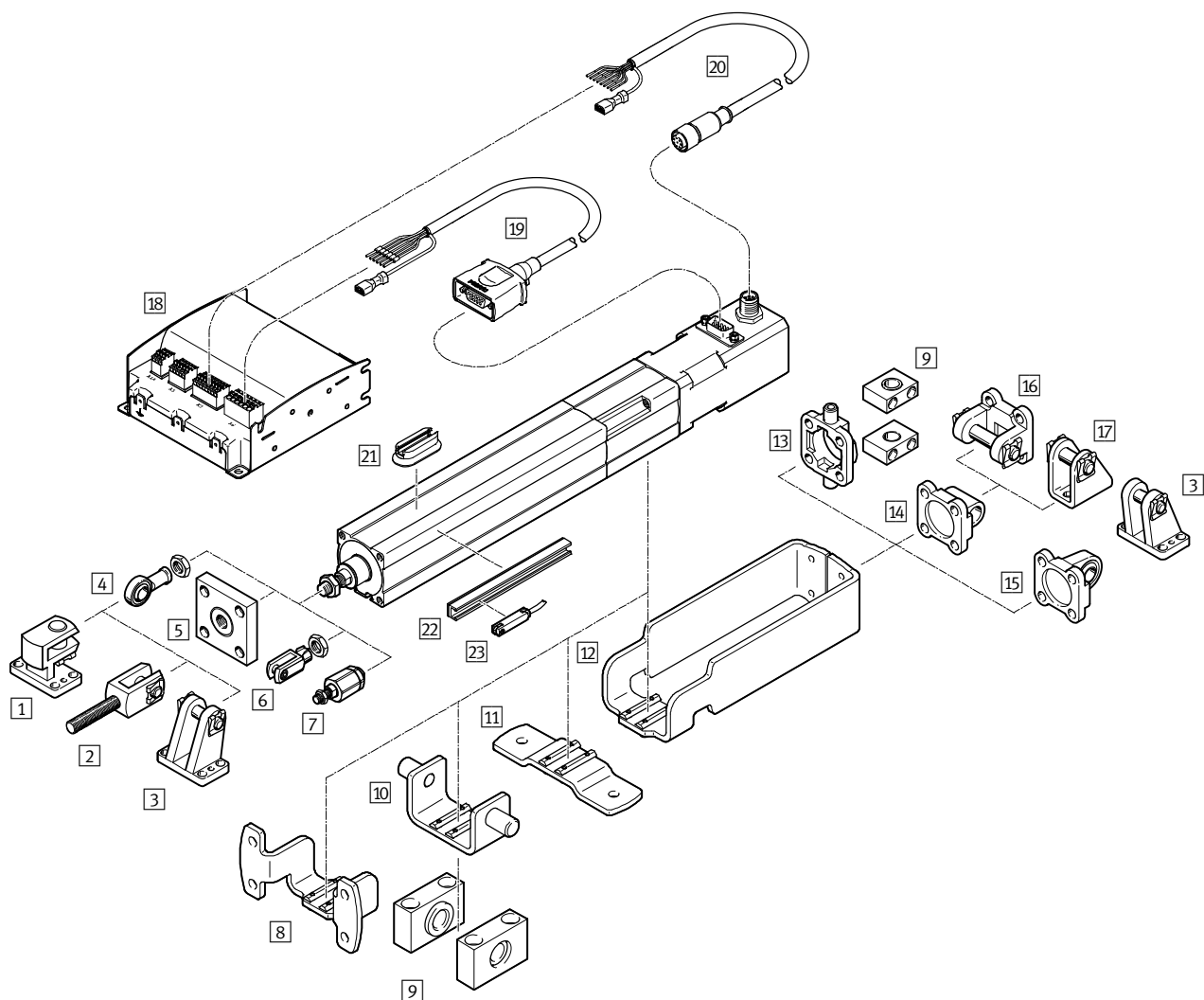
Switching input/output	
N	NPN 3
P	PNP 3

- 1 Must be selected if encoder E is not selected
- 2 Only with encoder E
- 3 Only in combination with (controller type) CMMO, 5A

Order example: EPCO-25-50-10P-A-ST-E

Electric cylinder EPCO - size 25 - stroke 50 mm - spindle pitch 10 mm/rev - position sensing via proximity sensor - stepper motor - with encoder

Accessories



		For size			→ Page/online
		16	25	40	
1	Right-angle clevis foot LQG	-	-	■	352
2	Rod clevis SGA	-	-	■	352
3	Clevis foot LBG	-	-	■	352
4	Rod eye SGS/CRSGS	■	■	■	352
5	Coupling piece KSG	-	-	■	352
6	Rod clevis SG/CRSG	■	■	■	352
7	Self-aligning rod coupler FK	■	■	■	352
8	Flange mounting EAHH	■	■	■	352
9	Trunnion support LNZG	■	■	■	352
10	Swivel mounting EAHS	■	■	■	352
11	Foot mounting EAHF	■	■	■	352
12	Adapter kit EAHA	■	■	■	352
13	Trunnion flange ZNCF	-	-	■	352

		For size			→ Page/online
		16	25	40	
14	Swivel flange SNCL	■	■	■	352
15	Swivel flange SNCS	-	-	■	352
16	Swivel flange SNCB/SNCB-...-R3	-	-	■	352
17	Clevis foot LBN	■	■	■	352
18	Controller CMMO	■	■	■	523
19	Motor cable NEBM	■	■	■	354
20	Encoder cable NEBM	■	■	■	354
21	Mounting kit CRSMB	■	■	■	353
22	Sensor rail SAMH	■	■	■	353
23	Proximity sensor SME/SMT-8	■	■	■	353

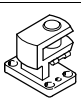

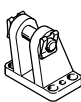

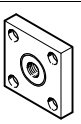


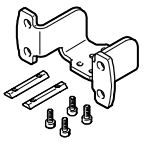
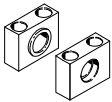
Note

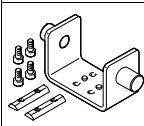
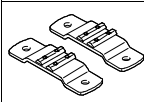
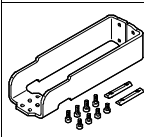
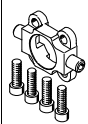
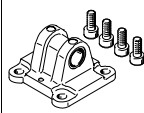
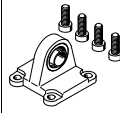
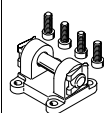

For applications involving high loads, the cylinder must not be mounted exclusively via the mounting thread on the front.

The mass of the motor can be amplified by the lever effect, which can result in the mounting thread being torn out.

Electric cylinders EPCO, with spindle drive



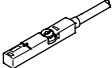
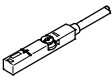
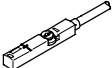


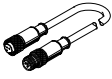
Accessories – Ordering data

	For size	Part No.	Type
1 Right-angle clevis foot Technical data online: → lqg			
	40	31769	LQG-40
2 Rod clevis Technical data online: → sga			
	40	32954	SGA-M10X1,25
3 Clevis foot Technical data online: → lbg			
	40	31762	LBG-40
4 Rod eye Technical data online: → sgs			
	16	★ 9254	SGS-M6
	25	★ 9255	SGS-M8
	40	★ 9261	SGS-M10X1,25
5 Coupling piece Technical data online: → ksg			
	40	32963	KSG-M10X1,25
6 Rod clevis Technical data online: → sg			
	16	★ 3110	SG-M6
	25	★ 3111	SG-M8
	40	★ 6144	SG-M10X1,25
7 Self-aligning rod coupler Technical data online: → fk			
	16	★ 2061	FK-M6
	25	★ 2062	FK-M8
	40	★ 6140	FK-M10X1,25
8 Flange mounting Dimensions online: → epco			
	16	★ 1434906	EAHH-P1-16
	25	★ 1434907	EAHH-P1-25
	40	★ 1434908	EAHH-P1-40
9 Trunnion support Technical data online: → lnzg			
	16	★ 1434912	LNZG-16
	25	32959	LNZG-32
	40	32960	LNZG-40/50

	For size	Part No.	Type
10 Swivel mounting Dimensions online: → epco			
	16	★ 1434909	EAHS-P1-16
	25	★ 1434910	EAHS-P1-25
	40	★ 1434911	EAHS-P1-40
11 Foot mounting EAHF Dimensions online: → epco			
	16	★ 1434903	EAHF-P1-16
	25	★ 1434904	EAHF-P1-25
	40	★ 1434905	EAHF-P1-40
12 Adapter kit EAHA Dimensions online: → epco			
	16	★ 1434900	EAHA-P1-16
	25	★ 1434901	EAHA-P1-25
	40	★ 1434902	EAHA-P1-40
13 Trunnion flange ZNCF Dimensions online: → epco			
	40	174412	ZNCF-40
14 Swivel flange SNCL Dimensions online: → epco			
	16	537791	SNCL-16
	25	537793	SNCL-25
	40	★ 174405	SNCL-40
15 Swivel flange SNCS Dimensions online: → epco			
	40	★ 174398	SNCS-40
16 Swivel flange SNCB Dimensions online: → epco			
	40	★ 174391	SNCB-40
17 Clevis foot Technical data online: → lbn			
	16	★ 6058	LBN-12/16
	25	★ 6059	LBN-20/25
	40	195861	LBN-40

3

Accessories – Ordering data

	For size	Part No.	Type	
21 Mounting kit for proximity sensor				
	16, 25, 40	525565	CRSMB-8-32/100 ¹⁾	
22 Sensor rail⁴⁾ for proximity sensor				
	16, 25, 40	1600093	SAMH-N8-SR-50 ²⁾	
		1600118	SAMH-N8-SR-100 ³⁾	
23 Proximity sensor for T-slot, magneto-resistive – N/O contact				Technical data → 808
	PNP, cable	★	574335	SMT-8M-A-PS-24V-E-2,5-OE
	PNP, plug	★	574334	SMT-8M-A-PS-24V-E-0,3-M8D
	PNP, plug	★	574337	SMT-8M-A-PS-24V-E-0,3-M12
	NPN, cable	★	574338	SMT-8M-A-NS-24V-E-2,5-OE
	NPN, plug	★	574339	SMT-8M-A-NS-24V-E-0,3-M8D
Magneto-resistive – N/C contact				Technical data → 808
	PNP, cable	★	574340	SMT-8M-A-PO-24V-E-7,5-OE
23 Proximity sensor for T-slot, magnetic reed – N/O contact				Technical data → 803
	Cable	★	543862	SME-8M-DS-24V-K-2,5-OE
	Cable	★	543863	SME-8M-DS-24V-K-5,0-OE
	Cable	★	543872	SME-8M-ZS-24V-K-2,5-OE
	Plug	★	543861	SME-8M-DS-24V-K-0,3-M8D
				Technical data → 805
	Cable		150855	SME-8-K-LED-24
	Plug		150857	SME-8-S-LED-24
Magnetic reed – N/C contact				Technical data → 805
	Cable		160251	SME-8-O-K-LED-24
Connecting cable				
	0.5 m		175488	KM8-M8-GSGD-0,5
	1 m		175489	KM8-M8-GSGD-1
	2.5 m		165610	KM8-M8-GSGD-2,5
	5 m		165611	KM8-M8-GSGD-5

1) Length: 35 mm.


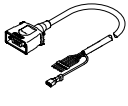
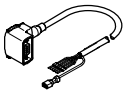
2) Length: 50 mm.

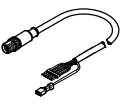

3) Length: 100 mm.

4) Size 25 can only be used with proximity sensor SMT-8 (magneto-resistive).

Electric cylinders EPCO, with spindle drive

Accessories – Ordering data

	Cable length		Part No.	Type
19 Motor cable¹⁾				
For EPCO-16				
Straight plug				
	1.5 m	★	1449600	NEBM-M12G8-E-1.5-Q5-LE6
	2.5 m	★	1449601	NEBM-M12G8-E-2.5-Q5-LE6
	5 m	★	1449602	NEBM-M12G8-E-5-Q5-LE6
	7 m	★	1449603	NEBM-M12G8-E-7-Q5-LE6
	10 m	★	1449604	NEBM-M12G8-E-10-Q5-LE6
For EPCO-25/-40				
Straight plug				
	1.5 m	★	1450368	NEBM-S1G9-E-1.5-Q5-LE6
	2.5 m	★	1450369	NEBM-S1G9-E-2.5-Q5-LE6
	5 m	★	1450370	NEBM-S1G9-E-5-Q5-LE6
	7 m	★	1450371	NEBM-S1G9-E-7-Q5-LE6
	10 m	★	1450372	NEBM-S1G9-E-10-Q5-LE6
Angled plug				
	1.5 m	★	1450736	NEBM-S1W9-E-1.5-Q5-LE6
	2.5 m	★	1450737	NEBM-S1W9-E-2.5-Q5-LE6
	5 m	★	1450738	NEBM-S1W9-E-5-Q5-LE6
	7 m	★	1450739	NEBM-S1W9-E-7-Q5-LE6
	10 m	★	1450740	NEBM-S1W9-E-10-Q5-LE6

	Cable length		Part No.	Type
20 Encoder cable¹⁾				
For EPCO-16/-25/-40				
Straight plug				
	1.5 m	★	1451586	NEBM-M12G8-E-1.5-LE8
	2.5 m	★	1451587	NEBM-M12G8-E-2.5-LE8
	5 m	★	1451588	NEBM-M12G8-E-5-LE8
	7 m	★	1451589	NEBM-M12G8-E-7-LE8
	10 m	★	1451590	NEBM-M12G8-E-10-LE8
For EPCO-25/-40				
Angled plug				
	1.5 m	★	1451674	NEBM-M12W8-E-1.5-LE8
	2.5 m	★	1451675	NEBM-M12W8-E-2.5-LE8
	5 m	★	1451676	NEBM-M12W8-E-5-LE8
	7 m	★	1451677	NEBM-M12W8-E-7-LE8
	10 m	★	1451678	NEBM-M12W8-E-10-LE8

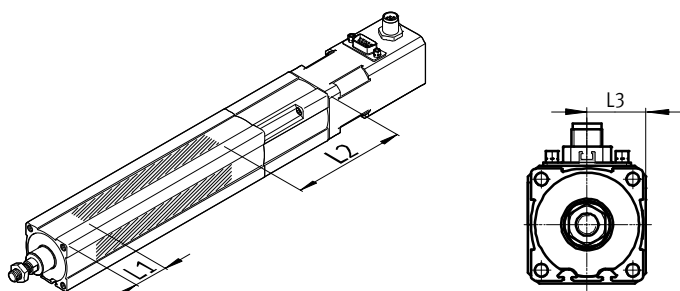
1) Other cable lengths on request.

Sensor mounting

The sensor mountings can only be attached within the highlighted area due to the asymmetry of the internal magnets.

The proximity sensors may not switch reliably if they are mounted outside of this area.

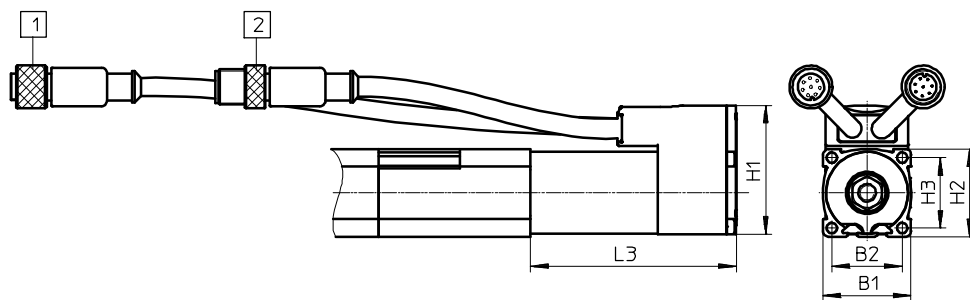
The overall length of the sensor rail SAMH corresponds to the length of the sensing range plus approx. 10 mm adjustment range on either side for the proximity sensors.



Size	L1	L2	L3
16	29	95	15
25	33	121	20
40	40	150	27.5

Dimensions

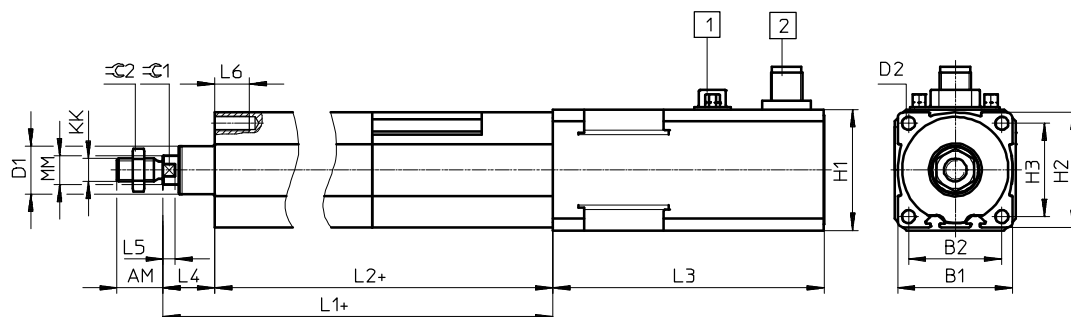
EPCO-16



1 Motor connection:
Round plug M12, 8-pin, socket
Cable length: 350 mm

2 Encoder connection:
Round plug M12, 8-pin, pins
Cable length: 250 mm

EPCO-25/-40



1 Motor connection:
Sub-D plug, 9-pin, pins

2 Encoder connection: + = plus stroke length
Round plug M12, 8-pin, pins

Size	AM	B1	B2	D1 ∅	D2 ∅	H1	H2	H3	KK	L1	L2
[mm]	-0.5			±0.05							±1
16	12	30	24	13.27	M4	44	30	24	M6	143	127
25	16	40	32.5	17.27	M5	42 ^{+0.3}	40	32.5	M8	174.6	156.6
40	19	55	42	26.52	M6	56.4	55	42	M10x1.25	214.2	192.7

Size	L3				L4	L5	L6	MM	≈C1	≈C2
	-E	-B	-EB							
[mm]						-0.15		-0.1		
16	70±1	70±1	96±1.5	96±1.5	16	3.7	10	8	7	10
25	66±1	94.4±1.2	114.4±1.3	127.4±1.3	18	4.2	12	10	9	13
40	73.5±0.8	102.5±1.1	123.5±1.1	138±1.1	21.5	4.7	14	12	10	17

Electric cylinders ESBF, with spindle drive



- Electromechanical linear axis with piston rod based on ISO 15552
- Ball screw spindle
- Axial or parallel (U-shaped) motor mounting
- Comprehensive range of accessories
- Spare parts service
- ★ Quick ordering of basic designs → 358

→ www.festo.com/catalogue/esbf

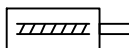
Product range overview

Type/version	Size	Stroke [mm]	Feed force [kN]	Spindle pitch [mm/rev]						
				5	10	15	20	25	32	40
ESBF										
Ball screw spindle	63	1 ... 1200	7	■	■	-	-	■	-	-
	80	1 ... 1500	12	■	-	■	-	-	■	-
	100	1 ... 1500	17	■	-	-	■	-	-	■

Product options

- | | | | | | | | |
|---|--------------------------|----|---------------------------|----|---|------|----------------------|
| F | Female piston rod thread | S1 | Degree of protection IP65 | F1 | Lubrication approved for use in food applications | ...E | Piston rod extension |
| | | R3 | High corrosion protection | | | | |

Technical data



3

Technical data											Dimensions → 364		
Size	63						80			100			
Spindle pitch	[mm/rev]	5	10	25	5	15	32	5	20	40			
Working stroke	[mm]	1 ... 1200			1 ... 1500			1 ... 1500					
Spindle diameter	[mm]	25			32			40					
Max. force of the cylinder ¹⁾	[kN]	7	7	6	12	12	10	17	17	14.5			
Max. driving torque	[Nm]	7	13.1	26.5	11.9	33.7	56.6	16.9	63.7	102.6			
Max. radial force ²⁾	[N]	700			1100			1100					
Max. speed	[m/s]	0.27	0.53	1.35	0.21	0.62	1.34	0.16	0.67	1.34			
Max. rotational speed	[rpm]	3250	3220	3260	2530	2515	2515	2010	2010	2010			
Max. acceleration	[m/s ²]	5	15	25	5	15	25	5	15	25			
Max. angle of rotation at the piston rod	[°]	±0.4			±0.5			±0.5					
Reversing backlash ³⁾	[mm]	< 0.03	< 0.03	< 0.04	< 0.03	< 0.03	< 0.04	< 0.03	< 0.03	< 0.04			
Repetition accuracy	[mm]	±0.015		±0.01									
No-load driving torque ⁴⁾	[Nm]	0.3	0.3	0.4	0.9	1.1	1.3	1.3	1.1	1.5			

- 1) The feed force is dependent on the stroke.
- 2) At the drive shaft.
- 3) In new condition.
- 4) At a spindle speed of 200 rpm.

Note

PositioningDrives
sizing software
→ www.festo.com

Mass moment of inertia													
Size	63						80			100			
Spindle pitch	[mm/rev]	5	10	25	5	15	32	5	20	40			
J_0 with 0 mm stroke	[kg cm ²]	0.491	0.486	0.65	1.529	1.648	2.119	4.696	5.050	6.17			
j_S per meter stroke	[kg cm ² /m]	2.832	2.859	3.053	7.699	7.815	8.277	18.978	19.31	20.372			
j_L per kg payload	[kg cm ² /kg]	0.006	0.025	0.158	0.006	0.057	0.259	0.006	0.101	0.405			

The mass moment of inertia J_A of the electric cylinder is calculated as follows:

$$J_A = J_0 + j_S \times \text{working stroke [m]} + j_L \times m_{\text{moving payload [kg]}}$$

Operating conditions		
Ambient temperature ⁵⁾	[°C]	0 ... +60
Degree of protection		IP40

- 5) Note operating range of proximity sensors and motors.

Materials	
Bearing cap	Coated gravity die-cast aluminium
Cylinder barrel	Smooth anodised wrought aluminium alloy
Piston rod	High-alloy stainless steel
Spindle	Rolled steel
Spindle nut	Rolled steel
Drive cover	Coated die-cast aluminium

Electric cylinders ESBF, with spindle drive

Order code

Type

ESBF	Electric cylinder
------	-------------------

Drive type

BS	Ball screw spindle
----	--------------------

Size

	Stroke [mm]	Spindle pitch [mm/rev]
63	1 ... 1200	5P, 10P, 25P
80	1 ... 1500	5P, 15P, 32P
100	1 ... 1500	5P, 20P, 40P

ESBF – BS – [] – [] – []

Order example:

ESBF-BS-80-400-15P
 Electric cylinder ESBF - ball screw spindle - size 80 - stroke 400 mm - spindle pitch 15 mm/rev

Ordering – Product options

Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under
 Products on the DVD or
www.festo.com/catalogue/...

Enter the type code in the search field.

★ Quick ordering¹⁾

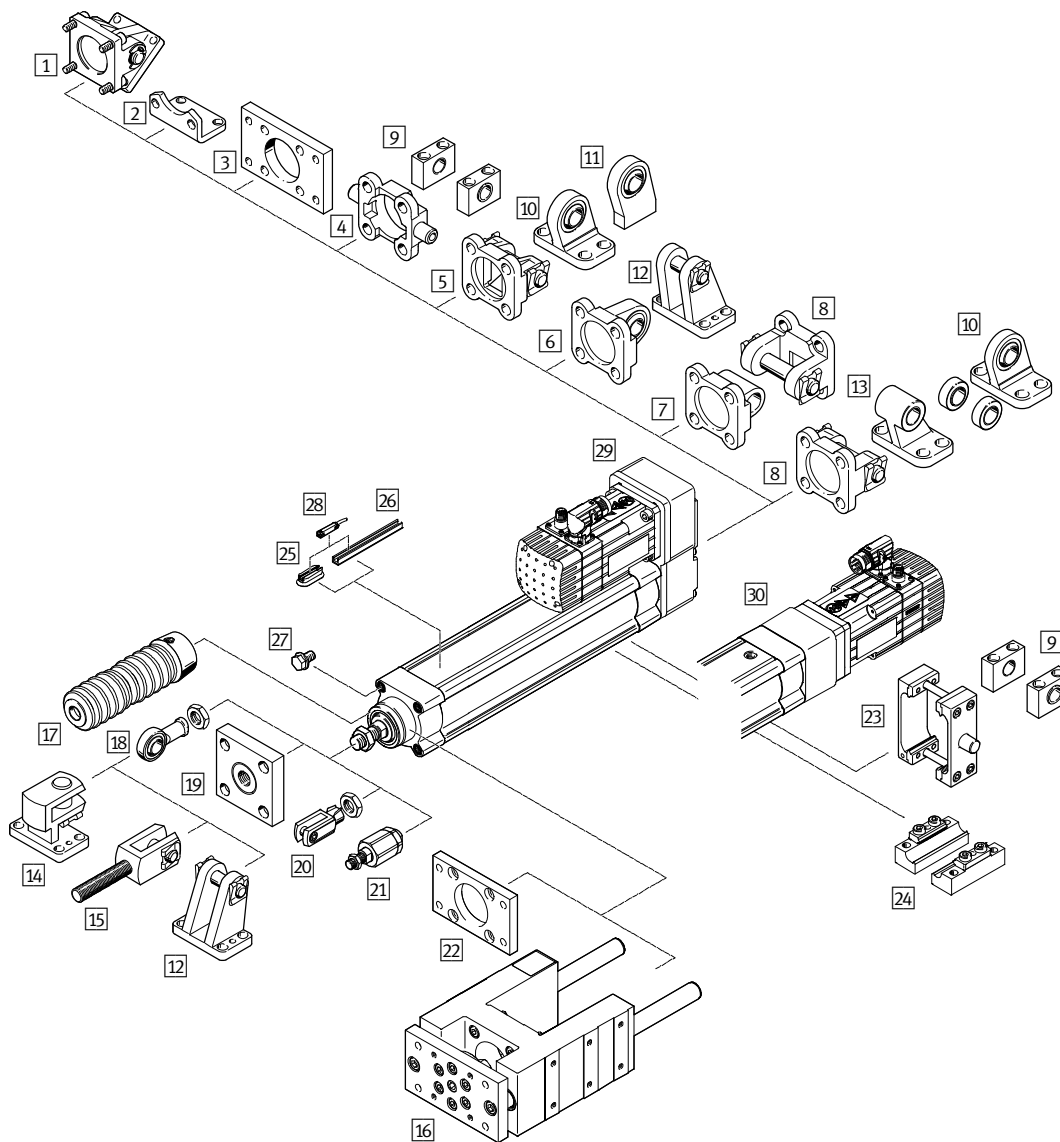
ESBF-63		
Stroke [mm]	Part No.	Type
Spindle pitch 5 mm/rev		
100	574093	ESBF-BS-63-100-5P
200	1347390	ESBF-BS-63-200-5P
300	574094	ESBF-BS-63-300-5P
400	574095	ESBF-BS-63-400-5P
Spindle pitch 10 mm/rev		
100	574096	ESBF-BS-63-100-10P
200	574097	ESBF-BS-63-200-10P
300	574098	ESBF-BS-63-300-10P
400	574099	ESBF-BS-63-400-10P
Spindle pitch 25 mm/rev		
100	574100	ESBF-BS-63-100-25P
200	574101	ESBF-BS-63-200-25P
300	574102	ESBF-BS-63-300-25P
400	574103	ESBF-BS-63-400-25P

ESBF-80		
Stroke [mm]	Part No.	Type
Spindle pitch 5 mm/rev		
100	574104	ESBF-BS-80-100-5P
200	1347391	ESBF-BS-80-200-5P
300	574105	ESBF-BS-80-300-5P
400	574106	ESBF-BS-80-400-5P
Spindle pitch 15 mm/rev		
100	574107	ESBF-BS-80-100-15P
200	574108	ESBF-BS-80-200-15P
300	574109	ESBF-BS-80-300-15P
400	574110	ESBF-BS-80-400-15P
Spindle pitch 32 mm/rev		
100	574111	ESBF-BS-80-100-32P
200	574112	ESBF-BS-80-200-32P
300	574113	ESBF-BS-80-300-32P
400	574114	ESBF-BS-80-400-32P

ESBF-100		
Stroke [mm]	Part No.	Type
Spindle pitch 5 mm/rev		
100	574115	ESBF-BS-100-100-5P
200	1347393	ESBF-BS-100-200-5P
300	574116	ESBF-BS-100-300-5P
400	574117	ESBF-BS-100-300-5P
Spindle pitch 20 mm/rev		
100	574118	ESBF-BS-100-100-20P
200	574119	ESBF-BS-100-200-20P
300	574120	ESBF-BS-100-300-20P
400	574121	ESBF-BS-100-400-20P
Spindle pitch 40 mm/rev		
100	574122	ESBF-BS-100-100-40P
200	574123	ESBF-BS-100-200-40P
300	574124	ESBF-BS-100-300-40P
400	574125	ESBF-BS-100-400-40P

1) All products in this table are easy to select and quick to order.

Accessories



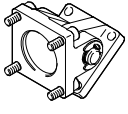
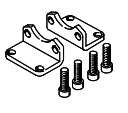
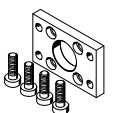
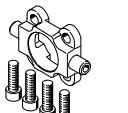
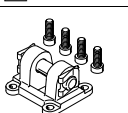
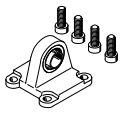
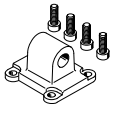
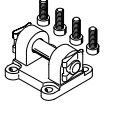
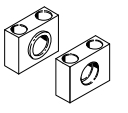
		Suitable for high forces ¹⁾	→ Page/online
1	Swivel flange DAMS	■	360
2	Foot mounting HNC	-	360
	Foot mounting CRHNC	-	esbf
3	Flange mounting FNC	-	360
	Flange mounting CRFNG	-	esbf
4	Trunnion flange ZNCF	-	360
	Trunnion flange CRZNG	-	esbf
5	Swivel flange SNC	-	360
6	Swivel flange SNCS	-	360
7	Swivel flange SNCL	-	360
8	Swivel flange SNCB	-	360
	Swivel flange SNCB...-R3	-	esbf
9	Trunnion support LNZN	-	360
	Trunnion support CRLNZN	-	esbf
10	Clevis foot LSNG	-	360
11	Clevis foot LSNSG	-	360
12	Clevis foot LBG	-	360
13	Clevis foot LNG	-	360
	Clevis foot CRLNG	-	esbf
14	Right-angle clevis foot LQG	-	360
15	Rod clevis SGA	■	360

		Suitable for high forces ¹⁾	→ Page/online
16	Guide unit EAGF	-	360
17	Protective bellows kit EADB	■	esbf
18	Rod eye SGS	■	361
	Rod eye CRSGS	■	esbf
19	Coupling piece KSZ	-	361
20	Rod clevis SG	■	361
	Rod clevis CRSG	■	esbf
21	Self-aligning rod coupler FK	-	361
22	Flange mounting EAAH	■	361
23	Trunnion mounting kit DAMT	-	361
24	Profile mounting EAHF...-P	■	361
25	Mounting kit CRSMB	■	361
26	Sensor rail SAMH	■	361
27	Plug screw DAMD-PS	■	361
28	Proximity sensor SME/SMT-8 and connecting cable NEBU	■	361
29	Parallel kit EAMM-U	■	362
30	Axial kit EAMM-A	■	363

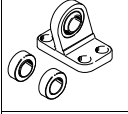
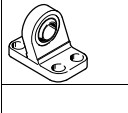
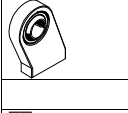
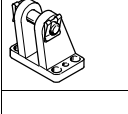
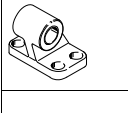
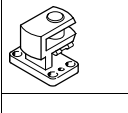
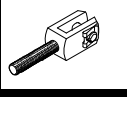
1) Shows which accessories can be used within the entire force range. For restricted force ranges see the relevant accessory part, from page 360.

Electric cylinders ESBF, with spindle drive

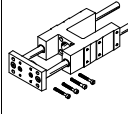
Accessories – Ordering data

	For size	1) [kN]		Part No.	Type
1 Swivel flange Dimensions online: → esbf					
	63	7	★	1555443	DAMS-K-V1-63-V-R3
	80	12	★	1556588	DAMS-K-V1-80-V-R3
	100	17	★	1560237	DAMS-K-V1-100-V-R3
2 Foot mounting Dimensions online: → esbf					
	63	4	★	174372	HNC-63
	80	6	★	174373	HNC-80
	100	9		174374	HNC-100
3 Flange mounting Dimensions online: → esbf					
	63	7	★	174379	FNC-63
	80	12	★	174380	FNC-80
	100	17		174381	FNC-100
4 Trunnion flange Dimensions online: → esbf					
	63	4		174414	ZNCF-63
	80	6		174415	ZNCF-80
	100	9		174416	ZNCF-100
5 Swivel flange Technical data online: → snc					
	63	4	★	174386	SNC-63
	80	6	★	174387	SNC-80
	100	9		174388	SNC-100
6 Swivel flange Technical data online: → snsc					
	63	4	★	174400	SNCS-63
	80	6	★	174401	SNCS-80
	100	9		174402	SNCS-100
7 Swivel flange Dimensions online: → sncl					
	63	4	★	174407	SNCL-63
	80	6	★	174408	SNCL-80
	100	9		174409	SNCL-100
8 Swivel flange Dimensions online: → sncl					
	63	4	★	174393	SNCB-63
	80	6	★	174394	SNCB-80
	100	9		174395	SNCB-100
9 Trunnion support Dimensions online: → lnzg					
	63, 80	–		32961	LNZG-63/80
	100	–		32962	LNZG-100/125


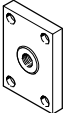



1) Max. load capacity.

	For size	1) [kN]		Part No.	Type
10 Clevis foot Technical data online: → lsn					
	63	–		5564	LSN-63
	80	–		5565	LSN-80
	100	–		5566	LSN-100
10 Clevis foot Technical data online: → lsng					
	63	–		31743	LSNG-63
	80	–		31744	LSNG-80
	100	–		31745	LSNG-100
11 Clevis foot Technical data online: → lsng					
	63	–		31750	LSNSG-63
	80	–		31751	LSNSG-80
	100	–		31752	LSNSG-100
12 Clevis foot Technical data online: → lbg					
	63	–		31764	LBG-63
	80	–		31765	LBG-80
	100	–		31766	LBG-100
13 Clevis foot Technical data online: → lng					
	63	–	★	33893	LNG-63
	80	–	★	33894	LNG-80
	100	–		33895	LNG-100
14 Right-angle clevis foot Technical data online: → lqg					
	63	–		31771	LQG-63
	80	–		31772	LQG-80
	100	–		31773	LQG-100
15 Rod clevis Technical data online: → sga					
	63	10		10768	SGA-M16x1,5
	80, 100	10		10769	SGA-M20x1,5

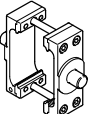
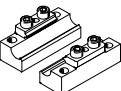


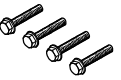
1) Max. load capacity.

	Stroke [mm]		Part No.	Type
16 Guide unit for fixed strokes, with recirculating ball bearing guide Technical data online: → eagf				
	For size 63			
	100		1725842	EAGF-V2-KF-63-100
	200		1725843	EAGF-V2-KF-63-200
	320		1725844	EAGF-V2-KF-63-320
	400		1725845	EAGF-V2-KF-63-400
	For size 80			
	100		1725846	EAGF-V2-KF-80-100
	200		1725847	EAGF-V2-KF-80-200
	320		1725848	EAGF-V2-KF-80-320
	400		1725849	EAGF-V2-KF-80-400
	For size 100			
	100		1725850	EAGF-V2-KF-100-100
200		1725851	EAGF-V2-KF-100-200	
320		1725852	EAGF-V2-KF-100-320	
400		1725853	EAGF-V2-KF-100-400	

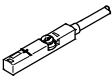
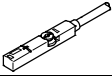
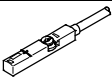

Accessories – Ordering data

	For size	1)		Part No.	Type
18 Rod eye Technical data online: → sgs					
	63	10	★	9263	SGS-M16x1,5
	80, 100	10	★	9264	SGS-M20x1,5
19 Coupling piece Technical data online: → ksz					
	63	10		36127	KSZ-M16x1,5
	80, 100	10		36128	KSZ-M20x1,5
20 Rod clevis Technical data online: → sg					
	63	10	★	6146	SG-M16x1,5
	80, 100	10	★	6147	SG-M20x1,5
21 Self-aligning rod coupler Technical data online: → fk					
	63	10	★	6142	FK-M16x1,5
	80, 100	10	★	6143	FK-M20x1,5
22 Flange mounting Dimensions online: → esbf					
	63	7	★	1502305	EAHH-V2-63-R1
	80	12	★	1502306	EAHH-V2-80-R1
	100	17	★	1502307	EAHH-V2-100-R1

1) Max. load capacity.





	For size	1)		Part No.	Type
23 Trunnion mounting kit Dimensions online: → esbf					
	63	4	★	2214971	DAMT-V1-63-A
	80	6	★	163529	DAMT-V1-80-A
	100	9		163530	DAMT-V1-100-A
24 Profile mounting Dimensions online: → esbf					
	63	3.5	★	1547781	EAHF-V2-50/63-P
	80, 100	6	★	1547780	EAHF-V2-80/100-P
25 Mounting kit Dimensions online: → esbf					
	63, 80, 100	-		525565	CRSMB-8-32/100
26 Sensor rail²⁾ Dimensions online: → esbf					
	63, 80, 100	-		1600118	SAMH-N8-SR-100
27 Plug screw³⁾ Dimensions online: → esbf					
	63	-		650121	DAMD-PS-M8-16-R1
	80, 100	-		1355026	DAMD-PS-M10-16-R1

1) Max. load capacity.
2) Length = 100 mm.
3) Packaging unit 4 pieces.

			Part No.	Type	
28 Proximity sensor for T-slot, magneto-resistive – N/O contact Technical data → 808					
	PNP, cable	★	574335	SMT-8M-A-PS-24V-E-2,5-OE	
	PNP, plug	★	574334	SMT-8M-A-PS-24V-E-0,3-M8D	
	PNP, plug	★	574337	SMT-8M-A-PS-24V-E-0,3-M12	
	NPN, cable	★	574338	SMT-8M-A-NS-24V-E-2,5-OE	
	NPN, plug	★	574339	SMT-8M-A-NS-24V-E-0,3-M8D	
Magneto-resistive – N/C contact Technical data → 808					
	PNP, cable	★	574340	SMT-8M-A-PO-24V-E-7,5-OE	
28 Proximity sensor for T-slot, magnetic reed – N/O contact Technical data → 803					
	Cable	★	543862	SME-8M-DS-24V-K-2,5-OE	
	Cable	★	543863	SME-8M-DS-24V-K-5,0-OE	
	Cable	★	543872	SME-8M-ZS-24V-K-2,5-OE	
	Plug	★	543861	SME-8M-DS-24V-K-0,3-M8D	
Magnetic reed – N/C contact Technical data → 805					
	Cable		160251	SME-8-0-K-LED-24	

Electric cylinders ESBF, with spindle drive

Accessories – Ordering data

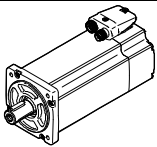
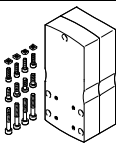
	Cable length		Part No.	Type	
28 Connecting cable, straight socket					Technical data → 1053
	2.5 m	★	541333	NEBU-M8G3-K-2.5-LE3	
	5.0 m	★	541334	NEBU-M8G3-K-5-LE3	
	2.5 m	★	541363	NEBU-M12G5-K-2.5-LE3	
	5.0 m	★	541364	NEBU-M12G5-K-5-LE3	
Angled socket					Technical data → 1053
	2.5 m	★	541338	NEBU-M8W3-K-2.5-LE3	
	5.0 m	★	541341	NEBU-M8W3-K-5-LE3	
	2.5 m		541367	NEBU-M12W5-K-2.5-LE3	
	5.0 m		541370	NEBU-M12W5-K-5-LE3	

3

Note

Depending on the combination of motor and drive, it may not be possible to reach the maximum feed force of the drive.

The respective no-load driving torque of the kit must be taken into consideration when using parallel kits.

Motor/gear unit ²⁾	Parallel kit
	
	<ul style="list-style-type: none"> • Increased housing rigidity • More flexible motor mounting possible • Larger toothed belt bending radii for improved service life • Use in combination with third-party motors on request
	Part No. Type

29 Permissible axis/motor combination with parallel kit			
Technical data online: → eamm-u			
ESBF-63			
With servo motor			
EMMS-AS-70-...	★	1212477	EAMM-U-86-D60-70A-102
		1212835	EAMM-U-86-D60-70A-102-S1 ¹⁾
EMME-AS-80	★	2155875	EAMM-U-86-D60-80P-102
		2156527	EAMM-U-86-D60-80P-102-S1 ¹⁾
EMME-AS-100-...	★	1202436	EAMM-U-110-D60-100A-120
		1203112	EAMM-U-110-D60-100A-120-S1 ¹⁾
EMMS-AS-100-...	★	1202436	EAMM-U-110-D60-100A-120
		1203112	EAMM-U-110-D60-100A-120-S1 ¹⁾
With stepper motor			
EMMS-ST-87-...	★	1215784	EAMM-U-86-D60-87A-102
With gear unit			
EMGA-60-P-...-SAS/SST ³⁾	★	1586347	EAMM-U-86-D60-60G-102
		1437163	EAMM-U-86-D60-60G-102-S1 ¹⁾
EMGA-60-P-...-EAS, EMGC-60-P-... ³⁾	★	1586276	EAMM-U-86-D60-60H-102
		1530837	EAMM-U-86-D60-60H-102-S1 ¹⁾
EMGA-60-P-...-SAS/SST ³⁾	★	1543240	EAMM-U-110-D60-60G-120
		1436183	EAMM-U-110-D60-60G-120-S1 ¹⁾
EMGA-60-P-...-EAS, EMGC-60-P-... ³⁾	★	1542264	EAMM-U-110-D60-60H-120
		1530621	EAMM-U-110-D60-60H-120-S1 ¹⁾
EMGA-80-P-...	★	1532949	EAMM-U-110-D60-80G-120
		1530875	EAMM-U-110-D60-80G-120-S1 ¹⁾

Motor/gear unit ²⁾	Parallel kit	
	Part No.	Type
ESBF-80		
With servo motor		
EMME-AS-100-...	★	1465438 EAMM-U-110-D80-100A-120
		1433650 EAMM-U-110-D80-100A-120-S1 ¹⁾
EMMS-AS-100-...	★	1465438 EAMM-U-110-D80-100A-120
		1433650 EAMM-U-110-D80-100A-120-S1 ¹⁾
EMMS-AS-140-...	★	1465530 EAMM-U-145-D80-140A-188
		1433709 EAMM-U-145-D80-140A-188-S1 ¹⁾
With gear unit		
EMGA-80-P-...		1589614 EAMM-U-110-D80-80G-120
		1589706 EAMM-U-110-D80-80G-120-S1 ¹⁾
ESBF-100		
With servo motor		
EMMS-AS-140-...	★	1465541 EAMM-U-145-D100-140A-188
		1433852 EAMM-U-145-D100-140A-188-S1 ¹⁾
With gear unit		
EMGA-120-P-...		2803620 EAMM-U-145-D100-120G-188
		2803622 EAMM-U-145-D100-120G-188-S1 ¹⁾

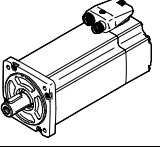
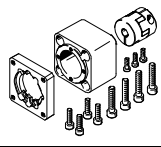
1) With degree of protection IP65.
 2) The input torque must not exceed the max. perm. transferable torque of the parallel kit.
 3) Gear unit drive shaft Ø: EMGA-60-P-...SAS/-SST: 11 mm; EMGA-60-P-...EAS, EMGC-60-P: 14 mm.

Note

The clamping component EADT is required to adjust the toothed belt pre-tension with EAMM-U-110 and EAMM-U-145.

The motor and/or axis shaft can optionally be supported with a counter bearing EAMG. More information → [eamm-u](#)

Accessories – Ordering data

Motor/gear unit ²⁾	Axial kit		
			
	Part No.	Type	
ⓘ Permissible axis/motor combination with axial kit – Technical data online: → eamm-a			
ESBF-63			
With servo motor			
EMMS-AS-70-...	★	543161	EAMM-A-D60-70A
		1679566	EAMM-A-D60B-70A-S1 ¹⁾
EMME-AS-80-...	★	1977073	EAMM-A-D60-80P
		2218564	EAMM-A-D60-80P-S1 ¹⁾
EMME-AS-100-...	★	550983	EAMM-A-D60-100A
		1679518	EAMM-A-D60-100A-S1 ¹⁾
EMMS-AS-100-...	★	550983	EAMM-A-D60-100A
		1679518	EAMM-A-D60B-100A-S1 ¹⁾
With servo motor and gear unit			
EMMS-AS-55-...	★	560283	EAMM-A-D60-60G
EMGA-60-P-G...-SAS-55			
EMMS-AS-70-...	★	560283	EAMM-A-D60-60G
EMGA-60-P-G...-SAS-70			
With stepper motor			
EMMS-ST-87-...	★	543162	EAMM-A-D60-87A
		1322188	EAMM-A-D60-87A-S1 ¹⁾
With stepper motor and gear unit			
EMMS-ST-57-...	★	560283	EAMM-A-D60-60G
EMGA-60-P-G...-SST-57			

Motor/gear unit ²⁾	Axial kit		
	Part No.	Type	
ESBF-80			
With servo motor			
EMME-AS-100	★	1589665	EAMM-A-D80-100A
		1600673	EAMM-A-D80-100A-S1 ¹⁾
EMMS-AS-100-...	★	1589665	EAMM-A-D80-100A
		1600673	EAMM-A-D80B-100A-S1 ¹⁾
EMMS-AS-140-...	★	1588299	EAMM-A-D80-140A
		1600674	EAMM-A-D80B-140A-S1 ¹⁾
ESBF-100			
With servo motor			
EMMS-AS-140-...	★	1588349	EAMM-A-D100-140A
		1600675	EAMM-A-D100B-140A-S1 ¹⁾

1) With degree of protection IP65.

2) The input torque must not exceed the max. perm. transferable torque of the axial kit.

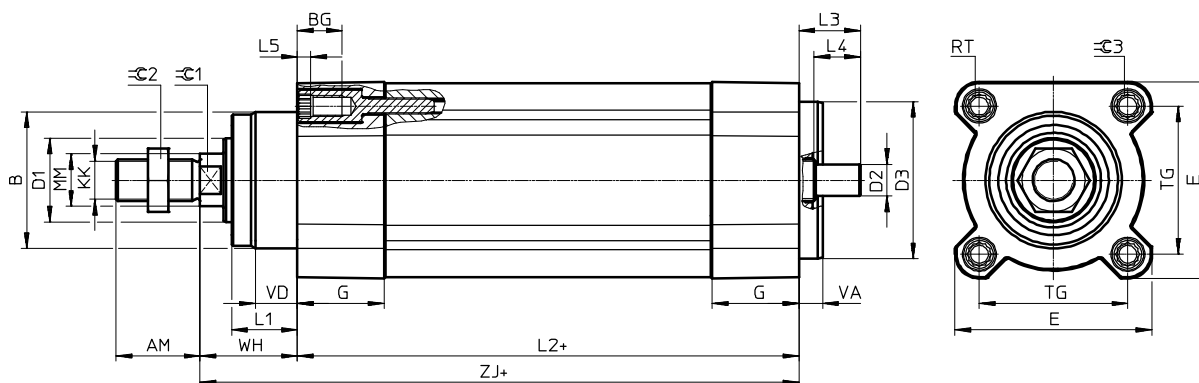
Note

The axial kit (without "S1" in the type code) can be retrofitted with a seal set EADS-F to change the degree of protection from IP40 to IP65. More information → [eamm-a](#)

Electric cylinders ESBF, with spindle drive

Dimensions

Download CAD data → www.festo.com



+ = plus stroke length

Size	AM	B	BG	D1	D2	D3	E	G	L1	L2	L3	L4
[mm]	-0.5	∅ d11	min.	∅ h9	∅ h6	∅ f7	+0.5/-0.1	±0.1	-0.5	+0.7/-1.2	±0.5	±0.2
63	32	52	17	32	12	60	75	33	25	171	23.5	17
80	40	60	17	40	19	80	93	39	31	204	33.5	26
100	40	70	17	50	24	100	110	39	34	224	39.5	30

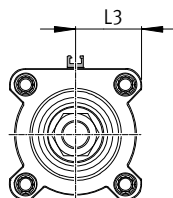
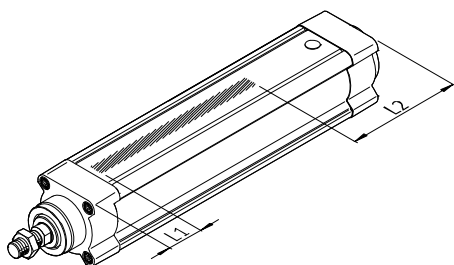
Size	L5	KK	MM	RT	TG	VA	VD	WH	ZJ	C1	C2	C3
[mm]	max.		∅ -0.1		±0.5	±0.2	±0.2	+1.8/-1.7				
63	5	M16x1.5	20	M8	56.5	9	16	37	208	17	24	8
80	25.9	M20x1.5	25	M10	72	10	18	46	250	22	30	6
100	25.9	M20x1.5	25	M10	89	12	20	51	275	22	30	6

Sensor mounting

The sensor mountings can only be attached within the highlighted area due to the asymmetry of the internal magnets.

The proximity sensors may not switch reliably if they are mounted outside of this area.

The overall length of the sensor rail SAMH corresponds to the length of the sensing range plus approx. 10 mm adjustment range on either side for the proximity sensors.



Size	L1	L2	L3
63	40	129	37
80	40	156	46
100	46	176	54.5



- Electromechanical linear axis with piston rod based on ISO 15552
- Lead screw spindle and ball screw spindle
- Axial or parallel (U-shaped) motor mounting
- Comprehensive range of accessories from the DNC modular system
- Spare parts service

→ www.festo.com/catalogue/dnce

Product range overview

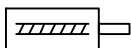
Type/version	Size	Stroke [mm]	Feed force [N]	Spindle pitch [mm/rev]								Product options Q	
				1.5	2.5	3	4	5	10	12.7	20		
DNCE													
LS – Lead screw spindle	32, 40, 63	100 ... 800	300 ... 2500	■	■	–	■	–	–	–	–	–	■
BS – Ball screw spindle				–	–	■	–	■	■	■	■	■	■

Product options

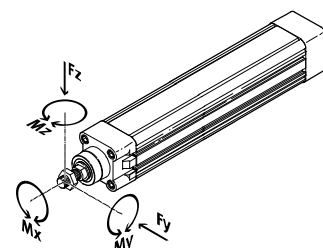
- | | | | |
|------------------------|-----------------------------|------------------------------|--|
| Q Square piston rod | K3 Female piston rod thread | P5 Degree of protection IP65 | FG Lubrication approved for use in food applications |
| K8 Extended piston rod | | R3 High corrosion protection | |

Electric cylinders DNCE, with spindle drive

Technical data



Dimensions → 374



Technical data

Note
PositioningDrives
sizing software
→ www.festo.com

Size	32			40			63			
	LS-”1,5”	BS-”3”	BS-”10”	LS-”2,5”	BS-”5”	BS-”12,7”	LS-”4”	BS-”10”	BS-”20”	
Spindle pitch	[mm/rev]	1.5	3	10	2.5	5	12.7	4	10	20
Working stroke	[mm]	100 ... 400			100 ... 600			100 ... 800		
Guide value for payload, horizontal	[kg]	30	30	36	60	50	80	100	240	160
Guide value for payload, vertical	[kg]	15	15	18	30	25	40	50	120	80
Max. feed force $F_x^{1)}$	[N]	300	300	350	600	525	800	1000	2500	1625
No-load driving torque with axial kit ³⁾	[Nm]	0.08	0.08	0.08	0.12	0.12	0.12	0.3	0.2	0.2
No-load driving torque with parallel kit ³⁾	[Nm]	0.13	0.13	0.13	0.22	0.22	0.22	0.6	0.5	0.5
Max. speed ¹⁾	[m/s]	0.06	0.15	0.5	0.07	0.25	0.64	0.07	0.5	1.0
Max. acceleration ¹⁾	[m/s ²]	1	6	6	1	6	6	1	6	6
Repetition accuracy	[mm]	±0.07	±0.02	±0.02	±0.07	±0.02	±0.02	±0.07	±0.02	±0.02
Max. permissible force $F_y^{2)}$	[N]	105			250			310		
Max. permissible force $F_z^{2)}$	[N]	105			250			310		
Max. permissible torque M_x	[Nm]	1			1			1.5		
Max. permissible torque M_y	[Nm]	8			20			27		
Max. permissible torque M_z	[Nm]	8			20			27		
Max. driving torque ⁴⁾	[Nm]	0.4	0.4	0.8	1.15	0.9	1.9	3.0	4.9	5.9

- 1) The values represent maximum values and are dependent on the motor variant used.
- 2) The forces are dependent on the position of the piston rod → online: dnce.
- 3) Measured at a speed of 200 rpm.
- 4) For the variant with lead screw spindle (LS), the values are dependent on the speed → online: dnce.

Operating conditions

Ambient temperature ⁵⁾	[°C]	0 ... +50
Degree of protection		IP40

5) Note operating range of proximity sensors and motors.

Materials

	Lead screw spindle	Ball screw spindle
End cap	Painted cast aluminium	Painted cast aluminium
Housing	Smooth anodised wrought aluminium alloy	Smooth anodised wrought aluminium alloy
Cylinder barrel	Smooth anodised wrought aluminium alloy	Smooth anodised wrought aluminium alloy
Piston rod	High-alloy stainless steel	High-alloy stainless steel
Spindle	Steel	Rolled steel
Spindle nut	POM	Rolled steel
Seals	NBR	NBR

Order code

		DNCE	-		-		-		-		-	Q
Type												
DNCE	Electric cylinder											
Size												
	Stroke [mm]											
32	100, 200, 300, 400											
40	100, 200, 300, 400, 600											
63	100, 200, 300, 400, 600, 800											
Drive function												
	Spindle pitch [mm/rev]											
LS	"1.5"P											1
	"2.5"P											2
	"4"P											3
BS	"3"P, "10"P											1
	"5"P, "12.7"P											2
	"10"P, "20"P											3
Protection against rotation												
Q	Square piston rod											

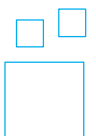
- 1** Only with size 32
- 2** Only with size 40
- 3** Only with size 63

Order example:

DNCE-32-300-BS-"3"P-Q

Electric cylinder DNCE - size 32 - stroke 300 mm - ball screw spindle - spindle pitch 3 mm/rev - square piston rod

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

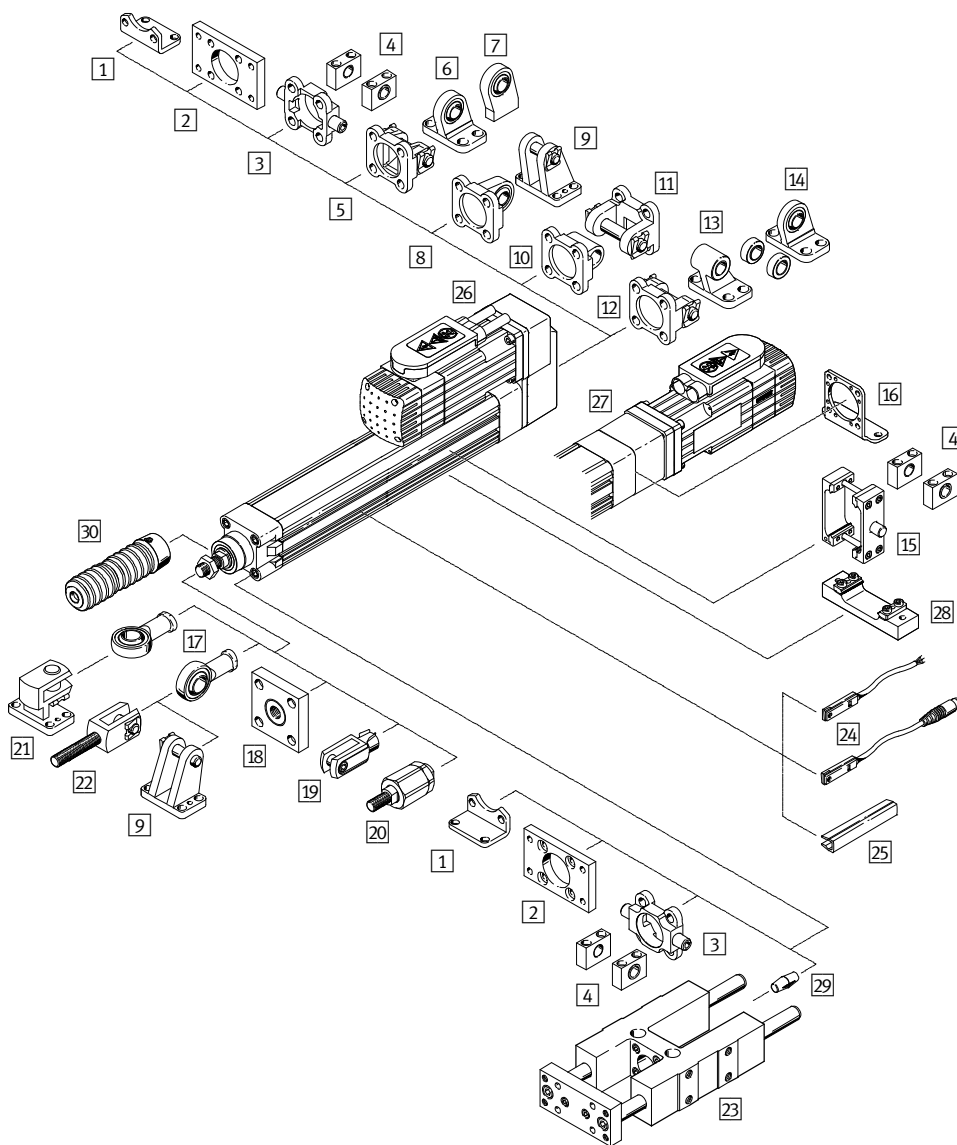
The configurator can be found under Products on the DVD or
[→ www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the type code in the search field.

Electric cylinders DNCE, with spindle drive

Accessories

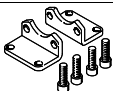
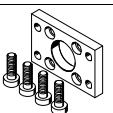
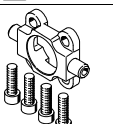
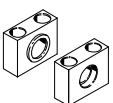
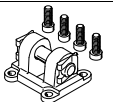
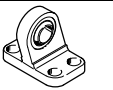
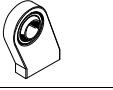
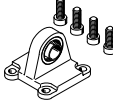
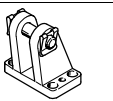
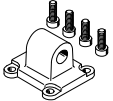
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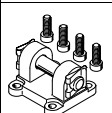
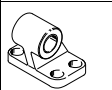
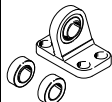
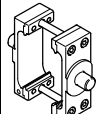
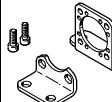

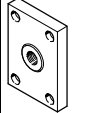
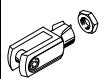
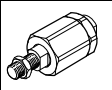
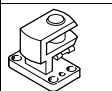
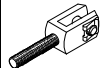


		→ Page/online
1	Foot mounting HNC Foot mounting CRHNC	369 dnce
2	Flange mounting FNC Flange mounting CRFNG	369 dnce
3	Trunnion flange ZNCF Trunnion flange CRZNG	369 dnce
4	Trunnion support LNZG Trunnion support CRLNZG	369 dnce
5	Swivel flange SNC	369
6	Clevis foot LSNG	369
7	Clevis foot LSNSG	369
8	Swivel flange SNCS	369
9	Clevis foot LBG	369
10	Swivel flange SNCL	369
11	Swivel flange SNCB Swivel flange SNCB-...-R3	369 dnce
12	Swivel flange SNCB Swivel flange SNCB-...-R3	369 dnce
13	Clevis foot LNG Clevis foot CRLNG	369 dnce
14	Clevis foot LSN	369

		→ Page/online
15	Trunnion mounting kit DAMT	369
16	Foot mounting HNCE	369
17	Rod eye SGS Rod eye CRSGS	369 dnce
18	Coupling piece KSZ	369
19	Rod clevis SG Rod clevis CRSG	369 dnce
20	Self-aligning rod coupler FK Self-aligning rod coupler CRFK	369 dnce
21	Right-angle clevis foot LQG	369
22	Rod clevis SGA	369
23	Guide unit FENG	370
24	Proximity sensor SME-/SMT-8 Connecting cable NEBU	370
25	Slot cover ABP-5-S	370
26	Parallel kit EAMM-U	371
27	Axial kit EAMM-A	373
28	Profile mounting EAHF	370
29	Compensating component EADC	370
30	Protective bellows kit EADB	dnce

Accessories – Ordering data

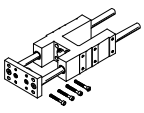
	For size		Part No.	Type
1	Foot mounting		Dimensions online: → dnce	
	32	★	174369	HNC-32
	40	★	174370	HNC-40
	63	★	174372	HNC-63
2	Flange mounting		Dimensions online: → dnce	
	32	★	174376	FNC-32
	40	★	174377	FNC-40
	63	★	174379	FNC-63
3	Trunnion flange		Dimensions online: → dnce	
	32		174411	ZNCF-32
	40		174412	ZNCF-40
	63		174414	ZNCF-63
4	Trunnion support		Dimensions online: → dnce	
	32		32959	LNZG-32
	40		32960	LNZG-40/50
	63		32961	LNZG-63/80
5	Swivel flange		Technical data online: → snc	
	32	★	174383	SNC-32
	40	★	174384	SNC-40
	63	★	174386	SNC-63
6	Clevis foot		Technical data online: → lsng	
	32		31740	LSNG-32
	40		31741	LSNG-40
	63		31743	LSNG-63
7	Clevis foot		Technical data online: → lsng	
	32		31747	LSNSG-32
	40		31748	LSNSG-40
	63		31750	LSNSG-63
8	Swivel flange		Technical data online: → snsc	
	32	★	174397	SNCS-32
	40	★	174398	SNCS-40
	63	★	174400	SNCS-63
9	Clevis foot		Technical data online: → lbg	
	32		31761	LBG-32
	40		31762	LBG-40
	63		31764	LBG-63
10	Swivel flange		Dimensions online: → sncl	
	32	★	174404	SNCL-32
	40	★	174405	SNCL-40
	63	★	174407	SNCL-63

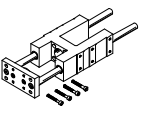
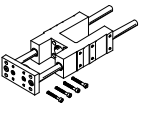

	For size		Part No.	Type
11/12	Swivel flange		Dimensions online: → sncl	
	32	★	174390	SNCB-32
	40	★	174391	SNCB-40
	63	★	174393	SNCB-63
13	Clevis foot		Technical data online: → lng	
	32	★	33890	LNG-32
	40	★	33891	LNG-40
	63	★	33893	LNG-63
14	Clevis foot		Technical data online: → lsn	
	32		5561	LSN-32
	40		5562	LSN-40
	63		5564	LSN-63
15	Trunnion mounting kit		Dimensions online: → dnce	
	32	★	2213233	DAMT-V1-32-A
	40	★	2214889	DAMT-V1-40-A
	63	★	2214971	DAMT-V1-63-A
16	Foot mounting		Dimensions online: → dnce	
	32		547949	HNCE-32-AX
	40		547950	HNCE-40-AX
	63		547951	HNCE-63-AX
17	Rod eye		Technical data online: → sgs	
	32	★	9261	SGS-M10x1,25
	40	★	9262	SGS-M12x1,25
	63	★	9263	SGS-M16x1,5
18	Coupling piece		Technical data online: → ksz	
	32		36125	KSZ-M10x1,25
	40		36126	KSZ-M12x1,25
	63		36127	KSZ-M16x1,5
19	Rod clevis		Technical data online: → sg	
	32	★	6144	SG-M10x1,25
	40	★	6145	SG-M12x1,25
	63	★	6146	SG-M16x1,5
20	Self-aligning rod coupler		Technical data online: → fk	
	32	★	6140	FK-M10x1,25
	40	★	6141	FK-M12x1,25
	63	★	6142	FK-M16x1,5
21	Right-angle clevis foot		Technical data online: → lqg	
	32		31768	LQG-32
	40		31769	LQG-40
	63		31771	LQG-63
22	Rod clevis		Technical data online: → sga	
	32		32954	SGA-M10x1,25
	40		10767	SGA-M12x1,25
	63		10768	SGA-M16x1,5





Electric cylinders DNCE, with spindle drive

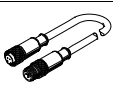

Accessories – Ordering data

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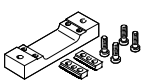
	For size	Stroke [mm]	Part No.	Type
	23 Guide unit for fixed strokes, with recirculating ball bearing guide Technical data online: → feng			
	32	100	34494	FENG-32-100-KF
		200	34496	FENG-32-200-KF
		320	34497	FENG-32-320-KF
		400	150290	FENG-32-400-KF
		500	34498	FENG-32-500-KF
	40	100	34500	FENG-40-100-KF
		200	34502	FENG-40-200-KF
		320	34504	FENG-40-320-KF
		400	150291	FENG-40-400-KF
		500	34505	FENG-40-500-KF
	63	100	34514	FENG-63-100-KF
		200	34516	FENG-63-200-KF
		320	34518	FENG-63-320-KF
		400	34519	FENG-63-400-KF
		500	34520	FENG-63-500-KF


	For size	Stroke [mm]	Part No.	Type	
	23 Guide unit for variable strokes, with recirculating ball bearing guide Technical data online: → feng				
	32	10 ... 500	34487	FENG-32-...-KF	
		40	34488	FENG-40-...-KF	
		63	34490	FENG-63-...-KF	
	With plain-bearing guide Technical data online: → feng				
		32	10 ... 500	34481	FENG-32-...
		40	10 ... 500	34482	FENG-40-...
		63	10 ... 500	34484	FENG-63-...
	23 Mounting kit for SMT-/SME-8, in combination with guide unit FENG Technical data online: → feng				
		For size		Part No.	Type
32, 40			175705	SMB-8-FENG-32/40	
63		175706	SMB-8-FENG-50/63		

	Part No.	Type
24 Proximity sensor for T-slot, in combination with motor unit MTR-DCI		
	Magneto-resistive – N/O contact Technical data → 808	
	PNP, plug	★ 574334 SMT-8M-A-PS-24V-E-0,3-M8D
In combination with servo motor EMMS-AS, stepper motor EMMS-ST or guide unit FENG		
	Magneto-resistive – N/O contact Technical data → 808	
	PNP, cable	★ 574335 SMT-8M-A-PS-24V-E-2,5-OE
	Magnetic reed – N/O contact Technical data → 803	
	Cable	★ 543862 SME-8M-DS-24V-K-2,5-OE
	Cable	★ 543863 SME-8M-DS-24V-K-5,0-OE
	Technical data → 805	
	Cable	★ 150855 SME-8-K-LED-24

	Part No.	Type
24 Connecting cable, straight socket Technical data → 1053		
	0.5	175488 KM8-M8-GSGD-0,5
	1	175489 KM8-M8-GSGD-1
	2.5	165610 KM8-M8-GSGD-2,5
	5	165611 KM8-M8-GSGD-5
25 Slot cover¹⁾		
	32, 40, 63	151680 ABP-5-S

1) Packaging unit 2x 0.5 m.

	For size	Part No.	Type
28 Profile mounting Dimensions online: → dnce			
	32	1098473	EAHF-V1-32-P
	40	1098478	EAHF-V1-40-P
	63	1098481	EAHF-V1-63-P

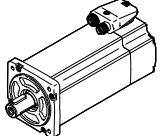
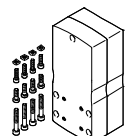
	For size	Part No.	Type
29 Compensating component			
	32	570305	EADC-V1-32
	40	570306	EADC-V1-40
	63	570307	EADC-V1-50/63

Accessories – Ordering data

Note

Depending on the combination of motor and drive, it may not be possible to reach the maximum feed force of the drive.

The respective no-load driving torque of the kit must be taken into consideration when using parallel kits.

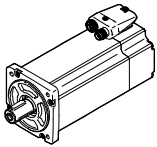
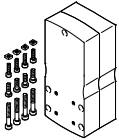
Motor/gear unit ²⁾	Parallel kit	
		
	<ul style="list-style-type: none"> • Increased housing rigidity • More flexible motor mounting possible • Larger toothed belt bending radii for improved service life • Use in combination with third-party motors on request 	
	Part No.	Type
26 Permissible axis/motor combination with parallel kit –		
Technical data online: → eamm-u		
DNCE-32		
With servo motor		
EMME-AS-40-...	2153283	EAMM-U-50-D32-40P-78
	2154009	EAMM-U-50-D32-40P-78-S1 ¹⁾
EMMS-AS-40-...	1201591	EAMM-U-50-D32-40A-78
	1202302	EAMM-U-50-D32-40A-78-S1 ¹⁾
EMMS-AS-55-...	1210126	EAMM-U-60-D32-55A-91
	1210450	EAMM-U-60-D32-55A-91-S1 ¹⁾
EMME-AS-60-...	2619586	EAMM-U-70-D32-60P-96
	2619688	EAMM-U-70-D32-60P-96-S1 ¹⁾
EMMS-AS-70-...	2755565	EAMM-U-70-D32-70A-96
	2781711	EAMM-U-70-D32-70A-96-S1 ¹⁾
With stepper motor		
EMMS-ST-42-...	1201607	EAMM-U-50-D32-42A-78
	1202312	EAMM-U-50-D32-42A-78-S1 ¹⁾
EMMS-ST-57-...	1210419	EAMM-U-60-D32-57A-91
	1210453	EAMM-U-60-D32-57A-91-S1 ¹⁾
With motor unit⁴⁾		
MTR-DCI-32S-...	1570862	EAMM-U-50-D32-32B-78
MTR-DCI-42S-...	1577393	EAMM-U-60-D32-42B/C-91
	1577380	EAMM-U-60-D32-42B/C-91-S1 ¹⁾
MTR-DCI-52S-...	2755890	EAMM-U-70-D32-52B/C-96
	2781778	EAMM-U-70-D32-52B/C-96-S1 ¹⁾
With gear unit		
EMGA-40-P-...	1577358	EAMM-U-60-D32-40G-91
EMGC-40-P-...	1577346	EAMM-U-60-D32-40G-91-S1 ¹⁾
EMGA-60-P-...-SAS/SST ³⁾	2748181	EAMM-U-70-D32-60G-96
	2778302	EAMM-U-70-D32-60G-96-S1 ¹⁾
EMGA-60-P-...-EAS, EMGC-60-P-... ³⁾	2778393	EAMM-U-70-D32-60H-96
	2781450	EAMM-U-70-D32-60H-96-S1 ¹⁾

Motor/gear unit ²⁾	Parallel kit	
	Part No.	Type
DNCE-40		
With servo motor		
EMMS-AS-55-...	1210438	EAMM-U-60-D40-55A-91
	1210458	EAMM-U-60-D40-55A-91-S1 ¹⁾
EMME-AS-60-...	2617488	EAMM-U-70-D40-60P-96
	2546123	EAMM-U-70-D40-60P-96-S1 ¹⁾
EMMS-AS-70-...	2786204	EAMM-U-70-D40-70A-96
	2786316	EAMM-U-70-D40-70A-96-S1 ¹⁾
EMMS-AS-70-...	1212826	EAMM-U-86-D40-70A-102
	1212854	EAMM-U-86-D40-70A-102-S1 ¹⁾
EMME-AS-80-...	2802441	EAMM-U-86-D40-80P-102
	2802656	EAMM-U-86-D40-80P-102-S1 ¹⁾
With stepper motor		
EMMS-ST-57-...	1210442	EAMM-U-60-D40-57A-91
	1210462	EAMM-U-60-D40-57A-91-S1 ¹⁾
EMMS-ST-87-...	1215802	EAMM-U-86-D40-87A-102
	1215814	EAMM-U-86-D40-87A-102-S1 ¹⁾
With motor unit⁴⁾		
MTR-DCI-42S-...	1570950	EAMM-U-60-D40-42B/C-91
	1430735	EAMM-U-60-D40-42B/C-91-S1 ¹⁾
MTR-DCI-52S-...	2786802	EAMM-U-70-D40-52B/C-96
	2786845	EAMM-U-70-D40-52B/C-96-S1 ¹⁾
MTR-DCI-52S-...	1537046	EAMM-U-86-D40-52B/C-102
	1537011	EAMM-U-86-D40-52B/C-102-S1 ¹⁾
With gear unit		
EMGA-40-P-...	1577165	EAMM-U-60-D40-40G-91
EMGC-40-P-...	1435968	EAMM-U-60-D40-40G-91-S1 ¹⁾
EMGA-60-P-...-SAS/SST ³⁾ ...	2785471	EAMM-U-70-D40-60G-96
	2785542	EAMM-U-70-D40-60G-96-S1 ¹⁾
EMGA-60-P-...-EAS, EMGC-60-P-... ³⁾	2786101	EAMM-U-70-D40-60H-96
	2786137	EAMM-U-70-D40-60H-96-S1 ¹⁾
EMGA-60-P-...-SAS/SST ³⁾ ...	1586445	EAMM-U-86-D40-60G-102
	1586429	EAMM-U-86-D40-60G-102-S1 ¹⁾
EMGC-60-P-...-EAS, EMGC-60-P-... ³⁾	1586496	EAMM-U-86-D40-60H-102
	1586372	EAMM-U-86-D40-60H-102-S1 ¹⁾

- 1) With degree of protection IP65.
- 2) The input torque must not exceed the max. perm. transferable torque of the parallel kit.
- 3) Gear unit drive shaft Ø: EMGA-60-P-...SAS/SST: 11 mm; EMGA-60-P-...EAS, EMGC-60-P: 14 mm.
- 4) Only with DNCE-...LS.

Electric cylinders DNCE, with spindle drive

Accessories – Ordering data

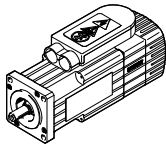
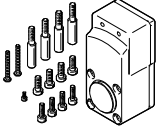
Motor/gear unit ²⁾	Parallel kit
	 <ul style="list-style-type: none"> • Increased housing rigidity • More flexible motor mounting possible • Larger toothed belt bending radii for improved service life • Use in combination with third-party motors on request
	Part No. Type
26) Permissible axis/motor combination with parallel kit – Technical data online: → eamm-u	
DNCE-63	
With servo motor	
EMMS-AS-70-...	★ 1212477 EAMM-U-86-D60-70A-102 1212835 EAMM-U-86-D60-70A-102-S1 ¹⁾
EMME-AS-80-...	★ 2155875 EAMM-U-86-D60-80P-102 2156527 EAMM-U-86-D60-80P-102-S1 ¹⁾
EMME-AS-100-...	★ 1202436 EAMM-U-110-D60-100A-120 1203112 EAMM-U-110-D60-100A-120-S1 ¹⁾
EMMS-AS-100-...	★ 1202436 EAMM-U-110-D60-100A-120 1203112 EAMM-U-110-D60-100A-120-S1 ¹⁾
With stepper motor	
EMMS-ST-87-...	★ 1215784 EAMM-U-86-D60-87A-102 1215810 EAMM-U-86-D60-87A-102-S1 ¹⁾
With motor unit⁴⁾	
MTR-DCI-52S-...	1537000 EAMM-U-86-D60-52B/C-102 1431381 EAMM-U-86-D60-52B/C-102-S1 ¹⁾
MTR-DCI-62S-...	1536988 EAMM-U-110-D60-62B-120 1431443 EAMM-U-110-D60-62B-120-S1 ¹⁾
With gear unit	
EMGA-60-P-...-SAS/SST ³⁾	★ 1586347 EAMM-U-86-D60-60G-102 1437163 EAMM-U-86-D60-60G-102-S1 ¹⁾
EMGA-60-P-...-EAS	★ 1586276 EAMM-U-86-D60-60H-102
EMGC-60-P-... ³⁾	1530837 EAMM-U-86-D60-60H-102-S1 ¹⁾
EMGA-60-P-...-SAS/SST ³⁾	★ 1543240 EAMM-U-110-D60-60G-120 1436183 EAMM-U-110-D60-60G-120-S1 ¹⁾
EMGA-60-P-...-EAS	★ 1542264 EAMM-U-110-D60-60H-120
EMGC-60-P-... ³⁾	1530621 EAMM-U-110-D60-60H-120-S1 ¹⁾
EMGA-80-P-...	★ 1532949 EAMM-U-110-D60-80G-120 1530875 EAMM-U-110-D60-80G-120-S1 ¹⁾

1) With degree of protection IP65.
 2) The input torque must not exceed the max. perm. transferable torque of the parallel kit.
 3) Gear unit drive shaft ∅: EMGA-60-P-...-SAS/SST: 11 mm; EMGA-60-P-...-EAS, EMGC-60-P: 14 mm.
 4) Only with DNCE-...-LS.

Note

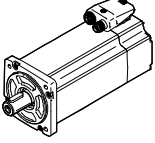
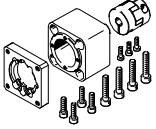
The clamping component EADT is required to adjust the toothed belt tension with EAMM-U-110.

The motor and/or axis shaft can optionally be supported with a counter bearing EAMG.
 More information → [eamm-u](#)

Motor ²⁾	Parallel kit
	 <ul style="list-style-type: none"> • Space-saving gravity die-cast housing
	Part No. Type
26) Permissible axis/motor combination with parallel kit – Technical data online: → eamm-u	
DNCE-32	
With servo motor	
EMMS-AS-40-...	543150 EAMM-U-D32-40A
With motor unit⁴⁾	
MTR-DCI-32S-...	543152 EAMM-U-D32-32B
DNCE-40	
With servo motor	
EMMS-AS-55-...	543157 EAMM-U-D40-55A
With motor unit⁴⁾	
MTR-DCI-42S-...-G7	543159 EAMM-U-D40-42B
MTR-DCI-42S-...-G14	543160 EAMM-U-D40-42C
DNCE-63	
With servo motor	
EMMS-AS-70-...	543165 EAMM-U-D60-70A
With motor unit⁴⁾	
MTR-DCI-52S-...-G7	543167 EAMM-U-D60-52B
MTR-DCI-52S-...-G14	543168 EAMM-U-D60-52C

2) The input torque must not exceed the max. perm. transferable torque of the parallel kit.
 4) Only with DNCE-...-LS.

Accessories – Ordering data

Motor/gear unit ²⁾	Axial kit	
		
	Part No.	Type
27 Permissible axis/motor combination with axial kit – Technical data online: → eamm-a		
DNCE-32		
With servo motor		
EMME-AS-40-...	1976465	EAMM-A-D32-40P
	2207372	EAMM-A-D32-40P-S1 ¹⁾
EMMS-AS-40-...	543147	EAMM-A-D32-40A
	1322178	EAMM-A-D32-40A-S1 ¹⁾
EMMS-AS-55-...	550979	EAMM-A-D32-55A
	1322180	EAMM-A-D32-55A-S1 ¹⁾
EMME-AS-60-...	1956054	EAMM-A-D32-60P
	2234020	EAMM-A-D32-60P-S1 ¹⁾
With stepper motor		
EMMS-ST-42-...	543148	EAMM-A-D32-42A
	1322179	EAMM-A-D32-42A-S1 ¹⁾
EMMS-ST-57-...	550980	EAMM-A-D32-57A
	1322181	EAMM-A-D32-57A-S1 ¹⁾
With motor unit ³⁾		
MTR-DCI-32S-...	543149	EAMM-A-D32-32B
DNCE-40		
With servo motor		
EMMS-AS-55-...	543153	EAMM-A-D40-55A
	1322182	EAMM-A-D40-55A-S1 ¹⁾
EMME-AS-60-...	1977000	EAMM-A-D40-60P
	2151519	EAMM-A-D40-60P-S1 ¹⁾
EMMS-AS-70-...	550981	EAMM-A-D40-70A
	1322185	EAMM-A-D40-70A-S1 ¹⁾
With servo motor and gear unit		
EMME-AS-40-... EMGA-40-P-G...-EAS-40	560282	EAMM-A-D40-40G
EMMS-AS-40-... EMGA-40-P-G...-SAS-40	560282	EAMM-A-D40-40G
With stepper motor		
EMMS-ST-57-...	543154	EAMM-A-D40-57A
	1322183	EAMM-A-D40-57A-S1 ¹⁾
EMMS-ST-87-...	550982	EAMM-A-D40-87A
	1322186	EAMM-A-D40-87A-S1 ¹⁾
With stepper motor and gear unit		
EMMS-ST-42-... EMGA-40-P-G...-SST-42	560282	EAMM-A-D40-40G
With motor unit ³⁾		
MTR-DCI-42S-...-G7	543155	EAMM-A-D40-42B
MTR-DCI-42S-...-G14	543156	EAMM-A-D40-42C

Motor/gear unit ²⁾	Axial kit	
	Part No.	Type
DNCE-63		
With servo motor		
EMMS-AS-70-...	★ 543161	EAMM-A-D60-70A
	1322187	EAMM-A-D60-70A-S1 ¹⁾
EMME-AS-80-...	★ 1977073	EAMM-A-D60-80P
	2218564	EAMM-A-D60-80P-S1 ¹⁾
EMME-AS-100-...	★ 550983	EAMM-A-D60-100A
	1322190	EAMM-A-D60-100A-S1 ¹⁾
EMMS-AS-100-...	★ 550983	EAMM-A-D60-100A
	1322190	EAMM-A-D60-100A-S1 ¹⁾
With servo motor and gear unit		
EMMS-AS-55-... EMGA-60-P-G...-SAS-55	★ 560283	EAMM-A-D60-60G
EMMS-AS-70-... EMGA-60-P-G...-SAS-70	★ 560283	EAMM-A-D60-60G
With stepper motor		
EMMS-ST-87-...	★ 543162	EAMM-A-D60-87A
	1322188	EAMM-A-D60-87A-S1 ¹⁾
With stepper motor and gear unit		
EMMS-ST-57-... EMGA-60-P-G...-SST-57	★ 560283	EAMM-A-D60-60G
With motor unit ³⁾		
MTR-DCI-52S-...-G7	543163	EAMM-A-D60-52B
MTR-DCI-52S-...-G14	543164	EAMM-A-D60-52C

1) With degree of protection IP65.

2) The input torque must not exceed the max. perm. transferable torque of the axial kit.

3) Only in combination with DNCE-...-LS.

Note

The axial kit (without "S1" in the type code) can be retrofitted with a seal set EADS-F to change the degree of protec-

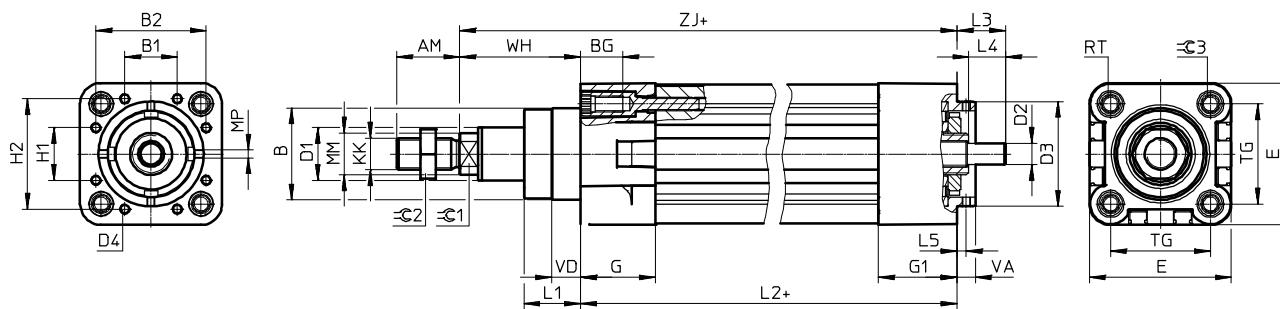
tion from IP40 to IP65.

More information → [eamm-a](#)

Electric cylinders DNCE, with spindle drive

Dimensions

Download CAD data → www.festo.com



+ = plus stroke length

Size	AM	B ∅ d11	B1	B2	BG	D1 ∅ h9	D2 ∅ h6	D3 ∅ f7	D4	E	G	G1	H1	H2	KK
32	22	30	19	32	16	16	6	32	M3	45.5	24	26	19	32	M10x1.25
40	24	35	20	42	16	20	8	40	M4	54	28.5	30	20	42	M12x1.25
63	32	45	31	62	17	28	12	60	M5	75.5	34	36	31	62	M16x1.5

Size	L1	L2	L3	∅CL4	L5	MM	MP	RT	TG	VA	VD +1/-0.7	WH	ZJ ±1	∅C1	∅C2	3
32	18	122	15.9	8	3.5	12	M3	M6	32.5	7	10	26	148	10	17	6
40	21.5	146.5	18.4	14	3.5	16	M3	M6	38	7	10.5	30	176.5	13	19	6
63	28.5	177	23.5	17	4.5	20	M4	M8	56.5	9	15	37	214	17	24	8

Spindle axes EGC-BS-KF, with recirculating ball bearing guide

FESTO



- High speeds and feed forces
- Recirculating ball bearing guide and rigid profile
- Large loads and torques
- Spare parts service

→ www.festo.com/catalogue/egc-bs

3

Product range overview

Type/version	Size	Stroke [mm]	Feed force [N]	Product options				→ Page/online
				S	ML	MR	GK	
EGC-BS								
KF – Recirculating ball bearing guide	70, 80, 120, 185	50 ... 3000	300 ... 3000	■	■	■	■	376
EGC-FA								
Passive guide axis	70, 80, 120, 185	50 ... 8500	–	–	–	–	■	egc-fa

Product options

S	Spindle support	GQ	Extended slide, protected	M1	Displacement encoder (resolution: 2.5 µm)	1HR	Clamping unit, 1-channel, on right
ML	Motor on left	KL	Additional slide on left	M2	Displacement encoder (resolution: 10 µm)	2H	Clamping unit, 2-channel
MR	Motor on right	KR	Additional slide on right	1HL	Clamping unit, 1-channel, on left	PN	Pneumatically actuated clamping unit
GK	Standard slide	C	Lubrication adapter				
GV	Extended slide						
GP	Standard slide, protected						

At a glance

Powerful

- Generously sized profiles with an optimised cross section afford maximum rigidity and load capacity
- Speed, acceleration and torque resistance set a new standard

Economical

- In addition to its technical data, the spindle axis also offers an excellent price/performance ratio
- Due to the EGC's high performance it is often possible to use a smaller size

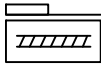
Versatile

- Different spindle pitches, numerous sizes and variants such as protected guides open up a broad range of applications
- Space-saving position sensing with proximity sensor in the profile slot is possible

- Wide range of options for mounting on drives
- Comprehensive range of mounting accessories for multi-axis combinations
- Spindle support enables maximum travel speed with all stroke lengths

Spindle axes EGC-BS-KF, with recirculating ball bearing guide

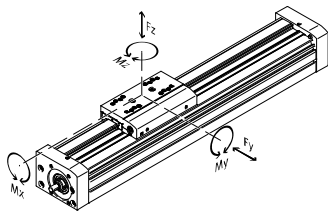
Technical data



3

Technical data

Dimensions → 382



Note
PositioningDrives
sizing software
→ www.festo.com

Size		70	80		120		185	
Spindle pitch	[mm/rev]	10	10	20	10	25	40	
Working stroke ¹⁾	[mm]	50 ... 1000	50 ... 2000		50 ... 2500		50 ... 3000	
Spindle diameter	[mm]	10	10	20	10	25	40	
Max. feed force F_x	[N]	300	600		1300		3000	
No-load torque	[Nm]	0.3	0.5	0.5	1.5	1.5	3.0	
at min. travel speed	[m/s]	0.05	0.1	0.1	0.2	0.2	0.2	
No-load torque	[Nm]	0.45	0.75	0.75	2.25	2.25	6.5	
at max. travel speed	[m/s]	0.5	0.5	1	0.6	1.5	2	
Max. radial force ²⁾	[N]	220	250		500		4000	
Max. rotational speed ³⁾	[rpm]	3000	3000		3600		3000	
Max. acceleration	[m/s ²]	15						
Repetition accuracy	[mm]	±0.02						
Max. permissible force F_y	[N]	1850	3050		6890		15,200	
Max. permissible force F_z	[N]	1850	3050		6890		15,200	
Max. permissible torque M_x	[Nm]	16	36		144		529	
Max. permissible torque M_y	[Nm]	51	97		380		1157	
Max. permissible torque M_z	[Nm]	51	97		380		1157	

- 1) Total stroke = working stroke + 2x stroke reserve.
- 2) At the drive shaft.
- 3) Rotational speed and speed are stroke-dependent.

Operating conditions

Ambient temperature ⁴⁾	[°C]	-10 ... +60
Degree of protection		IP40

4) Note operating range of proximity sensors.

Mass moment of inertia

Size		70	80		120		185
Spindle pitch	[mm/rev]	10	10	20	10	25	40
J_0	[kg mm ²]	1.99	5.2	5.2	64.46	64.46	594
J_S per metre stroke	[kg mm ² /m]	14.2	34.6	34.6	275.6	275.6	1803.1
J_L per kg payload	[kg mm ² /kg]	2.53	2.53	10.13	2.53	15.83	40.53
J_W Slide	[kg mm ²]	1.04	1.86	7.46	6.09	38.06	348.87

The mass moment of inertia J_A of the entire axis is calculated as follows:

$$J_A = J_0 + J_W + J_S \times \text{working stroke [m]} + J_L \times m_{\text{payload [kg]}}$$

Materials

End cap	Anodised wrought aluminium alloy
Moment compensator	Anodised wrought aluminium alloy
Profile	Anodised wrought aluminium alloy
Slide	Anodised wrought aluminium alloy
Spindle	Steel
Guide rail	Steel
Cover strip	PU

Spindle axes EGC-BS-KF, with recirculating ball bearing guide

Order code

EGC		BS		KF		GK	
Type							
EGC	Electromechanical linear axis						
Size							
	Stroke [mm]						
70	100, 200, 300, 400, 500, 600, 700, 800, 1000	50 ... 1000					
80	100, 200, 300, 500, 600, 800, 1000, 1400, 1500, 1800, 2000	50 ... 2000					
120	200, 300, 500, 600, 800, 1000, 1400, 1500, 2000, 2500	50 ... 2500					
185	300, 500, 600, 1000, 1500, 2000, 2500, 3000	50 ... 3000					
Drive function							
BS	Ball screw spindle						
Spindle pitch [mm/rev]							
10P	10	1					
20P	20	2					
25P	25	3					
40P	40	4					
Spindle support							
-	None						
S	With spindle support						
Guide							
KF	Recirculating ball bearing guide						
Stroke reserve							
...H	0 ... 999 (0 = no stroke reserve)						6
Motor attachment position							
ML	Left						
MR	Right						
Slide							
GK	Standard slide						

3

- 1 Only with size 70, 80, 120
- 2 Only with size 80
- 3 Only with size 120
- 4 Only with size 185
- 5 Only above stroke 705 mm with size 70, only above stroke 780 mm with size 80,

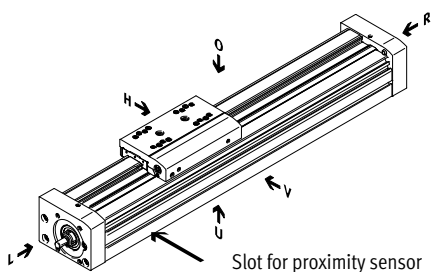
- only above stroke 883 mm with size 120, only above stroke 1224 mm with size 185
- 6 The sum of the stroke length and 2x stroke reserve must not exceed the maximum working stroke

Order example:

EGC-70-500-BS-10P-KF-100H-ML-GK

Electromechanical linear axis EGC - size 70 - stroke 500 mm - ball screw spindle - spindle pitch 10 mm/rev - without spindle support - recirculating ball bearing guide - stroke reserve 100 mm - motor attachment on left - standard slide

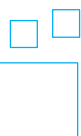
Ordering aid



- O top
- U underneath
- R right
- L left
- V front
- H rear

Spindle axes EGC-BS-KF, with recirculating ball bearing guide

Ordering – Product options



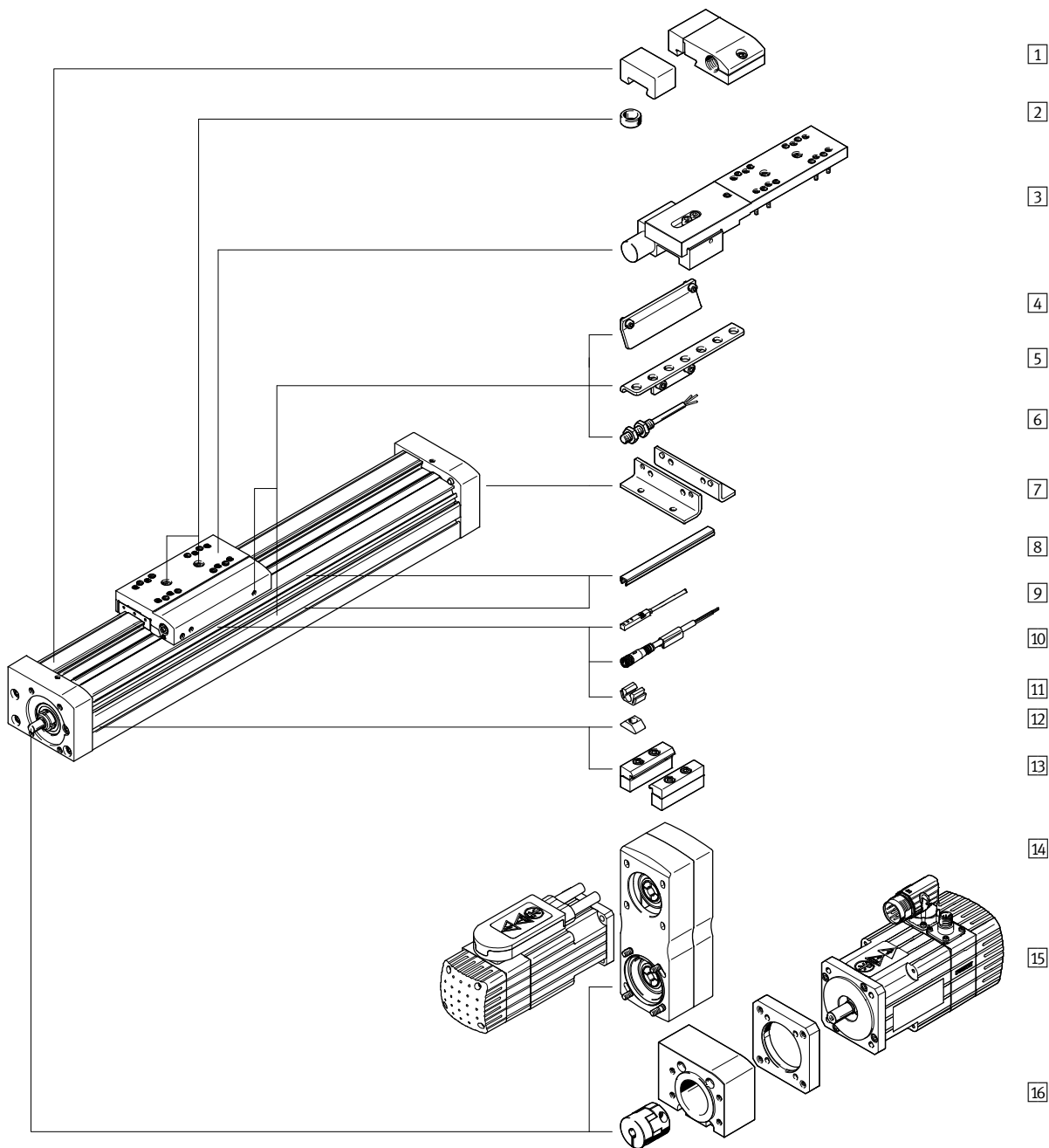
Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
[→ www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the type code in the search field.

3 Accessories



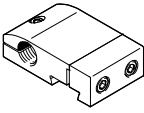
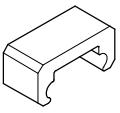


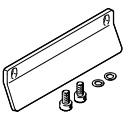
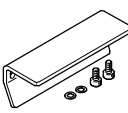
		→ Page/online
1	Emergency buffer NPE/shock absorber retainer KYE	379
2	Centring pin ZBS/centring sleeve ZBH	379
3	Clamping unit 1H...-PN, 2H-PN	egc-bs
4	Switch lug SF-EGC	379
5	Sensor bracket HWS-EGC	379
6	Inductive proximity sensor SIEN	379
7	Foot mounting HPE	379
8	Slot cover ABP/ABP-S	379

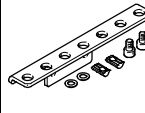
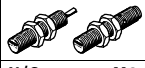
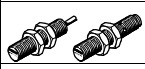
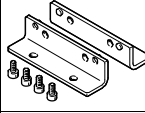
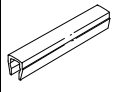
		→ Page/online
9	Inductive proximity sensor SIES	379
10	Connecting cable NEBU	379
11	Clip SMBK	379
12	Slot nut NST	379
13	Profile mounting MUE	379
14	Parallel kit EAMM-U	380
15	Motor EMME/EMMS	381
16	Axial kit EAMM-A	381

Spindle axes EGC-BS-KF, with recirculating ball bearing guide

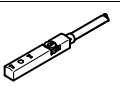
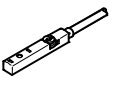
FESTO




Accessories – Ordering data


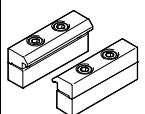
	For size	Part No.	Type
1 Shock absorber retainer Dimensions online: → egc-bs			
	70	557584	KYE-70
	80	557585	KYE-80
	120	557586	KYE-120
	185	557587	KYE-185
1 Emergency buffer			
	70	562581	NPE-70
	80	562582	NPE-80
	120	562583	NPE-120
	185	562584	NPE-185
2 Centring pin¹⁾²⁾ Technical data online: → zbs			
	70	150928	ZBS-5
2 Centring sleeve¹⁾²⁾ Technical data online: → zbh			
	80, 120, 185	150927	ZBH-9
4 Switch lug³⁾ Dimensions online: → egc-bs			
	70	558047	SF-EGC-1-70
	80	558048	SF-EGC-1-80
	120	558049	SF-EGC-1-120
	185	558051	SF-EGC-1-185
4 Switch lug⁴⁾ Dimensions online: → egc-bs			
	70	558052	SF-EGC-2-70
	80	558053	SF-EGC-2-80
	120	558054	SF-EGC-2-120
	185	558056	SF-EGC-2-185

	For size	Part No.	Type
5 Sensor bracket⁵⁾ Dimensions online: → egc-bs			
	70	558057	HWS-EGC-M5
	80	558057	HWS-EGC-M5
	120	570365	HWS-EGC-M8-B
	185	560517	HWS-EGC-M8-KURZ
6 Inductive proximity sensor, N/O contact, M8 Technical data → 827			
	PNP, cable	★ 150386	SIEN-M8B-PS-K-L
	PNP, plug	★ 150387	SIEN-M8B-PS-S-L
N/C contact, M8 Technical data → 827			
	PNP, cable	150390	SIEN-M8B-PO-K-L
	PNP, plug	150391	SIEN-M8B-PO-S-L
7 Foot mounting Dimensions online: → egc-bs			
	70	558321	HPE-70
	80	558322	HPE-80
	120	558323	HPE-120
	185	558325	HPE-185
8 Slot cover⁶⁾			
	For mounting slot		
	70, 80	151681	ABP-5
	120, 185	151682	ABP-8
	For sensor slot		
70 ... 185	563360	ABP-5-S1	

- 1) Packaging unit 10 pieces.
- 2) 2 centring pins/sleeves included in the scope of delivery of the axis.
- 3) For sensing via proximity sensor SIES-8M.
- 4) For sensing via proximity sensor SIEN-M8B or SIES-8M.
- 5) For proximity sensor SIEN-M8B.
- 6) Packaging unit 2x 0.5 m.

	Part No.	Type
9 Proximity sensor for T-slot, inductive, N/O contact Technical data → 831		
	PNP, cable	551386 SIES-8M-PS-24V-K-7,5-OE
	PNP, plug	551387 SIES-8M-PS-24V-K-0,3-M8D
	NPN, cable	551396 SIES-8M-NS-24V-K-7,5-OE
	NPN, plug	551397 SIES-8M-NS-24V-K-0,3-M8D
N/C contact Technical data → 831		
	PNP, cable	551391 SIES-8M-PO-24V-K-7,5-OE
	PNP, plug	551392 SIES-8M-PO-24V-K-0,3-M8D
	NPN, cable	551401 SIES-8M-NO-24V-K-7,5-OE
	NPN, plug	551402 SIES-8M-NO-24V-K-0,3-M8D

	For size	Part No.	Type
10 Connecting cable, straight socket Technical data → 1053			
	2.5 m	★ 541333	NEBU-M8G3-K-2.5-LE3
	5 m	★ 541334	NEBU-M8G3-K-5-LE3
Angled socket Technical data → 1053			
	2.5 m	★ 541338	NEBU-M8W3-K-2.5-LE3
	5 m	★ 541341	NEBU-M8W3-K-5-LE3
11 Clip			
	70 ... 185	534254	SMBK-8

	For size	Part No.	Type
12 Slot nut Dimensions online: → nst			
	70, 80	150914	NST-5-M5
	120, 185	150915	NST-8-M6
13 Profile mounting Dimensions online: → egc-bs			
	70	★ 558043	MUE-70/80
	80	★ 558043	MUE-70/80
	120	558044	MUE-120/185
	185	558044	MUE-120/185

Spindle axes EGC-BS-KF, with recirculating ball bearing guide

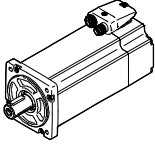

Accessories – Ordering data

Note

Depending on the combination of motor and drive, it may not be possible to reach the maximum feed force of the drive.

The respective no-load driving torque of the kit must be taken into consideration when using parallel kits.

3

Motor/gear unit ²⁾	Parallel kit
	 <ul style="list-style-type: none"> • Increased housing rigidity • More flexible motor mounting possible • Larger toothed belt bending radii for improved service life • Use in combination with third-party motors on request
	Part No. Type

  Permissible axis/motor combination with parallel kit – Technical data online: → [eamm-u](#)

EGC-70-...-BS		
With servo motor		
EMME-AS-40-...	2155239	EAMM-U-50-S38-40P-78
EMMS-AS-40-...	1217708	EAMM-U-50-S38-40A-78
EMMS-AS-55-...	1218538	EAMM-U-60-S38-55A-91
With stepper motor		
EMMS-ST-42-...	1217945	EAMM-U-50-S38-42A-78
EMMS-ST-57-...	1218568	EAMM-U-60-S38-57A-91
With gear unit		
EMGA-40-P-...	2283732	EAMM-U-60-S38-40G-91
EMGC-40-P-...	2283732	EAMM-U-60-S38-40G-91
EGC-80-...-BS		
With servo motor		
EMMS-AS-55-...	1219370	EAMM-U-60-S48-55A-91 ¹⁾
EMME-AS-60-...	2629253	EAMM-U-70-S48-60P-96 ¹⁾
EMMS-AS-70-...	2787320	EAMM-U-70-S48-70A-96 ¹⁾
EMMS-AS-70-...	1217689	EAMM-U-86-S48-70A-102 ¹⁾
With stepper motor		
EMMS-ST-57-...	1219379	EAMM-U-60-S48-57A-91 ¹⁾
EMMS-ST-87-...	1217604	EAMM-U-86-S48-87A-177 ¹⁾
With gear unit		
EMGA-40-P-...	2283760	EAMM-U-60-S48-40G-91 ¹⁾
EMGC-40-P-...	2283760	EAMM-U-60-S48-40G-91 ¹⁾
EMGA-60-P-...-SAS/SST ³⁾	2801627	EAMM-U-70-S48-60G-96 ¹⁾
EMGA-60-P-...-EAS, EMGC-60-P-... ³⁾	2801715	EAMM-U-70-S48-60H-96 ¹⁾
EMGA-60-P-...-SAS/SST ³⁾	1587251	EAMM-U-86-S48-60G-102 ¹⁾
EMGA-60-P-...-EAS, EMGC-60-P-... ³⁾	1587338	EAMM-U-86-S48-60H-102 ¹⁾

Motor/gear unit ²⁾	Parallel kit	
	Part No.	Type
EGC-120-...-BS		
With servo motor		
EMMS-AS-70-...	1217543	EAMM-U-86-S62-70A-177 ¹⁾
EMME-AS-80-...	2157004	EAMM-U-86-S62-80P-177 ¹⁾
EMME-AS-100-...	1217381	EAMM-U-110-S62-100A-207 ¹⁾
EMMS-AS-100-...	1217381	EAMM-U-110-S62-100A-207 ¹⁾
EMMS-AS-140-...	1219440	EAMM-U-145-S62-140A-288 ¹⁾
With stepper motor		
EMMS-ST-87-...	1217373	EAMM-U-86-S62-87A-177 ¹⁾
With gear unit		
EMGA-60-P-...-SAS/SST ³⁾	1587411	EAMM-U-86-S62-60G-177 ¹⁾
EMGA-60-P-...-EAS, EMGC-60-P-... ³⁾	1587453	EAMM-U-86-S62-60H-177 ¹⁾
EGC-185-...-BS		
With servo motor		
EMME-AS-100-...	1220656	EAMM-U-110-S95-100A-207 ¹⁾
EMMS-AS-100-...	1220656	EAMM-U-110-S95-100A-207 ¹⁾
EMMS-AS-140-...	1220582	EAMM-U-145-S95-140A-288 ¹⁾
With gear unit		
EMGA-80-P-...	1589544	EAMM-U-110-S95-80G-207 ¹⁾

- 1) These parallel kits include a counter bearing EAMG for supporting the axis shaft. More information → online: [eamm-u](#)
- 2) The input torque must not exceed the max. perm. transferable torque of the parallel kit.
- 3) Gear unit drive shaft Ø: EMGA-60-P-...-SAS/SST: 11 mm; EMGA-60-P-...-EAS, EMGC-60-P: 14 mm.

Note

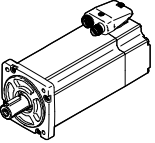
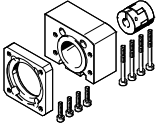
The clamping component EADT is required to adjust the toothed belt pre-tension with EAMM-U-110 and EAMM-U-145.

The motor and/or axis shaft can optionally be supported with a counter bearing EAMG. More information → [eamm-u](#)

Spindle axes EGC-BS-KF, with recirculating ball bearing guide

FESTO

Accessories – Ordering data

Motor/gear unit ¹⁾	Axial kit	
		
	Part No.	Type
15/16 Permissible axis/motor combination with axial kit –		
Technical data online: → eamm-a		
EGC-70-...-BS		
With servo motor		
EMME-AS-40-...	2219044	EAMM-A-S38-40P
EMMS-AS-40-...	558162	EAMM-A-S38-40A
EMMS-AS-55-...	558163	EAMM-A-S38-55A
EMME-AS-60-...	2219110	EAMM-A-S38-60P
With stepper motor		
EMMS-ST-42-...	560685	EAMM-A-S38-42A
EMMS-ST-57-...	560686	EAMM-A-S38-57A
EGC-80-...-BS		
With servo motor		
EMMS-AS-55-...	558164	EAMM-A-S48-55A
EMME-AS-60-...	2220560	EAMM-A-S48-60P
EMMS-AS-70-...	558165	EAMM-A-S48-70A
With stepper motor		
EMMS-ST-57-...	560687	EAMM-A-S48-57A
EMMS-ST-87-...	560688	EAMM-A-S48-87A

Motor/gear unit ¹⁾	Axial kit	
	Part No.	Type
EGC-120-...-BS		
With servo motor		
EMMS-AS-70-...	558166	EAMM-A-S62-70A
EMME-AS-80-...	2222582	EAMM-A-S62-80P
EMME-AS-100-...	558167	EAMM-A-S62-100A
EMMS-AS-100-...	558167	EAMM-A-S62-100A
EMMS-AS-140-...	558168	EAMM-A-S62-140A
With stepper motor		
EMMS-ST-87-...	560689	EAMM-A-S62-87A
EGC-185-...-BS		
With servo motor		
EMME-AS-100-...	558169	EAMM-A-S95-100A
EMMS-AS-100-...	558169	EAMM-A-S95-100A
EMMS-AS-140-...	558170	EAMM-A-S95-140A

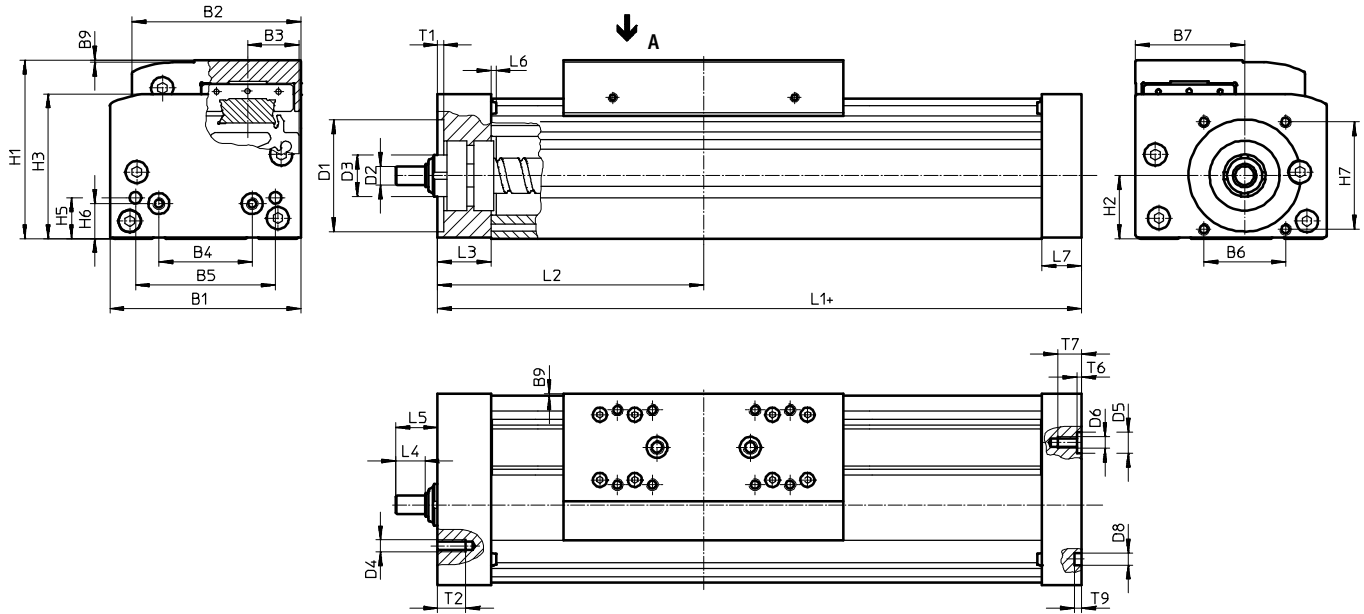
1) The input torque must not exceed the max. perm. transferable torque of the axial kit.

3

Spindle axes EGC-BS-KF, with recirculating ball bearing guide

Dimensions

Download CAD data → www.festo.com



+ = plus stroke length + 2x stroke reserve

Note

To avoid distortion in the slide, the bearing surfaces of the attachments must maintain a minimum flatness of 0.01 mm.

Size	Stroke	B1	B2	B3	B4	B5	B6	B7	B9	D1 Ø H7	D2 Ø h7	D3
70	50 ... 1000	69	58.6	16.5	30	45	29	39	1	38	6	≈C13
80	< 1477	82	72.6	22	40	60	35	46.75	1	48	8	Ø18
	> 1477											
120	< 1704	120	107	33	80	40	64	78	1	62	12	Ø28
	> 1704											
185	< 2361	186	169	53	120	80	80	114	1	95	25	Ø44
	> 2361											

Size	Stroke	D4	D5 Ø H7	D6	D8 Ø H7	H1	H2	H3	H5	H6	H7	L1
70	50 ... 1000	M5	–	M5	5	64	22.5	50.5	13	13	36	168
80	< 1477	M5	9	M5	5	76.5	27	62	17.5	15	46	196
	> 1477											236
120	< 1704	M6	–	M8	9	111.5	42.5	89.5	22	22	54	309
	> 1704											369
185	< 2361	M8	–	M10	9	172.5	65.2	141.5	25	25	80	412
	> 2361											512

Size	Stroke	L2	L3	L4	L5	L6	L7	T1	T2	T6	T7	T9
70	50 ... 1000	86.5	21	8	14	1.8	16	2.5	12	–	10	3.1
80	< 1477	101	23	12.5	18	2	17	2.5	12	2.1	10	3.1
	> 1477	121										
120	< 1704	156	33	17.5	25.5	2	30	3	15	–	16	2.1
	> 1704	186										
185	< 2361	209	43	23	30.5	2	37	3	20	–	20	2.1
	> 2361	259										

Spindle axes EGC-BS-KF, with recirculating ball bearing guide

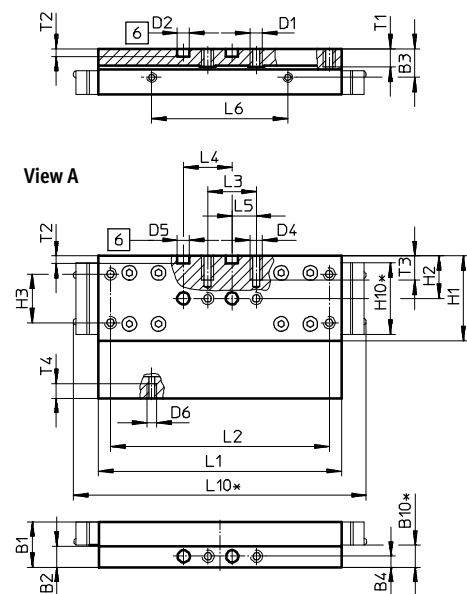


Dimensions

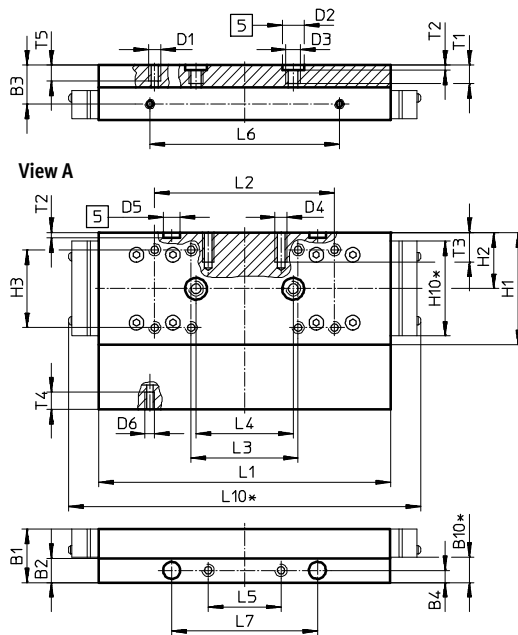
Download CAD data → www.festo.com

GK – Standard slide

Size 70



Size 80



- 5 Hole for centring sleeve
- 6 Hole for centring pin
- * Protected version

Size	B1	B2	B3	B4	B10*	D1	D2 ∅ H7	D3	D4	D5 ∅ H7
70	18.7	8.7	11.7	4.5	9	M5	5	–	M5	5
80	22	10	16	5	10.4	M5	9	M6	M5	7

Size	D6	H1	H2	H3	H10*	L1 ±0.1	L2	L3	L4 ±0.03
70	M4	35	17.5	20 ±0.1	29.4	100	90 ±0.1	20 ±0.1	20
80	M4	46	23	32 ±0.2	39	120	74 ±0.2	44 ±0.2	40

Size	L5	L6 ±0.1	L7 ±0.05	L10*	T1	T2 ±0.01	T3	T4	T5
70	10 ±0.1	56	–	121	7.5	3.1	10	6	–
80	30 ±0.1	78	60	145	8.6	2.1	12	7	7.5

* Protected version

3

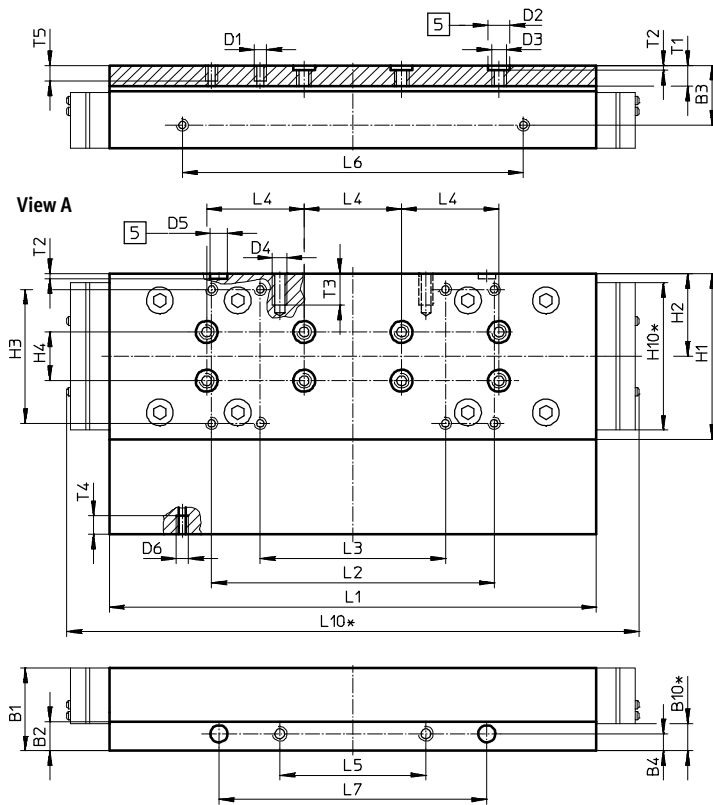
Spindle axes EGC-BS-KF, with recirculating ball bearing guide

Dimensions

GK – Standard slide

Size 120

3



5 Hole for centring sleeve
* Protected version

Size	B1	B2	B3	B4	B10*	D1	D2 ∅ H7	D3	D4	D5 ∅ H7
120	34	12	24.5	7	11.2	M5	9	M6	M6	7

Size	D6	H1	H2	H3	H4	H10*	L1	L2	L3	L4
					±0.03		±0.1			±0.03
120	M5	68	34	55 ±0.2	20	60.6	203.3	116 ±0.2	76 ±0.2	40

Size	L5	L6	L7	L10*	T1	T2	T3	T4	T5
		±0.1	±0.05			±0.01			
120	60 ±0.1	140	110	235	8.6	2.1	13	7.5	7.5

* Protected version

Spindle axes EGC-BS-KF, with recirculating ball bearing guide

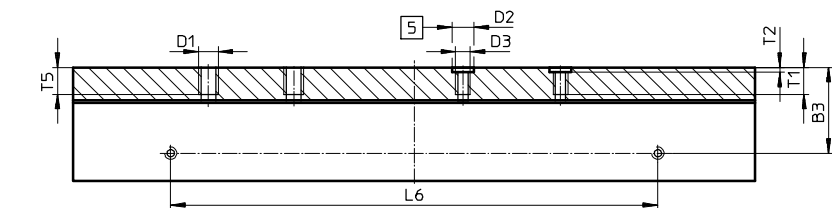


Download CAD data → www.festo.com

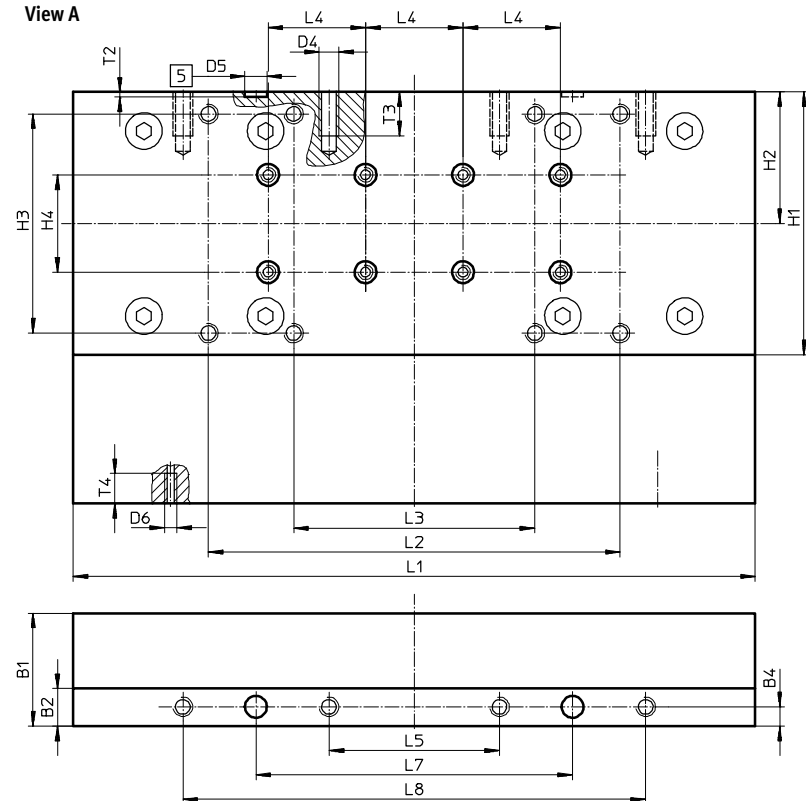
Dimensions

GK – Standard slide

Size 185



View A



[5] Hole for centring sleeve

Size	B1	B2	B3	B4	D1	D2 ∅ H7	D3	D4	D5 ∅ H7
185	46.5	15.5	35.2	8	M8	9	M6	M8	9

Size	D6	H1	H2	H3	H4	L1	L2	L3	L4
185	M5	108	54	90 ±0.2	40	282.8	169 ±0.2	99 ±0.2	40

Size	L5	L6	L7	L8	T1	T2	T3	T4	T5
185	70 ±0.2	200	130	190	11	2.1	18	12.3	12

Spindle axes EGC-HD-BS, with heavy-duty guide



- High speeds and feed forces
- Recirculating ball bearing guide and rigid profile
- Maximum loads and torques
- Ideal as a basic axis for linear gantries and cantilever axes
- Spare parts service

→ www.festo.com/catalogue/egc-hd-bs

Product range overview

Type/version	Size	Stroke [mm]	Feed force [N]	Product options	
				S	GK
EGC-HD-BS					
HD – Heavy-duty guide	125, 160, 220	50 ... 2400	300 ... 1300	■	■

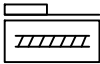
Product options

- | | | | |
|----|---------------------------|----|---------------------------|
| S | Spindle support | KL | Additional slide on left |
| GK | Standard slide | KR | Additional slide on right |
| GP | Standard slide, protected | | |

At a glance

- | | | | |
|--|--|--|--|
| <p>Powerful</p> <ul style="list-style-type: none"> • New heavy-duty design for: <ul style="list-style-type: none"> – Maximum loads and torques – High feed forces and speeds – Long service life | <p>Economical</p> <ul style="list-style-type: none"> • In addition to its technical data, the spindle axis also offers an excellent price/performance ratio • Space-saving position sensing with proximity sensor in the profile slot is possible | <p>Versatile</p> <ul style="list-style-type: none"> • Precise, resilient DUO guide rail • Ideal as a basic axis for linear gantries and cantilever axes • The spindle axis with integrated ball screw combines high precision and flexible spindle pitches | <ul style="list-style-type: none"> • Wide range of options for mounting on drives • Spindle support enables maximum travel speed with all stroke lengths |
|--|--|--|--|

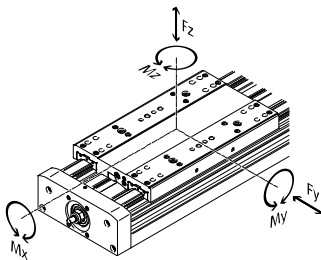
Technical data



3

Technical data

Dimensions → 392



Note

PositioningDrives
sizing software
→ www.festo.com

Size		125	160	220		
Spindle pitch	[mm/rev]	10	10	20	10	25
Working stroke ¹⁾	[mm]	50 ... 900	50 ... 1900		50 ... 2400	
Spindle diameter	[mm]	10	15		25	
Max. feed force F_x	[N]	300	600		1300	
No-load torque	[Nm]	0.3	0.5	0.5	1.5	1.5
at min. travel speed	[m/s]	0.05	0.1	0.1	0.2	0.2
No-load torque	[Nm]	0.45	0.75	0.75	2.25	2.25
at max. travel speed	[m/s]	0.5	0.5	1	0.6	1.5
Max. radial force ²⁾	[N]	220	250		500	
Max. rotational speed ³⁾	[rpm]	3000	3000		3600	
Max. acceleration	[m/s ²]	15				
Repetition accuracy	[mm]	±0.02				
Max. permissible force F_y	[N]	3650	5600		13,000	
Max. permissible force F_z	[N]	3650	5600		13,000	
Max. permissible torque M_x	[Nm]	140	300		900	
Max. permissible torque M_y	[Nm]	275	500		1450	
Max. permissible torque M_z	[Nm]	275	500		1450	

- 1) Total stroke = working stroke + 2x stroke reserve.
2) At the drive shaft.
3) Rotational speed and speed are stroke-dependent.

Operating conditions

Ambient temperature ⁴⁾	[°C]	-10 ... +60
Degree of protection		IP40

4) Note operating range of proximity sensors.

Mass moment of inertia

Size		125	160	220		
Spindle pitch		10	10	20	10	25
J_0	[kg mm ²]	6.06	13.94	29.74	106.78	184.26
J_S per metre stroke	[kg mm ² /m]	14.2	34.6	34.6	275.6	275.6
J_L per kg payload	[kg mm ² /kg]	2.53	2.53	10.13	2.53	15.83

The mass moment of inertia J_A of the entire axis is calculated as follows:

$$J_A = J_0 + J_S \times \text{working stroke [m]} + J_L \times m_{\text{payload [kg]}}$$

Materials

End cap	Anodised wrought aluminium alloy
Slide	Anodised wrought aluminium alloy
Guide rail	Coated and corrosion-resistant steel
Spindle	Steel
Cover strip	PU

Spindle axes EGC-HD-BS, with heavy-duty guide

Order code

3

		EGC	-	HD	-		-		-	BS	-		-		-		-	GK	
Type																			
EGC	Electromechanical linear axis																		
Guide																			
HD	Heavy-duty guide																		
Size																			
	Stroke [mm]																		
125	100, 200, 300, 400, 500, 600, 700, 900	50 ... 900																	
160	100, 200, 400, 500, 700, 900, 1300, 1400, 1700, 1900	50 ... 1900																	
220	100, 200, 400, 500, 700, 900, 1300, 1400, 1900, 2400	50 ... 2400																	
Drive function																			
BS	Ball screw spindle																		
Spindle pitch [mm/rev]																			
10P	10																		
20P	20																	1	
25P	25																	2	
Spindle support																			
S	With spindle support																	3	
Stroke reserve																			
...H	0 ... 999 (0 = no stroke reserve)																	4	
Slide																			
GK	Standard slide																		

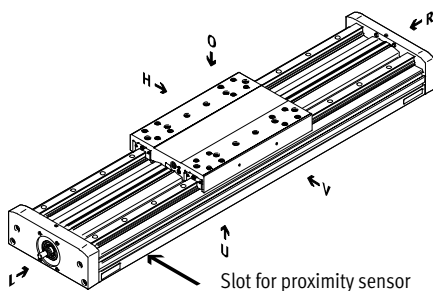
- 1 Only with size 160
- 2 Only with size 220
- 3 Only above stroke 605 mm with size 125, only above stroke 680 mm with size 160, only above stroke 783 mm with size 220
- 4 The sum of the stroke length and 2x stroke reserve must not exceed the maximum working stroke

Order example:

EGC-HD-160-500-BS-10P-20H-GK

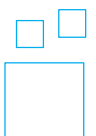
Electromechanical linear axis EGC - heavy-duty guide - size 160 - stroke 500 mm - ball screw spindle - spindle pitch 10 mm/rev - without spindle support - stroke reserve 20 mm - standard slide

Ordering aid



- O top
- U underneath
- R right
- L left
- V front
- H rear

Ordering – Product options



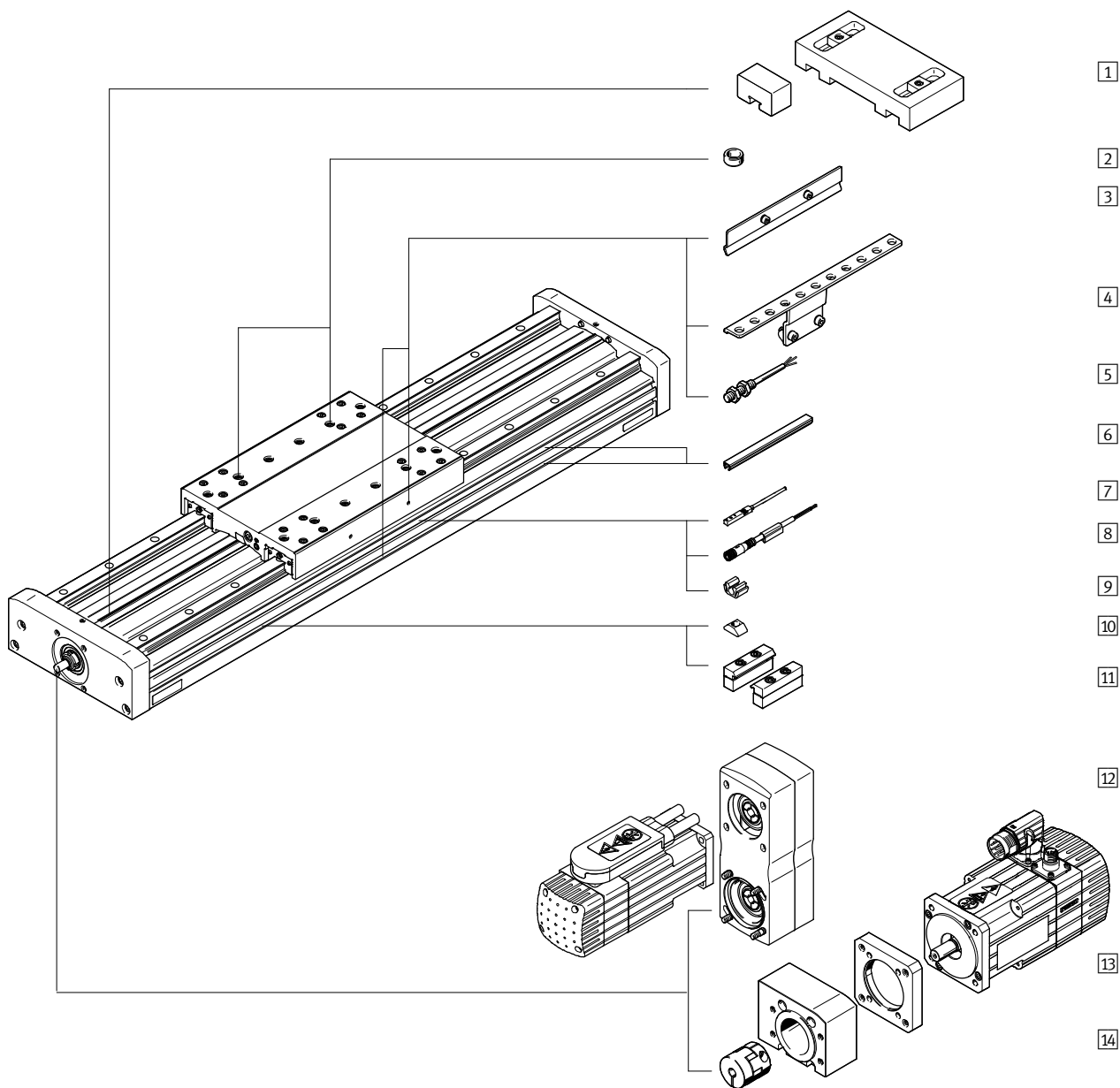
Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
www.festo.com/catalogue/...

Enter the type code in the search field.

Accessories

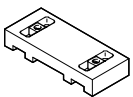



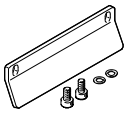



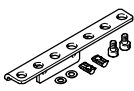
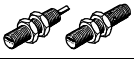

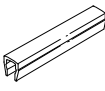
		→ Page/online
1	Emergency buffer NPE/retainer EAYH	390
2	Centring pin ZBS/centring sleeve ZBH	390
3	Switch lug SF-EGC	390
4	Sensor bracket HWS-EGC	390
5	Inductive proximity sensor SIEN	390
6	Slot cover ABP/ABP-S	390
7	Inductive proximity sensor SIES	390

		→ Page/online
8	Connecting cable NEBU	390
9	Clip SMBK	390
10	Slot nut NST	390
11	Profile mounting MUE	390
12	Parallel kit EAMM-U	391
13	Motor EMME/EMMS	391
14	Axial kit EAMM-A	391

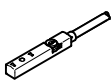
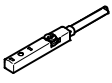
Spindle axes EGC-HD-BS, with heavy-duty guide




Accessories – Ordering data


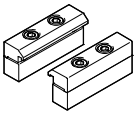
	For size	Part No.	Type
1 Retainer EAYH	Dimensions online: → egc-hd-bs		
	125	1662803	EAYH-L2-125-N
	160	1669259	EAYH-L2-160-N
	220	1669260	EAYH-L2-220-N
1 Emergency buffer	Technical data online: → zbs		
	125	1662475	NPE-125
	160	1672593	NPE-160
	220	1672598	NPE-220
2 Centring pin¹⁾²⁾	Technical data online: → zbs		
	125	150928	ZBS-5
2 Centring sleeve¹⁾²⁾	Technical data online: → zbs		
	125 ... 220	150927	ZBH-9
3 Switch lug³⁾	Dimensions online: → egc-hd-bs		
	125	570027	SF-EGC-HD-1-125
	160	1645872	SF-EGC-HD-1-160
	220	1645866	SF-EGC-HD-1-220
3 Switch lug⁴⁾	Dimensions online: → egc-hd-bs		
	125	570030	SF-EGC-HD-2-125
	160	1645865	SF-EGC-HD-2-160
	220	1645868	SF-EGC-HD-2-220

	For size	Part No.	Type
4 Sensor bracket⁵⁾	Dimensions online: → egc-hd-bs		
	125	558057	HWS-EGC-M5
	160	558057	HWS-EGC-M5
	220	570365	HWS-EGC-M8-B
5 Inductive proximity sensor, N/O contact, M8	Technical data → 827		
	PNP, cable	★ 150386	SIEN-M8B-PS-K-L
	PNP, plug	★ 150387	SIEN-M8B-PS-S-L
N/C contact, M8	Technical data → 827		
	PNP, cable	150390	SIEN-M8B-PO-K-L
	PNP, plug	150391	SIEN-M8B-PO-S-L
6 Slot cover⁶⁾	For mounting slot		
	125, 160 ⁷⁾	151681	ABP-5
	160 ⁸⁾ , 220	151682	ABP-8
	For sensor slot		
	125 ... 220	563360	ABP-5-S1

- 1) Packaging unit 10 pieces.
- 2) 2 centring pins/sleeves included in the scope of delivery of the axis.
- 3) For sensing via proximity sensor SIES-8M.
- 4) For sensing via proximity sensor SIEN-M8B or SIES-8M.
- 5) For proximity sensor SIEN-M8B.
- 6) Packaging unit 2x 0.5 m.
- 7) For mounting slot at side.
- 8) For mounting slot underneath.

	Part No.	Type
7 Proximity sensor for T-slot, inductive, N/O contact	Technical data → 831	
	PNP, cable	551386 SIES-8M-PS-24V-K-7,5-OE
	PNP, plug	551387 SIES-8M-PS-24V-K-0,3-M8D
	NPN, cable	551396 SIES-8M-NS-24V-K-7,5-OE
	NPN, plug	551397 SIES-8M-NS-24V-K-0,3-M8D
N/C contact	Technical data → 831	
	PNP, cable	551391 SIES-8M-PO-24V-K-7,5-OE
	PNP, plug	551392 SIES-8M-PO-24V-K-0,3-M8D
	NPN, cable	551401 SIES-8M-NO-24V-K-7,5-OE
	NPN, plug	551402 SIES-8M-NO-24V-K-0,3-M8D

	For size	Part No.	Type
8 Connecting cable, straight socket	Technical data → 1053		
	2.5 m	★ 541333	NEBU-M8G3-K-2.5-LE3
	5 m	★ 541334	NEBU-M8G3-K-5-LE3
Angled socket	Technical data → 1053		
	2.5 m	★ 541338	NEBU-M8W3-K-2.5-LE3
	5 m	★ 541341	NEBU-M8W3-K-5-LE3
9 Clip	Technical data → 1053		
	125 ... 220	534254	SMBK-8

	For size	Part No.	Type
10 Slot nut	Technical data online: → nst		
	125, 160 ⁹⁾	150914	NST-5-M5
	160 ¹⁰⁾ , 220	150915	NST-8-M6
11 Profile mounting	Dimensions online: → egc-hd-bs		
	125	★ 558043	MUE-70/80
	160	★ 558043	MUE-70/80
	220	558044	MUE-120/185

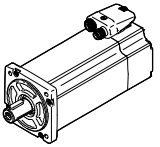
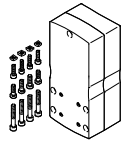
- 9) For mounting slot at side.
- 10) For mounting slot underneath.

Accessories – Ordering data

Note

Depending on the combination of motor and drive, it may not be possible to reach the maximum feed force of the drive.

The respective no-load driving torque of the kit must be taken into consideration when using parallel kits.

Motor/gear unit ²⁾	Parallel kit
	
	Part No. Type

12/13 Permissible axis/motor combination with parallel kit –
 Technical data online: [→ eamm-u](#)

EGC-HD-125		
With servo motor		
EMME-AS-40-...	2155239	EAMM-U-50-S38-40P-78
EMMS-AS-40-...	1217708	EAMM-U-50-S38-40A-78
EMMS-AS-55-...	1218538	EAMM-U-60-S38-55A-91
With stepper motor		
EMMS-ST-42-...	1217945	EAMM-U-50-S38-42A-78
EMMS-ST-57-...	1218568	EAMM-U-60-S38-57A-91
With gear unit		
EMGA-40-P-...	2283732	EAMM-U-60-S38-40G-91
EMGC-40-P-...	2283732	EAMM-U-60-S38-40G-91
EGC-HD-160		
With servo motor		
EMMS-AS-55-...	1219370	EAMM-U-60-S48-55A-91 ¹⁾
EMME-AS-60-...	2629253	EAMM-U-70-S48-60P-96 ¹⁾
EMMS-AS-70-...	2787320	EAMM-U-70-S48-70A-96 ¹⁾
EMMS-AS-70-...	1217689	EAMM-U-86-S48-70A-102 ¹⁾
With stepper motor		
EMMS-ST-57-...	1219379	EAMM-U-60-S48-57A-91 ¹⁾
EMMS-ST-87-...	1217604	EAMM-U-86-S48-87A-177 ¹⁾
With gear unit		
EMGA-40-P-...	2283760	EAMM-U-60-S48-40G-91 ¹⁾
EMGC-40-P-...	2283760	EAMM-U-60-S48-40G-91 ¹⁾
EMGA-60-P-...-SAS/SST ³⁾	2801627	EAMM-U-70-S48-60G-96 ¹⁾
EMGA-60-P-...-EAS, EMGC-60-P-... ³⁾	2801715	EAMM-U-70-S48-60H-96 ¹⁾
EMGA-60-P-...-SAS/SST ³⁾	1587251	EAMM-U-86-S48-60G-102 ¹⁾
EMGA-60-P-...-EAS, EMGC-60-P-... ³⁾	1587338	EAMM-U-86-S48-60H-102 ¹⁾
EGC-HD-220		
With servo motor		
EMMS-AS-70-...	1217543	EAMM-U-86-S62-70A-177 ¹⁾
EMME-AS-80-...	2157004	EAMM-U-86-S62-80P-177
EMME-AS-100-...	1217381	EAMM-U-110-S62-100A-207 ¹⁾
EMMS-AS-100-...	1217381	EAMM-U-110-S62-100A-207 ¹⁾
EMMS-AS-140-...	1219440	EAMM-U-145-S62-140A-288 ¹⁾

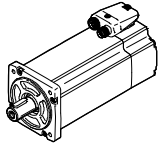
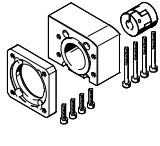
Motor/gear unit ²⁾	Parallel kit	
	Part No.	Type
With stepper motor		
EMMS-ST-87-...	1217373	EAMM-U-86-S62-87A-177 ¹⁾
With gear unit		
EMGA-60-P-...-SAS/SST ³⁾	1587411	EAMM-U-86-S62-60G-177 ¹⁾
EMGA-60-P-...-EAS, EMGC-60-P-... ³⁾	1587453	EAMM-U-86-S62-60H-177 ¹⁾

- 1) These parallel kits include a counter bearing EAMG for supporting the axis shaft. More information → online: eamm-u
- 2) The input torque must not exceed the max. perm. transferable torque of the parallel kit.
- 3) Gear unit drive shaft Ø: EMGA-60-P-...-SAS/SST: 11 mm; EMGA-60-P-...-EAS, EMGC-60-P: 14 mm.

Note

The clamping component EADT is required to adjust the toothed belt pre-tension with EAMM-U-110 and EAMM-U-145.

The motor and/or axis shaft can optionally be supported with a counter bearing EAMG. More information → [eamm-u](#)

Motor/gear unit ⁴⁾	Axial kit
	
	Part No. Type

13/14 Permissible axis/motor combination with axial kit –
 Technical data online: [→ eamm-a](#)

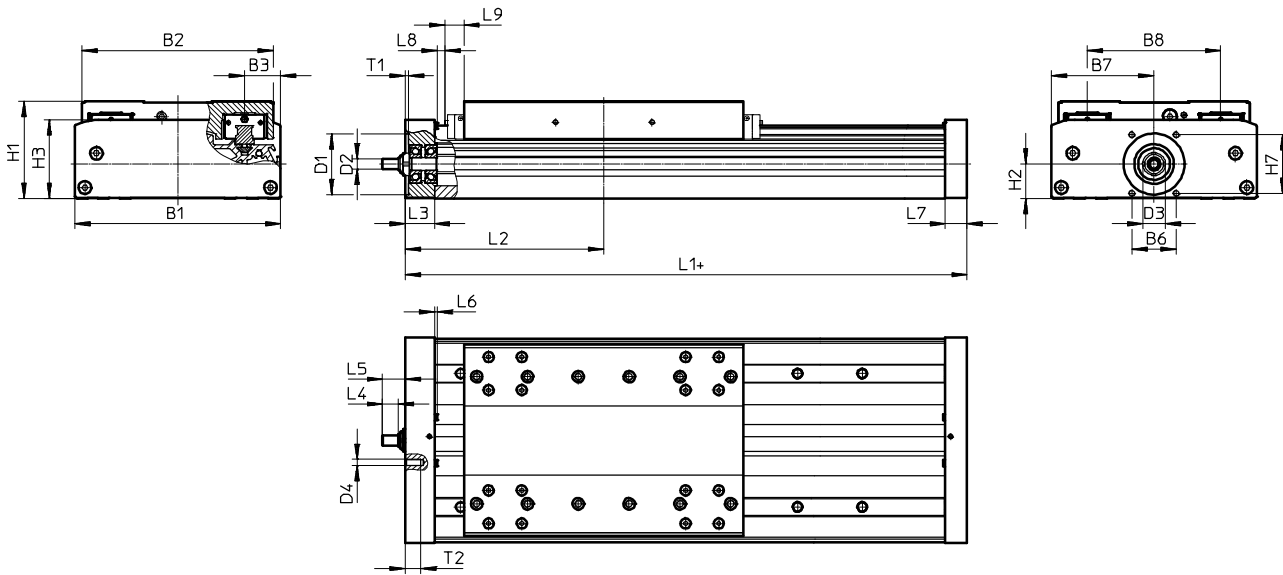
EGC-HD-125		
With servo motor		
EMME-AS-40-...	2219044	EAMM-A-S38-40P
EMMS-AS-40-...	558162	EAMM-A-S38-40A
EMMS-AS-55-...	558163	EAMM-A-S38-55A
EMME-AS-60-...	2219110	EAMM-A-S38-60P
With stepper motor		
EMMS-ST-42-...	560685	EAMM-A-S38-42A
EMMS-ST-57-...	560686	EAMM-A-S38-57A
EGC-HD-160		
With servo motor		
EMMS-AS-55-...	558164	EAMM-A-S48-55A
EMME-AS-60-...	2220560	EAMM-A-S48-60P
EMMS-AS-70-...	558165	EAMM-A-S48-70A
With stepper motor		
EMMS-ST-57-...	560687	EAMM-A-S48-57A
EMMS-ST-87-...	560688	EAMM-A-S48-87A
EGC-HD-220		
With servo motor		
EMMS-AS-70-...	558166	EAMM-A-S62-70A
EMME-AS-80-...	2222582	EAMM-A-S62-80P
EMME-AS-100-...	558167	EAMM-A-S62-100A
EMMS-AS-100-...	558167	EAMM-A-S62-100A
EMMS-AS-140-...	558168	EAMM-A-S62-140A
With stepper motor		
EMMS-ST-87-...	560689	EAMM-A-S62-87A

- 4) The input torque must not exceed the max. perm. transferable torque of the axial kit.

Spindle axes EGC-HD-BS, with heavy-duty guide

Dimensions

Download CAD data → www.festo.com



+ = plus stroke length + 2x stroke reserve

Size	B1	B2	B3	B6	B7	B8	D1 ∅ H7	D2 ∅ h6
125	124	120	21	29	62	80	38	6
160	162	150.7	27.5	35	81	105	48	8
220	224	204.2	40	64	112	140	62	12

Size	D3	D4	H1	H2	H3	H7	L3	L4
125	15	M5	64	22.5	50.5	36	21	8
160	18	M5	76.5	27	62	46	23	12.5
220	28	M6	111.5	42.5	89.5	54	33	17.5

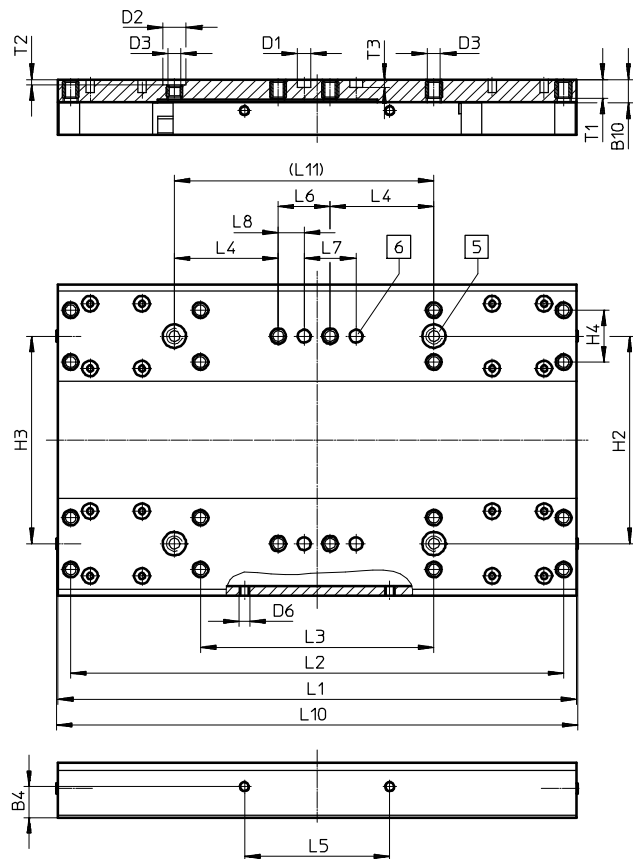
Size	L5	L6	L7	L8	L9	T1	T2
125	14	1.8	16	2	–	2.5	12
160	18	2	17	0.55	14.9	2.5	12
220	25.5	2	30	2	18	3	15

Size	Stroke	L1	L2 min.
125	≤900	268	136.5
160	<1377	296	151.3
	≥1377	336	171
220	<1604	409	206
	≥1604	469	236

Dimensions

GK – Standard slide

Size 125



- 5 Hole for centring sleeve ZBH
- 6 Hole for centring pin ZBS

Size	B4	B10	D1	D2	D3	D6	H2	H3	H4	L1	L2	L3
	±0.1		∅ H7	∅ H7			±0.03	±0.05	±0.1	±0.1	±0.2	±0.1
125	12	9	5	9	M5	M4	80	80	20	200	190	90

Size	L4	L5	L6	L7	L8	L10	L11	T1	T2	T3
	±0.1	±0.2	±0.1	±0.03	±0.1		±0.03		+0.1	+0.1
125	40	56	20	20	10	202	100	7.8	2.1	3.1

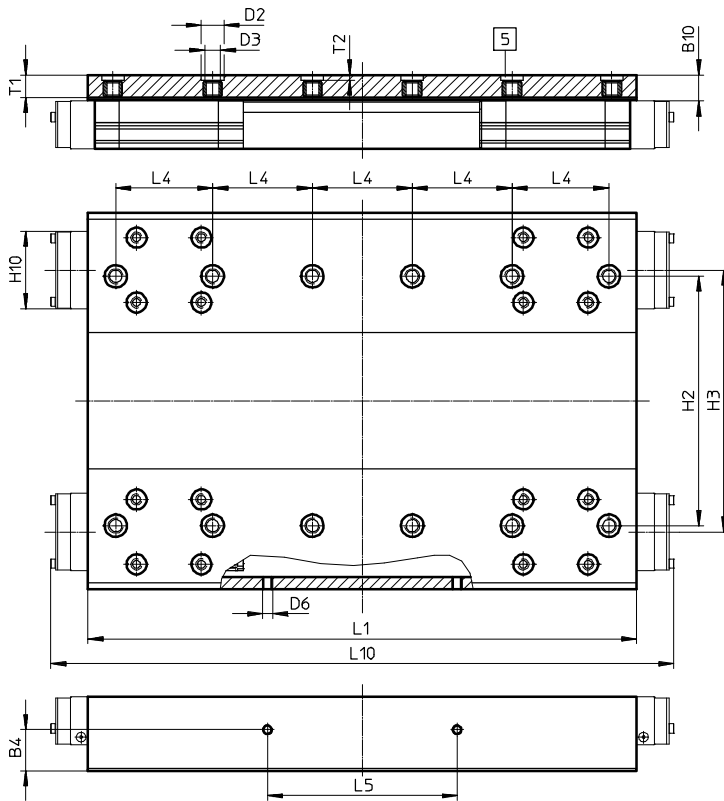
3

Spindle axes EGC-HD-BS, with heavy-duty guide

Dimensions

GK – Standard slide

Size 160



5 Hole for centring sleeve ZBH

Size	B4	B10*	D2 ∅ H7	D3	D6	H2	H3
160	±0.1 16.5	10.5	9	M6	M4	±0.03 100	±0.05 105

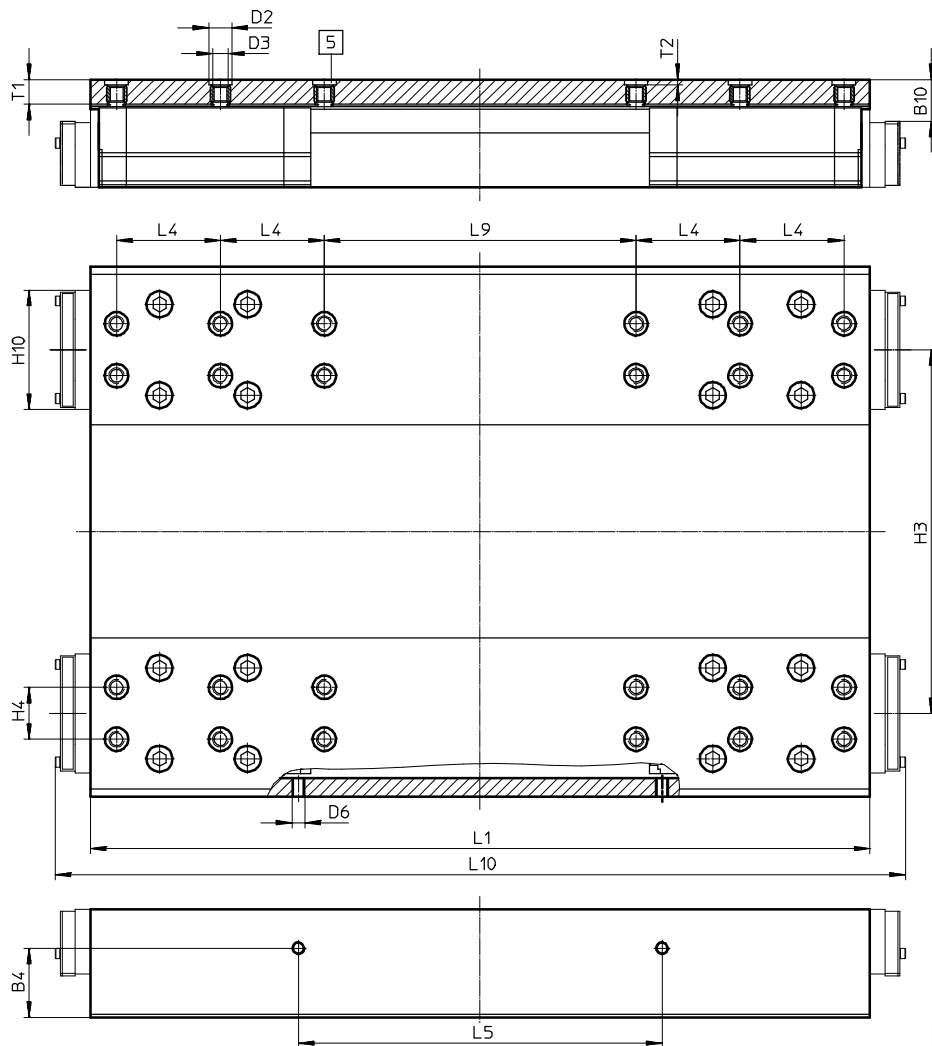
Size	H10*	L1	L4	L5	L10*	T1	T2
160	31	±0.1 220	±0.03 40	±0.1 76	250	9	+0.1 2.1

* Protected version

Dimensions

GK – Standard slide

Size 220



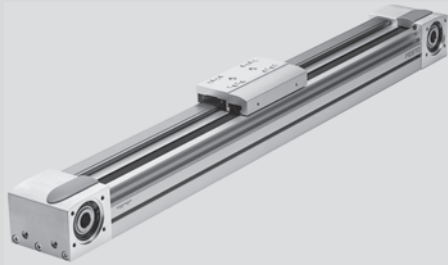
5 Hole for centring sleeve ZBH

Size	B4	B10*	D2 ∅ H7	D3	D6	H3	H4	H10*
220	±0.1 26.6	16	9	M6	M5	±0.05 140	±0.03 20	45.95

Size	L1	L4	L5	L9	L10*	T1	T2
220	±0.1 302	±0.03 40	±0.1 140	±0.03 120	328	9.5	+0.1 2.1

* Protected version

Toothed belt axes EGC-TB-KF, with recirculating ball bearing guide



- High speeds and feed forces
- Recirculating ball bearing guide and rigid profile
- Large loads and torques
- Free choice of motor mounting
- Spare parts service

→ www.festo.com/catalogue/egc-tb

Product range overview

Type/version	Size	Stroke [mm]	Feed force [N]	Product options GK	→ Page/online
EGC-TB					
KF – Recirculating ball bearing guide	50, 70, 80, 120, 185	50 ... 8500	50 ... 2500	■	397
EGC-FA					
Passive guide axis	70, 80, 120, 185	50 ... 8500	–	■	egc-fa

Product options

GK Standard slide	KL Additional slide on left	M2 Displacement encoder (resolution: 10 µm)	1HR Clamping unit, 1-channel, on right
GV Extended slide	KR Additional slide on right	1HL Clamping unit, 1-channel, on left	2H Clamping unit, 2-channel
GP Standard slide, protected	C Lubrication adapter	M1 Displacement encoder (resolution: 2.5 µm)	PN Pneumatically actuated clamping unit
GQ Extended slide, protected			

At a glance

Powerful

- Generously sized profiles with an optimised cross section afford maximum rigidity and load capacity
- Speed, acceleration and torque resistance set a new standard

Economical

- In addition to the technical data, the toothed belt axis impresses with its excellent price/performance ratio
- Due to the EGC's high performance it is often possible to use a smaller size

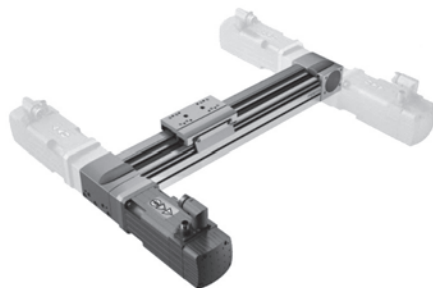
Versatile

- Numerous sizes and variants such as protected guides open up a broad range of applications
- Space-saving position sensing with proximity sensor in the profile slot is possible

- Wide range of options for mounting on drives
- Comprehensive range of mounting accessories for multi-axis combinations

Flexible motor mounting

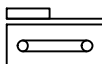
The motor position can be freely selected on 4 sides and can be changed at any time.



Toothed belt axes EGC-TB-KF, with recirculating ball bearing guide

FESTO

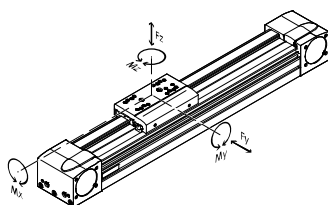
Technical data



3

Technical data

Dimensions → 403



Note

PositioningDrives
sizing software
→ www.festo.com

Size		50	70	80	120	185
Working stroke ¹⁾	[mm]	50 ... 1900	50 ... 5000	50 ... 8500	50 ... 8500	50 ... 8500
Max. feed force F_x	[N]	50	100	350	800	2500
Max. no-load torque ²⁾	[Nm]	0.072	0.18	0.4	1.4	4.05
Max. no-load resistance to shifting ¹⁾	[N]	8	14.5	28	70	110
Max. driving torque	[Nm]	0.46	1.24	5	16	93
Max. speed	[m/s]	3	5			
Max. acceleration	[m/s ²]	50				
Repetition accuracy	[mm]	±0.08				±0.1
Max. permissible force F_y	[N]	650	1850	3050	6890	15,200
Max. permissible force F_z	[N]	650	1850	3050	6890	15,200
Max. permissible torque M_x	[Nm]	3.5	16	36	144	529
Max. permissible torque M_y	[Nm]	10	51	97	380	1157
Max. permissible torque M_z	[Nm]	10	51	97	380	1157

1) Total stroke = working stroke + 2x stroke reserve.

2) At 0.2 m/s, with variant GK.

Operating conditions

Ambient temperature ³⁾	[°C]	-10 ... +60
Degree of protection		IP40

3) Note operating range of proximity sensors.

Toothed belt

Size		50	70	80	120	185
Pitch	[mm]	2	3	3	5	8
Tensile stress ⁴⁾	[%]	0.094	0.08	0.24	0.13	0.29
Width	[mm]	10	15	19.3	30.3	50.5
Effective diameter	[mm]	18.46	24.83	28.65	39.79	73.85
Feed constant	[mm/rev]	58	78	90	125	232

4) At max. feed force.

Mass moment of inertia

Size		50	70	80	120	185
J_0	[kg mm ²]	16.94	83.34	205.9	1241	17,976
J_S per metre stroke	[kg mm ² /m]	2.6	10.6	18.8	93	760
J_L per kg payload	[kg mm ² /kg]	85	154	205	396	1363.5

The mass moment of inertia J_A of the entire axis is calculated as follows:

$$J_A = J_0 + J_S \times \text{working stroke [m]} + J_L \times m_{\text{payload [kg]}}$$

Toothed belt axes EGC-TB-KF, with recirculating ball bearing guide

Technical data

Materials	
End cap	Anodised wrought aluminium alloy
Profile	Anodised wrought aluminium alloy
Guide rail	Steel
Pulleys	High-alloy stainless steel
Slide	Anodised wrought aluminium alloy
Toothed belt seals	Polychloroprene with glass cord and nylon coating

3

Order code

EGC		-		-		-	TB	-	KF	-		-	GK
Type													
EGC		Electromechanical linear axis											
Size													
		Stroke [mm]											
50		50 ... 1900											
70		50 ... 5000											
80		50 ... 8500											
120		50 ... 8500											
185		50 ... 8500											
Drive function													
TB		Toothed belt											
Guide													
KF		Recirculating ball bearing guide											
Stroke reserve													
...H		0 ... 999 (0 = no stroke reserve)										1	
Slide													
GK		Standard slide											

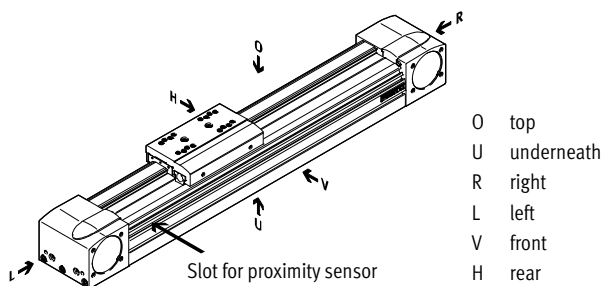
1 The sum of the stroke length and 2x stroke reserve must not exceed the maximum working stroke

Order example:


EGC-70-500-TB-KF-100H-GK

Electromechanical linear axis EGC - size 70 - stroke 500 mm - toothed belt drive - recirculating ball bearing guide - stroke reserve 100 mm - standard slide

Ordering aid

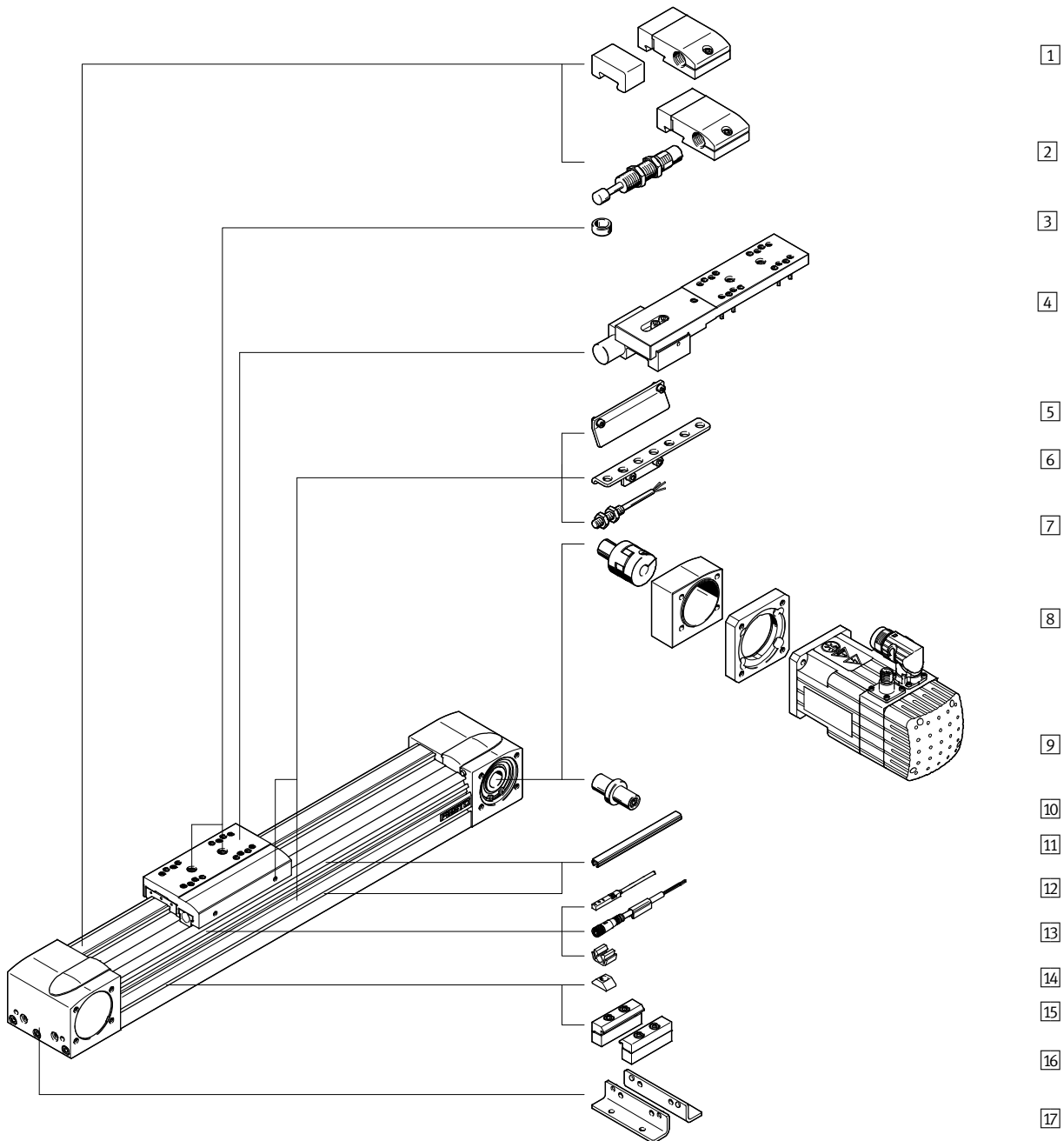


Ordering – Product options

	<p>Configurable product</p>	<p>This product and all its options can be ordered using the configurator.</p>	<p>The configurator can be found under Products on the DVD or www.festo.com/catalogue/...</p>	<p>Enter the type code in the search field.</p>
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Toothed belt axes EGC-TB-KF, with recirculating ball bearing guide

Accessories

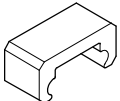
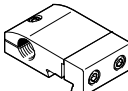
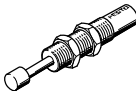




		→ Page/online
1	Emergency buffer NPE/shock absorber retainer KYE	400
2	Shock absorber YSRW/shock absorber retainer KYE	400
3	Centring pin ZBS/centring sleeve ZBH	400
4	Clamping unit 1H...-PN, 2H-PN	egc-tb
5	Switch lug SF-EGC	400
6	Sensor bracket HWS-EGC	400
7	Inductive proximity sensor SIEN	400
8	Axial kit EAMM-A	401
9	Motor EMME/EMMS	401

		→ Page/online
10	Drive shaft EAMB	402
11	Slot cover ABP/ABP-S	402
12	Inductive proximity sensor SIES	402
13	Connecting cable NEBU	402
14	Clip SMBK	402
15	Slot nut NST	402
16	Profile mounting MUE	402
17	Foot mounting HPE	402

Toothed belt axes EGC-TB-KF, with recirculating ball bearing guide

Accessories – Ordering data

	For size	Part No.	Type
1 Emergency buffer			
	50	564897	NPE-50
	70	562581	NPE-70
	80	562582	NPE-80
	120	562583	NPE-120
	185	562584	NPE-185
1 Shock absorber retainer Dimensions online: → egc-tb			
	50	557583	KYE-50
	70	557584	KYE-70
	80	557585	KYE-80
	120	557586	KYE-120
	185	557587	KYE-185
2 Shock absorber Technical data online: → ysrw			
	50	191192	YSRW-5-8
	70	191194	YSRW-8-14
	80	191196	YSRW-12-20
	120	191197	YSRW-16-26
	185	191198	YSRW-20-34
3 Centring pin¹⁾²⁾ Technical data online: → zbs			
	50, 70	150928	ZBS-5
3 Centring sleeve¹⁾²⁾ Technical data online: → zbh			
	80, 120, 185	150927	ZBH-9

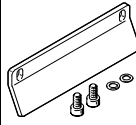

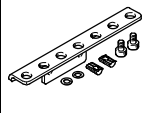
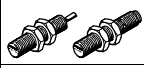

1) Packaging unit 10 pieces.

2) 2 centring pins/sleeves included in the scope of delivery of the axis.

3) For sensing via proximity sensor SIES-8M.

4) For sensing via proximity sensor SIEN-M8B or SIES-8M.

5) For proximity sensor SIEN-M8B.

	For size	Part No.	Type
5 Switch lug³⁾ Dimensions online: → egc-tb			
	50	558046	SF-EGC-1-50
	70	558047	SF-EGC-1-70
	80	558048	SF-EGC-1-80
	120	558049	SF-EGC-1-120
	185	558051	SF-EGC-1-185
5 Switch lug⁴⁾ Dimensions online: → egc-tb			
	70	558052	SF-EGC-2-70
	80	558353	SF-EGC-2-80
	120	558054	SF-EGC-2-120
	185	558056	SF-EGC-2-185
6 Sensor bracket⁵⁾ Dimensions online: → egc-tb			
	70	558057	HWS-EGC-M5
	80	558057	HWS-EGC-M5
	120	570365	HWS-EGC-M8-B
	185	560517	HWS-EGC-M8-KURZ
7 Inductive proximity sensor, N/O contact, M8 Technical data → 827			
	PNP, cable	★ 150386	SIEN-M8B-PS-K-L
	PNP, plug	★ 150387	SIEN-M8B-PS-S-L
N/C contact, M8 Technical data → 827			
	PNP, cable	150390	SIEN-M8B-PO-K-L
	PNP, plug	150391	SIEN-M8B-PO-S-L

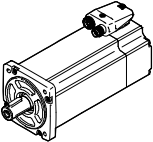
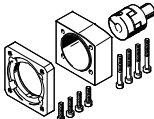
Toothed belt axes EGC-TB-KF, with recirculating ball bearing guide

FESTO

Accessories – Ordering data

Note

Depending on the combination of motor and drive, it may not be possible to reach the maximum feed force of the drive.


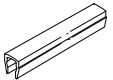
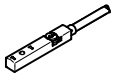
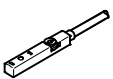




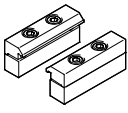
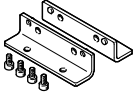
Motor/gear unit ¹⁾	Axial kit	
		
	Part No.	Type
8/9 Permissible axis/motor combination with axial kit – Technical data online: → eamm-a		
EGC-50		
With servo motor		
EMMS-AS-55-...	557975	EAMM-A-L27-55A
With servo motor and gear unit		
EMME-AS-40-... EMGA-40-P-G...-EAS-40	557974	EAMM-A-L27-40G
EMMS-AS-40-... EMGA-40-P-G...-SAS-40	557974	EAMM-A-L27-40G
With stepper motor		
EMMS-ST-57-...	560678	EAMM-A-L27-57A
With stepper motor and gear unit		
EMMS-ST-42-... EMGA-40-P-G...-SST-42	557974	EAMM-A-L27-40G
EGC-70		
With servo motor		
EMME-AS-60-... EMMS-AS-70-...	2037246 557979	EAMM-A-L38-60P EAMM-A-L38-70A
With servo motor and gear unit		
EMMS-AS-55-... EMGA-60-P-G...-SAS-55	557978	EAMM-A-L38-60G
EMMS-AS-70-... EMGA-60-P-G...-SAS-70	557978	EAMM-A-L38-60G
With stepper motor		
EMMS-ST-57-... EMMS-ST-87-...	560679 560680	EAMM-A-L38-57A EAMM-A-L38-87A
With stepper motor and gear unit		
EMMS-ST-57-... EMGA-60-P-G...-SST-57	557978	EAMM-A-L38-60G

Motor/gear unit ¹⁾	Axial kit	
	Part No.	Type
EGC-80		
With servo motor		
EMMS-AS-70-... EMME-AS-80-... EMMS-AS-100-...	557982 2042616 557984	EAMM-A-L48-70A EAMM-A-L48-80P EAMM-A-L48-100A
With servo motor and gear unit		
EMMS-AS-55-... EMGA-60-P-G...-SAS-55	557983	EAMM-A-L48-60G
EMMS-AS-70-... EMGA-60-P-G...-SAS-70	557983	EAMM-A-L48-60G
With stepper motor		
EMMS-ST-87-...	560683	EAMM-A-L48-87A
With stepper motor and gear unit		
EMMS-ST-57-... EMGA-60-P-G...-SST-57	557983	EAMM-A-L48-60G
EGC-120		
With servo motor		
EMME-AS-100-... EMMS-AS-100-... EMMS-AS-140-...	557988 557988 557990	EAMM-A-L62-100A EAMM-A-L62-100A EAMM-A-L62-140A
With servo motor and gear unit		
EMMS-AS-70-... EMGA-80-P-G...-SAS-70	557989	EAMM-A-L62-80G
EMME-AS-80-... EMGA-80-P-G...-EAS-80	557989	EAMM-A-L62-80G
EMME-AS-100-... EMGA-80-P-G...-SAS-100	557989	EAMM-A-L62-80G
EMMS-AS-100-... EMGA-80-P-G...-SAS-100	557989	EAMM-A-L62-80G
With stepper motor and gear unit		
EMMS-ST-87-... EMGA-80-P-G...-SST-87	557989	EAMM-A-L62-80G
EGC-185		
With servo motor		
EMMS-AS-140-... EMMS-AS-190-...	557994 1378474	EAMM-A-L95-140A EAMM-A-L95-190A
With servo motor and gear unit		
EMME-AS-100-... EMGA-120-P-G...-SAS-100	557995	EAMM-A-L95-120G
EMMS-AS-100-... EMGA-120-P-G...-SAS-100	557995	EAMM-A-L95-120G
EMMS-AS-140-... EMGA-120-P-G...-SAS-140	557995	EAMM-A-L95-120G

1) The input torque must not exceed the max. perm. transferable torque of the axial kit.

Toothed belt axes EGC-TB-KF, with recirculating ball bearing guide

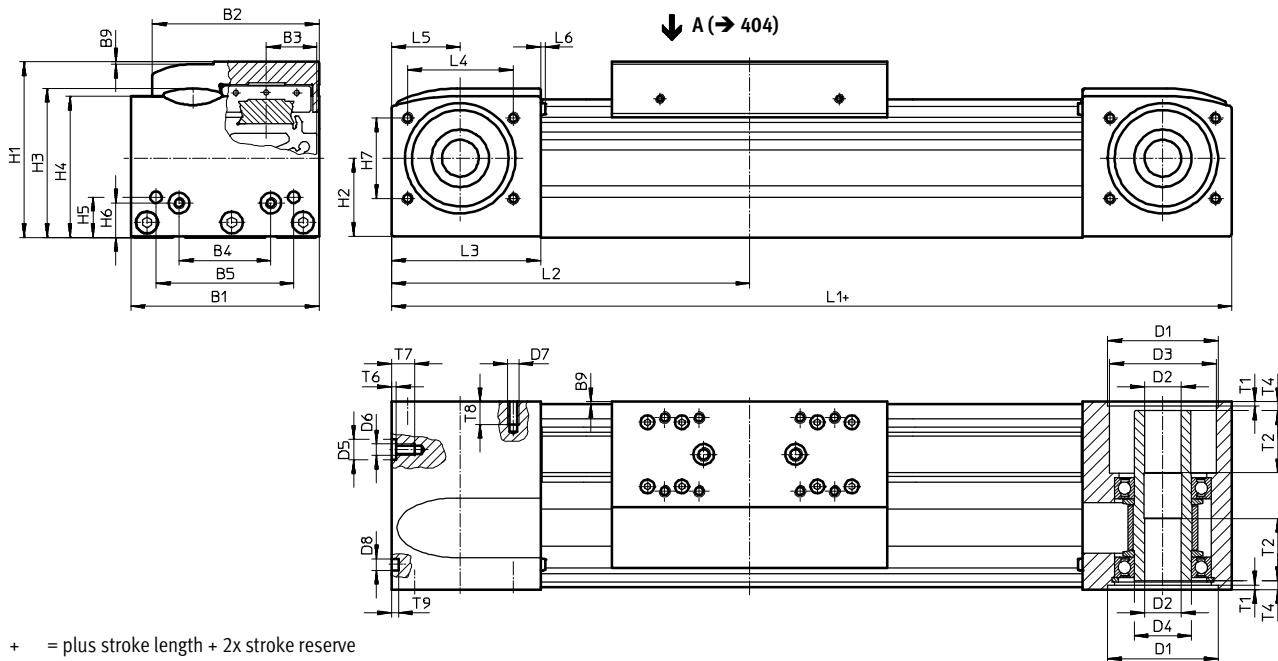
Accessories – Ordering data

	For size	Part No.	Type	
10 Drive shaft				
	50	558034	EAMB-16-7-8X15-8X10	
	70	558035	EAMB-18-9-8X16-10X12	
	80	558036	EAMB-24-6-15X21-16X20	
	120	558037	EAMB-34-6-25X26-23X27	
	185	558038	EAMB-44-7-35X30-32X32	
11 Slot cover¹⁾				
	For mounting slot			
	70, 80	151681	ABP-5	
	120, 185	151682	ABP-8	
	For sensor slot			
	50 ... 185	563360	ABP-5-S1	
12 Proximity sensor for T-slot, inductive, N/O contact				Technical data → 831
	PNP, cable	551386	SIES-8M-PS-24V-K-7,5-OE	
	PNP, plug	551387	SIES-8M-PS-24V-K-0,3-M8D	
	NPN, cable	551396	SIES-8M-NS-24V-K-7,5-OE	
	NPN, plug	551397	SIES-8M-NS-24V-K-0,3-M8D	
N/C contact				Technical data → 831
	PNP, cable	551391	SIES-8M-PO-24V-K-7,5-OE	
	PNP, plug	551392	SIES-8M-PO-24V-K-0,3-M8D	
	NPN, cable	551401	SIES-8M-NO-24V-K-7,5-OE	
	NPN, plug	551402	SIES-8M-NO-24V-K-0,3-M8D	
13 Connecting cable, straight socket				Technical data → 1053
	2.5 m	★	541333	NEBU-M8G3-K-2.5-LE3
	5 m	★	551334	NEBU-M8G3-K-5-LE3
Angled socket				Technical data → 1053
	2.5 m	★	541338	NEBU-M8W3-K-2.5-LE3
	5 m	★	511341	NEBU-M8W3-K-5-LE3
14 Clip				
	50 ... 185		534254	SMBK-8
15 Slot nut				Technical data online: → nst
	50		558045	NST-3-M3
	70, 80		150914	NST-5-M5
	120, 185		150915	NST-8-M6
16 Profile mounting				Dimensions online: → egc-tb
	50		558042	MUE-50
	70	★	558043	MUE-70/80
	80	★	558043	MUE-70/80
	120		558044	MUE-120/185
	185		558044	MUE-120/185
17 Foot mounting				Dimensions online: → egc-tb
	50		558320	HPE-50
	70		558321	HPE-70
	80		558322	HPE-80
	120		558323	HPE-120
	185		558325	HPE-185

1) Packaging unit 2x 0.5 m.

Toothed belt axes EGC-TB-KF, with recirculating ball bearing guide

Dimensions



+ = plus stroke length + 2x stroke reserve

Note

To avoid distortion in the slide, the bearing surfaces of the attachments must maintain a minimum flatness of 0.01 mm.

Size	B1	B2	B3	B4	B5	B9	D1	D2	D3	D4	D5	D6
							H7 <td>Ø <td>Ø <td>Ø <td>Ø <td>H7</td> </td></td></td></td>	Ø <td>Ø <td>Ø <td>Ø <td>H7</td> </td></td></td>	Ø <td>Ø <td>Ø <td>H7</td> </td></td>	Ø <td>Ø <td>H7</td> </td>	Ø <td>H7</td>	H7
50	48	39	11.5	20	35	1	27	8	20	15	-	M4
70	69	58.6	16.5	30	45	1	38	10	28	20	-	M5
80	82	72.6	22	40	60	1	48	16	46.5	25	9	M5
120	120	107	33	80	40	1	62	23	59	35	-	M8
185	186	169	53	120	80	1	95	32	90	60	-	M10

Size	D7	D8	H1	H2	H3	H4	H5	H6	H7	L1	L2
		Ø									
		H7									
50	M3	5	42.5	16.5	37.6	35.5	10.5	10.5	18	155	77.5
70	M5	5	64	28	53.7	50.8	13	13	29	246	123
80	M5	5	76.5	34.5	65	61.5	17.5	15	35	286	143
120	M6	9	111.5	51.6	95.9	91.1	22	22	54	446	223
185	M8	9	172.5	80.5	152.6	143	25	25	80	612	306

Size	L3	L4	L5	L6	L8	L9	T1	T2	T4	T6	T7	T8	T9
50	40	26	20	1.8	3	-	1.5	-	5.9	-	7	8	3.1
70	57.5	36	27.5	1.8	3	10.5	2.1	18	7.15	-	10	12	3.1
80	65	46	30	2	3	13	2.1	27	4	2.1	10	10	3.1
120	100	64	50	2	3	18	3.1	29.5	4	-	16	14	2.1
185	140	80	70	2	3	21	2.8	34.5	4	-	20	17	2.1

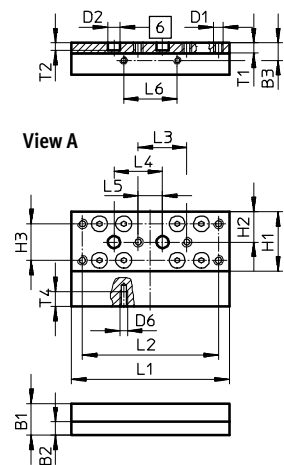
3

Toothed belt axes EGC-TB-KF, with recirculating ball bearing guide

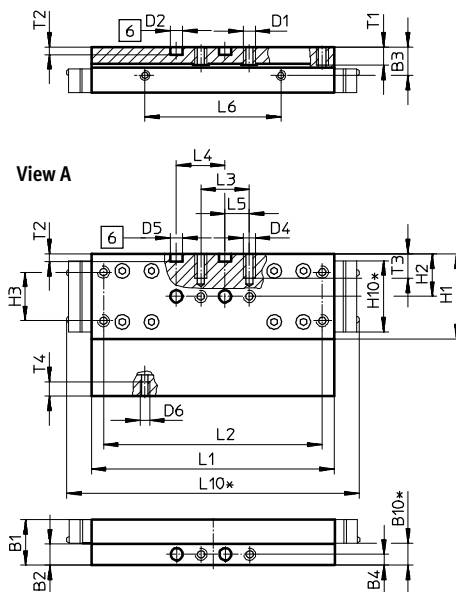
Dimensions

GK – Standard slide

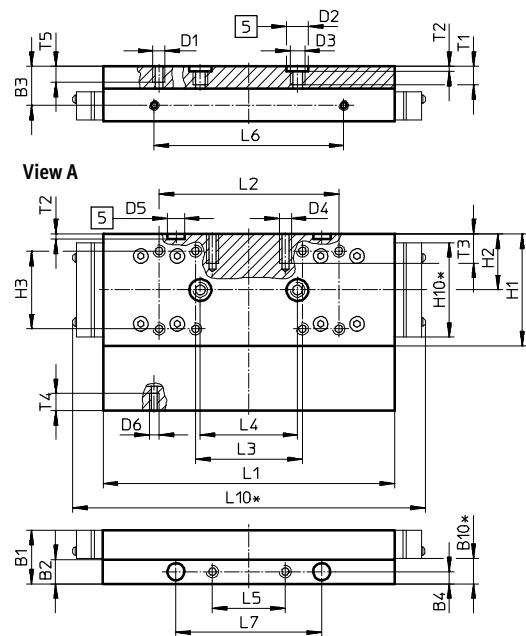
Size 50



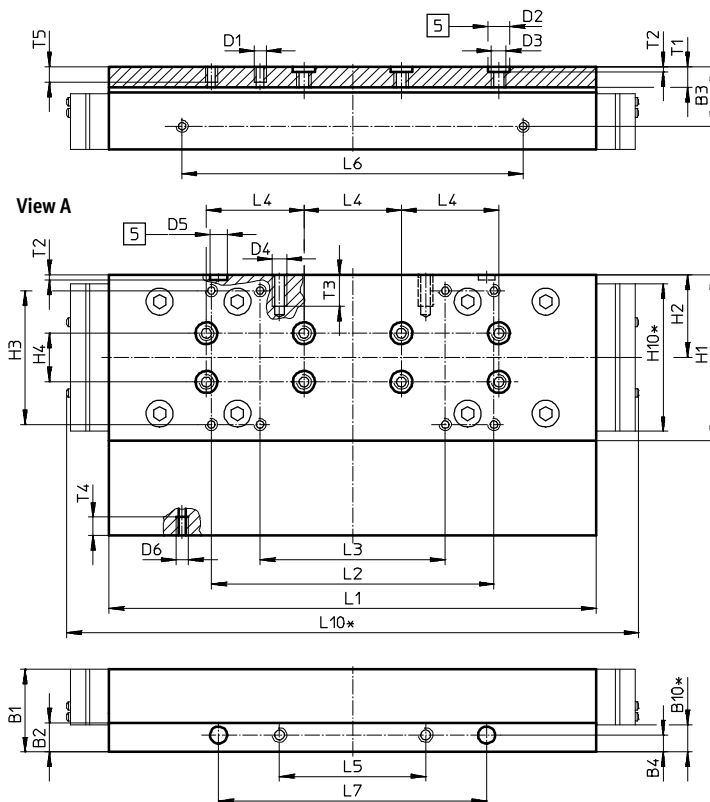
Size 70



Size 80



Size 120



- 5 Hole for centring sleeve
- 6 Hole for centring pin
- * Protected version

3

Toothed belt axes EGC-TB-KF, with recirculating ball bearing guide

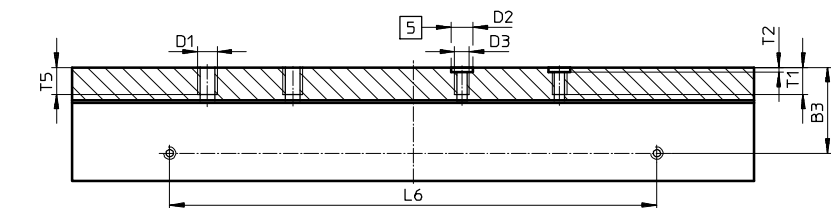


Download CAD data → www.festo.com

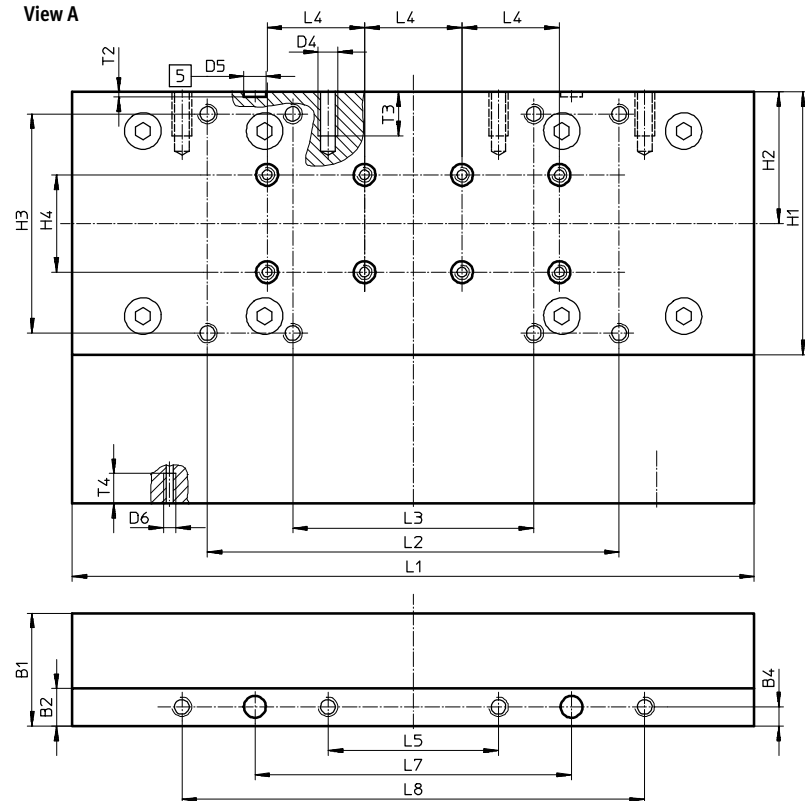
Dimensions

GK – Standard slide

Size 185



View A



[5] Hole for centring sleeve

Size	B1	B2	B3	B4	B10*	D1	D2 ∅ H7	D3	D4	D5 ∅ H7	D6	H1	H2	H3	H4 ±0.03
50	13	5.5	7.2	–	–	M4	5	–	–	–	M3	24.5	12.5	15 ±0.1	–
70	18.7	8.7	11.7	4.5	9	M5	5	–	M5	5	M4	35	17.5	20 ±0.1	–
80	22	10	16	5	10.4	M5	9	M6	M5	7	M4	46	23	32 ±0.2	–
120	34	12	24.5	7	11.2	M5	9	M6	M6	7	M5	68	34	55 ±0.2	20
185	46.5	15.5	35.2	8	–	M8	9	M6	M8	9	M5	108	54	90 ±0.2	40

Size	H10*	L1 ±0.1	L2	L3	L4 ±0.03	L5	L6 ±0.1	L7 ±0.05	L8 ±0.2	L10*	T1	T2 ±0.01	T3	T4	T5
50	–	65	56 ±0.1	20 ±0.1	20	10 ±0.1	22	–	–	–	4.2	3.1	–	6	–
70	29.4	100	90 ±0.1	20 ±0.1	20	10 ±0.1	56	–	–	121	7.5	3.1	10	6	–
80	39	120	74 ±0.2	44 ±0.2	40	30 ±0.1	78	60	–	145	8.6	2.1	12	7	7.5
120	60.6	203.3	116 ±0.2	76 ±0.2	40	60 ±0.1	140	110	–	235	8.6	2.1	13	7.5	7.5
185	–	282.8	169 ±0.2	99 ±0.2	40	70 ±0.2	200	130	190	–	11	2.1	18	12.3	12

* Protected version

Toothed belt axes EGC-HD-TB, with heavy-duty guide



- High speeds and feed forces
- Recirculating ball bearing guide and rigid profile
- Maximum loads and torques
- Ideal as a basic axis for linear gantries and cantilever axes
- Spare parts service

→ www.festo.com/catalogue/egc-hd-tb

Product range overview

Type/version	Size	Stroke [mm]	Feed force [N]	Product options GK
EGC-HD-TB				
HD – Heavy-duty guide	125, 160, 220	50 ... 5000	450 ... 1800	■

Product options

- | | |
|------------------------------|------------------------------|
| GK Standard slide | KL Additional slide on left |
| GP Standard slide, protected | KR Additional slide on right |

At a glance

Powerful

- New heavy-duty design for:
 - Maximum loads and torques
 - High feed forces and speeds
 - Long service life

Economical

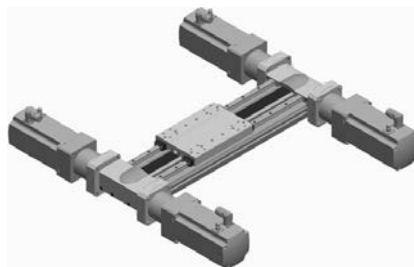
- In addition to the technical data, the toothed belt axis impresses with its excellent price/performance ratio
- Space-saving position sensing with proximity sensor in the profile slot is possible

Versatile

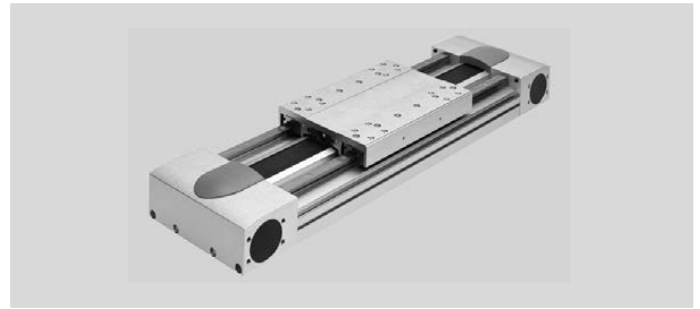
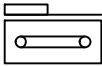
- Precise, resilient DUO guide rail
- Ideal as a basic axis for linear gantries and cantilever axes
- Wide range of options for mounting on drives

Flexible motor mounting

The motor position can be freely selected on 4 sides and can be changed at any time.



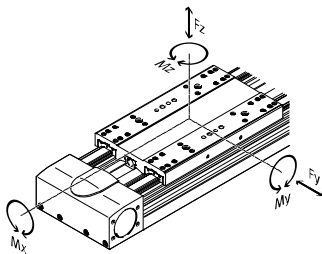
Technical data



3

Technical data

Dimensions → 412



Note

PositioningDrives
sizing software
→ www.festo.com

Size		125	160	220
Working stroke ¹⁾	[mm]	50 ... 3000	50 ... 5000	50 ... 4750
Max. feed force F_x	[N]	450	1000	1800
No-load torque ²⁾	[Nm]	1.1	2.1	4.1
Max. no-load resistance to shifting ²⁾	[N]	30.79	105.5	123.8
Max. driving torque	[Nm]	7.2	20	59.58
Max. speed	[m/s]	3	5	
Max. acceleration	[m/s ²]	40	50	
Repetition accuracy	[mm]	±0.08		±0.1
Max. permissible force F_y	[N]	3650	5600	13,000
Max. permissible force F_z	[N]	3650	5600	13,000
Max. permissible torque M_x	[Nm]	140	300	900
Max. permissible torque M_y	[Nm]	275	500	1450
Max. permissible torque M_z	[Nm]	275	500	1450

1) Total stroke = working stroke + 2x stroke reserve.

2) At 0.2 m/s.

Operating conditions

Ambient temperature ³⁾	[°C]	-10 ... +60
Degree of protection		IP40

3) Note operating range of proximity sensors.

Toothed belt

Size		125	160	220
Pitch	[mm]	3	5	8
Width	[mm]	30.3	40.0	50.5
Tensile stress ⁴⁾	[%]	0.31	0.23	0.29
Effective diameter	[mm]	32.47	39.79	66.21
Feed constant	[mm/rev]	102	125	208

4) At max. feed force.

Mass moment of inertia

Size		125	160	220
J_0	[kg cm ²]	4.639	14.49	108.99
J_S per metre stroke	[kg cm ² /m]	0.38	1.267	6.269
J_L per kg payload	[kg cm ² /kg]	2.635	3.96	10.96

The mass moment of inertia J_A of the entire axis is calculated as follows:

$$J_A = J_0 + J_S \times \text{working stroke [m]} + J_L \times m_{\text{payload [kg]}}$$

Materials

End cap	Anodised wrought aluminium alloy
Slide	Anodised wrought aluminium alloy
Guide rail	Coated and corrosion-resistant steel
Pulleys	High-alloy stainless steel
Toothed belt	Polychloroprene with glass cord and nylon coating

Toothed belt axes EGC-HD-TB, with heavy-duty guide

Order code

3

		EGC	-	HD	-		-		-	TB	-		-	GK
Type														
EGC		Electromechanical linear axis												
Guide														
HD		Heavy-duty guide												
Size														
		Stroke [mm]												
125		50 ... 3000												
160		50 ... 5000												
220		50 ... 4750												
Drive function														
TB		Toothed belt												
Stroke reserve														
...H		0 ... 999 (0 = no stroke reserve)										1		
Slide														
GK		Standard slide												

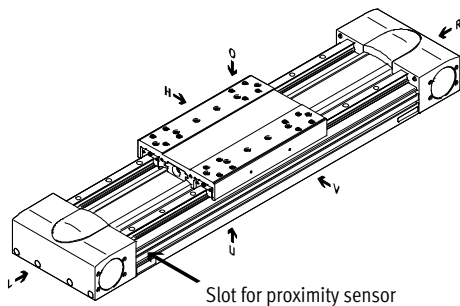
1 The sum of the stroke length and 2x stroke reserve must not exceed the maximum working stroke

Order example:

EGC-HD-160-500-TB-20H-GK

Electromechanical linear axis EGC - heavy-duty guide - size 160 - stroke 500 mm - toothed belt - stroke reserve 20 mm - standard slide

Ordering aid

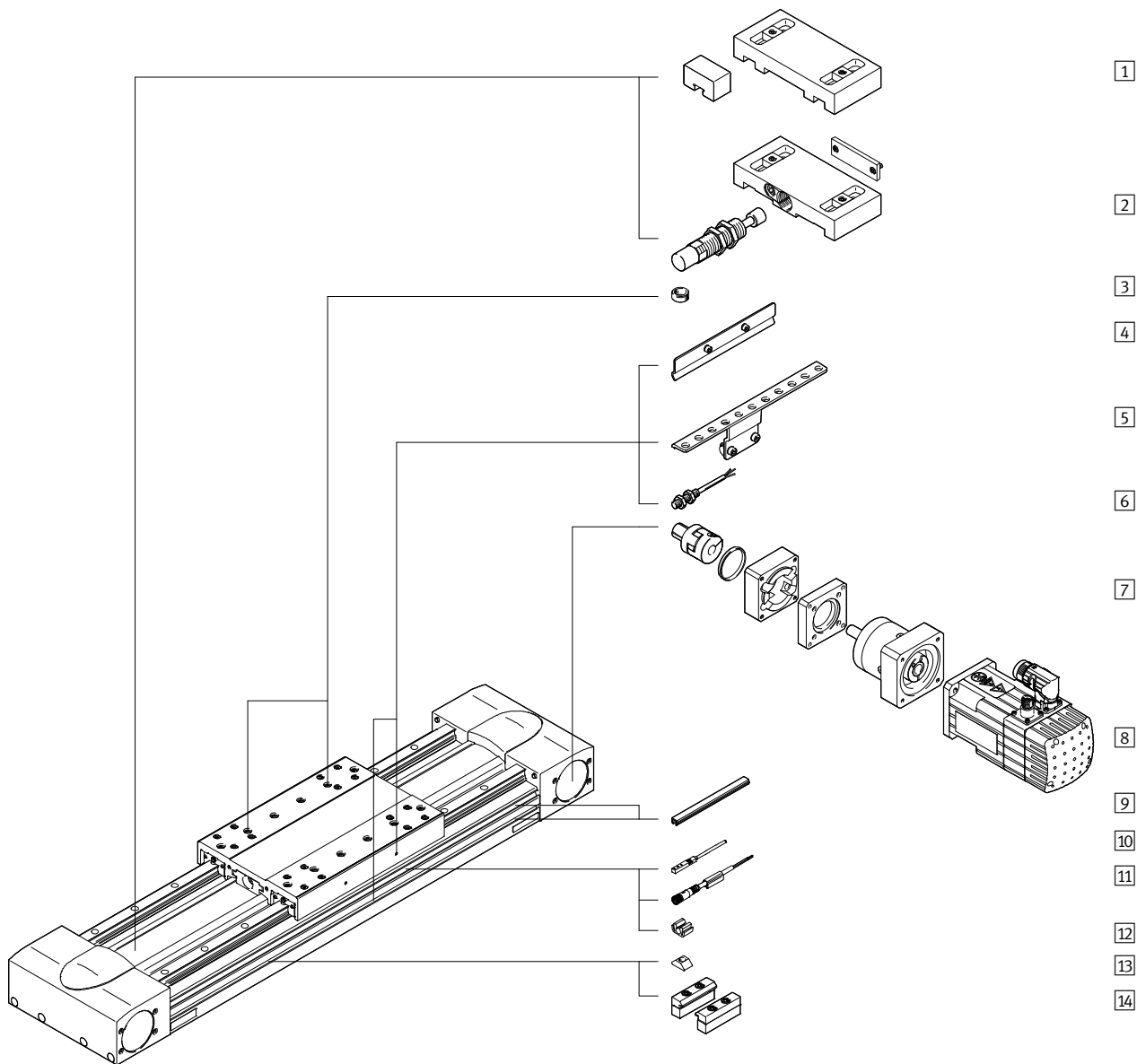


- O top
- U underneath
- R right
- L left
- V front
- H rear

Ordering – Product options

	<p>Configurable product</p>	<p>This product and all its options can be ordered using the configurator.</p>	<p>The configurator can be found under Products on the DVD or → www.festo.com/catalogue/...</p>	<p>Enter the type code in the search field.</p>
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Accessories



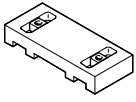

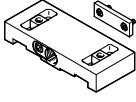
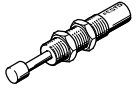



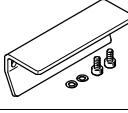
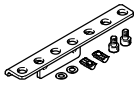
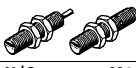

3

		→ Page/online
1	Emergency buffer NPE/retainer EAYH	410
2	Shock absorber YSRW/shock absorber retainer EAYH	410
3	Centring pin ZBS/centring sleeve ZBH	410
4	Switch lug SF-EGC	410
5	Sensor bracket HWS-EGC	410
6	Inductive proximity sensor SIEN	410
7	Axial kit EAMM-A	410

		→ Page/online
8	Motor EMME/EMMS	410
9	Slot cover ABP/ABP-S	411
10	Inductive proximity sensor SIES	411
11	Connecting cable NEBU	411
12	Clip SMBK	411
13	Slot nut NST	411
14	Profile mounting MUE	411

Toothed belt axes EGC-HD-TB, with heavy-duty guide

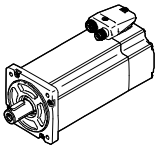
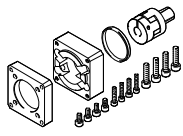
Accessories – Ordering data

	For size	Part No.	Type
1 Retainer EAYH Dimensions online: → egc-hd-tb			
	125	1662803	EAYH-L2-125-N
	160	1669259	EAYH-L2-160-N
	220	1669260	EAYH-L2-220-N
1 Emergency buffer			
	125	1662475	NPE-125
	160	1672593	NPE-160
	220	1672598	NPE-220
2 Shock absorber retainer EAYH Dimensions online: → egc-hd-tb			
	125	1653251	EAYH-L2-125
	160	1653250	EAYH-L2-160
	220	1653253	EAYH-L2-220
2 Shock absorber YSRW Technical data online: → egc-hd-tb			
	125	191196	YSRW-12-20
	160	191197	YSRW-16-26
	220	191198	YSRW-20-34
3 Centring pin¹⁾²⁾ Technical data online: → zbs			
	125	150928	ZBS-5
3 Centring sleeve¹⁾²⁾ Technical data online: → zbh			
	125 ... 220	150927	ZBH-9
4 Switch lug³⁾ Dimensions online: → egc-hd-tb			
	125	570027	SF-EGC-HD-1-125
	160	1645872	SF-EGC-HD-1-160
	220	1645866	SF-EGC-HD-1-220
4 Switch lug⁴⁾ Dimensions online: → egc-hd-tb			
	125	570030	SF-EGC-HD-2-125
	160	1645865	SF-EGC-HD-2-160
	220	1645868	SF-EGC-HD-2-220
5 Sensor bracket⁵⁾ Dimensions online: → egc-hd-tb			
	125	558057	HWS-EGC-M5
	160	558057	HWS-EGC-M5
	220	570365	HWS-EGC-M8-B
6 Inductive proximity sensor, N/O contact, M8 Technical data → 827			
	PNP, cable	★ 150386	SIEN-M8B-PS-K-L
	PNP, plug	★ 150387	SIEN-M8B-PS-S-L
N/C contact, M8 Technical data → 827			
	PNP, cable	150390	SIEN-M8B-PO-K-L
	PNP, plug	150391	SIEN-M8B-PO-S-L

- 1) Packaging unit 10 pieces.
- 2) 2 centring pins/sleeves included in the scope of delivery of the axis.
- 3) For sensing via proximity sensor SIES-8M.
- 4) For sensing via proximity sensor SIEN-M8B or SIES-8M.
- 5) For proximity sensor SIEN-M8B.

Note

Depending on the combination of motor and drive, it may not be possible to reach the maximum feed force of the drive.

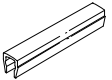
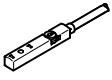
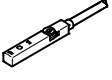




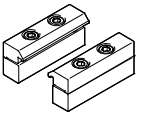
Motor/gear unit ⁶⁾	Axial kit
	
	Part No. Type

7/8 Permissible axis/motor combination with axial kit – Technical data online: → [eamm-a](#)

EGC-HD-125		
With servo motor and gear unit		
EMMS-AS-55-...	1190076	EAMM-A-M43-60G
EMGA-60-P-G...-SAS-55		
EMMS-AS-70-...	1190076	EAMM-A-M43-60G
EMGA-60-P-G...-SAS-70		
With stepper motor and gear unit		
EMMS-ST-57-...	1190076	EAMM-A-M43-60G
EMGA-60-P-G...-SST-57		
EGC-HD-160		
With servo motor and gear unit		
EMMS-AS-70-...	1190421	EAMM-A-M48-80G
EMGA-80-P-G...-SAS-70		
EMME-AS-80-...	1190421	EAMM-A-M48-80G
EMGA-80-P-G...-EAS-80		
EMME-AS-100-...	1190421	EAMM-A-M48-80G
EMGA-80-P-G...-SAS-100		
EMMS-AS-100-...	1190421	EAMM-A-M48-80G
EMGA-80-P-G...-SAS-100		
With stepper motor and gear unit		
EMMS-ST-87-...	1190421	EAMM-A-M80-120G
EMGA-80-P-G...-SST-87		
EGC-HD-220		
With servo motor and gear unit		
EMMS-AS-100-...	1190774	EAMM-A-M80-120G
EMGA-120-P-G...-SAS-100		
EMMS-AS-140-...	1190774	EAMM-A-M80-120G
EMGA-120-P-G...-SAS-140		

- 6) The input torque must not exceed the max. perm. transferable torque of the axial kit.

Accessories – Ordering data

	For size	Part No.	Type	
9 Slot cover¹⁾				
	For mounting slot			
	125, 160 ²⁾	151681	ABP-5	
	160 ³⁾ , 220	151682	ABP-8	
	For sensor slot			
	125 ... 220	563360	ABP-5-S1	
10 Proximity sensor for T-slot, inductive, N/O contact				Technical data → 831
	PNP, cable	551386	SIES-8M-PS-24V-K-7,5-OE	
	PNP, plug	551387	SIES-8M-PS-24V-K-0,3-M8D	
	NPN, cable	551396	SIES-8M-NS-24V-K-7,5-OE	
	NPN, plug	551397	SIES-8M-NS-24V-K-0,3-M8D	
N/C contact				Technical data → 831
	PNP, cable	551391	SIES-8M-PO-24V-K-7,5-OE	
	PNP, plug	551392	SIES-8M-PO-24V-K-0,3-M8D	
	NPN, cable	551401	SIES-8M-NO-24V-K-7,5-OE	
	NPN, plug	551402	SIES-8M-NO-24V-K-0,3-M8D	
11 Connecting cable, straight socket				Technical data → 1053
	2.5 m	★	541333	NEBU-M8G3-K-2.5-LE3
	5 m	★	541334	NEBU-M8G3-K-5-LE3
Angled socket				Technical data → 1053
	2.5 m	★	541338	NEBU-M8W3-K-2.5-LE3
	5 m	★	541341	NEBU-M8W3-K-5-LE3
12 Clip				
	125 ... 220		534254	SMBK-8
13 Slot nut				Technical data online: → nst
	125, 160 ²⁾		150914	NST-5-M5
	160 ³⁾ , 220		150915	NST-8-M6
14 Profile mounting				Dimensions online: → egc-hd-tb
	125	★	558043	MUE-70/80
	160	★	558043	MUE-70/80
	220		558044	MUE-120/185

1) Packaging unit 2x 0.5 m.

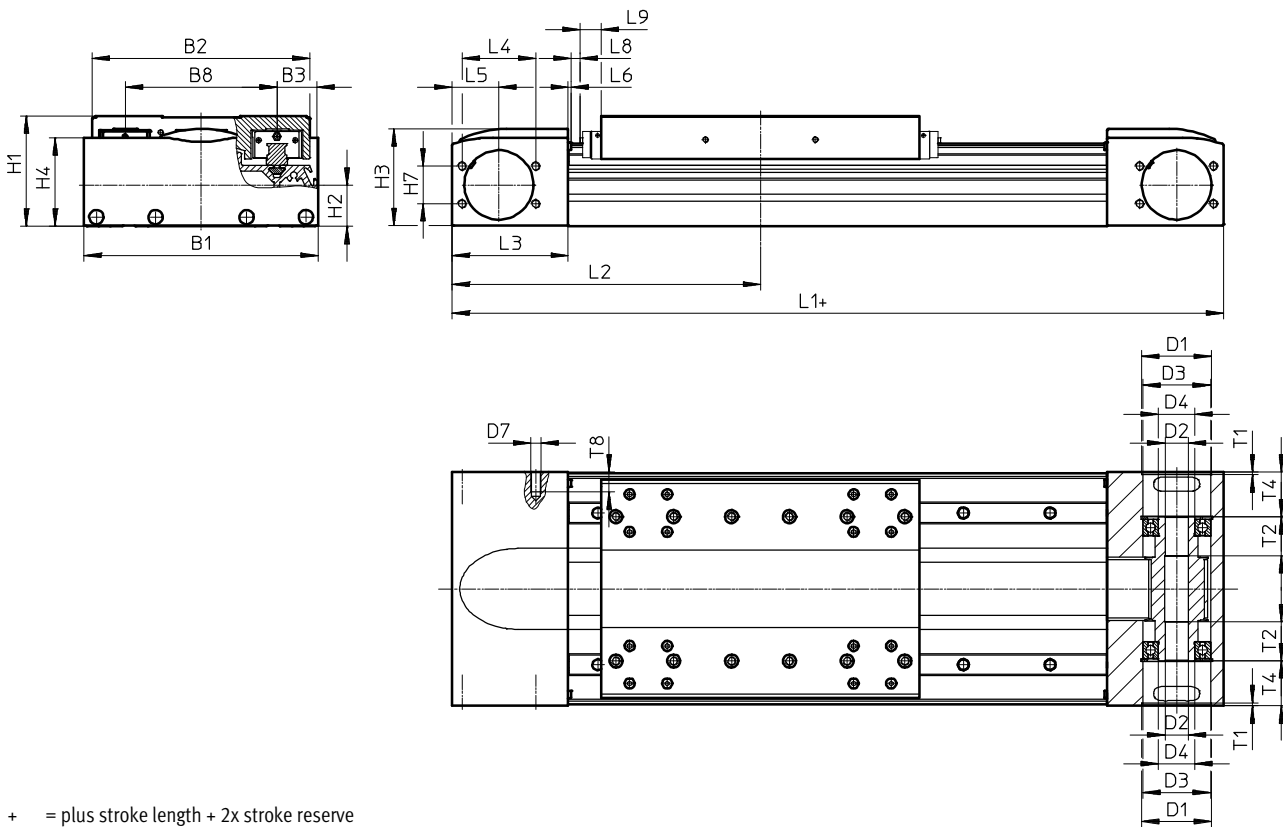
2) For mounting slot at side.

3) For mounting slot underneath.

Toothed belt axes EGC-HD-TB, with heavy-duty guide

Dimensions

3



+ = plus stroke length + 2x stroke reserve

Size	B1	B2	B3	B8	D1 ∅ H7	D2 ∅ H7	D3 ∅	D4 ∅	D7
125	124	120	21	80	43	16	42	25	M6
160	162	156	27.5	105	48	16	47	25	M6
220	224	216	40	140	80	23	75	45	M8

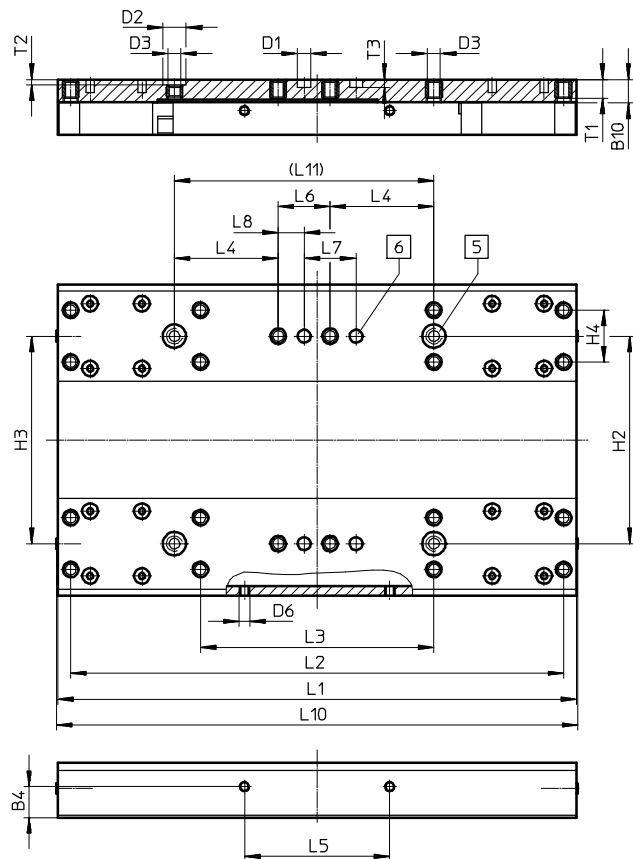
Size	H1	H2	H3	H4	H7	L1	L2 min.	L3	L4
125	64	26.1	55.8	50.8	24	346	173	57.5	46
160	76.5	28.7	67.5	61.5	26	417	208.5	80.5	51
220	111.5	45.2	98	91.1	59	576	288	115	76

Size	L5	L6	L8	L9	T1	T2	T4	T8
125	27.5	1.8	2	-	2.1	27	23.65	13
160	32.5	2	0.55	14.9	3.1	27	31.1	14
220	50	2	2	18	3.1	29.5	47.5	16

Dimensions

GK – Standard slide

Size 125



- 5 Hole for centring sleeve ZBH
- 6 Hole for centring pin ZBS

Size	B4	B10	D1	D2	D3	D6	H2	H3	H4	L1	L2	L3
	±0.1		∅ H7	∅ H7			±0.03	±0.05	±0.1	±0.1	±0.2	±0.1
125	12	9	5	9	M5	M4	80	80	20	200	190	90

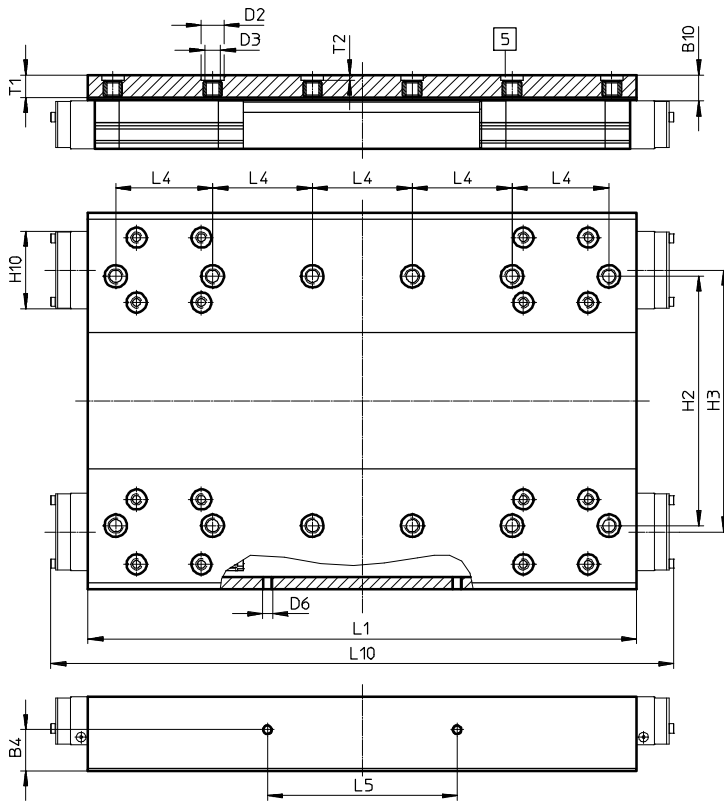
Size	L4	L5	L6	L7	L8	L10	L11	T1	T2	T3
	±0.1	±0.2	±0.1	±0.03	±0.1		±0.03		+0.1	+0.1
125	40	56	20	20	10	202	100	7.8	2.1	3.1

Toothed belt axes EGC-HD-TB, with heavy-duty guide

Dimensions

GK – Standard slide

Size 160



5 Hole for centring sleeve ZBH

Size	B4	B10*	D2 ∅ H7	D3	D6	H2	H3
160	±0.1 16.5	10.5	9	M6	M4	±0.03 100	±0.05 105

Size	H10*	L1	L4	L5	L10*	T1	T2
160	31	±0.1 220	±0.03 40	±0.1 76	250	9	+0.1 2.1

* Protected version

Toothed belt axes EGC-HD-TB, with heavy-duty guide

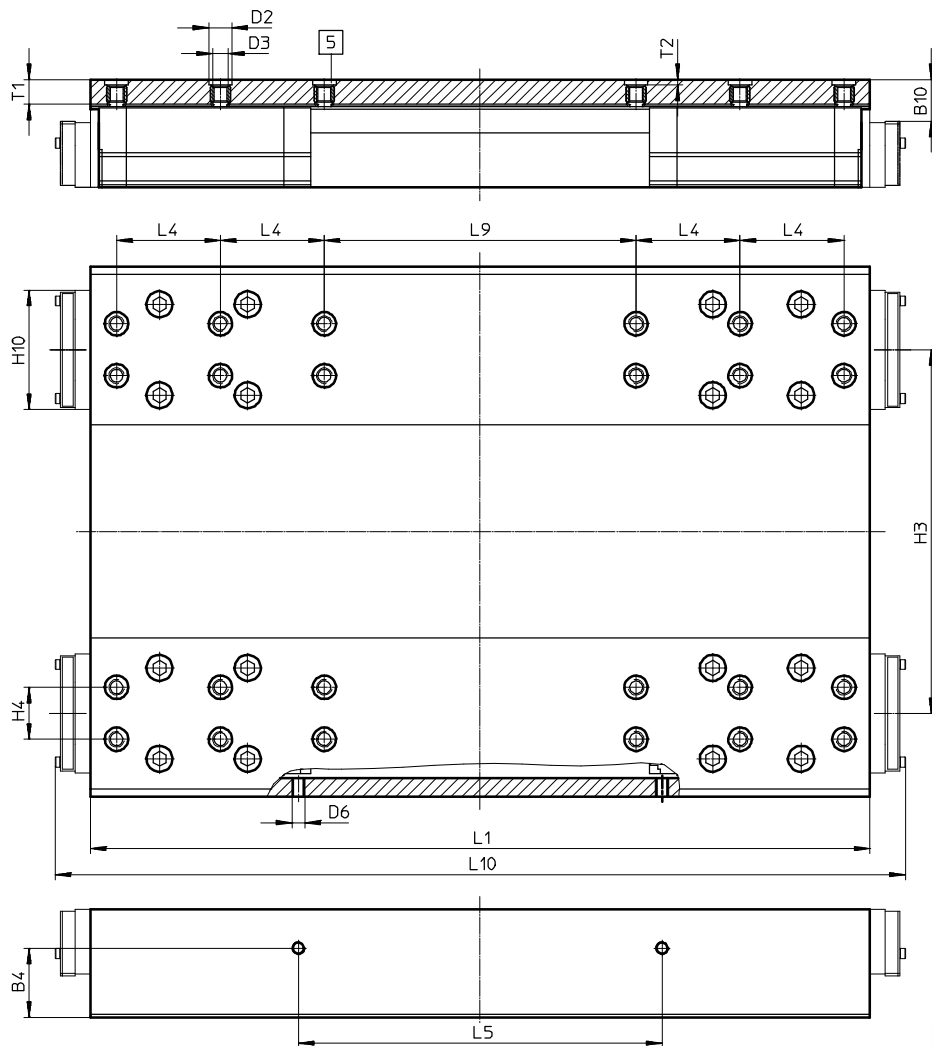


Download CAD data → www.festo.com

Dimensions

GK – Standard slide

Size 220



5 Hole for centring sleeve ZBH

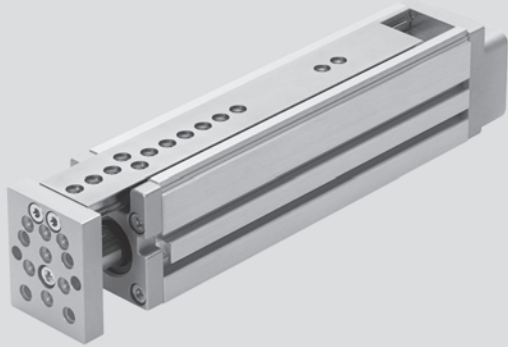
Size	B4	B10*	D2 ∅ H7	D3	D6	H3	H4	H10*
220	±0.1 26.6	16	9	M6	M5	±0.05 140	±0.03 20	45.95

Size	L1	L4	L5	L9	L10*	T1	T2
220	±0.1 302	±0.03 40	±0.1 140	±0.03 120	328	9.5	+0.1 2.1

* Protected version

3

Mini slides EGSL, electric



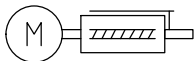
- For vertical applications with variable positioning
- Slides can withstand very high rated loads, ideal for applications such as press-fitting or joining
- Enclosed spindle prevents the ingress of dirt or disruptive small parts in the guide area
- Motor can be mounted laterally or axially

→ www.festo.com/catalogue/egsl

Product range overview

Type/version	Size	Stroke [mm]	Feed force [N]	Speed [m/s]
EGSL				
Electric	35, 45, 55, 75	50 ... 300	75 ... 450	0.5 ... 1.3

Technical data



Technical data	Dimensions → 422								
	Size	35		45		55		75	
Spindle pitch	[mm/rev]	8	3	10	5	12.7	10	20	
Working stroke	[mm]	50	100, 200		100, 200, 250		100, 200, 300		
Guide value for payload, horizontal	[kg]	2	6		10		14		
Guide value for payload, vertical	[kg]	2	6		10		14		
Continuous feed force F_x	[N]	50	100		200		300		
Max. feed force F_x	[N]	75	150		300		450		
Max. no-load driving torque	[Nm]	0.015	0.055	0.050	0.10	0.135	0.265	0.165	
Max. driving torque ¹⁾	[Nm]	0.2	0.45	0.51	0.9	1.25	3.25	3.25	
Max. radial force ²⁾	[N]	20	120		260		300		
Max. speed	[m/s]	0.5	0.3	1.0	0.4	1.0	0.65	1.3	
Nominal acceleration	[m/s ²]	15							
Max. acceleration ³⁾	[m/s ²]	25							
Repetition accuracy	[mm]	±0.015							
Max. reversing backlash ⁴⁾	[μm]	≤50							

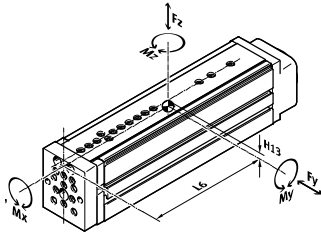
1) Friction and torque due to deceleration of the rotating load taken into consideration.
 2) At the drive shaft.
 3) The max. acceleration is dependent on the moving load, the driving torque and the max. feed force.
 4) In new condition.

Note

All values are based on a room temperature of 20 °C.

Technical data

Permissible forces and torques/geometric characteristics



Note

PositioningDrives
sizing software

→ www.festo.com

Size	Stroke [mm]	F _y max [N]	F _z max [N]	M _x max [Nm]	M _y max, M _z max [Nm]	H13 [mm]	L6 [mm]
35							
	50	512	512	6.2	6.0	4.2	106
45							
	100	631	631	18.6	16.3	6.4	162
	200	291	291	14.3	12.3	6.4	262
55							
	100	1047	1047	33.1	31.0	6.4	180
	200	490	490	24.2	22.6	6.4	280
	250	563	563	27.0	33.3	6.4	344
75							
	100	1539	1539	67.4	47.1	7.6	187
	200	714	714	48.5	33.8	7.6	287
	300	555	555	46.4	36.5	7.6	389

Operating conditions

Size	35	45	55	75
Ambient temperature	[°C] 0 ... +60			
Degree of protection	IP40			

Materials

Yoke plate	Anodised wrought aluminium alloy
Guide rail	Rolled steel
Housing	Anodised wrought aluminium alloy
Spindle	Rolled steel
Spindle nut	Rolled steel
End cap	Painted cast aluminium

Order code

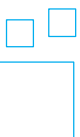
EGSL		-		BS		-		-		-	
Type											
EGSL	Mini slide										
Drive function											
BS	Ball screw spindle										
Size											
		Stroke [mm]									
				Spindle pitch [mm/rev]							
35	50			8P							
45	100, 200			3P, 10P							
55	100, 200, 250			5P, 12.7P							
75	100, 200, 300			10P, 20P							

Order example:

EGSL-BS-45-200-10P

Mini slide EGSL - ball screw spindle - size 45 - stroke 200 mm - spindle pitch 10 mm/rev

Ordering – Product options



Configurable
product

This product and all its options can
be ordered using the configurator.

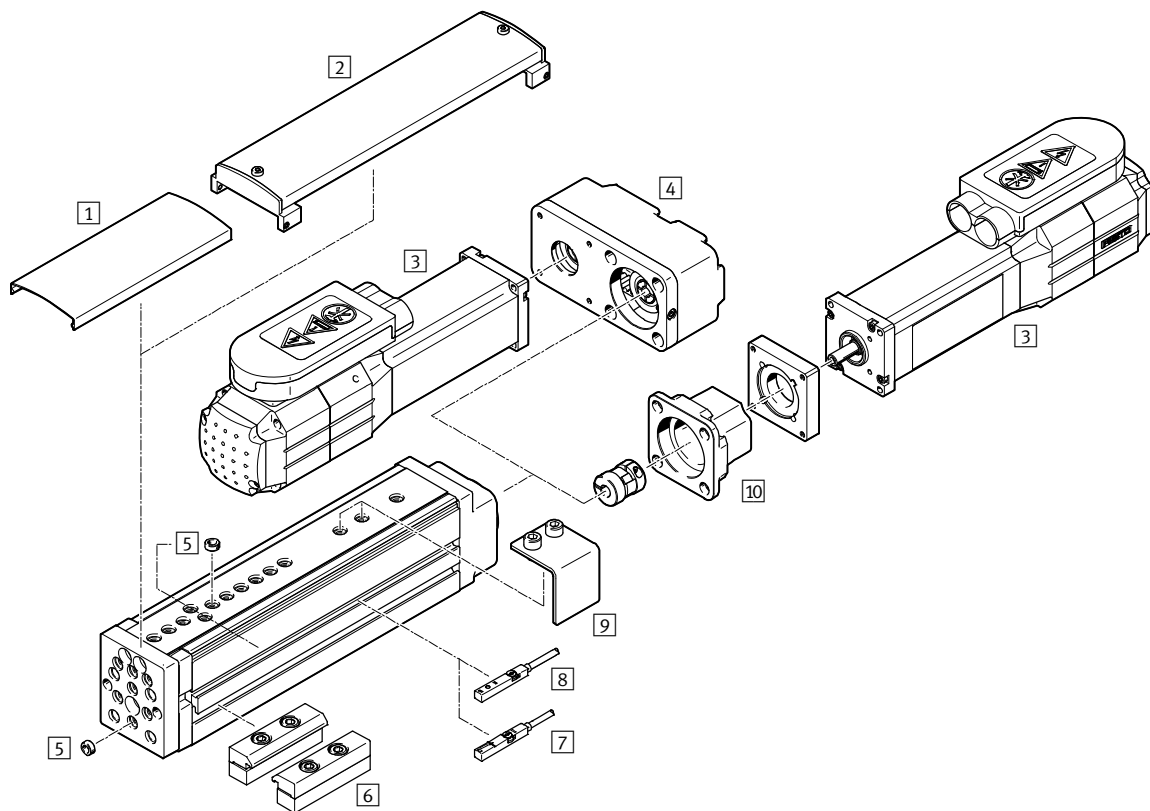
The configurator can be found under
Products on the DVD or
→ www.festo.com/catalogue/...

Enter the type code in the search field.

Mini slides EGSL, electric

Accessories

3



		→ Page/online
1	Cover EASC	418
2	Cover EASC-...-F	418
3	Motor EMME/EMMS	419
4	Parallel kit EAMM-U	419
5	Centring sleeve ZBH	421
6	Profile mounting EAHF, MUE	421

		→ Page/online
7	Proximity sensor SIES	421
8	Proximity sensor SMT-8-...-B	421
9	Switch lug EAPM	421
10	Axial kit EAMM-A	419
-	Connecting cable NEBU	421
-	Connector sleeve ZBV	421

Accessories – Ordering data

	For size	Length [mm]	Part No.	Type
1 Cover for use without switch lug				
Dimensions online: → egsl				
	35	50	570819	EASC-G1-35-50
		500 ¹⁾	570874	EASC-G1-35-500
	45	100	570822	EASC-G1-45-100
		200	570823	EASC-G1-45-200
		500 ¹⁾	570875	EASC-G1-45-500
	55	100	570824	EASC-G1-55-100
		200	570825	EASC-G1-55-200
		250	570826	EASC-G1-55-250
		500 ¹⁾	570876	EASC-G1-55-500
	75	100	570827	EASC-G1-75-100
		200	570828	EASC-G1-75-200
		300	570829	EASC-G1-75-300
500 ¹⁾		570877	EASC-G1-75-500	

	For size	Length [mm]	Part No.	Type
2 Cover for use with switch lug				
Dimensions online: → egsl				
	35	50	570830	EASC-G1-35-50-F
		100	570833	EASC-G1-45-100-F
	45	200	570834	EASC-G1-45-200-F
		100	570835	EASC-G1-55-100-F
		200	570836	EASC-G1-55-200-F
	55	250	570837	EASC-G1-55-250-F
		100	570838	EASC-G1-75-100-F
	75	200	570839	EASC-G1-75-200-F
		300	570840	EASC-G1-75-300-F

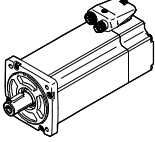

1) The cover can be shortened by the customer as required.

Accessories – Ordering data

Note

Depending on the combination of motor and drive, it may not be possible to reach the maximum feed force of the drive.

The respective no-load driving torque of the kit must be taken into consideration when using parallel kits.

Motor/gear unit ¹⁾	Parallel kit	
		
	<ul style="list-style-type: none"> • Increased housing rigidity • More flexible motor mounting possible • Optionally with degree of protection IP65 • Use in combination with third-party motors on request 	
	Part No.	Type
3/4 Permissible axis/motor combination with parallel kit – Technical data online: → eamm-u		
EGSL-45		
With servo motor		
EMME-AS-40-...	2153283	EAMM-U-50-D32-40P-78
EMMS-AS-40-...	1201591	EAMM-U-50-D32-40A-78
EMMS-AS-55-...	1210126	EAMM-U-60-D32-55A-91
EMME-AS-60-...	2619586	EAMM-U-70-D32-60P-96
With stepper motor		
EMMS-ST-42-...	1201607	EAMM-U-50-D32-42A-78
EMMS-ST-57-...	1210419	EAMM-U-60-D32-57A-91
With motor unit		
MTR-DCI-32S-...	1570862	EAMM-U-50-D32-32B-78
MTR-DCI-42S-...	1577393	EAMM-U-60-D32-42B/C-91
With gear unit		
EMGA-40-P-...	1577358	EAMM-U-60-D32-40G-91
EMGC-40-P-...		
EMGA-60-P-...-SAS/SST ²⁾	2748181	EAMM-U-70-D32-60G-96
EMGA-60-P-...-EAS, EMGC-60-P-... ²⁾	2778393	EAMM-U-70-D32-60H-96

Motor/gear unit ¹⁾	Parallel kit	
	Part No.	Type
EGSL-55		
With servo motor		
EMMS-AS-55-...	1210438	EAMM-U-60-D40-55A-91
EMME-AS-60-...	2617488	EAMM-U-70-D40-60P-96
EMMS-AS-70-...	2786204	EAMM-U-70-D40-70A-96
EMMS-AS-70-...	1212826	EAMM-U-86-D40-70A-102
With stepper motor		
EMMS-ST-57-...	1210442	EAMM-U-60-D40-57A-91
EMMS-ST-87-...	1215802	EAMM-U-86-D40-87A-102
With motor unit		
MTR-DCI-42S-...	1570950	EAMM-U-60-D40-42B/C-91
MTR-DCI-52S-...	2786802	EAMM-U-70-D40-52B/C-96
MTR-DCI-52S-...	1537046	EAMM-U-86-D40-52B/C-102
With gear unit		
EMGA-40-P-...	1577165	EAMM-U-60-D40-40G-91
EMGC-40-P-...		
EMGA-60-P-...-SAS/SST ²⁾	2785471	EAMM-U-70-D40-60G-96
EMGA-60-P-...-EAS, EMGC-60-P-... ²⁾	2786101	EAMM-U-70-D40-60H-96
EMGA-60-P-...-SAS/SST ²⁾	1586445	EAMM-U-86-D40-60G-102
EMGA-60-P-...-EAS, EMGC-60-P-... ²⁾	1586496	EAMM-U-86-D40-60H-102
EGSL-75		
With servo motor		
EMMS-AS-70-...	★ 1212477	EAMM-U-86-D60-70A-102
EMME-AS-80-...	★ 2155875	EAMM-U-86-D60-80P-102
With stepper motor		
EMMS-ST-87-...	★ 1215784	EAMM-U-86-D60-87A-102
With motor unit		
MTR-DCI-52S-...	1537000	EAMM-U-86-D60-52B/C-102
MTR-DCI-62S-...	1536988	EAMM-U-110-D60-62B-120
With gear unit		
EMGA-60-P-...-SAS/SST ²⁾	★ 1586347	EAMM-U-86-D60-60G-102
EMGA-60-P-...-EAS, EMGC-60-P-... ²⁾	★ 1586276	EAMM-U-86-D60-60H-102
EMGA-60-P-...-SAS/SST ²⁾	★ 1543240	EAMM-U-110-D60-60G-120
EMGA-60-P-...-EAS, EMGC-60-P-... ²⁾	★ 1542264	EAMM-U-110-D60-60H-120
EMGA-80-P-...	★ 1532949	EAMM-U-110-D60-80G-120

1) The input torque must not exceed the max. perm. transferable torque of the parallel kit.

2) Gear unit drive shaft Ø: EMGA-60-P-...-SAS/-SST: 11 mm; EMGA-60-P-...-EAS, EMGC-60-P: 14 mm.

Note

The clamping component EADT is required to adjust the toothed belt pre-tension with EAMM-U-110.

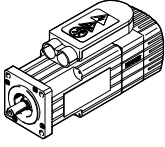
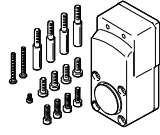
The motor and/or axis shaft can op-

tionally be supported with a counter-bearing EAMG.

More information → [eamm-u](#)

Mini slides EGSL, electric

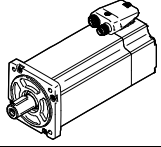
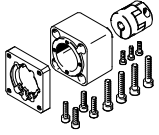
Accessories – Ordering data

Motor/gear unit ¹⁾	Parallel kit	
		
	• Space-saving gravity die-cast housing	
	Part No.	Type
3/4 Permissible axis/motor combination with parallel kit – Technical data online: → eamm-u		
EGSL-45		
With servo motor		
EMMS-AS-40-...	543150	EAMM-U-D32-40A
EGSL-55		
With servo motor		
EMMS-AS-55-...	543157	EAMM-U-D40-55A
EGSL-75		
With servo motor		
EMMS-AS-70-...	543165	EAMM-U-D60-70A

1) The input torque must not exceed the max. perm. transferable torque of the parallel kit.


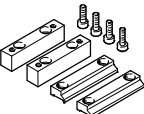
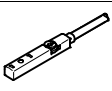
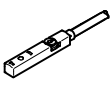
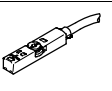


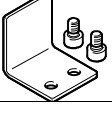

Note

The motor can only be mounted on the side and underneath when using these kits.

Motor/gear unit ²⁾	Axial kit	
		
	Part No.	Type
3/10 Permissible axis/motor combination with axial kit – Technical data online: → eamm-a		
EGSL-35		
With servo motor		
EMME-AS-40-...	1981953	EAMM-A-D19-40P
EMMS-AS-40-...	1199152	EAMM-A-D19-40A
With stepper motor		
EMMS-ST-28-...	1081659	EAMM-A-D19-28A
EMMS-ST-42-...	1087642	EAMM-A-D19-42A
EGSL-45		
With servo motor		
EMME-AS-40-...	1976465	EAMM-A-D32-40P
EMMS-AS-40-...	543147	EAMM-A-D32-40A
EMMS-AS-55-...	550979	EAMM-A-D32-55A
EMME-AS-60-...	1956054	EAMM-A-D32-60P
With stepper motor		
EMMS-ST-42-...	543148	EAMM-A-D32-42A
EMMS-ST-57-...	550980	EAMM-A-D32-57A
EGSL-55		
With servo motor		
EMMS-AS-55-...	543153	EAMM-A-D40-55A
EMME-AS-60-...	1977000	EAMM-A-D40-60P
EMMS-AS-70-...	550981	EAMM-A-D40-70A
With servo motor and gear unit		
EMME-AS-40-...	560282	EAMM-A-D40-40G
EMGA-40-P-G...-EAS-40		
EMMS-AS-40-...	560282	EAMM-A-D40-40G
EMGA-40-P-G...-SAS-40		
With stepper motor		
EMMS-ST-57-...	543154	EAMM-A-D40-57A
EMMS-ST-87-...	550982	EAMM-A-D40-87A
With stepper motor and gear unit		
EMMS-ST-42-...	560282	EAMM-A-D40-40G
EMGA-40-P-G...-SST-42		
EGSL-75		
With servo motor		
EMMS-AS-70-...	★ 543161	EAMM-A-D60-70A
EMME-AS-80-...	★ 1977073	EAMM-A-D60-80P
EMME-AS-100-...	★ 550983	EAMM-A-D60-100A
EMMS-AS-100-...	★ 550983	EAMM-A-D60-100A
With servo motor and gear unit		
EMMS-AS-55-...	★ 560283	EAMM-A-D60-60G
EMGA-60-P-G...-SAS-55		
EMME-AS-70-...	★ 560283	EAMM-A-D60-60G
EMGA-60-P-G...-EAS-70		
With stepper motor		
EMMS-ST-87-...	★ 543162	EAMM-A-D60-87A
With stepper motor and gear unit		
EMMS-ST-57-...	★ 560283	EAMM-A-D60-60G
EMGA-60-P-G...-SST-57		

2) The input torque must not exceed the max. perm. transferable torque of the axial kit.

Accessories – Ordering data

	For size	Part No.	Type	
5 Centring sleeve¹⁾				
	35, 45, 55	186717	ZBH-7	
	75	150927	ZBH-9	
6 Profile mounting Dimensions online: → egsl				
	35	1170211	EAHF-G1-35-P	
	45	1168859	EAHF-G1-45-P	
	55	558043	MUE-70/80	
	75	558043	MUE-70/80	
7 Proximity sensor for T-slot, inductive, N/O contact Technical data → 831				
	PNP, cable	551386	SIES-8M-PS-24V-K-7,5-OE	
	PNP, plug	551387	SIES-8M-PS-24V-K-0,3-M8D	
	NPN, cable	551396	SIES-8M-NS-24V-K-7,5-OE	
	NPN, plug	551397	SIES-8M-NS-24V-K-0,3-M8D	
N/C contact Technical data → 831				
	PNP, cable	551391	SIES-8M-PO-24V-K-7,5-OE	
	PNP, plug	551392	SIES-8M-PO-24V-K-0,3-M8D	
	NPN, cable	551401	SIES-8M-NO-24V-K-7,5-OE	
	NPN, plug	551402	SIES-8M-NO-24V-K-0,3-M8D	
8 Proximity sensor for T-slot, magneto-resistive – N/O contact Technical data → 808				
	PNP, cable	★ 574335	SMT-8M-A-PS-24V-E-2,5-OE	
	PNP, plug	★ 574334	SMT-8M-A-PS-24V-E-0,3-M8D	
Connecting cable, straight socket Technical data → 1053				
	2.5 m	★ 541333	NEBU-M8G3-K-2.5-LE3	
	5 m	★ 541334	NEBU-M8G3-K-5-LE3	
Angled socket Technical data → 1053				
	2.5 m	★ 541338	NEBU-M8W3-K-2.5-LE3	
	5 m	★ 541341	NEBU-M8W3-K-5-LE3	
9 Switch lug Dimensions online: → egsl				
	35	1235029	EAPM-G1-35-SLS	
	45	1235033	EAPM-G1-45-SLS	
	55	1235035	EAPM-G1-55-SLS	
	75	1235036	EAPM-G1-75-SLS	
Connector sleeve²⁾				
	45, 55	548803	ZBV-M5-7	
	75	548804	ZBV-M6-9	

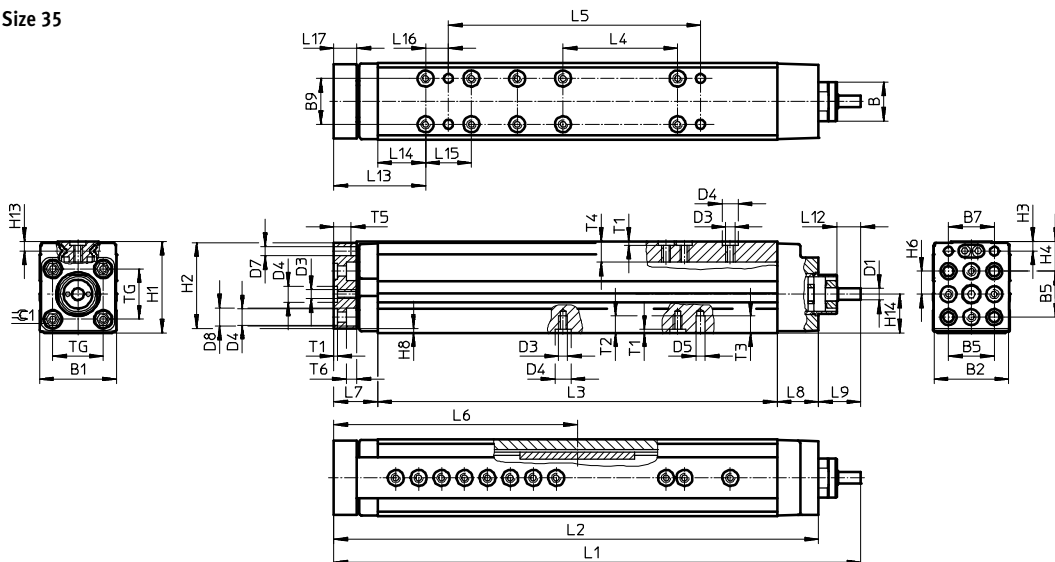
1) Packaging unit 10 pieces.

2) Packaging unit 3 pieces.

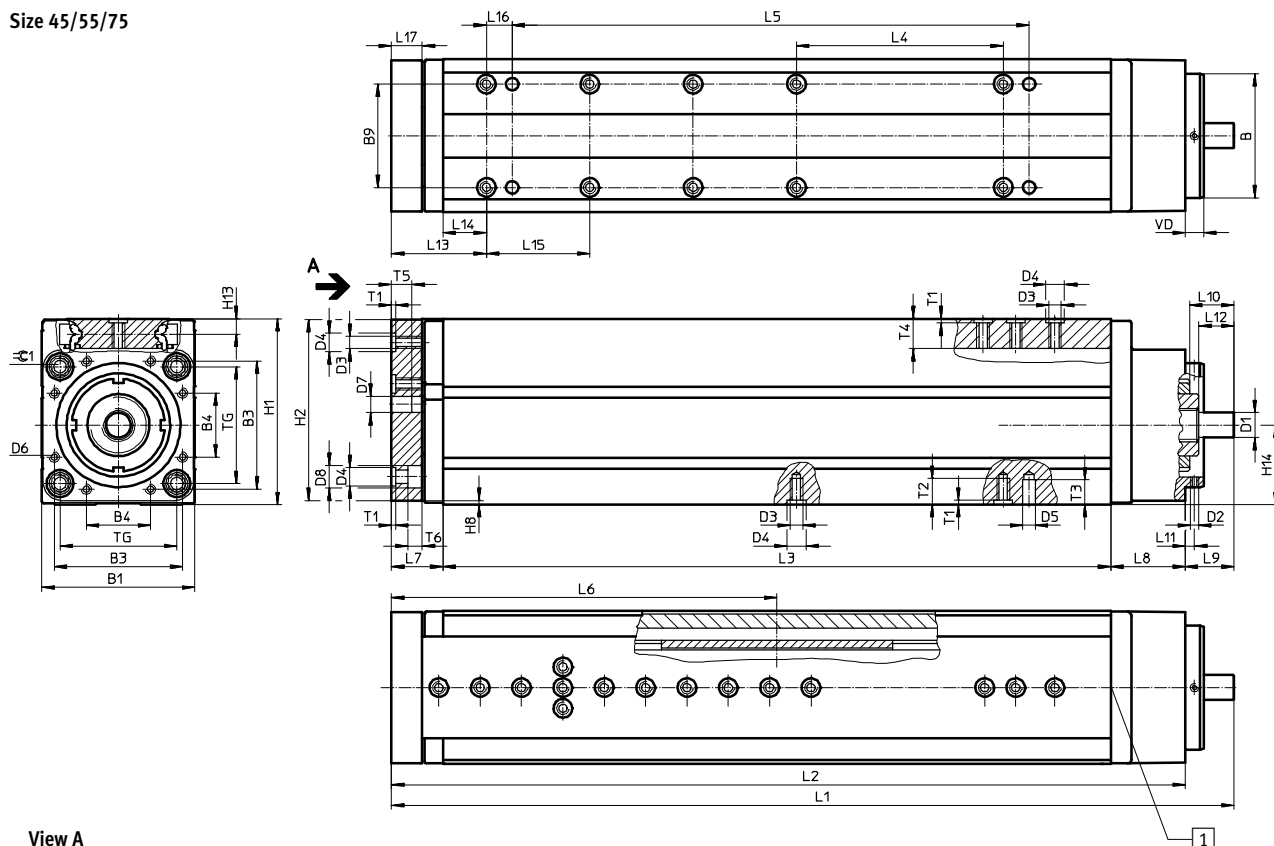
Mini slides EGSL, electric

Dimensions

Size 35

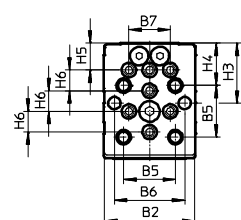


Size 45/55/75

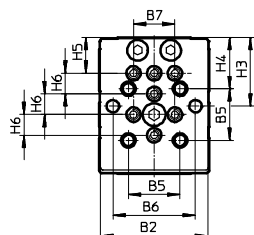


View A

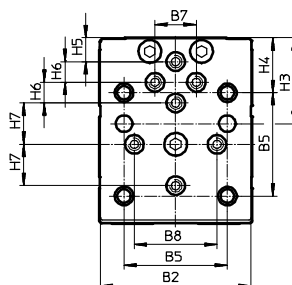
Size 45



Size 55



Size 75



1 Rubber buffer integrated in the slide. Can be removed when homing to fixed stop.

Dimensions

Download CAD data → www.festo.com

Size	B ∅ g7	B1	B2	B3	B4	B5	B6	B7	B8	B9 ±0.5
35	19	33.5	33	–	–	20	–	20	–	20
45	32	44.5	43.5	32	19	25	34	20	–	25
55	40	53	52	42	20	25	40	20	–	25
75	60	74	73	62	31	50	–	20	40	50

Size	D1 ∅	D2	D3	D4 ∅ H7	D5 ∅ H7	D6	D7 ∅	D8 ∅	H1	H2
35	5	–	M4	7	4	–	4	8	40	37.5
45	6	M3	M5	7	6	M3	6	10	56	43.5
55	8	M3	M5	7	6	M4	6	10	66	63.5
75	12	M4	M6	9	6	M5	8	11	90	87.5

Size	H3	H4	H5	H6	H7	H8	H13	H14	L7	
									2) ±1	3) ±1
35	4.2	13	–	10	–	2	4.2	17 ^{+0.09/-0.07}	21	19
45	29	20.5	13	10	–	2	6.4	23 ^{±0.08}	22	20
55	33.3	24.8	17.3	10	–	2	6.4	28.7 ^{±0.08}	27	25
75	41.5	26.5	11.5	10	20	2	7.6	38.5 ^{±0.08}	27	25

Size	L8	L9 ±1	L10	L11	L12 ±0.2	L13		L14 ¹⁾	L15 ¹⁾	L16 ±0.1
						2)	3)			
35	18	18.5	–	–	10.5	42	40	21	20	10
45	26	16	16.9	3.5	8	43	41	21	25	12.5
55	30	18.5	14.9	3.5	14	48	46	21	25	12.5
75	36	23.6	21.5	4.5	17	48	46	21	50	12.5

Size	L17	T1 ±0.1	T2	T3	T4	T5	T6	TG	VD	≈G 1
35	10	1.6	7.6	7.5	9	7.5	4.6	22	–	5
45	10	1.6	8.1	7.5	12.4	7.5	5.7	32.5	7	6
55	15	1.6	8.6	8.5	12.4	10	8.7	38	7	6
75	15	2.1	12.6	12	14.5	10	6.8	56.5	9	8

Size	Stroke [mm]	L1		L2		L3 –0.2	L4 ¹⁾	L5 ¹⁾ ±0.05	L6	
		2) ±1.5	3) ±1.5	2) ±1	3) ±1				2)	3)
		35	50	182	180				163.5	161.5
45	100	248	246	232	230	184	75	125	114	112
	200	348	346	332	330	284	100	175	164	162
55	100	284.5	282.5	266	264	209	100	150	132	130
	200	384.5	382.5	366	364	309	100	175	182	180
	250	463.5	461.5	445	443	388	100	175	221	219
75	100	309.6	307.6	286	284	223	–	150	139	137
	200	409.6	407.6	386	384	323	100	250	189	187
	300	514.6	512.6	491	489	428	150	350	241	239

1) Tolerance for centring hole ±0.02 mm.
Tolerance for thread ±0.1 mm.

2) With rubber buffer.

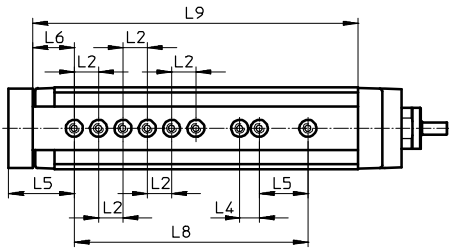
3) Without rubber buffer; when homing to fixed stop.

Mini slides EGSL, electric

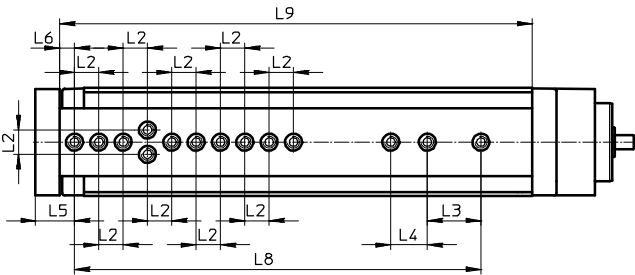
Dimensions

Hole pattern for mounting threads and centring holes

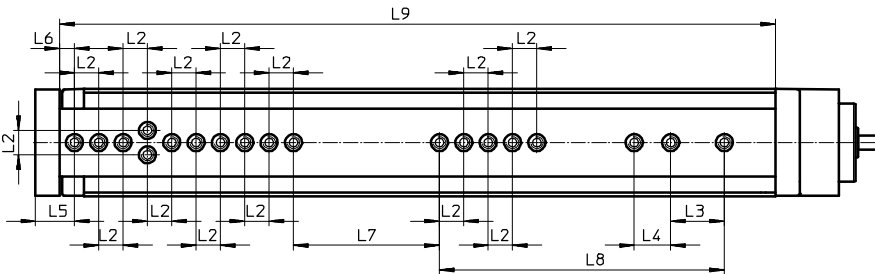
EGSL-35-50



EGSL-45-100



EGSL-45-200



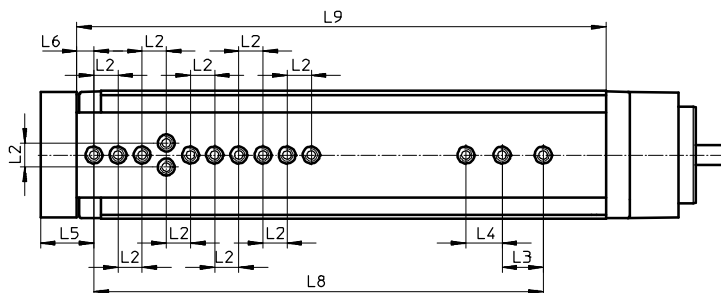
Size	Stroke	L2 ¹⁾	L3 ¹⁾	L4 ¹⁾	L5	L6	L7 ¹⁾	L8 ¹⁾	L9
	[mm]								
35	50	10	20	8	27	17	–	96	133.5
45	100	10	22	15	16	6	–	167	194
	200						60	117	294

1) Tolerance for centring hole ±0.02 mm.
Tolerance for thread ±0.1 mm.

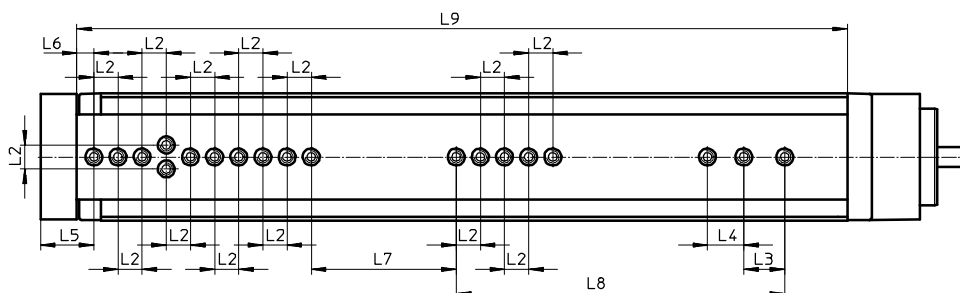
Dimensions

Hole pattern for mounting threads and centring holes

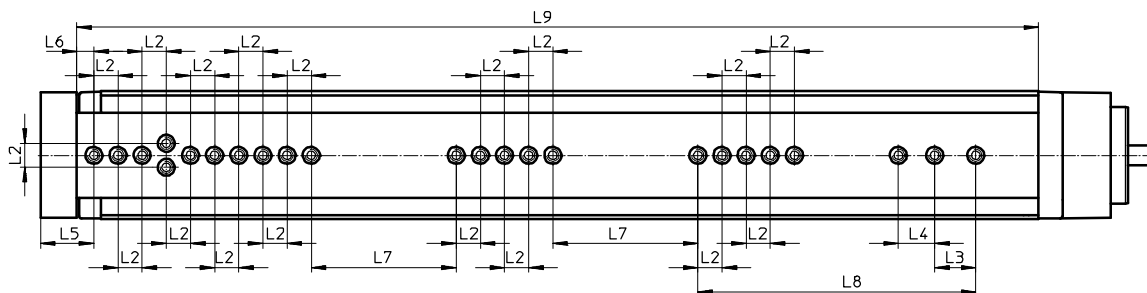
EGSL-55-100



EGSL-55-200



EGSL-55-250



Size	Stroke [mm]	L2 ¹⁾	L3 ¹⁾	L4 ¹⁾	L5	L6	L7 ¹⁾	L8 ¹⁾	L9
55	100	10	17	15	22	7	-	186	219
	200						60	136	319
	250						60	115	398

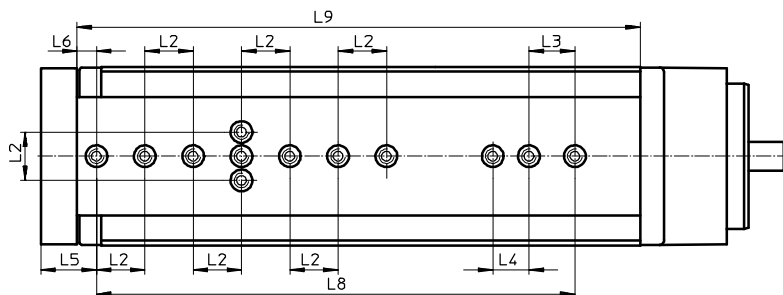
1) Tolerance for centring hole ±0.02 mm.
Tolerance for thread ±0.1 mm.

Mini slides EGSL, electric

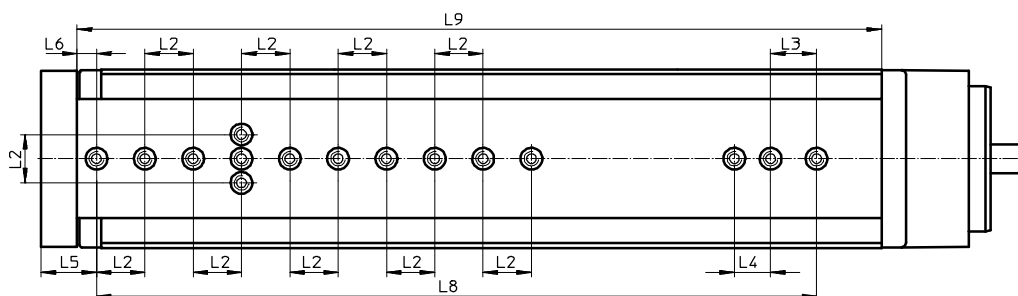
Dimensions

Hole pattern for mounting threads and centring holes

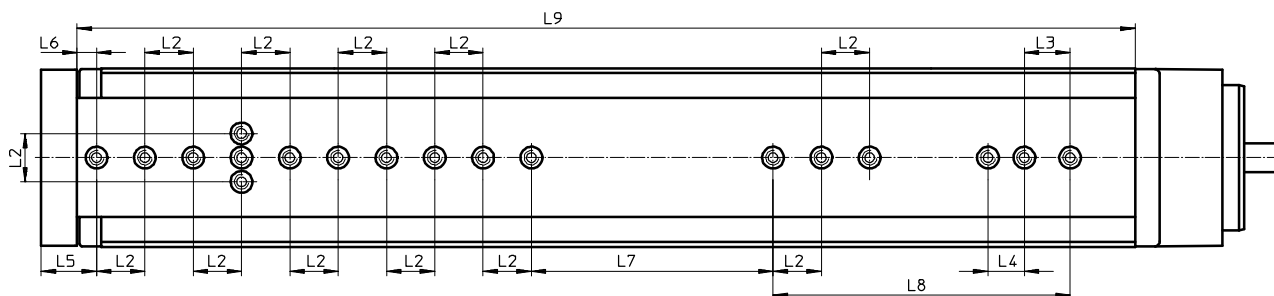
EGSL-75-100



EGSL-75-200

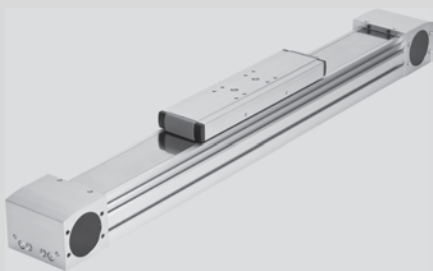


EGSL-75-300



Size	Stroke	L2 ¹⁾	L3 ¹⁾	L4 ¹⁾	L5	L6	L7 ¹⁾	L8 ¹⁾	L9
	[mm]								
75	100	20	19	15	23	8	–	198	233
	200						–	298	333
	300						100	123	438

1) Tolerance for centring hole ±0.02 mm.
Tolerance for thread ±0.1 mm.



- Toothed belt axis with high feed forces
- Free choice of motor mounting
- Spare parts service

→ www.festo.com/catalogue/elga

3

Product range overview

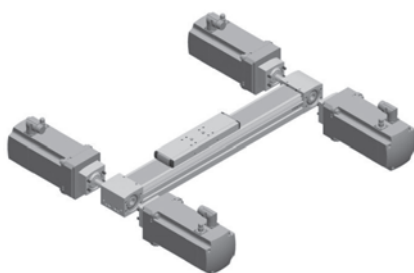
Type/version	Size	Stroke [mm]	Feed force F_x [N]	Product options P0	→ Page/online
ELGA-TB					
G – Plain-bearing guide	70, 80, 120	50 ... 8500	350 ... 1300	■	428
RF – Roller bearing guide	70, 80, 120	50 ... 7400	350 ... 1300	■	431

Product options

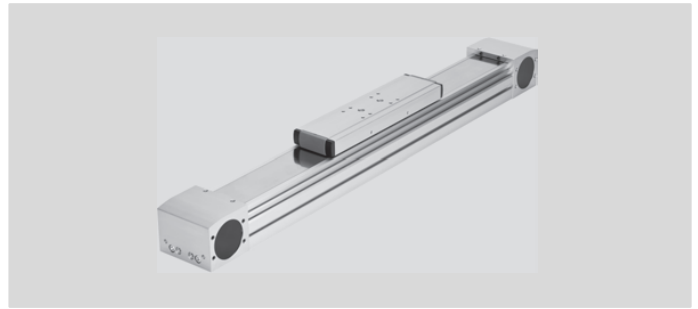
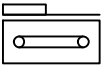
- Standard slide
- S Short slide
- L Long slide
- With strip cover
- P0 Without strip cover

Flexible motor mounting

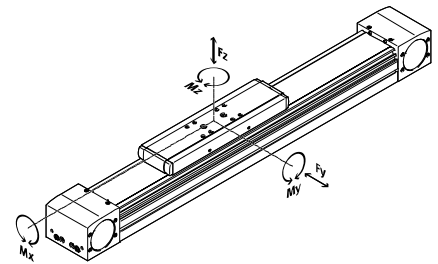
The motor position can be freely selected on 4 sides and can be changed at any time.



Technical data



Dimensions → 436



Technical data

Note

PositioningDrives
sizing software

→ www.festo.com

Size		70	80	120
Working stroke	[mm]	50 ... 8500	50 ... 8500	50 ... 8500
Max. feed force F_x	[N]	350	800	1300
Max. no-load torque ¹⁾	[Nm]	0.5	1	3
Max. driving torque	[Nm]	5	15.9	34.2
Max. no-load resistance to shifting ¹⁾	[N]	35	50	114
Max. speed	[m/s]	5		
Max. acceleration	[m/s ²]	50		
Repetition accuracy	[mm]	±0.08		
Max. permissible force F_y	[N]	80	200	380
Max. permissible force F_z	[N]	400	800	1600
Max. permissible torque M_x	[Nm]	5	10	20
Max. permissible torque M_y	[Nm]	30	60	120
Max. permissible torque M_z	[Nm]	10	20	40

1) At 0.2 m/s.

Operating conditions

Ambient temperature	[°C]	-10 ... +60
Degree of protection		IP40

Toothed belt

Size		70	80	120
Pitch	[mm]	3	5	5
Tensile stress ²⁾	[%]	0.31	0.19	0.23
Effective diameter	[mm]	28.65	39.79	52.52
Feed constant	[mm/rev]	90	125	165

2) At max. feed force.

Mass moment of inertia

Size		70	80	120
J_0	[kg mm ²]	175	666	3201
J_S per metre stroke	[kg mm ² /m]	19	93	215
J_L per kg payload	[kg mm ² /kg]	205	396	690

The mass moment of inertia J_A of the entire axis is calculated as follows:

$$J_A = J_0 + J_S \times \text{working stroke [m]} + J_L \times m_{\text{payload [kg]}}$$

Technical data

Materials	
End cap	Anodised wrought aluminium alloy
Profile	Anodised wrought aluminium alloy
Drive cover	Anodised wrought aluminium alloy
Slide guide	POM
Guide rail	Anodised wrought aluminium alloy
Pulleys	High-alloy stainless steel
Slide	Anodised wrought aluminium alloy
Toothed belt clamping component	Stainless steel casting
Toothed belt	Polychloroprene with glass cord and nylon coating

Order code

		ELGA	-	TB	-	G	-		-		-		-	
Type														
ELGA	Linear axis													
Drive function														
TB	Toothed belt													
Guide														
G	Plain-bearing guide													
Size														
	Stroke [mm]													
70	1 ... 8500													
80	1 ... 8500													
120	1 ... 8500													
Stroke reserve														
...H	0 ... 999 (0 = no stroke reserve)												1	
Protection against particles														
-	Standard													
PO	Without strip cover													

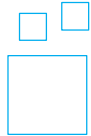
1 The sum of the stroke length and 2x stroke reserve must be at least 50 mm and must not exceed the maximum stroke length.

Order example:

ELGA-TB-G-80-1300-200H

Linear axis ELGA - toothed belt - plain-bearing guide - size 80 - stroke 1300 mm - stroke reserve 200 mm - standard

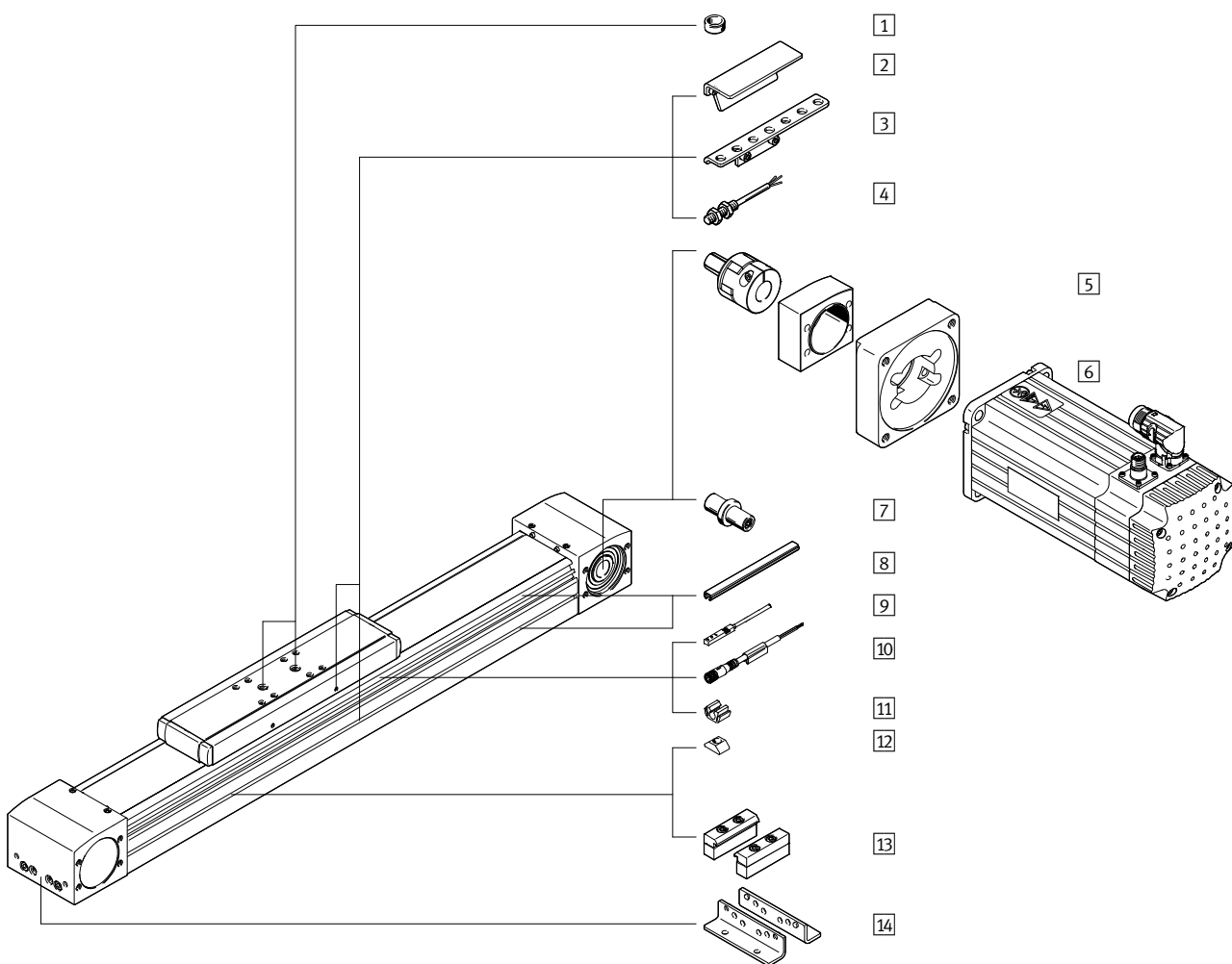
Ordering – Product options

	<p>Configurable product</p>	<p>This product and all its options can be ordered using the configurator.</p>	<p>The configurator can be found under Products on the DVD or www.festo.com/catalogue/...</p>	<p>Enter the type code in the search field.</p>
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Toothed belt axes ELGA-TB-G, plain-bearing guide

Accessories

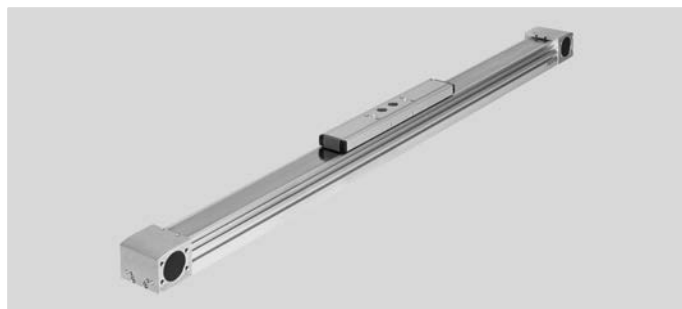
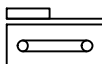
3



		→ Page/online
1	Centring pin ZBS/centring sleeve ZBH	434
2	Switch lug SF	434
3	Sensor bracket HWS	434
4	Inductive proximity sensor M8 SIEN	434
5	Axial kit EAMM	434
6	Motor EMME/EMMS	434
7	Drive shaft EAMB	434

		→ Page/online
8	Slot cover ABP	434
9	Inductive proximity sensor T-slot SIES	435
10	Connecting cable NEBU	435
11	Clip SMBK	435
12	Slot nut NST	435
13	Profile mounting MUE	435
14	Foot mounting HPE	435

Technical data



3

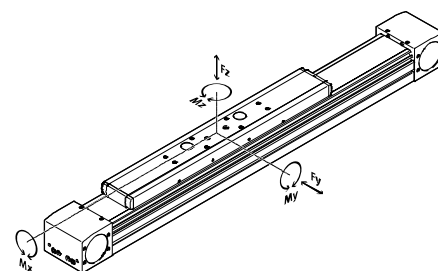
Technical data

Dimensions → 436

Note

PositioningDrives
sizing software

→ www.festo.com



Size		70	80	120
Working stroke	[mm]	50 ... 7000	50 ... 7000	50 ... 7400
Max. feed force F_x	[N]	350	800	1300
Max. no-load torque ¹⁾	[Nm]	0.66	1.35	3
Max. driving torque	[Nm]	5	15.9	34.1
Max. no-load resistance to shifting ¹⁾	[N]	35	50	114
Max. speed	[m/s]	10		
Max. acceleration	[m/s ²]	50		
Repetition accuracy	[mm]	±0.08		
Max. permissible force F_y	[N]	500	800	2000
Max. permissible force F_z	[N]	500	800	2000
Max. permissible torque M_x	[Nm]	11	30	100
Max. permissible torque M_y	[Nm]	20	90	320
Max. permissible torque M_z	[Nm]	20	90	320

1) At 0.2 m/s.

Operating conditions

Ambient temperature	[°C]	-10 ... +60
Degree of protection		IP40

Toothed belt

Size		70	80	120
Pitch	[mm]	3	5	5
Tensile stress ²⁾	[%]	0.31	0.19	0.23
Effective diameter	[mm]	28.65	39.79	52.52
Feed constant	[mm/rev]	90	125	165

2) At max. feed force.

Mass moment of inertia

Size		70	80	120
J_0	[kg mm ²]	232	1044	4935
J_S per metre stroke	[kg mm ² /m]	19	97	221
J_L per kg payload	[kg mm ² /kg]	205	396	690

The mass moment of inertia J_A of the entire axis is calculated as follows:

$$J_A = J_0 + J_S \times \text{working stroke [m]} + J_L \times m_{\text{payload [kg]}}$$

Toothed belt axes ELGA-TB-RF, roller bearing guide

Technical data

Materials	
Drive cover	Anodised wrought aluminium alloy
Cover strip	Stainless steel strip
Toothed belt	Polychloroprene with glass cord and nylon coating
Slide	Anodised wrought aluminium alloy
Track roller	Hardened rolled steel
Guide rod	Hardened tempered steel
Wiper seal	Oil-impregnated felt
Profile	Anodised wrought aluminium alloy
Toothed belt pulley	High-alloy stainless steel

Order code

Type	
ELGA	Linear axis

Drive function	
TB	Toothed belt

Guide	
RF	Roller bearing guide

Size	
	Stroke [mm]
70	50 ... 7000
80	50 ... 7000
120	50 ... 7400

Stroke reserve	
...H	0 ... 999 (0 = no stroke reserve) 1

Protection against particles	
-	Standard
P0	Without strip cover

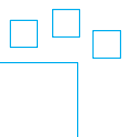
1 The sum of the stroke length and 2x stroke reserve must be at least 50 mm and must not exceed the maximum stroke length.

Order example:

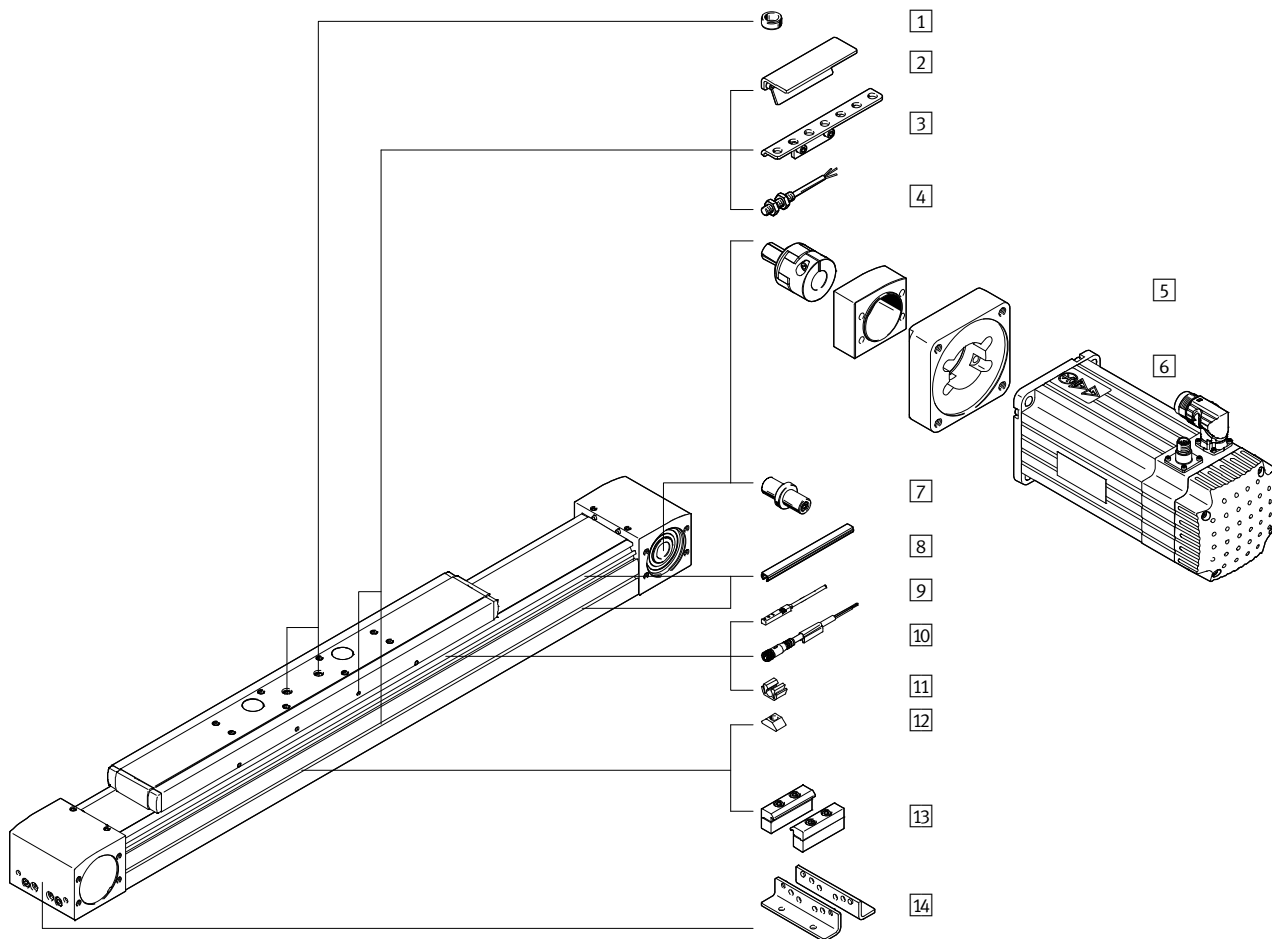
ELGA-TB-RF-80-1300-200H

Linear axis ELGA - toothed belt - roller bearing guide - size 80 - stroke 1300 mm - stroke reserve 200 mm - standard

Ordering – Product options

	Configurable product	This product and all its options can be ordered using the configurator.	The configurator can be found under Products on the DVD or → www.festo.com/catalogue/...	Enter the type code in the search field.
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Accessories




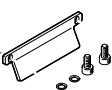
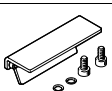
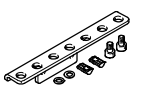
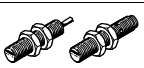

3

		→ Page/online
1	Centring pin ZBS/centring sleeve ZBH	434
2	Switch lug SF	434
3	Sensor bracket HWS	434
4	Inductive proximity sensor M8 SIEN	434
5	Axial kit EAMM	434
6	Motor EMME/EMMS	434
7	Drive shaft EAMB	434

		→ Page/online
8	Slot cover ABP	434
9	Inductive proximity sensor T-slot SIES	435
10	Connecting cable NEBU	435
11	Clip SMBK	435
12	Slot nut NST	435
13	Profile mounting MUE	435
14	Foot mounting HPE	435

Toothed belt axes ELGA-TB

Accessories – Ordering data

	For size	Part No.	Type
1 Centring pin/sleeve¹⁾²⁾ Technical data online: → zbh			
	For ELGA-TB-G		
	70	150928	ZBS-5
	80, 120	150927	ZBH-9
	For ELGA-TB-RF		
	70, 80, 120	150927	ZBH-9
2 Switch lug for sensing with proximity sensor SIES Dimensions online: → elga			
	70	558047	SF-EGC-1-70
	80	558048	SF-EGC-1-80
	120	558049	SF-EGC-1-120
2 Switch lug for sensing with proximity sensor SIEN Dimensions online: → elga			
	70	558052	SF-EGC-2-70
	80	558053	SF-EGC-2-80
	120	558054	SF-EGC-2-120
3 Sensor bracket Dimensions online: → elga			
	70	558057	HWS-EGC-M5
	80	558057	HWS-EGC-M5
	120	570365	HWS-EGC-M8-B
4 Inductive proximity sensor, N/O contact, M8 Technical data → 827			
	PNP, cable	★ 150386	SIEN-M8B-PS-K-L
	PNP, plug	★ 150387	SIEN-M8B-PS-S-L
N/C contact, M8 Technical data → 827			
	PNP, cable	150390	SIEN-M8B-PO-K-L
	PNP, plug	150391	SIEN-M8B-PO-S-L

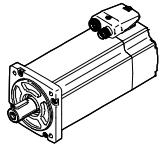
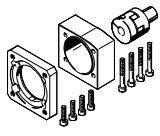
- 1) Packaging unit 10 pieces.
- 2) 2 centring sleeves included in the scope of delivery of the axis.



Note

Depending on the combination of motor and drive, it may not be possible to reach the maximum feed force of the drive.

Motor/gear unit ³⁾	Axial kit	
	Part No.	Type
ELGA-TB-...-80		
With servo motor		
EMMS-AS-100-...	1201894	EAMM-A-N48-100A
With servo motor and gear unit		
EMMS-AS-70-...	1258793	EAMM-A-N48-80G
EMGA-80-P-G...-SAS-70		
EMME-AS-80-...	1258793	EAMM-A-N48-80G
EMGA-80-P-G...-EAS-80		
EMME-AS-100-...	1258793	EAMM-A-N48-80G
EMGA-80-P-G...-SAS-100		
EMMS-AS-100-...	1258793	EAMM-A-N48-80G
EMGA-80-P-G...-SAS-100		
With stepper motor and gear unit		
EMMS-ST-87-...	1258793	EAMM-A-N48-80G
EMGA-80-P-G...-SST-87		
ELGA-TB-...-120		
With servo motor		
EMMS-AS-140-...	1201691	EAMM-A-N80-140A
With servo motor and gear unit		
EMMS-AS-70-...	2372096	EAMM-A-N80-80G
EMGA-80-P-G...-SAS-70		
EMME-AS-80-...	2372096	EAMM-A-N80-80G
EMGA-80-P-G...-EAS-80		
EMME-AS-100-...	2372096	EAMM-A-N80-80G
EMGA-80-P-G...-SAS-100		
EMMS-AS-100-...	2372096	EAMM-A-N80-80G
EMGA-80-P-G...-SAS-100		
EMME-AS-100-...	1201695	EAMM-A-N80-120G
EMGA-120-P-G...-SAS-100		
EMMS-AS-100-...	1201695	EAMM-A-N80-120G
EMGA-120-P-G...-SAS-100		
EMMS-AS-140-...	1201695	EAMM-A-N80-120G
EMGA-120-P-G...-SAS-140		
With stepper motor and gear unit		
EMMS-ST-87-...	2372096	EAMM-A-N80-80G
EMGA-80-P-G...-SST-87		

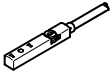
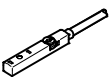




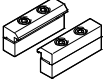
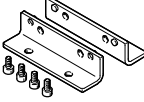
- 3) The input torque must not exceed the max. perm. transferable torque of the axial kit.

5/6 Permissible axis/motor combination with axial kit – Technical data online: → eamm-a			
Motor/gear unit ²⁾	Axial kit		
			
	Part No.	Type	
ELGA-TB-...-70			
With servo motor			
EMMS-AS-70-...	1202331	EAMM-A-N38-70A	
With servo motor and gear unit			
EMMS-AS-55-...	1202253	EAMM-A-N38-60G	
EMGA-60-P-G...-SAS-55			
EMMS-AS-70-...	1202253	EAMM-A-N38-60G	
EMGA-60-P-G...-SAS-70			
With stepper motor and gear unit			
EMMS-ST-57-...	1202253	EAMM-A-N38-60G	
EMGA-60-P-G...-SST-57			

	For size	Part No.	Type
7 Drive shaft			
	70	1344642	EAMB-24-9-15X21-16X20
	80	558036	EAMB-24-6-15X21-16X20
	120	558037	EAMB-34-6-25X26-23X27
8 Slot cover⁴⁾			
	70, 80	151681	ABP-5
	120	151682	ABP-8

- 4) Packaging unit 2x 0,5 m.

Accessories – Ordering data

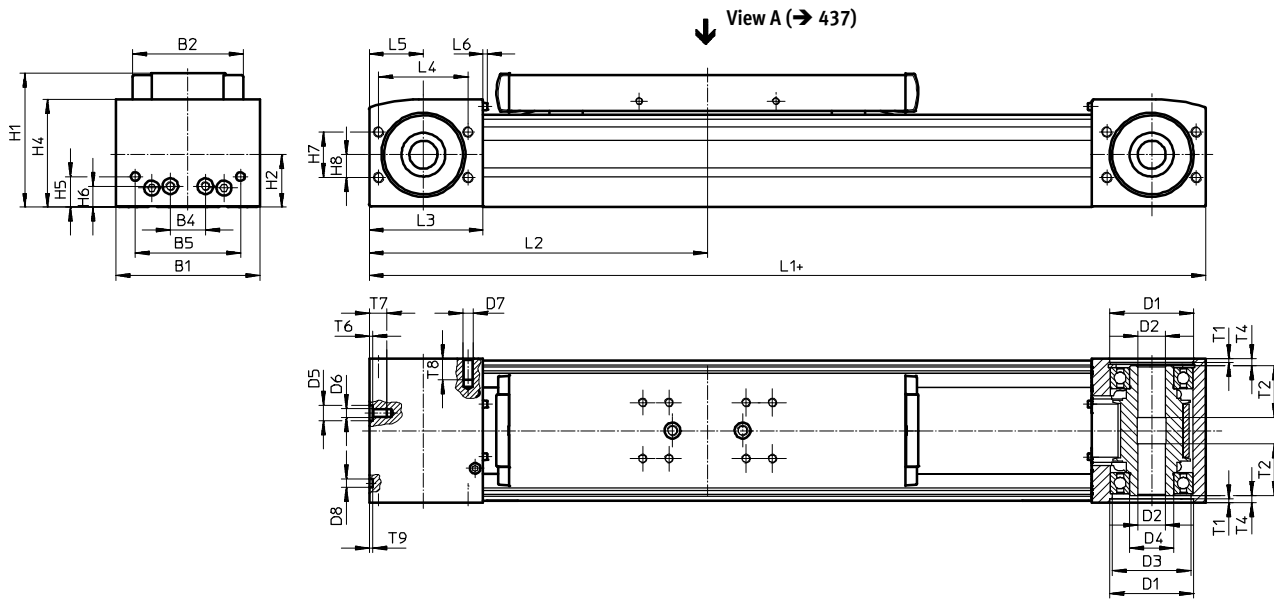
	For size	Part No.	Type	
9	Proximity sensor for T-slot, inductive, N/O contact			Technical data → 831
	PNP, cable	551386	SIES-8M-PS-24V-K-7,5-OE	
	PNP, plug	551387	SIES-8M-PS-24V-K-0,3-M8D	
	NPN, cable	551396	SIES-8M-NS-24V-K-7,5-OE	
	NPN, plug	551397	SIES-8M-NS-24V-K-0,3-M8D	
N/C contact				Technical data → 831
	PNP, cable	551391	SIES-8M-PO-24V-K-7,5-OE	
	PNP, plug	551392	SIES-8M-PO-24V-K-0,3-M8D	
	NPN, cable	551401	SIES-8M-NO-24V-K-7,5-OE	
	NPN, plug	551402	SIES-8M-NO-24V-K-0,3-M8D	
10	Connecting cable, straight socket			Technical data → 1053
	2.5 m	★	541333	NEBU-M8G3-K-2.5-LE3
	5 m	★	541334	NEBU-M8G3-K-5-LE3
Angled socket				Technical data → 1053
	2.5 m	★	541338	NEBU-M8W3-K-2.5-LE3
	5 m	★	541341	NEBU-M8W3-K-5-LE3
11	Clip			
	70 ... 120		534254	SMBK-8
12	Slot nut			
	70, 80		150914	NST-5-M5
	120		150915	NST-8-M6
13	Profile mounting			Dimensions online: → elga
	70		558043	MUE-70/80
	80		558043	MUE-70/80
	120		558044	MUE-120/185
14	Foot mounting			Dimensions online: → elga
	70		558321	HPE-70
	80		558322	HPE-80
	120		558323	HPE-120

1) Packaging unit 2x 0.5 m.

Toothed belt axes ELGA-TB-G, plain-bearing guide

Dimensions

3



+ = plus stroke length + 2x stroke reserve

Size	B1	B2	B4	B5	D1 ∅ H7	D2 ∅ H7	D3 ∅	D4 ∅	D5 ∅ H7	D6	D7
70	69	48.2	30	45	38	16	34	25	-	M5	M6
80	82	63.2	20	60	48	16	45	25	9	M5	M6
120	120	95	80	40	80	23	72	45	-	M8	M8

Size	D8 ∅ H7	H1	H2	H4	H5	H6	H7	H8	L1	L2 min.	L3
70	5	64	26.5	50.8	13	13	24	12	346	173	57.5
80	5	76.5	30	61.5	17.5	12	26	13	386	193	65
120	9	111.5	45	91	22	22	59	32	546	273	100

Size	L4	L5	L6	T1	T2	T4	T6	T7	T8	T9
70	42	27.5	2.3	2.1	18	7.15	-	10	12	3.1
80	51	31	2.3	2.1	29.5	4	2.1	10	12	2
120	76	50	2.5	3.1	29.5	4	-	16	16	2.1

Toothed belt axes ELGA-TB-G, plain-bearing guide

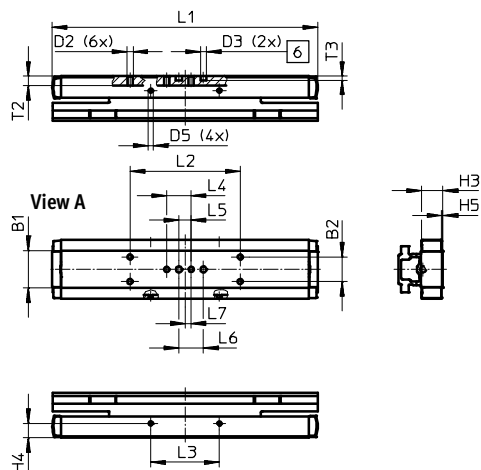


Download CAD data → www.festo.com

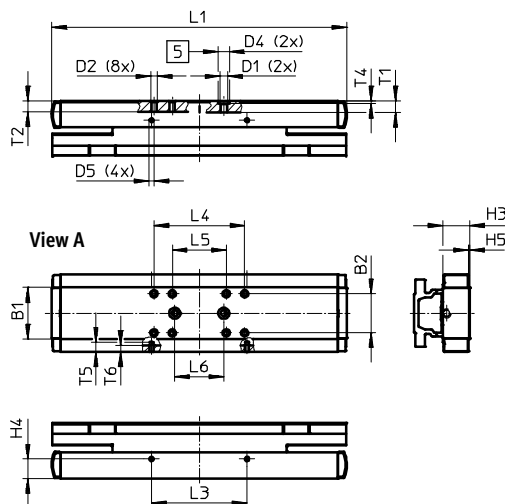
Dimensions

Slide

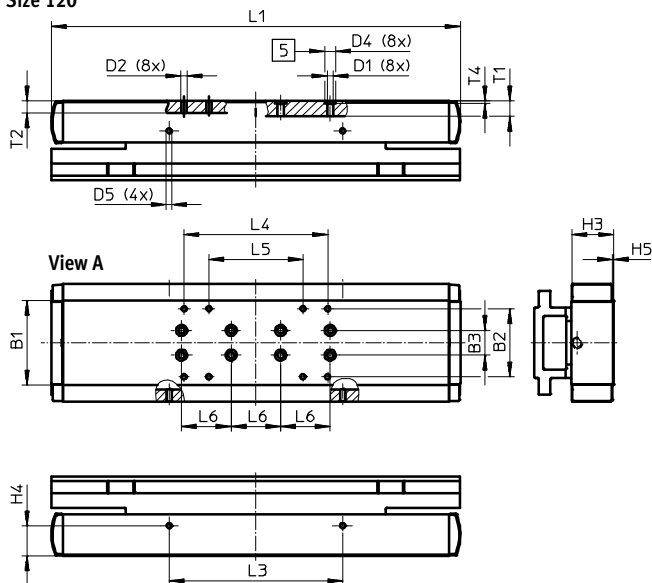
Size 70



Size 80



Size 120



- 5 Hole for centring sleeve
- 6 Hole for centring pin

Size	B1	B2	B3	D1	D2	D3 ∅	D4 ∅	D5
70	30	20±0.1	-	-	M5	5 ^{H7}	-	M4
80	42	32±0.2	-	M6	M5	-	9 ^{H7}	M4
120	68	55±0.2	20±0.03	M6	M5	-	9 ^{H7}	M5

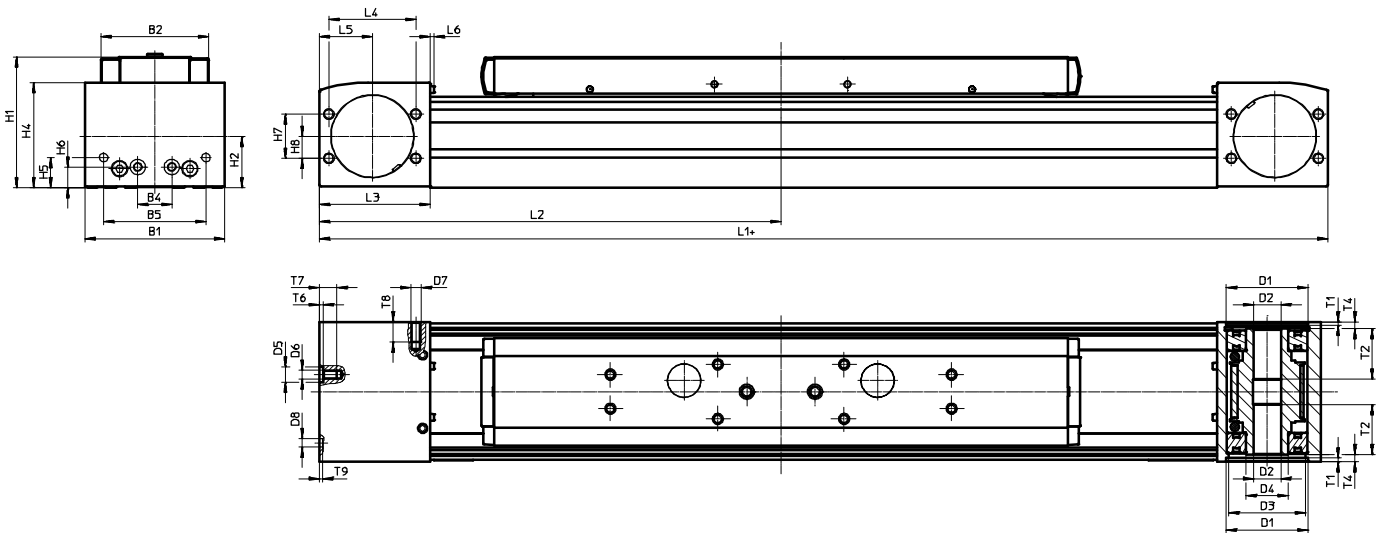
Size	H3	H4	H5	L1	L2	L3	L4	L5
		±0.1			±0.1	±0.1		
70	17.7	11.7	1	216.6	90	56	20±0.1	10±0.1
80	22.2	16	1	240.6	-	78	74±0.2	44±0.2
120	33.8	24.5	1	330.4	-	140	116±0.2	76±0.2

Size	L6	L7	T1	T2	T3	T4	T5	T6
	±0.03				+0.1	+0.1		
70	20	5	-	7.5	3.1	-	-	-
80	40	-	9.7	9	-	2.1	8	6
120	40	-	12.8	10	-	2.1	-	-

Toothed belt axes ELGA-TB-RF, roller bearing guide

Dimensions

Download CAD data → www.festo.com



+ = plus stroke length + 2x stroke reserve

Size	B1	B2	B4	B5	D1 ∅ H7	D2 ∅ H7	D3 ∅	D4 ∅	D5 ∅ H7	D6	D7
70	69	48.2	30	45	38	16	34	25	-	M5	M6
80	82	63.2	20	60	48	16	45	25	9	M5	M6
120	120	95	80	40	80	23	72	45	-	M8	M8

Size	D8 ∅ H7	D12	H1	H2	H4	H5	H6	H7	H8	L3
70	5	M4	64	26.5	50.8	13	13	24	12	57.5
80	5	M4	76.5	30	61.5	17.5	12	26	13	65
120	9	M5	111.5	45	91	22	22	59	32	100

Size	L4	L5	L6	T1	T2	T4	T6	T7	T8	T9
70	42	27.5	2.3	2.1	18	7.15	-	10	12	3.1
80	51	31	2.3	2.1	29.5	4	2.1	10.1	12	2
120	76	50	2.5	3.1	29.5	4	-	16	16	2.1

Size	L1			L2		
	ELGA-...-S	ELGA-...	ELGA-...-L	ELGA-...-S min.	ELGA-... min.	ELGA-...-L min.
70	342	420	520	171	210	260
80	496	580	720	248	290	360
120	673	775	1005	336.5	387.5	502.5

Toothed belt axes ELGA-TB-RF, roller bearing guide

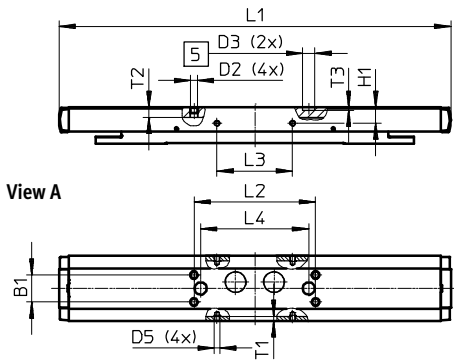


Download CAD data → www.festo.com

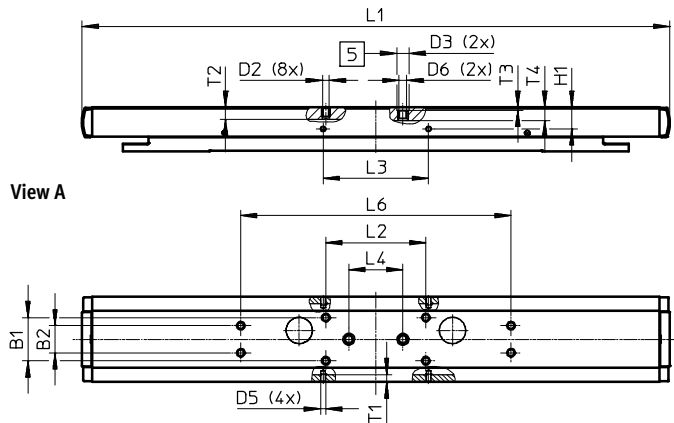
Dimensions

Standard slide

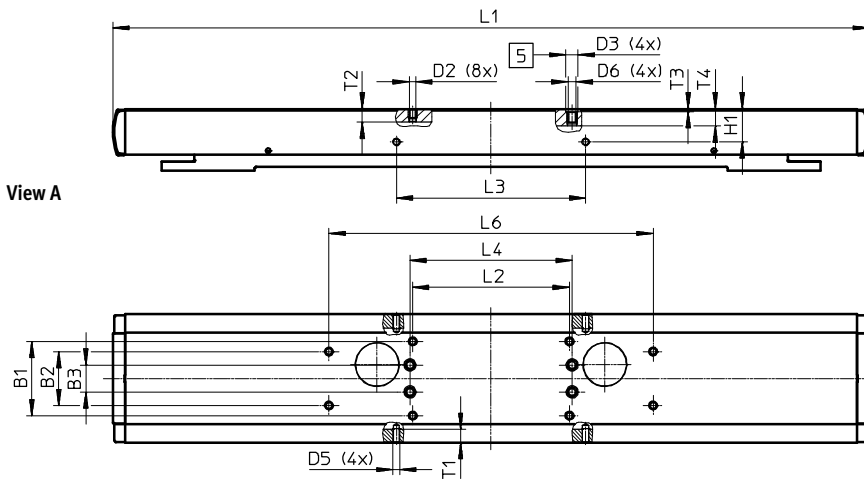
Size 70



Size 80



Size 120



5 Hole for centring sleeve

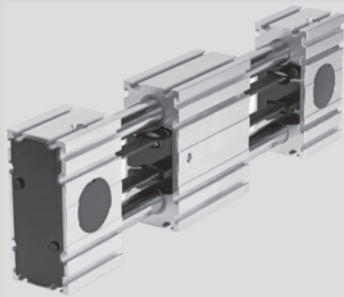
Size	B1	B2	B3	D2	D3 ∅ H7	D5	D6	H1
	±0.1	±0.1	±0.1					±0.1
70	20	-	-	M5	9	M4	-	11.7
80	32	20	-	M5	9	M4	M6	16
120	55	40	20	M5	9	M5	M6	24.5

Size	L1	L2	L3	L4	L6	T1	T2	T3	T4
		±0.2	±0.1	±0.03	±0.2				
70	290	90	56	80	-	3.5	7.5	2.1	-
80	435	74	78	40	200	5.1	9	2.1	9.7
120	560	116	140	120	240	10	10	2.1	12.8

3

Toothed belt axes ELGR

3



- Ready-to-install unit for quick and easy design
- Motor can be mounted on any of four sides – for every installation situation
- Highly reliable
- Kit for easy and space-saving position sensing
- Spare parts service

→ www.festo.com/catalogue/elgr

Product range overview

Type/version	Size	Stroke [mm]	Feed force [N]
ELGR			
Recirculating ball bearing guide	35, 45, 55	50 ... 1500	50 ... 350
GF – Plain-bearing guide	35, 45, 55	50 ... 1500	50 ... 350
ELFR			
Passive guide axis	35, 45, 55	50 ... 1500	–

Product options

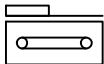
L Long slide

ZR 1 slide on right

ZL 1 slide on left

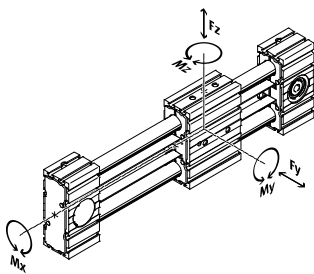
ZB 1 slide on right, 1 slide on left

Technical data



Technical data

Dimensions → 445



Guide	Plain-bearing guide			Recirculating ball bearing guide			
	Size	35	45	55	35	45	55
Working stroke ¹⁾	[mm]	50 ... 800	50 ... 100	50 ... 150	50 ... 800	50 ... 100	50 ... 150
Max. feed force F_x	[N]	50	100	350	50	100	350
Max. no-load torque	[Nm]	0.1	0.2	0.4	0.1	0.2	0.4
Max. driving torque	[Nm]	0.46	1.24	5	0.46	1.24	5
Max. no-load resistance to shifting	[N]	10.8	16.1	27.9	10.8	16.1	27.9
Max. speed	[m/s]	1			3		
Max. acceleration ²⁾	[m/s ²]	50			50		
Repetition accuracy	[mm]	±0.1			±0.1		
Max. permissible force F_y	[N]	50	100	300	50	100	300
Max. permissible force F_z	[N]	50	100	300	50	100	300
Max. permissible torque M_x	[Nm]	1	2.5	5	2.5	5	15
Max. permissible torque M_y	[Nm]	4	8	16	8	16	48
Max. permissible torque M_z	[Nm]	4	8	16	8	16	48

Note
PositioningDrives
sizing software
→ www.festo.com

1) Total stroke = working stroke + 2x stroke reserve.
2) The max. acceleration is dependent on the moving load, the driving torque and the max. feed force.

Technical data

Operating conditions		
Ambient temperature		
Recirculating ball bearing guide	[°C]	-10 ... +50
Plain-bearing guide	[°C]	0 ... +40
Degree of protection		IP20

Toothed belt				
Size		35	45	55
Pitch	[mm]	2	3	3
Tensile stress ¹⁾	[%]	0.094	0.08	0.21
Width	[mm]	10	15	19.3
Effective diameter	[mm]	18.46	24.83	28.65
Feed constant	[mm/rev]	58	78	90

1) At max. feed force.

Mass moment of inertia				
Size		35	45	55
J_0				
Standard slide	[kg mm ²]	40.26	155.13	360.48
J_S per metre stroke	[kg mm ² /m]	0.26	1.06	1.88
J_L per kg payload	[kg mm ² /kg]	85.19	154.13	205.21

The mass moment of inertia J_A of the entire axis is calculated as follows:

$$J_A = J_0 + J_S \times \text{working stroke [m]} + J_L \times m_{\text{payload [kg]}}$$

Materials	
Drive cover	Anodised wrought aluminium alloy
Profile	Anodised wrought aluminium alloy
Slide	Anodised wrought aluminium alloy
Pulleys	High-alloy stainless steel
Toothed belt clamping component	Beryllium bronze
Toothed belt	Polychloroprene with glass cord and nylon coating

Toothed belt axes ELGR

Order code

3

		ELGR	-	TB	-		-		-		-	
Type												
ELGR	Linear axis											
Drive function												
TB	Toothed belt											
Guide												
-	Recirculating ball bearing guide											
GF	Plain-bearing guide											
Size												
	Stroke [mm]											
35	50 ... 800											
45	50 ... 1000											
55	50 ... 1500											
Stroke reserve												
...H	0 ... 999 (0 = no stroke reserve)										<input type="text" value="1"/>	

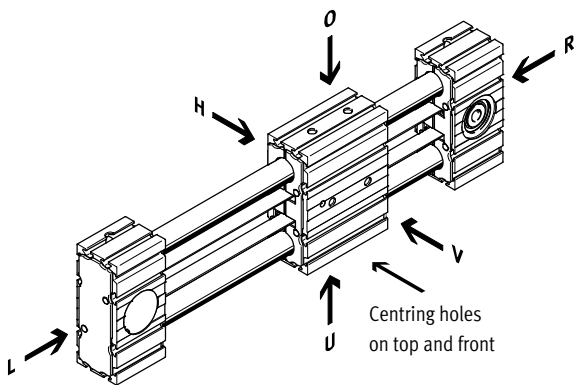
1 The sum of the nominal stroke and 2x stroke reserve must be at least 50 mm and must not exceed the maximum stroke length

Order example:

ELGR-TB-GF-45-900-200


Linear axis ELGR - toothed belt drive - plain-bearing guide - size 45 - stroke 900 mm - stroke reserve 200 mm

Ordering aid

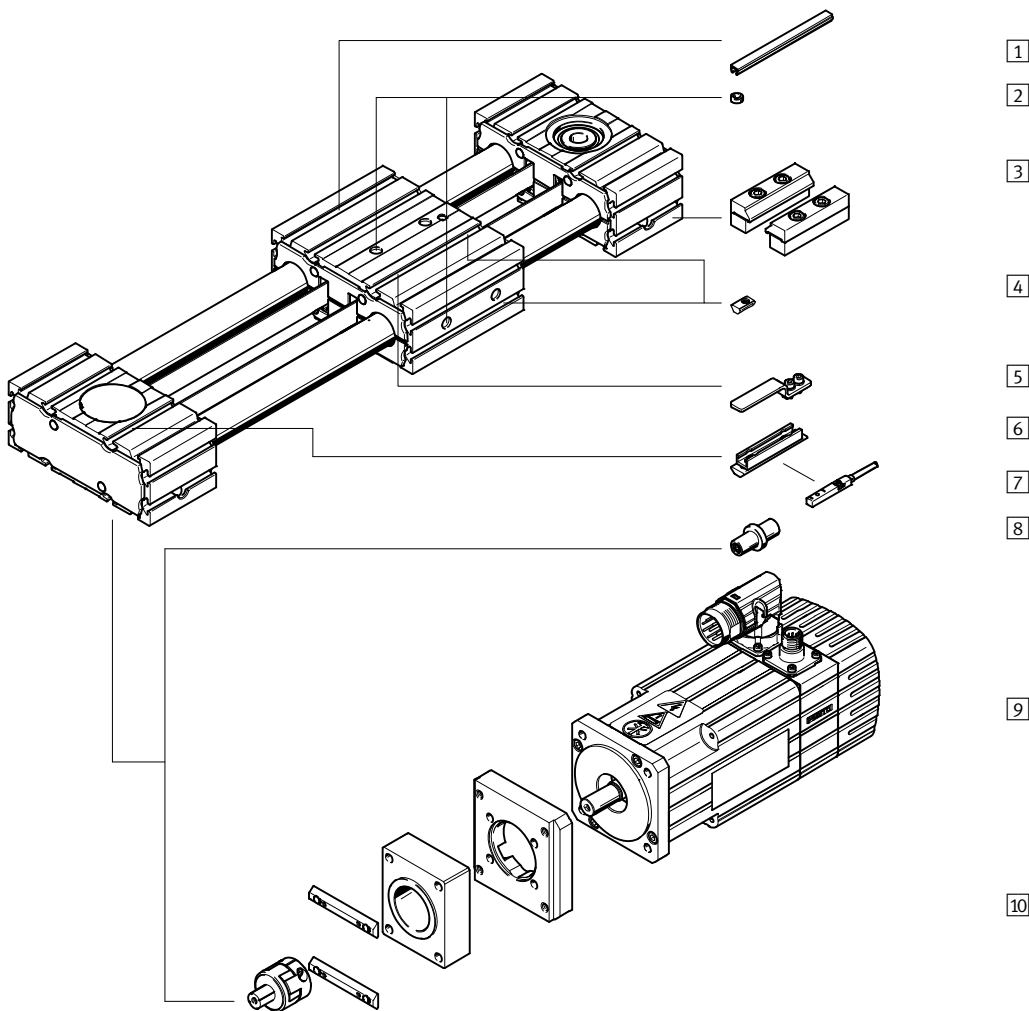


- O top
- U underneath
- R right
- L left
- V front
- H rear

Ordering – Product options

	<p>Configurable product</p>	<p>This product and all its options can be ordered using the configurator.</p>	<p>The configurator can be found under Products on the DVD or www.festo.com/catalogue/...</p>	<p>Enter the type code in the search field.</p>
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

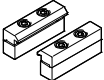
Accessories


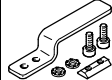



		→ Page/online
1	Slot cover ABP	443
2	Centring sleeve ZBH	443
3	Profile mounting MUE	443
4	Slot nut NST	443
5	Switch lug EAPM	443
6	Sensor bracket EAPM	443

		→ Page/online
7	Inductive proximity sensor SIES	444
8	Drive shaft EAMB	444
9	Motor EMME/EMMS	444
10	Axial kit EAMM	444
-	Connecting cable NEBU	444

Accessories – Ordering data

	For size	Part No.	Type
1 Slot cover¹⁾			
	45, 55	151681	ABP-5
2 Centring sleeve²⁾³⁾			
	35, 45, 55	186717	ZBH-7
3 Profile mounting			
	35	558042	MUE-50
	45, 55	562238	MUE-45

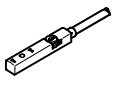
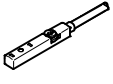



	For size	Part No.	Type
4 Slot nut			
	35	558045	NST-3-M3
	45, 55	150914	NST-5-M5
5 Switch lug			
	35, 45, 55	567538	EAPM-L4-SLS
6 Sensor bracket			
	35, 45, 55	567537	EAPM-L4-SHS

1) Packaging unit 2x 0.5 m.
2) Packaging unit 10 pieces.

3) 2 centring sleeves included in the scope of delivery of the axis.

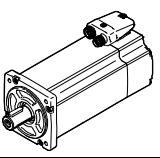
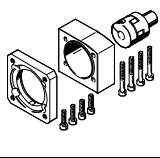
Toothed belt axes ELGR

Accessories – Ordering data

	For size	Part No.	Type	
7 Proximity sensor for T-slot, inductive, N/O contact				Technical data → 831
	PNP, cable	551386	SIES-8M-PS-24V-K-7,5-OE	
	PNP, plug	551387	SIES-8M-PS-24V-K-0,3-M8D	
	NPN, cable	551396	SIES-8M-NS-24V-K-7,5-OE	
	NPN, plug	551397	SIES-8M-NS-24V-K-0,3-M8D	
N/C contact				Technical data → 831
	PNP, cable	551391	SIES-8M-PO-24V-K-7,5-OE	
	PNP, plug	551392	SIES-8M-PO-24V-K-0,3-M8D	
	NPN, cable	551401	SIES-8M-NO-24V-K-7,5-OE	
	NPN, plug	551402	SIES-8M-NO-24V-K-0,3-M8D	
8 Drive shaft				
	35	558034	EAMB-16-7-8X15-8X10	
	45	558035	EAMB-18-9-8X16-10X12	
	55	558036	EAMB-24-6-15X21-16X20	
Connecting cable, straight socket				Technical data → 1053
	2.5 m	★ 541333	NEBU-M8G3-K-2.5-LE3	
	5 m	★ 541334	NEBU-M8G3-K-5-LE3	
Angled socket				Technical data → 1053
	2.5 m	★ 541338	NEBU-M8W3-K-2.5-LE3	
	5 m	★ 541341	NEBU-M8W3-K-5-LE3	

Note

Depending on the combination of motor and drive, it may not be possible to reach the maximum feed force of the drive.

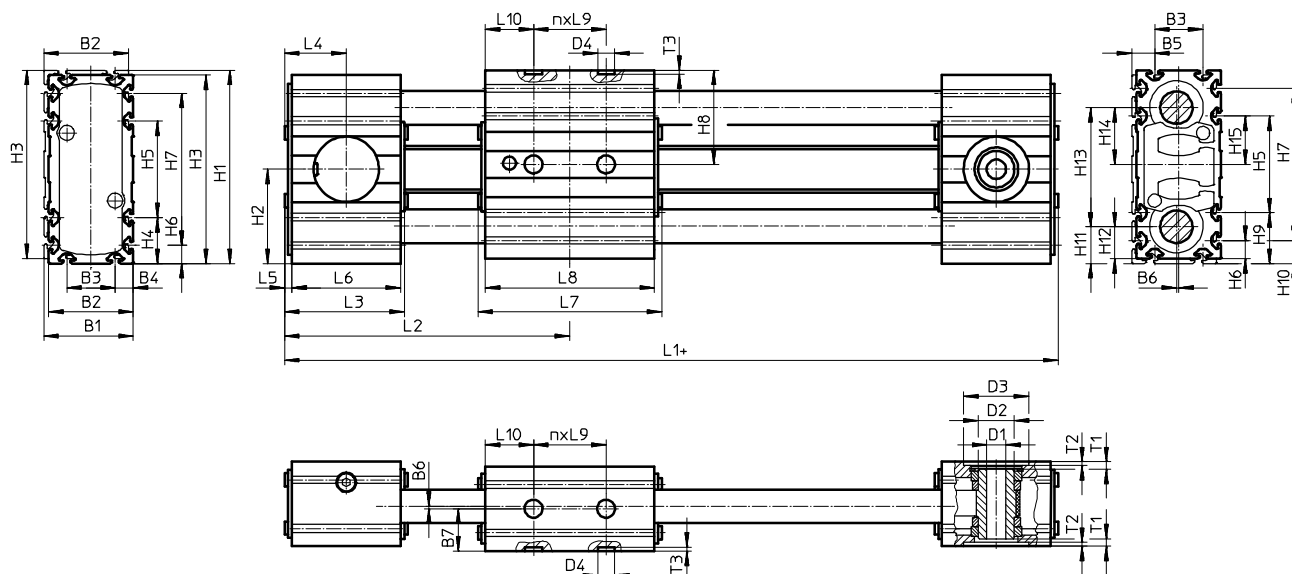
Motor/gear unit ¹⁾	Axial kit	Part No.	Type
			
9/10 Permissible axis/motor combination with axial kit –			
Technical data online: → eamm-a			
ELGR-35			
With servo motor			
EMMS-AS-55-...	1133400	EAMM-A-R27-55A	
With stepper motor			
EMMS-ST-57-...	1133403	EAMM-A-R27-57A	

Motor/gear unit ¹⁾	Axial kit	
	Part No.	Type
ELGR-45		
With servo motor		
EMME-AS-60-...	2224996	EAMM-A-R38-60P
EMMS-AS-70-...	1133401	EAMM-A-R38-70A
With stepper motor		
EMMS-ST-57-...	1578138	EAMM-A-R38-57A
EMMS-ST-87-...	1133404	EAMM-A-R38-87A
ELGR-55		
With servo motor		
EMMS-AS-70-...	1578139	EAMM-A-R48-70A
EMME-AS-80-...	2225090	EAMM-A-R48-80P
EMME-AS-100-...	1133402	EAMM-A-R48-100A
EMMS-AS-100-...	1133402	EAMM-A-R48-100A
With stepper motor		
EMMS-ST-87-...	1133405	EAMM-A-R48-87A

1) The input torque must not exceed the max. perm. transferable torque of the axial kit.

Dimensions

Download CAD data → www.festo.com



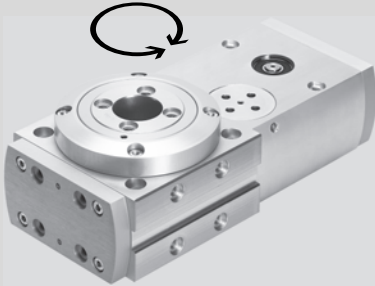
+ plus stroke + 2x stroke reserve

Type	B1	B2	B3	B4	B5	B6	B7	D1 ∅ H7	D2 ∅	D3 ∅ H7
ELGR-35	37	35	20	7.5	9.5	1	17.5	8	15	27
ELGR-45	47	45	20	12.5	14.5		22.5	10	20	38
ELGR-55	57	55	30	12.5	14.5		27.5	16	25	48

Type	D4 ∅ H7	H1	H2	H3	H4	H5	H6	H7	H8	H9
ELGR-35	7	80	39	78	19	40	7.5	63	39	21
ELGR-45		117	57.5	115	32.5	50	12.5	90	57.5	34.5
ELGR-55		137	67.5	135	32.5	70	12.5	110	67.5	34.5

Type	H10	H11	H12	H13	H14	H15	L1	L2	L3	L4
ELGR-35	9.5	15.5	13.5	49	23.5	20	178	89	51	25.5
ELGR-45	14.5	23	21	71	34.5	25	219	108	60	30
ELGR-55	14.5	25.5	23.5	86	42	35	243	120	62	31

Type	L5	L6	L7	L8	L9	L10	n	T1	T2	T3
ELGR-35	3	45	76	70	30	20	1	3.1	1.6	+0.1 1.6
ELGR-45		54	96	90	40	25	1	3	1.7	
ELGR-55		56	116	110	40	35	1	4.5	2	



- Freely positionable
- Any rotation angle
- Position sensing with inductive proximity sensors
- Definition of non-operational areas with sensing module
- Spare parts service

→ www.festo.com/catalogue/ermb

Product range overview

Type/version	Size	Rotation angle [°]	Driving torque [Nm]	Output torque [Nm]
ERMB				
Rotary module	20, 25, 32	Infinite	0.7 ... 8.5	3.15 ... 25.5

Technical data

Technical data				Dimensions → 449
Size		20	25	32
Drive shaft Ø	[mm]	6	8	12
Rotation angle		Infinite		
Repetition accuracy ¹⁾				
With servo motor EMMS-AS	[°]	±0.03		
With stepper motor EMMS-ST ²⁾	[°]	±0.08		
With motor unit MTR-DCI	[°]	±0.05		
Gear ratio		4.5:1	4:1	3:1
Max. driving torque	[Nm]	0.7	2.2	8.5
Max. output torque ³⁾	[Nm]	3.15	8.8	25.5
No-load driving torque ⁴⁾	[Nm]	< 0.07	< 0.18	≤ 0.5
Max. input speed	[rpm]	1350	1200	900
Max. output speed	[rpm]	300	300	300
Max. mass moment of inertia ⁵⁾				
With servo motor EMMS-AS	[kgcm ²]	50	200	1000
With stepper motor EMMS-ST	[kgcm ²]	30	100	500
With motor unit MTR-DCI-...-G7	[kgcm ²]	50	300	1000
With motor unit MTR-DCI-...-G14	[kgcm ²]	200	1200	3700

1) As per FN 942 027.

2) Dependent on the encoder resolution.

3) Output torque minus friction dependent on speed.

4) At maximum speed.

5) Dependent on the size of the motor. Suitable motors → 448.

Note

Note the maximum permissible drive torque of the rotary module ERMB. The motor current may need to be limited.

Operating conditions

Ambient temperature ⁶⁾	[°C]	-10 ... +60
Degree of protection		IP20

6) Note operating range of proximity sensors.

Materials

End cap	Anodised wrought aluminium alloy
Output shaft	Anodised wrought aluminium alloy
Housing	Anodised wrought aluminium alloy
Drive shaft	High-alloy stainless steel
Toothed belt	Polychloroprene with glass fibres

Order code

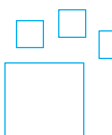
		ERMB	
Type			
ERMB	Rotary module		
Size			
20			
25			
32			

3

Order example:

ERMB-25
Rotary module ERMB - size 25

Ordering – Product options



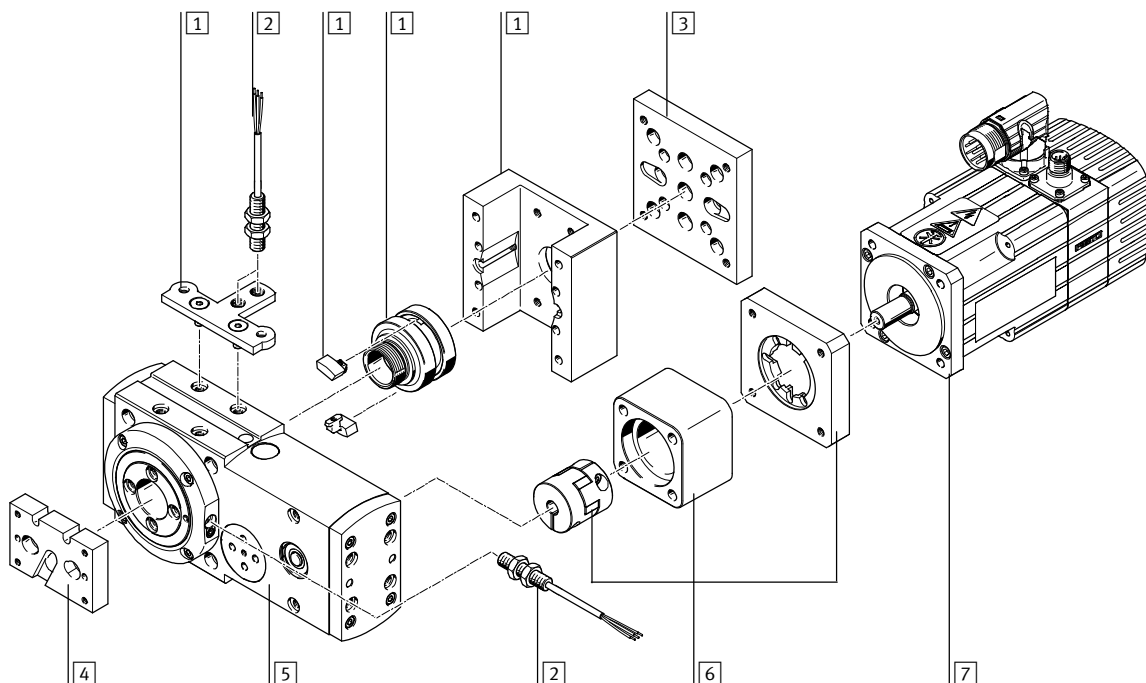
Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
www.festo.com/catalogue/...

Enter the type code in the search field.

Accessories



		→ Page/online
1	Sensing kit EAPS	448
2	Inductive proximity sensor SIEN	448
3	Drive/drive connections	ermb
4	Drive/gripper connections	ermb

		→ Page/online
5	Rotary module ERMB	446
6	Axial kit EAMM-A	448
7	Motor EMME/EMMS / motor unit MTR-DCI	448

Rotary modules ERMB, electric

Accessories – Ordering data

	For size	Part No.	Type
1 Sensing kit Technical data online: → eamm-a			
	20	558392	EAPS-R1-20-S
	25	558393	EAPS-R1-25-S
	32	558394	EAPS-R1-32-S
Sensing kit without housing			
	20	558395	EAPS-R1-20-S-WH
	25	558396	EAPS-R1-25-S-WH
	32	558397	EAPS-R1-32-S-WH
Cam			
	20, 25, 32	558398	EAPS-R1-CK

1) Packaging unit 10 pieces.

	For size	Connection	Part No.	Type
	20, 25, 32	Cable	★ 150386	SIEN-M8B-PS-K-L
		Plug	★ 150387	SIEN-M8B-PS-S-L
	20, 25, 32	Cable	150390	SIEN-M8B-PO-K-L
		Plug	150391	SIEN-M8B-PO-S-L

Note

Depending on the combination of motor and drive, it may not be possible to reach the maximum feed force of the drive.

Motor/gear unit ²⁾	Axial kit
	Part No. Type

6/7 Permissible axis/motor combination with axial kit Technical data online: → eamm-a			
ERMB-20			
With servo motor			
EMME-AS-40-...	2207441	EAMM-A-D32-35A-40P	
EMMS-AS-40-...	560281	EAMM-A-D32-35A-40A	
With stepper motor			
EMMS-ST-42-...	543148	EAMM-A-D32-42A	
EMMS-ST-57-...	550980	EAMM-A-D32-57A	
With motor unit			
MTR-DCI-32S-...	543149	EAMM-A-D32-32B	
ERMB-25			
With servo motor			
EMMS-AS-55-...	543153	EAMM-A-D40-55A	
EMME-AS-60-...	1977000	EAMM-A-D40-60P	
EMMS-AS-70-...	550981	EAMM-A-D40-70A	
With servo motor and gear unit			
EMME-AS-40-...	560282	EAMM-A-D40-40G	
EMGA-40-P-G-...-EAS-40			
EMMS-AS-40-...	560282	EAMM-A-D40-40G	
EMGA-40-P-G-...-SAS-40			

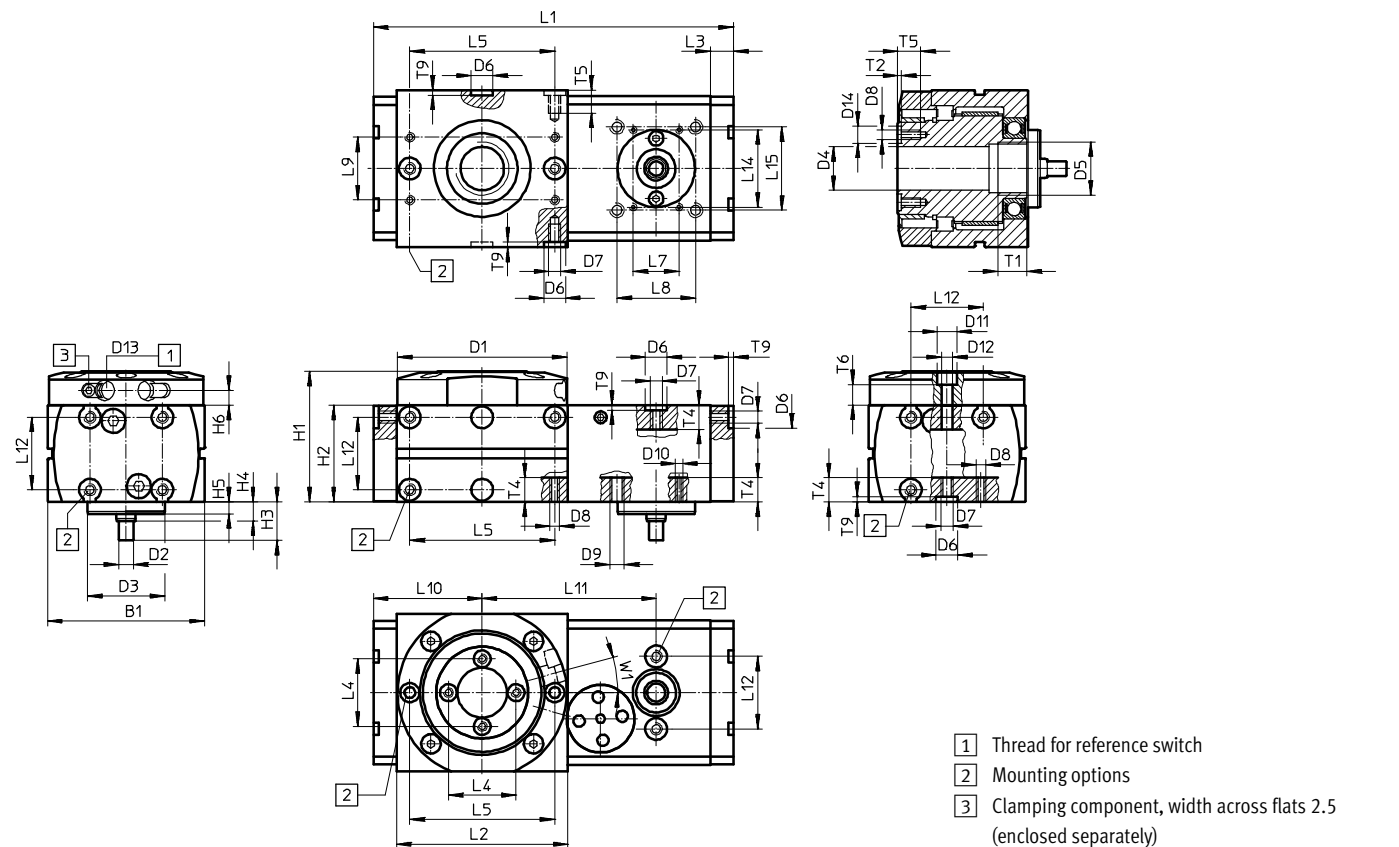
	For size	Part No.	Type
Sensor bracket			
	20, 25	558399	EAPS-R1-20-SH
	32	558400	EAPS-R1-32-SH
Housing			
	20	560673	EAPS-R1-20-H
	25	560674	EAPS-R1-25-H
	32	560675	EAPS-R1-32-H
Centring sleeve¹⁾ Technical data online: → zbh			
	20	186717	ZBH-7
	25, 32	150927	ZBH-9
2 Connecting cable, straight socket Technical data → 1053			
	2.5 m	★ 541333	NEBU-M8G3-K-2.5-LE3
	5 m	★ 541334	NEBU-M8G3-K-5-LE3

Motor/gear unit ²⁾	Axial kit
	Part No. Type
With stepper motor	
EMMS-ST-57-...	543154 EAMM-A-D40-57A
With stepper motor and gear unit	
EMMS-ST-42-...	560282 EAMM-A-D40-40G
EMGA-40-P-G-...-SST-42	
With motor unit	
MTR-DCI-42S-...-G7	543155 EAMM-A-D40-42B
MTR-DCI-42S-...-G14	543156 EAMM-A-D40-42C
ERMB-32	
With servo motor	
EMMS-AS-70-...	★ 543161 EAMM-A-D60-70A
EMME-AS-80-...	★ 1977073 EAMM-A-D60-80P
EMME-AS-100-...	★ 550983 EAMM-A-D60-100A
EMMS-AS-100-...	★ 550983 EAMM-A-D60-100A
With servo motor and gear unit	
EMMS-AS-55-...	★ 560283 EAMM-A-D60-60G
EMGA-60-P-G-...-SAS-55	
EMMS-AS-70-...	★ 560283 EAMM-A-D60-60G
EMGA-60-P-G-...-SAS-70	
With stepper motor	
EMMS-ST-87-...	★ 543162 EAMM-A-D60-87A
With stepper motor and gear unit	
EMMS-ST-57-...	★ 560283 EAMM-A-D60-60G
EMGA-60-P-G-...-SST-57	
With motor unit	
MTR-DCI-52S-...-G7	543163 EAMM-A-D60-52B
MTR-DCI-52S-...-G14	543164 EAMM-A-D60-52C

2) The input torque must not exceed the max. perm. transferable torque of the axial kit.

Dimensions

Size 20



Size	B1	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13
	±0.2	∅ f9	∅ h6	∅ g7	∅ H7		∅ H7					∅	∅	
20	65	70	6	32	20	M22x1	9	M5	M4	M6	M3	8	4.5	M8x1

Size	D14	H1	H2	H3	H4	H5	H6	L1	L2	L3	L4 ¹⁾	L5 ¹⁾	L7	L8
	∅ H7	±0.5	±0.1					±0.5	±0.2	±0.1			±0.15	±0.15
20	7	54	40	15.9	7.9	5	6.15	149	71	9.5	28	60	19	32.5

Size	L9 ¹⁾	L10	L11	L12 ¹⁾	L14	L15	T1	T2	T4	T5	T6	T9	W1
			±0.05		±0.15	±0.15		+0.1		min.		+0.2	
20	26	45	72	30	32	32.5	12	1.6	10	9.6	8.4	2.1	15°

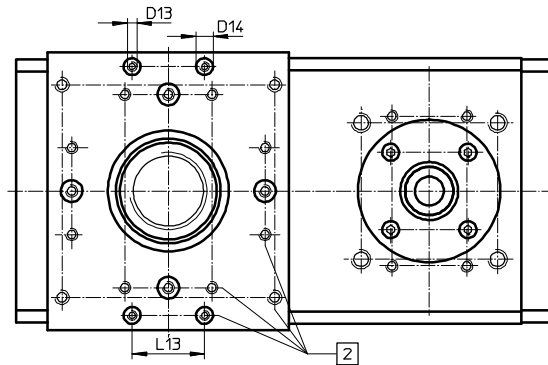
1) Tolerance for centring hole ±0.02 mm.
 Tolerance for thread ±0.1 mm.

Rotary modules ERMB, electric

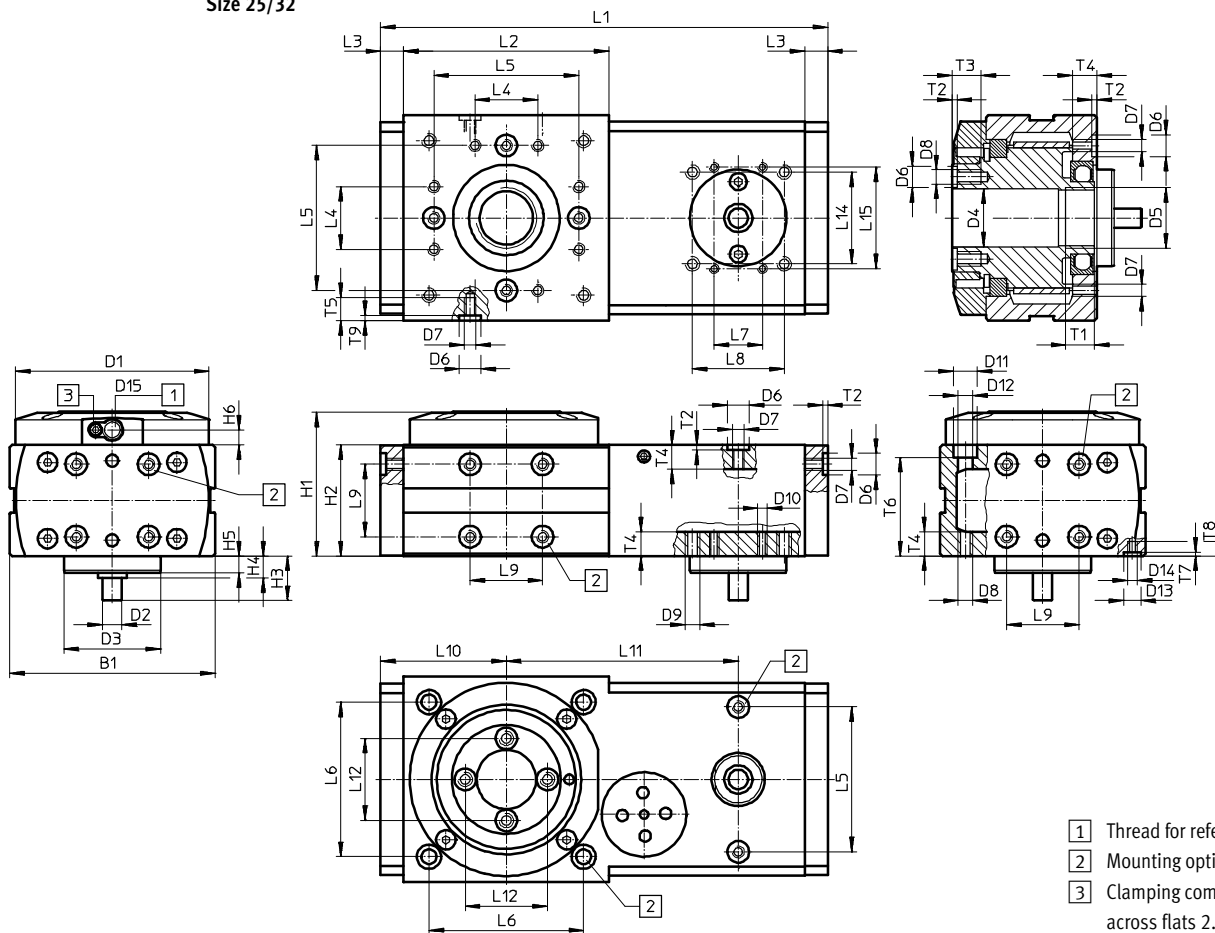
Dimensions

Size 25/32

Size 32



Size 25/32



- 1 Thread for reference switch
- 2 Mounting options
- 3 Clamping component, width across flats 2.5 (enclosed separately)

Dimensions

Download CAD data → www.festo.com

Size	B1 ±0.2	D1 ∅ f9	D2 ∅ h6	D3 ∅ g7	D4 ∅ H7	D5	D6 ∅ H7	D7	D8	D9	D10
25	85	80	8	40	24	M25x1	9	M5	M6	M6	M4
32	115	112	12	60	28	M32x1.5	9	M5	M6	M8	M5

Size	D11 ∅	D12 ∅	D13 ∅ H7	D14	D15	H1 ±0.5	H2 ±0.1	H3	H4	H5	H6	L1 ±0.5
25	10	6.2	–	–	M8x1	60	46	18.45	–	7	6.3	185
32	10	6.2	7	M4	M8x1	76.05	60	23.5	6.5	6	9.4	222

Size	L2 ±0.2	L3 ±0.1	L4 ±0.1	L5 ¹⁾	L6	L7 ±0.15	L8 ±0.15	L9 ¹⁾	L10	L11 ±0.05	L12 ¹⁾	L13 ¹⁾
25	85	9.5	26	60	64 ±0.15	20	38	30	52	96	34	–
32	100	13	36	80	88 ±0.1	31	56.5	40	63	108	45	30

Size	L14 ±0.15	L15 ±0.15	T1	T2 +0.1	T3 min.	T4	T5 min.	T6	T7 +0.1	T8 min.	T9 +0.2
25	38	42	12	2.1	12	10	9.6	40.8 _{±0.2}	–	–	2.1
32	56.5	62	12	2.1	12	10	10	54.3	1.6	7.6	2.1

1) Tolerance for centring hole ±0.02 mm.
Tolerance for thread ±0.1 mm.



- Combined and configurable rotary/lifting movement
- Linear and rotary movements can be set independently of each other
- Modular drive concept for linear motion
- Simple and convenient laying of energy cables through hollow shaft with large internal diameter

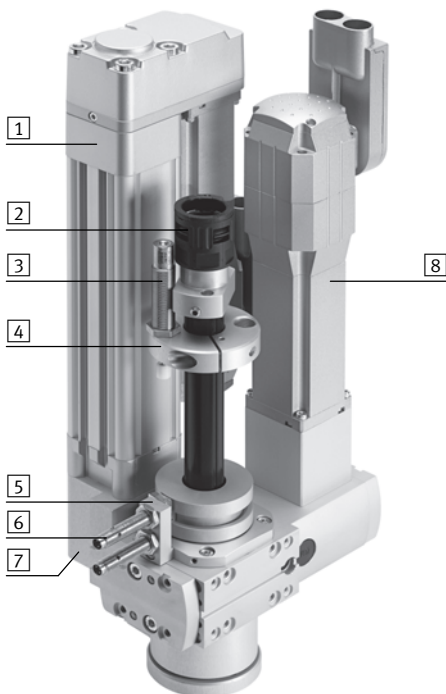
→ www.festo.com/catalogue/ehmb

Product range overview

Type/version	Size	Drive shaft Ø	Stroke [mm]	Rotation angle	Output torque [Nm]	Payload [kg]
EHMB						
Rotary/lifting module	20, 25, 32	6, 8, 12	100, 200	Infinite	3.15 ... 20	3 ... 15

Complete system consisting of rotary/lifting module, motor and axial kit

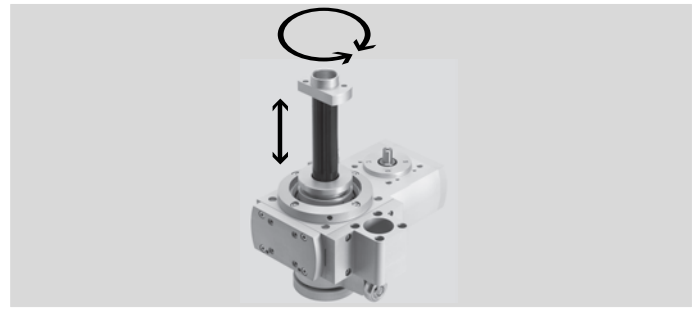
Rotary/lifting module



- 1) Electric cylinder DNCE, alternatively standard cylinder DNC¹⁾
- 2) Protective conduit fitting¹⁾
- 3) Shock absorber¹⁾
- 4) Shock absorber retainer¹⁾
- 5) Sensor bracket
- 6) Proximity sensor SIEN¹⁾
- 7) Cylinder retainer
- 8) Motor for rotary movement¹⁾

1) These parts must be ordered separately as accessories.

Technical data



3

Technical data		Dimensions → 458		
Size		20	25	32
Drive shaft Ø	[mm]	6	8	12
Rotation angle		Infinite		
Stroke, linear	[mm]	100, 200		
Repetition accuracy, rotary ¹⁾				
With servo motor EMMS-AS	[°]	±0.03		
With stepper motor EMMS-ST ²⁾	[°]	±0.08		
With motor unit MTR-DCI	[°]	±0.05		
Repetition accuracy, linear ¹⁾	[mm]	±0.02		
Max. speed, linear				
With standard cylinder DNC	[m/s]	1.5		
With electric cylinder DNCE	[m/s]	0.5		0.64
Gear ratio		4.5:1	4:1	3:1
Max. driving torque	[Nm]	0.7	2.2	6.7
Max. output torque ³⁾	[Nm]	3.15	8.8	20
No-load driving torque ⁴⁾	[Nm]	< 0.07	< 0.18	< 0.5
Max. input speed	[rpm]	1350	1200	900
Max. output speed	[rpm]	300	300	300
Max. payload, horizontal	[kg]	3	5	8
Max. payload, vertical	[kg]	3	5	15 ⁵⁾
Max. mass moment of inertia ⁶⁾				
With servo motor EMMS-AS	[kgcm ²]	50	200	1000
With stepper motor EMMS-ST	[kgcm ²]	30	100	500
With motor unit MTR-DCI-...-G7	[kgcm ²]	50	300	1000
With motor unit MTR-DCI-...-G14	[kgcm ²]	200	1200	3700
Toothed belt pitch		2	3	5

1) As per FN 942 027, with electric cylinder DNCE.

2) Dependent on the encoder resolution.

3) Output torque minus friction dependent on speed.

4) At maximum speed.

5) With symmetrical and non-eccentric arrangement.

6) Dependent on the size of the motor. Suitable motors → 456

Note

When laying electrical cables or compressed air tubing through the hollow shaft of the grooved-shaft guide, the ro-

tation angle of the EHMB must be limited to a rotation angle appropriate to the cables or compressed air tubing.

Endless rotation damages cables and tubing.

All values are based on a room temperature of 23 °C.

Rotary/lifting modules EHMB, electric

Technical data

Operating conditions			
Size	20	25	32
Ambient temperature ¹⁾	[°C]	-10 ... +60	

1) Note operating range of proximity sensors.

3

Materials	
Flange	Anodised aluminium
Retainer	Anodised aluminium
Holder	Anodised wrought aluminium alloy
End cap	Anodised wrought aluminium alloy
Output shaft	Steel
Housing	Anodised wrought aluminium alloy
Drive shaft	High-alloy stainless steel
Toothed belt	Polychloroprene with glass fibres

Order code


EHMB		-		-	
Type					
EHMB	Rotary/lifting module, electric				
Size					
20, 25, 32					
Stroke [mm]					
100, 200					

Order example:

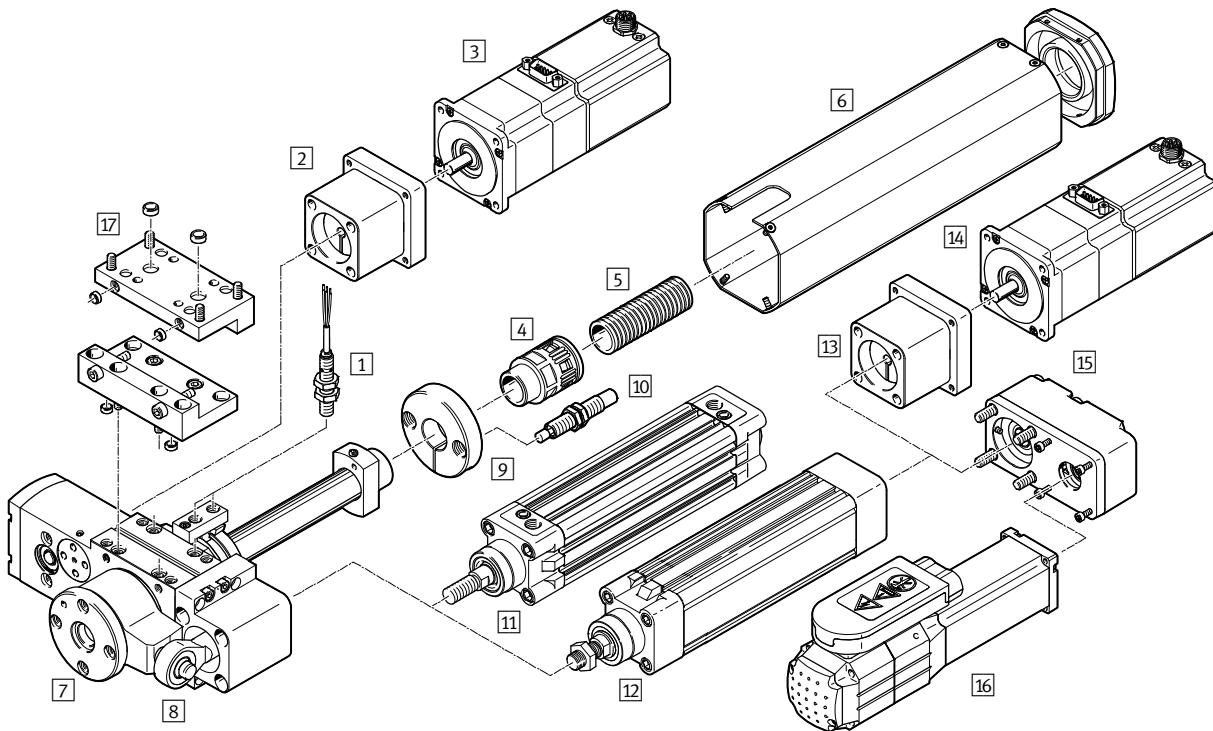
EHMB-25-200

Rotary/lifting module EHMB - size 25 - stroke 200 mm

Ordering – Product options

	<p>Configurable product</p>	<p>This product and all its options can be ordered using the configurator.</p>	<p>The configurator can be found under Products on the DVD or → www.festo.com/catalogue/...</p>	<p>Enter the type code in the search field.</p>
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Accessories



3

		→ Page/online
1	Proximity sensor SIEN	456
2	Axial kit EAMM-A, for the rotary movement of the rotary/lifting module	456
3	Motor EMMS, MTR-DCI, for the rotary movement of the rotary/lifting module	456
4	Protective conduit fitting EASA	456
5	Protective conduit MKR	456
6	Cover EASC	456
7	Rotary/lifting module EHMB	452
8	Rod eye SGS	457
9	Shock absorber retainer EAYH	457
10	Shock absorber DYSW	457
11	Standard cylinder DNC, pneumatic drive for the linear movement of the rotary/lifting module	457

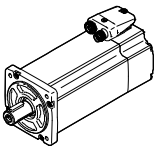
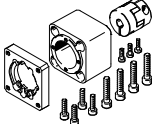
		→ Page/online
12	Electric cylinder DNCE, electric drive for the linear movement of the rotary/lifting module	457
13	Axial kit EAMM-A, for the linear movement of the rotary/lifting module	365
14	Motor EMMS, MTR-DCI, for the linear movement of the rotary/lifting module	365
15	Parallel kit EAMM-U, for the linear movement of the rotary/lifting module	365
16	Motor EMMS, MTR-DCI, for the linear movement of the rotary/lifting module	365
17	Adapter plate kit EHAM	457
-	Connecting cable NEBU	457
-	Centring sleeve ZBH	457
-	Cam EAPS	457

Accessories – Ordering data

Note

Depending on the combination of motor and drive, it may not be possible to reach the maximum feed force of the drive.

Motor mounting for rotary movement

Motor/gear unit ¹⁾	Axial kit
	
	Part No. Type

2/3 Permissible axis/motor combination with axial kit
 Technical data online: → [eamm-a](#)

EHMB-20		
With servo motor		
EMME-AS-40-...	2207441	EAMM-A-D32-35A-40P
EMMS-AS-40-...	560281	EAMM-A-D32-35A-40A
With stepper motor		
EMMS-ST-42-...	543148	EAMM-A-D32-42A
EMMS-ST-57-...	550980	EAMM-A-D32-57A
With motor unit		
MTR-DCI-32S-...	543149	EAMM-A-D32-32B

EHMB-25		
With servo motor		
EMMS-AS-55-...	543153	EAMM-A-D40-55A
EMME-AS-60-...	1977000	EAMM-A-D40-60P
EMMS-AS-70-...	550981	EAMM-A-D40-70A
With servo motor and gear unit		
EMME-AS-40-...	560282	EAMM-A-D40-40G
EMGA-40-P-G...-EAS-40		
EMMS-AS-40-...	560282	EAMM-A-D40-40G
EMGA-40-P-G...-SAS-40		
With stepper motor		
EMMS-ST-57-...	543154	EAMM-A-D40-57A
With stepper motor and gear unit		
EMMS-ST-42-...	560282	EAMM-A-D40-40G
EMGA-40-P-G...-SST-42		
With motor unit		
MTR-DCI-42S-...-G7	543155	EAMM-A-D40-42B
MTR-DCI-42S-...-G14	543156	EAMM-A-D40-42C




Motor/gear unit ¹⁾	Axial kit	
	Part No.	Type
EHMB-32		
With servo motor		
EMMS-AS-70-...	★ 543161	EAMM-A-D60-70A
EMME-AS-80-...	★ 1977073	EAMM-A-D60-80P
EMME-AS-100-...	★ 550983	EAMM-A-D60-100A
EMMS-AS-100-...	★ 550983	EAMM-A-D60-100A
With servo motor and gear unit		
EMMS-AS-55-...	★ 560283	EAMM-A-D60-60G
EMGA-60-P-G...-SAS-55		
EMMS-AS-70-...	★ 560283	EAMM-A-D60-60G
EMGA-60-P-G...-SAS-70		
With stepper motor		
EMMS-ST-87-...	★ 543162	EAMM-A-D60-87A
With stepper motor and gear unit		
EMMS-ST-57-...	★ 560283	EAMM-A-D60-60G
EMGA-60-P-G...-SST-57		
With motor unit		
MTR-DCI-52S-...-G7	543163	EAMM-A-D60-52B
MTR-DCI-52S-...-G14	543164	EAMM-A-D60-52C

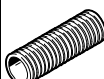
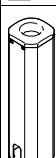
1) The input torque must not exceed the max. perm. transferable torque of the axial kit.

Note

Note the maximum permissible driving torque of the EHMB. The motor current may need to be limited.




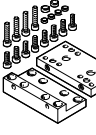
The following tool is available for sizing: PositioningDrives sizing software
 → www.festo.com




	For size	Part No.	Type
1 Inductive proximity sensor, N/O contact, M8			Technical data → 827
	PNP, cable	★ 150386	SIEN-M8B-PS-K-L
	PNP, plug	★ 150387	SIEN-M8B-PS-S-L
N/C contact, M8			Technical data → 827
	PNP, cable	150390	SIEN-M8B-PO-K-L
	PNP, plug	150391	SIEN-M8B-PO-S-L
4 Protective conduit fitting ¹⁾			
	20	1157774	EASA-H1-20-PG16
	25, 32	1096549	EASA-H1-22-PG21

	For size	Part No.	Type
5 Protective conduit			
	20	177566	MKR-16,5-PG-16
	25, 32	177567	MKR-23-PG-21
6 Cover ¹⁾			
	20	1099901	EASC-H1-20-100
		1099902	EASC-H1-20-200
	25	1096387	EASC-H1-25-100
		1096388	EASC-H1-25-200
	32	1107235	EASC-H1-32-100
		1107236	EASC-H1-32-200

1) Packaging unit 1 piece.

Accessories – Ordering data

	For size	Part No.	Type
8 Rod eye Technical data online: → sgs			
	20	★ 9261	SGS-M10x1,25
	25, 32	★ 9262	SGS-M12x1,25
9 Shock absorber retainer¹⁾			
	20	1153896	EAYH-H1-20
	25, 32	1153905	EAYH-H1-25
10 Shock absorber¹⁾ Technical data online: → dysw			
	20	548073	DYSW-8-14-Y1F
	25, 32	548074	DYSW-10-17-Y1F
17 Adapter plate kit¹⁾			
	20	1132369	EHAM-H1-20-L2-80
	25	1132402	EHAM-H1-25-L2-80
	32	1132529	EHAM-H1-32-L2-120

	For size	Part No.	Type
Connecting cable, straight socket Technical data → 1053			
	2.5 m	★ 541333	NEBU-M8G3-K-2.5-LE3
	5 m	★ 541334	NEBU-M8G3-K-5-LE3
Centring sleeve²⁾ Technical data online: → zbh			
	– ³⁾	186717	ZBH-7
		150927	ZBH-9
		189653	ZBH-12
Cam⁴⁾			
	20	1234887	EAPS-H1-20-CK
	25, 32	1234888	EAPS-H1-25-CK

- 1) Packaging unit 1 piece.
- 2) Packaging unit 10 pieces.
- 3) → Dimensional drawing.458
- 4) 2 included in the scope of delivery of the rotary/lifting module EHMB.

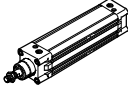
Note

The bracket for the proximity sensor SIEN is included in the scope of delivery of the rotary/lifting module.

Cylinder connection for linear movement

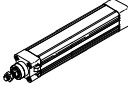
11 In combination with pneumatic standard cylinder DNC

Technical data online: → [dnc](#)

	For rotary/lifting module	Standard cylinder DNC	
		Part No.	Type
	EHMB-20-100	163309	DNC-32-100-PPV-A
	EHMB-20-200	163312	DNC-32-200-PPV-A
	EHMB-25-100	163309	DNC-32-100-PPV-A
	EHMB-25-200	163312	DNC-32-200-PPV-A
	EHMB-32-100	163341	DNC-40-100-PPV-A
	EHMB-32-200	163344	DNC-40-200-PPV-A

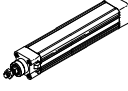
12 In combination with electric cylinder DNCE

Technical data online: → [dnce](#)

	For rotary/lifting module	Electric cylinder DNCE	
		Part No.	Type
	EHMB-20-100	543115	DNCE-32-100-BS-”3”P-Q ⁵⁾
	EHMB-20-200	543116	DNCE-32-200-BS-”3”P-Q ⁵⁾
	EHMB-25-100	543115	DNCE-32-100-BS-”3”P-Q ⁵⁾
	EHMB-25-200	543116	DNCE-32-200-BS-”3”P-Q ⁵⁾
	EHMB-32-100	543127	DNCE-40-100-BS-”5”P-Q ⁶⁾
	EHMB-32-200	543128	DNCE-40-200-BS-”5”P-Q ⁶⁾

12 In combination with electric cylinder DNCE

Technical data online: → [dnce](#)

	For rotary/lifting module	Electric cylinder DNCE	
		Part No.	Type
	EHMB-20-100	543119	DNCE-32-100-BS-”10”P-Q ⁷⁾
	EHMB-20-200	543120	DNCE-32-200-BS-”10”P-Q ⁷⁾
	EHMB-25-100	543119	DNCE-32-100-BS-”10”P-Q ⁷⁾
	EHMB-25-200	543120	DNCE-32-200-BS-”10”P-Q ⁷⁾
	EHMB-32-100	543131	DNCE-40-100-BS-”12,7”P-Q ⁸⁾
	EHMB-32-200	543132	DNCE-40-200-BS-”12,7”P-Q ⁸⁾

- 5) Ball screw with spindle pitch 3 mm, with reduced dynamic response.
- 6) Ball screw with spindle pitch 5 mm, with reduced dynamic response.

- 7) Ball screw with spindle pitch 10 mm.
- 8) Ball screw with spindle pitch 12.7 mm.

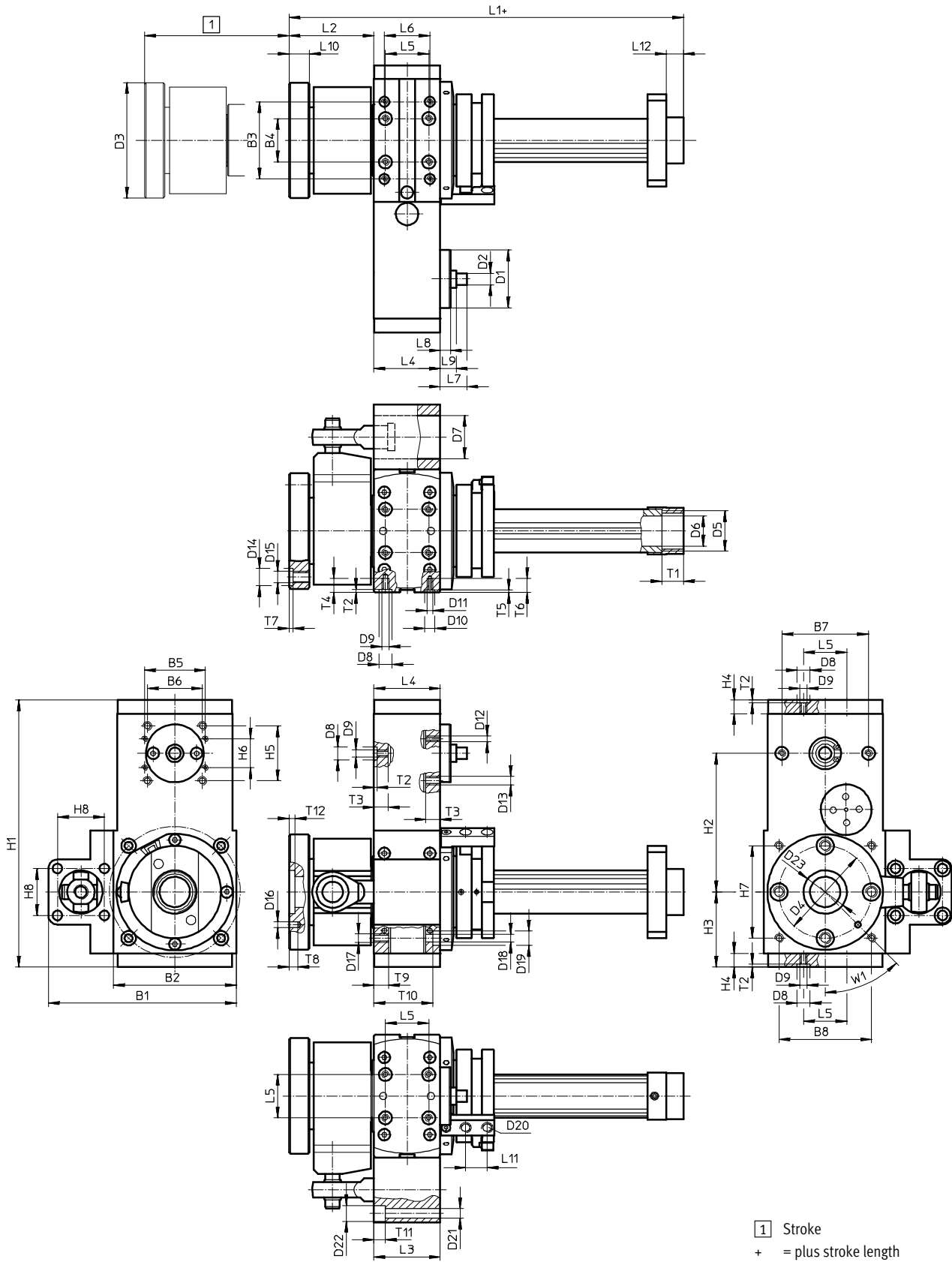
Note

Depending on the combination of motor/ motor unit and rotary/lifting module, it may not be possible to reach the maximum feed force of the cylinder. The following tool is available for sizing: PositioningDrives sizing software → www.festo.com

Rotary/lifting modules EHMB, electric

Dimensions

3



Dimensions

Download CAD data → www.festo.com

3

Size	B1 ±0.5	B2 ±0.2	B3 ¹⁾	B4 ¹⁾	B5 ±0.15	B6 ±0.15	B7 ¹⁾	B8 ±0.15	D1 ∅ g7	D2 ∅ h6	D3 ∅	D4 ∅ ±0.05
20	110	65	54	34	32	32.5	30	52	32	6	58	45
25	130	85	53.5	30	42	38	60	64	40	8	80	64
32	169.5	115	70	40	62	56.5	80	88	60	12	80	64

Size	D5	D6 ∅	D7 ∅ H8	D8 ∅ H7	D9	D10 ∅ H7	D11	D12	D13	D14 ∅ H7	D15	D16 ∅ H7
20	Pg16	14	30	9	M5	7	M4	M3	M6	9	M6	4
25	Pg21	21	30	9	M5	7	M4	M4	M6	12	M8	4
32	Pg21	21	35	9	M5	–	M5	M5	M8	12	M8	4

Size	D17	D18 ∅	D19 ∅	D20	D21 ∅	D22 ∅	D23 ∅	H1 ±0.5	H2 ±0.05	H3	H4	H5 ±0.15
20	M5	–	–	M8x1	6.6	11	19 ^{H8}	149	72	45	9.5	32.5
25	M6	5.5	10	M8x1	6.6	11	30 ^{H7}	185	96	52	9.5	38
32	M6	6.2	10	M8x1	6.6	11	30 ^{H7}	229.5	108	70.5	13	56.5

Size	H6 ±0.15	H7 ±0.15	H8	L1	L2 min.	L3 ±0.1	L4 ±0.1	L5 ¹⁾	L6 ¹⁾	L7	L8	L9	L10	L11 ±0.1
20	19	44	32.5	147.5	40.5	52	40	30	30	15.8	5	7.8	9	15
25	20	64	32.5	173	58.6	46	46	30	31.5	18.35	7	–	14	15
32	31	88	38	183	61.4	60	60	40	47	23.3	6	–	14	15



Size	L12	T1	T2 +0.1	T3	T4	T5 +0.2	T6	T7 +0.1	T8	T9	T10 ±0.2	T11	T12 ±0.5	W1
20	12	14	2.1	10	9	1.6	9.5	2.1	6	8.5	–	11	3	45°
25	12	15	2.1	10	9.6	1.6	9.5	2.7	6	10	40.8	8	4	45°
32	12	15	2.1	10	9	–	9.5	2.7	6	10	54.3	15	4	45°

1) Tolerance for centring hole ±0.02 mm.
 Tolerance for thread ±0.1 mm.

4 Motors and controllers






Software tool



Festo Configuration Tool (FCT)		<p>FCT is a configuration and parameterisation software program that supports all Festo devices, in particular motor controllers.</p> <p>It is extremely flexible, provides full support for the device properties and is simple and intuitive to operate. The user is guided step-by-step through the commissioning process while each individual step is checked.</p>	<p>The parameterisation software can be found on the website under Support > Support Portal > enter search term.</p>
CODESYS		<p>CODESYS for standardised programming of embedded devices to IEC 61131-3. It makes your life easier with simple commissioning, fast programming and parameterisation.</p> <p>Advantages</p> <ul style="list-style-type: none"> • Hardware-neutral software platform for quick and easy configuration, programming and commissioning of pneumatic and electrical automation solutions • Extensive module libraries for single or multi-axis positioning motions 	<ul style="list-style-type: none"> • The IEC 61131-3 standard means that CODESYS is flexible and open for all types of control tasks • Modular: offline and online functions as well as components for hardware configuration and visualisation • User-friendly IEC function block extension • Re-use of existing application parts <p>The parameterisation software can be found on the website under Support > Support Portal > enter search term.</p>

4




Servo motors

Type	 Servo motor EMME-AS	 Servo motor EMMS-AS	 Motor unit MTR-DCI
Nominal torque	0.12 ... 6.4 Nm	0.14 ... 22.63 Nm	
Nominal rotational speed	3,000 ... 9,000 rpm	2,000 ... 10,300 rpm	3,000 ... 3,400 rpm
Peak torque	0.7 ... 30 Nm	0.5 ... 120 Nm	
Max. rotational speed	3,910 ... 10,000 rpm	2,210 ... 23,040 rpm	3,000 ... 3,400 rpm
Description	<ul style="list-style-type: none"> • Brushless, permanently excited synchronous servo motor • Reliable, dynamic, precise • Choice of feedback systems: digital absolute displacement encoder in single-turn or multi-turn version • Optimised connection technology 	<ul style="list-style-type: none"> • Permanently excited, electrodynamic, brushless servo motor • Digital absolute displacement encoder in single-turn or multi-turn version • Optionally with holding brake • Optimised connection technology 	<ul style="list-style-type: none"> • DC motor with encoder • Gear unit, controller, power electronics integrated • RS232 parameterisation interface • I/O, PROFIBUS, CANopen, PROFIBUS DP, DeviceNet interface • Control panel with display, optional • Gear ratio: 7:1, 14:1, 22:1
→ Page/online	467	478	496




Stepper motors

Type	 Stepper motor EMMS-ST	 Stepper motor MTR-ST
Max. rotational speed	430 ... 2,720 rpm	
Motor holding torque	0.5 ... 9.3 Nm	0.34 Nm
Description	<ul style="list-style-type: none"> • 2-phase hybrid technology • Stepper angle 1.8° • Standard industrial connection technology • Optional: encoder, brake 	<ul style="list-style-type: none"> • With integrated controller • Optional: brake • Step-accurate positioning through specification of the number of control pulses • Stepper angle (full step) 1.8°
→ Page/online	501	mtr




Controllers for AC servo motors

Type	 Motor controller CMMD-AS	 Motor controller CMMS-AS	 Motor controller CMMP-AS-M0, CMMP-AS-M3
Nominal current	8 ... 10 A	4 ... 5 A	2 ... 20 A
Nominal operating voltage AC	230 V	230 V	230 ... 400 V
Nominal operating voltage phases	1-phase	1-phase	1-phase, 3-phase
Rated output of controller	1,200 VA	600 VA	500 ... 12,000 VA
Fieldbus coupling	CANopen, DeviceNet, PROFIBUS DP	CANopen, DeviceNet, PROFIBUS DP	CANopen, DeviceNet, Ethernet, EtherNet/IP, PROFIBUS DP, PROFINET, Sercos
Description	<ul style="list-style-type: none"> • Only one piece of controller hardware required to move two servo motors independently of each other • The motor current of 2x 4 A can be distributed between both controllers with a ratio of 2 A:6 A • Easy and user-friendly: commissioning and firmware updates via SD card slot • Programming and parameterisation via software tools • Jerk-free and infinite positioning by means of closed-loop operation • Reliable restart blocking for safety-relevant applications 	<ul style="list-style-type: none"> • Digital absolute angle encoder in single-turn and multi-turn versions • Can be operated as a torque, speed or position controller • Position controller, integrated brake chopper • I/O coupling • Electronic gear unit 	<ul style="list-style-type: none"> • Flying saw • For cam disk controllers and highly dynamic movements • Standardised interfaces allow seamless integration in mechatronic multi-axis modular systems • Reliable and convenient commissioning, programming and parameterisation via software tools • Optionally with 3 slots for switch or safety module, for extension module
→ Page/online	509	513	517





Controllers for DC servo motors

Type	 Motor controller SFC-LACI	 Motor controller SFC-DC	 End-position controller CMFL
Nominal current, load supply	100	30	30
Nominal voltage, load supply DC	48 V	24 V	24 V or 48 V
Rated output of controller	480 VA	75 VA	
Fieldbus coupling	CANopen, PROFIBUS DP	CANopen, DeviceNet, PROFIBUS DP	
Description	<ul style="list-style-type: none"> • High degree of protection IP54 • Open-loop and closed-loop position controller • Easy actuation via I/O interface, PROFIBUS, CANopen including interpolated position mode • With or without control panel • Parameterisation via control panel or parameterisation software FCT • For actuating electric cylinders • DNCE-LAS and guided drive DFME-LAS 	<ul style="list-style-type: none"> • High degree of protection IP54 • Easy actuation via I/O interface, PROFIBUS, CANopen, DeviceNet • With or without control panel • Parameterisation via control panel or parameterisation software FCT • For actuating mini slide SLTE, parallel gripper HGPLE 	<ul style="list-style-type: none"> • For force-controlled positioning of short-stroke cylinder ADNE-LAS • Realisation of dynamic movement with continuous monitoring, including "Motion Complete" • High dynamic response
→ Page/online	sfc-laci	sfc-dc	cmfl



Controllers for stepper motors

Type	 Motor controller CMMO-ST	 Motor controller CMMS-ST	 Motor controller SEC-ST
Nominal current	5 A		1.25 ... 6 A
Nominal current, load supply	6 A	8 A	
Max. step frequency		4 kHz	40 kHz
Controller operating mode	Cascade controller with PI speed controller, PI current controller, P position controller, PWM MOSFET power end stage	PWM MOSFET power end stage	Bipolar chopper driver
Fieldbus coupling		CANopen, PROFIBUS DP	
Description	<ul style="list-style-type: none"> As open-loop and closed-loop position controller Separate load and logic supply Supports the "Safe Torque Off" (STO) safety function Easy actuation via I/O interface Monitoring of freely definable position zones Backup file enables seamless device replacement 	<ul style="list-style-type: none"> Can be operated as a torque, speed or position controller Position controller, integrated brake chopper I/O coupling Electronic gear unit 	<ul style="list-style-type: none"> Compact unit, ready for installation Current reduction Pre-assembled, electrical connection accessories
→ Page/online	523	526	sec-st

Multi-axis controllers


Type	 Control block CPX-CMXX	 Control block CPX-CEC-M1	 Controller CECX-X-M1	 Controller CECX-X-C1
Operating voltage		21.6 ... 26.4 V DC	19.2 ... 30 V DC	19.2 ... 30 V DC
Operating voltage range DC	18 ... 30 V			
Control interface	CAN	CAN	CAN	CAN
Fieldbus coupling		CODESYS Level 2, EasyIP, Modbus TCP, TCP/IP	TCP/IP, EasyIP, Modbus TCP	TCP/IP, EasyIP, Modbus TCP
Supported kinematic systems	2-axis gantries X-Z/Y-Z/X-Y, 3-axis gantries X-Y-Z			
Description	<ul style="list-style-type: none"> Intelligent module in the CPX terminal for actuating electric drive units Coordination of the entire motion sequence Actuation of 2 axis groups with max. 4 axes per group Ethernet, CAN Bus interface 	<ul style="list-style-type: none"> Programming with CODESYS to IEC 61131-3 Easy actuation of valve terminal configurations Connection to all fieldbuses as remote controller and for pre-processing Diagnostics with flexible monitoring options for pressure, flow rate, cylinder operating time, air consumption Actuation of electric drives as individual axes via CANopen SoftMotion functions for coordinated multi-axis movements 	<ul style="list-style-type: none"> Motion controller with CODESYS and SoftMotion Programming to standard IEC 61131-3 Three plug-in slots for optional modules Optional: communication module for PROFIBUS 	<ul style="list-style-type: none"> Modular master controller with CODESYS Programming to standard IEC 61131-3 Three plug-in slots for optional modules Optional: communication module for PROFIBUS
→ Page/online	cmxx	cpx-cec-m1	cecx	cecx

Multi-axis controllers


		
Type	Controller CMXR-C1	Controller CMXR-C2
Operating voltage	24 V DC +20%/-15%, 24 V DC +25%/-20%	24 V DC +20%/-15%, 24 V DC +25%/-20%
Operating voltage range DC		
Control interface		
Fieldbus coupling	2 x CANopen masters	2 x CANopen masters
Supported kinematic systems	2-axis gantries X-Z/Y-Z/X-Y, 3-axis gantries X-Y-Z, any interpolation, tripod	2-axis gantries X-Z/Y-Z/X-Y, 3-axis gantries X-Y-Z, any interpolation, tripod
Description	<ul style="list-style-type: none"> Multi-axis control for linear and three-dimensional gantries, tripods Optional teach pendant CDSA Point-to-point and complex path control Ethernet, CAN Bus interface 	<ul style="list-style-type: none"> Individual integration in higher-order controller hierarchies or simple integration of peripheral devices, e.g. tracking function via vision system by means of integrated CODESYS PLC Ideal for bonding or sealing applications: greater process reliability and quality with defined, speed-independent switching points on the path Increased flexibility: modular control system for digital and analogue I/O optionally expandable
→ Page/online	cmxr-c1	cmxr-c2

4



Positioners for process automation

	
Type	Positioner CMSX
Standard nominal flow rate	50l/min
Ambient temperature	-5 ... 60 °C
Setpoint value	0 - 10 V, 0 - 20 mA, 4 - 20 mA
Operating pressure	3 ... 8 bar
Safety note:	adjustable, holding, closing, opening
Description	<ul style="list-style-type: none"> For position control of double-acting pneumatic quarter turn actuators in process automation systems Simple and efficient position control based on the PID control algorithm Suitable for operation with quarter turn actuators with a swivel angle of approx. 90° and a mechanical interface in accordance with VDI/VDE Directive 3845 Power supply 24 V DC
→ Page/online	cmsx



Safety systems

	
Type	Safety system CMGA-B1, CMGA-E1
Safety function	Encoder Supervisor (ECS), Safe Torque Off (STO), Safely Limited Acceleration (SLA), Safely Limited Speed (SLS), Safely Limited Position (SLP), Safely Limited Increment (SLI), Safe Emergency Limit (SEL), Safe Direction (SDI), Safe Brake Control (SBC), Safe Acceleration Range (SAR), Safe Operating Stop (SOS), Safe Cam (SCA), Safe Stop 1 (SS1), Safe Stop 2 (SS2), Position Deviation Muting (PDM), safe encoder evaluation, safe logic functions
Safety integrity level (SIL)	SIL 3
Encoder interface Input, function	1 proximity sensor, 1 SSI, 1 incr.-HTL, 1 incr.-TTL, 1 sin/cos, 2 proximity sensors, 2 SSI, 2 incr.-HTL, 2 incr.-TTL, 2 sin/cos, no
Number of digital logic inputs	12 ... 14
Digital output version	1 safe relay output, 10 safe digital inputs/outputs, 2 signal outputs, 2 pulse outputs, 2 safe digital outputs
Description	<ul style="list-style-type: none"> Basic modules CMGA-B1 and extension modules CMGA-E1: one basic module can actuate max. two extension modules Compact safety system with the option of integrated drive monitoring for one axis For safe processing of emergency stop switches, door monitoring, light curtains, two-hand buttons, enabling buttons, limit switches, displacement encoders Programming software GSPF for creating custom application programs
→ Page/online	530

Gear units

		
Type	Gear unit EMGA-SST	Gear unit EMGA-SAS
Continuous output torque	11 ... 110 Nm	11 ... 450 Nm
Max. drive speed	6,500 ... 18,000 rpm	6,500 ... 18,000 rpm
Torsional rigidity	1 ... 6 Nm/arc	1 ... 38 Nm/arc
Torsional backlash	0.12 ... 0.25°	0.1 ... 0.25°
Mass moment of inertia of gear unit	0.019 ... 0.77 kgcm ²	0.019 ... 12.14 kgcm ²
Max. efficiency	98%	98%
Description	<ul style="list-style-type: none"> Planetary gear unit for stepper motors EMMS-ST Gear reduction $i = 3$ and 5, available ex-stock Life-time lubrication 	<ul style="list-style-type: none"> Planetary gear unit for servo motors EMMS-AS Gear reduction $i = 3$ and 5, available ex-stock Life-time lubrication
→ Page/online	535	537

Power supply units

		
Type	Power supply unit CACN	Power supply unit SVG
Nominal output voltage DC	24 ... 48 V	24 ... 48 V
Nominal output current	5 ... 20 A	4.8 ... 20 A
Input voltage range AC	100 ... 500 V	100 ... 500 V
Input current	0.9 ... 1.65 A, 1.5 ... 3.0 A, 2.2 ... 1.2 A, 2.3 ... 1.9 A, 5.1 ... 2.3 A	1.9 0.8 A, 2.1 1.0 A, 2.2 1.2 A, 2.3 1.9 A, 2.8 1.2 A, 5.1 2.3 A
Power failure buffering	24 ... 110 ms	20 ... 50 ms
Description	<ul style="list-style-type: none"> H-rail mounting Mounting position: free convection 	<ul style="list-style-type: none"> H-rail mounting Mounting position: free convection
→ Page/online	cacn	svg



- Suitable for motor controller CMMP-AS
- Brushless, permanently excited synchronous servo motors
- Reliable, dynamic, precise
- Digital absolute displacement encoder with single turn (standard), multi-turn (optional)
- Matching gear unit

★ Quick ordering of basic designs → 475

→ www.festo.com/catalogue/emme-as

Product range overview

Motor flange size	Nominal voltage [V AC]	Nominal torque [Nm]	With gear unit	With brake
40	360	0.12 ... 0.21	■	■
60	360	0.6 ... 1.2	■	■
80	360, 565	2.3 ... 3.2	■	■
100	565	4.8 ... 6.4	■	■

Product options

S Short
 M Medium

LS Low-voltage, standard
 LV Low-voltage, speed-optimised
 HS High-voltage, standard

A Angled plug
 S Absolute encoder, single turn
 M Absolute encoder, multi-turn

B Brake

Technical data



4

Technical data											Dimensions → 477	
Motor flange size		40		60		80				100		
Length		S	M	S	M	S	M	S	M	S	M	
Winding		LV	LV	LS	LS	LS	HS	LS	HS	HS	HS	
Nominal voltage	[V AC]	360	360	360	360	360	565	360	565	565	565	
Nominal current	[A]	0.7	1.2	0.8	1.5	2.6	1.6	3.7	2.1	3.0	4.1	
Continuous current at standstill		0.8	1.6	0.9	1.8	3.1	1.8	3.9	2.2	3.4	4.6	
Peak current	[A]	3.2	6.4	3.6	7.2	12.4	7.2	15.6	8.8	13.6	18.4	
Rated output	[W]	110	200	190	380	750	720	1000	1000	1500	2000	
Nominal torque	[Nm]	0.12	0.21	0.6	1.2	2.4	2.3	3.2	3.2	4.8	6.4	
Peak torque	[Nm]	0.7	1.4	2.8	6.0	11.2	11.2	14.0	14.0	22.4	30.0	
Torque at standstill	[Nm]	0.18	0.35	0.7	1.5	2.8	2.8	3.5	3.5	5.6	7.5	
Nominal rotational speed	[rpm]	9000	9000	3000	3000	3000	3000	3000	3000	3000	3000	
Max. rotational speed	[rpm]	10,000	10,000	5131	4925	4690	4192	4627	4097	3910	3941	
Brake												
Operating voltage	[V DC]	24 +6 ... -10%										
Holding torque	[Nm]	0.4		2.0		4.5		9.0				

Technical data – Encoder

Measuring unit		EMME-AS-...-...S...	EMME-AS-...-...M...
		Absolute, single turn (SEK 34/37)	Absolute, multi-turn (SEL 34/37)
Operating voltage	[V DC]	7 ... 12 (±5%)	
Interface signals/protocol – HIPERFACE®			
Process data channel		SIN, REFSIN, COS, REFCOS (analogue differential)	
Sinusoidal/cosinusoidal periods per revolution		16	
Parameter channel		RS485 (digital)	
Absolute position values per revolution		512 (resolution 9 bits)	
Max. rotational speed			
For absolute value generation	[rpm]	6000	
Mechanical	[rpm]	12,000	
Revolutions		1	4096 revolutions, 12 bits
Interpolation of sine/cosine signals in the motor controller ¹⁾			
Measurement step at 12 bits		20" (angular seconds)	
Angular accuracy		±20' (angular minutes)	

1) Dependent on the motor controller.

Operating conditions

Ambient temperature	[°C]	-10 ... +40 (up to 100 °C with derating of 1.5% per degree Celsius)
Degree of protection		
Motor shaft		IP21
Motor shaft and connection technology		IP65
Insulation protection class		F (155 °C)
Rated class to EN 60034-1		S1 (continuous operation)
Thermal class to EN 60034-1		F (155 °C)

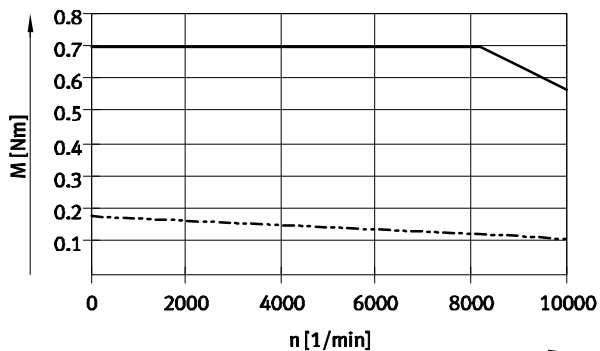
Technical data

Torque M as a function of rotational speed n

Flange size 40

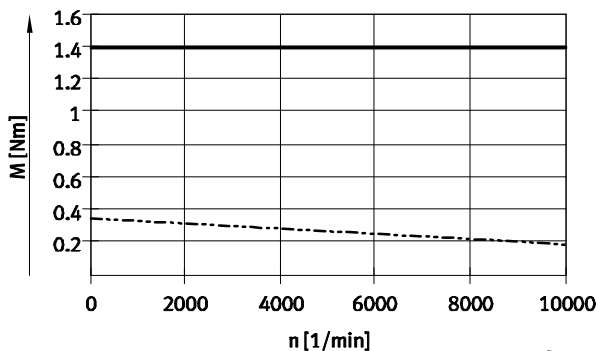
Length S

Winding LV



Length M

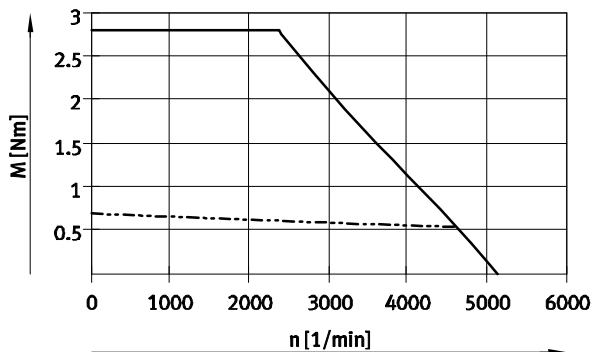
Winding LV



Flange size 60

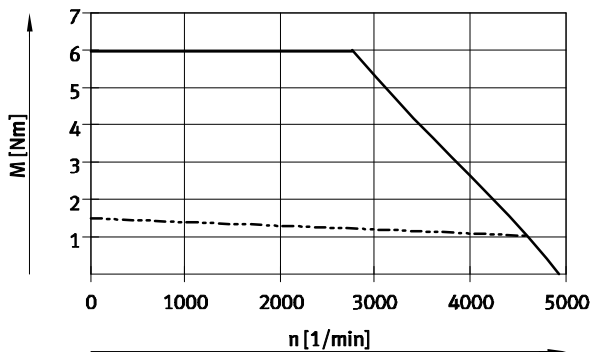
Length S

Winding LS



Length S

Winding LS



— Peak torque
 - - - - - Nominal torque

Note

Typical motor characteristic curve with nominal voltage and optimal controller.

4

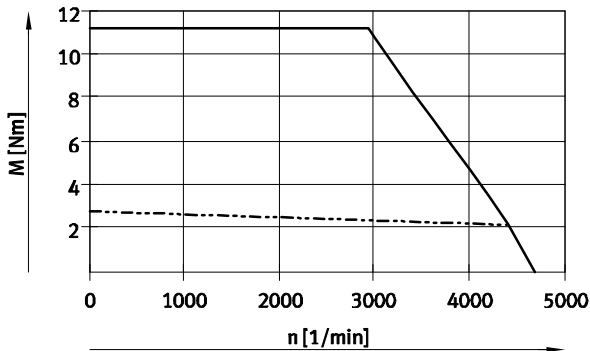
Technical data

Torque M as a function of rotational speed n

Flange size 80

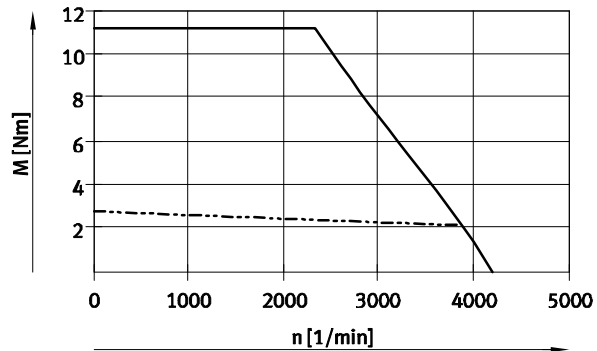
Length S

Winding LS



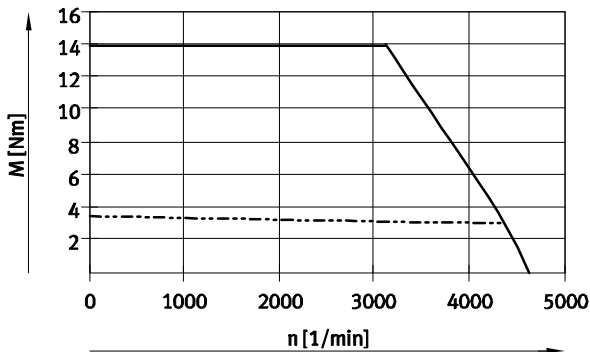
Length S

Winding HS



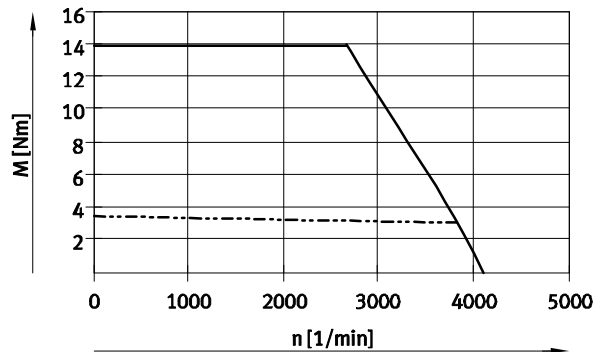
Length M

Winding LS



Length M

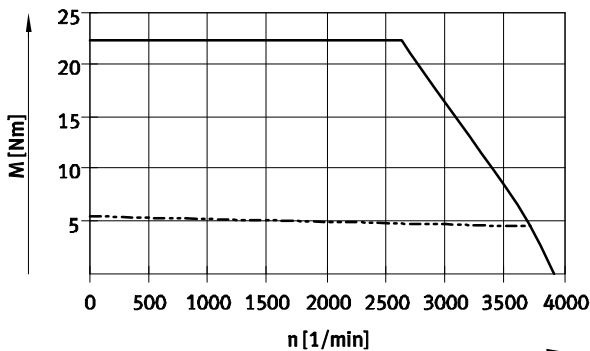
Winding HS



Flange size 100

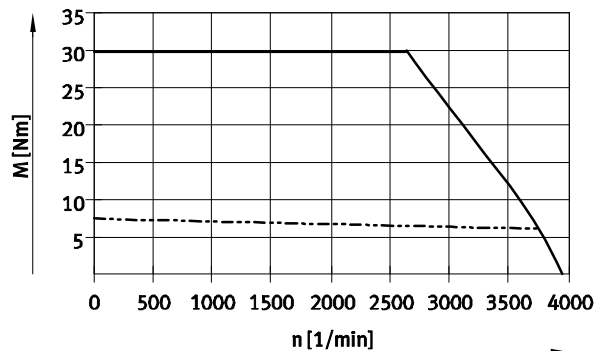
Length S

Winding HS



Length M

Winding HS



———— Peak torque
 - - - - - Nominal torque

Note

Typical motor characteristic curve with nominal voltage and optimal controller.

Ordering code – Flange size 40

		EMME	–	AS	–	40	–		–	LV	–	A
Type												
EMME	Motor											
Motor type												
AS	Servo motor											
Motor flange size												
40	40 mm											
Length												
S	Short											
M	Medium											
Winding												
LV	Low-voltage, speed-optimised											
Electrical connection												
A	Angled plug, fixed – outlet direction: shaft											
Measuring unit												
S	Absolute encoder, single turn											
M	Absolute encoder, multi-turn											
Brake												
–	None											
B	With brake											

Order example:

EMME-AS-40-M-LV-ASB

Motor EMME - servo motor - flange size 40 - length: medium - winding: low-voltage, speed-optimised - angled plug - measuring unit: absolute encoder, single turn - with brake

Ordering code – Flange size 60

		EMME	–	AS	–	60	–		–	LS	–	A
Type												
EMME	Motor											
Motor type												
AS	Servo motor											
Motor flange size												
60	60 mm											
Length												
S	Short											
M	Medium											
Winding												
LS	Low-voltage, standard											
Electrical connection												
A	Angled plug, fixed – outlet direction: shaft											
Measuring unit												
S	Absolute encoder, single turn											
M	Absolute encoder, multi-turn											
Brake												
–	None											
B	With brake											

Order example:

EMME-AS-60-M-LS-ASB

Motor EMME - servo motor - flange size 60 - length: medium - winding: low-voltage, standard - angled plug - measuring unit: absolute encoder, single turn - with brake

Ordering code – Flange size 80

		EMME	–	AS	–	80	–		–		–	A
Type												
EMME	Motor											
Motor type												
AS	Servo motor											
Motor flange size												
80	80 mm											
Length												
S	Short											
M	Medium											
Winding												
LS	Low-voltage, standard											
HS	High-voltage, standard											
Electrical connection												
A	Angled plug, fixed – outlet direction: shaft											
Measuring unit												
S	Absolute encoder, single turn											
M	Absolute encoder, multi-turn											
Brake												
–	None											
B	With brake											

Order example:

EMME-AS-80-M-LS-ASB

Motor EMME - servo motor - flange size 80 - length: medium - winding: low-voltage, standard - angled plug - measuring unit: absolute encoder, single turn - with brake

Ordering code – Flange size 100

		EMME	–	AS	–	100	–		–	HS	–	A
Type												
EMME	Motor											
Motor type												
AS	Servo motor											
Motor flange size												
100	100 mm											
Length												
S	Short											
M	Medium											
Winding												
HS	High-voltage, standard											
Electrical connection												
A	Angled plug, fixed – outlet direction: shaft											
Measuring unit												
S	Absolute encoder, single turn											
M	Absolute encoder, multi-turn											
Brake												
–	None											
B	With brake											

Order example:

EMME-AS-100-M-HS-ASB

Motor EMME - servo motor - flange size 100 - length: medium - winding: high-voltage, standard - angled plug - measuring unit: absolute encoder, single turn - with brake

★ Quick ordering¹⁾

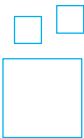
Part No.	Type
Flange size 40, length: short	
2082428	EMME-AS-40-S-LV-AS
2082430	EMME-AS-40-S-LV-ASB
2082429	EMME-AS-40-S-LV-AM
2082431	EMME-AS-40-S-LV-AMB
Flange size 40, length: medium	
2082444	EMME-AS-40-M-LV-AS
2082446	EMME-AS-40-M-LV-ASB
2082445	EMME-AS-40-M-LV-AM
2082447	EMME-AS-40-M-LV-AMB
Flange size 60, length: short	
2089698	EMME-AS-60-S-LS-AS
2089700	EMME-AS-60-S-LS-ASB
2089699	EMME-AS-60-S-LS-AM
2089701	EMME-AS-60-S-LS-AMB
Flange size 60, length: medium	
2089730	EMME-AS-60-M-LS-AS
2089732	EMME-AS-60-M-LS-ASB
2089731	EMME-AS-60-M-LS-AM
2089733	EMME-AS-60-M-LS-AMB

Part No.	Type
Flange size 80, length: short	
2093104	EMME-AS-80-S-LS-AS
2093106	EMME-AS-80-S-LS-ASB
2093105	EMME-AS-80-S-LS-AM
2093107	EMME-AS-80-S-LS-AMB
2093136	EMME-AS-80-S-HS-AS
2093138	EMME-AS-80-S-HS-ASB
2093137	EMME-AS-80-S-HS-AM
2093139	EMME-AS-80-S-HS-AMB
Flange size 80, length: medium	
2093168	EMME-AS-80-M-LS-AS
2093170	EMME-AS-80-M-LS-ASB
2093169	EMME-AS-80-M-LS-AM
2093171	EMME-AS-80-M-LS-AMB
2093200	EMME-AS-80-M-HS-AS
2093202	EMME-AS-80-M-HS-ASB
2093201	EMME-AS-80-M-HS-AM
2093203	EMME-AS-80-M-HS-AMB

Part No.	Type
Flange size 100, length: short	
2103467	EMME-AS-100-S-HS-AS
2103469	EMME-AS-100-S-HS-ASB
2103468	EMME-AS-100-S-HS-AM
2103470	EMME-AS-100-S-HS-AMB
Flange size 100, length: medium	
2103499	EMME-AS-100-M-HS-AS
2103501	EMME-AS-100-M-HS-ASB
2103500	EMME-AS-100-M-HS-AM
2103502	EMME-AS-100-M-HS-AMB

1) All products in this table are easy to select and quick to order.

Ordering – Product options



Configurable product

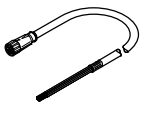
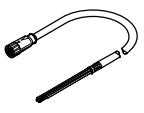
This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
→ www.festo.com/catalogue/...

Enter the type code in the search field.

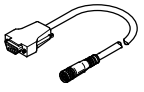
Accessories – Ordering data

Motor cable

	Cable length		Part No.	Type
For EMME-AS-40/60 (cable cross section: 0.75 mm²)				
	2.5	★	8004662	NEBM-M16G8-E-2.5-Q7-LE8
	5	★	8003770	NEBM-M16G8-E-5-Q7-LE8
	7.5	★	8004663	NEBM-M16G8-E-7.5-Q7-LE8
	10	★	8003771	NEBM-M16G8-E-10-Q7-LE8
	15	★	8003772	NEBM-M16G8-E-15-Q7-LE8
	X length ¹⁾		8003773	NEBM-M16G8-E--Q7-LE8
For EMME-AS-80/100 (cable cross section: 1.5 mm²)				
	2.5	★	8004660	NEBM-M16G8-E-2.5-Q9-LE8
	5	★	8003766	NEBM-M16G8-E-5-Q9-LE8
	7.5	★	8004661	NEBM-M16G8-E-7.5-Q9-LE8
	10	★	8003767	NEBM-M16G8-E-10-Q9-LE8
	15	★	8003768	NEBM-M16G8-E-15-Q9-LE8
	X length ¹⁾		8003769	NEBM-M16G8-E--Q9-LE8

1) Max. 25 m. Cable lengths > 25 m possible following technical clarification; up to 100 m on request.
Available in 0.1 m increments.

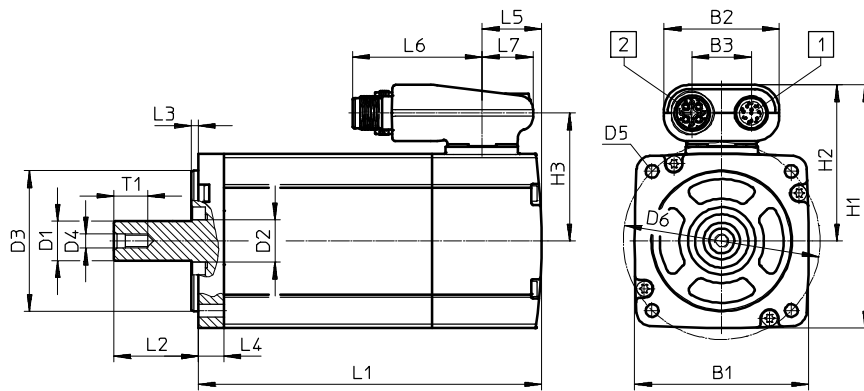
Encoder cable

	Cable length		Part No.	Type
For EMME-AS-40/60/80/100				
	2.5	★	8004664	NEBM-M12G8-E-2.5-N-S1G15
	5	★	8003762	NEBM-M12G8-E-5-N-S1G15
	7.5	★	8004665	NEBM-M12G8-E-7.5-N-S1G15
	10	★	8003763	NEBM-M12G8-E-10-N-S1G15
	15	★	8003764	NEBM-M12G8-E-15-N-S1G15
	X length ¹⁾		8003765	NEBM-M12G8-E--N-S1G15

1) Max. 25 m. Cable lengths > 25 m possible following technical clarification; up to 100 m on request.
Available in 0.1 m increments.

Dimensions

Download CAD data → www.festo.com



- 1 Encoder cable
- 2 Motor cable

Flange size	Length	B1	B2	B3	D1 ∅ h6	D2 ∅	D3 ∅ h7	D4
40	S	40	41	21	8	10	30	M3
	M							
60	S	62	41	21	14	15	50	M5
	M							
80	S	82	41	21	19	20	70	M6
	M							
100	S	102	41	21	19	25	95	M6
	M							

Flange size	Length	D5 ∅	D6 ∅ ±0.3	H1	H2	H3	L1 With brake ±2	
40	S	3.4	45	68.5	48.5	38.5	89	124
	M						114	149
60	S	4.5	70	86.5	55.5	45.5	122	156
	M						152	186
80	S	5.5	90	106.5	65.5	55.5	158	200
	M						178	220
100	S	9	115	126.5	75.5	65.5	200	242
	M						225	267

Flange size	Length	L2	L3 ±0.2	L4 ±0.3	L5	L6	L7	T1
40	S	20+0.5/-0.7	2.5	4.5	25.3	46.2	18	9
	M							
60	S	30+0.5/-0.2	2.5	9	21	46.2	18	12.5
	M							
80	S	35+0.4/-0.2	3	10	23	46.2	18	16
	M							
100	S	40+0.4/-0.2	3	12	25.5	46.2	18	16
	M							



- Suitable for motor controller CMMS-AS and CMMP-AS
- Brushless, permanently excited synchronous servo motors
- Digital absolute displacement encoder with single turn (standard), multi-turn (optional)
- No homing after voltage failure
- Matching gear unit

→ www.festo.com/catalogue/emms-as

Product range overview

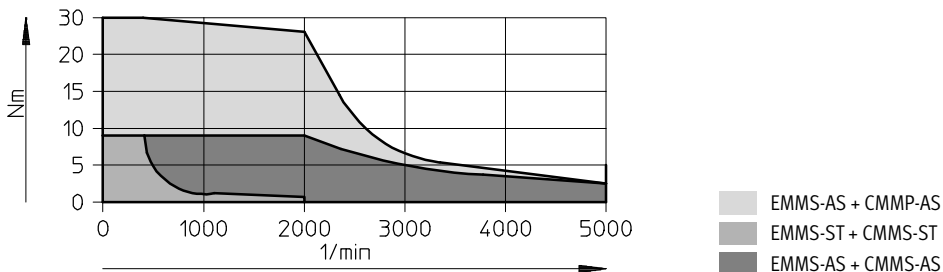
Motor flange size	Nominal voltage [V AC]	Nominal torque [Nm]	With gear unit	With brake
40	360	0.14 ... 0.22	■	■
55	360, 565	0.31 ... 0.68	■	■
70	360, 565	1.37 ... 2.29	■	■
100	565	3.24 ... 7.51	■	■
140	565	9.55 ... 21.12	■	■
190	565	17.47 ... 22.63	■	■

Product options

S	Short	LS	Low-voltage, standard	A	Angled plug	S	Absolute encoder, single turn
M	Medium	LV	Low-voltage, speed-optimised	R	Angled plug, rotatable	M	Absolute encoder, multi-turn
L	Long	HS	High-voltage, standard	S	Straight plug	R	Resolver
K	Shaft to DIN 6885 with feather key	HV	High-voltage, speed-optimised	T	Terminal box	B	Brake
						S1	IP65 (with shaft sealing ring)

At a glance

Performance characteristics of the motors in combination with controllers



Technical data

4

Technical data		Dimensions → 492									
		40			55				70		
Motor flange size		S	M	S	S	M	M	S	S	S	S
Length		S	M	S	S	M	M	S	S	S	S
Winding		LS	LS	LS	HS	LS	HS	LS	LV	HS	HV
Nominal voltage	[V AC]	360	360	360	565	360	565	360	360	565	565
Nominal current	[A]	0.83	0.63	0.83	0.49	1.19	0.80	2.20	2.64	1.29	1.60
Peak current	[A]	3.3	3.3	4.30	2.70	5	4.90	5	11	5.90	7.50
Rated output	[W]	135	232	261	246	461	470	866	945	794	992
Nominal torque	[Nm]	0.14	0.22	0.34	0.31	0.67	0.68	1.43	1.37	1.31	1.28
Peak torque	[Nm]	0.5	1	1.65	1.62	2.7	3.8	3.10	5	5.17	5.17
Torque at standstill	[Nm]	0.16	0.26	0.49	0.46	0.97	0.99	1.64	1.64	1.50	1.62
Nominal rotational speed	[rpm]	9000	10,300	7400	7600	6600	6600	5300	6600	5800	7400
Max. rotational speed	[rpm]	23,040	11,520	9800	9840	7330	7750	6450	8070	6460	8200
Brake											
Operating voltage	[V DC]	24 +6 ... -10%									
Holding torque	[Nm]	0.4			0.8				2		

Technical data		70				100					
		Flange size		M	M	M	M	S	M	L	L
Length		M	M	M	M	S	M	L	L		
Winding		LS	LV	HS	HV	HS	HS	HS	HV		
Nominal voltage	[V AC]	360	360	565	565	565	565	565	565		
Nominal current	[A]	2.60	3.02	1.70	1.84	3.30	3.40	3.80	3.79		
Peak current	[A]	10	12.50	7.40	8.30	15	15	24.80	24.80		
Rated output	[W]	1061	1100	1044	1146	1560	2000	2360	2240		
Nominal torque	[Nm]	2.29	2.28	2.26	2.19	3.24	5.63	7.51	6.29		
Peak torque	[Nm]	7.75	8.30	8.55	8.55	12.50	22.10	39.80	35.40		
Torque at standstill	[Nm]	2.56	2.57	2.53	2.52	4.71	8.01	10.94	10.93		
Nominal rotational speed	[rpm]	4100	4600	4400	5000	4600	3400	3000	3400		
Max. rotational speed	[rpm]	4880	5570	4960	5560	6680	4030	3360	4040		
Brake											
Operating voltage	[V DC]	24 +6 ... -10%									
Holding torque	[Nm]	2					9				

Technical data		140				190	
		Flange size		S	S	L	L
Length		S	S	L	L	S	M
Winding		HS	HV	HS	HV	HS	HS
Nominal voltage	[V AC]	565	565	565	565	565	565
Nominal current	[A]	4.40	5.23	7.80	9.96	14.43	14.24
Peak current	[A]	15	24.40	20	51.50	77.20	88.20
Rated output	[W]	2600	3140	4420	5110	5490	6880
Nominal torque	[Nm]	9.55	7.70	21.12	17.41	17.47	22.63
Peak torque	[Nm]	25.60	27	48.80	67.50	80	120
Torque at standstill	[Nm]	11.20	11.08	25.60	25.50	26.20	38.77
Nominal rotational speed	[rpm]	2600	3900	2000	2800	3000	2900
Max. rotational speed	[rpm]	3060	4510	2460	3830	5300	4060
Brake							
Operating voltage	[V DC]	24 +6 ... -10%					
Holding torque	[Nm]	18				30	

Technical data

Technical data – Encoder		
Type	EMMS-AS-...-...S...	EMMS-AS-...-...M...
	Absolute, single turn	Absolute, multi-turn
Operating voltage	[V DC]	5
Protocol	EnDat 2.1, digital channel only, max. cycle rate (CLOCK) 2 MHz	
Position values per revolution	262,144	
Resolution	18 bits	
	-	4096 revolutions, 12 bits

Technical data – Resolver		
Version	Transmitter	
Input voltage	[V DC]	4
Input current	[mA]	50
Number of poles	2	
Carrier frequency	[kHz]	3.4 ... 8.0

Operating conditions		Encoder	Resolver
Ambient temperature	[°C]	-10 ... +40 (up to 100 °C with derating)	-40 ... +40 (up to 130 °C with derating)
Degree of protection			
Motor shaft	IP54		
Motor housing incl. connection technology	IP65		
With shaft sealing ring	IP65		
Insulation class	F		
Rated class to EN 60034-1	S1		
Thermal class to EN 60034-1	F		

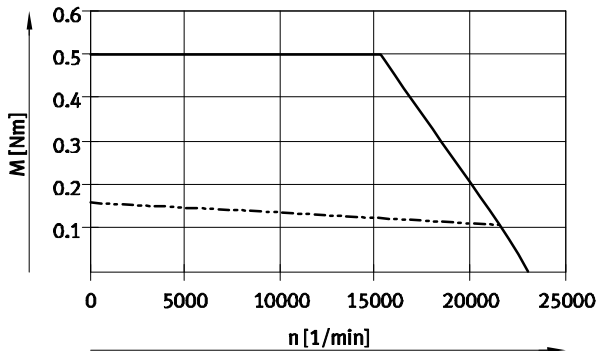
Technical data

Torque M as a function of rotational speed n

Flange size 40

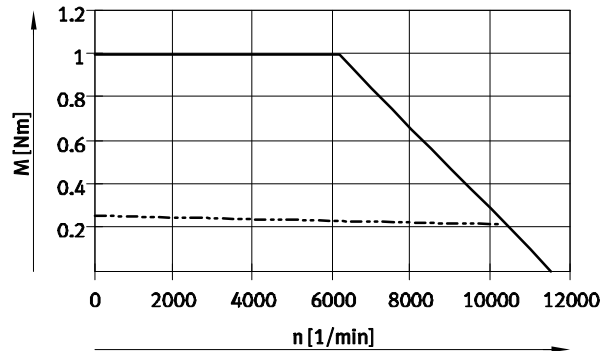
Length S

Winding LS



Length M

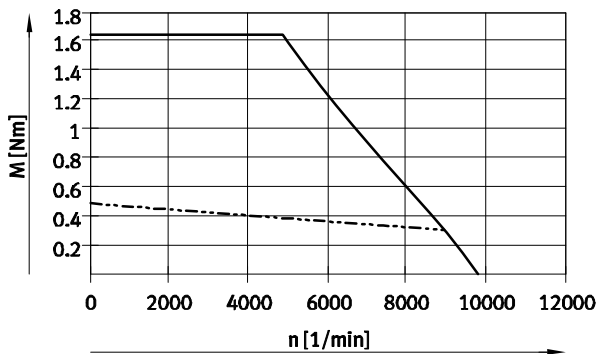
Winding LS



Flange size 55

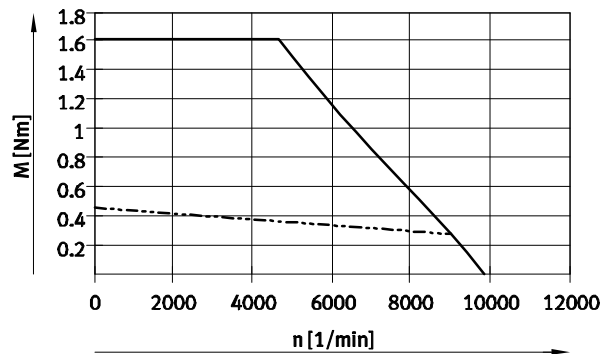
Length S

Winding LS



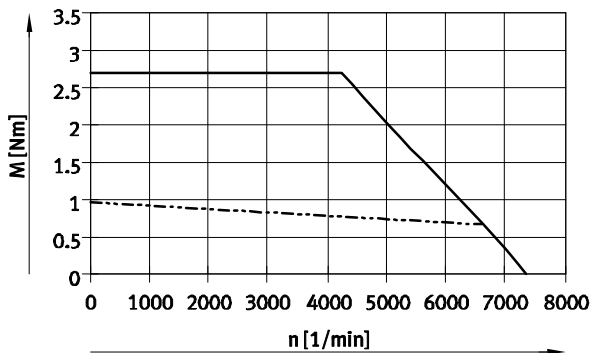
Length S

Winding HS



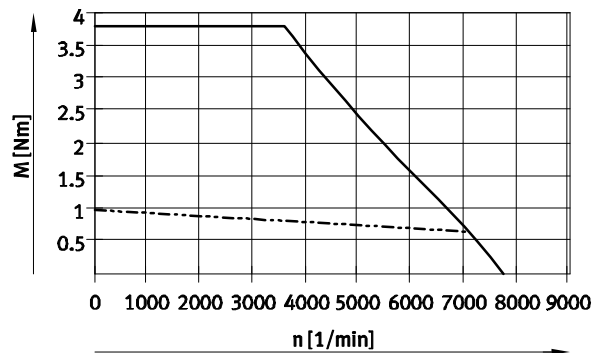
Length M

Winding LS



Length M

Winding HS



———— Peak torque
 - - - - - Nominal torque

Note

Typical motor characteristic curve with nominal voltage and optimal motor controller.

4

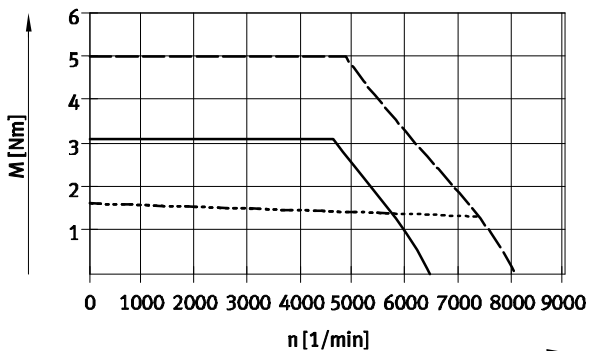
Technical data

Torque M as a function of rotational speed n

Flange size 70

Length S

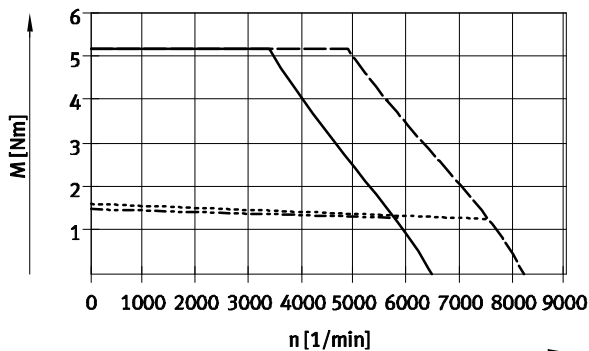
Winding LS, LV



- Peak torque EMMS-AS-...-LS
- - - Nominal torque EMMS-AS-...-LS
- - - Peak torque EMMS-AS-...-LV
- Nominal torque EMMS-AS-...-LV

Length S

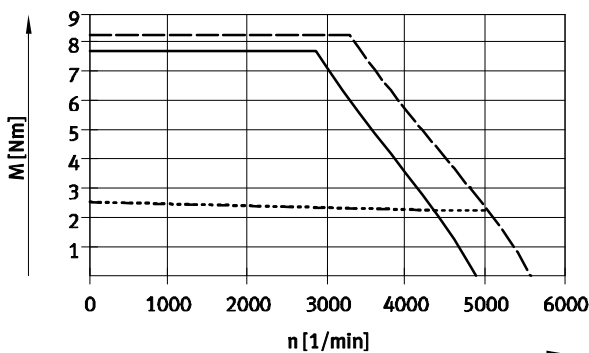
Winding HS, HV



- Peak torque EMMS-AS-...-HS
- - - Nominal torque EMMS-AS-...-HS
- - - Peak torque EMMS-AS-...-HV
- Nominal torque EMMS-AS-...-HV

Length M

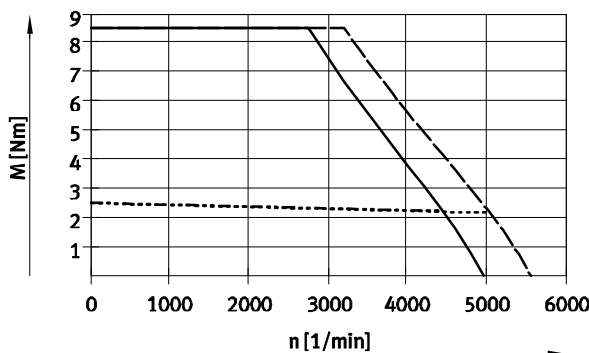
Winding LS, LV



- Peak torque EMMS-AS-...-LS
- - - Nominal torque EMMS-AS-...-LS
- - - Peak torque EMMS-AS-...-LV
- Nominal torque EMMS-AS-...-LV

Length M

Winding HS, HV



- Peak torque EMMS-AS-...-HS
- - - Nominal torque EMMS-AS-...-HS
- - - Peak torque EMMS-AS-...-HV
- Nominal torque EMMS-AS-...-HV

Note

Typical motor characteristic curve with nominal voltage and optimal motor controller.

4

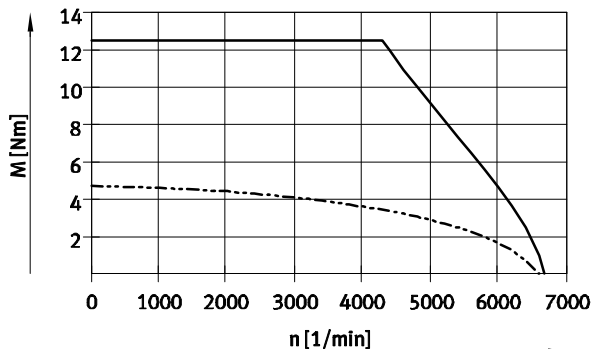
Technical data

Torque M as a function of rotational speed n

Flange size 100

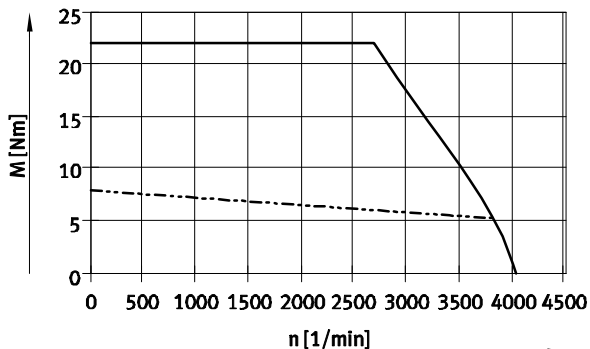
Length S

Winding HS



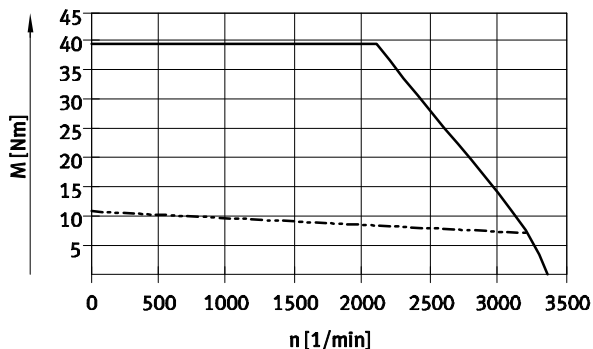
Length M

Winding HS



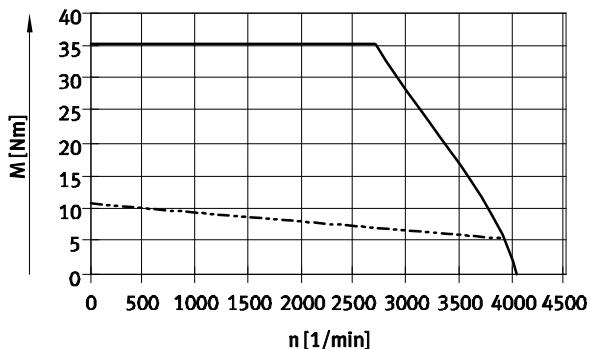
Length L

Winding HS



Length L

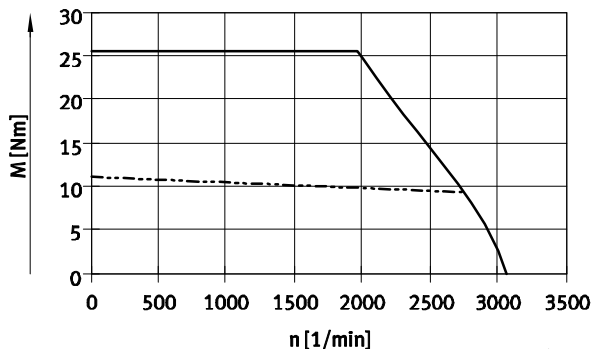
Winding HV



Flange size 140

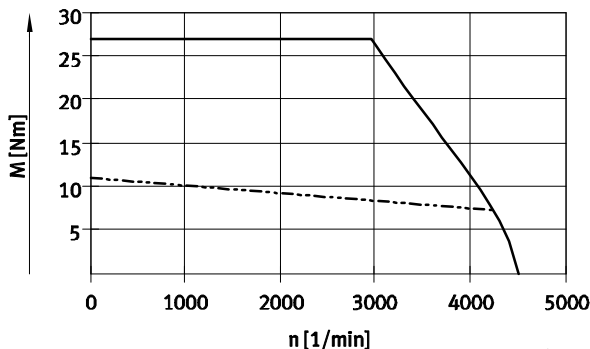
Length S

Winding HS



Length S

Winding HV



———— Peak torque
 - - - - - Nominal torque

Note

Typical motor characteristic curve with nominal voltage and optimal motor controller.

4

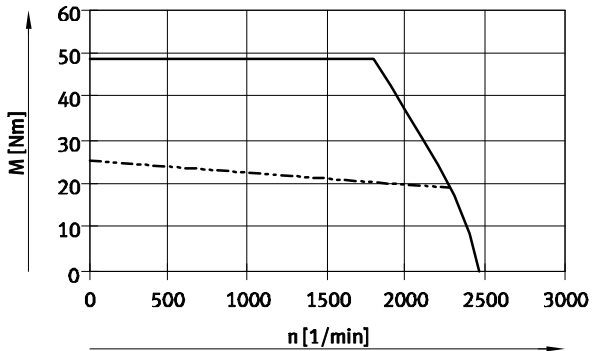
Technical data

Torque M as a function of rotational speed n

Flange size 140

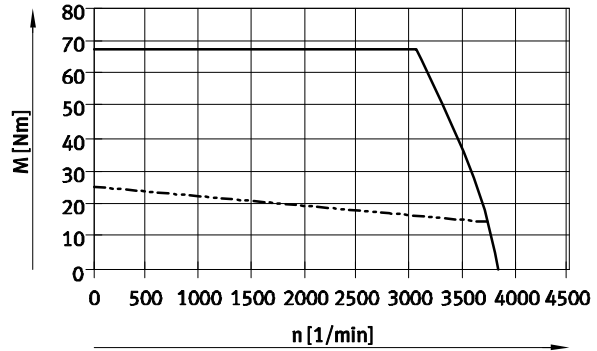
Length L

Winding HS



Length L

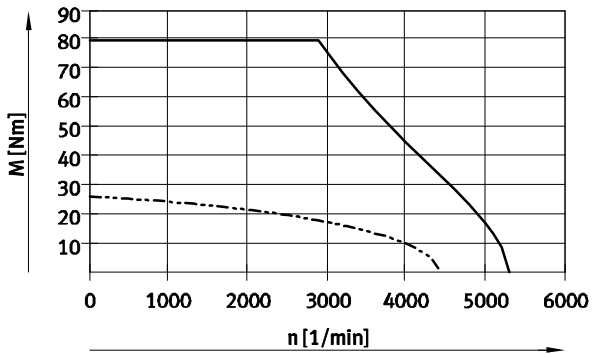
Winding HV



Flange size 190

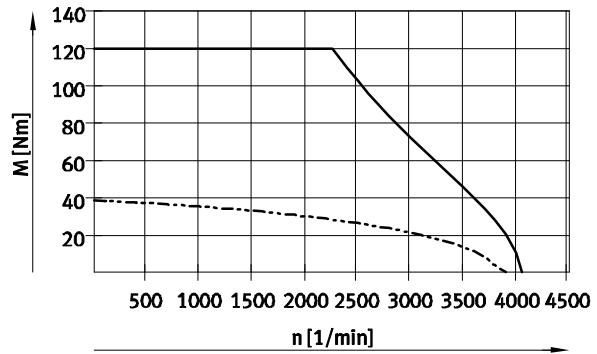
Length S

Winding HS



Length M

Winding HS

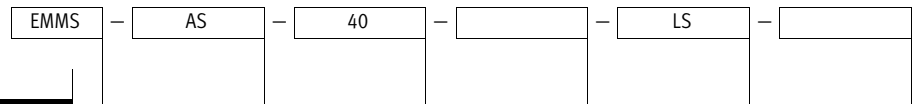


— Peak torque
 - - - Nominal torque

Note

Typical motor characteristic curve with nominal voltage and optimal motor controller.

Ordering code – Flange size 40



Type	
EMMS	Motor
Motor type	
AS	Servo motor
Motor flange size	
40	40 mm
Length	
S	Short
M	Medium
Output shaft	
-	Smooth shaft
K	Shaft to DIN 6885 (with feather key)
Winding	
LS	Low-voltage, standard
Electrical connection	
S	Straight plug
T	Terminal box
Measuring unit	
S	Absolute encoder, single turn 1
M	Absolute encoder, multi-turn 1
R	Resolver 2
Brake	
-	None
B	With brake

1 Only with electrical connection T

2 Only with electrical connection S

Order example:

EMMS-AS-40-M-LS-TSB

Motor EMMS - servo motor - flange size 40 - length: medium - output shaft: smooth shaft - winding: low-voltage, standard - electrical connection: terminal box - measuring unit: absolute encoder, single turn - with brake

Order code – Flange size 55

		EMMS	–	AS	–	55	–		–		–		–	
Type														
EMMS	Motor													
Motor type														
AS	Servo motor													
Motor flange size														
55	55 mm													
Length														
S	Short													
M	Medium													
Output shaft														
–	Smooth shaft													
K	Shaft to DIN 6885 (with feather key)													
Winding														
LS	Low-voltage, standard													
HS	High-voltage, standard													
Electrical connection														
R	Angled plug, rotatable													
T	Terminal box													
Measuring unit														
S	Absolute encoder, single turn		1											
M	Absolute encoder, multi-turn		1											
R	Resolver		2											
Brake														
–	None													
B	With brake													
Degree of protection														
–	Standard													
S1	IP65 (with shaft sealing ring)													

1 Only with electrical connection T

2 Only with electrical connection R

Order example:

EMMS-AS-55-M-LS-TSB

Motor EMMS - servo motor - flange size 55 - length: medium - output shaft: smooth shaft - winding: low-voltage, standard - electrical connection: terminal box - measuring unit: absolute encoder, single turn - with brake

Order code – Flange size 70

		EMMS	AS	70				
Type								
EMMS	Motor							
Motor type								
AS	Servo motor							
Motor flange size								
70	70 mm							
Length								
S	Short							
M	Medium							
Output shaft								
–	Smooth shaft							
K	Shaft to DIN 6885 (with feather key)							
Winding								
LS	Low-voltage, standard							
LV	Low-voltage, speed-optimised							
HS	High-voltage, standard							
HV	High-voltage, speed-optimised							
Electrical connection								
R	Angled plug, rotatable							
Measuring unit								
S	Absolute encoder, single turn							
M	Absolute encoder, multi-turn							
R	Resolver							
Brake								
–	None							
B	With brake							
Degree of protection								
–	Standard							
S1	IP65 (with shaft sealing ring)							

Order example:

EMMS-AS-70-M-LS-RSB

Motor EMMS - servo motor - flange size 70 - length: medium - output shaft: smooth shaft - winding: low-voltage, standard - electrical connection: angled plug, rotatable - measuring unit: absolute encoder, single turn - with brake - degree of protection: standard

Order code – Flange size 100

EMMS		AS	100				
Type							
EMMS	Motor						
Motor type							
AS	Servo motor						
Motor flange size							
100	100 mm						
Length							
S	Short						
M	Medium						
L	Long						
Output shaft							
–	Smooth shaft						
K	Shaft to DIN 6885 (with feather key)						
Winding							
HS	High-voltage, standard						
HV	High-voltage, speed-optimised ¹						
Electrical connection							
R	Angled plug, rotatable						
Measuring unit							
S	Absolute encoder, single turn						
M	Absolute encoder, multi-turn						
R	Resolver						
Brake							
–	None						
B	With brake						
Degree of protection							
–	Standard						
S1	IP65 (with shaft sealing ring)						

¹ Only with length L

Order example:

EMMS-AS-100-M-HS-RSB

Motor EMMS - servo motor - flange size 100 - length: medium - output shaft: smooth shaft - winding: high-voltage, standard - electrical connection: angled plug, rotatable - measuring unit: absolute encoder, single turn - with brake - degree of protection: standard

Order code – Flange size 140

		EMMS	AS	140				
Type								
EMMS	Motor							
Motor type								
AS	Servo motor							
Motor flange size								
140	140 mm							
Length								
S	Short							
L	Long							
Output shaft								
–	Smooth shaft							
K	Shaft to DIN 6885 (with feather key)							
Winding								
HS	High-voltage, standard							
HV	High-voltage, speed-optimised							
Electrical connection								
R	Angled plug, rotatable							
Measuring unit								
S	Absolute encoder, single turn							
M	Absolute encoder, multi-turn							
R	Resolver							
Brake								
–	None							
B	With brake							
Degree of protection								
–	Standard							
S1	IP65 (with shaft sealing ring)							

Order example:

EMMS-AS-140-L-HS-RSB

Motor EMMS - servo motor - flange size 140 - length: long - output shaft: smooth shaft - winding: high-voltage, standard - electrical connection: angled plug, rotatable - measuring unit: absolute encoder, single turn - with brake - degree of protection: standard

Order code – Flange size 190

EMMS		AS	190				
Type							
EMMS	Motor						
Motor type							
AS	Servo motor						
Motor flange size							
190	190 mm						
Length							
S	Short						
M	Medium						
Output shaft							
-	Smooth shaft						
K	Shaft to DIN 6885 (with feather key)						
Winding							
HS	High-voltage, standard						
Electrical connection							
A	Angled plug						
Measuring unit							
S	Absolute encoder, single turn						
M	Absolute encoder, multi-turn						
R	Resolver						
Brake							
-	None						
B	With brake						
Degree of protection							
-	Standard						
S1	IP65 (with shaft sealing ring)						

Order example:

EMMS-AS-190-M-HS-ASB

Motor EMMS - servo motor - flange size 190 - length: medium - output shaft: smooth shaft - winding: high-voltage, standard - electrical connection: angled plug - measuring unit: absolute encoder, single turn - with brake - degree of protection: standard

Ordering – Product options



Configurable product

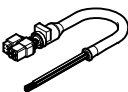

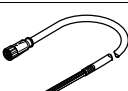
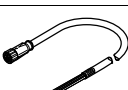
This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
 → www.festo.com/catalogue/...

Enter the type code in the search field.

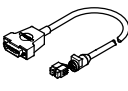
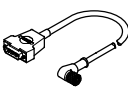
Accessories – Ordering data

Motor cable

	Cable length	Part No.	Type
For EMMS-AS-40/55 with encoder			
	5 m	550306	NEBM-T1G7-E-5-N-LE7
	10 m	550307	NEBM-T1G7-E-10-N-LE7
	15 m	550308	NEBM-T1G7-E-15-N-LE7
	X length ¹⁾	550309	NEBM-T1G7-E- -N-LE7
For EMMS-AS-70 and EMMS-AS/40/55 with resolver			
	5 m	1732657	NEBM-M23G8-E-5-N-LE8
	10 m	1732658	NEBM-M23G8-E-10-N-LE8
	15 m	1732659	NEBM-M23G8-E-15-N-LE8
	X length ¹⁾	1732660	NEBM-M23G8-E- -N-LE8
For EMMS-AS-70/100/140			
	5 m	550310	NEBM-M23G6-E-5-N-LE7
	10 m	550311	NEBM-M23G6-E-10-N-LE7
	15 m	550312	NEBM-M23G6-E-15-N-LE7
	X length ¹⁾	550313	NEBM-M23G6-E- -N-LE7
For EMMS-AS-190			
	5 m	1750241	NEBM-M40G8-E-5-N-LE7
	10 m	1750242	NEBM-M40G8-E-10-N-LE7
	15 m	1750243	NEBM-M40G8-E-15-N-LE7
	X length ¹⁾	1750244	NEBM-M40G8-E- -N-LE7

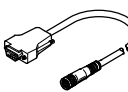
1) Max. 25 m. Cable lengths > 25 m possible following technical clarification; up to 100 m on request.
 Available in 0.1 m increments.

Encoder cable

	Cable length	Part No.	Type
For EMMS-AS-40/55			
	5 m	550314	NEBM-T1G8-E-5-N-S1G15
	10 m	550315	NEBM-T1G8-E-10-N-S1G15
	15 m	550316	NEBM-T1G8-E-15-N-S1G15
	X length ¹⁾	550317	NEBM-T1G8-E- -N-S1G15
For EMMS-AS-70/100/140/190			
	5 m	550318	NEBM-M12W8-E-5-N-S1G15
	10 m	550319	NEBM-M12W8-E-10-N-S1G15
	15 m	550320	NEBM-M12W8-E-15-N-S1G15
	X length ¹⁾	550321	NEBM-M12W8-E- -N-S1G15

1) Max. 25 m. Cable lengths > 25 m possible following technical clarification; up to 100 m on request.
 Available in 0.1 m increments.

Resolver cable

	Cable length	Part No.	Type
For EMMS-AS-40/55/70/100/140/190			
	5 m	1732653	NEBM-M23G12-E-5-N-S1G9
	10 m	1732654	NEBM-M23G12-E-10-N-S1G9
	15 m	1732655	NEBM-M23G12-E-15-N-S1G9
	X length ¹⁾	1732656	NEBM-M23G12-E- -N-S1G9

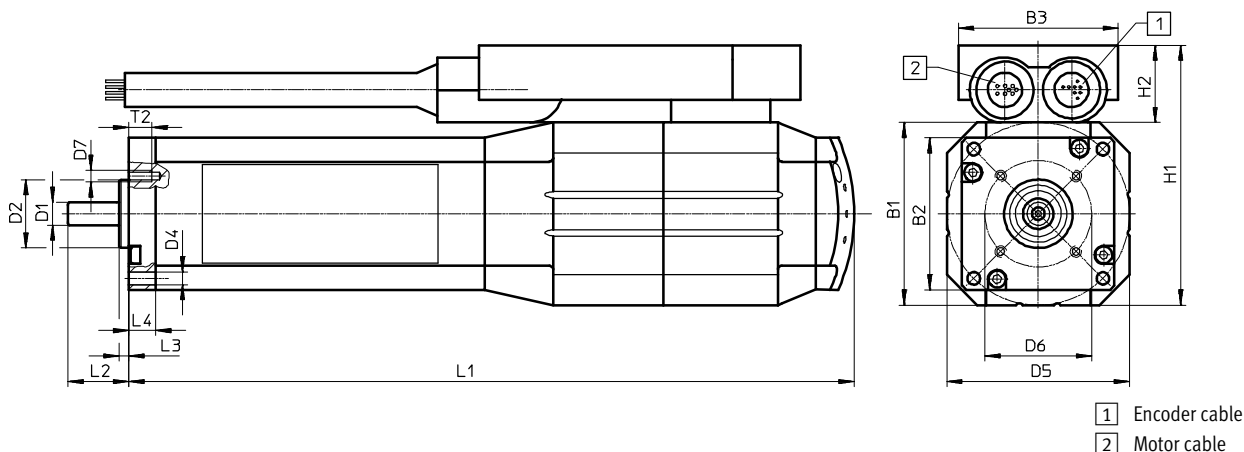
1) Max. 25 m. Cable lengths > 25 m possible following technical clarification; up to 100 m on request.
 Available in 0.1 m increments.

Servo motors EMMS-AS

Dimensions

Download CAD data → www.festo.com

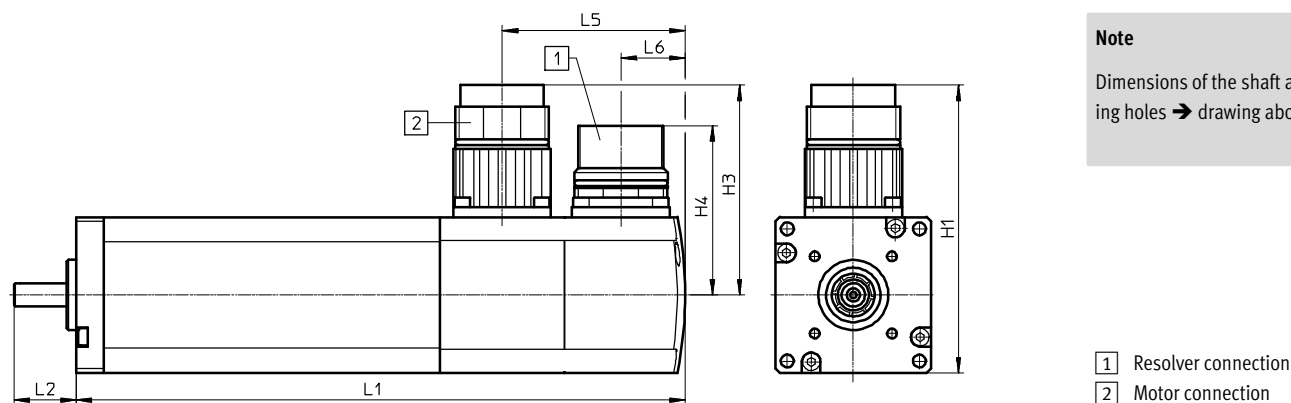
Flange size 40 – With encoder



Length	B1	B2	B3	D1 ∅ +0.009/-0.001	D2 ∅ +0.012/-0.006	D4 ∅	D5 ∅	D6 ∅
S	48	40	42	6	18	3.3	48	28
M								

Length	D7	H1	H2	L1	L2	L3 -0.1	L4	T2
S	M3	68.3	20.3	170.5	16	2.5	7	6
M				190.5				

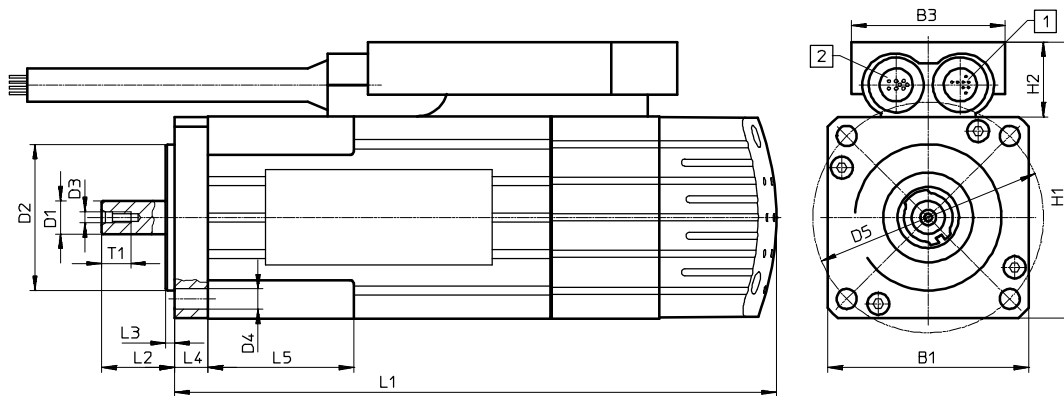
Flange size 40 – With resolver



Length	H1	H3	H4	L1		L2	L5		L6
					With brake			With brake	
S	74	54	44	134.9	136.4	16	46.5	48	17
M				154.9	156.4				

Dimensions

Flange size 55 – With encoder

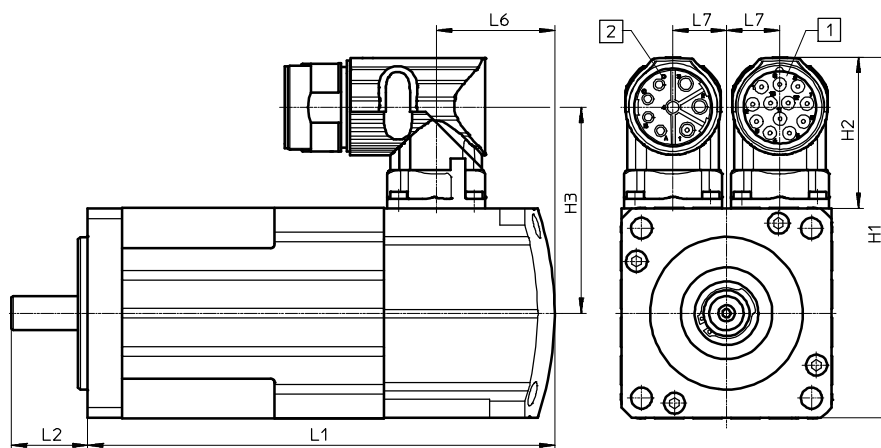


- 1 Encoder cable
- 2 Motor cable

Length	B1	B3	D1 ∅ +0.01/-0.001	D2 ∅ +0.11/-0.005	D3	D4 ∅	D5 ∅
S	55	42	9	40	M2.5	5.5	63
M							

Length	H1	H2	L1	L2	L3 ±0.05	L4	L5	T1
S	76	20.5	139.4	20	2.5	9	40	8
M			164.4					

Flange size 55 – With resolver



Note
 Dimensions of the shaft and mounting holes → drawing above

- 1 Resolver connection
- 2 Motor connection

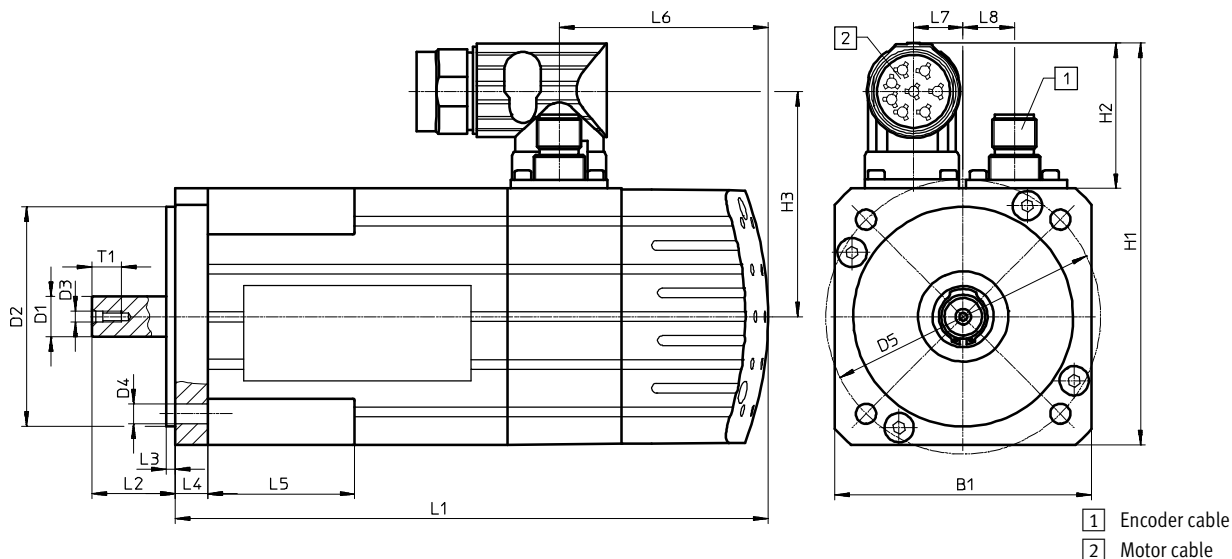
Length	H1	H2	H3	L1		L2	L6		L7
					With brake			With brake	
S				122.4	139.4	20	31	48	14
M	94.7	39.7	54	147.4	164.4				

Servo motors EMMS-AS

Dimensions

Download CAD data → www.festo.com

Flange size 70, 100, 140, 190 – With encoder



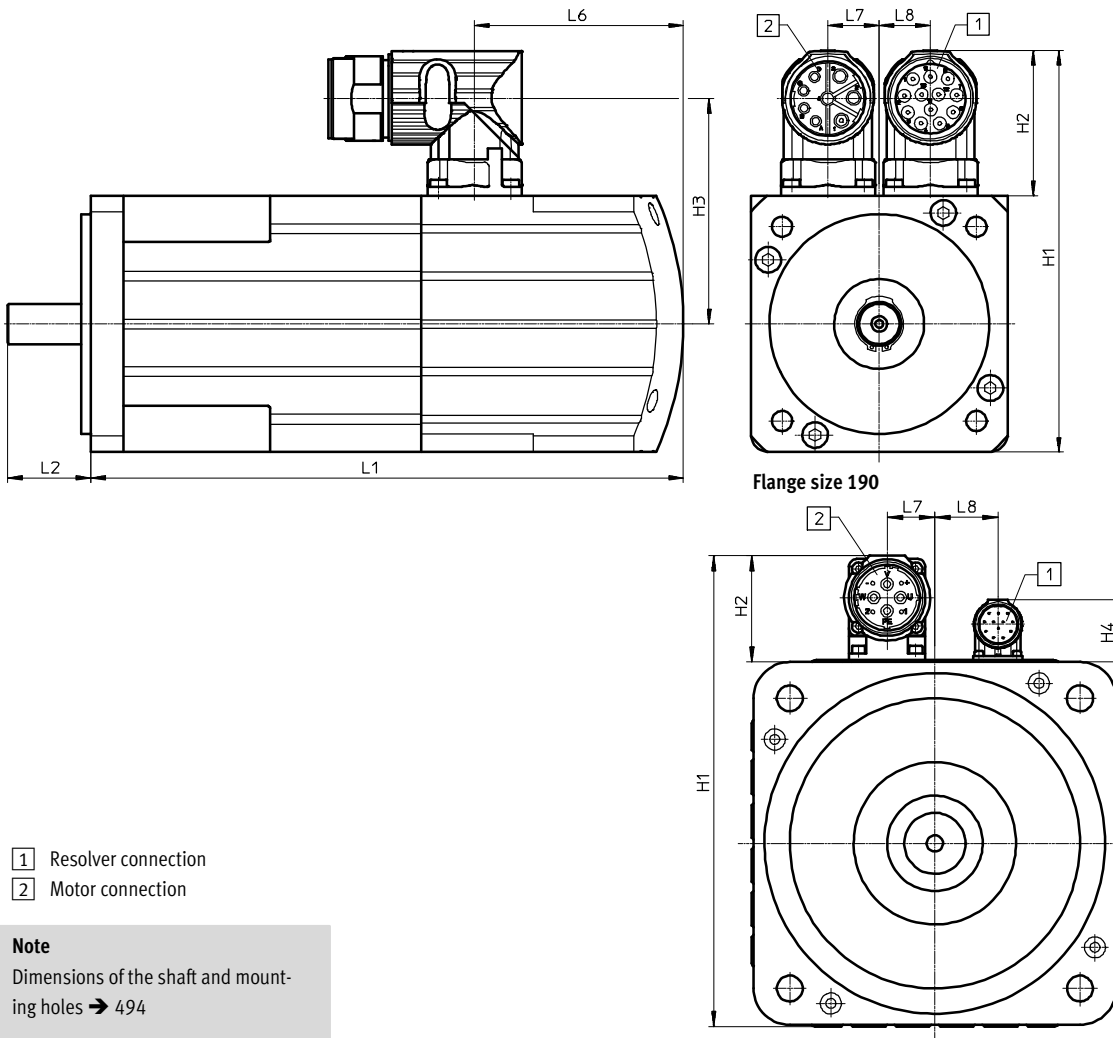
- 1 Encoder cable
- 2 Motor cable

Length	B1	D1 ∅	D2 ∅	D3	D4 ∅	D5 ∅	H1	H2	H3
Flange size 70									
S	70	11+0.012/+0.001	60+0.012/-0.007	M2.5	5.5	75	109.7	39.7	61.5
M									
Flange size 100									
S	100.5	19+0.015/+0.002	95+0.013/-0.009	M4	9.2	115	140	39.7	77
M									
L									
Flange size 140									
S	140.5	24+0.015/-0.002	130+0.018/-0.007	M4	11.3	165	181	39.7	97.7
L									
Flange size 190									
S	190	32+0.018/+0.002	180+0.14/-0.011	M4	13.7	215	251	61	136
M									

Length	L1	L2	L3	L4	L5	L6	L7	L8	T1
Flange size 70									
S	161.8	22.7	2.5-0.1	9	40	57	14	14	8
M	187.3								
Flange size 100									
S	192.3	40	3	9.8	-	58.9	19	19	16
M	243.3								
L	294.3								
Flange size 140									
S	209	50	3.5	12.2	-	58.6	33.5	33.5	16
L	285.5								
Flange size 190									
S	262	60	4-0.1	11	-	81	25	33	16
M	300								

Dimensions

Flange size 70, 100, 140, 190 – With resolver



- 1 Resolver connection
- 2 Motor connection

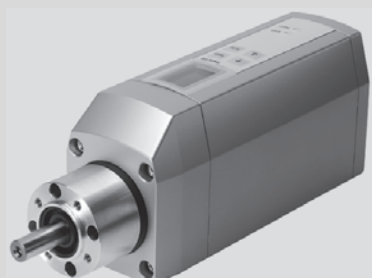
Note
 Dimensions of the shaft and mounting holes → 494

Length	H1	H2	H3	H4	L1		L2	L6		L7	L8
						With brake			With brake		
Flange size 70											
S	109.7	39.7	61.5	-	139.8	161.8	22.7	35	57	14	14
M					165.3	187.3					
Flange size 100											
S	140.2	39.7	76.8	-	171.1	192.1	40	37.8	58.9	19	19
M					222.1	243.1					
L					273.1	294.1					
Flange size 140											
S	180.2	39.7	96.8	-	194.6	209	50	44.2	58.6	33.5	33.5
L					271.1	285.5					
Flange size 190											
S	244	54	128.8	33	225	262	60	44	81	25	33
M					263	300					

Note
 Only motors without feather key should be used in combination with parallel and axial kits (EAMM-U/EAMM-A).

Motor units MTR-DCI, intelligent servo motors

4



- Motor with integrated gear unit, power electronics and position controller for operating mode with closed-loop encoder function
- Compact design
- Actuation via I/O interface and various fieldbuses
- Easy configuration with free FCT software
- Commissioning via control panel and display
- Degree of protection IP54
- Perfect solution package for positioning axis DMES

→ www.festo.com/catalogue/mtr-dci

Product range overview

Size	Nominal voltage [V DC]	Gear unit output torque [Nm]	Gear ratio			Interfaces			
			7:1	14:1	22:1	I/O interface	CANopen	PROFIBUS	DeviceNet
32	24	0.15/0.29	■	■	–				
42	24	0.59/1.13	■	■	–	■	■	■	■
52	24	1.62/3.08	■	■	–				
62	48	3.78/7.2/11.66	■	■	■				

Technical data

Fieldbus interfaces



Technical data										Dimensions → 500
Size	32			42		52		62		
Gear ratio	7:1	14:1	7:1	14:1	7:1	14:1	7:1	14:1	22:1	
Rotary position encoder	Optical encoder									
Number of increments/revolutions	300 (1200) ¹⁾				500 (2000) ¹⁾					
Nominal voltage [V DC]	24 ±10%						48 -10%/+5%			
Nominal current [A]	0.73		2		5		6.19			
Peak current [A]	2.1		3.8		7.7		20			
Rated output (motor) [W]	17		48		122		316			
Gear unit output torque [Nm]	0.15	0.29	0.59	1.13	1.62	3.08	3.78	7.2	11.66	
Gear unit output speed [rpm]	481	237	444	218	444	218	504	248	153	

1) Internal 4-fold evaluation.

Technical data

Technical data – I/O / fieldbus interface		MTR-DCI-...-IO	MTR-DCI-...-CO	MTR-DCI-...-PB	MTR-DCI-...-DN
Type					
Interface		I/O interface for 15 position records and homing	CANopen	PROFIBUS DP	DeviceNet
Number of digital logic inputs		6	–	–	–
Number of digital logic outputs		2	–	–	–
Max. current of digital logic outputs (size)	32/42 52/62	200 60	– –	– –	– –
Bus terminating resistor		–	Not integrated in the device	Not integrated in the device	Not integrated in the device
Communication profile		–	DS301/FHPP	DP-V0/V1 / FHPP	FHPP
		–	DS301, DSP402	Step7 functional modules	Device type 0Ch
Max. fieldbus transmission rate	[kbps]	–	1000	12,000	500

Operating conditions

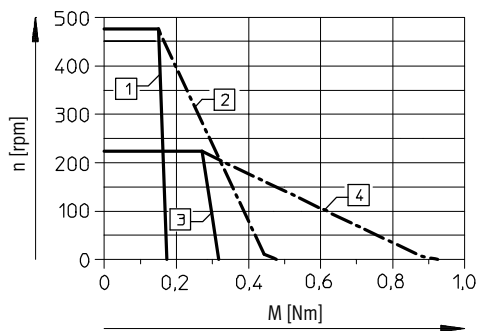
Ambient temperature	[°C]	0 ... +50
Degree of protection		IP54
Insulation protection class		F

Materials

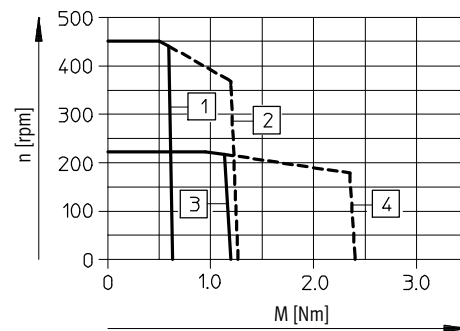
Motor unit housing	Anodised aluminium
Motor unit cover	Coated, precision-cast aluminium (size 62 milled)

Torque M as a function of rotational speed n

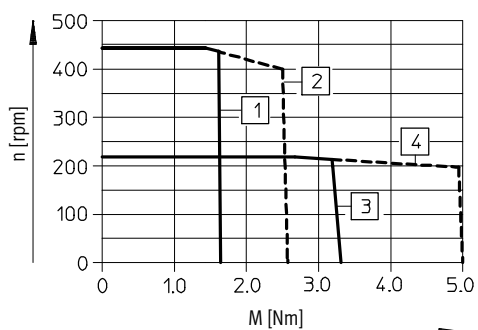
Size 32



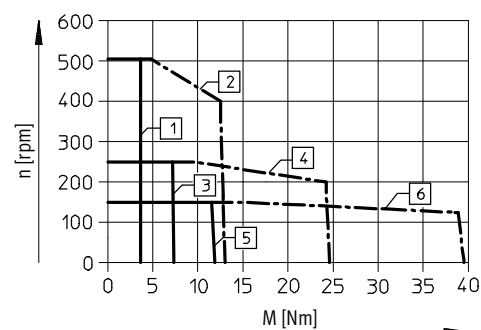
Size 42



Size 52



Size 62



Gear unit ratio 7:1

- 1 Torque, nom.
2 Torque, max.

Gear unit ratio 14:1

- 3 Torque, nom.
4 Torque, max.

Gear unit ratio 22:1

- 5 Torque, nom.
6 Torque, max.

Order code

4

		MTR	-	DCI	-		S	-		SC	-	E	-		
Type															
MTR	Motor unit														
Motor type															
DCI	DC servo motor with integrated controller														
Size															
32	32 mm														
42	42 mm														
52	52 mm														
62	62 mm														
Torque class															
S	Standard														
Nominal voltage															
VC	24 V DC	1													
VD	48 V DC	2													
Plug design															
SC	Straight plug														
Measuring system															
E	Encoder														
Gear unit															
G7	7:1														
G14	14:1														
G22	22:1	2													
Parameterisation interface															
R2	RS232 interface														
H2	RS232 interface with control panel														
Electrical connection technology															
IO	I/O interface														
Co	CANopen interface														
PB	PROFIBUS interface														
DN	DeviceNet interface														

1 Only with size 32, 42, 52

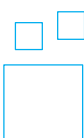
2 Only with size 62

Order example:

MTR-DCI-42S-VCSC-EG7-H2IO

Motor unit MTR-DCI - DC servo motor with integrated controller - size 42 - torque class: standard - nominal voltage: 24 V DC - straight plug - measuring system: encoder - gear unit 7:1 - RS232- interface with control panel - I/O interface

Ordering – Product options





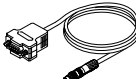
Configurable product

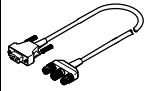
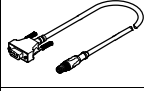
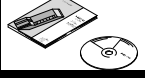
This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
 → www.festo.com/catalogue/...

Enter the type code in the search field.

Accessories – Ordering data

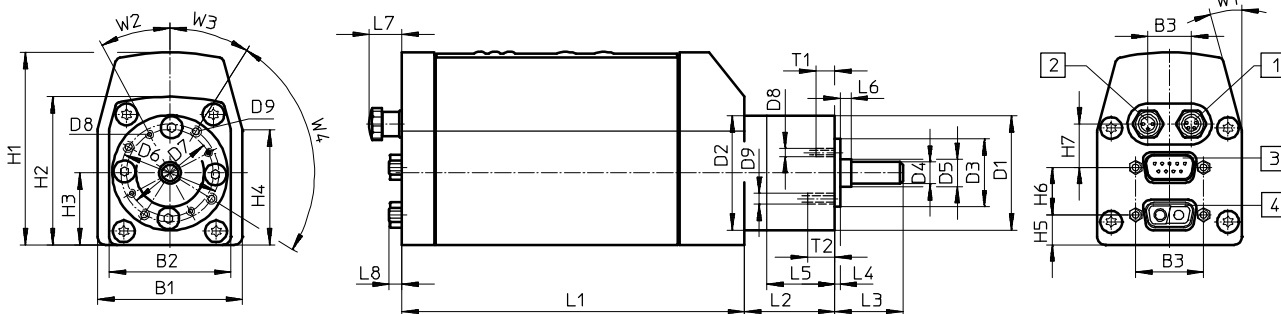
Type	Cable length	Part No.	Type
Power supply cable			
	2.5 m	537931	KPWR-MC-1-SUB-9HC-2,5
	5 m	537932	KPWR-MC-1-SUB-9HC-5
	10 m	537933	KPWR-MC-1-SUB-9HC-10
Control cable			
	2.5 m	537923	KES-MC-1-SUB-9-2,5
	5 m	537924	KES-MC-1-SUB-9-5
	10 m	537925	KES-MC-1-SUB-9-10
Programming cable			
	2.5 m	537926	KDI-MC-M8-SUB-9-2,5

Type	Part No.	Type
Fieldbus adapter for PROFIBUS		
	537934	FBA-PB-SUB-9-3XM12
Fieldbus adapter for CANopen and DeviceNet		
	540324	FBA-CO-SUB-9-M12
Documentation and software		
	Ordering data online: → p.be-mtr-dci	

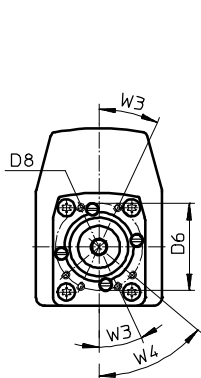
Motor units MTR-DCI, intelligent servo motors

Dimensions

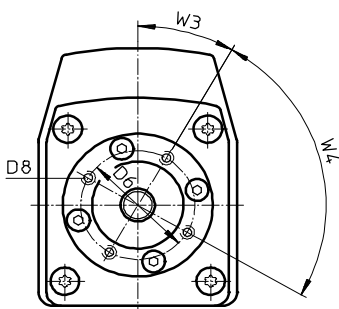
Size 42



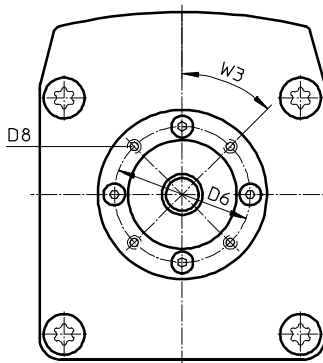
Size 32



Size 52



Size 62



- 1 M8x1, 4-pin
- 2 M8x1, 3-pin

- 3 Sub-D, 9-pin
- 4 Sub-D, 2-pin

Type	B1	B2	B3	B4	D1	D2	D3	D4	D5	D6	D7
	±0.4		±0.15		∅ g10	∅ ±0.1	∅ h8	∅ h7	∅	∅	∅
MTR-DCI-32S-...	46.3	33.8±0.3	25	16	-	-	21.5	6	-	32	-
MTR-DCI-42S-...	53.3	44.8±0.4	-	-	42	42	25	8	-	36	32
MTR-DCI-52S-...	69.5	63.8±0.4	-	-	52	52	32	12	-	40	-
MTR-DCI-62S-...	105	-	-	-	62	62	40	14	15	50	-

Type	D8	D9	H1	H2	H3	H4	H5	H6	H7	L1
										±1
MTR-DCI-32S-...	M3	-	65.3±0.4	41.5±0.3	21.6	42.3	13±0.2	17.5	16	175.5
MTR-DCI-42S-...	M3	M4	70.8±0.4	54.5±0.4	26.5	42.3	11	17.5	16	176
MTR-DCI-52S-...	M5	-	94.8±0.4	76.5±0.4	37	60.7	17.3	17.5	16	194
MTR-DCI-62S-...	M5	-	128±0.5	-	60.8	100.8	61.3	17.5	16	270

Type	L2	L3	L4	L5	L6	L7	L8	T1	T2	W1	W2	W3	W4
	±1								+2				
MTR-DCI-32S-...-G7	-	18.7±0.6	2.5±0.3	-	-	13	5	6	-	15°	-	25°	50°
MTR-DCI-32S-...-G14	-	18.7±0.6	2.5±0.3	-	-	13	5	6	-	15°	-	25°	50°
MTR-DCI-42S-...-G7	33.3	25±1	2±0.1	25	-	13	5	7+2	10	15°	28°	32°	90°
MTR-DCI-42S-...-G14	46.3	25±1	2±0.1	25	-	13	5	7+2	10	15°	28°	32°	90°
MTR-DCI-52S-...-G7	39	33±1	3±0.3	31	-	13	5	10	-	15°	-	30°	90°
MTR-DCI-52S-...-G14	53	33±1	3±0.3	31	-	13	5	10	-	15°	-	30°	90°
MTR-DCI-62S-...-G7	-	39±1	5±0.3	31.3	9	13	5	10	-	15°	-	45°	-
MTR-DCI-62S-...-G14	47	39±1	5±0.3	31.3	9	13	5	10	-	15°	-	45°	-
MTR-DCI-62S-...-G22	47	39±1	5±0.3	31.3	9	13	5	10	-	15°	-	45°	-



- Suitable for motor controller CMMS-ST
- Optional encoder with full closed-loop functionality
- Matching gear unit
- Degree of protection IP54
- ★ Quick ordering of basic designs → 505

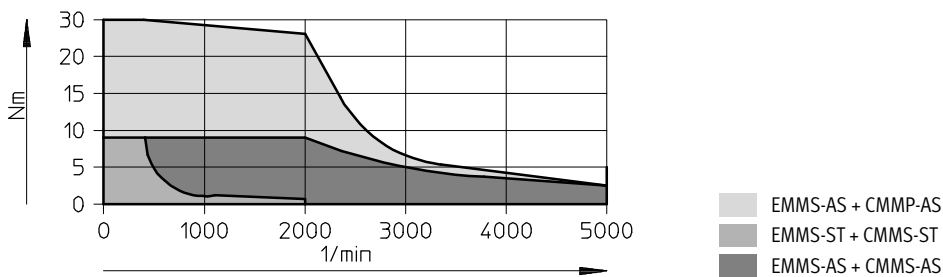
→ www.festo.com/catalogue/emms-st

Product range overview

Motor flange size	Nominal voltage [V DC]	Holding torque [Nm]	With encoder	With gear unit	With brake
28	48	0.09	■	■	■
42	48	0.5	■	■	■
57	48	0.8 ... 1.4	■	■	■
87	48	2.5 ... 9.3	■	■	■

At a glance

Performance characteristics of the motors in combination with controllers



Technical data



4

Technical data		Dimensions → 507						
Motor flange size		28	42	57-S	57-M	87-S	87-M	87-L
Nominal voltage	[V DC]	48						
Nominal current	[A]	1.4	1.8	5		9.5		
Holding torque	[Nm]	0.09	0.5	0.8	1.4	2.5	5.9	9.3
Step angle	[°]	1.8 ±5%						
Brake								
Operating voltage	[V DC]	24 ±10%						
Holding torque	[Nm]	0.2	0.4	0.4	1	2		

Technical data – Encoder

Encoder, optical		
Operating voltage	[V DC]	5
Pulses/revolution	[1/rev]	500
Zero pulse		Yes
Line driver		RS422 protocol

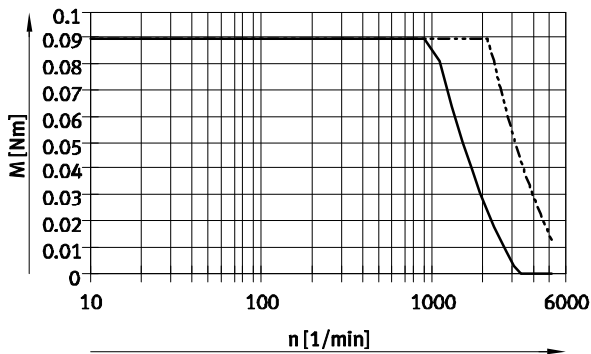
Operating conditions

Motor flange size		28	42	57-S	57-M	87-S	87-M	87-L
Ambient temperature	[°C]	-10 ... +50						
Degree of protection: motor shaft		IP54						
Degree of protection: motor housing incl. connection technology		IP65	IP54					
Insulation class		B						

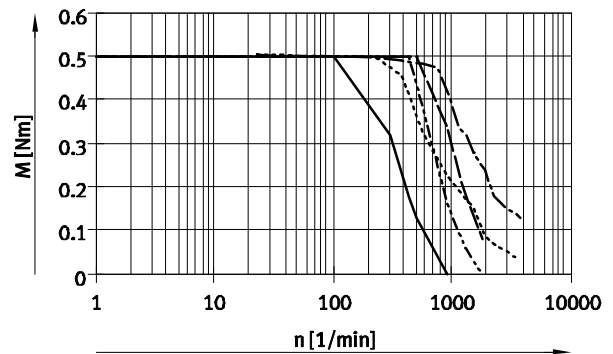
Technical data

Torque M as a function of rotational speed n

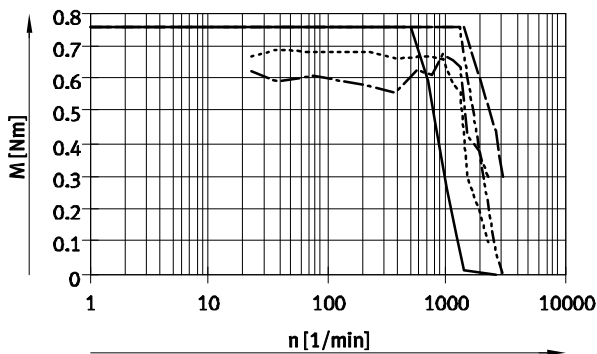
EMMS-ST-28



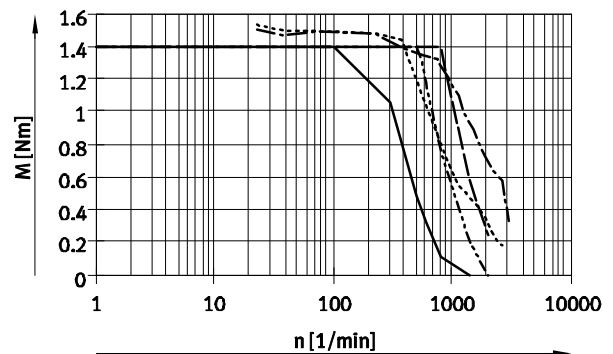
EMMS-ST-42



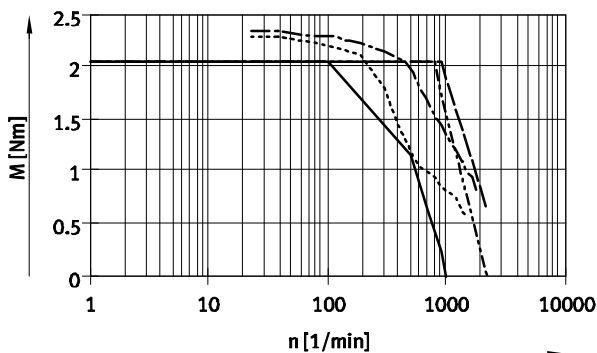
EMMS-ST-57-S



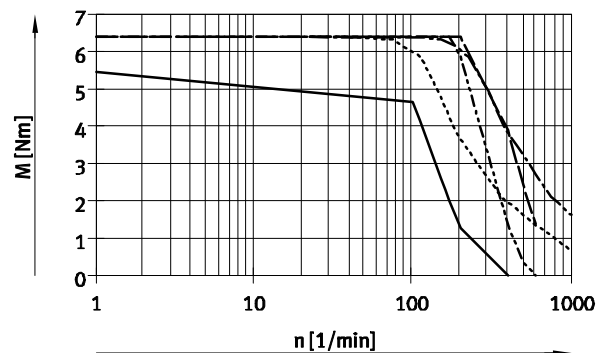
EMMS-ST-57-M



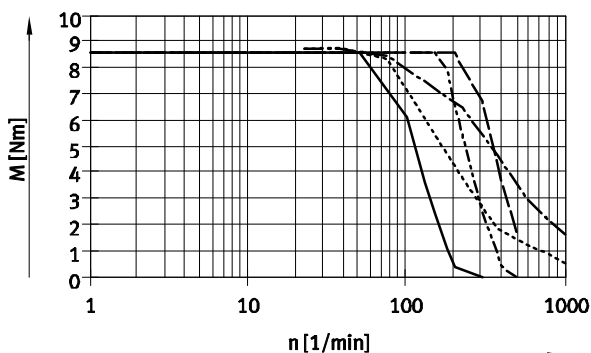
EMMS-ST-87-S



EMMS-ST-87-M



EMMS-ST-87-L



Note

The characteristic curves apply in combination with the motor controller CMMS-ST.

The size EMMS-ST-87 is operated with the motor controller CMMS-ST with max. 8 A.

- 24 V DC
- - - 48 V DC
- · - · 72 V DC
- · · · 24 V DC ¼ step
- · - · 48 V DC ¼ step

4

Order code

		EMMS	-	ST	-		-		-	S	-		-		-	
Type																
EMMS	Motor															
Motor technology																
ST	Stepper motor															
Motor flange size																
28	28														1	
42	42														2	
57	57														3	
87	87															
Length																
S	Short															
M	Medium															
L	Long															
Electrical connection																
S	Straight plug															
Measuring unit																
-	Not specified															
E	Encoder															
Brake																
-	Not specified															
B	Brake															
Generation																
G2	Second generation														4	

1 Only with length L

3 Only with length S and M

2 Only with length S

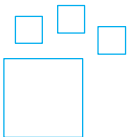
4 Not with flange size 28

Order example:

EMMS-ST-42-S-SEB-G2

Motor EMMS - stepper motor - flange size 42 - length: short - electrical connection: straight plug - measuring unit: encoder - brake - second generation

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
→ www.festo.com/catalogue/...

Enter the type code in the search field.

★ Quick ordering¹⁾

Part No.	Type
Flange size 28, length: long	
1451384	EMMS-ST-28-L-S
1430663	EMMS-ST-28-L-SE
1451383	EMMS-ST-28-L-SB
1451382	EMMS-ST-28-L-SEB
Flange size 42, length: short	
1370470	EMMS-ST-42-S-S-G2
1370471	EMMS-ST-42-S-SE-G2
1370472	EMMS-ST-42-S-SB-G2
1370473	EMMS-ST-42-S-SEB-G2

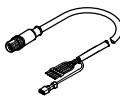
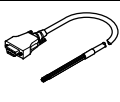
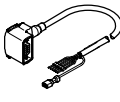
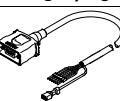
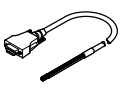
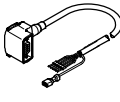
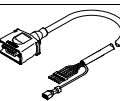
Part No.	Type
Flange size 57, length: short	
1370474	EMMS-ST-57-S-S-G2
1370475	EMMS-ST-57-S-SE-G2
1370476	EMMS-ST-57-S-SB-G2
1370477	EMMS-ST-57-S-SEB-G2
Flange size 57, length: medium	
1370478	EMMS-ST-57-M-S-G2
1370479	EMMS-ST-57-M-SE-G2
1370480	EMMS-ST-57-M-SB-G2
1370481	EMMS-ST-57-M-SEB-G2

Part No.	Type
Flange size 87, length: short	
1370482	EMMS-ST-87-S-S-G2
1370483	EMMS-ST-87-S-SE-G2
1370484	EMMS-ST-87-S-SB-G2
1370485	EMMS-ST-87-S-SEB-G2
Flange size 87, length: medium	
1370486	EMMS-ST-87-M-S-G2
1370487	EMMS-ST-87-M-SE-G2
1370488	EMMS-ST-87-M-SB-G2
1370489	EMMS-ST-87-M-SEB-G2
Flange size 87, length: long	
1370490	EMMS-ST-87-L-S-G2
1370491	EMMS-ST-87-L-SE-G2
1370493	EMMS-ST-87-L-SB-G2
1370494	EMMS-ST-87-L-SEB-G2

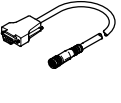

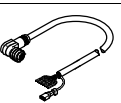
1) All products in this table are easy to select and quick to order.

Accessories – Ordering data

Motor cable

	Cable length		Part No.	Type
For EMMS-ST-28				
And motor controller CMMO-ST				
Straight plug				
	1.5 m	★	1449600	NEBM-M12G8-E-1.5-Q5-LE6
	2.5 m	★	1449601	NEBM-M12G8-E-2.5-Q5-LE6
	5 m	★	1449602	NEBM-M12G8-E-5-Q5-LE6
	7 m	★	1449603	NEBM-M12G8-E-7-Q5-LE6
	10 m	★	1449604	NEBM-M12G8-E-10-Q5-LE6
	X length ¹⁾		1449605	NEBM-M12G8-E-...-Q5-LE6
For EMMS-ST-42/57				
And motor controller CMMS-ST				
Straight plug				
	5 m		550740	NEBM-S1G9-E-5-LE6
	10 m		550741	NEBM-S1G9-E-10-LE6
	15 m		550742	NEBM-S1G9-E-15-LE6
	X length ¹⁾		550743	NEBM-S1G9-E-...-LE6
And motor controller CMMO-ST				
Angled plug				
	1.5 m	★	1450736	NEBM-S1W9-E-1.5-Q5-LE6
	2.5 m	★	1450737	NEBM-S1W9-E-2.5-Q5-LE6
	5 m	★	1450738	NEBM-S1W9-E-5-Q5-LE6
	7 m	★	1450739	NEBM-S1W9-E-7-Q5-LE6
	10 m	★	1450740	NEBM-S1W9-E-10-Q5-LE6
	X length ¹⁾		1450741	NEBM-S1W9-E-...-Q5-LE6
Straight plug				
	1.5 m	★	1450368	NEBM-S1G9-E-1.5-Q5-LE6
	2.5 m	★	1450369	NEBM-S1G9-E-2.5-Q5-LE6
	5 m	★	1450370	NEBM-S1G9-E-5-Q5-LE6
	7 m	★	1450371	NEBM-S1G9-E-7-Q5-LE6
	10 m	★	1450372	NEBM-S1G9-E-10-Q5-LE6
	X length ¹⁾		1450373	NEBM-S1G9-E-...-Q5-LE6
For EMMS-ST-87				
And motor controller CMMS-ST				
Straight plug				
	5 m		550744	NEBM-S1G15-E-5-LE6
	10 m		550745	NEBM-S1G15-E-10-LE6
	15 m		550746	NEBM-S1G15-E-15-LE6
	X length ¹⁾		550747	NEBM-S1G15-E-...-LE6
And motor controller CMMO-ST				
Angled plug				
	1.5 m	★	1450943	NEBM-S1W15-E-1.5-Q7-LE6
	2.5 m	★	1450944	NEBM-S1W15-E-2.5-Q7-LE6
	5 m	★	1450945	NEBM-S1W15-E-5-Q7-LE6
	7 m	★	1450946	NEBM-S1W15-E-7-Q7-LE6
	10 m	★	1450947	NEBM-S1W15-E-10-Q7-LE6
	X length ¹⁾		1450948	NEBM-S1W15-E-...-Q7-LE6
Straight plug				
	1.5 m	★	1450834	NEBM-S1G15-E-1.5-Q7-LE6
	2.5 m	★	1450835	NEBM-S1G15-E-2.5-Q7-LE6
	5 m	★	1450836	NEBM-S1G15-E-5-Q7-LE6
	7 m	★	1450837	NEBM-S1G15-E-7-Q7-LE6
	10 m	★	1450838	NEBM-S1G15-E-10-Q7-LE6
	X length ¹⁾	★	1450839	NEBM-S1G15-E-...-Q7-LE6

Encoder cable

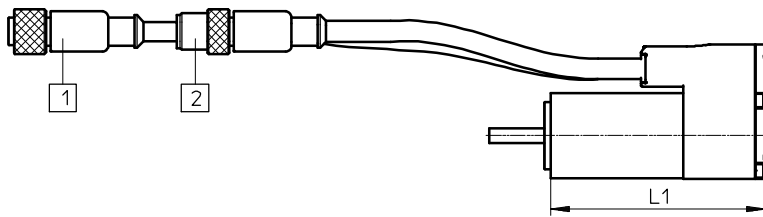
	Cable length		Part No.	Type
Straight plug				
For motor controller CMMS-ST				
	5 m		550748	NEBM-M12G8-E-5-S1G9
	10 m		550749	NEBM-M12G8-E-10-S1G9
	15 m		550750	NEBM-M12G8-E-15-S1G9
	X length ¹⁾		550751	NEBM-M12G8-E-...-S1G9
For motor controller CMMO-ST				
Straight plug				
	1.5 m	★	1451586	NEBM-M12G8-E-1.5-LE8
	2.5 m	★	1451587	NEBM-M12G8-E-2.5-LE8
	5 m	★	1451588	NEBM-M12G8-E-5-LE8
	7 m	★	1451589	NEBM-M12G8-E-7-LE8
	10 m	★	1451590	NEBM-M12G8-E-10-LE8
	X length ¹⁾		1451591	NEBM-M12G8-E-...-LE8
Angled plug				
	1.5 m	★	1451674	NEBM-M12W8-E-1.5-LE8
	2.5 m	★	1451675	NEBM-M12W8-E-2.5-LE8
	5 m	★	1451676	NEBM-M12W8-E-5-LE8
	7 m	★	1451677	NEBM-M12W8-E-7-LE8
	10 m	★	1451678	NEBM-M12W8-E-10-LE8
	X length ¹⁾		1451679	NEBM-M12W8-E-...-LE8

1) Max. 25 m. Cable lengths > 25 m possible following technical consultation; up to 100 m on request. Available in 0.1 m increments.

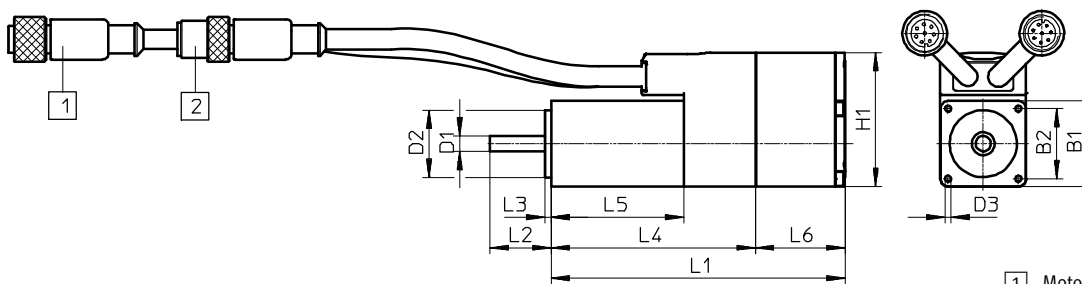
Dimensions

Size 28

EMMS-ST...-S/SE



EMMS-ST...-SB/SEB



- 1 Motor cable
- 2 Encoder cable

Type	B1	B2	D1 ∅	D2 ∅	D3	H1
	±1	±0.2	-0.013	-0.03		
EMMS-ST-28-L-S	28	23	5	22	M2.5x4.5	44
EMMS-ST-28-L-SE						
EMMS-ST-28-L-SB						
EMMS-ST-28-L-SEB						

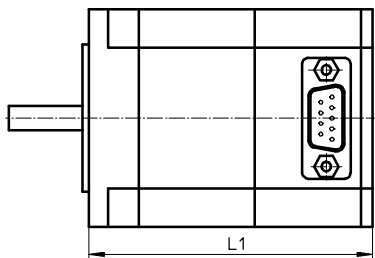
Type	L1	L2	L3	L4	L5	L6
		±1		±1	±1	±0.5
EMMS-ST-28-L-S	70±1	20	2	67	43	29
EMMS-ST-28-L-SE						
EMMS-ST-28-L-SB						
EMMS-ST-28-L-SEB						

Stepper motors EMMS-ST

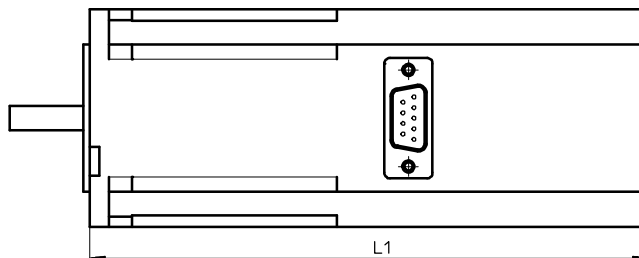
Dimensions

Size 42, 57, 87

EMMS-ST...-S

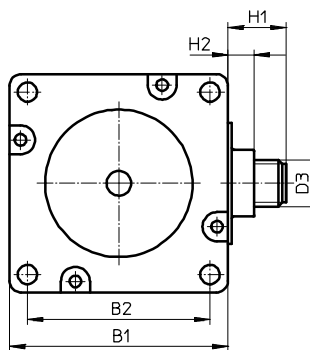
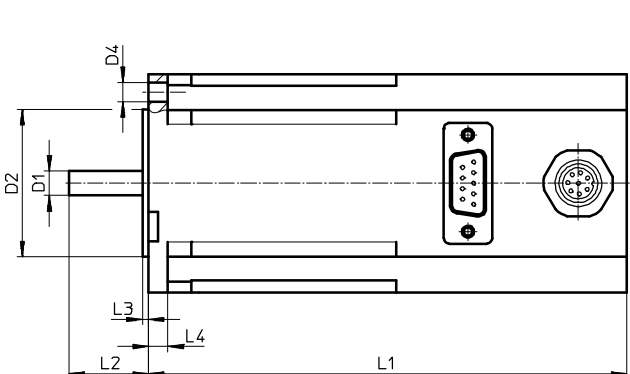


EMMS-ST...-SB



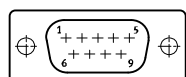
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EMMS-ST...-SE/SEB

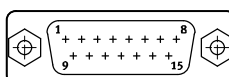


Plug pattern

9-pin Sub-D plug with size 42, 57



15-pin Sub-D plug with size 87



Type	B1	B2 ±0.2	D1 ∅	D2 ∅	D3	D4 ∅	H1	H2	L1	L2	L3	L4
EMMS-ST-42-S-S-G2	42.3	31	5-0.012	22-0.05	-	M3x4.5	-	6.5	66±1	24±1	2	-
EMMS-ST-42-S-SE-G2					M12		13		94±1.2			
EMMS-ST-42-S-SB-G2					-		-		114±1.3			
EMMS-ST-42-S-SEB-G2					M12		13		127±1.3			
EMMS-ST-57-S-S-G2	56.4	47.14	6.35-0.013	38.1±0.025	-	5	-	6.5	73.5±0.8	20.6±0.5	1.6	5
EMMS-ST-57-S-SE-G2					M12		13		102.5±1.1			
EMMS-ST-57-S-SB-G2					-		-		123.5±1.1			
EMMS-ST-57-S-SEB-G2					M12		13		138±1.1			
EMMS-ST-57-M-S-G2					-		-		95±0.8			
EMMS-ST-57-M-SE-G2					M12		13		124±1.1			
EMMS-ST-57-M-SB-G2					-		-		145±1.1			
EMMS-ST-57-M-SEB-G2					M12		13		159.5±1.1			
EMMS-ST-87-S-S-G2	85.85	69.5	11-0.013	73-0.046	-	6.6	-	6.5	82.6±1	27±1	2	8.38
EMMS-ST-87-S-SE-G2					M12		13		112.6±1.3			
EMMS-ST-87-S-SB-G2					-		-		132.6±1.3			
EMMS-ST-87-S-SEB-G2					M12		13		152.6±1.3			
EMMS-ST-87-M-S-G2					-		-		114.9±1			
EMMS-ST-87-M-SE-G2					M12		13		144.9±1.3			
EMMS-ST-87-M-SB-G2					-		-		164.9±1.3			
EMMS-ST-87-M-SEB-G2					M12		13		184.9±1.3			
EMMS-ST-87-L-S-G2					-		-		144.9±1			
EMMS-ST-87-L-SE-G2					M12		13		174.9±1.3			
EMMS-ST-87-L-SB-G2					-		-		194.9±1.3			
EMMS-ST-87-L-SEB-G2					M12		13		214.9±1.3			



- Double controller for actuating two independent servo motors
- Motor current of 2x 4 A can be freely distributed between two controllers (with ratios of up to 2 A/6 A)
- Closed-loop operation with speed, position, current and torque control
- Integrated SD card slot
- Compatible with motor EMMS-AS
- Easy configuration with free FCT software

→ www.festo.com/catalogue/cmmd-as

Product range overview

Type	Nominal voltage Load [V AC]	Nominal voltage Logic [V DC]	Interfaces			
			I/O interface	CANopen	PROFIBUS	DeviceNet
CMMD-AS-C8-3A	95 ... 255	24	■	■	■	■

Features

Compactness

- The double motor controller CMMD-AS consists of two identical motor controllers CMMS-AS in one housing
- Intermediate circuits are connected internally
- Braking resistors are connected in parallel internally so that twice the continuous braking power is available
- Combined nominal current of 8 A. The nominal current can be flexibly shared between the axes
- Small dimensions
- Full integration of all components for the controller and power section, including RS232- and CANopen interface
- Integrated brake chopper
- Integrated EMC filters
- Automatic actuation for a holding brake
- Complies with the current CE and EN standards without additional external measures (motor cable length of up to 15 m)

Motion control

- Digital absolute encoder in single-turn and multi-turn versions
- Can be operated as a torque, speed or position controller
- Integrated position controller
- Time-optimised (trapezoidal) or jerk-free (S-shaped) positioning
- Absolute and relative movements
- Point-to-point positioning with and without motion path smoothing
- Position synchronisation
- Electronic gear unit
- 2x 63 positioning records
- 2x 8 positioning profiles
- Wide range of homing methods

Fieldbus interfaces

Integrated:

CANopen

Optional:

PROFI
PROCESS FIELD BUS

DeviceNet
COMMERCIAL BUS

Input/output

- Freely programmable I/Os
- High-resolution 12-bit analogue input
- Jog/teach mode
- Simple connection to a higher-order controller via I/O or fieldbus
- Synchronous operation
- Master/slave mode
- Additional I/Os with the plug-in card CAMC-D-8E8A

Integrated sequence control

- Automatic sequence of positioning records without a higher-order controller
- Linear and cyclical position sequences
- Adjustable delay times

Features

Integrated safety functions

- The motor controller CMMD-AS supports the "Safe Torque Off (STO)" safety function and, by providing a reliable time delay, also supports "Safe Stop 1 (SS1)" with protection against unexpected start-up in accordance with EN 61800-5-2
- Two-channel disconnection of the output stage
- Less external wiring
- Shorter response times in the event of an error
- Faster restart, intermediate circuit remains charged

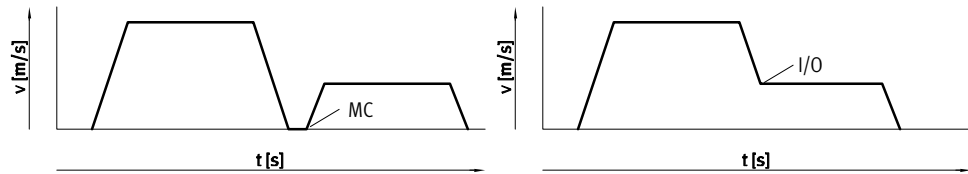
Interpolating multi-axis movement

- With a suitable controller, the CMMD-AS can perform path movements with interpolation via CANopen. To do this, setpoint position values are specified by the controller in a fixed time slot
- pattern. In between, the servo position controller independently interpolates the data values between two data points.

Travel program

4

- Linking of any number of position sets into a travel program
- Step criteria for the travel program possible via digital inputs, for example
MC – motion complete
I/O – digital inputs



Library for EPLAN

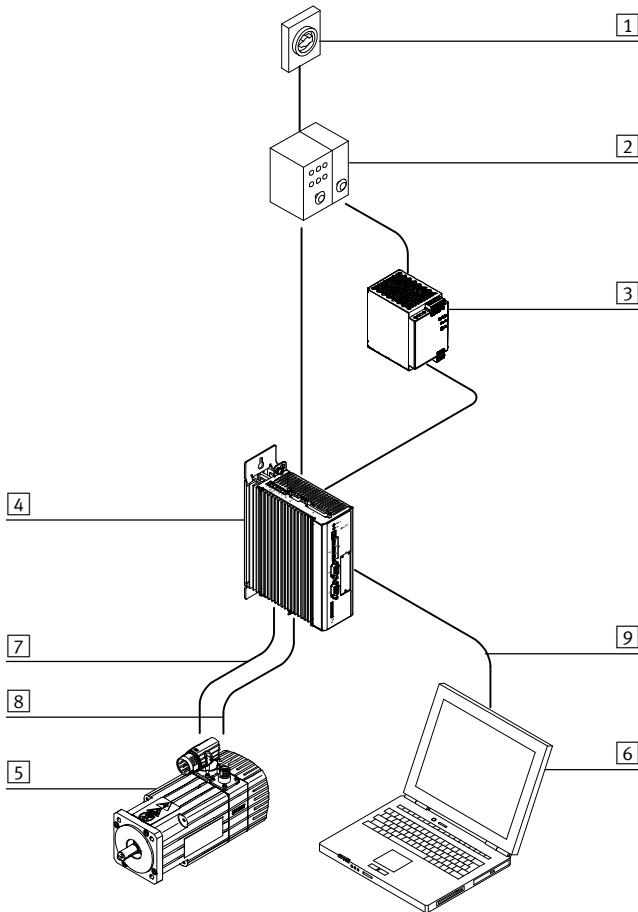


EPLAN macros for fast and reliable planning of electrical projects in combination with motor controllers, motors and

cables. This enables a high level of planning reliability, standardisation of documenta-

tion, no need to create symbols, graphics and master data.

System overview



- 1 Power switch
- 2 Circuit breaker
- 3 24 V DC power supply unit
- 4 Motor controller CMMD-AS
- 5 Motor EMMS-AS
- 6 PC
- 7 Encoder cable
- 8 Motor cable
- 9 Programming cable

Technical data

Fieldbus interfaces

CANopen

PROFI[®]
PROFIBUS DP
BUS

DeviceNet



4

Download CAD data → www.festo.com

Technical data	
Parameterisation interface	RS232 (9,600 ... 115,000 bits/s)
Encoder interface input	Setpoint position value as encoder signal EnDat V2.1 serial/V2.2
Encoder interface output	Actual value feedback via encoder signals in speed control mode Setpoint specification for downstream slave drive Resolution 4096 ppr
Braking resistor, integrated	[Ω] 115
Pulse power of braking resistor	[kVA] 1.4
Number of analogue outputs	2
Operating range of analogue outputs	[V] 0 ... 10
Resolution of analogue outputs	[bit] 8
Number of analogue inputs	2
Operating range of analogue inputs	[V] ±10
Mains filter	Integrated

Electrical data	
Load supply	
Input voltage range	[V AC] 95 ... 255
Max. nominal input current	[A] 10
Rated output	[VA] 1200
Peak power	[VA] 2400
Logic supply	
Nominal voltage	[V DC] 24 ±20%
Nominal current	[A] 0.7

Operating conditions	
Ambient temperature	[°C] 0 ... +50
Degree of protection	IP20
Safety function	Safe Torque Off (STO)
Performance Level (PL)	Category 3, Performance Level d
Safety integrity level (SIL)	SIL 2
Certificate issuing authority	BG MFS 10009
CE marking (see declaration of conformity)	To EU EMC Directive To EC Machinery Directive

Technical data – Fieldbus interface		I/O	CANopen	PROFIBUS DP	DeviceNet
Interfaces					
Number of digital logic outputs		10			
Characteristics of digital logic outputs		Freely configurable in some cases			
Number of digital logic inputs		28			
Operating range of logic inputs	[V]	12 ... 30			
Characteristics of logic inputs		Freely configurable			
Process coupling		For 2x 63 positioning records	For 2x 63 positioning records		
Communication profile		–	DS301, FHPP	DP-V0/FHPP	FHPP
		–	DS301, DSP402	–	
Max. fieldbus transmission rate	[Mbps]	–	1	12	0.5
Interface	Integrated	■	■	–	–
	Optional	–	–	■ → 512	■ → 512

Motor controllers CMMD-AS, for servo motors

Ordering – Product options



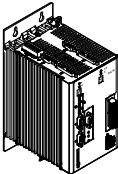
Configurable product

This product and all its options can be ordered using the configurator.

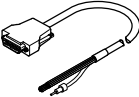
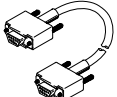
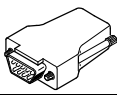
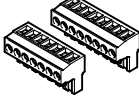
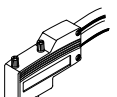
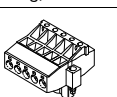
The configurator can be found under Products on the DVD or
www.festo.com/catalogue/...

Enter the type code in the search field.

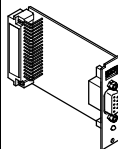
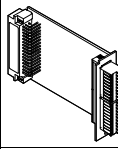
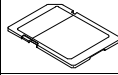
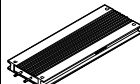
Ordering data

	Description	Part No.	Type
	The plug assortment NEKM (→ 512) is included in the scope of delivery of the motor controller.	561406	CMMD-AS-C8-3A

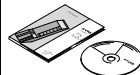
Accessories – Ordering data

	Part No.	Type
Cable and plug		
Control cable, for I/O interface to any controller		
	552254	NEBC-S1G25-K-2.5N-LE26
Programming cable		
	160786	PS1-ZK11-NULLMODEM-1,5M
Encoder plug		
	564264	NECC-A-S-S1G9-C2M
Plug assortment		
	For CMMD	560504 NEKM-C-4¹⁾
	For CAMC-D-8E8A	569959 NEKM-C-5²⁾
Plug		
	For PROFIBUS interface	533780 FBS-SUB-9-WS-PB-K
	For CANopen interface	533783 FBS-SUB-9-WS-CO-K
Plug, for DeviceNet interface		
	525635	FBSD-KL-2X5POL

- 1) Plug for power supply and plug for motor connection. Plugs are included in the scope of delivery of the motor controller.
- 2) Plugs are included in the scope of delivery of the plug-in card CAMC-D-8E8A.

	Part No.	Type
Plug-in card		
	Interface, for PROFIBUS interface	547450 CAMC-PB
	Interface, for DeviceNet interface	547451 CAMC-DN
Plug-in card³⁾		
Interface, for extending the digital I/Os		
	567855	CAMC-D-8E8A
Memory card for data backup and firmware download		
	1436343	CAMC-M-S-F10-V1
Braking resistor		
	2882342	CACR-LE2-50-W500⁴⁾
	1336611	CACR-LE2-72-W500

- 3) Plugs are included in the scope of delivery (8 digital inputs/outputs).
- 4) Recommended braking resistor.

	Type
Documentation and software	
	Ordering data → online: cmm d



- Optimised performance for standard applications
- Closed-loop operation with speed, position, current and torque control
- Integrated SD card slot
- Compatible with motor EMMS-AS
- Easy configuration with free FCT software

→ www.festo.com/catalogue/cmms-as

Product range overview

Type	Nominal voltage Load [V AC]	Nominal voltage Logic [V DC]	Interfaces			
			I/O interface	CANopen	PROFIBUS	DeviceNet
CMMS-AS-C4-3A-G2	95 ... 255	24	■	■	■	■

Features

Compactness

- Small dimensions
- Full integration of all components for the controller and power section, including RS232- and CANopen interface
- Integrated brake chopper
- Integrated EMC filters
- Automatic actuation for a holding brake
- Complies with the current CE and EN standards without additional external measures (motor cable length of up to 15 m)

Fieldbus interfaces

Integrated:

CANopen

Optional:

PROFIBUS

DeviceNet

Integrated safety functions

- The motor controller CMMS-AS supports the "Safe Torque Off (STO)" safety function and, by providing a reliable time delay, also supports "Safe Stop 1 (SS1)" with protection against unexpected start-up in accordance with EN 61800-5-2
- Two-channel disconnection of the output stage
- Less external wiring
- Shorter response times in the event of an error
- Faster restart, intermediate circuit remains charged

Motion control

- Digital absolute encoder in single-turn and multi-turn versions
- Can be operated as a torque, speed or position controller
- Integrated position controller
- Time-optimised (trapezoidal) or jerk-free (S-shaped) positioning
- Absolute and relative movements
- Point-to-point positioning with and without motion path smoothing
- Position synchronisation
- Electronic gear unit
- 63 positioning records
- 8 positioning profiles
- Wide range of homing methods

Input/output

- Freely programmable I/Os
- High-resolution 12-bit analogue input
- Jog/teach mode
- Simple connection to a higher-order controller via I/O or fieldbus
- Synchronous operation
- Master/slave mode

Integrated sequence control

- Automatic sequence of positioning records without a higher-order controller
- Linear and cyclical position sequences
- Adjustable delay times

Interpolating multi-axis movement

- With a suitable controller, the CMMS-AS can perform path movements with interpolation via CANopen. The controller specifies setpoint position values in a fixed time slot pattern to this

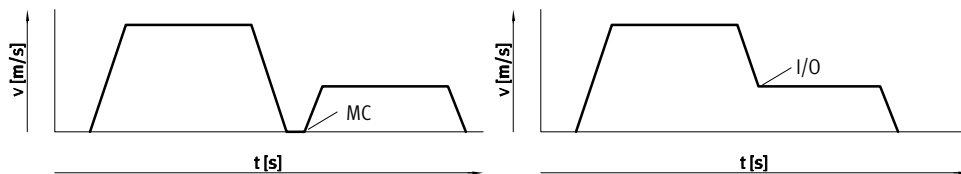
end. In between, the servo position controller independently interpolates the data values between two data points.

Motor controllers CMMS-AS, for servo motors

Features

Travel program

- Linking of any number of position sets into a travel program
- Step criteria for the travel program possible via digital inputs, for example
MC – motion complete
I/O – digital inputs



Library for EPLAN

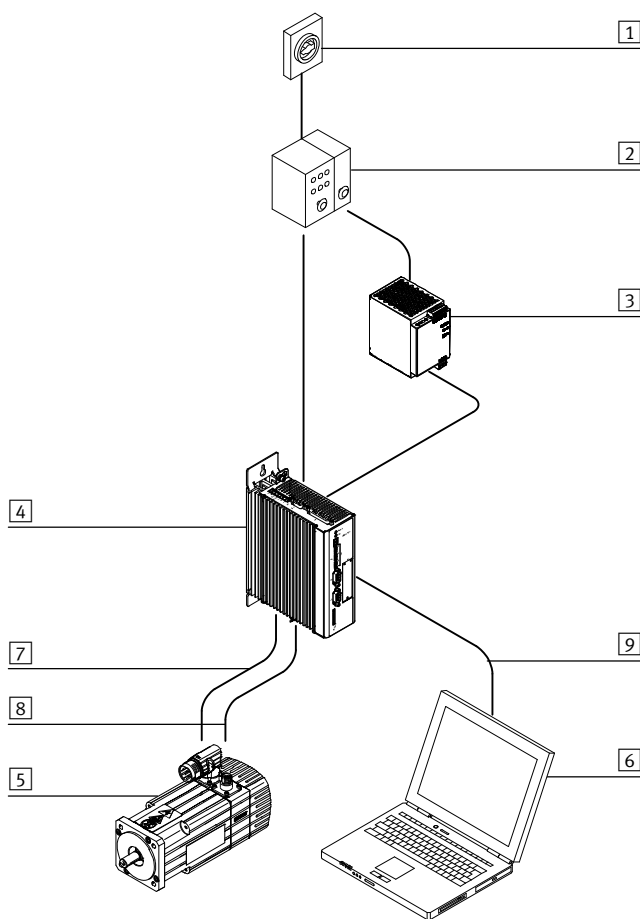


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System overview



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- 5 Motor EMMS-AS
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- 7 Encoder cable
- 8 Motor cable
- 9 Programming cable

Technical data

Fieldbus interfaces

CANopen

PROFI[®]
PROCESS FIELD
BUS

DeviceNet



4

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Technical data

Rotary position encoder	Encoder
Parameterisation interface	RS232 (9,600 ... 115,000 bits/s)
Encoder interface input	Setpoint position value as encoder signal EnDat V2.1 serial/V2.2
Encoder interface output	Actual value feedback via encoder signals in speed control mode Setpoint specification for downstream slave drive Resolution 4096 ppr
Braking resistor, integrated	[Ω] 230
Pulse power of braking resistor	[kVA] 0.7
Number of analogue outputs	1
Operating range of analogue outputs	[V] 0 ... 10
Resolution of analogue outputs	[bit] 8
Number of analogue inputs	1
Operating range of analogue inputs	[V] ±10
Mains filter	Integrated

Electrical data

Load supply		
Input voltage range	[V AC]	95 ... 255
Max. nominal input current	[A]	4
Rated output	[VA]	600
Peak power	[VA]	1200
Logic supply		
Nominal voltage	[V DC]	24 ±20%
Nominal current	[A]	0.35

Operating conditions

Ambient temperature	[°C]	0 ... +50
Degree of protection		IP20
Safety function		Safe Torque Off (STO)
Performance Level (PL)		Category 3, Performance Level d
Safety integrity level (SIL)		SIL 2
Certificate issuing authority		BG MFS 09030
CE marking (see declaration of conformity)		To EU EMC Directive To EC Machinery Directive

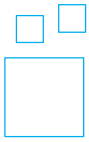
Technical data – Fieldbus interface

Interfaces	I/O	CANopen	PROFIBUS DP	DeviceNet
Number of digital logic outputs		5		
Characteristics of digital logic outputs		Freely configurable in some cases		
Number of digital logic inputs		14		
Operating range of logic inputs	[V]	12 ... 30		
Characteristics of logic inputs		Freely configurable		
Process coupling		For 63 positioning records	For 63 positioning records	
Communication profile		–	DS301, FHPP DS301, DSP402	DP-V0/FHPP – FHPP
Max. fieldbus transmission rate	[Mbps]	–	1	12 0.5
Interface	Integrated	■	■	–
	Optional	–	–	■ → 516 ■ → 516

Motor controllers CMMS-AS, for servo motors

FESTO

Ordering – Product options



Configurable product

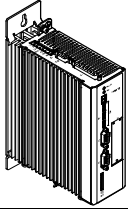
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The configurator can be found under Products on the DVD or

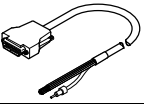
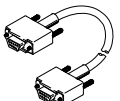
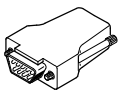
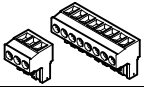
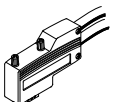
→ www.festo.com/catalogue/...

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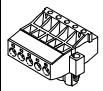
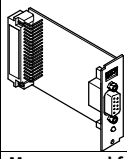
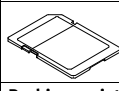
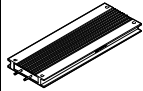

Ordering data

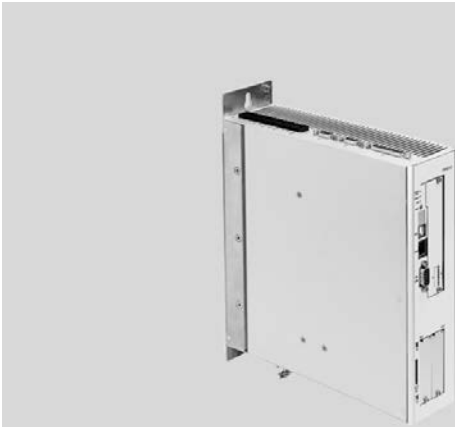
	Description	Part No.	Type
	The plug assortment NEKM (→ 516) is included in the scope of delivery of the motor controller.	572986	CMMS-AS-C4-3A-G2

Accessories – Ordering data

	Part No.	Type
Cable and plug		
Control cable, for I/O interface to any controller		
	552254	NEBC-S1G25-K-2.5N-LE26
Programming cable		
	160786	PS1-ZK11-NULLMODEM-1,5M
Encoder plug		
	564264	NECC-A-S-S1G9-C2M
Plug assortment		
	560504	NEKM-C-4¹⁾
Plug		
	For PROFIBUS interface 533780	FBS-SUB-9-WS-PB-K
	For CANopen interface 533783	FBS-SUB-9-WS-CO-K

1) Comprising plug for power supply and plug for motor connection. Plugs are included in the scope of delivery of the motor controller.

	Part No.	Type
Cable and plug		
Plug, for DeviceNet interface		
	525635	FBSD-KL-2X5POL
Plug-in card		
	Interface, for PROFIBUS interface	
	★ 547450	CAMC-PB
	Interface, for DeviceNet interface	
	547451	CAMC-DN
Memory card for data backup and firmware download		
	1436343	CAMC-M-S-F10-V1
Braking resistor		
	1336615	CACR-LE2-100-W500
		Type
Documentation and software		
	Ordering data → cmms	



- Closed-loop operation with speed, position, current and torque control
- Optional operation of linear motors
- Compatible with motor EMMS-AS
- Easy configuration with free FCT software
- ★ Quick ordering of basic designs → 521

→ www.festo.com/catalogue/cmmp-as

Product range overview

Type	Nominal voltage Load [V AC]	Nominal voltage Logic [V DC]	Interfaces						
			I/O interface	CANopen	PROFIBUS DP	DeviceNet	EtherCAT	EtherNet/IP	PROFINET RT
CMMP-AS-C2-...	100 ... 230	24	■	■	■	■	■	■	■
CMMP-AS-C5-3A-...	100 ... 230	24	■	■	■	■	■	■	■
CMMP-AS-C5-11A-...	3x 230 ... 480	24	■	■	■	■	■	■	■
CMMP-AS-C10-...	3x 230 ... 480	24	■	■	■	■	■	■	■
CMMP-AS-C20-...	3x 230 ... 480	24	■	■	■	■	■	-	-

Features

Compactness

- Small dimensions
- Full integration of all components for the controller and power section, including RS232- and CANopen interface
- Integrated brake chopper
- Integrated EMC filters
- Automatic actuation for a holding brake
- Complies with the current CE and EN standards without additional external measures (motor cable length of up to 25 m)

Motion control

- Evaluation of digital absolute encoder (EnDat/HIPERFACE) in single-turn or multi-turn versions
- Can be operated as a torque, speed or position controller
- Integrated position controller
- Time-optimised (trapezoidal) or jerk-free (S-shaped) positioning
- Absolute and relative movements
- Point-to-point positioning with and without motion path smoothing
- Position synchronisation
- Electronic gear unit
- 255 positioning records
- Wide range of homing methods

Fieldbus interfaces

Integrated:

CANopen

Optional:

PROFIBUS

DeviceNet

Optional:

EtherCAT

PROFINET

EtherNet/IP

Input/output

- Freely programmable I/Os
- High-resolution 16-bit analogue input
- Jog/teach mode
- Simple connection to a higher-order controller via I/O or fieldbus
- Synchronous operation
- Master/slave mode
- Additional I/Os with the plug-in card CAMC-D-8E8A → 522

Integrated sequence control

- Automatic sequence of positioning records without a higher-order controller
- Linear and cyclical position sequences
- Adjustable delay times
- Branches and wait positions
- Overlapping restart possible during the movement

Features

Integrated safety functions

- The motor controller CMMP-AS supports the "Safe Torque Off (STO)" safety function and, by providing a reliable time delay, also supports "Safe Stop 1 (SS1)" with protection against unexpected start-up in accordance with EN 61800-5-2
- Two-channel disconnection of the output stage
- Less external wiring
- Shorter response times in the event of an error
- Faster restart, intermediate circuit remains charged

Interpolating multi-axis movement

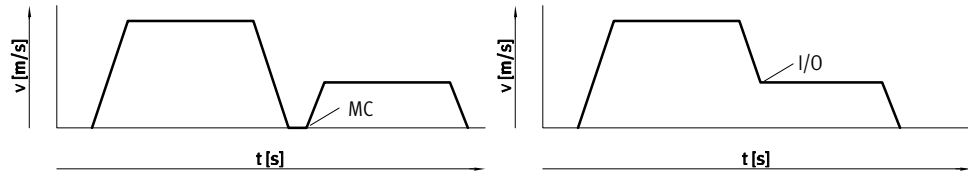
- With a suitable controller, the CMMP-AS can perform path movements with interpolation via CANopen or EtherCat. The controller specifies setpoint position values in a fixed time slot pattern

to this end. In between, the servo position controller independently interpolates the data values between two data points.

4

Travel program

- Linking of any number of position sets into a travel program
- Step criteria for the travel program possible via digital inputs, for example
MC – motion complete
I/O – digital inputs



Library for EPLAN



EPLAN macros for fast and reliable planning of electrical projects in combination with motor controllers, motors and

cables. This enables a high level of planning reliability, standardisation of documenta-

tion, no need to create symbols, graphics and master data.

Cam disc functionality

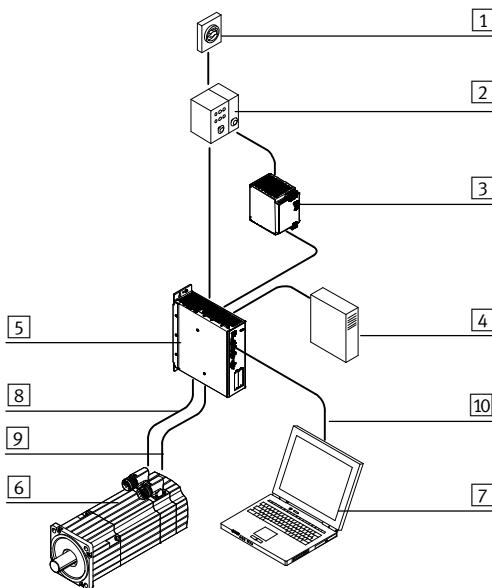
The "electronic cam disc" application type creates optimised motion profiles that generate less vibration and acceleration force at the machine. In addition, the motion of the motor is always synchronous in position with a master axis, which enables easy definition of overlapping, time-optimised motion sequences.

To be able to use the cam disc function, you will need the Festo Configuration Tool (FCT) and also the curve editor → online: cmmmp.

Key features:

- High flexibility of the system. The mechanism does not need to be modified if the requirements for the curve shapes change.
- User-friendly motion plan editor. All limits for position, speed and acceleration are immediately displayed in the editor.
- Up to 16 cam discs with a total of up to 2048 data points can be managed. The data points can be randomly distributed along the cam discs.
- There are four digital trip cams coupled with each cam disc.
- Each cam disc can be offset by a certain amount from the master axis.

System overview



- 1 Power switch
- 2 Circuit breaker
- 3 24 V DC power supply unit
- 4 External braking resistor (optional)
- 5 Motor controller CMMP-AS
- 6 Motor EMMS-AS
- 7 PC
- 8 Encoder cable
- 9 Motor cable
- 10 Programming cable

Technical data

Fieldbus interfaces

CANopen

PROFI[®]
BUS

DeviceNet

EtherCAT

PROFI[®]
NET

EtherNet/IP



4

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Technical data	C2-3A-...	C5-3A-...	C5-11A-P3-...	C10-11A-P3-...	C20-11A-P3
Parameterisation interface	USB, Ethernet				RS232
Active PFC	Yes	-			
Encoder interface input	Resolver				
	Incremental encoder with analogue or digital tracking signals				
	Absolute encoder with EnDat V2.1 serial/V2.2				
	Absolute encoder with HIPERFACE				
	Additional input for synchronous/cam disc operation				
Encoder interface output	Actual value feedback via encoder signals in speed control mode				
	Setpoint specification for downstream slave drive				
	Resolution up to 16,384 ppr				
Braking resistor, integrated [Ω]	60		68		47
Pulse power of braking resistor [kVA]	2.8		8.5		12
Number of analogue outputs	2				
Operating range of analogue outputs [V]	±10				
Resolution of analogue outputs [bit]	9				
Number of analogue inputs	3				
Operating range of analogue inputs [V]	±10				
Mains filter	Integrated				
Safety function	Optional → 522				Integrated

Electrical data

CMMP-AS-	C2-3A-...	C5-3A-...	C5-11A-P3-...	C10-11A-P3-...	C20-11A-P3
Load supply					
Input voltage range [V AC]	100 ... 230 ±10%		3x 230 ... 480 ±10%		
Max. nominal input current [A]	3	6	5.5	11	20
Rated output [VA]	500	1000	3000	6000	12,000
Peak power [VA]	1000	2000	6000	12,000	25,000
Mains frequency [Hz]	50 ... 60				
Logic supply					
Nominal voltage [V DC]	24 ±20%				
Nominal current [A]	0.55/2.05 ¹⁾	0.65/2.15 ¹⁾	1/3.5 ¹⁾		

1) Max. current with brake and I/Os.

Operating conditions

CMMP-AS-	C2-3A-...	C5-3A-...	C5-11A-P3-...	C10-11A-P3-...	C20-11A-P3
Ambient temperature [°C]	0 ... +40				
Degree of protection	IP20				
Safety function	Safe Torque Off (STO)				
Performance Level (PL)	Category 4, Performance Level e				Category 3, Performance Level d
Safety integrity level (SIL)	SIL 3				SIL 2
Certificate issuing authority	TÜV 01/205/5165/11				DGUV MFS 10027
CE marking (see declaration of conformity)	To EU EMC Directive				
	To EC Machinery Directive				

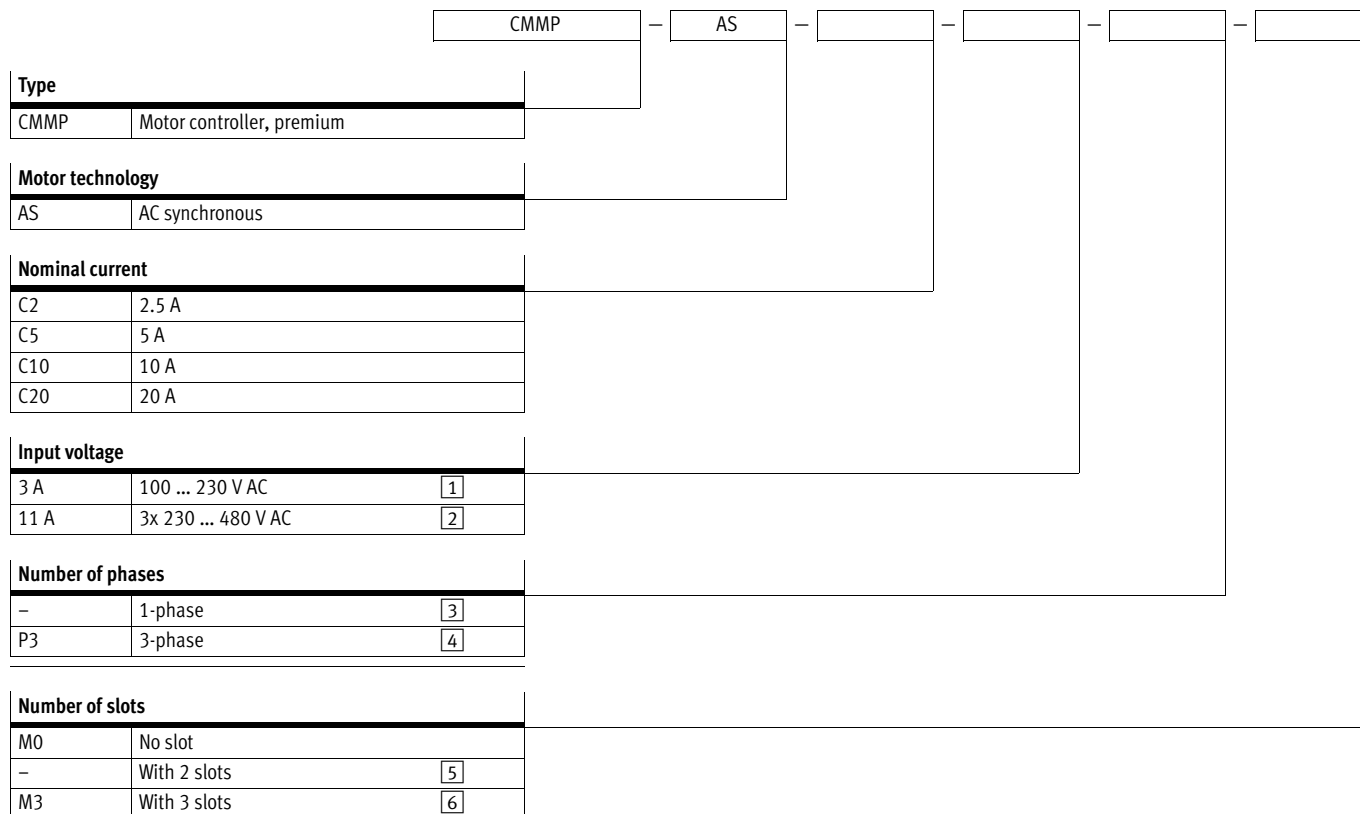
Motor controllers CMMP-AS, for servo motors

Technical data

Technical data – Fieldbus interface		I/O	CANopen	PROFIBUS DP	DeviceNet	EtherCAT	EtherNet/IP	PROFINET RT
Interfaces								
Number of digital logic outputs		5						
Characteristics of digital logic outputs		Freely configurable						
Number of digital logic inputs		10						
Operating range of logic inputs [V]		8 ... 30						
Characteristics of logic inputs		Freely configurable						
Process coupling		16 positioning records	–					
		255 positioning records ¹⁾	250 positioning records					
Communication profile		–	DS301, FHPP+	DP-V0/FHPP+	FHPP+	DS301, FHPP+	FHPP+	FHPP+
			DS301, DSP402			CoE: DS301, DSP402		
Max. fieldbus transmission rate [Mbps]		–	1	12	0.5	100	100	100
Interface	Integrated	■	■	–	–	–	–	–
	Optional	–	–	■	■	■	■	■
				→ 521	→ 521	→ 521	→ 521	→ 521

1) With additional I/O plug-in card CAMC-D8E8A → 522.

Order code



1) Not with nominal current C10, C20

2) Not with nominal current C2

3) Not with input voltage 400 V AC

4) Not with input voltage 230 V AC

5) Only with nominal current C20

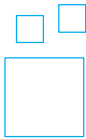
6) Not with nominal current C20

Order example:

CMMP-AS-C2-3A-M3

Motor controller CMMP - AC synchronous - nominal current 2.5 A - input voltage 230 V - 1-phase - 3 slots

Ordering – Product options



Configurable
product

This product and all its options can
be ordered using the configurator.

The configurator can be found under
Products on the DVD or

→ www.festo.com/catalogue/...

Enter the type code in the search field.

★ Quick ordering¹⁾

	Description	Part No.	Type
CMMP-AS-...-M3 – With 3 slots			
	A plug-in card in slot 7 is mandatory for operation. Possible plug-in cards: <ul style="list-style-type: none"> • CAMC-DS-M1 → 522 • CAMC-G-S1 → 522 The plug assortment NEKM (→ 521) is included in the scope of delivery of the motor controller.	1501325	CMMP-AS-C2-3A-M3
		1501326	CMMP-AS-C5-3A-M3
		1501327	CMMP-AS-C5-11A-P3-M3
		1501328	CMMP-AS-C10-11A-P3-M3

1) All products in this table are easy to select and quick to order.

Accessories – Ordering data

	Part No.	Type		Part No.	Type
Cable and plug					
Control cable, for I/O interface to any controller					
	552254	NEBC-S1G25-K-2.5N-LE26			
Programming cable					
For CMMP-AS-C2/C5/C10-M3					
	1501332	NEBC-U1G-K-1.8-N-U2G			
For CMMP-AS-C20-11A-P3					
	160786	PS1-ZK11-NULLMODEM-1,5M			
Encoder plug					
	564264	NECC-A-S-S1G9-C2M			
Plug assortment					
For CMMP-AS-C2-3A-M3, CMMP-AS-C5-3A-M3					
	1659228	NEKM-C-7 ¹⁾			
		For CMMP-AS-C5-11A-P3-M3, CMMP-AS-C10-11A-P3-M3			
	552256	NEKM-C-3 ¹⁾			
		For CMMP-AS-C20-11A-P3			
	1425453	NEKM-C-6 ²⁾			
		For interface CAMC-D-8E8A			
	569959	NEKM-C-5 ³⁾			
		For safety module CAMC-G-S1			
	1660640	NEKM-C-8 ⁴⁾			
Cable and plug					
Plug					
For PROFIBUS interface					
	533780	FBS-SUB-9-WS-PB-K			
For CANopen interface					
	533783	FBS-SUB-9-WS-CO-K			
Plug, for DeviceNet interface					
	525635	FBSD-KL-2X5POL			
Plug-in card					
For PROFIBUS interface					
	★ 547450	CAMC-PB			
For DeviceNet interface					
	547451	CAMC-DN			
For EtherCat interface					
	★ 567856	CAMC-EC			
For EtherNet/IP interface					
	★ 1911917	CAMC-F-EP			
For PROFINET RT interface					
	★ 1911916	CAMC-F-PN			

1) Plugs are included in the scope of delivery of the motor controller CMMP-AS-...-M3.

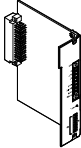
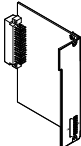
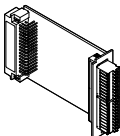
2) Plugs are included in the scope of delivery of the motor controller CMMP-AS-C20-11A-P3.

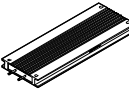
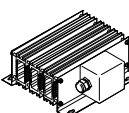
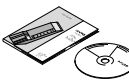
3) Plugs are included in the scope of delivery of the plug-in card CAMC-D-8E8A.

4) Plug is included in the scope of delivery of the plug-in card CAMC-G-S1.

Motor controllers CMMP-AS, for servo motors

Accessories – Ordering data

	Part No.	Type
Plug-in card¹⁾		
Safety module		
	★ 1501330	CAMC-G-S1
Switch module		
	★ 1501329	CAMC-DS-M1
Interface, for extending the digital I/Os ²⁾		
	567855	CAMC-D-8E8A

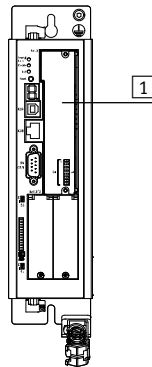
	Part No.	Type
Braking resistor		
	For CMMP-AS-C2-3A, CMMP-AS-C5-3A	
	2882342	CACR-LE2-50-W500 ³⁾
	1336611	CACR-LE2-72-W500
	For CMMP-AS-C5-11A-P3, CMMP-AS-C10-11A-P3	
	1336617	CACR-KL2-67-W1800
	2882343	CACR-KL2-40-W2000 ³⁾
	For CMMP-AS-C20-11A-P3	
	1336619	CACR-KL2-33-W2400
Type		
Documentation and software		
	Ordering data Ordering data → cmmmp	

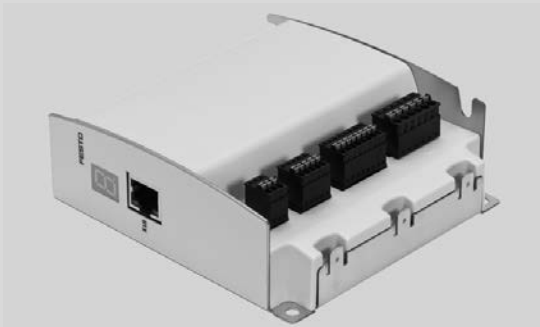
4

- 1) The plugs are included in the scope of delivery.
- 2) 8 digital input/outputs.
- 3) Recommended braking resistor

Note

Operation of the motor controller CMMP-AS...-M3 absolutely requires that a plug-in card (CAMC-G-S1 or CAMC-DS-M1) be inserted in slot 1.





- Position controller for electric cylinder EPCO
- Closed-loop encoder option, therefore no step losses
- Monitoring of freely definable position zones
- Easy actuation via I/O interfaces
- Easy configuration with free FCT software
- ★ Quick ordering of basic designs → 524

→ www.festo.com/catalogue/cmmo-st

Product range overview

Type	Nominal voltage [V DC]	Nominal current [A]	Interfaces I/O interface
CMMO-ST	24 ±15%	6	■

Technical data

Technical data		Download CAD data → www.festo.com
Process coupling	I/O coupling for 32 positioning records	
Operating mode		
Open-loop control	Micro step, 12,800 steps/revolution	
Closed-loop control	Sinusoidal current control, within the cascade controller	
Number of digital logic inputs	11	
Number of digital logic outputs	11	
Parameterisation interface	Ethernet	
Ethernet, supported protocols	TCP/IP	
Encoder interface input	RS422	

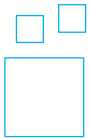
Electrical data

Load supply		
Nominal voltage	[V DC]	24 ±15%
Nominal current	[A]	6
Peak current	[A]	8
Logic supply		
Nominal voltage	[V DC]	24 ±15%
Nominal current	[A]	0.3
Max. current per output	[mA]	100

Operating conditions

Ambient temperature	[°C]	0 ... +50
Degree of protection		IP40
Safety function		Safe Torque Off (STO)
Performance Level (PL)		Category 3, Performance Level e
Safety integrity level (SIL)		SIL 3
Certificate issuing authority		TÜV 01/205/5252/12
CE marking (see declaration of conformity)		To EU EMC Directive To EC Machinery Directive

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or

→ www.festo.com/catalogue/...

Enter the type code in the search field.

★ Quick ordering

	Description	Part No.	Type
	With I/O interface		
	Switching input/output PNP	1512316	CMMO-ST-C5-1-DIOP
	Switching input/output NPN	1512317	CMMO-ST-C5-1-DION

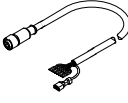
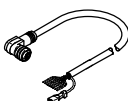
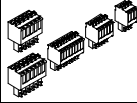
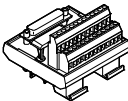
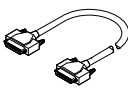

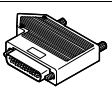
1) All products in this table are easy to select and quick to order.

Accessories – Ordering data

	Cable length	Part No.	Type
Motor cable for EPCO-16; EMMS-ST-28			
	Straight plug		
	1.5 m	★ 1449600	NEBM-M12G8-E-1.5-Q5-LE6
	2.5 m	★ 1449601	NEBM-M12G8-E-2.5-Q5-LE6
	5 m	★ 1449602	NEBM-M12G8-E-5-Q5-LE6
	7 m	★ 1449603	NEBM-M12G8-E-7-Q5-LE6
	10 m	★ 1449604	NEBM-M12G8-E-10-Q5-LE6
Motor cable for EPCO-25/-40; EMMS-ST-42/-57			
	Angled plug		
	1.5 m	★ 1450736	NEBM-S1W9-E-1.5-Q5-LE6
	2.5 m	★ 1450737	NEBM-S1W9-E-2.5-Q5-LE6
	5 m	★ 1450738	NEBM-S1W9-E-5-Q5-LE6
	7 m	★ 1450739	NEBM-S1W9-E-7-Q5-LE6
	10 m	★ 1450740	NEBM-S1W9-E-10-Q5-LE6
	Straight plug		
	1.5 m	★ 1450368	NEBM-S1G9-E-1.5-Q5-LE6
	2.5 m	★ 1450369	NEBM-S1G9-E-2.5-Q5-LE6
	5 m	★ 1450370	NEBM-S1G9-E-5-Q5-LE6
	7 m	★ 1450371	NEBM-S1G9-E-7-Q5-LE6
	10 m	★ 1450372	NEBM-S1G9-E-10-Q5-LE6

	Cable length	Part No.	Type
Motor cable for EMMS-ST-87			
	Angled plug		
	1.5 m	★ 1450943	NEBM-S1W15-E-1.5-Q7-LE6
	2.5 m	★ 1450944	NEBM-S1W15-E-2.5-Q7-LE6
	5 m	★ 1450945	NEBM-S1W15-E-5-Q7-LE6
	7 m	★ 1450946	NEBM-S1W15-E-7-Q7-LE6
	10 m	★ 1450947	NEBM-S1W15-E-10-Q7-LE6
	Straight plug		
	1.5 m	★ 1450834	NEBM-S1G15-E-1.5-Q7-LE6
	2.5 m	★ 1450835	NEBM-S1G15-E-2.5-Q7-LE6
	5 m	★ 1450836	NEBM-S1G15-E-5-Q7-LE6
	7 m	★ 1450837	NEBM-S1G15-E-7-Q7-LE6
	10 m	★ 1450838	NEBM-S1G15-E-10-Q7-LE6

Accessories – Ordering data

	Cable length	Part No.	Type		Part No.	Type
Encoder cable for EPCO-16/-25/-40; EMMS-ST-28/-42/-57/-87						
	Straight plug					
	1.5 m	★	1451586	NEBM-M12G8-E-1.5-LE8		
	2.5 m	★	1451587	NEBM-M12G8-E-2.5-LE8		
	5 m	★	1451588	NEBM-M12G8-E-5-LE8		
	7 m	★	1451589	NEBM-M12G8-E-7-LE8		
	10 m	★	1451590	NEBM-M12G8-E-10-LE8		
Encoder cable for EPCO-25/-40; EMMS-ST-42/-57/-87						
	Angled plug					
	1.5 m	★	1451674	NEBM-M12W8-E-1.5-LE8		
	2.5 m	★	1451675	NEBM-M12W8-E-2.5-LE8		
	5 m	★	1451676	NEBM-M12W8-E-5-LE8		
	7 m	★	1451677	NEBM-M12W8-E-7-LE8		
	10 m	★	1451678	NEBM-M12W8-E-10-LE8		
Plug assortment						
		★	576005	NEKM-C-10 ¹⁾		
1) Plug for motor cable, encoder cable, power supply, reference switch, STO safety function. Plugs are included in the scope of delivery of the motor controller.						
Connection options from I/O interface to controller						
	Description		Part No.	Type		
Connection block						
	Ensures simple and clear wiring. The connection to the motor controller is established via the connecting cable NEBC-S1G25-K-....		8001371	NEFC-S1G25-C2W25-S7		
Connecting cable						
	Connects the motor controller to the connection block.		8001374	NEBC-S1G25-K-1.0-N-S1G25		
			8001375	NEBC-S1G25-K-2.0-N-S1G25		
			8001376	NEBC-S1G25-K-5.0-N-S1G25		
Control cable						
	Is connected to the motor controller. The other end comprises individual flying leads.	★	8001373	NEBC-S1G25-K-3.2-N-LE25		
Plug						
	25-pin Sub-D plug. Each wire can be individually assembled using screw terminals.	★	8001372	NEFC-S1G25-C2W25-S6		

Motor controllers CMMS-ST, for stepper motors



- Open-loop operation, optional closed-loop operation with encoder
- Integrated SD card slot
- Compatible with motor EMMS-ST
- Easy configuration with free FCT software

→ www.festo.com/catalogue/cmms-st

Product range overview

Type	Nominal voltage Load [V DC]	Nominal voltage Logic [V DC]	Interfaces			
			I/O interface	CANopen	PROFIBUS	DeviceNet
CMMS-ST-C8-7-G2	24 ... 48	24	■	■	■	■

Features

Compactness

- Small dimensions
- Full integration of all components for the controller and power section, including RS232- and CANopen interface
- Integrated brake chopper
- Integrated EMC filters
- Automatic actuation for a holding brake
- Complies with the current CE and EN standards without additional external measures (motor cable length of up to 15 m)

Fieldbus interfaces

Integrated:



Optional:



Safety functions

- The position controller CMMS-ST supports the "Safe Torque Off (STO)" and "Safe Stop 1 (SS1)" safety functions with protection against unexpected start-up in accordance with the requirements of EN 61800-5-2
- Two-channel disconnection of the output stage
- Shorter response times in the event of an error

Servo mode

- Encoder option (closed loop), in other words no step losses, following errors are corrected

Motion control

- Can be operated as a torque, speed or position controller
- Integrated position controller
- Time-optimised (trapezoidal) or jerk-free (S-shaped) positioning
- Absolute and relative movements
- Point-to-point positioning with and without motion path smoothing
- Position synchronisation
- Electronic gear unit
- 63 positioning records
- 8 positioning profiles
- Wide range of homing methods

Input/output

- Freely programmable I/Os
- High-resolution 12-bit analogue input
- Jog/teach mode
- Simple connection to a higher-order controller via I/O or fieldbus
- Synchronous operation
- Master/slave mode

Integrated sequence control

- Automatic sequence of positioning records without a higher-order controller
- Linear and cyclical position sequences
- Adjustable delay times

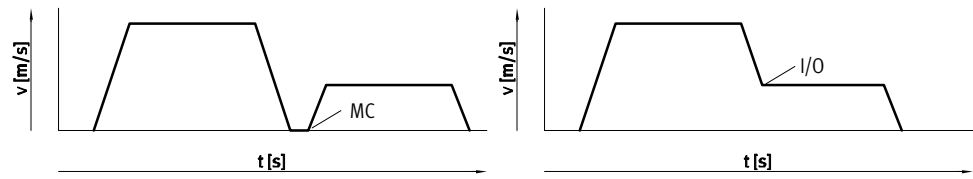
Interpolating multi-axis movement

- With a suitable controller, the CMMS-ST can perform path movements with interpolation via CANopen. The controller specifies setpoint position values in a fixed time slot pattern to this end. In between, the servo position controller independently interpolates the data values between two data points.

Features

Travel program

- Linking of any number of position sets into a travel program
- Step criteria for the travel program possible via digital inputs, for example
MC – motion complete
I/O – digital inputs



Library for EPLAN



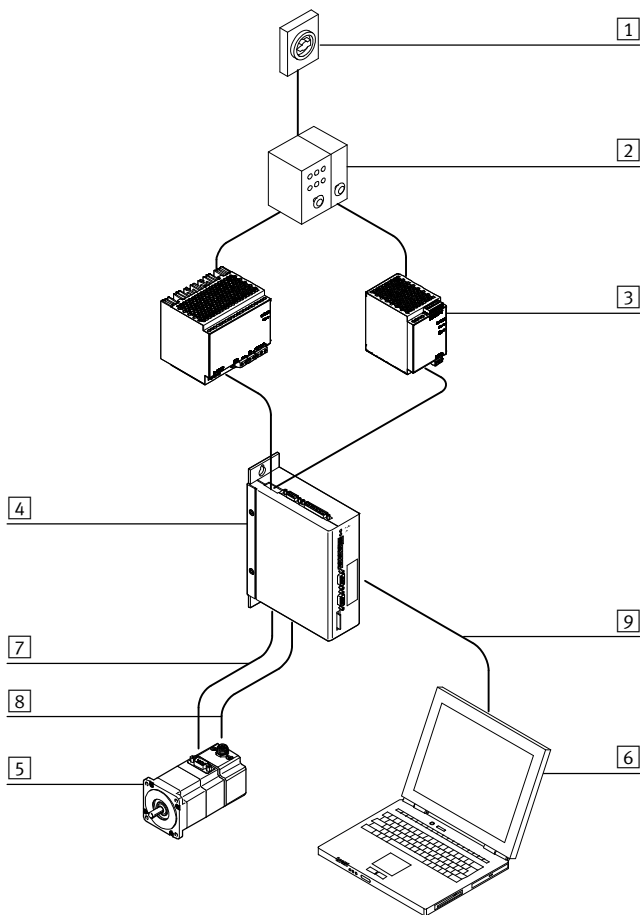
EPLAN macros for fast and reliable planning of electrical projects in combination with motor controllers, motors and

cables. This enables a high level of planning reliability, standardisation of documenta-

tion, no need to create symbols, graphics and master data.

4

System overview



- 1 Power switch
- 2 Circuit breaker
- 3 24 V DC power supply unit
- 4 Motor controller CMMS-ST
- 5 Motor EMMS-ST
- 6 PC
- 7 Motor cable
- 8 Encoder cable
- 9 Programming cable

Motor controllers CMMS-ST, for stepper motors

FESTO

Technical data

Fieldbus interfaces



4

Technical data

Download CAD data → www.festo.com

Motor activation	Sinusoidal current injection	
Rotary position encoder	Encoder	
Parameterisation interface	RS232 (9,600 ... 115,000 bits/s)	
Encoder interface input	As speed/position specification for the slave drive in synchronous mode	
	RS422	
Encoder interface output	Setpoint specification for downstream slave drive	
Braking resistor, integrated	[Ω]	17
Pulse power of braking resistor	[kVA]	0.5
Impedance of setpoint input	[kΩ]	20
Number of analogue outputs	1	
Operating range of analogue outputs	[V]	±10
Number of analogue inputs	1	
Operating range of analogue inputs	[V]	±10
Mains filter	Integrated	

Electrical data

Load supply		
Nominal voltage	[V DC]	24 ... 48
Nominal current	[A]	8
Peak current	[A]	12
Logic supply		
Nominal voltage	[V DC]	24 ±20%
Nominal current	[A]	0.3

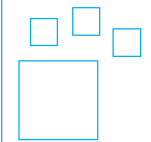
Operating conditions

Ambient temperature	[°C]	0 ... +50
Degree of protection	IP20	
Safety function	Safe Torque Off (STO)	
Performance Level (PL)	Category 3, Performance Level d	
Safety integrity level (SIL)	SIL 2	
Certificate issuing authority	BG MFS 09031	
CE marking (see declaration of conformity)	To EU EMC Directive	
	To EC Machinery Directive	

Technical data – Fieldbus interface

Interfaces	I/O	CANopen	PROFIBUS DP	DeviceNet
Communication profile	–	DS301, FHPP	DP-V0/FHPP	FHPP
	–	DS301, DSP402	–	
Max. fieldbus transmission rate	[Mbps]	1	12	0.5
Interface	Integrated	■	–	–
	Optional	–	–	■ → 529

Ordering – Product options



Configurable product

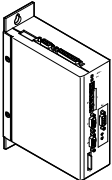
This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or

→ www.festo.com/catalogue/...

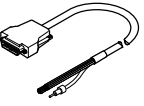
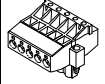
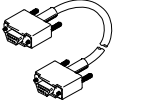
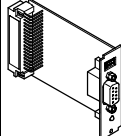
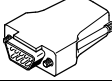
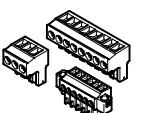

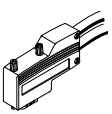

Enter the type code in the search field.

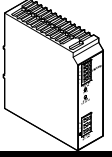
Ordering data

	Description	Part No.	Type
	The plug assortment NEKM (→ 529) is included in the scope of delivery of the motor controller.	572211	CMMS-ST-C8-7-G2

1) All products in this table are easy to select and quick to order.

Accessories – Ordering data

	Part No.	Type		Part No.	Type
Cable and plug			Cable and plug		
Control cable, for I/O interface to any controller			Plug, for DeviceNet interface		
	552254	NEBC-S1G25-K-2.5N-LE26		525635	FBSD-KL-2X5POL
Programming cable			Plug-in card		
	160786	PS1-ZK11-NULLMODEM-1,5M		Interface, for PROFIBUS interface	
Encoder plug			★ 547450 CAMC-PB		
	564264	NECC-A-S-S1G9-C2M	Interface, for DeviceNet interface		
Plug assortment			547451 CAMC-DN		
	547452	NEKM-C-1	Memory card for data backup and firmware download		
Plug connector					
	For PROFIBUS interface		1436343 CAMC-M-S-F10-V1		
	533780	FBS-SUB-9-WS-PB-K			
	For CANopen interface				
	533783	FBS-SUB-9-WS-CO-K			
			Type		
			Documentation and software		
			Ordering data → cmms		
					

	Nominal output voltage [V DC]	Nominal output current [A]	Part No.	Type	
Power supply unit					
Technical data online: → cacn					
	24	5	2247681	CACN-3A-1-5	
		10	2247682	CACN-3A-1-10	
	48	5	2247683	CACN-3A-7-5	
		10	2247684	CACN-3A-7-10	
		20	2247685	CACN-11A-7-20	

Note

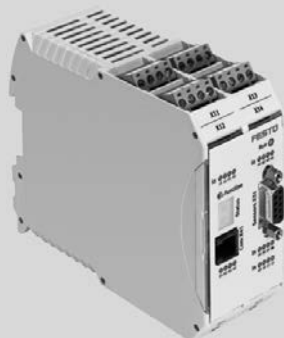
If a common power supply unit is used to supply the power section and the control section, the voltage tolerances for the

supply to the control section cannot be maintained at high braking power. This can result in damage to the control sec-

tion.

Always use separate power supply units

to supply the power section and the control section.



- Monitoring of safety command devices (emergency stop switches, safety door switches, light curtains, etc.)
- Reliable speed and positioning functions possible
- Safe stop functions
- Encoder signals can be evaluated
- Freely programmable, therefore very flexible
- Ready-to-use program examples available

→ www.festo.com/catalogue/cmga

Product range overview

Type	Performance Level (PL)	Safety integrity level (SIL)	Number of encoder interfaces			Communication			
			0	1	2	I/O interface	CANopen	DeviceNet	PROFIBUS
Basic modules									
CMGA-B1-M0-L0-A0	Cat. 4, PL e	SIL 3	■	-	-	-	-	-	-
CMGA-B1-M1-L1-A0			-	■	-	-	-	-	-
CMGA-B1-M2-L2-A0			-	-	■	-	-	-	-
Extension modules									
CMGA-E1	Cat. 4, PL e	SIL 3	-	-	-	■	-	-	-
CMGA-E1-CO			-	-	-	-	■	-	-
CMGA-E1-DN			-	-	-	-	-	■	-
CMGA-E1-PB			-	-	-	-	-	-	■

At a glance

Basic modules

- CMGA-B1-M0-L0-A0
- CMGA-B1-M1-L1-A0
- CMGA-B1-M2-L2-A0

The CMGA is a compact safety system with the option of integrated drive monitoring for one axis. It can be parameterised using downloadable application programs (→ www.festo.com/net/SupportPortal). An ideal solution for simple applications. The safety system can also be freely programmed for implementing complex applications.

Suitable for safe processing of:

- Emergency stop switches
- Door monitoring
- Light curtains
- Two-hand buttons
- Enabling buttons
- Limit switches
- Measuring systems

There are pre-configured modules available for pre-processing of safety-relevant signals. The same applies to safety functions for drive monitoring.

In its basic design, the device has 14 safe inputs and 3 switch-off channels, which can be extended to max. 65 safe I/Os. There are modules with encoder interface (incl. TTL/HTL, SIN/COS, proximity switch) available for safe speed and/or position sensing.

Extension modules

- CMGA-E1
- CMGA-E1-CO
- CMGA-E1-DN
- CMGA-E1-PB

Extension modules for I/O:
The extension module has:

- 12 safe inputs
- 10 safe inputs/outputs, can be configured as inputs or outputs
- 2 signal outputs

Extension modules for fieldbus:
Extension modules for transmitting diagnostic and status data to a higher-order controller by means of a standard fieldbus.

A maximum of two extension modules can be operated with one basic module.

Technical data – Basic modules



4

Technical data Type	CMGA-		
	B1-M0-L0-A0	B1-M1-L1-A0	B1-M2-L2-A0
Axis monitoring	–	1 axis	1 axis
Encoder interface input, function	–	1 input: incr. TTL (max. 200 kHz) incr. HTL (max. 200 kHz) sin/cos (max. 200 kHz) SSI (max. 150 kHz)	2 inputs: incr. TTL (max. 200 kHz) incr. HTL (max. 200 kHz) sin/cos (max. 200 kHz) SSI (max. 150 kHz)
	–	1 input: Proximity sensor (max. 10 kHz)	2 inputs: Proximity sensor (max. 10 kHz)
Number of digital logic inputs	14, including 8 OSSD-compatible (24 V DC/20 mA)		
Digital output design	1 safe relay output (24 V DC/2 A or 230 V AC/2 A)		
	2 signal outputs (24 V DC/100 mA)		
	2 pulse outputs (max. 250 mA)		
	2 safe digital outputs (24 V DC/250 mA)		

Download CAD data → www.festo.com

Safety characteristics Type	CMGA-		
	B1-M0-L0-A0	B1-M1-L1-A0	B1-M2-L2-A0
Safety function	Safe Torque Off (STO)		
	Safe Brake Control (SBC)		
	Safe logic functions		
	Safe Stop 1 (SS1), type 3		
	–	Safe Stop 1 (SS1), type 1, 2	
	–	Safe Operating Stop (SOS)	
	–	Safe Stop 2 (SS2), type 1, 2, 3	
	–	Safely Limited Speed (SLS)	
	–	Safely Limited Position (SLP)	
	–	Safe Direction (SDI)	
	–	Safely Limited Increment (SLI)	
	–	Safely Limited Acceleration (SLA)	
	–	Safe Emergency Limit (SEL)	
	–	Safe Cam (SCA)	
–	Position Deviation Muting (PDM)		
–	Encoder Status (ECS)		
Performance Level (PL)	Category 4, Performance Level e		
Safety integrity level (SIL)	SIL 3		
Certificate issuing authority	TÜV 01/205/5191/12		
PFH	3.0 x 10 ⁻⁹	2.2 x 10 ⁻⁹	6.2 x 10 ⁻⁹
Proof test interval	20 a		
CE marking (see declaration of conformity)	To EU EMC Directive		
	To EC Machinery Directive		
Shock resistance	As per EN 60068-2-29		
Vibration resistance	As per EN 60068-2-6		

Technical data – Basic modules

Electrical data		
Nominal operating voltage	[V DC]	24 (-15%/+20%)
Nominal current, logic supply	[A]	Max. 2
Operating range of logic input	[V DC]	24 (-15%/+20%)
Logic input specification		Based on IEC 61131-2
Safe digital outputs	[mA]	250
Signal outputs	[mA]	100
Operating conditions		
Ambient temperature	[°C]	0 ... +50
Degree of protection		IP20

Order code – Basic modules

Type	CMGA	B1			A0
CMGA	Safety system				
Module variants		B1			
B1	Basic module type 1				
Encoder connections					
M0	No encoder interface				
M1	With 1 encoder interface				
M2	With 2 encoder interfaces				
HTL proximity sensor					
L0	No encoder interface				
L1	With 1 encoder interface				
L2	With 2 encoder interfaces				
Analogue connections					
A0	No analogue input				

1 Only with encoder connection M0

2 Only with encoder connection M1

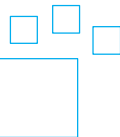
3 Only with encoder connection M2

Order example:

CMGA-B1-M1-L1-A0

Safety system CMGA - basic module type 1 - encoder connection with 1 encoder interface - HTL proximity sensor with 2 encoder interfaces - no analogue input

Ordering – Product options

	Configurable product	This product and all its options can be ordered using the configurator.	The configurator can be found under Products on the DVD or → www.festo.com/catalogue/...	Enter the type code in the search field.
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Technical data – Extension modules

Fieldbus interfaces

CANopen

DeviceNet

PROFI
BUS



Download CAD data → www.festo.com

Technical data Type	CMGA-			
	E1	E1-CO	E1-DN	E1-PB
Number of digital logic inputs	12, including 8 OSSD-compatible	–	–	–
Digital output design	10 safe digital inputs/outputs	–	–	–
	2 signal outputs	–	–	–
	2 pulse outputs	–	–	–

Safety characteristics	
Type	CMGA-E1
Conforms to standard	EN ISO 13849-1
Performance Level (PL)	Category 4, Performance Level e
Safety integrity level (SIL)	SIL 3
Certificate issuing authority	TÜV 01/205/5191/12
PFH	2.6×10^{-9}
Proof test interval	20 a
CE marking (see declaration of conformity)	To EU EMC Directive
	To EC Machinery Directive
Shock resistance	As per EN 60068-2-29
Vibration resistance	As per EN 60068-2-6

Electrical data				
Type	CMGA-			
	E1	E1-CO	E1-DN	E1-PB
Nominal operating voltage [V DC]	24 (–15%/+20%)			
Nominal current, logic supply [A]	2	–	–	–
Operating range of logic input [V DC]	24 (–15%/+20%)			
Logic input specification	Based on IEC 61131-2			
Safe digital inputs/outputs [mA]	250	–	–	–
Signal outputs [mA]	100	–	–	–

Technical data – Extension modules

Technical data – Fieldbus interface				
Type	CMGA-			
	E1	E1-CO	E1-DN	E1-PB
Bus connection	–	9-pin, Sub-D	5-pin, Sub-D	9-pin, Sub-D
Fieldbus coupling	–	CANopen	DeviceNet	PROFIBUS DP
Max. fieldbus transmission rate [Mbps]	–	1	0.5	12

Operating conditions

Ambient temperature [°C]	0 ... +50
Degree of protection	IP20

Order code – Extension modules

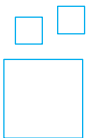
Type	Extension module
CMGA	Extension module
Module variants	
E1	Extension module for series CMGA-B1
Communication	
–	I/O
CO	CANopen
DN	DeviceNet
PB	PROFIBUS DP

Order example:

CMGA-E1-DN

Extension module CMGA - extension module E1 - DeviceNet communication

Ordering – Product options



Configurable product


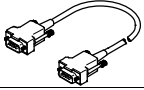
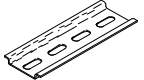
This product and all its options can be ordered using the configurator.

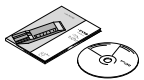
The configurator can be found under Products on the DVD or

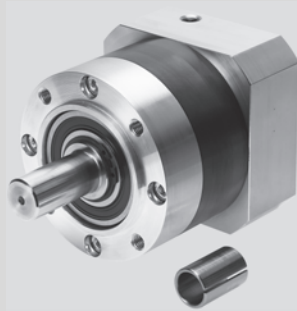
→ www.festo.com/catalogue/...

Enter the type code in the search field.

Accessories – Ordering data

	Description	Part No.	Type
	Plug connector for connecting the modules to one another via a backplane bus	1680832	NEKM-C-13
	Encoder cable for connection between safety system CMGA and motor controller CMM...	1680830	NEBC-S1G9-K-0.5-N-S-S1G9
	Programming cable for converting the USB interface on the PC for CMGA modules	1680831	NEBC-S1G9-K-2-N-S-S1G9
	Programming cable for converting the USB interface on the PC for CMGA modules	1680835	NEBC-U1G4-K-2-N-R5G4
	Mounting rail for attaching the safety systems	35430	NRH-35-2000

Type	
Documentation and software	
	Ordering data → cmga



- Low-backlash planetary gear unit
- Gear reduction $i = 3$ and 5 , available ex-stock
- Life-time lubrication
- Degree of protection IP54
- ★ Quick ordering of basic designs → 536

→ www.festo.com/catalogue/emga

Product range overview

Flange size	Output torque [Nm]	Gear ratio	
		3	5
42, 57, 87	17.6 ... 176	■	■

Technical data

Technical data		Dimensions → 536					
Motor flange size		42		57		87	
Gear unit type		EMGA-40-P-G...		EMGA-60-P-G...		EMGA-80-P-G...	
Gear ratio	[i]	3	5	3	5	3	5
Continuous output torque ¹⁾	[Nm]	11	14	22	22	85	110
Max. output torque	[Nm]	17.6	22	35.2	35.2	136	176
Torsional backlash	[deg]	0.25		0.17		0.12	
Moment of inertia ²⁾	[kgcm ²]	0.031	0.019	0.135	0.078	0.77	0.45
Operating temperature ³⁾	[°C]	-25 ... +90					
Degree of protection		IP54					

1) At the output shaft.

2) In relation to the drive shaft.

3) Note the temperature range of the motor.

Gear units EMGA-SST, for stepper motors

FESTO

★ Quick ordering¹⁾

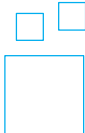
Motor flange size	Part No.	Type
42	549428	EMGA-40-P-G3-SST-42
	549429	EMGA-40-P-G5-SST-42
57	549430	EMGA-60-P-G3-SST-57
	549431	EMGA-60-P-G5-SST-57

Motor flange size	Part No.	Type
87	549432	EMGA-80-P-G3-SST-87
	549433	EMGA-80-P-G5-SST-87

1) All products in this table are easy to select and quick to order.

Ordering – Product options

4



Configurable product

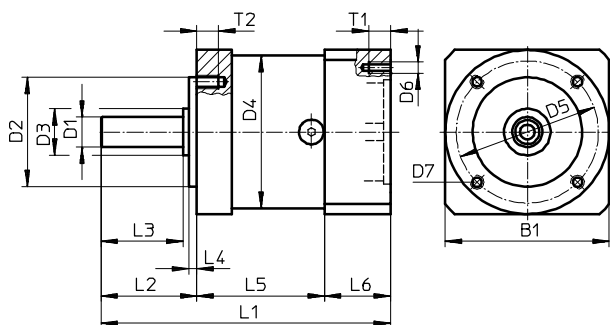
This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or

→ www.festo.com/catalogue/...

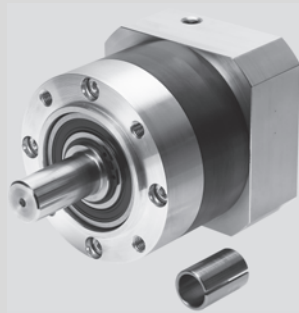
Enter the type code in the search field.

Dimensions

Download CAD data → www.festo.com

Motor flange size	B1	D1 ∅ h7	D2 ∅ h7	D3 ∅	D4 ∅	D5 ∅	D6	D7
42	40	10	26	12	40	34	∅3.4	M4
57	60	11	40	17	60	52	M4	M5
87	90	20	60	25	80	70	M5	M6

Motor flange size	L1	L2	L3	L4	L5	L6	T1	T2
	±1.5		±0.2	±0.2				
42	92.5	26±0.6	23	2	39	27.5	5	6
57	106	35±0.8	30	3	47	24	8	8
87	135.5	40±0.8	36	3	60	35.5	12	10



- Low-backlash planetary gear unit
- Gear reduction $i = 3$ and 5 , available ex-stock
- Life-time lubrication
- Degree of protection IP54

→ www.festo.com/catalogue/emga

Product range overview

Flange size	Output torque [Nm]	Gear ratio	
		3	5
40 ... 140	17.6 ... 720	■	■

Technical data

Technical data	Dimensions → 538								
	40		55		70				
Motor flange size	40		55		70				
Gear unit type	EMGA-40-P-G...-40		EMGA-60-P-G...-55		EMGA-60-P-G...-70		EMGA-80-P-G...-70		
Gear ratio	[i]	3	5	3	5	3	5	3	5
Continuous output torque ¹⁾	[Nm]	11	14	22	22	22	22	85	110
Max. output torque ²⁾	[Nm]	17.6	22	35.2	35.2	35.2	35.2	136	176
Torsional backlash	[deg]	0.25		0.17		0.17		0.12	
Moment of inertia ³⁾	[kgcm ²]	0.031	0.019	0.135	0.078	0.135	0.078	0.77	0.45
Operating temperature ⁴⁾	[°C]	-25 ... +90							
Degree of protection		IP54							

Motor flange size	100				140				
	EMGA-80-P-G...-100		EMGA-120-P-G...-100		EMGA-120-P-G...-140		EMGA-160-P-G...-140		
Gear unit type	EMGA-80-P-G...-100		EMGA-120-P-G...-100		EMGA-120-P-G...-140		EMGA-160-P-G...-140		
Gear ratio	[i]	3	5	3	5	3	5	3	5
Continuous output torque ¹⁾	[Nm]	85	110	115	195	115	195	400	450
Max. output torque ²⁾	[Nm]	136	176	184	312	184	312	640	720
Torsional backlash	[deg]	0.12		0.12		0.12		0.1	
Moment of inertia ³⁾	[kgcm ²]	0.77	0.45	2.63	1.53	2.63	1.53	12.14	6.07
Operating temperature ⁴⁾	[°C]	-25 ... +90							
Degree of protection		IP54							

1) At the output shaft.
 2) The specifications refer to an output shaft speed of 100 rpm as well as operating mode S1 and a temperature of 30 °C.
 3) In relation to the drive shaft.
 4) Note the temperature range of the motor.

Ordering – Product options

Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
 → www.festo.com/catalogue/...

Enter the type code in the search field.

Gear units EMGA-SAS, for servo motors

FESTO

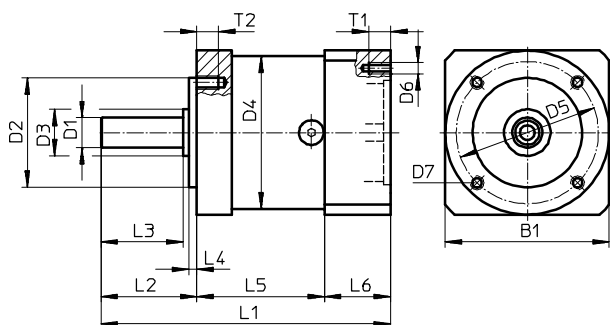
Ordering data

Motor flange size	Part No.	Type
40	552186	EMGA-40-P-G3-SAS-40
	552187	EMGA-40-P-G5-SAS-40
	★ 2297684	EMGA-40-P-G3-EAS-40
	★ 2297685	EMGA-40-P-G5-EAS-40
55	552188	EMGA-60-P-G3-SAS-55
	552189	EMGA-60-P-G5-SAS-55
	★ 2297686	EMGA-60-P-G3-EAS-60
	★ 2297687	EMGA-60-P-G5-EAS-60
70	552190	EMGA-60-P-G3-SAS-70
	552191	EMGA-60-P-G5-SAS-70
	552192	EMGA-80-P-G3-SAS-70
	552193	EMGA-80-P-G5-SAS-70
	★ 2297690	EMGA-80-P-G3-EAS-80
	★ 2297691	EMGA-80-P-G5-EAS-80

Motor flange size	Part No.	Type
100	★ 552194	EMGA-80-P-G3-SAS-100
	★ 552195	EMGA-80-P-G5-SAS-100
	★ 552196	EMGA-120-P-G3-SAS-100
	★ 552197	EMGA-120-P-G5-SAS-100
140	552198	EMGA-120-P-G3-SAS-140
	552199	EMGA-120-P-G5-SAS-140
	552200	EMGA-160-P-G3-SAS-140
	552201	EMGA-160-P-G5-SAS-140

4

Dimensions

Download CAD data → www.festo.com


Type	B1	D1 ∅ h7	D2 ∅ h7	D3 ∅	D4 ∅	D5 ∅	D6	D7
EMGA-40-...-40	40	10	26	12	40	34	M3	M4
EMGA-60-...-55	60	11	40	17	60	52	M5	M5
EMGA-60-...-70	70	11	40	17	60	52	M5	M5
EMGA-80-...-70	80	20	60	25	80	70	M5	M6
EMGA-80-...-100	100	20	60	25	80	70	M8	M6
EMGA-120-...-100	115	25	80	35	115	100	M8	M10
EMGA-120-...-140	140	25	80	35	115	100	M10	M10
EMGA-160-...-140	140	40	130	55	160	145	M10	M12

Type	L1	L2	L3 ±0.2	L4 ±0.2	L5	L6	T1	T2
EMGA-40-...-40	88.5±1.5	26±0.6	12	2	39	23.5	6	6
EMGA-60-...-55	106±1.5	35±0.8	30	3	47	24	12	8
EMGA-60-...-70	106±1.5	35±0.8	30	3	47	24	12	8
EMGA-80-...-70	133.5±1.5	40±0.8	36	3	60	33.5	12	10
EMGA-80-...-100	143.5±1.5	40±0.8	36	3	60	43.5	16	10
EMGA-120-...-100	176.5±2	55±0.8	50	4	74	47.5	20	16
EMGA-120-...-140	186±2	55±0.8	50	4	74	57.5	25	16
EMGA-160-...-140	255.5±2	87±0.8	80	5	104	64.5	25	20





5 Grippers







Software tool

Product Finder Gripper		<p>A secure grip is a question of the right calculation. In this case, calculation of weight, direction of movement, distances, etc. The software tool immediately determines which type of gripper – parallel, three-point, angle or swivel/gripper – and which size best matches your requirements.</p>	<p>This tool can be found</p> <ul style="list-style-type: none"> • either in the electronic catalogue by clicking on the blue button "Engineering" • or on the DVD under Engineering Tools.
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Parallel grippers

Type	 Parallel gripper DHPS	 Parallel gripper HGPD	 Parallel gripper HGPLE	 Parallel gripper HGPT-B
Total gripping force at 6 bar, closing	25 ... 910 N	94 ... 3,716 N		106 ... 6,300 N
Stroke per gripper jaw	2 ... 12.5 mm	3 ... 20 mm	40 mm	1.5 ... 25 mm
Position sensing	Via Hall sensor, via proximity sensor	Via proximity sensor	Via integrated angular displacement encoder	Via proximity sensor
Gripping force backup	During closing, during opening	During closing, during opening		During closing, during opening
Description	<ul style="list-style-type: none"> • Sturdy and precise T-slot guidance of the gripper jaws • High gripping force and compact size • Max. repetition accuracy • Wide range of options for mounting on drives 	<ul style="list-style-type: none"> • Ideal for very harsh environments • Precise gripping despite high torque loads • Max. gripping force combined with optimum • installation space/force ratio • 8 sizes with up to 40 mm total stroke • Repetition accuracy of 0 ... 0.05 mm 	<ul style="list-style-type: none"> • Electrically actuated gripper with long stroke • Free, speed-controlled selection of gripping positions • Long stroke allows use with workpieces of different sizes • Adjustable gripping force for highly sensitive and large, heavy workpieces • Very high torque resistance, very high accuracy • Short opening and closing times • Minimal installation costs • See product documentation for gripping force on our website 	<ul style="list-style-type: none"> • Sturdy and powerful • With T-slot guide • Suitable for external and internal gripping • Protection against dust in gripper jaw guide via sealing air • High-force variant (F) available
→ Page/online	545	hgpd	hgple	hgpt




Parallel grippers

Type	 Parallel gripper HGPL	 Parallel gripper HGPP	 Parallel gripper HGPC	 Parallel gripper HGP
Total gripping force at 6 bar, closing	158 ... 2,742 N	80 ... 830 N	44 ... 126 N	160 ... 340 N
Stroke per gripper jaw	20 ... 150 mm	2 ... 12.5 mm	3 ... 7 mm	5 ... 7.5 mm
Position sensing	Via proximity sensor	Via Hall sensor, via inductive sensor	Via proximity sensor	Via proximity sensor
Gripping force backup		During closing, during opening	During closing	
Description	<ul style="list-style-type: none"> Space-saving, high forces and torques Controlled, precise and centred gripping Long stroke: long guide length for the gripper jaws Suitable for external and internal gripping Opening stroke can be adjusted to optimise time 	<ul style="list-style-type: none"> High-precision gripper jaw guide Suitable for external and internal gripping Very flexible thanks to versatile attachment, mounting and application options 	<ul style="list-style-type: none"> Compact, low cost, reliable operation, long service life High force with minimal volume Suitable for external and internal gripping 	<ul style="list-style-type: none"> Double-acting piston drive With protective dust cap for use in dusty environments (protection class IP54) Self-centring Suitable for external and internal gripping High gripping force and compact size Max. repetition accuracy Internal fixed flow control Versatile thanks to externally adaptable gripper fingers Wide range of options for mounting on drive units
→ Page/online	hgpl	hgpp	hgpc	hgp




Parallel grippers

Type	 Parallel gripper HGPM
Total gripping force at 6 bar, closing	16 ... 35 N
Stroke per gripper jaw	2 ... 3 mm
Position sensing	None
Gripping force backup	
Description	<ul style="list-style-type: none"> Micro gripper: compact, handy design Versatile thanks to externally adaptable gripper fingers Mounting options with clamping spigot, with flange mounting, with Z-stroke compensation
→ Page/online	hgpm




Three-point grippers

Type	 Three-point gripper DHDS	 Three-point gripper HGDD	 Three-point gripper HGDT
Total gripping force at 6 bar, closing	87 ... 750 N	336 ... 2,745 N	207 ... 2,592 N
Stroke per gripper jaw	2.5 ... 6 mm	4 ... 12 mm	1.5 ... 10 mm
Position sensing	Via Hall sensor, via proximity sensor	Via proximity sensor	Via proximity sensor
Gripping force backup	During closing	During closing, during opening	During closing, during opening
Description	<ul style="list-style-type: none"> Sturdy and precise T-slot guidance of the gripper jaws High gripping force and compact size Max. repetition accuracy Wide range of options for mounting on drives 	<ul style="list-style-type: none"> Ideal for very harsh environments Precise gripping with centric movements despite high torque loads 5 sizes with up to 12 mm stroke/jaw Repetition accuracy of 0 ... 0.05 mm 	<ul style="list-style-type: none"> Synchronous movement of gripper jaws With T-slot guide Suitable for external and internal gripping Dust-proof via sealing air High-force variant (F) available
→ Page/online	550	hgdd	hgdt


Angle grippers

Type	 Angle gripper DHWS	 Angle gripper HGWC	 Angle gripper HGWM
Total gripping torque at 6 bar, closing	30 ... 1,362 Ncm	22 ... 144 Ncm	22 ... 64 Ncm
Max. opening angle	40°	30 ... 80°	14 ... 18.5°
Position sensing	Via Hall sensor, via proximity sensor	Via proximity sensor	None
Gripping force backup	During closing		
Description	<ul style="list-style-type: none"> Improved gripper jaw guide Link guided movement Internal fixed flow control Max. repetition accuracy Wide range of options for mounting on drives 	<ul style="list-style-type: none"> Internal fixed flow control, does away with the need for external flow control in 90% of applications High force with minimal volume Suitable for external and internal gripping Repetition accuracy ±0.05 mm Compact and cost-effective 	<ul style="list-style-type: none"> Micro angle gripper: compact, handy design Mounting options with clamping spigot, with flange mounting, with Z-stroke compensation Versatile thanks to externally adaptable gripper fingers
→ Page/online	554	hgwc	hgwm

Radial grippers

Type	 Radial gripper DHRS	 Radial gripper HGRT	 Radial gripper HGRC
Total gripping torque at 6 bar, closing	15 ... 660 Ncm	158 ... 7,754 Ncm	22 ... 144 Ncm
Max. opening angle	180°	180°	180°
Position sensing	Via Hall sensor, via proximity sensor	Via proximity sensor, via inductive sensor	Via proximity sensor
Description	<ul style="list-style-type: none"> • Lateral gripper jaw support for high torque loads • Self-centring • Gripper jaw centring options • Max. repetition accuracy 	<ul style="list-style-type: none"> • Secure gripping thanks to precise, polished plain-bearing guides • Gripping force backup via compression springs holds the gripped workpiece securely in the event of pressure failure • Compression spring also boosts the gripping force for applications involving heavier loads • Optimum cycle times thanks to freely adjustable opening angle of up to max. 90° per gripper finger. This prevents possible collisions due to the gripper jaws opening too wide 	<ul style="list-style-type: none"> • Internal fixed flow control, does away with the need for external flow control in 90% of applications • High force with minimal volume • Suitable for external and internal gripping • Repetition accuracy ±0.05 mm • Compact and cost-effective
→ Page/online	559	hgrt	hgrc

Swivel/gripper units

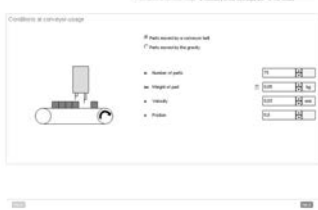
Type	 Swivel/gripper unit HGDS
Total gripping force at 6 bar, closing	74 ... 168 N
Stroke per gripper jaw	2.5 ... 7 mm
Swivel angle	210°
Position sensing, gripper	Via proximity sensor
Description	<ul style="list-style-type: none"> • Combination of parallel gripper and swivel module • Swivel angle infinitely adjustable • Precise end stop with elastic cushioning or integrated shock absorber
→ Page/online	hgds

Bellows gripper



Bellows gripper
DHEB

Type	Bellows gripper DHEB
Bellows stroke	3.5 ... 25 mm
Min. diameter to be gripped	8 ... 66 mm
Max. diameter to be gripped	11 ... 85 mm
Max. operating frequency of gripper	0 ... 4 Hz
Description	<ul style="list-style-type: none"> • 11 sizes for gripping diameter from 8 to 85 mm • Upwards or downwards direction of movement of bellows • Different bellows materials (EPDM or silicone) • Air connection on the side or from above • Optimised process sequence with increased quality: prevents the workpieces from being scratched • Additional reliability: optional sensing via proximity or position sensor
→ Page/online	dheb

Software tool

<p>Feed separator</p> 	<p>This tool helps you to select the right separator of the type HPV from Festo for your application. Let yourself be guided by the program and enter the general parameters and you will receive at least one suggestion for the product best suited to your application.</p>	<p>This tool can be found</p> <ul style="list-style-type: none"> • either in the electronic catalogue by clicking on the blue button "Engineering" • or on the DVD under Engineering Tools.
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Feed separators

Type	 Feed separator HPVS	 Feed separator HPV
Mode of operation	Double-acting	Double-acting
Piston Ø	10 mm, 14 mm, 22 mm	10 mm, 14 mm, 22 mm
Stroke	10 ... 60 mm	20 ... 60 mm
Theoretical force at 6 bar, advancing	45 ... 225 N	45 ... 225 N
Description	<ul style="list-style-type: none"> • Version with one plunger • With non-rotating piston rod • Proximity sensors suitable for integration in the housing can be used (type SME/SMT-8) 	<ul style="list-style-type: none"> • Version with two plungers • With twin pistons, piston rods, non-rotating and locking mechanism • Cost-effective: replaces at least two drives in the feed process • Proximity sensors suitable for integration in the housing can be used (type SME/SMT-8)
→ Page/online	hpvs	hpv



- Oval piston for high gripping forces
- Gripping forces of up to 483 N
- With T-slot guide
- Internal fixed flow control
- With gripping force backup
- Spare parts service

→ www.festo.com/catalogue/dhps

Product range overview

Type/function	Size	Stroke per gripper jaw [mm]	Gripping force per gripper jaw [N]	Product options		
				A	NO	NC
DHPS						
Double-acting	6	2	13.5 ... 15	■	–	–
	10, 16, 20, 25, 35	3 ... 12.5	34.5 ... 483	■	■	■

Product options

A Position sensing

NO Opening gripping force backup

NC Closing gripping force backup

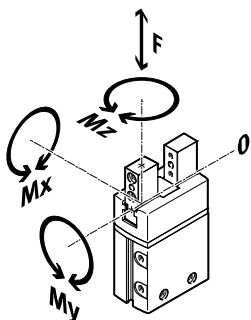
Technical data



Technical data		Dimensions → 549					
Size		6	10	16	20	25	35
Pneumatic connection		M3			M5	G1/8	
Stroke per gripper jaw	[mm]	2	3	5	6.5	7.5	12.5
Gripping force per gripper jaw at 6 bar	Opening [N]	15	39	105	162	249	483
	Closing [N]	13.5	34.5	96	147	228	450
Total gripping force at 6 bar	Opening [N]	30	80	210	320	500	970
	Closing [N]	25	70	190	290	450	910
Repetition accuracy ¹⁾	[mm]	≤0.02					
Max. operating frequency	[Hz]	4			3	2	

1) End-position drift under constant conditions of use with 100 consecutive strokes in the direction of movement of the gripper jaws.

Forces and torques



Size		6	10	16	20	25	35
Max. permissible force F_z	[N]	10	60	150	250	350	450
Max. permissible torque M_x	[Nm]	0.5	3	8	14	30	50
Max. permissible torque M_y	[Nm]	0.5	3	8	14	30	50
Max. permissible torque M_z	[Nm]	0.5	3	8	14	30	50

Parallel grippers DHPS

Technical data

Operating conditions		Without gripping force backup	With gripping force backup
Operating pressure	[bar]	2 ... 8	4 ... 8
Ambient temperature ¹⁾	[°C]	+5 ... +60	

1) Note operating range of proximity sensors.

Materials	
Housing	Hard anodised wrought aluminium alloy
Gripper jaw	High-alloy stainless steel
Cover cap	PA
Piston	POM
Piston rod	Tempered steel
Reversing lever	Hardened sintered steel
Seals	NBR

Order code

DHPS

--

A

-

Type	
DHPS	Parallel gripper

Size	
06, 10, 16, 20, 25, 35	

Position sensing	
A	Via proximity sensor

Gripping force backup	
-	None
NO	Opening 1
NC	Closing 1

1 Not with size 6 mm

Order example:

DHPS-25-A-NC

Parallel gripper DHPS - size 25 - position sensing via proximity sensor - closing gripping force backup

Ordering – Product options

Configurable product

This product and all its options can be ordered using the configurator.

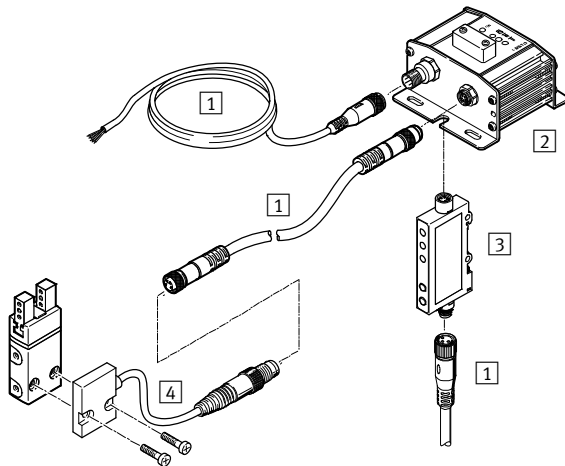
The configurator can be found under Products on the DVD or

→ www.festo.com/catalogue/...

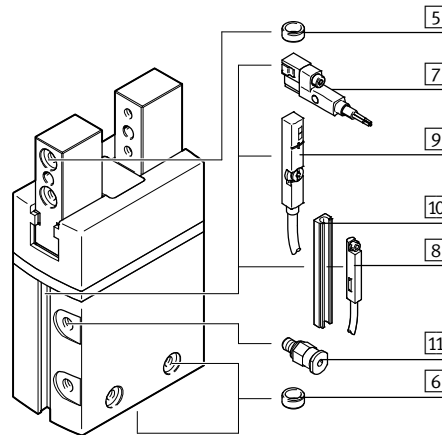
Enter the type code in the search field.

Accessories

DHPS-06



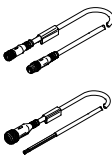
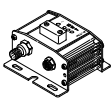
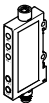
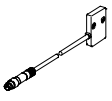
DHPS-10 ... 35





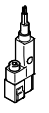
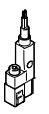

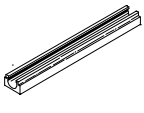


		→ Page/online
1	Connecting cable NEBU	547
2	Evaluation unit SMH-AE1	547
3	Signal converter SVE4	547
4	Position sensor SMH-S1	547
5	Centring sleeve ZBH	548
6	Centring sleeve ZBH	548
7	Proximity sensor SMT-8	548

		→ Page/online
8	Proximity sensor SMT-10	548
9	Position transmitter SMAT-8M	548
10	Bondable sensor rail HGP-SL	548
11	Push-in fitting QS	1006
-	Connecting cable NEBU	548
-	One-way flow control valve GRLA	548
-	Drive/gripper connections	dhps

Accessories – Ordering data

	For size	Part No.	Type	
1	Connecting cable			
	Connection between position sensor and signal converter/evaluation unit			
	2.5 m	554035	NEBU-M8G4-K-2.5-M8G4	
	Connection between evaluation unit and controller			
	2.5 m	541330	NEBU-M12G5-K-2.5-LE5	
	5 m	541331	NEBU-M12G5-K-5-LE5	
	Connection between signal converter and controller			
	2.5 m	541342	NEBU-M8G4-K-2.5-LE4	
	5 m	541343	NEBU-M8G4-K-5-LE4	
2	Evaluation unit, for size 6			Technical data online: → smh-ae
	PNP	175708	SMH-AE1-PS3-M12	
	NPN	175709	SMH-AE1-NS3-M12	
3	Signal converter, for size 6			Technical data online: → sve4
	PNP	544216	SVE4-HS-R-HM8-2P-M8	
	NPN	544219	SVE4-HS-R-HM8-2N-M8	
4	Position sensor, for size 6			Technical data online: → smh-s1
	Plug	175710	SMH-S1-HGP06	


Accessories – Ordering data

	For size	Part No.	Type	
5	Centring sleeve for centring on the gripper jaws¹⁾²⁾			Technical data online: → zbh
	10	189652	ZBH-5	
	16, 20	186717	ZBH-7	
	25, 35	150927	ZBH-9	
6	Centring sleeve for centring the gripper¹⁾³⁾			Technical data online: → zbh
	6, 10	189652	ZBH-5	
	16, 20	186717	ZBH-7	
	25	150927	ZBH-9	
	35	189653	ZBH-12	
7	Proximity sensor for T-slot, for size 10 ... 35, magneto-resistive – N/O contact			Technical data online: → smt
	PNP, cable	547859	SMT-8G-PS-24V-E-2,5Q-OE	
	PNP, plug	547860	SMT-8G-PS-24V-E-0,3Q-M8D	
8	Proximity sensor for C-slot, for size 10 ... 35, magneto-resistive – N/O contact			Technical data online: → smt
	PNP, cable	547862	SMT-10G-PS-24V-E-2,5Q-OE	
	PNP, plug	547863	SMT-10G-PS-24V-E-0,3Q-M8D	
9	Position transmitter for T-slot, for size 10 ... 35			Technical data online: → smat
	Plug	553744	SMAT-8M-U-E-0,3-M8D	
10	Bondable sensor rail			
	10	535582	HGP-SL-10-10	
	16	535583	HGP-SL-10-16	
	20	535584	HGP-SL-10-20	
	25	535585	HGP-SL-10-25	
	35	535586	HGP-SL-10-35	
Connecting cable, straight socket				Technical data → 1053
	2.5 m	★ 541333	NEBU-M8G3-K-2.5-LE3	
	5 m	★ 541334	NEBU-M8G3-K-5-LE3	
Angled socket				Technical data → 1053
	2.5 m	★ 541338	NEBU-M8W3-K-2.5-LE3	
	5 m	★ 541341	NEBU-M8W3-K-5-LE3	

1) Packaging unit 10 pieces.

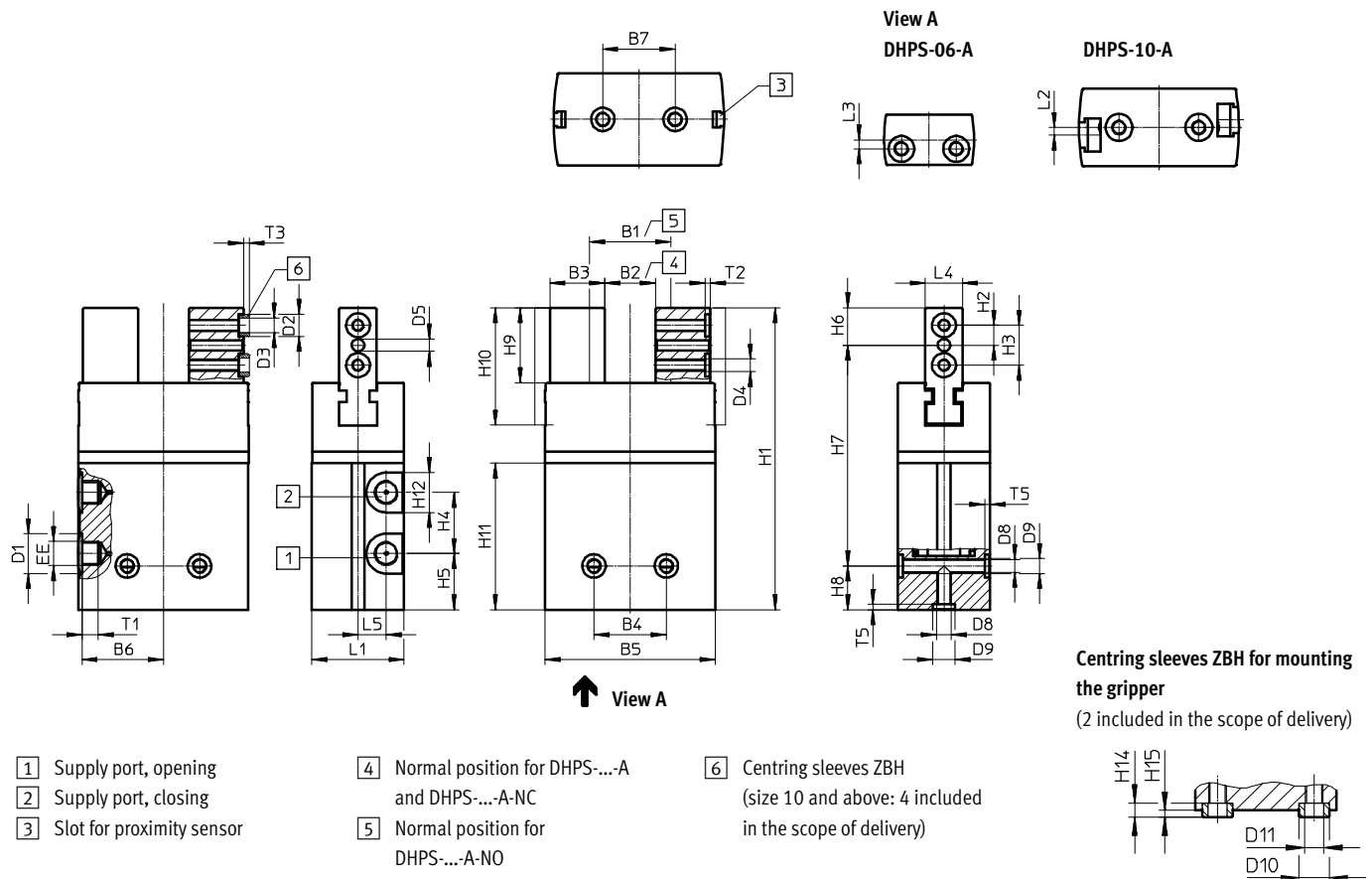
2) 4 included in the scope of delivery of the gripper.

3) 2 included in the scope of delivery of the gripper.

Function	For size	Connection		Part No.	Type
		Thread	O.D.		
One-way flow control valve for exhaust air flow control⁴⁾ with slotted head screw, metal					
	6, 10, 16	M3	3	175041	GRLA-M3-QS-3
	20		4	★ 193138	GRLA-M5-QS-4-D
	25, 35	G $\frac{1}{8}$	6	★ 193144	GRLA- $\frac{1}{8}$ -QS-6-D

4) The recommended flow control valves are based on a tubing length to the valve of 1 m. For deviations of ±50%, flow control valves with a bigger or smaller flow rate must be selected to guarantee the optimum flow control function and cylinder speed.

Dimensions

Download CAD data → www.festo.com

Size	B1	B2	B3	B4 ¹⁾	B5	B6	B7 ¹⁾	D1	D2	D3	D4	D5	D8	D9
[mm]	±0.5	±0.5	-0.03		±0.1			∅	∅	∅		∅	∅	
6	10	6	5.5	11	18	8.65	11	7	-	-	M2	1.5	2.5	M3
10	21.8	15.8	7	16	32	15.4	16	7	5	3.2	M3	2	2.5	M3
16	27.8	17.8	13	25	47	22.65	25	7	7	5.3	M4	3	3.3	M4
20	30	17	17.5	25	55.6	26.65	25	10	7	5.3	M4	4	3.3	M4
25	35.4	20.4	22	29	68.2	32.65	29	16	9	6.4	M5	4	5.1	M6
35	56	31	27	33	88	42.25	33	16	9	6.4	M6	5	6.4	M8

Size	D10	D11	EE	H1	H2	H3 ¹⁾	H4	H5	H6	H7	H8 ²⁾	H9	H10
[mm]	∅	∅								±0.2			
6	-	-	M3	45.5	2.9	5.8	15	4	5	33	7.5	9.55	15.8
10	5	3.2	M3	66	4	8	15.5	10.5	7.5	51	7.5	15.2	23
16	7	5.3	M3	80	5.5	11	18	11	10	62.5	7.5	20	32.5
20	7	5.3	M5	101	7	14	23	16	12.5	81	7.5	25	39.5
25	9	6.4	G $\frac{1}{8}$	121	8	16	24.5	22.5	15	88.5	17.5	30	47
35	9	6.4	G $\frac{1}{8}$	142	8.5	17	29	24	16	108.5	17.5	32	53

Size	H11	H12	H14	H15	L1	L2	L3 ¹⁾	L4	L5	T1	T2	T3	T5
[mm]			-0.2	-0.3				-0.05		+0.5	+0.1	-0.2	+0.1
6	25.3	7	-	-	10 ^{+0.1}	-	1.8	5	1.5	3.5	-	-	1.2
10	35	7	2.4	1.2	15.5 ^{+0.1}	1.5	-	7	5	5	1.2	1.2	1.2
16	38.1	7	3	1.4	22 ^{+0.1}	-	-	10	7	6	1.6	1.4	1.6
20	50	10	3	1.4	30±0.1	-	-	12	9	6	1.6	1.4	1.6
25	58.8	16	4	1.9	37±0.1	-	-	15	11.3	6.5	2.1	1.9	2.1
35	65.3	16	4	1.9	45 ^{+0.1}	-	-	20	13.5	6.5	2.1	1.9	2.6

1) Tolerance for centring hole +0.02 mm, tolerance for thread +0.1 mm.

2) Tolerance for centring hole -0.05 mm, tolerance for thread +0.1 mm.

Three-point grippers DHDS



- High gripping forces
- Gripping forces of up to 280 N
- With T-slot guide
- Internal fixed flow control
- With gripping force backup
- Spare parts service

→ www.festo.com/catalogue/dhds

5

Product range overview

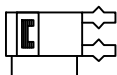
Type/function	Size	Stroke per gripper jaw [mm]	Gripping force per gripper jaw [N]	Product options	
				A	NC
DHDS					
Double-acting	16, 32, 50	2.5 ... 6	29 ... 280	■	■

Product options

A Position sensing

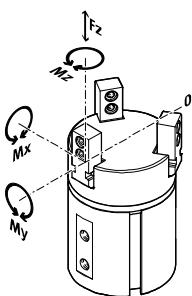
NC Closing gripping force backup

Technical data



Technical data

Dimensions → 553



Size	16	32	50
Pneumatic connection	M3	M5	G1/8
Stroke per gripper jaw [mm]	2.5	3.9	6
Gripping force per gripper jaw at 6 bar	Opening [N]	135	280
	Closing [N]	115	250
Total gripping force at 6 bar	Opening [N]	405	840
	Closing [N]	345	750
Repetition accuracy ¹⁾ [mm]	≤0.04		
Max. operating frequency [Hz]	≤4		
Max. permissible force F _z [N]	50	150	250
Max. permissible torque M _x [Nm]	2	9	24
Max. permissible torque M _y [Nm]	2	9	24
Max. permissible torque M _z [Nm]	2	9	24

1) End-position drift under constant conditions of use with 100 consecutive strokes in the direction of movement of the gripper jaws.

Operating conditions

	Without gripping force backup	With gripping force backup
Operating pressure [bar]	2 ... 8	4 ... 8
Ambient temperature ¹⁾ [°C]	+5 ... +60	

1) Note operating range of proximity sensors.

Materials

Housing	Hard anodised wrought aluminium alloy
Gripper jaw	High-alloy stainless steel
Cover cap	PA
Piston	POM
Reversing lever	Hardened sintered steel
Seals	NBR

Order code

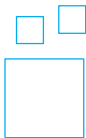
		DHDS	—		—	A	—	
Type								
DHDS	Three-point gripper							
Size								
16, 32, 50								
Position sensing								
A	Via proximity sensor							
Gripping force backup								
—	None							
NC	Closing							

Order example:

DHDS-32-A-NC

Three-point gripper DHDS - size 32 - position sensing via proximity sensor - closing gripping force backup

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

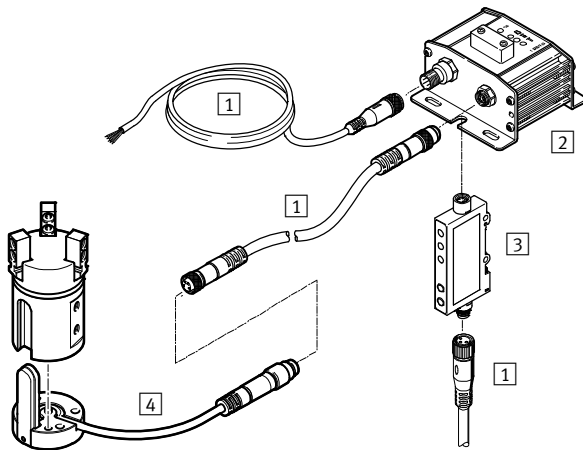
The configurator can be found under Products on the DVD or

→ www.festo.com/catalogue/...

Enter the type code in the search field.

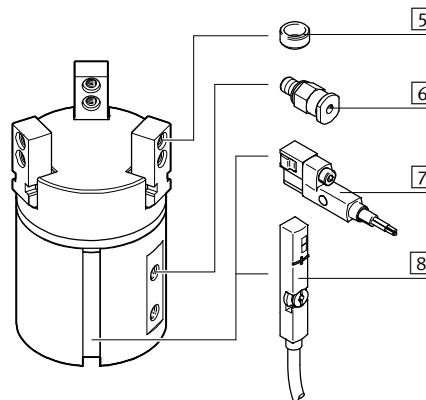
Accessories

DHDS-16



		→ Page/online
1	Connecting cable NEBU	552
2	Evaluation unit SMH-AE1	552
3	Signal converter SVE4	552
4	Position sensor SMH-S1	552
5	Centring sleeve ZBH	552
6	Push-in fitting QS	1006




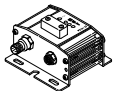
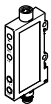






DHDS-32, 50




		→ Page/online
7	Proximity sensor SMT-8	552
8	Position transmitter SMAT-8M	552
—	Connecting cable NEBU	552
—	One-way flow control valve GRLA	552
—	Drive/gripper connections	dhds

Three-point grippers DHDS

Accessories – Ordering data

	For size	Part No.	Type	
1 Connecting cable				
	Connection between position sensor and signal converter/evaluation unit			
	2.5 m	554035	NEBU-M8G4-K-2.5-M8G4	
	Connection between evaluation unit and controller			
	2.5 m	541330	NEBU-M12G5-K-2.5-LE5	
	Connection between signal converter and controller			
	2.5 m	541342	NEBU-M8G4-K-2.5-LE4	
	5 m	541343	NEBU-M8G4-K-5-LE4	
2 Evaluation unit, for size 16				Technical data online: → smh-ae
	PNP	175708	SMH-AE1-PS3-M12	
	NPN	175709	SMH-AE1-NS3-M12	
3 Signal converter, for size 16				Technical data online: → sve4
	PNP	544216	SVE4-HS-R-HM8-2P-M8	
	NPN	544219	SVE4-HS-R-HM8-2N-M8	
4 Position sensor, for size 16				Technical data online: → smh-s1
	Plug	175713	SMH-S1-HGD16	
5 Centring sleeve¹⁾²⁾				Technical data online: → zbh
	16, 32	189652	ZBH-5	
	50	186717	ZBH-7	
7 Proximity sensor for T-slot, for size 32 ... 50, magneto-resistive – N/O contact				Technical data online: → smt
	PNP, cable	547859	SMT-8G-PS-24V-E-2,5Q-OE	
	PNP, plug	547860	SMT-8G-PS-24V-E-0,3Q-M8D	
8 Position transmitter for T-slot, for size 32 ... 50				Technical data online: → smat
	Plug	553744	SMAT-8M-U-E-0,3-M8D	
Connecting cable, straight socket				Technical data → 1053
	2.5 m	★ 541333	NEBU-M8G3-K-2.5-LE3	
	5 m	★ 541334	NEBU-M8G3-K-5-LE3	
Angled socket				Technical data → 1053
	2.5 m	★ 541338	NEBU-M8W3-K-2.5-LE3	
	5 m	★ 541341	NEBU-M8W3-K-5-LE3	

1) Packaging unit 10 pieces.
2) 6 included in the scope of delivery of the gripper.

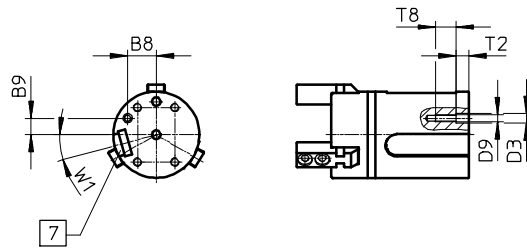
Function	For size	Connection		Part No.	Type
		Thread	O.D.		
One-way flow control valve for exhaust air flow control³⁾ with slotted head screw, metal					
	16	M3	3	175041	GRLA-M3-QS-3
	32	M5	4	★ 193138	GRLA-M5-QS-4-D
	50	G ¹ / ₈	6	★ 193144	GRLA-1/8-QS-6-D

3) The recommended flow control valves are based on a tubing length to the valve of 1 m. For deviations of ±50%, flow control valves with a bigger or smaller flow rate must be selected to guarantee the optimum flow control function and cylinder speed.

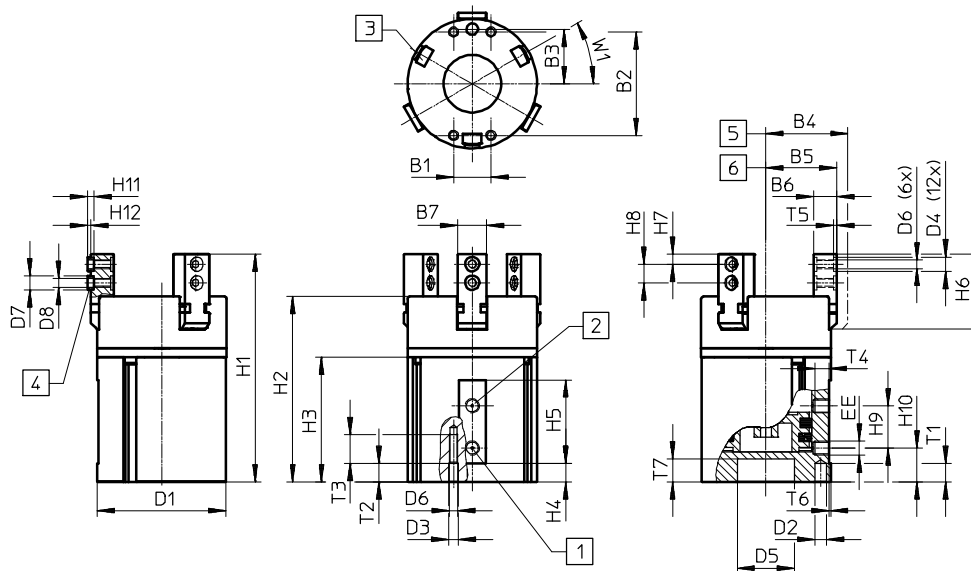
Dimensions

Download CAD data → www.festo.com

DHDS-16



DHDS-32, 50



- 1 Supply port, opening
- 2 Supply port, closing
- 3 Slot for proximity sensor
- 4 Centring sleeve ZBH
(6 included in the scope of delivery)
- 5 Gripper jaw open
- 6 Gripper jaw closed
- 7 Slot for position sensor

Size	B1	B2	B3	B4	B5	B6	B7	B8	B9
			±0.02	±0.5	±0.5	-0.02/-0.05	-0.02	-0.1	-0.1
16	13	19	11.5	20	17.5	7	6	9.96	5.75
32	13	36	19	28.5	24.6	8	10	-	-
50	25	54	30	43	37	12	14	-	-

Size	D1	D2	D3	D4	D5	D6	D7	D8	D9
	∅	∅ H8	∅ H8	∅ H8	∅ +0.05/+0.02		∅ h7	∅	
16	30	3	3.2	5	-	M3	5	3.2	M2.5
32	45	4	3.5	5	20	M3	5	3.2	-
50	70	5	6	7	30	M5	7	5.3	-

Size	EE	H1	H2	H3	H4	H5	H6	H7	H8 ¹⁾	H9
16	M3	60	47.9	32.6	4.5	24	21.5	3	6	12
32	M5	78	63.2	42.2	5.2	29	26	3.5	6.5	14.7
50	G $\frac{1}{8}$	107.5	86.5	56	6.7	40	37	5	10	22

Size	H10	T1	T2	T3	T4	T5	T6	T7	T8	W1
		min.	min.	+1	-0.5	+0.1	±0.2		±1	
16	11	4.5	4.5	8	4	1.2	1	-	7	15°
32	10.5	6.5	6.5	10	4	1.1	0.5	8	-	30°
50	16	7	7	18	6	1.6	1	9	-	30°

1) Tolerance for centring hole +0.02 mm, tolerance for thread +0.1 mm.



- Link guided movement
- Gripping torques of up to 1,497 Ncm
- Internal fixed flow control
- With gripping force backup
- Spare parts service

→ www.festo.com/catalogue/dhws

5

Product range overview

Type/function	Size	Opening angle [°]	Total gripping torque [Ncm]	Product options	
				A	NC
DHWS					
Double-acting	10	40	30 ... 43	■	-
	16, 25, 32, 40	40	114 ... 1497	■	■

Product options

A Position sensing NC Closing gripping force backup

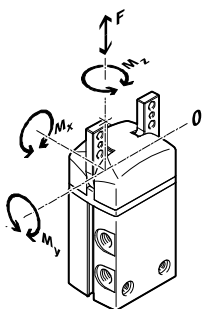
Technical data



Technical data					Dimensions → 558	
Size	10	16	25	32	40	
Pneumatic connection	M3		M5		G1/8	
Opening angle per gripper jaw	20					
Total gripping torque at 6 bar	Opening	[Ncm]	43	129	386	810
	Closing	[Ncm]	30	114	356	746
Repetition accuracy ¹⁾	[mm]	≤0.04				
Max. operating frequency	[Hz]	4		3		

1) End-position drift under constant conditions of use with 100 consecutive strokes in the direction of movement of the gripper jaws.

Forces and torques



Size	10	16	25	32	40	
Max. permissible force F_z	[N]	25	50	90	120	200
Max. permissible torque M_x	[Nm]	0.6	1.6	3.6	6	13
Max. permissible torque M_y	[Nm]	0.6	1.6	3.6	6	13
Max. permissible torque M_z	[Nm]	0.6	1.6	3.6	6	13

Technical data

Operating conditions		Without gripping force backup	With gripping force backup
Operating pressure	[bar]	2 ... 8	4 ... 8
Ambient temperature ¹⁾	[°C]	+5 ... +60	

1) Note operating range of proximity sensors.

Materials

Housing	Hard anodised wrought aluminium alloy
Gripper jaw	High-alloy stainless steel
Cover cap	PA
Piston	POM
Link	Tempered steel
Reversing lever	Hardened sintered steel
Seals	NBR

Order code

DHWS		-		-	A	-	
Type							
DHWS	Angle gripper						
Size							
10, 16, 25, 32, 40							
Position sensing							
A	Via proximity sensor						
Gripping force backup							
-	None						
NC	Closing ¹⁾						

¹⁾ Not with size 10 mm

Order example:

DHWS-25-A-NC

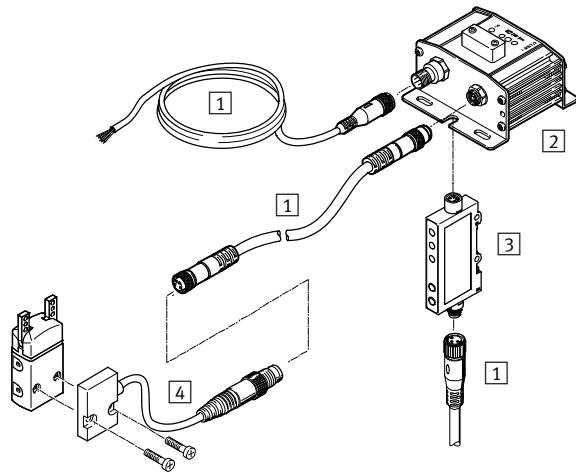
Angle gripper DHWS - size 25 - position sensing via proximity sensor - closing gripping force backup

Ordering – Product options

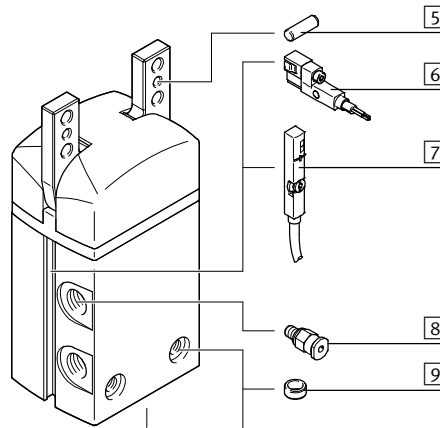
	Configurable product	This product and all its options can be ordered using the configurator.	The configurator can be found under Products on the DVD or → www.festo.com/catalogue/...	Enter the type code in the search field.
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Accessories

DHWS-10



DHWS-16 ... 40








		→ Page/online
1	Connecting cable NEBU	556
2	Evaluation unit SMH-AE1	556
3	Signal converter SVE4	556
4	Position sensor SMH-S1	556
5	Centring pin	-
6	Proximity sensor SMT-8	557

		→ Page/online
7	Position transmitter SMAT-8M	557
8	Push-in fitting QS	1006
9	Centring sleeve ZBH	557
-	Connecting cable NEBU	557
-	One-way flow control valve GRLA	557
-	Drive/gripper connections	dhws

Accessories – Ordering data


	For size	Part No.	Type	
1 Connecting cable				
	Connection between position sensor and signal converter/evaluation unit			
	2.5 m	554035	NEBU-M8G4-K-2.5-M8G4	
	Connection between evaluation unit and controller			
	2.5 m	541330	NEBU-M12G5-K-2.5-LE5	
	5 m	541331	NEBU-M12G5-K-5-LE5	
	Connection between signal converter and controller			
2.5 m	541342	NEBU-M8G4-K-2.5-LE4		
5 m	541343	NEBU-M8G4-K-5-LE4		
2 Evaluation unit, for size 10				
	PNP	175708	SMH-AE1-PS3-M12	Technical data online: → smh-ae
	NPN	175709	SMH-AE1-NS3-M12	
3 Signal converter, for size 10				
	PNP	544216	SVE4-HS-R-HM8-2P-M8	Technical data online: → sve4
	NPN	544219	SVE4-HS-R-HM8-2N-M8	
4 Position sensor, for size 10				
	Plug	175711	SMH-S1-HGW10	Technical data online: → smh-s1

Accessories – Ordering data

	For size		Part No.	Type	
Connecting cable, straight socket					Technical data → 1053
	2.5 m	★	541333	NEBU-M8G3-K-2.5-LE3	
	5 m	★	541334	NEBU-M8G3-K-5-LE3	
Angled socket					Technical data → 1053
	2.5 m	★	541338	NEBU-M8W3-K-2.5-LE3	
	5 m	★	541341	NEBU-M8W3-K-5-LE3	
6 Proximity sensor for T-slot, for size 16 ... 40, magneto-resistive – N/O contact					Technical data online: → smt
	PNP, cable		547859	SMT-8G-PS-24V-E-2,5Q-OE	
	PNP, plug		547860	SMT-8G-PS-24V-E-0,3Q-M8D	
7 Position transmitter for T-slot, for size 16 ... 40					Technical data online: → smat
	Plug		553744	SMAT-8M-U-E-0,3-M8D	
9 Centring sleeve¹⁾²⁾					Technical data online: → zbh
	10, 16		189652	ZBH-5	
	25		186717	ZBH-7	
	32		150927	ZBH-9	
	40		189653	ZBH-12	

1) Packaging unit 10 pieces.

2) 2 included in the scope of delivery of the gripper.

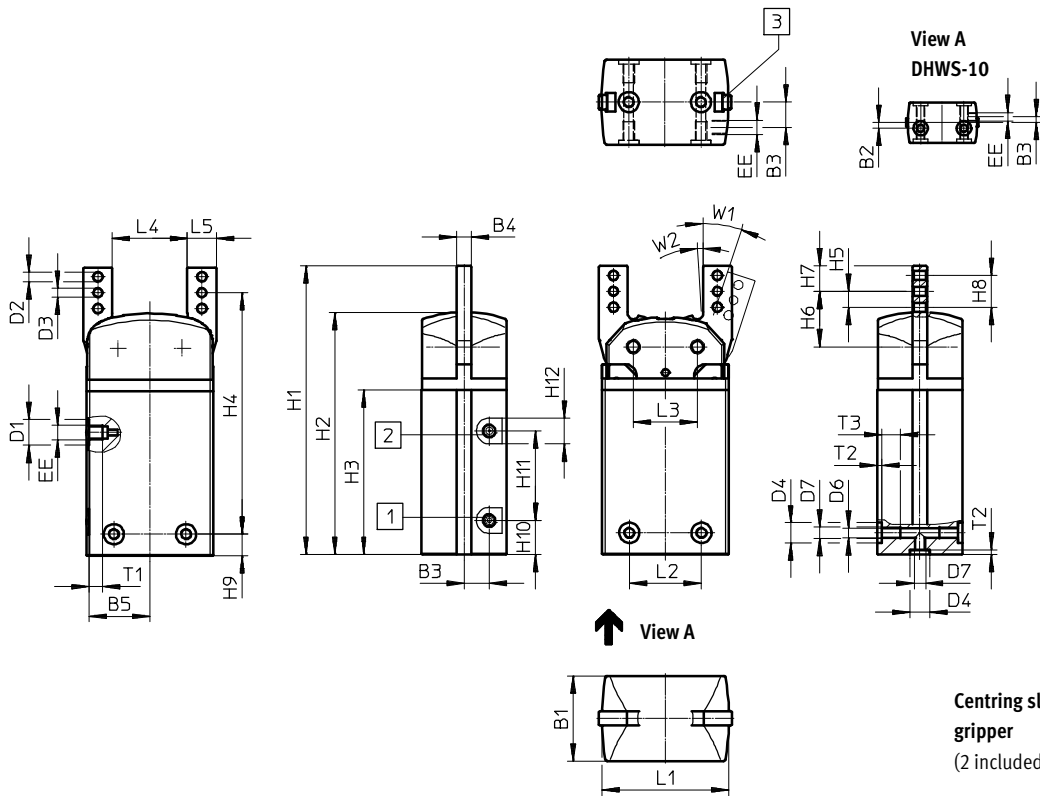
Function	For size	Connection		Part No.	Type
		Thread	O.D.		
One-way flow control valve for exhaust air flow control³⁾ with slotted head screw, metal					
	10, 16	M3	3	175041	GRLA-M3-QS-3
	25	M5	4	★ 193138	GRLA-M5-QS-4-D
	32, 40	G1/8	6	★ 193144	GRLA-1/8-QS-6-D

3) The recommended flow control valves are based on a tubing length to the valve of 1 m. For deviations of ±50%, flow control valves with a bigger or smaller flow rate must be selected to guarantee the optimum flow control function and cylinder speed.

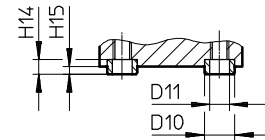
Angle grippers DHWS

Dimensions

Download CAD data → www.festo.com



Centring sleeves ZBH for mounting the gripper
(2 included in the scope of delivery)



- 1 Supply port, opening
- 2 Supply port, closing
- 3 Slot for proximity sensor

Size	B1	B2 ¹⁾	B3	B4 -0.03/ -0.05	B5	D1 ∅	D2 ∅ ±0.1	D3 ∅ H8	D4 ∅ H8/h7	D6 ∅ +0.1	D7	D10 ∅ h7	D11 ∅
[mm]	±0.05												
10	14	2	2	3	11.6	7	2.2	2	5	2.4	M3	5	3.2
16	19	-	5.8	4	16	-	3.2	2.5	5	2.5	M3	5	3.2
25	29.5	-	8.75	5	21	9	3.2	3	7	3.3	M4	7	5.3
32	38	-	11	6	24	15	4.3	3	9	5.1	M6	9	6.4
40	49	-	11	8	28.4	15	5.3	4	12	6.4	M8	12	10.3

Size	EE	H1	H2	H3	H4 ±0.2	H5	H6 ±0.05	H7	H8	H9 ²⁾	H10	H11
[mm]												
10	M3	56.3	46	30.8	38.25	3.5	10.95	5.75	7	12.3	8.8	16
16	M3	81	67	45.5	66	4.5	15.5	7.5	9	7.5	12.25	23
25	M5	100	84	57	83.7	5.5	19.2	8.8	11	7.5	11.8	31
32	G1/8	116	96.2	65	100.5	6.5	22.5	11	13	11	20	25
40	G1/8	129	108.4	71.5	99.5	7	24.5	12	14	17.5	9	46

Size	H12	H14	H15	L1	L2 ¹⁾	L3 ±0.02	L4	L5 -0.02/ -0.05	T1 +0.5	T2 +0.1	T3 +1	W1 +3°/-1°	W2 ±1°
[mm]		-0.2	-0.3	±0.05									
10	7	2.4	1.2	24	15	12.4	14	5.5	3.5	1.2	through	18	3
16	7	2.4	1.2	34	16	17	18	8	4.5	1.2	5.8	18	3
25	9	3	1.4	44	25	22.2	26	10	4.5	1.6	6.4	18	3
32	15	4	1.9	53	29	25.8	29	12	7.5	2.1	12.9	18	3
40	15	5	2.4	59	33	30	32	15	6	2.6	13.4	18	3

1) Tolerance for centring hole ±0.02 mm, tolerance for thread ±0.1 mm.
2) Tolerance for centring hole -0.05 mm, tolerance for thread ±0.1 mm.



- High torque load
- Gripping torques of up to 725 Ncm
- Self-centring
- Internal fixed flow control
- With gripping force backup
- Spare parts service

→ www.festo.com/catalogue/dhrs

Product range overview

Type/function	Size	Opening angle [°]	Total gripping torque [Ncm]	Product overview	
				A	NC
DHRS					
Double-acting	10	180	15 ... 21	■	–
	16, 25, 32, 40	180	55 ... 725	■	■

Product overview

A Position sensing

NC Closing gripping force backup

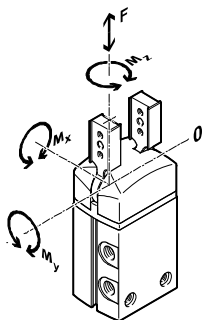
Technical data



Technical data					Dimensions → 563		
Size	10	16	25	32	40		
Pneumatic connection	M3		M5		G1/8		
Max. opening angle	180						
Total gripping torque at 6 bar	Opening	[Ncm]	21	62	233	423	725
	Closing	[Ncm]	15	55	215	390	660
Repetition accuracy ¹⁾	±0.1						
Max. operating frequency	[Hz]		4	3		2	

1) End-position drift under constant conditions of use with 100 consecutive strokes in the direction of movement of the gripper jaws.

Forces and torques



Size	10	16	25	32	40	
Max. permissible force F_z	[N]	30	40	75	120	200
Max. permissible torque M_x	[Nm]	0.8	1.3	3.2	6.2	14
Max. permissible torque M_y	[Nm]	0.8	1.3	3.2	6.2	14
Max. permissible torque M_z	[Nm]	0.8	1.3	3.2	6.2	14

Technical data

Operating conditions		Without gripping force backup	With gripping force backup
Operating pressure	[bar]	2 ... 8	4 ... 8
Ambient temperature ¹⁾	[°C]	+5 ... +60	

1) Note operating range of proximity sensors.

Materials	
Housing	Hard anodised wrought aluminium alloy
Gripper jaw	High-alloy stainless steel
Cover cap	PA
Piston	POM
Link	Tempered steel
Seals	NBR

Order code

DHRS		-		-	A	-	
Type							
DHRS	Radial gripper						
Size							
10, 16, 25, 32, 40							
Position sensing							
A	Via proximity sensor						
Gripping force backup							
-	None						
NC	Closing	1					

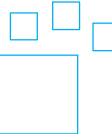
1) Not with size 10 mm

Order example:

DHRS-25-A-NC

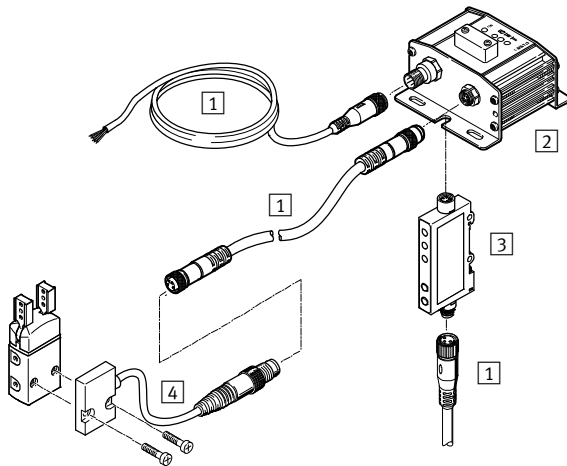
Radial gripper DHRS - size 25 - position sensing via proximity sensor - closing gripping force backup

Ordering – Product options

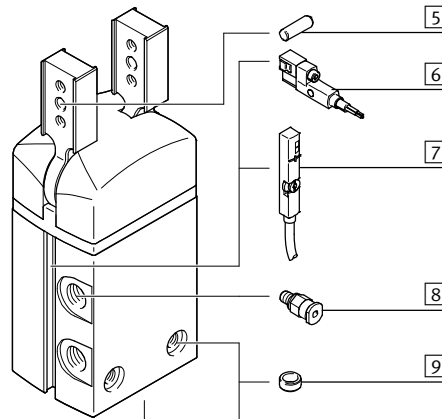
	<p>Configurable product</p>	<p>This product and all its options can be ordered using the configurator.</p>	<p>The configurator can be found under Products on the DVD or → www.festo.com/catalogue/...</p>	<p>Enter the type code in the search field.</p>
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Accessories

DHRS-10



DHRS-16 ... 40








		→ Page/online
1	Connecting cable NEBU	561
2	Evaluation unit SMH-AE1	561
3	Signal converter SVE4	561
4	Position sensor SMH-S1	561
5	Centring pin	-
6	Proximity sensor SMT-8	562

		→ Page/online
7	Position transmitter SMAT-8M	562
8	Push-in fitting QS	1006
9	Centring sleeve ZBH	562
-	Connecting cable NEBU	562
-	One-way flow control valve GRLA	562
-	Drive/gripper connections	dhRS

Accessories – Ordering data


	For size	Part No.	Type	
1	Connecting cable			
	Connection between evaluation unit/signal converter and position sensor			
	2.5 m	554035	NEBU-M8G4-K-2.5-M8G4	
	Connection between evaluation unit and controller			
	2.5 m	541330	NEBU-M12G5-K-2.5-LE5	
	5 m	541331	NEBU-M12G5-K-5-LE5	
	Connection between signal converter and controller			
2.5 m	541342	NEBU-M8G4-K-2.5-LE4		
5 m	541343	NEBU-M8G4-K-5-LE4		
2	Evaluation unit, for size 10			Technical data online: → smh-ae
	PNP	175708	SMH-AE1-PS3-M12	
	NPN	175709	SMH-AE1-NS3-M12	
3	Signal converter, for size 10			Technical data online: → sve4
	PNP	544216	SVE4-HS-R-HM8-2P-M8	
	NPN	544219	SVE4-HS-R-HM8-2N-M8	
4	Position sensor, for size 10			Technical data online: → smh-s1
	Plug	175712	SMH-S1-HGR10	

Accessories – Ordering data

	For size	Part No.	Type	
6	Proximity sensor for T-slot, for size 16 ... 40, magneto-resistive – N/O contact			Technical data online: → smt
	PNP, cable	547859	SMT-8G-PS-24V-E-2,5Q-OE	
	PNP, plug	547860	SMT-8G-PS-24V-E-0,3Q-M8D	
7	Position transmitter for T-slot, for size 16 ... 40			Technical data online: → smt
	Plug	553744	SMAT-8M-U-E-0,3-M8D	
9	Centring sleeve¹⁾²⁾			Technical data online: → zbh
	10, 16	189652	ZBH-5	
	25	186717	ZBH-7	
	32	150927	ZBH-9	
	40	189653	ZBH-12	
Connecting cable, straight socket				Technical data → 1053
	2.5 m	★	541333	NEBU-M8G3-K-2.5-LE3
	5 m	★	541334	NEBU-M8G3-K-5-LE3
Angled socket				Technical data → 1053
	2.5 m	★	541338	NEBU-M8W3-K-2.5-LE3
	5 m	★	541341	NEBU-M8W3-K-5-LE3

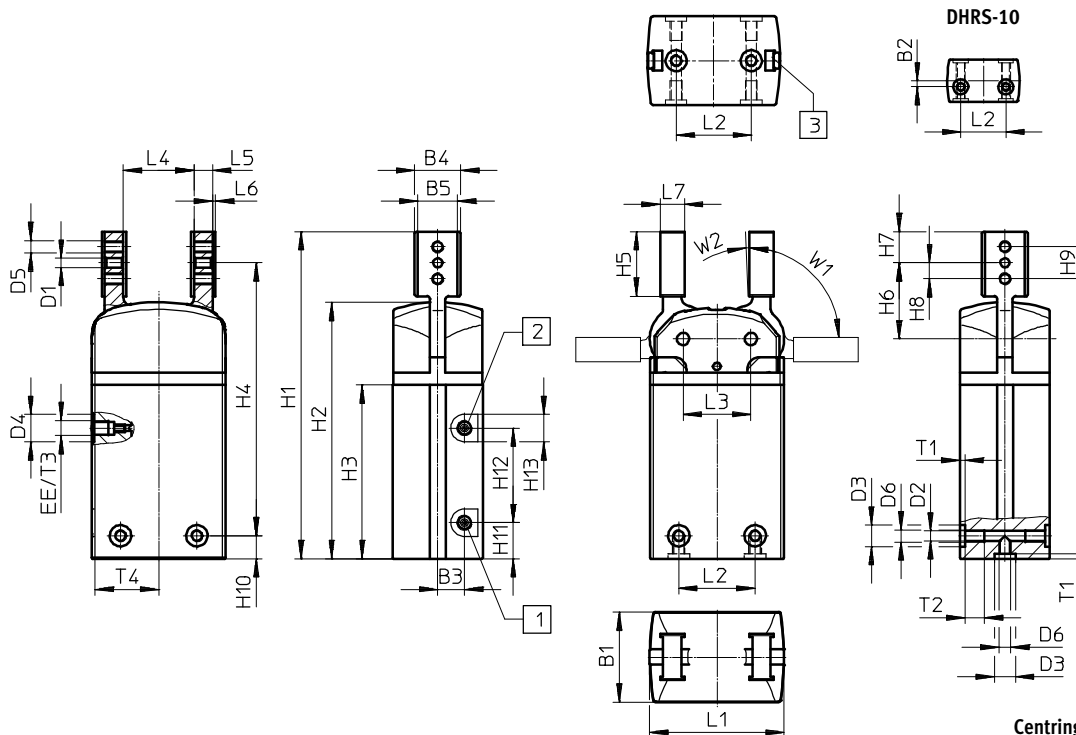
1) Packaging unit 10 pieces.

2) 2 included in the scope of delivery of the gripper.

Function	For size	Connection		Part No.	Type
		Thread	O.D.		
One-way flow control valve for exhaust air flow control³⁾ with slotted head screw, metal					
	10, 16	M3	3	175041	GRLA-M3-QS-3
	25	M5	4	★ 193138	GRLA-M5-QS-4-D
	32, 40	G ¹ / ₈	6	★ 193144	GRLA-¹/₈-QS-6-D

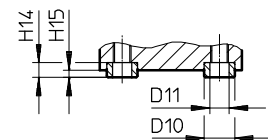
3) The recommended flow control valves are based on a tubing length to the valve of 1 m. For deviations of ±50%, flow control valves with a bigger or smaller flow rate must be selected to guarantee the optimum flow control function and cylinder speed.

Dimensions

Download CAD data → www.festo.com

Centring sleeves ZBH for mounting the gripper

(2 included in the scope of delivery)



- 1 Supply port, opening 3 Slot for proximity sensor
2 Supply port, closing

Size	B1	B2 ¹⁾	B3	B4	B5	D1	D2	D3	D4	D5	D6	D10	D11	EE
[mm]	±0.05				+0.03/ +0.01	∅ H8	∅ +0.1	∅ H8/h7	∅	∅		∅ h7	∅	
10	14	2	2	8.5	6.5	2	2.4	5	7	M2.5	M3	5	3.2	M3
16	19	–	5.8	14	10	2	2.5	5	–	M3	M3	5	3.2	M3
25	29.5	–	8.75	15	13	3	3.3	7	9	M4	M4	7	5.3	M5
32	38	–	11	16	14	4	5.1	9	15	M5	M6	9	6.4	G ¹ / ₈
40	49	–	11	24	20	5	6.4	12	15	M6	M8	12	10.3	G ¹ / ₈
Size	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10 ²⁾	H11	H12	H13	H14
[mm]				±0.25	±0.2	±0.05	–0.1							–0.2
10	60.8	46	30.8	42.25	13.8	14.95	6.25	4	8	12.3	8.8	16	7	2.4
16	88.2	70.5	49	73.7	16.5	19.7	7	4	8	7.5	12.25	23	7	2.4
25	107.2	84	57	89.45	21.2	24.95	10.25	5.25	10.5	7.5	11.8	31	9	3
32	128.5	96.2	65	103.5	29.5	32	14	7	14	11	20	25	15	4
40	140	108.4	71.5	108.7	29.5	33.7	13.8	8	16	17.5	9	46	15	5
Size	H15	L1	L2 ¹⁾	L3	L4	L5	L6	L7	T1	T2	T3	T4	W1	W2
[mm]	–0.3	±0.05		±0.02		±0.05							±2°	+3°
10	1.2	24	15	12.4	12	4	0.5	5	1.2	through	3.5	11.6	90	2
16	1.2	33.4	16	17	21	4	1	6	1.2	5.8	4.5	16	90	2
25	1.4	44	25	22.2	23.2	6	1	8	1.6	6.4	4.5	21	90	2
32	1.9	51	29	25.8	24.8	8	1	10	2.1	12.9	6.5	24	90	2
40	2.4	59	33	30	29.6	10	1	12	2.6	13.4	6	28.4	90	2


1) Tolerance for centring hole +0.02 mm, tolerance for thread +0.1 mm.

2) Tolerance for centring hole –0.05 mm, tolerance for thread +0.1 mm.



6 Handling systems







Software tool

Configurator		<p>Design a product with numerous features reliably and quickly with the help of the configurator. Select all the required product features step-by-step. The use of logic checks ensures that only correct configurations are available for selection.</p>	<p>The configurator is part of the electronic catalogue and is not available as a separate software program.</p>
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Handling modules

		
Type	Handling module HSP	Handling module, pneumatic HSW-AP, HSW-AS
Size	12, 16, 25	10, 12, 16
Theoretical force at 6 bar	40 ... 65 N	30 ... 55 N
Minimum cycle time	0.6 ... 1 s	0.6 ... 1 s
Y-stroke	52 ... 170 mm	
Z-stroke	20 ... 70 mm	80 ... 100 mm
Repetition accuracy	+/-0.01 mm, +/-0.02 mm	
Description	<ul style="list-style-type: none"> Function module for the automatic transfer, feed and removal of small parts in extremely confined spaces Guided vertical and horizontal motion sequence High precision and good rigidity Compact design Extremely short cycle times Cost-optimised Stroke adjustment along Y and Z-axes 	<ul style="list-style-type: none"> Function module for the automatic transfer, feed and removal of small parts in extremely confined spaces Guided swivel and linear motion High precision and good rigidity HSW-AP: pneumatic, with swivel module DSM; HSW-AS: without drive, with drive shaft Fast and compact Low-cost and ideal for universal use
→ Page/online	hsp	hsw


Cartesian systems

				
Type	Single-axis system YXCS	2D linear gantry YXCL	2D planar surface gantry XYCF	Planar surface gantry EXCM
Stroke	3,000 mm	Y: max. 3,000 mm, Z: 800 mm	X: max. 3,000 mm, Y: 2,000 mm	X: max. 700 mm, Y: 360 mm
Modules	electric	Y: electric, Z: electric and pneumatic	X: electric, Y: electric	X: electric, Y: electric
Payload	dependent on the dynamic response selected	dependent on the dynamic response selected	dependent on the dynamic response selected	0 ... max. 3 kg
Description	<ul style="list-style-type: none"> Ready-to-install single-axis solution incl. energy chain for routing cables and tubing as well as matching motor and motor controller package For any single-axis movement Ideal for long gantry strokes and heavy loads High mechanical rigidity and sturdy design 	<ul style="list-style-type: none"> Ideal for long gantry strokes and heavy loads High mechanical rigidity and sturdy design Common area of application: feeding Use of proven drives/axes from Festo 	<ul style="list-style-type: none"> Can be used universally for light to very heavy workpieces or high payloads Particularly suitable for very long strokes High mechanical rigidity and sturdy design Freely positionable/any intermediate positions 	<ul style="list-style-type: none"> High functionality in confined spaces Low moving mass Actuation via two stepper motors with integrated optical encoder and two-axis controller With plain-bearing guide or with recirculating ball bearing guide
→ Page/online	yxcs	yxcl	xyf	excm


Cartesian systems

	
Type	3D gantry YXCR
Stroke	X: max. 3000 mm, Y: 2000 mm, Z: 800 mm
Modules	X: electric, Y: electric, Z: electric or pneumatic
Payload	dependent on the dynamic response selected
Description	<ul style="list-style-type: none"> • Can be used universally for light to very heavy workpieces or high payloads • Particularly suitable for very long strokes • High mechanical rigidity and sturdy design • Pneumatic and electric components can be freely combined • As an electric solution -- freely positionable/any intermediate positions
→ Page/online	yxcr

Parallel kinematic systems

	
Type	Parallel kinematic, Tripod EXPT
Max. effective load	5 kg
Working space nominal diameter	450 ... 1,200 mm
Working space nominal height	100 mm
Max. picking rate	150 picks/min in 12" cycle
Description	<ul style="list-style-type: none"> • Low moving mass – ideal for high demands on dynamic response in three dimensions • Great path accuracy with a range of path profiles, even for very dynamic operation
→ Page/online	expt

Control systems

	
Type	Control system CMCA
Electrical connection	Spring-loaded terminal
Mains voltage AC	230/400 V
Nominal operating voltage phases	3-phase
Mains frequency	50 ... 60 Hz
Safety function	Safe Stop 1 (SS1)
Description	<ul style="list-style-type: none"> • Control solution for handling systems from Festo • Available as a mounting plate with or without control cabinet housing • Includes the multi-axis controller CMXR and the motor controller CMMP required for actuation
→ Page/online	cmca

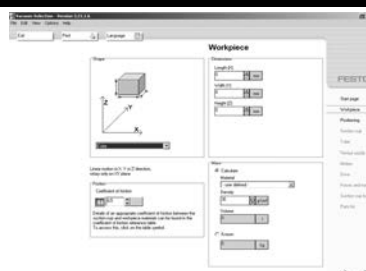
Note

Control cabinets for controllers in handling systems → Page 1110





7 Vacuum technology



Software tool





<p>Vacuum selection</p> 	<p>Which suction cup for which surface and which movement? Don't experiment – calculate! This software tool even enables a differentiation to be made between linear and rotary movements.</p>	<p>This tool can be found</p> <ul style="list-style-type: none"> • either in the electronic catalogue by clicking on the blue button "Engineering" • or on the DVD under Engineering Tools.
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Vacuum generators


Type	 Vacuum generator OVEM	 Vacuum generator, pneumatic VN, VN-P, VN-A	 Vacuum generator VAD	 Vacuum generator VAK
Nominal size of laval nozzle	0.45 ... 2.0 mm	0.45 ... 3 mm	0.5 ... 1.5 mm	1 mm
Ejector characteristics	Standard, high suction rate, high volume	Inline, standard, high suction rate, high volume	High vacuum	High vacuum
Integrated function	Electric ejector pulse valve, flow control valve, electric on-off valve, filter, electric air economy circuit, non-return valve, open silencer, vacuum switch	Pneumatic ejector pulse, open silencer, vacuum switch		Pneumatic ejector pulse
Max. vacuum	93%	86 ... 93%	80%	80%
Max. suction rate with respect to atmosphere	6 ... 92 l/min	6.1 ... 339 l/min		
Description	<ul style="list-style-type: none"> • Compact design • Monitoring and visualisation of the vacuum by means of vacuum sensor with LCD display • Central electrical connection via an M12 plug • Maintenance-free operation and reduced noise level through an integrated, open silencer • Integrated filter with inspection window for maintenance display • Adjustable ejector pulse 	<ul style="list-style-type: none"> • Can be used directly in the work space • Available as straight type (inline: vacuum port in line with supply port) or T-shape (standard: vacuum port at 90° to supply port) • Cost-effective • No wearing parts 	<ul style="list-style-type: none"> • Sturdy aluminium housing • Connection for additional external reservoir • Maintenance-free • See product documentation on our website for max. suction rate 	<ul style="list-style-type: none"> • Sturdy aluminium housing • Connection for additional external reservoir • Built-in reservoir • Reliable setting down of workpieces • See product documentation on our website for max. suction rate
→ Page/online	ovem	vn	vad	vak

7




Vacuum generators

				
Type	Vacuum generator, electro-pneumatic VN	Vacuum generator VADM, VADMI	Vacuum generator VAD-M, VAD-M-I	Vacuum generator for valve terminal CPV CPV10-M1H, CPV14-M1H, CPV18-M1H
Nominal size of laval nozzle	0.45 ... 3 mm	0.45 ... 3 mm	0.7 ... 2 mm	0.7 ... 1.4 mm
Ejector characteristics	Standard, high suction rate, high volume	High vacuum	High vacuum	High vacuum
Integrated function	Pneumatic ejector pulse, electric on-off valve	Electric ejector pulse valve, flow control valve, electric on-off valve, filter, electric air economy circuit, non-return valve, vacuum switch	Electric ejector pulse valve, electric on-off valve	
Max. vacuum	92 ... 93%	85%	85 ... 90%	85%
Max. suction rate with respect to atmosphere	7.2 ... 186 l/min			
Description	<ul style="list-style-type: none"> • Can be used directly in the work space • Cost-effective • No wearing parts • With solenoid valve for vacuum ON/OFF 	<ul style="list-style-type: none"> • Compact and sturdy design • Integrated solenoid valve (On/off) • Filter with contamination indicator • Available with air economy circuit, vacuum switch • Reliable setting down of workpieces • See product documentation on our website for max. suction rate 	<ul style="list-style-type: none"> • Compact and sturdy design • Integrated solenoid valve (On/off) • Reliable setting down of workpieces • Maintenance-free because there are no moving parts 	<ul style="list-style-type: none"> • Combinations with a number of vacuum generators are possible on the same valve terminal • With solenoid valve for vacuum ON/OFF • With or without ejector pulse
→ Page/online	vn	vadm	vad-m	cpv10-m1h



Vacuum generators

	
Type	Vacuum generator cartridge VN
Nominal size of laval nozzle	0.45 ... 2 mm
Ejector characteristics	Standard, high suction rate, high volume
Integrated function	
Max. vacuum	92... 93%
Max. suction rate with respect to atmosphere	7.2 ... 184 l/min
Description	<ul style="list-style-type: none"> • For fitting into customised housing for decentralised vacuum generation
→ Page/online	vn


Vacuum gripping technology

			
Type	Bernoulli gripper OGGB	Suction gripper ESG	Suction cup ESS
Suction cup size		10x30 mm, 15x45 mm, 20x60 mm, 25x75 mm, 30x90 mm, 4x10 mm, 4x20 mm, 6x10 mm, 6x20 mm, 8x20 mm, 8x30 mm	10x30 mm, 15x45 mm, 20x60 mm, 25x75 mm, 30x90 mm, 4x10 mm, 4x20 mm, 6x10 mm, 6x20 mm, 8x20 mm, 8x30 mm
Suction cup diameter	60 mm, 100 mm, 140 mm	2 ... 200 mm	2 ... 200 mm
Breakaway force at 70% vacuum		0.1 ... 1,610 N	0.1 ... 1,610 N
Design		Oval, round, bellows 1.5 convolutions, round, bellows 3.5 convolutions, round, round, round, extra- deep	Oval, round, bellows 1.5 convolutions, round, bel- lows 3.5 convolutions, round, round, round, extra- deep
Information on materials Suction cup	POM, NBR	FPM, NBR, PUR, TPE-U(PU), VMQ (silicone), BR	FPM, NBR, PUR, TPE-U(PU), VMQ (silicone), BR
Description	<ul style="list-style-type: none"> • Ideally suited to transporting thin, extremely delicate and brittle workpieces • Minimised workpiece contact, gentle workpiece handling • Low energy costs thanks to minimised air consumption • Minimal assembly and installation 	<ul style="list-style-type: none"> • Modular system of suction cup holder and suction cup with over 2,000 variants • Available with angle compensator, height compensator, filter • 15 suction cup diameters • 6 suction cup shapes • Suction cup volume: 0.002 ... 245 cm³ • Min. workpiece radius: 10 ... 680 mm • Vacuum port: push-in connector or barbed fitting for plastic tubing, threaded connection 	<ul style="list-style-type: none"> • Suction cup consisting of the suction cup itself, plus the support plate with mounting • Suction cup volume: 0.002 ... 245 cm³ • Min. workpiece radius: 10 ... 680 mm • Mounting for suction cup holder: female thread, male thread, push-in connector
→ Page/online	oggb	esg	ess

Vacuum gripping technology

		
Type	Suction cup ESV	Suction cup VAS, VASB
Suction cup size		
Suction cup diameter	20 ... 200 mm	2 ... 125 mm
Breakaway force at 70% vacuum	9.8 ... 1,610 N	0.14 ... 606 N
Design	round, bellows 1.5 convolutions, round, bellows 3.5 convolutions, round, round, round, extra-deep	Vacuum port on top, vacuum port on side, round, bellows 1.5 convolutions, round
Information on materials Suction cup	FPM, NBR, PUR, TPE-U(PU), VMQ (silicone), BR	NBR, PUR, TPE-U(PU), VMQ (silicone)
Description	<ul style="list-style-type: none"> • Suction cup wearing part • Easily interchangeable • Suction cup volume: 0.318 ... 245 cm³ • Min. workpiece radius: 10 ... 680 mm 	<ul style="list-style-type: none"> • Sturdy and reliable • Suction cups with fixed connecting thread • 11 suction cup diameters • Round suction cup shape, bellows • Vacuum port on top, at side • Free of copper, PTFE and silicone • Screw-in thread
→ Page/online	esv	vas

Assembly and connection components





	Suction cup holder ESH
Type	
Design	Vacuum port on top, vacuum port on side, with height compensator
Description	<ul style="list-style-type: none"> • With or without height compensator • 6 holder sizes • 8 holder types • 3 tubing connections
→ Page/online	esh

Accessories for vacuum

			
Silencer UO/UOM Silencer extension UOMS	Vacuum security valve ISV	Vacuum gauge VAM/FVAM	Vacuum filter VAF
Type			
Description	<ul style="list-style-type: none"> • For vacuum generator VN • Facilitates trouble-free operation of the vacuum generator 	<ul style="list-style-type: none"> • For maintaining the vacuum when using multiple suction cups and one fails • Gripping of randomly placed products 	<ul style="list-style-type: none"> • EN 837-1 • Optionally with red/green range • Analogue display • For front panel mounting
→ Page/online	uo	isv	vam

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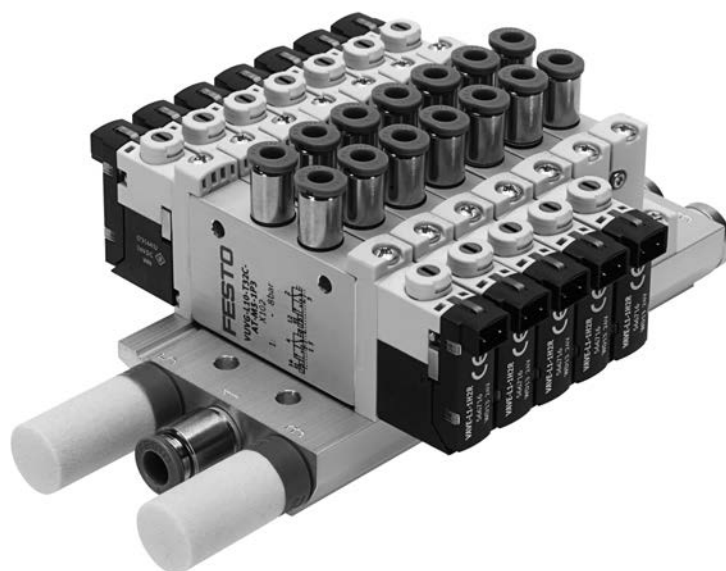
Accessories for vacuum

			
Height compensator VAL	Filter ESF	Elbow fitting LJK	Angle compensator ESWA
Type			
Description	<ul style="list-style-type: none"> • Vacuum port M5, G1/8, G1/4 	<ul style="list-style-type: none"> • Vacuum port M4x0.7, M6x1 • Grade of filtration 10 µm 	<ul style="list-style-type: none"> • Vacuum port M5, G1/8, G1/4
→ Page/online	val	esf	ljk





Accessories for vacuum

	Adapter AD
Type	
Description	<ul style="list-style-type: none"> • Vacuum port M5, G1/8, G1/4, G3/8
→ Page/online	ad





8 Valves




Standard directional control valves

Type	 Solenoid valve VSNC	 Standard valve with round plug VSVA-R5, VSVA-R2	 Standard valve with square plug VSVA-C1	 Standard valve, plug-in VSVA-T1
Actuation type	Electric	Electric	Electric	Electric
Pneumatic connection 1	G1/4, NPT1/4	Sub-base size 42 mm to ISO 5599-1, sub-base size 52 mm to ISO 5599-1	Sub-base size 18 mm to ISO 15407-1, sub-base size 26 mm to ISO 15407-1	Sub-base size 1 to ISO 5599-2, sub-base size 2 to ISO 5599-2, sub-base size 18 mm to ISO 15407-2, sub-base size 26 mm to ISO 15407-2
Standard nominal flow rate	950 ... 1,350 l/min, 90 ... 780 l/min	400 ... 2,800 l/min	400 ... 1,100 l/min	400 ... 2,900 l/min
Valve function	5/2-way double solenoid, 5/2-way or 3/2-way convertible, 5/2-way single solenoid, 5/3-way pressurised, 5/3-way exhausted, 5/3-way closed	5/2-way, double solenoid, 5/2-way, double solenoid, dominant, 5/2-way, single solenoid, 5/3-way, closed, 5/3-way, exhausted, 5/3-way, pressurised, 2x3/2-way, single solenoid, closed, 3/2-way, single solenoid, open/closed, 2x3/2-way, single solenoid, open/closed, 2x3/2-way, single solenoid, open	5/2-way, double solenoid, 5/2-way, double solenoid, dominant, 5/2-way, single solenoid, 5/3-way, closed, 5/3-way, exhausted, 5/3-way, pressurised, 2x3/2-way, single solenoid, closed, 2x3/2-way, single solenoid, open/closed, 2x3/2-way, single solenoid, open	5/2-way, single solenoid, 5/2-way, double solenoid, 5/2-way, double solenoid, dominant, 5/3-way, port 2 pressurised, 4 exhausted, 5/3-way, closed, 5/3-way, exhausted, 5/3-way, pressurised 1 to 2, 4 to 5 closed, 5/3-way, pressurised, 2x2/2-way, single solenoid, closed, 2x3/2-way, single solenoid, closed, 2x3/2-way, single solenoid, open, 2x3/2-way, single solenoid, open/closed
Electrical connection	3-pin, type B, to industrial standard (11 mm), plug	3-pin, 4-pin, M12x1, M8x1, round design, central plug	Type C, with protective earth conductor, to DIN EN 175301-803, to EN 175301-803, without protective earth conductor	2-pin, 4-pin, to ISO 15407-2, to ISO 5599-2, plug-in, plug
Description	<ul style="list-style-type: none"> NAMUR interface ideal for use with process valves in many industry segments and applications, e.g. in chemical, biotech/pharma, water/wastewater Changeable seal for 3/2-way or 5/2-way valve Wide choice of EX solenoid systems Sturdy and powerful Extended temperature range Excellent price/performance ratio 	<ul style="list-style-type: none"> Corresponds to ISO 15407-1 and to ISO 15218 for pilot valve with interface High-performance valves in sturdy metal housing Manifold assembly with mixed sizes possible Wide range of vertical stacking modules: pressure regulator plate, flow control plate, vertical pressure shut-off plate, etc. 	<ul style="list-style-type: none"> Corresponds to ISO 15407-1 and to ISO 15218 for pilot valve with interface High-performance valves in sturdy metal housing Manifold assembly with mixed sizes possible Wide range of vertical stacking modules: pressure regulator plate, flow control plate, vertical pressure shut-off plate, etc. 	<ul style="list-style-type: none"> For valve terminal VTSA/VTSA-F High-performance valves in sturdy metal housing
→ Page/online	vsnc	597	597	vtsa





Standard directional control valves

				
Type	Pneumatic valve, to ISO 15407-1 VSPA	Solenoid valve, to ISO 5599-1 MN1H, MFH, MDH, MEBH, MDH, JMN1H, JMN1DH, JMFH, JMFHD, JMDH, JMEBH, JMEBDH, JMDDH	Pneumatic valve, to ISO 5599-1 VL, J, JD	Standard valves to ISO 15218 (CNOMO) MD, MDH, MGXDH, MGXIAH, VSCS
Actuation type	Pneumatic	Electric	Pneumatic	Electric
Pneumatic connection 1	Sub-base size 18 mm to ISO 15407-1, sub-base size 26 mm to ISO 15407-1	Sub-base, sub-base size 1 to ISO 5599-1, sub-base size 2 to ISO 5599-1, sub-base size 3 to ISO 5599-1, sub-base size 4 to ISO 5599-1	Sub-base size 1 to ISO 5599-1, sub-base size 2 to ISO 5599-1, sub-base size 3 to ISO 5599-1, sub-base size 4 to ISO 5599-1	Sub-base
Standard nominal flow rate	400 ... 1,100 l/min	1,100 ... 6,000 l/min	1,200 ... 6,000 l/min	13 ... 50 l/min
Valve function	2x3/2-way, monostable, closed, 2x3/2-way, monostable, open, 2x3/2-way, monostable, open/closed, 5/2-way, bistable, 5/2-way, bistable, dominant, 5/2-way, monostable, 5/3-way, pressurised, 5/3-way, exhausted, 5/3-way, closed	5/2-way, double solenoid, 5/2-way, double solenoid, dominant, 5/2-way, single solenoid, 5/3-way, pressurised, 5/3-way, exhausted, 5/3-way, closed	5/2-way, bistable, 5/2-way, bistable, dominant, 5/2-way, monostable, 5/3-way, pressurised, 5/3-way, exhausted, 5/3-way, closed	3/2-way, single solenoid, closed
Electrical connection		Type A, M12x1, plug, central plug, to DIN 43650, round design, square design		Type A, type C, M12x1, to DIN EN 175301-803, to IEC 61076-2-101
Description	<ul style="list-style-type: none"> Sturdy metal design Manifold assembly with mixed sizes possible Wide range of vertical stacking modules: pressure regulator plate, flow control plate, vertical pressure shut-off plate, etc. 	<ul style="list-style-type: none"> Sturdy metal design ISO size 1, 2, 3 and 4 Manifold assembly with mixture of ISO sizes 1/2/3 possible Extensive range of electrical connection options Wide range of vertical stacking modules: pressure regulator plate, flow control plate, vertical pressure shut-off plate, etc. Also available as a valve terminal 	<ul style="list-style-type: none"> Sturdy metal design ISO size 1, 2, 3 and 4 Individual assembly, manifold assembly 	<ul style="list-style-type: none"> CNOMO port pattern, to ISO 15218 Pilot valve with and without manual override
→ Page/online	597	613	iso 5599-1	iso 15218


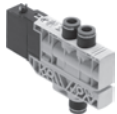


Standard directional control valves

	
Type	Solenoid valve, to NAMUR (VDI/VDE 3845) NVF3, MFH, MN1H, MGTBH, VSNB
Actuation type	Electric
Pneumatic connection 1	Sub-base, G1/4
Standard nominal flow rate	400 ... 1,000 l/min
Valve function	5/2-way, double solenoid, 5/2-way and 3/2-way, single solenoid, 5/2-way, single solenoid, 5/2-way or 3/2-way, single solenoid
Electrical connection	Socket, type A, M20x1.5, to DIN 43650, to DIN EN 175301-803, screw terminal, plug, square design
Description	<ul style="list-style-type: none"> Port pattern to NAMUR Direct mounting on drives Optional variants for use in Ex zone I Flat design
→ Page/online	namur





Universal directional control valves

Type	 Solenoid valve VUVS	 Pneumatic valve VUVS	 Pneumatic valve VUWG	 Solenoid valve, plug-in VUVG
Actuation type	Electric	Pneumatic	Pneumatic	Electric
Pneumatic connection 1	G1/8, G1/4	G1/8, G1/4	G1/8, M3, M5, M7	G1/4, G1/8, M3, M5, M7
Standard nominal flow rate	600 ... 1,300 l/min	600 ... 1,300 l/min	90 ... 780 l/min	80 ... 1,380 l/min
Valve function	3/2-way single solenoid, closed, 3/2-way, single solenoid, open, 5/2-way double solenoid, 5/2-way single solenoid, 5/3-way pressurised, 5/3-way exhausted, 5/3-way closed	3/2-way single solenoid, closed, 3/2-way, single solenoid, open, 5/2-way double solenoid, 5/2-way single solenoid, 5/3-way pressurised, 5/3-way exhausted, 5/3-way closed	2x3/2-way, monostable, closed, 2x3/2-way, monostable, open, 2x3/2-way, monostable, open/closed, 5/2-way, bistable, 5/2-way, monostable, 5/3-way, pressurised, 5/3-way, exhausted, 5/3-way, closed	2x3/2-way single solenoid, closed, 2x3/2-way single solenoid, open, 2x3/2-way single solenoid, open/closed, 3/2-way single solenoid, closed, 3/2-way single solenoid, open, 5/2-way double solenoid, 5/2-way single solenoid, 5/3-way pressurised, 5/3-way exhausted, 5/3-way closed, 2x3/2-way single solenoid, closed, 2x3/2-way single solenoid, open/closed, 2x3/2-way single solenoid, open
Electrical connection	type C			Via E-box
Description	<ul style="list-style-type: none"> Reliable, sturdy and durable valve Cost-effective universal valve without compromising the performance data In-line valves can be used as individual valves or manifold valves for manifold assembly VTUS 	<ul style="list-style-type: none"> Reliable, sturdy and durable valve Cost-effective universal valve without compromising the performance data In-line valves can be used as individual valves or manifold valves for manifold assembly VTUS 	<ul style="list-style-type: none"> Compact universal valve Easy mounting High flow rate relative to its size Can be mounted as an individual valve or sub-base valve on a sturdy aluminium manifold rail Individual valve of the VG series 	<ul style="list-style-type: none"> Specific I-Port interface from Festo for fieldbus node IO-Link mode for direct connection to a higher-level IO-Link master Festo-specific I-Port interface with interlock Variable multi-pin plug connection using Sub-D or flat cable Reversible piston spool valves, up to 24 valve positions
→ Page/online	vuwg	vuwg	vuwg	635




Universal directional control valves

Type	 Solenoid valve, for individual connection VUVG	 Solenoid valve VUVB	 Solenoid valve CPE10, CPE14, CPE18, CPE24	 Solenoid valve VMPA1, VMPA14, VMPA2
Actuation type	Electric	Electric	Electric	Electric
Pneumatic connection 1	G1/4, G1/8, M3, M5, M7	Sub-base, QS4, QS-6, QS-8, QS10	G1/8, G1/4, G3/8, M5, M7, QS-4, QS-6, QS-8, QS-10, QS-12	G1/8, M7
Standard nominal flow rate	130 ... 630 l/min	200 ... 1,000 l/min	180 ... 3,200 l/min	360 ... 870 l/min
Valve function	2x3/2-way, single solenoid, closed, 2x3/2-way, single solenoid, open, 2x3/2-way, single solenoid, open/closed, 5/2-way, double solenoid, 5/2-way, single solenoid, 5/3-way, pressurised, 5/3-way, exhausted, 5/3-way, closed	3/2-way, single solenoid, closed, 3/2-way, single solenoid, open, 4/2-way, double solenoid, 4/2-way, single solenoid	3/2-way, single solenoid, closed, 3/2-way, single solenoid, open, 5/2-way, double solenoid, 5/2-way, single solenoid, 5/3-way, pressurised, 5/3-way, exhausted, 5/3-way, closed	2x2/2-way, single solenoid, closed, 2x3/2-way, single solenoid, closed, 2x3/2-way, single solenoid, open, 2x3/2-way, single solenoid, open/closed, 3/2-way, single solenoid, closed, 3/2-way, single solenoid, open, 5/2-way, double solenoid, 5/2-way, single solenoid, 5/3-way, pressurised, 5/3-way, exhausted, 5/3-way, closed
Electrical connection	Via sub-base	Type C, plug-in for multi-pin plug, plug, to EN 175301-803, via sub-base	2-pin, 4-pin, type C, M8x1	4-pin, M8x1, plug
Description	<ul style="list-style-type: none"> Connection technology via E-box Sturdy and durable metal components In-line valves can be used as individual valves or manifold valves Individual valve from the VG series 	<ul style="list-style-type: none"> In-line valve Semi in-line valve Sub-bases for individual valves Manifold rail for valve manifold with individual electrical connection or for valve terminal with electrical multi-pin connection 	<ul style="list-style-type: none"> High flow rate relative to its size Wide range of functions Comprehensive valve range 	<ul style="list-style-type: none"> Supplements the valve terminals MPA Mounted on individual sub-base Comprehensive valve range
→ Page/online	635	vuvb	cpe	vmpa1





Universal directional control valves

				
Type	Solenoid valve, pneumatic valve, Tiger 2000 MFH, MVH, JMFH, JMVH, VL, J	Solenoid valve, pneumatic valve, Tiger Classic MFH, MOFH, JMFH, JMFDH, VL/O, VL, JH, JDH	Solenoid valve, pneumatic valve, midi pneumatic MEBH, MOEBH, MEH, MOEH, JMEBH, JMEH, VL, J	Cassette valve C, CJ, CJM, CL, CM
Actuation type	Electric, pneumatic	Electric, pneumatic	Electric, pneumatic	Electric, pneumatic
Pneumatic connection 1	Sub-base, G1/4, G1/8, G3/8	Sub-base, G1/2, G1/4, G1/8, G3/4	Sub-base, G1/8	Sub-base, G1/4, G1/2
Standard nominal flow rate	700 ... 2,600 l/min	500 ... 7,500 l/min	200 ... 700 l/min	1,400 l/min
Valve function	5/2-way, double solenoid/bistable, 5/2-way, single solenoid/monostable, closed, 5/2-way, single solenoid/mono- stable, 5/3-way, pressurised, 5/3-way, exhausted, 5/3-way, closed	3/2-way, single solenoid/monostable, closed, 3/2-way, single solenoid/mono- stable, open, 5/2-way, double solenoid/ bistable, 5/2-way, double solenoid/ bistable, dominant, 5/2-way, single solenoid/monostable, closed, 5/2-way, single solenoid/monostable, 5/3-way, pressurised, 5/3-way, exhausted, 5/3-way, closed	3/2-way, single solenoid/monostable, closed, 3/2-way, single solenoid/mono- stable, open, 5/2-way, double solenoid/ bistable, 5/2-way, single solenoid/ monostable, 5/3-way, pressurised, 5/3-way, exhausted, 5/3-way, closed	5/2-way, double solenoid/bistable, 5/2-way, single solenoid/monostable
Electrical connection	Type B, to EN 175301-803, via F coil, to be ordered separately	Via F coil, to be ordered separately	Plug, square design to EN 175301-803, type C	
Description	<ul style="list-style-type: none"> Sturdy and reliable Wide range of voltages 	<ul style="list-style-type: none"> Sturdy and reliable Wide range of voltages All-metal valve 	<ul style="list-style-type: none"> Semi in-line valve Sub-base valve Midi pneumatic: 18 mm width Manifold assembly for 2 ... 10 valves or individual mounting Operating voltage 24 V DC, 110/230 V AC (50 ... 60 Hz) 	<ul style="list-style-type: none"> Sturdy For direct mounting on sub-base With and without manual override
→ Page/online	tiger 2000	673	mebh	cm





Universal directional control valves

			
Type	Solenoid valves supplementary range BMCH, BMFH, JMC, JMF, MC, MCH, MF, MFH, MLC, MOCH, MOFH	Pneumatic valves supplementary range A, VL	Basic valve LC
Actuation type	Electric		Pneumatic, electric
Pneumatic connection 1	Sub-base, M5, G1/8, G1/4, G1/2, G3/8, G3/4	G1/4, G3/8, PK-3	G1/8, G1/4
Standard nominal flow rate	46 ... 7,500 l/min	105 ... 1,800 l/min	80 ... 600 l/min
Valve function	2/2-way, single solenoid, closed, 2x3/2-way, single solenoid, closed, 3/2-way, single solenoid, closed, 3/2-way, single solenoid, open, 3x3/2-way, single solenoid, closed, 4/2-way, double solenoid, 4/2-way, single solenoid, 5/2-way, single solenoid, 5/3-way, pressurised, 5/3-way, exhausted, 5/3-way, closed, 5/4-way, closed	5/2-way, bistable, 5/2-way, monostable, 8/2-way, monostable	3/2-way directly actuated, 5/4-way indirectly actu- ated
Electrical connection	Plug, via F coil, to be ordered separately		
Description	<ul style="list-style-type: none"> With and without manual override Manifold mounting or individual valve Valves MC are especially suitable for positioning, for stopping in the event of an emergency-stop and for holding double-acting cylinders in any position 	<ul style="list-style-type: none"> For actuating cylinders for single stroke and oscil- lating movements For positioning, for stopping in the event of an emergency-stop and for holding double-acting cyl- inders in any position For controlling functions of pneumatic feed units such as feed motions and reciprocal clamping Actuation either manually by means of switch lever, mechanically by means of control stem or pneumatically 	<ul style="list-style-type: none"> Screw-in actuator attachments For positioning, for stopping in the event of an emergency-stop and for holding double-acting cyl- inders in any position
→ Page/online	bmch	vl	lc



Application-specific directional control valves

Type	 Control block VOFA	 Solenoid valve VOFD	 Solenoid valve VOFC	 Solenoid valve VOVG
Design	Piston spool valve	Directly actuated poppet valve	Soft-switching piston valve, piloted piston poppet valve	Piston spool valve
Valve function	3/2-way, single solenoid, closed, 5/2-way, single solenoid	3/2-way, single solenoid, closed	3/2-way, single solenoid, closed, 5/2-way, double solenoid, 5/2-way, single solenoid	3/2-way, single solenoid, closed, 3/2-way, single solenoid, open, 5/2-way, single solenoid
Operating pressure	3 ... 10 bar	0 ... 10 bar	2 ... 8 bar	-0.9 ... 8 bar
Ambient temperature	-5 ... 50 °C	-10 ... 60 °C	-25 ... 60 °C	-5 ... 50 °C
Pneumatic connection 1	G1/4	G1/4, NAMUR Port pattern	G1/2, G1/4, NPT1/4-18, NAMUR Port pattern	Sub-base M5, M7
Standard nominal flow rate	950 ... 1,050 l/min	450 l/min	600 ... 3,000 l/min	180 ... 200 l/min
Description	<ul style="list-style-type: none"> • Can be used as a press safety valve for safe reversing of a hazardous movement • Can be selected as a decentralised individual connection variant with electrical and pneumatic individual connection or as a feature integrated in the valve terminal VTSA/VTSA-F • Sturdy and durable metal design • Designed as a purely mechanical solution with regard to safety 	<ul style="list-style-type: none"> • For outdoor use under harsh ambient conditions, e.g. in refineries thanks to sturdy design and high corrosion resistance • Ideally suited to the area of process automation, for use in chemical and petrochemical plants • Especially suitable for quarter turn actuators thanks to flange pattern to NAMUR • Variants with TÜV approval up to SIL4 to IEC 61508 	<ul style="list-style-type: none"> • For outdoor use under harsh ambient conditions, e.g. in refineries thanks to sturdy design and high corrosion resistance • Ideally suited to the area of process automation, for use in chemical and petrochemical plants • Variants with TÜV approval up to SIL4 to IEC 61508 • Shuttle valve can switch between internal and external pilot air • Especially suitable for quarter turn actuators thanks to flange pattern to NAMUR 	<ul style="list-style-type: none"> • For compact handling applications or for solutions requiring an extremely high component density • For applications in the electronics and light assembly industries • In-line valve • Semi in-line valve • Sub-base valve • Direct mounting, manifold assembly • Manifold rail for 2 ... 10 valves • Width 10, 12, 25 mm • Operating voltage 5, 12 or 24 V DC
→ Page/online	vofa	vofd	vofc	vovg



Application-specific directional control valves

				
Type	Solenoid valve MHA1, MHP1	Solenoid valve MHE2, MHP2, MHA2, MHE3, MHP3, MHA3, MHE4, MHP4, MHA4	Solenoid valve CDVI5.0	Solenoid valve MHJ9, MHJ10
Design	Poppet valve with spring return	Poppet valve with pressure relief	Piston valve	Poppet valve without spring return
Valve function	2/2-way, single solenoid, closed, 2x2/2-way, single solenoid, closed, 3/2-way, single solenoid, closed, 3/2-way, single solenoid, open	3/2-way, single solenoid, closed, 3/2-way, single solenoid, open, 5/2-way, single solenoid	2/2-way, single solenoid, closed, 2/2-way, single solenoid, open, 2x3/2-way, single solenoid, closed, 2x3/2-way, single solenoid, open, 3/2-way, single solenoid, closed, 3/2-way, single solenoid, open, 5/2-way, double solenoid, 5/2-way, single solenoid, 5/3-way, pressurised, 5/3-way, exhausted, 5/3-way, closed	2/2-way, single solenoid, closed
Operating pressure	-0.9 ... 8 bar	-0.9 ... 8 bar	-0.9 ... 10 bar	0.5 ... 8 bar
Ambient temperature	-5 ... 50 °C	-5 ... 60 °C	-5 ... 50 °C	-5 ... 60 °C
Pneumatic connection 1	Sub-base, QS-3, QS-4, prepared for QSP10	Sub-base, G1/4, G1/8, M7, QS-4, QS-8	Sub-base	Sub-base, QS-4, QS-6
Standard nominal flow rate	10 ... 30 l/min	90 ... 400 l/min	300 ... 650 l/min	50 ... 160 l/min
Description	<ul style="list-style-type: none"> • Semi in-line valve • Sub-base valve • Miniature valve: grid dimension 10 mm • Sub-bases • Manifold block for 2 ... 10 valves • Switching times down to 4 ms • Operating voltage 5, 12 or 24 V DC 	<ul style="list-style-type: none"> • In-line valve • Semi in-line valve • Sub-base valve • Fast-switching valve: switching times down to 2 ms • Direct mounting, individual sub-base, manifold assembly • Manifold block for 2 ... 10 valves • Grid dimension 14, 19, 24 mm • Operating voltage 24 V DC 	<ul style="list-style-type: none"> • Sub-base valve • Corrosion-resistant • Easy-to-clean design • Also available as valve terminal CDVI • Operating voltage 24 V DC 	<ul style="list-style-type: none"> • Sub-base valve • Individual valve with integrated QS fitting • For very fast sorting applications with up to 1,000 Hz • Very long service life > 2 billion switching cycles • Outstanding reproducibility
→ Page/online	mh1	mh2	cdvi5.0	Mhj9





Application-specific directional control valves

		
Type	Pneumatic and solenoid valves, M5 Compact System J, JD, JMFH, MFH, MUFH, VD, VL/O, VL	Valve for pneumatic feed unit BV MLC-8, VL-8
Design	Piston valve, disc seat valve	Piston valve, disc seat valve
Valve function	3/2-way, double solenoid/bistable, 3/2-way, single solenoid/monostable, closed, 3/2-way, single solenoid/monostable, open, 5/2-way, double solenoid/bistable, 5/2-way, double solenoid/bistable, dominant, 5/2-way, single solenoid/ monostable, 8/2 single solenoid/monostable	8/2-way, single solenoid/monostable
Operating pressure	-0.9 ... 10 bar	1.5 ... 10 bar
Ambient temperature	-10 ... 60 °C	-10 ... 60 °C
Pneumatic connection 1	G3/8, PK-3	G3/8, PK-3
Standard nominal flow rate	50 ... 1,800 l/min	105 ... 1,800 l/min
Description	<ul style="list-style-type: none"> • Complete system offering control components with all the functions required for pneumatic sequence controls • For control cabinet installation • Fast replacement of components 	<ul style="list-style-type: none"> • For controlling feed motion and reciprocal clamping in pneumatic feed units
→ Page/online	m5 compact	mlc



Manually actuated directional control valves: Swivel lever valves

		
Type	Hand lever valve VHER	Hand lever valve H-3-1/4-B, H-5-1/4-B
Valve function	4/3-way exhausted, 4/3-way closed	3/2-way monostable, 5/2-way bistable
Type of control	Direct	Direct, piloted
Standard nominal flow rate	170 ... 4,300 l/min	550 ... 600 l/min
Pneumatic working port	G1/2, G1/4, G1/8, M5	G1/4
Operating pressure	-0.95 ... 10 bar	-0.95 ... 10 bar
Description	<ul style="list-style-type: none"> • With lever and detent • Lever in metal or polymer design • Front panel mounting, through or mounting holes • Can also be used as 3/3-way valve by sealing port 2 	<ul style="list-style-type: none"> • With hand lever • Die-cast aluminium design
→ Page/online	vher	n_v14





Manually actuated directional control valves: Pushbutton valves

				
Type	Pushbutton valve VHEM-P	Pushbutton valve K/O-3-PK	Pushbutton valve K-3-M5	Pushbutton valve T-5/3-1/4
Valve function	5/2-way, bistable, 5/2-way, monostable, 3/2-way, bistable, 3/2-way, monostable, closed, 3/2-way, monostable, open	3/2-way, monostable, open/closed	3/2-way, monostable, closed	5/3-way, closed
Type of control	Direct, piloted	Direct	Direct	Piloted
Standard nominal flow rate	500 l/min, 1,000 l/min	80 l/min	80 l/min	680 l/min
Pneumatic working port	G1/8, G1/4	PK-3	M5	G1/4
Operating pressure	-0.95 ... 10 bar	0 ... 8 bar	-0.95 ... 8 bar	2 ... 10 bar
Description	<ul style="list-style-type: none"> • With button switch • Reverse operation possible • Fast assembly 	<ul style="list-style-type: none"> • With button switch • Polymer design • Ducted exhaust air 	<ul style="list-style-type: none"> • With button switch • Suitable for vacuum operation • Sturdy die-cast zinc design 	<ul style="list-style-type: none"> • With pushbutton • For positioning, for stopping in the event of an emergency-stop and for holding a double-acting cylinder in any position • Aluminium design
→ Page/online	vhem-p	n_vpk	k-3	n_msv



Manually actuated directional control valves: Pushbutton valves

		
Type	Heavy-duty palm button valve PV-3-1/8	Pushbutton valve F-3-M5
Valve function	3/2-way, monostable, closed	3/2-way, monostable, closed
Type of control	Direct	Direct
Standard nominal flow rate	80 l/min	80 l/min
Pneumatic working port	G1/8	M5
Operating pressure	-0.95 ... 8 bar	-0.95 ... 10 bar
Description	<ul style="list-style-type: none"> • With large actuating surface • For heavy-duty actuation • Suitable for vacuum operation 	<ul style="list-style-type: none"> • With pedal • Suitable for vacuum operation • Sturdy die-cast zinc design
→ Page/online	pv-3	f-3-m5



Manually actuated directional control valves: Finger lever valves

				
Type	Finger lever valve VHEM-L, VHEM-LT	Finger lever valve TH/O-3-PK-3	Finger lever valve TH-3-M5, TH-3-1/4-B, TH-5-1/4-B, THO-3-1/4-B	Finger lever valve H-4/3
Valve function	3/2-way, monostable, closed, 3/2-way, monostable, open, 5/2-way, monostable	3/2-way, monostable, closed	3/2-way, monostable, closed, 3/2-way, monostable, open, 5/2-way, monostable	4/3-way exhausted, 5/3-way closed
Type of control	Direct	Direct	Direct	Piloted
Standard nominal flow rate	500 l/min, 1,000 l/min	80 l/min	80 ... 600 l/min	125 l/min
Pneumatic working port	G1/8, G1/4	PK-3	G1/4, M5	M5
Operating pressure	-0.95 ... 10 bar	0 ... 8 bar	-0.95 ... 10 bar	0 ... 8 bar
Description	<ul style="list-style-type: none"> • With finger lever • Mechanical spring return • Fast assembly 	<ul style="list-style-type: none"> • With finger lever • Polymer design • Ducted exhaust air 	<ul style="list-style-type: none"> • With finger lever • Die-cast zinc or die-cast aluminium design 	<ul style="list-style-type: none"> • With detenting finger lever • Front panel mounting or mounting on sub-base • Aluminium design
→ Page/online	vhem-l	n_vpk	th-3-m5	h-4


Manually actuated directional control valves: Toggle lever valves

		
Type	Toggle lever valve KH/O-3-PK-3	Toggle lever valve H-5/3-1/4
Valve function	3/2-way, monostable, open/closed	5/3-way, closed
Type of control	Direct	Piloted
Standard nominal flow rate	80 l/min	680 l/min
Pneumatic working port	PK-3	G1/4
Operating pressure	0 ... 8 bar	2 ... 10 bar
Description	<ul style="list-style-type: none"> • With toggle lever • Polymer design • Ducted exhaust air 	<ul style="list-style-type: none"> • With toggle lever • For positioning, for stopping in the event of an emergency-stop and for holding a double-acting cylinder in any position • Aluminium design
→ Page/online	n_vpk	n_msv




Manually actuated directional control valves: Foot valves

		
Type	Foot valve F-3-1/4-B, FO-3-1/4-B, F-5-1/4-B	Foot valve with detent FP-3-1/4-B, FPB-3-1/4, FP-5-1/4-B
Valve function	3/2-way, monostable, closed, 3/2-way, monostable, open, 5/2-way, monostable	3/2-way, monostable, closed, 5/2-way, monostable
Type of control	Direct	Direct
Standard nominal flow rate	550 ... 600 l/min	550 ... 600 l/min
Pneumatic working port	G1/4	G1/4
Operating pressure	-0.95 ... 10 bar	-0.95 ... 10 bar
Description	<ul style="list-style-type: none"> • With foot pedal • Sturdy die-cast zinc design 	<ul style="list-style-type: none"> • With foot pedal with detent • Sturdy die-cast zinc design
→ Page/online	fo-3	fpb-3


Manually actuated directional control valves: Selector switches

	
Type	Selector switch HW-6-38
Valve function	3/6-way, monostable
Type of control	Direct
Standard nominal flow rate	180 l/min
Pneumatic working port	M5
Operating pressure	0 ... 8 bar
Description	<ul style="list-style-type: none"> • With rotary knob and arrow • Front panel mounting or mounting on sub-base • With six switching positions
→ Page/online	hw-6




Manually actuated directional control valves: Front panel valves

			
Type	Front panel valve SV/O-3-PK-3x2	Front panel valve SVS-3-1/8, SVS-4-1/8, SVSO-3-1/8	Front panel valve SV-3-M5, SV-5-M5-B
Valve function	2x3/2-way, monostable, closed	3/2-way, monostable, closed, 3/2-way, monostable, open, 4/2-way, monostable	3/2-way, monostable, closed, 5/2-way, monostable
Type of control	Direct	Direct	Direct
Standard nominal flow rate	70 l/min	120 l/min	65 ... 95 l/min
Pneumatic working port	PK-3	G1/8	M5
Operating pressure	0 ... 8 bar	3.5 ... 8 bar	-0.95 ... 8 bar
Description	<ul style="list-style-type: none"> • Basic valve for actuator attachments such as toggle and selector switches • Polymer design • Reliable coupling system for rapid assembly and dismantling 	<ul style="list-style-type: none"> • Basic valve for actuator attachments such as pushbutton actuators, mushroom pushbuttons, mushroom actuators, selector switches, toggle levers, key actuators • Reliable coupling system for rapid assembly and dismantling • Front panel mounting 	<ul style="list-style-type: none"> • Basic valve for actuator attachments such as pushbutton actuators, mushroom pushbuttons, mushroom pushbuttons with detent, selector switches, toggle switches • Front panel mounting • Plastic design • Reliable coupling system for rapid assembly and dismantling
→ Page/online	sv	svos	sv-3




Mechanically actuated directional control valves: Stem actuated valves

				
Type	Stem actuated valve VMEM	Stem actuated valve V/O-3-PK-3, V/O-3-1/8	Stem actuated micro valve S-3-PK-3-B, SO-3-PK-3-B	Stem actuated valve VS-3-1/8, VS-4-1/8, VOS-3-1/8
Valve function	3/2-way, monostable, open/closed, 5/2-way, monostable	3/2-way, monostable, open/closed	3/2-way, monostable, closed, 3/2-way, monostable, open	3/2-way, monostable, closed, 3/2-way, monostable, open, 4/2-way, monostable
Type of control	Direct, piloted	Direct	Direct	Piloted
Standard nominal flow rate	500 l/min, 1,000 l/min	80 ... 140 l/min	60 l/min	120 l/min
Pneumatic working port	G1/8, G1/4	G1/8, PK-3	PK-3	G1/8
Operating pressure	-0.95 ... 10 bar	-0.95 ... 8 bar	-0.95 ... 8 bar	3.5 ... 8 bar
Description	<ul style="list-style-type: none"> • Outstanding pneumatic performance for a wide range of applications • Light weight • Small size • Versions: VMEM-S: stem actuated valve, VMEM-B: ball actuated valve, VMEM-D: roller actuated valve 	<ul style="list-style-type: none"> • With plunger or actuator attachments as required • Through-holes in housing • Polymer or aluminium design 	<ul style="list-style-type: none"> • With plunger for actuator attachments such as pushbutton actuators, toggle levers • Dimensions to DIN 41635, type A • Polymer design 	<ul style="list-style-type: none"> • With plunger • Aluminium design • Minimal actuating force with pilot control • Can also be used as a 2/2-way valve by plugging the exhaust
→ Page/online	vmem	n_v18	s-3-pk	vos




Mechanically actuated directional control valves: Stem actuated valves

			
Type	Stem actuated valve V-3-1/4-B, V-5-1/4-B, VO-3-1/4-B	Limit valve SDK-3-PK-3, SDK-4-PK-3	Limit stop signal generator SDV-2-B, SDV-3
Valve function	3/2-way, monostable, closed, 3/2-way, monostable, open, 5/2-way, monostable	3/2-way, monostable, closed	3/2-way, monostable, closed
Type of control	Direct	Direct	Direct
Standard nominal flow rate	550 ... 600 l/min	16 l/min	16 l/min
Pneumatic working port	G1/4	PK-3	PK-3
Operating pressure	-0.95 ... 10 bar	0 ... 8 bar	0 ... 8 bar
Description	<ul style="list-style-type: none"> • With plunger • Die-cast aluminium design 	<ul style="list-style-type: none"> • Can be used for stroke-dependent signal generation as a limit switch and fixed stop • For end-position sensing and position control • High accuracy • Stainless steel design 	<ul style="list-style-type: none"> • Can be used for stroke-dependent signal generation as a limit switch and fixed stop • For end-position sensing and position control • High precision and low actuating forces • Compact dimensions • Use in contaminated environments
→ Page/online	vo-3	sdk	sdv




Mechanically actuated directional control valves: Roller lever valves

			
Type	Roller lever valve R/O-3-PK-3	Roller lever valve RS-3-1/8, RS-4-1/8, ROS-3-1/8	Roller lever valve R-3-M5, R-3-1/4-B, R-5-1/4-B, RO-3-1/4-B
Valve function	3/2-way, monostable, open/closed	3/2-way, monostable, closed, 3/2-way, monostable, open, 4/2-way, monostable	3/2-way, monostable, closed, 3/2-way, monostable, open, 5/2-way, monostable
Type of control	Direct	Piloted	Direct
Standard nominal flow rate	80 l/min	120 l/min	80 ... 600 l/min
Pneumatic working port	PK-3	G1/8	G1/4, M5
Operating pressure	0 ... 8 bar	3.5 ... 8 bar	-0.95 ... 10 bar
Description	<ul style="list-style-type: none"> • With roller lever • Polymer design • Ducted exhaust air 	<ul style="list-style-type: none"> • With roller lever • Aluminium design • Minimal actuating force with pilot control • Can also be used as a 2/2-way valve by plugging the exhaust 	<ul style="list-style-type: none"> • With roller lever • Die-cast aluminium design
→ Page/online	n_vpk	ros-3	ro-3


Mechanically actuated directional control valves: Roller lever valves with idle return

			
Type	Roller lever valve with idle return L/O-3-PK-3	Roller lever valve with idle return LS-3-1/8, LS-4-1/8, LOS-3-1/8	Roller lever valve with idle return L-3-M5, L-3-1/4-B, L-4-1/4-B, LO-3-1/4-B
Valve function	3/2-way, monostable, open/closed	3/2-way, monostable, closed, 3/2-way, monostable, open, 4/2-way, monostable	3/2-way, monostable, closed, 3/2-way, monostable, open, 5/2-way, monostable
Type of control	Direct	Piloted	Direct
Standard nominal flow rate	80 l/min	120 l/min	80 ... 600 l/min
Pneumatic working port	PK-3	G1/8	G1/4, M5
Operating pressure	0 ... 8 bar	3.5 ... 8 bar	-0.95 ... 10 bar
Description	<ul style="list-style-type: none"> • With roller lever with idle return • Polymer design • Ducted exhaust air 	<ul style="list-style-type: none"> • With toggle lever • Aluminium design • Minimal actuating force with pilot control • Can also be used as a 2/2-way valve by plugging the exhaust 	<ul style="list-style-type: none"> • With roller lever • Die-cast aluminium design
→ Page/online	n_vpk	los-3	lo-3





Mechanically actuated directional control valves: Swivel lever valves

			
Type	Swivel lever valve RW/O-3-1/8	Pneumatic limit valve RWN/O-3-1/8-B	Swivel lever valve RW-3-M5
Valve function	3/2-way, monostable, open/closed	3/2-way, monostable, open/closed	3/2-way, monostable, closed
Type of control	Direct	Direct	Direct
Standard nominal flow rate	140 l/min	120 l/min	80 l/min
Pneumatic working port	G1/8	G1/8	M5
Operating pressure	-0.95 ... 8 bar	-0.95 ... 8 bar	-0.95 ... 8 bar
Description	<ul style="list-style-type: none"> • Basic valve for actuator attachments such as swivel lever short, long, swivel lever rod • Aluminium design 	<ul style="list-style-type: none"> • Directly actuated in one direction • Aluminium design 	<ul style="list-style-type: none"> • With swivel lever • Additional actuator attachments such as swivel lever short, long, swivel lever rod • Sturdy die-cast zinc design
→ Page/online	rw	rwn	rw-3



Mechanically actuated directional control valves: Whisker valves

	
Type	Whisker valve FVS-3-1/8, FVSO-3-1/8
Valve function	3/2-way, monostable, closed, 3/2-way, monostable, open
Type of control	Piloted
Standard nominal flow rate	120 l/min
Pneumatic working port	G1/8
Operating pressure	3.5 ... 8 bar
Description	<ul style="list-style-type: none"> • With whisker • Especially suitable for sensing dissimilar workpieces or workpieces not precisely in position • Aluminium design • Minimal actuating force with pilot control • Can also be used as a 2/2-way valve by plugging the exhaust
→ Page/online	fvs-3





Non-return valves and quick exhaust valves

Type	 Non-return valve, piloted VBNF	 Quick exhaust valve VBQF	 Non-return valve H, HA, HB	 Non-return valve HGL
Pneumatic connection 1	QS-6, QS-8	G1/8, G1/4, QS-6, QS-8	G1/8, G1/4, G3/8, G1/2, G3/4, M5, QS-4, QS-6, QS-8, QS-10, QS-12, R1/8, R1/4, R3/8, R1/2	G1/8, G1/4, G3/8, G1/2, M5, QS-4, QS-6, QS-8, QS-10, QS-12
Standard nominal flow rate			115 ... 2,230 l/min	
Standard flow rate exhaust 6->0 bar		1,300 ... 2,500 l/min		
Standard nominal flow rate pressurisation 6->5 bar		350 ... 960 l/min		
Standard nominal flow rate 1->2 (6-5)	260 ... 620 l/min		1,000 ... 5,900 l/min	130 ... 1,600 l/min
Operating pressure	0.2 ... 10 bar	0.5 ... 10 bar	-1 ... 12 bar	0.5 ... 10 bar
Description	<ul style="list-style-type: none"> Minimal height High flow rate Can be rotated horizontally through 360° in assembled state 	<ul style="list-style-type: none"> Minimal height High flow rate Improved noise emissions Available with and without silencer Available with ducted and unducted exhaust air 	<ul style="list-style-type: none"> Valve function: non-return Screw-in or in-line installation With connecting thread at both ends, push-in connector at both ends, thread/push-in connector 	<ul style="list-style-type: none"> Valve function: piloted non-return function Pneumatically piloted Screw-in with male thread Pilot air connection: M5, G1/8, G1/4, G3/8, QS-4
→ Page/online	vbnf	vbqf	h-qs	685

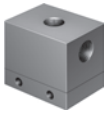



Non-return valves and quick exhaust valves

Type	 Manual override HAB	 Quick exhaust valve SE, SEU
Pneumatic connection 1	G1/8, G1/4, G3/8, G1/2	G1/8, G1/4, G3/8, G1/2, G3/4
Standard nominal flow rate		
Standard flow rate exhaust 6->0 bar	165 l/min	1,000 ... 6,500 l/min
Standard nominal flow rate pressurisation 6->5 bar		300 ... 4,560 l/min
Standard nominal flow rate 1->2 (6-5)		
Operating pressure	0 ... 10 bar	0.2 ... 10 bar
Description	<ul style="list-style-type: none"> Valve function: exhaust component For non-return valve HGL For manual exhausting of air trapped in a cylinder 	<ul style="list-style-type: none"> Valve function: quick exhaust Shut-off valve, piloted Screw-in With or without silencer
→ Page/online	hab	se



Ball valves and shut-off valves

Type	 Hand slide valve VBOH	 Shut-off valve HE	 Hand slide valve W	 Ball valve QH, QHS
Valve function		2/2-way bistable, 3/2-way bistable	3/2-way, bistable	2/2-way, bistable
Pneumatic connection 1	G1/8, G1/4, G1/2, G3/8, G3/4, M5	QS-6, QS-8, QS-10, QS-12, R1/8, R1/4, R3/8, R1/2	G1/8, G1/4, G3/8, G1/2, G3/4, M5	G1/4, G3/8, G1/2, G3/4, G1, G1 1/2, QS-4, QS-6, R1/8
Standard nominal flow rate	236 ... 7,691 l/min	270 ... 840 l/min	120 ... 6,800 l/min	148 ... 84,000 l/min
Operating pressure	-0.95 ... 12 bar	-0.95 ... 10 bar	-0.95 ... 10 bar	-1 ... 10 bar
Description	<ul style="list-style-type: none"> Used as a shut-off function for pressurising and exhausting compressed air systems, for example upstream of service unit combinations, for air guns and also for exhausting pneumatic cylinders Non-overlapping, so no pressure losses when switching Minimal installation 	<ul style="list-style-type: none"> Shut-off valve, piloted Connection: thread at both ends, push-in connector at both ends, thread/push-in connector 	<ul style="list-style-type: none"> Shut-off valve, manually actuated In-line installation Metal design 	<ul style="list-style-type: none"> Shut-off valve, manually actuated In-line installation, can be screwed in, bulkhead fitting Variants: thread at both ends, push-in connector at both ends, thread/push-in connector
→ Page/online	vboh	686	w-3	qh





Logic valves

Type	 NOT module OS	 Amplifier module VK	 NOT module VLO	 AND module ZK
Valve function	OR function			AND function
Pneumatic connection 1	G1/2, G1/4, G1/8, PK-3, PK-4	PK-4, M5	PK-4, M5	G1/8, PK-3, PK-4
Standard nominal flow rate	100 ... 5,000 l/min	80 l/min	80 l/min	100 ... 550 l/min
Operating pressure	0.001 ... 10 bar	0.1 ... 0.25 bar and 1 ... 7 bar	0.1 ... 0.25 bar and 1 ... 7 bar	0.001 ... 10 bar
Description	<ul style="list-style-type: none"> Valve function: OR function Logic valve Pneumatic control system Mounting via through-holes 	<ul style="list-style-type: none"> For pneumatic sensors 	<ul style="list-style-type: none"> For pneumatic sensors 	<ul style="list-style-type: none"> Valve function: AND function Dual-pressure valve Connects two input signals in the AND function Mounting via through-holes
→ Page/online	os	vk	vlo	zk


Pressure regulators

		
Type	Pressure regulator LR-QS, LRMA-QS	Differential pressure regulator LRL, LRLl
Pressure regulation range	1 ... 8 bar	2 ... 6 bar
Standard nominal flow rate	22 ... 150 l/min	
Nominal flow rate, closed		30 ... 730 l/min
Nominal flow rate, open		30 ... 760 l/min
Pneumatic connection 1	G1/8, G1/4, M5, QS-4, QS-6, QS-8	G1/8, G1/4, G3/8, G1/2, M5
Pneumatic connection 2	QS-4, QS-6, QS-8	QS-4, QS-6, QS-8, QS-10, QS-12
Description	<ul style="list-style-type: none"> • Piston regulator with through pressure supply • Available with pressure gauge • Directly actuated • Connections: push-in connector at both ends, thread/push-in connector • Push-in connector, can be rotated 360° 	<ul style="list-style-type: none"> • Piston regulator with through pressure supply • Without pressure gauge • Connections: thread/push-in connector on top or at side • Push-in connector, can be rotated 360°
→ Page/online	lrma	lrl





One-way flow control valves

				
Type	One-way flow control valve VFOF	One-way flow control valve VFOC	One-way flow control valve GRLA, GRLZ, CRGRLA, GRGA, GRGZ, GRLSA	One-way flow control valve GRXA-HG
Valve function	Exhaust air one-way flow control function	Supply air one-way flow control function	Exhaust air one-way flow control function, one-way flow control function, supply air one-way flow control function	Exhaust air one-way flow control function
Pneumatic connection 1	QS-6, QS-8	QS-4, QS-6	G1/8, G1/4, G1/2, G3/8, G3/4, M3, M5, PK-3, PK-3 with union nut, PK-4, PK-4 with union nut, PK-6 with union nut, QS-3, QS-4, QS-6, QS-8, QS-10, QS-12	QS-4, QS-6, QS-8
Standard nominal flow rate in flow control direction	250 ... 650 l/min	0 ... 270 l/min	0 ... 4,320 l/min	130 ... 280 l/min
Adjusting element	Internal hex	Slotted head screw	Knurled screw, slotted head screw	Slotted head screw
Description	<ul style="list-style-type: none"> • Minimal height • High flow rate • Can be rotated horizontally through 360° in assembled state • Functional combination with one-way flow control valve and piloted non-return valve 	<ul style="list-style-type: none"> • Shut-off valve, flow control at one end • Metal design • Precision adjustment for low and medium speeds • Push-in connector/push-in sleeve 	<ul style="list-style-type: none"> • Flow control valve, flow control at one end • Standard, mini, in-line variants with different flow rates • Functional combination with one-way flow control valve and piloted non-return valve • Polymer, metal or stainless steel design • Connections: thread at both ends, push-in connector at both ends, thread/push-in connector 	<ul style="list-style-type: none"> • Functional combination with one-way flow control valve and piloted non-return valve • Holding function and speed setting in one housing • Additional supply port for holding crossover interlinking
→ Page/online	687	vfoc	687	grxa-hg


One-way flow control valves

Type	 One-way flow control valve GR, GRA	 One-way flow control valve GG, GGO, GRR	 Precision one-way flow control valve GRP	 One-way flow control valve, M5 Compact System GRF
Valve function	One-way flow control function	One-way flow control function	One-way flow control function	One-way flow control function
Pneumatic connection 1	G1/2, G1/4, G1/8, G3/4, G3/8, M3, M5, QS-3, QS-4, QS-6, QS-8	G1/2, G1/4	G1/8, PK-3, PK-4	PK-3
Standard nominal flow rate in flow control direction	25 ... 3,300 l/min	870 ... 1,300 l/min	3.8 ... 75.8 l/min	45 l/min
Adjusting element	Knurled screw	Roller lever	Rotary knob with scale	Knurled screw
Description	<ul style="list-style-type: none"> Flow control valve In-line installation 	<ul style="list-style-type: none"> Flow control valve With roller lever 	<ul style="list-style-type: none"> Flow control valve Mounting on sub-base or for front panel mounting 	<ul style="list-style-type: none"> Complete system offering control components with all the functions required for pneumatic sequence controls For control cabinet installation Fast replacement of components
→ Page/online	gr	gs	grp	m5 compact



Flow control valves

Type	 Flow control/silencer VFFK	 Flow control valve GRLO, GRGO	 Flow control valve, barbed Y-connector with restrictor GRO, Y	 Precision flow control valve GRPO
Valve function	Flow control/silencer function	Flow control function	Flow control function	Flow control function
Pneumatic connection 1	M5, M7, R1/8, R1/4	M3, M5	G1/4, G1/8, M5, QS-3, QS-4, QS-6	G1/8, PK-3, PK-4
Standard flow rate in flow control direction 6 → 0 bar	0 ... 420 l/min	33 ... 169 l/min	25 ... 350 l/min	5.2 ... 129 l/min
Adjusting element	Knurled screw	Slotted head screw	Knurled screw	Rotary knob with scale
Description	<ul style="list-style-type: none"> With polymer silencer 	<ul style="list-style-type: none"> Flow control valve, flow control at both ends Standard or mini flow control valve Metal design Precision adjustment for low and medium speeds Connections: thread at both ends, thread/push-in connector Connections: elbow outlet or parallel outlet 	<ul style="list-style-type: none"> Flow control valve, flow control at both ends In-line flow control valve Polymer design Connections: push-in connector at both ends Connections: in-line, Y-shape 	<ul style="list-style-type: none"> Metal design Connections: threaded connection at both ends, push-in connector at both ends
→ Page/online	695	grlo	gro	grpo





Flow control valves

Type	 Exhaust air flow control valve, flow control/silencer GRE, GRU
Valve function	Flow control/silencer function
Pneumatic connection 1	G1/8, G1/4, G1/2, G3/8, G3/4
Standard flow rate in flow control direction 6 → 0 bar	0 ... 8,000 l/min
Adjusting element	Slotted head screw
Description	<ul style="list-style-type: none"> Exhaust air flow control valve GRE: sintered metal Flow control/silencer GRU: polymer
→ Page/online	gre




Time delay valves

		
Type	Time delay valve VZO, VZ, VLK	Time delay valve VZA, VZOA, VZB, VZOB
Pneumatic connection	PK-3	G1/4
Standard nominal flow rate	60 ... 90 l/min	600 l/min
Adjustable delay time	0.25 ... 5 s	0 ... 30 s
Operating pressure	2.5 ... 8 bar	0 ... 10 bar
Type of mounting	Optionally: front panel mounting, on mounting frame	Optionally: 2 through-holes in housing, front panel mounting
Description	<ul style="list-style-type: none"> • Complete system offering control components with all the functions required for pneumatic sequence controls • For control cabinet installation • Fast replacement of components 	<ul style="list-style-type: none"> • Time delay infinitely adjustable
→ Page/online	m5 compact	vza





Proportional valves

				
Type	Proportional pressure regulator VPPX	Proportional pressure regulator VPPM	Proportional directional control valve VPWP	Proportional pressure regulator MPPE
Valve function	3-way proportional pressure regulator	3-way proportional pressure regulator	5/3-way proportional regulator, closed	3-way proportional pressure regulator, closed
Pneumatic connection 1	Sub-base, G1/8, G1/4, G1/2	Sub-base, G1/8, G1/4, G1/2, NPT1/8-27, NPT1/4-18, NPT1/2-14	G1/4, G1/8, G3/8	G1/8, G1/4, G1/2
Pressure regulation range	0.1 ... 10 bar	0.02 ... 10 bar	0 ... 10 bar	0 ... 10 bar
Standard nominal flow rate	1,400... 7,000 l/min	380 ... 7,000 l/min	350 ... 2,000 l/min	350 ... 8,800 l/min
Description	<ul style="list-style-type: none"> • Multi-sensor control (cascade control) • Control characteristics adjustable via FCT • Temperature compensated • High dynamic response • High repetition accuracy • Individual valves (in-line valve) or sub-base valves (manifold/flanged valve) • Integrated pressure sensor with separate output • Pressure is maintained if the controller fails 	<ul style="list-style-type: none"> • In-line valve • Sub-base valve, flanged valve • Piloted diaphragm regulator • Integration in valve terminal MPA via fieldbus • Multi-sensor control • High repetition accuracy • User interface with LED displays, LCD display, adjustment/selection buttons • Setpoint value input as analogue voltage or current signal • Integrated pressure sensor • Electrical connection via plug, round design, 8-pin, M12 or terminal linking 	<ul style="list-style-type: none"> • Regulated piston spool valve • Digital actuation • Integrated pressure sensors for monitoring function and force control • With auto identification • Diagnostic function • Integrated digital output, e.g. for a clamping/brake unit • Suitable for servopneumatic applications with CPX-CMAX and CPX-CPMX 	<ul style="list-style-type: none"> • Pilot actuated piston regulator • Setpoint value input as analogue voltage or current signal • Choice of pressure regulation ranges • Electrical connection via plug, round design to DIN 45326, M16 x 0.75, 8-pin • Available with setpoint module • See product documentation on our website for standard nominal flow rate
→ Page/online	vppx	vppm	vpwp	mppe


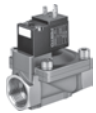
Proportional valves

			
Type	Proportional pressure regulator MPPES	Proportional pressure regulator VPPE	Proportional directional control valve MPYE
Valve function	3-way proportional pressure regulator, closed	3-way proportional pressure regulator, 3-way proportional pressure regulator, closed	5/3-way, closed
Pneumatic connection 1	G1/8, G1/4, G1/2	G1/8	G1/8, G1/4, G3/8, M5
Pressure regulation range	0 ... 10 bar	0.02 ... 10 bar	0 ... 10 bar
Standard nominal flow rate	230 ... 8,500 l/min	310 ... 1,250 l/min	100 ... 2,000 l/min
Description	<ul style="list-style-type: none"> • Directly actuated (G1/8), piloted piston regulator (G1/4, G1/2) • Setpoint value input as analogue voltage or current signal • Choice of pressure regulation ranges, individual pressure regulation ranges on request • Electrical connection via plug, round design to DIN 45326, M16 x 0.75, 8-pin • Available with setpoint module • See product documentation on our website for standard nominal flow rate 	<ul style="list-style-type: none"> • Piloted diaphragm regulator • Setpoint input as analogue voltage signal (0 ... 10 V) • Electrical connection via plug M12x1, 4-pin • Available with setpoint module 	<ul style="list-style-type: none"> • Regulated piston spool valve • Analogue actuation • Setpoint input as analogue voltage signal (0 ... 10 V) • Suitable for servopneumatic applications with SPC11
→ Page/online	mpps	vppe	mpye





Solenoid-actuated process and media valves

				
Type	Solenoid valve VZWD	Reverse jet pulse valve VZWE-E, VZWE-F	Solenoid valve VZWF	Solenoid valve VZWM
Design	Directly actuated poppet valve	Angled version, straight version with flange, diaphragm valve	Diaphragm valve, force pilot operated	Poppet valve with diaphragm seal
Actuation type	Electric	Electric	Electric	Electric
Nominal size	1 ... 6 mm	20 ... 76 mm	13.5 ... 50 mm	13 ... 50 mm
Process valve connection	G1/8, G1/4	G3/4, G1, G11/2, G2, G21/2, flange diameter 60 mm, 75 mm, 89 mm	G1/4, G3/8, G1/2, G3/4, G1, G1 1/4, G1 1/2, G2	G1/4, G3/8, G1/2, G3/4, G1, G1 1/4, G1 1/2, G2
Flow rate Kv	0.06 ... 0.4 m³/h	15 ... 210 m³/h	1.8 ... 28 m³/h	1.6 ... 39 m³/h
Medium pressure	0 ... 90 bar	0.35 ... 8 bar	0 ... 10 bar	0.5 ... 10 bar
Temperature of medium	-10 ... 80 °C	-20 ... 60 °C	-10 ... 80 °C	-10 ... 60 °C
Description	<ul style="list-style-type: none"> • For applications with high pressure ranges and low flow rates • No pressure difference required • Can also be used in vacuum technology • Operating voltage: 24 V DC; 110, 230 V AC 	<ul style="list-style-type: none"> • For mechanically cleaning filters and dust filter systems • High flow rates • Fast opening and closing times • Sturdy pilot system • Operating voltage: 24 V DC; 110, 230 V AC 	<ul style="list-style-type: none"> • High flow rates with large nominal sizes using relatively small solenoids • No pressure difference required • Can also be used in vacuum technology • Operating voltage: 	<ul style="list-style-type: none"> • Diaphragm valve • Servo controlled • Brass or stainless steel casting design • Wide range of coils • Electrical connection via solenoid armature tube system 8 or 13 • Voltage 24 V DC, 110/230 V AC • Coil can be ordered separately
→ Page/online	vzwd	vzwe	vzwf	vzwm





Solenoid-actuated process and media valves

		
Type	Solenoid valve VZWP	Solenoid valve MN1H-2
Design	Piloted piston poppet valve	Diaphragm valve
Actuation type	Electric	Electric
Nominal size	13 ... 25 mm	13 ... 40 mm
Process valve connection	G1/4, G3/8, G1/2, G3/4, G1	G1/4, G3/8, G1/2, G3/4, G1, G1 1/2
Flow rate Kv	1.5 ... 11.5 m³/h	2,000 ... 30,500 l/min
Medium pressure	0.5 ... 40 bar	0.5 ... 10 bar
Temperature of medium	-10 ... 80 °C	-10 ... 60 °C
Description	<ul style="list-style-type: none"> For all applications with a differential pressure of 0.5 bar For high pressures and high flow rates with relatively small solenoids For controlling gaseous and liquid media in open circuits Operating voltage: 24 V DC; 110, 230 V AC 	<ul style="list-style-type: none"> Diaphragm valve Piloted Brass design Can only be used for gaseous media Adjustable closing cushioning, in-line mounting or throughhole Operating voltage 24 V DC, 110/230 V AC
→ Page/online	vzwp	mn1h-2



Pneumatically and mechanically actuated process and media valves

				
Type	Hygienic butterfly valve VZFB	Proportional media valve VZQA	Angle seat valve VZXF	Ball valve VZBC
Design	2-way hygienic butterfly valve	Proportional media valve, pneumatically actuated	Poppet valve with spring return	2-way ball valve
Actuation type	Manual	Pneumatic	Pneumatic	Mechanical
Nominal size	1" ... 4", DN 25 ... DN100	DN 6, 15		DN15 ... DN100
Process valve connection	Clamp/clamp, weld-on ends/weld-on ends, male thread/male thread	Clamp to DIN 32676, G1/4, G1/2	G1/2, G3/4, G1, G1 1/4, G1 1/2, G2, NPT1/2, NPT3/4, NPT1, NPT1 1/4, NPT1 1/2, NPT2	Ring housing with threaded flange
Flow rate Kv		1,550 ... 12,800 l/min	2.8 ... 47.5 m³/h	19.4 ... 1,414 m³/h
Medium pressure		0 ... 4 bar		
Temperature of medium	-10 ... 140 °C	-5 ... 100 °C		
Description	<ul style="list-style-type: none"> Medium: water, neutral liquids Three variants based on standard ASME BPE, DIN11851, SMS 1145 	<ul style="list-style-type: none"> Modular design Quick and easy replacement of the diaphragm Selection of different materials for housing and connection caps Different connection cap designs (G and NPT thread, clamp ferrule to DIN32676 and ASME-BPE) For critical, abrasive and viscous media Tested service life of up to 2 million switching cycles FDA-compliant materials Easy-to-clean design Safety position "opening" Flow direction can be freely selected Full and free passage 	<ul style="list-style-type: none"> Sturdy design Stainless steel and gunmetal process valves with stainless steel, brass or aluminium drives For medium pressures up to 40 bar Safety position "closing" Different drive sizes and housing materials Selection of different seat and shaft seals Choice of flow directions For liquids, gases and other easily contaminated media Easy-to-clean design 	<ul style="list-style-type: none"> Automatable 2-way ball valve with compact flange Stainless steel design Short installation length Blow-out-proof shaft Manual operation possible using hand lever Connecting thread to DIN 2999 or DIN ISO 228-1 Mounting flange to ISO 5211 ATEX certification for Zone 1, 21, 2, 22
→ Page/online	vzfb	vzqa	vzxf	vzbc




Pneumatically and mechanically actuated process and media valves

Type	 Ball valve actuator unit VZBC	 Ball valve VAPB	 Ball valve VZBA	 Ball valve actuator unit VZBA
Design	2-way ball valve, semi-rotary actuator	2-way ball valve	2-way ball valve, 3-way ball valve, L-shaped hole, T-shaped hole	2-way ball valve, 3-way ball valve, L-shaped hole, semi-rotary actuator, T-shaped hole
Actuation type	Pneumatic	Mechanical	Mechanical	Pneumatic
Nominal size	15, 20, 25, 32, 40, 50, 65, 80, 100	15, 20, 25, 32, 40, 50, 63	8, 10, 15, 20, 25, 32, 40, 50, 65, 80, 100	8, 10, 15, 20, 25, 32, 40, 50, 65, 80, 100
Process valve connection	Ring housing with threaded flange	Rp1/4, Rp3/8, Rp1, Rp1 1/4, Rp1 1/2, Rp1/2, Rp3/4, Rp2, Rp2 1/2, Rp3, Rp4	Rp1/4, Rp3/8, Rp1/2, Rp3/4, Rp1, Rp1 1/4, Rp1 1/2, Rp2, Rp2 1/2, Rp3, Rp4, weld-on ends/weld-on ends	Rp1, Rp1 1/2, Rp1 1/4, Rp1/2, Rp1/4, Rp2, Rp2 1/2, Rp3, Rp3/4, Rp3/8, Rp4, weld-on ends/weld-on ends
Flow rate Kv	19.4 ... 1,414 m ³ /h	5.9 ... 535 m ³ /h	7 ... 1414 m ³ /h	7 ... 1,414 m ³ /h
Medium pressure	6 ... 8.4 bar			6 ... 8.4 bar
Temperature of medium	-10 ... 200 °C	-10 ... 150 °C	-10 ... 200 °C	-10 ... 200 °C
Description	<ul style="list-style-type: none"> Ball valve actuator unit with double-acting or single-acting quarter turn actuator Stainless steel ball valve in compact design Port pattern as per NAMUR for solenoid valves/sensor boxes to VDI/VDE 3845 Flow is fully closed or opened in both directions ATEX certification for Zone 1, 21, 2, 22 	<ul style="list-style-type: none"> Automatable 2-way ball valve Brass design Blow-out proof shaft Manual operation possible using hand lever Connecting thread to DIN 2999 or DIN ISO 228-1 Mounting flange to ISO 5211 	<ul style="list-style-type: none"> Automatable 2-way or 3-way ball valve Stainless steel design Blow-out proof shaft Manual operation possible using hand lever Connecting thread to DIN 2999 or DIN ISO 228-1 Mounting flange to ISO 5211 ATEX certification for Zone 1, 21, 2, 22 	<ul style="list-style-type: none"> Ball valve actuator unit with double-acting or single-acting quarter turn actuator Stainless steel ball valve Port pattern as per NAMUR for solenoid valves/sensor boxes to VDI/VDE 3845 Flow is fully opened or closed in both directions ATEX certification for Zone 1, 21, 2, 22
→ Page/online	vzbc	vapb	vzba	vzba



Pneumatically and mechanically actuated process and media valves

Type	 Ball valve actuator unit VZPR	 Pneumatic valve VLX
Design	2-way ball valve, semi-rotary actuator	Diaphragm valve
Actuation type	Pneumatic	Pneumatic
Nominal size	15, 20, 25, 32, 40, 50, 63	13 ... 25 mm
Process valve connection	Rp1/4, Rp3/8, Rp1/2, Rp3/4, Rp1, Rp1 1/4, Rp1 1/2, Rp2, Rp2 1/2	G1/4, G3/8, G1/2, G3/4, G2
Flow rate Kv	5.9 ... 535 m ³ /h	2,400 ... 14,000 l/min
Medium pressure	1 ... 8.4 bar	1 - 10 bar
Temperature of medium	-20 ... 150 °C	-10 ... 80 °C
Description	<ul style="list-style-type: none"> Pneumatic double-acting quarter turn actuator and 2-way ball valve Flow is fully opened or closed in both directions Brass or stainless steel design Port pattern to Namur VDI/VDE3845 	<ul style="list-style-type: none"> Poppet valve Indirectly actuated Brass design In-line mounting or via through-holes
→ Page/online	vzpr	vlx

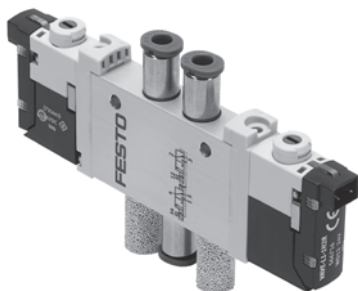
Pneumatic control systems

			
Type	Quickstepper FSS	Two-hand control block ZSB	Adding counter, M5 Compact System PZA, PZV
Design	Sequencer with 12 switching steps (additive)	Two-hand operation in accordance with EN ISO 12100	Mechanical sequence counter with pneumatic drive
Pneumatic connection	Barbed connector 3 mm, barbed connector 4 mm	G1/8	M5
Operating pressure	2 ... 6 bar	4 ... 8 bar	2 ... 8 bar
Type of mounting	On 2n mounting frame, front panel mounting	Mounting thread, optionally: with through-hole, with female thread	Front panel mounting, with through-hole
Description	<ul style="list-style-type: none"> • Pneumatic/mechanical sequencer with 12 steps and start logic circuits • Ready-to-install sequence controller • Acknowledgement-controlled motion sequences • Fast replacement, tubing can be left in place 	<ul style="list-style-type: none"> • Used wherever manual actuation poses a risk of accident to operating personnel • Safety component according to EU Machinery Directive 	<ul style="list-style-type: none"> • Complete system offering control components with all the functions required for pneumatic sequence controls • For control cabinet installation • Fast replacement of components • Available with protective cap
→ Page/online	fss	zsb	pza

Pneumatic control systems

		
Type	Timer, M5 Compact System PZVT, PZVT-S, PZVT-FR, PZVT-AUT	Adding counter CCES
Design	Mechanical sequence counter with pneumatic drive	Electric adding counter with battery
Pneumatic connection	Female thread M5	
Operating pressure	2 ... 6 bar	
Type of mounting	Front panel mounting	Front panel mounting
Description	<ul style="list-style-type: none"> • Complete system offering control components with all the functions required for pneumatic sequence controls • For control cabinet installation • Fast replacement of components • Mechanical sequence counter with pneumatic drive • Adjustable delay time • Available with protective cap 	<ul style="list-style-type: none"> • 8-digit LCD display • Independent power supply • Connection via terminal strip • Reset button
→ Page/online	pzvt	cces

Customised components – for your specific requirements



Valves with customised designs

Can't find the valve you need in our catalogue? We can offer you customised components that are tailored to your specific requirements – from minor product modifications to complete new product developments.

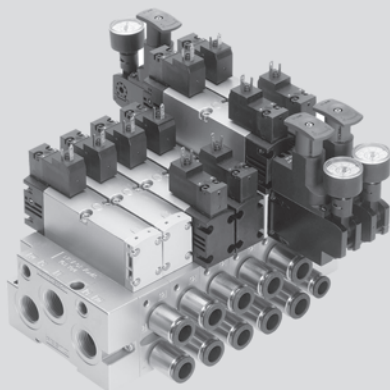
Common product modifications:

- Coatings for special ambient conditions
- Customised cables: length, pin allocation, pre-assembled with plug
- Modified actuating elements
- Modified connecting thread
- Modified valve sub-bases

Many additional variants are possible. Ask your Festo sales engineer, who will be happy to help. Further information on customised components can be found on your local website at www.festo.com.

Solenoid/pneumatic valves, to ISO 15407-1

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- Standard valve width 18/26 mm, flow rates up to 1100 l/min
- Manifold assembly with mixed sizes possible
- Electrical connection via round or square plug socket
- Complete and standardised valve range
- Wide range of vertical stacking modules: pressure regulator plate, flow control plate, vertical pressure shut-off plate, etc.
- ★ Quick ordering of basic designs → 602

→ www.festo.com/catalogue/vsva

Product range overview

Type	Actuation type	Valve function	qnN [l/min]		Pilot air supply	→ Page/ online
			Width 18 mm	Width 26 mm		
VSVA-B-T22	Solenoid coil	2x2/2-way valve, normally closed	500	1000	Internal/external	vsva
VSVA-B-T32	Pilot interface to ISO 15218	2x3/2-way valve, normally closed	400	900	Internal/external	599
		2x3/2-way valve, normally open				
		2x3/2-way valve, normally closed/open				
VSVA-B-M52	24, 110, 230 V AC	5/2-way valve, single solenoid	550	1100	Internal/external	599
VSVA-B-B52		Plug M12 24 V DC	5/2-way valve, double solenoid	550	1100	Internal/external
VSVA-B-D52	5/2-way valve, double solenoid		550	1100	Internal/external	vsva
VSVA-B-P53C	Round central plug M8/M12 24 V DC	5/3-way valve, normally closed	450	1000	Internal/external	600
VSVA-B-P53U		5/3-way valve, normally open	450	1000	Internal/external	vsva
VSVA-B-P53E		5/3-way valve, normally exhausted	450	1000	Internal/external	vsva
VSPA-B-T32	Pneumatic	2x3/2-way valve, normally closed	400	900	-	606
		2x3/2-way valve, normally open				
		2x3/2-way valve, normally closed/open				
VSPA-B-M52		5/2-way valve, single pilot	550	1100		606
VSPA-B-B52		5/2-way valve, double pilot	550	1100		607
VSPA-B-D52		5/2-way valve, double pilot	550	1100		vsva
VSPA-B-P53C		5/3-way valve, normally closed	450	1000		607
VSPA-B-P53U		5/3-way valve, normally open	450	1000		vsva
VSPA-B-P53E		5/3-way valve, normally exhausted	450	1000		vsva

Solenoid/pneumatic valves, to ISO 15407-1

Technical data – Solenoid valves

Download CAD data → www.festo.com

Technical data		18 mm				26 mm			
Width									
Valve function		2x3/2-way single solenoid	5/2-way single solenoid	5/2-way double solenoid	5/3-way closed	2x3/2-way single solenoid	5/2-way single solenoid	5/2-way double solenoid	5/3-way closed
Sub-base	1, 2, 3, 4, 5	G1/8				G1/4			
Pilot air	12, 14	M5				M5			
Design		Piston spool valve							
Type of mounting		Via through-hole on sub-base							
Electrical data – Valve with central plug M8x1, M12x1									
Operating voltage	[V DC]	24							
Power consumption	DC [W]	High-current phase: 2.4; low-current phase: 1							
Protective circuit and LED		Integrated in the valve							
Electrical connection		Central plug, round design, M8x1 or M12x1							
Degree of protection to EN 60529		With plug socket to IP65							
Electrical data – Valve with plug type C									
Operating voltage	[V DC]	24							
	[V AC]	24, 110, 230							
Power consumption	DC [W]	1.8							
	AC [VA]	2.1 at 110/230 V 2.3 at 24 V							
Electrical connection		Plug, square design to EN 175301-803, type C							
Degree of protection to EN 60529		With plug socket to IP65							

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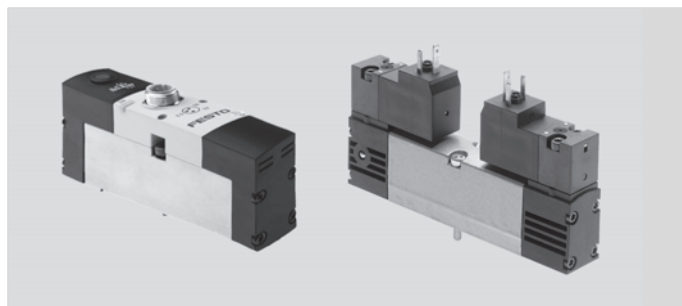
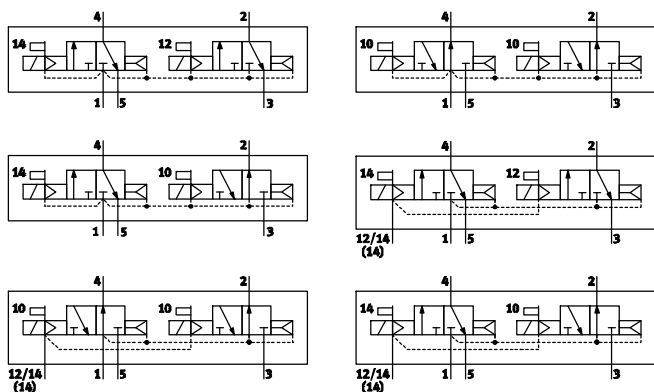
Operating conditions		
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)
Ambient temperature	[°C]	-5 ... +50
Temperature of medium	[°C]	-5 ... +50

Materials		
Housing		Die-cast aluminium
Seals		NBR
Screws		Galvanised steel

Solenoid/pneumatic valves, to ISO 15407-1



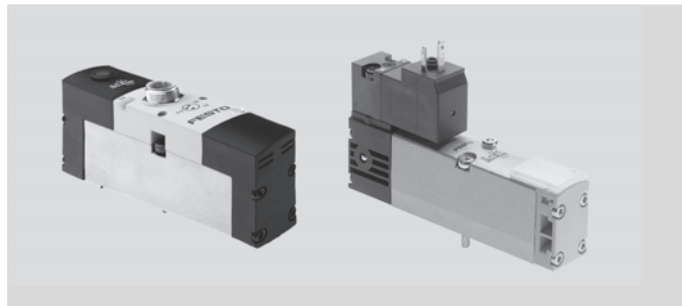
Technical data – 2x 3/2-way solenoid valves



Technical data		Plug M8x1, M12x1		Plug type C	
Electrical connection		Plug M8x1, M12x1		Plug type C	
Width		18 mm	26 mm	18 mm	26 mm
Operating pressure	Internal pilot air supply [bar]	3 ... 8		2 ... 10	
	External pilot air supply [bar]	3 ... 10		2 ... 10	
Pilot pressure [bar]		3 ... 8		3 ... 10	
Standard nominal flow rate qnN [l/min]		400	900	400	900
Switching time on/off	Non-reversible types [ms]	10/22	20/33	13/21	20/28
	Reversible types [ms]	–	–	21/13	28/20
Length/width/height [mm]		108/18/57	113/27/67	108/18/63	114/27/72

Download CAD data → www.festo.com

Technical data – 5/2-way valves, single solenoid

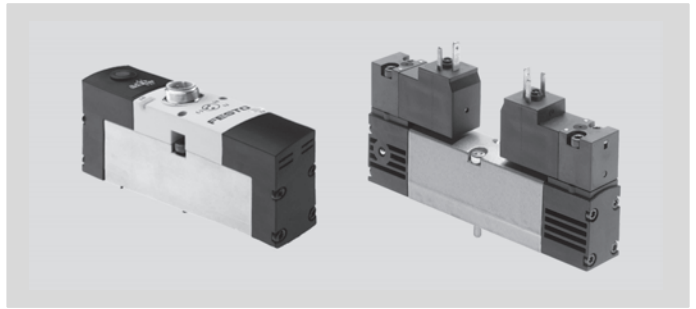


Technical data		Plug M8x1, M12x1				Plug type C			
Electrical connection		Plug M8x1, M12x1				Plug type C			
Width		18 mm		26 mm		18 mm		26 mm	
Reset method		Mechanical	Pneumatic	Mechanical	Pneumatic	Mechanical	Pneumatic	Mechanical	Pneumatic
Operating pressure	Internal pilot air supply [bar]	3 ... 8		3 ... 8		3 ... 10	2 ... 10	3 ... 10	2 ... 10
	External pilot air supply [bar]	-0.9 ... +10		-0.9 ... +16		-0.9 ... +10		-0.9 ... +16	
Pilot pressure [bar]		3 ... 8		3 ... 8		3 ... 10		3 ... 10	
Standard nominal flow rate qnN [l/min]		550		1100		550		1100	
Switching time on/off [ms]		12/34	20/25	20/52	25/40	17/35	21/19	26/56	35/43
Length/width/height [mm]		108/18/57		113/27/67		96/18/63		114/27/72	

Download CAD data → www.festo.com

Solenoid/pneumatic valves, to ISO 15407-1

Technical data – 5/2-way valves, double solenoid

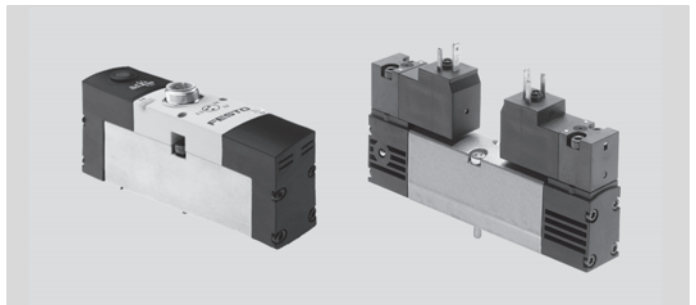
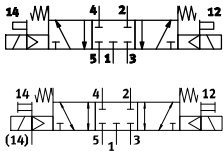


Technical data		Plug M8x1, M12x1		Plug type C	
Electrical connection		Plug M8x1, M12x1		Plug type C	
Width		18 mm	26 mm	18 mm	26 mm
Operating pressure	Internal pilot air supply [bar]	3 ... 8	3 ... 8	2 ... 10	2 ... 10
	External pilot air supply [bar]	-0.9 ... +10	-0.9 ... +16	-0.9 ... +10	-0.9 ... +16
Pilot pressure [bar]		3 ... 8	3 ... 8	3 ... 10	3 ... 10
Standard nominal flow rate qnN [l/min]		550	1100	550	1100
Changeover time [ms]		10	15	15	18
Length/width/height [mm]		108/18/57	113/27/67	108/18/63	127/27/72

Download CAD data → www.festo.com

Technical data – 5/3-way solenoid valves, normally closed

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Technical data		Plug M8x1, M12x1		Plug type C	
Electrical connection		Plug M8x1, M12x1		Plug type C	
Width		18 mm	26 mm	18 mm	26 mm
Operating pressure	Internal pilot air supply [bar]	3 ... 8	3 ... 8	3 ... 10	3 ... 10
	External pilot air supply [bar]	-0.9 ... +10	-0.9 ... +16	-0.9 ... +10	-0.9 ... +16
Pilot pressure [bar]		3 ... 8	3 ... 8	3 ... 10	3 ... 10
Standard nominal flow rate qnN [l/min]		450	1000	450	1000
Switching time on/off [ms]		15/36	20/52	18/30	23/58
Length/width/height [mm]		108/18/57	113/27/67	108/18/63	127/27/72

Download CAD data → www.festo.com

Order code – Solenoid valves

Type		VSV A	B							
VSV A	Solenoid valve to ISO 15407-1									
Version		B	Sub-base valve							
Valve function		T32C	2x 3/2-way valve, single solenoid, normally closed							
T32U	2x 3/2-way valve, single solenoid, normally open									
T32H	2x 3/2-way valve, single solenoid, 1x normally closed, 1x open									
M52	5/2-way valve, single solenoid									
B52	5/2-way valve, double solenoid									
P53C	5/3-way valve, normally closed									
Reset method for single solenoid directional control valves		-	Double solenoid and 5/3-way valve							
A	Pneumatic spring									
M	Mechanical spring 1									
Pilot air supply		-	Internal							
Z	External									
Manual override		-	Without pilot valve							
H	Non-detenting									
Pneumatic connection		A1	Port pattern to ISO size 26 mm (01)							
A2	Port pattern to ISO size 18 mm (02)									
Operating voltage		-	Without pilot valve							
1	24 V DC									
1A	24 V AC 2									
2A	110 V AC 2									
3A	230 V AC 2									
Electrical connection		P1	Without pilot valve							
C1	Plug, type C									
R2L	Plug, M8x1									
R5L	Plug, M12x1									

1 Only for 5/2-way valves

2 Only for plug type C

Order example:

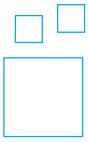
VSV A-B-T32H-AZH-A1-1R5L

Solenoid valve VSV A to ISO 15407-1 – sub-base valve - 2x 3/2-way valve, single solenoid, 1x normally closed, 1x open – pneumatic spring reset method, external pilot air supply, non-detenting manual override – ISO size 26 mm (01) - 24 V DC, plug M12x1, with LED display

Solenoid/pneumatic valves, to ISO 15407-1

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Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or

→ www.festo.com/catalogue/...



Enter the type code in the search field.

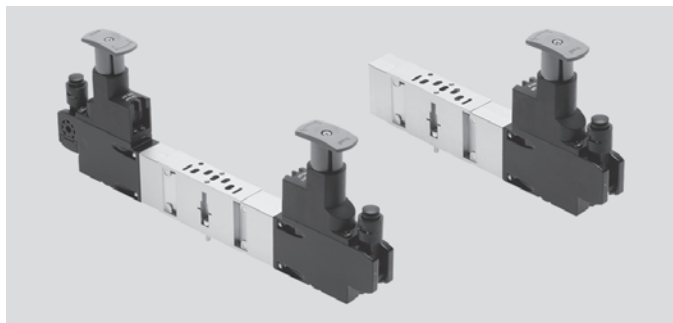
★ Quick ordering¹⁾

		Part No.	Type
5/2-way single solenoid valve, ISO size 18 mm			
Without pilot valve	Mechanical spring	546742	VSVA-B-M52-M-A2-P1
With pilot control with square plug, type C	Pneumatic spring	546701	VSVA-B-M52-AH-A2-1C1
	Mechanical spring	546703	VSVA-B-M52-MH-A2-1C1
With pilot control with round plug M12x1	Pneumatic spring	546767	VSVA-B-M52-AH-A2-1R5L
	Mechanical spring	546768	VSVA-B-M52-MH-A2-1R5L
5/2-way double solenoid valve, ISO size 18 mm			
Without pilot valves		546736	VSVA-B-B52-A2-P1
With pilot control with square plug, type C		546697	VSVA-B-B52-H-A2-1C1
With pilot control with round plug M12x1		546769	VSVA-B-B52-H-A2-1R5L
5/2-way single solenoid valve, ISO size 26 mm			
With pilot control with square plug, type C	Pneumatic spring	546700	VSVA-B-M52-AH-A1-1C1
	Mechanical spring	546702	VSVA-B-M52-MH-A1-1C1
With pilot control with round plug M12x1	Pneumatic spring	534555	VSVA-B-M52-AH-A1-1R5L
	Mechanical spring	534556	VSVA-B-M52-MH-A1-1R5L
5/2-way double solenoid valve, ISO size 26 mm			
With pilot control with square plug, type C		546696	VSVA-B-B52-H-A1-1C1
With pilot control with round plug M12x1		534557	VSVA-B-B52-H-A1-1R5L
5/3-way solenoid valve, ISO size 26 mm			
With pilot control with square plug, type C		546706	VSVA-B-P53E-H-A1-1C1
With pilot control with round plug M12x1		534560	VSVA-B-P53E-H-A1-1R5L

1) All products in this table are easy to select and quick to order.

Technical data – Regulator plate VABF-S3

-  Temperature range
-5 ... +50 °C
-  Operating pressure range
0.5 ... 6 bar
0.5 ... 10 bar



Materials

Housing	Die-cast aluminium
Control section	PA

Order code – Regulator plate VABF-S3

VABF-S3		-				C2-C	-	
Type								
VABF-S3	Valve accessories, function plate to ISO 15407-1							
Width								
1	26 mm							
2	18 mm							
Function								
R1	Pressure regulator for port 1							
R2	Pressure regulator for port 2							
R3	Pressure regulator for port 4							
R4	Pressure regulator for port 2 and 4							
R5	Pressure regulator for port 2 and 4, reverse operation							
R6	Pressure regulator for port 2, reverse operation							
R7	Pressure regulator for port 4, reverse operation							
Options								
C2-C	Pressure gauge connection closed							
Pressure regulation range								
6	Up to 6 bar							
10	Up to 10 bar							

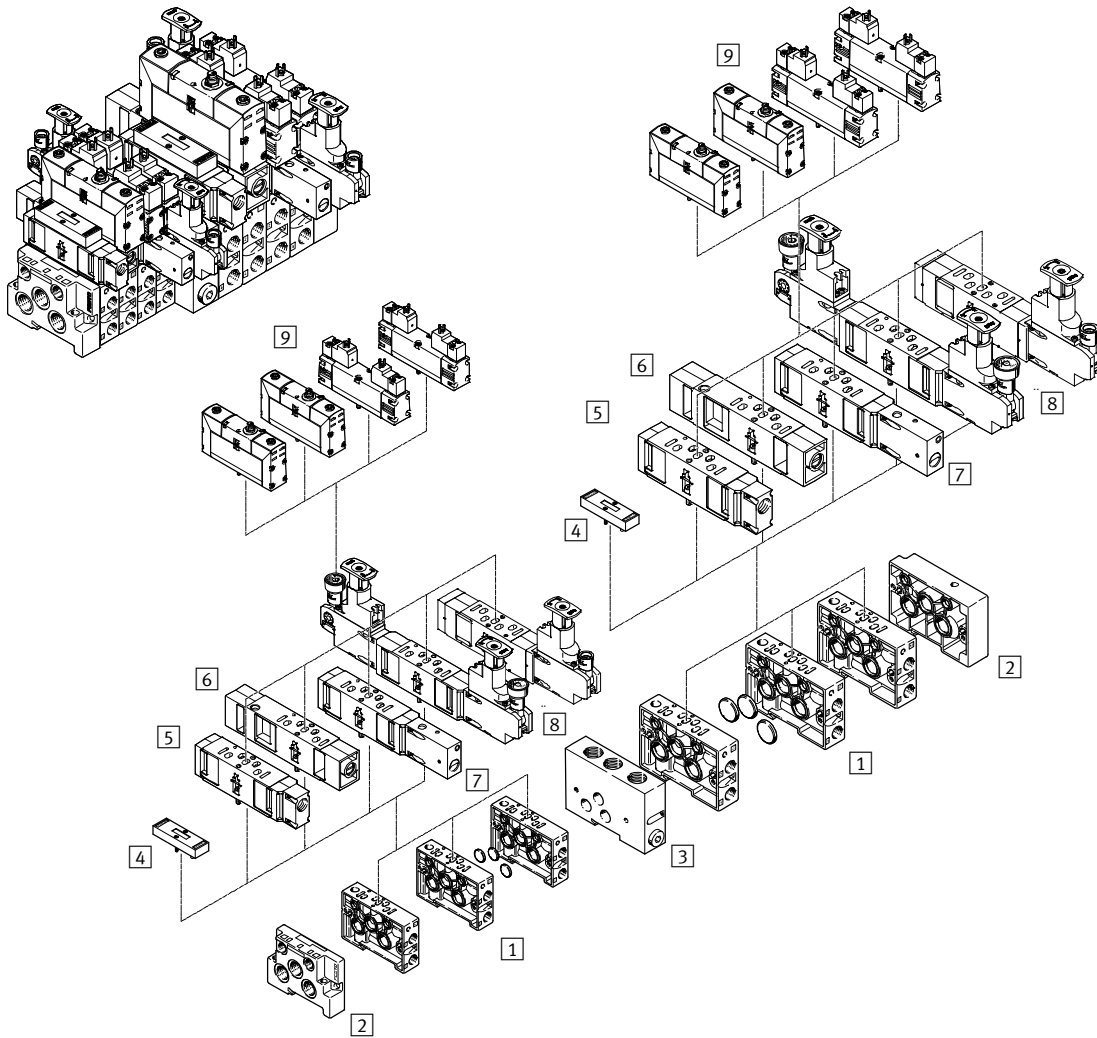
Order example:

VABF-S3-1-R4C2-C-10

Valve accessories VABF - function plate ISO 15407-1 - width 26 mm - pressure regulator for port 2 and 4, pressure gauge connection closed - up to 10 bar

Solenoid/pneumatic valves, to ISO 15407-1

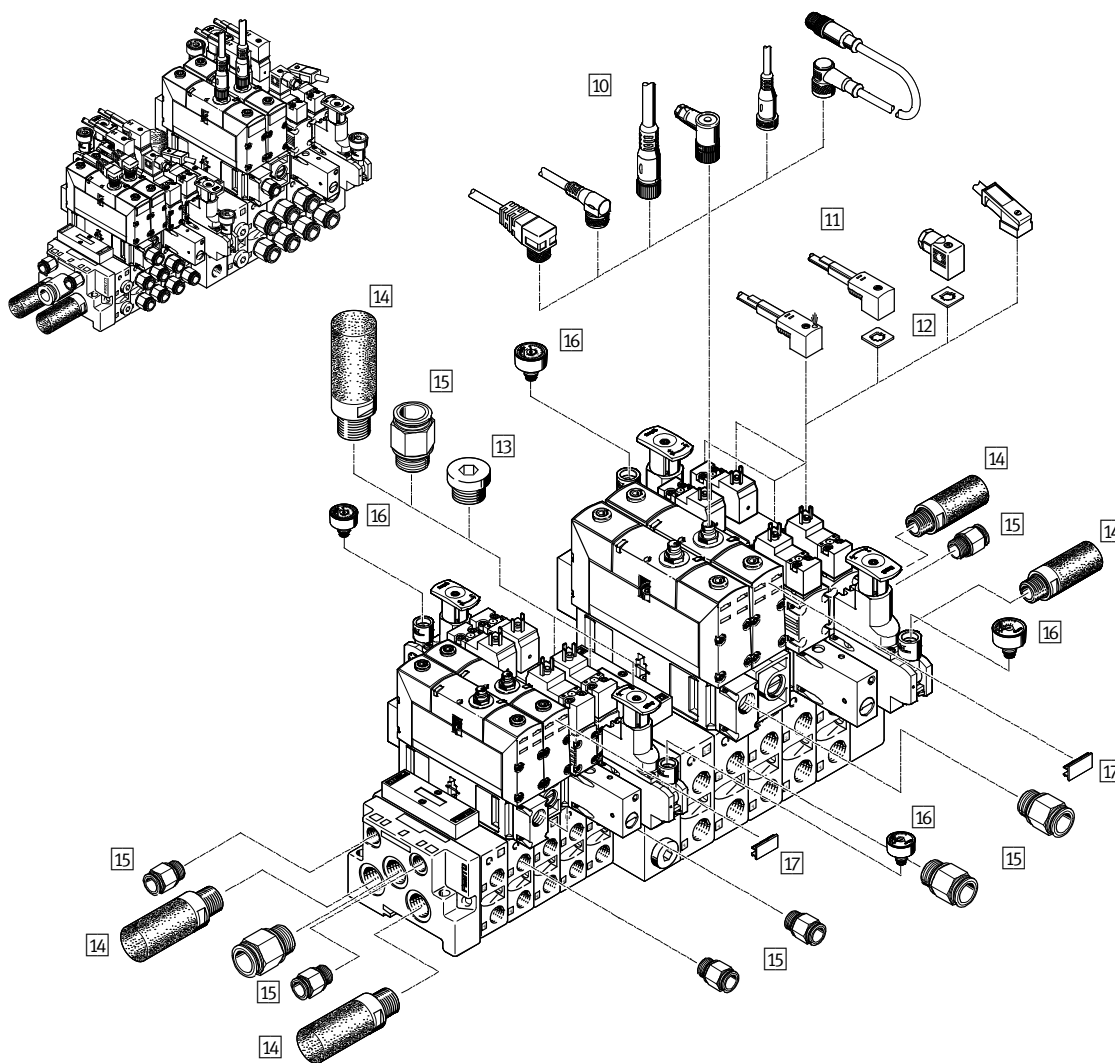
Accessories – Manifold assembly of solenoid valves



8

Variants and accessories		→ Page/online
1	Manifold sub-base NAW with lateral ports 2 and 4	611
2	End plate kit NEV for sealing the manifold sub-bases	611
3	Intermediate plate NZV for connecting width 18 mm with width 26 mm	611
4	Blanking plate NDV for vacant or spare positions	611
5	Vertical supply plate VABF...P1-A3 for intermediate air supply	611
6	Flow control plate VABF...F1-B1 for flow control in ducts 3 and 5	611
7	Vertical pressure shut-off plate VABF...L1-D1 with switch for manual shut-off of duct 1	611
8	Pressure regulator plate VABF...R...-C2	603
9	Solenoid valve VSSA	602
-	Individual sub-base NAS	612

Accessories – Manifold assembly of solenoid valves



Accessories	→ Page/online
10 Round plug connector NEBU/SEA, connecting cable/plug socket M8/M12	611
11 Square plug KMEB/MSSD-EB, type C, connecting cable/plug socket	612
12 Illuminating seal MEB-LD for displaying the signal status	612
13 Blanking plug B for sealing unused ports	612
14 Silencer U for fitting in exhaust ports	612
15 Push-in fitting QS for compressed air tubing with standard O.D.	612
16 Pressure gauge PAGN-26-10-P10 for connection to the pressure regulator plate	612
17 Inscription labels IBS-9x20 for identifying the valves VSVA with round plug	611
– Individual sub-base NAS	612

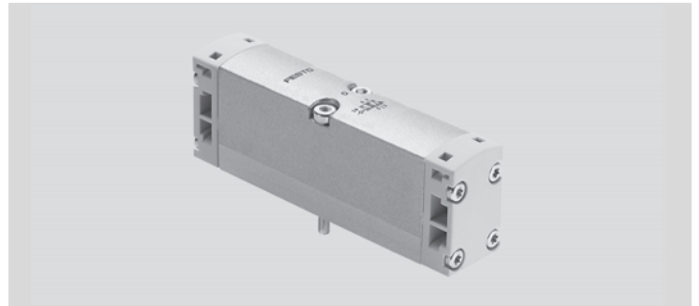
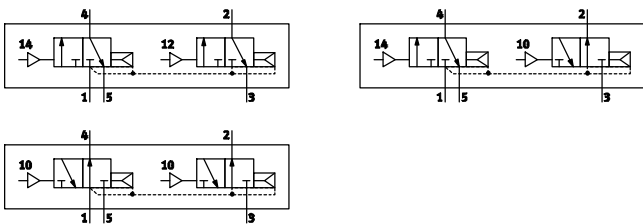
Solenoid/pneumatic valves, to ISO 15407-1

Technical data – Pneumatic valves

Technical data		Download CAD data → www.festo.com							
Width		18 mm				26 mm			
Valve function		2x 3/2-way single pilot	5/2-way single pilot	5/2-way double pi- lot	5/3-way closed	2x 3/2-way single pilot	5/2-way single pilot	5/2-way double pi- lot	5/3-way closed
Sub-base	1, 2, 3, 4, 5	G ¹ / ₈				G ¹ / ₄			
Pilot air	12, 14	M5				M5			
Type of mounting		Via through-hole on sub-base							
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]							
Note on operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)							
Ambient temperature	[°C]	-5 ... +60							
Temperature of medium	[°C]	-5 ... +60							

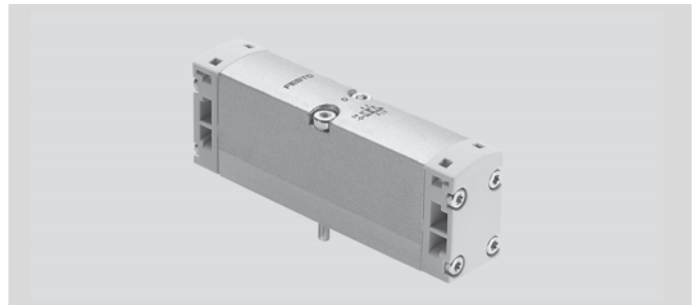
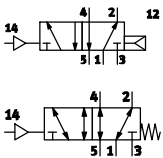
Materials	
Housing	Die-cast aluminium
Seals	NBR
Screws	Galvanised steel

Technical data – 2x 3/2-way pneumatic valves



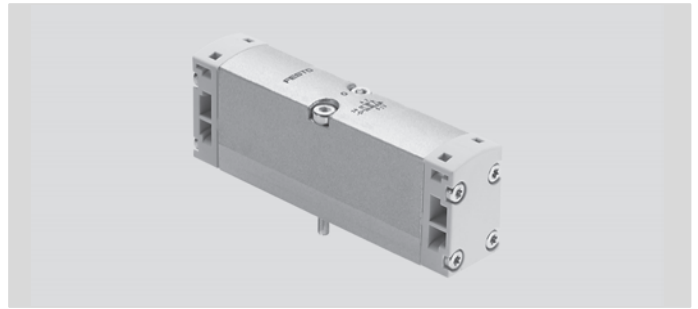
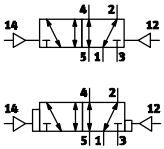
Technical data		Download CAD data → www.festo.com	
Width		18 mm	26 mm
Operating pressure	[bar]	2 ... 10	2 ... 10
Pilot pressure	[bar]	2 ... 10	2 ... 10
Standard nominal flow rate q _N	[l/min]	400	900
Switching time on/off	[ms]	10/22	15/28
Design		Piston spool valve	
Length/width/height	[mm]	83/18/29	100/26/38

Technical data – 5/2-way pneumatic valves, single pilot



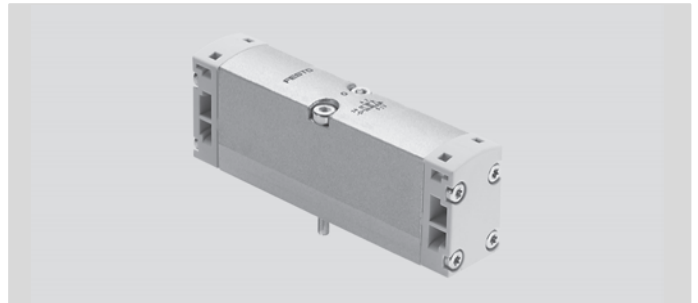
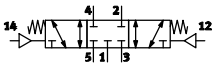
Technical data		Download CAD data → www.festo.com			
Width		18 mm		26 mm	
Reset method		Mechanical	Pneumatic	Mechanical	Pneumatic
Operating pressure	[bar]	-0.9 ... +10		-0.9 ... +10	
Pilot pressure	[bar]	3 ... 10		3 ... 8	
Standard nominal flow rate q _N	[l/min]	550		1100	
Switching time on/off	[ms]	8/10	11/20	10/35	18/30
Design		Piston spool valve			
Length/width/height	[mm]	83/18/29		100/26/38	

Technical data – 5/2-way pneumatic valves, double pilot



Technical data		Download CAD data → www.festo.com	
Width		18 mm	26 mm
Operating pressure	[bar]	-0.9 ... +10	-0.9 ... +10
Pilot pressure	[bar]	2 ... 10	2 ... 10
Standard nominal flow rate qnN	[l/min]	550	1100
Changeover time	[ms]	6	10
Design		Piston spool valve	
Length/width/height	[mm]	83/18/29	100/26/38

Technical data – 5/3-way pneumatic valves, normally closed



Technical data		Download CAD data → www.festo.com	
Width		18 mm	26 mm
Operating pressure	[bar]	-0.9 ... +10	-0.9 ... +10
Pilot pressure	[bar]	3 ... 10	3 ... 10
Standard nominal flow rate qnN	[l/min]	450	1000
Switching time on/off	[ms]	9/18	13/32
Design		Piston spool valve	
Length/width/height	[mm]	83/18/29	100/26/38

Solenoid/pneumatic valves, to ISO 15407-1

Order code – Pneumatic valve

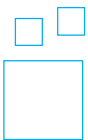
		VSPA	–	B	–		–	
Type								
VSPA	Standard valve to ISO 15407-1/-2							
Version								
B	Sub-base valve							
Valve function								
T32C	2x 3/2-way valve, single solenoid, normally closed							
T32U	2x 3/2-way valve, single solenoid, normally open							
T32H	2x 3/2-way valve, single solenoid, 1x normally closed, 1x open							
M52-A	5/2-way valve, single solenoid, pneumatic spring return							
M52-M	5/2-way valve, single solenoid, mechanical spring return							
B52	5/2-way valve, double solenoid							
D52	5/2-way valve, double solenoid with dominant signal at 14							
P53C	5/3-way valve, normally closed							
P53U	5/3-way valve, normally open							
P53E	5/3-way valve, normally exhausted							
Pneumatic connection								
A1	Port pattern to ISO size 26 mm (01)							
A2	Port pattern to ISO size 18 mm (02)							

Order example:

VSPA-B-T32C-A2

Standard valve VSPA, to ISO 15407-1/-2 – sub-base valve - 2x 3/2-way valve, single solenoid, normally closed – ISO size 18 mm (02)

Ordering – Product options



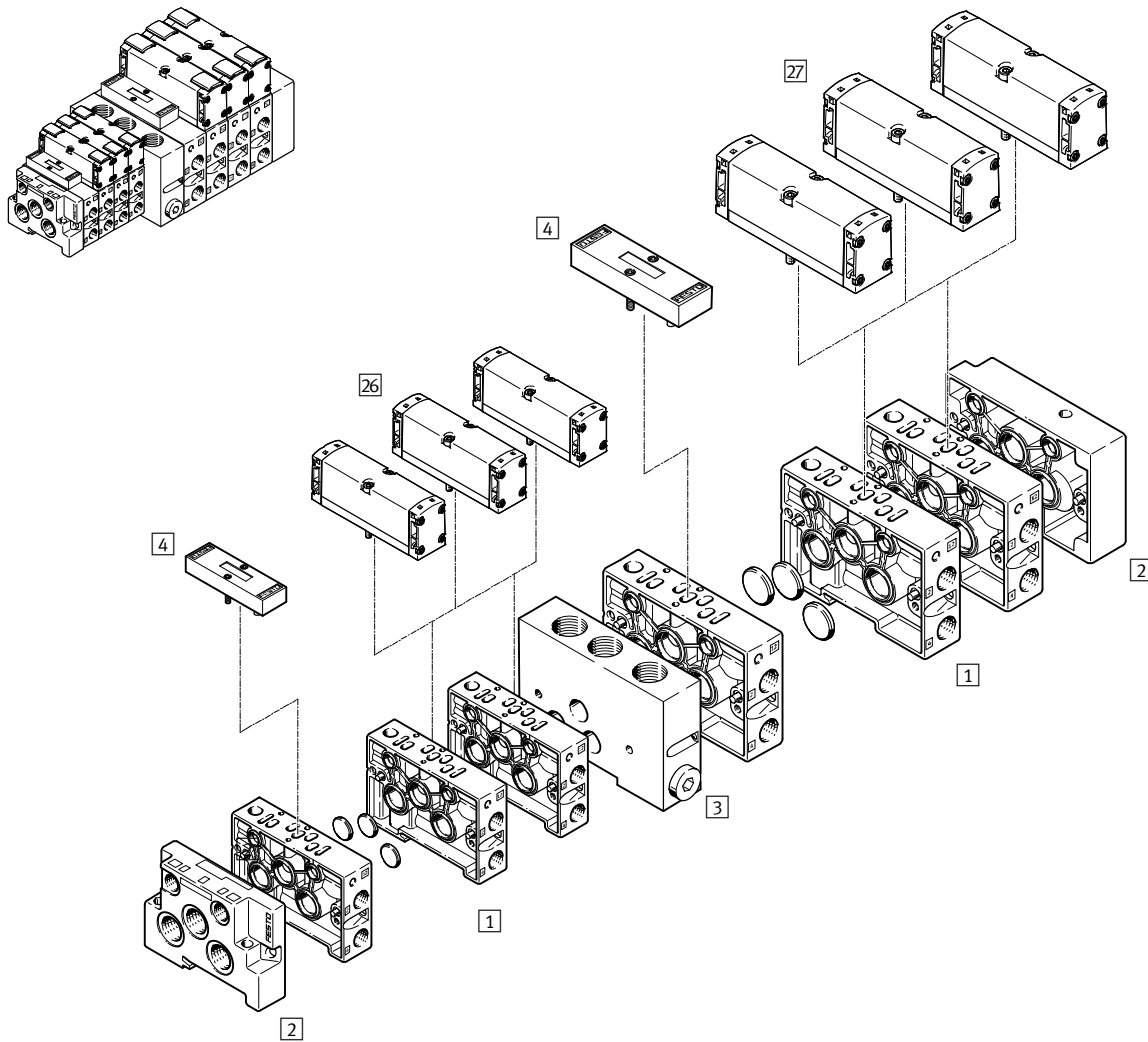
Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
 → www.festo.com/catalogue/...

Enter the type code in the search field.

Accessories – Manifold assembly of pneumatic valves



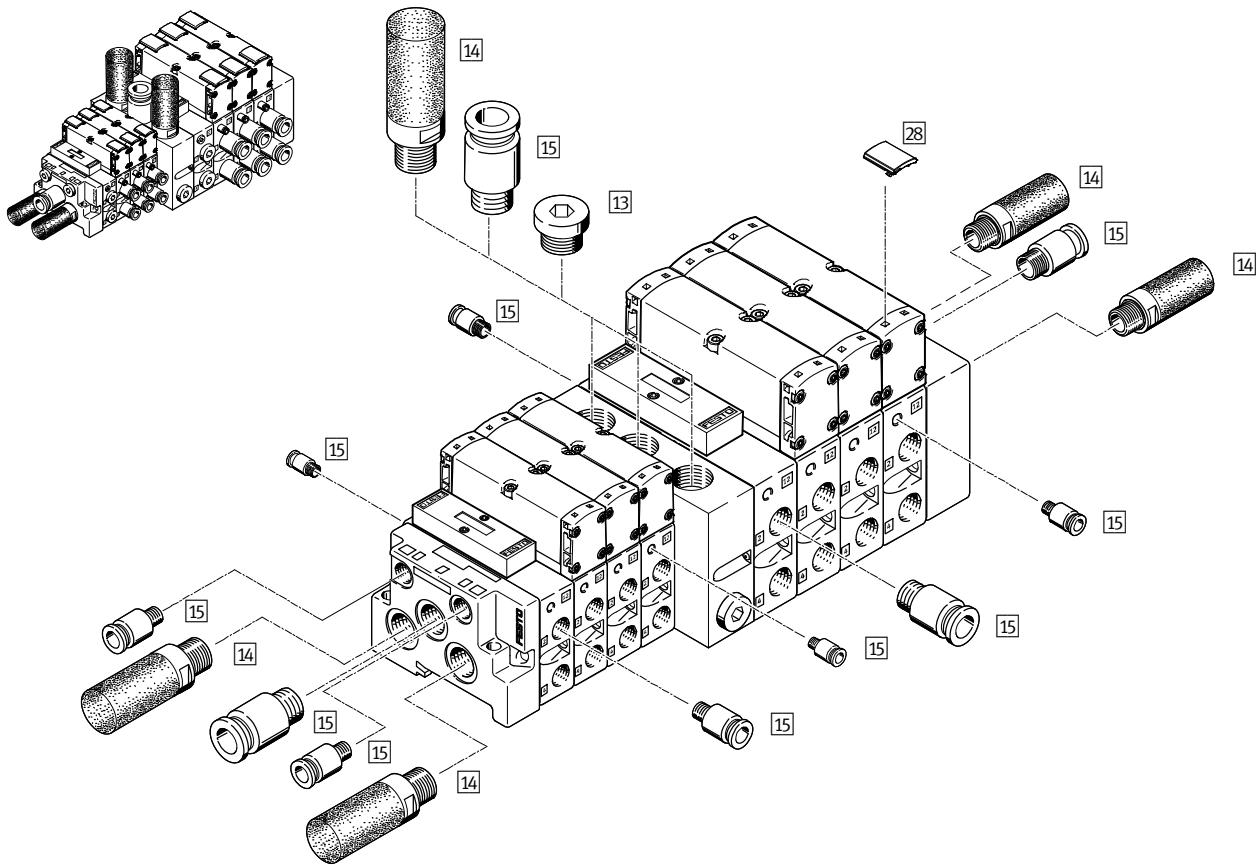
Variants and accessories

→ Page/online

1	Manifold sub-base NAW with lateral ports 2 and 4	611
2	End plate kit NEV for sealing the manifold sub-bases	611
3	Intermediate plate NZV for connecting width 18 mm with width 26 mm	611
4	Blanking plate NDV for vacant or spare positions	611
26	Pneumatic valve VSPA...A2, size 18 mm	601
27	Pneumatic valve VSPA...A1, size 26 mm	601
–	Individual sub-base NAS	612

Solenoid/pneumatic valves, to ISO 15407-1

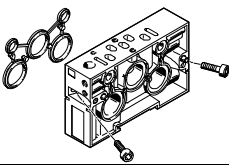
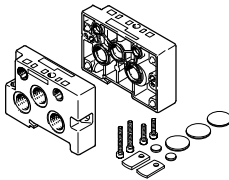
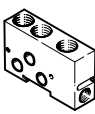
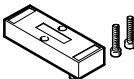
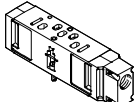
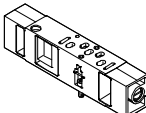
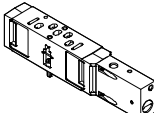
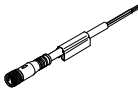
Accessories – Manifold assembly of pneumatic valves



8

Accessories	→ Page/online
13 Blanking plug B for sealing unused ports	612
14 Silencer U for fitting in exhaust ports	612
15 Push-in fitting QS for compressed air tubing with standard O.D.	612
28 Inscription label holder ASCF for identifying the valves	612
– Individual sub-base NAS	612

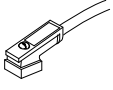







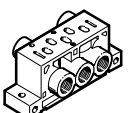
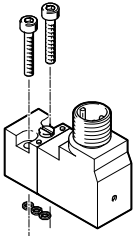
Accessories – Ordering data

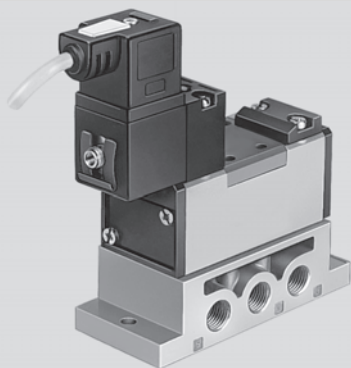
		Description		Part No.	Type	
1 Manifold sub-base with lateral ports 2 and 4						
	For solenoid valve	18 mm	★	161110	NAW-1/8-02-VDMA	
		26 mm	★	161102	NAW-1/4-01-VDMA	
	For pneumatic valve	18 mm		161111	NAW-1/8-02-VDMA-VL	
		26 mm		161103	NAW-1/4-01-VDMA-VL	
2 End plate kit						
	Width 18 mm		★	161112	NEV-02-VDMA	
	Width 26 mm		★	161104	NEV-01-VDMA	
3 Intermediate plate for connecting the sizes 02 and 01						
	Width 18/26 mm			161108	NZV-01/02-VDMA	
4 Blanking plate for vacant position						
	Width 18 mm		★	161114	NDV-02-VDMA	
	Width 26 mm		★	161107	NDV-01-VDMA	
5 Vertical supply plate						
	Width 18 mm			544435	VABF-S3-2-P1A3-G18	
	Width 26 mm			544434	VABF-S3-1-P1A3-G14	
6 Flow control plate						
	Width 18 mm			543603	VABF-S3-2-F1B1-C	
	Width 26 mm			543604	VABF-S3-1-F1B1-C	
7 Vertical pressure shut-off plate						
	Width 18 mm			543601	VABF-S3-2-L1D1-C	
	Width 26 mm			543602	VABF-S3-1-L1D1-C	
10 Round plug connector Technical data → 1053						
	Connecting cable M8	Straight socket	2.5 m	541342	NEBU-M8G4-K-2.5-LE4	
			5 m	541343	NEBU-M8G4-K-5-LE4	
		Angled socket	2.5 m	541344	NEBU-M8W4-K-2.5-LE4	
			5 m	541345	NEBU-M8W4-K-5-LE4	
	Connecting cable M12	Straight socket	2.5 m	★	550326	NEBU-M12G5-K-2,5-LE4
			5 m	★	541328	NEBU-M12G5-K-5-LE4
		Angled socket	5 m	541329	NEBU-M12W5-K-5-LE4	
	Plug socket M12, angled socket, 4-pin, screw terminal			185498	SEA-M12-4WD-PG7	

Solenoid/pneumatic valves, to ISO 15407-1

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Accessories – Ordering data

		Description	Part No.	Type	
11 Square plug type C					Technical data online: → kmeb
	Connecting cable	24 V DC, with LED	2.5 m	174844	KMEB-2-24-2,5-LED
			5 m	174845	KMEB-2-24-5-LED
		Up to 230 V AC, without LED	2.5 m	174846	KMEB-2-230-2,5
			5 m	174847	KMEB-2-230-5
	Plug socket	Screw terminal connection		151687	MSSD-EB
Insulation displacement connection		192745	MSSD-EB-S-M14		
12 Illuminating seal for plug type C					
	12 ... 24 V DC		151717	MEB-LD-12-24DC	
	230 V AC		151718	MEB-LD-230AC	
13 Blanking plug					Technical data online: → b-1
	For thread G1/8		3568	B-1/8	
	For thread G3/8		3570	B-3/8	
	For thread G1/2		3571	B-1/2	
14 Silencer					Technical data → 1100
	For thread G1/8		★ 6841	U-1/8-B	
	For thread G3/8		★ 6843	U-3/8-B	
	For thread G1/2		★ 6844	U-1/2-B	
15 Push-in fitting					Technical data → 1006
	For thread G1/8		★ 186098	QS-G1/8-8	
	For thread G3/8		★ 186103	QS-G3/8-12	
	For thread G1/2		★ 186104	QS-G1/2-12	
16 Pressure gauge					Technical data online: → pagn
	With cartridge fitting connection for regulator, 0 ... 16 bar		543487	PAGN-26-16-P10	
17 Inscription label for valves					
	Scope of delivery 24 labels in frame		18182	IBS-9x20	
28 Inscription label holder					
	Clip-on for valve cap		540888	ASCF-T-S6	
Individual sub-base					
	Width 18 mm		★ 161115	NAS-1/8-02-VDMA	
	Width 26 mm		★ 161109	NAS-1/4-01-VDMA	
Pilot valve to ISO 15218					Technical data online: → vscs
	Plug, square design, type C		24 V DC	★ 546256	VSCS-B-M32-MH-WA-1C1
	Plug M12		24 V DC	573215	VSCS-B-M32-MD-WA-1R3



- Standard valve width 42/54/65/76 mm, flow rates up to 6000 l/min
 - Manifold assembly with mixture of ISO sizes 1/2/3 possible
 - Electrical connection via square plug socket, round plug socket or versatile F coil
 - Wide range of vertical stacking modules: pressure regulator plate, flow control plate, vertical pressure shut-off plate, etc.
- ★ Quick ordering of basic designs → 624

→ www.festo.com/catalogue/5599-1

Product range overview

Type	Actuation type	Valve function	qnN [l/min]				Pilot air supply	→ Page/ online		
			ISO size							
			1	2	3	4				
MN1H-5/2	N1 solenoid coil ¹⁾ 12, 24 V DC 24, 110, 230 V AC	5/2-way valve, single solenoid	1200	2300	4500	–	Internal/ external	615		
JMN1H-5/2		5/2-way valve, double solenoid			4500			615		
JMN1DH-5/2		5/2-way valve, double solenoid with dominant signal at 14			4500			5599-1		
MN1H-5/3G		5/3-way valve, normally closed			4100			615		
MN1H-5/3B		5/3-way valve, normally open			4000			5599-1		
MN1H-5/3E		5/3-way valve, normally exhausted			4600					
MEBH-5/2	EB solenoid coil 24 V DC	5/2-way valve, single solenoid	1200	2300	4500	–	Internal	617		
JMEBH-5/2		5/2-way valve, double solenoid			4500			617		
JMEBDH-5/2		5/2-way valve, double solenoid with dominant signal at 14			4500			5599-1		
MEBH-5/3G		5/3-way valve, normally closed			4100			618		
MEBH-5/3B		5/3-way valve, normally open			4000			5599-1		
MEBH-5/3E		5/3-way valve, normally exhausted			4600					
VSVA-B-T22C	Solenoid coil with central plug M12 24 V DC	2x 2/2-way valve, 2x normally closed	1300	2800	–	–	Internal/ external	5599-1		
VSVA-B-T32C		2x 3/2-way valve, 2x normally closed	1100	2200	–	–		620		
VSVA-B-T32U		2x 3/2-way valve, 2x normally open								
VSVA-B-T32H		2x 3/2-way valve, 1x normally open, 1x normally closed								
VSVA-B-M52		5/2-way valve, single solenoid	1300	2800				621		
VSVA-B-B52		5/2-way valve, double solenoid								
VSVA-B-D52		5/2-way valve, double solenoid with dominant signal at 14								
VSVA-B-P53C		5/3-way valve, normally closed		2700				622		
VSVA-B-P53U		5/3-way valve, normally open								
VSVA-B-P53E		5/3-way valve, normally exhausted								
MFH-5/2		F solenoid coil 12, 24, 42, 48 V DC 24, 42, 48, 110, 230 V AC	5/2-way valve, single solenoid	1200	2300	4500		–	Internal/ external	626
JMFH-5/2			5/2-way valve, double solenoid			4500				627
JMFDH-5/2	5/2-way valve, double solenoid with dominant signal at 14				4500		5599-1			
MFH-5/3G	5/3-way valve, normally closed				4100					
MFH-5/3B	5/3-way valve, normally open				4000					
MFH-5/3E	5/3-way valve, normally exhausted				4600		627			
MDH-5/2...-M12	D solenoid coil 24 V DC		5/2-way valve, single solenoid	1200	2300	4500	–	Internal/ external Internal		5599-1
JMDH-5/2...-M12			5/2-way valve, double solenoid			4500				
JMDDH-5/2...-M12		5/2-way valve, double solenoid with dominant signal at 14			4500					
MDH-5/3G...-M12		5/3-way valve, normally closed			4100					
MDH-5/3B...-M12		5/3-way valve, normally open			4000					
MDH-5/3E...-M12		5/3-way valve, normally exhausted			4600					

1) The solenoid coil must be ordered separately.

Solenoid valves, to ISO 5599-1

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Product range overview

Type	Actuation type	Valve function	qnN [l/min]				Pilot air supply	→ Page/ online			
			ISO size								
			1	2	3	4					
MDH-5/2-3/4	D solenoid coil 24 V DC 42, 110, 230 V AC	5/2-way valve, single solenoid	–	–	–	6000	Internal	5599-1			
JMDH-5/2-3/4		5/2-way valve, double solenoid									
MDH-5/3G-3/4		5/3-way valve, normally closed									
MDH-5/3E-3/4		5/3-way valve, normally exhausted									
VL-5/2	Pneumatic	5/2-way valve, single solenoid	1200	2300	4500	6000	None	5599-1			
J-5/2		5/2-way valve, double solenoid									
JD-5/2		5/2-way valve, double solenoid with dominant signal at 14									
VL-5/3G		5/3-way valve, normally closed							4100	4800	
VL-5/3B		5/3-way valve, normally open									–
VL-5/3E		5/3-way valve, normally exhausted									4800

Technical data – MN1H/JMN1H

Technical data		Download CAD data → www.festo.com					
ISO size		1			2		
Valve function		5/2-way single solenoid	5/2-way double solenoid	5/3-way closed	5/2-way single solenoid	5/2-way double solenoid	5/3-way closed
Sub-base	1, 2, 3, 4, 5	G1/4			G3/8		
Pilot air	12, 14	G1/8			G1/8		
Type of mounting		Via through-hole on sub-base					
Electrical data – N1 solenoid coil							
Electrical connection		Plug pins, 3-pin, with connection pattern to EN 175301-803 type A					
Operating voltage	[V DC]	12, 24					
	[V AC]	24, 110, 230 (50 ... 60 Hz)					
Power consumption	DC	[W]	2.5				
	AC	[VA]	Pull: 7.5				
			Hold: 5				
Degree of protection to EN 60529		With plug socket to IP65					

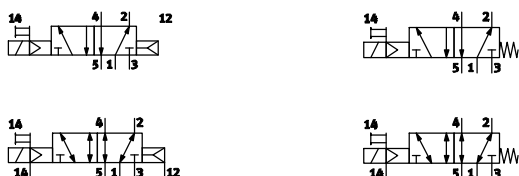
Operating conditions

Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)
Ambient temperature	[°C] –5 ... +50
Temperature of medium	[°C] –5 ... +50

Materials

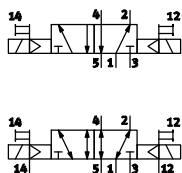
Housing	Die-cast aluminium
Seals	HNBR, NBR

Technical data – 5/2-way valve MN1H, single solenoid



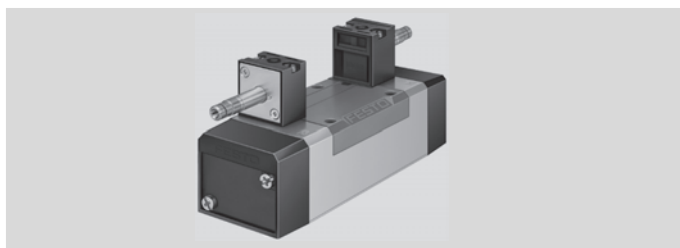
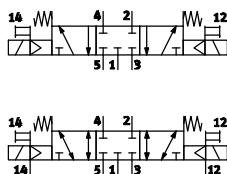
Technical data			Download CAD data → www.festo.com			
ISO size			1		2	
Reset method			Mechanical	Pneumatic	Mechanical	Pneumatic
Operating pressure	Internal pilot air supply	[bar]	3 ... 10	2 ... 10	3 ... 10	2 ... 10
	External pilot air supply	[bar]	-0.9 ... +16			
Pilot pressure		[bar]	3 ... 10	2 ... 10	3 ... 10	2 ... 10
Standard nominal flow rate	qnN	[l/min]	1200		2300	
Switching time	On/off	[ms]	17/39	23/32	24/62	46/69
			Design			
Length/width/height		[mm]	128/42/74	118/42/74	162/54/84	148/54/84

Technical data – 5/2-way valve JMN1H, double solenoid



Technical data			Download CAD data → www.festo.com			
ISO size			1		2	
Operating pressure	Internal pilot air supply	[bar]	2 ... 10			
	External pilot air supply	[bar]	-0.9 ... +16			
Pilot pressure		[bar]	2 ... 10			
Standard nominal flow rate	qnN	[l/min]	1200		2300	
Switching time	Changeover	[ms]	18		21	
Design			Piston spool valve			
Length/width/height		[mm]	148/42/74		165/54/84	

Technical data – 5/3-way valve MN1H, normally closed



Technical data			Download CAD data → www.festo.com			
ISO size			1		2	
Operating pressure	Internal pilot air supply	[bar]	3 ... 10			
	External pilot air supply	[bar]	-0.9 ... +16			
Pilot pressure		[bar]	3 ... 10			
Standard nominal flow rate	qnN	[l/min]	1200		2300	
Switching time	On/off	[ms]	20/44		33/82	
Design			Piston spool valve			
Length/width/height		[mm]	148/42/74		165/54/84	

Solenoid valves, to ISO 5599-1

Order code – MN1H/JMN1H

Solenoid valve without coil	
MN1H	5/2-way valve, single solenoid 5/3-way valve
JMN1H	5/2-way valve, double solenoid
Valve function	
5/2	5/2-way valve
5/3G	5/3-way valve, normally closed
Standard identification	
D	Standard identification D
Size	
1	ISO size 1
2	ISO size 2
Reset method for 5/2-way valve, single solenoid	
–	Pneumatic spring
FR	Mechanical spring ¹
Pilot air supply	
–	Internal
S	External
Generation	
C	C series

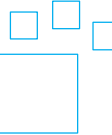
¹ Only for 5/2-way valves, single solenoid

Order example:

MN1H-5/2-D-2-FR-S-C

Solenoid valve without coil MN1H - 5/2-way valve, single solenoid - standard identification D - ISO size 2 - mechanical spring reset method - external pilot air supply - C series

Ordering – Product options

	<p>Configurable product</p>	<p>This product and all its options can be ordered using the configurator.</p>	<p>The configurator can be found under Products on the DVD or → www.festo.com/catalogue/...</p>	<p>Enter the type code in the search field.</p>
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Technical data – MEBH/JMEBH

Technical data		Download CAD data → www.festo.com				
ISO size		1			2	
Valve function		5/2-way single solenoid	5/2-way double solenoid	5/3-way closed	5/2-way single solenoid	5/2-way double solenoid
Sub-base	1, 2, 3, 4, 5	G $\frac{1}{4}$			G $\frac{3}{8}$	
Type of mounting		Via through-hole on sub-base				
Electrical data – EB solenoid coil						
Electrical connection		Central plug, round design M12x1, 4-pin				
Operating voltage	[V DC]	24				
Power consumption	DC [W]	2.5				
Degree of protection to EN 60529		With plug socket to IP65				

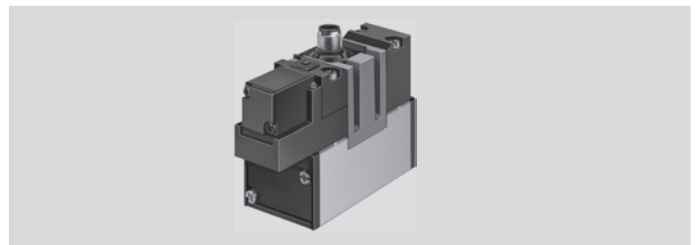
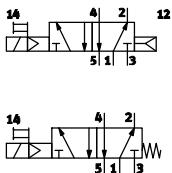
Operating conditions

Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)
Ambient temperature	[°C]	-5 ... +50
Temperature of medium	[°C]	-5 ... +50

Materials

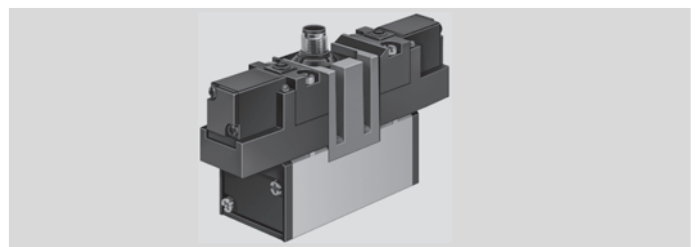
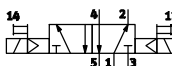
Housing	Die-cast aluminium
Seals	HNBR, NBR

Technical data – 5/2-way valve MEBH, single solenoid



Technical data		Download CAD data → www.festo.com			
ISO size		1		2	
Reset method		Mechanical	Pneumatic	Mechanical	Pneumatic
Operating pressure	[bar]	3 ... 10	2 ... 10	3 ... 10	2 ... 10
Standard nominal flow rate	qnN [l/min]	1200		2300	
Switching time	On/off [ms]	15/50	20/33	33/103	50/85
Design		Piston spool valve			
Length/width/height	[mm]	122/42/81	111/42/81	155/54/91	138/54/91

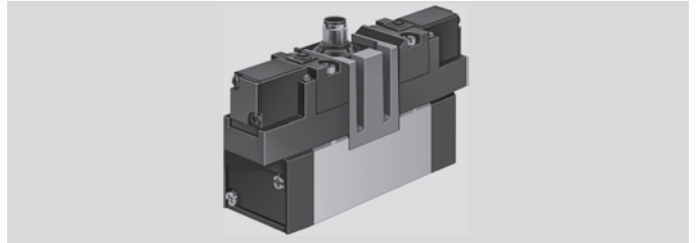
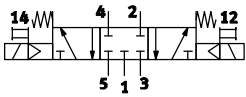
Technical data – 5/2-way valve JMEBH, double solenoid



Technical data		Download CAD data → www.festo.com	
ISO size		1	2
Operating pressure	[bar]	2 ... 10	
Standard nominal flow rate	qnN [l/min]	1200	2300
Switching time	Changeover [ms]	12	15
Design		Piston spool valve	
Length/width/height	[mm]	134/42/81	152/54/91

Solenoid valves, to ISO 5599-1

Technical data – 5/3-way valve MEBH, normally closed



Technical data

Download CAD data → www.festo.com

ISO size		1	2
Operating pressure	[bar]	3 ... 10	
Pilot pressure	[bar]	3 ... 10	
Standard nominal flow rate	qnN	[l/min]	1200
Switching time	On/off	[ms]	19/68
Design		Piston spool valve	
Length/width/height	[mm]	134/42/81	152/54/91

Order code – MEBH/JMEBH

				D		ZSR		C
Solenoid valve								
MEBH	5/2-way valve, single solenoid 5/3-way valve							
JMEBH	5/2-way valve, double solenoid							
Valve function								
5/2	5/2-way valve							
5/3G	5/3-way valve, normally closed							
Standard identification								
D	Standard identification D							
Size								
1	ISO size 1							
2	ISO size 2							
Electrical connection								
ZSR	Round central plug, M12x1, 24 V DC							
Reset method for 5/2-way valve, single solenoid								
-	Pneumatic spring							
FR	Mechanical spring ¹							
Generation								
C	C series							

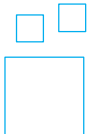
¹ Only for 5/2-way valves, single solenoid

Order example:

JMEBH-5/2-D-1-ZSR-C

Solenoid valve JMEBH - 5/2-way valve - standard identification D - ISO size 1 - round central plug, M12x1, 24 V DC electrical connection - pneumatic spring reset method - C series

Ordering – Product options

	<p>Configurable product</p>	<p>This product and all its options can be ordered using the configurator.</p>	<p>The configurator can be found under Products on the DVD or www.festo.com/catalogue/...</p>	<p>Enter the type code in the search field.</p>
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Solenoid valves, to ISO 5599-1

Technical data – VSVA

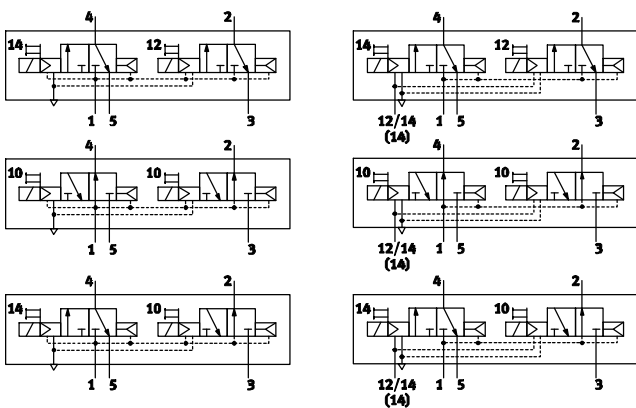
Technical data		Download CAD data → www.festo.com							
ISO size		1				2			
Valve function		2x 3/2-way single solenoid	5/2-way single solenoid	5/2-way double solenoid	5/3-way single solenoid	2x 3/2-way single solenoid	5/2-way single solenoid	5/2-way double solenoid	5/3-way single solenoid
Sub-base	1, 2, 3, 4, 5 12, 14	G1/4 M5				G3/8 G1/8			
Type of mounting		On sub-base							
Electrical data – Solenoid coil									
Electrical connection		Central plug, round design M12x1, 3-pin							
Operating voltage	[V DC]	24							
Power consumption	DC [W]	1.3	1.6			4.6			
Degree of protection		With plug socket to IP65 (to EN 60529) and NEMA4							
Protective circuit and LED		Integrated in the valve							

Operating conditions	
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)
Ambient temperature	[°C] -5 ... +50

Materials	
Housing	Die-cast aluminium, PA
Screws	Galvanised steel
Seals	FPM, NBR

8

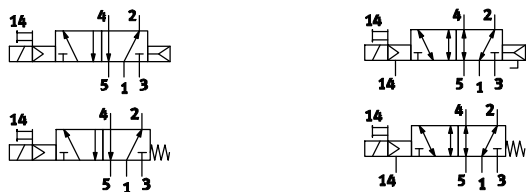
Technical data – 2x 3/2-way valve VSVA



Technical data		Download CAD data → www.festo.com	
ISO size		1	2
Reset method		Pneumatic	
Operating pressure	Internal pilot air supply [bar]	3 ... 10	
	External pilot air supply [bar]	3 ... 10	
Pilot pressure ¹⁾	[bar]	3 ... 10	
Standard nominal flow rate	qnN [l/min]	1100	2200
Switching time	On/off [ms]	20/38	20/35
Design		Piston spool valve	
Length/width/height	[mm]	138/42/59	160/52/60

1) Minimum pilot pressure 50% of operating pressure.

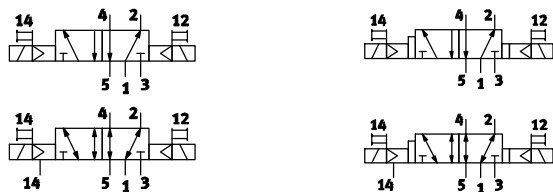
Technical data – 5/2-way valve VSVA, single solenoid



Technical data		Download CAD data → www.festo.com			
ISO size		1	2		
Reset method		Mechanical	Pneumatic	Mechanical	Pneumatic
Operating pressure	Internal pilot air supply	[bar]	3 ... 10		
	External pilot air supply	[bar]	-0.9 ... +10		
Pilot pressure ¹⁾		[bar]	3 ... 10		
Standard nominal flow rate	qnN	[l/min]	1300		2800
Switching time	On/off	[ms]	22/60	27/45	20/60
					40/45
Design	Piston spool valve				
Length/width/height	[mm]	138/42/59		160/52/60	

1) Minimum pilot pressure 50% of operating pressure.

Technical data – 5/2-way valve VSVA, double solenoid

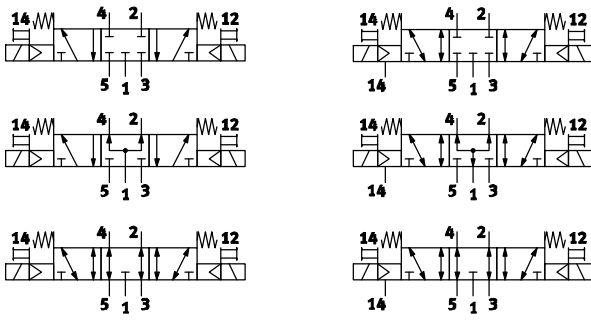


Technical data		Download CAD data → www.festo.com			
ISO size		1	2		
Operating pressure	Internal pilot air supply	[bar]	3 ... 10		
	External pilot air supply	[bar]	-0.9 ... +10		
Pilot pressure ¹⁾		[bar]	3 ... 10		
Standard nominal flow rate	qnN	[l/min]	1300		2800
Changeover time	Dominance at 1st signal	[ms]	16		18
	Dominant signal at 14		19		18
Design	Piston spool valve				
Length/width/height	[mm]	138/42/59		160/52/60	

1) Minimum pilot pressure 50% of operating pressure.

Solenoid valves, to ISO 5599-1

Technical data – 5/3-way valve VSVA



Technical data			Download CAD data → www.festo.com	
ISO size			1	2
Reset method			Mechanical	–
Operating pressure	Internal pilot air supply	[bar]	3 ... 10	
	External pilot air supply	[bar]	–0.9 ... +10	
Pilot pressure ¹⁾		[bar]	3 ... 10	
Standard nominal flow rate	qnN	[l/min]	1300	2700
Switching time	On/off	[ms]	22/65	23/60
Design			Piston spool valve	
Length/width/height		[mm]	138/42/59	160/52/60

1) Minimum pilot pressure 50% of operating pressure.

Order code – 2x 3/2-way valves VSVA

VSVA – B – T 32 – A D – 1 R5 L	
Valve series	
VSVA	Standard valve to ISO 5599-1
Valve type	
B	Sub-base valve
Valve function	
T	2 single solenoid valves in one housing
Ports/switching positions	
32	3/2-way valve
Normal position/additional function	
C	Closed
U	Open
H	1x open, 1x closed
Reset method	
A	Pneumatic spring
Pilot air supply	
–	Internal
Z	External
Manual override	
D	Non-detenting/detenting
Standard	
D1	ISO size 1, width 42 mm
D2	ISO size 2, width 52 mm
Operating voltage	
1	24 V DC
Electrical connection	
R5	Central plug M12x1
Signal status display	
L	LED (integrated)

Order example:

VSVA-B-T32C-AZD-D1-1R5L

Standard valve VSVA - sub-base valve - 2 single solenoid valves in one housing - 3/2-way valve - normally closed - pneumatic spring reset method - external pilot air supply - non-detenting/detenting manual override - ISO size 1 - operating voltage 24 V DC - central plug M12x1 electrical connection - LED signal status display

Ordering – Product options

	<p>Configurable product</p>	<p>This product and all its options can be ordered using the configurator.</p>	<p>The configurator can be found under Products on the DVD or → www.festo.com/catalogue/...</p>	<p>Enter the type code in the search field.</p>
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Solenoid valves, to ISO 5599-1

Order code – 5/2-way valves VSVA

VSVA		B		52		D		1		R5		L	
Valve series													
VSVA	Standard valve to ISO 5599-1												
Valve type													
B	Sub-base valve												
Valve function													
M	Single solenoid												
B	Double solenoid												
D	Double solenoid with dominant signal at 14												
Ports/switching positions													
52	5/2-way valve												
Reset method													
A	Pneumatic spring												
M	Mechanical spring												
-	Double solenoid valve												
Pilot air supply													
-	Internal												
Z	External												
Manual override													
D	Non-detenting/detenting												
Standard													
D1	ISO size 1, width 42 mm												
D2	ISO size 2, width 52 mm												
Operating voltage													
1	24 V DC												
Electrical connection													
R5	Central plug M12x1												
Signal status display													
L	LED (integrated)												

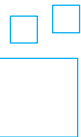
8

Order example:

VSVA-B-B52-D-D1-1R5L

Standard valve VSVA - sub-base valve - double solenoid - 5/2-way valve - internal pilot air supply - non-detenting/detenting manual override - ISO size 1 - operating voltage 24 V DC - central plug M12x1 electrical connection - LED signal status display

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
www.festo.com/catalogue/...

Enter the type code in the search field.

★ **Quick order¹⁾**

		Part No.	Type
5/2-way single solenoid valve	Pneumatic spring reset method	561362	VSVA-B-M52-AD-D1-1R5L
	Mechanical spring reset method	561363	VSVA-B-M52-MD-D1-1R5L
5/2-way double solenoid valve	Dominance at 1st signal	561364	VSVA-B-B52-D-D1-1R5L

1) All products in this table are easy to select and quick to order.

Order code – 5/3-way valves VSVA

VSVA		–	B	–	P	53	–	D	–	1	R5	L
Valve series												
VSVA	Standard valve to ISO 5599-1											
Valve type												
B	Sub-base valve											
Valve function												
P	Single solenoid, mid-position											
Ports/switching positions												
53	5/3-way valve											
Normal position/additional function												
C	Closed											
U	Open											
E	Exhausted											
Pilot air supply												
–	Internal											
Z	External											
Manual override												
D	Non-detenting/detenting											
Standard												
D1	ISO size 1, width 42 mm											
D2	ISO size 2, width 52 mm											
Operating voltage												
1	24 V DC											
Electrical connection												
R5	Central plug M12x1											
Signal status display												
L	LED (integrated)											

Order example:

VSVA-B-P53C-ZD-D1-1R5L

Standard valve VSVA - sub-base valve - single solenoid, mid-position - 5/3-way valve - normally closed - external pilot air supply - non-detenting/detenting manual override - ISO size 1 - operating voltage 24 V DC - central plug M12x1 electrical connection - LED signal status display

Ordering – Product options

	<p>Configurable product</p>	<p>This product and all its options can be ordered using the configurator.</p>	<p>The configurator can be found under Products on the DVD or → www.festo.com/catalogue/...</p>	<p>Enter the type code in the search field.</p>
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Solenoid valves, to ISO 5599-1

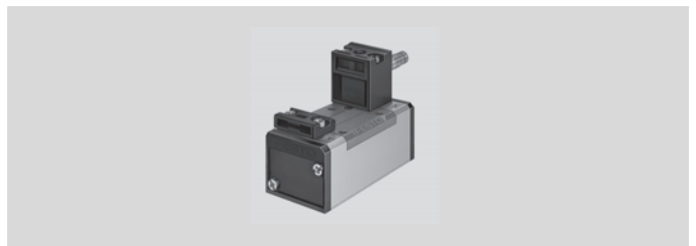
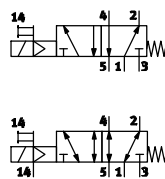
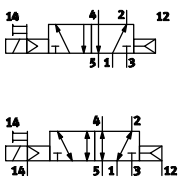
Technical data – MFH/JMFH

Technical data			Download CAD data → www.festo.com			
ISO size			1		2	
Valve function			5/2-way single solenoid	5/2-way double solenoid	5/3-way exhausted	5/2-way single solenoid 5/2-way double solenoid 5/3-way exhausted
Sub-base	1, 2, 3, 4, 5		G¼		G¾	
Type of mounting			Via through-hole on sub-base			
Electrical data – F solenoid coil			Plug pins, 3-pin, with connection pattern to Festo standard for MSSD-F			
Operating voltage	DC voltage	[V DC]	12, 24, 42, 48			
	AC voltage	[V AC]	24, 42, 48, 110, 230, 240 (50 ... 60 Hz)			
Coil characteristics	DC voltage	[W]	4.5			
	AC voltage	[VA]	Pull: 9 Hold: 7			
Degree of protection to EN 60529			With plug socket to IP65			

Operating conditions		
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)
Ambient temperature	[°C]	-5 ... +40
Temperature of medium	[°C]	-10 ... +60

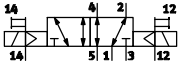
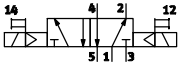
Materials	
Housing	Die-cast aluminium
Seals	HNBR, NBR

Technical data – 5/2-way valve MFH, single solenoid



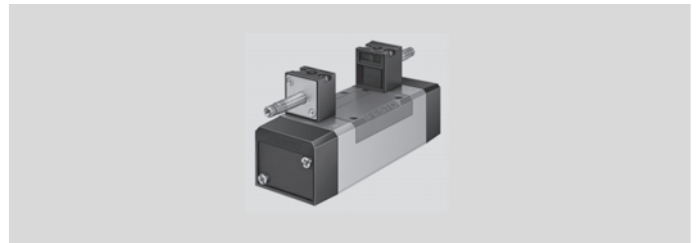
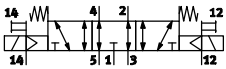
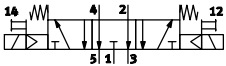
Technical data			Download CAD data → www.festo.com			
ISO size			1		2	
Reset method			Mechanical	Pneumatic	Mechanical	Pneumatic
Operating pressure	Internal pilot air supply	[bar]	3 ... 10	2 ... 10	3 ... 10	2 ... 10
	External pilot air supply	[bar]	-0.9 ... +16	-0.9 ... +16	-0.9 ... +16	-0.9 ... +16
Pilot pressure		[bar]	2 ... 10			
Standard nominal flow rate	qnN	[l/min]	1200		2300	
Switching time	On/off	[ms]	16/45	23/35	27/73	48/71
Design			Piston spool valve			
Length/width/height		[mm]	126/42/70	115/42/70	160/54/80	142/54/80

Technical data – 5/2-way valve JMFH, double solenoid



Technical data			Download CAD data → www.festo.com	
ISO size			1	2
Operating pressure	Internal pilot air supply	[bar]	2 ... 10	
	External pilot air supply	[bar]	-0.9 ... +16	
Pilot pressure		[bar]	2 ... 10	
Standard nominal flow rate	qnN	[l/min]	1200	2300
Switching time	Changeover	[ms]	16	18
Design	Piston spool valve			
Length/width/height		[mm]	143/42/70	160/54/80

Technical data – 5/3-way valve MFH, normally exhausted



Technical data			Download CAD data → www.festo.com	
ISO size			1	2
Operating pressure	Internal pilot air supply	[bar]	3 ... 10	
	External pilot air supply	[bar]	-0.9 ... +16	
Pilot pressure		[bar]	2 ... 10	
Standard nominal flow rate	qnN	[l/min]	1200	2300
Switching time	On/off	[ms]	18/36	35/67
Design	Piston spool valve			
Length/width/height		[mm]	143/42/70	160/54/80

Solenoid valves, to ISO 5599-1

Order code – MFH/JMFH

Solenoid valve	
MFH	Single solenoid, for F solenoid coil
JMFH	Double solenoid, for F solenoid coil
Valve function	
5/2	5/2-way valve
5/3E	5/3-way valve, normally exhausted
Standard identification	
D	Standard identification D
Size	
1	ISO size 1, width 42 mm
2	ISO size 2, width 52 mm
Reset method for 5/2-way valve, single solenoid	
–	Pneumatic spring
FR	Mechanical spring ¹
Pilot air supply	
–	Internal
S	External
Generation	
C	C series

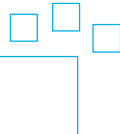
¹ Only for 5/2-way valves, single solenoid

Order example:

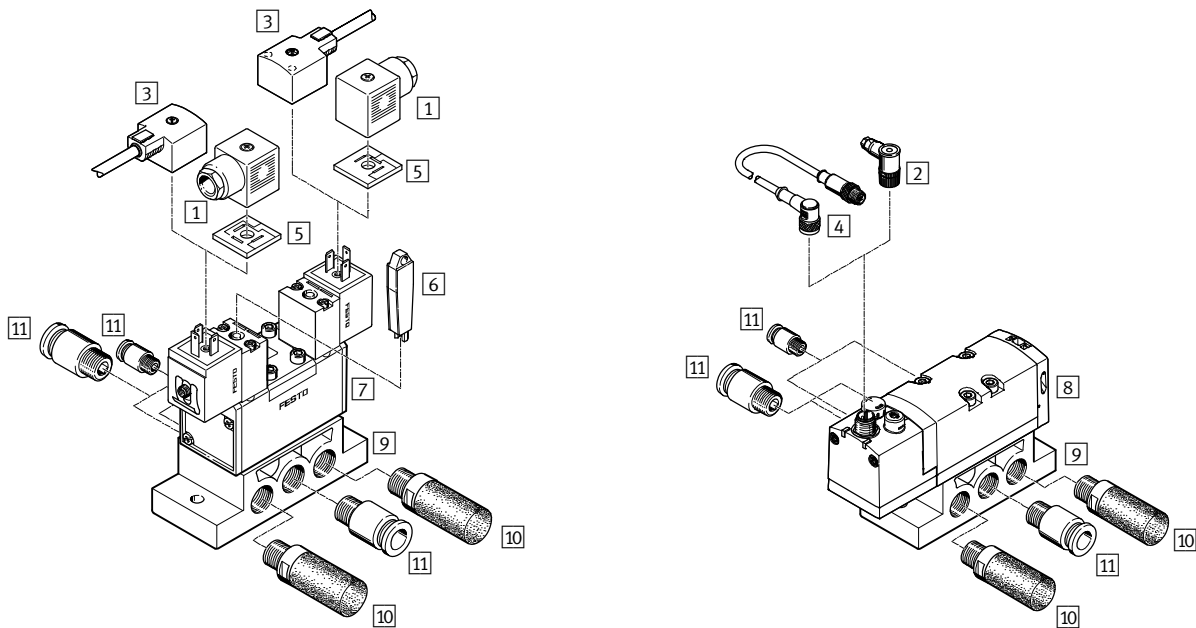
JMFH-5/2-D-1-C

Solenoid valve, double solenoid, without solenoid coil JMFH - 5/2-way valve - standard identification D - ISO size 1 - C series

Ordering – Product options

	<p>Configurable product</p>	<p>This product and all its options can be ordered using the configurator.</p>	<p>The configurator can be found under Products on the DVD or → www.festo.com/catalogue/...</p>	<p>Enter the type code in the search field.</p>
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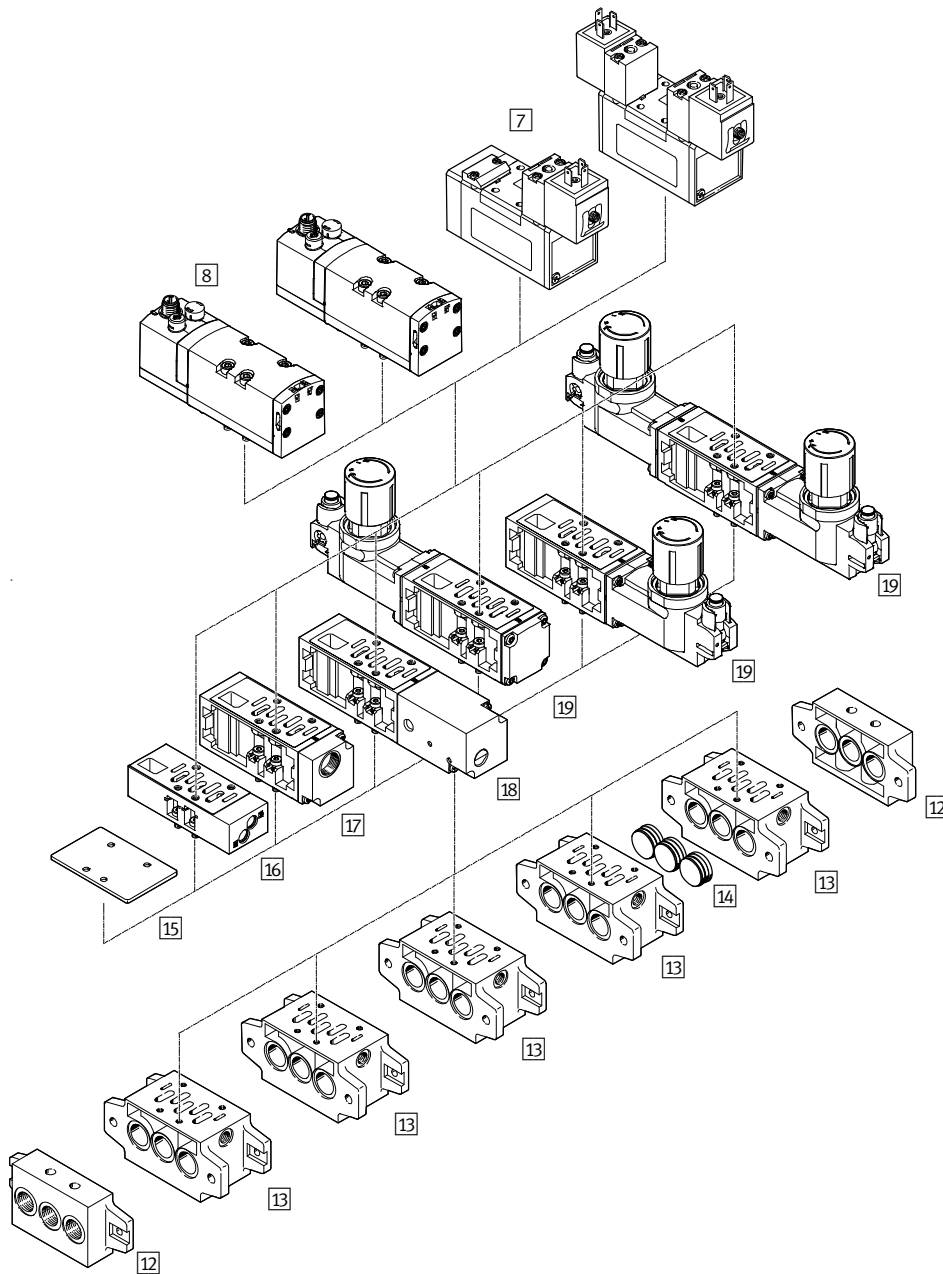
Accessories – Individual mounting



		→ Page/online
1	Angled plug socket MSSD, square design	632
2	Plug socket SEA for plug M12x1	632
3	Plug socket with cable KMC for plug type A	632
4	Connecting cable KM12-M12 for plug M12x1	632
5	Illuminating seal MC-LD for N1 solenoid coil	632
6	Manual override AHB	632
7	Solenoid valve MN1H	615
8	Solenoid valve VSVA	620
9	Individual sub-base NAS	632
10	Silencer U	632
11	Push-in fitting QS	633
-	N1 solenoid coil	634
-	F solenoid coil	634
-	Inscription label IBS-9x17	634

Solenoid valves, to ISO 5599-1

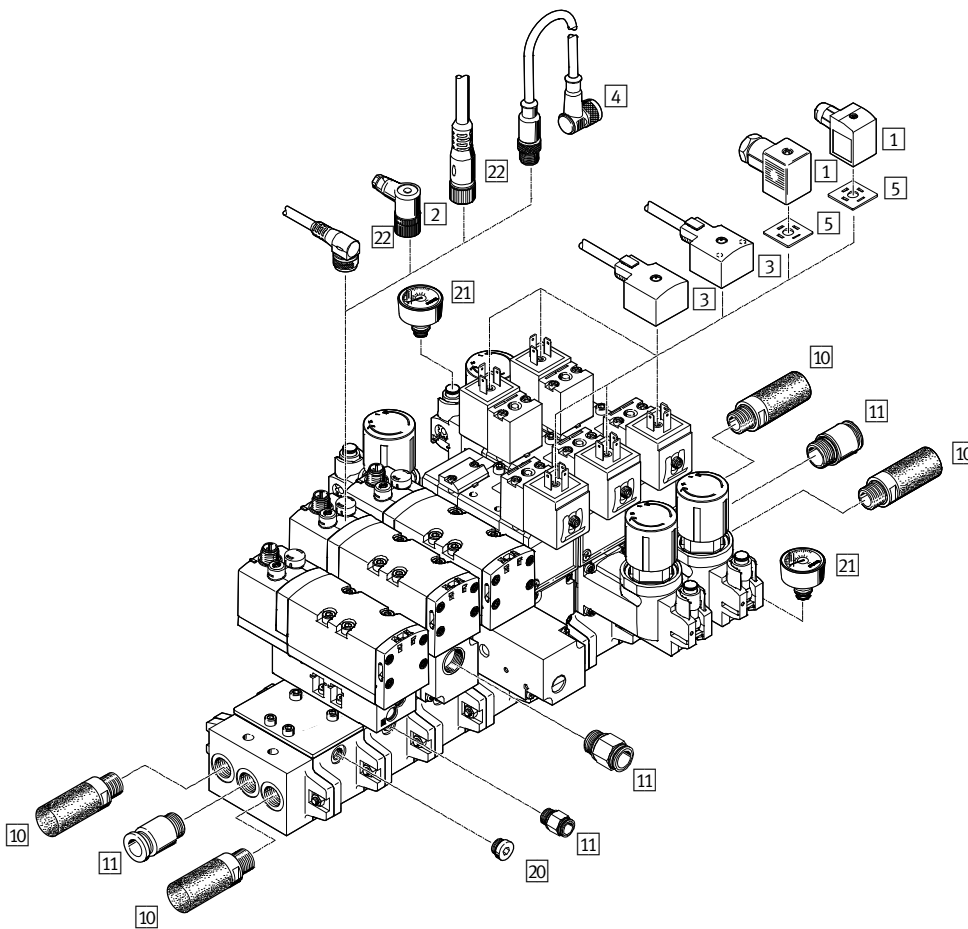
Accessories – Manifold assembly



8

		→ Page/online
7	Solenoid valve MN1H	615
8	Solenoid valve VSVA	620
12	End plate kit NEV	633
13	Manifold sub-base NAV	633
14	Isolating disc NSC	633
15	Blanking plate NDV	633
16	Flow control plate VABF-S1-1-F1B1	633
17	Vertical supply plate VABF-S1-1-P1A3	633
18	Vertical pressure shut-off plate VABF-S1-1-L1D1	633
19	Regulator plate VABF-S1-1-R	634
-	N1 solenoid coil	634
-	F solenoid coil	634
-	Inscription label IBS-9x17	634



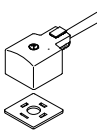
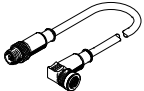


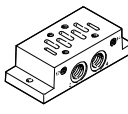

Accessories




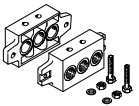
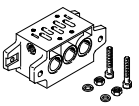


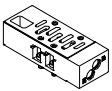
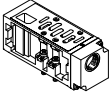
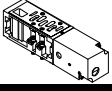
		→ Page/online
1	Angled plug socket MSSD, square design	632
2	Plug socket SEA for plug M12x1	632
3	Plug socket with cable KMC for plug type A	632
4	Connecting cable KM12-M12 for plug M12x1	632
5	Illuminating seal MC-LD for N1 solenoid coil	632
10	Silencer U	632
11	Push-in fitting QS	633
20	Blanking plug B	634
21	Pressure gauge PAGN-26-10-P10	634
22	Plug socket with cable NEBU-M12 for plug M12x1	634
-	N1 solenoid coil	634
-	F solenoid coil	634
-	Inscription label IBS-9x17	634

Solenoid valves, to ISO 5599-1

Accessories – Ordering data

Description		Part No.	Type		
1 Angled plug socket Technical data online: → mssd					
	For plug type A	Cable conduit fitting Pg9	Screw terminal	34583	MSSD-C
		Cable conduit fitting M16	Screw terminal	539709	MSSD-C-M16
		–	Insulation displacement connection	192748	MSSD-C-S-M16
	For F solenoid coil	Cable conduit fitting Pg9	Screw terminal	★ 34431	MSSD-F
2 Plug socket for plug M12x1 Technical data online: → sea					
	Angled socket, M12, 4-pin		Screw terminal	185498	SEA-M12-4WD-PG7
3 Plug socket with cable for plug type A Technical data online: → kmc					
	24 V DC	With LED	2.5 m	30931	KMC-1-24DC-2,5-LED
			5 m	30933	KMC-1-24DC-5-LED
			10 m	193459	KMC-1-24DC-10-LED
	Up to 230 V	Without LED	2.5 m	30932	KMC-1-230AC-2,5
			5 m	30934	KMC-1-230AC-5
4 Connecting cable for plug M12x1 Technical data online: → km12					
	Connecting cable, straight plug, angled socket	M12, 4-pin	1.0 m	185499	KM12-M12-GSWD-1-4
5 Illuminating seal for N1 solenoid coil					
	Illuminating seal	For N1 solenoid coils	12 ... 24 V DC	19145	MC-LD-12-24DC
			230 V DC/V AC	19146	MC-LD-230AC
6 Manual override					
	Tool for manual override	Valves MEBH		157601	AHB-MEB
		Valves MN1H/MFH-		157651	AHB-MD/MF/MV
9 Individual sub-base					
	For valves in 42 mm width	Ports at side	★	9484	NAS-1/4-1A-ISO
		Ports underneath	★	9485	NAU-1/4-1B-ISO
	For valves in 52 mm width	Ports at side		11310	NAS-3/8-2A-ISO
		Ports underneath		11416	NAU-3/8-2B-ISO
10 Silencer Technical data → 1100					
	Silencer for noise reduction at exhaust ports	For thread G1/4	★	6842	U-1/4-B
		For thread G3/8	★	6843	U-3/8-B
		For thread G1/2	★	6844	U-1/2-B

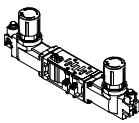


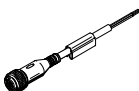

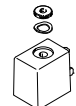
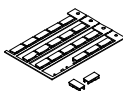
Accessories – Ordering data

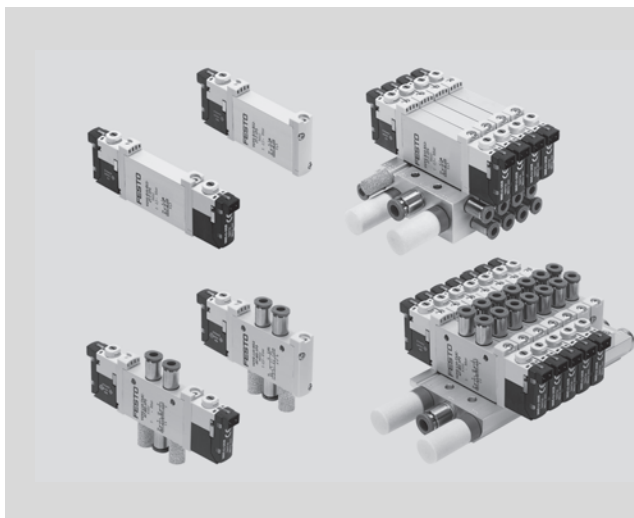
	Description		Part No.	Type	
11	Push-in fitting				Technical data → 1006
	Connecting thread G1/8	Tubing O.D. 8 mm	10 pieces	★	186098 QS-G1/8-8
	Connecting thread G1/4	Tubing O.D. 8 mm	10 pieces	★	186099 QS-G1/4-8
	Connecting thread G3/8, plastic releasing ring	Tubing O.D. 10 mm	10 pieces	★	186102 QS-G3/8-10
	Connecting thread G1/2	Tubing O.D. 12 mm	1 piece	★	186104 QS-G1/2-12
12	End plate kit				
	Right-hand and left-hand end plate	For valves in 42 mm width		★	10174 NEV-1DA/DB-ISO
		For valves in 52 mm width			11306 NEV-2DA/DB-ISO
13	Manifold sub-base				
	One valve position	For valves in 42 mm width	Ports under- neath	★	10173 NAV-1/4-1C-ISO
			Ports at side and underneath	★	152789 NAVW-1/4-1-ISO
		For valves in 52 mm width	Ports under- neath		11305 NAV-3/8-2C-ISO
14	Isolating disc				
	For pressure zone separation	For valves in 42 mm width		★	11550 NSC-1/4-1-ISO
		For valves in 52 mm width			11908 NSC-3/8-2-ISO
15	Blanking plate				
	With seal and mounting screws	For valves in 42 mm width		★	9489 NDV-1-ISO
		For valves in 52 mm width			11308 NDV-2-ISO
16	Flow control plate				
	For exhaust air flow control in ports 3 and 5 of the valve	For valves in 52 mm width			555788 VABF-S1-2-F1B1-C
17	Vertical supply plate				
	For independently supplying work- ing air to a valve	For valves in 52 mm width			555785 VABF-S1-2-P1A3-G12
18	Vertical pressure shut-off plate				
	For shutting off a valve from the supply pressure	For valves in 52 mm width			555790 VABF-S1-2-L1D1-C

Solenoid valves, to ISO 5599-1

FESTO

Accessories – Ordering data

Description		Part No.	Type			
19 Regulator plate, for valves in 52 mm width						
	For port 1	P	0.5 ... 10 bar	555758	VABF-S1-2-R1C2-C-10	
			0.5 ... 6 bar	555757	VABF-S1-2-R1C2-C-6	
	For port 2	B	0.5 ... 10 bar	555760	VABF-S1-2-R2C2-C-10	
			0.5 ... 6 bar	555759	VABF-S1-2-R2C2-C-6	
	For port 4	A	0.5 ... 10 bar	555762	VABF-S1-2-R3C2-C-10	
			0.5 ... 6 bar	555761	VABF-S1-2-R3C2-C-6	
	For port 2 and 4	AB	0.5 ... 10 bar	555764	VABF-S1-2-R4C2-C-10	
			0.5 ... 6 bar	555763	VABF-S1-2-R4C2-C-6	
	For port 2 and 4, reversible	AB	0.5 ... 10 bar	555766	VABF-S1-2-R5C2-C-10	
			0.5 ... 6 bar	555765	VABF-S1-2-R5C2-C-6	
	For port 2, reversible	B	0.5 ... 10 bar	555768	VABF-S1-2-R6C2-C-10	
			0.5 ... 6 bar	555767	VABF-S1-2-R6C2-C-6	
	For port 4, reversible	A	0.5 ... 10 bar	555770	VABF-S1-2-R7C2-C-10	
			0.5 ... 6 bar	555769	VABF-S1-2-R7C2-C-6	
20 Blanking plug Technical data online: → b-1						
	For sealing ports	Connecting thread G1/4	10 pieces	3569	B-1/4	
		Connecting thread G3/8	10 pieces	3570	B-3/8	
21 Pressure gauge Technical data online: → pagn						
	With cartridge fitting connection for regulator plate		0 ... 10 bar	543488	PAGN-26-10-P10	
22 Plug socket with cable for plug M12x1 Technical data online: → nebu						
	Open cable end, 4-wire	Straight socket, 5-pin	2.5 m	★	550326	NEBU-M12G5-K-2.5-LE4
			5 m	★	541328	NEBU-M12G5-K-5-LE4
		Angled socket, 5-pin	5 m		541329	NEBU-M12W5-K-5-LE4
N1 solenoid coil for valves MN1H, JMN1H						
	24 V DC			123060	MSN1G-24DC-OD	
	12 V DC and 24 V AC, 50 ... 60 Hz			170152	MSN1W-24AC/12DC	
	110 V AC, 50 ... 60 Hz			123061	MSN1W-110AC-OD	
	230 V AC, 50 ... 60 Hz			123062	MSN1W-230AC-OD	
F solenoid coil for valves MFH, JMFH						
	12 V DC			34410	MSFG-12DC-OD	
	24 V DC and 42 V AC, 50 ... 60 Hz, plug pins with connection pattern to Festo standard for MSSD-F			4527	MSFG-24/42-50/60	
		★	34411	MSFG-24/42-50/60-OD		
	42 V DC			34413	MSFG-42DC-OD	
	24 V AC			34415	MSFG-24AC-OD	
	48 V AC, 50 ... 60 Hz			34418	MSFW-48AC-OD	
	110 V AC, 50 ... 60 Hz and 120 V AC, 60 Hz			34420	MSFW-110AC-OD	
	230 V AC, 50 ... 60 Hz and 240 V AC, 60 Hz			34422	MSFW-230AC-OD	
	240 V AC, 50 ... 60 Hz			34424	MSFW-240AC-OD	
Inscription label						
	Inscription label for valves		24 pieces in frame	161937	IBS-9x17	



- Universal valve
- Combination of basic valves and connection options
- Width 10, 14 and 18 mm
- In-line valves VUVG-L and VUVG-S
- Sub-base valves VUVG-B
- Internal or external pilot air supply
- Can be mounted as individual valve or sub-base valve on sturdy aluminium manifold rail

★ Quick ordering of basic designs → 640, 646, 652, 658, 664, 670

→ www.festo.com/catalogue/vuvg

Product range overview

Type	Design	Working port	Valve functions and flow rate [l/min]													→ Page/ online	
			T32C-A	T32U-A	T32H-A	T32C-M	T32U-M	T32H-M	M52-A	M52-M	M52-R	B52	P53C	P53U	P53E		
VUVG-L	In-line valve	M3 (10A)	–	–	–	–	–	–	–	–	80	100	100	90	90	90	vuvg
		M5 (10)	150	150	150	135	125	125	–	190	220	220	210	210	210	636	
		M7 (10)	190	190	190	150	140	140	–	320	380	380	320	320	320	636	
		G1/8 (14)	650	600	650	550	500	500	780	780	–	780	650	600	600	642	
		G1/4 (18)	1000	1000	1000	1000	1000	1000	–	1300	1300	1380	1200	1000	1000	648	
VUVG-S	In-line valve for manifold assembly	M3 (10A)	–	–	–	–	–	–	–	80	100	100	90	90	90	vuvg	
		M5 (10)	150	150	150	135	125	125	–	190	220	220	210	210	210	636	
		M7 (10)	170	170	170	140	130	130	–	290	340	340	300	300	300	636	
		G1/8 (14)	620	580	580	520	480	480	730	730	–	730	620	580	580	642	
		G1/4 (18)	1000	1000	1000	1000	1000	1000	–	1300	1300	1380	1200	1000	1000	648	
VUVG-B	Sub-base valve	M3 (10A)	–	–	–	–	–	–	–	80	100	100	90	90	90	vuvg	
		M5 (10)	150	150	150	130	120	120	–	180	210	210	200	200	200	654	
		M7 (10)	160	160	160	140	130	130	–	230	270	270	250	250	250	654	
		G1/8 (14)	540	510	540	430	410	410	580	580	–	580	540	510	510	660	
		G1/4	800	800	800	800	800	800	–	1000	1000	1000	950	950	950	666	

Valve functions:

- T32C-A 2x3/2-way valve, normally closed, pneumatic spring
- T32U-A 2x3/2-way valve, normally open, pneumatic spring
- T32H-A 2x3/2-way valve, 1x normally closed, 1x normally open, pneumatic spring
- T32C-M 2x3/2-way valve, normally closed, mechanical spring
- T32U-M 2x3/2-way valve, normally open, mechanical spring
- T32H-M 2x3/2-way valve, 1x normally closed, 1x normally open, mechanical spring
- M52-A 5/2-way valve, single solenoid, pneumatic spring
- M52-M 5/2-way valve, single solenoid, mechanical spring
- M52-R 5/2-way valve, single solenoid, pneumatic/mechanical spring
- B52 5/2-way valve, double solenoid
- P53C 5/3-way valve, mid-position closed
- P53U 5/3-way valve, mid-position pressurised
- P53E 5/3-way valve, mid-position exhausted

Solenoid valves VUVG-L10 and VUVG-S10, in-line valves M5/M7

Technical data

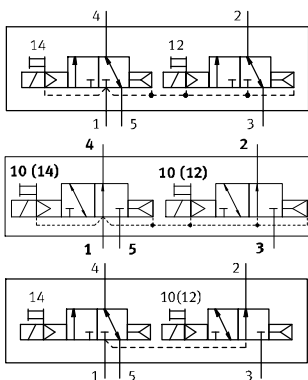
Technical data		Download CAD data → www.festo.com									
Valve function		T32-A			T32-M			M52-R	B52	M52-M	P53
Normal position		C ¹⁾	U ²⁾	H ⁴⁾	C ¹⁾	U ²⁾	H ⁴⁾	–	–	–	C ¹⁾ U ²⁾ E ³⁾
Pneumatic spring reset method		Yes			No			Yes ⁵⁾	–	No	No
Mechanical spring reset method		No			Yes			Yes ⁵⁾	–	Yes	Yes
Port: In-line valve	1, 2, 3, 4, 5 12, 14	M5, M7 M3									
Vacuum operation at port 1		No			Only with external pilot air supply						
Design		Piston spool valve									
Type of mounting		Via through-holes ⁶⁾									
Electrical connection		Via E-box									
Nominal operating voltage	[V DC]	5, 12 and 24 ±10%									
Power	[W]	1, reduced to 0.35 with holding current reduction									
Duty cycle	[%]	100									
Degree of protection to EN 60529		IP40 (with plug socket), IP65 (with M8)									

- 1) C=Normally closed.
- 2) U=Normally open/mid-position pressurised.
- 3) E=Normally exhausted.
- 4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open.
- 5) Combined reset method.
- 6) If several valves are to be screwed together via the through-holes to form a block, a minimum gap of 0.3 mm must be ensured by placing spacer discs between them.

Operating conditions	
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)
Ambient temperature	[°C] -5 ... +50, -5 ... +60 with holding current reduction
Temperature of medium	[°C] -5 ... +50, -5 ... +60 with holding current reduction

Materials	
Housing	Wrought aluminium alloy
Seals	HNBR, NBR

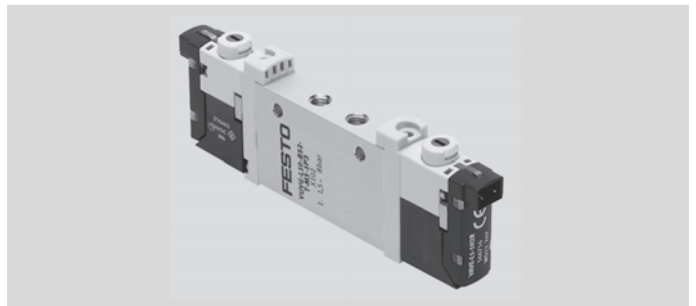
Technical data – 2x3/2-way valve



Normally closed, internal or external pilot air supply

Normally open, internal or external pilot air supply

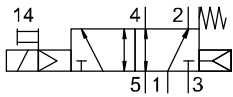
1x normally closed,
1x normally open,
internal or external pilot air supply



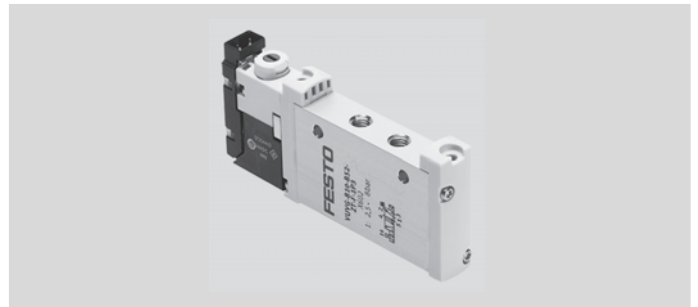
Technical data		Download CAD data → www.festo.com	
Valve function		T32-A	T32-M
Operating pressure	Internal	[bar] 1.5 ... 8	2.5 ... 8
	External	[bar] 1.5 ... 10	-0.9 ... +10
Pilot pressure ⁷⁾	[bar]	1.5 ... 8	2 ... 8
Standard nominal flow rate M5	[l/min]	150	125 ... 135
Flow rate on manifold rail M5	[l/min]	150	125 ... 135
Standard nominal flow rate M7	[l/min]	190	140 ... 150
Flow rate on manifold rail M7	[l/min]	170	130 ... 140
Switching time on/off	[ms]	6/16	8/11

7) Minimum pilot pressure 50% of operating pressure.

Technical data – 5/2-way valve, single solenoid



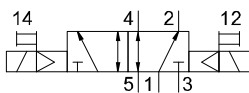
Internal or external pilot air supply



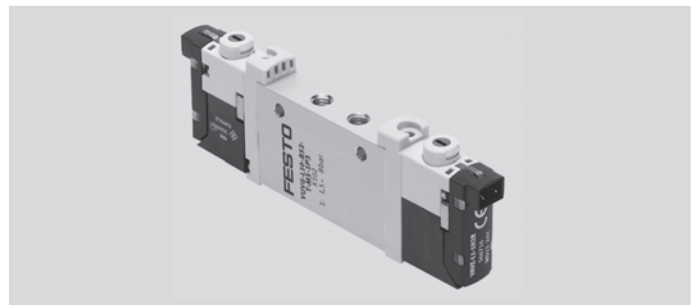
Technical data			Download CAD data → www.festo.com	
Valve function			M52-R	M52-M
Operating pressure	Internal	[bar]	2.5 ... 8	3 ... 8
	External	[bar]	-0.9 ... +10	-0.9 ... +8
Pilot pressure ¹⁾		[bar]	2.5 ... 8	3 ... 8
Standard nominal flow rate M5		[l/min]	220	190
Flow rate on manifold rail M5		[l/min]	220	190
Standard nominal flow rate M7		[l/min]	380	320
Flow rate on manifold rail M7		[l/min]	340	290
Switching time on/off		[ms]	7/19	8/24

1) Minimum pilot pressure 50% of operating pressure.

Technical data – 5/2-way valve, double solenoid



Internal or external pilot air supply

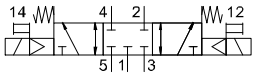


Technical data			Download CAD data → www.festo.com	
Valve function			B52	
Operating pressure	Internal	[bar]	1.5 ... 8	
	External	[bar]	-0.9 ... +10	
Pilot pressure ²⁾		[bar]	1.5 ... 8	
Standard nominal flow rate M5		[l/min]	220	
Flow rate on manifold rail M5		[l/min]	220	
Standard nominal flow rate M7		[l/min]	380	
Flow rate on manifold rail M7		[l/min]	340	
Changeover time		[ms]	7	

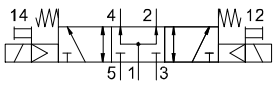
2) Minimum pilot pressure 50% of operating pressure.

Solenoid valves VUVG-L10 and VUVG-S10, in-line valves M5/M7

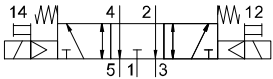
Technical data – 5/3-way valve



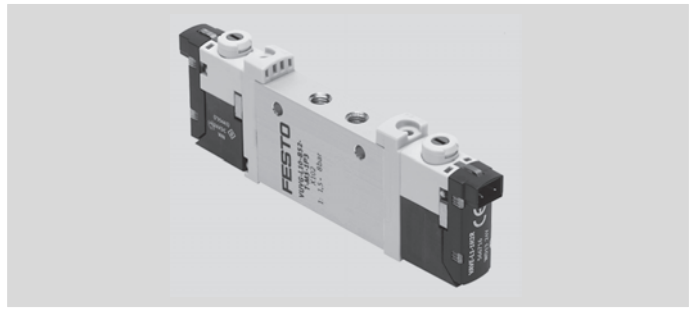
Normally closed,
internal or external pilot air supply



Normally open,
internal or external pilot air supply



Normally exhausted,
internal or external pilot air supply





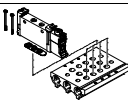

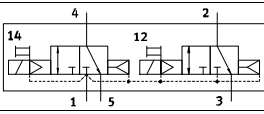
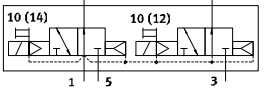
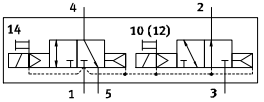
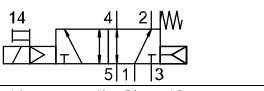

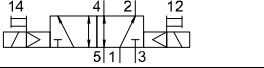

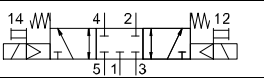

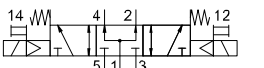







Download CAD data → www.festo.com

Technical data

Valve function		P53	
Operating pressure	Internal	[bar]	3 ... 8
	External	[bar]	-0.9 ... +10
Pilot pressure ¹⁾		[bar]	3 ... 8
Standard nominal flow rate M5		[l/min]	210
Flow rate on manifold rail M5		[l/min]	210
Standard nominal flow rate M7		[l/min]	320
Flow rate on manifold rail M7		[l/min]	300
Switching time on/off		[ms]	10/30
Changeover time		[ms]	16

1) Minimum pilot pressure 50% of operating pressure.

Order code

VUVG	-	10	-	-	-	-	-	-	L	-
Valve design									Connecting cable	
	L								W1...4¹⁾ Connection pattern H, unsheathed  C1...4¹⁾ Connection pattern H, sheathed	
	S								N1...4⁶⁾ M8x1, 3-pin 	
Width									Display	
10 mm		10							L LED	
Valve functions⁵⁾									Protective circuit	
	T32C								- Without holding current reduction (HCR)	
	T32U								R ²⁾ With holding current reduction (HCR)	
	T32H								E-box	
	M52								H2 Connection pattern H, horizontal plug 	
	B52								H3 Connection pattern H, vertical plug 	
	P53C								L1...4 With 2x flying leads L: 1 = 0.5 m, 2 = 1 m, 3 = 2.5 m, 4 = 5 m 	
	P53U								R8 Individual plug M8, 3-pin, without HCR 	
	P53E								P3 Without E-box 	
Reset method									Nominal operating voltage	
Pneumatic spring for T32		A							1 24 V DC	
Mechanical spring for T32 and M52		M							5 12 V DC	
Pneu./mech. spring for M52		R							4 5 V DC	
With B52 and P53		-							Exhausting with VUVG-L	
Pilot air supply									QN QS if QS ³⁾	
Internal		-							U Silencer	
External		Z							- M5 or M7	
Manual override									Pneumatic connection	
	Non-detenting	H							M5 Thread M5 Flow rate [l/min] ⁴⁾ 220	
	Covered	S							Q3 Push-in connector 3 mm/M5 100	
-	Non-detenting, detenting	T							Q4 Push-in connector 4 mm/M5 200	
Reset method									Q6 Push-in connector 6 mm/M5 220	
Pilot air supply									M7 Thread M7 380	
Internal		-							Q4H Push-in connector 4 mm/M7 220	
External		Z							Q6H Push-in connector 6 mm/M7 330	
Manual override										
	Non-detenting	H								
	Covered	S								
-	Non-detenting, detenting	T								

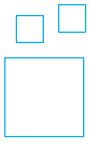
1) W1/C1 = 0.5 m, W2/C2 = 1 m, W3/C3 = 2.5 m, W4/C4 = 5 m.
 2) At 24 V DC, not in combination with P3.

3) If Q... is chosen for the pneumatic connection, this also applies to the exhaust ports 3 and 5.
 4) Flow rate applies to 5/2-way individual valve.

5) Circuit symbol for internal pilot air supply.
 6) Straight: N1 = 2.5 m, N2 = 5 m
 Angled: N3 = 2.5 m, N4 = 5 m.

Solenoid valves VUVG-L10 and VUVG-S10, in-line valves M5/M7

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or

→ www.festo.com/catalogue/...

Enter the type code in the search field.

★ Quick ordering¹⁾

Part No.	Type
In-line valve M5, 3/2-way valve	
566454	VUVG-L10-T32C-AT-M5-1P3
577347	VUVG-L10-T32C-AT-M5-1R8L
In-line valve M5, 5/2-way single solenoid valve	
566457	VUVG-L10-M52-RT-M5-1P3
572634	VUVG-L10-M52-RT-M5-1R8L
In-line valve M5, 5/2-way double solenoid valve	
566458	VUVG-L10-B52-T-M5-1P3
576664	VUVG-L10-B52-T-M5-1R8L
In-line valve M5, 5/3-way valve	
566459	VUVG-L10-P53C-T-M5-1P3
577346	VUVG-L10-P53C-T-M5-1R8L

Part No.	Type
In-line valve M7, 3/2-way valve	
566471	VUVG-L10-T32C-AT-M7-1P3
574218	VUVG-L10-T32C-AT-M7-1R8L
In-line valve M7, 5/2-way single solenoid valve	
566474	VUVG-L10-M52-RT-M7-1P3
574221	VUVG-L10-M52-RT-M7-1R8L
In-line valve M7, 5/2-way double solenoid valve	
566475	VUVG-L10-B52-T-M7-1P3
574222	VUVG-L10-B52-T-M7-1R8L
In-line valve M7, 5/3-way valve	
566476	VUVG-L10-P53C-T-M7-1P3
574223	VUVG-L10-P53C-T-M7-1R8L

1) All products in this table are easy to select and quick to order.

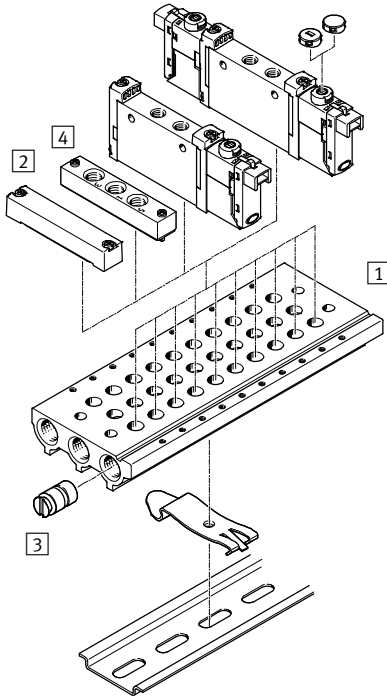
Accessories – Ordering data

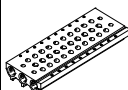



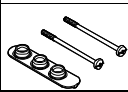
Order code – Manifold rails

VABM	-	L1	-	10	S	-	G18	-
Manifold assembly parts								
Manifold rail	VABM							
Valve series								
VUVG	L1							
Valve width	10 mm		10					
Manifold rail with port 1, 3, 5								
For M5 and M7 in-line valves			S					

Number of valve positions	2 to 10, 12, 14 and 16
Port 1, 3, 5	
G18	G $\frac{1}{8}$

Manifold assembly



		Part No.	Type
1 Manifold rail 	For M5/M7	★ 566558	VABM-L1-10S-G18-2
		★ 566559	VABM-L1-10S-G18-3
		★ 566560	VABM-L1-10S-G18-4
		★ 566561	VABM-L1-10S-G18-5
		★ 566562	VABM-L1-10S-G18-6
		★ 566563	VABM-L1-10S-G18-7
		★ 566564	VABM-L1-10S-G18-8
		★ 566565	VABM-L1-10S-G18-9
		★ 566566	VABM-L1-10S-G18-10
		★ 566567	VABM-L1-10S-G18-12
		★ 566568	VABM-L1-10S-G18-14
		★ 566569	VABM-L1-10S-G18-16
2 Blanking plate			
	For M5/M7	★ 566462	VABB-L1-10-S
3 Blanking plug			
	Separator for pressure zones	569995	VABD-8-B
4 Supply plate			
	For M5	569991	VABF-L1-10-P3A4-M5
	For M7	569992	VABF-L1-10-P3A4-M7
Seals for in-line valves (10 pieces incl. 20 screws)			
	For M5	★ 566672	VABD-L1-10X-S-M5
	For M7	★ 566673	VABD-L1-10X-S-M7

Solenoid valves VUVG-L14 and VUVG-S14, in-line valves G1/8

Technical data

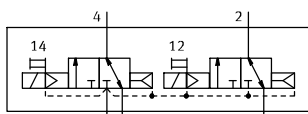
Technical data		Download CAD data → www.festo.com											
Valve function		T32-A			T32-M			M52-A	B52	M52-M	P53		
Normal position		C ¹⁾	U ²⁾	H ⁴⁾	C ¹⁾	U ²⁾	H ⁴⁾	–	–	–	C ¹⁾	U ²⁾	E ³⁾
Pneumatic spring reset method		Yes			No			Yes	–	No	No		
Mechanical spring reset method		No			Yes			No	–	Yes	Yes		
Port: In-line valve	1, 2, 3, 4, 5 12, 14	G1/8 M5											
Vacuum operation at port 1		No			Only with external pilot air supply								
Design		Piston spool valve											
Type of mounting		Via through-holes ⁵⁾											
Electrical connection		Via E-box											
Nominal operating voltage	[V DC]	5, 12 and 24 ±10%											
Power	[W]	1, reduced to 0.35 with holding current reduction											
Duty cycle	[%]	100											
Degree of protection to EN 60529		IP40 (with plug socket), IP65 (with M8)											

- 1) C=Normally closed.
- 2) U=Normally open/mid-position pressurised.
- 3) E=Normally exhausted.
- 4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open.
- 5) If several valves are to be screwed together via the through-holes to form a block, a minimum gap of 0.3 mm must be ensured by placing spacer discs between them.

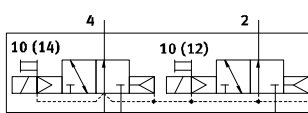
Operating conditions	
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)
Ambient temperature	[°C] -5 ... +50, -5 ... +60 with holding current reduction
Temperature of medium	[°C] -5 ... +50, -5 ... +60 with holding current reduction

Materials	
Housing	Wrought aluminium alloy
Seals	HNBR, NBR

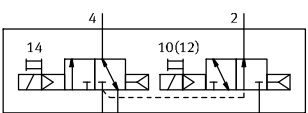
Technical data – 2x3/2-way valve



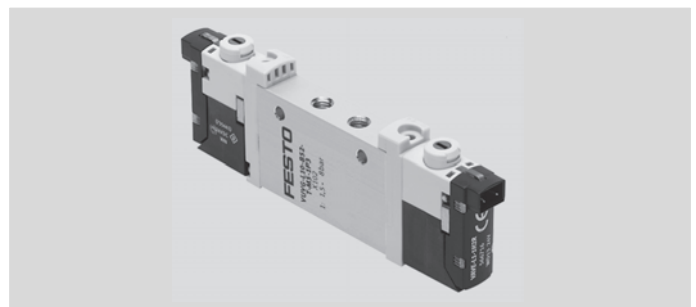
Normally closed,
internal or external pilot air supply



Normally open,
internal or external pilot air supply



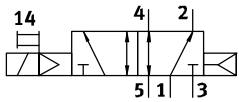
1x normally closed,
1x normally open,
internal or external pilot air supply



Technical data		Download CAD data → www.festo.com	
Valve function		T32-A	T32-M
Operating pressure	Internal [bar]	1.5 ... 8	3.5 ... 8
	External [bar]	1.5 ... 10	-0.9 ... +10
Pilot pressure ⁶⁾	[bar]	1.5 ... 8	2 ... 8
Standard nominal flow rate	[l/min]	600 ... 650	500 ... 550
Flow rate on manifold rail	[l/min]	580 ... 620	480 ... 520
Switching time on/off	[ms]	8/23	11/15

6) Minimum pilot pressure 50% of operating pressure.

Technical data – 5/2-way valve, single solenoid



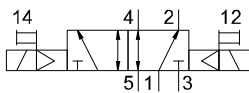
Internal or external pilot air supply



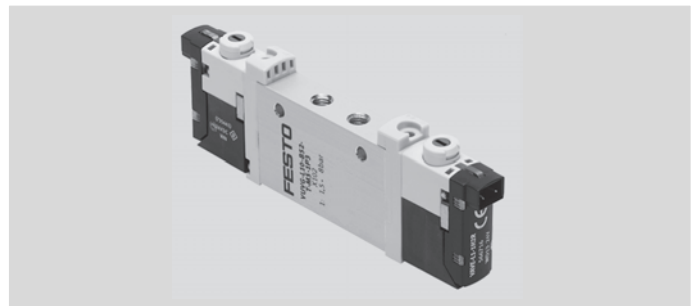
Technical data			Download CAD data → www.festo.com	
Valve function			M52-A	M52-M
Operating pressure	Internal	[bar]	2.5 ... 8	3 ... 8
	External	[bar]	-0.9 ... +10	-0.9 ... +8
Pilot pressure ¹⁾		[bar]	2.5 ... 8	3 ... 8
Standard nominal flow rate		[l/min]	780	780
Flow rate on manifold rail		[l/min]	730	730
Switching time on/off		[ms]	14/28	13/40

1) Minimum pilot pressure 50% of operating pressure.

Technical data – 5/2-way valve, double solenoid



Internal or external pilot air supply

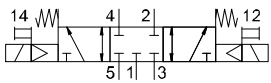


Technical data			Download CAD data → www.festo.com	
Valve function			B52	
Operating pressure	Internal	[bar]	1.5 ... 8	
	External	[bar]	-0.9 ... +10	
Pilot pressure ²⁾		[bar]	1.5 ... 8	
Standard nominal flow rate		[l/min]	780	
Flow rate on manifold rail		[l/min]	730	
Changeover time		[ms]	8	

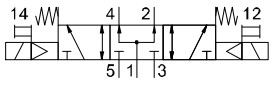
2) Minimum pilot pressure 50% of operating pressure.

Solenoid valves VUVG-L14 and VUVG-S14, in-line valves G1/8

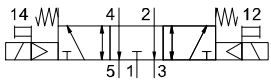
Technical data – 5/3-way valve



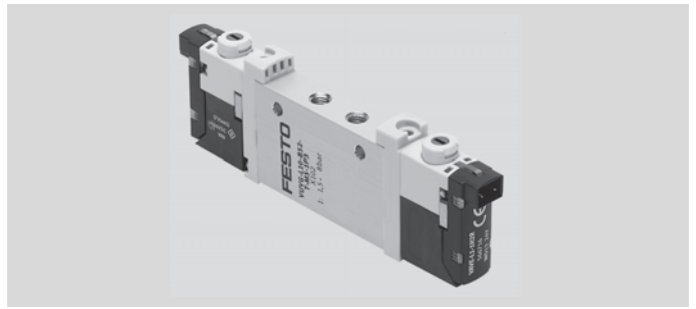
Normally closed, internal or external pilot air supply



Normally open, internal or external pilot air supply



Normally exhausted, internal or external pilot air supply



Technical data

Download CAD data → www.festo.com


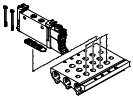


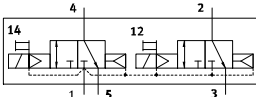
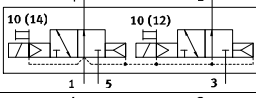
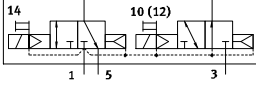
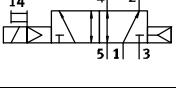
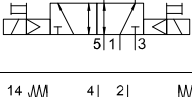

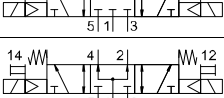

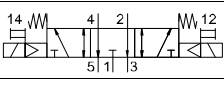

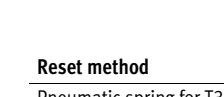




Valve function	P53C		
Operating pressure	Internal	[bar]	3 ... 8
	External	[bar]	-0.9 ... +10
Pilot pressure ¹⁾		[bar]	3 ... 8
Standard nominal flow rate		[l/min]	600 ... 650
Flow rate on manifold rail		[l/min]	580 ... 620
Switching time on/off		[ms]	12/40
Changeover time		[ms]	20

1) Minimum pilot pressure 50% of operating pressure.

Solenoid valves VUVG-L14 and VUVG-S14, in-line valves G¹/₈

FESTO

Order code

VUVG	-	14	-	-	-	-	-	-	-	-	-	-	L	-
Valve design														
													L	Connecting cable
In-line, individual valve														W1...4¹⁾ Connection pattern H, unsheathed
													S	C1...4¹⁾ Connection pattern H, sheathed 
In-line, manifold valve incl. seal and screws														N1...4⁶⁾ M8x1, 3-pin 
Width														
14 mm													14	Display
Valve functions⁵⁾														
													T32C	Protective circuit
													T32U	- Without holding current reduction (HCR)
													T32H	R ²⁾ With holding current reduction (HCR)
													M52	E-box
													B52	H2 Connection pattern H, horizontal plug 
													P53C	H3 Connection pattern H, vertical plug 
													P53U	L1...4 With 2x flying leads L: 1 = 0.5 m, 2 = 1 m, 3 = 2.5 m, 4 = 5 m 
													P53E	R8 Individual plug M8, 3-pin, without HCR 
Reset method														
Pneumatic spring for T32												A	P3 Without E-box 	
Mechanical spring for T32 and M52												M	Nominal operating voltage	
With B52 and P53												-	1 24 V DC	
													5 12 V DC	
													4 5 V DC	
Pilot air supply														
Internal												-	Exhausting with VUVG-L	
External												Z	QN QS if QS ³⁾	
Manual override														
	Non-detenting												H	U Silencer
	Covered												S	- G ¹ / ₈
-	Non-detenting, detenting												T	Pneumatic connection

Pneumatic connection	Flow rate [l/min] ⁴⁾
G18 Thread G ¹ / ₈	780
Q4 Push-in connector 4 mm/G ¹ / ₈	250
Q6 Push-in connector 6 mm/G ¹ / ₈	500
Q8 Push-in connector 8 mm/G ¹ / ₈	700

1) W1/C1 = 0.5 m, W2/C2 = 1 m,
W3/C3 = 2.5 m, W4/C4 = 5 m.
2) At 24 V DC.

3) If Q... is chosen for the pneumatic connection, this also applies to the exhaust ports 3 and 5.
4) Flow rate applies to 5/2-way individual valve.

5) Circuit symbol for internal pilot air supply.
6) Straight: N1 = 2.5 m, N2 = 5 m
Angled: N3 = 2.5 m, N4 = 5 m.

Solenoid valves VUVG-L14 and VUVG-S14, in-line valves G1/8

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
[→ www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the type code in the search field.

★ Quick ordering¹⁾

Part No.	Type
In-line valve G1/8, 3/2-way valve	
566496	VUVG-L14-T32C-AT-G18-1P3
574226	VUVG-L14-T32C-AT-G18-1R8L
In-line valve G1/8, 5/2-way single solenoid valve	
566499	VUVG-L14-M52-AT-G18-1P3
574229	VUVG-L14-M52-AT-G18-1R8L

Part No.	Type
In-line valve G1/8, 5/2-way double solenoid valve	
566500	VUVG-L14-B52-T-G18-1P3
574230	VUVG-L14-B52-T-G18-1R8L
In-line valve G1/8, 5/3-way valve	
566501	VUVG-L14-P53C-T-G18-1P3
574231	VUVG-L14-P53C-T-G18-1R8L

1) All products in this table are easy to select and quick to order.

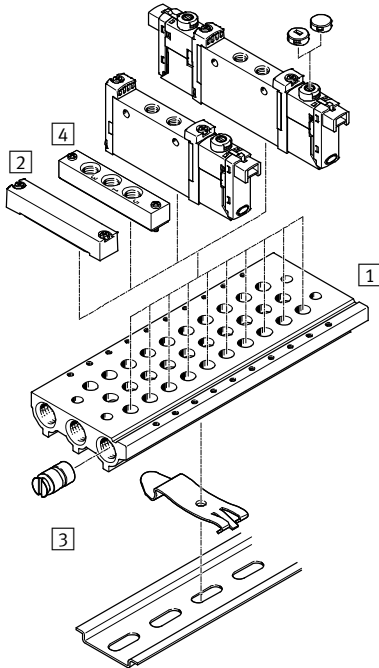
Accessories – Ordering data

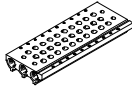




Order code – Manifold rails

VABM	-	L1	-	14	S	-	G14	-
Manifold assembly parts								
Manifold rail	VABM							
Valve series								
VUVG	L1							
Valve width								
14 mm			14					
Manifold rail with port 1, 3, 5								
For G ¹ / ₈ in-line valves			S					

Number of valve positions	2 to 10, 12, 14 and 16
Port 1, 3, 5	
G14	G ¹ / ₄

Manifold assembly



		Part No.	Type
1 Manifold rail 	For G ¹ / ₈	★ 566618	VABM-L1-14S-G14-2
		★ 566619	VABM-L1-14S-G14-3
		★ 566620	VABM-L1-14S-G14-4
		566621	VABM-L1-14S-G14-5
		★ 566622	VABM-L1-14S-G14-6
		566623	VABM-L1-14S-G14-7
		★ 566624	VABM-L1-14S-G14-8
		566625	VABM-L1-14S-G14-9
		★ 566626	VABM-L1-14S-G14-10
		566627	VABM-L1-14S-G14-12
566628	VABM-L1-14S-G14-14		
566629	VABM-L1-14S-G14-16		
2 Blanking plate			
	For G ¹ / ₈	★ 569989	VABB-L1-14
3 Blanking plug			
	Separator for pressure zones	569996	VABD-10-B
4 Supply plate			
	For G ¹ / ₈	569993	VABF-L1-14-P3A4-G18
Seals for in-line valves (10 pieces incl. 20 screws)			
	For G ¹ / ₈	★ 566675	VABD-L1-14X-S-G18

Solenoid valves VUVG-L18 and VUVG-S18, in-line valves G¹/₄

Technical data

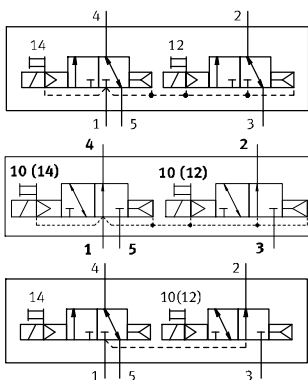
Technical data		Download CAD data → www.festo.com									
Valve function		T32-A			T32-M			M52-R	B52	M52-M	P53
Normal position		C ¹⁾	U ²⁾	H ⁴⁾	C ¹⁾	U ²⁾	H ⁴⁾	–	–	–	C ¹⁾ U ²⁾ E ³⁾
Pneumatic spring reset method		Yes			No			Yes ⁵⁾	–	No	No
Mechanical spring reset method		No			Yes			Yes ⁵⁾	–	Yes	Yes
Port: In-line valve	1, 2, 3, 4, 5 12, 14	G ¹ / ₄ M5									
Vacuum operation at port 1		No			Only with external pilot air supply						
Design		Piston spool valve									
Type of mounting		Via through-holes ⁶⁾									
Electrical connection		Via E-box									
Nominal operating voltage	[V DC]	5, 12 and 24 ±10%									
Power	[W]	1, reduced to 0.35 with holding current reduction									
Duty cycle	[%]	100									
Degree of protection to EN 60529		IP40 (with plug socket), IP65 (with M8)									

- 1) C=Normally closed.
- 2) U=Normally open/mid-position pressurised.
- 3) E=Normally exhausted.
- 4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open.
- 5) Combined reset method.
- 6) If several valves are to be screwed together via the through-holes to form a block, a minimum gap of 0.3 mm must be ensured by placing spacer discs between them.

Operating conditions	
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)
Ambient temperature	[°C] -5 ... +50, -5 ... +60 with holding current reduction
Temperature of medium	[°C] -5 ... +50, -5 ... +60 with holding current reduction

Materials	
Housing	Wrought aluminium alloy
Seals	HNBR, NBR

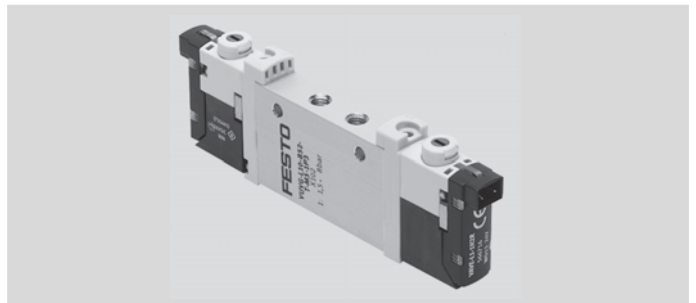
Technical data – 2x3/2-way valve



Normally closed, internal or external pilot air supply

Normally open, internal or external pilot air supply

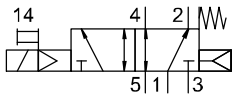
1x normally closed,
1x normally open,
internal or external pilot air supply



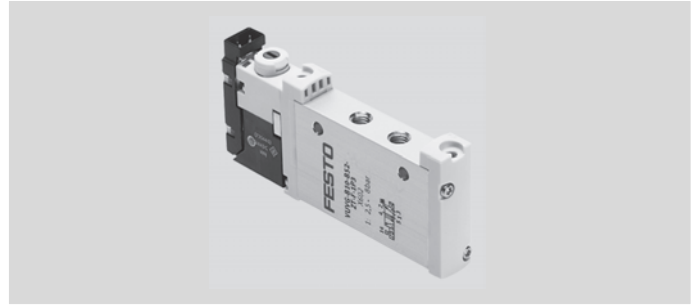
Technical data		Download CAD data → www.festo.com	
Valve function		T32-A	T32-M
Operating pressure	Internal	[bar] 1.5 ... 8	3 ... 8
	External	[bar] 1.5 ... 10	-0.9 ... +10
Pilot pressure ⁷⁾	[bar]	1.5 ... 8	2 ... 8
Standard nominal flow rate	[l/min]	1000	1000
Flow rate on manifold rail M5	[l/min]	1000	1000
Switching time on/off	[ms]	13/27	15/22

7) Minimum pilot pressure 50% of operating pressure.

Technical data – 5/2-way valve, single solenoid



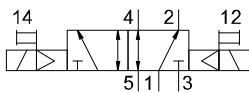
Internal or external pilot air supply



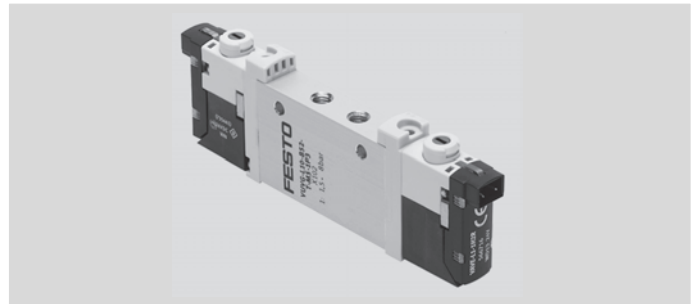
Technical data			Download CAD data → www.festo.com	
Valve function			M52-R	M52-M
Operating pressure	Internal	[bar]	2.5 ... 8	3 ... 8
	External	[bar]	-0.9 ... +10	-0.9 ... +8
Pilot pressure ¹⁾		[bar]	2.5 ... 8	3 ... 8
Standard nominal flow rate		[l/min]	1300	1300
Flow rate on manifold rail		[l/min]	1300	1300
Switching time on/off		[ms]	15/31	10/45

1) Minimum pilot pressure 50% of operating pressure.

Technical data – 5/2-way valve, double solenoid



Internal or external pilot air supply

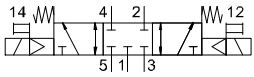


Technical data			Download CAD data → www.festo.com	
Valve function			B52	
Operating pressure	Internal	[bar]	1.5 ... 8	
	External	[bar]	-0.9 ... +10	
Pilot pressure ²⁾		[bar]	1.5 ... 8	
Standard nominal flow rate		[l/min]	1380	
Flow rate on manifold rail		[l/min]	1380	
Changeover time		[ms]	11	

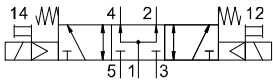
2) Minimum pilot pressure 50% of operating pressure.

Solenoid valves VUVG-L18 and VUVG-S18, in-line valves G1¼

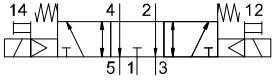
Technical data – 5/3-way valve



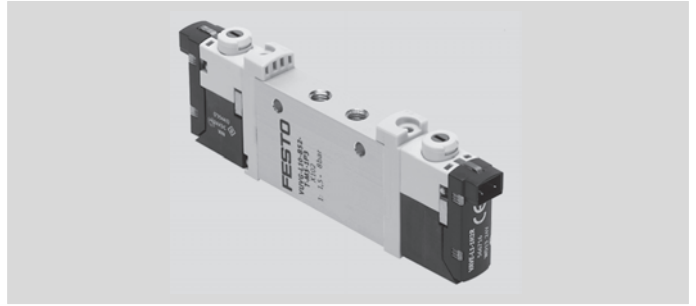
Normally closed,
internal or external pilot air supply



Normally open,
internal or external pilot air supply



Normally exhausted,
internal or external pilot air supply



Technical data


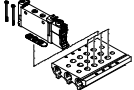
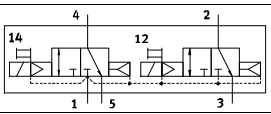
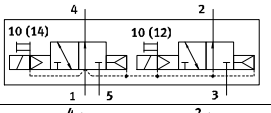
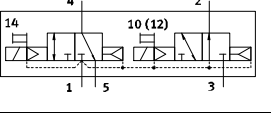
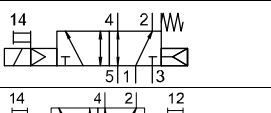
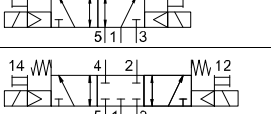
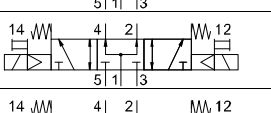
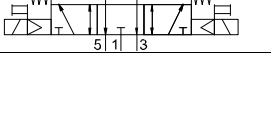
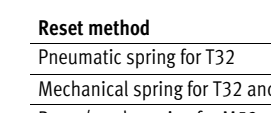


Download CAD data → www.festo.com

Valve function			P53
Operating pressure	Internal	[bar]	3 ... 8
	External	[bar]	-0.9 ... +10
Pilot pressure ¹⁾		[bar]	3 ... 8
Standard nominal flow rate M5		[l/min]	1000 ... 1200
Flow rate on manifold rail M5		[l/min]	1000 ... 1200
Switching time on/off		[ms]	15/48
Changeover time		[ms]	29




1) Minimum pilot pressure 50% of operating pressure.

Solenoid valves VUVG-L18 and VUVG-S18, in-line valves G¹/₄

Order code

VUVG	-	18	-	-	-	-	-	-	-	-	-	-	-	-	L	-
Valve design																
		L														
In-line, individual valve																
		S														
In-line, manifold valve incl. seal and screws																
Width																
18 mm															18	
Valve functions⁵⁾																
																T32C
																T32U
																T32H
																M52
																B52
																P53C
																P53U
																P53E
Reset method																
Pneumatic spring for T32																A
Mechanical spring for T32 and M52																M
Pneu./mech. spring for M52																R
With B52 and P53																-
Pilot air supply																
Internal																-
External																Z
Manual override																
	Non-detenting															H
	Covered															S
-	Non-detenting, detent-ing															T

Connecting cable

W1...4¹⁾	Connection pattern H, unsheathed	
C1...4¹⁾	Connection pattern H, sheathed	
N1...4⁶⁾	M8x1, 3-pin	






Display

L LED

Protective circuit

-	Without holding current reduction (HCR)
R ²⁾	With holding current reduction (HCR)

E-box

H2	Connection pattern H, horizontal plug	
H3	Connection pattern H, vertical plug	
L1...4	With 2x flying leads L: 1 = 0.5 m, 2 = 1 m, 3 = 2.5 m, 4 = 5 m	
R8	Individual plug M8, 3-pin, without HCR	
P3	Without E-box	

Nominal operating voltage

1	24 V DC
5	12 V DC
4	5 V DC

Exhausting with VUVG-L

QN	QS if QS ³⁾
U	Silencer
-	M5 or M7

Pneumatic connection	Flow rate [l/min] ⁴⁾
G14 Thread G ¹ / ₄	1380
Q6 Push-in connector 6 mm/G ¹ / ₄	400
Q8 Push-in connector 8 mm/G ¹ / ₄	800
Q10 Push-in connector 10 mm/G ¹ / ₄	1100

1) W1/C1 = 0.5 m, W2/C2 = 1 m, W3/C3 = 2.5 m, W4/C4 = 5 m.
2) At 24 V DC, not in combination with P3.

3) If Q... is chosen for the pneumatic connection, this also applies to the exhaust ports 3 and 5.
4) Flow rate applies to 5/2-way individual valve.

5) Circuit symbol for internal pilot air supply.
6) Straight: N1 = 2.5 m, N2 = 5 m
Angled: N3 = 2.5 m, N4 = 5 m.

Solenoid valves VUVG-L18 and VUVG-S18, in-line valves G¹/₄

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
[→ www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the type code in the search field.

★ Quick ordering¹⁾

Part No.	Type
In-line valve G¹/₄, 3/2-way valve	
574422	VUVG-L18-T32C-AT-G14-1P3
8031525	VUVG-L18-T32C-AT-G14-1R8L
In-line valve G¹/₄, 5/2-way single solenoid valve	
574428	VUVG-L18-M52-RT-G14-1P3
8031531	VUVG-L18-M52-RT-G14-1R8L
8031532	VUVG-L18-M52-MT-G14-1R8L

Part No.	Type
In-line valve G¹/₄, 5/2-way double solenoid valve	
574430	VUVG-L18-B52-T-G14-1P3
In-line valve G¹/₄, 5/3-way valve	
574431	VUVG-L18-P53C-T-G14-1P3
8031534	VUVG-L18-P53C-T-G14-1R8L

1) All products in this table are easy to select and quick to order.

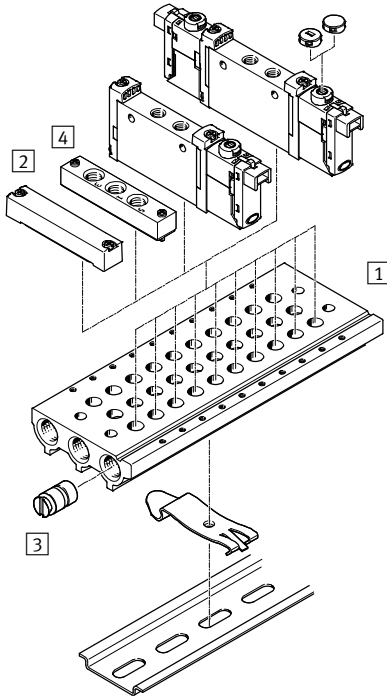
Accessories – Ordering data

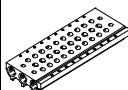




Order code – Manifold rails

VABM	-	L1	-	18	S	-	G38	-
Manifold assembly parts								
Manifold rail	VABM							
Valve series								
VUVG	L1							
Valve width	18 mm		18					
Manifold rail with port 1, 3, 5								
For G ¹ / ₄ in-line valves			S					

Number of valve positions	2 to 10, 12, 14 and 16
Port 1, 3, 5	G38 G ³ / ₈

Manifold assembly



		Part No.	Type
1 Manifold rail 	For G ¹ / ₄	★ 574455	VABM-L1-18S-G38-2
		★ 574456	VABM-L1-18S-G38-3
		★ 574457	VABM-L1-18S-G38-4
		574458	VABM-L1-18S-G38-5
		★ 574459	VABM-L1-18S-G38-6
		574460	VABM-L1-18S-G38-7
		★ 574461	VABM-L1-18S-G38-8
		574462	VABM-L1-18S-G38-9
		★ 574463	VABM-L1-18S-G38-10
		574464	VABM-L1-18S-G38-12
		574465	VABM-L1-18S-G38-14
574466	VABM-L1-18S-G38-16		
2 Blanking plate 	For G ¹ / ₄	★ 574482	VABB-L1-18
3 Blanking plug 	Separator for pressure zones	574483	VABD-14-B
4 Supply plate 	For G ¹ / ₄	574481	VABF-L1-18-P3A4-G14
Seals for in-line valves (10 pieces incl. 20 screws)			
	For G ¹ / ₄	★ 574479	VABD-L1-18X-S-G14

Solenoid valves VUVG-B10, sub-base valves

Technical data

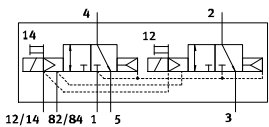
Technical data		Download CAD data → www.festo.com									
Valve function		T32-A			T32-M			M52-R	B52	M52-M	P53
Normal position		C ¹⁾	U ²⁾	H ⁴⁾	C ¹⁾	U ²⁾	H ⁴⁾	–	–	–	C ¹⁾ U ²⁾ E ³⁾
Pneumatic spring reset method		Yes			No			Yes ⁵⁾	–	No	No
Mechanical spring reset method		No			Yes			Yes ⁵⁾	–	Yes	Yes
Port	1, 3, 5	G1/8 in manifold rail									
	2, 4	M5 or M7 in manifold rail									
	12/14, 82/84	M5 in manifold rail									
Vacuum operation at port 1		No			Only with external pilot air supply						
Design		Piston spool valve									
Type of mounting		On manifold rail									
Electrical connection		Via E-box									
Nominal operating voltage	[V DC]	5, 12 and 24 ±10%									
Power	[W]	1, reduced to 0.35 with holding current reduction									
Duty cycle	[%]	100									
Degree of protection to EN 60529		IP40 (with plug socket)									

- 1) C=Normally closed.
- 2) U=Normally open/mid-position pressurised.
- 3) E=Normally exhausted.
- 4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open.
- 5) Combined reset method.

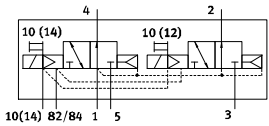
Operating conditions	
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)
Ambient temperature	[°C] -5 ... +50, -5 ... +60 with holding current reduction
Temperature of medium	[°C] -5 ... +50, -5 ... +60 with holding current reduction

Materials	
Housing	Wrought aluminium alloy
Seals	HNBR, NBR

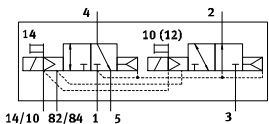
Technical data – 2x3/2-way valve



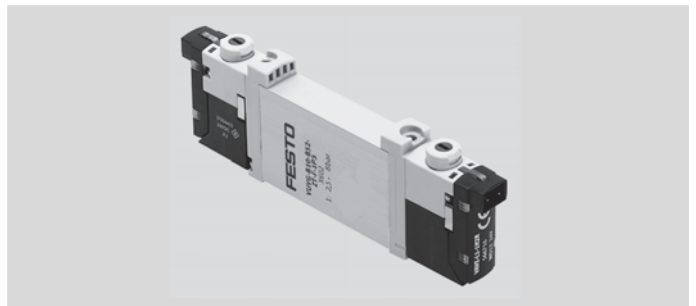
Normally closed,
external pilot air supply⁷⁾



Normally open,
external pilot air supply⁷⁾



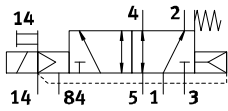
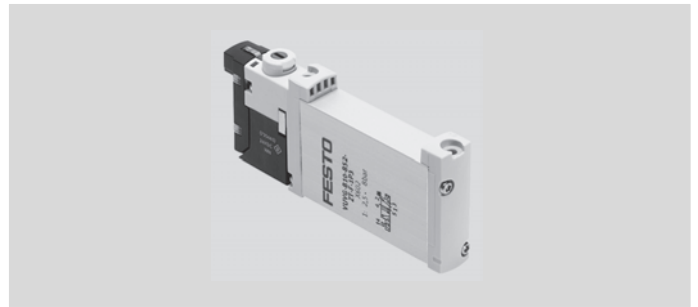
1x normally closed,
1x normally open,
external pilot air supply⁷⁾



Technical data		Download CAD data → www.festo.com	
Valve function		T32-A	T32-M
Operating pressure	Internal [bar]	1.5 ... 8	3 ... 8
	External [bar]	1.5 ... 10	-0.9 ... +10
Pilot pressure ⁶⁾	[bar]	1.5 ... 8	2 ... 8
Standard nominal flow rate	[l/min]	170	140 ... 150
Flow rate on manifold rail M5	[l/min]	150	120 ... 130
Flow rate on manifold rail M7	[l/min]	160	130 ... 140
Switching time on/off	[ms]	6/16	8/11

- 6) Minimum pilot pressure 50% of operating pressure.
- 7) Internal pilot air can be selected via sub-base.

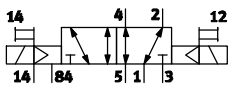
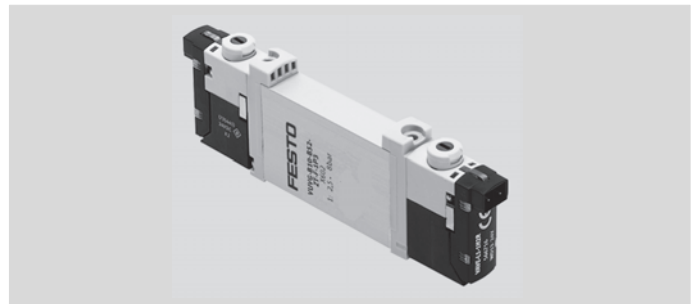
Technical data – 5/2-way valve, single solenoid

External pilot air supply²⁾

Technical data			Download CAD data → www.festo.com	
Valve function			M52-R	M52-M
Operating pressure	Internal	[bar]	2.5 ... 8	3 ... 8
	External	[bar]	-0.9 ... +10	-0.9 ... +8
Pilot pressure ¹⁾		[bar]	2.5 ... 8	3 ... 8
Standard nominal flow rate		[l/min]	330	285
Flow rate on manifold rail M5		[l/min]	210	180
Flow rate on manifold rail M7		[l/min]	270	230
Switching time on/off		[ms]	7/19	8/24

- 1) Minimum pilot pressure 50% of operating pressure.
 2) Internal pilot air can be selected via sub-base.

Technical data – 5/2-way valve, double solenoid

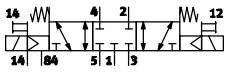
External pilot air supply⁴⁾

Technical data			Download CAD data → www.festo.com	
Valve function			B52	
Operating pressure	Internal	[bar]	1.5 ... 8	
	External	[bar]	-0.9 ... +10	
Pilot pressure ³⁾		[bar]	1.5 ... 8	
Standard nominal flow rate		[l/min]	330	
Flow rate on manifold rail M5		[l/min]	210	
Flow rate on manifold rail M7		[l/min]	270	
Changeover time		[ms]	7	

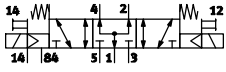
- 3) Minimum pilot pressure 50% of operating pressure.
 4) Internal pilot air can be selected via sub-base.

Solenoid valves VUVG-B10, sub-base valves

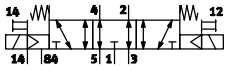
Technical data – 5/3-way valve



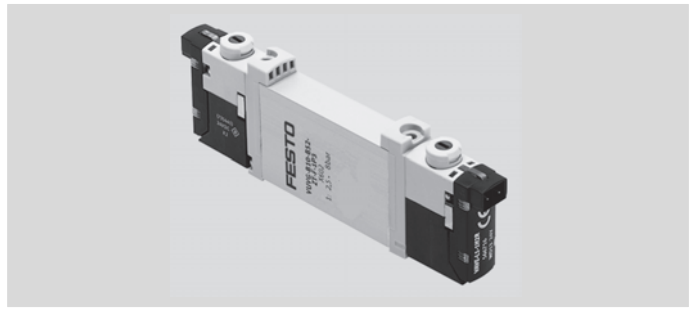
Normally closed,
external pilot air supply²⁾



Normally open,
external pilot air supply²⁾



Normally exhausted,
external pilot air supply²⁾



Download CAD data → www.festo.com

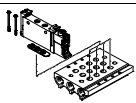
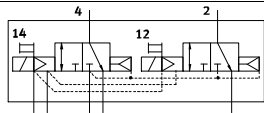
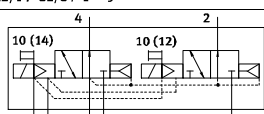
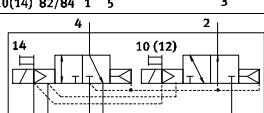
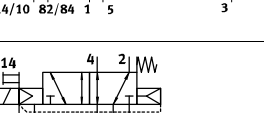
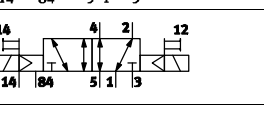
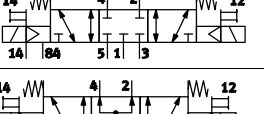
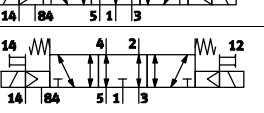
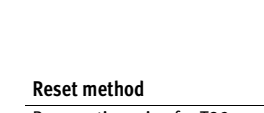


Technical data			P53
Valve function			P53
Operating pressure	Internal	[bar]	3 ... 8
	External	[bar]	-0.9 ... +10
Pilot pressure ¹⁾		[bar]	3 ... 8
Standard nominal flow rate		[l/min]	300
Flow rate on manifold rail M5		[l/min]	200
Flow rate on manifold rail M7		[l/min]	250
Switching time on/off		[ms]	10/30
Changeover time		[ms]	16

- 1) Minimum pilot pressure 50% of operating pressure.
- 2) Internal pilot air can be selected via sub-base.




Solenoid valves VUVG-B10, sub-base valves



Order code

VUVG	-	B	10	-	-	Z	-	F	-	-	-	L	-		
Valve design															
 <p>Sub-base, manifold valve incl. seal and screws</p>												B			
Width															
10 mm												10			
Valve functions³⁾															
												T32C			
												T32U			
												T32H			
												M52			
												B52			
												P53C			
												P53U			
												P53E			
Reset method															
Pneumatic spring for T32												A			
Mechanical spring for T32 and M52												M			
Pneu./mech. spring for M52												R			
With B52 and P53												-			
Pilot air supply															
External												Z			
Manual override															
												Non-detenting		H	
												Covered		S	
-												Non-detenting, detenting		T	

Connecting cable

W1...4 ⁴⁾	Connection pattern H, unsheathed	
C1...4 ⁴⁾	Connection pattern H, sheathed	
N1...4 ⁴⁾	M8x1, 3-pin	






Display

L LED

Protective circuit

-	Without holding current reduction (HCR)
R ²⁾	With holding current reduction (HCR)

E-box

H2	Connection pattern H, horizontal plug	
H3	Connection pattern H, vertical plug	
L1...4	With 2x flying leads L: 1 = 0.5 m, 2 = 1 m, 3 = 2.5 m, 4 = 5 m	
R8	Individual plug M8, 3-pin, without HCR	
P3	Without E-box	

Nominal operating voltage

1	24 V DC
5	12 V DC
4	5 V DC

Pneumatic connection

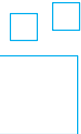
F In the manifold rail

1) W1/C1 = 0.5 m, W2/C2 = 1 m, W3/C3 = 2.5 m, W4/C4 = 5 m.
2) At 24 V DC.

3) Circuit symbol for internal pilot air supply.
4) Straight: N1 = 2.5 m, N2 = 5 m. Angled: N3 = 2.5 m, N4 = 5 m.

Solenoid valves VUVG-B10, sub-base valves

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
[→ www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the type code in the search field.

★ Quick ordering¹⁾

Part No.	Type
Sub-base valve B10, 3/2-way valve	
566487	VUVG-B10-T32C-AZT-F-1P3
574234	VUVG-B10-T32C-AZT-F-1R8L
Sub-base valve B10, 5/2-way single solenoid valve	
566490	VUVG-B10-M52-RZT-F-1P3
574237	VUVG-B10-M52-RZT-F-1R8L

Part No.	Type
Sub-base valve B10, 5/2-way double solenoid valve	
566491	VUVG-B10-B52-ZT-F-1P3
574238	VUVG-B10-B52-ZT-F-1R8L
Sub-base valve B10, 5/3-way valve	
566492	VUVG-B10-P53C-ZT-F-1P3
574239	VUVG-B10-P53C-ZT-F-1R8L

1) All products in this table are easy to select and quick to order.

Solenoid valves VUVG-B10, sub-base valves

Accessories – Ordering data

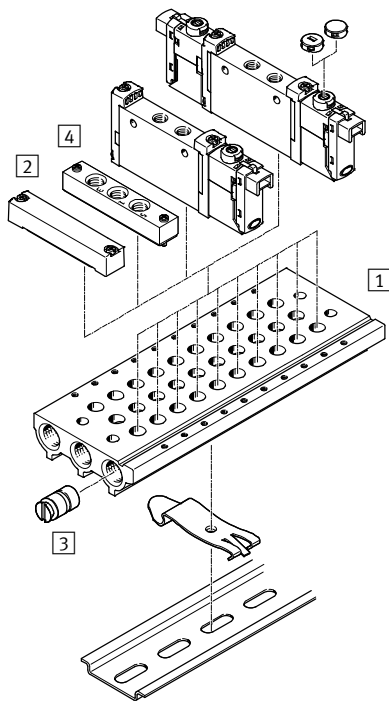
Order code – Manifold rails

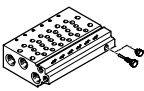
VABM	-	L1	-	10	-	G18	-
Manifold assembly parts							
Manifold rail	VABM						
Valve series							
VUVG	L1						
Valve width							
10 mm			10				
Manifold rail with port 1, 2, 3, 4, 5, 12/14, 82/84							
Port 2 and 4 in M5						W	
Port 2 and 4 in M7						HW	

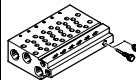




Number of valve positions
2 to 10, 12, 14 and 16

Port 1, 3, 5
G18 G $\frac{1}{8}$

Manifold assembly



		Part No.	Type
1 Manifold rail 	For 10 W (M5)	★ 566582	VABM-L1-10W-G18-2
		★ 566583	VABM-L1-10W-G18-3
		★ 566584	VABM-L1-10W-G18-4
		566585	VABM-L1-10W-G18-5
		★ 566586	VABM-L1-10W-G18-6
		566587	VABM-L1-10W-G18-7
		★ 566588	VABM-L1-10W-G18-8
		566589	VABM-L1-10W-G18-9
		★ 566590	VABM-L1-10W-G18-10
		566591	VABM-L1-10W-G18-12
		566592	VABM-L1-10W-G18-14
		566593	VABM-L1-10W-G18-16

		Part No.	Type		
1 Manifold rail 	For 10 HW (M7)	★ 566606	VABM-L1-10HW-G18-2		
		★ 566607	VABM-L1-10HW-G18-3		
		★ 566608	VABM-L1-10HW-G18-4		
		566609	VABM-L1-10HW-G18-5		
		★ 566610	VABM-L1-10HW-G18-6		
		566611	VABM-L1-10HW-G18-7		
		★ 566612	VABM-L1-10HW-G18-8		
		566613	VABM-L1-10HW-G18-9		
		★ 566614	VABM-L1-10HW-G18-10		
		566615	VABM-L1-10HW-G18-12		
		566616	VABM-L1-10HW-G18-14		
		566617	VABM-L1-10HW-G18-16		
		2 Blanking plate 	For 10 W/ 10 HW	★ 566495	VABB-L1-10-W
		3 Blanking plug 	Separator for pressure zones	569994	VABD-6-B
		4 Supply plate 	For 10 W	569991	VABF-L1-10-P3A4-M5
			For 10 HW	569992	VABF-L1-10-P3A4-M7
		Seals for in-line valves (10 pieces incl. 20 screws)			
	For 10 W/ 10 HW	566674	VABD-L1-10B-S-M7		

Solenoid valves VUVG-B14, sub-base valves

Technical data

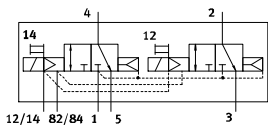
Technical data		Download CAD data → www.festo.com									
Valve function		T32-A			T32-M			M52-A	B52	M52-M	P53
Normal position		C ¹⁾	U ²⁾	H ⁴⁾	C ¹⁾	U ²⁾	H ⁴⁾	–	–	–	C ¹⁾ U ²⁾ E ³⁾
Pneumatic reset method		Yes			No			Yes	–	No	No
Mechanical reset method		No			Yes			No	–	Yes	Yes
Port	1, 3, 5	G1/4 in manifold rail									
	2, 4	G1/8 in manifold rail									
	12/14, 82/84	M5 in manifold rail									
Vacuum operation at port 1		No			Only with external pilot air supply						
Design		Piston spool valve									
Type of mounting		On manifold rail									
Electrical connection		Via E-box									
Nominal operating voltage	[V DC]	5, 12 and 24 ±10%									
Power	[W]	1, reduced to 0.35 with holding current reduction									
Duty cycle	[%]	100									
Degree of protection to EN 60529		IP40 (with plug socket)									

- 1) C=Normally closed.
- 2) U=Normally open/mid-position pressurised.
- 3) E=Normally exhausted.
- 4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open.

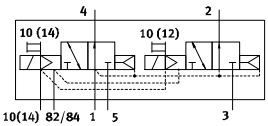
Operating conditions	
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)
Ambient temperature	[°C] –5 ... +50, –5 ... +60 with holding current reduction
Temperature of medium	[°C] –5 ... +50, –5 ... +60 with holding current reduction

Materials	
Housing	Wrought aluminium alloy
Seals	HNBR, NBR

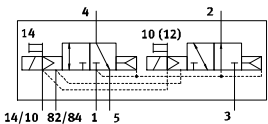
Technical data – 2x3/2-way valve



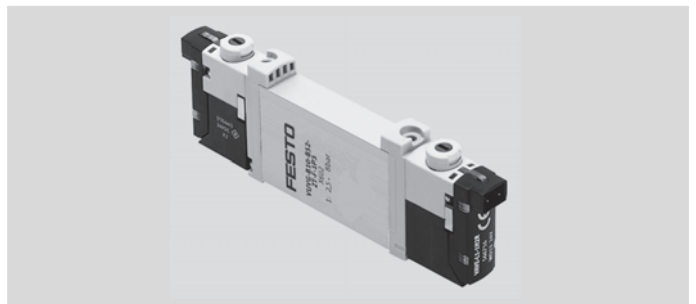
Normally closed,
external pilot air supply⁶⁾



Normally open,
external pilot air supply⁶⁾



1x normally closed,
1x normally open,
external pilot air supply⁶⁾



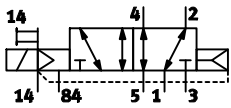
Technical data		Download CAD data → www.festo.com	
Valve function		T32-A	T32-M
Operating pressure	Internal	[bar] 1.5 ... 8	3 ... 8
	External	[bar] 1.5 ... 10	–0.9 ... +10
Pilot pressure ⁵⁾		[bar] 1.5 ... 8	2 ... 8
Standard nominal flow rate		[l/min] 580 ... 600	450 ... 470
Flow rate on manifold rail		[l/min] 510 ... 540	410 ... 430
Switching time on/off		[ms] 8/23	11/15

- 5) Minimum pilot pressure 50% of operating pressure.
- 6) Internal pilot air can be selected via sub-base.

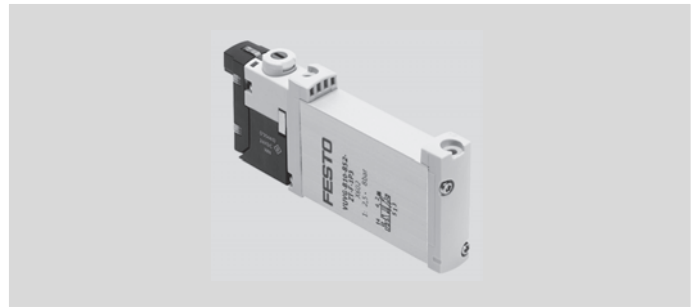
Solenoid valves VUVG-B14, sub-base valves



Technical data – 5/2-way valve, single solenoid



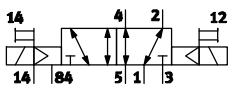
External pilot air supply²⁾



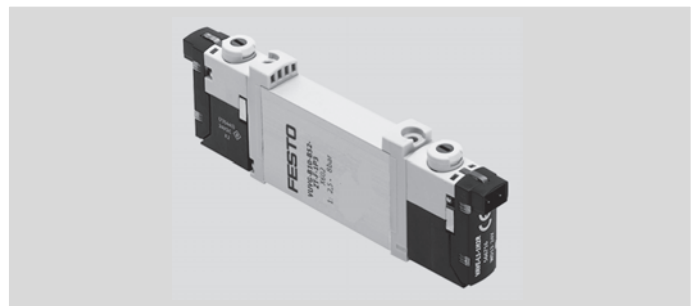
Technical data			Download CAD data → www.festo.com	
Valve function			M52-A	M52-M
Operating pressure	Internal	[bar]	2.5 ... 8	3 ... 8
	External	[bar]	-0.9 ... +10	-0.9 ... +10
Pilot pressure ¹⁾		[bar]	2.5 ... 8	3 ... 8
Standard nominal flow rate		[l/min]	680	680
Flow rate on manifold rail		[l/min]	580	580
Switching time on/off		[ms]	14/28	13/40

- 1) Minimum pilot pressure 50% of operating pressure.
 2) Internal pilot air can be selected via sub-base.

Technical data – 5/2-way valve, double solenoid



External pilot air supply⁴⁾

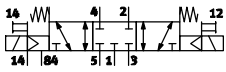


Technical data			Download CAD data → www.festo.com	
Valve function			B52	
Operating pressure	Internal	[bar]	1.5 ... 8	
	External	[bar]	-0.9 ... +10	
Pilot pressure ³⁾		[bar]	1.5 ... 8	
Standard nominal flow rate		[l/min]	680	
Flow rate on manifold rail		[l/min]	580	
Changeover time		[ms]	8	

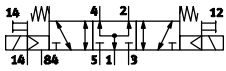
- 3) Minimum pilot pressure 50% of operating pressure.
 4) Internal pilot air can be selected via sub-base.

Solenoid valves VUVG-B14, sub-base valves

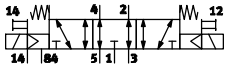
Technical data – 5/3-way valve



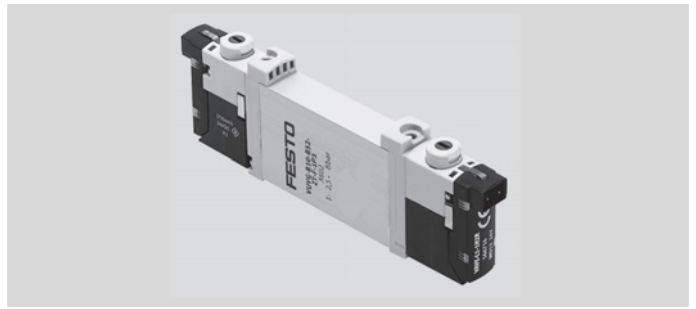
Normally closed,
external pilot air supply²⁾



Normally open,
external pilot air supply²⁾



Normally exhausted,
external pilot air supply²⁾



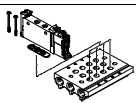
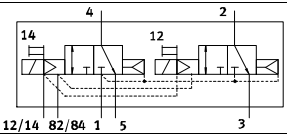
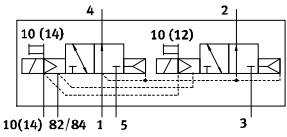
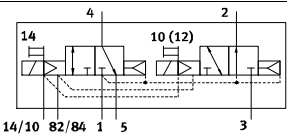
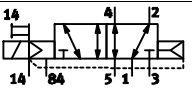
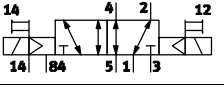
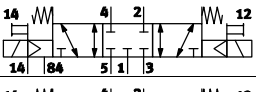
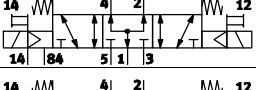
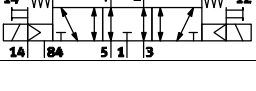



Download CAD data → www.festo.com

Technical data			P53
Valve function			P53
Operating pressure	Internal	[bar]	3 ... 8
	External	[bar]	-0.9 ... +10
Pilot pressure ¹⁾		[bar]	3 ... 8
Standard nominal flow rate		[l/min]	580 ... 600
Flow rate on manifold rail		[l/min]	510 ... 540
Switching time on/off		[ms]	12/40
Changeover time		[ms]	20



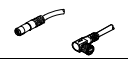
- 1) Minimum pilot pressure 50% of operating pressure.
- 2) Internal pilot air can be selected via sub-base.

Solenoid valves VUVG-B14, sub-base valves

Order code

VUVG	-	B	14	-	-	Z	-	F	-	-	-	-	L	-
Valve design														
 <p>Sub-base, manifold valve incl. seal and screws</p>														
Width														
14 mm 14														
Valve functions³⁾														
 <p>T32C</p>														
 <p>T32U</p>														
 <p>T32H</p>														
 <p>M52</p>														
 <p>B52</p>														
 <p>P53C</p>														
 <p>P53U</p>														
 <p>P53E</p>														
Reset method														
Pneumatic spring for T32 and M52 A														
Mechanical spring for T32 and M52 M														
With B52 and P53 -														
Pilot air supply														
External Z														
Manual override														
 Non-detenting H														
 Covered S														
 Non-detenting, detenting T														

Connecting cable

W1...4 ¹⁾	Connection pattern H, unsheathed	
C1...4 ¹⁾	Connection pattern H, sheathed	
N1...4 ⁴⁾	M8x1, 3-pin	






Display

L LED

Protective circuit

-	Without holding current reduction (HCR)
R ²⁾	With holding current reduction (HCR)

E-box

H2	Connection pattern H, horizontal plug	
H3	Connection pattern H, vertical plug	
L1...4	With 2x flying leads L: 1 = 0.5 m, 2 = 1 m, 3 = 2.5 m, 4 = 5 m	
R8	Individual plug M8, 3-pin, without HCR	
P3	Without E-box	

Nominal operating voltage

1	24 V DC
5	12 V DC
4	5 V DC

Pneumatic connection

F In the manifold rail

1) W1/C1 = 0.5 m, W2/C2 = 1 m, W3/C3 = 2.5 m, W4/C4 = 5 m.
2) At 24 V DC.

3) Circuit symbol for internal pilot air supply.
4) Straight: N1 = 2.5 m, N2 = 5 m. Angled: N3 = 2.5 m, N4 = 5 m.

Solenoid valves VUVG-B14, sub-base valves

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
[→ www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the type code in the search field.

★ Quick ordering¹⁾

Part No.	Type
Sub-base valve B14, 3/2-way valve	
566513	VUVG-B14-T32C-AZT-F-1P3
574242	VUVG-B14-T32C-AZT-F-1R8L
Sub-base valve B14, 5/2-way single solenoid valve	
566516	VUVG-B14-M52-AZT-F-1P3
574245	VUVG-B14-M52-AZT-F-1R8L

Part No.	Type
Sub-base valve B14, 5/2-way double solenoid valve	
566517	VUVG-B14-B52-ZT-F-1P3
574246	VUVG-B14-B52-ZT-F-1R8L
Sub-base valve B14, 5/3-way valve	
566518	VUVG-B14-P53C-ZT-F-1P3
574247	VUVG-B14-P53C-ZT-F-1R8L

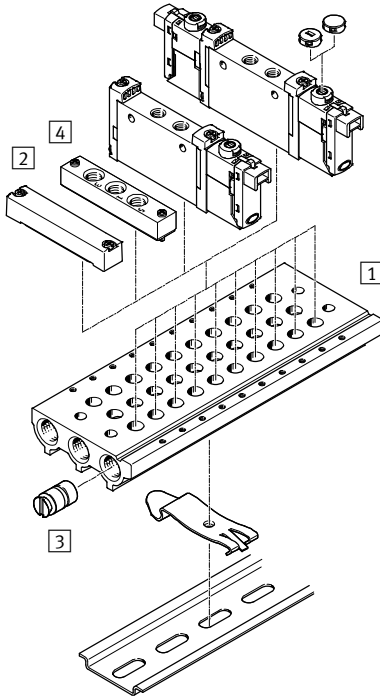
1) All products in this table are easy to select and quick to order.

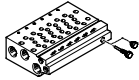




Accessories – Ordering data

Order code – Manifold rails

VABM	-	L1	-	14	W	-	G14	-
Manifold assembly parts						Number of valve positions		
Manifold rail	VABM					2 to 10, 12, 14 and 16		
Valve series						Port 1, 3, 5		
VUVG	L1					G14 G¼		
Valve width								
14 mm						14		
Manifold rail with port 1, 3, 5								
For G¼ in-line valves						W		

Manifold assembly



		Part No.	Type
1 Manifold rail 	For 14 W (G¼)	★ 566642	VABM-L1-14W-G14-2
		★ 566643	VABM-L1-14W-G14-3
		★ 566644	VABM-L1-14W-G14-4
		566645	VABM-L1-14W-G14-5
		★ 566646	VABM-L1-14W-G14-6
		566647	VABM-L1-14W-G14-7
		★ 566648	VABM-L1-14W-G14-8
		566649	VABM-L1-14W-G14-9
		★ 566650	VABM-L1-14W-G14-10
		566651	VABM-L1-14W-G14-12
566652	VABM-L1-14W-G14-14		
566653	VABM-L1-14W-G14-16		
2 Blanking plate			
	For 14 W	★ 569989	VABB-L1-14
3 Blanking plug			
	Separator for pressure zones	569996	VABD-10-B
4 Supply plate			
	For 14 W	569993	VABF-L1-14-P3A4-G18
Seals for in-line valves (10 pieces incl. 20 screws)			
	For 14 W	566676	VABD-L1-14B-S-G18

Solenoid valves VUVG-B18, sub-base valves

Technical data

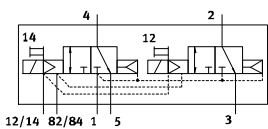
Technical data		Download CAD data → www.festo.com									
Valve function		T32-A			T32-M			M52-R	B52	M52-M	P53
Normal position		C ¹⁾	U ²⁾	H ⁴⁾	C ¹⁾	U ²⁾	H ⁴⁾	–	–	–	C ¹⁾ U ²⁾ E ³⁾
Pneumatic spring reset method		Yes			No			Yes ⁵⁾	–	No	No
Mechanical spring reset method		No			Yes			Yes ⁵⁾	–	Yes	Yes
Port	1, 3, 5	G3/8 in manifold rail									
	2, 4	G1/4 in manifold rail									
	12/14, 82/84	M5 in manifold rail									
Vacuum operation at port 1		No			Only with external pilot air supply						
Design		Piston spool valve									
Type of mounting		On manifold rail									
Electrical connection		Via E-box									
Nominal operating voltage	[V DC]	5, 12 and 24 ±10%									
Power	[W]	1, reduced to 0.35 with holding current reduction									
Duty cycle	[%]	100									
Degree of protection to EN 60529		IP40 (with plug socket)									

- 1) C=Normally closed.
- 2) U=Normally open/mid-position pressurised.
- 3) E=Normally exhausted.
- 4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open.
- 5) Combined reset method.

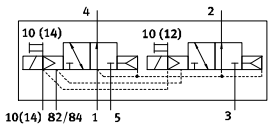
Operating conditions	
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)
Ambient temperature	[°C] -5 ... +50, -5 ... +60 with holding current reduction
Temperature of medium	[°C] -5 ... +50, -5 ... +60 with holding current reduction

Materials	
Housing	Wrought aluminium alloy
Seals	HNBR, NBR

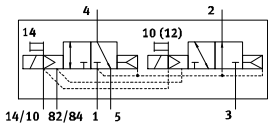
Technical data – 2x3/2-way valve



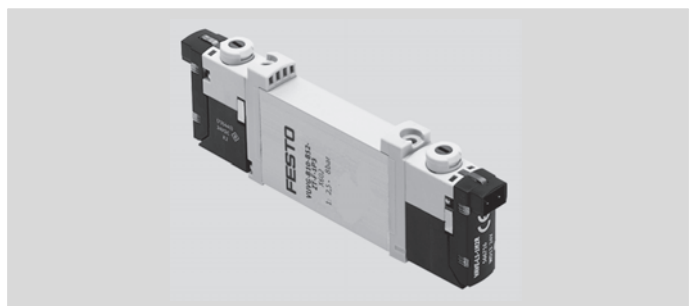
Normally closed,
external pilot air supply⁷⁾



Normally open,
external pilot air supply⁷⁾



1x normally closed,
1x normally open,
external pilot air supply⁷⁾



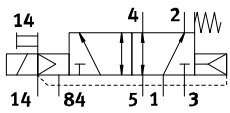
Technical data		Download CAD data → www.festo.com	
Valve function		T32-A	T32-M
Operating pressure	Internal	[bar] 1.5 ... 8	3.5 ... 8
	External	[bar] 1.5 ... 10	-0.9 ... +10
Pilot pressure ⁶⁾	[bar]	1.5 ... 8	3 ... 8
Standard nominal flow rate	[l/min]	900	900
Flow rate on manifold rail	[l/min]	800	800
Switching time on/off	[ms]	13/27	15/22

- 6) Minimum pilot pressure 50% of operating pressure.
- 7) Internal pilot air can be selected via sub-base.

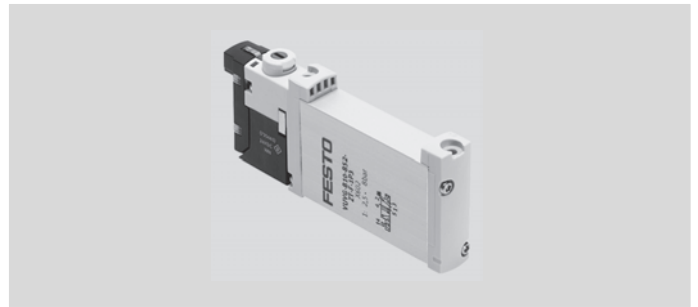
Solenoid valves VUVG-B18, sub-base valves



Technical data – 5/2-way valve, single solenoid



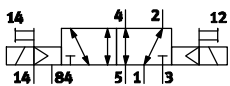
External pilot air supply²⁾



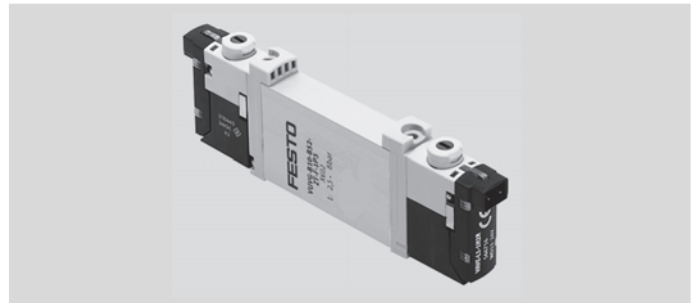
Technical data			Download CAD data → www.festo.com	
Valve function			M52-R	M52-M
Operating pressure	Internal	[bar]	2.5 ... 8	3 ... 8
	External	[bar]	-0.9 ... +10	-0.9 ... +8
Pilot pressure ¹⁾		[bar]	2.5 ... 8	3 ... 8
Standard nominal flow rate		[l/min]	1150	1150
Flow rate on manifold rail		[l/min]	1000	1000
Switching time on/off		[ms]	15/31	10/45

- 1) Minimum pilot pressure 50% of operating pressure.
- 2) Internal pilot air can be selected via sub-base.

Technical data – 5/2-way valve, double solenoid



External pilot air supply⁴⁾



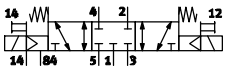
8

Technical data			Download CAD data → www.festo.com	
Valve function			B52	
Operating pressure	Internal	[bar]	1.5 ... 8	
	External	[bar]	-0.9 ... +10	
Pilot pressure ³⁾		[bar]	1.5 ... 8	
Standard nominal flow rate		[l/min]	1150	
Flow rate on manifold rail		[l/min]	1000	
Changeover time		[ms]	11	

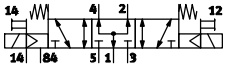
- 3) Minimum pilot pressure 50% of operating pressure.
- 4) Internal pilot air can be selected via sub-base.

Solenoid valves VUVG-B18, sub-base valves

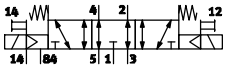
Technical data – 5/3-way valve



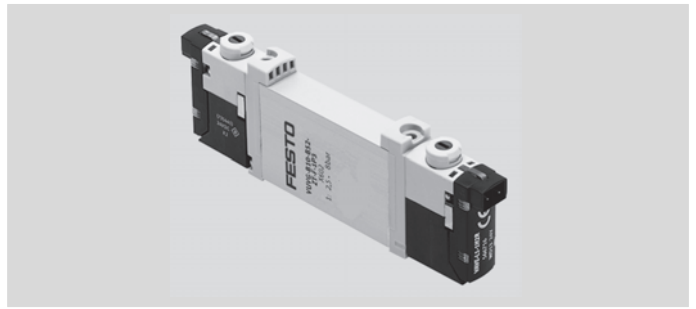
Normally closed,
external pilot air supply²⁾



Normally open,
external pilot air supply²⁾



Normally exhausted,
external pilot air supply²⁾



Download CAD data → www.festo.com

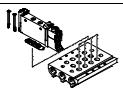
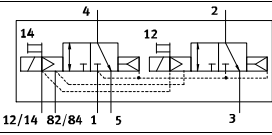
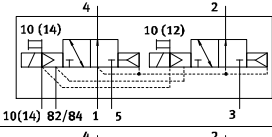
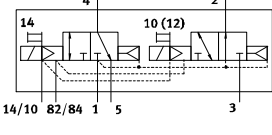
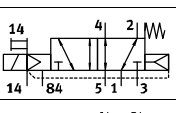
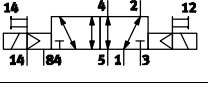
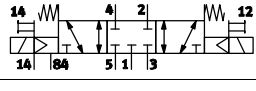
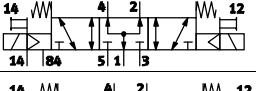
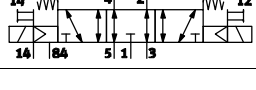


Technical data			Valve function
Valve function			P53
Operating pressure	Internal	[bar]	3 ... 8
	External	[bar]	-0.9 ... +10
Pilot pressure ¹⁾		[bar]	3 ... 8
Standard nominal flow rate		[l/min]	1080
Flow rate on manifold rail		[l/min]	950
Switching time on/off		[ms]	15/48
Changeover time		[ms]	29

1) Minimum pilot pressure 50% of operating pressure.
2) Internal pilot air can be selected via sub-base.



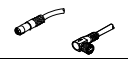
Solenoid valves VUVG-B18, sub-base valves



Order code

VUVG	-	B	18	-	-	Z	-	F	-	-	-	L	-		
Valve design															
 <p>Sub-base, manifold valve incl. seal and screws</p>												B			
Width															
18 mm												18			
Valve functions³⁾															
												T32C			
												T32U			
												T32H			
												M52			
												B52			
												P53C			
												P53U			
												P53E			
Reset method															
Pneumatic spring for T32												A			
Mechanical spring for T32 and M52												M			
Pneu./mech. spring for M52												R			
With B52 and P53												-			
Pilot air supply															
External												Z			
Manual override															
												Non-detenting		H	
												Covered		S	
-												Non-detenting, detenting		T	

Connecting cable

W1...4 ⁴⁾	Connection pattern H, unsheathed	
C1...4 ⁴⁾	Connection pattern H, sheathed	
N1...4 ⁴⁾	M8x1, 3-pin	






Display

L	LED
---	-----

Protective circuit

-	Without holding current reduction (HCR)
R ²⁾	With holding current reduction (HCR)

E-box

H2	Connection pattern H, horizontal plug	
H3	Connection pattern H, vertical plug	
L1...4	With 2x flying leads L: 1 = 0.5 m, 2 = 1 m, 3 = 2.5 m, 4 = 5 m	
R8	Individual plug M8, 3-pin, without HCR	
P3	Without E-box	

Nominal operating voltage

1	24 V DC
5	12 V DC
4	5 V DC

Pneumatic connection

F	In the manifold rail
---	----------------------

1) W1/C1 = 0.5 m, W2/C2 = 1 m, W3/C3 = 2.5 m, W4/C4 = 5 m.
2) At 24 V DC.

3) Circuit symbol for internal pilot air supply.
4) Straight: N1 = 2.5 m, N2 = 5 m. Angled: N3 = 2.5 m, N4 = 5 m.

Solenoid valves VUVG-B18, sub-base valves

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
[→ www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the type code in the search field.

★ Quick ordering¹⁾

Part No.	Type
Sub-base valve B10, 3/2-way valve	
574443	VUVG-B18-T32C-AZT-F-1P3
8031537	VUVG-B18-T32C-AZT-F-1R8L
Sub-base valve B10, 5/2-way single solenoid valve	
574449	VUVG-B18-M52-RZT-F-1P3
8031543	VUVG-B18-M52-RZT-F-1R8L

Part No.	Type
Sub-base valve B10, 5/2-way double solenoid valve	
574451	VUVG-B18-B52-ZT-F-1P3
8031545	VUVG-B18-B52-ZT-F-1R8L
Sub-base valve B10, 5/3-way valve	
574452	VUVG-B18-P53C-ZT-F-1P3
8031546	VUVG-B18-P53C-ZT-F-1R8L

1) All products in this table are easy to select and quick to order.

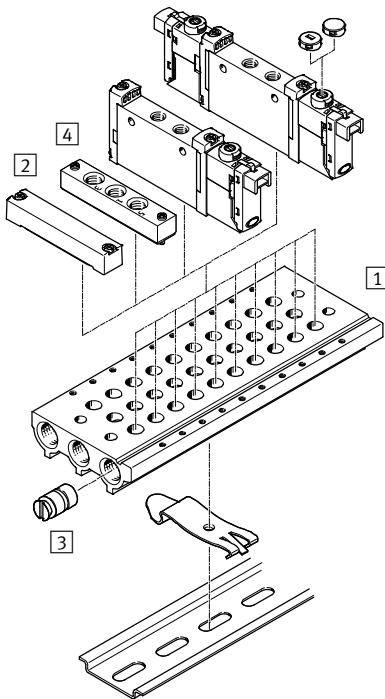
Accessories – Ordering data

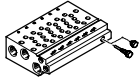



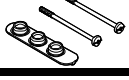
Order code – Manifold rails

VABM	-	L1	-	18	W	-	G38	-
Manifold assembly parts								
Manifold rail	VABM							
Valve series								
VUVG	L1							
Valve width								
18 mm	18							
Manifold rail with port 1, 2, 3, 4, 5, 12/14, 82/84								
Port 2 and 4 in Gx	W							

Number of valve positions
2 to 10, 12, 14 and 16
Port 1, 3, 5
G38 G $\frac{3}{8}$

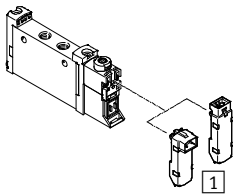
Manifold assembly



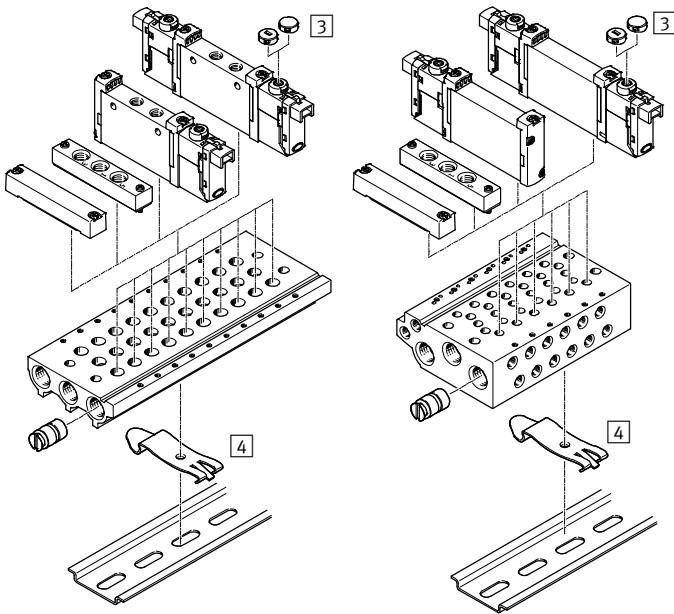
		Part No.	Type
1 Manifold rail 	For 18 W (G $\frac{3}{8}$)	★ 574467	VABM-L1-18W-G38-2
		★ 574468	VABM-L1-18W-G38-3
		★ 574469	VABM-L1-18W-G38-4
		574470	VABM-L1-18W-G38-5
		★ 574471	VABM-L1-18W-G38-6
		574472	VABM-L1-18W-G38-7
		★ 574473	VABM-L1-18W-G38-8
		574474	VABM-L1-18W-G38-9
		★ 574475	VABM-L1-18W-G38-10
		574476	VABM-L1-18W-G38-12
		574477	VABM-L1-18W-G38-14
574478	VABM-L1-18W-G38-16		
2 Blanking plate 	For 18 W	★ 574482	VABB-L1-18
3 Blanking plug 	Separator for pressure zones	574483	VABD-14-B
4 Supply plate 	For 18 W	574481	VABF-L1-18-P3A4-G14
Seals for in-line valves (10 pieces incl. 20 screws)			
	For 18 W	574480	VABD-L1-18B-S-G14

Solenoid valves VUVG

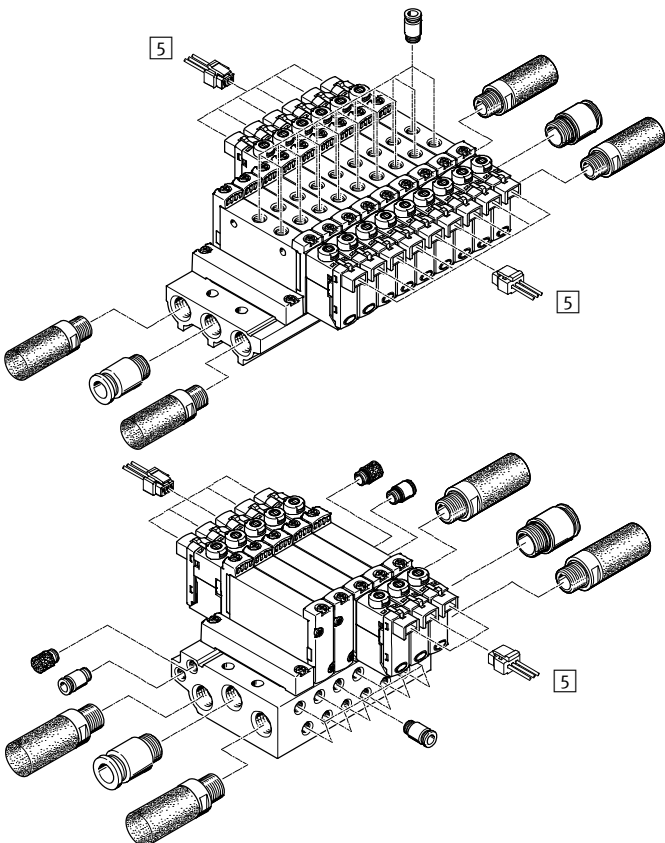
E-box



System overview



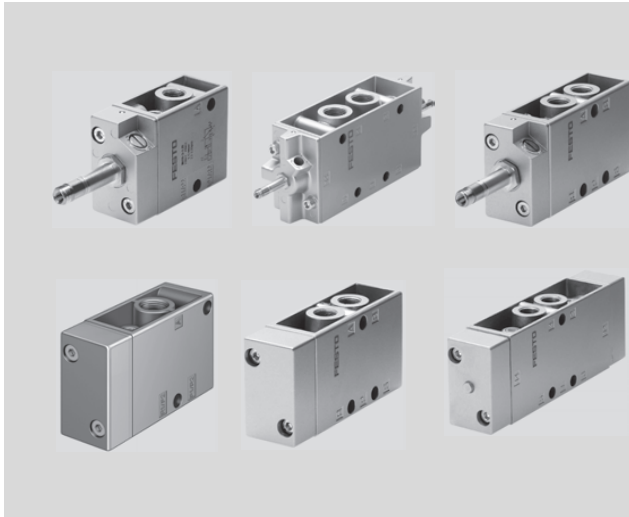
Accessories overview



Accessories – Ordering data

			Part No.	Type
1 E-box H2				
	12/24 V DC	★	566714	VAVE-L1-1VH2-LP
	24 V DC	★	566716	VAVE-L1-1H2-LR
E-box H3				
	12/24 V DC		566715	VAVE-L1-1VH3-LP
	24 V DC		566717	VAVE-L1-1H3-LR
E-box 1L1 ... 1L4/1VL1 ... 1VL4				
	24 V DC		566726	VAVE-L1-1L1-LR
			566727	VAVE-L1-1L2-LR
			566728	VAVE-L1-1L3-LR
			566729	VAVE-L1-1L4-LR
	12/24 V DC		566722	VAVE-L1-1VL1-LP
			566723	VAVE-L1-1VL2-LP
			566724	VAVE-L1-1VL3-LP
			566725	VAVE-L1-1VL4-LP
E-box R8/R1				
	12/24 V DC	★	573919	VAVE-L1-1VR8-LP
	24 V DC		573920	VAVE-L1-1R8-LR
E-box K6 ... K9				
	12/24 V DC		573941	VAVE-L1-1VK6-LP
		★	573942	VAVE-L1-1VK7-LP
			573943	VAVE-L1-1VK8-LP
			573944	VAVE-L1-1VK9-LP
	24 V DC		573945	VAVE-L1-1K6-LR
			573946	VAVE-L1-1K7-LR
			573947	VAVE-L1-1K8-LR
			573948	VAVE-L1-1K9-LR
3 Covers for manual override				
	Covered		540898	VMPA-HBV-B
	Non-detent-ing		540897	VMPA-HBT-B
4 H-rail mounting				
	2 pieces	★	569998	VAME-T-M4
5 Plug socket with cable, open end				
	0.5 m	★	566654	NEBV-H1G2-KN-0.5-LE2
	1 m	★	566655	NEBV-H1G2-KN-1-LE2
	2.5 m	★	566656	NEBV-H1G2-KN-2.5-LE2
	5 m		566657	NEBV-H1G2-KN-5-LE2
	0.5 m	★	566658	NEBV-H1G2-P-0.5-N-LE2
	1 m	★	566659	NEBV-H1G2-P-1-N-LE2
	2.5 m	★	566660	NEBV-H1G2-P-2.5-N-LE2
	5 m		566661	NEBV-H1G2-P-5-N-LE2
Inscription label holder				
	10 pieces		570818	ASLR-D-L1

Solenoid/pneumatic valves, Tiger Classic



- Electrically or pneumatically actuated valves
- Internal or external pilot air supply
- Sturdy and reliable
- ★ Quick ordering of basic designs → 677

→ www.festo.com/catalogue/tiger classic

Product range overview

Type	Pneumatic connection	Valve function	Operating voltage		Normal position	Pilot air supply		→ Page/online
			[V DC]	[V AC]				
Solenoid valve								
MOFH	G1/8	3/2-way valve	12, 24, 42, 48	24, 42, 48, 110, 230, 240	Closed	Internal	External	674
	G1/4							675
	G1/2							675
	G3/4							676
MFH	G1/8	3/2-way valve	12, 24, 42, 48	24, 42, 48, 110, 230, 240	Open	Internal	–	674
	G1/4							675
	G1/2							675
	G3/4							676
MFH	G1/8	5/2-way valve	12, 24, 42, 48	24, 42, 48, 110, 230, 240	–	Internal	External	674
	G1/4							675
	G1/2							675
Double solenoid valve								
JMFH	G1/8	5/2-way valve	12, 24, 42, 48	24, 42, 48, 110, 230, 240	–	Internal	External	674
	G1/4							675
	G1/2							675
Double solenoid valve with dominant signal								
JMFDH	G1/8	5/2-way valve	12, 24, 42, 48	24, 42, 48, 110, 230, 240	–	–	External	674
	G1/4							675
Pneumatic valve								
VL/O	G1/8	3/2-way valve	–	–	Choice of open or closed	–	–	678
	G1/4							678
	G1/2							679
	G3/4							679
VL	G1/8	5/2-way valve	–	–	–	–	–	678
	G1/4							678
	G1/2							679
Pneumatic double pilot valve								
JH	G1/8	5/2-way valve	–	–	–	–	–	678
	G1/4							678
	G1/2							679
Pneumatic double pilot valve with dominant signal								
JDH	G1/8	5/2-way valve	–	–	–	–	–	678
	G1/4							678

Solenoid valves MFH/MOFH/JMFH/JMFDH, Tiger Classic

Technical data

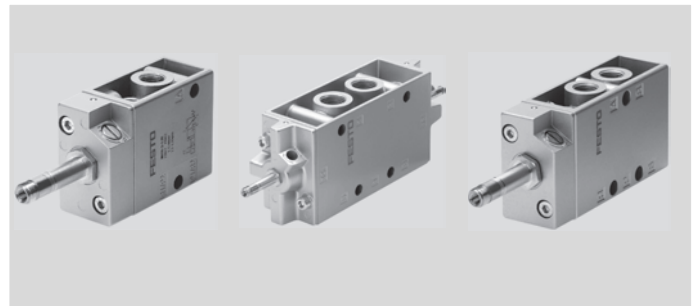
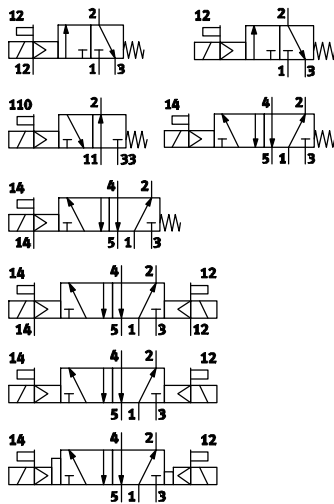
Technical data		Download CAD data → www.festo.com		
Valve function		3/2-way, single solenoid	5/2-way, single solenoid	5/2-way, double solenoid
Actuation type		Electric		
Reset method		Mechanical spring		–
Type of control		Piloted		
Pilot air supply		Internal or external		
Direction of flow		Non-reversible		

Operating conditions	
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)
Ambient temperature	[°C] –5 ... +40
Temperature of medium	[°C] –10 ... +60

Materials	
Housing	Die-cast aluminium
Seals	NBR

Technical data – Pneumatic connection G1/8

Internal or external pilot air supply

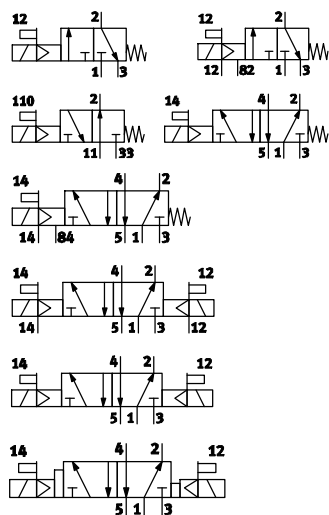


Technical data		Download CAD data → www.festo.com		
Valve function		3/2-way, single solenoid	5/2-way, single solenoid	5/2-way, double solenoid
Nominal size	[mm]	5		
Standard nominal flow rate	[l/min]	500		600
Operating pressure	Internal	[bar] 1.5 ... 8	1.8 ... 8	1.5 ... 8
	External	[bar] –0.95 ... +10	0 ... 10	0 ... 8
	With dominant signal	[bar] –	–	2.5 ... 8
Pilot pressure	[bar]	1 ... 8		1.2 ... 8

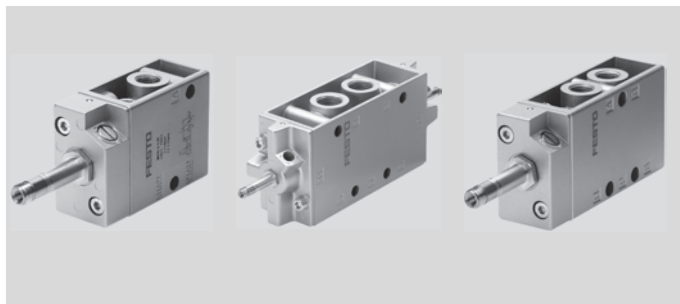
Solenoid valves MFH/MOFH/JMFH/JMFDH, Tiger Classic



Technical data – Pneumatic connection G1/4

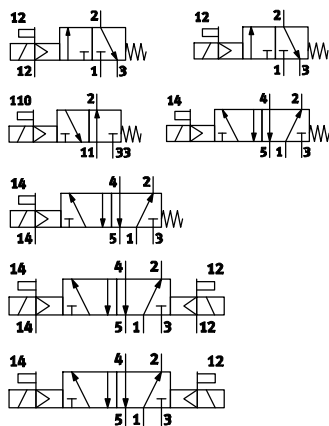


Internal or external pilot air supply

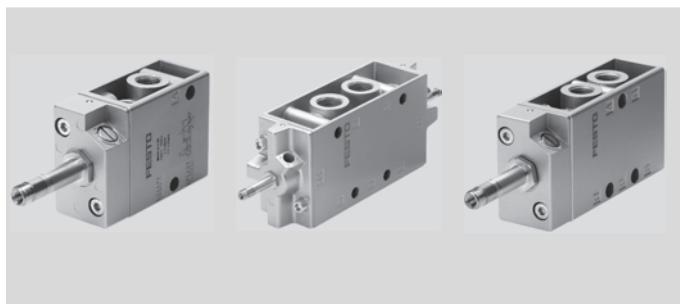


Technical data		Download CAD data → www.festo.com		
Valve function		3/2-way, single solenoid	5/2-way, single solenoid	5/2-way, double solenoid
Nominal size	[mm]	7		
Standard nominal flow rate	[l/min]	800	1000	1100
Operating pressure	Internal	[bar]	1.5 ... 8	2.2 ... 8
	External	[bar]	-0.95 ... +10	0 ... 8
	With dominant signal	[bar]	-	2.5 ... 8
Pilot pressure	[bar]	1 ... 8	1.5 ... 8	1.2 ... 8

Technical data – Pneumatic connection G1/2



Internal or external pilot air supply

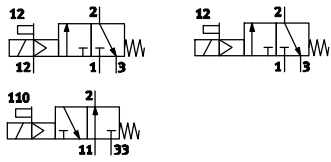


Technical data		Download CAD data → www.festo.com		
Valve function		3/2-way, single solenoid	5/2-way, single solenoid	5/2-way, double solenoid
Nominal size	[mm]	14		
Standard nominal flow rate	[l/min]	3700	3700	4500
Operating pressure	Internal	[bar]	1.5 ... 8	2 ... 8
	External	[bar]	-0.95 ... +10	0 ... 8
	With dominant signal	[bar]	-	2.5 ... 8
Pilot pressure	[bar]	1 ... 8	1.5 ... 8	0.5 ... 8

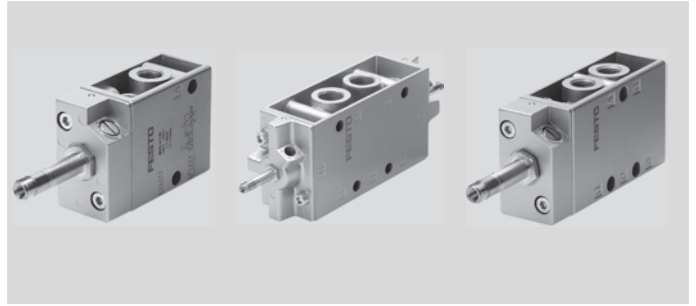
8

Solenoid valves MFH/MOFH/JMFH/JMFDH, Tiger Classic

Technical data – Pneumatic connection G3/4



Internal or external pilot air supply



Technical data

Download CAD data → www.festo.com

Valve function		3/2-way, single solenoid
Nominal size	[mm]	19
Standard nominal flow rate	[l/min]	7500
Operating pressure	Internal	[bar] 2 ... 8
	External	[bar] -0.95 ... +10
Pilot pressure	[bar]	1 ... 8

Order code

Type	
MFH	Single solenoid, for F solenoid coil, normally closed
MOFH	Single solenoid, for F solenoid coil, normally open
JMFH	Double solenoid, for F solenoid coil
JMFDH	Double solenoid, for F solenoid coil, with dominant signal 1

Valve function	
3	3/2-way valve
5	5/2-way valve

Pneumatic connections	
1/8	G1/8
1/4	G1/4
1/2	G1/2
3/4	G3/4 2

Pilot air supply	
-	Internal
S	External

1 Only with pneumatic connection G1/8 or G1/4

2 Only in combination with 3/2-way valve

Order example:

MFH-5-1/4

Solenoid valve MFH Tiger Classic, single solenoid, for F solenoid coil, normally closed - 5/2-way valve - pneumatic connection G1/4 - internal pilot air supply

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or

[→ www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the type code in the search field.

★ Quick ordering¹⁾

Part No.	Type
3/2-way solenoid valve, internal pilot air	
9964	MFH-3-1/4
7802	MFH-3-1/8

Part No.	Type
5/2-way solenoid valve, internal pilot air	
6211	MFH-5-1/4
9982	MFH-5-1/8

Part No.	Type
5/2-way double solenoid valve, internal pilot air	
8820	JMFH-5-1/8
10410	JMFH-5-1/4

1) All products in this table are easy to select and quick to order.

Pneumatic valves VL/O, VL, JH, JDH, Tiger Classic

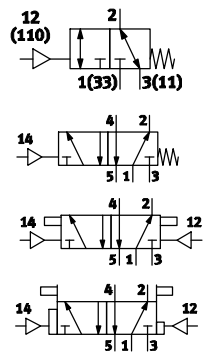
Technical data

Technical data		Download CAD data → www.festo.com		
Valve function		3/2-way, single pilot	5/2-way, single pilot	5/2-way, double pilot
Actuation type	Pneumatic			
Reset method	Mechanical spring			–
Type of control	Direct			
Direction of flow	Reversible	Non-reversible		

Operating conditions	
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)
Ambient temperature	[°C] –10 ... +60

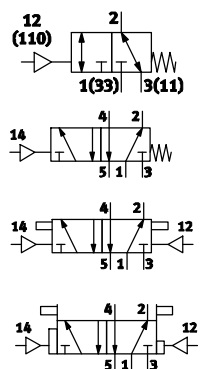
Materials	
Housing	Die-cast aluminium
Seals	NBR

Technical data – Pneumatic connection G1/8



Technical data		Download CAD data → www.festo.com		
Valve function		3/2-way, single pilot	5/2-way, single pilot	5/2-way, double pilot
Nominal size	[mm]	5		
Standard nominal flow rate	[l/min]	500		600
Operating pressure	[bar]	–0.95 ... +10 (normally closed) 0 ... 10 (normally open)	0 ... 10	0 ... 10
Pilot pressure	[bar]	Max. 10		

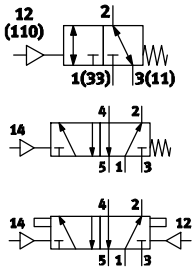
Technical data – Pneumatic connection G1/4



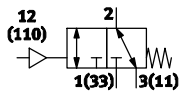
Technical data		Download CAD data → www.festo.com		
Valve function		3/2-way, single pilot	5/2-way, single pilot	5/2-way, double pilot
Nominal size	[mm]	7		

Technical data – Pneumatic connection G1/4

Technical data		Download CAD data → www.festo.com		
Valve function		3/2-way, single pilot	5/2-way, single pilot	5/2-way, double pilot
Standard nominal flow rate	[l/min]	800	800	1100
Operating pressure	[bar]	-0.95 ... +10 (normally closed) 0 ... 10 (normally open)	0 ... 8	0 ... 8
Pilot pressure	[bar]	Max. 10		

Technical data – Pneumatic connection G1/2


Technical data		Download CAD data → www.festo.com		
Valve function		3/2-way, single pilot	5/2-way, single pilot	5/2-way, double pilot
Nominal size	[mm]	14		
Standard nominal flow rate	[l/min]	3700	3700	4500
Operating pressure	[bar]	-0.95 ... +10 (normally closed) 0 ... 10 (normally open)	0 ... 10	0 ... 10
Pilot pressure	[bar]	Max. 10		

Technical data – Pneumatic connection G3/4


Technical data		Download CAD data → www.festo.com		
Valve function		3/2-way, single pilot		
Nominal size	[mm]	19		
Standard nominal flow rate	[l/min]	7500		
Operating pressure	[bar]	-0.95 ... +10 (normally closed) 0 ... 10 (normally open)		
Pilot pressure	[bar]	Max. 10		

Pneumatic valves VL/O, VL, JH, JDH, Tiger Classic

Order code

		VL/O	—		—	
Type						
VL/O	Single pilot, normally open or closed					
VL	Single pilot					
JH	Double pilot					
JDH	Double pilot, with dominant signal					<input type="checkbox"/>
Valve function						
3	3/2-way valve					
5	5/2-way valve					
Pneumatic connection						
1/8	G1/8					
1/4	G1/4					
1/2	G1/2					
3/4	G3/4					<input type="checkbox"/>

Only with pneumatic connection G1/8 or G1/4

Only in combination with 3/2-way valve

Order example:

VL-5-1/4

Pneumatic valve VL Tiger Classic, single pilot - 5/2-way valve - pneumatic connection G1/4

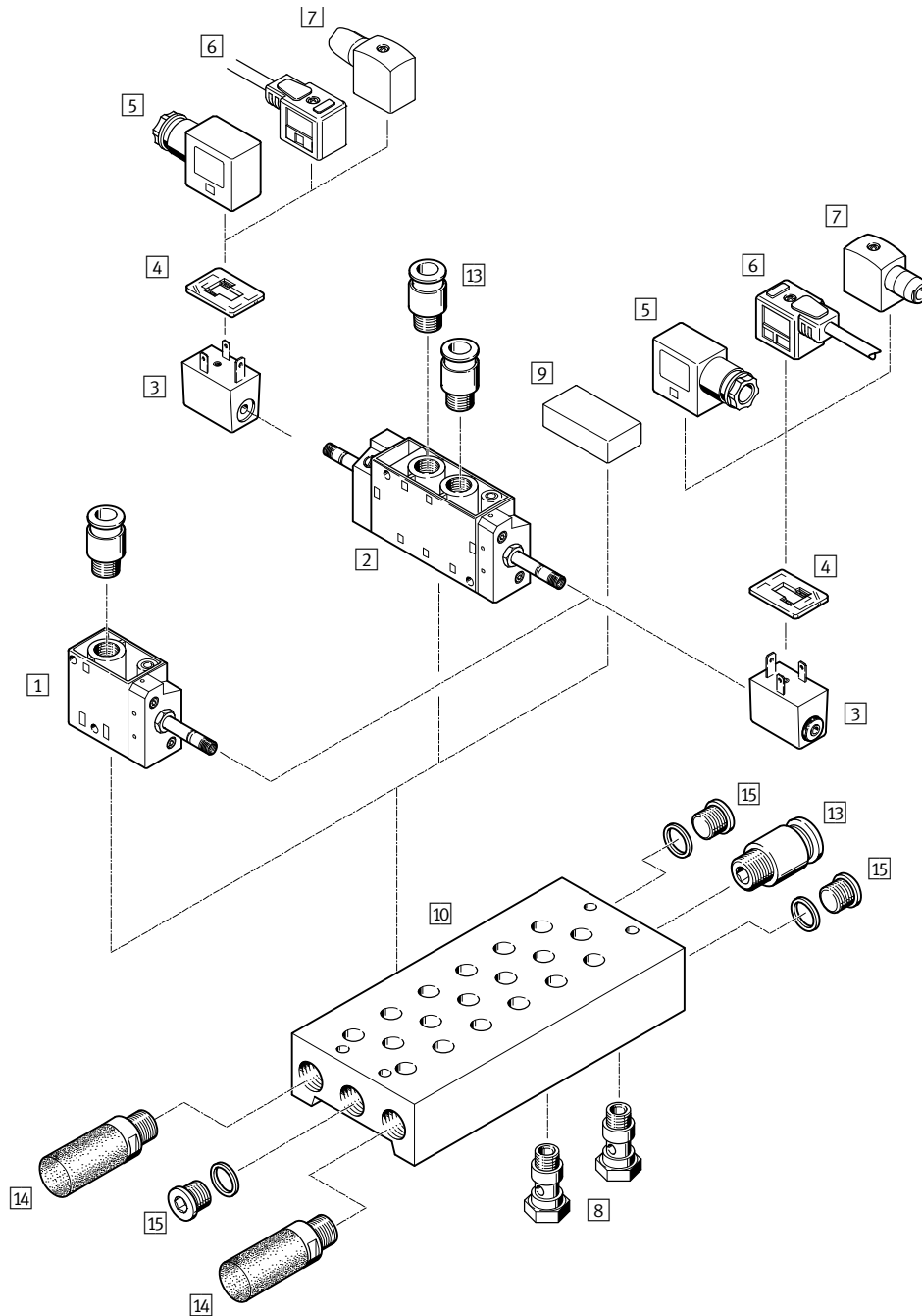
8

Ordering – Product options

<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Configurable product	This product and all its options can be ordered using the configurator.	The configurator can be found under Products on the DVD or → www.festo.com/catalogue/...	Enter the type code in the search field.
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Accessories

Mounting on manifold block

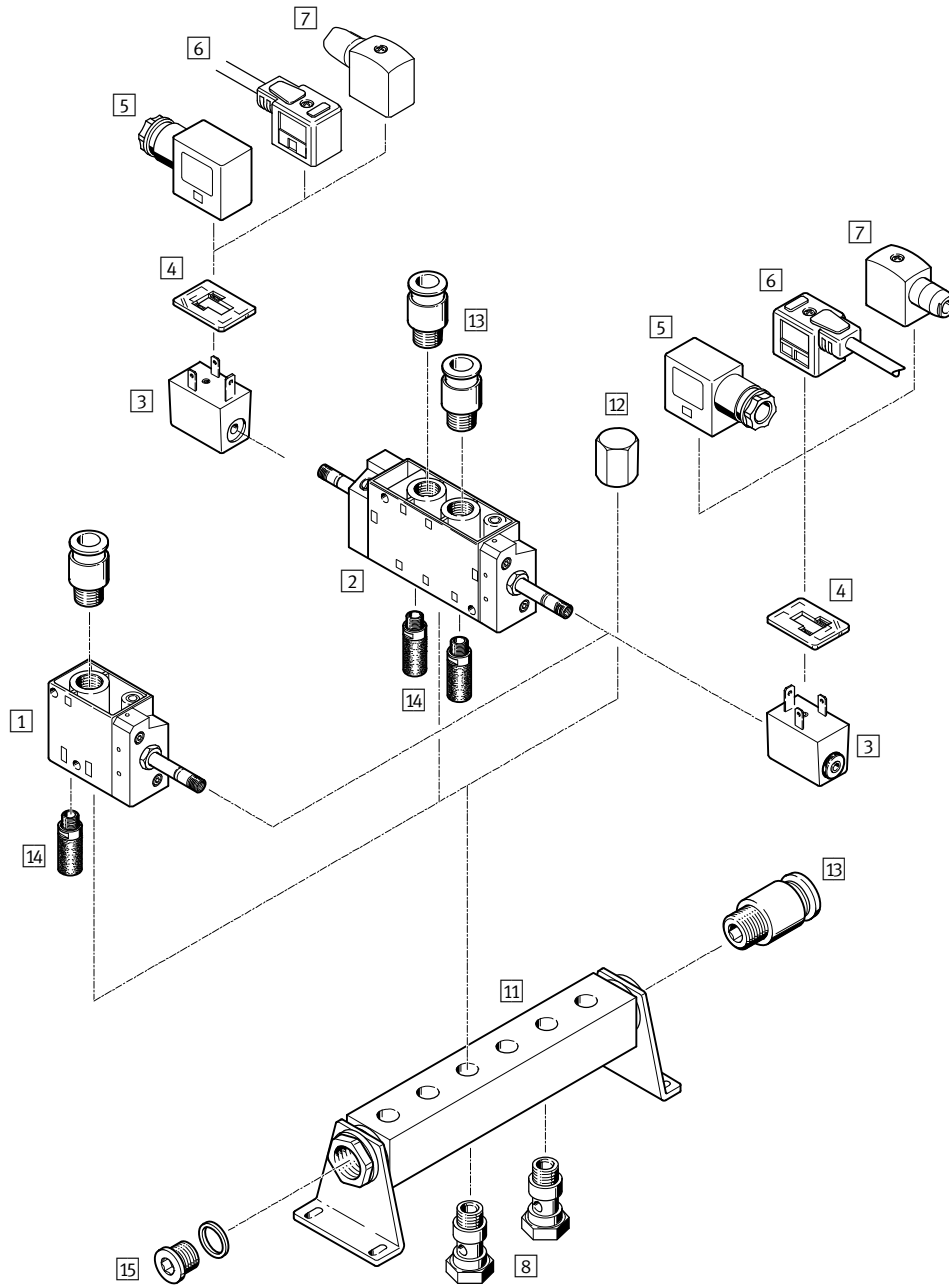


		→ Page/online
1	Solenoid valve MFH	677
2	Solenoid valve JMFH	677
3	F solenoid coil MSFG, MSFW	684
4	Illuminating seal MF-LD	684
5	Plug socket MSSD-F-S	684
6	Plug socket with cable KMF	684
7	Plug socket MSSD-F	684
8	Hollow bolt VT	684
9	Blanking plate PRSB	684
10	Manifold block PRS	684
13	Push-in fitting QS	1006
14	Silencer	1100
15	Blanking plug B (3 included in the scope of delivery of the manifold block PRS)	b-1

Solenoid valves MFH/MOFH/JMFH/JMFDH, Tiger Classic

Accessories

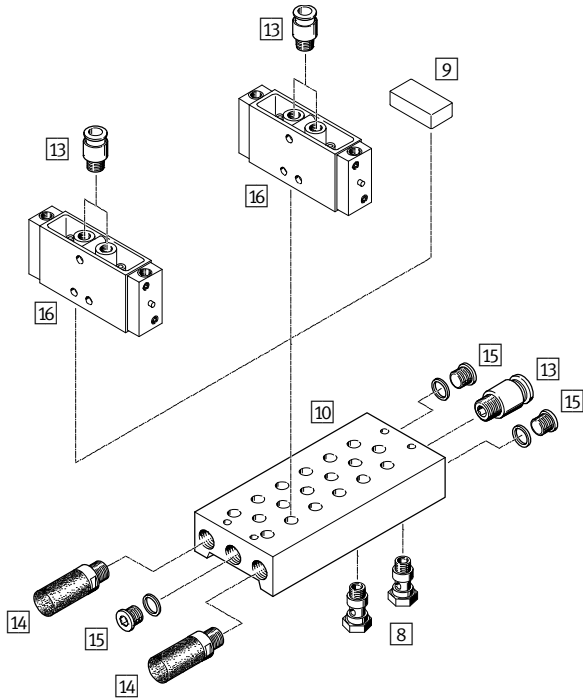
Mounting on manifold rail



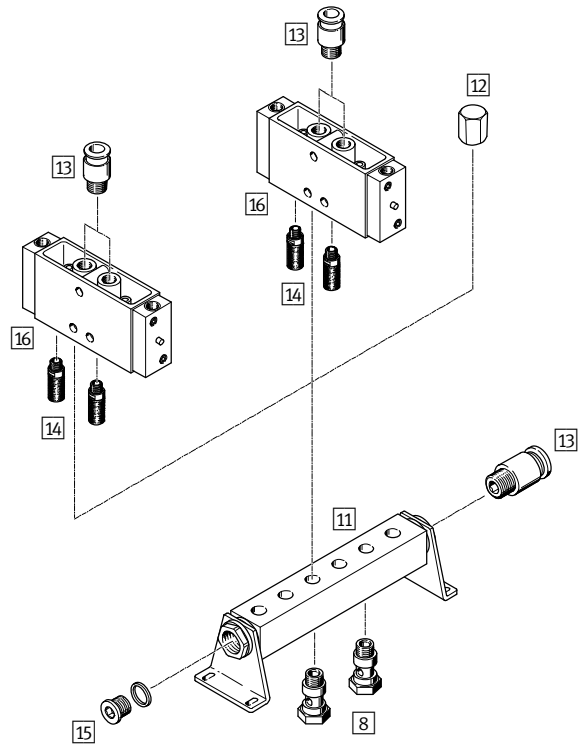
		→ Page/online
1	Solenoid valve JMFH	677
2	Solenoid valve MFH	677
3	F solenoid coil MSFG, MSFW	684
4	Illuminating seal MF-LD	684
5	Plug socket MSSD-F-S	684
6	Plug socket with cable KMF	684
7	Plug socket MSSD-F	684
8	Hollow bolt VT	684
11	Manifold rail PAL	684
12	Cap nut VTM	684
13	Push-in fitting QS	1006
14	Silencer	1100
15	Blanking plug B (1 included in the scope of delivery of the manifold rail PAL)	b-1

Accessories

Mounting on manifold block



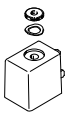


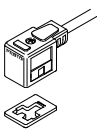


Mounting on manifold rail


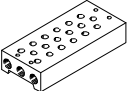
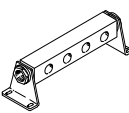



		→ Page/online
8	Hollow bolt VT	684
9	Blanking plate PRSB	684
10	Manifold block PRS	684
11	Manifold rail PAL	684
12	Cap nut VTM	684
13	Push-in fitting QS	1006
14	Silencer	1100
15	Blanking plug B	3 included in the scope of delivery of the manifold block PRS 1 included in the scope of delivery of the manifold rail PAL
16	Pneumatic valve VL, JH	680

Solenoid/pneumatic valves, Tiger Classic

Accessories – Ordering data

		Part No.	Type
3 F solenoid coil			
	12 V DC	34410	MSFG-12-OD
	24 V DC	★ 34411	MSFG-24/42-50/60-OD
	42 V AC		
	42 V DC	34413	MSFG-42-OD
	24 V AC	34415	MSFW-24-50/60-OD
	48 V AC	34418	MSFW-48-50/60-OD
	110 V AC	34420	MSFW-110-50/60-OD
	120 V AC		
	230 V AC	34422	MSFW-230-50/60-OD
	240 V AC		
	240 V AC	34424	MSFW-240-50/60-OD
	24 V DC	4527	MSFG-24/42-50/60
42 V AC	34412	MSFG-24/42-50/60-DS-OD	
4 Illuminating seal for F solenoid coil			
	-	19143	MF-LD-12-24DC
	-	19144	MF-LD-230AC
5 Plug socket for F solenoid coil, without cable			
	-	★ 34431	MSSD-F
	-	539710	MSSD-F-M16
6 Connecting cable for F solenoid coil			
	24 V DC	★ 30935	KMF-1-24DC-2,5-LED
		30937	KMF-1-24DC-5-LED
		193458	KMF-1-24DC-10-LED
	Up to 240 V	30936	KMF-1-230AC-2,5
		30938	KMF-1-230AC-5
7 Plug socket without cable with insulation displacement technology			
	-	192746	MSSD-F-S-M16
8 Hollow bolt			
	For manifold block PRS		
	G $\frac{1}{8}$	11539	VT- $\frac{1}{8}$ -PRSK
	G $\frac{1}{4}$	9499	VT- $\frac{1}{4}$ -PRS
	For manifold rail PAL		
	G $\frac{1}{8}$	8626	VT- $\frac{1}{8}$
	G $\frac{1}{4}$	206147	VT- $\frac{1}{4}$ -2
G $\frac{1}{2}$	9986	VT- $\frac{1}{2}$	

		Part No.	Type	
9 Blanking plate				
	G $\frac{1}{8}$	11687	PRSB- $\frac{1}{8}$	
	G $\frac{1}{4}$	11688	PRSB- $\frac{1}{4}$	
10 Manifold block				
	Pneumatic connection G $\frac{1}{8}$	11898	PRS- $\frac{1}{8}$ -2	
		11899	PRS- $\frac{1}{8}$ -3	
		11900	PRS- $\frac{1}{8}$ -4	
		11901	PRS- $\frac{1}{8}$ -5	
		11902	PRS- $\frac{1}{8}$ -6	
		Pneumatic connection G $\frac{1}{4}$	10185	PRS- $\frac{1}{4}$ -2
	10186		PRS- $\frac{1}{4}$ -3	
	10187		PRS- $\frac{1}{4}$ -4	
	10188		PRS- $\frac{1}{4}$ -5	
	10188		PRS- $\frac{1}{4}$ -6	
	10189		PRS- $\frac{1}{4}$ -6	
	11 Manifold rail			
	Pneumatic connection G $\frac{1}{8}$	★ 8601	PAL- $\frac{1}{8}$ -2	
		★ 8602	PAL- $\frac{1}{8}$ -3	
		★ 8603	PAL- $\frac{1}{8}$ -4	
		8604	PAL- $\frac{1}{8}$ -5	
		★ 9767	PAL- $\frac{1}{8}$ -6	
		Pneumatic connection G $\frac{1}{4}$	★ 9188	PAL-5- $\frac{1}{4}$ -2
	★ 9189		PAL-5- $\frac{1}{4}$ -3	
	★ 9190		PAL-5- $\frac{1}{4}$ -4	
	9191		PAL-5- $\frac{1}{4}$ -5	
	★ 9192		PAL-5- $\frac{1}{4}$ -6	
	12 Cap nut			
		G $\frac{1}{8}$	9768	VTM- $\frac{1}{8}$
G $\frac{1}{4}$		3099	VTM- $\frac{1}{4}$	
G $\frac{1}{2}$		9987	VTM- $\frac{1}{2}$	



- Piloted non-return function
 - With push-in connector at one end for tubing O.D. from 4 ... 12 mm
 - With connecting thread at one or both ends from M5 ... G $\frac{1}{2}$
- ★ Quick ordering of basic designs → 685

→ www.festo.com/catalogue/hgl

Technical data

Operating conditions		M5	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$
Pneumatic connection 2						
Operating/pilot medium		Compressed air to ISO 8573-1:2010 [7:4:4]				
Note on operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)				
Operating pressure	[bar]	0.5 ... 10				
Pilot pressure	[bar]	2 ... 10		1 ... 10		
Ambient temperature	[°C]	-10 ... +60				

Materials		HGL-...-B with threaded connector at both ends	HGL-...-QS with push-in/threaded connector
Type			
Housing		Anodised wrought aluminium alloy	
Swivel connection		Die-cast zinc	
Releasing ring		–	POM
Non-return collar		NBR	
Seals		NBR	

Ordering data

	Pneumatic connection		Pilot air port	Standard nominal flow rate q _N in flow direction at 6 bar → 5 bar [l/min]	Standard flow rate q _n in flow direction at 6 bar → 0 bar [l/min]		Part No.	Type
	2	1	21					
Threaded connector at both ends								
	M5	M5	M5	130	200	★	530029	HGL-M5-B
	G $\frac{1}{8}$	G $\frac{1}{8}$	M5	300	430	★	530030	HGL- $\frac{1}{8}$ -B
		G $\frac{1}{8}$	G $\frac{1}{8}$	300	430		543253	HGL- $\frac{1}{8}$ - $\frac{1}{8}$ -B
	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{1}{8}$	550	680	★	530031	HGL- $\frac{1}{4}$ -B
	G $\frac{3}{8}$	G $\frac{3}{8}$	G $\frac{1}{4}$	1100	1500	★	530032	HGL- $\frac{3}{8}$ -B
	G $\frac{1}{2}$	G $\frac{1}{2}$	G $\frac{3}{8}$	1600	2100	★	530033	HGL- $\frac{1}{2}$ -B
Push-in/threaded connector								
	M5	QS-4	QS-4	130	200	★	530038	HGL-M5-QS-4
	G $\frac{1}{8}$	QS-4	M5	200	300	★	530039	HGL- $\frac{1}{8}$ -QS-4
		QS-6	M5	270	400	★	530040	HGL- $\frac{1}{8}$ -QS-6
	G $\frac{1}{4}$	QS-8	G $\frac{1}{8}$	390	640	★	530041	HGL- $\frac{1}{4}$ -QS-8
		QS-10	G $\frac{1}{8}$	400	670	★	530042	HGL- $\frac{1}{4}$ -QS-10
	G $\frac{3}{8}$	QS-8	G $\frac{1}{4}$	830	1200	★	530043	HGL- $\frac{3}{8}$ -QS-8
		QS-10	G $\frac{1}{4}$	890	1300	★	530044	HGL- $\frac{3}{8}$ -QS-10
	G $\frac{1}{2}$	QS-12	G $\frac{3}{8}$	1400	2100	★	530045	HGL- $\frac{1}{2}$ -QS-12

Shut-off valves HE

FESTO



- Manual shut-off valve
- 2/2-way or 3/2-way bistable
- Connection: push-in connector at both ends, threaded/push-in connector or threaded connector at both ends

→ www.festo.com/catalogue/he

Technical data

Technical data		
Valve function	2/2-way, bistable	3/2-way, bistable
Design	Piston spool valve	
Type of piloting	Direct	
Direction of flow	Non-reversible	
Exhaust air function	–	No flow control

Operating conditions

Operating medium	Compressed air to ISO 8573-1:2010 [7:-:-]	
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)	
Operating pressure [bar]	–0.95 ... +10	
Ambient temperature [°C]	0 ... +60	

Materials

Housing	PBT reinforced
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Ordering data

	Pneumatic connection			Valve function	Nominal size [mm]	Standard nominal flow rate q _{nN} [l/min]	Part No.	Type
	1	2	3					
Push-in connector at both ends								
	QS-6	QS-6	–	2/2-way, bistable	5	278	153467	HE-2-QS-6
			Not ducted	3/2-way, bistable	5	279	153475	HE-3-QS-6
	QS-8	QS-8	–	2/2-way, bistable	5	388	153468	HE-2-QS-8
			Not ducted	3/2-way, bistable	5	390	153476	HE-3-QS-8
	QS-10	QS-10	–	2/2-way, bistable	7	761	153469	HE-2-QS-10
			Not ducted	3/2-way, bistable	7	780	153477	HE-3-QS-10
	QS-12	QS-12	–	2/2-way, bistable	7	831	153470	HE-2-QS-12
			Not ducted	3/2-way, bistable	7	840	153478	HE-3-QS-12
Threaded/push-in connector								
	R ¹ / ₈	QS-6	–	2/2-way, bistable	5	307	153471	HE-2- ¹ / ₈ -QS-6
			Not ducted	3/2-way, bistable	5	301	153479	HE-3- ¹ / ₈ -QS-6
	R ¹ / ₄	QS-8	–	2/2-way, bistable	5	396	153472	HE-2- ¹ / ₄ -QS-8
			Not ducted	3/2-way, bistable	5	380	153480	HE-3- ¹ / ₄ -QS-8
	R ³ / ₈	QS-10	–	2/2-way, bistable	7	728	153473	HE-2- ³ / ₈ -QS-10
			Not ducted	3/2-way, bistable	7	733	153481	HE-3- ³ / ₈ -QS-10
	R ¹ / ₂	QS-12	–	2/2-way, bistable	7	776	153474	HE-2- ¹ / ₂ -QS-12
			Not ducted	3/2-way, bistable	7	796	153482	HE-3- ¹ / ₂ -QS-12
Threaded connector at both ends								
	R ¹ / ₈	R ¹ / ₈	Not ducted	3/2-way, bistable	5	301	153296	HE-3- ¹ / ₈ - ¹ / ₈
	R ¹ / ₄	R ¹ / ₄	Not ducted	3/2-way, bistable	7	380	153297	HE-3- ¹ / ₄ - ¹ / ₄
	R ³ / ₈	R ³ / ₈	Not ducted	3/2-way, bistable	7	733	153298	HE-3- ³ / ₈ - ³ / ₈



- Flow control valves, flow control at one end
 - Exhaust or supply air flow control
 - Function combinations consisting of a one-way flow control valve and piloted non-return valve
 - With screw-in thread M3 ... G $\frac{1}{2}$ and push-in connector QS-3 ... QS-12 mm
 - Metal and polymer versions
 - Can be swivelled 360° around the screw-in axis after mounting
- ★ Quick ordering of basic designs → 690

→ www.festo.com/catalogue/grla

Product range overview

	Valve function	Type	Connection direction	Pneumatic connection 1	Pneumatic connection 2	qnN ¹⁾ [l/min]	Adjusting element	→ Page/online		
Standard										
Metal	Exhaust air one-way flow control function	GRLA	Elbow outlet	QS-3, QS-4, QS-6, QS-8, QS-10, QS-12	M5, G $\frac{1}{8}$, G $\frac{1}{4}$, G $\frac{3}{8}$, G $\frac{1}{2}$	100 ... 1580	Slotted head screw	689		
							Knurled screw			
						M5, G $\frac{1}{8}$, G $\frac{1}{4}$, G $\frac{3}{8}$, G $\frac{1}{2}$, G $\frac{3}{4}$	M5, G $\frac{1}{8}$, G $\frac{1}{4}$, G $\frac{3}{8}$, G $\frac{1}{2}$, G $\frac{3}{4}$	95 ... 4320	Slotted head screw	grla
						M5, G $\frac{1}{8}$, G $\frac{1}{4}$	M5, G $\frac{1}{8}$, G $\frac{1}{4}$	95 ... 610	Knurled screw	
			PK-3, PK-4, PK-6	M5, G $\frac{1}{8}$, G $\frac{1}{4}$	83 ... 540	Slotted head screw	grla			
		GRLSA	Elbow outlet	QS-6, QS-8	G $\frac{1}{8}$, G $\frac{1}{4}$	0 ... 450	Rotary knob with scale, internal hex	grlsa		
	Supply air one-way flow control function	GRLZ	Elbow outlet	QS-3, QS-4, QS-6, QS-8	M5, G $\frac{1}{8}$	100 ... 215	Slotted head screw	689		
						M5, G $\frac{1}{8}$, G $\frac{1}{4}$	M5, G $\frac{1}{8}$, G $\frac{1}{4}$	95 ... 610	Slotted head screw	grlz
						PK-3, PK-4, PK-6	M5, G $\frac{1}{8}$, G $\frac{1}{4}$	83 ... 540	Slotted head screw	
	VFOC	Elbow outlet	QS-4, QS-6	Push-in sleeve ²⁾ QS-4, QS-6	100 ... 270	Slotted head screw	vfoc			
Chromium-plated metal	Exhaust air one-way flow control function	GRLA-F	Elbow outlet	QS-4, QS-6, QS-8	G $\frac{1}{8}$, G $\frac{1}{4}$	180 ... 530	Slotted head screw	grla		
Polymer	Exhaust air one-way flow control function	GRLA	Elbow outlet	QS-6, QS-8	G $\frac{1}{8}$, G $\frac{1}{4}$, G $\frac{3}{8}$	520 ... 650	Knurled screw	grla		
Flat										
Polymer	Exhaust air one-way flow control function	VFOF	Elbow outlet	QS-6, QS-8	G $\frac{1}{8}$, G $\frac{1}{4}$	250 ... 650	Internal hex	691		

1) Standard nominal flow rate in flow control direction at 6 bar → 5 bar.

2) Only suitable for push-in connector QS.

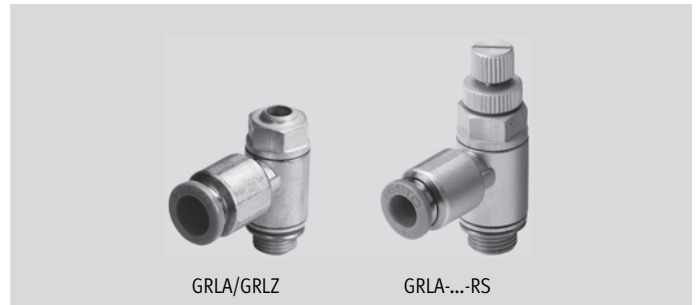
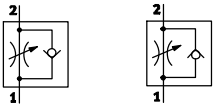
One-way flow control valves

Product range overview

Type	Valve function	Type	Connection direction	Pneumatic connection 1	Pneumatic connection 2	qnN ¹⁾ [l/min]	Adjusting element	→ Page/online
Mini								
Metal	Exhaust air one-way flow control function	GRLA	Elbow outlet	QS-3, QS-4	M3, M5	40 ... 41	Slotted head screw	grla
				M3	M3	0 ... 18	Slotted head screw	grla
		GRGA	Parallel outlet	QS-3	M3	0 ... 41	Slotted head screw	grga
	Supply air one-way flow control function	GRLZ	Elbow outlet	QS-3, QS-4	M3, M5	41 ... 48	Slotted head screw	grlz
				M3	M3	0 ... 18	Slotted head screw	grlz
		GRGZ	Parallel outlet	QS-3	M3	0 ... 41	Slotted head screw	grgz
In-line installation								
Polymer	One-way flow control function	GR	Straight	QS-3, QS-4, QS-6, QS-8	QS-3, QS-4, QS-6, QS-8	25 ... 225	Knurled screw	692
Metal		GR/GRA		M3, M5, G ¹ / ₈ , G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂ , G ³ / ₄	M3, M5, G ¹ / ₈ , G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂ , G ³ / ₄	29.5 ... 3300	Knurled screw	693
Corrosion-resistant								
Stainless steel	Exhaust air one-way flow control function	CRGRLA	Elbow outlet	M5, G ¹ / ₈ , G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂	M5, G ¹ / ₈ , G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂	95 ... 2100	Slotted head screw	crgrla
Precision one-way flow control valve								
Metal	One-way flow control function	GRP	–	G ¹ / ₈	G ¹ / ₈	40.7 ... 75.8	Rotary knob with scale	grp
				PK-3, PK-4	PK-3, PK-4	3.8 ... 75.8	Rotary knob with scale	grp
M5 Compact System								
Metal	One-way flow control function	GRF	–	PK-3	PK-3	45	Knurled screw	grf
Function combination								
Metal	Exhaust air one-way flow control function	GRXA	Elbow outlet	QS-4, QS-6, QS-8,	G ¹ / ₈ , G ¹ / ₄	130 ... 280	Slotted head screw	grxa
Polymer	Exhaust air one-way flow control function	VFOF	Elbow outlet	QS-6, QS-8	G ¹ / ₈ , G ¹ / ₄	240 ... 590	Internal hex	694

1) Standard nominal flow rate in flow control direction at 6 bar → 5 bar.

Technical data



GRLA/GRLZ

GRLA...-RS

Technical data – GRLA					
Pneumatic connection 2	M5	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$
Pneumatic connection 1	QS-3, QS-4, QS-6	QS-3, QS-4, QS-6, QS-8	QS-6, QS-8, QS-10	QS-6, QS-8, QS-10	QS-12
Valve function	Exhaust air one-way flow control function				
Adjusting element	Slotted head screw Knurled screw				

Technical data – GRLZ		
Pneumatic connection 2	M5	G $\frac{1}{8}$
Pneumatic connection 1	QS-3, QS-4, QS-6	QS-3, QS-4, QS-6, QS-8
Valve function	Supply air one-way flow control function	
Adjusting element	Slotted head screw	

Operating conditions




Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)
Operating pressure [bar]	0.2 ... 10
Ambient temperature [°C]	-10 ... +60

Materials

Type	GRLA/GRLZ with slotted head screw	GRLA...-RS with knurled screw
Threaded plug	Wrought aluminium alloy (GRLA/GRLZ-M5: brass)	
Swivel connection	Chromated die-cast zinc	
Knurled head	-	Anodised wrought aluminium alloy
Releasing ring	POM	
Regulating screw	Brass	High-alloy stainless steel
Seals	NBR	

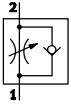
One-way flow control valves GRLA/GRLZ

★ Quick ordering¹⁾

	Pneumatic connection		Standard nominal flow rate q _N		Standard flow rate q _n		Part No.	Type	
			at 6 bar → 5 bar		at 6 bar → 0 bar				
	2	1	In direction of flow control [l/min]	In non-return direction [l/min]	In direction of flow control [l/min]	In non-return direction [l/min]			
Exhaust air one-way flow control function									
GRLA with slotted head screw									
	M5	QS-3	100	60 ... 100	145	150 ... 170	193137	GRLA-M5-QS-3-D	
		QS-4	110	65 ... 110	165	140 ... 160	193138	GRLA-M5-QS-4-D	
		QS-6	115	70 ... 110	185	145 ... 170	193139	GRLA-M5-QS-6-D	
	G ¹ / ₈	QS-3	130	100 ... 130	180	200 ... 220	193142	GRLA- ¹ / ₈ -QS-3-D	
		QS-4	160	120 ... 190	250	270 ... 300	193143	GRLA- ¹ / ₈ -QS-4-D	
		QS-6	185	160 ... 240	370	330 ... 390	193144	GRLA- ¹ / ₈ -QS-6-D	
			400	290 ... 420	600	570 ... 680	537075	GRLA- ¹ / ₈ -QS-6-MF-D	
		QS-8	215	175 ... 250	400	330 ... 410	193145	GRLA- ¹ / ₈ -QS-8-D	
			475	325 ... 500	720	610 ... 760	537076	GRLA- ¹ / ₈ -QS-8-MF-D	
	G ¹ / ₄	QS-6	400	290 ... 420	600	570 ... 680	193146	GRLA- ¹ / ₄ -QS-6-D	
		QS-8	475	325 ... 500	720	610 ... 760	193147	GRLA- ¹ / ₄ -QS-8-D	
		QS-10	480	345 ... 500	760	630 ... 790	193148	GRLA- ¹ / ₄ -QS-10-D	
	G ³ / ₈	QS-6	495	320 ... 495	740	840 ... 890	193149	GRLA- ³ / ₈ -QS-6-D	
		QS-8	820	450 ... 850	1300	1080 ... 1420	193150	GRLA- ³ / ₈ -QS-8-D	
		QS-10	900	540 ... 975	1400	1160 ... 1620	193151	GRLA- ³ / ₈ -QS-10-D	
	G ¹ / ₂	QS-12	1580	925 ... 1605	2220	1910 ... 2500	193152	GRLA- ¹ / ₂ -QS-12-D	
	GRLA with knurled screw								
		M5	QS-3	100	60 ... 100	145	150 ... 170	197576	GRLA-M5-QS-3-RS-D
QS-4			110	65 ... 110	165	140 ... 160	197577	GRLA-M5-QS-4-RS-D	
QS-6			115	70 ... 110	185	145 ... 170	197578	GRLA-M5-QS-6-RS-D	
G ¹ / ₈		QS-3	130	100 ... 130	180	200 ... 220	197579	GRLA- ¹ / ₈ -QS-3-RS-D	
		QS-4	160	120 ... 190	250	270 ... 300	197580	GRLA- ¹ / ₈ -QS-4-RS-D	
		QS-6	185	160 ... 240	370	330 ... 390	197581	GRLA- ¹ / ₈ -QS-6-RS-D	
		QS-8	215	175 ... 250	400	330 ... 410	534337	GRLA- ¹ / ₈ -QS-8-RS-D	
G ¹ / ₄		QS-6	400	290 ... 420	600	570 ... 680	534338	GRLA- ¹ / ₄ -QS-6-RS-D	
		QS-8	475	325 ... 500	720	610 ... 760	534339	GRLA- ¹ / ₄ -QS-8-RS-D	
		QS-10	480	345 ... 500	760	630 ... 790	534340	GRLA- ¹ / ₄ -QS-10-RS-D	
G ³ / ₈		QS-6	495	320 ... 495	740	840 ... 890	534341	GRLA- ³ / ₈ -QS-6-RS-D	
		QS-8	820	450 ... 850	1300	1080 ... 1420	534342	GRLA- ³ / ₈ -QS-8-RS-D	
		QS-10	900	540 ... 975	1400	1160 ... 1620	534343	GRLA- ³ / ₈ -QS-10-RS-D	
G ¹ / ₂		QS-12	1580	925 ... 1605	2220	1910 ... 2500	534344	GRLA- ¹ / ₂ -QS-12-RS-D	
Supply air one-way flow control function									
GRLZ with slotted head screw									
		M5	QS-3	100	60 ... 100	135	130 ... 160	193153	GRLZ-M5-QS-3-D
			QS-4	110	65 ... 110	160	150 ... 180	193154	GRLZ-M5-QS-4-D
	QS-6		115	70 ... 110	170	160 ... 200	193155	GRLZ-M5-QS-6-D	
	G ¹ / ₈	QS-3	130	100 ... 130	200	180 ... 200	193156	GRLZ- ¹ / ₈ -QS-3-D	
		QS-4	160	120 ... 190	300	260 ... 290	193157	GRLZ- ¹ / ₈ -QS-4-D	
		QS-6	185	160 ... 240	340	390 ... 460	193158	GRLZ- ¹ / ₈ -QS-6-D	
	QS-8	215	175 ... 250	370	390 ... 470	193159	GRLZ- ¹ / ₈ -QS-8-D		

1) All products in this table are easy to select and quick to order.

Technical data



Technical data

Pneumatic connection 2	G1/8	G1/4
Pneumatic connection 1	QS-6	QS-8
Valve function	Exhaust air one-way flow control function	
Adjusting element	Internal hex	

Operating conditions

Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]	
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)	
Operating pressure [bar]	0.2 ... 10	
Ambient temperature [°C]	-10 ... +60	

Materials

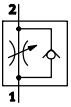
Housing	PBT
Hollow bolt	Wrought aluminium alloy
Sleeve	Wrought aluminium alloy
Releasing ring	POM
Regulating screw	Brass
Seals	NBR

Ordering data

	Pneumatic connection		Standard nominal flow rate qnN at 6 bar → 5 bar		Standard flow rate qn at 6 bar → 0 bar		Part No.	Type
			In direction of flow control	In non-return dir- ection	In direction of flow control	In non-return dir- ection		
	2	1	[l/min]	[l/min]	[l/min]	[l/min]		
	G1/8	QS-6	250	150 ... 260	420	460 ... 540	1526931	VFOF-LE-H-G18-Q6
	G1/4	QS-8	650	300 ... 650	1100	840 ... 1100	1505391	VFOF-LE-H-G14-Q8

One-way flow control valves GR, in-line installation

Technical data – Push-in connector



Technical data

Pneumatic connection 2	QS-3	QS-4	QS-6	QS-8
Pneumatic connection 1	QS-3	QS-4	QS-6	QS-8
Valve function	One-way flow control function			
Adjusting element	Knurled screw			

Operating conditions

Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)
Operating pressure [bar]	0.2 ... 10
Ambient temperature [°C]	-10 ... +60

Materials

Housing	PA reinforced
Releasing ring	POM
Regulating screw	Nickel-plated brass
Seals	NBR

Ordering data

	Pneumatic connection		Standard nominal flow rate q _{nN} at 6 bar → 5 bar		Standard flow rate q _n at 6 bar → 0 bar		Part No.	Type
	2	1	In direction of flow control	In non-return dir- ection	In direction of flow control	In non-return dir- ection		
			[l/min]	[l/min]	[l/min]	[l/min]		
	QS-3	QS-3	25	65 ... 70	100	125 ... 135	193965	GR-QS-3
	QS-4	QS-4	40	100 ... 110	130	170 ... 185	193966	GR-QS-4-LF
			85	100 ... 110	150	170 ... 185	193967	GR-QS-4
	QS-6	QS-6	75	260 ... 270	110	500 ... 510	193968	GR-QS-6-LF
			160	260 ... 270	205	500 ... 510	193969	GR-QS-6
QS-8	QS-8	225	350 ... 400	390	610 ... 640	193970	GR-QS-8	

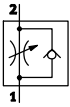
Accessories – Ordering data

	For type	Description	Part No.	Type
	GR-QS-3, GR-QS-4	For mounting on a flat surface via M3 screws. The one-way flow control valve is snapped into the retainer. Linking of multiple retainers via dovetail slot.	195495	GR-H-QS-3-4
	GR-QS-6, GR-QS-8		195496	GR-H-QS-6-8
Hex nut GRM for front panel mounting				
	GR-QS-3, GR-QS-4	M10x1 thread	6444	GRM-M5
	GR-QS-6, GR-QS-8	M12x1 thread	2107	GRM-1/8
Cover cap GRK				
	GR-QS-3, GR-QS-4	M10x1 thread	6436	GRK-M5
	GR-QS-6, GR-QS-8	M12x1 thread	2105	GRK-1/8

One-way flow control valves GR/GRA, in-line installation

FESTO

Technical data – Female thread



Technical data							
Pneumatic connection 2	M3	M5	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$
Pneumatic connection 1	M3	M5	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$
Valve function	One-way flow control function						
Adjusting element	Knurled screw						

Operating conditions							
Pneumatic connection 2	M3	M5	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$
Operating medium	Compressed air to ISO 8573-1:2010 [6:4:4]	Compressed air to ISO 8573-1:2010 [7:4:4]				Compressed air to ISO 8573-1:2010 [7:--:--]	
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)						
Operating pressure [bar]	0.3 ... 8	0.5 ... 10	0.1 ... 10			0.3 ... 15	
Ambient temperature [°C]	-10 ... +60	-20 ... +60	-20 ... +75			-10 ... +60	

Materials							
Pneumatic connection 2	M3	M5	G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$
Housing	Wrought aluminium alloy			Die-cast zinc			Wrought aluminium alloy
Regulating screw	Brass						
Seals	NBR						

Ordering data

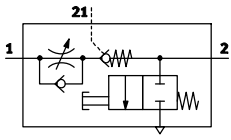
	Pneumatic connection		Standard nominal flow rate q _{nN} at 6 bar → 5 bar		Part No.	Type
	2	1	In direction of flow control			
			[l/min]	In non-return direction [l/min]		
	M3	M3	29.5	26 ... 27.5	15899	GR-M3
	M5	M5	94	115	151213	GR-M5-B
	G $\frac{1}{8}$	G $\frac{1}{8}$	220	217	151215	GR- $\frac{1}{8}$ -B
	G $\frac{1}{4}$	G $\frac{1}{4}$	420	780	6509	GRA- $\frac{1}{4}$ -B
	G $\frac{3}{8}$	G $\frac{3}{8}$	1010	1150	6308	GR- $\frac{3}{8}$ -B
	G $\frac{1}{2}$	G $\frac{1}{2}$	1620	2760	3720	GR- $\frac{1}{2}$
	G $\frac{3}{4}$	G $\frac{3}{4}$	3300	4800	2103	GR- $\frac{3}{4}$

Accessories – Ordering data

	For type	Description	Part No.	Type
	Hex nut GRM for front panel mounting			
	GR-M5-B	M10x1 thread	6444	GRM-M5
	GR- $\frac{1}{8}$ -B	M12x1 thread	2107	GRM- $\frac{1}{8}$
	GRA- $\frac{1}{4}$ -B, GR- $\frac{3}{8}$ -B	M20x1.5 thread	204596	GRM- $\frac{3}{8}$
	Cover cap GRK			
	GR-M5-B	M10x1 thread	6436	GRK-M5
	GR- $\frac{1}{8}$ -B	M12x1 thread	2105	GRK- $\frac{1}{8}$
	GRA- $\frac{1}{4}$ -B, GR- $\frac{3}{8}$ -B	M20x1.5 thread	6309	GRK- $\frac{3}{8}$ -B

One-way flow control valves VFOF, function combination

Technical data



Technical data		
Pneumatic connection 2	G $\frac{1}{8}$	G $\frac{1}{4}$
Pneumatic connection 1	QS-6	QS-8
Pilot air connection 21	QS-6	QS-8
Valve function	Exhaust air one-way flow control function	
Adjusting element	Internal hex	
Actuation type	Manual	
Actuation type, piloted non-return function	Pneumatic	
Manual exhaust function	Non-detenting	

Operating conditions		
Operating/pilot medium	Compressed air to ISO 8573-1:2010 [7:4:4]	
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)	
Operating pressure [bar]	0.2 ... 10	
Pilot pressure [bar]	2 ... 10	
Ambient temperature [°C]	-10 ... +60	

Materials	
Housing	PBT
End cap	PBT
Hollow bolt	Wrought aluminium alloy
Sleeve	Wrought aluminium alloy
Releasing ring	POM
Regulating screw	Brass
Cover	ES-BE
Seals	NBR

Ordering data

	Pneumatic connection		Pilot air connection	Standard nominal flow rate qnN at 6 bar → 5 bar		Standard flow rate qn at 6 bar → 0 bar		Part No.	Type
	2	1		In direction of flow control	In non-return direction	In direction of flow control	In non-return direction		
				[l/min]	[l/min]	[l/min]	[l/min]		
	G $\frac{1}{8}$	QS-6	QS-6	240	150 ... 230 120 ... 220 ¹⁾	420	400 ... 460 400 ... 460 ¹⁾	8001459	VFOF-LE-BAH-G18-Q6
	G $\frac{1}{4}$	QS-8	QS-8	590	315 ... 540 310 ... 540 ¹⁾	940	830 ... 1000 840 ... 1000 ¹⁾	1927030	VFOF-LE-BAH-G14-Q8

1) Unactuated.



- Reduces noise generation
- Can be screwed into the exhaust controls of control valves and drives
- Connecting thread from M5 ... R $\frac{1}{4}$

→ www.festo.com/catalogue/vffk

Technical data

Technical data		M5	M7	R $\frac{1}{8}$	R $\frac{1}{4}$
Pneumatic connection 1					
Valve function	Flow control/silencer function				
Adjusting element	Knurled screw				
Type of seal on threaded plug	Sealing ring			Coating	

Operating conditions

Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]				
Note on operating/pilot medium	Lubricated operation possible				
Operating pressure [bar]	0 ... 10				
Ambient temperature [°C]	0 ... +60				

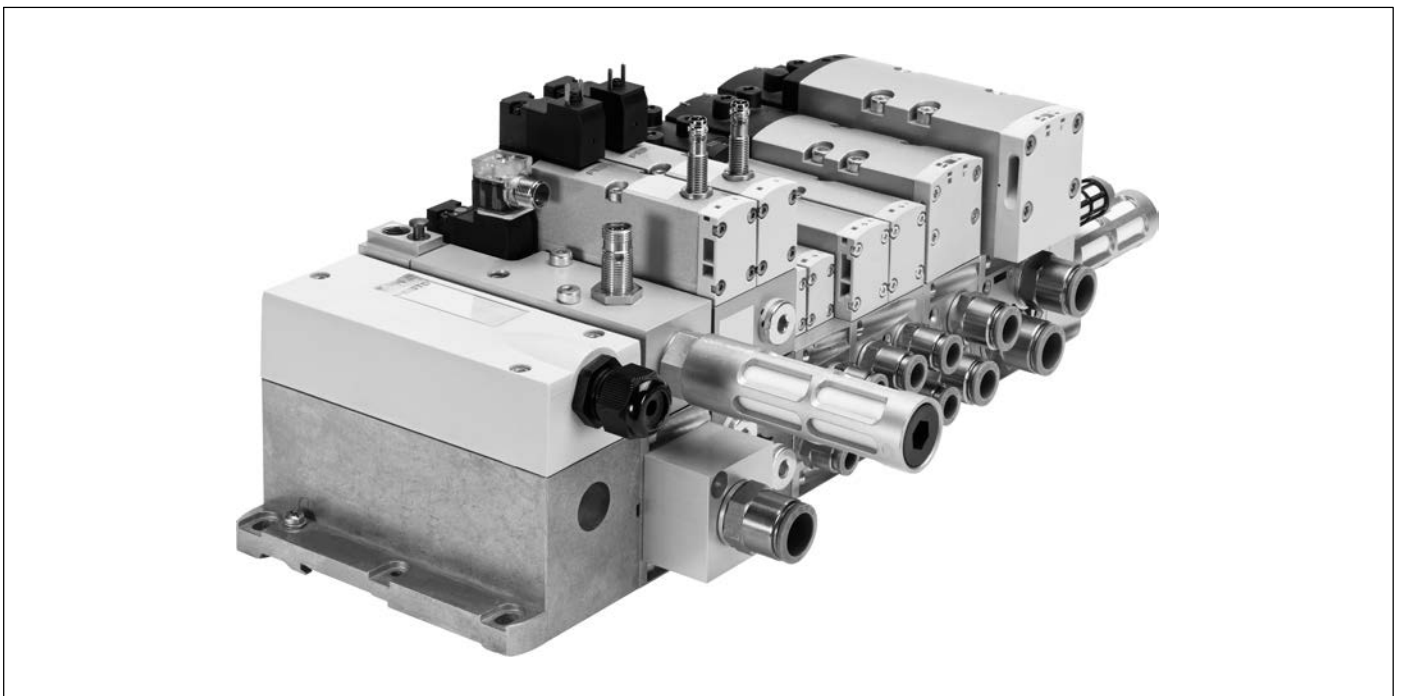
Materials

Materials		M5	M7	R $\frac{1}{8}$	R $\frac{1}{4}$
Pneumatic connection 1					
Silencer insert	PE				
Threaded plug	Nickel-plated brass				
Regulating screw	Nickel-plated brass				
Knurled nut	Aluminium				
Seals	NBR			-	

Ordering data


	Pneumatic connection 1	Standard flow rate q _n at 6 bar → 0 bar [l/min]	Part No.	Type
	M5	0 ... 80	133140	VFFK-C-K-M5-P
	M7	0 ... 100	133141	VFFK-C-K-M7-P
	R $\frac{1}{8}$	0 ... 270	133142	VFFK-C-K-R18-P
	R $\frac{1}{4}$	0 ... 420	133143	VFFK-C-K-R14-P

9 Valve terminals



Software tool


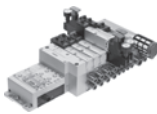
Product finder for valve terminals



Find the right valve terminal quickly with the help of the product finder. Start the product finder via the blue icons in the product tree. Select your technical features on the left-hand side step-by-step; the selection of suitable products on the right-hand side is automatically updated to reflect the chosen technical features.





The use of logic checks ensures that only correct configurations are available for selection. The product finder for valve terminals is part of the electronic catalogue and is not available as a separate software program.

Standard valve terminals



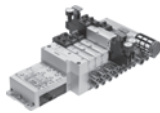

	 <p>Valve terminal, to ISO 15407-1 VTIA</p>	 <p>Valve terminal, to ISO 15407-2/ISO 5599-2 VTSa</p>
Type		
Width	18 mm, 26 mm	18 mm, 26 mm, 42 mm, 52 mm, 65 mm
Standard nominal flow rate	400 ... 1,400 l/min	400 ... 4,000 l/min
Max. no of valve positions	16	32
Electrical actuation	Individual connection	Ethernet, fieldbus, multi-pin plug, electrical terminal CPX, integrated controller, individual connection, AS-Interface connection
Valve terminal design	Modular, valve sizes can be mixed	Modular, valve sizes can be mixed
Description	<ul style="list-style-type: none"> Sturdy and flexible valve terminal Two valve sizes can be combined Wide range of individual electrical connections 	<ul style="list-style-type: none"> Sturdy and flexible valve terminal Valve widths 18 mm, 26 mm, 42 mm and 52 mm can be combined on a single valve terminal without an adapter Integrated safety functions
→ Page/online	vtia	703

9



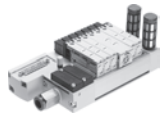
Universal valve terminals

	 <p>Manifold assembly VTUS</p>	 <p>Valve terminal with individual electrical connection VTUG</p>	 <p>Valve terminal with multi-pin plug or fieldbus connection VTUG</p>	 <p>Valve terminal VTUB</p>
Type				
Width	21 mm, 25 mm	10 mm, 14 mm, 18 mm	10 mm, 14 mm	20 mm
Standard nominal flow rate	600 ... 1,300 l/min	80... 1,380 l/min	130 ... 630 l/min	200 ... 1,000 l/min
Max. no of valve positions	16	16	24	16
Electrical actuation	Individual connection	Individual connection	Multi-pin plug, I-Port interface, IO-Link, fieldbus	Multi-pin plug, I-Port interface, IO-Link, fieldbus
Valve terminal design	Fixed grid	Fixed grid	Fixed grid	Fixed grid
Description	<ul style="list-style-type: none"> Reliable, sturdy and durable valves Cost-effective universal valves without any compromise on the performance data Wide range of valve functions Connection G1/8, G1/4 Push-in connector 4, 6, 8 mm Degree of protection IP65/IP67 	<ul style="list-style-type: none"> Sturdy and durable metal components Connection technology easy to change via the E-box Wide range of valve functions Connection M3, M5, M7, G1/8 Push-in connector 3, 4, 6, 8 mm Protection class IP40/IP65 	<ul style="list-style-type: none"> Sturdy and durable metal components Excellent price/performance ratio Connection M5, M7, G1/8 Push-in connector 3, 4, 6, 8 mm Protection class IP40/IP67 	<ul style="list-style-type: none"> Outstanding economy Easy to operate Optimised for basic applications
→ Page/online	vtus	635	718	vtub





Universal valve terminals

Type	 Valve terminal MPA-L	 Valve terminal MPA-S	 Valve terminal VTSA-F	 Valve terminal, Compact Performance CPV
Width	10 mm, 14 mm, 20 mm	10 mm, 20 mm	18 mm, 26 mm, 42 mm, 52 mm, 65 mm	10 mm, 14 mm, 18 mm
Standard nominal flow rate	0 ... 870 l/min	0 ... 700 l/min	700 ... 4,000 l/min	400 ... 1,600 l/min
Max. no of valve positions	32	64	32	8
Electrical actuation	Fieldbus, multi-pin plug, control block, electrical terminal CPX, IO-Link, I-Port	Fieldbus, multi-pin plug, control block, electrical terminal CPX, AS-Interface, CP installation system, individual connection	Ethernet, fieldbus, multi-pin plug, electrical terminal CPX, integrated controller, individual connection, AS-Interface connection	AS-Interface, CP installation system, individual connection, fieldbus, multi-pin plug, IO-Link, I-Port
Valve terminal design	Modular, valve sizes can be mixed	Modular, valve sizes can be mixed	Modular, valve sizes can be mixed	Modular
Description	<ul style="list-style-type: none"> Highly modular and versatile Easily expandable in single steps Plastic sub-bases Protection class IP65 	<ul style="list-style-type: none"> Compact dimensions Two valve sizes can be combined Excellent communication options thanks to serial linking 	<ul style="list-style-type: none"> Sturdy and flexible valve terminal Valve widths 18 mm, 26 mm, 42 mm and 52 mm can be combined on a single valve terminal without an adapter Integrated safety functions 	<ul style="list-style-type: none"> Cubic design: maximum performance in the minimum of space Three sizes Wide range of connection and mounting options
→ Page/online	738	mpa-s	vtsa	cpv





Universal valve terminals

Type	 Valve terminal, Smart Cubic CPV-SC	 Manifold assembly, Compact Performance CPV10-EX-VI	 Valve terminal VTUB-12
Width	10 mm	10 mm	12 mm, 24 mm
Standard nominal flow rate	170 l/min	0 ... 400 l/min	230 ... 400 l/min
Max. no of valve positions	16	8DU	35
Electrical actuation	CP installation system, individual connection, fieldbus, multi-pin plug	Individual connection	Multi-pin plug, I-Port interface, IO-Link, fieldbus
Valve terminal design	Modular		Fixed grid
Description	<ul style="list-style-type: none"> Compact format Optimised flow rates Clear design 	<ul style="list-style-type: none"> Intrinsically safe manifold assembly to ATEX category 2 (Zone 1) Cubic design for maximum performance in the minimum of space Extremely sturdy thanks to metal valve design Optimised for installation in a control cabinet Suitable for pilot control of process valves High flow rate with extremely compact design 	<ul style="list-style-type: none"> Compact dimensions Sturdy poppet valve Flexible and low-cost fieldbus modules
→ Page/online	cpv-sc	cpav10-ex	vtub-12


Application-specific valve terminals

Type	 Valve terminal MPA-C	 Valve terminal VTOC	 Valve terminal MH1	 Valve terminal CDVI5.0
Width	14 mm	10 mm	10 mm	24 mm
Standard nominal flow rate	0 ... 780 l/min	10 l/min	10 l/min	300 ... 650 l/min
Max. no of valve positions	32	24	24	16
Electrical actuation	Multi-pin plug, IO-Link, I-Port	Multi-pin plug, I-Port interface, IO-Link, fieldbus	Individual connection, multi-pin plug	Fieldbus, multi-pin plug
Valve terminal design	Fixed grid	Fixed grid	Fixed grid	Fixed grid
Description	<ul style="list-style-type: none"> Ideal housing surface shape ensures that cleaning agents can run off, thus reducing time and effort spent on cleaning Excellent corrosion resistance and degree of protection (IP69K) allow assembly under harsh ambient conditions outside of a control cabinet 	<ul style="list-style-type: none"> Compact pilot valves for process valves Various electrical and pneumatic interfaces Basis for customised adaptations 	<ul style="list-style-type: none"> Extremely small valves Low switching noise Versatile pneumatic connections 	<ul style="list-style-type: none"> Hygienic Corrosion-resistant Easy to clean (Clean Design)
→ Page/online	mpa-c	vtoc	mh1	cdvi

Electrical peripherals

Type	 Fieldbus module CTEU	 CP electrical components CTEC	 Terminal CPX	 Terminal CPX-P
Protocol	AS-Interface, CANopen, CC-Link, DeviceNet, EtherCAT, PROFINET, PROFIBUS DP	INTERBUS, DeviceNet, PROFIBUS, CANopen, CC-Link, EtherNet/IP, PROFINET, EtherCAT, ModbusTCP	INTERBUS, DeviceNet, PROFIBUS, CANopen, CC-Link, EtherNet/IP, PROFINET, EtherCAT, ModbusTCP	DeviceNet, PROFIBUS, EtherNet/IP, PROFINET, ModbusTCP
Max. address volume for inputs	2 ... 64 bytes		64 bytes	64 bytes
Max. address volume for outputs	2 ... 64 bytes		64 bytes	64 bytes
Parameterisation	Activate diagnostics, diagnostic behaviour, failsafe and idle response, failsafe response, watchdog disable, watchdog enable		Diagnostic behaviour, failsafe response, forcing of channels, signal setup	Diagnostic behaviour, failsafe response, forcing of channels, signal setup
Degree of protection	IP65, IP67	IP65, IP67	IP65, IP67	IP20, IP65
Nominal operating voltage DC	24 ... 30 V	24V	24V	24V
Operating voltage range DC	18 ... 31.6 V		18 ... 30 V	18 ... 30 V
Description	<ul style="list-style-type: none"> For valve terminals VTUB-12, VTUG, MPA-L, CPV, VTOC For installation system CTEL Versatile thanks to protection class IP65/67 Fieldbus-typical LEDs, interfaces and switching elements available Isolated power supply for electronics and valves Optional basic diagnostics: undervoltage, short circuit Optionally expandable for low-cost, decentralised installation of two additional valve terminals with I-Port 	<ul style="list-style-type: none"> Complete concept for decentralised machine and system structure Combination of centralised and decentralised installation possible with electrical terminal CPX Decentralised pneumatic components and sensors for fast processes Centralised electrical components for fieldbus and common power supply With valve terminal CPV, MPA, CPV-SC 	<ul style="list-style-type: none"> Centralised, decentralised, hybrid installation system with maximum modularity and flexibility Choice of polymer or metal housing with individual linking Open to common fieldbus protocols and Ethernet Integrated diagnostic and service function Operating modes: stand-alone as remote I/O or with valve terminals MPA, VTSA/VTSA-F 	<ul style="list-style-type: none"> Use of harmonised remote I/O and valve terminals in a control cabinet Unique modular structure Comprehensive integrated diagnostic and service functions Combination with modules of the electrical terminal CPX, which enables use for hybrid applications
→ Page/online	cteu	ctec	747	cpx-p

Electrical peripherals

Type	 AS-i module CESA
Protocol	AS-Interface, CANopen, PROFIBUS
Max. address volume for inputs	
Max. address volume for outputs	
Parameterisation	
Degree of protection	IP20
Nominal operating voltage DC	
Operating voltage range DC	AS-i voltage 30 VDC
Description	<ul style="list-style-type: none"> • AS-i master gateway • Duplicate address recognition • Direct operation • Graphical display • Comprehensive diagnostics via LED and display • Specification 3.0
→ Page/online	cesa

Customised components – for your specific requirements



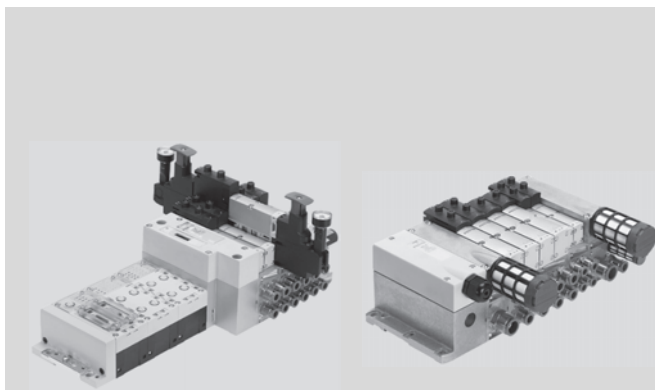
Valve terminals with customised designs

Can't find the valve terminal you need in our catalogue? We can offer you customised components that are tailored to your specific requirements – from minor product modifications to complete new product developments.

Common product modifications:

- Coatings for special ambient conditions
- Customised cables: length, pin allocation, pre-assembled with plug
- Modified actuating elements
- Modified connecting thread
- Modified valve sub-bases

Many additional variants are possible. Ask your Festo sales engineer, who will be happy to help. Further information on customised components can be found on your local website at www.festo.com.



- Standard valve width 18/26/42/52/65 mm, flow rates up to 4000 l/min
- Combination of valve sizes possible
- Modular valve terminal for up to 32 valves
- Complete and standardised valve range
- Wide range of vertical stacking modules: pressure regulator plate, flow control plate, vertical pressure shut-off plate, etc.
- Sturdy metal design
- Repair service
- Channel-oriented diagnostics down to the individual valve

→ www.festo.com/catalogue/vtsa

Product range overview

Function	Version	Code	Size					→ Page/ online
			18 mm (ISO 02)	26 mm (ISO 01)	42 mm (ISO 1)	52 mm (ISO 2)	65 mm (ISO 3)	
Position function 1-32	5/2-way valve, single solenoid, with pneumatic spring return	M	■	■	■	■	■	708
	5/2-way valve, single solenoid, with spring return	O	■	■	■	■	■	708
	5/2-way valve, double solenoid	J	■	■	■	■	■	708
	5/2-way valve, double solenoid, dominant	D	■	■	■	■	■	708
	2x3/2-way valve, normally open	N	■	■	■	■	–	708
	2x3/2-way valve, normally closed	K	■	■	■	■	–	708
	2x3/2-way valve, 1x normally closed, 1x normally open	H	■	■	■	■	–	708
	5/3-way valve, mid-position pressurised	B	■	■	■	■	■	708
	5/3-way valve, mid-position closed	G	■	■	■	■	■	708
	5/3-way valve, mid-position exhausted	E	■	■	■	■	■	708
	2x3/2-way valve, normally open, reverse operation	P	■	■	■	■	–	708
	2x3/2-way valve, normally closed, reverse operation	Q	■	■	■	■	–	708
	2x3/2-way valve, 1x normally closed, 1x normally open, reverse operation	R	■	■	■	■	–	708
	2x2/2-way valve, normally closed	VC	■	■	■	■	–	708
	2x2/2-way valve, normally closed, vacuum operation	VV	■	■	■	–	–	708
	5/2-way control block with plug type C individual connection and switching position sensing via PNP sensor, plug M8	SP	–	■	–	–	–	708
	5/2-way control block with plug type C individual connection and switching position sensing via NPN sensor, plug M8	SN	–	■	–	–	–	708

Note

Valve terminals can be ordered quickly and easily online.
The convenient product configurator can be found at:

→ www.festo.com/catalogue/vtsa

Product range overview

Function	Version	Code	Size					→ Page/ online
			18 mm (ISO 02)	26 mm (ISO 01)	42 mm (ISO 1)	52 mm (ISO 2)	65 mm (ISO 3)	
Position function 1-32	5/3-way valve, mid-position flow from 1 to 2, closed in 4	VG	–	–	■	■	–	vtsa
	5/3-way valve, mid-position exhausted, switching position 14 detenting, 12 mechanical spring	SA	–	■	–	–	–	vtsa
	5/3-way valve, mid-position port 2 pressurised, port 4 exhausted, switching position 14 detenting, 12 mechanical spring	SB	–	■	–	–	–	vtsa
	5/3-way valve, mid-position port 4 pressurised, port 2 exhausted, switching position 14 detenting, 12 mechanical spring	SD	■	–	–	–	–	vtsa
	5/3-way valve, mid-position exhausted, switching position 12 detenting, 14 mechanical spring	SE	–	■	–	–	–	vtsa
	5/2-way valve, single solenoid, with spring return and switching position sensing via PNP sensor, M8 plug	SO	■	■	–	–	–	vtsa
	5/2-way valve, single solenoid, with spring return and switching position sensing via NPN sensor, M8 plug	SQ	■	■	–	–	–	vtsa
	5/2-way valve, single solenoid, with spring return and switching position sensing via PNP sensor, 0.5 m cable and M12 plug	SS	■	■	–	–	–	vtsa
	Vacuum block with ejector pulse and adjustable air saving function (plate for 2 valve positions, sensor SDE3 with display and M12 connection)	VB	–	■	–	–	–	vtsa
	Vacant position	L	■	■	■	■	■	vtsa

Note

Valve terminals can be ordered quickly and easily online.
The convenient product configurator can be found at:

→ www.festo.com/catalogue/vtisa

Key features

Innovative

- High-performance valves in a sturdy metal housing
- Five valve sizes on one valve terminal (width 65 mm with adapter)
- Standardised from the multi-pin plug to the fieldbus connection and control block
- Dream team: fieldbus valve terminal suitable for electrical peripherals CPX. This means:
 - Forward-looking internal communication system for controlling the valves and CPX modules
 - Four valve sizes on one valve terminal without adapters
- Valve functions for integration in control architectures of higher categories to EN ISO 13849-1

Versatile

- Modular system offering a range of configuration options
- Expandable with up to 32 solenoid coils
- Conversions and extensions are possible at any time
- Manifold sub-bases can be extended using four screws, sturdy duct separation on metal support
- Integration of innovative function modules possible
- Supply plates enable a flexible air supply and variable pressure zones
- Reverse operation
- High pressure range
–0.9 ... 10 bar, flow range
550 ... 4000 l/min
- Wide range of valve functions
- Valve supply 24 V DC or 110 V AC

Reliable

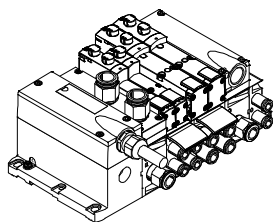
- Sturdy and durable metal components
 - Valves
 - Manifold sub-bases
 - Seals
- Fast troubleshooting thanks to LEDs on the valves and diagnostics via fieldbus
- Reliable servicing thanks to valves that can be replaced quickly and easily
- Manual override, either non-detenting, non-detenting/detenting or covered
- Durable thanks to tried-and-tested piston spool valves
- Large and durable labelling system
- 100% duty cycle

Easy to install

- Assembled and inspected unit, ready for installation
- Reduced outlay on selection, ordering, installation and commissioning
- Secure mounting on wall or H-rail

Electrical connection options

Multi-pin plug connection



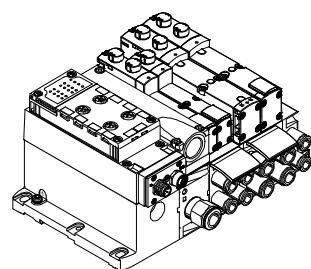
Control signals from the controller to the valve terminal are transmitted via a pre-assembled multi-wire connecting cable or a self-assembled multi-pin plug connection, which substantially reduces installation time.

The valve terminal can be equipped with max. 32 solenoid coils.

Versions

- Multi-pin plug connection with terminal strip (spring-loaded terminal)
- Connecting cable for multi-pin plug connections, fully assembled (D-Sub)
- Sub-D plug connector for assembly by the user, 37-pin
- Round plug connector M23, 19-pin

AS-Interface connection



A special feature of the AS-Interface is the simultaneous transmission of data and supply power via a two-wire cable. The encoded cable profile prevents connection with incorrect polarity. The valve terminal with AS-Interface is available in the following versions:

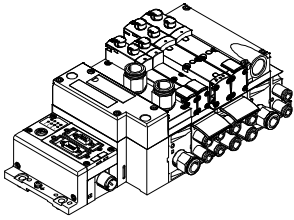
- With one to eight modular valve positions (max. 8 solenoid coils). This corresponds to 1 to 8 VTSA valves.
- With all available valve functions.

The connection technology used for the inputs can be selected as with CPX: M8, M12, quick connection, Sub-D, spring-loaded terminal (terminals to IP20).

Key features

Electrical connection options

Fieldbus connection via the CPX system



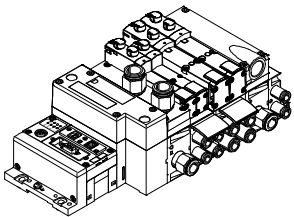
An integrated fieldbus node manages the communication connection with a higher-order PLC. This enables a space-saving pneumatic and electronic solution.

Valve terminals with fieldbus interfaces can be configured with up to 16 manifold sub-bases. With 2 solenoid coils per connection, up to 32 solenoid coils can thus be actuated.

Versions:

- PROFIBUS DP
- INTERBUS
- DeviceNet
- CANopen
- CC-Link
- CPX terminal
- EtherNet/IP
- EtherCAT
- CoDeSys controller
- Modbus/TCP
- PROFINET

Control block connection via the CPX system

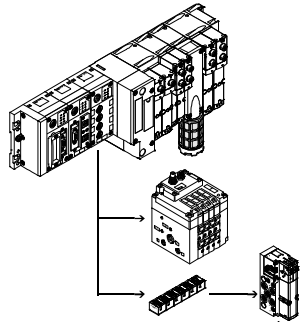


A controller integrated in the Festo valve terminal enables the construction of stand-alone control units with protection to IP65 without a control cabinet thanks to two different operating modes.

In the slave operating mode, these valve terminals can be used for intelligent pre-processing and are therefore ideal modules for designs using decentralised intelligence.

In the master operating mode, terminal groups can be designed with many options and functions that can autonomously control a medium-sized machine/system.

CP string extension



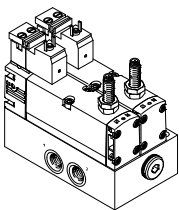
The optional CP string extension enables additional valve terminals and I/O modules to be connected to the fieldbus node of the CPX terminal on up to 4 CP strings. Different input and output modules as well as CPV-SC, CPV and CPA valve terminals can be connected. The maximum length of the CP string ex-

tension is 10 metres, which means that the extension modules can be mounted directly on-site. All the required electrical signals are transmitted via the CP cable, which in turn means that no further installation is needed on the extension module.

One CP string offers:

- 32 input signals
- 32 output signals for output modules 24 V DC or solenoid coils
- Logic and sensor supply for the input modules
- Load voltage supply for the valve terminals
- Logic supply for the output module

Control block with safety function, width 26 mm



These valves are used for special applications, for example for:

- Protecting against unexpected start-up
- Safe reversing
- Drives in manually loaded devices

This control block is suitable for use as a press safety valve to EN 962.

This valve is a safety device in accordance with the Machinery Directive 2006/42/EC.

Key features

Modular pneumatic components

The modular design of the VTSA/VTSA-F enables maximum flexibility right from the planning stage and offers maximum ease of service in operation.

The system consists of manifold sub-bases and valves.

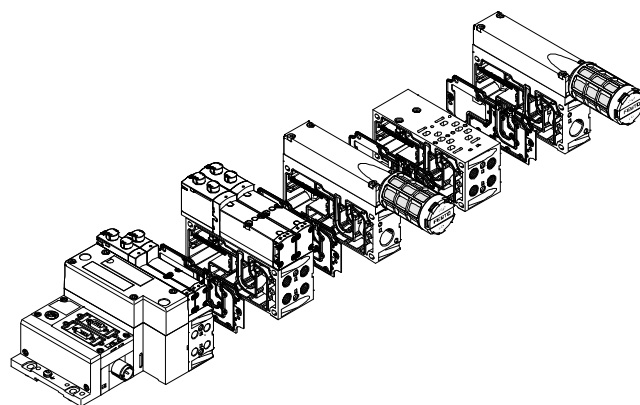
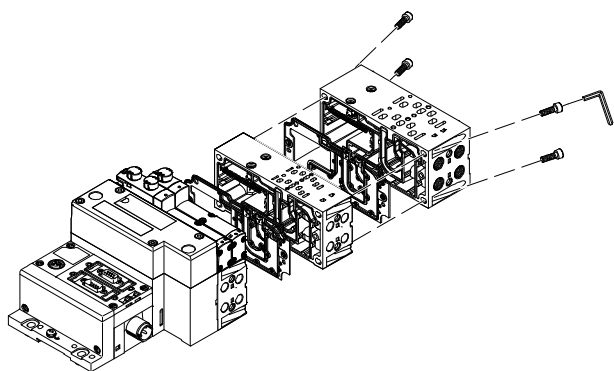
The manifold sub-bases are screwed together and thus form the support system for the valves.

Inside the manifold sub-bases are the connection ducts for supplying compressed air to and exhausting from the

valves on the terminal as well as the working ports for the pneumatic cylinders for each valve.

Each manifold sub-base is connected to the next using four screws.

Individual valve terminal sections can be isolated and further manifold blocks inserted by loosening these screws. This ensures that the valve terminal can be rapidly and reliably extended.



Modular electrical peripherals

The manner in which the valves are actuated differs according to whether you are using a multi-pin terminal or fieldbus terminal.

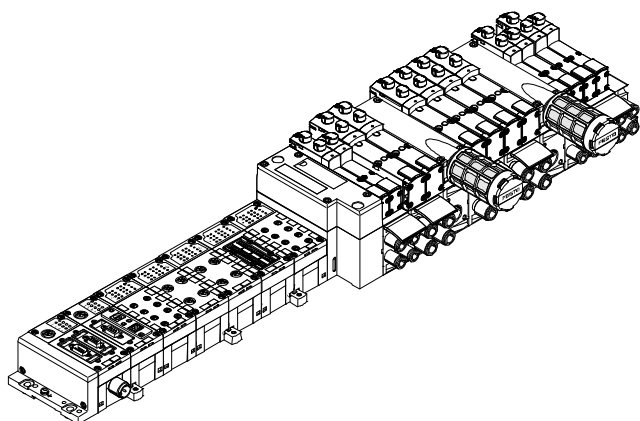
The VTSA/VTSA-F with CPX interface is based on the internal bus system of the CPX terminal and uses this communication system for all solenoid coils and a range of electrical input and output functions.

Parallel linking enables the following:

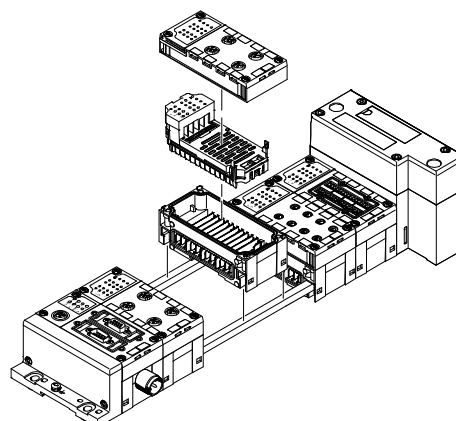
- Transmission of switching information
- Compact design
- Position-based diagnostics

- Separate voltage supply for valves
- Flexible conversion without address shifting
- Transmission of status, parameter and diagnostic data

VTSA with electrical peripherals CPX






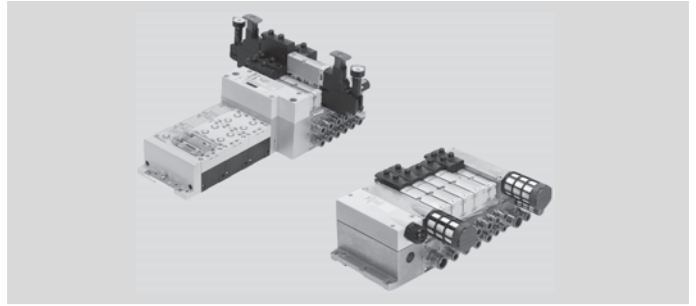
Modularity with electrical peripherals CPX



Valve terminals VTSA, to ISO 15407-2, ISO 5599-2

Technical data

-  Flow rate
Up to 2900 l/min
-  Operating voltage
24 V DC
110 V AC
-  Valve width
18 mm
26 mm
42 mm
52 mm



Technical data		Download CAD data → www.festo.com	
Design		Piston spool valve	
Width	[mm]	18/26/42/52	
Lubrication		Life-time lubrication	
Type of mounting		Wall mounting On H-rail to EN 60715	
Manual override		Detenting, non-detenting, covered	
Pneumatic connection		Via manifold sub-base	
Supply port	1	G $\frac{1}{2}$, QS-G $\frac{1}{2}$ -12, QS-G $\frac{1}{2}$ -16	
Exhaust port	3.5	G $\frac{1}{2}$, QS-G $\frac{1}{2}$ -12, QS-G $\frac{1}{2}$ -16	
Working ports (dependent on the connection type)	Width 18 mm (ISO 02)	2.4	G $\frac{1}{8}$
	Width 26 mm (ISO 01)	2.4	G $\frac{1}{4}$
	Width 42 mm (ISO 1)	2.4	G $\frac{3}{8}$
	Width 52 mm (ISO 2)	2.4	G $\frac{1}{2}$
External pilot air port	12, 14	G $\frac{1}{4}$	

9

Technical data		Download CAD data → www.festo.com															
Valve function/order code		N	K	H	P	Q	R	M	O	J	D	B	G	E	VC	W	
Valve switching times [ms]																	
Width 18 mm (ISO 02), nominal operating voltage 24 V DC/110 V AC	On	12	12	12	25	25	25	22	12	–	–	15	15	15	12	12	
	Off	30	30	30	12	12	12	28	38	–	–	44	44	44	30	30	
	Changeover	–	–	–	–	–	–	–	–	11	13	–	–	–	–	–	
Width 26 mm (ISO 01), nominal operating voltage 24 V DC/110 V AC	On	20	20	20	32	32	32	25	20	–	–	22	22	22	20	20	
	Off	38	38	38	30	30	30	45	65	–	–	65	65	65	38	38	
	Changeover	–	–	–	–	–	–	–	–	18	21	–	–	–	–	–	
Width 42 mm (ISO 1), nominal operating voltage 24 V DC	On	20	20	20	34	34	34	27	22	–	–	22	22	22	20	20	
	Off	38	38	38	28	28	28	45	60	–	–	65	65	65	38	38	
	Changeover	–	–	–	–	–	–	–	–	16	19	38	38	38	–	–	
Width 42 mm (ISO 1), nominal operating voltage 110 V AC	On	22	22	22	34	34	34	20	20	–	–	22	22	22	22	22	
	Off	46	46	46	38	38	38	55	55	–	–	68	68	68	46	46	
	Changeover	–	–	–	–	–	–	–	–	16	19	41	41	41	–	–	
Width 52 mm (ISO 2), nominal operating voltage 24 V DC	On	20	20	20	20	20	20	40	20	–	–	23	23	23	14	–	
	Off	35	35	35	35	35	35	45	60	–	–	60	60	60	35	–	
	Changeover	–	–	–	–	–	–	–	–	18	18	38	38	38	–	–	
Width 52 mm (ISO 2), nominal operating voltage 110 V AC	On	35	35	35	50	50	50	70	25	–	–	30	30	30	35	–	
	Off	70	70	70	65	65	65	90	110	–	–	100	100	100	70	–	
	Changeover	–	–	–	–	–	–	–	–	35	42	60	60	60	–	–	
Standard nominal flow rate on valve terminal [l/min]																	
Width 18 mm (ISO 02)		400					550					450					500
Width 26 mm (ISO 01)		900					1100					1000					1000
Width 42 mm (ISO 1)		1200					1300					1200					1400
Width 52 mm (ISO 2)		2400					2900					2800					2800

Technical data




Operating conditions		N	K	H	P	Q	R	M	O	J	D	B	G	E	VC	W
Valve function/order code																
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]														
Pilot medium		Compressed air to ISO 8573-1:2010 [7:4:4]														
Note on operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)														
Ambient temperature	[°C]	-5 ... +50														
Temperature of medium	[°C]	-5 ... +50														
Operating pressure	[bar]	3 ... 10					-0.9 ... +10					3 ... 10		-0.9 ... +10		
Operating pressure for valve terminal with internal pilot air supply	[bar]	3 ... 10														
Pilot pressure	[bar]	3 ... 10														

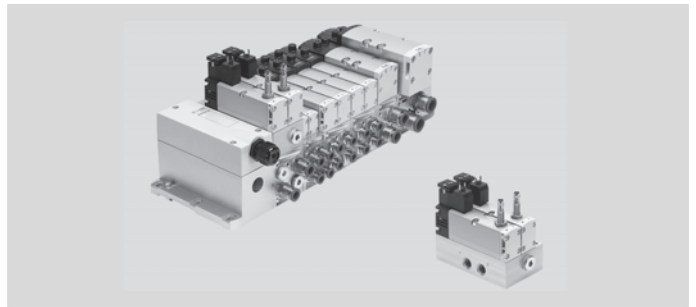
Electrical data – VTSA with CPX terminal		N	K	H	P	Q	R	M	O	J	D	B	G	E	VC	W	
Valve function/order code																	
Power supply for electronics (U _{EL/SEN})																	
Operating voltage	[V DC]	24 ±10%															
Max. intrinsic current consumption at 24 V DC	[mA]	20															
Duty cycle		100%															
Load voltage supply for valves (U _{val})																	
Operating voltage	[V DC]	24 ±10%															
Degree of protection to EN 60529		IP65, NEMA 4 (for all types of signal transmission in mounted state)															
Power consumption	Width 18 mm	[W]	1.3			1.6			1.3			1.6			1.3		
	Width 26 mm	[W]	1.3			1.6			1.3			1.6			1.3		
	Width 42 mm	[W]	1.3			1.6			1.3			1.6			1.3		
	Width 52 mm	[W]	4.6			4.6			4.6			4.6			4.6		

Pneumatic connection sizes		
Right-hand end plate (duct 12, 14)	Code V, X	G $\frac{1}{4}$
	Code V1, V3, X1, X3	G $\frac{1}{4}$
Right-hand end plate (duct 1, 3, 5)	Code V, X	G $\frac{1}{2}$
	Code V1, V3, X1, X3	G $\frac{3}{4}$
Left-hand supply plate (duct 1, 3, 5)		G $\frac{1}{2}$
Manifold sub-base (duct 2, 4)	Width 18 mm	G $\frac{1}{8}$
	Width 26 mm	G $\frac{1}{4}$
	Width 42 mm	G $\frac{3}{8}$
	Width 52 mm	G $\frac{1}{2}$

Materials	
Manifold sub-base	Die-cast aluminium
Valve	Die-cast aluminium, PA reinforced
Seals	FPM, NBR
Supply plate	Die-cast aluminium
Right-hand end plate	Die-cast aluminium
Pneumatic interface for CPX	Die-cast aluminium
Flow control plate	Die-cast aluminium
Pressure regulator plate	Die-cast aluminium, PA reinforced
Multi-pin connection block	Die-cast aluminium
Cover for the pneumatic interface and multi-pin plug connection	PA reinforced

Technical data – Control block, VOFA

-  - Flow rate
Up to 950 l/min
-  - Operating voltage
24 V DC
-  - Operating pressure
3 ... 10 bar



Description

The control block is designed for two-channel actuation of pneumatic drive components such as double-acting linear cylinders, for example, and can be used to realise the following protective measures:

- Protection against unexpected start-up (EN 1037)
- Reversing hazardous movements, provided the reversing motion will not result in further hazards

The control attributes of the control block enable Performance Level e to be achieved for the safety measures. The control block has been developed and manufactured in accordance with the basic and proven safety principles of EN ISO 13849-1 and EN ISO 13849-2.

The requirements of EN ISO 13849-1 and EN ISO 13849-2 (e.g. CCF, DC) must be taken into consideration for implementation and operation of the component and for use in higher categories (2 to 4).

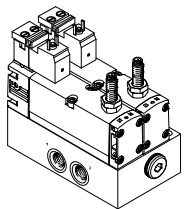
When using this product in machines or systems subject to specific C standards, the requirements specified in these standards must be observed.

The control block with safety function is designed for installation in machines and automation systems and must only be used in industrial applications (high-demand mode).

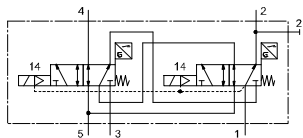
The control block with safety function is suitable for use as a press safety valve to EN 962.

More information and technical data
➔ Internet: User documentation

Decentralised individual connection variant



Two solenoid valves on manifold sub-base with square plugs to EN 175301-803, type C and integrated piston position sensing.



Function – Pneumatic/electrical interlinking

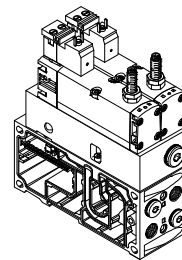
The safety function is achieved through two-channel pneumatic linking of two 5/2-way single solenoid valves within the control block: port 4 is only pressurised if both solenoid valves are switched to switching position (14).

Port 2 is always pressurised if at least one of the two solenoid valves is in nor-

mal position. The valve is reset via a mechanical spring.

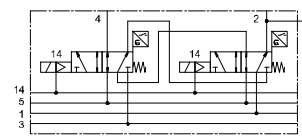
The switching operation of the solenoid valves can be monitored by sensing via the proximity sensors at the solenoid valves (switching position sensing). This is done by linking the control signal

Version for valve terminal VTSA/VTSA-F



Two solenoid valves on manifold sub-base for valve terminal VTSA/VTSA-F with square plugs and integrated piston position sensing.

Electrical actuation takes place independently of the valve terminal (individual, multi-pin plug or fieldbus/control block connection) via a standardised square plug to EN 175301-803, type C.



and signal change of the proximity sensor so that it is possible to check whether the piston spools of the solenoid valves are reaching or leaving the normal position (expectations).

The piston spools of the solenoid valves are designed so that pneumatic short cir-

cuits between ports 2 and 4 are prevented (non-overlapping).

The two solenoid valves must be actuated via two separate channels to achieve the desired category 4 (Performance Level e, to EN ISO 13849-1).

Technical data – Control block, VOFA

Technical data		Download CAD data → www.festo.com	
Type		VOFA-L26-T52-M-G14-1C1 (individual sub-base)	VOFA-B26-T52-M-1C1 (on valve terminal)
Design		Piston spool valve	
Sealing principle		Soft	
Actuation type		Electric	
Type of control		Piloted	
Pilot air supply		Internal	Internal/external via valve terminal
Type of mounting		Via through-hole, on manifold sub-base	
Mounting position		Any	
Manual override		None	
Valve switching status display		Via accessories	
Standard nominal flow rate	[l/min]	950	830
Performance Level (PL)		Protection against manipulation, prevention of unexpected start-up/up to category 4, Performance Level e	
		Reversing a movement/to category 4, Performance Level e	
Switching times [ms]			
Valve switching time	On	22	22
	Off	56	59
Valve sensor switching time ¹⁾	On	60	60
	Off	11	11

- 1) Valve sensor switching time off: period of time from coil being energised to sensor being switched off when using a PNP sensor.
Valve sensor switching time on: period of time from coil being de-energised to 0-L edge at the sensor when using a PNP sensor.

Operating conditions			
Type		VOFA-L26-T52-M-G14-1C1 (individual sub-base)	VOFA-B26-T52-M-1C1 (on valve terminal)
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]	
Note on operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)	
Ambient temperature	[°C]	-5 ... +50	
Temperature of medium	[°C]	-5 ... +50	
Operating pressure	[bar]	3 ... 10	0 ... 10
Pilot pressure	[bar]	3 ... 10	
Max. positive test pulse with logic 0	[µs]	1000	
Max. negative test pulse with logic 1	[µs]	800	

Technical data – Control block, VOFA

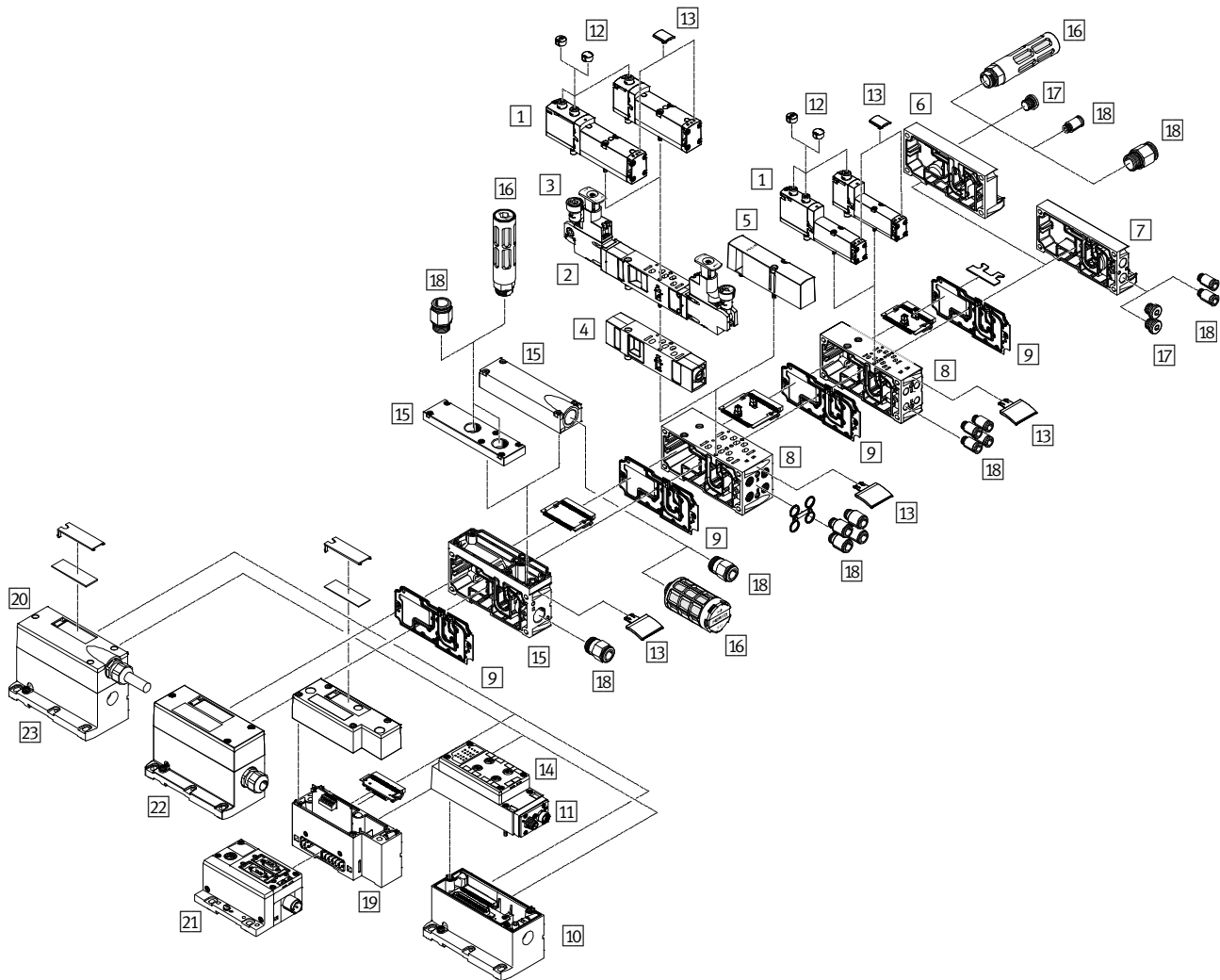
Electrical data – Control block		
Electrical connection		Plug to EN 175301-803, type C, without protective conductor
Nominal operating voltage	[V DC]	24
Power consumption	[W]	1.8
Max. magnetic interference field	[mT]	60
Piston position sensing		Normal position via sensor
Duty cycle	[%]	100
Degree of protection to EN 60529		IP65, NEMA 4 (for all types of signal transmission in mounted state)

Electrical data – Sensor		
Electrical connection		Cable, 3-wire Plug M8x1, 3-pin
Cable length	[m]	2.5
Switching output		PNP or NPN
Switching element function		N/C contact
Switching status indication		Yellow LED
Operating voltage range	[V DC]	10 ... 30
Sensor idle current	[mA]	Max. 10
Max. output current	[mA]	200
Voltage drop	[V]	Max. 2
Max. switching frequency	[Hz]	5000
Measuring principle		Inductive

Connection sizes of the pneumatic connections			
Type		VOFA-L26-T52-M-G14-1C1 (individual sub-base)	VOFA-B26-T52-M-1C1 (on valve terminal)
Supply	1	G $\frac{1}{4}$	Via the manifold sub-base of the valve terminal
Exhaust port	3/5, 33	G $\frac{1}{4}$	
Working ports	2/4	G $\frac{1}{4}$	
Pilot air supply	14	–	
Pressure gauge		G $\frac{1}{4}$	G $\frac{1}{4}$

Materials	
Sub-base/manifold sub-base	Wrought aluminium alloy
Valve	Die-cast aluminium, PA
Seals	NBR, FPM
Screws	Galvanised steel
Sensor housing	High-alloy stainless steel
Sensor cable sheath	PUR
Note on materials	Contains PWIS (paint-wetting impairment substances)

Accessories



Accessories	→ Page/online
1 Solenoid valve VSVA	708
2 Regulator plate VABF	vtsa
3 Accessories for regulator plate (pressure gauge PAGN, cartridge fitting QSP)	716
4 Additional vertical stacking modules (flow control plate, vertical supply plate or vertical pressure shut-off plate) VABF	vtsa
5 Blanking plate VABB for vacant position	vtsa
6 Right-hand end plate VABE with ports for supply air/exhaust air	vtsa
7 Right-hand end plate VABE with pilot air selector	vtsa
8 Manifold sub-base VABV	vtsa
9 Duct separator VABD	vtsa
10 Electrical interface VABE for AS-Interface (delivery unit with AS-Interface module VAEM)	vtsa-asi
11 AS-Interface module VAEM	vtsa-asi
12 Cover cap VAMC for non-detenting/covered manual override	716
13 Inscription label ASCF	716

Accessories	→ Page/online
14 Manifold block CPX-AB for AS-Interface	vtsa-asi
15 Supply plate VABF with ducted exhaust air, ports 3 and 5 separated or combined	vtsa
16 Silencer U	716
17 Blanking plug B	716
18 Push-in fitting QS	716
19 Pneumatic interface VABA	779
20 Multi-pin plug connection NEBV/NECV with connecting cable or cover for self-assembly	vtsa
21 Fieldbus interface CPX-FB	747
22 Multi-pin plug connection VABE with terminal strip (spring-loaded terminal)	vtsa
23 Multi-pin plug connection VABE with connecting cable for multi-pin plug connections	vtsa
- Control block VOFA	717
- Wall mounting VAME	717
- 90° connection plate VABF	717
- User documentation P.BE-VTSA	717

Accessories for valve with individual connection

In applications with specific emergency off conditions, it may be necessary to switch one or more valves separately from the valve terminal controller. Standard valves (VSVA) with individual electrical connection (round or square plug) are mounted on the valve terminal to this

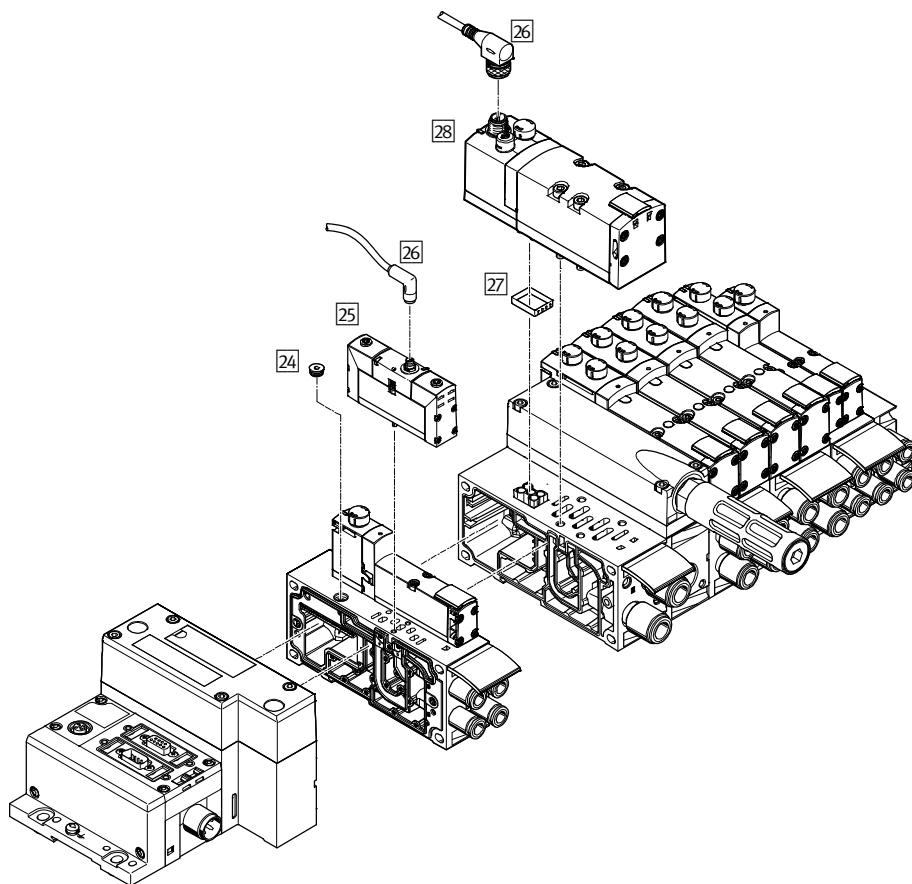
end. In order for protection to IP65 to be achieved, the functionless opening in the sub-base for the electrical connection must be sealed.

A sealing cap is available for the 18 mm

and 26 mm widths. With manifold or individual sub-bases, valves with width 42 mm and 52 mm must be used with a seal to comply with the IP degree of protection.

For central control of the valve terminal

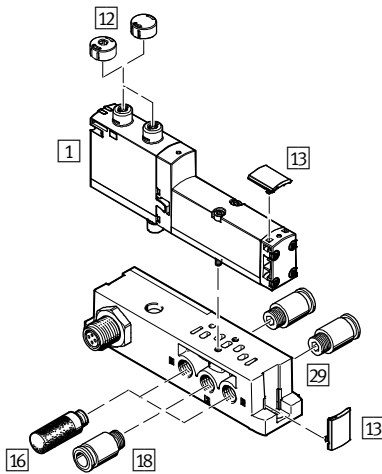
via a multi-pin plug or fieldbus connection, the valve position occupied in this way acts like a vacant position, i.e. the assigned address in the fieldbus node or the corresponding connection in the multi-pin plug connection is occupied.



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


Accessories	→ Page/online
24 Sealing cap VABD	vtsa
25 Solenoid valve VSVA to ISO15407-1	597
26 Connecting cable NEBU	vsva
27 Seal VABD-S2	vtsa
28 Solenoid valve VSVA to ISO5599-1	613
- Control block VOFA	717
- Wall mounting VAME	717
- 90° connection plate VABF	717
- User documentation P.BE-VTSA	717

Accessories for valve on individual sub-base



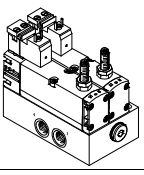


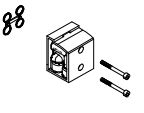

Accessories	→ Page/online
1 Solenoid valve VSVA	708
12 Cover cap VAMC for manual override	716
13 Inscription label ASCF	716
16 Silencer U	716
18 Push-in fitting QS	716
29 Individual sub-base VABS	vtsa
- Control block VOFA	717
- Wall mounting VAME	717
- 90° connection plate VABF	717
- User documentation P.BE-VTSA	717

Accessories – Ordering data

	Code ¹⁾	Description		Part No.	Type	
13 Accessories for regulator plate, pressure gauge for widths 18 mm and 26 mm						
Technical data online: → pagn						
	U	6 bar, for regulator plate code ZF, ZG, ZH, ZI, ZJ, ZM, ZN	Widths 18 mm and 26 mm	543488	PAGN-26-10-P10	
			Widths 42 mm and 52 mm	548009	PAGN-40-10-P10	
	T	10 bar, for regulator plate code ZA, ZB, ZC, ZD, ZE, ZK, ZL	Widths 18 mm and 26 mm	543487	PAGN-26-16-P10	
			Widths 42 mm and 52 mm	548010	PAGN-40-16-P10	
Cartridge fitting						
Technical data online: → qsp						
	-	For thread G $\frac{1}{8}$ (allows products with threaded connection G $\frac{1}{8}$ to be attached to the cartridge fitting connection)		565811	QSP10-G $\frac{1}{8}$	
	-	For tubing O.D. 4 mm		172972	QSP10-4	
12 Cover cap for manual override						
	N	Non-detenting	10 pieces	541010	VAMC-S6-CH	
	V	Covered	10 pieces	541011	VAMC-S6-CS	
13 Inscription label						
	B	Clip-on for valve cap	5 pieces	540888	ASCF-T-S6	
	T	For manifold blocks	5 pieces	540889	ASCF-M-S6	
16 Silencer						
Technical data → 1101						
	-	For thread G $\frac{1}{8}$		★ 6841	U- $\frac{1}{8}$ -B	
	-	For thread G $\frac{1}{4}$		★ 2316	U- $\frac{1}{4}$	
	-	For thread G $\frac{1}{2}$		★ 6844	U- $\frac{1}{2}$ -B	
17 Blanking plug						
Technical data online: → b-1						
	-	Thread G $\frac{1}{8}$	10 pieces	3568	B- $\frac{1}{8}$	
	-	Thread G $\frac{1}{4}$	10 pieces	3569	B- $\frac{1}{4}$	
18 Push-in fitting						
Technical data → 1014						
	-	Connecting thread G $\frac{1}{8}$	For tubing O.D. 6 mm	10 pieces	★ 186096	QS-G $\frac{1}{8}$ -6
			For tubing O.D. 8 mm	10 pieces	★ 186098	QS-G $\frac{1}{8}$ -8
	-	Connecting thread G $\frac{1}{4}$	For tubing O.D. 8 mm	10 pieces	★ 186099	QS-G $\frac{1}{4}$ -8
			For tubing O.D. 10 mm	10 pieces	★ 186101	QS-G $\frac{1}{4}$ -10
	-	Connecting thread G $\frac{3}{8}$	For tubing O.D. 10 mm	10 pieces	★ 186102	QS-G $\frac{3}{8}$ -10
			For tubing O.D. 12 mm	10 pieces	★ 186114	QS-G $\frac{3}{8}$ -12-l
	-	Connecting thread G $\frac{1}{2}$	For tubing O.D. 12 mm	1 piece	★ 186104	QS-G $\frac{1}{2}$ -12
			For tubing O.D. 16 mm	1 piece	★ 186105	QS-G $\frac{1}{2}$ -16

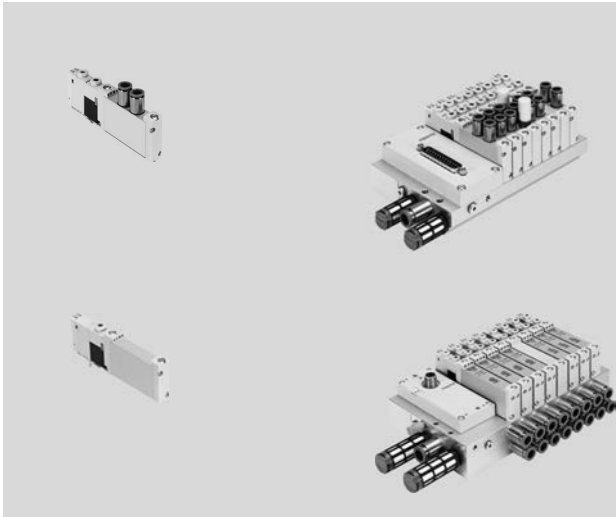
1) Code letter within the order code for a valve terminal configuration.

Accessories – Ordering data

	Code ¹⁾	Description	Part No.	Type
Control block, individual connection variant			Technical data online: → vofa	
	–	PNP output	569819	VOFA-L26-T52-M-G14-1C1-APP
	–	NPN output	569820	VOFA-L26-T52-M-G14-1C1-ANP
Wall mounting				
	U	Mounting bracket, 5 pieces	539214	VAME-S6-10-W
	–	Mounting bracket	567038	VAME-S6-W-M46
90° connection plate				
	P	Width 18 mm, connecting thread G1/8	539719	VABF-S4-2-A2G2-G18
		Width 26 mm, connecting thread G1/4	539721	VABF-S4-1-A2G2-G14
		Width 42 mm, connecting thread G3/8	546097	VABF-S2-1-A1G2-G38
		Width 52 mm, connecting thread G1/2	555702	VABF-S2-2-A1G2-G12
User documentation				
	D	German	538922	P.BE-VTSA-44-DE
	E	English	538923	P.BE-VTSA-44-EN
	S	Spanish	538924	P.BE-VTSA-44-ES
	F	French	538925	P.BE-VTSA-44-FR
	I	Italian	538926	P.BE-VTSA-44-IT
	V	Swedish	538927	P.BE-VTSA-44-SV

1) Code letter within the order code for a valve terminal configuration.

Valve terminals VTUG with multi-pin plug and fieldbus connection



- Variable multi-pin plug connection using Sub-D or flat cable
- I-Port interface for fieldbus nodes (CTEU)
- IO-Link mode for direct connection to a higher-level IO-Link master
- Width 10 mm and 14 mm
- Sub-D variant and fieldbus connection rated to IP67
- Piston spool valves, up to 24 valve positions
- ★ Quick ordering of basic designs → 724, 726, 728, 730

→ www.festo.com/catalogue/vtug

Product range overview

Function	Version	Code	Size		→ Page/ online
			10 mm (size 10)	14 mm (size 14)	
Position function 0-23	5/2-way valve, single solenoid, mechanical spring	A	■	■	722
	5/2-way valve, single solenoid, pneumatic/mechanical spring	P	■	–	722
	5/3-way valve, mid-position pressurised	B	■	■	722
	5/3-way valve, mid-position exhausted	E	■	■	722
	5/3-way valve, mid-position closed	G	■	■	722
	2x3/2-way valve, 1x normally closed, 1x normally open, pneumatic spring	H	■	■	722
	5/2-way double pilot valve	J	■	■	722
	2x3/2-way valve, normally closed, pneumatic spring	C	■	■	722
	5/2-way valve, single solenoid, pneumatic spring	M	–	■	722
	2x3/2-way valve, normally open, pneumatic spring	N	■	■	722
	2x3/2-way valve, 1x normally closed, 1x normally open, mechanical spring	VH	■	■	722
	2x3/2-way valve, normally closed, mechanical spring	VK	■	■	722
	2x3/2-way valve, normally open, mechanical spring	VN	■	■	722
	1x3/2-way valve, normally closed, external compressed air supply	VX	■	■	vtug
	1x3/2-way valve, normally open, external compressed air supply	VW	■	■	vtug
	Additional power supply	S	■	■	722
	Vacant position	L	■	■	722

Note

Valve terminals can be ordered quickly and easily online.
The convenient product configurator can be found at:

→ www.festo.com/catalogue/vtug

Valve terminals VTUG with multi-pin plug and fieldbus connection

FESTO

Key features

Innovative

- Festo-specific I-Port interface for bus nodes (CTEU)
- IO-Link mode for direct connection to a higher-level IO-Link master
- Festo-specific I-Port interface with interlock
- Variable multi-pin plug connection using Sub-D or flat cable
- Reversible piston spool valves, up to 24 valve positions
- Reduced power consumption
- Excellent price/performance ratio

Versatile

- Choice of quick plug connectors
- Multiple pressure zones possible
- Sub-D variant and fieldbus connection rated to IP67
- Internal or external pilot air with the same manifold rail possible through the use of blanking plugs
- Sub-base valves with working ports underneath for installation in control cabinets

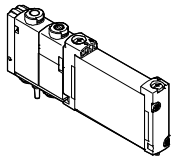
Reliable

- Sturdy and durable metal components
 - Valves
 - Manifold rails
- Fast troubleshooting thanks to LED display
- Choice of manual override: non-detenting, detenting or covered

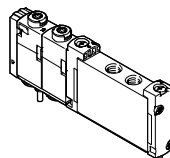
Easy to mount

- Easy mounting thanks to captive screws and seal
- Connection technology easy to change
- Inscription label holder for labelling

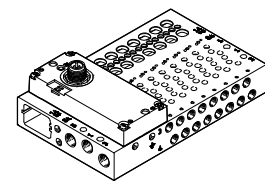
Sub-base and semi in-line valves



Sub-base valve
VUVG-B...1T1

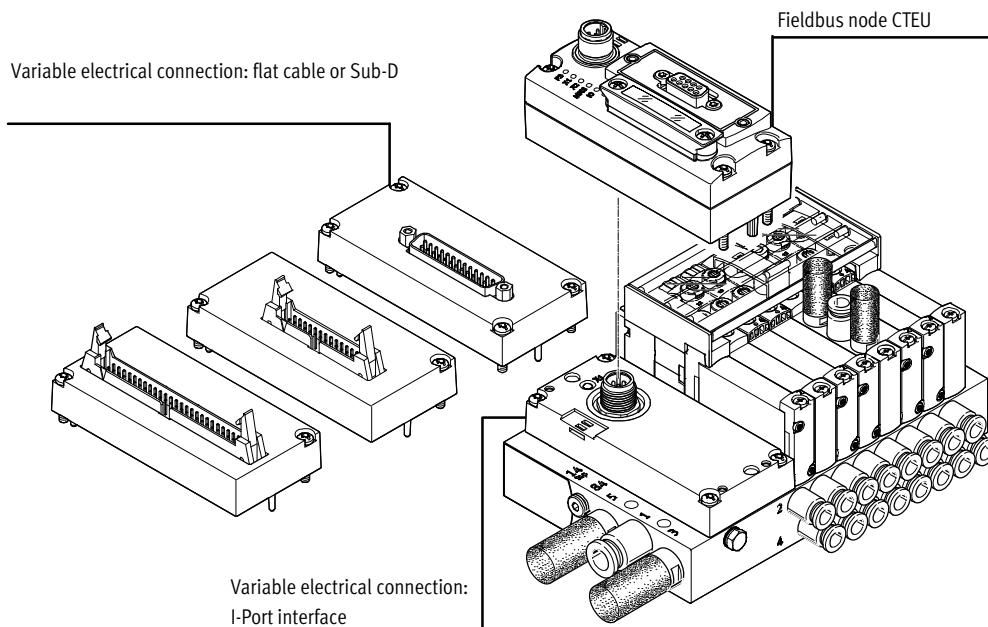


Semi in-line valve
VUVG-S...1T1



Valve terminal VTUG with variable electrical connection

Overview



Equipment options

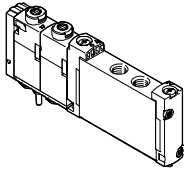
Valve functions

- 2x3/2-way, 5/2-way, 5/3-way valves
- Piston spool valves, up to 24 valve positions
- IO-Link mode for direct connection to a higher-level IO-Link master
- Variable multi-pin plug connection using Sub-D or flat cable
- Fieldbus node CTEU

Valve terminals VTUG with multi-pin plug and fieldbus connection

Key features

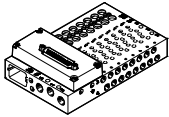
Basic valves VUVG



- Width 10 and 14 mm
- Semi in-line valves
- Sub-base valves
- 2x3/2-way, 5/2-way and 5/3-way valves

Electrical connection

Multi-pin plug connection



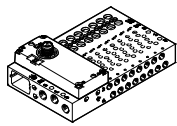
The signals are transmitted from the controller to the valve terminal via a pre-assembled or self-assembled multi-wire cable to the multi-pin plug connection,

which substantially reduces installation time. The valve terminal can be equipped with max. 48 solenoid coils.

Versions:

- Sub-D connection
- Flat cable

I-port interface



Festo-specific interface as a basis for fieldbus nodes (CTEU) or in IO-Link mode for direct connection to a higher-level IO-Link master.

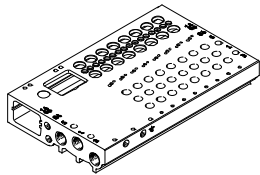
Transmission of communication data and the power supply takes place via an M12 plug on the terminal.

Connection options:

- As an I-Port interface for fieldbus nodes (CTEU)
- In IO-Link mode for direct connection to an IO-Link master

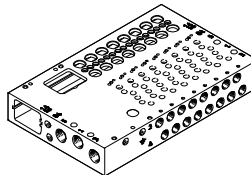
Manifold rails

for semi in-line valves



- For semi in-line valves, M5, M7, width 10 mm and G1/8, width 14 mm
- For 2x3/2-way, 5/2-way and 5/3-way valves
- 4 to 24 valve positions with electrical interlinking
- The semi in-line valves are always supplied with external pilot air. The pilot air is set via the manifold rail. A short and a long blanking plug are included with the manifold rail for this purpose.

for sub-base valves



- For sub-base valves M5/M7, width 10 mm and G1/8, width 14 mm
- For 2x3/2-way, 5/2-way and 5/3-way valves
- 4 to 24 valve positions with electrical interlinking
- The sub-base valves are always supplied with external pilot air. The pilot air is set via the manifold rail. A short and a long blanking plug are included with the manifold rail for this purpose.

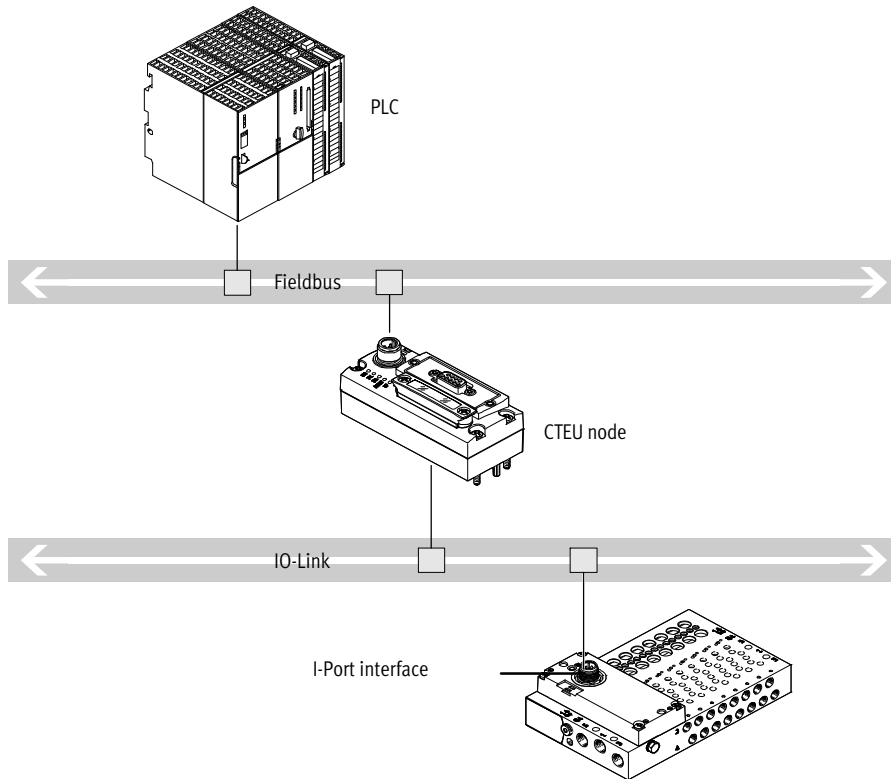
Valve terminals VTUG with multi-pin plug and fieldbus connection

FESTO

Key features




- Communication with higher-level controller via fieldbus
- Use the fieldbus node CTEU compatible with the fieldbus protocol
- Up to 64 inputs/outputs (solenoid coils), depending on the valve terminal
- No preprocessing

System overview – IO-Link



Valve terminals VTUG with multi-pin plug and fieldbus connection

Technical data – Semi in-line valve M5/M7

-  Width 10 mm
-  Flow rate
130 ... 330 l/min
-  Operating voltage
24 V DC



Technical data	Download CAD data → www.festo.com											
	T32-A			T32-M			M52-R	B52	M52-M	P53		
Valve function	C ¹⁾	U ²⁾	H ⁴⁾	C ¹⁾	U ²⁾	H ⁴⁾	–	–	–	C ¹⁾	U ²⁾	E ³⁾
Normal position	C ¹⁾	U ²⁾	H ⁴⁾	C ¹⁾	U ²⁾	H ⁴⁾	–	–	–	C ¹⁾	U ²⁾	E ³⁾
Pneumatic spring reset method	Yes			No			Yes ⁵⁾	–	No	–		
Mechanical spring reset method	No			Yes			Yes ⁵⁾	–	Yes	Yes		
Stable position	Monostable							Bistable	Monostable			
Port 1, 3, 5	On manifold rail											
Port 2, 4	VUVG-S10-...-M5			M5								
Port 2, 4	VUVG-S10-...-M7			M7								
Port 12, 14	On manifold rail											
Standard nominal flow rate M5	[l/min]		150	130	230	230	230	210				
Standard nominal flow rate M7	[l/min]		160	140	330	330	290	280				
Flow rate on manifold rail M5	[l/min]		150	130	230	230	230	210				
Flow rate on manifold rail M7	[l/min]		160	140	330	330	290	280				
Vacuum operation at port 1	No			Only with external pilot air supply								
Design	Piston spool valve											
Type of mounting	On manifold rail											
Electrical connection	Via sub-base											
Manual override	Choice of non-detenting, covered, non-detenting/detenting or detenting											

- 1) C=Normally closed.
- 2) U=Normally open/mid-position pressurised.
- 3) E=Normally exhausted.
- 4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open.
- 5) Combined reset method.

Operating conditions		T32-A ⁶⁾	T32-M ⁷⁾	M52-R ⁸⁾	B52	M52-M ⁷⁾	P53
Valve function							
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]					
Operating pressure	Internal	1.5 ... 8	2 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	3 ... 8
	External	1.5 ... 10	-0.9 ... 10	-0.9 ... 10	-0.9 ... 10	-0.9 ... 8	-0.9 ... 10
Pilot pressure ⁹⁾		1.5 ... 8	2 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	3 ... 8
Ambient temperature	[°C]	-5 ... +60					
Temperature of medium	[°C]	-5 ... +60					

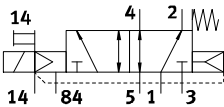
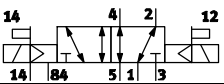
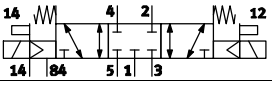
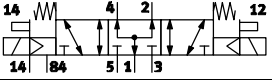
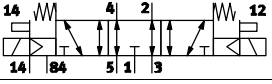
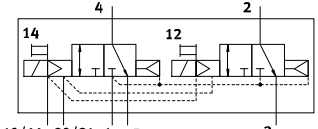
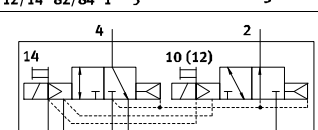
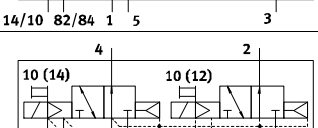
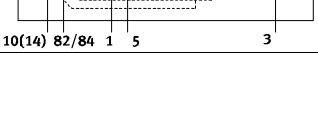
- 6) Pneumatic spring.
- 7) Mechanical spring.
- 8) Pneumatic/mechanical spring.
- 9) Minimum pilot pressure 50% of operating pressure.

Materials	
Housing	Wrought aluminium alloy
Seals	HNBR, NBR

Valve terminals VTUG with multi-pin plug and fieldbus connection

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Order code

VUVG	- S	10	-	-	Z	-	-	1	T1	L
Valve design										
Semi in-line valve	S									Display L LED
Width										Electrical connection T1 Plug-in
10 mm		10								Nominal operating voltage 1 24 V DC
Valve function										Pneumatic connection
										M5 M5
M52										M7 M7
										Q3 Push-in connector 3 mm
B52										Q4 Push-in connector 4 mm
										Q4H Push-in connector 4 mm/M7
P53C										Q6 Push-in connector 6 mm
										Q6H Push-in connector 6 mm/M7
P53U										T14 Push-in connector 1/4"
										T14H Push-in connector 1/4", M7
P53E										T18 Push-in connector 1/8"
										T316 Push-in connector 3/16"
T32C										T316H Push-in connector 3/16", M7
										T532 Push-in connector 5/32"
T32H										Manual override
										H Non-detenting
T32U										S Covered
										T Non-detenting, detenting
T32U										Pilot air
										Z External
										Reset method
										A Pneumatic spring for 2x3/2-way
										M Mechanical spring for M52 and 2x3/2-way
										R Pneu./mech. spring for M52
										- With B52 and P53

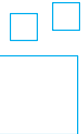
Order example:

VUVG-S10-T32C-MZT-M5-1T1L

Universal solenoid valve VUVG - semi in-line valve, width 10 mm - 2x3/2-way valve, normally closed - mechanical spring reset method, external pilot air supply, non-detenting/detenting manual override - pneumatic connection M5 - nominal operating voltage 24 V DC, plug-in electrical connection, LED display

Valve terminals VTUG with multi-pin plug and fieldbus connection

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
[→ www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the type code in the search field.

★ **Quick ordering¹⁾**

	Part No.	Type
2x3/2-way valve	573386	VUVG-S10-T32C-AZT-M5-1T1L
5/2-way single solenoid valve	573392	VUVG-S10-M52-RZT-M5-1T1L
5/2-way double solenoid valve	573394	VUVG-S10-B52-ZT-M5-1T1L
5/3-way valve	573395	VUVG-S10-P53C-ZT-M5-1T1L




	Part No.	Type
2x3/2-way valve	573398	VUVG-S10-T32C-AZT-M7-1T1L
5/2-way single solenoid valve	573404	VUVG-S10-M52-RZT-M7-1T1L
5/2-way double solenoid valve	573406	VUVG-S10-B52-ZT-M7-1T1L
5/3-way valve	573407	VUVG-S10-P53C-ZT-M7-1T1L

1) All products in this table are easy to select and quick to order.

Valve terminals VTUG with multi-pin plug and fieldbus connection

FESTO

Technical data – Semi in-line valve G $\frac{1}{8}$

-  Width 14 mm
-  Flow rate
520 ... 630 l/min
-  Operating voltage
24 V DC



Technical data	Download CAD data → www.festo.com																				
	T32-A			T32-M			M52-A	B52	M52-M	P53											
Valve function	C ¹⁾	U ²⁾	H ⁴⁾	C ¹⁾	U ²⁾	H ⁴⁾	–	–	–	C ¹⁾	U ²⁾	E ³⁾									
Normal position							–	–	–	C ¹⁾	U ²⁾	E ³⁾									
Pneumatic spring reset method	Yes			No			Yes	–	No	–											
Mechanical spring reset method	No			Yes			No	–	Yes	Yes											
Stable position	Monostable							Bistable		Monostable											
Port 1, 3, 5	On manifold rail																				
Port 2, 4	G $\frac{1}{8}$																				
Port 12, 14	On manifold rail																				
Standard nominal flow rate G $\frac{1}{8}$	[l/min]			610			520			620			630			620			590		
Flow rate on manifold rail G $\frac{1}{8}$	[l/min]			610			520			620			630			620			590		
Vacuum operation at port 1	No			Only with external pilot air supply																	
Design	Piston spool valve																				
Type of mounting	On manifold rail																				
Electrical connection	Via sub-base																				
Manual override	Choice of non-detenting, covered, non-detenting/detenting or detenting																				

- 1) C=Normally closed.
 2) U=Normally open/mid-position pressurised.
 3) E=Normally exhausted.
 4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open.

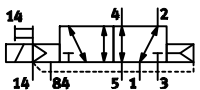
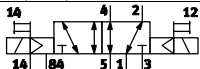
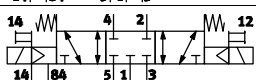
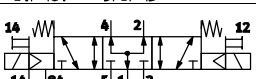
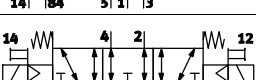
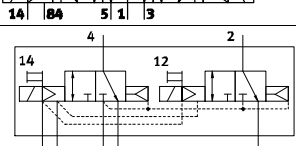
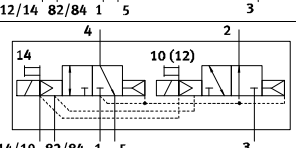
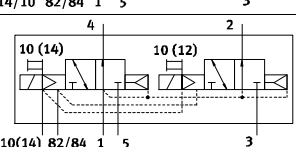
Operating conditions		T32-A ⁵⁾		T32-M ⁶⁾		M52-A ⁵⁾		B52		M52-M ⁶⁾		P53			
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]													
Operating pressure		Internal		1.5 ... 8		2 ... 8		2.5 ... 8		1.5 ... 8		3 ... 8		3 ... 8	
		External		1.5 ... 10		–0.9 ... 10		–0.9 ... 10		–0.9 ... 10		–0.9 ... 8		–0.9 ... 10	
Pilot pressure ⁷⁾		1.5 ... 8		2 ... 8		2.5 ... 8		1.5 ... 8		3 ... 8		3 ... 8			
Ambient temperature		[°C]		–5 ... +60											
Temperature of medium		[°C]		–5 ... +60											

- 5) Pneumatic spring.
 6) Mechanical spring.
 7) Minimum pilot pressure 50% of operating pressure.

Materials	
Housing	Wrought aluminium alloy
Seals	HNBR, NBR

Valve terminals VTUG with multi-pin plug and fieldbus connection

Order code

VUVG	- S	14	-	-	Z	-	-	1	T1	L
Valve design										
Semi in-line valve	S									
Width										
14 mm	14									
Valve function										
										M52
										B52
										P53C
										P53U
										P53E
										T32C
										T32H
										T32U
Electrical connection										
T1	Plug-in									
Nominal operating voltage										
1	24 V DC									
Pneumatic connection										
G18	G1/8									
T14	Push-in connector 1/4"									
T516	Push-in connector 5/16"									
Q4	Push-in connector 4 mm									
Q6	Push-in connector 6 mm									
Q8	Push-in connector 8 mm/G1/8									
Manual override										
H	Non-detenting									
S	Covered									
T	Non-detenting, detenting									
Pilot air										
Z	External									
Reset method										
A	Pneumatic spring for M52 and 2x3/2-way									
M	Mechanical spring for M52 and 2x3/2-way									
-	With B52 and P53									

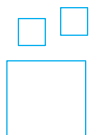
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Order example:

VUVG-S14-T32U-AZT-G18-1T1L

Universal solenoid valve VUVG - semi in-line valve, width 14 mm - 2x3/2-way valve, normally open - pneumatic spring reset method, external pilot air supply, non-detenting/detenting manual override - pneumatic connection G1/8 - nominal operating voltage 24 V DC, plug-in electrical connection, LED display

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
www.festo.com/catalogue/...

Enter the type code in the search field.

★ Quick ordering¹⁾




	Part No.	Type
2x3/2-way valve	573464	VUVG-S14-T32C-AZT-G18-1T1L
5/2-way single solenoid valve	573470	VUVG-S14-M52-AZT-G18-1T1L
5/2-way double solenoid valve	573472	VUVG-S14-B52-ZT-G18-1T1L
5/3-way valve	573473	VUVG-S14-P53C-ZT-G18-1T1L

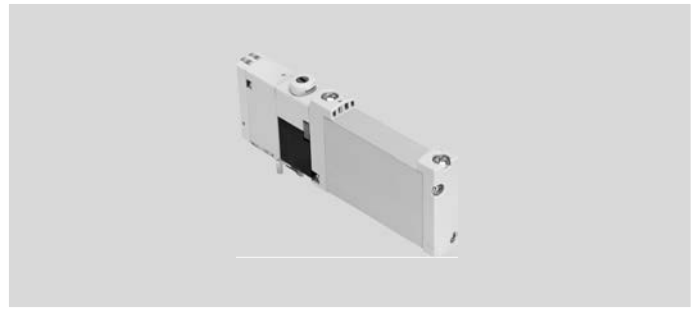
1) All products in this table are easy to select and quick to order.

Valve terminals VTUG with multi-pin plug and fieldbus connection

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Technical data – Sub-base valve M5/M7

-  Width 10 mm
-  Flow rate
130 ... 300 l/min
-  Operating voltage
24 V DC

Download CAD data → www.festo.com

Technical data	T32-A	T32-M	M52-R	B52	M52-M	P53
Valve function	C ¹⁾ U ²⁾ H ⁴⁾	C ¹⁾ U ²⁾ H ⁴⁾	–	–	–	C ¹⁾ U ²⁾ E ³⁾
Normal position	C ¹⁾ U ²⁾ H ⁴⁾	C ¹⁾ U ²⁾ H ⁴⁾	–	–	–	C ¹⁾ U ²⁾ E ³⁾
Pneumatic spring reset method	Yes	No	Yes ⁵⁾	–	No	–
Mechanical spring reset method	No	Yes	Yes ⁵⁾	–	Yes	Yes
Stable position	Monostable			Bistable	Monostable	
Port 1, 3, 5	On manifold rail					
Port 2, 4	M5/M7					
Port 12, 14	On manifold rail					
Standard nominal flow rate M5/M7	[l/min] 160	140	300	300	260	260
Flow rate on manifold rail M5, front	[l/min] 150	130	220	220	220	200
Flow rate on manifold rail M7, front	[l/min] 160	140	270	270	240	250
Flow rate on manifold rail M7, underneath	[l/min] 160	140	300	300	260	260
Vacuum operation at port 1	No	Only with external pilot air supply				
Design	Piston spool valve					
Type of mounting	On manifold rail					
Electrical connection	Via sub-base					
Manual override	Choice of non-detenting, covered, non-detenting/detenting or detenting					

- 1) C=Normally closed.
- 2) U=Normally open/mid-position pressurised.
- 3) E=Normally exhausted.
- 4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open.
- 5) Combined reset method.

Operating conditions

Valve function	T32-A ⁶⁾	T32-M ⁷⁾	M52-R ⁸⁾	B52	M52-M ⁷⁾	P53
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]					
Operating pressure	Internal	1.5 ... 8	2 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8
	External	1.5 ... 10	–0.9 ... 10	–0.9 ... 10	–0.9 ... 10	–0.9 ... 10
Pilot pressure ⁹⁾	1.5 ... 8	2 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	3 ... 8
Ambient temperature	[°C]	–5 ... +60				
Temperature of medium	[°C]	–5 ... +60				

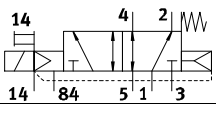
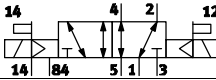
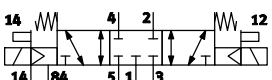
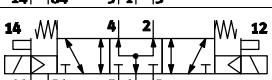
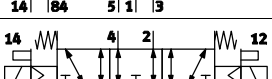
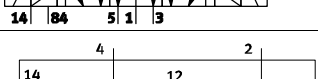
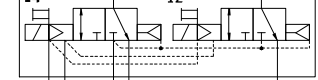
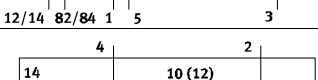
- 6) Pneumatic spring.
- 7) Mechanical spring.
- 8) Pneumatic/mechanical spring.
- 9) Minimum pilot pressure 50% of operating pressure.

Materials

Housing	Wrought aluminium alloy
Seals	HNBR, NBR

Valve terminals VTUG with multi-pin plug and fieldbus connection

Order code

VUVG	- B	10	-	-
Valve design				
Sub-base valve		B		
Width				
10 mm		10		
Valve function				
	M52			
	B52			
	P53C			
	P53U			
	P53E			
	T32C			
	T32H			
	T32U			

Z	-	F	-	1	T1	L
Display						
						L LED
Electrical connection						
						T1 Plug-in
Nominal operating voltage						
						1 24 V DC
Pneumatic connection						
						F Flange/sub-base
Manual override						
						H Non-detenting
						S Covered
						T Non-detenting, detenting
Pilot air						
						Z External
Reset method						
						A Pneumatic spring for 2x3/2-way
						M Mechanical spring for M52 and 2x3/2-way
						R Pneu./mech. spring for M52
						- With B52 and P53

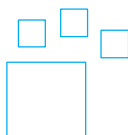
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Order example:

VUVG-B10-T32U-MZT-F-1T1L

Universal solenoid valve VUVG - sub-base valve, width 10 mm - 2x3/2-way valve, normally open - mechanical spring reset method, external pilot air supply, non-detenting/detenting manual override - flange/sub-base pneumatic connection - nominal operating voltage 24 V DC, plug-in electrical connection, LED display

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or www.festo.com/catalogue/...

Enter the type code in the search field.

★ Quick ordering¹⁾

	Part No.	Type
2x3/2-way valve	573410	VUVG-B10-T32C-AZT-F-1T1L
5/2-way single solenoid valve	573416	VUVG-B10-M52-RZT-F-1T1L




	Part No.	Type
5/2-way double solenoid valve	573418	VUVG-B10-B52-ZT-F-1T1L
5/3-way valve	573419	VUVG-B10-P53C-ZT-F-1T1L

1) All products in this table are easy to select and quick to order.

Valve terminals VTUG with multi-pin plug and fieldbus connection

FESTO

Technical data – Sub-base valve G $\frac{1}{8}$

-  Width 14 mm
-  Flow rate
440 ... 560 l/min
-  Operating voltage
24 V DC



Technical data	Download CAD data → www.festo.com											
	T32-A			T32-M			M52-A	B52	M52-M	P53		
Valve function	C ¹⁾	U ²⁾	H ⁴⁾	C ¹⁾	U ²⁾	H ⁴⁾	–	–	–	C ¹⁾	U ²⁾	E ³⁾
Normal position	C ¹⁾	U ²⁾	H ⁴⁾	C ¹⁾	U ²⁾	H ⁴⁾	–	–	–	C ¹⁾	U ²⁾	E ³⁾
Pneumatic spring reset method	Yes			No			Yes	–	No	–		
Mechanical spring reset method	No			Yes			No	–	Yes	Yes		
Stable position	Monostable							Bistable		Monostable		
Port 1, 3, 5	On manifold rail											
Port 2, 4	G $\frac{1}{8}$											
Port 12, 14	On manifold rail											
Standard nominal flow rate G18	[l/min]		530	470	550	560	550	510	550	510		
Flow rate on manifold rail G18, front	[l/min]		490	440	500	510	500	470	500	470		
Flow rate on manifold rail G18, underneath	[l/min]		530	470	550	560	550	510	550	510		
Vacuum operation at port 1	No			Only with external pilot air supply								
Design	Piston spool valve											
Type of mounting	On manifold rail											
Electrical connection	Via sub-base											
Manual override	Choice of non-detenting, covered, non-detenting/detenting or detenting											

- 1) C=Normally closed.
 2) U=Normally open/mid-position pressurised.
 3) E=Normally exhausted.
 4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open.

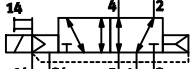
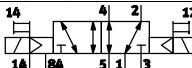
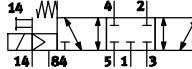
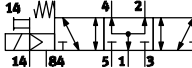

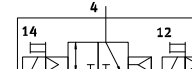
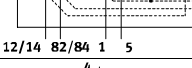

Operating conditions		T32-A ⁵⁾	T32-M ⁶⁾	M52-A ⁵⁾	B52	M52-M ⁶⁾	P53
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]					
Operating pressure	Internal	1.5 ... 8	2 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	3 ... 8
	External	1.5 ... 10	–0.9 ... 10	–0.9 ... 10	–0.9 ... 10	–0.9 ... 8	–0.9 ... 10
Pilot pressure ⁷⁾		1.5 ... 8	2 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	3 ... 8
Ambient temperature	[°C]	–5 ... +60					
Temperature of medium	[°C]	–5 ... +60					

- 5) Pneumatic spring.
 6) Mechanical spring.
 7) Minimum pilot pressure 50% of operating pressure.

Materials	
Housing	Wrought aluminium alloy
Seals	HNBR, NBR

Valve terminals VTUG with multi-pin plug and fieldbus connection

Order code

VUVG	- B	14	-	-
Valve design				
Sub-base valve		B		
Width				
14 mm		14		
Valve function				
			M52	
			B52	
			P53C	
			P53U	
			P53E	
			T32C	
			T32H	
			T32U	

-	F	-	1	T1	L
Display					
L LED					
Electrical connection					
T1 Plug-in					
Nominal operating voltage					
1 24 V DC					
Pneumatic connection					
F Flange/sub-base					
Manual override					
H Non-detenting					
S Covered					
T Non-detenting, detenting					
Pilot air					
Z External					
Reset method					
A Pneumatic spring for M52 and 2x3/2-way					
M Mechanical spring for M52 and 2x3/2-way					
- With B52 and P53					

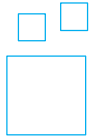
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Order example:

VUVG-B14-M52-AZT-F-1T1L

Universal solenoid valve VUVG - sub-base valve, width 14 mm - 5/2-way valve, single solenoid - pneumatic spring reset method, external pilot air supply, non-detenting/detenting manual override - flange/sub-base pneumatic connection - nominal operating voltage 24 V DC, plug-in electrical connection, LED display

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or www.festo.com/catalogue/...

Enter the type code in the search field.

★ Quick ordering¹⁾

	Part No.	Type	Part No.	Type
2x3/2-way valve	573476	VUVG-B14-T32C-AZT-F-1T1L	573484	VUVG-B14-B52-ZT-F-1T1L
5/2-way single solenoid valve	573482	VUVG-B14-M52-AZT-F-1T1L	573485	VUVG-B14-P53C-ZT-F-1T1L

1) All products in this table are easy to select and quick to order.

Valve terminals VTUG with multi-pin plug and fieldbus connection

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Technical data – Manifold rail VABM

Technical data		Download CAD data → www.festo.com	
Type		VABM-L1-10	VABM-L1-14
Connection type		Semi in-line/sub-base	
Port	12/14	M5	
	82/84	M5	
	2, 4	M5/M7	G $\frac{1}{8}$
	1, 3, 5	G $\frac{1}{8}$	G $\frac{1}{4}$
Max. number of valve positions	24		

Information on materials		Download CAD data → www.festo.com	
Housing	Wrought aluminium alloy		
Seals	HNBR, NBR		

Technical data – Multi-pin plug connection VAEM

The following multi-pin plug connections are available for the valve terminal

VTUG:

- Sub-D (25-pin)
- Sub-D (44-pin)
- Flat cable (26-pin)
- Flat cable (50-pin)



Technical data		Download CAD data → www.festo.com		
Type		VAEM-L1-S-M1-25	VAEM-L1-S-M1-44	VAEM-L1-S-M3-26 VAEM-L1-S-M3-50
Number of pins		25-pin	44-pin	26-pin 50-pin
Electrical connection		Sub-D plug		Flat cable plug
Max. number of valve positions		24		24

Valve terminals VTUG with multi-pin plug and fieldbus connection

Technical data – I-Port interface/IO-Link

Festo-specific, standardised interface for direct connection to the fieldbus by mounting the bus node CTEU or to an IO-Link master via a cable (in IO-Link mode).

The following protocols are supported in combination with the associated CTEU node:

- CANopen
- DeviceNet
- PROFIBUS
- CC-LINK
- EtherCAT



Technical data		Download CAD data → www.festo.com
Communication types	IO-Link	
Electrical connection	<ul style="list-style-type: none"> • M12 plug, 5-pin • A-coded • Metal thread for screening 	
Baud rate	COM3 [kbps]	230.4
	COM2 [kbps]	38.4
Max. number of solenoid coils	VAEM-L1-S-8-PT	16
	VAEM-L1-S-16-PT	32
	VAEM-L1-S-24-PT	48
Max. number of valve positions	VAEM-L1-S-8-PT	8
	VAEM-L1-S-16-PT	16
	VAEM-L1-S-24-PT	24
Ambient temperature	[°C]	-5 ... +50

Technical data – Connecting block CAPC

9

Application

- M12 connection technology (two interfaces)
- Enables the installation of valve terminals or other devices over a distance of 20 metres
- Accessory CAFM enables the connecting block to be installed on an H-rail

Function

The connecting block CAPC enables decentralised installation of fieldbus nodes CTEU on a valve terminal or input modules with I-Port interface.



Technical data	
Type	CAPC-F1-E-M12
Dimensions W x L x H	[mm] 50 x 148 x 28
Fieldbus interface	2x M12 socket, 5-pin, A-coded
Operating voltage range	[V DC] 18 ... 30
Max. power supply	[A] 2
Nominal operating voltage	[V DC] 24
Cable length	[m] 20

Pin allocation – Power supply/IO-Link interfaces

	Pin	Designation	Function
	1	Supply PS (+24 V)	Power supply for system +24 V
	2	Load supply PL (+24 V)	Power supply for load +24 V
	3	Supply PS (0 V)	Power supply for system +24 V
	4	Communication signal C/Q	Communication signal C/Q
	5	Load supply PL (0V)	Power supply for load 0 V
			Metal thread for FE

Valve terminals VTUG with multi-pin plug and fieldbus connection



Order code

VABM	-	L1	-		-
Allocation					
Manifold rail		L1			
Width					
Size 10		10			
Size 14		14			
Version					
Standard		-			
High flow rate		H			
Connection type					
Semi in-line		G			
Sub-base		W			
Connection direction					
To the side		-			
Underneath		B			
Pneumatic connection					
G1/8		G18			
G1/4		G14			

		Outlet direction of electrical components	
		- Upwards	
Circuitry			
-		None	
R		Holding current reduction with protective circuit	
Electrical connection			
-		None	
G		Preparation for electrical connection	
Connection for valve function			
-		5/2-way	
M		5/2-way, single solenoid	
Valve positions			
4	4 valve positions		
5	5 valve positions		
6	6 valve positions		
7	7 valve positions		
8	8 valve positions		
9	9 valve positions		
10	10 valve positions		
12	12 valve positions		
16	16 valve positions		
20	20 valve positions		
24	24 valve positions		

Order example:

VABM-L1-10G-G18-4-GR

Manifold rail VABM - manifold rail - width 10 mm, standard version, semi in-line connection type, connection direction to the side - pneumatic connection G1/8 - 4 valve positions - 5/2-way connection for valve function - preparation for electrical connection, holding current reduction with protective circuit, outlet direction upwards

★ Quick ordering¹⁾

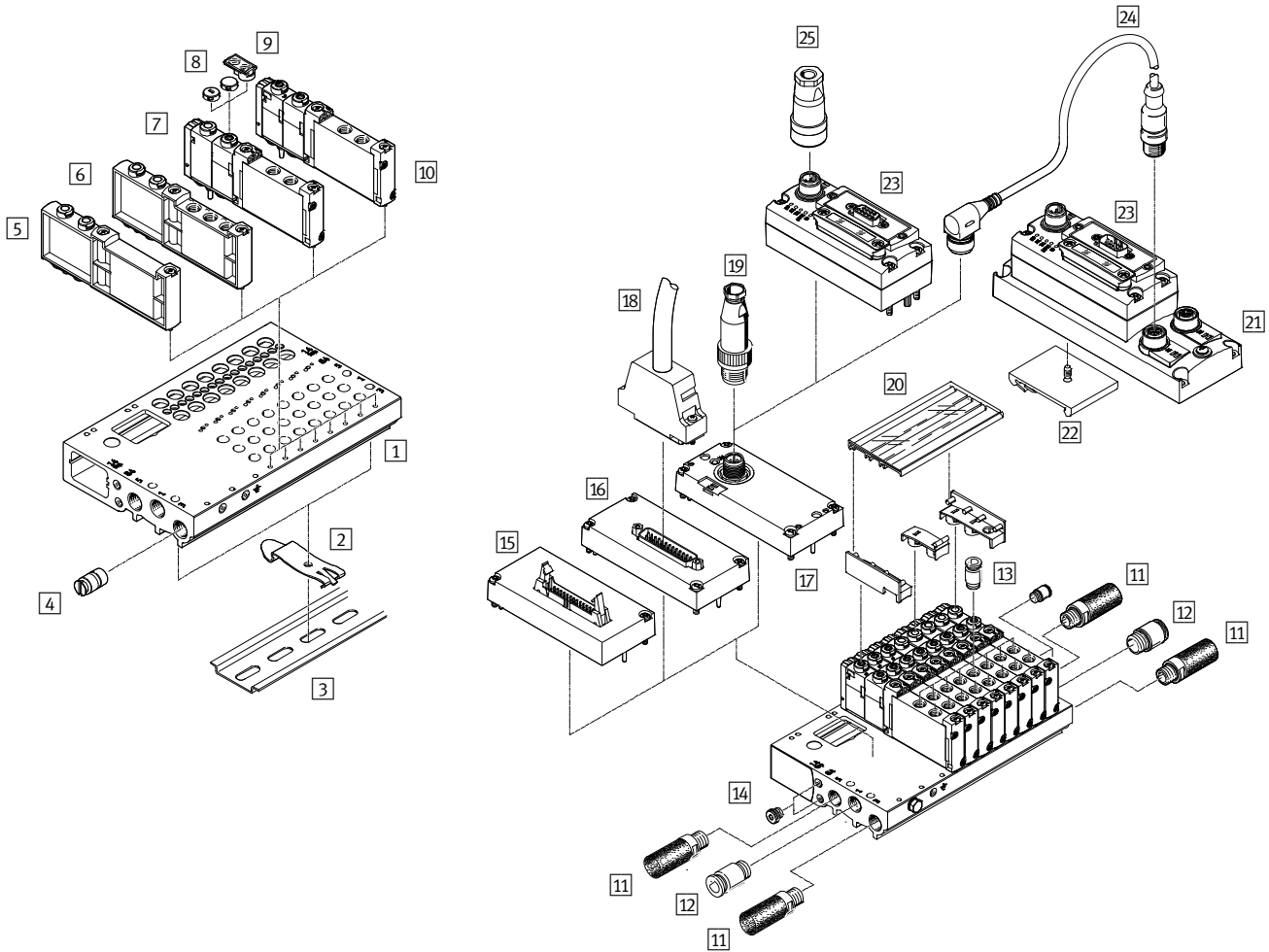
Part No.	Type
Manifold rail M5/M7 for in-line valves	
573423	VABM-L1-10G-G18-4-GR
573427	VABM-L1-10G-G18-8-GR
573431	VABM-L1-10G-G18-16-GR
Manifold rail G1/4 for in-line valves	
573489	VABM-L1-14G-G14-4-GR
573493	VABM-L1-14G-G14-8-GR
573497	VABM-L1-14G-G14-16-GR

Part No.	Type
Manifold rail M7 for sub-base valves	
573434	VABM-L1-10HW-G18-4-GR
573438	VABM-L1-10HW-G18-8-GR
573442	VABM-L1-10HW-G18-16-GR
Manifold rail G1/4 for sub-base valves	
573500	VABM-L1-14W-G14-4-GR
573504	VABM-L1-14W-G14-8-GR
573508	VABM-L1-14W-G14-16-GR

1) All products in this table are easy to select and quick to order.

Valve terminals VTUG with multi-pin plug and fieldbus connection

Accessories




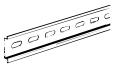








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




Accessories	→ Page/online
1 Manifold rail VABM-L1, for 4 to 10, 12, 14, 16, 20 and 24 valve positions	733
2 H-rail mounting VAME-T-M4, 2 pieces for mounting the valve terminal on an H-rail	735
3 H-rail NRH-35-2000, for mounting the valve terminal	735
4 Separator VABD, for creating pressure zones	735
5 Blanking plate VABB-L1, for covering a vacant position	735
6 Supply plate VABF-L1, for air supply port 1 and outlet port 3 and 5	735
7 Solenoid valve VUVG, semi in-line valve, 5/2-way valve, single solenoid	722
8 Cover cap VMPA-HB, cover cap for manual override	735
9 Inscription label holder ASLR-D-L1, for inscription label and covering the mounting screw/manual override	735
10 Solenoid valve VUVG, semi in-line valve, 5/2-way valve, single solenoid	722
11 Silencer UC, for outlet port 3 and 5	735
12 Push-in fitting QS, push-in fitting for air supply port 1	735
13 Push-in fitting QS, for port 2/4	735
14 Blanking plug B, for internal/external pilot air	735
15 Electrical interface VAEM-L1-S-M3, flat cable	735
16 Electrical interface VAEM-L1-S-M1, Sub-D	735
17 I-Port interface VAEM-L1-S	735
18 Connecting cable NEBV, Sub-D cable	737
19 Plug SEA-M12-5GS-PG7, straight plug for I-Port interface/IO-Link	736
20 Inscription label holder ASCF-H-L1	736
21 Connecting block CAPC-F1-E-M12, for connecting a second device with I-Port interface	737
22 H-rail mounting CAFM-F1-H, for connecting block CAPC	737
23 Bus node CTEU	737
24 Connecting cable NEBU	737
25 Power supply socket NTSD, power supply for fieldbus node CTEU	cteu

Valve terminals VTUG with multi-pin plug and fieldbus connection

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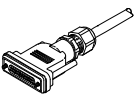
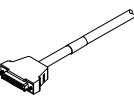
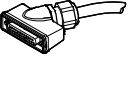

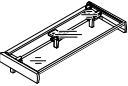
Accessories – Ordering data

	Part No.	Type
2 H-rail mounting		
	★ 569998	VAME-T-M4
3 H-rail		
	35430	NRH-35-2000
4 Separator		
	10 mm	569994 VABD-6-B
	10 mm	569995 VABD-8-B
	14 mm	569996 VABD-10-B
5 Blanking plate		
	10 mm	★ 573422 VABB-L1-10-T
	14 mm	★ 573488 VABB-L1-14-T
6 Supply plate		
	10 mm	573924 VABF-L1-10-P3A4-M7-T1
	14 mm	573925 VABF-L1-14-P3A4-G18-T1
8 Cover cap for manual override		
	Covered	540898 VMPA-HBV-B
	Non-de- tenting	540897 VMPA-HBT-B
9 Inscription label holder		
	10 pieces	570818 ASLR-D-L1
11 Silencer		Technical data → 1100
	M5	165003 UC-M5
	M7	161418 UC-M7
	G1/8	161419 UC-1/8
	G1/4	165004 UC-1/4
12/13 Push-in fitting, straight		Technical data → 1006
	Thread M5	
	3 mm	★ 153313 QSM-M5-3-I
	4 mm	★ 153315 QSM-M5-4-I
	Thread M7	
	4 mm	★ 153319 QSM-M7-4-I
	Thread G1/8	
	4 mm	★ 186106 QS-G1/8-4-I
	6 mm	★ 186107 QS-G1/8-6-I
	8 mm	★ 186109 QS-G1/8-8-I

	Part No.	Type
12/13 Push-in fitting, angled		Technical data → 1006
	Thread M5	
	∅ 3 mm	★ 153331 QSML-M5-3
	∅ 4 mm	★ 153333 QSML-M5-4
	Thread M7	
	∅ 4 mm	★ 186352 QSML-M7-4
	Thread G1/8	
	∅ 6 mm	★ 186117 QSL-G1/8-6
	∅ 8 mm	★ 186119 QSL-G1/8-8
Angled, long		
	Thread M5	
	∅ 3 mm	★ 130838 QSMLL-M5-3
	∅ 4 mm	★ 153339 QSMLL-M5-4
	Thread M7	
	∅ 4 mm	★ 186354 QSMLL-M7-4
	Thread G1/8	
	∅ 6 mm	★ 186128 QSLL-G1/8-6
	∅ 8 mm	★ 186130 QSLL-G1/8-8
14 Blanking plug		Technical data → b-1
	M5	174308 B-M5-B
	M7	174309 B-M7
	G1/8	3568 B-1/8
	G1/4	3569 B-1/4
15/16/17 Electrical interface, flat cable plug		
	26-pin	573452 VAEM-L1-S-M3-26
	50-pin	573451 VAEM-L1-S-M3-50
Sub-D		
	25-pin	★ 573445 VAEM-L1-S-M1-25
		573447 VAEM-L1-S-M1-25V1
		573448 VAEM-L1-S-M1-25V2
		573449 VAEM-L1-S-M1-25V3
		573450 VAEM-L1-S-M1-25V4
	44-pin	★ 573446 VAEM-L1-S-M1-44
I-Port interface, outlet on top		
	8 VP ¹⁾	★ 573384 VAEM-L1-S-8-PT
	16 VP ²⁾	★ 573939 VAEM-L1-S-16-PT
	24 VP ³⁾	573940 VAEM-L1-S-24-PT
I-Port interface, outlet on side		
	8 VP ¹⁾	574207 VAEM-L1-S-8-PTL
	16 VP ²⁾	574208 VAEM-L1-S-16-PTL
	24 VP ³⁾	574209 VAEM-L1-S-24-PTL

- 1) Actuation of up to 8 double solenoid valve positions.
- 2) Actuation of up to 16 double solenoid valve positions.
- 3) Actuation of up to 24 double solenoid valve positions.

Accessories – Ordering data

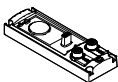
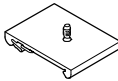
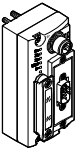
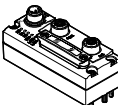

	Part No.	Type	
18 Connecting cable for multi-pin plug connection, 25-pin, IP40 Technical data online: → nebv			
	2.5 m	★	575417 NEBV-S1G25-K-2.5-N-LE25-S6
	5 m	★	575418 NEBV-S1G25-K-5-N-LE25-S6
44-pin, IP40 Technical data online: → nebv			
	2.5 m	★	575113 NEBV-S1G44-K-2.5-N-LE44-S6
	5 m	★	575114 NEBV-S1G44-K-5-N-LE44-S6
	10 m		575115 NEBV-S1G44-K-10-N-LE44-S6
25-pin, IP65, angled Technical data online: → nebv			
	2.5 m	★	575423 NEBV-S1WA25-K-2.5-N-LE25-S9
	5 m	★	575424 NEBV-S1WA25-K-5-N-LE25-S9
	2.5 m	★	575420 NEBV-S1WA44-K-2.5-N-LE44-S9
	5 m	★	575421 NEBV-S1WA44-K-5-N-LE44-S9
19 Straight plug, for I-Port/IO-Link, 5-pin Technical data online: → sea			
	M12		175487 SEA-M12-5GS-PG7
20 Inscription label holder for valve terminal			
	Width 10 mm		
	4 VP ¹⁾	573453	ASCF-H-L1-10-4V
	5 VP ¹⁾	573454	ASCF-H-L1-10-5V
	6 VP ¹⁾	573455	ASCF-H-L1-10-6V
	7 VP ¹⁾	573456	ASCF-H-L1-10-7V
	8 VP ¹⁾	573457	ASCF-H-L1-10-8V
	9 VP ¹⁾	573458	ASCF-H-L1-10-9V
	10 VP ¹⁾	573459	ASCF-H-L1-10-10V
	12 VP ¹⁾	573460	ASCF-H-L1-10-12V
	16 VP ¹⁾	573461	ASCF-H-L1-10-16V
	20 VP ¹⁾	573462	ASCF-H-L1-10-20V
	24 VP ¹⁾	573463	ASCF-H-L1-10-24V
	Width 14 mm		
	4 VP ¹⁾	573511	ASCF-H-L1-14-4V
	5 VP ¹⁾	573512	ASCF-H-L1-14-5V
	6 VP ¹⁾	573513	ASCF-H-L1-14-6V
	7 VP ¹⁾	573514	ASCF-H-L1-14-7V
	8 VP ¹⁾	573515	ASCF-H-L1-14-8V
	9 VP ¹⁾	573516	ASCF-H-L1-14-9V
	10 VP ¹⁾	573518	ASCF-H-L1-14-10V
	12 VP ¹⁾	573519	ASCF-H-L1-14-12V
	16 VP ¹⁾	573520	ASCF-H-L1-14-16V
	20 VP ¹⁾	573521	ASCF-H-L1-14-20V
	24 VP ¹⁾	573522	ASCF-H-L1-14-24V

1) VP = Valve positions.

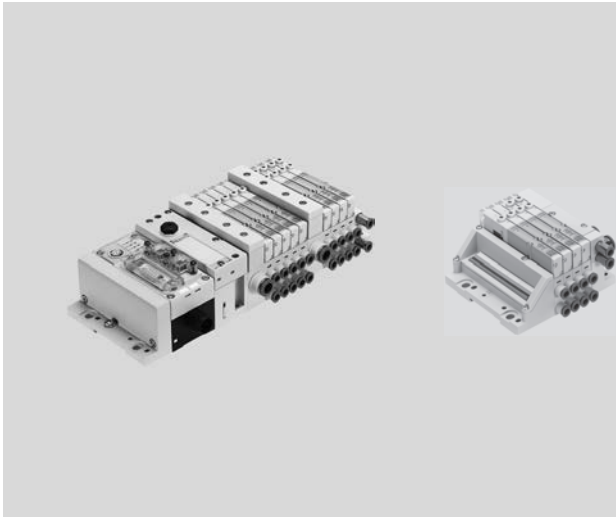
Valve terminals VTUG with multi-pin plug and fieldbus connection

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Accessories – Ordering data

		Part No.	Type
21 Connecting block			
	–	570042	CAPC-F1-E-M12
22 H-rail mounting			
	For connecting block CAPC	570043	CAFM-F1-H
23 Bus node			
	CANopen	★ 570038	CTEU-CO
	CC-Link	★ 1544198	CTEU-CC
	PROFIBUS	★ 570040	CTEU-PB
	DeviceNet	★ 570039	CTEU-DN
	EtherCAT	★ 572556	CTEU-EC
24 Connecting cable for I-Port interface/IO-Link			Technical data → 1053
	5 m	★ 574321	NEBU-M12G5-E-5-Q8N-M12G5
	7.5 m	★ 574322	NEBU-M12G5-E-7.5-Q8N-M12G5
	10 m	★ 574323	NEBU-M12G5-E-10-Q8N-M12G5

Valve terminals MPA-L



- Universal valve terminal for numerous industries
- Individual modularity for each valve position, valves can be easily combined or expanded later
- Subsequent conversions possible quickly and easily at any time
- Sub-bases made of polymer – especially light and corrosion-resistant
- End plates made of coated aluminium – high resistance and long service life

→ www.festo.com/catalogue/mpal

Product range overview

Function	Version	Code	Size			→ Page/ online
			10 mm (MPA1)	14 mm (MPA14)	20 mm (MPA2)	
Position function 1-32	5/2-way valve, single solenoid	M	■	■	■	741
	5/2-way valve, double solenoid	J	■	■	■	741
	2x3/2-way valve, normally open	N	■	■	■	741
	2x3/2-way valve, normally closed	K	■	■	■	741
	2x3/2-way valve, 1x normally closed, 1x normally open	H	■	■	■	741
	5/3-way valve, mid-position pressurised	B	■	■	■	741
	5/3-way valve, mid-position closed	G	■	■	■	741
	5/3-way valve, mid-position exhausted	E	■	■	■	741
	2x2/2-way valve, normally closed	D	■	■	■	741
	3/2-way valve, normally closed, external supply air	X	■	■	■	741
	3/2-way valve, normally open, external supply air	W	■	■	■	741
	2x2/2-way valve, 1x normally closed and 1x normally open, reversible	I	■	■	■	741
	5/2-way valve, single solenoid, with spring return	MS	■	–	■	mpa-l
	2x3/2-way valve, normally open, with spring return	NS	■	■	■	741
	2x3/2-way valve, normally closed, with spring return	KS	■	■	■	741
	2x3/2-way valve, 1x normally closed, 1x normally open, with spring return	HS	■	■	■	741
	2x2/2-way valve, compatible with low pressure	DS	■	■	■	741
	5/2-way valve, single solenoid, polymer poppet valve	MU	■	–	–	741
	2x3/2-way valve, normally open, polymer poppet valve	NU	■	–	–	741
	2x3/2-way valve, normally closed, polymer poppet valve	KU	■	–	–	741
	2x3/2-way valve, 1x normally closed, 1x normally open, polymer poppet valve	HU	■	–	–	741
Vacant position	L	■	■	■	mpa-l	

Note

Valve terminals can be ordered quickly and easily online.
The convenient product configurator can be found at:

→ www.festo.com/catalogue/mpal

Key features

Innovative

- Slim high-performance valves in a sturdy metal housing
- Flow rates up to 870 l/min
- Wide range of electrical connection options for multi-pin plug: Sub-D, flat cable or terminal strip
- Connection to the electrical peripherals CPX with a wide range of communication options
- I-Port/IO-Link interface
- Freely configurable push-in connectors

Versatile

- Modular system offering a range of configuration options
- Freely extendable system with individual sub-bases and modular tie rods
- Up to 32 solenoid coils
- Conversions and extensions possible at a later date
- Air supply can be extended by means of additional pressure zones with supply modules
- Wide range of pressures
–0.9 ... 10 bar
- Wide range of valve functions

Reliable

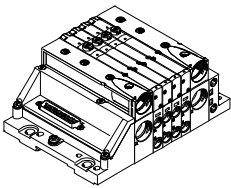
- High output reserves thanks to large pneumatic cross sections and venting with high flow rates
- Lightweight and low-cost polymer components
- Fast troubleshooting thanks to LEDs on the valves
- Easy to service thanks to replaceable valves and electrical modules
- Manual override either non-detenting, detenting or secured against unauthorised activation (covered)
- Durable thanks to the use of tried-and-tested piston spool valves

Easy to mount

- Fast and reliable in-house assembly using individual components or delivered as a ready-to-install and tested unit
- Reduced outlay on selection, ordering, installation and commissioning
- Secure mounting on wall or H-rail

Electrical connection options

Multi-pin plug connection



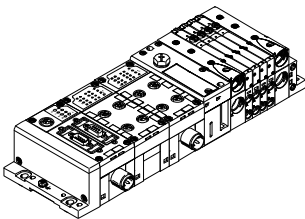
The signal flow from the controller to the valve terminal takes place via a pre-assembled or self-assembled multi-wire cable to the multi-pin plug connection, which substantially reduces installation time.

The valve terminal can be equipped with max. 32 solenoid coils. This corresponds to 2 to 32 valves.

Versions

- Sub-D connection
 - Pre-assembled multi-pin cable
 - Multi-pin cable for self-assembly
- Flat cable connection
- Terminal strip connection

Fieldbus connection via the CPX system



An integrated fieldbus node manages communication with a higher-order PLC. This enables a space-saving pneumatic and electronic solution. Valve terminals with fieldbus interfaces can be configured with up to 32 valve positions.

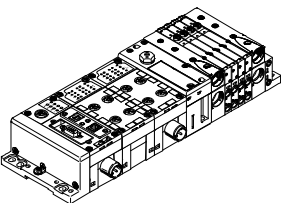
The CPX terminal also enables the integration of digital and analogue electrical inputs and outputs, pressure sensors and controllers for pneumatic or electric positioning axes.

A detailed description of the extensive functionality can be found in the documentation for the CPX terminal
→ 747

Fieldbus protocols/CPX variants:

- PROFIBUS DP
- PROFINET
- INTERBUS
- DeviceNet
- CANopen
- CC-LINK
- EtherNet/IP
- Front End Controller Remote I/O
- Modbus/TCP
- EtherCAT

Control block connection via the CPX system



Controllers integrated in the Festo valve terminals enable the construction of stand-alone control units to IP65, without control cabinets.

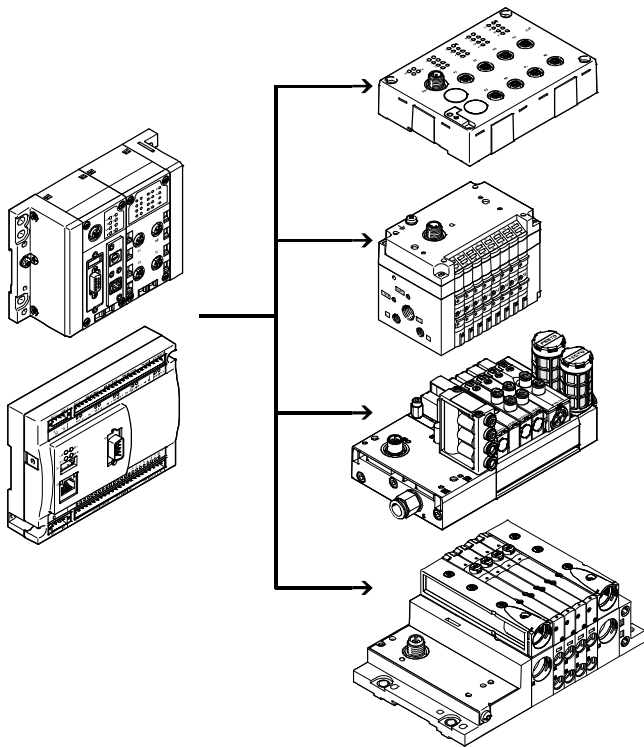
In the slave operating mode, these valve terminals can be used for intelligent pre-processing and are therefore ideal modules for designing decentralised intelligence.

In the master operating mode, terminal groups can be designed with many options and functions that can autonomously control a medium-sized machine/system.

Key features

Electrical connection options

I-Port interface/IO-Link, CTEL installation system



A CTEL system consists of the CTEL master and the devices with I-Port interface, which are connected together using special connecting cables. This permits a decentralised layout of the devices. This means that the valve terminals and I/O modules with I-Port interface (devices) can be mounted very close to the cylinders to be controlled. This reduces the length of the air supply lines used, which minimises flow losses and pressurisation and venting times.

The I-Port interface from Festo is based on IO-Link and is compatible with IO-Link in certain areas.

The connection type corresponds to a star topology. In other words, only one module or valve terminal can be connected to each I-Port.

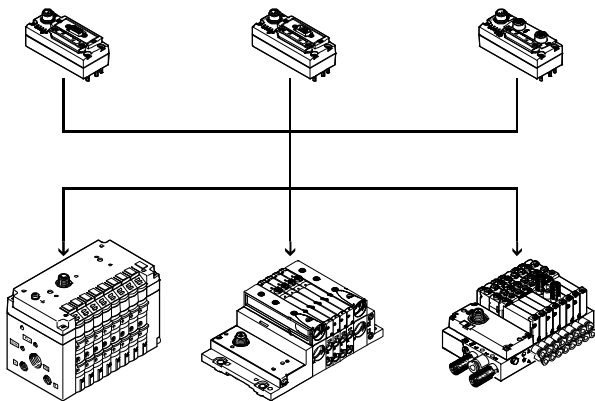
As well as communication, the I-Port interfaces also handle the power supply for the connected devices.

The maximum length of a string is 20 m.

The restrictions compared to IO-Link include:

- Permanently set baud rate of 230.4 kbps
- SIO mode is not supported
- Max. 32 bytes of input data and 32 bytes of output data
- Only one dump of the master commands is used
- Festo plug and work, configuration via IODD is not supported.

9 Fieldbus connection via the CTEU system



CTEU is a system for the compact connection of a valve terminal to different fieldbus standards such as PROFIBUS and DeviceNet.

The fieldbus node is mounted directly on the I-Port interface of the valve terminal.




This makes it easy to switch between the fieldbus protocols; however, there is no way of connecting I/O modules to the fieldbus nodes.

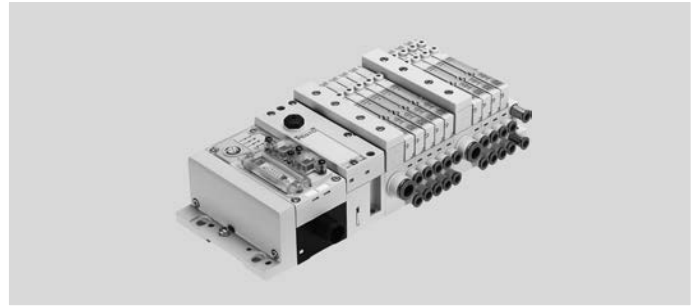
The following fieldbus protocols are supported:

- DeviceNet
- PROFIBUS DP
- CANopen
- CC-LINK
- EtherCAT

Technical data

Valve terminal with multi-pin plug or fieldbus connection

-  - Flow rate
Up to 870 l/min
-  - Operating voltage
24 V DC
-  - Valve width
10 mm
14 mm
20 mm



Download CAD data → www.festo.com

Technical data	
Max. number of valve positions	32
Max. number of pressure zones	9
Lubrication	Life-time lubrication, PWIS-free (free of paint-wetting impairment substances)
Type of mounting	Wall mounting On H-rail to EN 60715
Manual override	Non-detenting, detenting, blocked
Nominal voltage	[V DC] 24

Operating conditions	
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)
Operating pressure	[bar] -0.9 ... +10
Pilot pressure	[bar] 3 ... 8
Ambient temperature	[°C] -5 ... +50

Current consumption per solenoid coil at nominal voltage		Width		
		10 mm	14 mm	20 mm
Nominal pick-up current	[mA]	50	50	110
Nominal current with current reduction	[mA]	10	10	23
Time until current reduction	[ms]	20	20	20

Electrical data – MPA-L with electrical interface for CPX terminal	
Intrinsic current consumption of valve terminal (internal electronics, without valves)	
At 24 V $U_{EL/SEN}$ ¹⁾	[mA] Typically 13
At 24 V U_{val} ²⁾	[mA] Typically 35
Diagnostic message	
Undervoltage U_{OFF} ³⁾	[V] 17.7 ... 17.8

1) Power supply for electronics and sensors.

2) Load voltage supply for valves.

3) Load voltage outside of function range.

Electrical data – MPA-L with I-Port interface/IO-Link	
Intrinsic current consumption of valve terminal (internal electronics, without valves)	
From operating voltage supply connection	[mA] 30
From load voltage supply connection	[mA] 30

Valve terminals MPA-L

Technical data

Technical data – Valve width 10 mm			M	J	N	K	H	B	G	E	X	W	D	I
Code for position function 1-32														
Switching times	On	[ms]	10	10	10	10	10	10	10	10	10	10	10	8
	Off	[ms]	20	–	20	20	20	35	35	35	20	20	20	20
	Change-over	[ms]	–	15	–	–	–	15	–	15	–	–	–	–
Operating pressure	[bar]	–0.9 ... +10			3 ... 10			–0.9 ... +10					3 ... 10	
Standard nominal flow rate	[l/min]	360	360	300	230	300	300	320	240	255	255	230	260	
Design		Piston spool valve												
Materials		Die-cast aluminium												

Technical data – Valve width 10 mm			NS	KS	HS	DS	MU	NU	KU	HU	
Code for position function 1-32											
Switching times	On	[ms]	10	10	10	10	10	8	8	8	
	Off	[ms]	20	20	20	20	12	8	10	10	
	Change-over	[ms]	–	–	–	–	–	–	–	–	
Operating pressure	[bar]	–0.9 ... +8					–0.9 ... +10				
Standard nominal flow rate	[l/min]	300	230	300	230	190	190	160	190		
Design		Piston spool valve					Poppet valve with spring return				
Materials		Die-cast aluminium					Reinforced PPA				

Technical data – Valve width 14 mm			M	J	N	K	H	B	G	E	X	W	D	I	NS	KS	HS	DS
Code for position function 1-32																		
Switching times	On	[ms]	13	9	12	12	12	16	13	13	12	12	12	10	12	12	12	10
	Off	[ms]	30	–	38	38	38	50	52	50	20	20	30	28	23	23	23	25
	Change-over	[ms]	–	24	–	–	–	26	26	26	–	–	–	–	–	–	–	–
Operating pressure	[bar]	–0.9 ... +10			3 ... 10			–0.9 ... +10				3 ... 10		–0.9 ... +10				
Standard nominal flow rate	[l/min]	670	670	650	600	650	630	610	480	400	400	650	670	300	230	300	230	
Design		Piston spool valve																
Materials		Die-cast aluminium																

Technical data – Valve width 20 mm			M	J	N	K	H	B	G	E	X	W	D	I	NS	KS	HS	DS
Code for position function 1-32																		
Switching times	On	[ms]	15	9	8	8	8	11	10	11	13	13	7	7	12	12	12	12
	Off	[ms]	28	–	28	28	28	46	40	47	22	22	25	23	25	25	25	25
	Change-over	[ms]	–	22	–	–	–	23	21	23	–	–	–	–	–	–	–	–
Operating pressure	[bar]	–0.9 ... +10			3 ... 10			–0.9 ... +10					3 ... 10		–0.9 ... +8			
Standard nominal flow rate	[l/min]	870	860	610	550	550	550	750	700	480	480	840	850	620	500	550	820	
Design		Piston spool valve																
Materials		Die-cast aluminium																

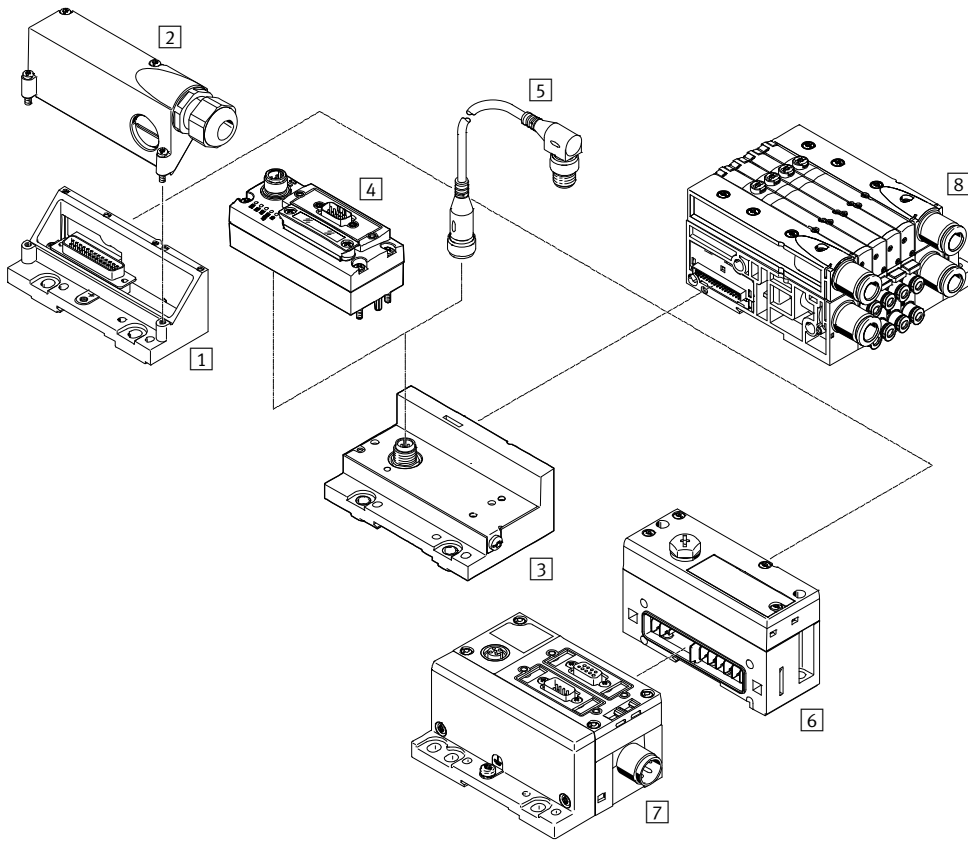
9

Technical data

Pneumatic connections		
Right-hand end plate		
Supply	1	Thread G1/4 (QS-G1/4, straight, for tubing O.D. 8 mm, 10 mm, 12 mm, 5/16", 3/8", 1/2")
Exhaust port	3 5	
Pilot air supply	12/14	Thread M7 (QSM-M7, straight or angled, for tubing O.D. 4 mm, 6 mm, 1/4")
Pilot exhaust port	82/84	
Supply module		
Supply	1	Cartridge fitting 20 mm (QSPKG20, straight, for tubing O.D. 8 mm, 10 mm, 12 mm, 5/16", 3/8", 1/2", adapter to thread G1/4), flat plate silencer
Exhaust port	3/5	
Sub-base width 10 mm		
Working ports	2 4	Cartridge fitting 10 mm (QSPKG10, straight or angled, for tubing O.D. 4 mm, 6 mm, 5/32", 1/4", adapter to thread M7)
Sub-base width 14 mm		
Working ports	2 4	Cartridge fitting 14 mm (QSPKG14, straight or angled, for tubing O.D. 6 mm, 8 mm, 1/4", 5/16", adapter to thread G1/8)
Sub-base width 20 mm		
Working ports	2 4	Cartridge fitting 18 mm (QSPKG18, straight or angled, for tubing O.D. 8 mm, 10 mm, 5/16", 3/8", adapter to thread G1/4)

Materials	
Sub-base	PA
Power supply module	PPA
End plate	Die-cast aluminium, PA, PBT
Seals	NBR
Exhaust plate	PA
Flat plate silencer	PE
Electrical interlinking module	PBT, PA, copper alloy

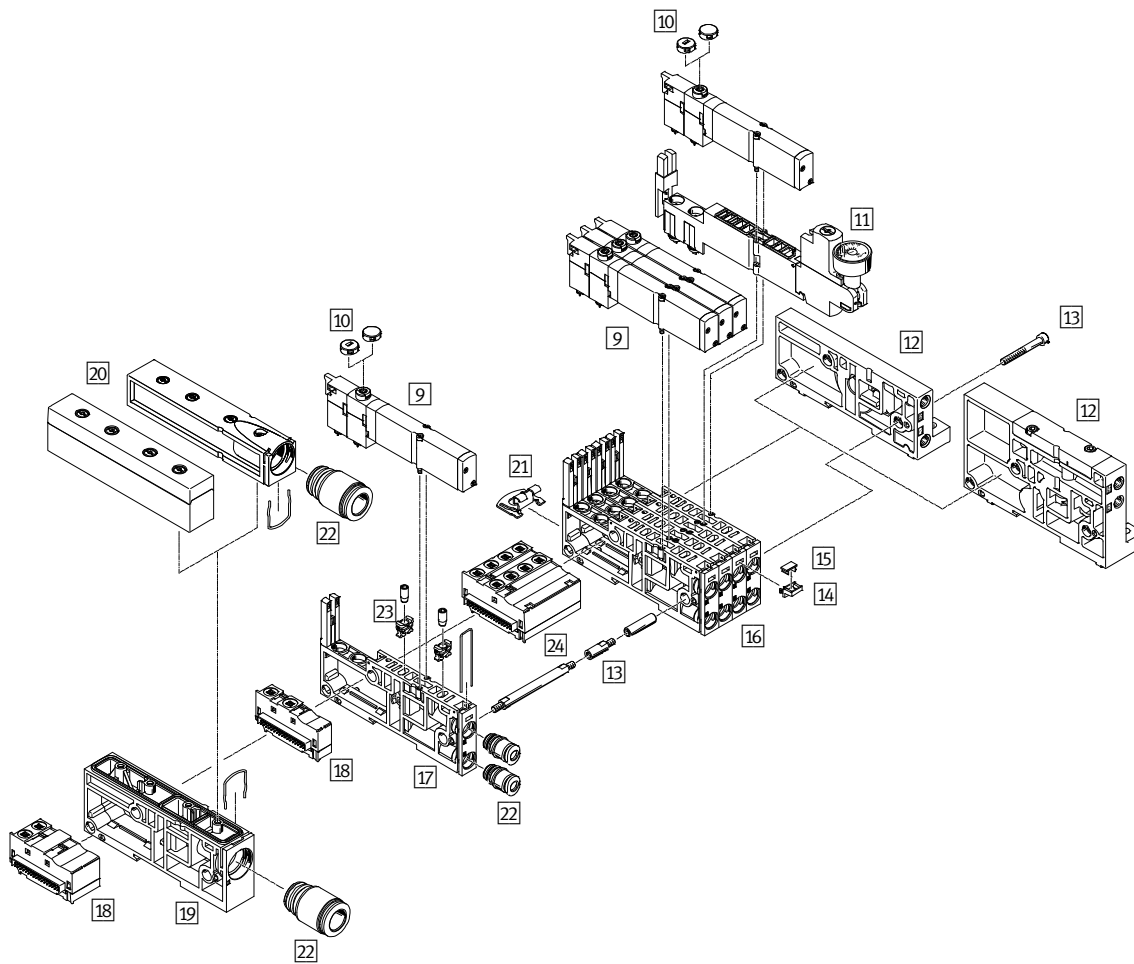
Accessories



9

Accessories	→ Page/online
1 End plate VMPAL-EPL with multi-pin plug connection	741
2 Connecting cable VMPAL-KM for multi-pin plug connection	741
3 End plate with I-Port interface/IO-Link VMPAL-EPL-IPO32	741
4 Fieldbus node CTEU	cteu
5 Connecting cable for I-Port interface/IO-Link NEBU-M12G5	746
6 End plate VMPAL-EPL-CPX with pneumatic interface for CPX terminal	741
7 Module CPX for CPX terminal	747
8 Valve terminal, pneumatic part	741

Accessories



Accessories	→ Page/online
9 Solenoid valve VMPA	741
10 Cover VMPA-HB for manual override	mpa-l
11 Vertical stacking modules VMPA1-B8/VMPA2-B8	mpa-l
12 Right-hand end plate VMPAL-EPR, with pilot air selector for choosing the pilot air supply (internal or external)	mpa-l
13 Tie rod VMPAL-ZA	mpa-l
14 Inscription label holder VMPAL-ST-AP	746
15 Inscription label IBS-6x10	746
16 Sub-base VMPAL-AP-4X, 4 pieces combined	mpa-l
17 Sub-base VMPAL-AP	mpa-l
18 Electrical interlinking module VMPAL-EVAP	mpa-l
19 Supply module VMPAL-SP	mpa-l
20 Exhaust plate VMPA2-B8	mpa-l
21 Mounting VMPAL-BD	746
22 Cartridge fitting QSPKG	746
23 Fixed restrictor VMPA1-FT	mpa-l
24 Electrical interlinking module VMPAL-EVAP-4 for four sub-bases	mpa-l

Accessories – Ordering data

	Code ¹⁾	Description		Part No.	Type
5 Connecting cable for I-Port interface/IO-Link					
	-	Connecting cable	5 m	★ 574321	NEBU-M12G5-E-5-Q8N-M12G5
			7.5 m	★ 574322	NEBU-M12G5-E-7.5-Q8N-M12G5
			10 m	★ 574323	NEBU-M12G5-E-10-Q8N-M12G5
14 Inscription label holder					
	TM	For sub-base	Width 10 mm	561109	VMPAL-ST-AP-10
			Width 14 mm	561112	VMPAL-ST-AP-14
			Width 20 mm	561115	VMPAL-ST-AP-20
15 Inscription label					
	-	6 mm x 10 mm, 64 pieces in frame		18576	IBS-6x10
21 Mounting					
	-	Mounting bracket (should be installed max. every 13 cm)		560949	VMPAL-BD
	H	H-rail mounting for MPA-L with multi-pin plug connection		526032	CPX-CPA-BG-NRH
	H	H-rail mounting for MPA-L with fieldbus connection		560798	VMPAF-FB-BG-NRH
22 Cartridge fitting Technical data online: → qsp					
	-	10 mm cartridge fitting, plastic, for working ports, 10 pieces, connection for tubing O.D.	4 mm	132622	QSPKG10-4
			6 mm	132623	QSPKG10-6
			3/16"	132625	QSPKG10-3/16-U
			1/4"	132626	QSPKG10-1/4-U
	-	14 mm cartridge fitting, plastic, for supply ports, 10 pieces, connection for tubing O.D.	6 mm	132930	QSPKG14-6
			8 mm	132931	QSPKG14-8
			1/4"	132932	QSPKG14-1/4-U
			5/16"	132933	QSPKG14-5/16-U
	-	18 mm cartridge fitting, plastic, for supply ports, 10 pieces, connection for tubing O.D.	8 mm	132649	QSPKG18-8
			10 mm	132650	QSPKG18-10
			5/16"	132651	QSPKG18-5/16-U
			3/8"	132652	QSPKG18-3/8-U
	-	20 mm cartridge fitting, plastic, for supply ports, 10 pieces, connection for tubing O.D.	10 mm	132634	QSPKG20-10
12 mm			132635	QSPKG20-12	
3/8"			132637	QSPKG20-3/8-U	
1/2"			132638	QSPKG20-1/2-U	
	AGG	Adapter for 10 mm cartridge fitting connection to thread M7, 10 pieces		572380	VMPAL-F10-M7
	BGG	Adapter for 14 mm cartridge fitting connection to thread G1/8, 10 pieces		574084	VMPAL-F14-G1/8
	CGG	Adapter for 18 mm cartridge fitting connection to thread G1/4, 10 pieces		573914	VMPAL-F20-G1/4
	-	Adapter for 20 mm cartridge fitting connection to thread G1/4, 10 pieces		572381	VMPAL-FSP-G1/4

1) Code letter within the order code for a valve terminal configuration.



- Open to all leading fieldbus protocols/Industrial Ethernet with integrated IT services such as SMS/e-mail alert, web monitor
- Unique modular structure
- Comprehensive integrated diagnostic and maintenance functions
- CPX as a dedicated remote I/O
- CPX controls valve terminal MPA-L, VTSA
- Can be programmed with integrated controller

→ www.festo.com/catalogue/cpx

Product range overview

Type	Designation	Code ¹⁾	Address space		Version		→ Page/ online
			Inputs	Outputs	Plastic	Metal	
CPX-FEC-1-IE	Front End Controller Remote	T03	512 bit	512 bit	■	–	758
CPX-FEC-1-IE	Front End Controller Remote I/O	T05	512 bit	512 bit	■	–	cpx
CPX-CEC	CoDeSys Embedded Controller	T06, T07, T08	512 bit	512 bit	■	–	759
CPX-FB6	Bus node for INTERBUS	F06	96 bit	96 bit	■	–	760
CPX-FB11	Bus node for DeviceNet	F11	512 bit	512 bit	■	–	760
CPX-FB13	Bus node for PROFIBUS DP	F13	512 bit	512 bit	■	–	761
CPX-FB14	Bus node for CANopen	F14	256 bit	256 bit	■	–	761
CPX-FB20	Bus node for INTERBUS, fibre-optic connection	F20	96 bit	96 bit	–	■	cpx
CPX-FB21	Bus node for INTERBUS, fibre-optic connection	F21	96 bit	96 bit	–	■	cpx
CPX-FB23-24	Bus node for CC-Link	F23	256 bit	256 bit	■	–	762
		F24	512 bit	512 bit	■	–	762
CPX-FB32	Bus node for EtherNet/IP	F32	128 bit	128 bit	■	–	762
CPX-FB33	Bus node for PROFINET RT, 2 x M12	F33	512 bit	512 bit	–	■	763
CPX-M-FB34	Bus node for PROFINET RT, 2 x RJ45	F34	512 bit	512 bit	–	■	763
CPX-M-FB35	Bus node for PROFINET RT, 2 x SCRJ push-pull, AIDA	F35	512 bit	512 bit	–	■	764
CPX-FB3	Bus node for EtherNet/IP, 2 x M12	F36	512 bit	512 bit	■	–	cpx
CPX-FB38	Bus node for EtherCAT	F38	512 bit	512 bit	■	–	764

1) Code letter within the order code for a valve terminal configuration.

Note

The electrical terminal can be ordered quickly and easily online.
The convenient product configurator can be found at:

→ www.festo.com/catalogue/cpx

Note

The bus node and control block provide the aforementioned address space.

Product range overview

Type	Designation	Code ¹⁾	Address space		Version		→ Page/ online
			Inputs	Outputs	Plastic	Metal	
CPX-CP-4-FB	CP interface	T11 ... T18	16 ... 128 bit	16 ... 128 bit	■	–	765
CPX-CTEL-4-M12-5POL	CPX CTEL master	T40 ... T44	0 ... 256 bit	0 ... 256 bit	■	–	765
CPX-CTEL-2-M12-5POL-LK	CPX CTEL master, IO-Link	T45 ... T47	0 ... 192 bit	0 ... 192 bit	■	–	cmpx
CPX-CMPX	End-position controller CMPX	T20	48 bit	48 bit	■	–	cmpx
CPX-CMAX	Axis controller CMAX	T21	64 bit	64 bit	■	–	cmax
CPX-CMIX	Measuring module CMIX	T23	48 bit	48 bit	■	–	cpx
CPX-CMXX	Multi-axis controller CMXX	T30	128 bit	128 bit	■	–	cmxx
CPX-CM-HPP	FHPP gateway	T31	256 bit	256 bit	■	–	766
CPX-4DE	Input module, 4 digital inputs	F	4/8 bit ²⁾	–	■	–	cpx
CPX-8DE	Input module, 8 digital inputs	E	8 bit	–	■	–	766
CPX-8DE-D	Input module, 8 digital inputs (channel diagnostics)	D	8 bit	–	■	–	cpx
CPX-8NDE	Input module, 8 digital inputs (NPN)	O	8 bit	–	■	–	766
CPX-16DE	Input module, 16 digital inputs	M	16 bit	–	■	–	767
CPX-M-16DE-D	Input module, 16 digital inputs (channel diagnostics)	NM	16 bit	–	■	–	767
CPX-L-16DE-16-KL-3POL	Input module, 16 digital inputs (spring-loaded terminal)	NB	16 bit	–	■	–	cpx
CPX-4DA	Output module, 4 digital outputs	A	–	4/8 bit ²⁾	■	–	767
CPX-8DA	Output module, 8 digital outputs	L	–	8 bit	■	–	cpx
CPX-8DA-H	Output module, 8 digital outputs (high current)	NL	–	8 bit	■	–	768
CPX-8DE-8DA	Input/output module, 16-way, 8 digital I/O each	Y	8 bit	8 bit	■	–	769
CPX-L-8DE-8DA-16-KL-3POL	Input module, 8 digital inputs/outputs (spring-loaded terminal)	NC	8 bit	8 bit	■	–	cpx
CPX-2ZE2DA	Counter module, 2 digital inputs, 2 digital outputs	T25	96 bit	96 bit	■	–	cpx
CPX-2AE-U-I	Input module, 2 analogue inputs	U	32 bit	–	■	–	770
CPX-4AE-U-I	Input module, 4 analogue inputs	NI	64 bit	–	■	–	cpx
CPX-4AE-I	Input module, 4 analogue inputs (current)	I	64 bit	–	■	–	771
CPX-4AE-T	Input module, 4 analogue inputs (temperature)	T	64 bit	–	■	–	772
CPX-4AE-TC	Input module, 4 analogue inputs (temperature, thermoelements)	NT	64 bit	–	■	–	773
CPX-4AE-P	Input module, 4 analogue inputs (pressure)	NY, NV	64 bit	–	■	–	774
CPX-2AA-U-I	Output module, 2 analogue outputs	P	–	32 bit	■	–	775
CPX-FVDA-P2	PROFIsafe shut-off module	NG	48 bit	48 bit	–	■	776
CPX-GP-03-4,0	Pneumatic interface to Midi/Maxi	–A	–	8 ... 32 bit	■	–	cpx
CPX-M-GP-03-4,0		–A	–	8 ... 32 bit	–	■	cpx
VMPA-FB-EPL	Pneumatic interface to MPA-S	–D	16 ... 512 bit	4 ... 512 bit	■	■	cpx
VMPAF-FB-EPL	Pneumatic interface to MPA-F	–F	16 ... 512 bit	4 ... 512 bit	■	■	cpx
VMPAL-EPL-CPX	Pneumatic interface to MPA-L	–L	–	4 ... 32 bit	■	–	779
VABA-S6-1-X	Pneumatic interface to VTSA and VTSA-F	–S	–	8 ... 32 bit	■	■	779
CPX-GP-CPA	Pneumatic interface to CPA	–B, –C	–	8 ... 24 bit	■	–	cpx

- 1) Code letter within the order code for a valve terminal configuration.
 2) Number of occupied bits is dependent on the upstream bus node/control block.

Note

The electrical terminal can be ordered quickly and easily online.
 The convenient product configurator can be found at:

→ www.festo.com/catalogue/cpx

Note

Input/output modules, etc. use the specified address space.

Key features

Installation concept

- Choice of several valve terminal types for different applications:
 - MIDI/MAXI
 - CPA
 - MPA-S
 - MPA-F
 - MPA-L
 - MPA/MPA-F
 - VTSA/VTSA-F
- Economical from the smallest configuration up to the maximum number of modules
- Up to 9 electrical input/output modules plus bus nodes and pneumatic interface/electronics modules for valves
- Extensive range of functions and connection options for the electrical modules
- Choice of connection technology for technically and economically optimised connections
- Can be used as a dedicated remote I/O module

Electrics

- High operating voltage tolerance ($\pm 25\%$)
- Choice of M18, 7/8" or AIDA push-pull connection for power supply
- Open to all fieldbus protocols and Ethernet
- Optional function and technology modules for pre-processing
- IT services and TCP/IP such as remote maintenance, remote diagnostics, web server, SMS and e-mail alert
- Digital inputs and outputs, 4-way/8-way/16-way, optionally available with individual channel diagnostics
- Analogue inputs and outputs, 2-way/4-way
- Supply ports
- Temperature inputs
- Controllers for pneumatic and electric axes
- IP65 and IP67 or IP20

Mounting

- Wall or H-rail mounting, also on mobile units
- Conversions/extensions are possible at any time, individual linking with CPX metal design
- Modular system offering a range of configuration options
- Fully assembled and tested unit
- Lower costs for selection, ordering, assembly and commissioning thanks to the central CPX terminal
- Choice of pneumatic components for optimised control chain system design
- Decentralised, subordinate CPI installation system improves cycle times by up to 30%
- Safe and convenient earthing thanks to earthing plate

Operation

- Fast troubleshooting thanks to an extensive selection of LEDs (some of which are multi-coloured) on the bus node and on all I/O modules
- Suitable for direct machine mounting (IP65/IP67) or in a control cabinet with a terminal connection (IP20)
- Supports module and channel-oriented diagnostics
- On-the-spot diagnostics in plain text via handheld device
- Fieldbus/Ethernet remote diagnostics
- Innovative diagnostic support with integrated web server/web monitor or maintenance tool with USB adapter for PC
- Optimised commissioning thanks to parameterisable functions
- Reliability of service with connection blocks and modules that are quick to replace without changing the wiring

Pneumatic variants of the CPX terminal

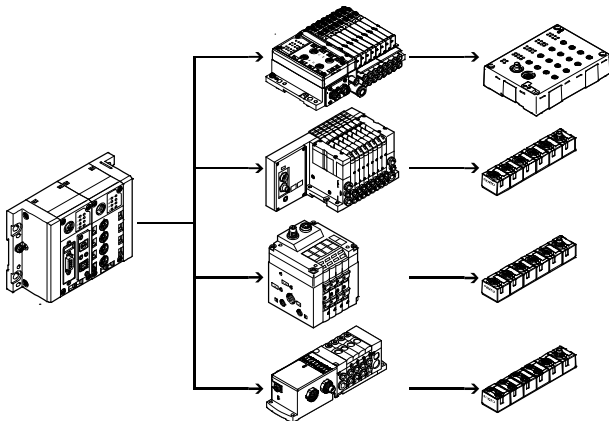
The electrical CPX terminal is a modular peripheral system for valve terminals. The system is specifically designed so

that the valve terminal can be adapted to suit different applications. The modular system design lets you con-

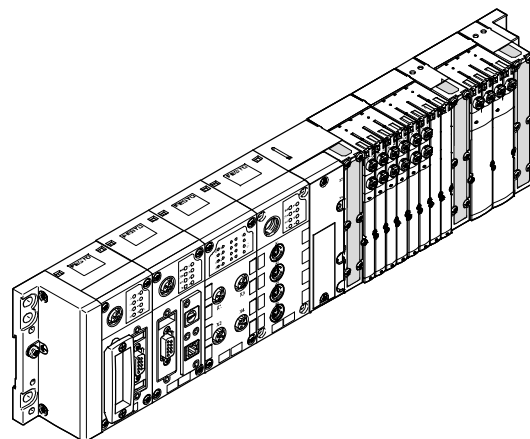
figure the number of valves, inputs and additional outputs to suit the applica-

tion.

With valve terminal – decentralised

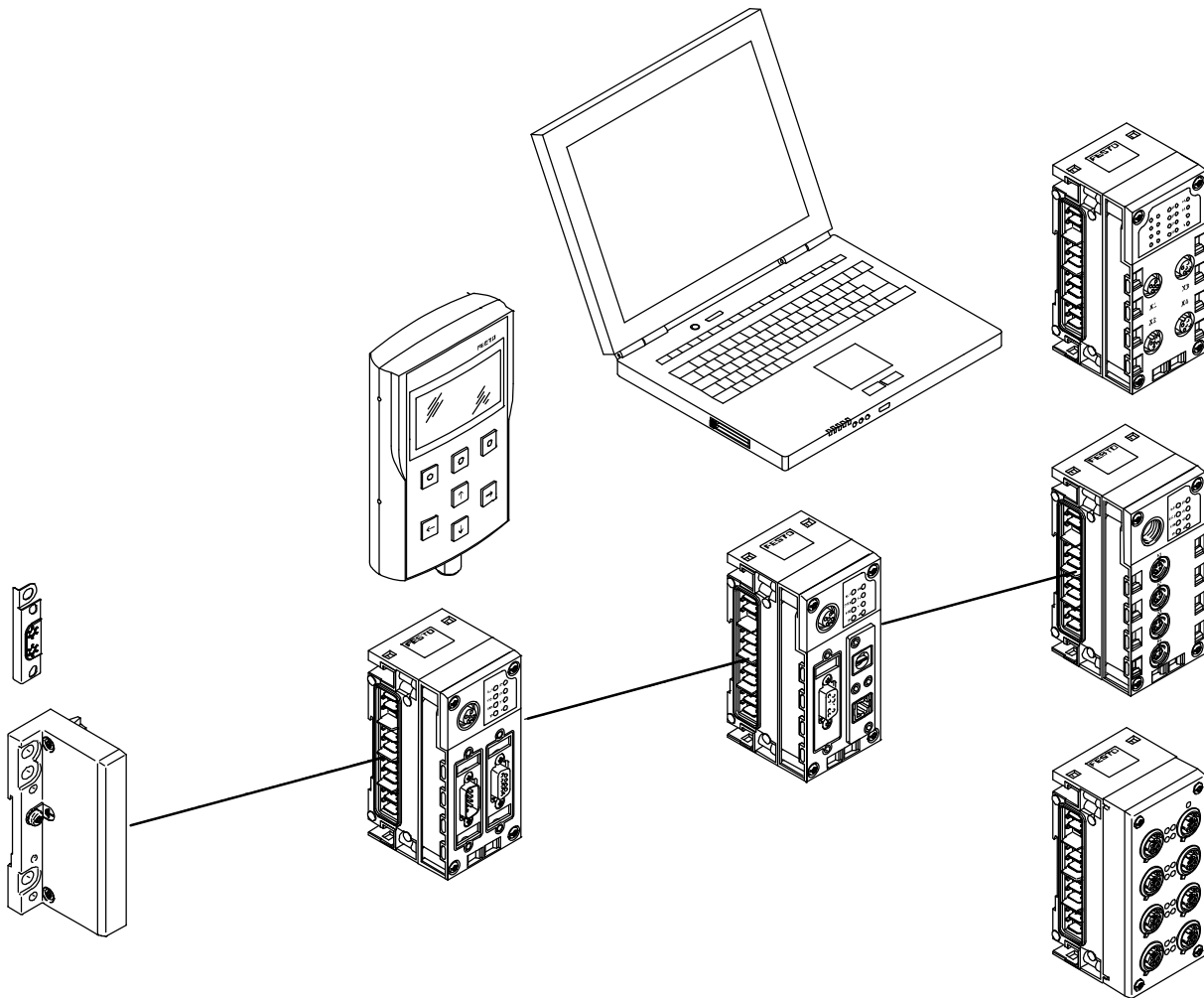


With valve terminal MPA-S – centralised



Variants

Complete overview of modules

**End plate**

- Mounting holes for wall mounting
- Functional earth connection
- Special earthing plate for safe and easy connection to the machine bed or H-rail

Bus node

- Fieldbus/Industrial Ethernet connection using various types of connection technology
- Setting of fieldbus parameters via DIL switch
- Display of fieldbus and peripheral equipment status via LED
- PROFINET to AIDA standard in metal housing, fast start-up

Operator unit

- Connection to bus nodes or control block
- Display and modification of parameter settings
- Plain-text display for texts, messages (e.g. individual channel diagnostics, condition monitoring), menus, etc.

Control block

- Pre-processing, stand-alone controller or remote unit CPX-FEC-1-IE/CPX-CEC
- Connection via EtherNet TCP/IP or Sub-D programming interface
- Setting of operating modes via DIL switch and program selection via rotary switch
- CPX-CMX products for controlling axes

Web monitor

- Website integrated in the CPX terminal
- Dynamic status display
- Online diagnostics
- SMS/e-mail alert

CP interface/CTEL interface

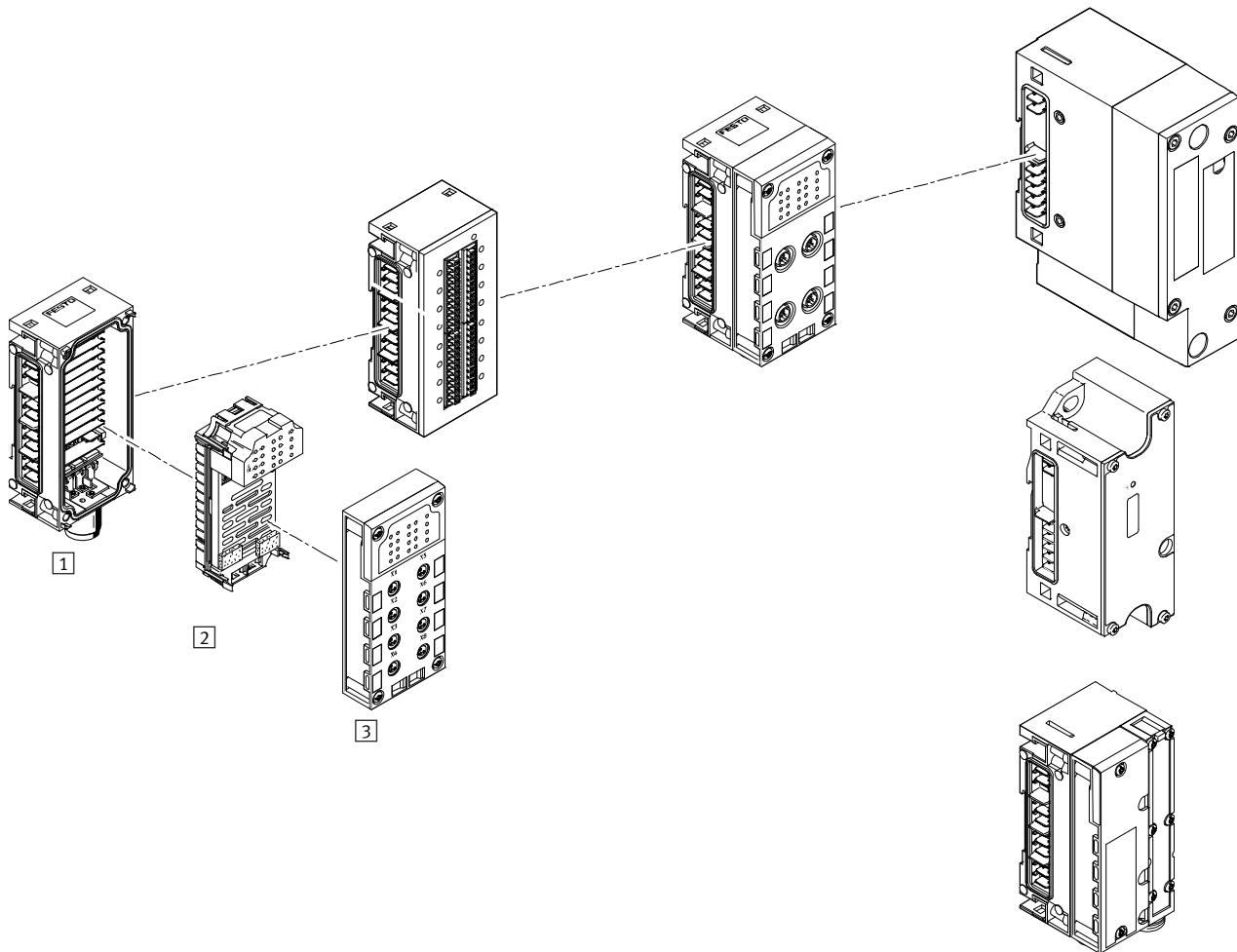
- Interfaces for decentralised installation systems, thus optimising the pneumatic control chains (short tubes/short cycle times)
- Actuation for I/O modules and valve terminals
- Power supply and bus interface via the same cable

Input/output modules

- Combination of
- Interlinking block
 - Electronics module
 - Connection block

Variants

Complete overview of modules



Input/output modules

1 Interlinking block

- Internal linking of the power supply and serial communication
- External power supply for the entire system
- Additional power supply for outputs or valves
- Connection accessories for M18, 7/8" or AIDA push-pull
- Plastic design: linking with tie rods
- Metal design: individual linking with M6 screws, individually expandable

2 Electronics module

- Digital inputs for connecting the sensors
- Digital outputs for activating additional actuators
- Analogue inputs
- Temperature inputs (analogue)
- Analogue outputs
- PROFI-safe shut-off module with two digital outputs for shutting off the supply voltage for valves

3 Connection block

- Choice of 8 connection technology variants
- Protection class IP65/IP67 or IP20
- Can be combined with the electronics modules
- M8/M12/Sub-D/quick connection accessories
- M8/M12/Sub-D, etc. connecting cables
- Modular system for M8/M12 connecting cables
- M12 connection technology for the metal design

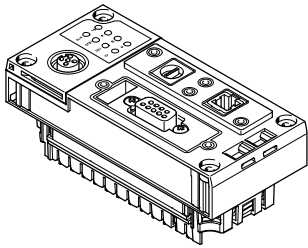
Pneumatic interface

- Actuation of the solenoid coils
- MPA-L
- VTSA/VTSA-F
- Actuation of pressure sensors
- Actuation of proportional pressure regulators

Variants

Individual overview of modules

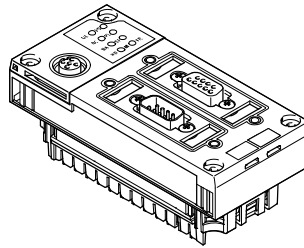
Control block



Technical data → 758 ff.

- CPX-FEC-1-IE
- Programming with FST
 - Ethernet interface
 - Modbus/TCP
 - EasyIP
 - Integrated web server
 - Sub-D programming interface

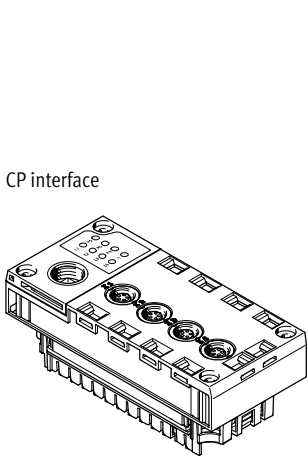
Bus node



Technical data → 762 ff.

- Bus node for
- INTERBUS
 - DeviceNet
 - PROFIBUS DP
 - CANopen
 - CC-LINK
 - EtherNet/IP (integrated web server)
 - PROFINET (integrated web server)
 - EtherCAT

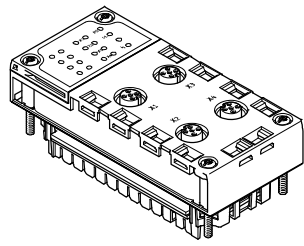
CP interface



Technical data → 765

- CP interface
- 4 CP strings
 - Max. 4 modules per string
 - 32 inputs/32 outputs per string
 - CPI functionality

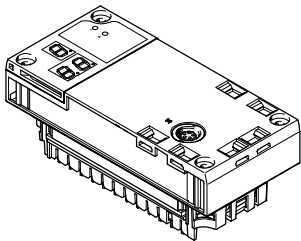
CTEL interface



Technical data → 765

- CPX-CTEL interface
- CTEL master
 - Max. 4 devices with individual electronic fuse protection
 - Max. 64 inputs/64 outputs per I-Port interface
 - The maximum length of a string is 20 m

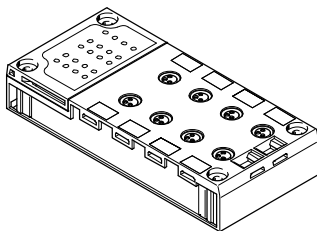
9 Modules for actuating electric drive units



Technical data → 766

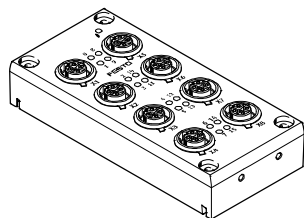
- CPX-CM-HPP
- Axis interface
 - CAN bus for up to 4 individual electric axes

Plastic connection block



- Direct machine mounting (protection class IP65/IP67)
- M8 3-pin or 4-pin
 - M12 5-pin, 5-pin with quick lock/metal thread screened, 8-pin, optional screening plate
 - Sub-D
 - Quick connection
 - Spring-loaded terminal with protection to IP20 or with cover

Metal connection block

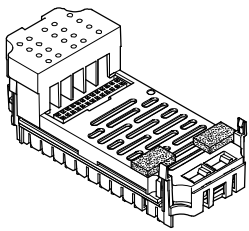


- Direct machine mounting (protection class IP65/IP67)
- M12 5-pin

Variants

Individual overview of modules

Digital electronics module



Technical data → 766 ff.

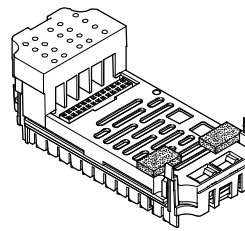
Digital inputs and outputs

- 8 digital inputs NPN
- 8 digital inputs PNP
- 16 digital inputs
- 16 digital inputs with channel diagnostics
- 4 digital outputs (1 A per channel, individual channel diagnostics)
- 8 digital outputs (2.1 A/50 W lamp load per channel pair, individual channel diagnostics)

Multi I/O modules

- 8 digital inputs and 8 digital outputs

Analogue electronics module



Technical data → 770 ff.

Analogue inputs

- 2 analogue inputs (0 ... 10 V DC, 0 ... 20 mA, 4 ... 20 mA)
- 4 analogue inputs (0 ... 20 mA, 4 ... 20 mA)

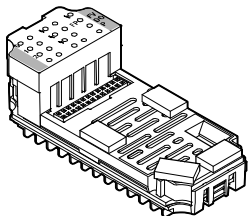
Analogue temperature inputs

- 4 analogue inputs for temperature measurement (Pt100, Pt200, Pt500, Pt1000, Ni100, Ni120, Ni500, Ni1000)
- 4 analogue inputs for temperature measurement (thermocoupler and PT1000 sensor for cold-junction compensation)

Analogue outputs

- 2 analogue outputs (0 ... 10 V DC, 0 ... 20 mA, 4 ... 20 mA)

PROFIsafe shut-off module

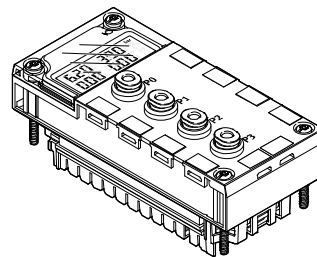


Technical data → 776

Digital outputs

- 2 digital outputs
- Supply voltage for valves can be shut off

Electronics module for supply ports

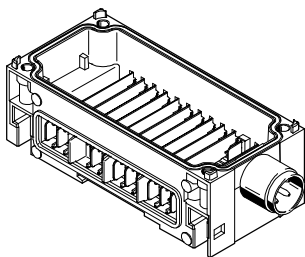


Technical data → 774

Analogue inputs

- 4 analogue supply ports (0 ... 10 bar, -1 ... +1 bar)

Plastic interlinking block – Interlinking by means of tie rods



System linking

- Different voltages for supplying the modules
- Serial communication between the modules

System supply

- M18 4-pin
- 7/8" 4-pin or 5-pin

In addition to system linking, power supply for the

- electronics plus sensors (16 A)
- valves plus actuators (16 A)

Additional power supply

In addition to system linking, power supply for the

- actuators (16 A per supply)

Power supply for the

- valves (16 A per supply)

Expandability

- Can be expanded using an interlinking block with tie-rod extension CPX-ZA-1-E

Technical data → 777 ff.

Note

The 7/8" supply is subject to the following restriction due to the available accessories:

- 5-pin 8 A
- 4-pin 10 A

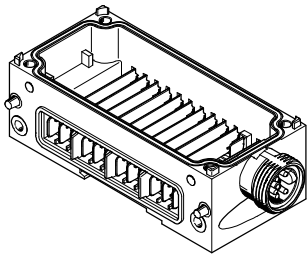
Note

Plastic interlinking blocks (tie rods) and metal interlinking blocks (individual linking) cannot be combined due to their different interlinking systems.

Variants

Individual overview of modules

Metal interlinking block – Individual linking



System linking

- Different voltages for supplying the modules
- Serial communication between the modules

System supply

- 7/8" 5-pin
- AIDA push-pull

In addition to system linking, power supply for the

- electronics plus sensors (16 A)
- valves plus actuators (16 A)

Additional power supply

In addition to system linking, power supply for the

- actuators (16 A per supply)

Power supply for the

- valves (16 A per supply)

Expandability

- Can be expanded as required by up to 10 interlinking blocks

Technical data → 777 ff.

Note

The 7/8" supply is subject to the following restriction due to the available accessories:

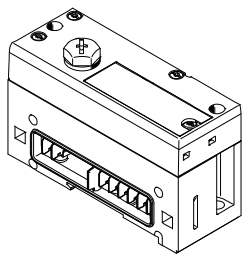
- 5-pin 8 A
- 4-pin 10 A

Note

Plastic interlinking blocks (tie rods) and metal interlinking blocks (individual linking) cannot be combined due to their different interlinking systems.

Pneumatic interface MPA-L

Technical data → 779

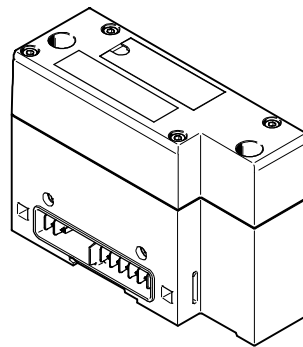


Valve terminal

- MPAL1 (360 l/min)
- MPAL14 (670 l/min)
- MPAL2 (870 l/min)
- Up to 32 solenoid coils
- For CPX plastic design

Pneumatic interface VTSA/VTSA-F

Technical data → 779

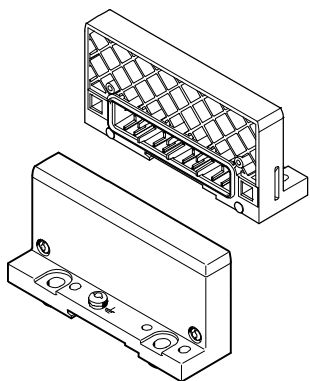


Valve terminal (valve flow rate by widths)

- 18 mm (700 l/min)
- 26 mm (1350 l/min)
- 42 mm (1300 l/min)
- 52 mm (2900 l/min)
- 65 mm (4000 l/min)
- Max. 32 valve positions/max. 32 solenoid coils
- For CPX plastic design
- For CPX metal design

9

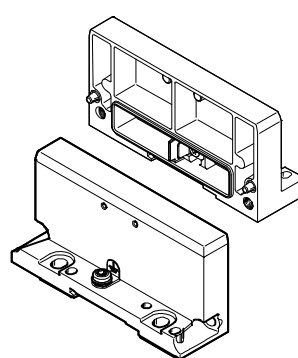
Plastic end plate



End plate

- Left-hand
- Right-hand (for use without valves)

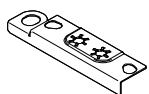
Metal end plate



End plate

- Left-hand
- Right-hand (for use without valves)

Earthing plate (for plastic end plate)



Earthing plate

- For safe and easy connection to the machine bed or H-rail, suitable for right-hand and left-hand end plate
- Assembly and earthing in a single processing step, which means:
 - 50% time saving
 - No additional material required

Technical data

General basic data and guidelines

- Max. 11 modules in total:
- One bus node and/or one control block, freely positionable
- Up to 9 additional input/output modules, freely positionable
- An additional pneumatic interface, always positioned as the last module on the right-hand side
- With VTSA, VTSA-F and MPA-L: fixed operating range, set using switch at the pneumatic interface
- Address capacity max. 512 inputs and 512 outputs, depending on the bus node or control block
- The maximum system configuration can be limited in individual cases by exceeding the address space
- One interlinking block with system supply, freely positionable
- Multiple interlinking blocks with additional power supply, always positioned to the right of the interlinking block with system supply
- The connection blocks can, with just a few exceptions, be freely combined with the electronics modules for inputs/outputs, either in metal or plastic (→ table below)
- All electronics modules for inputs/outputs can be combined with any interlinking block
- Plastic interlinking blocks (tie rods) and metal interlinking blocks (individual linking) cannot be combined due to their different interlinking systems


Combinations of connection blocks and digital electronics modules for inputs/outputs

Connection blocks	Digital electronics modules							
	CPX-8DE	CPX-8NDE	CPX-16DE	CPX-M-16DE-D	CPX-4DA	CPX-8DA-H	CPX-8DE-8DA	CPX-FVDA-P2
Plastic design with mounting screws for assembly on plastic interlinking blocks								
CPX-AB-8-M8-3POL	■	■	–	–	■	–	–	–
CPX-AB-8-M8X2-4POL	–	–	■	–	■	■	–	–
CPX-AB-4-M12x2-5POL	■	■	–	–	■	–	–	–
CPX-AB-4-M12x2-5POL-R	■	■	–	–	■	–	–	–
CPX-AB-8-KL-4POL	■	■	■	–	■	■	■	■
CPX-AB-1-SUB-BU-25POL	■	■	■	–	■	■	■	–
CPX-AB-4-HAR-4POL	■	■	–	–	■	–	–	–
Plastic design with mounting screws for assembly on metal plates								
CPX-AB-8-M8x2-4P-M3	–	–	■	–	■	■	–	–
CPX-AB-4-M12-8P-M3	–	–	–	–	–	–	■	–
CPX-AB-4-M12x2-5P-R-M3	■	■	–	–	■	■	–	–
Metal design with mounting screws for assembly on metal and plastic interlinking blocks								
CPX-M-AB-4-M12x2-5POL	■	■	–	–	■	■	–	■
CPX-M-AB-8-M12x2-5POL	–	–	–	■	–	–	–	–

Combinations of connection blocks and analogue electronics modules for inputs/outputs

Connection blocks	Analogue electronics modules					
	CPX-2AE-U-I	CPX-4AE-I	CPX-4AE-P	CPX-4AE-T	CPX-4AE-TC	CPX-2AA-U-I
Plastic design with mounting screws for assembly on plastic interlinking blocks						
CPX-AB-4-M12x2-5POL	■	■	–	■	■	■
CPX-AB-4-M12x2-5POL-R	■	■	–	■	■	■
CPX-AB-8-KL-4POL	■	■	–	■	■	■
CPX-AB-1-SUB-BU-25POL	■	■	–	–	–	■
CPX-AB-4-HAR-4POL	–	–	–	■	–	–
Plastic design with mounting screws for assembly on metal plates						
CPX-AB-4-M12x2-5P-R-M3	■	■	–	■	■	■
Metal design with mounting screws for assembly on metal and plastic interlinking blocks						
CPX-M-AB-4-M12x2-5POL	■	■	–	■	■	■

Technical data – Electrical terminal CPX

-  - Module width
50 mm



General technical data

Max. number of modules ¹⁾	Control block		1
	Bus node		1
	I/O modules/CP interface/axis interface		9
	Pneumatic interface		1
Max. address capacity	Inputs	[byte]	64
	Outputs	[byte]	64
Configuration support			Fieldbus-specific
LED displays	Bus node/control block		Up to 4 LEDs, bus-specific 4 LEDs, CPX-specific PS = Power system PL = Power load SF = System fault M = Modify parameter/forcing active
		I/O modules	Min. one centralised diagnostic LED Channel-oriented status and diagnostic LED, depending on module
	Pneumatic interface		One centralised diagnostic LED Valve status LED on valve
Diagnostics			Channel and module-oriented diagnostics for inputs/outputs and valves Detection of module undervoltage for the different potential values Storage of the last 40 errors with timestamp (acyclic access)
	Parameterisation, module-specific and entire system, for example:		Diagnostic behaviour
			Condition monitoring
		Profile of inputs	
		Fail-safe response of outputs and valves	
Commissioning support			Forcing of inputs and outputs
Degree of protection to EN 60529			IP65/IP67
Tests	Vibration test to DIN IEC 68		With wall mounting: severity level 2
			With H-rail mounting: severity level 1
	Shock test to DIN IEC 68		With wall mounting: severity level 2
			With H-rail mounting: severity level 1
Resistance to interference			EN 61000-6-2 Industry
Emitted interference			EN 61000-6-4 Industry
Grid dimension		[mm]	50

1) A maximum of 11 modules in total can be combined
(e.g. 1 control block + 9 I/O modules + 1 pneumatic interface, or 1 control block + 1 bus node + 8 I/O modules + 1 pneumatic interface)

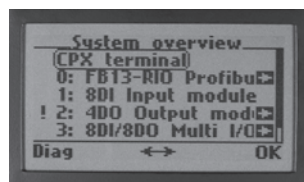
Technical data – Electrical terminal CPX

Electrical data		Download CAD data → www.festo.com
Power supply	Interlinking block with system supply	
	Electronics plus sensors [V DC]	24, max. 16 A (8 A/10 A with 7/8" supply 5-pin/4-pin)
	Actuators plus valves [V DC]	24, max. 16 A (8 A/10 A with 7/8" supply 5-pin/4-pin)
	Additional power supply	
Actuators	[V DC]	24, max. 16 A per supply (8 A/10 A with 7/8" supply, 5-pin/4-pin)
	Additional power supply	
Valves	[V DC]	24, max. 16 A per supply (10 A with 7/8" supply, 4-pin)
	Current consumption	Depending on system configuration
Power failure bridging (bus electronics only)	[ms]	10
Power supply connection		M18, 4-pin
		7/8", 5-pin
		7/8", 4-pin
		AIDA push-pull, 5-pin
Fuse concept		Per module with electronic fuses
Isolation test for galvanically isolated circuits to IEC 1131 Part 2	[V DC]	500
Galvanic isolation of electrical voltages	[V DC]	80
Protection against direct and indirect contact		PELV

Operating conditions			
Temperature range, electronics	Operation	[°C]	-5 ... +50
	Storage/transport	[°C]	-20 ... +70
Temperature range, electronics plus pneumatic components	Operation	[°C]	-5 ... +50
	Storage/transport	[°C]	-20 ... +40

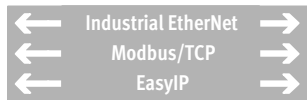
Materials	
Housing	Die-cast aluminium, PA reinforced, PC

Technical data – Operator unit CPX-MMI-1

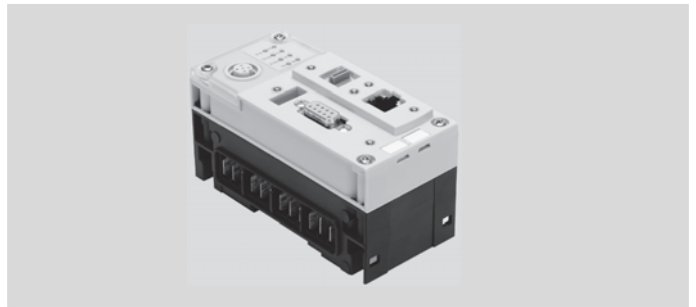


Technical data		Download CAD data → www.festo.com
Display component		LCD graphic display with background illumination (128 x 64 pixels)
Control elements		7 keys: 4 arrow keys and 3 function keys
Interface		Plug M12, 5 pin
Operating voltage	[V DC]	24, supplied by the connected device
Current consumption	[mA]	50 ... 60
Length/width/height	[mm]	137/81/28

Technical data – Control block CPX-FEC-1-IE



IT services:



Technical data

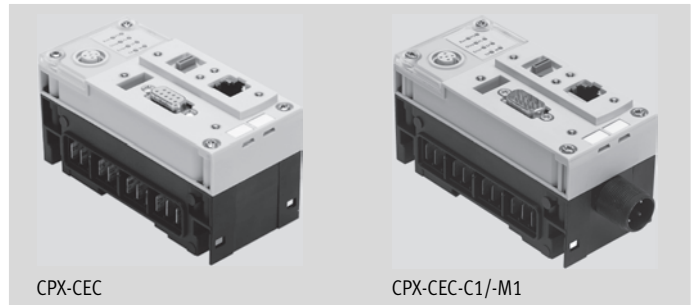
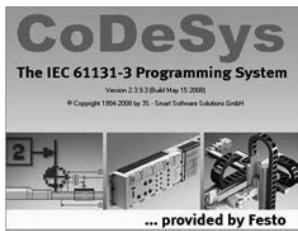
Download CAD data → www.festo.com

Ethernet interface			RJ45 (8-pin, socket)
Data interface			RS232 (Sub-D, 9-pin, socket)
MMI interface			M12, 5-pin, socket
Baud rates	Ethernet interface	[Mbps]	10/100 (to IEEE802.3, 10BaseT)
	Data interface	[kbps]	9.6 ... 115.2
	MMI interface	[kbps]	56.6
Protocol			TCP/IP, Easy IP, Modbus TCP, HTTP
Flags			M0.0 ... M9999, addressable as bits or words
	Number of time flags		T0 ... T255
	Time range	[s]	0.01 ... 655.35
	Number of counting flags		Z0 ... Z255
	Counting range		0 ... 65,535
Register			R0 ... R255, addressable as words
IP address setting			BOOTP/DHCP via FST or via MMI/FMT
Max. address capacity	Inputs/outputs	[byte]	64/64
	Program memory	[kB]	250
Program memory	User program	[kB]	250
	Web applications	[kB]	550
Programming language			IL, LD
Parameterisation			Start-up parameterisation via FST
			Parameterisation during the operating time via functional module
Control elements			DIL switch for setting the operating mode
			Rotary switch for program selection/program start
Additional functions			Storage of the last 40 errors with timestamp (access via PCP)
			8-bit system status in image table for inputs
			2-byte inputs and 2-byte outputs, system diagnostics in image table
Current consumption	[mA]		Max. 200
Length/width/height (incl. interlinking block)	[mm]		107/50/55

Overview of the operating modes

	Stand-alone	Remote controller	
		Ethernet	Fieldbus
CPX-FEC-1-IE function	Control	Control and communication	
CPX module controlled by	CPX-FEC-1-IE	CPX-FEC-1-IE	
Pre-processing of data in the FEC	Yes	Yes	
Communication with higher-order controller	No	Via Ethernet • EasyIP • Modbus TCP	Via fieldbus
Web server	Possible	Possible	
Configuration	FST 4.1 or higher	FST 4.1 or higher	
Parameterisation	Via FST/CPX-MMI/CPX-FMT	Via FST/CPX-MMI/CPX-FMT	
Order code	T03	T03	
Addressing	Changeable	Changeable	
Memory	<ul style="list-style-type: none"> • 250 kB for user program • 550 kB for web applications 	<ul style="list-style-type: none"> • 250 kB for user program • 550 kB for web applications 	
CPX-MMI/-FMT	Can be connected to CPX-FEC-1-IE	Can be connected to CPX-FEC-1-IE	

Technical data – Control block CPX-CEC

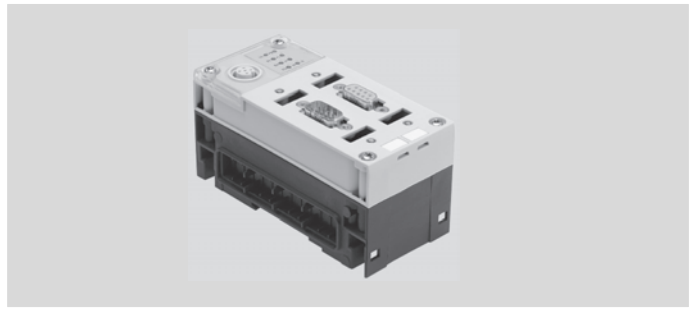


CPX-CEC

CPX-CEC-C1/-M1

Technical data		Download CAD data → www.festo.com	
Type		CPX-CEC-C1	CPX-CEC-M1
Ethernet interface		RJ45 (socket, 8-pin)	
Transmission speed	[Mbps]	10/100	
Supported protocols		TCP/IP, Easy IP, Modbus TCP (server)	
Fieldbus interface		CAN bus (plug, Sub-D, 9-pin)	
Transmission rate	[kbps]	125, 250, 500, 800, 1000	125, 250, 500, 1000
		Can be set using software	Can be set using software
Data interface		–	
Flags		30 kB remanent memory	
		8 MB global data memory	
		CoDeSys variable concept	
IP address setting		DHCP via CoDeSys or via MMI	
Program memory		4 MB user program	
Programming software		CoDeSys provided by Festo	
Programming language		SFC, IL, FCH, LD and ST to IEC 61131-3	
		Also CFC	
Parameterisation		CoDeSys	
Configuration support		CoDeSys	
Control elements		DIL switch for CAN termination	
		Rotary switch for RUN/STOP	
Function blocks		CPX diagnostic status, Copy CPX diagnostic trace, Read CPX module diagnostics	
		And others	
Additional functions		Diagnostic functions	
		Motion functions for electric drives	SoftMotion functions for electric drives
Total number of axes		31	31 (recommended: max. 8)
Intrinsic current consumption at nominal operating voltage	[mA]	Typically 85	
Length/width/height (incl. interlinking block)	[mm]	50/107/55	

Technical data – Bus node CPX-FB6



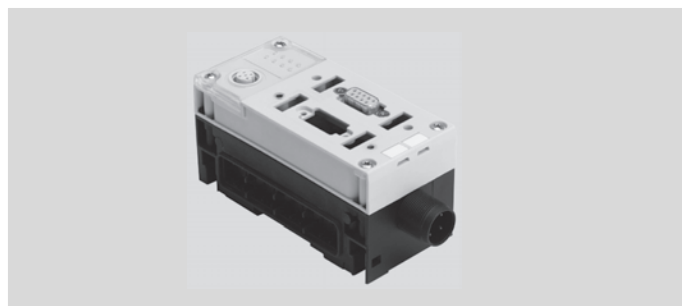
Technical data		Download CAD data → www.festo.com
Fieldbus interface		Sub-D, 9-pin, socket and pin
Baud rates	[Mbps]	0.5 and 2
Max. number of process data bits	Inputs/outputs [bit]	96/96
Parameterisation		Start-up parameterisation via user functions (CMD) Via PCP communication
Additional functions		Storage of the last 40 errors with timestamp (access via PCP) 8-bit system status in image table for inputs 2-byte inputs and 2-byte outputs, system diagnostics in image table
Current consumption	[mA]	Max. 200
Length/width/height (incl. interlinking block)	[mm]	107/50/55

Technical data – Bus node CPX-FB11



Technical data		Download CAD data → www.festo.com
Fieldbus interface	Either	Micro style bus connection: 2x M12 with protection to IP65/IP67 Open style bus connection: 5-pin terminal strip, IP20
Baud rates	[kbps]	125, 250, 500
Addressing range		0 ... 63, set using DIL switch
Communication types		Polled I/O, change of state/cyclic, strobed I/O and explicit messaging
Max. address capacity	Inputs/outputs [byte]	64/64
Parameterisation		Module and system parameterisation via configuration interface in plain text (EDS) Online in run or program mode
Additional functions		Storage of the last 40 errors with timestamp (access via EDS) 8-bit system status in image table for inputs 2-byte inputs and 2-byte outputs, system diagnostics in image table
Current consumption	[mA]	Max. 200
Length/width/height (incl. interlinking block)	[mm]	107/50/50

Technical data – Bus node CPX-FB13



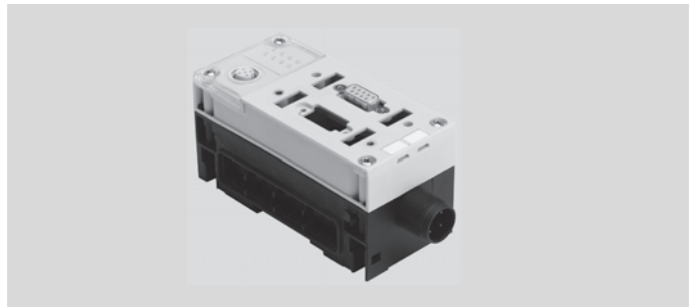
Technical data				Download CAD data → www.festo.com
Fieldbus interface				Sub-D socket, 9-pin (EN 50170), galvanically isolated 5 V
Baud rates	[Mbps]			0.0096 ... 12
Addressing range				1 ... 125, set using DIL switch
Communication types	DPV0			Cyclic communication
	DPV1			Acyclic communication
Max. address capacity	Inputs/outputs	[byte]	64/64	
Parameterisation				Start-up via configuration interface in plain text (GSD)
				Acyclic parameterisation via DPV1
Additional functions				Storage of the last 40 errors with timestamp (access via DPV1)
				8-bit system status in image table for inputs
				2-byte inputs and 2-byte outputs, system diagnostics in image table
Current consumption	[mA]			Max. 200
Length/width/height (incl. interlinking block)	[mm]			107/50/50

Technical data – Bus node CPX-FB14



Technical data				Download CAD data → www.festo.com
Fieldbus interface				Sub-D pin, 9-pin (to DS 102), galvanically isolated via optocoupler, 24 V supply for CAN interface via bus
Baud rates	[kbps]			125, 250, 500 and 1000 can be set via DIL switch
Communication profile				DS 301, V4.01
Max. address capacity	Inputs/outputs	[byte]	16 digital, 16 analogue channels/16 digital, 16 analogue channels	
Parameterisation				Via SDO
Additional functions				Storage of the last 40 errors with timestamp (access via SDO)
				8-bit system status via transmit PDO 4 (default)
				2-byte inputs and 2-byte outputs, system diagnostics via PDO 4
				Minimum boot-up
				Variable PDO mapping
				Emergency message
				Node guarding
Current consumption	[mA]			Max. 200
Length/width/height (incl. interlinking block)	[mm]			107/50/50

Technical data – Bus node CPX-FB23-24



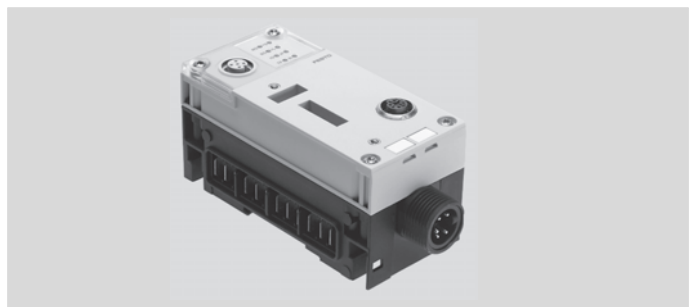
Technical data					Download CAD data → www.festo.com
Fieldbus interface, either		Sub-D socket, 9-pin			
		Screw terminal bus connection, IP20			
Baud rates		[kbps]	156 ... 10,000		
Number of stations per slave		1, 2, 3 or 4 stations, set using DIL switch			
Communication types		Cyclic communication			
Max. address capacity, inputs	FB23	RWr	[byte]	32	
		Rx	[byte]	14	
	FB24	RWr	[byte]	64	
		Rx	[byte]	64	
Max. address capacity, outputs	FB23	RWw	[byte]	32	
		Ry	[byte]	14	
	FB24	RWw	[byte]	64	
		Ry	[byte]	64	
Parameterisation		Hold/clear via DIL switch			
Additional functions		Storage of the last 40 errors with timestamp (access via system diagnostics)			
Current consumption		[mA]	Max. 200		
Length/width/height (incl. interlinking block)		[mm]	107/50/50		

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Technical data – Bus node CPX-FB32

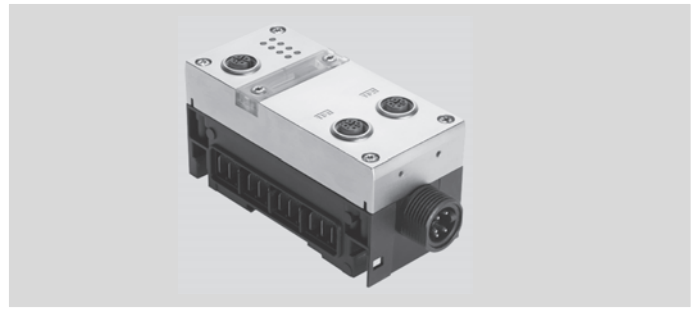


IT services:



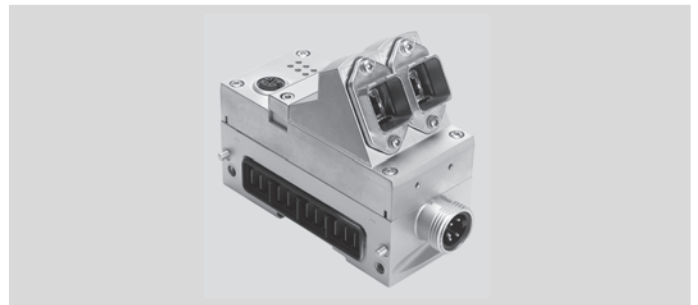
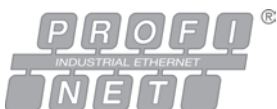
Technical data					Download CAD data → www.festo.com
Fieldbus interface		Plug connector M12, D-coded, 4-pin			
Baud rates		[Mbps]	10/100, full/half duplex		
IP addressing		Via DHCP, DIL switch or network software			
Max. address capacity	Inputs/outputs	[byte]	64/64		
Parameterisation		Start-up parameterisation			
		Acyclic parameterisation via explicit messaging			
Additional functions		Storage of the last 40 errors with timestamp (access via system diagnostics)			
		8-bit system status in image table for inputs			
		2-byte I/O, system diagnostics via image table			
Current consumption		[mA]	Typically 65		
Length/width/height (incl. interlinking block)		[mm]	107/50/50		

Technical data – Bus node CPX-FB33



Technical data		Download CAD data → www.festo.com
Fieldbus interface		2x M12 socket, D-coded, 4-pin
Baud rates	[Mbps]	100
Max. address capacity	Inputs/outputs [byte]	64/64
Parameterisation		System parameters
		Diagnostic behaviour
		Signal setup
		Fail-safe response
		Forcing of channels
Additional functions		Start-up parameterisation in plain text via fieldbus
		Fast start-up (FSU)
		Channel-oriented diagnostics via fieldbus
		Acyclic data access via fieldbus
		System status can be displayed using process data
		Additional diagnostic interface for operator units
Current consumption	[mA]	Typically 120
Length/width/height (incl. interlinking block)	[mm]	107/50/50

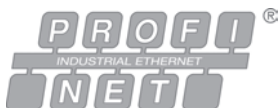
Technical data – Bus node CPX-M-FB34



Technical data		Download CAD data → www.festo.com
Fieldbus interface		2x RJ45 push-pull socket, AIDA
Baud rates	[Mbps]	100
Max. address capacity	Inputs/outputs [byte]	64/64
Parameterisation		System parameters
		Diagnostic behaviour
		Signal setup
		Fail-safe response
		Forcing of channels
Additional functions		Start-up parameterisation in plain text via fieldbus
		Fast start-up (FSU)
		Channel-oriented diagnostics via fieldbus
		Acyclic data access via fieldbus
		System status can be displayed using process data
		Additional diagnostic interface for operator units
Current consumption	[mA]	Typically 120
Length/width/height (incl. interlinking block)	[mm]	107/50/80

Terminal CPX

Technical data – Bus node CPX-M-FB35



Technical data		Download CAD data → www.festo.com
Fieldbus interface		2x SCRJ push-pull socket, AIDA
Baud rates	[Mbps]	100
Max. address capacity	Inputs/outputs [byte]	64/64
Parameterisation		System parameters
		Diagnostic behaviour
		Signal setup
		Fail-safe response
		Forcing of channels
Additional functions		Start-up parameterisation in plain text via fieldbus
		Fast start-up (FSU)
		Channel-oriented diagnostics via fieldbus
		Acyclic data access via fieldbus
		System status can be displayed using process data
		Additional diagnostic interface for operator units
Current consumption	[mA]	Typically 150
Length/width/height (incl. interlinking block)	[mm]	107/50/80

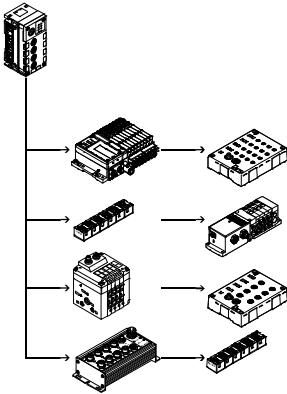
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Technical data – Bus node CPX-FB38



Technical data		Download CAD data → www.festo.com
Fieldbus interface		Two plug connectors M12, D-coded, 4-pin
Baud rates	[Mbps]	100
Max. address capacity	Inputs/outputs [byte]	64/64
Parameterisation		System parameters
		Diagnostic behaviour
		Signal setup
		Fail-safe response
		Forcing of channels
Additional functions		System status can be displayed using process data
		Additional diagnostic interface for operator units
Current consumption	[mA]	Typically 100
Length/width/height (incl. interlinking block)	[mm]	107/50/50

Technical data – Interface CPX-CP-4-FB

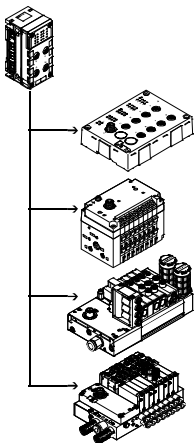


Technical data

Download CAD data → www.festo.com

CP connection	Socket M9, 5-pin		
Max. number of	CP strings	4	
	CP modules per string	4	
	Outputs per string	32	
	Inputs per string	32	
Baud rate	[kbps]	1000	
Sensor supply voltage	[V DC]	24 ±25% coming from bus node	
Actuator load voltage	[V DC]	24 ±10% coming from bus node	
Current consumption	Without CP modules	[A]	Max. 0.2
	Per CP string	[A]	Max. 1.6
Length/width/height (incl. interlinking block)	[mm]	107/50/45	

Technical data – Interface CPX-CTEL-4-M12-5POL



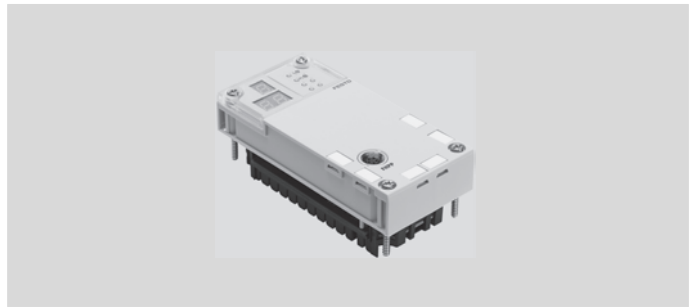
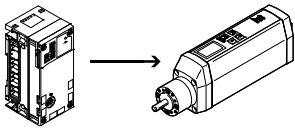
Technical data

Download CAD data → www.festo.com

I-Port connection	4x socket M12, 5-pin, A-coded		
Max. address capacity	Inputs/outputs	[bit]	256/256
Number of I-Port interfaces			4
Max. cable length	[m]		20
Internal cycle time	[ms]		1 per 8 bits of user data
Additional functions			Tool change mode
Max. power supply per channel	[A]		4x 1.6
Max. residual current of outputs per channel	[A]		4x 1.6
Intrinsic current consumption at nominal operating voltage	[mA]		Typically 65
Length/width/height (incl. interlinking block)	[mm]		107/50/55

Terminal CPX

Technical data – Control block CPX-CM-HPP

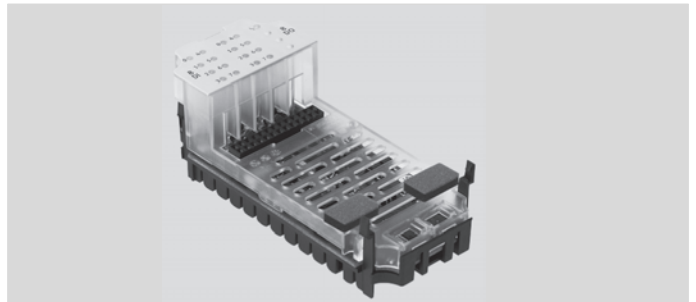


Technical data		Download CAD data → www.festo.com
Fieldbus interface		1x socket M9, 5-pin
Control interface		CAN bus
Baud rate	[Mbps]	1
Protocol		FHPP
Max. address capacity	Inputs/outputs	[byte] 32/32
Parameterisation		Forcing of channels
		System parameters
Total number of axes		4
Intrinsic current consumption at nominal operating voltage	[mA]	Typically 80
Length/width/height (incl. interlinking block)	[mm]	107/50/55

Technical data – Digital input module with 8 inputs, CPX-8DE CPX-8NDE

Possible connection blocks:

- CPX-AB-8-M8-3POL
- CPX-AB-4-M12X2-5POL
- CPX-AB-4-M12X2-5POL-R
- CPX-AB-8-KL-4POL
- CPX-AB-1-SUB-BU-25POL
- CPX-AB-4-HAR-4POL
- CPX-M-AB-4-M12X2-5POL
- CPX-M-AB-8-M12X2-5POL



Technical data		Download CAD data → www.festo.com	
Type		CPX-8DE	CPX-8NDE
Number of inputs		8	
Max. residual current of inputs per module	[A]	1	0.7
Internal electronic fuse		Per module	Per module
Intrinsic current consumption at operating voltage	[mA]	Typically 15	Typically 15
Sensor supply voltage	[V DC]	24 ±25%	24 ±25%
Electrical isolation	Channel – channel	No	No
	Channel – internal bus	No	No
Switching level	Signal 0	[V DC] ≤ 5	≥ 11
	Signal 1	[V DC] ≥ 11	≤ 5
Input characteristic		IEC 1131-T2	
Switching logic		Positive logic (PNP)	Negative logic (NPN)
Parameterisation		Module monitoring	
		Behaviour after short circuit	
		Input debounce time	
		Signal extension time	

Technical data – Digital input module with 16 inputs, CPX-16DE CPX-M-16DE-D

Possible connection blocks

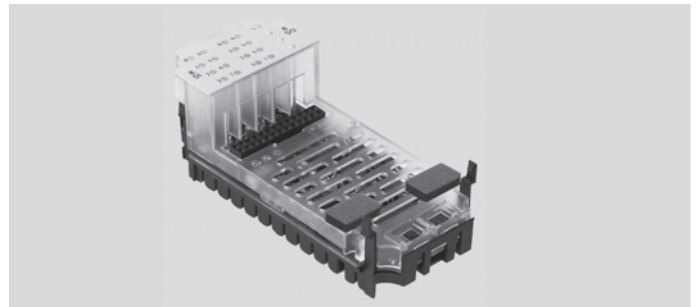
CPX-16DE

- CPX-AB-8-M8X2-4POL
- CPX-AB-8-M8X2-4P-M3
- CPX-AB-8-KL-4POL
- CPX-AB-1-SUB-BU-25POL

Possible connection blocks

CPX-M-16DE-D

- CPX-M-AB-8-M12X2-5POL



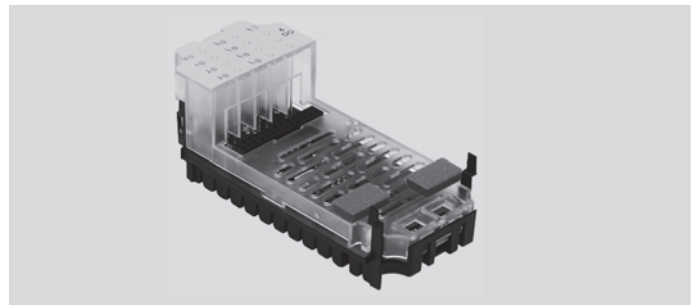
Technical data		Download CAD data → www.festo.com	
Type		CPX-16DE	CPX-M-16DE-D
Number of inputs		16	
Max. residual current of inputs per module	[A]	1.8	1.8
Internal electronic fuse		Per module	Per channel pair
Intrinsic current consumption at operating voltage	[mA]	Typically 15	Typically 34
Sensor supply voltage	[V DC]	24 ±25%	24 ±25%
Electrical isolation	Channel – channel	No	No
	Channel – internal bus	No	No
Switching level	Signal 0 [V DC]	≤ 5	≤ 5
	Signal 1 [V DC]	≥ 11	≥ 11
Input characteristic		IEC 1131-2	
Switching logic		Positive logic (PNP)	Positive logic (PNP)
Parameterisation		Module monitoring	
		Behaviour after short circuit	
		Input debounce time	
		Signal extension time	

9

Technical data – Digital output module with 4 outputs, CPX-4DA

Possible connection blocks:

- CPX-AB-8-M8-3POL
- CPX-AB-8-M8X2-4POL
- CPX-AB-8-M8X2-4P-M3
- CPX-AB-4-M12X2-5POL
- CPX-AB-4-M12X2-5POL-R
- CPX-AB-8-KL-4POL
- CPX-AB-1-SUB-BU-25POL
- CPX-AB-4-HAR-4POL
- CPX-AB-4-M12X2-5P-R-M3
- CPX-M-AB-4-M12X2-5POL

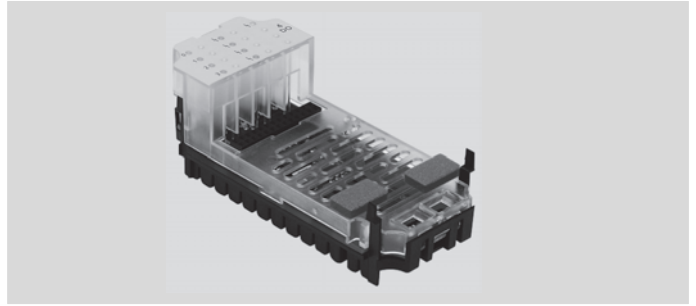


Technical data		Download CAD data → www.festo.com	
Type		CPX-4DA	
Number of outputs		4	
Max. power supply	Per module [A]	4	
	Per channel [A]	1 (24 W lamp load, 4 channels can be connected in parallel)	
Fuse protection (short circuit)		Internal electronic fuse per channel	
Module current consumption (voltage supply for electronics)	[mA]	Typically 16	
Supply voltage	[V DC]	24 ±25%	
Electrical isolation	Channel – channel	No	
	Channel – internal bus	Yes, with intermediate supply	
Output characteristic		To IEC 1131-2	
Switching logic		Positive logic (PNP)	
Parameterisation		Module monitoring	
		Behaviour after short circuit	
		Fail-safe channel x	
		Forcing channel x	
		Idle mode channel x	

Technical data – Digital output module with 8 high-current outputs, CPX-8DA-H

Possible connection blocks:

- CPX-AB-8-M8X2-4POL
- CPX-AB-8-M8X2-4P-M3
- CPX-AB-4-M12X2-5POL-R
- CPX-AB-8-KL-4POL
- CPX-AB-1-SUB-BU-25POL
- CPX-AB-4-M12X2-5P-R-M3
- CPX-M-AB-4-M12X2-5POL

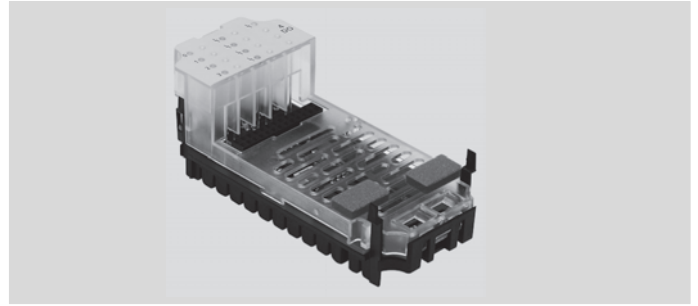


Technical data			Download CAD data → www.festo.com
Type			CPX-8DA-H
Number of outputs			8
Max. power supply	Per module	[A]	8.4
	Per channel	[A]	2.1 (50 W lamp load) per channel pair
Fuse protection (short circuit)			Internal electronic fuse per channel
Module current consumption (voltage supply for electronics)		[mA]	Typically 34
Supply voltage		[V DC]	24 ±25%
Electrical isolation	Channel – channel		No
	Channel – internal bus		Yes, with intermediate supply
Output characteristic			To IEC 1131-2
Switching logic			Positive logic (PNP)
Parameterisation			Module monitoring
			Behaviour after short circuit
			Fail-safe channel x
			Forcing channel x
		Idle mode channel x	

Technical data – Digital input/output module with 8 inputs and 8 outputs, CPX-8DE-8DA

Possible connection blocks:

- CPX-AB-4-M12-8POL
- CPX-AB-4-M12-8P-M3
- CPX-AB-8-KL-4POL
- CPX-AB-1-SUB-BU-25POL



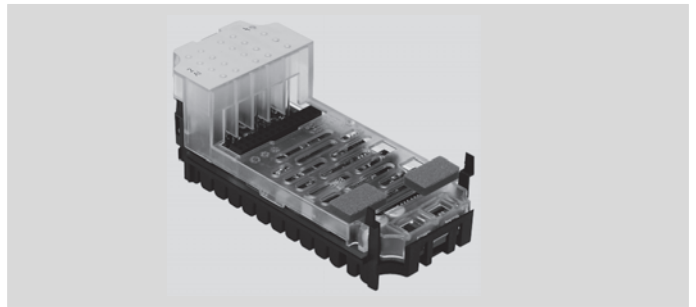
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Technical data		CPX-8DE-8DA	
Type			
Number	Inputs/outputs		8/8
Max. power supply per module	Sensor supply	[A]	0.7
	Outputs	[A]	4
Max. power supply per channel		[A]	0.5 (12 W lamp load, channels A0 ... A03 can be connected in parallel to A4 ... A7)
Fuse protection	Sensor supply		Internal electronic fuse for sensor supply
	Outputs		Internal electronic fuse per channel
Current consumption of internal electronics	Inputs/outputs	[mA]	Typically 22/typically 34
	Sensors/outputs	[V DC]	24 ±25%/24 ±25%
Electrical isolation, inputs	Channel – channel		No
	Channel – internal bus		No
Electrical isolation, outputs	Channel – channel		No
	Channel – internal bus		Yes, with intermediate supply
Characteristic	Inputs/outputs		IEC 1131-2/IEC 1131-2
Switching logic			Positive logic (PNP)
Parameterisation	Inputs		Module monitoring
			Behaviour after short circuit, sensor supply
			Input debounce time
			Signal stretching time, inputs
	Outputs		Behaviour after short circuit
			Fail-safe channel x
			Forcing channel x
			Idle mode channel x

Technical data – Analogue input module with 2 inputs, CPX-2AE-U-I

Possible connection blocks:

- CPX-AB-4-M12X2-5POL
- CPX-AB-4-M12X2-5POL-R
- CPX-AB-8-KL-4POL
- CPX-AB-1-SUB-BU-25POL
- CPX-AB-4-M12X2-5P-R-M3
- CPX-M-AB-4-M12X2-5POL



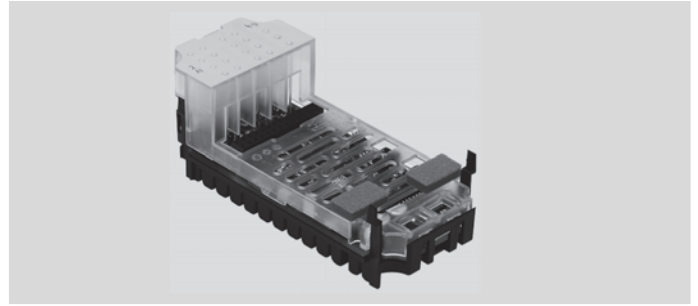
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Technical data		CPX-2AE-U-I	
Type		Voltage input	Current input
Number of inputs		2	2
Max. power supply per module	[A]	0.7	0.7
Fuse protection		Internal electronic fuse for sensor supply	
Current consumption from 24 V sensor supply (quiescent current)	[mA]	Typically 50	Typically 50
Current consumption from 24 V sensor supply (at full load)	[A]	Max. 0.7	Max. 0.7
Sensor supply voltage	[V DC]	24 ±25%	24 ±25%
Signal range (parameterisable for each channel by means of DIL switch or software)		0 ... 10 V DC	0 ... 20 mA 4 ... 20 mA
Resolution	[bit]	12	
Absolute accuracy	[%]	±0.5	±0.6
Input resistance		100 kΩ	≤ 100 Ω
Max. permissible input voltage	[V DC]	30	–
Max. permissible input current	[mA]	–	40
Data format		Prefix + 15 bits, linear scaling Prefix + 15 bits left-aligned, S7 compatible Prefix + 12 bits left-aligned + diagnostics, S5 compatible	
Cable length		Max. 30 m (screened)	
Electrical isolation	Channel – channel	No	
	Channel – internal bus	Yes, with external sensor supply	
	Channel – sensor supply	Yes, with external sensor supply	
Parameterisation		Short circuit monitoring, sensor supply	
		Behaviour after short circuit, sensor supply	
		Data format	
		Lower limit value/full-scale value	
		Upper limit value/full-scale value	
		Monitoring of value falling below nominal range/full-scale value	
		Monitoring of value exceeding nominal range/full-scale value	
		Monitoring of wire break (measuring range 4 ... 20 mA)	
		Signal range	
		Measured value smoothing	

Technical data – Analogue input module with 2 or 4 inputs, CPX-4AE-I

Possible connection blocks:

- CPX-AB-4-M12X2-5POL
- CPX-AB-4-M12X2-5POL-R
- CPX-AB-8-KL-4POL
- CPX-AB-1-SUB-BU-25POL
- CPX-AB-4-M12X2-5P-R-M3
- CPX-M-AB-4-M12X2-5POL



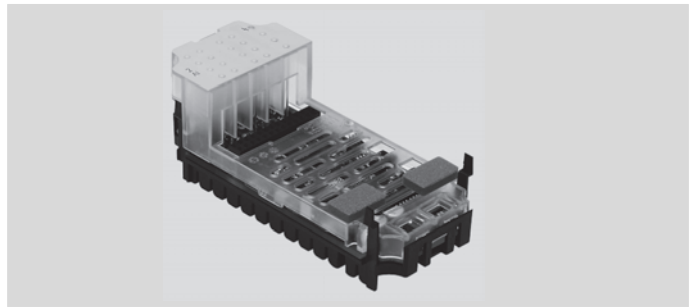
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Technical data		CPX-4AE-I
Type		Current input
Number of inputs		2 or 4
Max. power supply per module	[A]	0.7
Fuse protection		Internal electronic fuse for sensor supply
Current consumption from 24 V sensor supply (quiescent current)	[mA]	Typically 50
Current consumption from 24 V sensor supply (at full load)	[A]	Max. 0.7
Sensor supply voltage	[V DC]	24 ±25%
Signal range (parameterisable for each channel by means of DIL switch or software)	[mA]	0 ... 20
	[mA]	4 ... 20
Resolution	[bit]	12
Absolute accuracy	[%]	±0.6
Input resistance	[Ω]	≤ 100
Max. permissible input voltage	[V DC]	–
Max. permissible input current	[mA]	40
Data format		Prefix + 15 bits, linear scaling Prefix + 15 bits left-aligned, S7 compatible Prefix + 12 bits left-aligned + diagnostics, S5 compatible
Cable length	[m]	Max. 30 (screened)
Electrical isolation	Channel – channel	No
	Channel – internal bus	Yes, with external sensor supply
	Channel – sensor supply	Yes, with external sensor supply
Parameterisation		Short circuit monitoring, sensor supply Behaviour after short circuit, sensor supply Data format Lower limit value/full-scale value Upper limit value/full-scale value Monitoring of value falling below nominal range/full-scale value Monitoring of value exceeding nominal range/full-scale value Monitoring of wire break (measuring range 4 ... 20 mA) Signal range Measured value smoothing

Technical data – Analogue input module with 2 or 4 inputs for temperature sensors, CPX-4AE-T

Possible connection blocks:

- CPX-AB-4-M12X2-5POL
- CPX-AB-4-M12X2-5POL-R
- CPX-AB-8-KL-4POL
- CPX-AB-4-HAR-4POL
- CPX-AB-4-M12X2-5P-R-M3
- CPX-M-AB-4-M12X2-5POL



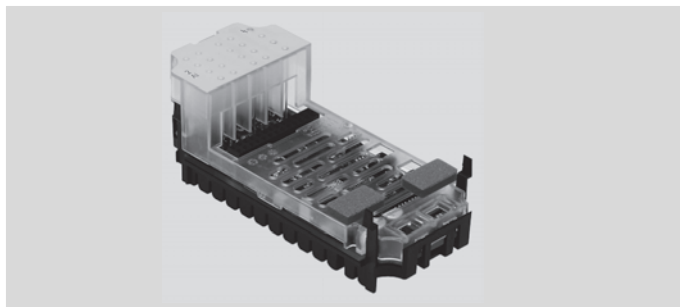
Download CAD data → www.festo.com

Technical data			CPX-4AE-T
Type			CPX-4AE-T
Number of inputs			2 or 4
Max. power supply per module	[A]		0.7
Fuse protection			Internal electronic fuse for sensor supply
Current consumption from 24 V sensor supply (quiescent current)	[mA]		Typically 50
Sensor supply voltage	[V DC]		24 ±25%
Sensor type (parameterisable for each channel by means of DIL switch)			PT100, PT200, PT500, PT1000 Ni100, Ni120, Ni500, Ni1000
Temperature range	Pt standard	[°C]	-200 ... +850
	Pt climatic	[°C]	-120 ... +130
	Ni	[°C]	-60 ... +180
Sensor connection technology			2-wire, 3-wire and 4-wire technology
Resolution	[bit]		15 + prefix
Operating error limit relative to input range	[%]		±0.06
Basic error limit (25 °C)	Standard	[K]	±0.6
	Pt climatic	[K]	±0.2
Temperature errors relative to input range	[%]		±0.001
Linearity errors (no software scaling)	[%]		±0.02
Repetition accuracy (at 25 °C)	[%]		±0.05
Max. line resistance per conductor	[Ω]		10
Max. permissible input voltage	[V DC]		±30
Data format	[bit]		15 + prefix, complement of two, binary notation in tenths of a degree
Cable length	[m]		Max. 200 (screened)
Electrical isolation	Channel – channel		No
	Channel – internal bus		Yes
Parameterisation			Unit of measurement and interference frequency suppression
			Diagnostic message in the event of a wire break or short circuit
			Limit monitoring per channel
			Sensor connection technology
			Sensor type/temperature coefficient, temperature range
			Limit value per channel
			Measured value smoothing

Technical data – Analogue input module with 4 inputs for thermocoupler, CPX-4AE-TC

Possible connection blocks:

- CPX-AB-4-M12X2-5POL
- CPX-AB-4-M12X2-5POL-R
- CPX-AB-8-KL-4POL
- CPX-AB-4-M12X2-5P-R-M3
- CPX-M-AB-4-M12X2-5POL



Technical data		Download CAD data → www.festo.com
Type		CPX-4AE-TC
Number of inputs		4
Fuse protection		Internal electronic fuse per channel
Sensor supply voltage	[V DC]	24 ±25%
Sensor type (parameterisable for each channel by means of software)		<ul style="list-style-type: none"> • Type B +400 ... +1820 °C, 8 µV/°C • Type E -270 ... +900 °C, 60 µV/°C • Type J -200 ... +1200 °C, 51 µV/°C • Type K -200 ... +1370 °C, 40 µV/°C • Type N -200 ... +1300 °C, 38 µV/°C • Type R 0 ... +1760 °C, 12 µV/°C • Type S 0 ... +1760 °C, 11 µV/°C • Type T -200 ... +400 °C, 40 µV/°C
Sensor connection technology		2-wire technology
Operating error limit relative to ambient temperature	[%]	Max. ±0.6
Basic error limit (at 25 °C)	[%]	Max. ±0.4
Repetition accuracy (at 25 °C)	[%]	±0.05
Max. line resistance per conductor	[Ω]	10
Max. residual current per module	[mA]	30
Max. permissible input voltage	[V]	±30
Internal cycle time (module)	[ms]	250
Data format	[bit]	15 + prefix, complement of two, binary notation in tenths of a degree
Cable length	[m]	Max. 50 (screened)
Electrical isolation	Channel – channel	No
	Channel – internal bus	Yes
Diagnostics	Parameterisation error	
	Wire break per channel	
	Limit value violation per channel	
Parameterisation	Wire break monitoring per channel	
	Unit of measurement	
	Cold-junction compensation	
	Sensor type per channel	
	Limit value monitoring per channel	
	Measured value smoothing	

Technical data – Analogue input module with pressure sensors, CPX-4AE-P

Tubing connections:

- 4x QS4



Technical data			Download CAD data → www.festo.com	
Type			CPX-4AE-P-B2	CPX-4AE-P-D10
Number of analogue inputs			4	
Nominal operating voltage	[V DC]	24 ±25%		
Intrinsic current consumption	[mA]	Typically 50		
Measured variable	4x relative or 2x differential pressure measurement			
Displayable units	kPa			
	mbar			
	psi			
Pressure measuring range	Starting value	[bar]	-1	0
	Final value	[bar]	1	10
Data format	15 bits + prefix			
	Binary notation in mbar, kPa, psi			
LED displays	Group diagnostics			
Diagnostics	Limit value violation per channel			
	Parameterisation error			
	Sensor limit per channel			
Parameterisation	Diagnostic delay per channel			
	Hysteresis per module			
	Unit of measurement			
	Measured value smoothing per channel			
	Limit value monitoring per channel			
	Sensor limit per channel			
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]			
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)			
Temperature of medium	[°C]	0 ... 50		
Length/width/height (incl. interlinking block)	[mm]	107/50/55		

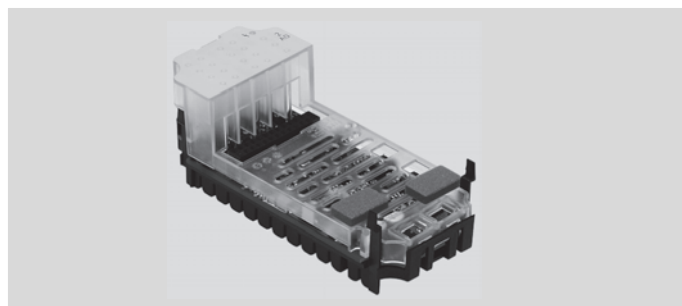
Note

Extreme pneumatic conditions, e.g. high cycle rate with high pressure amplitudes, can damage the sensors.

Technical data – Analogue output module with 2 inputs, CPX-2AA-U-I

Possible connection blocks:

- CPX-AB-4-M12X2-5POL
- CPX-AB-4-M12X2-5POL-R
- CPX-AB-8-KL-4POL
- CPX-AB-1-SUB-BU-25POL
- CPX-AB-4-M12X2-5P-R-M3
- CPX-M-AB-4-M12X2-5POL



Technical data		Download CAD data → www.festo.com	
Type		CPX-2AA-U-I	
		Voltage output	Current output
Number of outputs		2	2
Max. actuator supply per module	[A]	2.8	2.8
Fuse protection		Internal electronic fuse for actuator supply	
Current consumption from 24 V sensor supply (at full load)	[mA]	Max. 150	Max. 150
Current consumption from 24 V actuator supply (at full load)	[A]	4 ... 10	4 ... 10
Supply voltage for actuators	[V DC]	24 ±25%	24 ±25%
Signal range (parameterisable for each channel by means of DIL switch or software)		0 ... 10 V DC	0 ... 20 mA 4 ... 2 mA
Resolution		12 bit	12 bit
Absolute accuracy	[%]	±0.6	±0.6
Encoder selection	Load resistance for ohmic load	[kΩ]	Min. 1
	Load resistance for capacitive load	[μF]	Max. 1
	Load resistance for inductive load	[mH]	–
	Short circuit protection for analogue output		Yes
	Short circuit current of analogue output	[mA]	Approx. 20
	Open circuit voltage	[V DC]	–
	Destruction limit against externally applied voltage	[V DC]	15
	Actuator connection		2 wires
Response time	For ohmic load	[ms]	0.1
	For capacitive load	[ms]	0.7
	For inductive load	[ms]	–
Data format		15 bits + prefix, linear scaling 12 bits left-aligned, S7 compatible 12 bits left-aligned, S5 compatible	
Cable length	[m]	Max. 30 (screened)	
Parameterisation		Short circuit monitoring, actuator supply	
		Short circuit monitoring, analogue output	
		Behaviour after short circuit, actuator supply	
		Data format	
		Lower limit value/full-scale value	
		Upper limit value/full-scale value	
		Monitoring of value falling below nominal range/full-scale value	
		Monitoring of value exceeding nominal range/full-scale value	
		Monitoring of wire break	
	Signal range		

Terminal CPX

Technical data – PROFlsafe shut-off module, CPX-FVDA-P2

CPX-FVDA-P2

Possible connection blocks:

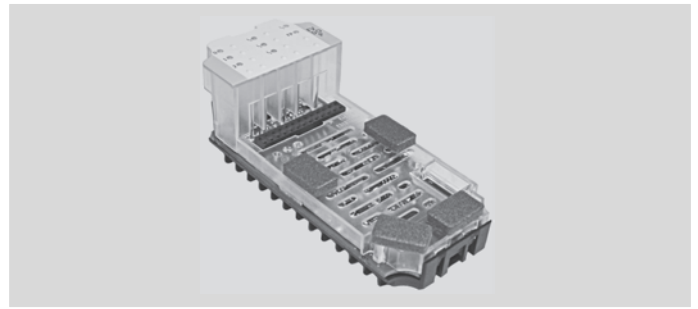
- CPX-M-AB-4-M12x2-5POL
- CPX-AB-8-KL-4POL

Possible bus nodes:

- CPX-FB6
- CPX-FB33
- CPX-M-FB34
- CPX-M-FB35

Possible interlinking blocks:

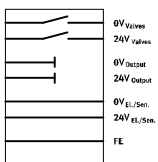
- CPX-M-GE-EV-FVO



Download CAD data → www.festo.com

Technical data		CPX-FVDA-P2	
Type			
Number of outputs	2		
Note on outputs	1 internal channel for shutting off the supply voltage for valves 2 external outputs		
Max. power supply	Per module	[A]	5
	Per channel	[A]	1.5
Fuse protection (short circuit)	Internal electronic fuse per channel		
Current consumption of module			[mA]
			Typically 65 (power supply for valves)
Voltage drop per channel			[mV]
			Typically 25 (power supply for electronics)
Residual ripple			[Vss]
Load capacity to FE			[nF]
Max. response time to shut-off command			[ms]
Electrical isolation	Channel – channel	No	
	Channel – internal bus	Yes, with intermediate supply	
Switching logic	Outputs	P-M switching	
Safety integrity level	Safe Shut Off, SIL3		
Performance Level	Safe Shut Off/category 3, Performance Level e		
Diagnostics	Short circuit/overload per channel		
	Undervoltage at valves		
	Cross circuit		
	Wire break per channel		
Parameterisation	Wire break monitoring per channel		
	Diagnostic behaviour		
Length/width/height (incl. interlinking block and connection block)	[mm]	107/50/55	

Technical data – Interlinking block without supply, CPX-M-GE-EV-FVO



Possible modules:

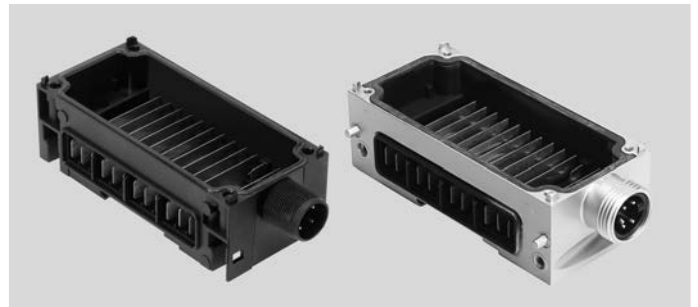
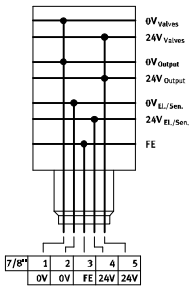
- CPX-FVDA-P2



Download CAD data → www.festo.com

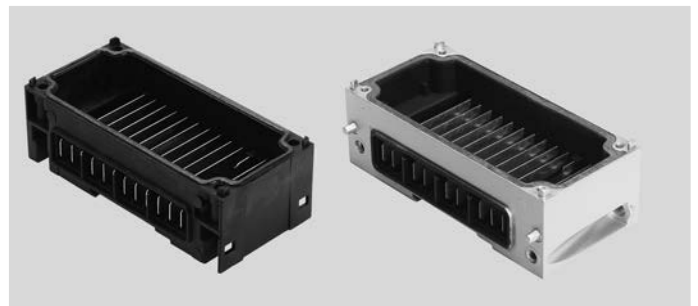
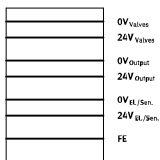
Technical data		CPX-M-GE-EV-FVO	
Type			
Acceptable current load (per contact/contact rail)	[A]	16	
Type of mounting	Angled fitting		
Length/width/height	[mm]	107/50/35	

Technical data – Interlinking block with system supply, CPX-GE-EV-S, CPX-M-GE-EV-S



Technical data			Download CAD data → www.festo.com				
Type			CPX-GE-EV-S	CPX-GE-EV-S-7/8-4POL	CPX-GE-EV-S-7/8-5POL	CPX-M-GE-EV-S-7/8-5POL	CPX-M-GE-EV-S-PP-5POL
Electrical connection			M18	7/8", 4-pin	7/8", 5-pin	7/8", 5-pin	AIDA push-pull, 5-pin
Nominal operating voltage	[V DC]		24				
Current supply	Sensors and electronics	[A]	Max. 16		Max. 12	Max. 8	Max. 16
	Valves and outputs	[A]	Max. 16		Max. 12	Max. 8	Max. 16
Degree of protection to EN 60529			Depending on connection block				
Ambient temperature	[°C]		-5 ... +50				
Type of mounting			Tie rod			Angled fitting	
Length/width/height	[mm]		107/50/35				

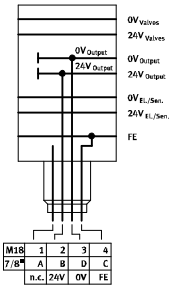
Technical data – Interlinking block without supply, CPX-GE-EV, CPX-M-GE-EV



Technical data			Download CAD data → www.festo.com	
Type			CPX-GE-EV	CPX-M-GE-EV
Electrical connection			-	
Nominal operating voltage	[V DC]		24	
Acceptable current load (per contact/contact rail)	[A]		16	
Degree of protection to EN 60529			Depending on connection block	
Ambient temperature	[°C]		-5 ... +50	
Type of mounting			Tie rod	
Length/width/height	[mm]		107/50/35	

Terminal CPX

Technical data – Interlinking block with additional power supply for outputs, CPX-GE-EV-Z, CPX-M-GE-EV-Z



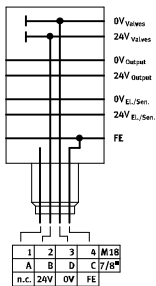
Technical data

Download CAD data → www.festo.com

Type	CPX-GE-EV-Z	CPX-GE-EV-Z-7/8-4POL	CPX-GE-EV-Z-7/8-5POL	CPX-M-GE-EV-Z-7/8-5POL	CPX-M-GE-EV-Z-PP-5POL
Electrical connection	M18	7/8", 4-pin	7/8", 5-pin	7/8", 5-pin	AIDA push-pull, 5-pin
Nominal operating voltage [V DC]	24				
Current supply [A]	Max. 16		Max. 12	Max. 8	Max. 16
Degree of protection to EN 60529	Depending on connection block				
Ambient temperature [°C]	-5 ... +50				
Type of mounting	Tie rod			Angled fitting	
Length/width/height [mm]	107/50/35				

Technical data – Interlinking block with additional power supply for valves, CPX-GE-EV-V

9




Technical data

Download CAD data → www.festo.com

Type	CPX-GE-EV-V	CPX-GE-EV-V-7/8-4POL
Electrical connection	M18	7/8", 4-pin
Nominal operating voltage [V DC]	24	
Acceptable current load (per contact/contact rail) [A]	16	
Degree of protection to EN 60529	Depending on connection block	
Ambient temperature [°C]	-5 ... +50	
Type of mounting	Tie rod	
Length/width/height [mm]	107/50/35	

Technical data – Pneumatic interface for valve terminal MPA-L, VMPAL-EPL-CPX


-  - Operating voltage
24 V DC



Technical data		Download CAD data → www.festo.com
Type	VMPAL-EPL-CPX	
Type of mounting	Tie rod	
Number of solenoid coils	32	
Operating pressure	[bar]	-0.9 ... 10
Intrinsic current consumption of valve terminal (internal electronics, without valves)	At 24 V $U_{EL/SEN}$ ¹⁾	Typically 13
	At 24 V U_{val} ²⁾	Typically 35
Diagnostic message on undervoltage U_{OFF} Load voltage outside function range	[V]	17.7 ... 17.8
Nominal pick-up current/duration per solenoid coil at nominal voltage	[mA]	50/20 ms
Nominal current per solenoid coil at nominal voltage with current reduction	[mA]	10 after 20 ms
Length/width/height	[mm]	107/40/70

- 1) Power supply for electronics and sensors.
2) Load voltage supply for valves.

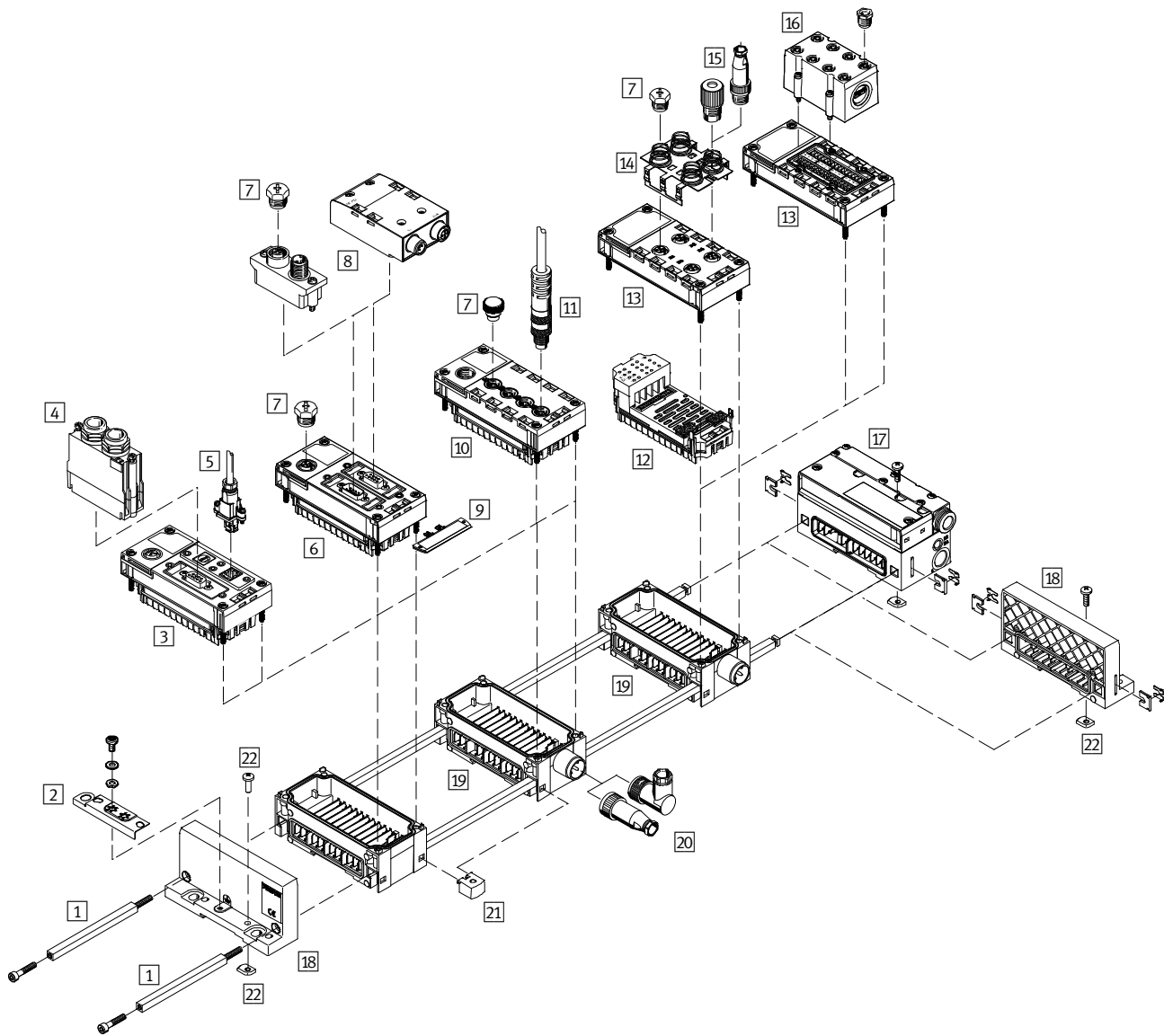
Technical data – Pneumatic interface for valve terminal VTSA/VTSA-F, VABA-S6-1-X

-  - Operating voltage
24 V DC



Technical data		Download CAD data → www.festo.com
Type	VABA-S6-1-X1	VABA-S6-1-X2
Type of mounting	Tie rod	Angled fitting
Number of solenoid coils	32	
Electrical actuation	Fieldbus	
Electrical connection	Via CPX	
Nominal operating voltage	[V DC]	24
Permissible voltage fluctuations	[%]	10
Degree of protection to EN 60529	IP65	
Ambient temperature	[°C]	-5 ... +50

Accessories

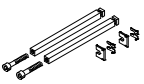
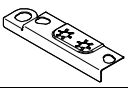
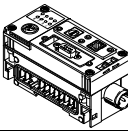
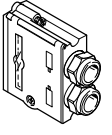

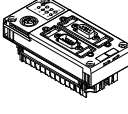


9

		→ Page/ online
1	Tie rod/tie-rod extension CPX-ZA	781
2	Earthing component CPX-EPFE-EV for right-hand/left-hand end plate	781
3	Control block CPX-FEC-1-IE/CPX-CEC	781
4	Plug FBS-SUB-9 for fieldbus connection (version dependent on bus type)	781
5	Plug FBS-RJ45 for Ethernet connection	781
6	CPX bus node CPX-FB	781
7	Cover cap ISK/CPX-M-AK/AK-SUB (for unused connections)	782
8	Connector plug FBA/FBS/NECU/FBSD/CPX-AB for fieldbus connection	782
9	Inscription label IBS/CPX-ST	783
10	CPX CP interface/CPX CTEL master/axis interface CPX-CP-4-FB/CPX-CTEL-4-M12-5POL/CPX-CM	783
11	Connecting cable KVI-CP-3/NEBU-M12G5 for CP interface/CPX CTEL master	783
12	CPX module CPX (analogue/digital input/output module)	783
13	Connection block CPX-AB/CPX-M-AB	784
14	Screening plate CPX-AB-S	784

15	Connector plug/connecting cable KM12/NEBU/KM8/KV-M12 for inputs/outputs	784
16	Cover AK-8KL for CPX-AB-8-KL-4POL (IP65/67)	784
17	Pneumatic interface VMPAL-EPL-CPX/VABA-S6-1-X	785
18	End plate CPX-EP	785
19	Interlinking block CPX-GE/CPX-M-GE (with/without voltage supply)	785
20	Connector plug NTSD/NECU for voltage supply	786
21	Mounting components CPX-BG-RW/CPX-M-BG-RW for wall mounting	786
22	H-rail mounting CPX-CPA-BG-NRH	786
-	Hood CAFC	786
-	Screws for mounting the bus node/connection block on an interlinking block	786
-	Temperature sensor CPX-W-PT1000 for CPX module CPX-4AE-TC for cold-junction compensation	786
-	Memory card CPX-SK-2 for PROFINET bus node	786
-	User documentation P.BE-CPX	787


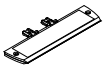

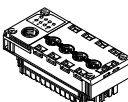
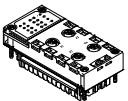
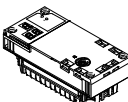



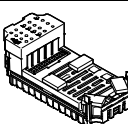
Accessories – Ordering data

	Description	Part No.	Type
1 Tie rod/tie-rod extension			
	Extension, 1 module	525418	CPX-ZA-1-E
	1 module	195718	CPX-ZA-1
	2 modules	195720	CPX-ZA-2
	3 modules	195722	CPX-ZA-3
	4 modules	195724	CPX-ZA-4
	5 modules	195726	CPX-ZA-5
	6 modules	195728	CPX-ZA-6
	7 modules	195730	CPX-ZA-7
	8 modules	195732	CPX-ZA-8
	9 modules	195734	CPX-ZA-9
10 modules	195736	CPX-ZA-10	
2 Earthing component for right-hand/left-hand end plate			
	5 pieces	538892	CPX-EPFE-EV
3 Control block CPX-FEC/CPX-CEC			Technical data → 758
	With Ethernet interface RJ45	529041	CPX-FEC-1-IE
	CoDeSys Embedded Controller, CANopen	567347	CPX-CEC-C1
	CoDeSys Embedded Controller, SoftMotion	567348	CPX-CEC-M1
4 Plug for bus connection, Sub-D			Technical data online: → fbs
	For INTERBUS, incoming	532218	FBS-SUB-9-BU-IB-B
	For INTERBUS, outgoing	532217	FBS-SUB-9-GS-IB-B
	For DeviceNet/CANopen	532219	FBS-SUB-9-BU-2x5POL-B
	For PROFIBUS DP	532216	FBS-SUB-9-GS-DP-B
	For CC-Link	532220	FBS-SUB-9-GS-2x4POL-B
	For control block	534497	FBS-SUB-9-GS-1x9POL-B
5 Ethernet connection			Technical data online: → fbs
	RJ45 plug	534494	FBS-RJ45-8-GS
6 CPX bus node			Technical data → 762
	INTERBUS	195748	CPX-FB6
	DeviceNet	526172	CPX-FB11
	PROFIBUS DP	195740	CPX-FB13
	CANopen	526174	CPX-FB14
	CC-Link	526176	CPX-FB23-24
	EtherNet/IP with M12	541302	CPX-FB32
	PROFINET with M12, D-coded, 4-pin	548755	CPX-FB33
	PROFINET with RJ45 push-pull, AIDA	548751	CPX-M-FB34
	PROFINET with SCRJ push-pull, AIDA	548749	CPX-M-FB35
	Bus node for EtherCAT	552046	CPX-FB38

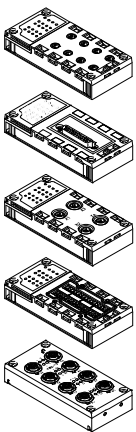
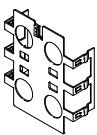

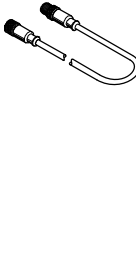

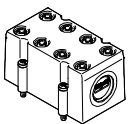
Accessories – Ordering data

	Description	Part No.	Type
7 Cover cap			
	For M8 connections (packaging unit 10 pieces)	177672	ISK-M8
	For M12 connections (packaging unit 10 pieces)	165592	ISK-M12
	Cover cap for bus connection	548753	CPX-M-AK-C
	Cover for DIL switch and memory card	548754	CPX-M-AK-M
	Inspection cover, for DIL switch and bus connection	Transparent	533334 AK-SUB-9/15-B
		Black	557010 AK-SUB-9/15
8 Connector plug for bus connection			Technical data online: → necu
	M12 adapter (B-coded) for PROFIBUS DP	533118	FBA-2-M12-5POL-RK
	Micro style, 2x M12 for DeviceNet/CANopen	525632	FBA-2-M12-5POL
	Socket for micro style connection, M12	18324	FBSD-GD-9-5POL
	Plug for micro style connection, M12	175380	FBS-M12-5GS-PG9
	Plug M12x1, 4-pin, D-coded, for PROFINET	543109	NECU-M-S-D12G4-C2-ET
	Socket M12x1, for FBA-2-M12-5POL-RK and CPX-AB-2-M12-RK-DP	1067905	NECU-M-B12G5-C2-PB
	Plug M12x1, for FBA-2-M12-5POL-RK and CPX-AB-2-M12-RK-DP	1066354	NECU-M-S-B12G5-C2-PB
	RJ45 plug, 8-pin, push-pull	552000	FBS-RJ45-PP-GS
	SCRJ plug, 2-pin, push-pull	571017	FBS-SCRJ-PP-GS
8 Connector plug for bus connection			
	M12 adapter for PROFIBUS DP (B-coded)	541519	CPX-AB-2-M12-RK-DP
	M12 adapter for INTERBUS (B-coded)	534505	CPX-AB-2-M12-RK-IB
	Open style for 5-pin terminal strip, for DeviceNet/CAN-open	525634	FBA-1-SL-5POL
	5-pin terminal strip, for DeviceNet/CANopen	525635	FBSD-KL-2x5POL
	Screw terminal for CC-Link	197962	FBA-1-KL-5POL

Accessories – Ordering data

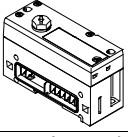
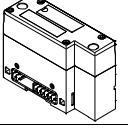
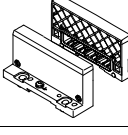
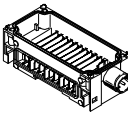
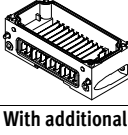
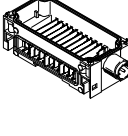
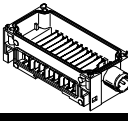
	Description	Part No.	Type
9 Inscription label			
	Inscription labels 6x10 mm, in frame (64 pieces)	18576	IBS-6x10
	Inscription label holder for connection block M12	536593	CPX-ST-1
	Screws for attaching an inscription label holder to the bus node (12 pieces)	550222	CPX-M-M2,5X8-12X
10 CPX CP interface/axis interface Technical data → 765			
	Central node for connecting I/O modules of the CPI system	526705	CPX-CP-4-FB
	Interface for max. 4 I/O modules and valve terminals with I-Port interface (devices)	1577012	CPX-CTEL-4-M12-5POL
	FHPP gateway	562214	CPX-CM-HPP
11 Connecting cable			
for CP interface, M9-M9		Technical data online: → kvi	
	Angled plug/angled socket	0.25 m	540327 KVI-CP-3-WS-WD-0,25
		0.5 m	540328 KVI-CP-3-WS-WD-0,5
		2 m	540329 KVI-CP-3-WS-WD-2
		5 m	540330 KVI-CP-3-WS-WD-5
		8 m	540331 KVI-CP-3-WS-WD-8
	Straight plug/straight socket	2 m	540332 KVI-CP-3-GS-GD-2
		5 m	540333 KVI-CP-3-GS-GD-5
		8 m	540334 KVI-CP-3-GS-GD-8
For CPX CTEL master, M12-M12		Technical data → 1053	
	Straight plug/straight socket	5 m	★ 574321 NEBU-M12G5-E-5-Q8N-M12G5
		7.5 m	★ 574322 NEBU-M12G5-E-7.5-Q8N-M12G5
		10 m	★ 574323 NEBU-M12G5-E-10-Q8N-M12G5
12 CPX module Technical data → 767			
	8 digital inputs PNP	195750	CPX-8DE
	8 digital inputs NPN	543813	CPX-8NDE
	16 digital inputs	543815	CPX-16DE
	16 digital inputs with channel diagnostics	550202	CPX-M-16DE-D
	4 digital outputs	195754	CPX-4DA
	8 digital outputs	550204	CPX-8DA-H
	8 digital inputs and 8 digital outputs	526257	CPX-8DE-8DA
	2 analogue inputs	526168	CPX-2AE-U-I
	4 analogue inputs	541484	CPX-4AE-I
	4 analogue inputs for temperature measurement	541486	CPX-4AE-T
	4 analogue inputs for temperature measurement, thermocoupler and PT1000 sensor for cold-junction compensation	553594	CPX-4AE-TC
	Input module, 4 analogue inputs (pressure), pressure range -1 ... +1 bar	560361	CPX-4AE-P-B2
	Input module, 4 analogue inputs (pressure), pressure range 0 ... 10 bar	560362	CPX-4AE-P-D10
	2 analogue outputs	526170	CPX-2AA-U-I
	PROFIsafe shut-off module	PROFINET, PROFIBUS	1971599

Accessories – Ordering data






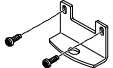


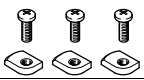

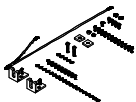
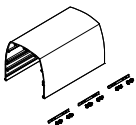

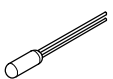

	Description	Part No.	Type	
13 Connection block				
	Plastic design with mounting screws for assembly on plastic interlinking blocks			
	8 connections M8, 3-pin	195706	CPX-AB-8-M8-3POL	
	8 connections M8, 4-pin	541256	CPX-AB-8-M8X2-4POL	
	4 connections M12, 5-pin	195704	CPX-AB-4-M12x2-5POL	
	4 connections M12, 5-pin, with quick lock and metal thread	541254	CPX-AB-4-M12x2-5POL-R	
	8 spring-loaded terminal connections, 4-pin	195708	CPX-AB-8-KL-4POL	
	Sub-D socket, 25-pin	525676	CPX-AB-1-SUB-BU-25POL	
	4 connections in HARAX fast connection technology, 4-pin	525636	CPX-AB-4-HAR-4POL	
	Metal design with mounting screws for assembly on metal and plastic interlinking blocks			
	4 connections M12, 5-pin	549367	CPX-M-AB-4-M12x2-5POL	
8 connections M12, 5-pin	549335	CPX-M-AB-8-M12x2-5POL		
14 Screening plate				
	For M12 connections	526184	CPX-AB-S-4-M12	
15 Connector plug/connecting cable for inputs/outputs,				
DUO connecting cable M12, 4-pin Technical data online: → km12				
	2x straight socket	18685	KM12-DUO-M8-GDGD	
	2x straight/angled socket	18688	KM12-DUO-M8-GDWD	
	2x angled socket	18687	KM12-DUO-M8-WDWD	
Connecting cable Technical data → 1053				
	M8-M8	0.5 m	175488	KM8-M8-GSGD-0,5
	3-pin/3-pin	1.0 m	175489	KM8-M8-GSGD-1
		2.5 m	165610	KM8-M8-GSGD-2,5
		5.0 m	165611	KM8-M8-GSGD-5
	M12-M12 5-pin/5-pin	1.5 m	529044	KV-M12-M12-1,5
		3.5 m	530901	KV-M12-M12-3,5
	M12-M12 4-pin/4-pin	2.5 m	18684	KM12-M12-GSGD-2,5
		5.0 m	18686	KM12-M12-GSGD-5
	1.0 m	185499	KM12-M12-GSWD-1-4	
Connecting cable M9, 5-pin Technical data online: → nebc				
	M9/open end 5-pin/5-wire	2.0 m	563711	NEBC-M9W5-K-2-N-LE3
		5.0 m	563712	NEBC-M9W5-K-5-N-LE3
16 Cover for CPX-AB-8-KL-4POL (IP65/67)				
	– 8 cable through-feeds M9 – 1 cable through-feed for multi-pin plug	538219	AK-8KL	
	Fittings kit for cover AK-8KL	538220	VG-K-M9	

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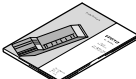
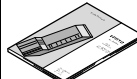
Accessories – Ordering data

	Description	Part No.	Type
17 Pneumatic interface, for valve terminal MPA-L Technical data → 779			
	CPX in plastic design	570783	VMPAL-EPL-CPX
For valve terminal VTSA/VTSA-F			
	CPX in plastic design	543416	VABA-S6-1-X1
	CPX in metal design	550663	VABA-S6-1-X2
18 End plates			
	Plastic design	Right-hand	195714 CPX-EPR-EV
		Left-hand	195716 CPX-EPL-EV
	Metal design	Right-hand	550214 CPX-M-EPR-EV
		Left-hand	550212 CPX-M-EPL-EV
19 Interlinking block, with system supply Technical data → 777			
	Plastic design	M18 connection	195746 CPX-GE-EV-S
		7/8" connection, 4-pin	541248 CPX-GE-EV-S-7/8-4POL
		7/8" connection, 5-pin	541244 CPX-GE-EV-S-7/8-5POL
	Metal design	7/8" connection, 5-pin	550208 CPX-M-GE-EV-S-7/8-5POL
		Push-pull plug connection (AIDA), 5-pin	563057 CPX-M-GE-EV-S-PP-5POL
Without supply			
	Plastic design	195742	CPX-GE-EV
	Metal design	550206	CPX-M-GE-EV
	Metal design, for CPX-FVDA-P2	567806	CPX-M-GE-EV-FVO
With additional power supply for outputs			
	Plastic design	M18 connection	195744 CPX-GE-EV-Z
		7/8" connection, 4-pin	541250 CPX-GE-EV-Z-7/8-4POL
		7/8" connection, 5-pin	541246 CPX-GE-EV-Z-7/8-5POL
	Metal design	7/8" connection, 5-pin	550210 CPX-M-GE-EV-Z-7/8-5POL
		Push-pull plug connection (AIDA), 5-pin	563058 CPX-M-GE-EV-Z-PP-5POL
With additional power supply for valves			
	Plastic design	M18 connection	533577 CPX-GE-EV-V
		7/8" connection, 4-pin	541252 CPX-GE-EV-V-7/8-4POL

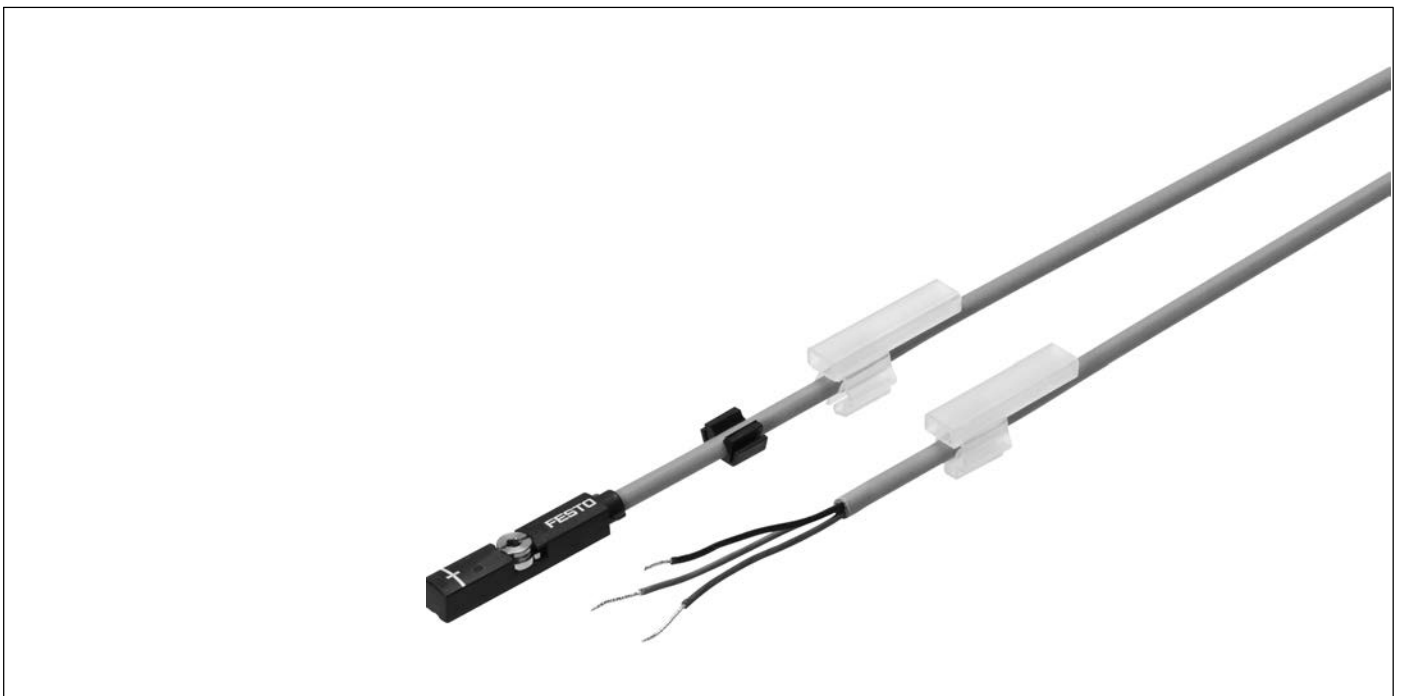
Accessories – Ordering data

	Description		Part No.	Type
20 Connector plug for power supply				
Technical data online: → ntsd				
	M18 socket, straight	For 1.5 mm ²	18493	NTSD-GD-9
		For 2.5 mm ²	18526	NTSD-GD-13,5
	M18 socket, angled	For 1.5 mm ²	18527	NTSD-WD-9
		For 2.5 mm ²	533119	NTSD-WD-11
	7/8" connection	5-pin	543107	NECU-G78G5-C2
		4-pin	543108	NECU-G78G4-C2
	AIDA push-pull plug socket, spring-loaded terminal	5-pin	563059	NECU-M-PPG5-C1
21 Attachment for wall mounting				
	For long valve terminals, 10 pieces, for plastic manifold sub-bases		529040	CPX-BG-RW-10x
	For long valve terminals, 2 mounting brackets and 4 screws, for metal manifold sub-bases		550217	CPX-M-BG-RW-2x
	Retainer for operator unit CPX-MMI-1		534705	CPX-MMI-1-H
	Mounting for H-rail for operator unit CPX-MMI-1		536689	CPX-MMI-1-NRH
22 H-rail mounting				
	For mounting CPX terminal and valve terminal on H-rail		526032	CPX-CPA-BG-NRH
Hood				
	Mounting rail for attaching the hood, 1 m		572256	CAFC-X1-S
	Mounting kit for CPX hood		572257	CAFC-X1-BE
	Hood section	200 mm	572258	CAFC-X1-GAL-200
		300 mm	572259	CAFC-X1-GAL-300
Screws for mounting the bus node/connection block on an interlinking block				
	Metal connection block, plastic interlinking block		550218	CPX-DPT-30X32-S-4X
	Plastic connection block, metal interlinking block		550219	CPX-M-M3x22-4x
	Metal connection block, metal interlinking block		550216	CPX-M-M3x22-S-4x
Temperature sensor				
	PT1000, for cold-junction compensation for CPX module CPX-4AE-TC		553596	CPX-W-PT1000
Memory card				
	For PROFINET bus node (CPX-FB33, CPX-M-FB34, CPX-M-FB35), 2MB		568647	CPX-SK-2



Accessories – Ordering data

	Description	Part No.	Type		Description	Part No.	Type
Manual				Manual			
	Bus node CPX-FB06				CPX system manual		
	German	526433	P.BE-CPX-FB6-DE		German	526445	P.BE-CPX-SYS-DE
	English	526434	P.BE-CPX-FB6-EN		English	526446	P.BE-CPX-SYS-EN
	French	526436	P.BE-CPX-FB6-FR		Spanish	526447	P.BE-CPX-SYS-ES
	Italian	526437	P.BE-CPX-FB6-IT		French	526448	P.BE-CPX-SYS-FR
	Spanish	526435	P.BE-CPX-FB6-ES		Italian	526449	P.BE-CPX-SYS-IT
	Swedish	526438	P.BE-CPX-FB6-SV		Swedish	526450	P.BE-CPX-SYS-SV
	Bus node CPX-FB11				Operator unit CPX-MMI-1		
	German	526421	P.BE-CPX-FB11-DE		German	534824	P.BE-CPX-MMI-1-DE
	English	526422	P.BE-CPX-FB11-EN		English	534825	P.BE-CPX-MMI-1-EN
	French	526424	P.BE-CPX-FB11-FR		French	534827	P.BE-CPX-MMI-1-FR
	Italian	526425	P.BE-CPX-FB11-IT		Italian	534828	P.BE-CPX-MMI-1-IT
	Spanish	526423	P.BE-CPX-FB11-ES		Swedish	534829	P.BE-CPX-MMI-1-SV
	Swedish	526426	P.BE-CPX-FB11-SV		Spanish	534826	P.BE-CPX-MMI-1-ES
	Bus node CPX-FB13				CPX CP interface		
	German	526427	P.BE-CPX-FB13-DE		German	539293	P.BE-CPX-CP-DE
	English	526428	P.BE-CPX-FB13-EN		English	539294	P.BE-CPX-CP-EN
	French	526430	P.BE-CPX-FB13-FR		Spanish	539295	P.BE-CPX-CP-ES
	Italian	526431	P.BE-CPX-FB13-IT		CPX CTCL master		
	Spanish	526429	P.BE-CPX-FB13-ES		German	574600	P.BE-CPX-CTCL-DE
	Swedish	526432	P.BE-CPX-FB13-SV		English	574601	P.BE-CPX-CTCL-EN
	Bus node CPX-FB14				Spanish	574602	P.BE-CPX-CTCL-ES
	German	526409	P.BE-CPX-FB14-DE		Control block CPX-CM-HPP		
	English	526410	P.BE-CPX-FB14-EN		German	568683	P.BE-CPX-CM-HPP-DE
	French	526412	P.BE-CPX-FB14-FR		English	568684	P.BE-CPX-CM-HPP-EN
	Italian	526413	P.BE-CPX-FB14-IT		PROFIsafe shut-off module		
	Spanish	526411	P.BE-CPX-FB14-ES		German	8022606	P.BE-CPX-FVDA-P2-DE
	Swedish	526414	P.BE-CPX-FB14-SV		English	8022607	P.BE-CPX-FVDA-P2-EN
	Bus node CPX-FB23-24				Spanish	8022608	P.BE-CPX-FVDA-P2-ES
	German	526403	P.BE-CPX-FB23-24-DE		French	8022609	P.BE-CPX-FVDA-P2-FR
	English	526404	P.BE-CPX-FB23-24-EN		Italian	8022610	P.BE-CPX-FVDA-P2-IT
	Bus node CPX-FB32				Chinese	8022611	P.BE-CPX-FVDA-P2-ZH
	German	541304	P.BE-CPX-FB32-DE		Digital input/output modules		
	English	541305	P.BE-CPX-FB32-EN		German	526439	P.BE-CPX-EA-DE
	Spanish	541306	P.BE-CPX-FB32-ES		English	526440	P.BE-CPX-EA-EN
	Bus node CPX-FB33, CPX-M-FB34, CPX-M-FB35				Spanish	526441	P.BE-CPX-EA-ES
	German	548759	P.BE-CPX-PNIO-DE		Analogue input/output modules		
	English	548760	P.BE-CPX-PNIO-EN		German	526415	P.BE-CPX-AX-DE
	Spanish	548761	P.BE-CPX-PNIO-ES		English	526416	P.BE-CPX-AX-EN
	Bus node CPX-FB38				Spanish	526417	P.BE-CPX-AX-ES
	German	562524	P.BE-CPX-FB38-DE				
	English	562525	P.BE-CPX-FB38-EN				
	Spanish	562526	P.BE-CPX-FB38-ES				





10 Sensors







Software tool

Configurator		<p>Design a product with numerous features reliably and quickly with the help of the configurator. Select all the required product features step-by-step. The use of logic checks ensures that only correct configurations are available for selection.</p>	<p>The configurator is part of the electronic catalogue and is not available as a separate software program.</p>
Festo Design Tool 3D FDT 3D		<p>This Festo Design Tool 3D is a 3D product configurator for generating specific CAD product combinations from Festo. The configurator makes your search for the right accessory easier, more reliable and faster.</p> <p>You can then order the module that has been created with a single order code – either completely pre-assembled or as individual parts in a single box. As a result, your bill of materials is considerably shortened and downstream processes such as product ordering, order picking and assembly are significantly simplified.</p>	<p>All ordering options are available in the following countries: IT, IE, TR, DK, SE, NO, NL, FI, FR, DE, BE, CH, ES, GB, ZA, AT, SK, PL, CZ, HU, SI, RU.</p> <p>This tool can be found</p> <ul style="list-style-type: none"> • either in the electronic catalogue by clicking on the blue button "Engineering" • or on the DVD under Engineering Tools.


Proximity sensors, for T-slot

Type	 Proximity sensor SDBT	 Proximity sensor SME-8, SME-8M, SME-8-SL, SME-8-FM	 Proximity sensor SMT-8M-A	 Proximity sensor SMT-8F, SMT-8G, SMT-8-SL
Electrical connection	2-wire, 3-wire, 3-pin, cable, cable with plug, M12x1, rotatable thread	2-wire, 3-wire, 3-pin, cable, cable with plug, M8x1, snap collar, plug, rotatable thread, open end	2-wire, 3-wire, 2-pin, 3-pin, cable, cable with plug, M8x1, M12x1, snap collar, rotatable thread	2-wire, 3-wire, 3-pin, cable, cable with plug, M8x1, plug, rotatable thread
Operating voltage range DC	10 ... 30 V	0 ... 230 V	5 ... 30 V	10 ... 30 V
Switching element function	N/O contact	N/O contact, N/C contact	N/C contact, N/C contact or N/O contact switchable, N/O contact	NAMUR, N/O contact
Switching output	2-wire, 3-wire, 2-pin, 3-pin, cable, cable with plug, M12x1, rotatable thread	Contacting, bipolar, without LED function	Non-contacting, 2-wire, NPN, PNP, PNP/NPN switchable	NPN, NAMUR
Description	<ul style="list-style-type: none"> • Oil-resistant, welding field immune, resistant to welding spatter • Measuring principle: magneto-resistive • Screw-clamped, insertable in the slot from above • Cable length 0.3 ... 5 m 	<ul style="list-style-type: none"> • Measuring principle: magnetic reed • Screw-clamped or clamped in slot, insertable in the slot from above or lengthwise • Cable length 0.3, 2.5, 5, 7.5, 0.2 ... 10 m • Variant suitable for use with energy chains and robots • SME-8-...-S6: heat-resistant design 	<ul style="list-style-type: none"> • Short design • Measuring principle: magneto-resistive • Insertable in the slot from above, does not protrude over the cylinder profile • Variant Ex2 for use in potentially explosive areas • Cable length 0.1 ... 30 m 	<ul style="list-style-type: none"> • Measuring principle: magneto-resistive • Insertable in the slot lengthwise or from above • Type SMT-8-F: in accordance with the ATEX directive for explosive atmospheres • Type SMT-8-G: design ideally matched to gripper sensing • Type SMT-8-SL: sturdy thanks to long guides and plug directly at the sensor • Cable length 0.3, 2.5 and 5 m • Suitable for use with energy chains and robots
→ Page/online	sdbt	801	808	smt-8



Proximity sensors, for T-slot

				
Type	Proximity sensor CRSMT-8	Proximity sensor SMEO-8E	Proximity sensor SMTO-8E	Proximity sensor SMPO-8E
Electrical connection	3-wire, cable	2-wire, 3-pin, cable, M8x1, M12x1, plug	3-pin, M8x1, M12x1, plug	
Operating voltage range DC	10 ... 30 V	0 ... 250 V	10 ... 30 V	
Switching element function	N/O contact	N/O contact	N/O contact	
Switching output	PNP	Contacting, contacting bipolar, without LED function	NPN, PNP	
Description	<ul style="list-style-type: none"> • Corrosion-resistant design • Suitable for the food industry, resistant to acids and cooling lubricants • Measuring principle: magneto-resistive • Insertable in the slot lengthwise, flush with the cylinder profile • Cable length 2.5, 5 m 	<ul style="list-style-type: none"> • Sturdy sensor in block design • Measuring principle: magnetic reed • Cable length 2.5 m • Plug integrated in housing • LED switching status indication 	<ul style="list-style-type: none"> • Sturdy sensor in block design • Measuring principle: magneto-resistive • Plug integrated in housing • LED switching status indication 	<ul style="list-style-type: none"> • Pneumatic proximity sensor • Measuring principle: magnetic • Function: 3/2-way valve, normally closed • Pneumatic connection via female thread M5 • Visual switching status indication
→ Page/online	crsmt-8	smeo	smto	smpo




Proximity sensors, for T-slot

	
Type	Proximity sensor SMTSO-8E
Electrical connection	3-pin, M12x1, plug
Operating voltage range DC	10 ... 30 V
Switching element function	N/O contact
Switching output	NPN, PNP
Description	<ul style="list-style-type: none"> • Sturdy sensor in block design • Welding field immune design • Measuring principle: magneto-inductive • Plug integrated in housing • LED switching status indication
→ Page/online	smtso




Proximity sensors, for C-slot

		
Type	Proximity sensor SME-10, SME-10M	Proximity sensor SMT-10M, SMT-10G
Electrical connection	2-pin, 3-pin, 3-wire, cable with plug, M12, M8x1, snap collar, plug, rotatable thread, open end	2-pin, 3-pin, 3-wire, cable, cable with plug, M12, M8x1, snap collar, rotatable thread, open end
Operating voltage range DC	5 ... 30 V	10 ... 30 V
Switching element function	N/O contact	NAMUR, N/O contact
Switching output	Contacting, bipolar	NPN, PNP, non-contacting, 2-wire
Description	<ul style="list-style-type: none"> • Measuring principle: magnetic reed • Clamped in C-slot, insertable in the slot from above or lengthwise • Cable length 0.3, 2.5 m 	<ul style="list-style-type: none"> • Measuring principle: magneto-resistive • Clamped in C-slot, insertable in the slot from above or lengthwise • Cable length 0.3, 2.5 m
→ Page/online	816	821




Proximity sensors, round design

			
Type	Proximity sensor SMEO-4U	Proximity sensor CRSMEO-4	Proximity sensor SMTO-4U
Electrical connection	2-wire, 3-wire, 3-pin, cable, M8x1, M12x1, plug	3-wire, cable	3-wire, 3-pin, cable, M8x1, M12x1, plug
Operating voltage range DC	0 ... 250 V	12 ... 30 V	10 ... 30 V
Switching element function	N/O contact	N/O contact	N/O contact
Switching output	Contacting, contacting bipolar, without LED function	Contacting, bipolar	NPN, PNP
Description	<ul style="list-style-type: none"> Measuring principle: magnetic reed Cable length 2.5, 5 m U-shaped housing 	<ul style="list-style-type: none"> Corrosion-resistant design Measuring principle: magnetic reed Cable length 2.5 m Straight housing 	<ul style="list-style-type: none"> Measuring principle: magneto-inductive Cable length 2.5 m U-shaped housing
→ Page/online	smeo-4	crsmeo-4	smt-4


Proximity sensors, block design

			
Type	Proximity sensor SME-1	Proximity sensor SMT-C1	Proximity sensor SMEO-1
Electrical connection	2-wire, 3-wire, 3-pin, cable, M8x1, plug	3-wire, 3-pin, cable, cable with plug, M8x1, M12x1, rotatable thread	2-wire, 3-wire, 3-pin, cable, M8x1, M12x1, plug
Operating voltage range DC	0 ... 200 V	10 ... 30 V	0 ... 250 V
Switching element function	N/O contact	N/O contact	N/O contact
Switching output	Contacting bipolar	PNP	Contacting, contacting bipolar, without LED function
Description	<ul style="list-style-type: none"> For mounting kit Measuring principle: magneto-inductive With and without LED switching status display 	<ul style="list-style-type: none"> Measuring principle: magneto-inductive LED switching status indication For Clean Design standard cylinder DSBF with mounting rail for sensors 	<ul style="list-style-type: none"> Measuring principle: magnetic reed Cable length 2.5, 5 m SMEO-1-S6: heat-resistant design Designs with and without LED switching status indication
→ Page/online	smt-1	smt-c1	smeo-1





Proximity sensors, block design

			
Type	Proximity sensor SMTO-1	Proximity sensor SMTSO-1	Proximity sensor SMPPO-1
Electrical connection	3-wire, 3-pin, cable, M8x1, plug	3-pin, M12x1, plug	
Operating voltage range DC	10 ... 30 V	10 ... 30 V	
Switching element function	N/O contact	N/O contact	
Switching output	NPN, PNP	PNP	
Description	<ul style="list-style-type: none"> Measuring principle: magneto-resistive Cable length 2.5 m LED switching status indication 	<ul style="list-style-type: none"> Measuring principle: magneto-resistive Welding field immune design LED switching status indication 	<ul style="list-style-type: none"> 3/2-way valve, normally closed Pneumatic proximity sensor Measuring principle: magnetic Pneumatic connection via barbed connector for tubing I.D. 3 mm Visual switching status indication
→ Page/online	smt-1	smtso-1	smpo




Cylinder signal generators

	
Type	Cylinder signal generator PPL
Standard nominal flow rate	48 l/min
Operating pressure	1 ... 8 bar
Pneumatic connection	Barbed connector for 3 mm plastic tubing
Type of mounting	Hollow bolt G1/8, hollow bolt G1/4
Description	<ul style="list-style-type: none"> For contactless pneumatic signal generation at the end of cylinder strokes Function: 3/2-way valve, normally closed Can be screwed directly into the supply port of the cylinder using a hollow bolt
→ Page/online	ppl

Inductive sensors

				
Type	Proximity sensor SIEA	Proximity sensor SIED	Proximity sensor SIEF	Proximity sensor SIEH
Size	M8, M12, M18, M30	M12, M18, M30	40x40x65 mm, M8, M12, M18, M30	3 mm, M12, M18
Switching output		Non-contacting, 2-wire	NPN, PNP	NPN, PNP
Switching element function		N/O contact, N/C contact	Antivalent, N/O contact	N/O contact, N/C contact
Electrical connection	3-pin, 4-pin, M8x1, M12x1, plug	2-wire, 2-pin, cable, M12x1, plug	3-wire, 3-pin, 4-pin, Fixcon, cable, M8x1, M12x1, plug	3-wire, 3-pin, cable, cable with plug, M8x1, M12x1, plug
Operating voltage range DC	15 ... 30 V	10 ... 320 V	10 ... 30 V	10 ... 30 V
Description	<ul style="list-style-type: none"> With analogue output Flush mounting Metric thread 	<ul style="list-style-type: none"> With standard switching distance For DC and AC voltage Metric thread Flush or non-flush mounting With switching status indication Design with metal or polyamide housing 	<ul style="list-style-type: none"> Reduction factor 1 for all metals Welding field immune Flush, partially flush or non-flush mounting With switching status indication Design with housing resistant to welding spatter 	<ul style="list-style-type: none"> With increased switching distance Flush mounting Metric thread With switching status indication Design with stainless steel housing
→ Page/online	siea	sied	sief	sieh




Inductive sensors

Type	 Proximity sensor SIEN	 Proximity sensor SIES-Q	 Proximity sensor SIES-8M
Size	4 mm, 6.5 mm, M5x0.5, M8x1, M12, M12x1, M18, M18x1, M30, M30x1.5	12x26x40 mm, 15x20x30 mm, 40x40x120 mm, 5x5x25 mm, 8x8x40 mm	T-slot
Switching output	NPN, PNP	NPN, PNP	NPN, PNP
Switching element function	N/O contact, N/C contact	Antivalent, N/O contact, N/C contact	N/O contact, N/C contact
Electrical connection	3-wire, 3-pin, cable, M8x1, M12x1, plug	3-wire, 3-pin, cable, cable with plug, M8x1, screw terminal, plug, rotatable thread	3-wire, 3-pin, cable, cable with plug, M8x1, rotatable thread
Operating voltage range DC	10 ... 30 V	10 ... 30 V	10 ... 30 V
Description	<ul style="list-style-type: none"> • With standard switching distance • For DC voltage • Round design • Metric thread • Flush or non-flush mounting • With switching status indication • Design with metal housing • Design with polyamide housing 	<ul style="list-style-type: none"> • Block design • Flush mounting • With switching status indication 	<ul style="list-style-type: none"> • Suitable for position sensing for electric axes EGC and grippers with T-slot • With 2 LEDs for better visibility • Flush mounting
→ Page/online	827	sies	831





Position sensors

Type	 Position transmitter SDAT-MHS	 Position transmitter SMAT-8E	 Position transmitter SMAT-8M	 Position sensor SMH-S1
Design	For T-slot	For T-slot	For T-slot	For gripper
Position measuring range	0 ... 160 mm	0 ... 50 mm	0 ... 40 mm	
Analogue output	0 ... 20 mA	0 ... 10 V, 0 ... 20 mA	0 ... 10 V	
Electrical connection	4-pin, cable with plug, M8x1, rotatable thread	4-pin, M8x1, plug	4-pin, cable with plug, M8x1, rotatable thread	4-pin, cable with plug, M8x1
Description	<ul style="list-style-type: none"> • Sensor principle: Hall sensor • Insertable in the slot from above, screw-clamped • Variant with cable properties suitable for energy chain and robot • LED status display • Cable length 0.3 m 	<ul style="list-style-type: none"> • Measuring principle: magnetic • Insertable in the slot lengthwise • Current and voltage signal at the analogue output • Variant with cable attributes suitable for use with energy chains and robots • LED status indication • Cable length 2.5 m, 5 m 	<ul style="list-style-type: none"> • Measuring principle: magnetic • Insertable in the slot from above, central clamping • Displacement-proportional analogue output signal • Variant with cable attributes suitable for use with energy chains and robots • LED status indication • Cable length 0.3 m 	<ul style="list-style-type: none"> • Measuring principle: magnetic Hall • Freely selectable switching points • 3 gripper positions can be detected using an evaluation unit
→ Page/online	smat-8e	smat-8e	smat-8m	smh-s1





Position sensors

Type	 Displacement encoder MLO-POT-TLF	 Displacement encoder MLO-POT-LWG	 Displacement encoder MME-MTS-TLF
Stroke	225 ... 2,000 mm	100 ... 750 mm	225 ... 2,000 mm
Measuring principle of displacement encoder	Analogue	Analogue	Digital
Output signal	Analogue	Analogue	CAN protocol type SPC-AIF
Displacement resolution	0.01 mm	0.01 mm	0 ... 0.01 mm
Description	<ul style="list-style-type: none"> Conductive plastic potentiometer Absolute measurement with high resolution High travel speed and long service life Several mounting options on pneumatic linear drives DGPL Plug-in connections 	<ul style="list-style-type: none"> Connecting rod potentiometer Absolute measurement with high resolution Long service life High protection class Plug-in connections 	<ul style="list-style-type: none"> Measuring principle: magnetostrictive Contactless with absolute measurement High travel speed System product for servopneumatic Positioning technology and Soft Stop
→ Page/online	mlo	mlo	mme



Pressure and vacuum sensors

Type	 Pressure sensor SPAW	 Pressure switch SPBA	 Pressure transmitter SPTE	 Pressure transmitter SPTW
Pressure measuring range	-1 ... 100 bar		-1 ... 10 bar	-1 ... 10 bar
Switching element function	Switchable	Antivalent, changeover switch		
Pneumatic connection	Male thread G1/2, female thread G1/4	G1/8	Flange, QS-3, QS-4, push-in sleeve QS-4, push-in sleeve QS-6	G1/4
Electrical connection	Plug, to EN 60947-5-2, M12x1, 4-pin, 5-pin, round	Plug, to EN 60947-5-2, M12x1, 4-pin, round	3-wire, cable, open end	4-pin, M12x1, plug, to EN 60947-5-2, round design
Display type	4-digit alphanumeric, LED display			
Description	<ul style="list-style-type: none"> Extremely sturdy For liquid and gaseous media Quick and convenient setting of the switching outputs using three buttons Optimum legibility of the display in all mounting positions 	<ul style="list-style-type: none"> For solenoid valve VSVA Pressure sensor with permanently set switching point Mounting: screw-in 	<ul style="list-style-type: none"> Piezoresistive pressure sensor Measured variable: relative pressure Cable length 2.5 m 	<ul style="list-style-type: none"> Sensor versions: piezoresistive pressure sensor or metal thin-film pressure sensor Measured variable: relative pressure
→ Page/online	spaw	spba	spte	sptw




Pressure and vacuum sensors

Type	 Pressure sensor SPAB	 Pressure switch, vacuum switch PEV, VPEV	 PE converter PEN, PE, VPE	 Pressure sensor SDE1
Pressure measuring range	-1 ... 10 bar	-1 ... 10 bar	-1 ... 8 bar	-1 ... 10 bar
Switching element function	Switchable	Changeover switch	N/O contact, changeover switch	Switchable
Pneumatic connection	Male thread G1/8, male thread NPT1/8-27, male thread R1/8, female thread M5	G1/8, G1/4, M5	G1/8, M5, PK-3, PK-4	G1/8, QS-4, R1/8, R1/4
Electrical connection	4-wire, 4-pin, cable, M8x1, plug, to EN 60947-5-2, round design, square design	4-pin, type A, M8x1, M12x1, screw terminal, plug, to DIN 43650, to EN 60947-5-2, round design, square design	3 cords, 3-wire, 4-wire, cable, screw terminal	3-pin, 4-pin, 5-pin, cable with plug, M8x1, M12x1, plug, to EN 60947-5-2, round design
Display type	Illuminated LCD, multi-colour			Illuminated LCD, back-lit LCD
Description	<ul style="list-style-type: none"> Relative pressure measurement Switching output PNP, NPN and analogue output Two-part, multi-coloured display Easy commissioning thanks to intuitive operation Compact design 30x30 mm Certification: c UL us Listed (OL), C-Tick 	<ul style="list-style-type: none"> Mechanical pressure and vacuum switch Adjustable switching point Screw-in, via through-holes or via H-rail Visual scale for pressure adjustment Certification: CCC 	<ul style="list-style-type: none"> Pneumatic/electric differential pressure switch Pneumatic/electric pressure transducer Design for vacuum Mounting on mounting frame 2N Splash-proof design Certification: CCC 	<ul style="list-style-type: none"> Five pressure measuring ranges Measurement of relative or differential pressure Switching outputs PNP, NPN and with analogue current or voltage output LCD or illuminated LCD display Via H-rail, via wall/surface bracket, mounting on service unit, front panel mounting Certification: c UL us Listed (OL), C-Tick
→ Page/online	spab	pev	pen	834



Pressure and vacuum sensors

Type	 Pressure sensor SDE3	 Pressure sensor SDE5
Pressure measuring range	-1 ... 10 bar	-1 ... 10 bar
Switching element function	Switchable	N/O contact, switchable, N/C contact
Pneumatic connection	QS-5/32, QS-4	QS-5/32, QS-1/4, QS-4, QS-6
Electrical connection	4-pin, 5-pin, cable, cable with plug, M8x1, M12x1, plug, to EN 60947-5-2, round design	3-wire, 3-pin, cable, M8x1, plug, to EN 60947-5-2, round design
Display type	Illuminated LCD	
Description	<ul style="list-style-type: none"> Five pressure measuring ranges Measurement of relative or differential pressure or 2 independent pressure inputs Switching output 2x PNP or 2x NPN Numerical and graphical pressure indication Via H-rail, via wall/surface bracket, front panel mounting, via through-holes Certification: C-Tick, ATEX, c UL us Listed (OL) 	<ul style="list-style-type: none"> Programmable and configurable pressure switch for simple pressure sensing tasks Trigger/window comparator Teach-in function for programming Integrated microprocessor Switching status indicated by an LED visible from all sides Certification: c UL us Listed (OL), C-Tick
→ Page/online	sde3	839





Flow sensors

Type	 Flow sensor SFAB	 Flow sensor SFAM	 Flow sensor SFE3
Flow measuring range	0.1 ... 1,000 l/min	10 ... 15,000 l/min	0.05 ... 50 l/min
Operating medium	Compressed air to ISO 8573-1:2010 [6:4:4], compressed air to ISO 8573-1:2010 [7:4:4], nitrogen	Compressed air to ISO 8573-1:2010 [7:4:4], nitrogen	Compressed air to ISO 8573-1:2010 [1:4:2], nitrogen
Operating pressure	0 ... 10 bar	0 ... 16 bar	-0.7 ... 7 bar
Pneumatic connection	QS-5/16, QS-1/4, QS-3/8, QS-6, QS-8, QS-10, QS-12	Manifold module, G1/2, G1, G1 1/2, NPT1 1/2-11 1/2, NPT1-11 1/2, NPT1/2-14	Female thread G1/8, QS-6
Electrical connection	5-pin, M12x1, straight plug	5-pin, M12x1, straight plug	Cable
Description	<ul style="list-style-type: none"> Flow sensor with integrated digital display With unidirectional flow input Mounting: H-rail mounting, wall or surface mounting Certification: C-Tick 	<ul style="list-style-type: none"> Stand-alone device or combined with MS series service units Supplies absolute flow information and accumulated air consumption measurement Covers large measuring range with specified precision thanks to high dynamic response Large, illuminated LCD display 	<ul style="list-style-type: none"> Flow sensor with integrated digital display With unidirectional flow input Mounting: via through-holes or mounting bracket Electrical connection via open cable end Cable length 1 m Certification: C-Tick
→ Page/online	sfab	sfam	sfe3





Flow sensors

Type	 Flow sensor SFET	 Flow indicator SFEV
Flow measuring range	-10 ... 50 l/min	Cable
Operating medium	Compressed air to ISO 8573-1:2010 [1:4:2], nitrogen	
Operating pressure	-0.9 ... 7 bar	
Pneumatic connection	Female thread G1/8, QS-4, QS-6	
Electrical connection	Cable	
Description	<ul style="list-style-type: none"> With unidirectional (SFET-F) or bidirectional (SFET-R) flow input Mounting: via through-holes or mounting bracket Electrical connection via open cable end Cable length 1, 3 m Certification: C-Tick 	<ul style="list-style-type: none"> For flow sensor SFET 3 1/2-digit alphanumeric display Indicating range: 0.05 ... 50 l/min (for flow sensor SFET-F), -0.05 ... +10 l/min (for flow sensor SFET-R)
→ Page/online	sfet	sfev



Opto-electronic sensors

				
Type	Sensor SOEG-RT, SOEG-RS	Through-beam sensor SOEG-E, SOEG-S	Fibre-optic unit SOEG-L	Laser diffuse sensor, laser retro-reflective sensor SOEL-RT, SOEL-RS
Method of measurement	Diffuse sensor, retro-reflective sensor, background suppression sensor, diffuse sensor with cylindrical light beam, distance sensor, for transparent objects, laser retro-reflective sensor	Through-beam sensor, receiver, transmitter	Fibre-optic unit	Contrast sensor, background suppression sensor, laser retro-reflective sensor
Working range	0 ... 5,500 mm	0 ... 20,000 mm	0 ... 250 mm	0 ... 20,000 mm
Size	Diameter 4 mm, M5, M12x1, M18x1 straight, M18x1 angled, 20x32x12 mm, 30x30x15 mm, 50x50x17 mm	M18x1 straight, M18x1 angled, 20x32x12 mm, 30x30x15 mm, 50x50x17 mm	20x32x12 mm, 30x30x15 mm	20x32x12 mm, 50x50x17 mm
Type of light	Infrared, red, polarised red	Infrared, red	Red	Laser, red, polarised red
Switching output	NPN, PNP	NPN, PNP	NPN, PNP	NPN, PNP
Description	<ul style="list-style-type: none"> Round design, block design Setting option: teach-in by means of a button and via electrical connection Electrical connection via open cable end or plug 	<ul style="list-style-type: none"> Round design, block design Setting option: potentiometer, teach-in or teach-in via electrical connection Electrical connection via open cable end or plug 	<ul style="list-style-type: none"> Block design Setting option: potentiometer, teach-in or teach-in via electrical connection Electrical connection via open cable end or plug 	<ul style="list-style-type: none"> Setting option: teach-in, teach-in via electrical connection, potentiometer Electrical connection via open cable end or plug
→ Page/online	844	848	850	852





Opto-electronic sensors

				
Type	Colour sensor SOEC	Fibre-optic unit SOE4	Fork light barrier SOEF	Fibre-optic cable SOOC, SOEZ
Method of measurement	Colour sensor	Fibre-optic unit	Fork light barrier	Through-beam sensor, fixed focus, fork light barrier, diffuse sensor
Working range	12 ... 32 mm	2 ... 2,000 mm		2 ... 650 mm
Size	50x50x17 mm		Fork 120x60 mm, fork 30x35 mm, fork 50x55 mm, fork 80x55 mm	
Type of light	White	Red	Red	
Switching output	PNP	NPN, PNP	NPN, PNP	
Description	<ul style="list-style-type: none"> Diffuse sensor Block design Setting option: teach-in, teach-in via electrical connection Electrical connection via plug M12x1, 8-pin Display via 7 LEDs 	<ul style="list-style-type: none"> Use for precise and space-saving position sensing in electronics and light assembly Switching frequencies up to 8,000 Hz Operational with fibre-optic cable SOOC as accessory Variants: LED or LED display, timer function Setting option: teach-in H-rail mounting or via through-holes With protection against mutual interference 	<ul style="list-style-type: none"> Through-beam sensor with minimal installation effort Design: polymer or metal Sturdy housing: high shock and vibration resistance Protection class IP67 Electrical connection via plug M8x1, 3-pin Setting option: potentiometer or teach-in LED displays 	<ul style="list-style-type: none"> Thread M4, M6 Voltage 10 ... 30 V DC Cable connection, push-in connector
→ Page/online	soec	soe4	soof	sooc

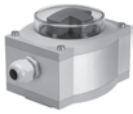
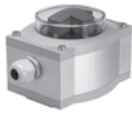

Signal converters

		
Type	Signal converter SVE4	Evaluation unit SMH-AE
Signal range	0 ... 10 V +/-0.3 V, 0 ... 20 mA +/-0.6 mA, adapted for position sensors SMH-S1-HG	
Switching output	2x NPN, 2x PNP	NPN, PNP
Switching function	Freely programmable	
Electrical connection, output	4-pin, M8x1, plug, to EN 60947-5-2	5-pin, plug, M12x1
Electrical connection, input	4-pin, socket, M8x1, to EN 60947-5-2	4-pin, socket, M8x1, to EN 60947-5-2
Description	<ul style="list-style-type: none"> Converts analogue signals into switching points Switching function freely programmable via teach-in Threshold value, hysteresis or window comparator Mounting directly on H-rail or via adapter plate LED switching status indication Certification: c UL us Listed (OL), C-Tick 	<ul style="list-style-type: none"> Electronic evaluation unit for Hall sensor SMH-S1 Amplifies the signal from the sensor With 3 potentiometers for setting 3 switching points LED operating and switching status indicators
→ Page/online	sve4	smh-ae



Air gap sensors

				
Type	Air gap sensor SOPA	Micro reflex sensor, reflex sensor RML, RFL	Back pressure end stop SD-2, SD-3, SD-3-N	Air barrier SFL, SML
Sensing range	20 ... 200 µm	Distance between nozzles 4.8 ... 5.1 mm, 4.5 ... 15.5 mm	Distance between nozzles 0 ... 0.5 mm	Distance between nozzles 5 ... 50 mm, to 100 mm
Operating pressure	4 ... 7 bar	0.075 ... 0.5 bar, 0.1 ... 1.5 bar	0 ... 8 bar	0.1 ... 0.4 bar, 0.1 ... 4 bar, 0 ... 8 bar
Display type	Illuminated LCD, multi-colour	Signal pressure ≥0.5 mbar	Pressure signal 0 ... 8 bar	Pneumatic signal
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]	Filtered, unlubricated compressed air	Compressed air, filtered, lubricated or unlubricated	Filtered, unlubricated compressed air
Description	<ul style="list-style-type: none"> Convenient solution for high-precision contact and distance monitoring Setting option: teach-in or numerical setting using three buttons Integrated air jet function Multi-coloured LCD display H-rail mounting, wall mounting, via through-holes Certification: C-Tick 	<ul style="list-style-type: none"> Back pressure actuated valve For non-contacting sensing of indicating instruments, checking pressing and stamping tools, edge control, magazine control, for measuring and counting Can be used with heavy accumulations of dirt, in complete darkness, with translucent or magnetic objects 	<ul style="list-style-type: none"> Can be used for stroke-dependent signal generation as a limit switch and fixed stop Type SD-3-N for sensing of fluid levels and heavily foaming liquids Ideal for end-position sensing and position control with high accuracy requirements and small actuating forces For use in inaccessible places 	<ul style="list-style-type: none"> Sender nozzle, receiver nozzle, gap sensor Back pressure actuated valve Operational reliability even with heavy accumulation of dirt Reliable even with high ambient temperatures Insensitive to mechanical influences and sound waves Reliable even in complete darkness and when sensing translucent objects
→ Page/online	sopa	rfl	sd	sml



Sensor boxes

			
Type	Sensor box SRAP	Sensor box SRBP	Limit switch attachment SRBF
Measured variable	Rotation angle	Rotation angle	
Operating voltage range AC		19.2 ... 28.8 V	0 ... 250 V
Operating voltage range DC	15 ... 30 V	7.8 ... 28.8 V	0 ... 24 V
Electrical connection	9-pin, screw terminal, plug-in	9-pin, screw terminal, plug-in	
Type of mounting	Adapter kit DASB, coupling DARQ	Adapter kit DASB, coupling DARQ	On flange to ISO 5211, via accessories
Description	<ul style="list-style-type: none"> Based on VDI/VDE 3845 (NAMUR) Analogue For monitoring the position of semi-rotary actuators Sensors based on 2D Hall technology 	<ul style="list-style-type: none"> Based on VDI/VDE 3845 (NAMUR) Binary Position sensor for semi-rotary actuators Sensors based on reed technology 	<ul style="list-style-type: none"> Based on ISO 5211, DIN EN 60947-5-1 With two mechanical switches For mechanical, electric proximity sensor
→ Page/online	srp	srbp	srbf

Sensor boxes

		
Type	Limit switch attachment DAPZ	Limit switch attachment QH-DR-E
Measured variable		
Operating voltage range AC	0 ... 250 V	0 ... 250 V
Operating voltage range DC	0 ... 250 V	0 ... 250 V
Electrical connection	Screw terminal, plug-in	Screw terminal
Type of mounting	Kit DAPZ-...-RO	Via through-holes
Description	<ul style="list-style-type: none"> Square or round design Drive interface to NAMUR VDI/VDE 3845 With pneumatic, electric or inductive sensing 	<ul style="list-style-type: none"> Three measuring principles: pneumatic; mechanical, electrical; inductive
→ Page/online	dapz	qh-dr

Electromechanical switches

		
Type	Micro switch S-3	Electric limit switch EL, ER
Operating voltage range AC	12 ... 250 V	0... 250 V
Operating voltage range DC	12 ... 250 V	0 ... 250 V
Electrical connection	Screw connector	4-wire cable with protective earth conductor, 1.1 m
Protection class	IP00	IP54
Type of mounting	2 through-holes in housing, mounting plate	2 through-holes in housing
Description	<ul style="list-style-type: none"> Electrical limit switch N/C contact, N/O contact, changeover switch Actuator attachments: roller lever type AR, roller lever with idle return type AL, whisker attachment type AF 	<ul style="list-style-type: none"> For signalling in end positions Max. switching frequency 200/min With roller lever or with toggle lever and idle return N/C contact, N/O contact, changeover switch
→ Page/online	s-3	el



- Switching output via reed contact or non-contacting
 - Secured with screw or clamped, insertable in the slot from above or lengthwise
 - Heat, welding field and corrosion-resistant designs
 - Suitable for use with energy chains and robots
 - Selected types in accordance with the ATEX Directive for explosive atmospheres → www.festo.com/catalogue/ex
- ★ Quick ordering of basic designs → 804, 811

→ www.festo.com/catalogue/sme-8

Product range overview

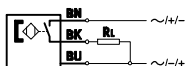
Measuring principle	Type	Electrical connection	Operating voltage range	Switching output	Switching element function	→ Page/online
Magnetic reed	Standard					
	SME-8M	Cable – 2-wire – 3-wire Cable with plug, 2-pin Cable with plug, 3-pin – M8x1, rotatable thread – M8x1, snap-on flange – M12x1, rotatable thread	5 ... 30 V AC 5 ... 30 V DC	Contacting, bipolar	N/O contact N/C contact	803
	SME-8	Cable – 2-wire – 3-wire Cable with plug, 3-pin – M8x1	3 ... 230 V AC 3 ... 230 V DC	Contacting, bipolar	N/O contact N/C contact	805
	SME-8-SL	Plug, 3-pin – M8x1	10 ... 30 V AC 10 ... 30 V DC	Contacting, bipolar	N/O contact	sme
	SME-8-FM	Cable – 2-wire – 3-wire	10 ... 30 V AC 10 ... 30 V DC	Contacting, bipolar	N/O contact	sme
	Block design					
	SME0-8E	Plug, 3-pin – M8x1 – M12x1	3 ... 230 V AC 3 ... 250 V DC	Contacting, bipolar	N/O contact	smeo
	Heat-resistant up to 120 °C					
	SME-8-...-S6	Cable – 2-wire	0 ... 30 V AC 0 ... 30 V DC	Contacting, bipolar	N/O contact	805
	SME0-8E-...-S6	Cable – 2-wire	0 ... 30 V AC 0 ... 30 V DC	Contacting	N/O contact	smeo

Proximity sensors SME/SMT-8, for T-slot

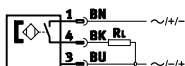
Product range overview

Measuring principle	Type	Electrical connection	Operating voltage range	Switching output	Switching element function	→ Page/online
Magneto-resistive	Short design					
	SMT-8M-A	Cable, 3-wire Cable with plug, 3-pin – M8x1, rotatable thread – M12x1, rotatable thread	5 ... 30 V DC	PNP	N/O contact	808
				NPN Non-contacting, 2-wire	N/C contact	
	Standard					
	SMT-8	Cable, 3-wire Cable with plug, 3-wire – M8x1	10 ... 30 V DC	PNP NPN	N/O contact	smt
	SMT-8-SL	Plug, 3-pin – M8x1	10 ... 30 V DC	PNP	N/O contact	smt
	SMT-8G	Cable, 3-wire Cable with plug, rotatable thread – M8x1, 3-pin	10 ... 30 V DC	PNP	N/O contact	smt
	Corrosion-resistant					
	CRSMT-8	Cable, 3-wire	10 ... 30 V DC	PNP	N/O contact	812
	Block design					
SMT0-8E	Plug, 3-pin – M8x1 – M12x1	10 ... 30 V DC	PNP NPN	N/O contact	smt0	
Magneto-inductive	Welding field immune					
	SMTS0-8E	Plug, 3-pin – M12x1	10 ... 30 V DC	PNP NPN	N/O contact	smtso

Technical data



E.g. N/O contact, 3-wire, with cable



E.g. N/O contact, 3-wire, with plug



Technical data		Download CAD data → www.festo.com		
SME-8M-	DS	ZS	DO	
Measuring principle	Magnetic reed			
Switching output	Contacting, bipolar			
Switching element function	N/O contact	N/O contact	N/C contact	
Operating voltage range [V DC]	5 ... 30			
Operating voltage range [V AC]	5 ... 30			
Max. output current [mA]	500	80	80	
Type of mounting	Screw-clamped, insertable in the slot from above			
Special characteristics	Oil-resistant			
Cable length [m]	0.2 ... 10			
Max. connecting cable length [m]	10			
Length/width/height [mm]	32/5/5			

Pin allocation to EN 60947-5-2

DS				ZS			
Plug, 3-pin				Plug, 2-pin			
M12x1	Pin	Wire colour	Allocation	M8x1	Pin	Wire colour	Allocation
	1	Brown	+		1	Brown	+
	3	Blue	-		4	Blue	-
	4	Black	Output				

ZS				DO			
Plug, 2-pin				Plug, 3-pin			
M12x1	Pin	Wire colour	Allocation	M8x1	Pin	Wire colour	Allocation
	1	Brown	+		1	Brown	+
	4	Blue	-		3	Blue	-
					4	Black	Output

DO			
Plug, 3-pin			
M12x1	Pin	Wire colour	Allocation
	1	Brown	+
	3	Blue	-
	2	White	Output

10

Operating conditions

Ambient temperature [°C]	-40 ... +70
Ambient temperature with flexible cable installation [°C]	-5 ... +70

Materials

Housing	PA, TPE-(PU), high-alloy stainless steel, nickel-plated brass
Cable sheath	TPE-U (PU), oil-resistant

Proximity sensors SME-8M, for T-slot

FESTO

Order code

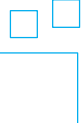
		SME	-	8M	-		-	24 V	-		-		-	
Type														
SME	Proximity sensor, magnetic reed													
Design														
8M	For T-slot, insertable in the slot from above													
Switching output, switching element function														
ZS	N/O contact, 2-wire													
DS	N/O contact, 3-wire													
DO	N/C contact, 3-wire													
Rated operating voltage														
24 V	24 V DC													
Cable characteristics														
K	Standard + energy chain													
E	Energy chain + robot													
Cable length														
...	0.2 m ... 10 m (0.2 ... 5.0 m in 0.1 m increments, 5.0 ... 10 m in 0.5 m increments)													
Connection technology														
OE	Open end													
M8	Cable with plug M8x1, snap-on flange													
M8D	Cable with plug M8x1, rotatable thread													
M12	Cable with plug M12x1, rotatable thread													

Order example:

SME-8M-DS-24 V-K-2,5-OE

Proximity sensor, magnetic reed - for T-slot, insertable in the slot from above - N/O contact, 3-wire - 24 V DC - standard + energy chain - cable 2.5 m - open end

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
[→ www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the type code in the search field.

★ Quick ordering

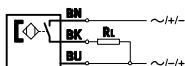
N/O contact, contacting, bipolar

Part No.	Type
Electrical connection – Cable, 3-wire	
543862	SME-8M-DS-24 V-K-2,5-OE
543863	SME-8M-DS-24 V-K-5,0-OE
Cable with plug, M8x1, rotatable thread, 3-pin	
543861	SME-8M-DS-24 V-K-0,3-M8D
Cable, 2-wire	
543872	SME-8M-ZS-24 V-K-2,5-OE

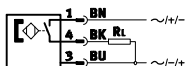
N/C contact, contacting, bipolar

Part No.	Type
Cable, 3-wire	
546799	SME-8M-DO-24 V-K-7,5-OE

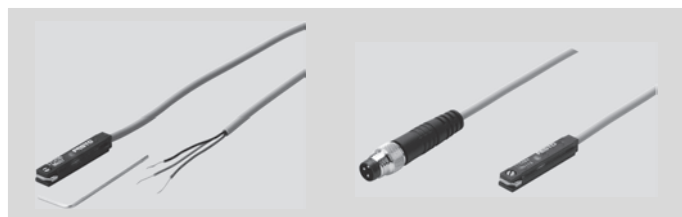
Technical data



E.g. N/O contact, 3-wire, with cable



E.g. N/O contact, 3-wire, with plug



Technical data		Download CAD data → www.festo.com					
Electrical connection	3-wire			2-wire			
Connection direction	In-line			In-line			
Variant	Standard			Heat-resistant	Standard		
SME-8-	K	S	0	K-24-S6	K-LED-230	ZS	
Measuring principle	Magnetic reed						
Switching output	Contacting, bipolar						
	-				Without LED function		
Switching element function	N/O contact	N/O contact	N/C contact	N/O contact	N/O contact	N/O contact	
Operating voltage range [V DC]	12 ... 30	12 ... 30	12 ... 30	0 ... 30	3 ... 230	12 ... 27	
Operating voltage range [V AC]	12 ... 30	12 ... 30	12 ... 30	0 ... 30	3 ... 230	-	
Max. output current [mA]	500	500	50	500	120	80	
Type of mounting	Clamped in T-slot, insertable in the slot lengthwise						
Cable length [m]	2.5	0.3	7.5	2.5	2.5	2.5	
	5						
	7.5						
Length/width/height [mm]	29/7/5	29/7/5	31/7/5	29/7/5	27/7/10	31/7/5	

Pin allocation to EN 60947-5-2

Plug, 3-pin, M8x1	Pin	Wire colour	Allocation
	1	Brown	+
	3	Blue	-
	4	Black	Output

Operating conditions

Electrical connection	K	K5	K-7,5	S	0	K-24-S6	K-LED-230	ZS
Ambient temperature [°C]	-40 ... +60	-40 ... +70	-40 ... +70	-40 ... +70	-40 ... +60	-40 ... +120	-30 ... +60	-40 ... +60
Ambient temperature with flexible cable installation [°C]	-5 ... +60	-5 ... +70	-5 ... +70	-5 ... +70	-5 ... +60	-5 ... +120	-5 ... +60	-5 ... +60

Materials	SME-8	SME-8-...-S6
Housing	Epoxy resin, PC, PET, high-alloy stainless steel	
Cable sheath	TPE-U (PUR)	Thermoplastic styrene elastomer

Proximity sensors SME-8, for T-slot

Order code – 3-wire

SME		–	8	–	–	–	LED	–	24
Type									
SME	Proximity sensor, magnetic reed								
Design									
8	For T-slot, insertable in the slot lengthwise								
Switching element function									
–	N/O contact, 3-wire								
0	N/C contact, 3-wire								
Electrical connection, cable length									
K	Cable, 2.5 m (N/O contact)								
	Cable, 7.5 m (N/C contact)								
K5	Cable, 5 m								1
K-7,5	Cable, 7.5 m								1
S	Cable with plug M8x1, 0.3 m								1
Switching status display									
LED	Yellow LED								
Rated operating voltage									
24	24 V DC								

1 Not with switching element function 0

Order example:

SME-8-K-LED-24

Proximity sensor, magnetic reed - for T-slot, insertable in the slot lengthwise - N/O contact, 3-wire - cable 2.5 m - yellow LED - 24 V DC

Order code – 2-wire, heat-resistant

SME		–	8	–	–	–	K	–	24	–	S6
Type											
SME	Proximity sensor, magnetic reed										
Design											
8	For T-slot, insertable in the slot lengthwise										
Switching element function											
–	N/O contact, 2-wire										
Electrical connection, cable length											
K	Cable, 2.5 m										
Rated operating voltage											
24	24 V DC										
Variant											
S6	Heat-resistant										

Order example:

SME-8-K-24-S6

Proximity sensor, magnetic reed - for T-slot, insertable in the slot lengthwise - N/O contact, 2-wire - cable 2.5 m - 24 V DC - heat-resistant

Order code – 2-wire, in-line connection

		SME	–	8	–		–	LED	–	
Type										
SME	Proximity sensor, magnetic reed									
Design										
8	For T-slot, insertable in the slot lengthwise									
Switching element function										
–	N/O contact, 2-wire									
ZS	N/O contact, without LED function, 2-wire									
Electrical connection, cable length										
K	Cable, 2.5 m	1								
KL	Cable, 2.5 m	2								
Switching status display										
LED	Yellow LED									
Rated operating voltage										
24	24 V DC	2								
230	230 V AC	1								

1 Not with switching element function ZS

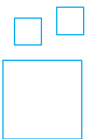
2 Only with switching element function ZS

Order example:

SME-8-K-LED-230

Proximity sensor, magnetic reed - for T-slot, insertable in the slot lengthwise - N/O contact, 2-wire - cable 2.5 m - yellow LED - 230 V DC

Ordering – Product options



Configurable product

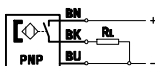
This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
 → www.festo.com/catalogue/...

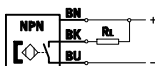
Enter the type code in the search field.

Proximity sensors SMT-8M-A, for T-slot

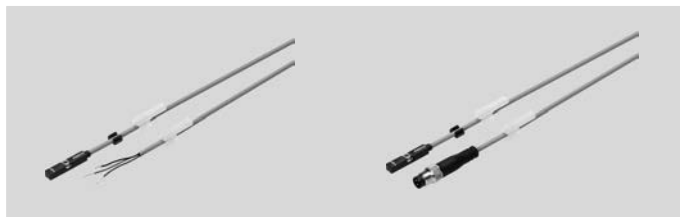
Technical data



E.g. N/O contact, PNP, with cable



E.g. N/O contact, NPN, with cable



Technical data		Download CAD data → www.festo.com					
SMT-8M-A		PS	NS	PO	ZS	PNS	PSO
Measuring principle		Magneto-resistive					
Switching output		PNP	NPN	PNP	Non-contacting, 2-wire	PNP, NPN switchable	PNP
Switching element function		N/O contact	N/O contact	N/C contact	N/O contact	N/O contact	N/C contact, N/O contact switchable
Operating voltage range	[V DC]	5 ... 30				7 ... 30	
Max. output current	[mA]	100 ¹⁾	100 ¹⁾	100 ¹⁾	80 ¹⁾	100	100
Max. output current in mounting kits	[mA]	100				80 ¹⁾	100
Max. switching capacity DC	[W]	2.8	2.8	2.8	1.9	2.7	2.7
Max. switching capacity DC in mounting kits	[W]	2.8 ²⁾	2.8 ²⁾	2.8 ²⁾	1.5 ²⁾	2.7	2.7
Type of mounting		Secured with screw, insertable in the slot from above					
Cable length	[m]	0.1 ... 30					
Max. connecting cable length	[m]	30					
Length/width/height	[mm]	29/5/5				35/5/5	

- 1) Variant ...PS/NS/PO-...-Ex2: max. output current in mounting kits 80 mA, T_a 70 °C.
Variant ...ZS-...-Ex2: max. output current in mounting kits 50 mA, T_a 70 °C.
2) Variant ...PS/NS/PO-...-Ex2: max. switching capacity 2.2 W.
Variant ...ZS-...-Ex2: max. switching capacity 1.2 W.

Pin allocation to EN 60947-5-2

ZS			
M8x1, 2-pin			
M8x1	Pin	Wire colour	Allocation
	1	Brown	+
	4	Blue	-

ZS			
M12x1, 2-pin			
M12x1	Pin	Wire colour	Allocation
	1	Brown	+
	4	Blue	-

Pin allocation to EN 60947-5-2

PS/NS/PO			
Plug, 3-pin			
M8x1	Pin	Wire colour	Allocation
	1	Brown	+
	3	Blue	-
	4	Black	Output

PS/NS			
Plug, 3-pin			
M12x1	Pin	Wire colour	Allocation
	1	Brown	+
	3	Blue	-
	4	Black	Output

PO			
Plug, 3-pin			
M12x1	Pin	Wire colour	Allocation
	1	Brown	+
	3	Blue	-
	2	White	Output

Technical data

Operating conditions		
Ambient temperature	[°C]	-40 ... +85
Ambient temperature with flexible cable installation	[°C]	-20 ... +85

ATEX		
SMT-8M-A-...-		Ex2
ATEX category for gas		II 3G
Explosion ignition protection type for gas		Ex nA IIC T4 X Gc
ATEX category for dust		II 3D
Explosion ignition protection type for dust		Ex tc IIIC T120 °C X Dc IP65
Explosion-proof temperature		-40 °C ≤ Ta ≤ +70 °C
ATEX certification		For zones 2 and 22
CE marking (see declaration of conformity)		To EU Explosion Protection Directive (ATEX)

Materials		
Housing		PA reinforced, high-alloy stainless steel, nickel-plated brass
Cable sheath		TPE-U (PU)

Proximity sensors SMT-8M-A, for T-slot

Order code

		SMT-8M	-	A	-		-	24 V	-	E	-		-		-		-	
Type																		
SMT-8M	Proximity sensor, magneto-resistive, for T-slot, insertable in the slot from above																	
Design																		
A	Short design																	
Switching output																		
PS	PNP, N/O contact, 3-wire																	
PO	PNP, N/C contact, 3-wire																	
NS	NPN, N/O contact, 3-wire																	
ZS	N/O contact, 2-wire																	
PNS	PNP, NPN switchable																	
PSO	PNP, N/C contact, N/O contact switchable																	
Rated operating voltage																		
24 V	24 V DC																	
Cable characteristics																		
E	Energy chain + robot																	
Cable length																		
...	0.1 m ... 30 m (0.1 ... 5.0 m in 0.1 m increments, 5.0 ... 30 m in 0.5 m increments)																	
Cable designation																		
-	With inscription label holder																	
N	Without inscription label holder																	
Electrical connection																		
OE	Open end																	
M8	Cable with plug M8x1, snap-on flange																	
M8D	Cable with plug M8x1, rotatable thread																	
M12	Cable with plug M12x1, rotatable thread																	
EU certification																		
Ex2	II 3GD in accordance with EU Directive 94/9/EC 1																	

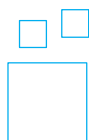
1 Not with switching output PNS, PSO, minimum cable length 0.2 m

Order example:

SMT-8M-A-PS-24 V-E-0,3-M8D

Proximity sensor, magneto-resistive, for T-slot, insertable in the slot from above - short design - PNP, N/O contact, 3-wire - 24 V DC - energy chain + robot - cable 0.3 m - with inscription label holder - cable with plug M8x1, rotatable thread

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or

→ www.festo.com/catalogue/...

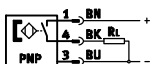
Enter the type code in the search field.

★ Quick ordering

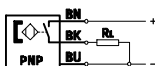
Switching output	Electrical connection			Cable length [m]	Part No.	Type
	Cable	Cable with plug, rotatable thread				
			M8x1	M12x1		
N/O contact						
PNP	–	3-pin	–	0.3	574334	SMT-8M-A-PS-24 V-E-0,3-M8D
PNP	3-wire	–	–	2.5	574335	SMT-8M-A-PS-24 V-E-2,5-OE
PNP	3-wire	–	–	5	574336	SMT-8M-A-PS-24 V-E-5,0-OE
PNP	–	–	3-pin	0.3	574337	SMT-8M-A-PS-24 V-E-0,3-M12
NPN	3-wire	–	–	2.5	574338	SMT-8M-A-NS-24 V-E-2,5-OE
PNP	–	–	3-pin	0.3	574339	SMT-8M-A-NS-24 V-E-0,3-M8D
PNP	3-wire	–	–	7.5	574340	SMT-8M-A-PO-24 V-E-7,5-OE
Non-contacting	2-wire	–	–	5	574341	SMT-8M-A-ZS-24 V-E-5,0-OE-Ex2

Proximity sensors CRSMT-8M, for T-slot

Technical data



E.g. N/O contact, PNP, with cable



- Suitable for the food industry
- Acid resistant
- Alkali resistant
- Resistant to cooling lubricants



Technical data

Download CAD data → www.festo.com

CRSMT-8M

Measuring principle	Magneto-resistive
Switching output	PNP
Switching element function	N/O contact
Operating voltage range	[V DC] 5 ... 30
Max. output current	[mA] 100
Max. switching capacity DC	[W] 2.8
Type of mounting	Secured with screw, insertable in the slot from above
Cable length	[m] 0.3 ... 10
Max. connecting cable length	[m] 30
Length/width/height	[mm] 29/5/5

Pin allocation to EN 60947-5-2

M8x1, 3-pin

N/O contact

	Pin	Wire colour	Allocation
	1	Brown	+
	3	Blue	-
	4	Black	Output

M12x1, 3-pin

N/O contact

	Pin	Wire colour	Allocation
	1	Brown	+
	3	Blue	-
	4	Black	Output

Technical data

Operating conditions

Ambient temperature	[°C]	-40 ... +85
---------------------	------	-------------

Materials

Housing	High-alloy stainless steel, PP
Cable sheath	TPE-O

Order code

		CRSMT	-	8M	-	PS	-	24 V	-	K	-		-	
Type														
CRSMT	Proximity sensor, magneto-resistive, suitable for the food industry, resistant to acids and cooling lubricants													
Design														
8M	For T-slot, insertable in the slot from above													
Switching output														
PS	PNP, N/O contact, 3-wire													
Rated operating voltage														
24 V	24 V DC													
Cable characteristics														
K	Standard and energy chain													
Cable length														
0.3	Cable, 0.3 m												1	
5.0	Cable, 5 m, open end												2	
10.0	Cable, 10 m, open end												2	
Connection														
OE	Open end													
M8D	M8x1, rotatable thread													
M12	M12													

[1](#) Only with M8D or M12 connection

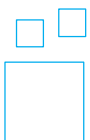
[2](#) Only with OE connection

Order example:

CRSMT-8M-PS-24 V-K-5,0-OE

Proximity sensor, magneto-resistive, suitable for the food industry, resistant to acids and cooling lubricants - for T-slot, insertable in the slot from above - PNP, N/O contact, 3-wire - 24 V DC - standard and energy chain - cable 5 m - open end

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

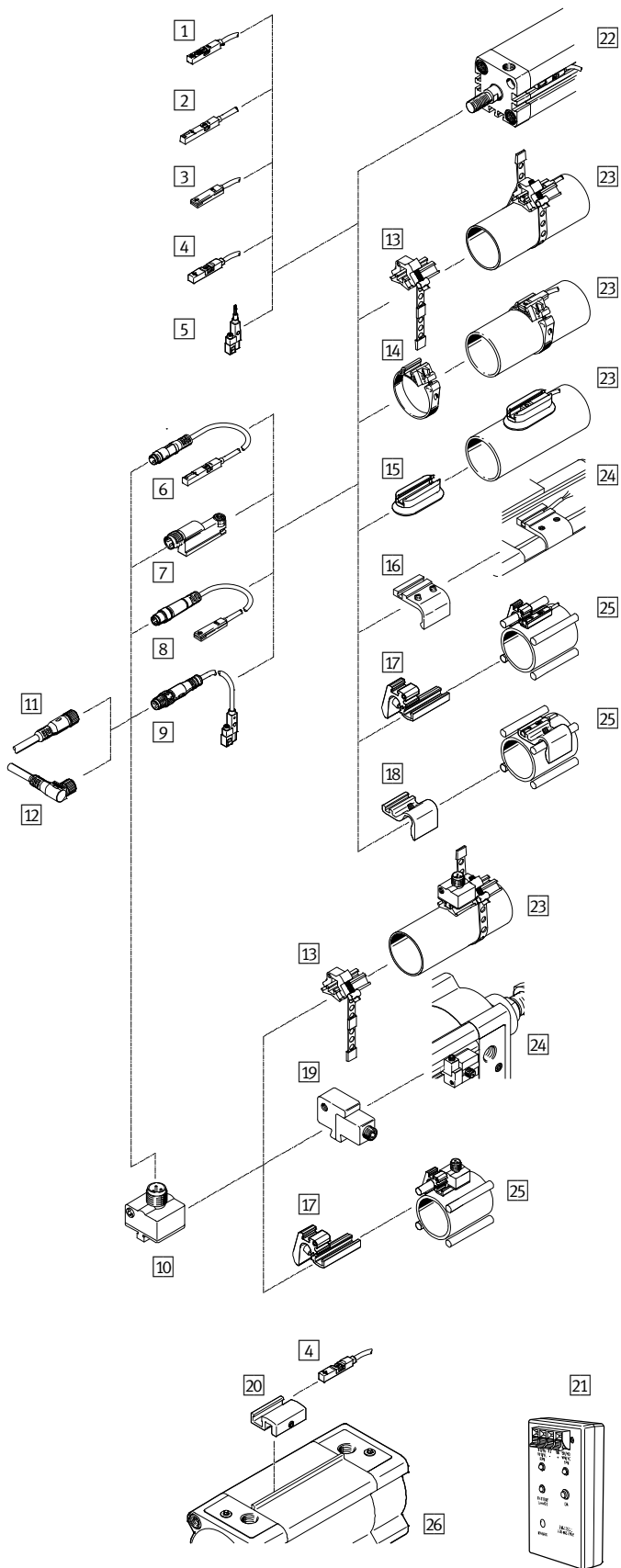
The configurator can be found under Products on the DVD or

→ www.festo.com/catalogue/...

Enter the type code in the search field.





Proximity sensors SME/SMT-8, for T-slot



Accessories












	→ Page/on-line	
Proximity sensor		
1	SMT-8M-A..., with cable	808
2	SME-8M-...-OE, with cable	803
3	SME-8-FM-...-K, with cable	803
	CRSMT-8-K-..., with cable, corrosion-resistant	crsmt
4	CRSMT-8-M-..., with cable	812
5	SMT-8G-...-OE, with cable	803
6	SME-8M-...-M..., with cable and plug	sme
7	SME-8-SL, with plug	smt
	SMT-8-SL, with plug	803
8	SME-8-...-S, with cable and plug	805
9	SMT-8G-...-M..., with cable and plug	smt
10	SME0-8E, with plug, block design	smeo
	SMT0-8E, with plug, block design	smt0
	SMTSO-8E, with plug, welding field immune	smtso
Accessories		
11	Connecting cable NEBU-M...G...	815
12	Connecting cable NEBU-M...W...	815
13	Mounting kit SMBR-8-8/100-S6, heat-resistant	815
14	Mounting kit SMBR	815
15	Mounting kit CRSMB, corrosion-resistant	815
16	Mounting kit SMB-8-FENG	815
17	Mounting SMBZ-8-...	815
18	Sensor bracket DASP-M4-... for DSBG-125	815
19	Mounting kit SMB-8E	815
20	Mounting kit SMB-8C	815
21	Sensor tester SM-TEST-1	sm-test-1
-	Position marker SMM-8	815
	Inscription label ASLR	815
	Clip SMBK-8	815
	Safety clip NEAU	neau
Drives		
22	Drives with T-slot	-
23	Round cylinders	-
24	Standard cylinders DSBC	-
25	Drives with tie or mounting rod	-
26	Standard cylinders DSBF	-

Accessories – Ordering data

	Cable length [m]		Part No.	Type
[11] / [12] Connecting cable M8x1		Technical data → 1053		
	2.5	★	541333	NEBU-M8G3-K-2.5-LE3
	5	★	541334	NEBU-M8G3-K-5-LE3
	2.5	★	541338	NEBU-M8W3-K-2.5-LE3
	5	★	541341	NEBU-M8W3-K-5-LE3
[11] / [12] M12x1		Technical data → 1053		
	2.5	★	541363	NEBU-M12G5-K-2.5-LE3
	5	★	541364	NEBU-M12G5-K-5-LE3
	2.5		541367	NEBU-M12W5-K-2.5-LE3
	5		541370	NEBU-M12W5-K-5-LE3

	For Ø		Part No.	Type
[13] / [14] Mounting kit				
	8 ... 100	★	538937	SMBR-8-8/100-S6
	8		175091	SMBR-8-8
	10		175092	SMBR-8-10
	12		175093	SMBR-8-12
	16		175094	SMBR-8-16
	20		175095	SMBR-8-20
	25		175096	SMBR-8-25
	32		175097	SMBR-8-32
	40		175098	SMBR-8-40
	50		175099	SMBR-8-50
	63		175100	SMBR-8-63

	For Ø	Part No.	Type
[15] ... [20] Mounting kit			
	32 ... 100	525565	CRSMB-8-32/100
	32/40	175705	SMB-8-FENG-32/40
	50/63	175706	SMB-8-FENG-50/63
	80/100	175707	SMB-8-FENG-80/100
	32 ... 100	537806	SMBZ-8-32/100
	125 ... 320	537808	SMBZ-8-125/320
	125	1451483	DASP-M4-125-A
	–	178230	SMB-8E
	–	1806790	SMB-8-C

	Size	Part No.	Type	PU ¹⁾
Position marker				
	10	547941	SMM-8	10
Inscription label				
	23x4 mm	541598	ASLR-L-423	34
Clip				
	–	534254	SMBK-8	1

1) Packaging unit quantity.

Proximity sensors SME/SMT-10, for C-slot



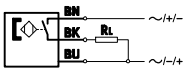
- Switching output via reed contact or non-contacting
- Secured with screw or clamped, insertable in the slot from above or lengthwise
- Suitable for use with energy chains and robots
- Selected types in accordance with the ATEX Directive for explosive atmospheres → www.festo.com/catalogue/ex
- ★ Quick ordering of basic designs → 818, 823

→ www.festo.com/catalogue/sme-10

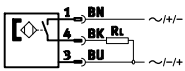
Product range overview

Measuring principle	Type	Electrical connection	Operating voltage range	Switching output	Switching element function	→ Page/online
Magnetic reed	SME-10M	Cable – 2-wire – 3-wire Cable with plug, 2-pin Cable with plug, 3-pin – M8x1, rotatable thread – M8x1, snap-on flange – M12x1, rotatable thread	5 ... 30 V AC 5 ... 30 V DC	Contacting, bipolar	N/O contact	817
	SME-10	Cable – 3-wire Cable with plug, 3-pin – M8x1	12 ... 27 V AC 12 ... 27 V DC	Contacting, bipolar	N/O contact	819
Magneto-resistive	SMT-10M	Cable – 2-wire – 3-wire Cable with plug, 2-pin Cable with plug, 3-pin – M8x1, rotatable thread – M8x1, snap-on flange – M12x1, rotatable thread	10 ... 30 V DC	PNP NPN Non-contacting, 2-wire	N/O contact	821
	SMT-10G	Cable – 3-wire Cable with plug, 3-pin – M8x1, rotatable thread	10 ... 30 V DC	PNP	N/O contact	smt-10

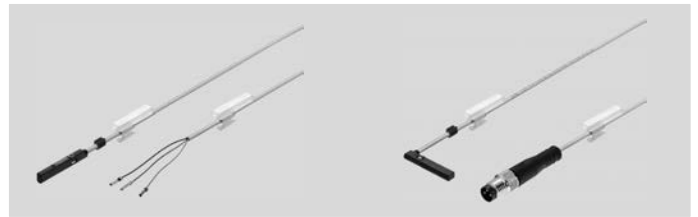
Technical data



E.g. N/O contact, 3-wire, with cable



E.g. N/O contact, 3-wire, with plug



Technical data		DS	ZS
SME-10M-			
Measuring principle	Magnetic reed		
Switching output	Contacting, bipolar		
Switching element function	N/O contact		
Operating voltage range	[V DC]	5 ... 30	
Operating voltage range	[V AC]	5 ... 30	
Max. output current	[mA]	300	100
Type of mounting	Secured with screw, insertable in the slot from above		
Connection direction	In-line		
	Lateral		
Special characteristics	Oil-resistant		
Cable length	[m]	0.2 ... 10	
Max. connecting cable length	[m]	10	
Length/width/height	[mm]	27/3/5 (25/3/6) ¹⁾	

Download CAD data → www.festo.com

1) Value in brackets for lateral connection.

Pin allocation to EN 60947-5-2

M8x1

2-pin	Pin	Wire colour	Allocation	3-pin	Pin	Wire colour	Allocation
	1	Brown	+		1	Brown	+
	4	Black	Output		3	Blue	-
					4	Black	Output

M12x1

2-pin	Pin	Wire colour	Allocation	3-pin	Pin	Wire colour	Allocation
	1	Brown	+		1	Brown	+
	4	Black	Output		3	Blue	-
					4	Black	Output

Operating conditions

Ambient temperature	[°C]	-40 ... +70
Ambient temperature with flexible cable installation	[°C]	-20 ... +70

Materials

Housing	PA reinforced, high-alloy stainless steel
Cable sheath	TPE-U (PUR)

Ordering – Product options

Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
→ www.festo.com/catalogue/...

Enter the type code in the search field.

Proximity sensors SME-10M, for C-slot

Order code

SME		10M		24 V		E									
Type															
SME		Proximity sensor, magnetic reed													
Design															
10M		For C-slot, insertable in the slot from above													
Switching output, switching element function															
DS		N/O contact, 3-wire													
ZS		N/O contact, 2-wire													
Rated operating voltage															
24 V		24 V DC													
Cable characteristics															
E		Energy chain + robot													
Cable length															
...		0.2 m ... 10 m (0.2 ... 5.0 m in 0.1 m increments, 5.0 ... 10 m in 0.5 m increments)													
Connection direction															
L		In-line													
Q		Lateral													
Cable designation															
-		With inscription label holder													
N		Without inscription label holder													
Connection technology															
OE		Open end													
M8		Cable with plug M8x1, snap-on flange													
M8D		Cable with plug M8x1, rotatable thread													
M12		Cable with plug M12x1, rotatable thread													

Order example:

SME-10M-DS-24 V-E-2,5-L-OE

Proximity sensor, magnetic reed - for C-slot, insertable in the slot from above - N/O contact, 3-wire - 24 V DC - energy chain + robot - cable 2.5 m - in-line - with inscription label holder - open end

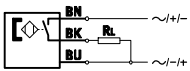
★ Quick ordering

N/O contact, contacting, bipolar

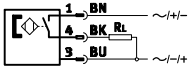
Part No.	Type
Electrical connection – Cable, 3-wire	
551365	SME-10M-DS-24 V-E-2,5-L-OE
551366	SME-10M-DS-24 V-E-2,5-Q-OE
Cable, 2-wire with plug, rotatable thread	
551367	SME-10M-DS-24 V-E-0,3-L-M8D
551368	SME-10M-DS-24 V-E-0,3-Q-M8D

Part No.	Type
Electrical connection – Cable, 2-wire	
551369	SME-10M-ZS-24 V-E-2,5-L-OE
551370	SME-10M-ZS-24 V-E-2,5-Q-OE

Technical data



E.g. N/O contact, 3-wire, with cable



E.g. N/O contact, 3-wire, with plug

Download CAD data → www.festo.com

Technical data		K	S
SME-10-...-			
Measuring principle		Magnetic reed	
Switching output		Contacting, bipolar	
Switching element function		N/O contact	
Operating voltage range	[V DC]	12 ... 27	
Operating voltage range	[V AC]	12 ... 27	
Max. output current	[mA]	100	
Type of mounting		Clamped in C-slot, insertable in the slot lengthwise	
Connection direction		In-line	
		Lateral	
Cable length	[m]	2.5	0.3
Length/width/height	[mm]	22/4/6 (19/6/9) ¹⁾	

1) Value in brackets for lateral connection.

Pin allocation to EN 60947-5-2

Plug, 3-pin

M8x1	Pin	Wire colour	Allocation
	1	Brown	+
	3	Blue	-
	4	Black	Output

Operating conditions

Ambient temperature	[°C]	-20 ... +70
Ambient temperature with flexible cable installation	[°C]	-5 ... +70

Materials

Housing	PPS, high-alloy stainless steel, TPE-U (PUR)
Cable sheath	TPE-U (PUR)

Proximity sensors SME-10, for C-slot

Order code

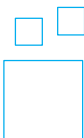
		SME	–	10	–		–	LED	–	24
Type										
SME	Proximity sensor, magnetic reed									
Design										
10	For C-slot, insertable in the slot lengthwise									
Electrical connection, cable length, connection direction										
KL	Cable, 2.5 m, in-line									
KQ	Cable, 2.5 m, lateral									
SL	Cable with plug M8x1, 0.3 m, in-line									
SQ	Cable with plug M8x1, 0.3 m, lateral									
Switching status display										
LED	Yellow LED									
Rated operating voltage										
24	24 V DC									

Order example:

SME-10-KL-LED-24

Proximity sensor, magnetic reed - for C-slot, insertable in the slot lengthwise - cable 2.5 m, in-line - yellow LED - 24 V DC

Ordering – Product options



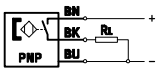
Configurable product

This product and all its options can be ordered using the configurator.

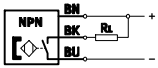
The configurator can be found under Products on the DVD or
 → www.festo.com/catalogue/...

Enter the type code in the search field.

Technical data



E.g. PNP, N/O contact, with cable



E.g. NPN, N/O contact, with cable



Technical data		Download CAD data → www.festo.com		
SMT-10M-	PS	NS	ZS	
Measuring principle	Magneto-resistive			
Switching output	PNP	NPN	Non-contacting, 2-wire	
Switching element function	N/O contact			
Operating voltage range [V DC]	10 ... 30			
Max. output current [mA]	100			
Type of mounting	Secured with screw, insertable in the slot from above			
Connection direction	In-line			
	Lateral			
Cable length [m]	0.2 ... 30			
Max. connecting cable length [m]	30			
Length/width/height [mm]	23/3/5 (21/3/6) ¹⁾			

1) Value in brackets for lateral connection.

Pin allocation to EN 60947-5-2

M8x1

2-pin	Pin	Wire colour	Allocation	3-pin	Pin	Wire colour	Allocation
	1	Brown	+		1	Brown	+
	4	Black	Output		3	Blue	-
					4	Black	Output

M12x1

2-pin	Pin	Wire colour	Allocation	3-pin	Pin	Wire colour	Allocation
	1	Brown	+		1	Brown	+
	4	Black	Output		3	Blue	-
					4	Black	Output

Operating conditions

Ambient temperature [°C]	-20 ... +70
Ambient temperature with flexible cable installation [°C]	-20 ... +70

Materials

Housing	PA, high-alloy stainless steel
Cable sheath	TPE-U (PU)

Proximity sensors SMT-10M, for C-slot

Order code

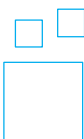
		SMT	-	10M	-		-	24 V	-	E	-		-		-		-	
Type																		
SMT	Proximity sensor, magneto-resistive																	
Design																		
10M	For C-slot, insertable in the slot from above																	
Switching output, switching element function																		
PS	PNP, N/O contact, 3-wire																	
NS	NPN, N/O contact, 3-wire																	
ZS	N/O contact, 2-wire																	
Rated operating voltage																		
24 V	24 V DC																	
Cable characteristics																		
E	Energy chain + robot																	
Cable length																		
...	0.2 m ... 30 m (0.2 ... 5.0 m in 0.1 m increments, 5.0 ... 30 m in 0.5 m increments)																	
Connection direction																		
L	In-line																	
Q	Lateral																	
Cable designation																		
-	With inscription label holder																	
N	Without inscription label holder																	
Connection technology																		
OE	Open end																	
M8	Cable with plug M8x1, snap-on flange																	
M8D	Cable with plug M8x1, rotatable thread																	
M12	Cable with plug M12x1, rotatable thread																	

Order example:

SMT-10M-PS-24V-E-2,5-L-OE

Proximity sensor, magneto-resistive - for C-slot, insertable in the slot from above - PNP, N/O contact, 3-wire - 24 V DC - energy chain + robot - cable 2.5 m - in-line - with inscription label holder - open end

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
→ www.festo.com/catalogue/...

Enter the type code in the search field.

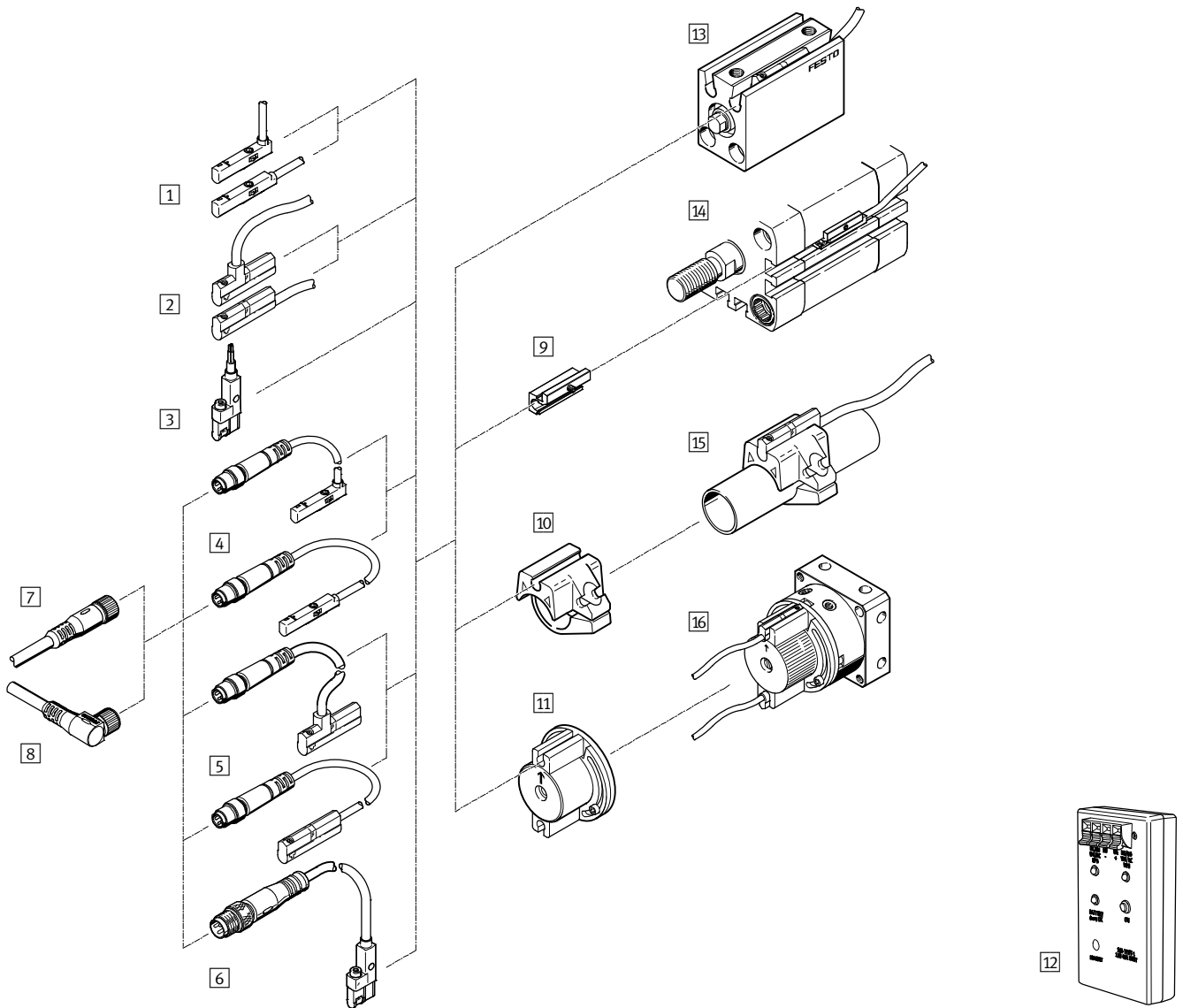
★ Quick ordering

N/O contact

Part No.	Type	Part No.	Type
Electrical connection – Cable, 3-wire, PNP		Cable, 2-wire, non-contacting	
551373	SMT-10M-PS-24 V-E-2,5-L-OE	551382	SMT-10M-ZS-24 V-E-2,5-L-OE
551374	SMT-10M-PS-24 V-E-2,5-Q-OE	551383	SMT-10M-ZS-24 V-E-2,5-Q-OE
Cable with plug, M8x1, rotatable thread, 3-pin, PNP			
551375	SMT-10M-PS-24 V-E-0,3-L-M8D		
551376	SMT-10M-PS-24 V-E-0,3-Q-M8D		
Electrical connection – Cable, 3-wire, NPN			
551377	SMT-10M-NS-24 V-E-2,5-L-OE		
551378	SMT-10M-NS-24 V-E-2,5-Q-OE		
Cable with plug, M8x1, rotatable thread, 3-pin, NPN			
551379	SMT-10M-NS-24 V-E-0,3-L-M8D		
551380	SMT-10M-NS-24 V-E-0,3-Q-M8D		

Proximity sensors SME/SMT-10, for C-slot

Accessories





→ Page/on-line


Proximity sensor		→ Page/on-line
1	SME-10M-...-OE, with cable	817
	SMT-10M-...-OE, with cable	821
2	SME-10-...-K, with cable	819
3	SMT-10G-...-OE, with cable	smt-10
4	SME-10M-...-M..., with cable with plug	817
	SMT-10M-...-M..., with cable with plug	821
5	SME-10-...-S..., with cable with plug	819
6	SMT-10G-...-M..., with cable with plug	smt-10


→ Page/on-line


Accessories		→ Page/on-line
7	Connecting cable NEBU-M8G3	825
8	Connecting cable NEBU-M8W3	825
9	Mounting SMBN-10	825
10	Mounting kit SMBR-10	825
11	Mounting kit WSM-...-SME-10	825
12	Sensor tester SM-TEST-1	sm-test-1
-	Position marker SMM-10	825
	Inscription label ASLR	825
	Safety clip NEAU	neau
	Clip SMBK-8	smbk
Drives		
13	Drives with C-slot	-
14	Drives with T-slot	
15	Round cylinders	
16	Swivel modules DSM	



Accessories – Ordering data

	Cable length [m]		Part No.	Type
7	Connecting cable M8x1, straight plug Technical data → 1053			
	2.5	★	541333	NEBU-M8G3-K-2.5-LE3
	5	★	541334	NEBU-M8G3-K-5-LE3
8	Connecting cable M8x1, angled socket			
	2.5	★	541338	NEBU-M8W3-K-2.5-LE3
	5	★	541341	NEBU-M8W3-K-5-LE3

	For Ø		Part No.	Type
9	Mounting			
	125 ... 320		537809	SMBN-10

10	Mounting kit for round cylinder			
	8		175101	SMBR-10-8
	10		173227	SMBR-10-10
	12		175102	SMBR-10-12
	16		173228	SMBR-10-16
	20		175103	SMBR-10-20
	25		175104	SMBR-10-25
	32		175105	SMBR-10-32
	40		175106	SMBR-10-40
	50		175107	SMBR-10-50
	63		175108	SMBR-10-63

11	Mounting kit for swivel module			
	6		173205	WSM-6-SME-10
	8		173206	WSM-8-SME-10
	10		173207	WSM-10-SME-10

	Size		Part No.	Type	PU ¹⁾
Position marker					
	10		547942	SMM-10	10
Inscription label					
	23x4 mm		541598	ASLR-L-423	34

1) Packaging unit quantity.



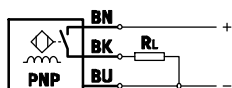
- Versions for DC and AC voltage
- Switching output PNP, NPN or analogue output
- Corrosion-resistant and welding field immune versions
- Versions with increased switching distance
- ★ Quick ordering of basic designs → 829

→ www.festo.com/catalogue/sie

Product range overview

Version	Type	Operating voltage	Switching output/analogue output	Mounting	Size	→ Page/online
Reduction factor, material-specific						
Standard switching distance	SIEN Basic design	10 ... 30 V DC 15 ... 34 V DC	PNP NPN	Flush Non-flush	∅ 4 mm, M5, ∅ 6.5 mm, M8, M12, M18, M30	827
	SIEN-...-PA Polyamide housing	10 ... 30 V DC	PNP NPN	Flush Non-flush	M12, M18, M30	828
	SIED Basic design	20 ... 265 V AC 20 ... 320 V DC	Non-contacting, 2-wire	Flush Non-flush	M12, M18, M30	sied
	SIED-...-PA Polyamide housing	20 ... 250 V AC 10 ... 300 V DC	Non-contacting, 2-wire	Flush Non-flush	M12, M18, M30	sied
	SIES Special design	10 ... 30 V DC	PNP NPN	Flush	5x5x25 mm ... 40x40x120 mm	sies
Increased switching distance	SIEH Basic design	10 ... 30 V DC 15 ... 34 V DC	PNP NPN	Flush	∅ 3 mm, M12, M18	sieh
	SIEH-...-CR Stainless steel housing	10 ... 30 V DC	PNP NPN	Flush	M12, M18	sieh
Analogue output	SIEA	15 ... 30 V DC	0 ... 10 V and 4 ... 20 mA	Flush	M8, M12, M18, M30	siea
Reduction factor 1 for all metals, welding field immune						
Increased switching distance	SIEF Basic design	10 ... 65 V DC	PNP NPN	Flush Partially flush	M8, M12, M18, M30, 40x40x65 mm	sief
	SIEF-...-WA Housing resistant to welding spatter	10 ... 30 V DC	PNP NPN	Flush Partially flush	M12, M18, M30	sief

Technical data – With standard switching distance



E.g. N/O contact, PNP, with cable



Technical data		Download CAD data → www.festo.com						
Size		4	6.5	M5	M8	M12	M18	M30
Rated operating distance	Flush [mm]	0.8	1.5	0.8	1.5	2	5	10
	Non-flush [mm]	–	–	–	2.5	4	8	15
Switching output		PNP						
		NPN						
Switching element function		N/O contact						
		N/C contact						
Mounting		Flush						
					Non-flush			
Type of mounting		Clamped		Via lock nut				
Electrical connection		Cable, 3-wire						
		Plug M8x1, 3-pin				Plug M12x1, 3-pin		
Operating voltage range	[V DC]	10 ... 30						
Max. output current	[mA]	200						
∅/length	[mm]	8/42 (4/25) ¹⁾	8/45 (6.5/35) ¹⁾	8/42 (5/25) ¹⁾	8/45 (8/35) ¹⁾	12/45 (12/35) ¹⁾	18/48.5 (18/35) ¹⁾	30/48.5 (30/35) ¹⁾
Max. connecting cable length	[m]	2.5						

1) Value in brackets for electrical connection via cable.

Pin allocation to EN 60947-5-2

M8x1, 3-pin

N/O contact and N/C contact

	Pin	Wire colour	Allocation
	1	Brown	+
	3	Blue	–
	4	Black	Output

M12x1, 3-pin

N/O contact

	Pin	Wire colour	Allocation
	1	Brown	+
	3	Blue	–
	4	Black	Output

N/C contact

	Pin	Wire colour	Allocation
	1	Brown	+
	3	Blue	–
	2	White	Output

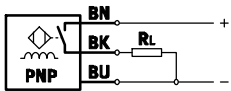
Operating conditions

Ambient temperature	[°C]	–25 ... +70
Ambient temperature with flexible cable installation	[°C]	–5 ... +70

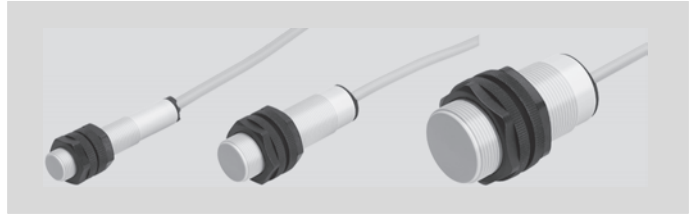
Materials

	M4 ... M8	M12 ... M30
Housing	High-alloy stainless steel	Nickel-plated brass
Cable sheath	PUR	

Technical data – With standard switching distance, polyamide housing



E.g. N/O contact, PNP, with cable



Technical data		Download CAD data → www.festo.com		
Size		M12	M18	M30
Rated operating distance	Flush [mm]	2	5	10
	Non-flush [mm]	4	8	15
Switching output		PNP		
		NPN		
Switching element function		N/O contact		
Mounting		Flush		
		Non-flush		
Type of mounting		Via lock nut		
Electrical connection		Cable, 3-wire		
Operating voltage range	[V DC]	10 ... 30		
Max. output current	[mA]	200		
∅/length	[mm]	12/60	18/60	30/60
Max. connecting cable length	[m]	2.5		

Operating conditions		
Ambient temperature	[°C]	-25 ... +70
Ambient temperature with flexible cable installation	[°C]	0 ... +70

Materials		
Housing		PA
Cable sheath		PVC

Order code – With standard switching distance

SIEN							L
Type							
SIEN	Proximity sensor with standard switching distance						
Design/size							
4, 6.5	Round O.D. 4 or 6.5 mm						
M5, M8, M12, M18, M30	Metric thread M5, M8, M12, M18, M30						
Mounting							
B	Flush						
NB	Non-flush 1						
Switching output							
P	PNP						
N	NPN						
Switching element function							
S	N/O contact						
O	N/C contact						
Electrical connection							
K	Cable						
S	Plug						
Display							
L	Switching status						
Version							
-	Basic design						
PA	Polyamide housing 2						

1 Only with design/size M8 ... M30

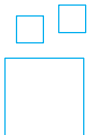
2 Only with design/size M12 ... M30,
and switching element function S,
and electrical connection K

Order example:

SIEN-M5B-PS-K-L

Proximity sensor with standard switching distance - metric thread M5 - flush fitting - switching output PNP - switching element function N/O contact - electrical cable connection - switching status display - basic design

Ordering – Product options





Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
[→ www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

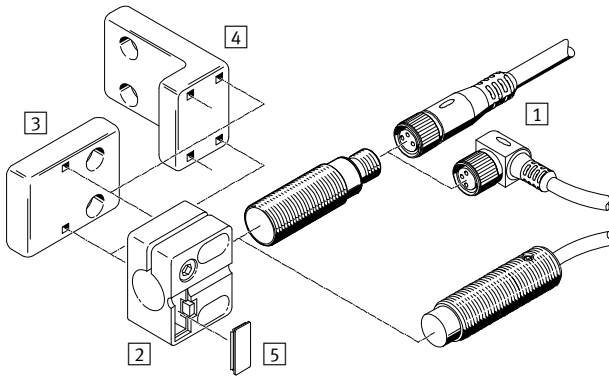
Enter the type code in the search field.

★ Quick ordering

Size	Electrical connection	Part No.	Type	Size	Electrical connection	Part No.	Type
M5	 Cable	150370	SIEN-M5B-PS-K-L	M8	 Cable	150386	SIEN-M8B-PS-K-L
	Plug	150371	SIEN-M5B-PS-S-L		Plug	150387	SIEN-M8B-PS-S-L

Accessories

SIE...



		→ Page/online
1	Connecting cable NEBU	830
2	Sensor bracket SIEZ-...B	830
3	Sensor bracket SIEZ-UV	830

		→ Page/online
4	Sensor bracket SIEZ-UH	830
5	Inscription label SIEZ-LB	830

Accessories – Ordering data

	Cable length [m]		Part No.	Type
1 Straight socket, connecting cable Technical data → 1053				
	2.5	★	541333	NEBU-M8G3-K-2.5-LE3
	5	★	541334	NEBU-M8G3-K-5-LE3
	2.5	★	541363	NEBU-M12G5-K-2.5-LE3
	5	★	541364	NEBU-M12G5-K-5-LE3
	2.5	★	550326	NEBU-M12G5-K-2.5-LE4 ¹⁾
	5	★	541328	NEBU-M12G5-K-5-LE4 ¹⁾
Angled socket				
	2.5	★	541338	NEBU-M8W3-K-2.5-LE3
	5	★	541341	NEBU-M8W3-K-5-LE3
	2.5		541367	NEBU-M12W5-K-2.5-LE3
	5		541370	NEBU-M12W5-K-5-LE3
	2.5		550325	NEBU-M12W5-K-2.5-LE4 ¹⁾
	5		541329	NEBU-M12W5-K-5-LE4 ¹⁾

1) For connecting proximity sensor SIE...M12/M18/M30 in N/C contact version with plug.

	For design	Part No.	Type
2 Sensor bracket with stop for flush fitting			
	M8	538346	SIEZ-B-8
	M12	538348	SIEZ-B-12
	M18	538350	SIEZ-B-18
	M30	538352	SIEZ-B-30
3 Sensor bracket without stop			
	4	538343	SIEZ-NB-4
	6.5	538344	SIEZ-NB-6,5
	M8	538345	SIEZ-NB-8
	M12	538347	SIEZ-NB-12
	M18	538349	SIEZ-NB-18
	M30	538351	SIEZ-NB-30
	M12, M18	538355	SIEZ-UV
4 Sensor bracket without stop			
	M12, M18	538354	SIEZ-UH
5 Inscription label			
	M12 ... M30	538353	SIEZ-LB

Proximity sensors SIES-8M, inductive for T-slot

FESTO



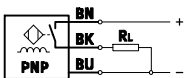
- Flush in T-slot, insertable from above
- Position sensing for electric axes EGC, EGSK, EGSP and grippers with T-slot
- Switching output PNP or NPN
- 2 LEDs for visibility irrespective of the direction from which the axis approaches the sensor

→ www.festo.com/catalogue/sies-8m

Product range overview

Version	Type	Operating voltage	Switching output	Design
Standard switching distance	SIES Special design	10 ... 30 V DC	PNP NPN	For T-slot

Technical data



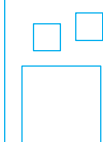
E.g. N/O contact, PNP, with cable

Technical data		Download CAD data → www.festo.com
Rated operating distance	[mm]	1.5
Switching output		PNP or NPN
Switching element function		N/O contact or N/C contact
Type of mounting		Screw-clamped in slot, insertable from above, flush with T-slot
Electrical connection		Cable, 3-wire Cable with plug M8x1, 3-pin, rotatable thread
Operating voltage range	[V DC]	10 ... 30
Max. output current	[mA]	150
Length/width/height	[mm]	5/5/32

Operating conditions		
Ambient temperature	[°C]	-25 ... +70
Ambient temperature with flexible cable installation	[°C]	-5 ... +70

Materials	SIES-8M-...-OE	SIES-8M-...-M8D
Housing	PA, PUR, high-alloy stainless steel	PA, PUR, nickel-plated brass, high-alloy stainless steel
Cable sheath	TPE-U (PU)	

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
→ www.festo.com/catalogue/...

Enter the type code in the search field.

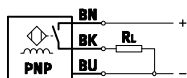
Proximity sensors SIES-8M, inductive for T-slot

Technical data

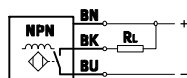
Pin allocation

Cable

PNP, N/O contact

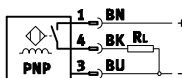


NPN, N/O contact

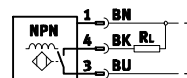


Plug

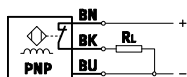
PNP, N/O contact



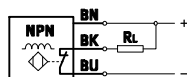
NPN, N/O contact



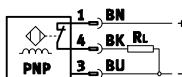
PNP, N/C contact



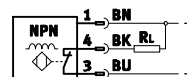
NPN, N/C contact



PNP, N/C contact



NPN, N/C contact



Wire colours

BN = Brown

BK = Black

BU = Blue

Order code – Special design

		SIES	-	8M	-		-	24 V	-	K	-		-	
Type														
SIES	Sensor, special design													
Design														
8M	For T-slot													
Switching output														
P	PNP													
N	NPN													
Switching element function														
S	N/O contact													
O	N/C contact													
Rated operating voltage														
24 V	24 V DC													
Cable characteristics														
K	Standard + energy chain													
Cable length														
0.3	0.3 m	2												
2.5	2.5 m	2												
5	5 m	2												
7.5	7.5 m	1												
10	10 m	2												
Electrical connection														
OE	Cable, 3-wire, open end													
M8D	Cable with plug M8x1, 3-pin, rotatable thread													

1 Only with electrical connection OE

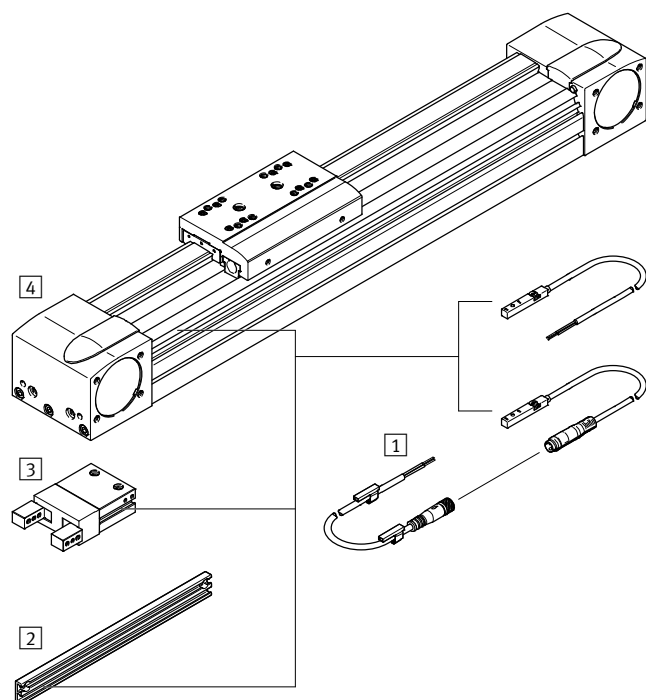
2 Only with electrical connection M8D

Order example:

SIES-8M-PS-24 V-K-0,3-M8D

Sensor, special design for T-slot - switching output PNP - switching element function N/O contact - rated operating voltage 24 V DC - cable characteristic standard + energy chain - cable length 0.3 m - cable with plug M8x1, 3-pin, rotatable thread

Accessories



		→ Page/online
1	Connecting cable NEBU-M8...3	833
2	Sensor bracket SIEZ-8M	833
3	Gripper with T-slot, e.g. parallel gripper DHPS	gripper
4	Electric axes, e.g. toothed belt axis EGC-...-TB	egc egsk egsp
-	Slot cover	833

Accessories – Ordering data

	Cable length [m]	Part No.	Type
1 Connecting cable, straight socket Technical data → 1053			
	2.5	★ 541333	NEBU-M8G3-K-2.5-LE3
	5	★ 541334	NEBU-M8G3-K-5-LE3
	10	★ 541332	NEBU-M8G3-K-10-LE3
Angled socket			
	2.5	★ 541338	NEBU-M8W3-K-2.5-LE3
	5	★ 541341	NEBU-M8W3-K-5-LE3
	10	★ 541335	NEBU-M8W3-K-10-LE3

	Length [m]	Part No.	Type
2 Sensor bracket			
	0.2	551406	SIEZ-8M-200
	0.4	551407	SIEZ-8M-400
Slot cover for T-slot			
	2x 0.5	563360	ABP-5-S1



- Five pressure measuring ranges
- Measurement of relative or differential pressure
- Switching outputs PNP, NPN and with analogue current or voltage output
- LCD or illuminated LCD display
- Wide range of connection and mounting options

→ www.festo.com/catalogue/sde1

Product range overview

Method of measurement	Pressure measuring range [bar]	Measured variable	Switching element function	Switching function	Pneumatic connection	Electrical connection	Electrical output	
							Digital	Analogue
Piezoresistive pressure sensor with display	-1 ... 0, -1 ... +1, 0 ... 2, 0 ... 6, 0 ... 10	Relative pressure Differential and relative pressure ¹⁾	Switchable	Freely programmable	R $\frac{1}{8}$ R $\frac{1}{4}$ G $\frac{1}{8}$ QS-4	Plug M8x1 Plug M12x1	PNP	-
							2x PNP	-
							PNP	0 ... 10 V
							PNP	4 ... 20 mA
							2x PNP	4 ... 20 mA
							NPN	-
							2x NPN	-
							NPN	0 ... 10 V
NPN	4 ... 20 mA							

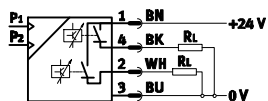
1) Versions with push-in connector QS-4.

10

Product options

- LCD display with backlighting (optimised operation)
- Illuminated LCD display (optimised reading)
- Type of mounting: On service unit, via H-rail, via wall/surface bracket, front panel mounting
- Pneumatic connection: Male thread, female thread, push-in connector
- Connecting cable

Technical data



E.g. with 2 switching outputs PNP



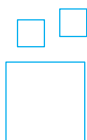
Technical data		Download CAD data → www.festo.com						
Type of mounting		On service unit	Via H-rail	Via wall/surface bracket	Front panel mounting			
Pneumatic connection		R $\frac{1}{4}$	G $\frac{1}{8}$	G $\frac{1}{8}$	-			-
		-	-	QS-4	-			QS-4
Operating voltage range	[V DC]	15 ... 30						
Max. output current	[mA]	150						
Measured variable		Relative pressure			Relative pressure			
		-			Differential pressure ¹⁾			
Switching function		Freely programmable						
Switching element function		Switchable						
Electrical connection		Plug M8x1	Plug M12x1	Plug M8x1	Plug M12x1	Plug M8x1	Plug M12x1	Plug M8x1
Length/width/height	[mm]	78/32/46	87/32/46	78/32/35	87/32/35	78/32/35	87/32/35	98/48/40
Front panel cutout	[mm]	-			-		85.5 x 36	

1) Versions with push-in connector QS-4.

Operating conditions		V1	D2	D6	D10
SDE1-					
Pressure measuring range	[bar]	-1 ... 0	0 ... +2	0 ... +6	0 ... +10
Threshold value setting range	[%]	2 ... 99.8			
Hysteresis setting range	[%]	0 ... 90			
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]			
Note on operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)			
Ambient temperature	[°C]	0 ... +50			
Temperature of medium	[°C]	0 ... +50			

Materials	
Housing	PA, POM reinforced

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
→ www.festo.com/catalogue/...

Enter the type code in the search field.

Pressure sensors SDE1, with display

Order code

		SDE1	-		-	G2	-		-		-		-		-		-	
Type																		
SDE1	Pressure sensor with display																	
Pressure measuring range																		
B2	-1 ... +1 bar																	
V1	-1 ... 0 bar																	
D2	0 ... +2 bar																	
D6	0 ... +6 bar																	
D10	0 ... +10 bar																	
Absolute accuracy																		
G2	Accuracy 2%																	
Pneumatic connection and mounting																		
R18	Male thread R $\frac{1}{8}$, mounting on service unit																	
R14	Male thread R $\frac{1}{4}$, mounting on service unit																	
MS4	Direction connection to service unit																	
MS6	Direction connection to service unit																	
H18	Female thread G $\frac{1}{8}$, H-rail mounting																	
W18	Female thread G $\frac{1}{8}$, wall or surface mounting																	
HQ4	Push-in connector QS-4, H-rail mounting																	
WQ4	Push-in connector QS-4, wall or surface mounting																	
FQ4	Push-in connector QS-4, front panel mounting																	
Display and setting																		
C	LCD display with backlighting (optimised operation)																	
L	Illuminated LCD display (optimised reading)																	
Electrical output																		
P1	1 switching output PNP																	
P2	2 switching outputs PNP																	
PU	1 switching output PNP, 1 analogue output 0 ... 10 V																	
PI	1 switching output PNP, 1 analogue output 4 ... 20 mA																	
N1	1 switching output NPN																	
N2	2 switching outputs NPN																	
NU	1 switching output NPN, 1 analogue output 0 ... 10 V																	
NI	1 switching output NPN, 1 analogue output 4 ... 20 mA																	
Electrical connection																		
M8	Plug M8x1																	
M12	Plug M12x1																	
Accessories																		
G	Connecting cable, straight socket, 2.5 m															1		
W	Connecting cable, angled socket, 2.5 m															1		
G5	Connecting cable, straight socket, 5 m																	
W5	Connecting cable, angled socket, 5 m																	

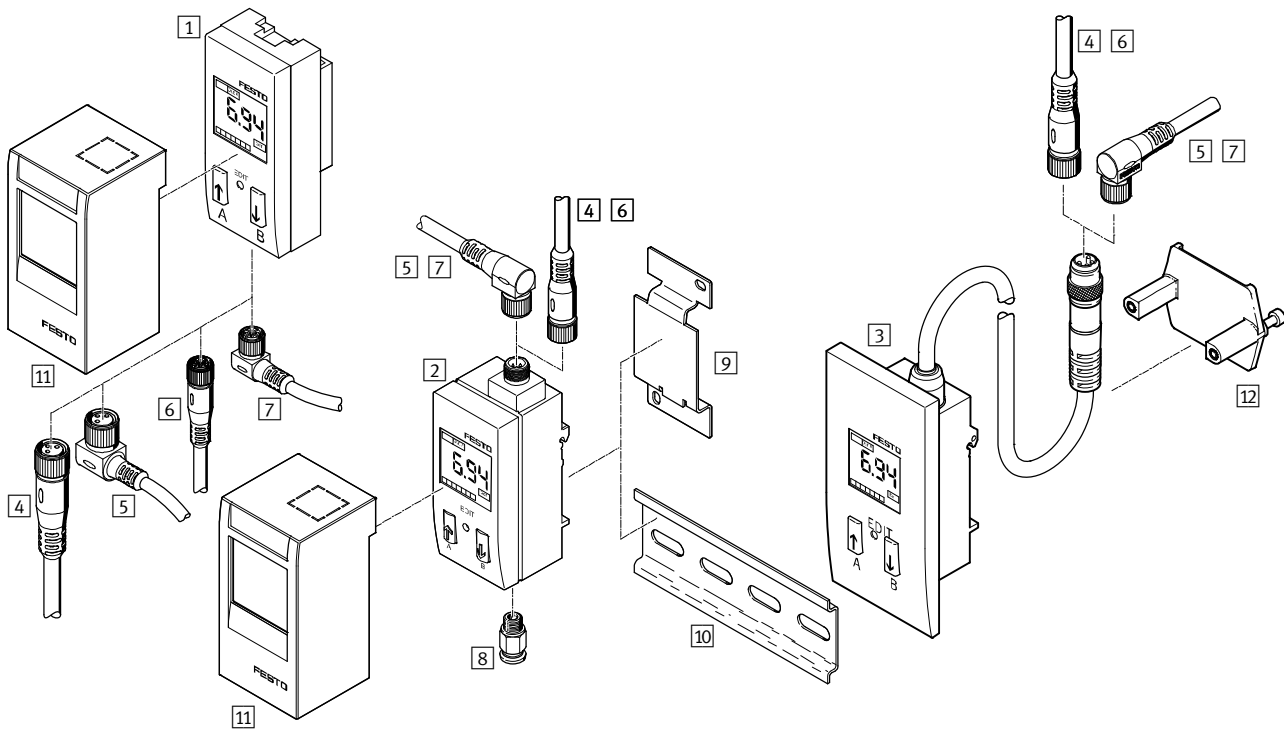
1 Not with electrical connection M12 in combination with electrical output P2, PU, PI, N2, NU, NI

Order example:

SDE1-V1-G2-H18-C-P1-M8

Pressure sensor with display - -1 ... 0 bar - accuracy 2% - female thread G $\frac{1}{8}$ H-rail mounting - LCD display with backlighting (optimised operation) - 1 switching output PNP - plug M8x1





Accessories




		→ Page/ online
1	Pressure sensor SDE1-...-R14	835
2	Pressure sensor SDE1-...-H18, SDE1-...-W18	835
3	Pressure sensor SDE1-...-FQ4	835
4	Connecting cable NEBU-M12G, straight socket	838
5	Connecting cable NEBU-M12W, angled socket	838
6	Connecting cable NEBU-M8G, straight socket	838
7	Connecting cable NEBU-M8W, angled socket	838

		→ Page/ online
8	Push-in fitting QS-1/8	838
9	Adapter plate SDE1-...-W..	sde1-w
10	Mounting rail to EN 60715	nrh
11	Safety guard SDE1-SH	sde1-sh
12	Clamping plate (included in the scope of delivery of SDE1-...-FQ4)	-

Accessories – Ordering data

	Number of wires	Cable length [m]		Part No.	Type	
4/5 Connecting cables M12x1, straight socket						Technical data → 1053
	3	2.5	★	541363	NEBU-M12G5-K-2.5-LE3	
		5	★	541364	NEBU-M12G5-K-5-LE3	
	4	2.5	★	550326	NEBU-M12G5-K-2.5-LE4	
		5	★	541328	NEBU-M12G5-K-5-LE4	
Angled socket						Technical data → 1053
	3	2.5		541367	NEBU-M12W5-K-2.5-LE3	
		5		541370	NEBU-M12W5-K-5-LE3	
	4	2.5		550325	NEBU-M12W5-K-2.5-LE4	
		5		541329	NEBU-M12W5-K-5-LE4	
6/7 Connecting cables M8x1, straight socket						Technical data → 1053
	3	2.5	★	541333	NEBU-M8G3-K-2.5-LE3	
		5	★	541334	NEBU-M8G3-K-5-LE3	
	4	2.5		541342	NEBU-M8G4-K-2.5-LE4	
		5		541343	NEBU-M8G4-K-5-LE4	
Angled socket						Technical data → 1053
	3	2.5 m	★	541338	NEBU-M8W3-K-2.5-LE3	
		5 m	★	541341	NEBU-M8W3-K-5-LE3	
	4	2.5 m		541344	NEBU-M8W4-K-2.5-LE4	
		5 m		541345	NEBU-M8W4-K-5-LE4	

	Tubing O.D. [mm]		Part No.	Type		
8 Push-in fittings						Technical data → 1014
	4		★	186095	QS-G $\frac{1}{8}$ -4	
	6		★	186096	QS-G $\frac{1}{8}$ -6	
	8		★	186098	QS-G $\frac{1}{8}$ -8	



- Programmable and configurable pressure switch for simple pressure sensing tasks
- Teach-in function for programming
- Integrated microprocessor
- Switching status indicated by an LED visible from all sides
- ★ Quick ordering of basic designs → 842

→ www.festo.com/catalogue/sde5

Product range overview

Method of measurement	Pressure measuring range [bar]	Switching element function	Switching function	Pneumatic connection	Electrical output	Electrical connection
Piezoresistive	-1 ... 0, -1 ... 1, 0 ... 2, 0 ... 6, 0 ... 10	N/O contact, N/C contact switchable	Threshold value, window comparator	QS-4, QS-6, QS-1/4", QS-5/32"	Switching output PNP, switching output NPN, analogue output	Plug M8x1, 3-pin; cable, 3-wire

Product options

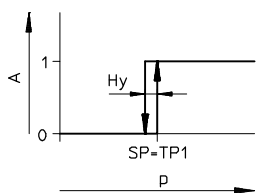
- Threshold value with fixed hysteresis
- Threshold value with variable hysteresis
- Window comparator with fixed hysteresis
- Connecting cable
- Teach-in points permanently set

Switching functions

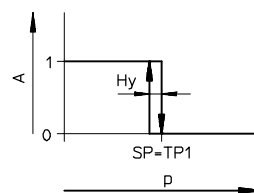
Operating mode 0

Threshold value with fixed hysteresis, 1 teach-in pressure

N/O switching element



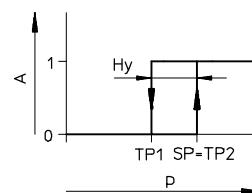
N/C switching element



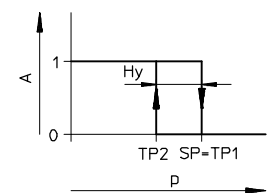
Operating mode 2

Threshold value with variable hysteresis, 2 teach-in pressures

N/O switching element



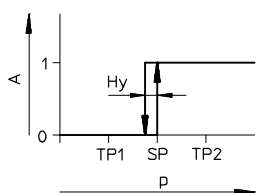
N/C switching element



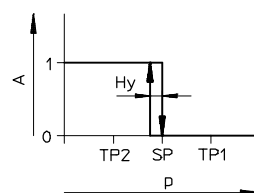
Operating mode 1

Threshold value with fixed hysteresis, 2 teach-in pressures

N/O switching element



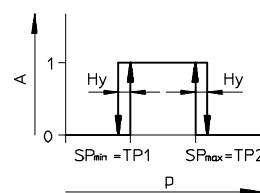
N/C switching element



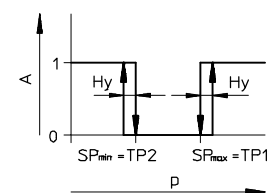
Operating mode 3

Window comparator with fixed hysteresis, 2 teach-in pressures

N/O switching element

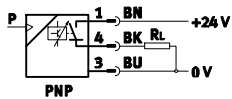


N/C switching element

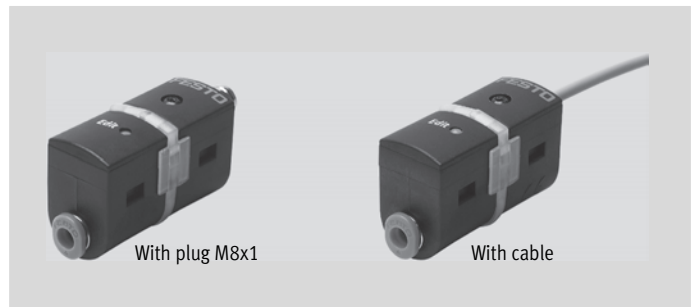


- A Binary output signal
- p Pressure
- SP Switching point
- TP Teach-in pressure
- Hy Hysteresis

Technical data



E.g. N/O contact, PNP, with plug

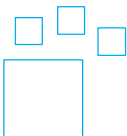


Technical data		Download CAD data → www.festo.com	
Electrical connection		Plug M8x1, 3-pin	Cable
Pneumatic connection		QS-4	
		QS-6	
		QS-1/4"	
Operating voltage range	[V DC]	15 ... 30	
Max. output current	[mA]	100	
Switching output		PNP	
		NPN	
Switching function		Freely programmable (switching/teach-in function, N/O contact, N/C contact)	
		Threshold value with fixed hysteresis	
		Threshold value with variable hysteresis	
		Window comparator with fixed hysteresis	
Switching element function		N/C contact	
		N/O contact	
		Switchable	
Output characteristic	[V]	0 ... 10	
Length/width/height	[mm]	56/16/25	45/16/25

Operating conditions			
SDE5-		V1	D10
Pressure measuring range	[bar]	-1 ... 0	0 ... +10
Threshold value setting range	[%]	0 ... 100	
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]	
Note on operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)	
Ambient temperature	[°C]	0 ... +50	
Temperature of medium	[°C]	0 ... +50	

Materials	
Housing	PA, POM

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
→ www.festo.com/catalogue/...

Enter the type code in the search field.

Order code

Sensor function	
SDE5	Pressure sensor
Pressure measuring range	
V1	-1 ... 0 bar
D10	0 ... 10 bar
Pressure input	
-	Relative pressure
Z	Differential pressure
Output function	
FP	Freely programmable, N/O contact, N/C contact
O	Threshold value with fixed hysteresis, 1 teach-in pressure, N/O contact
C	Threshold value with fixed hysteresis, 1 teach-in pressure, N/C contact
O1	Threshold value with fixed hysteresis, 2 teach-in pressures, N/O contact
O2	Threshold value with variable hysteresis, 2 teach-in pressures, N/O contact
O3	Window comparator with fixed hysteresis, 2 teach-in pressures, N/O contact
C3	Window comparator with fixed hysteresis, 2 teach-in pressures, N/C contact
NF	No binary switching function (analogue output)
Pneumatic connection	
Push-in connector at both ends	
Q4	For tubing O.D. 4 mm
Q6	For tubing O.D. 6 mm
Push-in connector at one end	
Q4E	For tubing O.D. 4 mm 1
Q6E	For tubing O.D. 6 mm 1
T14E	For tubing O.D. 1/4" 1
Electrical output	
P	1 switching output PNP 2
N	1 switching output NPN 2
V	1 analogue output 0 ... 10 V 3
Electrical connection	
K	Cable, 2.5 m
M8	Plug M8, 3 pin
Electrical accessories	
-	Without electrical accessories
G	Connecting cable, straight socket, 2.5 m 4

1 Not in combination with supply port Z

2 Not in combination with output function NF

3 Only in combination with output function NF

4 Only in combination with M8

Order example:

SDE5-D10Z-FP-Q6-P-M8

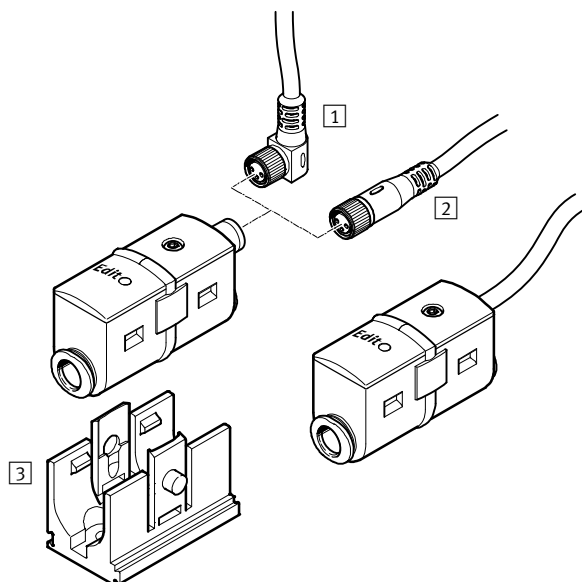
Pressure sensor - 0 ... 10 bar - differential pressure - freely programmable N/O contact, N/C contact - for tubing O.D. 6 mm - 1 switching output PNP - plug M8 - 3-pin

★ Quick ordering

Pressure measuring range [bar]	Electrical output	Part No.	Type
Freely programmable (switching/teach-in function, N/O contact, N/C contact)			
0 ... -1	Plug M8x1, 3-pin	542887	SDE5-V1-FP-Q6-P-M8
0 ... +10	Plug M8x1, 3-pin	542900	SDE5-D10-FP-Q4E-P-M8
		542897	SDE5-D10-FP-Q6E-P-M8
		542898	SDE5-D10-FP-Q6-P-M8
	Cable, 3-wire	542901	SDE5-D10-FP-Q4E-P-K
		542899	SDE5-D10-FP-Q6-P-K
Threshold value with fixed hysteresis, 1 teach-in pressure, N/O contact			
0 ... -1	Plug M8x1, 3-pin	527460	SDE5-V1-O-Q4E-P-M8
		527461	SDE5-V1-O-Q6E-P-M8
		527457	SDE5-V1-O-Q4-P-M8
		527458	SDE5-V1-O-Q6-P-M8
0 ... +2	Cable, 3-wire	542888	SDE5-D2-O-Q6E-P-K
0 ... +10	Plug M8x1, 3-pin	527466	SDE5-D10-O-Q4E-P-M8
		527467	SDE5-D10-O-Q6E-P-M8
		527463	SDE5-D10-O-Q4-P-M8
		527464	SDE5-D10-O-Q6-P-M8
	Cable, 3-wire	542890	SDE5-D10-O-Q6E-P-K
N/C contact			
0 ... +10	Plug M8x1, 3-pin	542889	SDE5-D10-C-Q4E-P-M8
	3-pin	542894	SDE5-D10-C-Q6E-P-M8
	Cable, 3-wire	542895	SDE5-D10-C-Q6E-P-K

Pressure measuring range [bar]	Electrical output	Part No.	Type
Threshold value with fixed hysteresis, 2 teach-in pressures with mean value calculation, N/O contact			
0 ... -1	Plug M8x1, 3-pin	542886	SDE5-V1-O1-Q6-P-M8
Threshold value with variable hysteresis, 2 teach-in pressures, N/O contact			
0 ... +10	Plug M8x1, 3-pin	542891	SDE5-D10-O2-Q6E-P-M8
		542892	SDE5-D10-O2-Q6-P-M8
Window comparator with fixed hysteresis, 2 teach-in pressures, N/O contact			
0 ... +10	Cable, 3-wire	542893	SDE5-D10-O3-Q6E-P-K
N/C contact			
0 ... +10	Cable, 3-wire	542896	SDE5-D10-C3-Q6E-P-K

Accessories and ordering data



	Cable length [m]	Part No.	Type
1/2 Connecting cables M8x1, angled socket Technical data → 1053			
	2.5	★ 541338	NEBU-M8W3-K-2.5-LE3
	5	★ 541341	NEBU-M8W3-K-5-LE3
	10	★ 541335	NEBU-M8W3-K-10-LE3
M8x1, straight socket Technical data → 1053			
	2.5	★ 541333	NEBU-M8G3-K-2.5-LE3
	5	★ 541334	NEBU-M8G3-K-5-LE3
	10	★ 541332	NEBU-M8G3-K-10-LE3

→ Page/
online

1	Connecting cable NEBU-M8W3, angled socket	842
2	Connecting cable NEBU-M8G3, straight socket	842
3	Wall bracket (included in the scope of delivery)	-



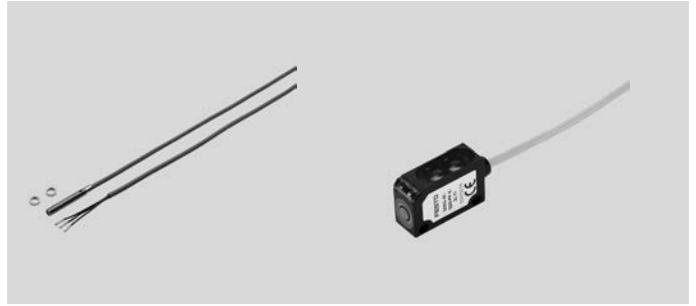
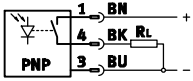
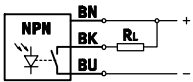
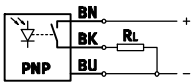
- Diffuse sensors and retro-reflective sensors
- Diffuse sensors with background suppression
- Fibre-optic units
- Distance sensors
- Laser contrast sensors, diffuse sensors and retro-reflective sensors
- Colour sensor
- Working ranges up to 20 m
- Adjustment via teach-in or potentiometer

→ www.festo.com/catalogue/soe

Product range overview

Version	Type	Operating voltage	Switching output	Analogue output	→ Page/online
Diffuse sensor	SOEG-RT Basic design	10 ... 36 V DC 10 ... 30 V DC	PNP NPN	–	844
	SOEG-RTZ with cylindrical light beam		PNP NPN	–	soeg
Sensor with background suppression	SOEG-RTH		PNP NPN	–	soeg
Retro-reflective sensor	SOEG-RSP Basic design	10 ... 36 V DC 10 ... 30 V DC	PNP NPN	–	846
	SOEG-RSG for transparent objects		PNP NPN	–	soeg
Through-beam sensor	SOEG-S Transmitter	10 ... 36 V DC 10 ... 30 V DC	–	–	848
	SOEG-E Receiver		PNP NPN	–	848
Fibre-optic unit	SOEG-L Basic design	10 ... 30 V DC	PNP NPN	–	850
Distance sensor	SOEG-RTD	15 ... 30 V DC	PNP	0 ... 10 V	soeg
Laser diffuse sensor	SOEL-RT Contrast sensor	10 ... 30 V DC	PNP NPN	–	852
Laser sensor with background suppression	SOEL-RTH		PNP NPN	–	852
Laser retro-reflective sensor	SOEL-RSP	10 ... 30 V DC	PNP NPN	–	854
Laser distance sensor	SOEL-RTD	16 ... 30 V DC	2x PNP	4 ... 20 mA	856
		18 ... 28 V DC	–	0 ... 10 V	
Colour sensor	SOEC-RT	10 ... 30 V DC	3x PNP	–	soec

Technical data



Technical data

Download CAD data → www.festo.com

Size	∅ 4 mm	M5	M12x1	M18x1, straight	M18x1, angled	20x32x12 mm	30x30x15 mm
Working range [mm]	50		70 ... 300	40 ... 600	0 ... 600	10 ... 300	0 ... 600
Type of light	Infrared		Red			Red	Infrared
Setting options	-		Potentiometer			Teach-in Teach-in via electrical connection	Potentiometer

Electrical data

Size	∅ 4 mm	M5	M12x1	M18x1, straight	M18x1, angled	20x32x12 mm	30x30x15 mm
Electrical connection	Cable	3-wire		4-wire	3-wire	4-wire	3-wire
	Plug	M8x1, 3-pin		M12x1, 3-pin	M12x1, 4-pin	M12x1, 3-pin	M8x1, 4-pin M8x1, 3-pin
Operating voltage range [V DC]	10 ... 30		10 ... 36			10 ... 30	
Max. output current [mA]	100		200			100	200
Max. switching frequency [Hz]	250		1000			1000	
Protection against short circuit	Pulsed						
Reverse polarity protection	For all electrical connections						
Degree of protection	IP67		IP65, IP67			IP67	IP65

Operating conditions

Size	∅ 4 mm	M5	M12x1	M18x1, straight	M18x1, angled	20x32x12 mm	30x30x15 mm
Ambient temperature [°C]	0 ... +55		-25 ... +55			-20 ... +60	-25 ... +55
Ambient temperature with flexible cable installation [°C]	0 ... +55		-5 ... +55			-5 ... +60	-5 ... +55

Materials

Size	∅ 4 mm	M5	M12x1	M18x1, straight	M18x1, angled	20x32x12 mm	30x30x15 mm
Housing	High-alloy stainless steel		Chrome-plated brass			ABS	PBT, reinforced
Cable sheath	TPE-U (PUR)						

Order code

	SOE	G	RT					
Type								
SOE	Opto-electronic sensor							
Design								
G	Standard sensor							
Function								
RT	Diffuse sensor							
Design, size, version								
4	Round, Ø 4 mm	<input type="checkbox"/>						
M5	Round, M5	<input type="checkbox"/>						
M12	Round, M12	<input type="checkbox"/>						
M18	Round, M18, beam exit straight	<input type="checkbox"/>						
M18W	Round, M18, beam exit angled	<input type="checkbox"/>						
Q20	Block design, 20x32x12 mm	<input type="checkbox"/>						
Q30	Block design, 30x30x15 mm	<input type="checkbox"/>						
Switching output								
PS	PNP, N/O contact							
NS	NPN, N/O contact							
PA	PNP, antivalent							
NA	NPN, antivalent							
PP	PNP, switchable							
NP	NPN, switchable							
Electrical connection								
K	Cable							
S	Plug							
Display								
L	1 LED	<input type="checkbox"/>						
2L	2 LEDs	<input type="checkbox"/>						
Options								
	Standard design							
TI	Teach-in by means of a button and via electrical connection	<input type="checkbox"/>						

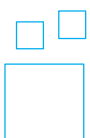
- Only with switching output PS, NS
 Only with switching output PA, NA, PS, NS
 Only with switching output PP, NP
 Only with switching output PS, NS
 Only with design, size Ø 4 mm, M5
 Only with design, size M12, M18, Q20, Q30
 Only with design, size Q20, 20x32x12 mm

Order example:

SOEG-RT-4-PS-K-L

Opto-electronic sensor - standard sensor - diffuse sensor - round, Ø 4 mm - PNP, N/O contact - cable - 1 LED

Ordering – Product options



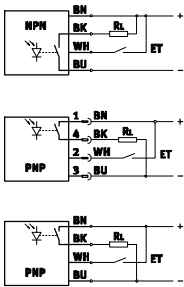
Configurable product

This product and all its options can be ordered using the configurator.

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 → www.festo.com/catalogue/...

Enter the type code in the search field.

Technical data



Technical data		Download CAD data → www.festo.com				
Size		M12x1	M18x1, straight	M18x1, angled	20x32x12 mm	30x30x15 mm 50x50x17 mm
Working range	[mm]	1500	2000	2000	0 ... 2500	0 ... 2000 0 ... 5500
Type of light		Red polarised				
Setting options		-			Teach-in Teach-in via electrical connection ¹⁾	Potentiometer

1) Cost-optimised variant without teach-in and programming functionality available.

Electrical data						
Size		M12x1	M18x1, straight	M18x1, angled	20x32x12 mm	30x30x15 mm 50x50x17 mm
Electrical connection	Cable	3-wire			4-wire	3-wire 4-wire
	Plug	M12x1, 3-pin			M8x1, 4-pin	M8x1, 3-pin M12x1, 4-pin
Operating voltage range	[V DC]	10 ... 36			10 ... 30	
Max. output current	[mA]	200			100	200
Max. switching frequency	[Hz]	1000				
Protection against short circuit		Pulsed				
Reverse polarity protection		For all electrical connections				
Degree of protection		IP65, IP67			IP67	IP65 IP67

Operating conditions						
Size		M12x1	M18x1, straight	M18x1, angled	20x32x12 mm	30x30x15 mm 50x50x17 mm
Ambient temperature	[°C]	-25 ... +55			-20 ... +60	-25 ... +55 -20 ... +60
Ambient temperature with flexible cable installation	[°C]	-5 ... +55			-5 ... +60	-5 ... +55 -5 ... +60

Materials						
Size		M12x1	M18x1, straight	M18x1, angled	20x32x12 mm	30x30x15 mm 50x50x17 mm
Housing		Chrome-plated brass			ABS	PBT, reinforced ABS
Cable sheath		TPE-U (PUR)				

Order code

		SOE	G	-	RSP	-		-		-		-		-	
Type															
SOE	Opto-electronic sensor														
Design															
G	Standard sensor														
Function															
RSP	Retro-reflective sensor														
Design, size, version															
M12	Round, M12	1													
M18	Round, M18, beam exit straight	1													
M18W	Round, M18, beam exit angled	1													
Q20	Block design, 20x32x12 mm	2													
Q30	Block design, 30x30x15 mm	1													
Q50	Block design, 50x50x17 mm	3													
Switching output															
PS	PNP, N/O contact														
NS	NPN, N/O contact														
PA	PNP, antivalent														
NA	NPN, antivalent														
PP	PNP, switchable														
NP	NPN, switchable														
Electrical connection															
K	Cable														
S	Plug														
Display															
2L	2 LEDs														
3L	3 LEDs 4														
Options															
	Standard design														
TI	Teach-in by means of a button and via electrical connection 5														

- 1 Only with switching output PS, NS
 2 Only with switching output PS, PP, NP
 3 Only with switching output PA, NA
 4 Only with design, size Q50
 5 Only with design, size Q20, 20x32x12 mm, not with switching output PS

Order example:

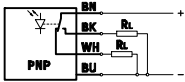
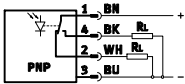
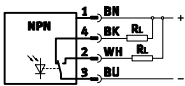
SOEG-RSP-M12-PS-K-2L

Opto-electronic sensor - standard sensor - retro-reflective sensor - round, M12 - PNP, N/O contact - cable - 2 LEDs

Ordering – Product options

	Configurable product	This product and all its options can be ordered using the configurator.	The configurator can be found under Products on the DVD or www.festo.com/catalogue/...	Enter the type code in the search field.
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Technical data



Technical data		Download CAD data → www.festo.com				
Size		M18x1, straight	M18x1, angled	20x32x12 mm	30x30x15 mm	50x50x17 mm
Working range	[mm]	20,000	20,000	6000	2000	15,000
Type of light		Red			Infrared	
Setting options		-			Teach-in Teach-in via electrical connection Potentiometer	

Electrical data						
Size		M18x1, straight	M18x1, angled	20x32x12 mm	30x30x15 mm	50x50x17 mm
Electrical connection	Transmitter	Cable	3-wire	4-wire	3-wire	4-wire
		Plug	M12x1, 3-pin	M8x1, 4-pin	M8x1, 3-pin	M12x1, 4-pin
	Receiver	Cable	4-wire	4-wire	3-wire	4-wire
		Plug	M12x1, 4-pin	M8x1, 4-pin	M8x1, 3-pin	M12x1, 4-pin
Operating voltage range	[V DC]	10 ... 36		10 ... 30		
Max. output current	[mA]	200		100	200	
Max. switching frequency	[Hz]	1000		500	1000	
Protection against short circuit		Pulsed				
Reverse polarity protection		For all electrical connections				
Degree of protection		IP65, IP67		IP67	IP65	IP67

Operating conditions						
Size		M18x1, straight	M18x1, angled	20x32x12 mm	30x30x15 mm	50x50x17 mm
Ambient temperature	[°C]	-25 ... +55		-20 ... +60	-25 ... +55	-20 ... +60
Ambient temperature with flexible cable installation	[°C]	-5 ... +55		-5 ... +60	-5 ... +55	-5 ... +60

Materials						
Size		M18x1, straight	M18x1, angled	20x32x12 mm	30x30x15 mm	50x50x17 mm
Housing		Chrome-plated brass		ABS	PBT, reinforced	ABS
Cable sheath		TPE-U (PUR)				

Order code

		SOE	G	-		-		-		-		-		-	
Type															
SOE	Opto-electronic sensor														
Design															
G	Standard sensor														
Function															
S	Through-beam sensor, transmitter														
E	Through-beam sensor, receiver														
Design, size, version															
M18	Round, M18, beam exit straight	1													
M18W	Round, M18, beam exit angled	1													
Q20	Block design, 20x32x12 mm	2													
Q30	Block design, 30x30x15 mm	3													
Q50	Block design, 50x50x17 mm	4													
Switching output															
-	None														
PS	PNP, N/O contact														
NS	NPN, N/O contact														
PA	PNP, antivalent														
NA	NPN, antivalent														
PP	PNP, switchable														
NP	NPN, switchable														
Electrical connection															
K	Cable														
S	Plug														
Display															
L	1 LED	5													
2L	2 LEDs														
3L	3 LEDs														
Options															
	Standard design														
TI	Teach-in by means of a button and via electrical connection	6													

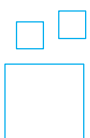
- 1 Only with switching output PA, NA, only with display 2L
 2 Only with switching output PP, NP, only with display 2L
 3 Only with switching output PS, NS, only with display 2L
 4 Only with switching output PA, only with display 3L
 5 Only with function S, transmitter
 6 Only with design, size Q20, 20x32x12 mm

Order example:

SOEG-S-M18-K-L

Opto-electronic sensor - standard sensor - through-beam sensor, transmitter - round, M18, beam exit straight - cable - 1 LED

Ordering – Product options



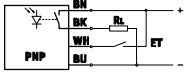
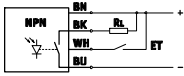
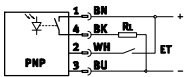
Configurable product

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Enter the type code in the search field.

Technical data



Technical data

Download CAD data → www.festo.com

Size	20x32x12 mm	30x30x15 mm
Working range [mm]	0 ... 250	0 ... 120
Type of light	Red	
Setting options	Teach-in Teach-in via electrical connection	Potentiometer

Electrical data

Size	20x32x12 mm	30x30x15 mm
Electrical connection	Cable	4-wire
	Plug	M8x1, 4-pin
Operating voltage range [V DC]	10 ... 30	
Max. output current [mA]	100	200
Max. switching frequency [Hz]	1000	
Protection against short circuit	Pulsed	
Reverse polarity protection	For all electrical connections	
Degree of protection	IP67	IP65

Operating conditions

Size	20x32x12 mm	30x30x15 mm
Ambient temperature [°C]	0 ... +60	-25 ... +55
Ambient temperature with flexible cable installation [°C]	0 ... +60	-5 ... +55

Materials

Size	20x32x12 mm	30x30x15 mm
Housing	ABS	PBT, reinforced
Cable sheath	TPE-U (PUR)	

Order code

	SOE	G	-	L	-		-		-		-	2L	-		
Type															
SOE	Opto-electronic sensor														
Design															
G	Standard sensor														
Function															
L	Fibre-optic unit														
Design, size, version															
Q20	Block design, 20x32x12 mm											1			
Q30	Block design, 30x30x15 mm											2			
Switching output															
PA	PNP, antivalent														
NA	NPN, antivalent														
PP	PNP, switchable														
NP	NPN, switchable														
Electrical connection															
K	Cable														
S	Plug														
Display															
2L	2 LEDs														
Options															
	Standard design														
TI	Teach-in by means of a button and via electrical connection											3			

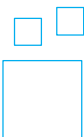
- [1](#) Only with switching output PP, NP
[2](#) Only with switching output PA, NA
[3](#) Only with design, size Q20 with plug

Order example:

SOEG-L-Q20-PP-S-2L-TI

Opto-electronic sensor - standard sensor - fibre-optic unit, block design 20x32x12 mm - PNP, switchable - plug - 2 LEDs - teach-in by means of a button and via electrical connection

Ordering – Product options



Configurable product

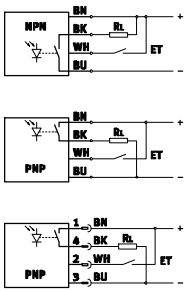
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The configurator can be found under Products on the DVD or

→ www.festo.com/catalogue/...

Enter the type code in the search field.

Technical data



Technical data		Download CAD data → www.festo.com	
Size	20x32x12 mm	20x32x12 mm	50x50x17 mm
Method of measurement	Contrast sensor	With background suppression	
Working range [mm]	40 ... 150	30 ... 110	50 ... 300
Type of light	Laser, red		
Laser protection class	2		
Setting options	Teach-in Teach-in via electrical connection	Teach-in Teach-in via electrical connection	Potentiometer

Electrical data		Contrast sensor		With background suppression	
Method of measurement		Contrast sensor		With background suppression	
Size		20x32x12 mm		20x32x12 mm	
Electrical connection	Cable	4-wire		4-wire	
	Plug	M8x1, 4-pin		M8x1, 4-pin	
Operating voltage range [V DC]		10 ... 30		10 ... 30	
Max. output current [mA]		100		100	
Max. switching frequency [Hz]		4000		1000	
Protection against short circuit		Pulsed			
Reverse polarity protection		For all electrical connections			
Degree of protection		IP67			

Operating conditions		Contrast sensor		With background suppression	
Method of measurement		Contrast sensor		With background suppression	
Size		20x32x12 mm		20x32x12 mm	
Ambient temperature [°C]		-20 ... +60		-20 ... +60	
Ambient temperature with flexible cable installation [°C]		-5 ... +60		-5 ... +60	

Materials			
Housing		ABS	
Cable sheath		TPE-P (PUR)	

Order code

		SOE	L	-	RT	-	Q20	-		-		-	2L	-	TI
Type															
SOE	Opto-electronic sensor														
Design															
L	Laser sensor														
Function															
RT	Diffuse sensor														
Design, size, version															
Q20	Block design, 20x32x12 mm														
Switching output															
PP	PNP, switchable														
NP	NPN, switchable														
Electrical connection															
K	Cable														
S	Plug														
Display															
2L	2 LEDs														
Options															
TI	Teach-in by means of a button and via electrical connection														

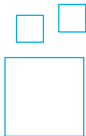
Order example:

SOEL-RT-Q20-PP-K-2L-TI

Opto-electronic sensor - laser sensor - diffuse sensor - block design 20x32x12 mm - PNP, switchable - cable - 2 LEDs - teach-in by means of a button and via electrical connection

10

Ordering – Product options



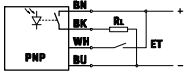
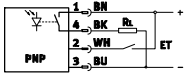
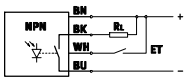
Configurable product

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The configurator can be found under Products on the DVD or
 → www.festo.com/catalogue/...

Enter the type code in the search field.

Technical data



Technical data

Download CAD data → www.festo.com

Size	20x32x12 mm	50x50x17 mm
Working range [mm]	70 ... 3000	20,000
Type of light	Red polarised	
Laser protection class	1	1
Setting options	Teach-in Teach-in via electrical connection	Potentiometer

Electrical data

Size	20x32x12 mm	50x50x17 mm	
Electrical connection	Cable	4-wire	4-wire
	Plug	M8x1, 4-pin	M12x1, 4-pin
Operating voltage range [V DC]	10 ... 30		
Max. output current [mA]	100	200	
Max. switching frequency [Hz]	4000	2500	
Protection against short circuit	Pulsed		
Reverse polarity protection	For all electrical connections		
Degree of protection	IP67		

Operating conditions

Size	20x32x12 mm	50x50x17 mm
Ambient temperature [°C]	-20 ... +60	-20 ... +45
Ambient temperature with flexible cable installation [°C]	-5 ... +60	-5 ... +45

Materials

Housing	ABS
Cable sheath	TPE-U (PUR)

Order code

		SOE	L	-	RSP	-		-		-		-		-	
Type															
SOE	Opto-electronic sensor														
Design															
L	Laser sensor														
Function															
RSP	Retro-reflective sensor														
Design, size, version															
Q20	Block design, 20x32x12 mm													1	
Q50	Block design, 50x50x17 mm													2	
Switching output															
PA	PNP, antivalent														
NA	NPN, antivalent														
PP	PNP, switchable														
NP	NPN, switchable														
Electrical connection															
K	Cable														
S	Plug														
Display															
2L	2 LEDs													1	
3L	3 LEDs													2	
Options															
	Standard design														
TI	Teach-in by means of a button and via electrical connection													3	

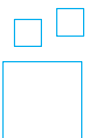
- 1 Only with switching output PP, NP
 2 Only with switching output PA, NA
 3 Only with design, size Q50, 50x50x17 mm

Order example:

SOEL-RSP-Q50-PP-K-2L-TI

Opto-electronic sensor - laser sensor - retro-reflective sensor - block design 50x50x17 mm - PNP, switchable - cable - 2 LEDs - teach-in by means of a button and via electrical connection

Ordering – Product options



Configurable
product

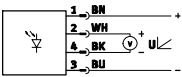
This product and all its options can
be ordered using the configurator.

The configurator can be found under
Products on the DVD or

→ www.festo.com/catalogue/...

Enter the type code in the search field.

Technical data



Technical data		Download CAD data → www.festo.com		
Size	50x50x17 mm			
Working range	[mm]	38 ... 58	44 ... 84	80 ... 300
Position measuring range	[mm]	20	40	220
Displacement resolution	[mm]	0.007	0.02	0.3
Type of light	Laser, red			
Laser protection class	2			
Setting options	–		–	Teach-in Teach-in via electrical connection

Electrical data				
Size	50x50x17 mm			
Working range	[mm]	38 ... 58	44 ... 84	80 ... 300
Analogue output	[mA]	–	–	4 ... 20
	[V]	0 ... 10	0 ... 10	–
Electrical connection	Plug M12x1, 4-pin		Plug M12x1, 4-pin	Plug M12x1, 8-pin
Operating voltage range	[V DC]	18 ... 28	18 ... 28	16 ... 30
Max. load current at analogue voltage output	[mA]	3.0	3.0	–
Max. output current	[mA]	–	–	100
Measuring frequency	[Hz]	40	40	–
Max. switching frequency	[Hz]	–	–	1000
Protection against short circuit	Pulsed			
Reverse polarity protection	For operating voltage		For operating voltage	For all electrical connections
Degree of protection	IP67			

Operating conditions				
Ambient temperature	[°C]	0 ... +45		

Materials				
Housing	ABS			

Order code

	SOE	L	-	RTD	-	Q50	-		-	S	-		-		
Type															
SOE	Opto-electronic sensor														
Design															
L	Laser sensor														
Function															
RTD	Distance sensor														
Design, size, version															
Q50	Block design, 50x50x17 mm														
Switching output															
pu	Analogue 0 ... 10 V														
PP	PNP, switchable														
Electrical connection															
S	Plug														
Display															
2L	2 LEDs												1		
7L	7 LEDs												2		
Position measuring range															
20	20 mm												1		
40	40 mm												1		
	20 ... 220 mm												2		

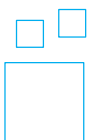
- 1** Only with switching output PU
2 Only with switching output PP

Order example:

SOEL-RTD-Q50-PU-S-2L-20

Opto-electronic sensor - laser sensor - distance sensor - block design 50x50x17 mm - analogue 0 ... 10 V - plug - 2 LEDs - 20 mm

Ordering – Product options



Configurable product

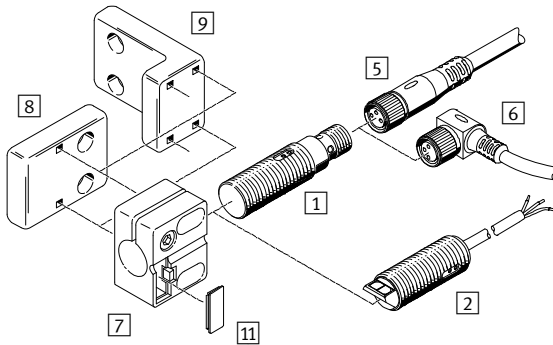
This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
 → www.festo.com/catalogue/...

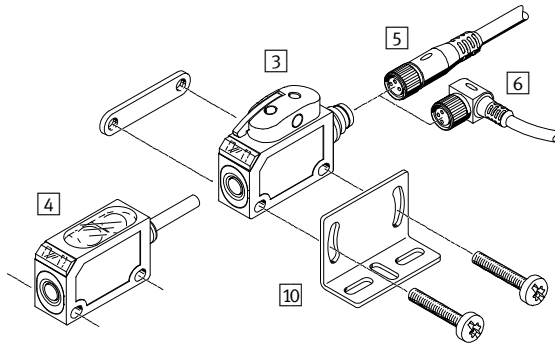
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Accessories

Round design








Block design





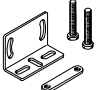






	→ Page/ online
Sensors	
1 Round design, Ø 4 mm, M12, M18, with plug	844
2 Same, with cable	844
3 Block design, with plug	846, 848
4 Block design, with cable	846, 848
Connecting cables	
5 NEBU-M...G..., straight version	830
SIM-M...G, straight version	nebu
6 NEBU-M...W..., angled version	830
SIM-M...W, angled version	nebu
Sensor brackets	
7 SIEZ-NB	859
8 SIEZ-UV	859
9 SIEZ-UH	859
Mounting brackets	
10 SOEZ-HW-Q20	859
SOEZ-HW-Q30	859
SOEZ-HW-Q50	859

	→ Page/ online
Inscription label	
11 SIEZ-LB	859
Fibre-optic cables, polymer	
- SOEZ-LLK-RT, diffuse sensor	859
SOEZ-LLK-SE, through-beam sensor	859
Fibre-optic cables, glass fibre	
- SOEZ-LLG-RT, diffuse sensor	859
SOEZ-LLG-SE, through-beam sensor	859
Reflectors	
- Reflector	859
Reflector foil	859
Reflector for laser light	859




Accessories – Ordering data

	Cable length [m]		Part No.	Type
5/6 Connecting cable M8x1 Technical data → 1053				
	2.5	★	541333	NEBU-M8G3-K-2.5-LE3
	5	★	541334	NEBU-M8G3-K-5-LE3
	2.5	★	541338	NEBU-M8W3-K-2.5-LE3
	5	★	541341	NEBU-M8W3-K-5-LE3
Connecting cable M12x1 Technical data → 1053				
	2.5	★	541363	NEBU-M12G5-K-2.5-LE3
	5	★	541364	NEBU-M12G5-K-5-LE3
	2.5		541367	NEBU-M12W5-K-2.5-LE3
	5		541370	NEBU-M12W5-K-5-LE3

	For design		Part No.	Type
7/8/9 Sensor bracket				
	4		538343	SIEZ-NB-4
	M12		538347	SIEZ-NB-12
	M18, M18W		538349	SIEZ-NB-18
	M12		538354	SIEZ-UH
	M18, M18W			
	M12		538355	SIEZ-UV
	M18, M18W			
10 Mounting bracket				
	Q20		537785	SOEZ-HW-Q20
	Q30		165355	SOEZ-HW-Q30
	Q50		537786	SOEZ-HW-Q50

	For design		Part No.	Type
11 Inscription label				
	M12, M18, M18W, M30		538353	SIEZ-LB
Fibre-optic cable, polymer				
	RT ¹⁾		165358	SOEZ-LLK-RT-2,0-M6
	S/E ²⁾		165360	SOEZ-LLK-SE-2,0-M4
Fibre-optic cable, glass fibre				
	RT ¹⁾		165356	SOEZ-LLG-RT-0,5-M6
	S/E ²⁾		165357	SOEZ-LLG-SE-0,5-M4
Fibre-optic cutter				
	For polymer fibre-optic cables		36479	SOE-LKS


- 1) Diffuse sensor.
2) Through-beam sensor.

	Size [mm]		Part No.	Type
Reflector				
	∅ 20		165363	SOEZ-RFS-20
	∅ 40		165364	SOEZ-RFS-40
	∅ 80		165365	SOEZ-RFS-80
Reflector foil				
	100x100		165362	SOEZ-RFF-100
Reflector for laser light				
	10x50		537787	SOEZ-RFL10
	50x50		537788	SOEZ-RFL50


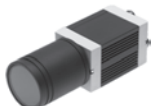
11 Compact vision systems







Vision sensors

	
Type	Code reader, object sensor SBSI-B, SBSI-Q
Sensor resolution	736 x 480 Pixel (WideVGA)
Working distance	6 mm ... Infinite
Field of vision	min. 5x4 mm, min. 8x6 mm
Frame rate (full image)	50 fps
Max. number of inspection programs/jobs	8
Focal length	6 ... 12 mm
Description	<ul style="list-style-type: none"> • Vision sensor with integrated lighting/lens • Enables 1D/2D codes to be read or the quality of parts to be inspected • Intuitive software for easy parameterisation • All-in-one unit: integrated lens, lighting, evaluation and communication
→ Page/online	sbsi

Diagnostics for fast processes

		
Type	Compact vision system SBOA-M	Compact vision system SBOC-M
Sensor resolution	640 x 480 pixels (VGA)	640 x 480 pixels (VGA)
Working distance	Depends on the lens chosen	Depends on the lens chosen
Field of vision	Depends on the lens chosen	Depends on the lens chosen
Frame rate (full image)	27 ... 241 fps	27 ... 241 fps
Exposure time	1 ... 1,000,000 µs	1 ... 1,000,000 µs
Description	<ul style="list-style-type: none"> • Systainer with compact vision system SBOC-M and accessories 	<ul style="list-style-type: none"> • High-speed camera for diagnostics and commissioning as well as for function monitoring of fast motion sequences • Recording and storage electronics integrated in the camera • For standard lens with C mount connection • Can be networked via Ethernet • Compact dimensions, low weight
→ Page/online	sbox	sbox

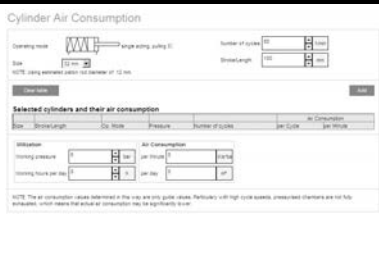
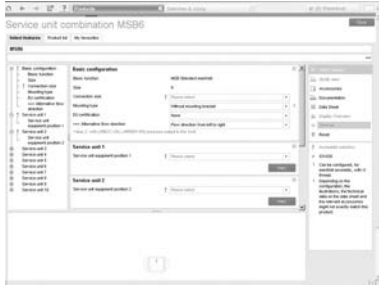
Orientation and quality inspection

Type	 Compact vision system SBOC-Q	 Compact vision system SBOI-Q	 Checkbox Compact CHB-C	 Checkbox CHB
Sensor resolution	1280 x 1024 pixels (SXGA), 640 x 480 pixels (VGA), 752 x 480 pixels (WideVGA)	640 x 480 pixels (VGA), 752 x 480 pixels (WideVGA)	512 pixels, 1024 pixels	1024 pixels/line, 512 pixels/line
Max. no. of inspection programs	256	256	16	48
Frame rate (full image)	27 ... 150 fps	60 ... 150 fps		
Lens mounting	CS mount (C mount with lens protection tube)	Integrated lens		
Min. part length			1 mm	3 mm
Min. part diameter			0.5 mm	0.5 mm
Description	<ul style="list-style-type: none"> • Intelligent field-based camera • For 2D quality inspection, position and rotary orientation sensing, reading of 1D and 2D codes, reading of optical characters (OCR) • Integrated full PLC (CODESYS) • Ethernet and CAN for communicating with higher-order controllers 	<ul style="list-style-type: none"> • Intelligent field-based camera • For 2D quality inspection, position and rotary orientation sensing, reading of 1D and 2D codes, reading of optical characters (OCR) • Integrated full PLC (CODESYS) • Ethernet and CAN for communicating with higher-order controllers 	<ul style="list-style-type: none"> • Intelligent line-scan camera • For orientation recognition and quality inspection of small moving parts • Encoder connection • Teach-in function 	<ul style="list-style-type: none"> • Intelligent, line-scan camera-based image processing system • For orientation recognition and quality inspection of small moving parts • Available with conveyor unit and air ejector positions • Available with encoder connection • Teach-in function
→ Page/online	sbox	sbox	chb-c	chb-c


12 Compressed air preparation




Software tool

<p>Air consumption</p>		<p>Calculate your system's air consumption quickly and conveniently. Simply enter all the drives and tubing, set the cycle times and working pressure and the air consumption per minute and per day will be calculated for you. It includes a feature for exporting the input table together with the result directly to Excel.</p>	<p>This tool can be found</p> <ul style="list-style-type: none"> • either in the electronic catalogue by clicking on the blue button "Engineering" • or on the DVD under Engineering Tools.
<p>Configurator</p>		<p>Design a product with numerous features reliably and quickly with the help of the configurator. Select all the required product features step-by-step. The use of logic checks ensures that only correct configurations are available for selection. A dynamic graphic generated on the basis of the configuration provides visual assistance in selecting the correct product features.</p>	<p>The configurator is part of the electronic catalogue and is not available as a separate software program.</p>



Service unit combinations: MSE series

<p>Type</p>	 <p>Service unit combination MSE6</p>
<p>Pneumatic connection 1</p>	<p>G1/2, sub-base</p>
<p>Standard nominal flow rate</p>	<p>4,500 l/min</p>
<p>Flow measuring range</p>	<p>5,000 l/min</p>
<p>Operating pressure</p>	<p>4 ... 10 bar</p>
<p>Electric actuation</p>	<p>Fieldbus node for PROFIBUS DP</p>
<p>Function</p>	<p>Energy saving (2/2-way function DE, V24)</p>
<p>Description</p>	<ul style="list-style-type: none"> • Intelligent pneumatic service unit for optimising usage of compressed air as an energy source • Equipped with measurement, control and diagnostic functions • Detection of increased compressed air consumption, e.g. due to leaks • Use as a process monitoring module • Size 6 • Electric actuation via fieldbus node
<p>→ Page/online</p>	<p>mse6</p>



Service unit combinations: MS series

<p>Type</p>	 <p>Service unit combination MSB4, MSB6, MSB9</p>
<p>Pneumatic connection 1</p>	<p>G1/8, G1/4, G1/2, G3/4, G1, G11/4, G11/2</p>
<p>Standard nominal flow rate</p>	<p>550 ... 18,000 l/min</p>
<p>Pressure regulation range</p>	<p>0.5 ... 16 bar</p>
<p>Operating pressure</p>	<p>0 ... 20 bar</p>
<p>Grade of filtration</p>	<p>0.01 ... 40 µm</p>
<p>Description</p>	<ul style="list-style-type: none"> • Sizes: 4, 6, 9 • Combination of filter regulator MS-LFR, filter MS-LF, fine and micro filter MS-LFM, activated carbon filter MS-LFX, pressure regulator MS-LR, MS-LRB, precision pressure regulator MS-LRP, MS-LRPB, electrical pressure regulator MS-LRE, lubricator MS-LOE, on-off valve MS-EM, MS-EE, soft-start valve MS-DL, MS-DE, soft-start/quick exhaust valve MS-SV, membrane air dryer MS-LDM1
<p>→ Page/online</p>	<p>888</p>


Service unit combinations: D series, metal

		
Type	Service unit combination with lubricator FRC-K	Service unit combination without lubricator LFR-K, LFRS-K
Pneumatic connection 1	G1/8, G1/4, G3/8, G1/2, G3/4	G1/8, G1/4, G3/8, G1/2, G3/4
Standard nominal flow rate	530 ... 8,200 l/min	575 ... 9,400 l/min
Pressure regulation range	0.5 ... 12 bar	0.5 ... 12 bar
Operating pressure	1 ... 16 bar	1 ... 16 bar
Grade of filtration	40 µm	40 µm
Description	<ul style="list-style-type: none"> • Combination of filter regulator LFR, branching module FRM, lubricator LOE, on-off valve HE, HEE, soft-start valve HEL, mounting accessories • Sizes: mini, midi, maxi 	<ul style="list-style-type: none"> • Combination of filter regulator LFR, LFRS, branching module FRM, on-off valve HE, HEE, soft-start valve HEL, mounting accessories • Sizes: mini, midi, maxi
→ Page/online	frc	lfr


Service unit combinations: D series, polymer

		
Type	Service unit combination FRC-DB	Service unit combination LFR-DB
Pneumatic connection 1	G1/4	G1/4
Standard nominal flow rate	400 ... 700 l/min	1,900 l/min
Pressure regulation range	0.5 ... 7 bar	0.5 ... 7 bar
Operating pressure	1.5 ... 10 bar	1.5 ... 10 bar
Grade of filtration	40 µm	40 µm
Description	<ul style="list-style-type: none"> • Combination of on-off valve, filter regulator, distributor module and lubricator • Size: mini 	<ul style="list-style-type: none"> • Combination of on-off valve, filter regulator and distributor module • Size: mini
→ Page/online	frc	lfr


Filter regulators/lubricators: MS series

	
Type	Service unit MSB4-FRC, MSB6-FRC
Pneumatic connection 1	G1/8, G1/4, G3/8, G1/2
Standard nominal flow rate	850 ... 4,800 l/min
Pressure regulation range	0.3 ... 12 bar
Operating pressure	1.5 ... 20 bar
Grade of filtration	5 ... 40 µm
Description	<ul style="list-style-type: none"> • Sizes: 4, 6 • Filter, regulator and lubricator functions in a single unit • High flow rate and highly efficient in removing contaminants • Good regulation characteristics with minimal pressure hysteresis • Setting values are secured by locking the rotary knob
→ Page/online	898

Filter regulators/lubricators: D series, metal


	
Type	Service unit FRC, FRCS
Pneumatic connection 1	G1/8, G1/4, G3/8, G1/2, G3/4, G1, M5, M7, QS-4, QS-6
Standard nominal flow rate	80 ... 8,700 l/min
Pressure regulation range	0.5 ... 12 bar
Operating pressure	1 ... 16 bar
Grade of filtration	5 ... 40 µm
Description	<ul style="list-style-type: none"> • Filter, regulator and lubricator functions in a single unit • High flow rate and highly efficient in removing contaminants • Good regulation characteristics with minimal pressure hysteresis • Setting values are secured by locking the rotary knob • Sizes: micro, mini, midi, maxi • Grid dimension 25, 40, 55, 66 mm
→ Page/online	frc

Filter regulators/lubricators: D series, polymer


	
Type	Service unit FRC-DB
Pneumatic connection 1	G1/8, G1/4
Standard nominal flow rate	400 ... 650 l/min
Pressure regulation range	0.5 ... 7 bar
Operating pressure	1.5 ... 10 bar
Grade of filtration	5 ... 40 µm
Description	<ul style="list-style-type: none"> • Filter, regulator and lubricator functions in a single unit • High flow rate and highly efficient in removing contaminants • Good regulation characteristics with minimal pressure hysteresis • Setting values are secured by means of the rotary knob with detent • With manual or semi-automatic condensate drain • Size: mini
→ Page/online	frc

12


Filter regulators: MS series

	
Type	Filter regulator MS4-LFR, MS6-LFR, MS9-LFR, MS12-LFR
Pneumatic connection 1	Connecting plate, G1/8, G1/4, G3/8, G1/2, G3/4, G1
Standard nominal flow rate	850 ... 23,000 l/min
Pressure regulation range	0.3 ... 16 bar
Operating pressure	0.8 ... 20 bar
Grade of filtration	5 ... 40 µm
Description	<ul style="list-style-type: none"> • Good regulation characteristics with minimal hysteresis and primary pressure compensation • Good particle and condensate separation • Available with or without secondary venting • High flow rate • MS4-LFR, MS6-LFR: directly actuated diaphragm regulator, MS9-LFR: piloted or directly actuated filter-diaphragm regulator, MS12-LFR: piloted diaphragm regulator without internal air consumption • Lockable rotary knob • Return flow option for exhausting from output 2 to output 1 already integrated
→ Page/online	900





Filter regulators: D series, metal

	
Type	Filter regulator LFR, LFRS
Pneumatic connection 1	G1/8, G1/4, G3/8, G1/2, G3/4, G1, M5, M7, QS-4, QS-6
Standard nominal flow rate	110 ... 11,000 l/min
Pressure regulation range	0.5 ... 12 bar
Operating pressure	1... 16 bar
Grade of filtration	5 ... 40 µm
Description	<ul style="list-style-type: none"> • Space-saving design with filter and regulator in a single unit • Good particle separation and high flow rate • Good regulation characteristics with minimal hysteresis • Two pressure gauge connections for flexible installation • Setting values are secured by locking the rotary knob • With manual, semi-automatic or fully automatic condensate drain • Lockable rotary knob
→ Page/online	lfr





Filter regulators: D series, polymer

	
Type	Filter regulator LFR-DB
Pneumatic connection 1	G1/8, G1/4
Standard nominal flow rate	500 ... 1,200 l/min
Pressure regulation range	0.5 ... 7 bar
Operating pressure	1.5... 10 bar
Grade of filtration	5 ... 40 µm
Description	<ul style="list-style-type: none"> • Space-saving design with filter and regulator in a single unit • Good particle separation and high flow rate • Good regulation characteristics with minimal hysteresis • With manual or semi-automatic condensate drain • Setting values are secured by locking the rotary knob
→ Page/online	lfr


Filters: MS series

				
Type	Filter MS4-LF, MS6-LF, MS9-LF, MS12-LF	Fine filter MS4-LFM-B, MS6-LFM-B, MS9-LFM-B, MS12-LFM-B	Micro filter MS4-LFM-A, MS6-LFM-A, MS9-LFM-A, MS12-LFM-A	Activated carbon filter MS4-LFX, MS6-LFX, MS9-LFX, MS12-LFX
Pneumatic connection 1	Connecting plate, G1/8, G1/4, G3/8, G1/2, G3/4, G1	Connecting plate, G1/8, G1/4, G3/8, G1/2, G3/4, G1	Connecting plate, G1/8, G1/4, G3/8, G1/2, G3/4, G1	Connecting plate, G1/8, G1/4, G3/8, G1/2, G3/4, G1
Standard nominal flow rate	1,000 ... 16,000 l/min	120 ... 7,600 l/min	120 ... 7,000 l/min	250 ... 6,000 l/min
Operating pressure	0 ... 20 bar	0 ... 20 bar	0 ... 20 bar	0 ... 20 bar
Grade of filtration	5 ... 40 µm	1 µm	0.01 µm	
Description	<ul style="list-style-type: none"> • Good particle and condensate separation • High flow rate with minimal pressure drop • Available with manual, semi-automatic, fully automatic or fully automatic, electrically actuated condensate drain 	<ul style="list-style-type: none"> • High-efficiency filter for exceptionally clean compressed air • Air quality to ISO 8573-1 • Available with differential pressure indicator for indication of contamination • Available with electronic filter pollution indicator 	<ul style="list-style-type: none"> • High-efficiency filter for exceptionally clean compressed air • Air quality to ISO 8573-1 • Available with differential pressure indicator for indication of contamination • Available with electronic filter pollution indicator 	<ul style="list-style-type: none"> • Removal of liquid and gaseous oil particles from compressed air using activated carbon • Eliminates odours and vapours
→ Page/online	ms4-lf	ms4-lfm-b	ms4-lfm-a	ms4-lfx


Filters: D series, metal

Type	 Filter LF	 Fine filter LFMB	 Micro filter LFMA	 Fine filter combination LFMB
Pneumatic connection 1	Connecting plate, G1/8, G1/4, G3/8, G1/2, G3/4, G1, M5, M7, QS-4, QS-6	Connecting plate, G1/8, G1/4, G3/8, G1/2, G3/4, G1	Connecting plate, G1/8, G1/4, G3/8, G1/2, G3/4, G1	G1/8, G1/4, G3/8, G1/2, G3/4, G1
Standard nominal flow rate	170 ... 5,300 l/min	250 ... 1,250 l/min	130 ... 950 l/min	125 ... 600 l/min
Operating pressure	0 ... 16 bar	1 ... 16 bar	1 ... 16 bar	1 ... 16 bar
Grade of filtration	5 ... 40 µm	1 µm	0.01 µm	0.01 µm
Description	<ul style="list-style-type: none"> • Good particle and condensate separation • High flow rate with minimal pressure drop • With manual or fully automatic condensate drain 	<ul style="list-style-type: none"> • High-efficiency filter for special requirements • Air quality to ISO 8573-1 • Version with differential pressure indicator for visual indication of filter contamination 	<ul style="list-style-type: none"> • High-efficiency filter for special requirements • Air quality to ISO 8573-1 • Version with differential pressure indicator for visual indication of filter contamination 	<ul style="list-style-type: none"> • High-efficiency filter for special requirements • Air quality to ISO 8573-1 • Available as pre-assembled filter combination • Version with differential pressure indicator for visual indication of filter contamination
→ Page/online	lf	lfmb	lfma	lfmba




Filters: D series, metal

Type	 Activated carbon filter LFX
Pneumatic connection 1	Connecting plate, G1/8, G1/4, G3/8, G1/2, G3/4, G1
Standard nominal flow rate	300 ... 1,430 l/min
Operating pressure	0 ... 16 bar
Grade of filtration	
Description	<ul style="list-style-type: none"> • Removal of liquid and gaseous oil particles from compressed air using activated carbon • Activated carbon filter cartridges provide odour and oil-free air to food industry standard • Residual oil content $\leq 0.003 \text{ mg/m}^3$ • Air quality class at the output 1.7.1 to ISO 8573-1
→ Page/online	lfx



Filters: Individual devices

Type	 Filter silencer LFU
Size	G1/4, G3/8, G1/2, G1
Grade of filtration	1 µm
Operating pressure	0 ... 16 bar
Flow rate with respect to atmosphere	4,000 ... 12,500 l/min
Noise reduction	Reduction by 40 dB
Description	<ul style="list-style-type: none"> • Removes up to 99.99% of oil and other contaminants from exhaust air • Manual rotary condensate drain • Exhaust noise reduced regardless of frequency
→ Page/online	lfu




Regulators: MS series

			
Type	Pressure regulator MS4-LR, MS6-LR, MS9-LR	Pressure regulator MS12-LR	Pressure regulator MS4-LRB, MS6-LRB
Pneumatic connection 1	Connecting plate, G1/8, G1/4, G3/8, G1/2, G3/4, G1	Connecting plate	Connecting plate, G1/4, G3/8, G1/2
Standard nominal flow rate	1,000 ... 33,000 l/min	12,000 ... 22,000 l/min	300 ... 7,300 l/min
Pressure regulation range	0.3 ... 16 bar	0.15 ... 16 bar	0.3 ... 16 bar
Operating pressure	0.8 ... 20 bar	0.8 ... 21 bar	0.8 ... 20 bar
Max. pressure hysteresis	0.25 ... 0.4 bar	0.04 ... 0.4 bar	0.25 bar
Description	<ul style="list-style-type: none"> • Good regulation characteristics with minimal hysteresis and primary pressure compensation • High flow rate with minimal pressure drop • Available with secondary venting • Lockable rotary knob • With pressure sensor with display and rotary knob pressure gauge • Sizes: 4, 6, 9 • Grid dimension 40, 62, 90 mm 	<ul style="list-style-type: none"> • Good regulation characteristics with minimal hysteresis and primary pressure compensation • High flow rate with minimal pressure drop • Actuator lock to protect set values against adjustment • With secondary venting • Pressure gauge connection for different fitting options • Size: 12 • Grid dimension 124 mm • MS12-LR-...-PO: pneumatically actuated (pressure range determined by means of pilot regulator) • MS12-LR-...-PE6: electrically actuated (pilot control by proportional pressure regulator) 	<ul style="list-style-type: none"> • For manifold assembly with through air supply • For configuring a regulator manifold with independent pressure regulation ranges • Good regulation characteristics with minimal hysteresis and primary pressure compensation • Actuator lock to protect set values against adjustment • With and without secondary venting • Integrated return flow option for exhausting from output 2 to output 1 • Optional pressure sensor • Optional rotary knob pressure gauge
→ Page/online	916	916	926



Regulators: MS series

		
Type	Precision pressure regulator MS6-LRP, MS6-LRPB	Electrical pressure regulator MS6-LRE
Pneumatic connection 1	Connecting plate, G1/4, G3/8, G1/2	Connecting plate, G1/4, G3/8, G1/2
Standard nominal flow rate	800 ... 5,000 l/min	2,200 ... 7,500 l/min
Pressure regulation range	0.05 ... 12 bar	0.3 ... 16 bar
Operating pressure	1 ... 14 bar	0.8 ... 20 bar
Max. pressure hysteresis	0.02 bar	0.25 bar
Description	<ul style="list-style-type: none"> • As individual device and for manifold assembly • Manifold assembly with through air supply • Good regulation characteristics with minimal hysteresis and primary pressure compensation • Actuator lock to protect set values against adjustment • Available with pressure sensor with display • Size: 6 • Grid dimension 62 mm 	<ul style="list-style-type: none"> • With integrated electric drive unit for indirectly setting the output pressure • Constant output pressure even in the event of a power failure thanks to the fail-safe function • Available with control unit with display • Available with integrated pressure sensor with electrical output • With or without secondary venting • Size: 6 • Grid dimension 62 mm
→ Page/online	ms6-lrp	ms6-lre



Regulators: D series, metal

Type	 Pressure regulator LR, LRS	 Pressure regulator LRB, LRBS	 Pressure regulator combination LRB-K
Pneumatic connection 1	G1/8, G1/4, G3/8, G1/2, G3/4, G1, M5, M7, QS-4, QS-6	Connecting plate	G1/4, G3/8, G1/2
Standard nominal flow rate	120 ... 12,500 l/min	1,600 ... 3,800 l/min	1,000 ... 3,800 l/min
Pressure regulation range	0.5 ... 12 bar	0.5 ... 12 bar	0.5 ... 12 bar
Operating pressure	0 ... 20 bar	1 ... 16 bar	1 ... 16 bar
Max. pressure hysteresis	0.2 ... 0.5 bar	0.2 bar	0.2 ... 0.5 bar
Description	<ul style="list-style-type: none"> • Suitable for front panel mounting • Lockable design • Two pressure gauge connections for different fitting options • Mini, midi size: directly actuated diaphragm regulator • Maxi size: piloted piston regulator, diaphragm regulator LRS-DI • Good regulation characteristics with minimal pressure hysteresis • High flow rate • Return flow option for venting from output 2 to input 1 • Available with pressure gauge • Sizes: micro, mini, midi, maxi 	<ul style="list-style-type: none"> • Manifold assembly with through air supply • Lockable design • Good regulation characteristics with minimal hysteresis and primary pressure compensation • For configuring a regulator manifold with independent pressure ranges • Settings secured via detent on rotary knob and push-in adjustment lock • Directly actuated diaphragm regulator • Without pressure gauge • Sizes: mini, midi 	<ul style="list-style-type: none"> • With through air supply • Regulator manifold with independent pressure ranges • Good regulation characteristics with minimal hysteresis and primary pressure compensation • Settings secured via detent on rotary knob and push-in adjustment lock • Directly actuated diaphragm regulator • Without pressure gauge • Sizes: mini, midi
→ Page/online	lr	lrb	lrb


Regulators: D series, polymer

Type	 Pressure regulator LR-DB	 Pressure regulator combination LRB-DB
Pneumatic connection 1	G1/8, G1/4	G1/2
Standard nominal flow rate	≥1,300 l/min	≥1,000 l/min
Pressure regulation range	0.5 ... 7 bar	0.5 ... 7 bar
Operating pressure	1.5 ... 10 bar	0 ... 16 bar
Max. pressure hysteresis	0.5 bar	0.5 bar
Description	<ul style="list-style-type: none"> • High flow rate • Good regulation characteristics with minimal pressure hysteresis • Setting values are secured by locking the rotary knob • Available with pressure gauge • Size: mini 	<ul style="list-style-type: none"> • With through air supply • Good regulation characteristics with minimal hysteresis and primary pressure compensation • Regulator manifold with independent pressure ranges • Setting values are secured by locking the rotary knob • Without pressure gauge • Size: mini
→ Page/online	lr-db	lrb-db


Regulators: Individual devices

		
Type	Pressure regulator LR-G, LRS-G	Precision pressure regulator LRP, LRPS
Pneumatic connection 1	G1/8	G1/4
Standard nominal flow rate	600 ... 700 l/min	800 ... 2,300 l/min
Pressure regulation range	0.5 ... 12 bar	0.05 ... 10 bar
Operating pressure	1 ... 20 bar	1 ... 12 bar
Max. pressure hysteresis	0.2 bar	0.02 bar
Description	<ul style="list-style-type: none"> • Lockable design • Sturdy design • For front panel mounting • Excellent flow rates • Precision diaphragm regulator 	<ul style="list-style-type: none"> • Lockable design • Precision pressure adjustment possible both in static and dynamic applications • Good response characteristics during rapid modification of supply pressure and flow rate • Supply pressure fluctuations are almost entirely compensated
→ Page/online	lr-g	975





Lubricators: MS series

	
Type	Lubricator MS4-LOE, MS6-LOE, MS9-LOE, MS12-LOE
Pneumatic connection 1	Connecting plate, G1/8, G1/4, G3/8, G1/2, G3/4, G1
Standard nominal flow rate	1,100 ... 27,000 l/min
Operating pressure	1 ... 16 bar
Minimum flow rate for lubricator function	40 ... 400 l/min
Description	<ul style="list-style-type: none"> • Configurable proportional lubricator with precision oil metering • Quick and easy oil top-up even under pressure • Choice of flow direction: left-right, right-left • Oil capacity 30 ... 1,500 cm³ • Sizes: 4, 6, 9, 12 • Grid dimension 40, 60, 90, 124 mm
→ Page/online	ms4-loe



Lubricators: D series

	
Type	Lubricator LOE
Pneumatic connection 1	G1/8, G1/4, G3/8, G1/2, G3/4, G1, M5, M7, QS-4, QS-6
Standard nominal flow rate	160 ... 9,000 l/min
Operating pressure	0 ... 16 bar
Minimum flow rate for lubricator function	3 ... 10 l/min
Description	<ul style="list-style-type: none"> • Proportional lubricator with precision oil metering • Quick and easy top-up even under pressure • High flow rate • Sturdy metal housing and transparent lubricator bowl with metal bowl guard • Oil capacity 6.5 ... 190 cm³ • Sizes: micro, mini, midi, maxi • Grid dimension 25, 40, 55, 66 mm
→ Page/online	loe





On-off and soft-start valves: MS series

Type	 On-off valve MS4-EM1, MS6-EM1, MS9-EM, MS12-EM	 On-off valve MS4-EE, MS6-EE, MS9-EE, MS12-EE	 Soft-start valve MS4-DL, MS6-DL, MS12-DL	 Soft-start valve MS4-DE, MS6-DE, MS12-DE
Pneumatic connection 1	Connecting plate, G1/8, G1/4, G3/8, G1/2, G3/4, G1	Connecting plate, G1/8, G1/4, G3/8, G1/2, G3/4, G1	Connecting plate, G1/8, G1/4, G3/8, G1/2, G3/4, G1	Connecting plate, G1/8, G1/4, G3/8, G1/2, G3/4, G1
Standard nominal flow rate	1,200 ... 32,000 l/min	1,000 ... 32,000 l/min	1,000 ... 42,000 l/min	1,000 ... 42,000 l/min
Operating pressure	0 ... 20 bar	3 ... 18 bar	2 ... 20 bar	3 ... 18 bar
Actuation type	Manual	Electric	Pneumatic	Electric
Description	<ul style="list-style-type: none"> • A silencer can be attached or the exhaust air ducted at port 3 • Available with pressure gauge and pressure sensor with display • Sizes: 4, 6, 9, 12 • Grid dimension 40, 62, 90, 124 mm 	<ul style="list-style-type: none"> • Supply voltage 24 V DC, 110, 230 V AC • Available with pressure sensor with display • With solenoid coil, without plug socket • Sizes: 4, 6, 9, 12 • Grid dimension 40, 62, 90, 124 mm 	<ul style="list-style-type: none"> • For slowly pressurising and venting pneumatic installations (for use with on-off valves EM1 and EE) • For advancing the drives slowly and reliably into the initial position • For avoiding sudden and unexpected movements • Adjustable switching time delay • Sizes: 4, 6, 12 • Grid dimension 40, 62, 124 mm 	<ul style="list-style-type: none"> • Supply voltage 24 V DC, 110, 230 V AC • For slowly pressurising and venting pneumatic installations • For advancing the drives slowly and reliably into the initial position • For avoiding sudden and unexpected movements • Adjustable switching time delay • Sizes: 4, 6, 12 • Grid dimension 40, 62, 124 mm
→ Page/online	937	944	952	ms4-de



On-off and soft-start valves: MS series

Type	 Soft-start/quick exhaust valve MS6-SV-E	 Soft-start/quick exhaust valve MS6-SV-C, MS9-SV-C
Pneumatic connection 1	Connecting plate, G1/2	Connecting plate, G1/2, G3/4, G1
Standard nominal flow rate	4,300 l/min	5,700 l/min, 14,150 ... 16,460 l/min
Operating pressure	3.5 ... 10 bar	3 ... 18 bar, 3.5 ... 16 bar
Actuation type	Electric	Electric
Description	<ul style="list-style-type: none"> • Performance Level: category 4, 2-channel with self-monitoring, to EN ISO 13849-1 • SIL 3 • For reducing pressure quickly and reliably and for building up pressure gradually • Switching time delay adjustable via a flow control valve for gradual pressure build-up • Available with silencer • Supply voltage 24 V DC • Size: 6 • Grid dimension 62 mm 	<ul style="list-style-type: none"> • Performance Level: category 1, to EN ISO 13849-1 • For reducing pressure quickly and reliably and for building up pressure gradually • Switching time delay adjustable via a flow control valve for gradual pressure build-up • Supply voltage 24 V DC • Size: 6, 9 • Grid dimension 62, 90 mm
→ Page/online	ms6-sv-e	957


On-off and soft-start valves: D series

Type	 On-off valve HE	 On-off valve HEE	 On-off valve HEP	 Soft-start valve HEL
Pneumatic connection 1	G1/8, G1/4, G3/8, G1/2, G3/4, G1	G1/8, G1/4, G3/8, G1/2, G3/4, G1	G1/8, G1/4, G3/8, G1/2, G3/4, G1	G1/8, G1/4, G3/8, G1/2, G3/4, G1
Standard nominal flow rate	1,000 ... 10,000 l/min	1,000 ... 6,500 l/min	1,000 ... 6,500 l/min	1,000 ... 6,500 l/min
Operating pressure	0 ... 16 bar	2.5 ... 16 bar	0 ... 16 bar	3 ... 16 bar
Actuation type	Manual	Electric	Pneumatic	Pneumatic
Description	<ul style="list-style-type: none"> • 3/2-way valve • Ducted exhaust air possible via a threaded connection • The switching position is immediately recognisable • Sizes: mini, midi, maxi • Grid dimension 40, 55, 66 mm 	<ul style="list-style-type: none"> • For pressurising and venting pneumatic installations • With solenoid coil, without plug socket • Solenoid head can be repositioned by 4 x 90° • Detenting and non-detenting manual override • Supply voltage 24 V DC, 110, 230 V AC • Sizes: mini, midi, maxi • Grid dimension 40, 55, 66 mm 	<ul style="list-style-type: none"> • On-off valve for pressurising and venting pneumatic installations • As an individual device or in combination with other D series modules • Especially suitable for applications requiring explosion protection • Sizes: mini, midi, maxi • Grid dimension 40, 55, 66 mm 	<ul style="list-style-type: none"> • For gradual pressure build-up (for use with on-off valves HE and HEE) • For advancing drives slowly and reliably into the initial position • For avoiding sudden and unexpected movements • Adjustable switching time delay • Sizes: mini, midi, maxi • Grid dimension 40, 55, 66 mm
→ Page/online	he	hee	hep	hel


On-off and soft-start valves: Individual devices

Type	 Shut-off valve HE-LO	 Solenoid valve, pneumatic valve MFHE, VLHE
Pneumatic connection 1	G3/8, G1/2, G3/4, G1	G1/4, G3/8, G1/2
Standard nominal flow rate	15,000 ... 10,000 l/min	1,200 ... 2,900 l/min
Operating pressure	1 ... 10 bar	2 ... 12 bar
Actuation type	Manual	Electric, pneumatic
Description	<ul style="list-style-type: none"> • To safety standard • For shutting off the compressed air supply whilst simultaneously exhausting systems powered by compressed air • Can be locked in the closed position • Screwed into piping, through-holes for wall mounting 	<ul style="list-style-type: none"> • For F solenoid coils • Piloted • On-off valve in combination with service units • Soft-start valve • Manual override, detenting
→ Page/online	he-lo	mfhe


Air dryers: MS series

Type	 Membrane air dryer MS4-LDM1, MS6-LDM1
Pneumatic connection 1	Connecting plate, G1/8, G1/4, G3/8, G1/2
Standard nominal flow rate	50 ... 400 l/min
Operating pressure	3 ... 12.5 bar
Pressure dew point reduction	20 K
Description	<ul style="list-style-type: none"> • Final dryer with excellent operational reliability • Suitable for use as an individual device or for integration into existing service unit combinations • Flow rate-dependent dew point reduction • Wear-free function requiring no external energy • Sizes: 4, 6 • Grid dimension 40, 62 mm
→ Page/online	ms4-ldm1



Air dryers: D series

	
Type	Membrane air dryer LDM1
Pneumatic connection 1	G1/2, G3/4, G1
Standard nominal flow rate	300 ... 1,000 l/min
Operating pressure	3 ... 12.5 bar
Pressure dew point reduction	17 ... 20 K
Description	<ul style="list-style-type: none"> • Final dryer with excellent operational reliability • Flow rate-dependent dew point reduction • Wear-free function requiring no external energy • Size: maxi • Grid dimension 66 mm • Individual device with or without connecting plates, for service unit combination
→ Page/online	ldm1



Air dryers: Individual devices

	
Type	Adsorption dryer PDAD
Pneumatic connection 1	G3/8, G1/2
Standard nominal flow rate	10 ... 1,000 l/min
Supply pressure 1	4 ... 16 bar
Pressure dew point	-40 °C or -70 °C
Description	<ul style="list-style-type: none"> • Ideal for decentralised compressed air drying • Extends the service life of pneumatic components • Additional filtering of oil and particulates • Defined pressure dew point • High flow rate • Low purge air consumption and noise levels
→ Page/online	pdad




Compressed air distribution units: MS series

		
Type	Branching module MS4-FRM, MS6-FRM, MS9-FRM, MS12-FRM	Distributor block MS4-FRM-FRZ, MS6-FRM-FRZ
Pneumatic connection 1	Connecting plate, G1/8, G1/4, G3/8, G1/2, G3/4, G1	G1/4, G1/2
Standard nominal flow rate in main flow direction 1->2	1,200 ... 50,000 l/min	4,050 ... 14,600 l/min
Operating pressure	0 ... 20 bar	0 ... 20 bar
Description	<ul style="list-style-type: none"> • Designs with integrated non-return function, with pressure switch • Pneumatic manifold with 4 connections • Can be used as an intermediate distributor for varying air qualities • Outlet at top and bottom • Available with pressure sensor with display • Sizes: 4, 6, 9, 12 • Grid dimension 40, 62, 90, 124 mm 	<ul style="list-style-type: none"> • Pneumatic manifold with 4 connections • Outlet at top and bottom • Can be used as an intermediate distributor for varying air qualities • Can be used as an intermediate distributor between two pressure regulators with large rotary knob with pressure gauge on size MS4 • Sizes: 4, 6 • Grid dimension 20, 31 mm
→ Page/online	964	ms4-frm


Compressed air distribution units: D series

		
Type	Branching module FRM	Distributor block FRZ
Pneumatic connection 1	G1/8, G1/4, G3/8, G1/2, G3/4, G1	Manifold module
Standard nominal flow rate in main flow direction 1->2	1,100 ... 20,000 l/min	
Operating pressure	0 ... 16 bar	
Description	<ul style="list-style-type: none"> • Designs with integrated non-return function, with pressure switch • Several additional air connections for greater flexibility • Can be used as an intermediate distributor for varying air qualities • Sizes: mini, midi, maxi • Grid dimension 40, 55, 66 mm 	<ul style="list-style-type: none"> • Sizes: micro, mini, midi, maxi • Grid dimension 25, 40, 55, 66 mm • Several additional air connections for greater flexibility
→ Page/online	frm	frz

Condensate drains

			
Type	Water separator MS6-LWS, MS9-LWS, MS12-LWS	Condensate drain PWEA	Condensate drain WA
Pneumatic connection		G1/2	M9
Pneumatic connection 1	Connecting plate, G1/4, G3/8, G1/2, G3/4, G1		
Operating pressure	0.8 ... 16 bar	0.8 ... 16 bar	0 ... 16 bar
Description	<ul style="list-style-type: none"> • Maintenance-free • Constantly high condensate separation (99%) up to the maximum flow rate • Metal bowl • Available with fully automatic or fully automatic, electrically actuated condensate drain 	<ul style="list-style-type: none"> • Fully automatic condensate drain with independent electrical controller • Interface for communicating with master control device • Reliable thanks to non-contacting capacitive sensor • Can be used with service units or simply in piping systems • Ready status and switching status indicated via LEDs and electrical interface 	<ul style="list-style-type: none"> • For attachment to service units and compressed air networks/systems • Automatic emptying after the max. fill level has been reached • Automatic emptying after the operating pressure $p < 0.5$ bar is switched off • Manual actuation during operation is possible
→ Page/online	ms6-lws	pwea	wa

Pressure boosters



	
Type	Pressure booster DPA
Pneumatic connection 1	G1/4, G3/8, G1/2
Output pressure 2	4 ... 16 bar
Supply pressure 1	2 ... 10 bar
Description	<ul style="list-style-type: none"> Minimal loss of volume due to valve activation Designed as a pressure booster/air reservoir combination Any mounting position Short filling times Long service life Compact design Available with sensing option
→ Page/online	dpa

Pressure indicators

				
Type	Pressure gauge PAGN	Pressure gauge MA	Flanged pressure gauge FMA	Flanged precision pressure gauge, precision pressure gauge FMAP, MAP
Type of mounting	In-line installation	In-line installation	Front panel mounting	Front panel mounting, in-line installation
Display range	0 ... 16 bar	0 ... 25 bar	0 ... 16 bar	0 ... 16 bar
Pneumatic connection	QSP...10	G1/8, G1/4, M5, QS-4, QS-6, QS-8, R1/8, R1/4	G1/4	G1/4, R1/8
Operating pressure	0 ... 16 bar	0 ... 25 bar	0 ... 16 bar	0 ... 16 bar
Measurement accuracy class	2.5, 4	1.6, 2.5, 4, 5	1.6, 2.5	1, 1.6
Description	<ul style="list-style-type: none"> Display units bar, psi Pneumatic connection via QSP10 Mounting via retaining clamp 	<ul style="list-style-type: none"> Designs based on EN 837-1, optionally with red-green range Pneumatic connection via R, metric or G thread, push-in connector Display units bar, psi, MPa 	<ul style="list-style-type: none"> Design to DIN EN 837-1 Pneumatic connection via G thread Front panel mounting Display units bar, psi 	<ul style="list-style-type: none"> Conforms to EN 837-1 Display units bar, psi Connection via G or R thread
→ Page/online	pagn	ma	fma	fmap

12

Pressure indicators

		
Type	Pressure gauge kit DPA-MA-SET	Vacuum gauge VAM, FVAM
Type of mounting	Via male thread	Front panel mounting, screw-in
Display range		-1 bar, -1 ... 9 bar
Pneumatic connection	G1/8, G1/4, R1/8	G1/8, G1/4, R1/8, R1/4
Operating pressure	10 ... 16 bar	-1 bar, -1 ... 9 bar
Measurement accuracy class	2.5, 4	2.5
Description	<ul style="list-style-type: none"> For pressure booster DPA For monitoring the supply and output pressure Pneumatic connection via R, G thread 	<ul style="list-style-type: none"> Designs based on DIN EN 837-1, optionally with red-green range Pneumatic connection via R, G thread Screw-in or front panel mounting Double or single scale Display units bar, inHg, psi
→ Page/online	dpa	vam

Customised components – for your specific requirements



Components for compressed air preparation with customised designs

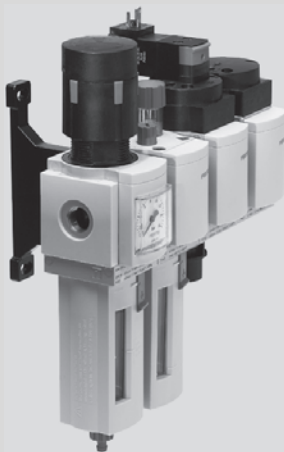
Can't find the compressed air preparation components you need in our catalogue?

We can offer you customised components that are tailored to your specific requirements – from minor product modifications to complete new product developments.

Common product modifications:

- Modified pressure range
- Rotary knob: in a special colour, with protection against rotation
- Fitting: integrated throttling port, special thread
- Tubing with special printing
- Pressure gauge with red-green range

Many additional variants are possible. Ask your Festo sales engineer, who will be happy to help. Further information on customised components can be found on your local website at www.festo.com

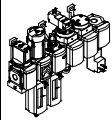








- Easy to assemble thanks to a modular structure
- 4 sizes (G1/8 to G2):
MS4 – grid dimension 40 mm, MS6 – grid dimension 62 mm,
MS9 – grid dimension 90 mm, MS12 – grid dimension 124 mm
- Compact with high flow rates: up to 22,000 l/min
- Integrated safety functions
- Broad range of functions: individual components, pre-assembled combinations ex-stock, application-specific combinations or complete turnkey solutions
- Selected types in accordance with the ATEX Directive for explosive atmospheres → www.festo.com/catalogue/ex
→ [www.festo.com/catalogue/ms series](http://www.festo.com/catalogue/ms_series)

Key features

- Solutions for every application from individual components through pre-assembled combinations ex-stock and application-specific combinations to complete turnkey solutions
- Wealth of options ensures the right solution for every task
- Reliable compressed air supply thanks to ultra-modern functional modules with integrated sensors and remote adjustment function
- Maximum flow rates with minimum space requirement
- Flow rates up to 22,000 l/min with size MS12
- CAD models and configurator for easy selection of application-specific individual devices and MSB4, MSB6 and MSB9 combinations
→ www.festo.com/catalogue
- Simple connection system saves time when replacing individual modules without dismantling the entire unit
- Locking filter bowls and lockable valves fitted as standard for maximum control of the operating pressure offer maximum safety
- With soft-start valves, filter clogging indicator and fully automatic condensate drain for reliable operation of your system

Product range overview

Type	Size	Pneumatic connection in housing	Connecting plate	Pressure regulation range [bar]						Grade of filtration [µm]				
				0.05	0.05	0.1	0.3	0.1	0.5	0.01	1	5	40	
Code			AG...	0.7	2.5	4	7	12	16	D8	A	B	C	E
Service unit combinations (additional variants can be ordered using the configurator → online: msb4, msb6 or msb9)														
MSB 	4	G1/4	G1/8, G1/4, G3/8	-	-	-	■	■	-	-	-	-	■	■
	6	G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	■	■	-	-	-	-	■	■
	9	-	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-	-	-
Service units														
MSB-FRC 	4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	-	■	■	-	-	-	-	■	■
	6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	■	■	-	-	-	-	■	■
	9	-	-	-	-	-	-	-	-	-	-	-	-	-
	12	-	-	-	-	-	-	-	-	-	-	-	-	-
Individual devices														
Filter regulators MS-LFR 	4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	■	■	■	-	-	-	-	■	■
	6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	■	■	■	■	-	-	-	■	■
	9	G3/4, G1	G1/2, G3/4, G1, G11/4, G11/2	-	-	■	■	-	-	-	-	-	■	■
	12	-	G1, G11/4, G11/2, G2	-	-	-	■	■	■	-	-	-	■	■
Filters MS-LF 	4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	-	-	-	-	-	-	-	■	■
	6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	-	-	-	-	-	-	■	■
	9	G3/4, G1	G1/2, G3/4, G1, G11/4, G11/2	-	-	-	-	-	-	-	-	-	■	■
	12	-	G1, G11/4, G11/2, G2	-	-	-	-	-	-	-	-	-	■	■
Fine and micro filters MS-LFM 	4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	-	-	-	-	■	■	-	-	-
	6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	-	-	-	■	■	-	-	-
	9	G3/4, G1	G1/2, G3/4, G1, G11/4, G11/2	-	-	-	-	-	-	■	■	-	-	-
	12	-	G1, G11/4, G11/2, G2	-	-	-	-	-	-	■	■	-	-	-
Activated carbon filters MS-LFX 	4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	-	-	-	-	-	-	-	-	-
	6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	-	-	-	-	-	-	-	-
	9	G3/4, G1	G1/2, G3/4, G1, G11/4, G11/2	-	-	-	-	-	-	-	-	-	-	-
	12	-	G1, G11/4, G11/2, G2	-	-	-	-	-	-	-	-	-	-	-
Water separators MS-LWS 	4	-	-	-	-	-	-	-	-	-	-	-	-	-
	6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	-	-	-	-	-	-	-	-
	9	G3/4, G1	G1/2, G3/4, G1, G11/4, G11/2	-	-	-	-	-	-	-	-	-	-	-
	12	-	G1, G11/4, G11/2, G2	-	-	-	-	-	-	-	-	-	-	-

Product range overview

Type	Size	Bowl guard		Condensate drain				Pressure indication				Security		Options		→ Page/ online	
		Plastic bowl guard	Metal bowl guard	Manual rotary	Semi-automatic	Fully automatic	External, fully automatic, electric	Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter plate for EN pressure gauge G1/8	Adapter plate for EN pressure gauge G1/4	Pressure sensor	Rotary knob with detent, can be locked using accessories	Rotary knob with integrated lock	Silencer		Flow direction from right to left
Code		R	U	M	H	V	E...	VS	AG	A8	A4	AD...	AS	E11	S	Z	
Service unit combinations																	
MSB	4	■	■	■	-	■	-	-	■	-	-	-	■	-	-	■	888
	6	■	■	■	-	■	-	-	■	-	-	-	■	-	-	■	
	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Service units																	
MSB-FRC	4	■	-	■	-	■	-	-	■	-	-	-	■	-	-	■	898
	6	■	■	■	-	■	-	-	■	-	-	-	■	-	-	■	
	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Individual devices																	
Filter regulators MS-LFR	4	■	■	■	■	■	-	■	■	■	■	■	■	■	■	■	900
	6	■	■	■	■	■	■	■	■	-	■	■	■	■	■	■	
	9	-	■	■	■	■	■	■	■	-	■	■	■	■	■	■	
	12	-	■	■	-	■	■	■	■	-	■	■	■	■	■	■	
Filters MS-LF	4	■	■	■	■	■	-	-	-	-	-	-	-	-	-	■	ms*-lf
	6	■	■	■	■	■	■	-	-	-	-	-	-	-	-	■	
	9	-	■	■	■	■	■	-	-	-	-	-	-	-	-	■	
	12	-	■	■	-	■	■	-	-	-	-	-	-	-	-	■	
Fine and micro filters MS-LFM	4	■	■	■	■	■	-	-	-	-	-	-	-	-	-	■	ms*-lfm
	6	■	■	■	■	■	■	-	-	-	-	-	-	-	-	■	
	9	-	■	■	■	■	■	-	-	-	-	-	-	-	-	■	
	12	-	■	■	-	■	■	-	-	-	-	-	-	-	-	■	
Activated carbon filters MS-LFX	4	■	■	-	-	-	-	-	-	-	-	-	-	-	-	■	ms*-lfx
	6	■	■	-	-	-	-	-	-	-	-	-	-	-	-	■	
	9	-	■	-	-	-	-	-	-	-	-	-	-	-	-	■	
	12	-	■	-	-	-	-	-	-	-	-	-	-	-	-	■	
Water separators MS-LWS	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	911
	6	-	■	-	-	■	■	-	-	-	-	-	-	-	-	■	
	9	-	■	-	-	■	■	-	-	-	-	-	-	-	-	■	
	12	-	■	-	-	■	■	-	-	-	-	-	-	-	-	■	








Product range overview

Type	Size	Pneumatic connection in housing	Connecting plate	Pressure regulation range [bar]						Supply voltage			
				0.05	0.05	0.1	0.3	0.1	0.5	24 V DC, pin allocation to EN 175301	24 V DC, connection M12 to IEC 61076-2-101	110 V AC, pin allocation to EN 175301	230 V AC, pin allocation to EN 175301
Code			AG...	D2	D4	D5	D6	D7	D8	V24	V24P	V110	V230
Individual devices													
Pressure regulators MS-LR		4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	■	■	■	-	-	-	-
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	■	■	■	■	-	-	-
		9	G3/4, G1	G1/2, G3/4, G1, G1 1/4, G1 1/2	-	-	■	■	-	-	-	-	-
		12	-	G1, G1 1/4, G1 1/2, G2	-	-	-	■	■	■	-	-	-
Pressure regulators MS-LRB		4	G1/4	G1/8, G1/4, G3/8	-	-	■	■	■	-	-	-	-
		6	G1/2	G1/4, G3/8, G1/2, G3/4	-	-	■	■	■	■	-	-	-
		9	-	-	-	-	-	-	-	-	-	-	-
		12	-	-	-	-	-	-	-	-	-	-	-
Precision pressure regulators MS-LRP		4	-	-	■	■	■	-	■	-	-	-	-
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	■	■	■	-	■	-	-	-	-
		9	-	-	-	-	-	-	-	-	-	-	-
		12	-	-	-	-	-	-	-	-	-	-	-
Precision pressure regulators MS-LRPB		4	-	-	■	■	■	-	■	-	-	-	-
		6	G1/2	G1/4, G3/8, G1/2, G3/4	■	■	■	-	■	-	-	-	-
		9	-	-	-	-	-	-	-	-	-	-	-
		12	-	-	-	-	-	-	-	-	-	-	-
Electric pressure regulators MS-LRE		4	-	-	-	-	-	-	-	-	-	-	-
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	■	■	■	■	-	-	-
		9	-	-	-	-	-	-	-	-	-	-	-
		12	-	-	-	-	-	-	-	-	-	-	-
Lubricators MS-LOE		4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	-	-	-	-	-	-	-
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	-	-	-	-	-	-
		9	G3/4, G1	G1/2, G3/4, G1, G1 1/4, G1 1/2	-	-	-	-	-	-	-	-	-
		12	-	G1, G1 1/4, G1 1/2, G2	-	-	-	-	-	-	-	-	-
On-off valves MS-EM(1)		4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	-	-	-	-	-	-	-
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	-	-	-	-	-	-
		9	G3/4, G1	G1/2, G3/4, G1, G1 1/4, G1 1/2	-	-	-	-	-	-	-	-	-
		12	-	G1, G1 1/4, G1 1/2, G2	-	-	-	-	-	-	-	-	-
On-off valves MS-EE		4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	-	-	-	-	■	-	■
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	-	-	-	■	-	■
		9	G3/4, G1	G1/2, G3/4, G1, G1 1/4, G1 1/2	-	-	-	-	-	-	■	■	■
		12	-	G1, G1 1/4, G1 1/2, G2	-	-	-	-	-	-	■	■	■
Soft-start valves MS-DL		4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	-	-	-	-	-	-	-
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	-	-	-	-	-	-
		9	-	-	-	-	-	-	-	-	-	-	-
		12	-	G1, G1 1/4, G1 1/2, G2	-	-	-	-	-	-	-	-	-
Soft-start valves MS-DE		4	G1/8, G1/4	G1/8, G1/4, G3/8	-	-	-	-	-	-	■	-	■
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	-	-	-	-	-	-	■	-	■
		9	-	-	-	-	-	-	-	-	-	-	-
		12	-	G1, G1 1/4, G1 1/2, G2	-	-	-	-	-	-	■	■	■

Product range overview

Type	Size	Bowl guard		Pressure indication				Security			Options		→ Page/ online
		Plastic bowl guard	Metal bowl guard	Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter plate for EN pressure gauge G1/8	Adapter plate for EN pressure gauge G1/4	Pressure sensor	Rotary knob with detent, can be locked using accessories	Rotary knob with integrated lock	Silencer	Flow direction from right to left	
Code		R	U	VS	AG	A8	A4	AD...	AS	E11	S	Z	
Individual devices													
Pressure regulators MS-LR	4	-	-	■	■	■	■	■	■	■	-	■	916
	6	-	-	■	■	-	■	■	■	■	-	■	
	9	-	-	■	■	-	■	■	■	■	-	■	
	12	-	-	■	■	-	■	-	■	■	-	■	
Pressure regulators MS-LRB	4	-	-	■	■	■	■	■	■	■	-	■	926
	6	-	-	■	■	-	■	■	■	■	-	■	
	9	-	-	■	■	-	■	■	■	■	-	■	
Precision pressure regulators MS-LRP	4	-	-	■	-	■	■	■	■	■	-	■	932
	6	-	-	■	-	■	■	■	■	■	-	■	
	9	-	-	■	-	■	■	■	■	■	-	■	
	12	-	-	■	-	■	■	■	■	■	-	■	
Precision pressure regulators MS-LRPB	4	-	-	■	-	■	■	■	■	■	-	■	ms6-lrpb
	6	-	-	■	-	■	■	■	■	■	-	■	
	9	-	-	■	-	■	■	■	■	■	-	■	
	12	-	-	■	-	■	■	■	■	■	-	■	
Electric pressure regulators MS-LRE	4	-	-	■	■	-	■	-	-	-	-	■	ms6-lre
	6	-	-	■	■	-	■	-	-	-	-	■	
	9	-	-	■	■	-	■	-	-	-	-	■	
	12	-	-	■	■	-	■	-	-	-	-	■	
Lubricators MS-LOE	4	■	■	-	-	-	-	-	-	-	-	■	ms*-loe
	6	■	■	-	-	-	-	-	-	-	-	■	
	9	-	■	-	-	-	-	-	-	-	-	■	
	12	-	■	-	-	-	-	-	-	-	-	■	
On-off valves MS-EM(1)	4	-	-	■	■	■	■	■	-	-	■	■	937
	6	-	-	■	■	-	■	■	-	-	■	■	
	9	-	-	■	■	-	■	■	-	-	■	■	
	12	-	-	■	■	-	■	■	-	-	■	■	
On-off valves MS-EE	4	-	-	■	■	■	■	■	-	-	■	■	944
	6	-	-	■	■	-	■	■	-	-	■	■	
	9	-	-	■	■	-	■	■	-	-	■	■	
	12	-	-	■	■	-	■	■	-	-	■	■	
Soft-start valves MS-DL	4	-	-	■	■	■	■	■	-	-	-	■	952
	6	-	-	■	■	-	■	■	-	-	-	■	
	9	-	-	■	■	-	■	■	-	-	-	■	
	12	-	-	■	■	-	■	-	-	-	-	■	
Soft-start valves MS-DE	4	-	-	■	■	■	■	■	-	-	-	■	ms*-de
	6	-	-	■	■	-	■	■	-	-	-	■	
	9	-	-	■	■	-	■	■	-	-	-	■	
	12	-	-	■	■	-	■	-	-	-	-	■	

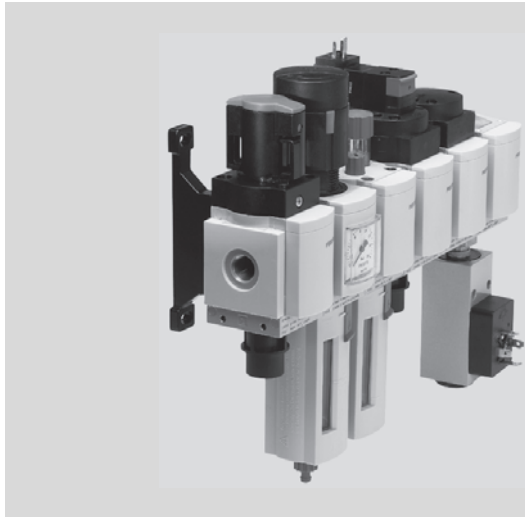
Product range overview

Type	Size	Pneumatic connection in housing	Connecting plate	Performance Level			Supply voltage				
				Category 1, 1-channel	Category 3, 2-channel	Category 4, 2-channel with self-monitoring	24 V DC, pin allocation to EN 175301	24 V DC, connection M12 to IEC 61076-2-101 / to EN 60947-5-2	110 V AC, pin allocation to EN 175301	230 V AC, pin allocation to EN 175301	
Code			AG...	C	D	E	V24	V24P	V110	V230	
Individual devices											
Soft-start/quick exhaust valves MS-SV-C		4	–								
		6	G1/2	G1/4, G3/8, G1/2, G3/4	■	–	–	■	■	■	■
		9	G3/4, G1	G1/2, G3/4, G1, G11/4, G11/2	■	–	–	■	■	■	■
		12	–								
Soft-start/quick exhaust valves MS-SV-D		4	–								
		6	G1/2	G1/4, G3/8, G1/2, G3/4	–	■	–	■	■	–	–
		9	–								
		12	–								
Soft-start/quick exhaust valves MS-SV-E		4	–								
		6	G1/2	G1/4, G3/8, G1/2, G3/4	–	–	■	■	–	–	–
		9	–								
		12	–								
Membrane air dryers MS-LDM1		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–	–
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	–
		9	–								
		12	–								
Branching modules MS-FRM		4	G1/8, G1/4	G1/8, G1/4, G3/8	–	–	–	–	–	–	–
		6	G1/4, G3/8, G1/2	G1/4, G3/8, G1/2, G3/4	–	–	–	–	–	–	–
		9	G3/4, G1	G1/2, G3/4, G1, G11/4, G11/2	–	–	–	–	–	–	–
		12	–	G1, G11/4, G11/2, G2	–	–	–	–	–	–	–
Distributor blocks MS-FRM-FRZ		4	–	–	–	–	–	–	–	–	
		6	–	–	–	–	–	–	–	–	
		9	–								
		12	–								
Flow sensors SFAM		4	–								
		6	G1/2	G1/2	–	–	–	–	–	–	–
		9	–	G1, G11/2	–	–	–	–	–	–	–
		12	–								

Product range overview

Type	Size	Bowl guard		Pressure indication				Electrical output		Options		→ Page/ online	
		Plastic bowl guard	Metal bowl guard	Cover plate (without pressure gauge)	Integrated MS pressure gauge	Adapter plate for EN pressure gauge G1/8	Adapter plate for EN pressure gauge G1/4	Pressure sensor	2x PNP or NPN, 1 analogue output 4 ... 20 mA	2x PNP or NPN, 1 analogue output 0 ... 10 V	Silencer		Flow direction from right to left
Code		R	U	VS	AG	A8	A4	AD...	2SA	2SV	S	Z/R	
Individual devices													
Soft-start/quick exhaust valves MS-SV-C	4	-											957
	6	-	-	■	■	-	■	■	-	-	■	■	
	9	-	-	■	■	-	■	■	-	-	■	■	
	12	-											
Soft-start/quick exhaust valves MS-SV-D	4	-											ms6-sv
	6	-	-	■	■	-	■	■	-	-	■	■	
	9	-											
	12	-											
Soft-start/quick exhaust valves MS-SV-E	4	-											ms6-sv
	6	-	-	■	■	-	■	■	-	-	■	■	
	9	-											
	12	-											
Membrane air dryers MS-LDM1	4	-	■	-	-	-	-	-	-	-	-	■	ms*-ldm1
	6	-	■	-	-	-	-	-	-	-	-	■	
	9	-											
	12	-											
Branching modules MS-FRM	4	-	-	■	■	■	■	■	-	-	-	■	964
	6	-	-	■	■	-	■	■	-	-	-	■	
	9	-	-	■	■	-	■	■	-	-	-	■	
	12	-	-	■	-	-	-	-	-	-	-	-	
Distributor blocks MS-FRM-FRZ	4	-	-	-	-	-	-	-	-	-	-	■	ms*-frz
	6	-	-	-	-	-	-	-	-	-	-	■	
	9	-											
	12	-											
Flow sensors SFAM	4	-											sfam
	6	-	-	-	-	-	-	-	■	■	-	■	
	9	-	-	-	-	-	-	-	■	■	-	■	
	12	-											

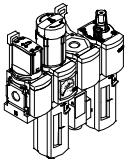
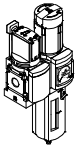
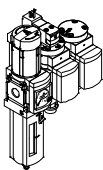
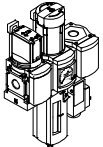
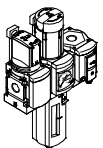
Service unit combinations MSB, MS series



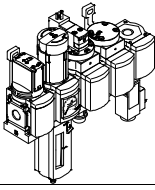
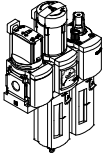
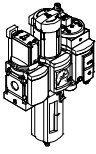
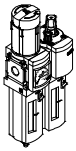
- Pre-assembled combinations, fully assembled and tested
- Rapid availability
- 2 sizes:
MS4 – grid dimension 40 mm, MS6 – grid dimension 62 mm
- ★ Quick ordering of basic designs → 891, 893, 896

→ www.festo.com/catalogue/msb

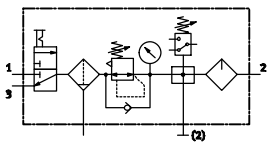
Product range overview

Combina- tion	Version	Size	Pneumatic con- nection	Flow rate [l/min]	→ Page/ online	
Service unit combination						
1		<ul style="list-style-type: none"> • On-off valve MS-EM1, manually operated • Filter regulator MS-LFR with pressure gauge • Branching module MS-FRM-Y with pressure switch • Lubricator MS-LOE • Mounting bracket MS-WP 	4	G1/4	950	890
2		<ul style="list-style-type: none"> • On-off valve MS-EM1, manually operated • Filter regulator MS-LFR with pressure gauge • Mounting bracket MS-WP 	4	G1/4	950 ... 1700	891
			6	G1/2	4800 ... 5100	
3		<ul style="list-style-type: none"> • Filter regulator MS-LFR with pressure gauge • On-off valve MS-EE-V24/10V24, solenoid actuated (24 V DC) • Soft-start valve MS-DL, pneumatically actuated • Mounting bracket MS-WP 	4	G1/4	750	892
			6	G1/2	3100	
4		<ul style="list-style-type: none"> • On-off valve MS-EM1, manually operated • Filter regulator MS-LFR with pressure gauge • Branching module MS-FRM-Y with pressure switch • Mounting bracket MS-WP 	4	G1/4	1300	893
			6	G1/2	4500	
		<ul style="list-style-type: none"> • On-off valve MS-EM1, manually operated • Filter regulator MS-LFR with pressure gauge • Branching module MS-FRM-AD7 with pressure sensor for operational status indicator • Mounting bracket MS-WP 	4	G1/4	1600	893
			6	G1/2	4500	

Product range overview

Combina- tion	Version		Size	Pneumatic con- nection	Flow rate [l/min]	→ Page/ online
Service unit combination						
5		<ul style="list-style-type: none"> • On-off valve MS-EM1, manually operated • Filter regulator MS-LFR with pressure gauge • On-off valve MS-EE-V24, solenoid actuated (24 V DC) • Soft-start valve MS-DL, pneumatically actuated • Branching module MS-FRM-Y with pressure switch • Mounting bracket MS-WP 	4	G1/4	750	894
			6	G1/2	3000 ... 3100	
6		<ul style="list-style-type: none"> • On-off valve MS-EM1, manually operated • Filter regulator MS-LFR with pressure gauge • Lubricator MS-LOE • Mounting bracket MS-WP 	4	G1/4	750	895
			6	G1/2	3100	
7		<ul style="list-style-type: none"> • On-off valve MS-EM1, manually operated • Filter regulator MS-LFR with pressure gauge • On-off valve MS-EE-10V24P-AD7, solenoid actuated (24 V DC), with pres- sure sensor for operational status indicator • Mounting bracket MS-WP 	4	G1/4	1400	896
			6	G1/2	4000	
Filter regulator/lubricator						
MSB-FRC		<ul style="list-style-type: none"> • Filter regulator MS-LFR with pressure gauge • Lubricator MS-LOE 	4	G1/8, G1/4	850 ... 1400	898
			6	G1/4, G3/8, G1/2	1900 ... 4800	

Technical data – Service unit combination 1



- Manual on-off valve
- Filter regulator with pressure gauge
- Branching module with pressure switch
- Lubricator
- Mounting bracket



Branching module version	Description	→ Page/ online
Pressure switch PEV-1/4-B-OD	With adjustable pressure switching point, plug socket, EN 175301, type A, cube	pev

Technical data		Download CAD data → www.festo.com
Size	MSB4	
Pneumatic connection	G $\frac{1}{4}$	
Regulating function	With primary pressure compensation, with return flow action, with secondary venting, output pressure constant	
Type of mounting	Via accessories	
Mounting position	Vertical $\pm 5^\circ$	
Grade of filtration [μm]	40	
Air purity class at the output	Compressed air to ISO 8573-1:2010 [7:4:4]	
Bowl guard	Plastic bowl guard	
Condensate drain	Manual rotary	
Actuator lock	Rotary knob with detent, can be locked using accessories	
Pressure regulation range [bar]	1 ... 12	
Pressure indication	Via pressure gauge	
Length/width/height [mm]	80/160/219	

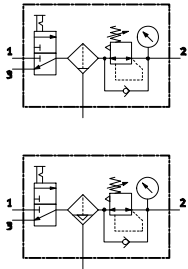
Standard nominal flow rate q_{nN}		
Size	MSB4	
q_{nN} [l/min]	Grade of filtration 40 μm	950

Operating conditions		
Condensate drain	Manual rotary	
Size	MSB4	
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4] Inert gases	
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)	
Operating pressure [bar]	1.5 ... 14	
Ambient temperature [°C]	-10 ... +60	
Oil viscosity	ISO VG 32	

Ordering data

Size	Condensate drain	Connection	Grade of filtration [μm]	Part No.	Type
MSB4	Manual rotary	G $\frac{1}{4}$	40	542295	MSB4-1/4:C3J1F3M1-WP

Technical data – Service unit combination 2



- Manual on-off valve
- Filter regulator with pressure gauge
- Mounting bracket



Download CAD data → www.festo.com

Technical data		Download CAD data → www.festo.com			
Size	MSB4		MSB6		
Pneumatic connection	G $\frac{1}{4}$		G $\frac{1}{2}$		
Regulating function	With primary pressure compensation, with return flow action, with secondary venting, output pressure constant				
Type of mounting	Via accessories				
Mounting position	Vertical $\pm 5^\circ$				
Grade of filtration	[μm]	40	5	40	5
Air purity class at the output		Compressed air to ISO 8573-1:2010 [7:4:4]	Compressed air to ISO 8573-1:2010 [6:4:4]	Compressed air to ISO 8573-1:2010 [7:4:4]	Compressed air to ISO 8573-1:2010 [6:4:4]
Bowl guard	Plastic bowl guard				
Condensate drain	Manual rotary Fully automatic				
Actuator lock	Rotary knob with detent, can be locked using accessories				
Pressure regulation range	[bar]	0.5 ... 12		0.5 ... 12	
Pressure indication	Via pressure gauge				
Length/width/height	[mm]	80/80/219 (222) ¹⁾		100/124/301 (304) ¹⁾	

1) Value in brackets with fully automatic condensate drain.

Standard nominal flow rate q_{NN}					
Condensate drain		Manual rotary		Fully automatic	
Size		MSB4	MSB6	MSB4	MSB6
q_{NN} [l/min]	Grade of filtration 40 μm	1700	5100	1000	5100
	Grade of filtration 5 μm	950	4800	950	4800

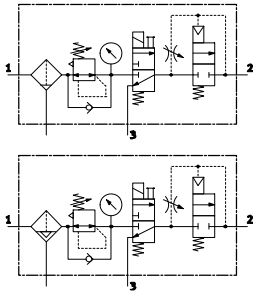
Operating conditions					
Condensate drain		Manual rotary		Fully automatic	
Size		MSB4	MSB6	MSB4	MSB6
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4] Inert gases			
Note on operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)			
Operating pressure	[bar]	0.8 ... 14	0.8 ... 18	2 ... 12	2 ... 12
Ambient temperature	[°C]	-10 ... +60	-10 ... +60	+5 ... +60	+5 ... +60

Ordering data

Size	Condensate drain	Connection	Grade of filtration [μm]	Part No.	Type
MSB4	Manual rotary	G $\frac{1}{4}$	40	★ 8025354	MSB4- $\frac{1}{4}$:C3:J1-WP
		G $\frac{1}{4}$	5	542304	MSB4- $\frac{1}{4}$:C3:J3-WP
	Fully automatic	G $\frac{1}{4}$	40	542298	MSB4- $\frac{1}{4}$:C3:J2-WP
		G $\frac{1}{4}$	5	542310	MSB4- $\frac{1}{4}$:C3:J4-WP
MSB6	Manual rotary	G $\frac{1}{2}$	40	★ 8025355	MSB6- $\frac{1}{2}$:C3:J1-WP
		G $\frac{1}{2}$	5	542280	MSB6- $\frac{1}{2}$:C3:J3-WP
	Fully automatic	G $\frac{1}{2}$	40	542274	MSB6- $\frac{1}{2}$:C3:J2-WP
		G $\frac{1}{2}$	5	542286	MSB6- $\frac{1}{2}$:C3:J4-WP

Service unit combinations MSB, MS series

Technical data – Service unit combination 3



- Filter regulator with pressure gauge
- Electric on-off valve (24 V DC)
- Pneumatic soft-start valve
- Mounting bracket



Technical data		Download CAD data → www.festo.com	
Size	MSB4	MSB6	
Pneumatic connection	G $\frac{1}{4}$	G $\frac{1}{2}$	
Regulating function	With primary pressure compensation, with return flow action, with secondary venting, output pressure constant		
Type of mounting	Via accessories		
Mounting position	Vertical $\pm 5^\circ$		
Grade of filtration	[μm]	40	
Air purity class at the output	Compressed air to ISO 8573-1:2010 [7:4:4]		
Bowl guard	Plastic bowl guard		
Condensate drain	Manual rotary		Fully automatic
Actuator lock	Rotary knob with detent, can be locked using accessories		
Pressure regulation range	[bar]	4 ... 12	
Pressure indication	Via pressure gauge		
Length/width/height	[mm]	80/120/219	100/186/301 (304) ¹⁾

1) Value in brackets with fully automatic condensate drain.

Standard nominal flow rate q_{nN}		MSB4	MSB6
q_{nN} [l/min]	Grade of filtration 40 μm	750	3100

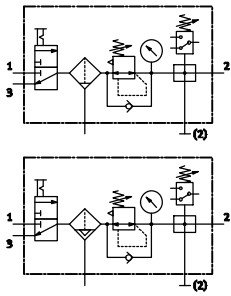
Electrical data – Electric on-off valve	
Characteristic coil data	24 V DC: 1.5 W; perm. voltage fluctuations $-25\%/+10\%$
Electrical connection	Plug, square design to EN 175301-803, type C

Operating conditions			
Condensate drain	Manual rotary		Fully automatic
Size	MSB4	MSB6	MSB6
Operating medium	Compressed air to ISO 8573-1:2010 [–:4:–]		Compressed air to ISO 8573-1:2010 [7:4:–]
	Inert gases		
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)		
Operating pressure	[bar]	4.5 ... 14	4.5 ... 18
Ambient temperature	[°C]	–10 ... +60	–10 ... +60
			4.5 ... 12
			+5 ... +60

Ordering data

Size	Condensate drain	Connection	Grade of filtration [μm]	Part No.	Type
MSB4	Manual rotary	G $\frac{1}{4}$	40	531101	MSB4- $\frac{1}{4}$:J1D1A1-WP
MSB6	Manual rotary	G $\frac{1}{2}$	40	530222	MSB6- $\frac{1}{2}$:J1D1A1-WP
	Fully automatic	G $\frac{1}{2}$	40	530224	MSB6- $\frac{1}{2}$:J2D1A1-WP

Technical data – Service unit combination 4



- Manual on-off valve
- Filter regulator with pressure gauge
- Branching module with pressure switch or with pressure sensor
- Mounting bracket



Branching module version	Description	→ Page/ online
Pressure switch PEV-1/4-B-OD	With adjustable pressure switching point, plug socket, EN 175301, type A, cube	pev
Pressure sensor SDE5-D10-O...-P-M8	With 3-pin plug M8x1, threshold value comparator, 1 switching output PNP, N/O contact	839

Technical data		Download CAD data → www.festo.com			
Size	MSB4		MSB6		
Branching module with	Pressure switch	Pressure sensor	Pressure switch	Pressure sensor	
Pneumatic connection	G1/4		G1/2		
Regulating function	With primary pressure compensation, with return flow action, with secondary venting, output pressure constant				
Type of mounting	Via accessories				
Mounting position	Vertical ±5°				
Grade of filtration [µm]	40				
Air purity class at the output	Compressed air to ISO 8573-1:2010 [7:4:4]				
Bowl guard	Plastic bowl guard				
Condensate drain	Manual rotary	Manual rotary	Manual rotary	Manual rotary	
	Fully automatic	–	Fully automatic	–	
Actuator lock	Rotary knob with detent, can be locked using accessories				
Pressure regulation range [bar]	0.5 ... 12	0.5 ... 10	0.5 ... 12	0.5 ... 10	
Pressure indication	Via pressure gauge				
Length/width/height [mm]	80/120/219 (222) ¹⁾	82/120/219	100/186/301 (304) ¹⁾	102/186/301	

1) Value in brackets with fully automatic condensate drain.

Standard nominal flow rate q _{nN}		MSB4		MSB6	
Size		Pressure switch	Pressure sensor	Pressure switch	Pressure sensor
q _{nN} [l/min]	Grade of filtration 40 µm	1300	1600	4500	4500

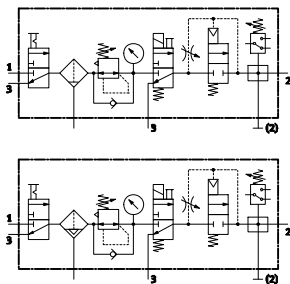
Operating conditions		MSB4		MSB6	
Condensate drain		Manual rotary	Manual rotary	Fully automatic	Fully automatic
Size		MSB4	MSB6	MSB4	MSB6
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4] Inert gases			
Note on operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)			
Operating pressure [bar]		0.8 ... 14	0.8 ... 18	2 ... 12	2 ... 12
Ambient temperature [°C]		–10 ... +60 (0 ... +50) ²⁾	–10 ... +60 (0 ... +50) ²⁾	+5 ... +60	+5 ... +60

2) Value in brackets applies to branching module with pressure sensor.

Ordering data

Size	Condensate drain	Connection	Grade of filtration [µm]	Part No.	Type
Branching module with pressure switch					
MSB4	Manual rotary	G1/4	40	542294	MSB4-1/4:C3J1F3-WP
	Fully automatic	G1/4	40	542300	MSB4-1/4:C3J2F3-WP
MSB6	Manual rotary	G1/2	40	542270	MSB6-1/2:C3J1F3-WP
	Fully automatic	G1/2	40	542276	MSB6-1/2:C3J2F3-WP
Branching module with pressure sensor					
MSB4	Manual rotary	G1/4	40	★ 8025356	MSB4-1/4:C3:J1:F12-WP
MSB6	Manual rotary	G1/2	40	★ 8025357	MSB6-1/2:C3:J1:F12-WP

Technical data – Service unit combination 5



- Manual on-off valve
- Filter regulator with pressure gauge
- Electric on-off valve (24 V DC)
- Pneumatic soft-start valve
- Branching module with pressure switch
- Mounting bracket



Branching module version	Description	→ Page/ online
Pressure switch PEV-1/4-B-OD	With adjustable pressure switching point, plug socket, EN 175301, type A, cube	pev

Technical data		Download CAD data → www.festo.com	
Size	MSB4	MSB6	
Pneumatic connection	G $\frac{1}{4}$	G $\frac{1}{2}$	
Regulating function	With primary pressure compensation, with return flow action, with secondary venting, output pressure constant		
Type of mounting	Via accessories		
Mounting position	Vertical $\pm 5^\circ$		
Grade of filtration [μm]	40	40	5
Air purity class at the output	Compressed air to ISO 8573-1:2010 [7:4:4]	Compressed air to ISO 8573-1:2010 [7:4:4]	Compressed air to ISO 8573-1:2010 [6:4:4]
Bowl guard	Plastic bowl guard		
Condensate drain	Manual rotary		
	Fully automatic		
Actuator lock	Rotary knob with detent, can be locked using accessories		
Pressure regulation range [bar]	4 ... 12		
Pressure indication	Via pressure gauge for indicating the output pressure		
Length/width/height [mm]	80/200/219 (222) ¹⁾	100/310/301 (304) ¹⁾	

1) Value in brackets with fully automatic condensate drain.

Standard nominal flow rate q_{nN}		MSB4	MSB6
Size			
q_{nN} [l/min]	Grade of filtration 40 μm	750	3100
	Grade of filtration 5 μm	–	3000

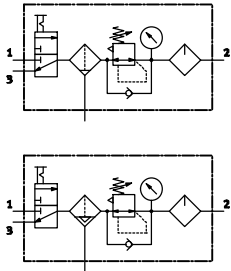
Electrical data – Electric on-off valve	
Characteristic coil data	24 V DC: 1.5 W; perm. voltage fluctuations $-25\%/+10\%$
Electrical connection	Plug, square design to EN 175301-803, type C

Operating conditions		Manual rotary		Fully automatic	
Condensate drain					
Size		MSB4	MSB6	MSB4	MSB6
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]				
	Inert gases				
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)				
Operating pressure [bar]		4.5 ... 14	4.5 ... 18	4.5 ... 12	4.5 ... 12
Ambient temperature [°C]		-10 ... +60	-10 ... +60	+5 ... +60	+5 ... +60

Ordering data

Size	Condensate drain	Connection	Grade of filtration [μm]	Part No.	Type
MSB4	Manual rotary	G $\frac{1}{4}$	40	542293	MSB4-1/4:C3J1D1A1F3-WP
	Fully automatic	G $\frac{1}{4}$	40	542299	MSB4-1/4:C3J2D1A1F3-WP
MSB6	Manual rotary	G $\frac{1}{2}$	40	542269	MSB6-1/2:C3J1D1A1F3-WP
		G $\frac{1}{2}$	5	542281	MSB6-1/2:C3J3D1A1F3-WP
	Fully automatic	G $\frac{1}{2}$	40	542275	MSB6-1/2:C3J2D1A1F3-WP
		G $\frac{1}{2}$	5	542287	MSB6-1/2:C3J4D1A1F3-WP

Technical data – Service unit combination 6



- Manual on-off valve
- Filter regulator with pressure gauge
- Lubricator
- Mounting bracket



Download CAD data → www.festo.com

Technical data		MSB4	MSB6
Size		MSB4	MSB6
Pneumatic connection		G $\frac{1}{4}$	G $\frac{1}{2}$
Regulating function		With primary pressure compensation, with return flow action, with secondary venting, output pressure constant	
Type of mounting		Via accessories	
Mounting position		Vertical $\pm 5^\circ$	
Grade of filtration	[μm]	40	
Air purity class at the output		Compressed air to ISO 8573-1:2010 [7:4:4]	
Bowl guard		Plastic bowl guard	
Condensate drain		Manual rotary	Fully automatic
Actuator lock		Rotary knob with detent, can be locked using accessories	
Pressure regulation range	[bar]	1 ... 12	
Pressure indication		Via pressure gauge for indicating the output pressure	
Length/width/height	[mm]	80/120/219	100/186/301 (304) ¹⁾

1) Value in brackets with fully automatic condensate drain.

Standard nominal flow rate q_{nN}		MSB4	MSB6
Size		MSB4	MSB6
q_{nN} [l/min]	Grade of filtration 40 μm	750	3100

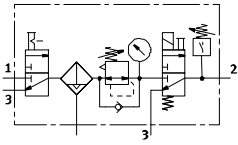
Operating conditions			
Condensate drain		Manual rotary	Fully automatic
Size		MSB4	MSB6
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4] Inert gases	
Note on operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)	
Operating pressure	[bar]	1.5 ... 14	1.5 ... 18
Ambient temperature	[°C]	-10 ... +60	-10 ... +60
Oil viscosity		ISO VG 32	

Ordering data

Size	Condensate drain	Connection	Grade of filtration [μm]	Part No.	Type
MSB4	Manual rotary	G $\frac{1}{4}$	40	542296	MSB4- $\frac{1}{4}$:C3J1M1-WP
MSB6	Manual rotary	G $\frac{1}{2}$	40	542272	MSB6- $\frac{1}{2}$:C3J1M1-WP
	Fully automatic	G $\frac{1}{2}$	40	542278	MSB6- $\frac{1}{2}$:C3J2M1-WP

Service unit combinations MSB, MS series

Technical data – Service unit combination 7



- Manual on-off valve
- Filter regulator with pressure gauge
- Electric on-off valve (24 V DC) with pressure sensor
- Mounting bracket



Branching module version	Description	→ Page/ online
Pressure sensor SDE5-D10-0-...-P-M8	With 3-pin plug M8x1, threshold value comparator, 1 switching output PNP, N/O contact	839

Technical data		Download CAD data → www.festo.com	
Size	MSB4	MSB6	
Pneumatic connection	G $\frac{1}{4}$	G $\frac{1}{2}$	
Regulating function	With primary pressure compensation, with return flow action, with secondary venting, output pressure constant		
Type of mounting	Via accessories		
Mounting position	Vertical $\pm 5^\circ$		
Grade of filtration [μm]	40		
Air purity class at the output	Compressed air to ISO 8573-1:2010 [7:4:4]		
Bowl guard	Plastic bowl guard		
Condensate drain	Manual rotary		
Actuator lock	Rotary knob with detent, can be locked using accessories		
Pressure regulation range [bar]	0.5 ... 10		
Pressure indication	Via pressure sensor with operational status indicator for displaying the output pressure and with electrical output Via pressure gauge for indicating the output pressure		
Length/width/height [mm]	82/120/219	102/186/301	

Standard nominal flow rate q_{nN}		MSB4	MSB6
Size			
q_{nN} [l/min]	Grade of filtration 40 μm	1400	4000

Electrical data – Electric on-off valve	
Characteristic coil data	24 V DC: 1.8 W; perm. voltage fluctuations $-15\%/+10\%$
Electrical connection	Plug M12x1 to IEC 61076-2-101

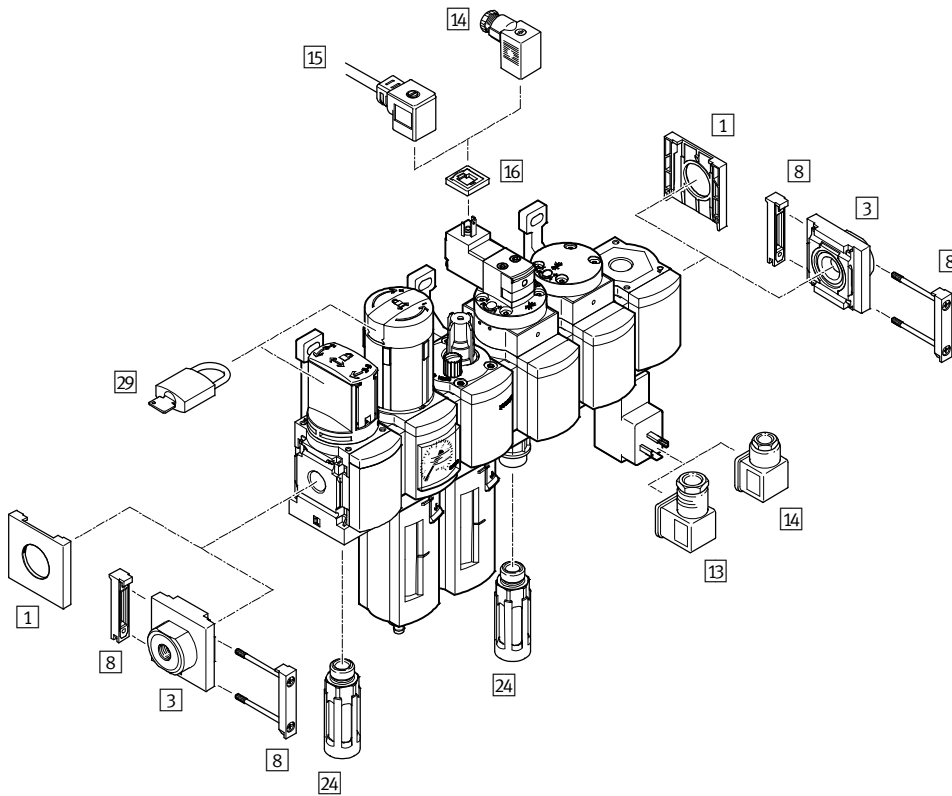
Operating conditions	
Condensate drain	Manual rotary
Size	MSB4 MSB6
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4] Inert gases
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)
Operating pressure [bar]	0.8 ... 14 0.8 ... 18
Ambient temperature [°C]	0 ... +60 0 ... +60

★ Quick ordering¹⁾

Size	Condensate drain	Connection	Grade of filtration [μm]	Part No.	Type
MSB4	Manual rotary	G $\frac{1}{4}$	40	★ 8025358	MSB4- $\frac{1}{4}$:C3:J1:D14-WP
MSB6	Manual rotary	G $\frac{1}{2}$	40	★ 8025359	MSB6- $\frac{1}{2}$:C3:J1:D14-WP

1) All products in this table are easy to select and quick to order.

Accessories

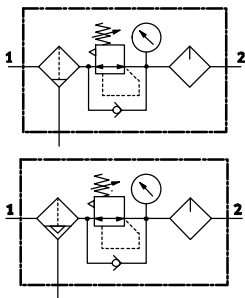


Note
 The range of accessories depends on the service unit combination selected.

Accessories	→ Page/online
1 Cover cap MS4/6-END	971
3 Connecting plate kit MS4/6-AG...	971
8 Module connector MS4/6-MV	971
13 Angled plug socket PEV-1/4-WD-LED	972
14 Plug socket MSSD-C-4P for pressure switch PEV Plug socket MSSD-EB for on-off valve MS4/6-EE	972
15 Plug socket with cable KMEB	972

Accessories	→ Page/online
16 Illuminating seal MEB-LD	972
24 Silencer U	974
29 Padlock LRVS-D	974
- Connecting cable NEBU-M8...-LE3 for pressure sensor SDE5	972
- Special oil OFSW	974
- Filter cartridge MS4/6-LFP	974

Technical data



- Filter regulator with pressure gauge
- Lubricator



Download CAD data → www.festo.com

Technical data		MSB4		MSB6	
Size					
Pneumatic connection 1, 2		G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$ / G $\frac{1}{2}$
Design		Filter regulator with pressure gauge and proportional standard mist lubricator			
Regulating function		With primary pressure compensation, with secondary venting, with return flow action, output pressure constant			
Type of mounting		Via accessories			
Mounting position		Vertical $\pm 5^\circ$			
Grade of filtration	[μm]	40			
		5			
Air purity class at the output		Compressed air to ISO 8573-1:2010 [7:4:-] (grade of filtration 40 μm)			
		Compressed air to ISO 8573-1:2010 [6:4:-] (grade of filtration 5 μm)			
Bowl guard		Plastic bowl guard		Plastic bowl guard	
		-		Integrated as metal bowl guard	
Condensate drain		Manual rotary			
		Fully automatic			
Actuator lock		Rotary knob with detent, can be locked using accessories			
Pressure regulation range	[bar]	-	0.3 ... 7	-	0.3 ... 7
		0.5 ... 12			
Pressure indication		Via pressure gauge			
Length/width/height	[mm]	57/80/222		77/124/303	

Standard nominal flow rate q_{nN}		MSB4		MSB6	
Size					
Pneumatic connection 1, 2		G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$ / G $\frac{1}{2}$
Grade of filtration 40 μm					
q_{nN} [l/min] ¹⁾	With pressure regulation range 0.3 ... 7 bar	-	1400	-	4800
	With pressure regulation range 0.5 ... 12 bar	850	900	1900	3500 / 3700
Grade of filtration 5 μm					
q_{nN} [l/min] ¹⁾	With pressure regulation range 0.5 ... 12 bar	-	850	-	3600

1) Measured at $p_1 = 10$ bar and $p_2 = 6$ bar, $\Delta p = 1$ bar.

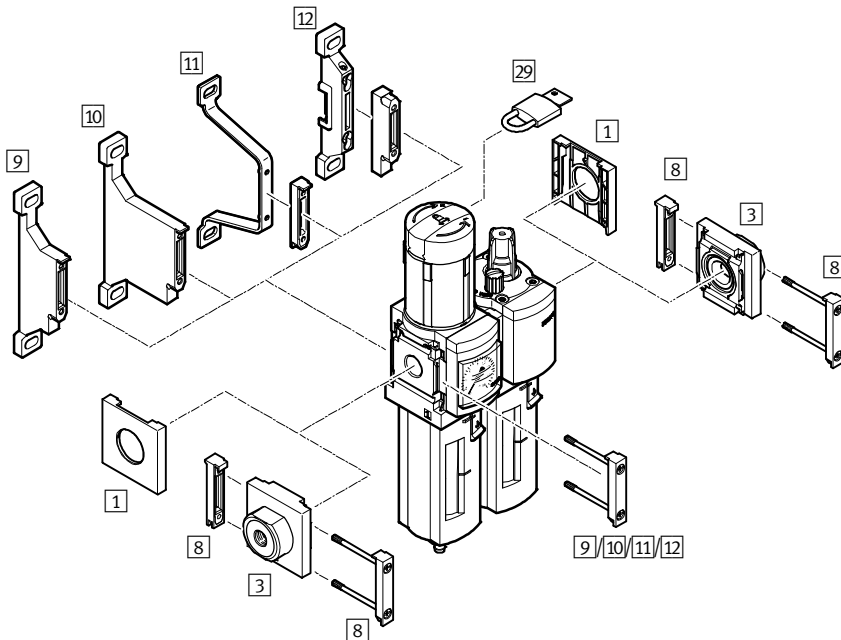
Operating conditions		Manual rotary		Fully automatic	
Condensate drain					
Size		MSB4	MSB6	MSB4	MSB6
Operating medium		Compressed air to ISO 8573-1:2010 [-:4:-]		Compressed air to ISO 8573-1:2010 [7:4:-]	
		Inert gases			
Note on operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)			
Operating pressure	[bar]	1.5 ... 14	1.5 ... 20	2 ... 12	2 ... 12
Ambient temperature	[°C]	-10 ... +60	-10 ... +60	+5 ... +60	+5 ... +60
Oil viscosity		ISO VG 32			

Materials			
Housing		Die-cast aluminium	
Rotary knob		PA, POM	
Bowl	Plastic bowl guard	PC	
	Metal bowl guard	Wrought aluminium alloy	
Seals		NBR	

Ordering data

Size	Condensate drain	Connection	Grade of filtration [µm]	Part No.	Type
Pressure regulation range 0.3 ... 7 bar					
Plastic bowl guard					
MSB4	Manual rotary	G $\frac{1}{4}$	40	531109	MSB4- $\frac{1}{4}$ -FRC1:J5M1
MSB6	Manual rotary	G $\frac{1}{2}$	40	530230	MSB6- $\frac{1}{2}$ -FRC1:J5M1
Pressure regulation range 0.5 ... 12 bar					
Plastic bowl guard					
MSB4	Manual rotary	G $\frac{1}{8}$	40	531133	MSB4- $\frac{1}{8}$ -FRC5:J1M1
		G $\frac{1}{4}$	40	★ 531117	MSB4- $\frac{1}{4}$ -FRC5:J1M1
			5	531121	MSB4- $\frac{1}{4}$ -FRC7:J3M1
	Fully automatic	G $\frac{1}{4}$	40	531119	MSB4- $\frac{1}{4}$ -FRC6:J2M1
MSB6	Manual rotary	G $\frac{1}{4}$	40	530268	MSB6- $\frac{1}{4}$ -FRC5:J1M1
		G $\frac{3}{8}$	40	530292	MSB6- $\frac{3}{8}$ -FRC5:J1M1
		G $\frac{1}{2}$	40	530244	MSB6- $\frac{1}{2}$ -FRC5:J1M1
			5	530248	MSB6- $\frac{1}{2}$ -FRC7:J3M1
	Fully automatic	G $\frac{1}{2}$	40	★ 530246	MSB6- $\frac{1}{2}$ -FRC6:J2M1
Metal bowl guard					
MSB6	Manual rotary	G $\frac{1}{2}$	40	530252	MSB6- $\frac{1}{2}$ -FRC9:J11M2
			5	530234	MSB6- $\frac{1}{2}$ -FRC11:J9M2
	Fully automatic	G $\frac{1}{2}$	40	530232	MSB6- $\frac{1}{2}$ -FRC10:J12M2
			5	530236	MSB6- $\frac{1}{2}$ -FRC12:J10M2

Accessories – MS4/MS6



Accessories	→ Page/online
1 Cover cap MS4/6-END	971
3 Connecting plate kit MS4/6-AG...	971
8 Module connector MS4/6-MV	971
9 Mounting bracket MS4/6-WP	971
10 Mounting bracket MS4/6-WPB	971

Accessories	→ Page/online
11 Mounting bracket MS4/6-WPE	971
12 Mounting bracket MS4/6-WPM	971
29 Padlock LRVS-D	974
- Special oil OFSW	974
- Filter cartridge MS4/6-LFP	974

Filter regulators MS-LFR, MS series



- Good particle and condensate separation
- High flow rate
- 4 sizes:
MS4 – grid dimension 40 mm, MS6 – grid dimension 62 mm,
MS9 – grid dimension 90 mm, MS12 – grid dimension 124 mm
- Selected types in accordance with the ATEX Directive for explosive atmospheres → www.festo.com/catalogue/ex
- ★ Quick ordering of basic designs → 907

→ www.festo.com/catalogue/ms*-lfr

Product range overview

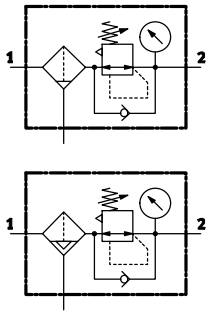
Size	Pneumatic connection	Product options																			
		D5	D6	D7	E	C	R	U	M	H	V	DI	VS	AG	A8	A4	AD...	BAR	LD	AS	Z
4	1/8, 1/4	■	■	■	■	■	■	■	■	■	■	■	■	-1)	■	■	■	-1)	■	■	■
6	1/4, 3/8, 1/2	■	■	■	■	■	■	■	■	■	■	■	■	-1)	-	■	■	-1)	■	■	■
9	3/4, 1, G	■	■	■	■	■	-	■	■	■	■	■	■	■	-	■	■	■	-	■	■
12	G	-	■	■	■	■	-	■	■	-	■	-	■	-1)	-	■	-	-1)	■	■	■

1) MS pressure gauge with indicating range in bar included in the basic configuration by default.

Product options

1/8	Female thread G1/8	R	Plastic bowl with plastic bowl guard	AD1	Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin	BAR	Pressure gauge scale in bar
1/4	Female thread G1/4	U	Metal bowl guard	AD2	Pressure sensor with LCD display, plug M8, 1 switching output NPN, 3-pin	PSI	Pressure gauge scale in psi
3/8	Female thread G3/8	M	Manual condensate drain	AD3	Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA	MPA	Pressure gauge scale in Mpa
1/2	Female thread G1/2	H	Semi-automatic condensate drain	AD4	Pressure sensor with LCD display, plug M12, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA	OS	Without secondary venting
3/4	Female thread G3/4	V	Fully automatic condensate drain	AD7	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact	LD	Long rotary knob
1	Female thread G1	E2	External condensate drain, fully automatic, electric, 110 V AC, terminals	AD8	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/C contact	AS	Rotary knob with detent, can be locked using accessories
AGA	Connecting plate G1/8	E3	External condensate drain, fully automatic, electric, 230 V AC, terminals	AD9	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact	E11	Rotary knob with integrated lock
AGB	Connecting plate G1/4	E4	External condensate drain, fully automatic, electric, 24 V DC, terminals	AD10	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/C contact	WR	Mounting bracket with knurled nut for regulator head
AGC	Connecting plate G3/8	DI	Directly actuated regulator			WP	Mounting bracket
AGD	Connecting plate G1/2	VS	Cover plate			WPM	Mounting bracket
AGE	Connecting plate G3/4	AG	MS pressure gauge			WPB	Mounting bracket for large wall gap
AGF	Connecting plate G1	A8	Adapter plate for EN pressure gauge 1/8, without pressure gauge			WB	Mounting bracket
AGG	Connecting plate G1 1/4	A4	Adapter plate for EN pressure gauge 1/4, without pressure gauge			WBM	Mounting bracket
AGH	Connecting plate G1 1/2	RG	Integrated pressure gauge, red/green scale			EX4	EU certification (II 2GD in accordance with EU Directive 94/9/EC)
AGI	Connecting plate G2					UL1	UL certification (cULus, ordinary locations for Canada and USA)
G	Module without connecting thread, without connecting plate					Z	Flow direction from right to left
D5	Pressure regulation range 0.3 ... 4 bar						
D6	Pressure regulation range 0.3 ... 7 bar						
D7	Pressure regulation range 0.5 ... 12 bar						
D8	Pressure regulation range 0.5 ... 16 bar						
E	Grade of filtration 40 µm						
C	Grade of filtration 5 µm						

Technical data



Download CAD data → www.festo.com

Technical data		MS4		MS6			MS9		MS12	
Size		G1/8	G1/4	G1/4	G3/8	G1/2	G3/4	G1	- ¹⁾	- ¹⁾
Design		Filter regulator with/without pressure indication						Piloted diaphragm regulator		
		–						–		
		Directly actuated diaphragm regulator						–		
Regulating function		With return flow action, with secondary venting, with primary pressure compensation								
Type of mounting		Via accessories								
		In-line installation								
Mounting position		Vertical ±5°								
Grade of filtration [µm]		40								
		5								
Air purity class at the output		Compressed air to ISO 8573-1:2010 [7:4:4] (grade of filtration 40 µm)								
		Compressed air to ISO 8573-1:2010 [6:4:4] (grade of filtration 5 µm)								
Bowl guard		Plastic bowl guard						–		
		Integrated as metal bowl guard								
Condensate drain		Manual rotary								
		Semi-automatic						–		
		Fully automatic								
Actuator lock		Rotary knob with detent								
		Rotary knob with detent, can be locked using accessories								
Pressure regulation range [bar]	D5	0.5 ... 4						–		
	D6	0.5 ... 7						–		
	D7	0.5 ... 12 (0.5 ... 10 bar with pressure sensor AD...)						0.5 ... 12		
Pressure indication		Via pressure gauge for indicating the output pressure								
	AD1/AD3	Via pressure sensor with LCD display for indicating the output pressure and with electrical output					–			
	AD7/AD9	Via pressure sensor with operational status indicator for displaying the output pressure and with electrical output						–		
Length [mm]	Standard	57		77			109		148	
	With cover plate VS	54		76			109		148	
	With adapter plate A8/A4	59		79			110		148	
	With pressure sensor AD1/AD3	83		103			–		–	
	With pressure sensor AD7/AD9	59		79			112		–	
Width [mm]		40		62			104		90	124
Height [mm] ²⁾	Plastic bowl guard	219 ... 223 ³⁾ + 25 ⁴⁾		300 ... 305 ³⁾ + 25 ⁴⁾			–		–	
	Metal bowl guard	236 ... 240 ³⁾ + 68 ⁴⁾		309 ... 313 ³⁾ + 68 ⁴⁾			451 (444 ⁵⁾ + 150 ⁴⁾		572 + 250 ⁴⁾	

- 1) Module without connecting thread/without connecting plate. The connecting plate must be ordered separately as an accessory → 971.
- 2) Height applies to filter regulator with detenting rotary knob, can be locked using accessories. The filter regulator without lockable rotary knob is approx. 9 mm smaller.
- 3) Value is dependent on the condensate drain.
- 4) Installation dimension for removing the filter bowl.
- 5) Value in brackets applies to the directly actuated filter regulator MS9-LFR...-DI.

Technical data

Standard nominal flow rate q_{nN}		MS4		MS6			MS9			MS12
Size										
Pneumatic connection 1, 2		G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$	G1	- ¹⁾	- ¹⁾
Grade of filtration 40 μ m										
q_{nN} [l/min]	With pressure regulation range D5 ²⁾	1100	1900	2200	6000	7200	19,000 ... 23,000 \pm 15% (6,000 ... 18,000 \pm 15%) ⁴⁾			-
	With pressure regulation range D6 ³⁾	1000	1700	2800	5700	6200	15,000 ... 20,000 \pm 15% (6,000 ... 9,000 \pm 15%) ⁴⁾			12,000 ... 17,000
	With pressure regulation range D7 ³⁾	900	1500	2500	4000	4500	19,000 ... 20,000 \pm 15%			12,000 ... 17,000
Grade of filtration 5 μ m										
q_{nN} [l/min]	With pressure regulation range D5 ²⁾	900	1800	2000	5500	6900	16,000 ... 20,000 \pm 15% (6,000 ... 18,000 \pm 15%) ⁴⁾			-
	With pressure regulation range D6 ³⁾	900	1500	2700	5000	5600	13,000 ... 18,000 \pm 15% (6,000 ... 9,000 \pm 15%) ⁴⁾			11,000 ... 14,000
	With pressure regulation range D7 ³⁾	850	1200	2200	3500	4000	13,000 ... 18,000 \pm 15%			11,000 ... 14,000

1) Dependent on the connecting plate selected, must be ordered separately as an accessory → 971.

2) MS4/MS6: Measured at $p_1 = 10$ bar and $p_2 = 3$ bar, $\Delta p = 1$ bar.

MS9: Measured at $p_1 = 10$ bar and $p_2 = 4$ bar, $\Delta p = 1$ bar.

3) MS4/MS6/MS9: Measured at $p_1 = 10$ bar and $p_2 = 6$ bar, $\Delta p = 1$ bar.

MS12: Measured at $p_1 = 10$ bar and $p_2 = 6$ bar, $\Delta p = 0.5$ bar.

4) Value in brackets applies to the directly actuated filter regulator MS9-LFR...-DI.

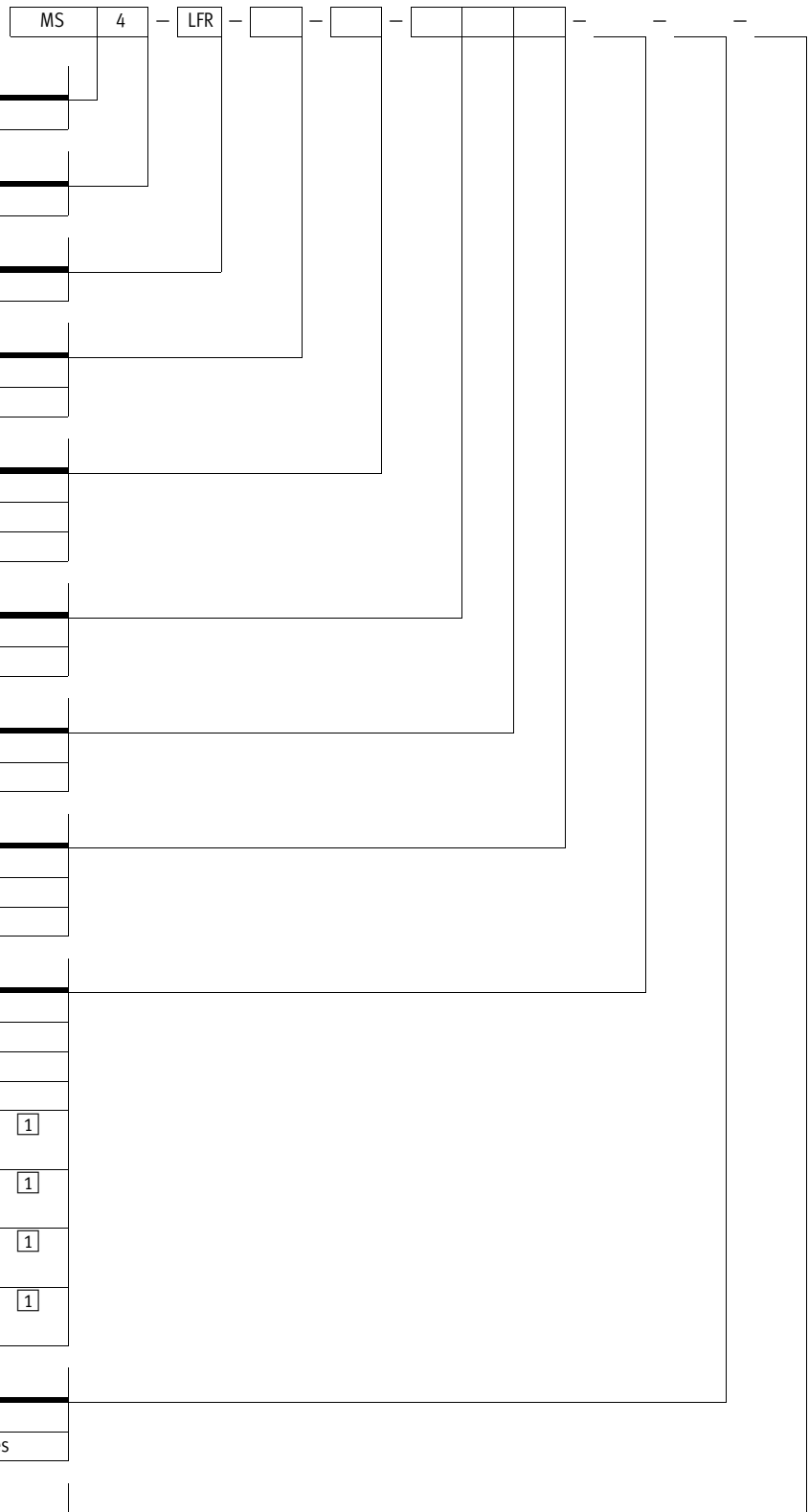
Operating conditions		Manual rotary		Semi-automatic	Fully automatic
Condensate drain				MS4/MS6	MS4/MS6
Size		MS4	MS6	MS4/MS6	MS4/MS6
Operating medium		Compressed air to ISO 8573-1:2010 [--:4:-]			Compressed air to ISO 8573-1:2010 [7:4:-]
		Inert gases			
Operating pressure	[bar]	0.8 ... 14	0.8 ... 20	1.5 ... 12	2 ... 12
Ambient temperature	[°C]	-10 ... +60 (0 ... +50) ⁵⁾		+5 ... +60 (+5 ... +50) ⁵⁾	+5 ... +60 (+5 ... +50) ⁵⁾

Operating conditions		Manual rotary		Semi-automatic	Fully automatic
Condensate drain				MS9	MS9/MS12
Size		MS9	MS12	MS9	MS9/MS12
Operating medium		Compressed air to ISO 8573-1:2010 [--:4:-]			Compressed air to ISO 8573-1:2010 [7:4:-]
		Inert gases			
Operating pressure	[bar]	1 ... 20	0.8 ... 20	1.5 ... 12	2 ... 12
Ambient temperature	[°C]	-10 ... +60 (0 ... +50) ⁵⁾		+5 ... +60 (+5 ... +50) ⁵⁾	+5 ... +60 (+5 ... +50) ⁵⁾

5) Value in brackets applies to MS4/MS6/MS9-LFR with pressure sensor AD...

Materials		
Housing		Die-cast aluminium
Rotary knob		PA, POM
Bowl	Plastic bowl guard	PC
	Metal bowl guard	Wrought aluminium alloy, die-cast aluminium
Seals		NBR

Order code – MS4



Series	
MS	Standard service unit
Size	
4	Grid dimension 40 mm
Type	
LFR	Filter regulator
Pneumatic connection	
1/8	Female thread G1/8
1/4	Female thread G1/4
Pressure regulation range	
D5	0.3 ... 4 bar
D6	0.3 ... 7 bar
D7	0.5 ... 12 bar
Grade of filtration	
E	40 µm
C	5 µm
Bowl guard	
R	Plastic bowl guard
U	Integrated as metal bowl guard
Condensate drain	
M	Manual rotary
H	Semi-automatic
V	Fully automatic
Pressure gauge alternatives	
–	With MS pressure gauge, bar
VS	Cover plate
A8	Adapter plate for EN pressure gauge 1/8
A4	Adapter plate for EN pressure gauge 1/4
AD1	Pressure sensor with display, plug M8, 1 switching output PNP, 3-pin 1
AD3	Pressure sensor with display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA 1
AD7	Pressure sensor without display, plug M8, threshold value comparator, PNP, N/O contact 1
AD9	Pressure sensor without display, plug M8, window comparator, PNP, N/O contact 1
Actuator lock	
–	Rotary knob with detent
AS	Rotary knob with detent, can be locked using accessories
Flow direction	
–	From left to right
Z	From right to left

1 Measuring range max. 10 bar

Order example:

MS4-LFR-1/4-D7-ERM-AS

Standard service unit, grid dimension 40 mm - filter regulator - female thread G1/4 - pressure regulation range 0.5 ... 12 bar - grade of filtration 40 µm - plastic bowl guard - manual rotary condensate drain - with MS pressure gauge, bar - rotary knob with detent, can be locked using accessories - flow direction from left to right

Filter regulators MS-LFR, MS series

FESTO

Order code – MS6

		MS	6	-	LFR	-		-		-		-		-		-		-	
Series																			
MS	Standard service unit																		
Size																			
6	Grid dimension 62 mm																		
Type																			
LFR	Filter regulator																		
Pneumatic connection																			
1/4	Female thread G1/4																		
3/8	Female thread G3/8																		
1/2	Female thread G1/2																		
Pressure regulation range																			
D5	0.3 ... 4 bar																		
D6	0.3 ... 7 bar																		
D7	0.5 ... 12 bar																		
Grade of filtration																			
E	40 µm																		
C	5 µm																		
Bowl guard																			
R	Plastic bowl guard																		
U	Integrated as metal bowl guard																		
Condensate drain																			
M	Manual rotary																		
H	Semi-automatic																		
V	Fully automatic																		
Pressure gauge alternatives																			
-	With MS pressure gauge, bar																		
VS	Cover plate																		
A4	Adapter plate for EN pressure gauge 1/4																		
AD1	Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin 1																		
AD3	Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA 1																		
AD7	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact 1																		
AD9	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact 1																		
Actuator lock																			
-	Rotary knob with detent																		
AS	Rotary knob with detent, can be locked using accessories																		
Flow direction																			
-	From left to right																		
Z	From right to left																		

1 Measuring range max. 10 bar

Order example:

MS6-LFR-1/2-D7-CRM-AS

Standard service unit, grid dimension 62 mm - filter regulator - female thread G1/2 - pressure regulation range 0.5 ... 12 bar - grade of filtration 5 µm - plastic bowl guard - manual rotary condensate drain - with MS pressure gauge, bar - rotary knob with detent, can be locked using accessories - flow direction from left to right

Order code – MS9

MS 9 – LFR – – – – U – – – – –

Series	
MS	Standard service unit
Size	
9	Grid dimension 90 mm
Type	
LFR	Filter regulator
Pneumatic connection	
3/4	Female thread G3/4
1	Female thread G1
G	Module without connecting thread, without connecting plate Connecting plates → 971
Pressure regulation range	
D5	0.5 ... 4 bar
D6	0.5 ... 7 bar
D7	0.5 ... 12 bar
Grade of filtration	
E	40 µm
C	5 µm
Bowl guard	
U	Integrated as metal bowl guard
Condensate drain	
M	Manual rotary
H	Semi-automatic
V	Fully automatic
Regulator type	
–	Piloted
DI	Directly actuated 1
Pressure gauge/pressure gauge alternatives	
VS	Cover plate
AG	With MS pressure gauge
A4	Adapter plate for EN pressure gauge 1/4
AD7	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact 2
AD9	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact 2
Alternative pressure gauge scale	
–	No pressure gauge scale 3
BAR	Bar 4
Actuator lock	
–	Rotary knob with detent
AS	Rotary knob with detent, can be locked using accessories
Flow direction	
–	From left to right
Z	From right to left

1 Only with pressure regulation range D5, D6

2 Not with MS pressure gauge AG

3 Only with MS pressure gauge AG

4 Measuring range max. 10 bar

Order code – MS12

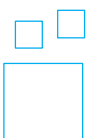
		MS	12	-	LFR	-	G	-		-		U			-		LD	-		
Series																				
MS	Standard service unit																			
Size																				
12	Grid dimension 124 mm																			
Type																				
LFR	Filter regulator																			
Pneumatic connection																				
G	Module without connecting thread, without connecting plate Connecting plates → 971																			
Pressure regulation range																				
D6	0.3 ... 7 bar																			
D7	0.5 ... 12 bar																			
Grade of filtration																				
E	40 µm																			
C	5 µm																			
Bowl guard																				
U	Integrated as metal bowl guard																			
Condensate drain																				
M	Manual rotary																			
V	Fully automatic																			
Pressure gauge alternatives																				
-	With MS pressure gauge, bar																			
VS	Cover plate																			
A4	Adapter plate for EN pressure gauge 1/4																			
Rotary knob																				
LD	Long rotary knob																			
Actuator lock																				
-	Rotary knob with detent																			
AS	Rotary knob with detent, can be locked using accessories																			
Flow direction																				
-	From left to right																			
Z	From right to left																			

Order example:

MS12-LFR-G-D7-EUV-LD-AS

Standard service unit, grid dimension 124 mm - filter regulator - module without connecting thread, without connecting plate - pressure regulation range 0.5 ... 12 bar - grade of filtration 40 µm - integrated as metal bowl guard - fully automatic condensate drain - with MS pressure gauge, bar - long rotary knob - rotary knob with detent, can be locked using accessories - flow direction from left to right

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
→ www.festo.com/catalogue/...

Enter the type code in the search field.

★ **Quick ordering¹⁾**

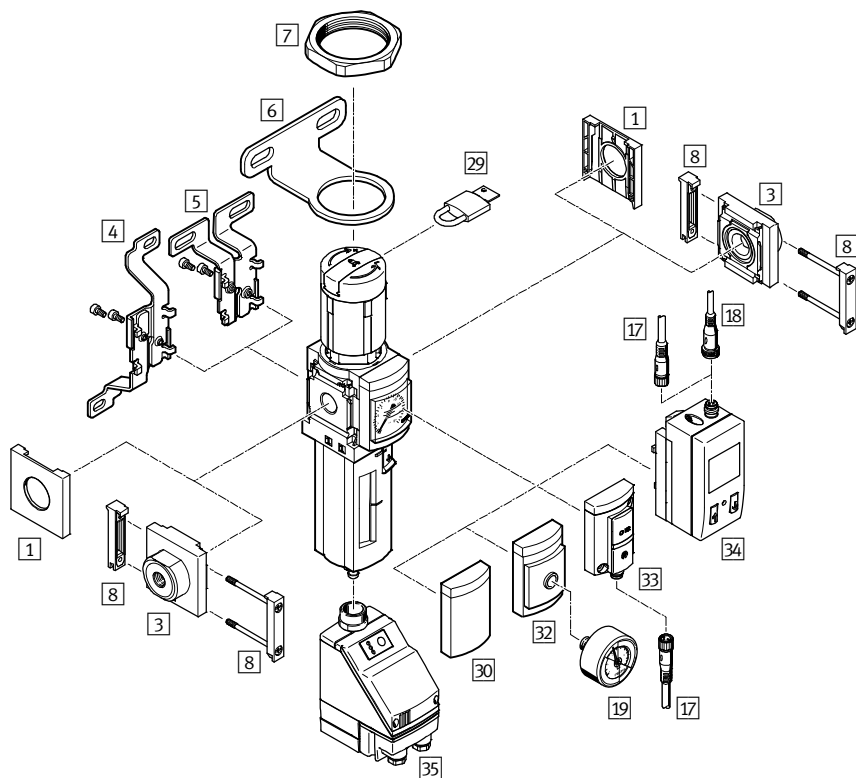
Part No.	Type
MS4	
529144	MS4-LFR-1/4-D6-CRM-AS
529146	MS4-LFR-1/4-D6-CRV-AS
529148	MS4-LFR-1/4-D6-ERM-AS
529150	MS4-LFR-1/4-D6-ERV-AS
529152	MS4-LFR-1/4-D7-CRM-AS
529154	MS4-LFR-1/4-D7-CRV-AS
–	–
535720	MS4-LFR-1/4-D7-CUV-AS
529156	MS4-LFR-1/4-D7-ERM-AS
529158	MS4-LFR-1/4-D7-ERV-AS
535724	MS4-LFR-1/4-D7-EUM-AS
535722	MS4-LFR-1/4-D7-EUV-AS

Part No.	Type
MS6	
529176	MS6-LFR-1/2-D6-CRM-AS
529178	MS6-LFR-1/2-D6-CRV-AS
529180	MS6-LFR-1/2-D6-ERM-AS
529182	MS6-LFR-1/2-D6-ERV-AS
529184	MS6-LFR-1/2-D7-CRM-AS
529186	MS6-LFR-1/2-D7-CRV-AS
530338	MS6-LFR-1/2-D7-CUM-AS
530340	MS6-LFR-1/2-D7-CUV-AS
529188	MS6-LFR-1/2-D7-ERM-AS
529190	MS6-LFR-1/2-D7-ERV-AS
529192	MS6-LFR-1/2-D7-EUM-AS
529194	MS6-LFR-1/2-D7-EUV-AS

Part No.	Type
MS9	
564110	MS9-LFR-G-D6-EUM-AG-BAR-AS
564111	MS9-LFR-G-D6-EUV-AG-BAR-AS
564118	MS9-LFR-G-D7-EUM-AG-BAR-AS
564119	MS9-LFR-G-D7-EUV-AG-BAR-AS

1) All products in this table are easy to select and quick to order.

Accessories – MS4/MS6



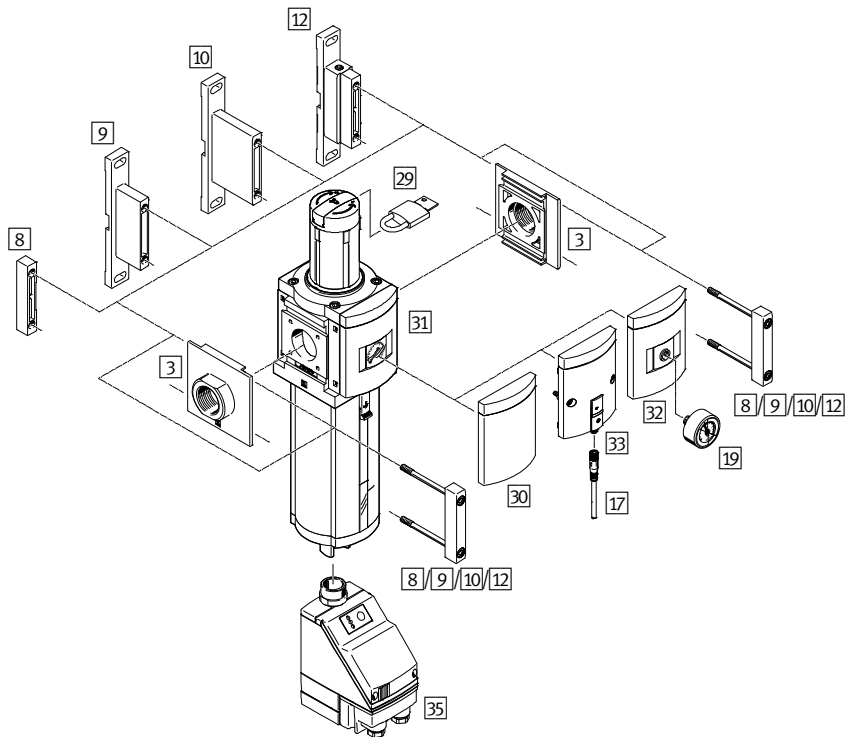
Accessories	→ Page/online
1 Cover cap MS4/6-END	971
3 Connecting plate kit MS4/6-AG...	971
4 Mounting bracket MS4/6-WB ¹⁾	971
5 Mounting bracket MS4/6-WBM ¹⁾	971
6 Mounting bracket MS4/6-WR ¹⁾	971
7 Hex nut MS4/6-WRS ¹⁾	971
8 Module connector MS4/6-MV	971
17 Connecting cable NEBU-M8...-LE3	972
18 Connecting cable NEBU-M12...-LE4	972
19 Pressure gauge MA	973
29 Padlock LRVS-D	974
30 Cover plate VS	903
32 Adapter plate A8/A4 for EN pressure gauge 1/8/1/4	903
33 Pressure sensor with operational status indicator AD7/AD9	903

Accessories	→ Page/online
34 Pressure sensor with LCD display AD1/AD3	903
35 Fully automatic condensate drain, electrically actuated (for MS6 only)	ms6-lfr
- Mounting plate MS4/6-AEND	971
- Mounting bracket MS4/6-WP ²⁾	971
- Mounting bracket MS4/6-WPB ²⁾	971
- Mounting bracket MS4/6-WPE ²⁾	971
- Mounting bracket MS4/6-WPM ²⁾	971
- Module connector MS4/6-RMV	974
- Module connector MS4/6-AMV	974
- Module connector MS6-9-ARMV	974
- Filter cartridge MS4/6-LFP	974
- Power supply module MS4/6-E-IPM	ms*-e-ipm*
- Branching module MS4/6-A-IPM	ms*-a-ipm*

1) Mounting component for individual device.

2) Mounting and connecting component for a combination of devices or individual devices with connecting plate kit MS4/6-AG... 3/with mounting plate MS4/6-AEND.

Accessories – MS9

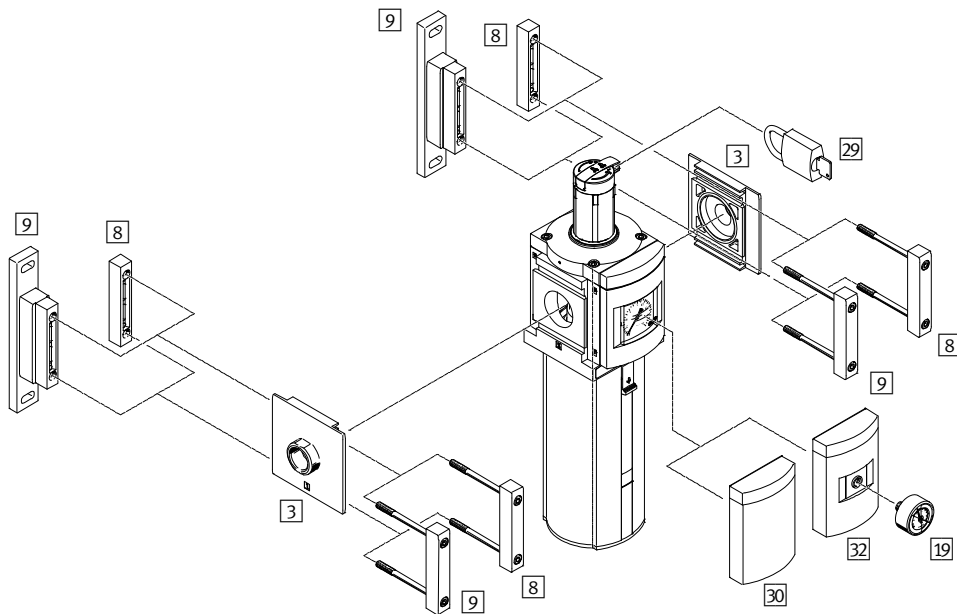


Accessories	→ Page/online
3 Connecting plate kit MS9-AG... ¹⁾	971
8 Module connector MS9-MV ¹⁾	971
9 Mounting bracket MS9-WP	971
10 Mounting bracket MS9-WPB	971
12 Mounting bracket MS9-WPM ¹⁾	971
17 Connecting cable NEBU-M8...-LE3	972
19 Pressure gauge MA	973
29 Padlock LRVS-D	974
30 Cover plate VS	905

Accessories	→ Page/online
31 MS pressure gauge AG	905
32 Adapter plate A4 for EN pressure gauge ¼	905
33 Pressure sensor with operational status indicator AD7/AD9	905
35 Fully automatic condensate drain, electrically actuated	ms9-lfr
- Module connector MS9-RMV	974
- Module connector MS6-9-ARMV	974
- Module connector MS9-12-ARMV	974
- Filter cartridge MS9-LFP	974

1) Not suitable for individual devices with connecting thread G¾ or G1.

Accessories – MS12



Accessories	→ Page/online
3) Connecting plate kit MS12-AG...	971
8) Module connector MS12-MV	971
9) Mounting bracket MS12-WP	971
19) Pressure gauge MA	973
29) Padlock LRVS-D	974
30) Cover plate VS	906

Accessories	→ Page/online
32) Adapter plate A4 for EN pressure gauge 1/4	906
- Module connector MS9-12-ARMV	974
- Filter cartridge MS12-LFP	974
- Fully automatic condensate drain, electrically actuated	ms12-lfr



- Constantly high condensate separation (99%) up to the maximum flow rate
- Maintenance-free
- 3 sizes:
MS6 – grid dimension 62 mm, MS9 – grid dimension 90 mm, MS12 – grid dimension 124 mm
- Selected types in accordance with the ATEX Directive for explosive atmospheres → www.festo.com/catalogue/ex

→ www.festo.com/catalogue/ms*-lws

Product range overview

Size	Pneumatic connection	Product options		
		U	V	Z
6	1/4, 3/8, 1/2	■	■	■
9	3/4, 1, G	■	■	■
12	G	■	■	■

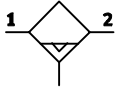
Product options

1/4	Female thread G1/4	AGG	Connecting plate G1 1/4	E2	External condensate drain, fully automatic, electric, 110 V AC, terminals	WPM	Mounting bracket
3/8	Female thread G3/8	AGH	Connecting plate G1 1/2	E3	External condensate drain, fully automatic, electric, 230 V AC, terminals	WPB	Mounting bracket for large wall gap
1/2	Female thread G1/2	AGI	Connecting plate G2	E4	External condensate drain, fully automatic, electric, 24 V DC, terminals	WB	Mounting bracket
3/4	Female thread G3/4	G	Module without connecting thread, without connecting plate	WP	Mounting bracket	EX4	EU certification (II 2GD in accordance with EU Directive 94/9/EC)
1	Female thread G1	U	Metal bowl guard			UL1	UL certification (cULus, ordinary locations for Canada and USA)
AGB	Connecting plate G1/4	V	Fully automatic condensate drain			Z	Flow direction from right to left
AGC	Connecting plate G3/8						
AGD	Connecting plate G1/2						
AGE	Connecting plate G3/4						
AGF	Connecting plate G1						

Water separators MS-LWS, MS series

FESTO

Technical data



Technical data		Download CAD data → www.festo.com					
Size	MS6			MS9			MS12
Pneumatic connection 1, 2	G1/4	G3/8	G1/2	G3/4	G1	- ¹⁾	- ¹⁾
Design	Centrifugal separator						
Type of mounting	Via accessories						
	In-line installation						
Mounting position	Vertical ±5°						
Air purity class at the output	Compressed air to ISO 8573-1:2010 [7:7:4]			Compressed air to ISO 8573-1:2010 [-:7:4]			
Bowl guard	Integrated as metal bowl guard						
Condensate drain	Fully automatic						
Degree of condensate separation [%]	99						
Length [mm]	76			109			148
Width [mm]	62			104		90	124
Height [mm]	220 + 68 ²⁾			345 + 50 ²⁾			477 + 60 ²⁾

- 1) Module without connecting thread/without connecting plate. The connecting plate must be ordered separately as an accessory → 971.
 2) Installation dimension for removing the filter bowl.

Standard nominal flow rate q_{nN}		MS6			MS9			MS12
Pneumatic connection 1, 2		G1/4	G3/8	G1/2	G3/4	G1	- ³⁾	- ³⁾
q_{nN} ⁴⁾	[l/min]	2400	3500	3800	12,000 ... 15,000 ±15%			25,000 ±15%

- 3) Dependent on the connecting plate selected, must be ordered separately as an accessory → 971.
 4) MS6/MS9: Measured at $p_1 = 6$ bar and $\Delta p = 1$ bar.
 MS12: Measured at $p_1 = 6$ bar and $\Delta p = 0.5$ bar.

Operating conditions		Fully automatic					
Size	MS6			MS9			MS12
Operating medium	Compressed air to ISO 8573-1:2010 [7:-:-]			Compressed air to ISO 8573-1:2010 [-:-:-]			
	Inert gases			-			
Operating pressure [bar]	2 ... 12						
Ambient temperature [°C]	+5 ... +60						

Materials	
Housing	Die-cast aluminium
Bowl	Wrought aluminium alloy
Seals	NBR

Order code – MS6/MS9/MS12


MS		LWS		U		V	
Series							
MS	Standard service unit						
Size							
6	Grid dimension 62 mm						
9	Grid dimension 90 mm						
12	Grid dimension 124 mm						
Type							
LWS	Water separator						
Pneumatic connection							
MS6							
1/4	Female thread G1/4						
3/8	Female thread G3/8						
1/2	Female thread G1/2						
MS9							
3/4	Female thread G3/4						
1	Female thread G1						
G	Module without connecting thread, without connecting plate Connecting plates → 971						
MS12							
G	Module without connecting thread, without connecting plate Connecting plates → 971						
Bowl guard							
U	Integrated as metal bowl guard						
Condensate drain							
V	Fully automatic						
Flow direction							
–	From left to right						
Z	From right to left						

Order example:

MS6-LWS-1/2-U-V

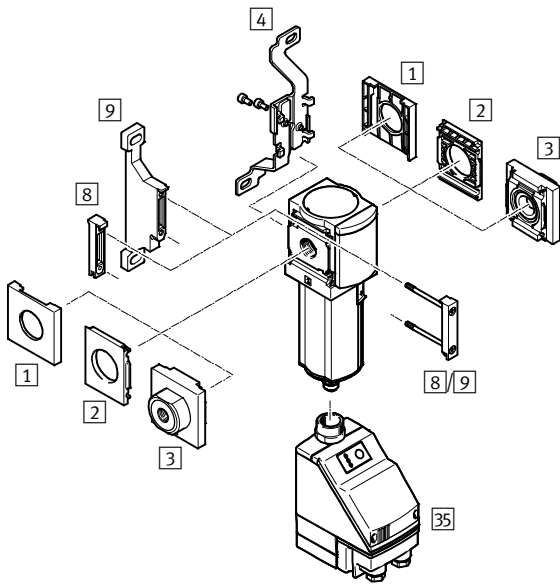
Standard service unit, grid dimension 62 mm - water separator - female thread G1/2 - metal bowl guard - fully automatic condensate drain - flow direction from left to right

Ordering – Product options

	Configurable product	This product and all its options can be ordered using the configurator.	The configurator can be found under Products on the DVD or → www.festo.com/catalogue/...	Enter the type code in the search field.
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Water separators MS-LWS, MS series

Accessories – MS6



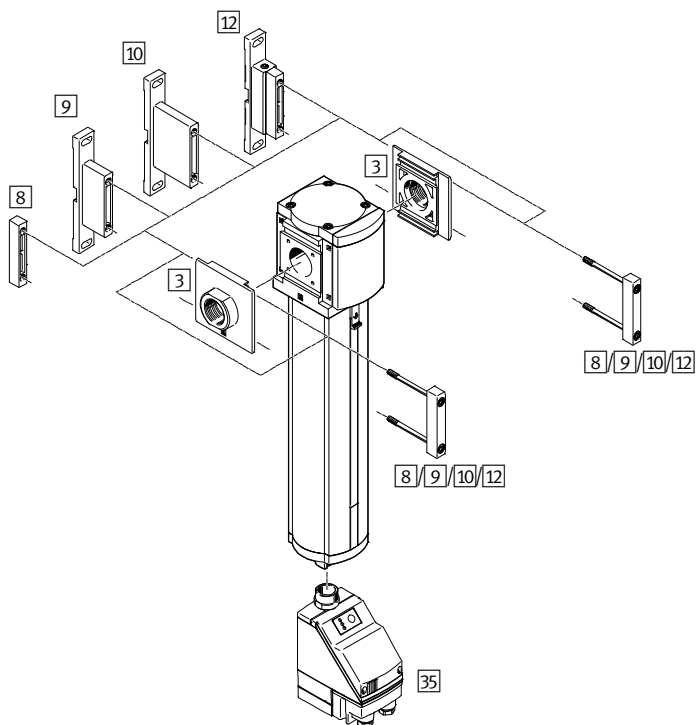
Accessories	→ Page/online
1 Cover cap MS6-END	971
2 Mounting plate MS6-AEND	971
3 Connecting plate kit MS6-AG...	971
4 Mounting bracket MS6-WB ¹⁾	971
8 Module connector MS6-MV	971
9 Mounting bracket MS6-WP ²⁾	971
35 Fully automatic condensate drain, electrically actuated	ms6-lws

1) Mounting component for individual device.

Accessories	→ Page/online
- Mounting bracket MS6-WPB ²⁾	971
- Mounting bracket MS6-WPE ²⁾	971
- Mounting bracket MS6-WPM ²⁾	971
- Module connector MS4/6-RMV	974
- Module connector MS4/6-AMV	974
- Module connector MS6-9-ARMV	974
- Power supply module MS4/6-E-IPM	ms*-e-ipm*
- Branching module MS4/6-A-IPM	ms*-a*ipm*

2) Mounting and connecting component for a combination of devices or individual devices with connecting plate kit MS6-AG... 3/with mounting plate MS6-AEND 2.

Accessories – MS9

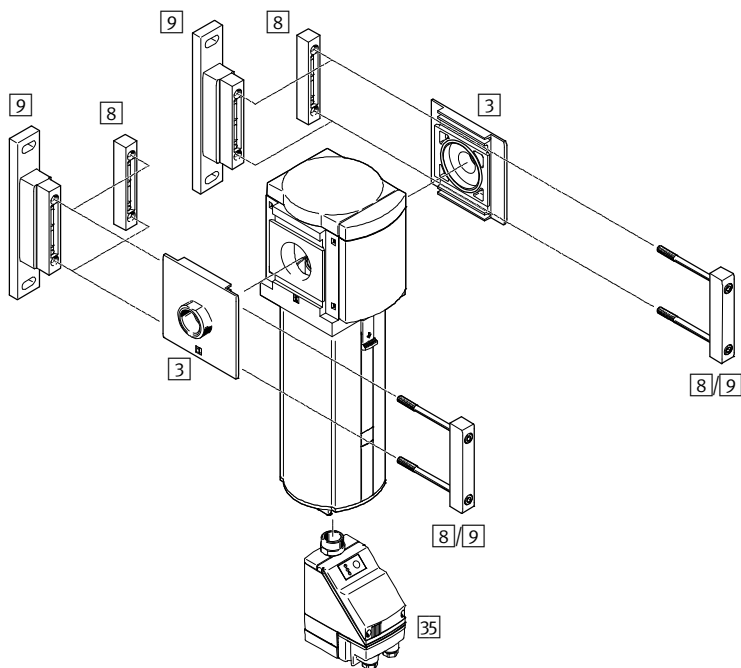


Accessories	→ Page/online
3 Connecting plate kit MS9-AG... ¹⁾	971
8 Module connector MS9-MV ¹⁾	971
9 Mounting bracket MS9-WP	971
10 Mounting bracket MS9-WPB	971
12 Mounting bracket MS9-WPM ¹⁾	971

Accessories	→ Page/online
35 Fully automatic condensate drain, electrically actuated	ms9-lws
- Module connector MS9-RMV	974
- Module connector MS6-9-ARMV	974
- Module connector MS9-12-ARMV	974

1) Not suitable for individual devices with connecting thread G¾ or G1.

Accessories – MS12



Accessories	→ Page/online
3 Connecting plate kit MS12-AG...	971
8 Module connector MS12-MV	971
9 Mounting bracket MS12-WP	971

Accessories	→ Page/online
35 Fully automatic condensate drain, electrically actuated	ms12-lws
- Module connector MS9-12-ARMV	974

Pressure regulators MS-LR, MS series



- High flow rate with minimal pressure drop
- Suitable for front panel mounting
- 4 sizes:
MS4 – grid dimension 40 mm, MS6 – grid dimension 62 mm,
MS9 – grid dimension 90 mm, MS12 – grid dimension 124 mm
- Selected types in accordance with the ATEX Directive for explosive atmospheres → www.festo.com/catalogue/ex
- ★ Quick ordering of basic designs → 922

→ www.festo.com/catalogue/ms*-lr

Product range overview

Size	Pneumatic connection	Product options																	
		D5	D6	D7	PO	PE6	DI	VS	AG	A8	A4	AD...	BAR	LD	DM1	DM2	AS	Z	
4	1/8, 1/4	■	■	■	–	–	–	■	– ¹⁾	■	■	■	– ¹⁾	■	■	■	■	■	
6	1/4, 3/8, 1/2	■	■	■	–	–	–	■	– ¹⁾	–	■	■	– ¹⁾	■	–	■	■	■	
9	3/4, 1, G	■	■	■	■	–	■	■	■	–	■	■	■	–	–	–	■	■	
12	G	–	■	■	■	■	–	■	– ¹⁾	–	■	–	– ¹⁾	■	–	–	■	■	

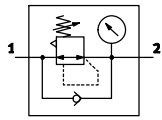
1) MS pressure gauge with indicating range in bar included in the basic configuration by default.

Product options

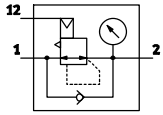
1/8	Female thread G1/8	D8	Pressure regulation range 0.5 ... 16 bar, manually operated	AD3	Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA	OS	Without secondary venting
1/4	Female thread G1/4	PO	Pressure regulation range 0.5 ... 16 bar, pneumatically actuated	AD4	Pressure sensor with LCD display, plug M12, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA	LD	Long rotary knob
3/8	Female thread G3/8	PE6	Pressure regulation range 0.15 ... 6 bar, solenoid actuated	AD7	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact	DM1	Rotary knob pressure gauge, small
1/2	Female thread G1/2	DI	Directly actuated regulator	AD8	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/C contact	DM2	Rotary knob pressure gauge, large
3/4	Female thread G3/4	VS	Cover plate	AD9	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact	KD	Rotary knob underneath
1	Female thread G1	AG	MS pressure gauge	AD10	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/C contact	AS	Rotary knob with detent, can be locked using accessories
AGA	Connecting plate G1/8	A8	Adapter plate for EN pressure gauge 1/8, without pressure gauge	BAR	Pressure gauge scale in bar	E11	Rotary knob with integrated lock
AGB	Connecting plate G1/4	A4	Adapter plate for EN pressure gauge 1/4, without pressure gauge	PSI	Pressure gauge scale in psi	WR	Mounting bracket with knurled nut for regulator head
AGC	Connecting plate G3/8	RG	Integrated pressure gauge, red/green scale	MPA	Pressure gauge scale in Mpa	WP	Mounting bracket
AGD	Connecting plate G1/2	AD1	Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin			WPM	Mounting bracket
AGE	Connecting plate G3/4	AD2	Pressure sensor with LCD display, plug M8, 1 switching output NPN, 3-pin			WPB	Mounting bracket for large wall gap
AGF	Connecting plate G1					WB	Mounting bracket
AGG	Connecting plate G1 1/4					WBM	Mounting bracket
AGH	Connecting plate G1 1/2					EX4	EU certification (II 2GD in accordance with EU Directive 94/9/EC)
AGI	Connecting plate G2					UL1	UL certification (cULus, ordinary locations for Canada and USA)
G	Module without connecting thread, without connecting plate					Z	Flow direction from right to left
D5	Pressure regulation range 0.3 ... 4 bar, manually operated						
D6	Pressure regulation range 0.3 ... 7 bar, manually operated						
D7	Pressure regulation range 0.5 ... 12 bar, manually operated						

Technical data

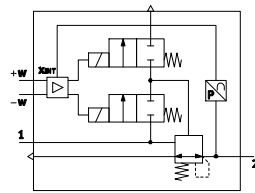
Manually operated D5/D6/D7



Pneumatically actuated PO



Solenoid actuated PE6



Technical data		Download CAD data → www.festo.com									
Size		MS4		MS6			MS9		MS12		
Pneumatic connection 1, 2		G1/8	G1/4	G1/4	G3/8	G1/2	G3/4	G1	– ¹⁾	– ¹⁾	
Pilot air connection 12 with pressure regulation range PO		–					G1/4		G1/4		
Design		Directly actuated diaphragm regulator					Piloted diaphragm regulator		Piloted diaphragm regulator (not PO)		
							Directly actuated diaphragm regulator		Diaphragm regulator (with PO)		
Regulating function		With return flow action, with secondary venting, with primary pressure compensation									
Type of mounting		Via accessories									
		In-line installation									
		Front panel mounting								–	
Mounting position		Any									
Actuator lock		Rotary knob with detent									
		Rotary knob with detent, can be locked using accessories									
Pressure regulation range/operation [bar]	D5	0.5 ... 4, manually operated ²⁾								–	
	D6	0.5 ... 7, manually operated ²⁾								–	
	D7	0.5 ... 12, manually operated (0.5 ... 10 bar with pressure sensor AD... ²⁾								–	
	PO ³⁾	–					0.5 ... 16, pneumatically actuated				
	PE6	–					0.15 ... 6, solenoid actuated				
Pressure indication		Via pressure gauge for indicating the output pressure									
	DM1/DM2	Via pressure gauge in rotary knob for displaying output pressure					–				
	AD1/AD3	Via pressure sensor with LCD display for indicating the output pressure and with electrical output					–				
	AD7/AD9	Via pressure sensor with operational status indicator for displaying the output pressure and with electrical output					–				
Length [mm]	With MS pressure gauge	57		77			109		148		
	With cover plate VS	54		76			109		148		
	With adapter plate A8/A4	59		79			110		148		
	With pressure sensor AD1/AD3	83		103			–		–		
	With pressure sensor AD7/AD9	59		79			112		–		
Width [mm]	Standard	40		62			104		90	124	
	With rotary knob pressure gauge DM2	60		62			–		–		
Height [mm]	With rotary knob with detent, can be locked using accessories AS ⁴⁾	125		189			225 (218) ⁵⁾		274		
	With rotary knob pressure gauge DM1	113		–			–		–		
	With rotary knob pressure gauge DM2	116		177			–		–		
	With pressure regulation range PO	–		–			120		181		
	With pressure regulation range PE6	–		–			–		235		

1) Module without connecting thread/without connecting plate. The connecting plate must be ordered separately as an accessory → 971.

2) MS4: The pressure regulation range for pressure regulators with rotary knob pressure gauge DM... starts at 0.8 bar.

3) Output pressure p2 corresponds roughly to the applied pilot pressure p12.

4) The pressure regulator without lockable rotary knob is approx. 9 mm smaller.

5) Value in brackets applies to the directly actuated pressure regulator MS9-LR...-DI.

Technical data

Standard nominal flow rate q_{nN}		MS4		MS6			MS9			MS12
Size										
Pneumatic connection 1, 2		G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$	G1	– ¹⁾	– ¹⁾
q_{nN} [l/min]	With pressure regulation range D5 ²⁾	1200	2100	2400	5500	7500	24,000 ... 33,000 \pm 15% (6,500 ... 25,000 \pm 15%) ⁵⁾			–
	With pressure regulation range D6 ³⁾	1150	1800	3000	5800	6500	24,000 ... 28,000 \pm 15% (9,000 ... 14,000 \pm 15%) ⁵⁾			13,000 ... 22,000
	With pressure regulation range D7 ³⁾	1000	1700	2700	4500	5500	24,000 ... 28,000 \pm 15%			13,000 ... 22,000
	With pressure regulation range PO ³⁾	–	–	–	–	–	23,000 ... 29,000 \pm 15%			13,000 ... 22,000
	With pressure regulation range PE ⁴⁾	–	–	–	–	–	–			12,000 ... 21,000

1) Dependent on the connecting plate selected, must be ordered separately as an accessory → 971.

2) MS4/MS6: Measured at $p_1 = 10$ bar and $p_2 = 3$ bar, $\Delta p = 1$ bar.

MS9: Measured at $p_1 = 10$ bar and $p_2 = 4$ bar, $\Delta p = 1$ bar.

3) MS4/MS6/MS9: Measured at $p_1 = 10$ bar and $p_2 = 6$ bar, $\Delta p = 1$ bar.

MS12: Measured at $p_1 = 10$ bar and $p_2 = 6$ bar, $\Delta p = 0.5$ bar.

4) MS12: Measured at $p_1 = 7$ bar and $p_2 = 6$ bar, $\Delta p = 0.5$ bar.

5) Value in brackets applies to the directly actuated pressure regulator MS9-LR-...-DI.

Electrical data (pressure regulation range/operation PE6 only)

Size		MS12
Operating voltage range	[V DC]	21.6 ... 26.4
Nominal operating voltage	[V DC]	24
Residual ripple	[%]	10
Analogue input signal range	[V]	0 ... 10
Max. current consumption	[A]	0.15
Max. electrical power consumption	[W]	3.6
Degree of protection		IP65

Operating conditions

Size		MS4	MS6	MS9	MS12
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]			
		Inert gases			–
Note on operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)			
Operating pressure	[bar]	0.8 ... 14	0.8 ... 20	1 ... 20	0.8 ... 21 (1.15 ... 8) ⁷⁾
Ambient temperature	[°C]	–10 ... +60 (0 ... +50) ⁶⁾	–10 ... +60 (0 ... +50) ⁶⁾	–10 ... +60 (0 ... +50) ⁶⁾	–10 ... +60 (+10 ... +50) ⁷⁾

6) Value in brackets applies to MS4/MS6/MS9-LR with pressure sensor AD...

7) Value in brackets applies to MS12-LR with pressure regulation range/operation PE6.

Materials

Housing	Die-cast aluminium
Rotary knob	PA/POM
Seals	NBR

Order code – MS4

		MS	4	LR						
Series										
MS	Standard service unit									
Size										
4	Grid dimension 40 mm									
Type										
LR	Pressure regulator									
Pneumatic connection										
1/8	Female thread G1/8									
1/4	Female thread G1/4									
Pressure regulation range/operation										
D5	0.3 ... 4 bar, manually operated									
D6	0.3 ... 7 bar, manually operated									
D7	0.5 ... 12 bar, manually operated									
Pressure gauge alternatives										
–	With MS pressure gauge, bar	1								
VS	Cover plate									
A8	Adapter plate for EN pressure gauge 1/8									
A4	Adapter plate for EN pressure gauge 1/4									
AD1	Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin	2								
AD3	Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA	2								
AD7	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact	2								
AD9	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact	2								
Rotary knob alternative										
–	Standard									
DM1	Rotary knob pressure gauge, small	3								
DM2	Rotary knob pressure gauge, large	4								
Actuator lock										
–	Rotary knob with detent									
AS	Rotary knob with detent, can be locked using accessories	1								
Flow direction										
–	From left to right									
Z	From right to left									

1 Not with rotary knob alternative DM1 or DM2

2 Not with rotary knob alternative DM2. Measuring range max. 10 bar

3 Only with pressure gauge alternative VS, A8, A4, AD1, AD3, AD7 or AD9

4 Only with pressure gauge alternative VS, A8 or A4

Order example:

MS4-LR-1/4-D6-A4-DM2

Standard service unit, grid dimension 40 mm - pressure regulator - female thread G1/4 - pressure regulation range 0.3 ... 7 bar, manually operated - with adapter plate for EN pressure gauge 1/4 - rotary knob pressure gauge, large - rotary knob with detent - flow direction from left to right

Order code – MS6

		MS	6	-	LR	-		-		-		-		-	
Series															
MS	Standard service unit														
Size															
6	Grid dimension 62 mm														
Type															
LR	Pressure regulator														
Pneumatic connection															
1/4	Female thread G1/4														
3/8	Female thread G3/8														
1/2	Female thread G1/2														
Pressure regulation range/operation															
D5	0.3 ... 4 bar, manually operated														
D6	0.3 ... 7 bar, manually operated														
D7	0.5 ... 12 bar, manually operated														
Pressure gauge alternatives															
-	With MS pressure gauge, bar														1
VS	Cover plate														
A4	Adapter plate for EN pressure gauge 1/4														
AD1	Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin														2
AD3	Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA														2
AD7	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact														2
AD9	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact														2
Rotary knob alternative															
-	Standard														
DM2	Rotary knob pressure gauge, large														3
Actuator lock															
-	Rotary knob with detent														
AS	Rotary knob with detent, can be locked using accessories														1
Flow direction															
-	From left to right														
Z	From right to left														

1 Not with rotary knob alternative DM2

3 Only with pressure gauge alternative VS, A4, AD1,

2 Measuring range max. 10 bar

AD3, AD7 or AD9

Order example:

MS6-LR-1/2-D6-AS

Standard service unit, grid dimension 62 mm - pressure regulator - female thread G1/2 - pressure regulation range 0.3 ... 7 bar, manually operated - with MS pressure gauge, bar - standard rotary knob - rotary knob with detent, can be locked using accessories - flow direction from left to right

Order code – MS9

MS 9 – LR – – – – –

Series

MS	Standard service unit
----	-----------------------

Size

9	Grid dimension 90 mm
---	----------------------

Type

LR	Pressure regulator
----	--------------------

Pneumatic connection

3/4	Female thread G3/4
1	Female thread G1
G	Module without connecting thread, without connecting plate Connecting plates → 971

Pressure regulation range/operation

D5	0.5 ... 4 bar, manually operated
D6	0.5 ... 7 bar, manually operated
D7	0.5 ... 12 bar, manually operated
PO	0.5 ... 16 bar, pneumatically actuated

Regulator type

–	Piloted
DI	Directly actuated 1

Pressure gauge/pressure gauge alternatives

AG	With MS pressure gauge
VS	Cover plate
A4	Adapter plate for EN pressure gauge 1/4
AD7	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact 2
AD9	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact 2

Alternative pressure gauge scale

–	No pressure gauge scale 3
BAR	Bar 4

Actuator lock

Pressure regulation range/operation PO	
–	None
Pressure regulation range/operation D5/D6/D7	
–	Rotary knob with detent
AS	Rotary knob with detent, can be locked using accessories

Flow direction

–	From left to right
Z	From right to left

1 Only with pressure regulation range/operation D5, D6

2 Measuring range max. 10 bar
3 Not with MS pressure gauge AG

4 Only with MS pressure gauge AG

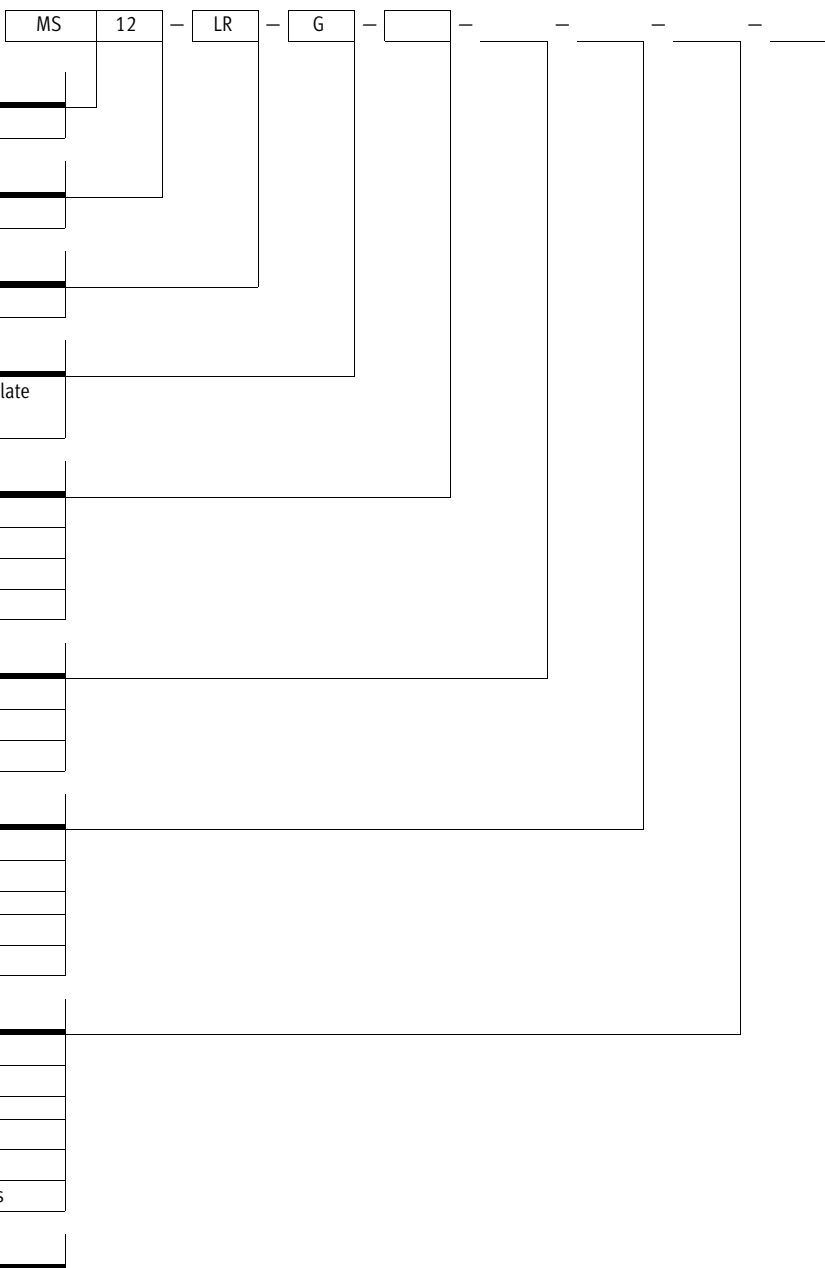
Order example:

MS9-LR-G-D6-DI-AG-BAR-AS

Standard service unit, grid dimension 90 mm - pressure regulator - module without connecting thread, without connecting plate - pressure regulation range 0.5 ... 7 bar, manually operated - directly actuated regulator - with MS pressure gauge - pressure gauge scale in bar - rotary knob with detent, can be locked using accessories - flow direction from left to right

Pressure regulators MS-LR, MS series

Order code – MS12



12

Ordering – Product options

Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or www.festo.com/catalogue/...

Enter the type code in the search field.

★ Quick ordering¹⁾

Part No.	Type
MS4	
529415	MS4-LR-1/4-D5-AS
529417	MS4-LR-1/4-D6-AS
529419	MS4-LR-1/4-D7-AS

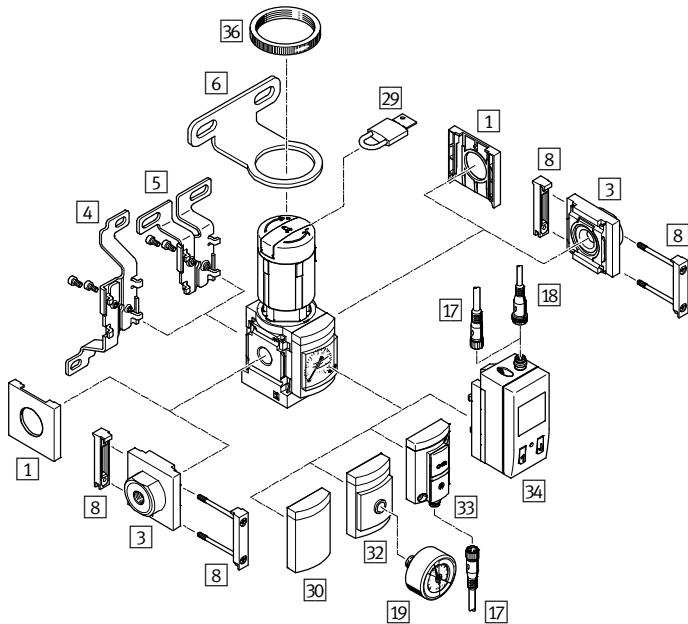
Part No.	Type
MS6	
529989	MS6-LR-1/2-D5-AS
529991	MS6-LR-1/2-D6-AS
529993	MS6-LR-1/2-D7-AS

Part No.	Type
MS9	
564136	MS9-LR-G-D6-AG-BAR-AS
564138	MS9-LR-G-D7-AG-BAR-AS

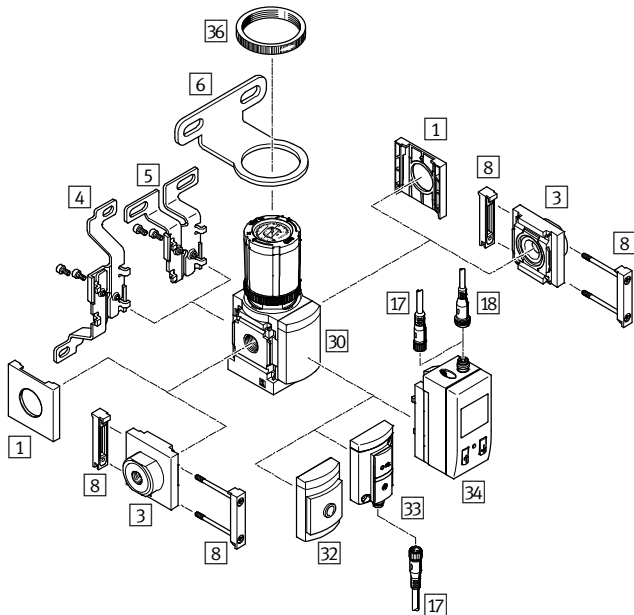
1) All products in this table are easy to select and quick to order.

Accessories – MS4/MS6

With standard rotary knob



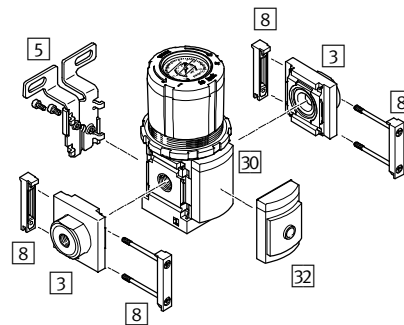
With rotary knob pressure gauge DM1 (MS4 only) or DM2 (MS6 only)



With rotary knob pressure gauge DM2 (MS4 only)

Note

Due to the protruding rotary knob, only a distributor block MS4-FRM-FRZ or a branching module MS4-FRM can be connected as a directly adjacent service unit component.



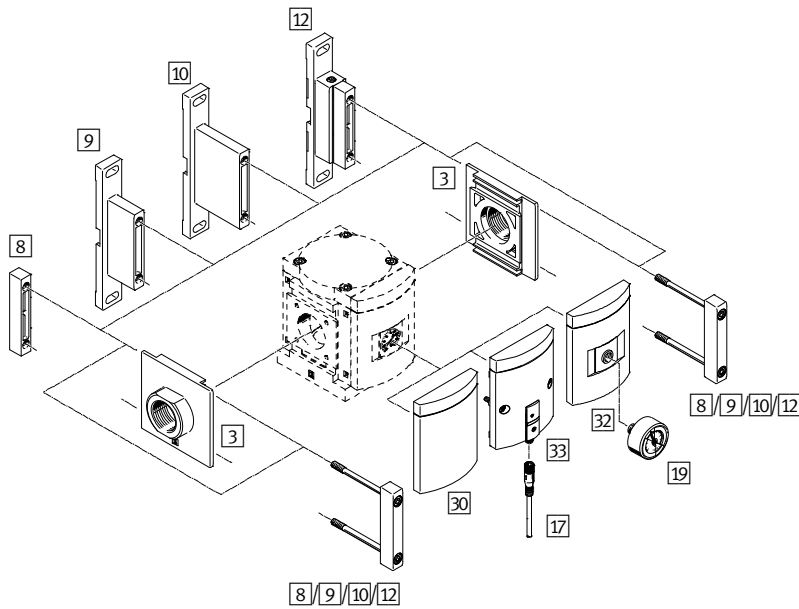
Accessories	→ Page/online
1 Cover cap MS4/6-END	971
3 Connecting plate kit MS4/6-AG...	971
4 Mounting bracket MS4/6-WB ¹⁾	971
5 Mounting bracket MS4-WBM ¹⁾	971
6 Mounting bracket MS4/6-WR ¹⁾	971
8 Module connector MS4/6-MV	971
17 Connecting cable NEBU-M8...-LE3	972
18 Connecting cable NEBU-M12...-LE4	972
19 Pressure gauge MA	973
29 Padlock LRVS-D	974
30 Cover plate VS	919
32 Adapter plate A8/A4 for EN pressure gauge 1/8/1/4	919
33 Pressure sensor with operational status indicator AD7/AD9	919

1) Mounting component for individual device.

Accessories	→ Page/online
34 Pressure sensor with LCD display AD1/AD3	919
36 Knurled nut MS-LR (included in the scope of delivery)	–
– Mounting plate MS4/6-AEND	971
– Mounting bracket MS4/6-WP ²⁾	971
– Mounting bracket MS4/6-WPB ²⁾	971
– Mounting bracket MS4/6-WPE ²⁾	971
– Mounting bracket MS4/6-WPM ²⁾	971
– Module connector MS4/6-RMV	974
– Module connector MS4/6-AMV	974
– Module connector MS6-9-ARMV	974
– Power supply module MS4/6-E-IPM	ms*-e-ipm*
– Branching module MS4/6-A-IPM	ms*-a-ipm*

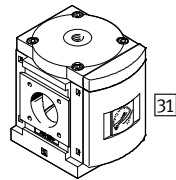
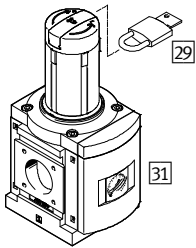
2) Mounting and connecting component for a combination of devices or individual devices with connecting plate kit MS4/6-AG... **3**/with mounting plate MS4/6-AEND.

Accessories – MS9



Manually operated D5/D6/D7

Pneumatically actuated P0

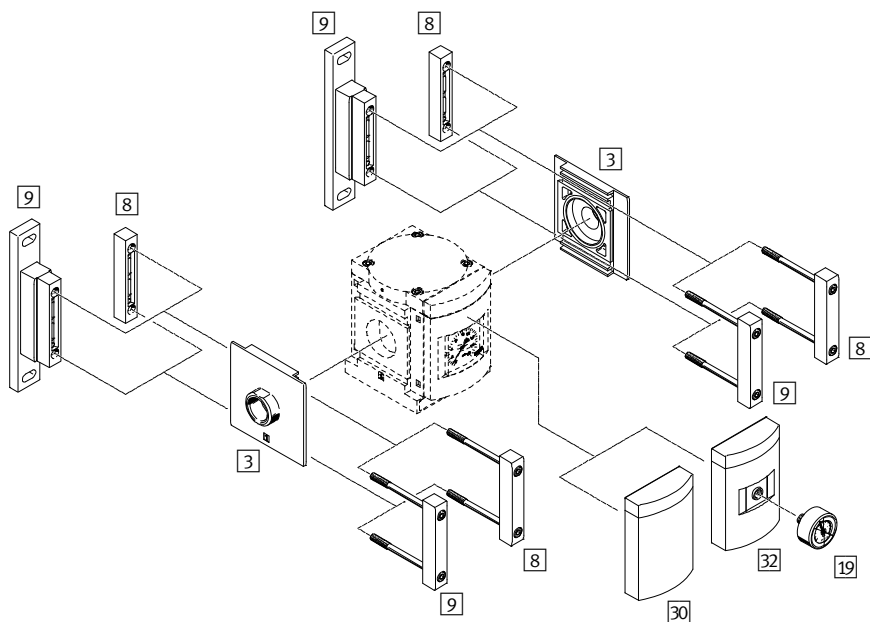


Accessories	→ Page/online
3 Connecting plate kit MS9-AG... ¹⁾	971
8 Module connector MS9-MV ¹⁾	971
9 Mounting bracket MS9-WP	971
10 Mounting bracket MS9-WPB	971
12 Mounting bracket MS9-WPM ¹⁾	971
17 Connecting cable NEBU-M8...-LE3	972
19 Pressure gauge MA	973
29 Padlock LRVS-D	974

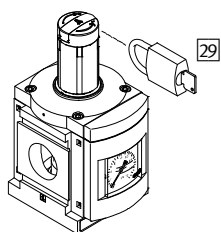
Accessories	→ Page/online
30 Cover plate VS	921
31 MS pressure gauge AG	921
32 Adapter plate A4 for EN pressure gauge 1/4	921
33 Pressure sensor with operational status indicator AD7/AD9	921
- Module connector MS9-RMV	974
- Module connector MS6-9-ARMV	974
- Module connector MS9-12-ARMV	974

1) Not suitable for individual devices with connecting thread G3/4 or G1.

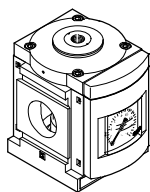
Accessories – MS12



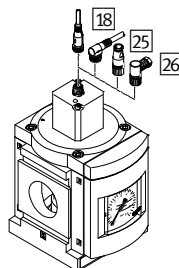
Manually operated D6/D7



Pneumatically actuated PO



Solenoid actuated PE6



Accessories	→ Page/online
3 Connecting plate kit MS12-AG...	971
8 Module connector MS12-MV	971
9 Mounting bracket MS12-WP	971
18 Connecting cable NEBU-M12...-LE4	972
19 Pressure gauge MA	973
25 Sensor socket SIE-GD	974

Accessories	→ Page/online
26 Angled socket SIE-WD	974
29 Padlock LRVS-D	974
30 Cover plate VS	922
32 Adapter plate A4 for EN pressure gauge 1/4	922
- Module connector MS9-12-ARMV	974

Pressure regulators MS-LRB, MS series



- For manifold assembly with through air supply
- For configuring a regulator manifold with independent pressure regulation ranges
- 2 sizes:
MS4 – grid dimension 40 mm, MS6 – grid dimension 62 mm
- Selected types in accordance with the ATEX Directive for explosive atmospheres → www.festo.com/catalogue/ex

→ www.festo.com/catalogue/ms*-lrb

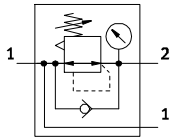
Product range overview

Size	Pneumatic connection	Product options														
		D5	D6	D7	VS	A8	A4	AD...	DM1	DM2	AS	BC	BD	BE	Z	
4	1/4	■	■	■	■	■	■	■	■	■	–	■	■	■	–	■
6	1/2	■	■	■	■	–	■	■	–	■	■	–	■	■	■	■

Product options

1/4	Female thread G1/4	RG	Integrated pressure gauge, red/green scale	AD8	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/C contact	BC	Angled outlet block QS-6
1/2	Female thread G1/2	AD1	Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin	AD9	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact	BD	Angled outlet block QS-8
AGA	Connecting plate G1/8	AD2	Pressure sensor with LCD display, plug M8, 1 switching output NPN, 3-pin	AD10	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/C contact	BE	Angled outlet block QS-10
AGB	Connecting plate G1/4	AD3	Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA	PSI	Pressure gauge scale in psi	WR	Mounting bracket with knurled nut for regulator head
AGC	Connecting plate G3/8	AD4	Pressure sensor with LCD display, plug M12, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA	MPA	Pressure gauge scale in Mpa	WP	Mounting bracket
AGD	Connecting plate G1/2	AD7	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact	OS	Without secondary venting	WPM	Mounting bracket
AGE	Connecting plate G3/4			LD	Long rotary knob	WPB	Mounting bracket for large wall gap
D5	Pressure regulation range 0.3 ... 4 bar, manually operated			DM1	Rotary knob pressure gauge, small	WB	Mounting bracket
D6	Pressure regulation range 0.3 ... 7 bar, manually operated			DM2	Rotary knob pressure gauge, large	WBM	Mounting bracket
D7	Pressure regulation range 0.5 ... 12 bar, manually operated			KD	Rotary knob underneath	EX4	EU certification (II 2GD in accordance with EU Directive 94/9/EC)
D8	Pressure regulation range 0.5 ... 16 bar, manually operated			AS	Rotary knob with detent, can be locked using accessories	UL1	UL certification (cULus, ordinary locations for Canada and USA)
VS	Cover plate			E11	Rotary knob with integrated lock	Z	Pressure output to the front
A8	Adapter plate for EN pressure gauge 1/8, without pressure gauge						
A4	Adapter plate for EN pressure gauge 1/4, without pressure gauge						

Technical data

Download CAD data → www.festo.com

Technical data		MS4	MS6
Size		MS4	MS6
Pneumatic connection 1		G $\frac{1}{4}$	G $\frac{1}{2}$
Pneumatic connection 2		G $\frac{1}{4}$	G $\frac{1}{2}$
		QS-6 (angled outlet block)	QS-8 (angled outlet block)
		QS-8 (angled outlet block)	QS-10 (angled outlet block)
Design	Directly actuated diaphragm regulator with through compressed air supply		
Regulating function	With return flow action, with secondary venting, with primary pressure compensation		
Type of mounting		Via accessories	
		In-line installation	
		Front panel mounting	
Mounting position	Any		
Actuator lock		Rotary knob with detent	
		Rotary knob with detent, can be locked using accessories	
Pressure regulation range/operation [bar]	D5	0.3 ... 4, manually operated ¹⁾	
	D6	0.3 ... 7, manually operated ¹⁾	
	D7	0.5 ... 12, manually operated (0.5 ... 10 bar with pressure sensor AD...) ¹⁾	
Pressure indication		Via pressure gauge for indicating the output pressure	
	DM1/DM2	Via pressure gauge in rotary knob for displaying output pressure	
	AD1/AD3	Via pressure sensor with LCD display for indicating the output pressure and with electrical output	
	AD7/AD9	Via pressure sensor with operational status indicator for displaying the output pressure and with electrical output	
Length [mm]	With MS pressure gauge	57 (78) ²⁾	77 (100) ²⁾
	With cover plate VS	54 (75) ²⁾	76 (99) ²⁾
	With adapter plate A8/A4	59 (80) ²⁾	79 (102) ²⁾
	With pressure sensor AD1/AD3	83 (104) ²⁾	103 (126) ²⁾
	With pressure sensor AD7/AD9	59 (80) ²⁾	79 (102) ²⁾
Width [mm]		40	62
Height [mm]	With rotary knob with detent, can be locked using accessories AS ³⁾	125	189
	With rotary knob pressure gauge DM1	115	–
	With rotary knob pressure gauge DM2	–	177

1) MS4: The pressure regulation range for pressure regulators with rotary knob pressure gauge DM1 starts at 0.8 bar.

2) Value in brackets with angled outlet block.

3) The pressure regulator without lockable rotary knob is approx. 9 mm smaller.

Standard nominal flow rate q_{nN}

Size		MS4		MS6			
		Standard	Angled outlet block		Standard	Angled outlet block	
			QS-6	QS-8		QS-8	QS-10
q_{nN} [l/min]	With pressure regulation range D5 ⁴⁾	1900	300	650	7300	600	750
	With pressure regulation range D6 ⁵⁾	1700	350	840	6300	880	1000
	With pressure regulation range D7 ⁵⁾	1500 ⁶⁾	350	640	5500	800	950

4) Measured at $p_1 = 10$ bar and $p_2 = 3$ bar, $\Delta p = 1$ bar.5) Measured at $p_1 = 10$ bar and $p_2 = 6$ bar, $\Delta p = 1$ bar.6) $q_{nN} = 800$ l/min, $q_{n\max} = 2200$ l/min with rotary knob pressure gauge DM1.

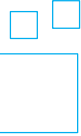
Technical data

Operating conditions		MS4	MS6
Size			
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4] Inert gases	
Note on operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)	
Operating pressure	[bar]	0.8 ... 14	0.8 ... 20
Ambient temperature	[°C]	-10 ... +60 (0 ... +50) ¹⁾	-10 ... +60 (0 ... +50) ¹⁾

1) Value in brackets applies to MS4/MS6-LRB with pressure sensor AD...

Materials	
Housing	Die-cast aluminium
Rotary knob	PA/POM
Seals	NBR

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
[→ www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the type code in the search field.

Order code – MS4

		MS	4	–	LRB	–	1/4	–	–	–	–	–	–	–
Series														
MS	Standard service unit													
Size														
4	Grid dimension 40 mm													
Type														
LRB	Pressure regulator													
Pneumatic connection														
1/4	Female thread G1/4													
Pressure regulation range/operation														
D5	0.3 ... 4 bar, manually operated													
D6	0.3 ... 7 bar, manually operated													
D7	0.5 ... 12 bar, manually operated													
Pressure gauge alternatives														
–	With MS pressure gauge, bar											1		
VS	Cover plate											2		
A8	Adapter plate for EN pressure gauge 1/8											3		
A4	Adapter plate for EN pressure gauge 1/4											3		
AD1	Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin											3/4		
AD3	Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA											3/4		
AD7	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact											4/5		
AD9	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact											4/5		
Rotary knob alternative														
–	Standard													
DM1	Rotary knob pressure gauge, small											6		
Actuator lock														
–	Rotary knob with detent													
AS	Rotary knob with detent, can be locked using accessories											1		
Pressure output														
–	No angled outlet block													
BC	Angled outlet block QS-6													
BD	Angled outlet block QS-8													
Alternative flow direction														
–	Pressure output to the rear													
Z	Pressure output to the front													

1 Not with rotary knob alternative DM1

2 Must be selected if alternative flow direction Z is selected without pressure output BC, BD

3 Not in combination with alternative flow direction Z

4 Measuring range max. 10 bar

5 In combination with alternative flow direction Z only with pressure output BC, BD

6 Only with pressure gauge alternative VS, A8, A4, AD1, AD3, AD7 or AD9

Order example:

MS4-LRB-1/4-D6-VS-DM1-BD

Standard service unit, grid dimension 40 mm - pressure regulator - female thread G1/4 - pressure regulation range 0.3 ... 7 bar, manually operated - with cover plate - rotary knob pressure gauge, small - rotary knob with detent - angled outlet block QS-8 - pressure output to the rear

Pressure regulators MS-LRB, MS series

FESTO

Order code – MS6

Series		MS	6	LRB	1/2					
Series										
MS	Standard service unit									
Size										
6	Grid dimension 62 mm									
Type										
LRB	Pressure regulator									
Pneumatic connection										
1/2	Female thread G1/2									
Pressure regulation range/operation										
D5	0.3 ... 4 bar, manually operated									
D6	0.3 ... 7 bar, manually operated									
D7	0.5 ... 12 bar, manually operated									
Pressure gauge alternatives										
–	With MS pressure gauge, bar									1
VS	Cover plate									2
A4	Adapter plate for EN pressure gauge 1/4									3
AD1	Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin									3/4
AD3	Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA									3/4
AD7	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact									4/5
AD9	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact									4/5
Rotary knob alternative										
–	Standard									
DM2	Rotary knob pressure gauge, large									6
Actuator lock										
–	Rotary knob with detent									
AS	Rotary knob with detent, can be locked using accessories									1
Pressure output										
–	No angled outlet block									
BD	Angled outlet block QS-8									
BE	Angled outlet block QS-10									
Alternative flow direction										
–	Pressure output to the rear									
Z	Pressure output to the front									

1 Not with rotary knob alternative DM2

2 Must be selected if alternative flow direction Z is selected without pressure output BD, BE

3 Not in combination with alternative flow direction Z

4 Measuring range max. 10 bar

5 In combination with alternative flow direction Z only with pressure output BD, BE

6 Only with pressure gauge alternative VS, A4, AD1, AD3, AD7 or AD9

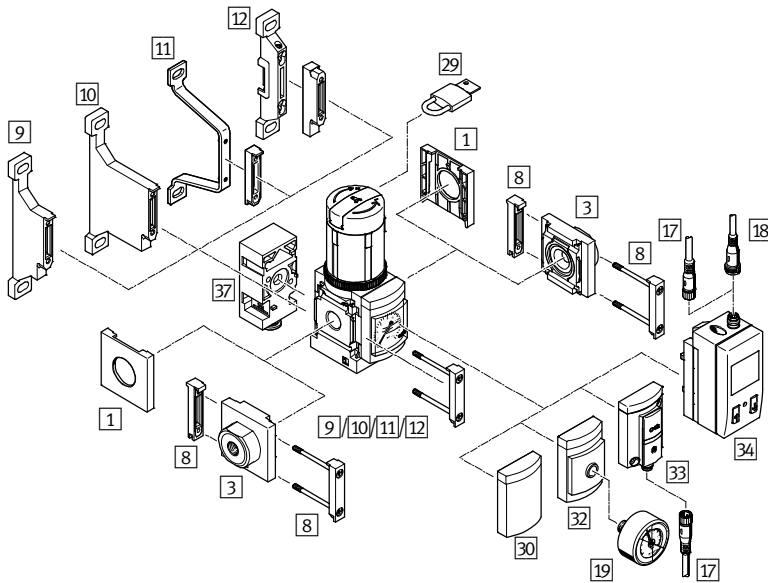
Order example:

MS6-LRB-1/2-D6-AD9-AS-BD

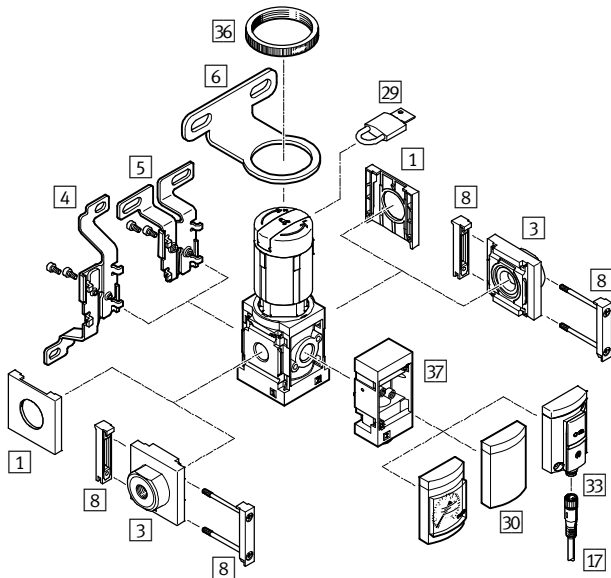
Standard service unit, grid dimension 62 mm - pressure regulator - female thread G1/2 - pressure regulation range 0.3 ... 7 bar, manually operated - with pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact - standard rotary knob - rotary knob with detent, can be locked using accessories - angled outlet block QS-8 - pressure output to the rear

Accessories – MS4/MS6

Pressure output to the rear



Pressure output to the front (alternative flow direction Z)



Accessories	→ Page/online
1 Cover cap MS4/6-END	971
3 Connecting plate kit MS4/6-AG...	971
4 Mounting bracket MS4/6-WB ¹⁾	971
5 Mounting bracket MS4/6-WBM ¹⁾	971
6 Mounting bracket MS4/6-WR ¹⁾	971
8 Module connector MS4/6-MV	971
9 Mounting bracket MS4/6-WP ²⁾⁴⁾	971
10 Mounting bracket MS4/6-WPB ³⁾⁴⁾	971
11 Mounting bracket MS4/6-WPE ³⁾⁴⁾	971
12 Mounting bracket MS4/6-WPM ⁴⁾	971
17 Connecting cable NEBU-M8...-LE3	972
18 Connecting cable NEBU-M12...-LE4	972
19 Pressure gauge MA	973

1) Mounting component for individual device.

2) Only with alternative flow direction Z and/or only with pressure output BC, BD, BE.

Accessories	→ Page/online
29 Padlock LRVS-D	974
30 Cover plate VS	929
32 Adapter plate A8/A4 for EN pressure gauge 1/8/1/4	929
33 Pressure sensor with operational status indicator AD7/AD9	929
34 Pressure sensor with LCD display AD1/AD3	929
36 Knurled nut MS-LR (included in the scope of delivery)	-
37 Angled outlet block B...	929
- Mounting plate MS4/6-AEND	971
- Module connector MS4/6-RMV	974
- Module connector MS4/6-AMV	974
- Module connector MS6-9-ARMV	974
- Power supply module MS4/6-E-IPM	ms*-e-ipm*
- Branching module MS4/6-A-IPM	ms*-a-ipm*

3) Not in combination with alternative flow direction Z and pressure output BC, BD, BE.

4) Mounting and connecting component for a combination of devices or individual devices with connecting plate kit MS4/6-AG... [3] with mounting plate MS4/6-AEND.

Precision pressure regulators MS-LRP, MS series



- For sensitive applications requiring a hysteresis of 0.02 bar
- High flow rate with minimal pressure drop
- Suitable for front panel mounting
- 1 size:
MS6 – grid dimension 62 mm
- Selected types in accordance with the ATEX Directive for explosive atmospheres → www.festo.com/catalogue/ex

→ www.festo.com/catalogue/ms*-lrp

Product range overview

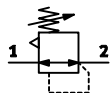
Size	Pneumatic connection	Product options											
		D2	D4	D5	D7	PO	VS	A8	A8M	A4	AD...	AS	Z
6	1/4, 3/8, 1/2	■	■	■	■	■	■	■	■	■	■	■	■

Product options

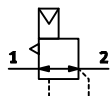
1/4	Female thread G1/4	VS	Cover plate	AD4	Pressure sensor with LCD display, plug M12, 1 switching output	AS	Rotary knob with detent, can be locked using accessories
3/8	Female thread G3/8	A8	Adapter plate for EN pressure gauge 1/8, without pressure gauge		NPN, 4-pin, analogue output	E11	Rotary knob with integrated lock
1/2	Female thread G1/2	A8M	Adapter plate for EN pressure gauge 1/8, with precision pressure gauge		4 ... 20 mA	WR	Mounting bracket with knurled nut for regulator head
AGB	Connecting plate G1/4			AD7	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact	WP	Mounting bracket
AGC	Connecting plate G3/8	A4	Adapter plate for EN pressure gauge 1/4, without pressure gauge			WPM	Mounting bracket
AGD	Connecting plate G1/2	AD1	Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin	AD8	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/C contact	WB	Mounting bracket
AGE	Connecting plate G3/4	AD2	Pressure sensor with LCD display, plug M8, 1 switching output NPN, 3-pin	AD9	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact	EX4	EU certification (II 2GD in accordance with EU Directive 94/9/EC)
D2	Pressure regulation range 0.05 ... 0.7 bar, manually operated	AD3	Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output	AD10	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/C contact	UL1	UL certification (cULus, ordinary locations for Canada and USA)
D4	Pressure regulation range 0.05 ... 2.5 bar, manually operated			LD	Long rotary knob	Z	Flow direction from right to left
D5	Pressure regulation range 0.1 ... 4 bar, manually operated			KD	Rotary knob underneath		
D7	Pressure regulation range 0.1 ... 12 bar, manually operated						
PO	Pressure regulation range 0.1 ... 12 bar, pneumatically actuated						

Technical data

Manually operated D2/D4/D5/D7



Pneumatically actuated PO



Technical data		Download CAD data → www.festo.com		
Size	MS6			
Pneumatic connection 1, 2	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	
Pneumatic connection 3	G $\frac{1}{4}$			
Pilot air connection 12 with pressure regulation range PO	G $\frac{1}{8}$			
Design	Piloted precision diaphragm regulator			
Regulating function	Via secondary venting			
Type of mounting	Via accessories In-line installation Front panel mounting			
Mounting position	Any			
Actuator lock	Rotary knob with detent Rotary knob with detent, can be locked using accessories			
Pressure regulation range/operation [bar]	D2 ¹⁾	0.05 ... 0.7, manually operated		
	D4 ¹⁾	0.05 ... 2.5, manually operated		
	D5 ¹⁾	0.1 ... 4, manually operated		
	D7 ¹⁾	0.1 ... 12, manually operated (0.1 ... 10 bar with pressure sensor AD...)		
	PO ²⁾	0.1 ... 12, pneumatically actuated (0.1 ... 10 bar with pressure sensor AD...)		
Pressure indication	A8M	Via precision pressure gauge for displaying output pressure		
	AD1/AD3	Via pressure sensor with LCD display for indicating the output pressure and with electrical output		
	AD7/AD9	Via pressure sensor with operational status indicator for displaying the output pressure and with electrical output		
Length [mm]	With cover plate VS	76		
	With adapter plate A8/A4	79		
	With adapter plate and precision pressure gauge A8M	116		
	With pressure sensor AD1/AD3	103		
	With pressure sensor AD7/AD9	79		
Width [mm]	62			
Height [mm]	With rotary knob with detent, can be locked using accessories AS ³⁾	219 + 5 ⁴⁾		
	With pressure regulation range PO	136		

- 1) Input pressure $p_1 \geq$ output pressure $p_2 + 1$ bar.
- 2) Output pressure $p_2 =$ pilot pressure $p_{12} + \max. 0.5$ bar.
- 3) The precision pressure regulator without lockable rotary knob is approx. 9 mm smaller.
- 4) Installation dimension for pulling out the rotary knob.

Standard nominal flow rate q_{nN}		G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$
Pneumatic connection 1, 2	G $\frac{1}{4}$			
q_{nN} [l/min]	With pressure regulation range D2 ⁵⁾	800	1100	1600
	With pressure regulation range D4 ⁶⁾	1100	1400	2300
	With pressure regulation range D5 ⁷⁾	1400	1700	3000
	With pressure regulation range D7/PO ⁸⁾	3000	3300	5000

- 5) Measured at $p_1 = 10$ bar and $p_2 = 0.5$ bar, $\Delta p = 0.1$ bar.
- 6) Measured at $p_1 = 10$ bar and $p_2 = 1.5$ bar, $\Delta p = 0.1$ bar.
- 7) Measured at $p_1 = 10$ bar and $p_2 = 2.5$ bar, $\Delta p = 0.1$ bar.
- 8) Measured at $p_1 = 10$ bar and $p_2 = 6.0$ bar, $\Delta p = 0.1$ bar.

Technical data

Operating conditions		
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4] Inert gases
Note on operating/pilot medium		Lubricated operation not possible
Operating pressure	[bar]	1 ... 14
Ambient temperature	[°C]	-10 ... +60 (0 ... +50) ¹⁾

1) Value in brackets applies to MS6-LRP with pressure sensor AD...

Materials	
Housing	Die-cast aluminium
Rotary knob	PA/POM
Seals	NBR

Ordering – Product options

Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
[→ www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

Enter the type code in the search field.

Order code – MS6

	MS	6	LRP						
Series									
MS	Standard service unit								
Size									
6	Grid dimension 62 mm								
Type									
LRP	Precision pressure regulator								
Pneumatic connection									
1/4	Female thread G1/4								
3/8	Female thread G3/8								
1/2	Female thread G1/2								
Pressure regulation range/operation									
D2	0.05 ... 0.7 bar, manually operated								
D4	0.05 ... 2.5 bar, manually operated								
D5	0.1 ... 4 bar, manually operated								
D7	0.1 ... 12 bar, manually operated								
PO	0.1 ... 12 bar, pneumatically actuated								
Pressure gauge alternatives									
VS	Cover plate								
A8	Adapter plate for EN pressure gauge 1/8, without pressure gauge								
A8M	Adapter plate for EN pressure gauge 1/8, with precision pressure gauge								
A4	Adapter plate for EN pressure gauge 1/4, without pressure gauge								
AD1	Pressure sensor with LCD display, plug M8, 1 switching ¹ output PNP, 3-pin								
AD3	Pressure sensor with LCD display, plug M12, 1 switching ¹ output PNP, 4-pin, analogue output 4 ... 20 mA								
AD7	Pressure sensor with operational status indicator, plug ² M8, threshold value comparator, PNP, N/O contact								
AD9	Pressure sensor with operational status indicator, plug ² M8, window comparator, PNP, N/O contact								
Actuator lock									
Pressure regulation range/operation PO									
–	None								
Pressure regulation range/operation D2/D4/D5/D7									
–	Rotary knob with detent								
AS	Rotary knob with detent, can be locked using accessories								
Flow direction									
–	From left to right								
Z	From right to left								

¹ Measuring range max. 10 bar.
Not with pressure regulation range/operation D2, D4

² Measuring range max. 10 bar.
Not with pressure regulation range/operation D2

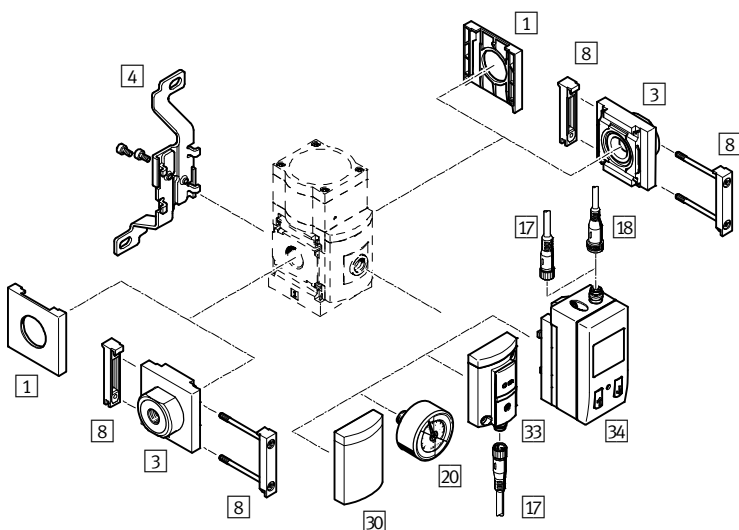
Order example:

MS6-LRP-1/2-D5-A8M-AS

Standard service unit, grid dimension 62 mm - precision pressure regulator - female thread G1/2 - pressure regulation range 0.1 ... 4 bar, manually operated - with adapter plate for EN pressure gauge 1/8, with precision pressure gauge - rotary knob with detent, can be locked using accessories - flow direction from left to right

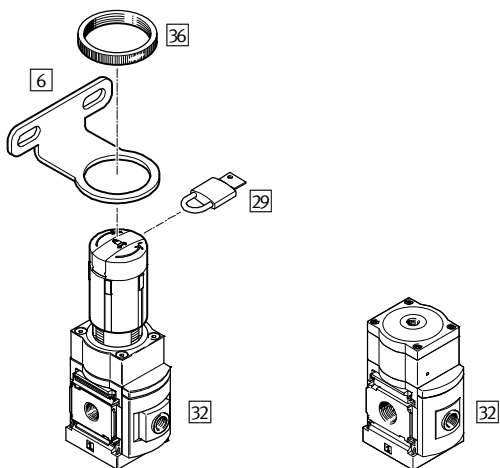
Precision pressure regulators MS-LRP, MS series

Accessories – MS6



Manually operated D2/D4/D5/D7

Pneumatically actuated PO



Accessories	→ Page/online
1 Cover cap MS6-END	971
3 Connecting plate kit MS6-AG...	971
4 Mounting bracket MS6-WB ¹⁾	971
6 Mounting bracket MS6-WR ¹⁾	971
8 Module connector MS6-MV	971
17 Connecting cable NEBU-M8...-LE3	972
18 Connecting cable NEBU-M12...-LE4	972
20 Precision pressure gauge A8M/MAP	935, 973
29 Padlock LRV5-D	974
30 Cover plate VS	935
32 Adapter plate A8/A4 for EN pressure gauge 1/8/1/4	935
33 Pressure sensor with operational status indicator AD7/AD9	935

1) Mounting component for individual device.

Accessories	→ Page/online
34 Pressure sensor with LCD display AD1/AD3	935
36 Knurled nut MS-LR (included in the scope of delivery)	–
– Mounting plate MS6-AEND	971
– Mounting bracket MS6-WP ²⁾	971
– Mounting bracket MS6-WPB ²⁾	971
– Mounting bracket MS6-WPE ²⁾	971
– Mounting bracket MS6-WPM ²⁾	971
– Module connector MS6-RMV	974
– Module connector MS4-6-AMV	974
– Module connector MS6-9-ARMV	974
– Power supply module MS4/6-E-IPM	ms*-e-ipm*
– Branching module MS4/6-A-IPM	ms*-a*ipm*

2) Mounting and connecting component for a combination of devices or individual devices with connecting plate kit MS6-AG... 3/with mounting plate MS6-AEND.



- Manually operated on-off valve for pressurising and exhausting pneumatic systems
- 4 sizes:
MS4 – grid dimension 40 mm, MS6 – grid dimension 62 mm, MS9 – grid dimension 90 mm, MS12 – grid dimension 124 mm
- Selected types in accordance with the ATEX Directive for explosive atmospheres → www.festo.com/catalogue/ex
- ★ Quick ordering of basic designs → 941

→ www.festo.com/catalogue/ms*-em

Product range overview

Size	Pneumatic connection	Product options								
		S	VS	AG	A8	A4	AD...	BAR	2	Z
4	1/8, 1/4	■	-1)	■	■	■	■	-	-	■
6	1/4, 3/8, 1/2	■	-1)	■	-	■	■	-	-	■
9	3/4, 1, G	■	■	■	-	■	-	■	■	■
12	G	■	-1)	■	-	■	-	-	-	■

1) Cover plate included in the basic configuration by default.

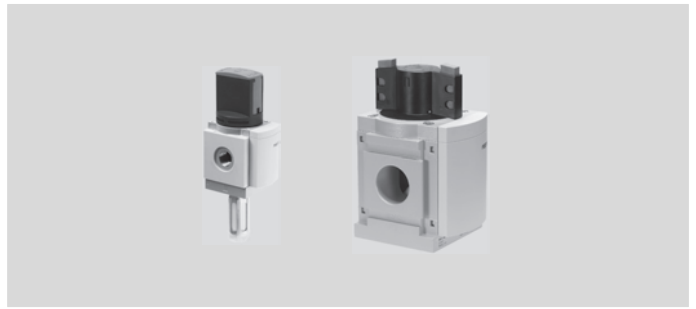
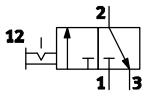
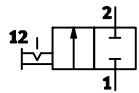
Product options

1/8	Female thread G1/8	S	Silencer	AD4	Pressure sensor with LCD display, plug M12, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA	BAR	Pressure gauge scale in bar
1/4	Female thread G1/4	VS	Cover plate	AD7	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact	PSI	Pressure gauge scale in psi
3/8	Female thread G3/8	AG	MS pressure gauge	AD8	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/C contact	MPA	Pressure gauge scale in Mpa
1/2	Female thread G1/2	A8	Adapter plate for EN pressure gauge 1/8, without pressure gauge	AD9	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact	2	2/2-way valve
3/4	Female thread G3/4	A4	Adapter plate for EN pressure gauge 1/4, without pressure gauge	AD10	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/C contact	WP	Mounting bracket
1	Female thread G1	RG	Integrated pressure gauge, red/green scale			WPM	Mounting bracket
AGA	Connecting plate G1/8	AD1	Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin			WPB	Mounting bracket for large wall gap
AGB	Connecting plate G1/4	AD2	Pressure sensor with LCD display, plug M8, 1 switching output NPN, 3-pin			WB	Mounting bracket
AGC	Connecting plate G3/8	AD3	Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA			WBM	Mounting bracket
AGD	Connecting plate G1/2					EX4	EU certification (II 2GD in accordance with EU Directive 94/9/EC)
AGE	Connecting plate G3/4					UL1	UL certification (cULus, ordinary locations for Canada and USA)
AGF	Connecting plate G1					Z	Flow direction from right to left
AGG	Connecting plate G1 1/4						
AGH	Connecting plate G1 1/2						
AGI	Connecting plate G2						
G	Module without connecting thread, without connecting plate						

On-off valves MS-EM, MS series

FESTO

Technical data

Download CAD data → www.festo.com

Technical data		Download CAD data → www.festo.com								
Size		MS4		MS6			MS9		MS12	
Pneumatic connection 1, 2		G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$	G1	... ¹⁾	
Pneumatic connection 3		G $\frac{1}{4}$		G $\frac{1}{2}$			G1		G1	
Design		Rotary slide valve					Piston spool valve			
Type of mounting		Via accessories In-line installation								
Mounting position		Any								
Actuation type		Manual								
Valve function		–					2/2-way valve, bistable		–	
		3/2-way valve, bistable								
Exhaust function		No flow control								
Type of control		Direct								
Direction of flow		Non-reversible								
Pressure indication	AG	Via pressure gauge for indicating the output pressure								
	AD1/AD3	Via pressure sensor with LCD display for indicating the output pressure and with electrical output					–			
	AD7/AD9	Via pressure sensor with operational status indicator for displaying the output pressure and with electrical output					–			
Length [mm]	With cover plate	54		76			109		148	
	With MS pressure gauge AG	65		85			109		148	
	With adapter plate A8/A4	59		79			110		148	
	With pressure sensor AD1/AD3	83		103			–		–	
	With pressure sensor AD7/AD9	59		79			–		–	
Width [mm]		40		62			104		90	
Height [mm]	Without silencer	104		151			272		255	
	With silencer	151		257			431		421	

1) Module without connecting thread/without connecting plate. The connecting plate must be ordered separately as an accessory → 971.

Standard nominal flow rate q_{nN}		MS4		MS6			MS9		MS12
Size		G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$	G1 <th>...²⁾</th>	... ²⁾
$q_{nN1 \rightarrow 2}$ [l/min]	In main flow direction ³⁾	1200	2200	3000	5500	8700	14,500	18,000	8,000 ... 18,000
$q_{nN2 \rightarrow 3}$ [l/min]	In relief direction ³⁾	1900	1700	6800	6600	6200	14,900	14,100	13,200 ... 16,500

2) Dependent on the connecting plate selected, must be ordered separately as an accessory → 971.

3) Measured at $p_1 = 6$ bar and $p_2 = 5$ bar, $\Delta p = 1$ bar.

Operating conditions		MS4		MS6			MS9		MS12
Size		MS4		MS6			MS9		MS12
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]					–		Compressed air to ISO 8573-1:2010 [–:–:–]
		Inert gases					–		
Note on operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)					–		
Operating pressure	[bar]	0 ... 14 (0 ... 10) ⁴⁾		0 ... 18 (0 ... 10) ⁴⁾			0 ... 20		0 ... 20
Ambient temperature	[°C]	–10 ... +60 (0 ... +50) ⁴⁾		–10 ... +60 (0 ... +50) ⁴⁾			–10 ... +60		–10 ... +60

4) Value in brackets applies to MS4/MS6-EM1 with pressure sensor AD...

Technical data

Materials	
Housing	Die-cast aluminium
Seals	NBR

Order code – MS4/MS6

Series		MS	EM1				
MS	Standard service unit						
Size							
4	Grid dimension 40 mm						
6	Grid dimension 62 mm						
Type							
EM1	Manually operated on-off valve						
Pneumatic connection							
MS4							
1/8	Female thread G1/8						
1/4	Female thread G1/4						
MS6							
1/4	Female thread G1/4						
3/8	Female thread G3/8						
1/2	Female thread G1/2						
Silencer							
–	Without silencer						
S	Silencer						
Pressure gauge/pressure gauge alternatives							
–	Cover plate						
AG	MS pressure gauge, bar						
A8	Adapter plate for EN pressure gauge 1/8 (MS4 only)						
A4	Adapter plate for EN pressure gauge 1/4						
AD1	Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin 1						
AD3	Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA 1						
AD7	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact 1						
AD9	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact 1						
Flow direction							
–	From left to right						
Z	From right to left						

1 Measuring range max. 10 bar

Order example:

MS6-EM1-1/2-S-AD1

Standard service unit, grid dimension 62 mm - manually operated on-off valve - female thread G1/2 - with silencer - with pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin - flow direction from left to right

On-off valves MS-EM, MS series

Order code – MS9

MS		9		EM													
Series																	
MS		Standard service unit															
Size																	
9		Grid dimension 90 mm															
Type																	
EM		Manually operated on-off valve															
Pneumatic connection																	
3/4		Female thread G3/4															
1		Female thread G1															
G		Module without connecting thread, without connecting plate Connecting plates → 971															
Silencer																	
-		Without silencer 1															
S		Silencer															
Pressure gauge/pressure gauge alternatives																	
VS		Cover plate															
AG		MS pressure gauge															
A4		Adapter plate for EN pressure gauge 1/4															
Alternative pressure gauge scale																	
-		No pressure gauge scale 2															
BAR		Bar 3															
Valve function																	
-		3/2-way valve															
2		2/2-way valve 4															
Flow direction																	
-		From left to right															
Z		From right to left															

1 Only with 2/2-way valve function

3 Only with MS pressure gauge AG

4 Not with silencer S

2 Not with MS pressure gauge AG

Order example:

MS9-EM-1-S-AG-BAR

Standard service unit, grid dimension 90 mm - manually operated on-off valve - female thread G1 - with silencer - with MS pressure gauge - pressure gauge scale in bar - 3/2-way valve - flow direction from left to right

Order code – MS12

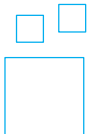
	MS	12	–	EM	–	G	–	–	–
Series									
MS	Standard service unit								
Size									
12	Grid dimension 124 mm								
Type									
EM	Manually operated on-off valve								
Pneumatic connection									
G	Module without connecting thread, without connecting plate Connecting plates → 971								
Silencer									
–	Without silencer								
S	Silencer								
Pressure gauge/pressure gauge alternatives									
–	Cover plate								
AG	MS pressure gauge, bar								
A4	Adapter plate for EN pressure gauge ¼								
Flow direction									
–	From left to right								
Z	From right to left								

Order example:

MS12-EM-G-S

Standard service unit, grid dimension 124 mm - manually operated on-off valve - module without connecting thread, without connecting plate - with silencer - with cover plate - flow direction from left to right

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
→ www.festo.com/catalogue/...

Enter the type code in the search field.

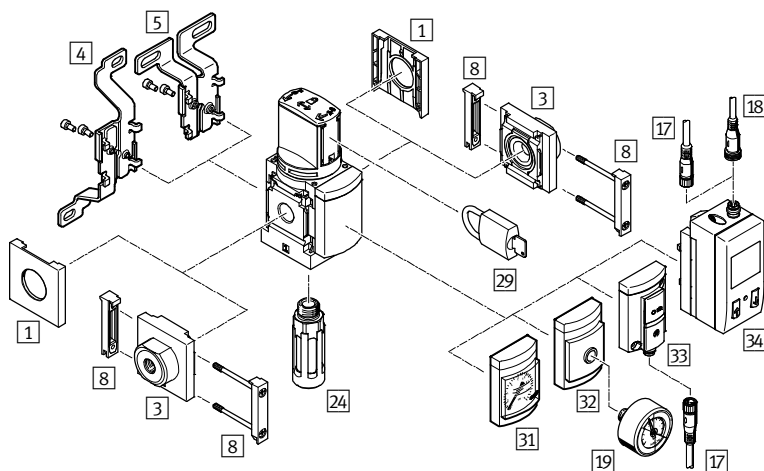
★ Quick ordering¹⁾

Part No.	Type	Part No.	Type	Part No.	Type
MS4		MS6		MS9	
541258	MS4-EM1-¼	541267	MS6-EM1-½	562952	MS9-EM-G-S-VS
541259	MS4-EM1-¼-S	541268	MS6-EM1-½-S		

1) All products in this table are easy to select and quick to order.

On-off valves MS-EM, MS series

Accessories – MS4/MS6



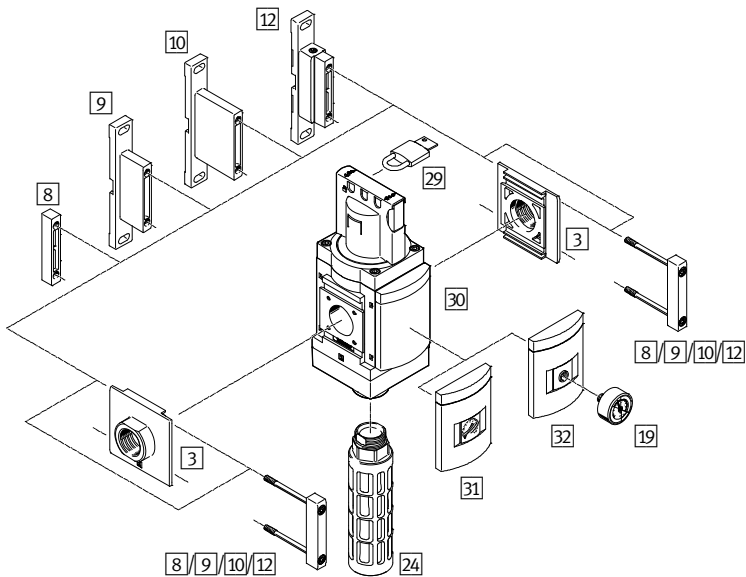
Accessories	→ Page/online
1 Cover cap MS4/6-END	971
3 Connecting plate kit MS4/6-AG...	971
4 Mounting bracket MS4/6-WB ¹⁾	971
5 Mounting bracket MS4/6-WBM ¹⁾	971
8 Module connector MS4/6-MV	971
17 Connecting cable NEBU-M8...-LE3	972
18 Connecting cable NEBU-M12...-LE4	972
19 Pressure gauge MA	973
24 Silencer U	974
29 Padlock LRVS-D	974
31 MS pressure gauge AG	939
32 Adapter plate A8/A4 for EN pressure gauge 1/8/1/4	939

1) Mounting component for individual device.

Accessories	→ Page/online
33 Pressure sensor with operational status indicator AD7/AD9	939
34 Pressure sensor with LCD display AD1/AD3	939
- Mounting plate MS4/6-AEND	971
- Mounting bracket MS4/6-WP ²⁾	971
- Mounting bracket MS4/6-WPB ²⁾	971
- Mounting bracket MS4/6-WPE ²⁾	971
- Mounting bracket MS4/6-WPM ²⁾	971
- Module connector MS4/6-RMV	974
- Module connector MS4/6-AMV	974
- Module connector MS6/9-ARMV	974
- Power supply module MS4/6-E-IPM	ms*-e-ipm*
- Branching module MS4/6-A-IPM	ms*-a*ipm*

2) Mounting and connecting component for a combination of devices or individual devices with connecting plate kit MS4/6-AG... 3/with mounting plate MS4/6-AEND.

Accessories – MS9

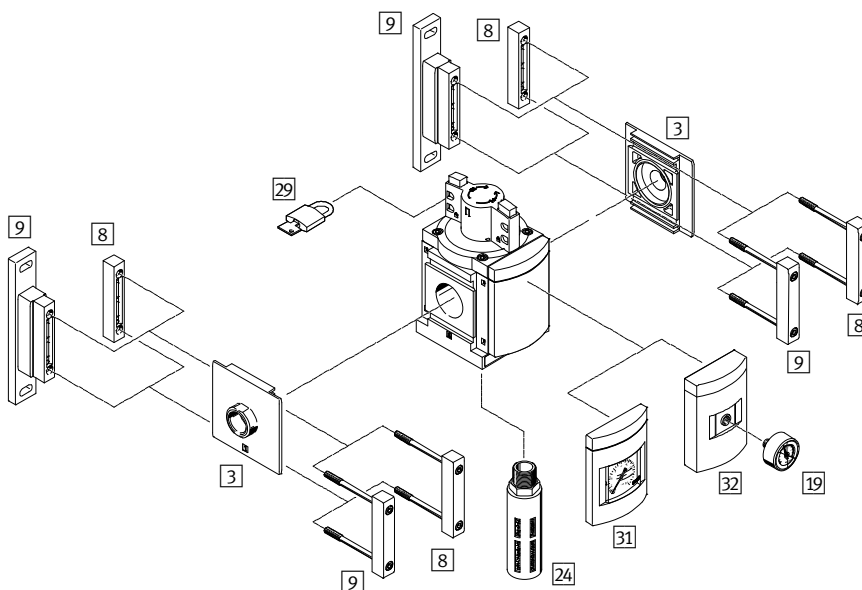


Accessories	→ Page/online
3 Connecting plate kit MS9-AG... ¹⁾	971
8 Module connector MS9-MV ¹⁾	971
9 Mounting bracket MS9-WP	971
10 Mounting bracket MS9-WPB	971
12 Mounting bracket MS9-WPM ¹⁾	971
19 Pressure gauge MA	973
24 Silencer U	974

Accessories	→ Page/online
29 Padlock LRVS-D	974
30 Cover plate VS	940
31 MS pressure gauge AG	940
32 Adapter plate A4 for EN pressure gauge 1/4	940
- Module connector MS9-RMV	974
- Module connector MS6-9-ARMV	974
- Module connector MS9-12-ARMV	974

1) Not suitable for individual devices with connecting thread G3/4 or G1.

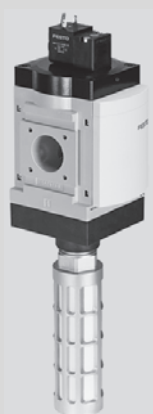
Accessories – MS12



Accessories	→ Page/online
3 Connecting plate kit MS12-AG...	971
8 Module connector MS12-MV	971
9 Mounting bracket MS12-WP	971
19 Pressure gauge MA	973
24 Silencer U	974

Accessories	→ Page/online
29 Padlock LRVS-D	974
31 MS pressure gauge AG	941
32 Adapter plate A4 for EN pressure gauge 1/4	941
- Module connector MS9-12-ARMV	974

On-off valves MS-EE, MS series



- Solenoid actuated on-off valve for pressurising and exhausting pneumatic systems
- Choice of three voltage ranges
- 4 sizes:
MS4 – grid dimension 40 mm, MS6 – grid dimension 62 mm, MS9 – grid dimension 90 mm, MS12 – grid dimension 124 mm
- Selected types in accordance with the ATEX Directive for explosive atmospheres → www.festo.com/catalogue/ex
- ★ Quick ordering of basic designs → 949

→ www.festo.com/catalogue/ms*-ee

Product range overview

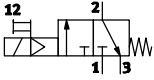
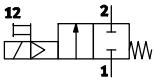
Size	Pneumatic connection	Product options											
		V24	10V24	S	VS	AG	A8	A4	AD...	BAR	2	Z	
4	1/8, 1/4	■	■	■	...1)	■	■	■	■	■	-	-	■
6	1/4, 3/8, 1/2	■	■	■	...1)	■	-	■	■	■	-	-	■
9	3/4, 1, G	■	-	■	■	■	-	■	-	-	■	■	■
12	G	■	-	■	...1)	■	-	■	-	-	-	-	■

1) Cover plate included in the basic configuration by default.

Product options

1/8	Female thread G1/8	10V24		AD1	Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin	AD10	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/C contact
1/4	Female thread G1/4	Supply voltage 24 V DC (pin allocation to EN 175301), 4 ... 10 bar		AD2	Pressure sensor with LCD display, plug M8, 1 switching output NPN, 3-pin	BAR	Pressure gauge scale in bar
3/8	Female thread G3/8			AD3	Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA	PSI	Pressure gauge scale in psi
1/2	Female thread G1/2	10V24P		AD4	Pressure sensor with LCD display, plug M12, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA	MPA	Pressure gauge scale in Mpa
3/4	Female thread G3/4	Supply voltage 24 V DC, M12 to IEC 61076-2-101, 4 ... 10 bar		AD7	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact	2	2/2-way valve
1	Female thread G1	V110		AD8	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/C contact	WP	Mounting bracket
AGA	Connecting plate G1/8	Supply voltage 110 V AC (pin allocation to EN 175301), 3 ... 18 bar		AD9	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact	WPM	Mounting bracket
AGB	Connecting plate G1/4					WPB	Mounting bracket for large wall gap
AGC	Connecting plate G3/8	V230				WB	Mounting bracket
AGD	Connecting plate G1/2	Supply voltage 230 V AC (pin allocation to EN 175301), 3 ... 18 bar				WBM	Mounting bracket
AGE	Connecting plate G3/4					EX2	EU certification (II 3GD in accordance with EU Directive 94/9/EC)
AGF	Connecting plate G1	S	Silencer			UL1	UL certification (cULus, ordinary locations for Canada and USA)
AGG	Connecting plate G1 1/4	VS	Cover plate			Z	Flow direction from right to left
AGH	Connecting plate G1 1/2	AG	MS pressure gauge				
AGI	Connecting plate G2	A8	Adapter plate for EN pressure gauge 1/8, without pressure gauge				
G	Module without connecting thread, without connecting plate	A4	Adapter plate for EN pressure gauge 1/4, without pressure gauge				
V24	Supply voltage 24 V DC (pin allocation to EN 175301), 3 ... 18 bar	RG	Integrated pressure gauge, red/green scale				
V24P	Supply voltage 24 V DC (pin allocation for plug M12 to DESINA), 3 ... 16 bar						

Technical data

Download CAD data → www.festo.com

Technical data		Download CAD data → www.festo.com								
Size		MS4		MS6			MS9		MS12	
Pneumatic connection 1, 2		G1/8	G1/4	G1/4	G3/8	G1/2	G3/4	G1	... ¹⁾	... ¹⁾
Pneumatic connection 3		G1/4		G1/2			G1		G1	
Design		Piston spool valve								
Type of mounting		Via accessories In-line installation								
Mounting position		Any								
Actuation type		Electric								
Valve function		-						2/2-way valve, closed, single solenoid		-
		3/2-way valve, closed, single solenoid								
Exhaust function		No flow control								
Manual override		Non-detenting/detenting (supply voltage V24)								
		Non-detenting (supply voltage 10V24)						-		-
Reset method		Mechanical spring								
Switching position display		Via accessories								
Type of control		Piloted								
Pilot air supply		Internal								
Direction of flow		Non-reversible								
Pressure indication	AG	Via pressure gauge for indicating the output pressure								
	AD1/AD3	Via pressure sensor with LCD display for indicating the output pressure and with electrical output						-		-
	AD7/AD9	Via pressure sensor with operational status indicator for displaying the output pressure and with electrical output						-		-
Length [mm]	With cover plate	75 (63) ²⁾		97 (83) ²⁾			109		148	
	With MS pressure gauge AG	86 (65) ²⁾		106 (85) ²⁾			109		148	
	With adapter plate A8/A4	80 (63) ²⁾		100 (83) ²⁾			110		148	
	With pressure sensor AD1/AD3	104		124			-		-	
	With pressure sensor AD7/AD9	80		100			-		-	
Width [mm]		40		62			104		90	
Height [mm]	Without silencer	143		186			239		237	
	With silencer	191		292			398		403	

- 1) Module without connecting thread/without connecting plate. The connecting plate must be ordered separately as an accessory → 971.
 2) Value in brackets with repositioned solenoid head (180°), i.e. solenoid points to the front.

Standard nominal flow rate q_{nN}

Size		MS4		MS6			MS9		MS12	
Pneumatic connection 1, 2		G1/8	G1/4	G1/4	G3/8	G1/2	G3/4	G1	... ³⁾	... ³⁾
$q_{nN1 \rightarrow 2}$ [l/min]	In main flow direction ⁴⁾	1000	2000	2600	5500	7000	14,500	18,000	8,000 ... 18,000	25,000 ... 32,000
$q_{nN2 \rightarrow 3}$ [l/min]	In relief direction ⁴⁾	1600	1600	7000	6200	5500	14,900	14,100	13,200 ... 16,500	8900

- 3) Dependent on the connecting plate selected, must be ordered separately as an accessory → 971.
 4) Measured at $p_1 = 6$ bar and $p_2 = 5$ bar, $\Delta p = 1$ bar.

On-off valves MS-EE, MS series

Technical data

Electrical data						
Size	MS4		MS6		MS9	MS12
Supply voltage	V24	10V24	V24	10V24	V24	V24
Coil characteristics	24 V DC: 1.5 W	24 V DC: 1.8 W	24 V DC: 1.5 W	24 V DC: 1.8 W	24 V DC: 4.5 W	24 V DC: 4.5 W
Electrical connection	Plug, square design to EN 175301-803, type C				Plug, square design to EN 175301-803, type A	
Degree of protection for solenoid coil	IP65					
Duty cycle [%]	100					

Operating conditions						
Size	MS4		MS6		MS9	MS12
Supply voltage	V24	10V24	V24	10V24	V24	V24
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]					Inert gases
	Inert gases				–	Inert gases
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)					
Operating pressure [bar]	4 ... 14 (4 ... 10) ¹⁾	4 ... 10	4 ... 18 (4 ... 10) ¹⁾	4 ... 10	3.5 ... 16	3 ... 16
Ambient temperature [°C]	–10 ... +60 (0 ... +50) ¹⁾	–10 ... +50 (0 ... +50) ¹⁾	–10 ... +60 (0 ... +50) ¹⁾	–10 ... +50 (0 ... +50) ¹⁾	–10 ... +60	–10 ... +50

1) Value in brackets applies to MS4/MS6-EE with pressure sensor AD...

Materials	
Housing	Die-cast aluminium
Seals	NBR

Order code – MS4/MS6

		MS	-	EE	-		-		-		-		-		-	
Series																
MS	Standard service unit															
Size																
4	Grid dimension 40 mm															
6	Grid dimension 62 mm															
Type																
EE	Solenoid actuated on-off valve															
Pneumatic connection																
MS4																
1/8	Female thread G1/8															
1/4	Female thread G1/4															
MS6																
1/4	Female thread G1/4															
3/8	Female thread G3/8															
1/2	Female thread G1/2															
Supply voltage																
V24	24 V DC (pin allocation to EN 175301), max. 18 bar															
10V24	24 V DC (pin allocation to EN 175301), max. 10 bar															
Silencer																
-	Without silencer															
S	Silencer															
Pressure gauge/pressure gauge alternatives																
-	Cover plate															
AG	MS pressure gauge, bar															
A8	Adapter plate for EN pressure gauge 1/8 (MS4 only)															
A4	Adapter plate for EN pressure gauge 1/4															
AD1	Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin 1															
AD3	Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA 1															
AD7	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact 1															
AD9	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact 1															
Flow direction																
-	From left to right															
Z	From right to left															

1 Measuring range max. 10 bar

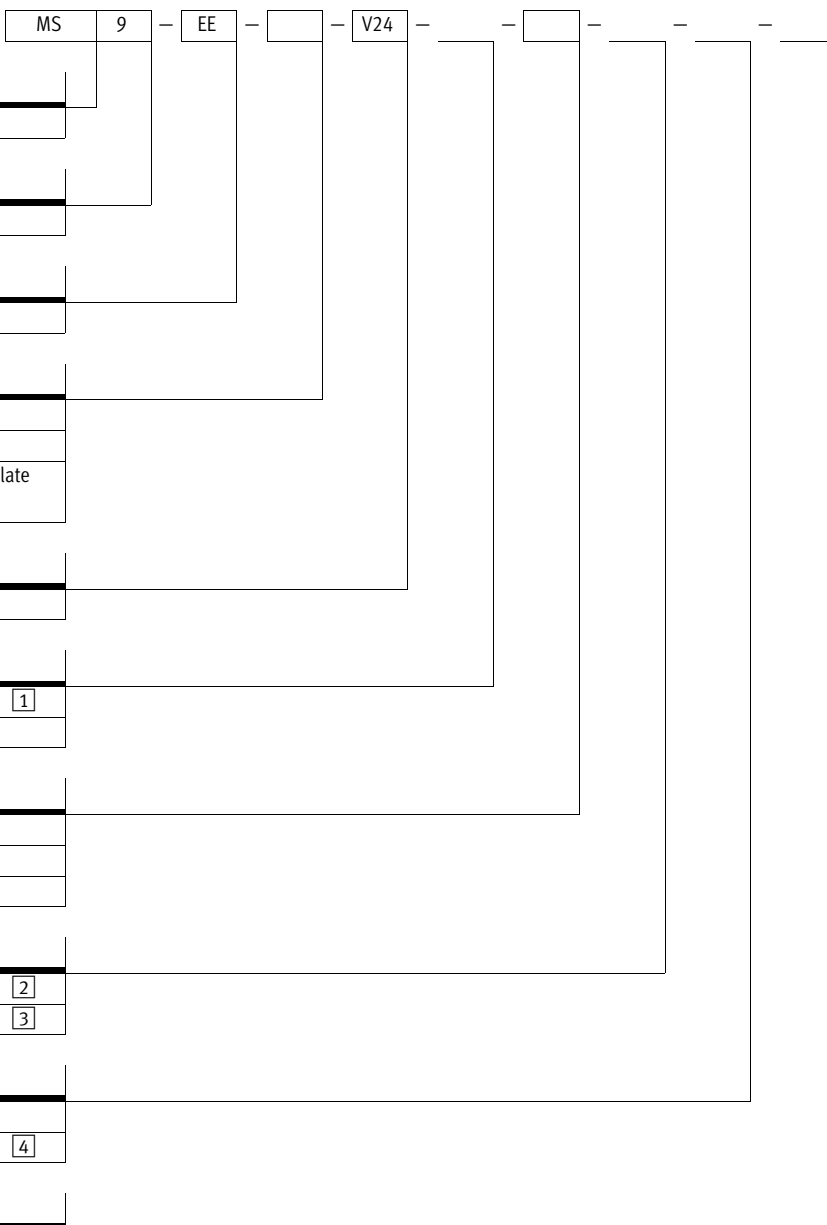
Order example:

MS4-EE-1/8-10V24-S

Standard service unit, grid dimension 40 mm - solenoid actuated on-off valve - female thread G1/8 - supply voltage 24 V DC, operating pressure 4 ... 10 bar - with silencer - with cover plate - flow direction from left to right

On-off valves MS-EE, MS series

Order code – MS9



Series	
MS	Standard service unit

Size	
9	Grid dimension 90 mm

Type	
EE	Solenoid actuated on-off valve

Pneumatic connection	
3/4	Female thread G3/4
1	Female thread G1
G	Module without connecting thread, without connecting plate Connecting plates → 971

Supply voltage	
V24	24 V DC (pin allocation to EN 175301), max. 16 bar

Silencer	
-	Without silencer 1
S	Silencer

Pressure gauge/pressure gauge alternatives	
VS	Cover plate
AG	MS pressure gauge
A4	Adapter plate for EN pressure gauge 1/4

Alternative pressure gauge scale	
-	No pressure gauge scale 2
BAR	Bar 3

Valve function	
-	3/2-way valve
2	2/2-way valve 4

Flow direction	
-	From left to right
Z	From right to left

1 Only with 2/2-way valve function

3 Only with MS pressure gauge AG

4 Not with silencer S

2 Not with MS pressure gauge AG

Order example:

MS9-EE-G-V24-S

Standard service unit, grid dimension 90 mm - solenoid actuated on-off valve - module without connecting thread, without connecting plate - supply voltage 24 V DC, operating pressure 3.5 ... 16 bar - with silencer - with cover plate - no pressure gauge scale - 3/2-way valve - flow direction from left to right

Order code – MS12

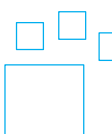
	MS	12	–	EE	–	G	–	V24	–	–	–
Series											
MS	Standard service unit										
Size											
12	Grid dimension 124 mm										
Type											
EE	Solenoid actuated on-off valve										
Pneumatic connection											
G	Module without connecting thread, without connecting plate Connecting plates → 971										
Supply voltage											
V24	24 V DC (pin allocation to EN 175301), max. 16 bar										
Silencer											
–	Without silencer										
S	Silencer										
Pressure gauge/pressure gauge alternatives											
–	Cover plate										
AG	MS pressure gauge, bar										
A4	Adapter plate for EN pressure gauge ¼										
Flow direction											
–	From left to right										
Z	From right to left										

Order example:

MS12-EE-G-V24-S

Standard service unit, grid dimension 124 mm - solenoid actuated on-off valve - module without connecting thread, without connecting plate - supply voltage 24 V DC, operating pressure 3 ... 16 bar - with silencer - with cover plate - flow direction from left to right

Ordering – Product options



Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
→ www.festo.com/catalogue/...

Enter the type code in the search field.

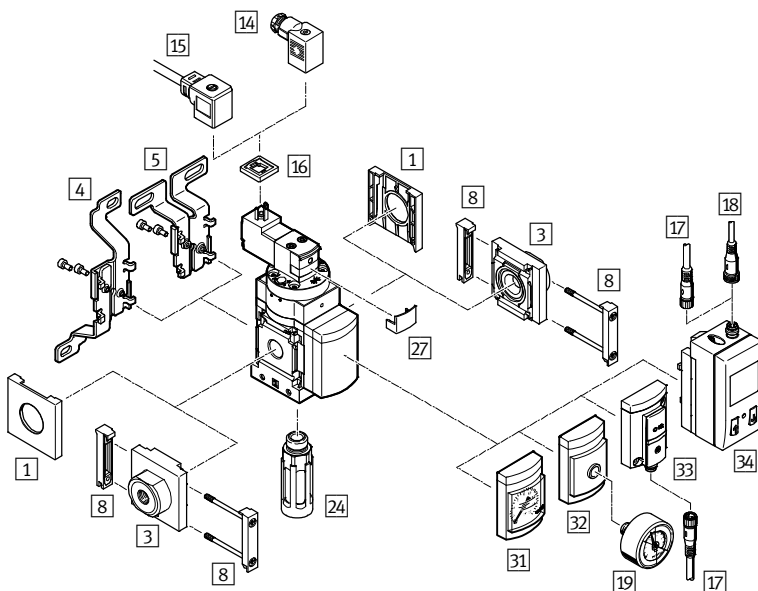
★ Quick ordering¹⁾

Part No.	Type	Part No.	Type	Part No.	Type
MS4		MS6		MS9	
542578	MS4-EE-¼-10V24	542582	MS6-EE-½-10V24	562940	MS9-EE-G-V24-S-VS
542598	MS4-EE-¼-10V24-S	542602	MS6-EE-½-10V24-S		

1) All products in this table are easy to select and quick to order.

On-off valves MS-EE, MS series

Accessories – MS4/MS6



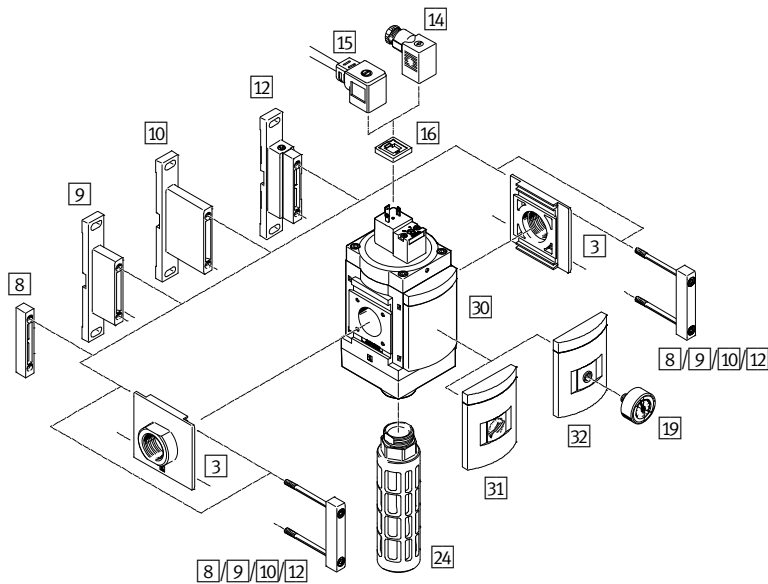
Accessories	→ Page/online
1 Cover cap MS4/6-END	971
3 Connecting plate kit MS4/6-AG...	971
4 Mounting bracket MS4/6-WB ¹⁾	971
5 Mounting bracket MS4/6-WBM ¹⁾	971
8 Module connector MS4/6-MV	971
14 Plug socket MSSD-EB	972
15 Plug socket with cable KMEB	972
16 Illuminating seal MEB-LD	972
17 Connecting cable NEBU-M8...-LE3	972
18 Connecting cable NEBU-M12...-LE4	972
19 Pressure gauge MA	973
24 Silencer U	974
27 Locking clip CPV18-HV	974
31 MS pressure gauge AG	947

1) Mounting component for individual device.

Accessories	→ Page/online
32 Adapter plate A8/A4 for EN pressure gauge 1/8/1/4	947
33 Pressure sensor with operational status indicator AD7/AD9	947
34 Pressure sensor with LCD display AD1/AD3	947
- Mounting plate MS4/6-AEND	971
- Mounting bracket MS4/6-WP ²⁾	971
- Mounting bracket MS4/6-WPB ²⁾	971
- Mounting bracket MS4/6-WPE ²⁾	971
- Mounting bracket MS4/6-WPM ²⁾	971
- Module connector MS4/6-RMV	974
- Module connector MS4/6-AMV	974
- Module connector MS6-9-ARMV	974
- Power supply module MS4/6-E-IPM	ms*-e-ipm*
- Branching module MS4/6-A-IPM	ms*-a*ipm*

2) Mounting and connecting component for a combination of devices or individual devices with connecting plate kit MS4/6-AG... 3/with mounting plate MS4/6-AEND.

Accessories – MS9

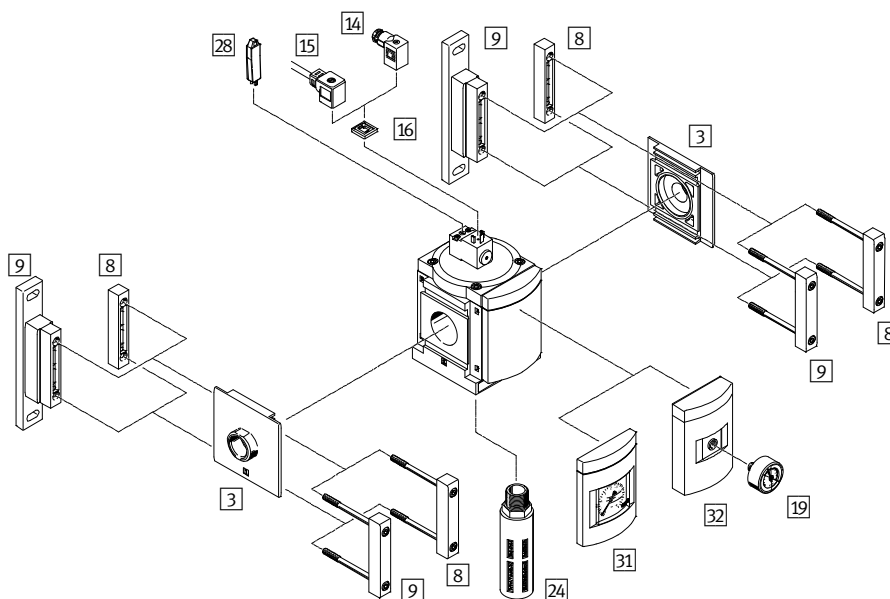


Accessories	→ Page/online
3 Connecting plate kit MS9-AG... ¹⁾	971
8 Module connector MS9-MV ¹⁾	971
9 Mounting bracket MS9-WP	971
10 Mounting bracket MS9-WPB	971
12 Mounting bracket MS9-WPM ¹⁾	971
14 Plug socket MSSD-C	972
15 Plug socket with cable KMC	972
16 Illuminating seal MC-LD	972

Accessories	→ Page/online
19 Pressure gauge MA	973
24 Silencer U	974
30 Cover plate VS	948
31 MS pressure gauge AG	948
32 Adapter plate A4 for EN pressure gauge 1/4	948
- Module connector MS9-RMV	974
- Module connector MS6-9-ARMV	974
- Module connector MS9-12-ARMV	974

1) Not suitable for individual devices with connecting thread G3/4 or G1.

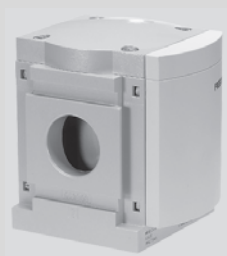
Accessories – MS12



Accessories	→ Page/online
3 Connecting plate kit MS12-AG...	971
8 Module connector MS12-MV	971
9 Mounting bracket MS12-WP	971
14 Plug socket MSSD-C	972
15 Plug socket with cable KMC	972
16 Illuminating seal MC-LD	972

Accessories	→ Page/online
19 Pressure gauge MA	973
24 Silencer U	974
28 Manual override AHB-MD/MF/MV	974
31 MS pressure gauge AG	949
32 Adapter plate A4 for EN pressure gauge 1/4	949
- Module connector MS9-12-ARMV	974

Soft-start valves MS-DL, MS series



- Pneumatically actuated soft-start valve for slowly pressurising and exhausting pneumatic systems
- Adjustable switching time delay
- 3 sizes:
MS4 – grid dimension 40 mm, MS6 – grid dimension 62 mm, MS12 – grid dimension 124 mm
- Selected types in accordance with the ATEX Directive for explosive atmospheres → www.festo.com/catalogue/ex
- ★ Quick ordering of basic designs → 955

→ www.festo.com/catalogue/ms*-dl

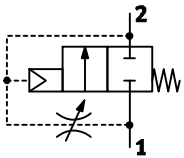
Product range overview

Size	Pneumatic connection	Product options				
		AG	A8	A4	AD...	Z
4	1/8, 1/4	■	■	■	■	■
6	1/4, 3/8, 1/2	■	-	■	■	■
12	G	■	-	■	-	■

Product options

1/8	Female thread G1/8	A8	Adapter plate for EN pressure gauge 1/8, without pressure gauge	AD4	Pressure sensor with LCD display, plug M12, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA	PSI	Pressure gauge scale in psi
1/4	Female thread G1/4	A4	Adapter plate for EN pressure gauge 1/4, without pressure gauge	AD7	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact	MPA	Pressure gauge scale in Mpa
3/8	Female thread G3/8	RG	Integrated pressure gauge, red/green scale	AD8	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/C contact	WP	Mounting bracket
1/2	Female thread G1/2	AD1	Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin	AD9	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact	WPM	Mounting bracket
AGA	Connecting plate G1/8	AD2	Pressure sensor with LCD display, plug M8, 1 switching output NPN, 3-pin	AD10	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/C contact	WB	Mounting bracket
AGB	Connecting plate G1/4	AD3	Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA			WBM	Mounting bracket
AGC	Connecting plate G3/8					EX4	EU certification (II 2GD in accordance with EU Directive 94/9/EC)
AGD	Connecting plate G1/2					UL1	UL certification (cULus, ordinary locations for Canada and USA)
AGE	Connecting plate G3/4					Z	Flow direction from right to left
AGF	Connecting plate G1						
AGG	Connecting plate G1 1/4						
AGH	Connecting plate G1 1/2						
AGI	Connecting plate G2						
G	Module without connecting thread, without connecting plate						
AG	MS pressure gauge						

Technical data

Download CAD data → www.festo.com

Technical data		MS4					MS6		MS12	
Size		MS4		MS6			MS12			
Pneumatic connection 1, 2		G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	- ¹⁾			
Design		Piston seat								
Type of mounting		Via accessories In-line installation								
Mounting position		Any								
Actuation type		Pneumatic								
Valve function		2/2-way valve								
Exhaust function		With flow control								
Reset method		Mechanical spring								
Type of control		Direct								
Pilot air supply		External						Internal		
Direction of flow		Non-reversible								
Pressure indication	AG	Via pressure gauge for indicating the output pressure								
	AD1/AD3	Via pressure sensor with LCD display for indicating the output pressure and with electrical output						-		
	AD7/AD9	Via pressure sensor with operational status indicator for displaying the output pressure and with electrical output						-		
Length [mm]	With cover plate	54			76			148		
	With MS pressure gauge AG	65			85			148		
	With adapter plate A8/A4	59			79			148		
	With pressure sensor AD1/AD3	83			103			-		
	With pressure sensor AD7/AD9	59			79			-		
Width [mm]		40			62			124		
Height [mm]		83			108			178		

1) Module without connecting thread/without connecting plate. The connecting plate must be ordered separately as an accessory → 971.

Standard nominal flow rate q_{nN}

Size		MS4		MS6			MS12	
Pneumatic connection 1, 2		G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$		
$q_{nN1 \rightarrow 2}$ [l/min]	In main flow direction ²⁾	1000	2000	2800	5050	6450	25,000 ... 42,000	
$q_{nN2 \rightarrow 1}$ [l/min]	In relief direction ²⁾	1000	2000	2800	5050	6400	25,000 ... 42,000	

2) Measured at $p_1 = 6$ bar and $p_2 = 5$ bar, $\Delta p = 1$ bar.

Operating conditions

Size		MS4		MS6			MS12		
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]						Compressed air to ISO 8573-1:2010 [7:-:-]	
		Inert gases						-	
Note on operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)						-	
Operating pressure	[bar]	4 ... 14 (4 ... 10) ³⁾			4 ... 18 (4 ... 10) ³⁾			2 ... 20	
Ambient temperature	[°C]	-10 ... +60 (0 ... +50) ³⁾			-10 ... +60 (0 ... +50) ³⁾			-10 ... +60	

3) Value in brackets applies to MS4/MS6-DL with pressure sensor AD...

Materials

Housing	Die-cast aluminium
Seals	NBR

Soft-start valves MS-DL, MS series

Order code – MS4/MS6

		MS	–	DL	–	–	–	–
Series								
MS	Standard service unit							
Size								
4	Grid dimension 40 mm							
6	Grid dimension 62 mm							
Type								
DL	Pneumatically actuated soft-start valve							
Pneumatic connection								
MS4								
1/8	Female thread G1/8							
1/4	Female thread G1/4							
MS6								
1/4	Female thread G1/4							
3/8	Female thread G3/8							
1/2	Female thread G1/2							
Pressure gauge/pressure gauge alternatives								
–	Cover plate							
AG	MS pressure gauge, bar							
A8	Adapter plate for EN pressure gauge 1/8 (MS4 only)							
A4	Adapter plate for EN pressure gauge 1/4							
AD1	Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin 1							
AD3	Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA 1							
AD7	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact 1							
AD9	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact 1							
Flow direction								
–	From left to right							
Z	From right to left							

1 Measuring range max. 10 bar

Order example:

MS6-DL-3/8-A4

Standard service unit, grid dimension 62 mm - pneumatically actuated soft-start valve - female thread G3/8 - with adapter plate for EN pressure gauge 1/4 - flow direction from left to right

Order code – MS12

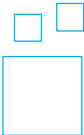
	MS	12	–	DL	–	G	–	–
Series	MS		Standard service unit					
Size	12		Grid dimension 124 mm					
Type	DL		Pneumatically actuated soft-start valve					
Pneumatic connection	G		Module without connecting thread, without connecting plate Connecting plates → 971					
Pressure gauge/pressure gauge alternatives	–		Cover plate					
	AG		MS pressure gauge, bar					
	A4		Adapter plate for EN pressure gauge 1/4					
Flow direction	–		From left to right					
	Z		From right to left					

Order example:

MS12-DL-G

Standard service unit, grid dimension 124 mm - pneumatically actuated soft-start valve - module without connecting thread, without connecting plate - with cover plate - flow direction from left to right

Ordering – Product options

	Configurable product	This product and all its options can be ordered using the configurator.	The configurator can be found under Products on the DVD or → www.festo.com/catalogue/...	Enter the type code in the search field.
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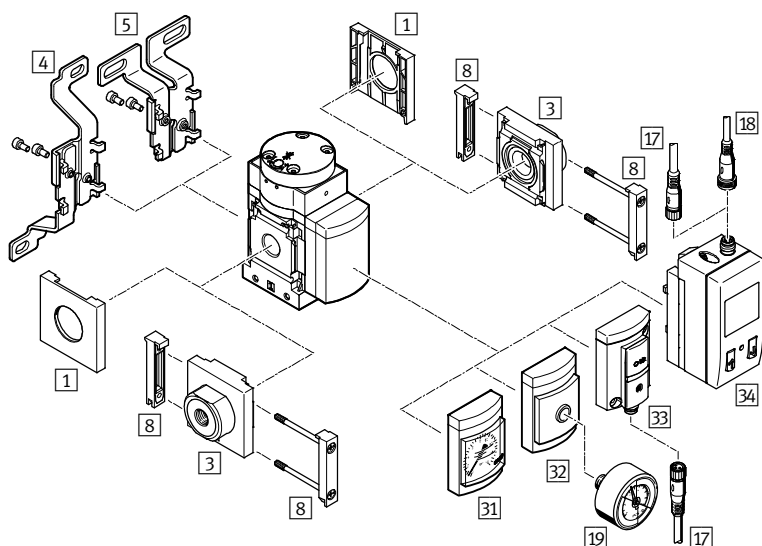
★ Quick ordering¹⁾

Part No.	Type	Part No.	Type
MS4		MS6	
529531	MS4-DL-1/4	529817	MS6-DL-1/2

1) All products in this table are easy to select and quick to order.

Soft-start valves MS-DL, MS series

Accessories – MS4/MS6



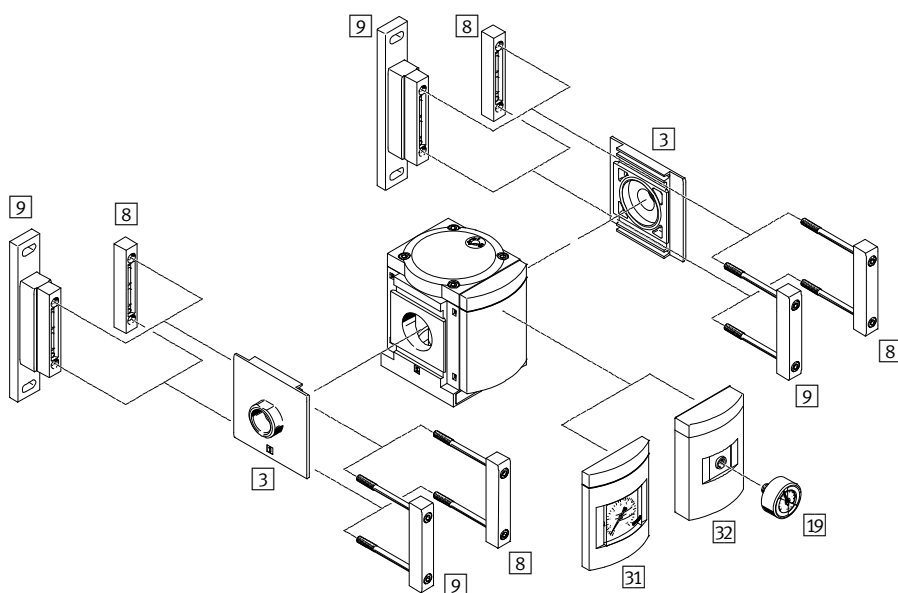
Accessories	→ Page/online
1 Cover cap MS4/6-END	971
3 Connecting plate kit MS4/6-AG...	971
4 Mounting bracket MS4/6-WB ¹⁾	971
5 Mounting bracket MS4-WBM ¹⁾	971
8 Module connector MS4/6-MV	971
17 Connecting cable NEBU-M8...-LE3	972
18 Connecting cable NEBU-M12...-LE4	972
19 Pressure gauge MA	973
31 MS pressure gauge AG	954
32 Adapter plate A8/A4 for EN pressure gauge 1/6/1/4	954
33 Pressure sensor with operational status indicator AD7/AD9	954

Accessories	→ Page/online
34 Pressure sensor with LCD display AD1/AD3	954
- Mounting plate MS4/6-AEND	971
- Mounting bracket MS4/6-WP ²⁾	971
- Mounting bracket MS4/6-WPB ²⁾	971
- Mounting bracket MS4/6-WPE ²⁾	971
- Mounting bracket MS4/6-WPM ²⁾	971
- Module connector MS4/6-RMV	974
- Module connector MS4/6-AMV	974
- Module connector MS6-9-ARMV	974
- Power supply module MS4/6-E-IPM	ms*-e-ipm*
- Branching module MS4/6-A-IPM	ms*-a*ipm*

1) Mounting component for individual device.

2) Mounting and connecting component for a combination of devices or individual devices with connecting plate kit MS4/6-AG... 3/with mounting plate MS4/6-AEND.

Accessories – MS12



Accessories	→ Page/online
3 Connecting plate kit MS12-AG...	971
8 Module connector MS12-MV	971
9 Mounting bracket MS12-WP	971
19 Pressure gauge MA	973

Accessories	→ Page/online
31 MS pressure gauge AG	955
32 Adapter plate A4 for EN pressure gauge 1/4	955
- Module connector MS9-12-ARMV	ms*-armv

Soft-start/quick exhaust valves MS-SV-C, MS series

FESTO



- Performance Level c, category 1 to EN ISO 13849-1
- For reducing pressure quickly and reliably and for building up pressure gradually
- The filling flow rate can be set via a flow control valve for gradual pressure build-up
- Adjustable pressure switchover point
- 2 sizes:
MS6 – grid dimension 62 mm, MS9 – grid dimension 90 mm
- ★ Quick ordering of basic designs → 961

→ www.festo.com/catalogue/ms*-sv

Product range overview

Size	Pneumatic connection	Product options											
		C	V24	10V24	S	VS	AG	A4	AD...	BAR	MH	MK	Z
6	1/2	■	■	■	■	- ¹⁾	■	■	■	-	-	■	■
9	3/4, 1, G	■	■	-	■	■	■	■	■	■	■	■	■

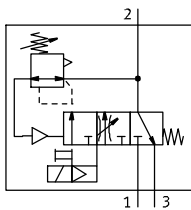
1) Cover plate included in the basic configuration by default.

Product options

1/2	Female thread G1/2	10V24P		AD3	Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA	MPA	Pressure gauge scale in Mpa
3/4	Female thread G3/4		Supply voltage 24 V DC, M12 to IEC 61076-2-101, 3 ... 10 bar			WP	Mounting bracket
1	Female thread G1					WPM	Mounting bracket
AGB	Connecting plate G1/4	V110	Supply voltage 110 V AC (pin allocation to EN 175301), 3 ... 18 bar	AD4	Pressure sensor with LCD display, plug M12, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA	WPB	Mounting bracket for large wall gap
AGC	Connecting plate G3/8					WB	Mounting bracket
AGD	Connecting plate G1/2					MH	Tamper protection, cover for manual override only
AGE	Connecting plate G3/4	V230	Supply voltage 230 V AC (pin allocation to EN 175301), 3 ... 18 bar	AD7	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact	MK	Tamper protection, full cover for manual override and adjusting screws
AGF	Connecting plate G1					UL1	UL certification (cULus, ordinary locations for Canada and USA)
AGG	Connecting plate G1 1/4	S	Silencer	AD8	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/C contact	Z	Flow direction from right to left
AGH	Connecting plate G1 1/2	VS	Cover plate	AD9	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact		
G	Module without connecting thread, without connecting plate	AG	MS pressure gauge	AD10	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/C contact		
C	Performance Level "c"	A4	Adapter plate for EN pressure gauge 1/4, without pressure gauge	BAR	Pressure gauge scale in bar		
V24	Supply voltage 24 V DC (pin allocation to EN 175301), 3 ... 18 bar	RG	Integrated pressure gauge, red/green scale	PSI	Pressure gauge scale in psi		
V24P	Supply voltage 24 V DC with M12 plug socket adapter (pin allocation to EN 60947-5-2), 3 ... 18 bar	AD1	Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin				
10V24	Supply voltage 24 V DC (pin allocation to EN 175301), 3 ... 10 bar	AD2	Pressure sensor with LCD display, plug M8, 1 switching output NPN, 3-pin				

Soft-start/quick exhaust valves MS-SV-C, MS series

Technical data



Electro-pneumatic soft-start/quick exhaust valve for gradual pressurisation and quick exhausting of system compon-

ents (single channel). The main flow control valve in the end cap permits a gradual build-up of output

pressure p2. Once the output pressure p2 has reached the set pressure switchover point (switching pressure), the

valve opens and the full operating pressure p1 is present at the output.

Safety data		MS6	MS9
Size		MS6	MS9
Conforms to standard		EN ISO 13849-1	
Safety function		Exhausting	
Performance Level (PL)		Exhausting: up to category 1, PL c	
Shock resistance		Shock test with severity level 2 according to FN 942017-5 and EN 60068-2-27	Shock test with severity level 1 according to FN 942017-5 and EN 60068-2-27
Vibration resistance		Transport application test with severity level 2 according to FN 942017-4 and EN 60068-2-6	Transport application test with severity level 1 according to FN 942017-4 and EN 60068-2-6

Technical data		MS6	MS9	Download CAD data → www.festo.com	
Size		MS6	MS9		
Pneumatic connection 1, 2		G½	G¾	G1	– ¹⁾
Pneumatic connection 3		G¾	G1		
Design		Piston spool valve			
Type of mounting		Via accessories In-line installation			
Mounting position		Any			
Valve function		3/2-way valve, closed, single solenoid Soft-start function, adjustable			
Exhaust function		No flow control			
Manual override	At the pilot solenoid valve	Non-detenting/detenting (supply voltage V24)		Non-detenting (supply voltage V24)	
	At the soft-start/quick exhaust valve	Non-detenting (supply voltage 10V24)		–	
		Detenting, self-resetting			
Reset method		Mechanical spring			
Type of control		Piloted			
Pressure indication	AG	Via pressure gauge for indicating the output pressure			
	AD1/AD3	Via pressure sensor with LCD display for indicating the output pressure and with electrical output		–	
	AD7/AD9	Via pressure sensor with operational status indicator for displaying the output pressure and with electrical output			
Length [mm]	With cover plate VS	76	109		
	With MS pressure gauge AG	77	109		
	With adapter plate A4	78.5	110		
	With pressure sensor AD1/AD3	102	–		
	With pressure sensor AD7/AD9	79	112		
Width [mm]		62	104	90	
Height [mm]	Without silencer	181	271		
	With silencer	311	437		

1) Module without connecting thread/without connecting plate. The connecting plate must be ordered separately as an accessory → 971.

Technical data

Flow rate characteristics				
Size	MS6		MS9	
Pneumatic connection 1, 2	G½		G¾	G1 ⁻¹⁾
Standard nominal flow rate $q_{nN}^{2)}$ in main flow direction 1}2	[l/min]	5700	14,150	16,460 8,300 ... 16,550
Standard flow rate exhaust 6→0 bar with silencer S	[l/min]	7600	21,450	20,870 19,730 ... 21,720

1) Dependent on the connecting plate selected, must be ordered separately as an accessory → 971.

2) Measured at $p_1 = 6$ bar and $p_2 = 5$ bar, $\Delta p = 1$ bar.

Electrical data			
Size	MS6		MS9
Supply voltage	V24	10V24	V24
Coil characteristics	24 V DC: 1.5 W	24 V DC: 1.8 W	24 V DC: 8.4 W
Electrical connection	Plug, 2-pin, to EN 175301-803, type C		Plug, square design to EN 175301-803, type A
Degree of protection	IP65 with plug socket		
Duty cycle	[%]	100	

Operating conditions			
Size	MS6		MS9
Supply voltage	V24	10V24	V24
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]		
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)		
Operating pressure	[bar]	3 ... 18 (3 ... 10) ³⁾	3 ... 10 3.5 ... 16 (3.5 ... 10) ³⁾
Ambient temperature	[°C]	0 ... +60 (0 ... +50) ³⁾	
Noise level	[dB (A)]	–	93

3) Value in brackets applies to MS6/MS9-SV-C with pressure sensor AD...

Materials			
Size	MS6		MS9
Housing	Die-cast aluminium		
Piston spool	High-alloy stainless steel		Brass
Seals	NBR		

Soft-start/quick exhaust valves MS-SV-C, MS series

FESTO

Order code – MS6

		MS	6	–	SV	–	½	–	C	–		–		–		–	
Series																	
MS	Standard service unit																
Size																	
6	Grid dimension 62 mm																
Type																	
SV	Soft-start/quick exhaust valve																
Pneumatic connection																	
½	Female thread G½																
Performance Level																	
C	Category 1, 1-channel, to EN ISO 13849-1																
Supply voltage																	
V24	24 V DC (pin allocation to EN 175301), 3 ... 18 bar																
10V24	24 V DC (pin allocation to EN 175301), 3 ... 10 bar																
Silencer																	
–	None																
S	Silencer																
Pressure gauge/pressure gauge alternatives																	
–	Cover plate																
AG	MS pressure gauge, bar																
A4	Adapter plate for EN pressure gauge ¼																
AD1	Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin 1																
AD3	Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA 1																
AD7	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact 1																
AD9	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact 1																
Tamper protection																	
–	No tamper protection																
MK	Full cover																
Flow direction																	
–	From left to right																
Z	From right to left																


1 Measuring range max. 10 bar

Order example:

MS6-SV-½-C-10V24-S-AG-MK

Standard service unit, grid dimension 62 mm - soft-start/quick exhaust valve - female thread G½ - Performance Level "c"/category 1, 1-channel, to EN ISO 13849-1 - supply voltage 24 V DC, operating pressure 3 ... 10 bar - with silencer - with MS pressure gauge, bar - with tamper protection, full cover - flow direction from left to right

Ordering – Product options

	Configurable product	This product and all its options can be ordered using the configurator.	The configurator can be found under Products on the DVD or → www.festo.com/catalogue/...	Enter the type code in the search field.
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Order code – MS9

	MS	9	-	SV	-		-	C	-	V24	-	S	-		-		-		-	
Series																				
MS	Standard service unit																			
Size																				
9	Grid dimension 90 mm																			
Type																				
SV	Soft-start/quick exhaust valve																			
Pneumatic connection																				
¾	Female thread G¾																			
1	Female thread G1																			
G	Module without connecting thread, without connecting plate Connecting plates → 971																			
Performance Level																				
C	Category 1, 1-channel, to EN ISO 13849-1																			
Supply voltage																				
V24	24 V DC (pin allocation to EN 175301), 16 bar																			
Silencer																				
S	Silencer																			
Pressure gauge/pressure gauge alternatives																				
VS	Cover plate																			
AG	MS pressure gauge																			
A4	Adapter plate for EN pressure gauge ¼																			
AD7	Pressure sensor with operational status indicator, plug ¹ M8, threshold value comparator, PNP, N/O contact																			
AD9	Pressure sensor with operational status indicator, plug ¹ M8, window comparator, PNP, N/O contact																			
Alternative pressure gauge scale																				
-	No pressure gauge scale ²																			
BAR	Bar ³																			
Tamper protection																				
-	No tamper protection																			
MH	Cover for manual override only																			
MK	Full cover																			
Flow direction																				
-	From left to right																			
Z	From right to left																			

¹ Measuring range max. 10 bar² Not with MS pressure gauge AG³ Only with MS pressure gauge AG**Order example:**

MS9-SV-G-C-V24-S-VS-MK

Standard service unit, grid dimension 90 mm - soft-start/quick exhaust valve - module without connecting thread, without connecting plate - Performance Level "c"/category 1, 1-channel, to EN ISO 13849-1 - supply voltage 24 V DC, operating pressure 3.5 ... 16 bar - with silencer - with cover plate - with tamper protection, full cover - flow direction from left to right

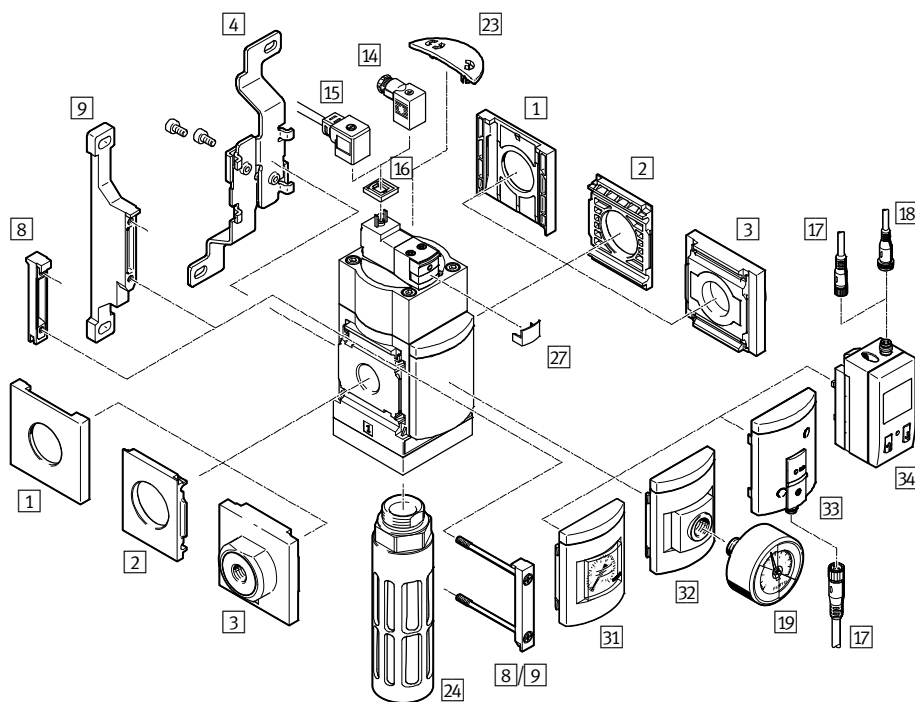
★ Quick ordering¹⁾

Part No.	Type	Part No.	Type
MS6		MS9	
8001469	MS6-SV-½-C-10V24-S	570737	MS9-SV-G-C-V24-S-VS

1) All products in this table are easy to select and quick to order.

Soft-start/quick exhaust valves MS-SV-C, MS series

Accessories – MS6



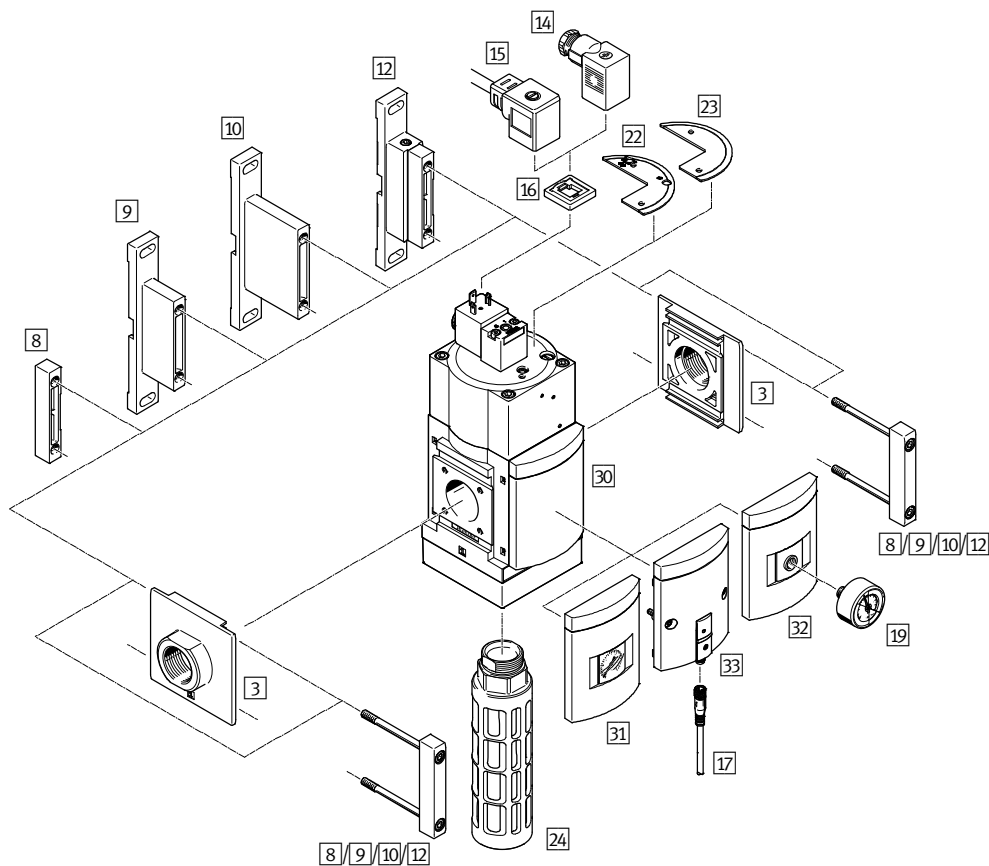
Accessories	→ Page/online
1 Cover cap MS6-END	971
2 Mounting plate MS6-AEND	971
3 Connecting plate kit MS6-AG...	971
4 Mounting bracket MS6-WB ¹⁾	971
8 Module connector MS6-MV	971
9 Mounting bracket MS6-WP ²⁾	971
14 Plug socket MSSD-EB	972
15 Plug socket with cable KMEB	972
16 Illuminating seal MEB-LD	972
17 Connecting cable NEBU-M8...-LE3	972
18 Connecting cable NEBU-M12...-LE4	972
19 Pressure gauge MA	973
23 Cover MS6-SV-C-MK	973
24 Silencer U	974

Accessories	→ Page/online
27 Locking clip CPV18-HV	974
31 MS pressure gauge AG	960
32 Adapter plate A4 for EN pressure gauge 1/4	960
33 Pressure sensor with operational status indicator AD7/AD9	960
34 Pressure sensor with LCD display AD1/AD3	960
- Mounting bracket MS6-WPB ²⁾	971
- Mounting bracket MS6-WPE ²⁾	971
- Mounting bracket MS6-WPM ²⁾	971
- Module connector MS6-RMV	974
- Module connector MS4-6-AMV	974
- Module connector MS6-9-ARMV	974
- Power supply module MS6-E-IPM	ms*-e-ipm*
- Branching module MS6-A-IPM	ms*-a-ipm*

1) Mounting component for individual device.

2) Mounting and connecting component for a combination of devices or individual devices with connecting plate kit MS6-AG... [3] with mounting plate MS6-AEND [2].

Accessories – MS9



Accessories	→ Page/online
3 Connecting plate kit MS9-AG... ¹⁾	971
8 Module connector MS9-MV ¹⁾	971
9 Mounting bracket MS9-WP	971
10 Mounting bracket MS9-WPB	971
12 Mounting bracket MS9-WPM ¹⁾	971
14 Plug socket MSSD-C	972
15 Plug socket with cable KMC	972
16 Illuminating seal MC-LD	972
17 Connecting cable NEBU-M8...-LE3	972
19 Pressure gauge MA	973

1) Not suitable for individual devices with connecting thread G $\frac{3}{4}$ or G1.

Accessories	→ Page/online
22 Cover MS9-SV-MH	973
23 Cover MS9-SV-MK	973
24 Silencer U	974
30 Cover plate VS	961
31 MS pressure gauge AG	961
32 Adapter plate A4 for EN pressure gauge $\frac{1}{4}$	961
33 Pressure sensor with operational status indicator AD7/AD9	961
– Module connector MS9-RMV	974
– Module connector MS6-9-ARMV	974
– Module connector MS9-12-ARMV	974

Branching modules MS-FRM, MS series



- Pneumatic manifold with 4 connections
- Can be used as an intermediate distributor for varying air qualities
- 4 sizes:
MS4 – grid dimension 40 mm, MS6 – grid dimension 62 mm, MS9 – grid dimension 90 mm, MS12 – grid dimension 124 mm
- Selected types in accordance with the ATEX Directive for explosive atmospheres → www.festo.com/catalogue/ex

→ www.festo.com/catalogue/ms*-frm

Product range overview

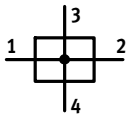
Size	Pneumatic connection	Product options									
		VS	AG	A8	A4	AD...	BAR	X	Y	M12	Z
4	1/8, 1/4	-1)	■	■	■	■	-	■	■	■	■
6	1/4, 3/8, 1/2	-1)	■	-	■	■	-	■	■	■	■
9	3/4, 1, G	■	■	-	■	■	■	■	■	■	■
12	G	-1)	-	-	-	-	-	-	-	-	-

1) Cover plate included in the basic configuration by default.

Product options

1/8	Female thread G1/8	VS	Cover plate	AD4	Pressure sensor with LCD display, plug M12, 1 switching output NPN, 4-pin, analogue output 4 ... 20 mA	X	Pressure switch with display, plug socket, EN 175301, type A, cube
1/4	Female thread G1/4	AG	MS pressure gauge	AD7	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact	Y	Pressure switch without display, plug socket, EN 175301, type A, cube
3/8	Female thread G3/8	A8	Adapter plate for EN pressure gauge 1/8, without pressure gauge	AD8	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/C contact	M12	Pressure switch without display, plug socket, round, M12, 4-pin
1/2	Female thread G1/2	A4	Adapter plate for EN pressure gauge 1/4, without pressure gauge	AD9	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact	WP	Mounting bracket
3/4	Female thread G3/4	RG	Integrated pressure gauge, red/green scale	AD10	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/C contact	WPM	Mounting bracket
1	Female thread G1	AD1	Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin	BAR	Pressure gauge scale in bar	WPB	Mounting bracket for large wall gap
AGA	Connecting plate G1/8	AD2	Pressure sensor with LCD display, plug M8, 1 switching output NPN, 3-pin	PSI	Pressure gauge scale in psi	WB	Mounting bracket
AGB	Connecting plate G1/4	AD3	Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA	MPA	Pressure gauge scale in Mpa	WBM	Mounting bracket
AGC	Connecting plate G3/8			EX4			EU certification (II 2GD in accordance with EU Directive 94/9/EC)
AGD	Connecting plate G1/2			UL1			UL certification (cULus, ordinary locations for Canada and USA)
AGE	Connecting plate G3/4			Z			Flow direction from right to left
AGF	Connecting plate G1						
AGG	Connecting plate G1 1/4						
AGH	Connecting plate G1 1/2						
AGI	Connecting plate G2						
G	Module without connecting thread, without connecting plate						
I	Integrated non-return function						

Technical data

Download CAD data → www.festo.com

Technical data		Download CAD data → www.festo.com								
Size		MS4		MS6			MS9		MS12	
Pneumatic connection 1, 2		G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$	G1	– ¹⁾	
Pneumatic connection 3		G $\frac{1}{4}$		G $\frac{1}{2}$			G1		G2	
Pneumatic connection 4		G $\frac{1}{4}$		G $\frac{1}{2}$			G1		G1	
Design		Branching module								
Type of mounting		Via accessories In-line installation								
Mounting position		Any								
Pressure indication	AG	Via pressure gauge for indicating the output pressure								–
	AD1/AD3	Via pressure sensor with LCD display for indicating the output pressure and with electrical output						–		
	AD7/AD9	Via pressure sensor with operational status indicator for displaying the output pressure and with electrical output								–
Length [mm]	Standard	54		76			109		124 (134) ²⁾	
	With MS pressure gauge AG	65		77			109		–	
	With adapter plate A8/A4	59		79			110		–	
	With pressure sensor AD1/AD3	83		103			–		–	
	With pressure sensor AD7/AD9	59		79			112		–	
	With pressure switch X/Y	63		76			109		–	
Width [mm]		40		62			104		90	124
Height [mm]	Standard	60		87			122		122	
	With pressure switch X/Y/M12	153		187			227		–	

1) Module without connecting thread/without connecting plate. The connecting plate must be ordered separately as an accessory → 971.

2) Value in brackets with blanking screws.

Standard nominal flow rate q_{nN}

Size		MS4		MS6			MS9		MS12
Pneumatic connection 1, 2		G $\frac{1}{8}$	G $\frac{1}{4}$	G $\frac{1}{4}$	G $\frac{3}{8}$	G $\frac{1}{2}$	G $\frac{3}{4}$	G1	– ³⁾
$q_{nN1 \rightarrow 2}$ [l/min]	In main flow direction ⁴⁾	1800	4600	4200	9200	14,700	25,000	45,000	10,000 ... 50,000
$q_{nN1 \rightarrow 3}$ [l/min]	Outlet at top ⁴⁾	1600	1500	6000	4700	4400	13,000		–
$q_{nN1 \rightarrow 4}$ [l/min]	Outlet at bottom ⁴⁾	1700	1500	6400	4800	4600	13,000		–

3) Dependent on the connecting plate selected, must be ordered separately as an accessory → 971.

4) Measured at $p_1 = 6$ bar and $p_2 = 5$ bar, $\Delta p = 1$ bar.

Operating conditions

Size		MS4		MS6			MS9		MS12
Pressure switch		–	X/Y/M12	–	X/Y/M12	–	X/Y/M12	–	
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]							Compressed air to ISO 8573-1:2010 [–:–:–]
		Inert gases						–	–
Note on operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)							–
Operating pressure [bar]		0 ... 14 (0 ... 10) ⁵⁾	0 ... 12 (0 ... 10) ⁵⁾	0 ... 20 (0 ... 10) ⁵⁾	0 ... 12 (0 ... 10) ⁵⁾	0 ... 20 (0 ... 10) ⁵⁾	0 ... 12 (0 ... 10) ⁵⁾	0 ... 20	
Ambient temperature [°C]		–10 ... +60 (0 ... +50) ⁵⁾							–10 ... +60

5) Value in brackets applies to MS4/MS6/MS9-FRM with pressure sensor AD...

Technical data

Materials	
Housing	Die-cast aluminium
Seals	NBR

Order code – MS4/MS6

Series		MS	FRM				
MS	Standard service unit						
Size							
4	Grid dimension 40 mm						
6	Grid dimension 62 mm						
Type							
FRM	Branching module						
Pneumatic connection							
MS4							
1/8	Female thread G1/8						
1/4	Female thread G1/4						
MS6							
1/4	Female thread G1/4						
3/8	Female thread G3/8						
1/2	Female thread G1/2						
Pressure gauge/adapter plate							
–	Cover plate						
AG	MS pressure gauge, bar						
A8	Adapter plate for EN pressure gauge 1/8 (MS4 only)						
A4	Adapter plate for EN pressure gauge 1/4						
AD1	Pressure sensor with LCD display, plug M8, 1 switching output PNP, 3-pin [1]						
AD3	Pressure sensor with LCD display, plug M12, 1 switching output PNP, 4-pin, analogue output 4 ... 20 mA [1]						
AD7	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact [1]						
AD9	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact [1]						
Pressure switch PEV							
–	Without pressure switch PEV						
X	Pressure switch PEV with display, plug socket, EN 175301, type A, cube [2]						
Y	Pressure switch PEV without display, plug socket, EN 175301, type A, cube [2]						
M12	Pressure switch PEV without display, plug socket, round, M12, 4-pin [2]						
Flow direction							
–	From left to right						
Z	From right to left						

[1] Measuring range max. 10 bar

[2] Max. permissible operating pressure p1 = 12 bar

Order example:

MS6-FRM-1/2

Standard service unit, grid dimension 62 mm - branching module - female thread G1/2 - with cover plate - without pressure switch PEV - flow direction from left to right

Order code – MS9

		MS	9	-	FRM	-		-		-		-		-		-	
Series																	
MS	Standard service unit																
Size																	
9	Grid dimension 90 mm																
Type																	
FRM	Branching module																
Pneumatic connection																	
3/4	Female thread G3/4																
1	Female thread G1																
G	Module without connecting thread, without connecting plate Connecting plates → 971																
Pressure gauge/pressure gauge alternatives																	
VS	Cover plate																
AG	MS pressure gauge																
A4	Adapter plate for EN pressure gauge 1/4																
AD7	Pressure sensor with operational status indicator, plug M8, threshold value comparator, PNP, N/O contact 1																
AD9	Pressure sensor with operational status indicator, plug M8, window comparator, PNP, N/O contact 1																
Alternative pressure gauge scale																	
-	No pressure gauge scale 2																
BAR	Bar 3																
Pressure switch																	
-	Without pressure switch PEV																
X	Pressure switch PEV with display, plug socket, EN 175301, type A, cube 4																
Y	Pressure switch PEV without display, plug socket, EN 175301, type A, cube 4																
M12	Pressure switch PEV without display, plug socket, round, M12, 4-pin 4																
Flow direction																	
-	From left to right																
Z	From right to left																

- 1 Measuring range max. 10 bar
- 2 Not with MS pressure gauge AG

- 3 Only with MS pressure gauge AG
- 4 Max. permissible operating pressure p1 = 12 bar

Order example:

MS9-FRM-G-VS-Y

Standard service unit, grid dimension 90 mm - branching module - module without connecting thread, without connecting plate - with cover plate - no pressure gauge scale - with pressure switch PEV without display, plug socket, EN 175301, type A, cube - flow direction from left to right

Branching modules MS-FRM, MS series

Order code – MS12

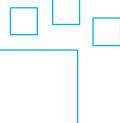
		MS	12	–	FRM	–	G
Series							
MS	Standard service unit						
Size							
12	Grid dimension 124 mm						
Type							
FRM	Branching module						
Pneumatic connection							
G	Module without connecting thread, without connecting plate Connecting plates → 971						

Order example:

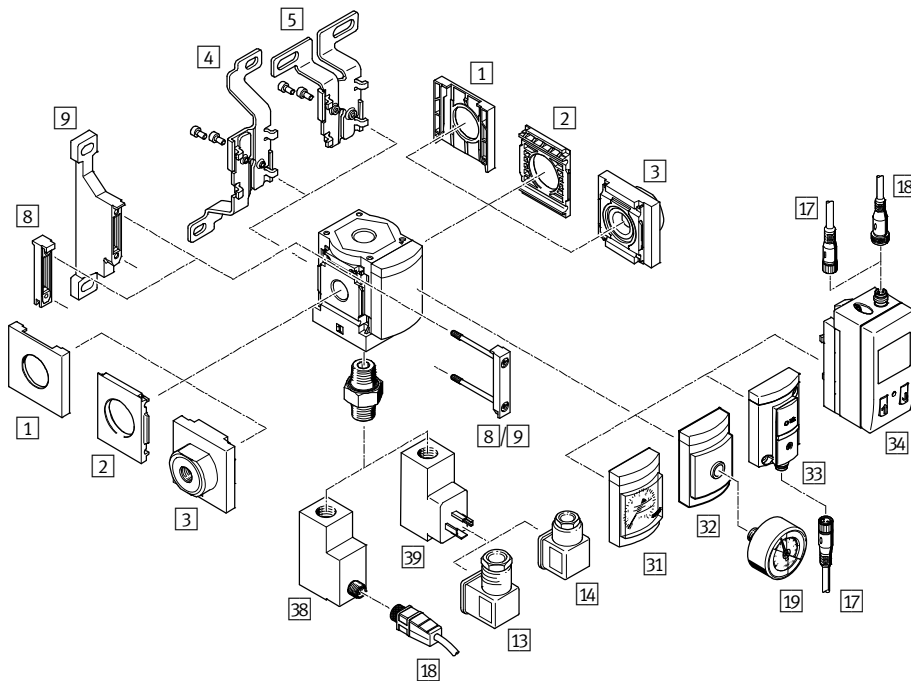
MS12-FRM-G

Standard service unit, grid dimension 124 mm - branching module - module without connecting thread, without connecting plate

Ordering – Product options

	<p>Configurable product</p>	<p>This product and all its options can be ordered using the configurator.</p>	<p>The configurator can be found under Products on the DVD or → www.festo.com/catalogue/...</p>	<p>Enter the type code in the search field.</p>
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Accessories – MS4/MS6



Accessories	→ Page/online
1 Cover cap MS4/6-END	971
2 Mounting plate MS4/6-AEND	971
3 Connecting plate kit MS4/6-AG...	971
4 Mounting bracket MS4/6-WB ¹⁾	971
5 Mounting bracket MS4-WBM ¹⁾	971
8 Module connector MS4/6-MV	971
9 Mounting bracket MS4/6-WP ²⁾	971
13 Angled plug socket PEV-1/4-WD-LED	972
14 Plug socket MSSD-C-4P	972
17 Connecting cable NEBU-M8...-LE3	972
18 Connecting cable NEBU-M12...-LE4	972
19 Pressure gauge MA	973
31 MS pressure gauge AG	966

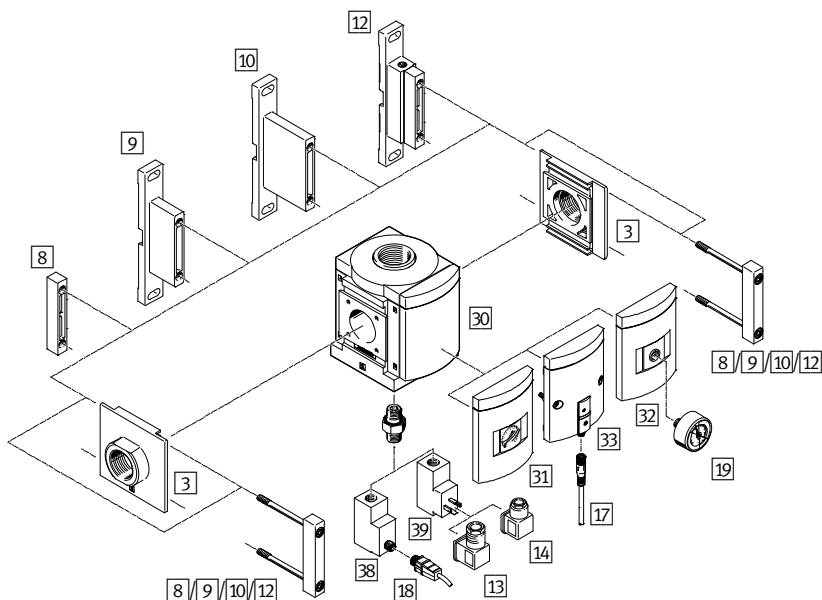
1) Mounting component for individual device.

Accessories	→ Page/online
32 Adapter plate A8/A4 for EN pressure gauge 1/8/1/4	966
33 Pressure sensor without display AD7/AD9	966
34 Pressure sensor with display AD1/AD3	966
38 Pressure switch M12	966
39 Pressure switch X/Y	966
- Mounting bracket MS4/6-WPB ²⁾	971
- Mounting bracket MS4/6-WPE ²⁾	971
- Mounting bracket MS4/6-WPM ²⁾	971
- Module connector MS4/6-RMV	974
- Module connector MS4/6-AMV	974
- Module connector MS6-9-ARMV	974
- Power supply module MS4/6-E-IPM	ms*-e-ipm*
- Branching module MS4/6-A-IPM	ms*-a*ipm*

2) Mounting and connecting component for a combination of devices or individual devices with connecting plate kit MS4/6-AG... 3/with mounting plate MS4/6-AEND 2.

Branching modules MS-FRM, MS series

Accessories – MS9

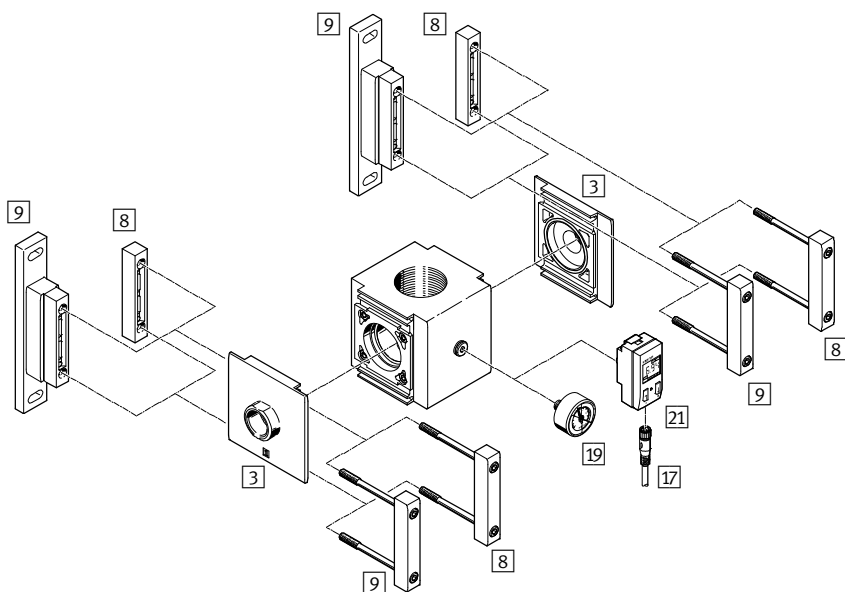


Accessories	→ Page/online
3 Connecting plate kit MS9-AG... ¹⁾	971
8 Module connector MS9-MV ¹⁾	971
9 Mounting bracket MS9-WP	971
10 Mounting bracket MS9-WPB	971
12 Mounting bracket MS9-WPM ¹⁾	971
13 Angled plug socket PEV-1/4-WD-LED	972
14 Plug socket MSSD-C-4P	972
17 Connecting cable NEBU-M8...-LE3	972
18 Connecting cable NEBU-M12...-LE4	972
19 Pressure gauge MA	973

Accessories	→ Page/online
30 Cover plate VS	967
31 MS pressure gauge AG	967
32 Adapter plate A4 for EN pressure gauge 1/4	967
33 Pressure sensor without display AD7/AD9	967
38 Pressure switch M12	967
39 Pressure switch X/Y	967
- Module connector MS9-RMV	974
- Module connector MS6-9-ARMV	974
- Module connector MS9-12-ARMV	974

1) Not suitable for individual devices with connecting thread G3/4 or G1.

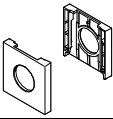


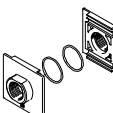

Accessories – MS12








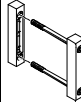

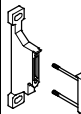
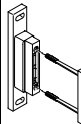
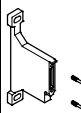
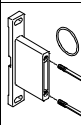
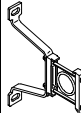
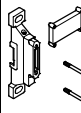
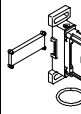
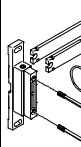
Accessories	→ Page/online
3 Connecting plate kit MS12-AG...	971
8 Module connector MS12-MV	971
9 Mounting bracket MS12-WP	971
17 Connecting cable NEBU-M8	972

Accessories	→ Page/online
19 Pressure gauge MA	973
21 Pressure sensor SDE1...-R14 (adapter plate for pneumatic connection included in the scope of delivery)	973
- Module connector MS9-12-ARMV	974



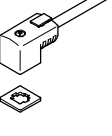



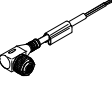
Accessories – Ordering data

	Size	Part No.	Type
1 Cover cap MS-END Dimensions online: → ms*-end			
	MS4	538779	MS4-END
	MS6	538780	MS6-END
2 Mounting plate MS-AEND Dimensions online: → ms*-aend			
	MS4	542966	MS4-AEND
	MS6	535408	MS6-AEND
3 Connecting plate kit MS-AG Dimensions online: → ms*-ag*			
	MS4	G1/8	526068 MS4-AGA
		G1/4	526069 MS4-AGB
		G3/8	526070 MS4-AGC
	MS6	G1/4	526080 MS6-AGB
		G3/8	526081 MS6-AGC
		G1/2	526082 MS6-AGD
G3/4		526083 MS6-AGE	
	MS9	G1/2	552954 MS9-AGD
		G3/4	★ 552955 MS9-AGE
		G1	★ 552956 MS9-AGF
		G1 1/4	★ 552957 MS9-AGG
		G1 1/2	★ 552958 MS9-AGH
	MS12	G1	537135 MS12-AGF
		G1 1/4	537136 MS12-AGG
		G1 1/2	537137 MS12-AGH
		G2	537138 MS12-AGI




	Size	Part No.	Type
4 Mounting bracket MS-WB Dimensions online: → ms*-wb			
	MS4	★ 532185	MS4-WB
	MS6	★ 532196	MS6-WB
5 Mounting bracket MS-WBM Dimensions online: → ms*-wbm			
	MS4	526062	MS4-WBM
6 Mounting bracket MS-WR Dimensions online: → ms*-wr			
	MS4	★ 526064	MS4-WR
	MS6	★ 526075	MS6-WR
7 Hex nut MS-WRS			
	MS4	532187	MS4-WRS
	MS6	532188	MS6-WRS

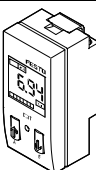
	Size	Part No.	Type
8 Module connector MS-MV For connecting modules			
	MS4	★ 532798	MS4-MV
	MS6	★ 532799	MS6-MV
	MS9	★ 552950	MS9-MV
	MS12	537134	MS12-MV
Module connector MS-MVM For connecting the modules with rotary knob underneath			
	MS4	★ 532800	MS4-MVM
	MS6	★ 532801	MS6-MVM
9 Mounting bracket MS-WP Dimensions online: → ms*-wp			
	MS4	★ 532184	MS4-WP
	MS6	★ 532195	MS6-WP
	MS9	★ 552947	MS9-WP
	MS12	537133	MS12-WP
10 Mounting bracket MS-WPB Dimensions online: → ms*-wpb			
	MS4	For large wall gap	★ 526063 MS4-WPB
	MS6	For large wall gap	★ 526074 MS6-WPB
	MS9	For large wall gap	★ 552949 MS9-WPB
11 Mounting bracket MS-WPE Dimensions online: → ms*-wpe			
	MS4	For large wall gap	558869 MS4-WPE
	MS6	For large wall gap	1025936 MS6-WPE
12 Mounting bracket MS-WPM Dimensions online: → ms*-wpm			
	MS4	For clearance 40 mm	★ 526060 MS4-WPM-D
		For clearance 80 mm	526061 MS4-WPM-2D
	MS6	For clearance 62 mm	★ 526073 MS6-WPM-D
		For clearance 124 mm	532186 MS6-WPM-2D
	MS9	For clearance 90 mm or 180 mm	★ 552948 MS9-WPM


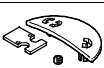
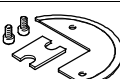
Accessories – Ordering data

Description		Part No.	Type			
13 Angled plug socket PEV-¼-WD-LED		Technical data online: → pev				
	For pressure switch PEV	4-pin, 15 ... 30 V DC	Yellow LED	164274	PEV-¼-WD-LED-24	
		4-pin, ≤ 230 V AC ≤ 180 V DC	Yellow LED	164275	PEV-¼-WD-LED-230	
14 Plug socket MSSD		Technical data online: → mssd				
	For pressure switch PEV			171157	MSSD-C-4P	
	For MS4/6-EE and MS6-SV-C	3-pin	Screw terminal	151687	MSSD-EB	
		4-pin	Insulation displacement connector	192745	MSSD-EB-S-M14	
	For MS9/12-EE and MS9-SV-C	3-pin	Screw terminal	34583	MSSD-C	
4-pin		Insulation displacement connector	192748	MSSD-C-S-M16		
15 Plug socket with cable KMEB/KMC		Technical data online: → km				
	For MS4/6-EE and MS6-SV-C	2-pin, 24 V DC	LED	2.5 m	547268	KMEB-3-24-2,5-LED
			–	5 m	547269	KMEB-3-24-5-LED
		3-pin, 24 V DC	LED	2.5 m	547270	KMEB-3-24-2,5
			–	5 m	547271	KMEB-3-24-5
		3-pin, 24 V DC	LED	2.5 m	151688	KMEB-1-24-2,5-LED
			–	5 m	151689	KMEB-1-24-5-LED
	For MS9/12-EE and MS9-SV-C	3-pin, 24 V DC	LED	2.5 m	30931	KMC-1-24DC-2,5-LED
			–	5 m	30933	KMC-1-24DC-5-LED
		3-pin, 230 V AC	–	2.5 m	151690	KMEB-1-230AC-2,5
			–	5 m	151691	KMEB-1-230AC-5
For MS9/12-EE and MS9-SV-C	3-pin, 24 V DC	LED	2.5 m	30931	KMC-1-24DC-2,5-LED	
		–	5 m	30933	KMC-1-24DC-5-LED	
	3-pin, 230 V AC	–	2.5 m	30932	KMC-1-230AC-2,5	
		–	5 m	30934	KMC-1-230AC-5	
16 Illuminating seal MEB-LD/MC-LD		Technical data online: → meb				
	For plug socket with cable KMEB and plug socket MSSD-EB	12 ... 24 V DC		151717	MEB-LD-12-24DC	
		230 V DC/AC ±10%		151718	MEB-LD-230AC	
	For plug socket with cable KMC and plug socket MSSD-C	12 ... 24 V DC		19145	MC-LD-12-24DC	
		230 V DC/AC ±10%		19146	MC-LD-230AC	
17 Connecting cable NEBU-M8		Technical data → 1054				
	M8x1, 3-pin	2.5 m	★	541333	NEBU-M8G3-K-2.5-LE3	
		5 m	★	541334	NEBU-M8G3-K-5-LE3	
	M8x1, 4-pin	2.5 m		541342	NEBU-M8G4-K-2.5-LE4	
		5 m		541343	NEBU-M8G4-K-5-LE4	
	M8x1, 3-pin	2.5 m	★	541338	NEBU-M8W3-K-2.5-LE3	
		5 m	★	541341	NEBU-M8W3-K-5-LE3	
M8x1, 4-pin	2.5 m		541344	NEBU-M8W4-K-2.5-LE4		
	5 m		541345	NEBU-M8W4-K-5-LE4		
18 Connecting cable NEBU-M12		Technical data → 1054				
	M12x1, 3-pin	2.5 m		541363	NEBU-M12G5-K-2.5-LE3	
		5 m		541364	NEBU-M12G5-K-5-LE3	
	M12x1, 4-pin	2.5 m		550326	NEBU-M12G5-K-2.5-LE4	
		5 m		541328	NEBU-M12G5-K-5-LE4	
	M12x1, 3-pin	2.5 m		541367	NEBU-M12W5-K-2.5-LE3	
		5 m		541370	NEBU-M12W5-K-5-LE3	
	M12x1, 4-pin	2.5 m		550325	NEBU-M12W5-K-2.5-LE4	
		5 m		541329	NEBU-M12W5-K-5-LE4	








Accessories – Ordering data


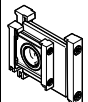
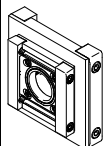
	Connection	Indicating range	Part No.	Type
19 Pressure gauge MA Technical data online: → ma				
EN 837-1				
	R $\frac{1}{8}$	0 ... 25 bar	526167	MA-40-25-$\frac{1}{8}$-EN
	R $\frac{1}{4}$	0 ... 16 bar	187080	MA-40-16-R$\frac{1}{4}$-EN
	G $\frac{1}{4}$	0 ... 16 bar	183901	MA-40-16-G$\frac{1}{4}$-EN
EN 837-1, with red/green range				
	R $\frac{1}{8}$	0 ... 16 bar	525726	MA-40-16-R$\frac{1}{8}$-E-RG
	R $\frac{1}{4}$	0 ... 16 bar	525729	MA-50-16-R$\frac{1}{4}$-E-RG
20 Precision pressure gauge MAP Technical data online: → map				
EN 837-1				
	R $\frac{1}{8}$	0 ... 1 bar	161126	MAP-40-1-$\frac{1}{8}$-EN
		0 ... 4 bar	162842	MAP-40-4-$\frac{1}{8}$-EN
		0 ... 6 bar	161127	MAP-40-6-$\frac{1}{8}$-EN
		0 ... 16 bar	161128	MAP-40-16-$\frac{1}{8}$-EN


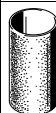

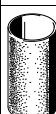
	Connection	Description	Part No.	Type		
21 Pressure sensor SDE1-...-R14 Technical data → 834						
For direct mounting on the service unit with pressure gauge connection (adapter plate for pneumatic connection included in the scope of delivery)						
	Male thread R $\frac{1}{4}$	PNP	M8x1, 3-pin	LCD	192028	SDE1-D10-G2-R14-C-P1-M8
			M8x1, 3-pin	Illuminated LCD	529967	SDE1-D10-G2-R14-L-P1-M8
		2x PNP	M8x1, 4-pin	LCD	192029	SDE1-D10-G2-R14-C-P2-M8
			M8x1, 4-pin	Illuminated LCD	529968	SDE1-D10-G2-R14-L-P2-M8
		PNP, 0 ... 10 V	M8x1, 4-pin	LCD	529957	SDE1-D10-G2-R14-C-PU-M8
			M8x1, 4-pin	Illuminated LCD	529969	SDE1-D10-G2-R14-L-PU-M8

	Size	Description	Part No.	Type
22 Cover MS-SV-MH				
	For MS9-SV-C	Tamper protection for manual override at the soft-start/quick exhaust valve and manual override at the pilot solenoid valve	1457670	MS9-SV-MH
23 Cover MS-SV-MK				
	For MS6-SV-C	Tamper protection for manual override at the soft-start/quick exhaust valve, flow control screw, adjusting screw for pressure switchover point and manual override at the pilot solenoid valve (MS6-SV-...-C-10V24 only)	8001479	MS6-SV-C-MK
	For MS9-SV-C	Tamper protection for manual override at the soft-start/quick exhaust valve, flow control screw, adjusting screw for pressure switchover point and manual override at the pilot solenoid valve	1457669	MS9-SV-MK

Accessories – Ordering data

	Description	Part No.	Type
24	Silencer U	Technical data → 1101	
	G1/4	★ 6842	U-1/4-B
	G1/2	★ 6844	U-1/2-B
	G3/4	6845	U-3/4-B
	G1	151990	U-1-B
25	Sensor socket SIE-GD		
	M12x1, 4-pin	18494	SIE-GD
26	Angled socket SIE-WD		
	M12x1, 4-pin	12956	SIE-WD-TR
27	Locking clip CPV18-HV		
	For MS4/6-EE-...-V24 and MS6-SV-C-...-V24	530056	CPV18-HV
28	Manual override AHB-MD/MF/MV		
	For MS12-EE	157651	AHB-MD/MF/ MV
29	Padlock LRVS-D		
	-	193786	LRVS-D
Special oil OFSW			
	Packaging unit 1 litre	152811	OFSW-32

	Size	Part No.	Type
Module connector MS-RMV			
Dimensions online: → ms*-rmv			
For connecting service units turned 90° to the connection axis			
	MS4	543490	MS4-RMV
	MS6	543491	MS6-RMV
	MS9	552952	MS9-RMV
Module connector MS-AMV			
Dimensions online: → ms*-amv			
For connecting MS4 and MS6 service units into one unit			
	MS4/MS6	543489	MS4-6-AMV
Module connector MS-ARMV			
Dimensions online: → ms*-armv			
For connecting MS6 and MS9 service units or MS9 and MS12 service units into one unit,			
for turning a service unit 90° to the connection axis			
	MS6/MS9	552951	MS6-9-ARMV
	MS9/MS12	552953	MS9-12-ARMV

	Size	Part No.	Type
Filter cartridge MS-LFP-C, grade of filtration 5 µm			
	MS4	Colour: blue	534501 MS4-LFP-C
	MS6	Colour: blue	534499 MS6-LFP-C
	MS9		570309 MS9-LFP-C
	MS12		537143 MS12-LFP-C
Filter cartridge MS-LFP-E, grade of filtration 40 µm			
	MS4	Colour: white	534502 MS4-LFP-E
	MS6	Colour: white	534500 MS6-LFP-E
	MS9		570310 MS9-LFP-E
	MS12		537144 MS12-LFP-E



- 4 pressure regulation ranges
- Precision pressure adjustment possible both in static and dynamic applications
- Good response characteristics during rapid changes to operating pressure and flow rate
- Operating pressure fluctuations are almost entirely compensated
- Selected types in accordance with the ATEX Directive for explosive atmospheres → www.festo.com/catalogue/ex

→ www.festo.com/catalogue/lrp

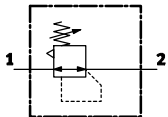
Product range overview

Type	Pneumatic connection	Standard nominal flow rate [l/min]	Pressure regulation range [bar]	Operating pressure [bar]	Max. pressure hysteresis [bar]	Product options
Rotary knob with detent						
LRP	G $\frac{1}{4}$	800 ... 2300	0.05 ... 10	1 ... 12	0.02	EX4
Rotary knob with integrated lock						
LRPS	G $\frac{1}{4}$	800 ... 2300	0.05 ... 10	1 ... 12	0.02	–

Product options

EX4 II 2GD in accordance with EU Directive 94/9/EC

Technical data



Technical data		Download CAD data → www.festo.com	
Type	LRP	LRPS	
Pneumatic connection 1, 2	G $\frac{1}{4}$		
Design	Piloted precision diaphragm regulator		
Regulating function	With secondary venting		
Type of mounting	Via accessories		
	In-line installation		
	Front panel mounting		
Mounting position	Any		
Actuator lock	Rotary knob with detent	Rotary knob with integrated lock	
Pressure regulation range [bar]	0.05 ... 0.7		
	0.05 ... 2.5		
	0.05 ... 4		
	0.1 ... 10		
Pressure indication	G $\frac{1}{8}$ prepared		
Length/width/height [mm]	50/50/108	50/50/138 + min. 60 ¹⁾	

1) Clearance for removing the key.

Standard nominal flow rate q_{nN}					
Pressure regulation range [bar]	0.05 ... 0.7	0.05 ... 2.5	0.05 ... 4	0.1 ... 10	
$q_{nN}^{2)}$ [l/min]	800	1800	2000	2300	

2) Measured at $p_1 = 12$ bar and $\Delta p_2 = 100$ mbar.

Technical data

Operating conditions	
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4] Inert gases
Note on operating/pilot medium	Lubricated operation not possible
Operating pressure [bar]	1 ... 12
Ambient temperature [°C]	-10 ... +60

Materials	
Housing	Die-cast aluminium
Rotary knob	PA
Knurled nut	Aluminium
Seals	NBR

Order code

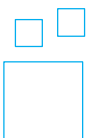
		LRP	-	1/4	-	
Type						
LRP	Precision pressure regulator					
Actuator lock						
-	Rotary knob with detent					
S	Rotary knob with integrated lock					
Pneumatic connection						
1/4	Female thread G1/4					
Pressure regulation range						
0.7	0.05 ... 0.7 bar					
2.5	0.05 ... 2.5 bar					
4	0.05 ... 4 bar					
10	0.1 ... 10 bar					

Order example:

LRP-1/4-4

Precision pressure regulator - rotary knob with detent - female thread G1/4 - pressure regulation range 0.05 ... 4 bar

12 Ordering – Product options



Configurable product

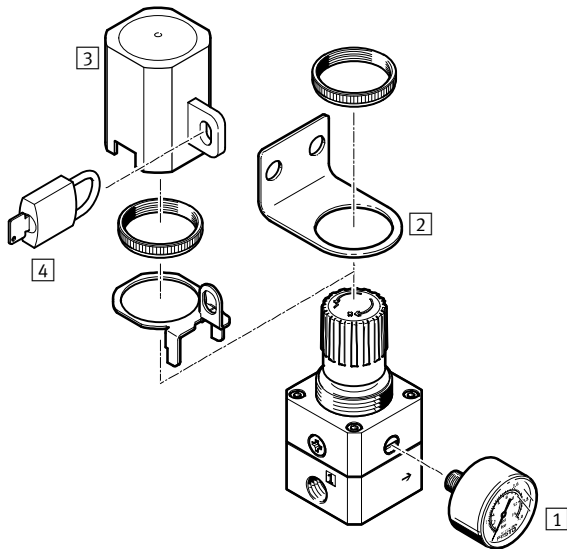
This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
[→ www.festo.com/catalogue/...](http://www.festo.com/catalogue/...)

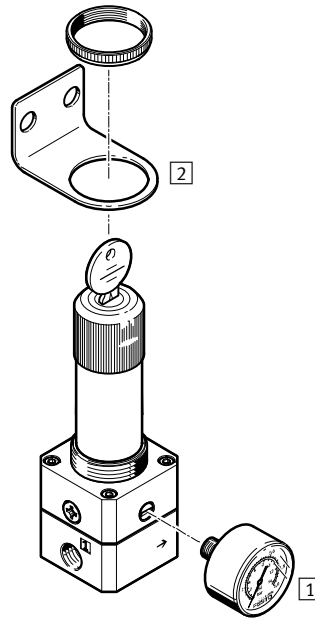
Enter the type code in the search field.

Accessories

Precision pressure regulator LRP





Precision pressure regulator LRPS

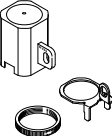



Accessories	→ Page/online
1 Precision pressure gauge MAP	977
2 Mounting bracket HR	977

Accessories	→ Page/online
3 Regulator lock LRVS	977
4 Padlock LRVS-D	977

Accessories – Ordering data



	Indicating range	Part No.	Type
	0 ... 1 bar	161126	MAP-40-1-1/8-EN
	0 ... 4 bar	162842	MAP-40-4-1/8-EN
	0 ... 6 bar	161127	MAP-40-6-1/8-EN
	0 ... 16 bar	161128	MAP-40-16-1/8-EN
1 Precision pressure gauge MAP Technical data online: → map			
	-	159503	HR-1/4-P
	2 Mounting bracket HR		

	Part No.	Type
	193785	LRVS-LRP-1/4
	3 Regulator lock LRVS	
	193786	LRVS-D
	4 Padlock LRVS-D	





13 Pneumatic connection technology







Software tool

<p>Product finder tubing</p>		<p>Simply enter parameters such as working pressure, chemicals and required resistance to cleaning agents and have the program calculate the right tubing for your application.</p>	<p>This tool can be found</p> <ul style="list-style-type: none"> • either in the electronic catalogue by clicking on the blue button "Engineering" • or on the DVD under Engineering Tools.
<p>Festo Design Tool 3D FDT 3D</p>		<p>This Festo Design Tool 3D is a 3D product configurator for generating specific CAD product combinations from Festo. The configurator makes your search for the right accessory easier, more reliable and faster.</p> <p>You can then order the module that has been created with a single order code – either completely pre-assembled or as individual parts in a single box. As a result, your bill of materials is considerably shortened and downstream processes such as product ordering, order picking and assembly are significantly simplified.</p>	<p>All ordering options are available in the following countries: IT, IE, TR, DK, SE, NO, NL, FI, FR, DE, BE, CH, ES, GB, ZA, AT, SK, PL, CZ, HU, SI, RU.</p> <p>This tool can be found</p> <ul style="list-style-type: none"> • either in the electronic catalogue by clicking on the blue button "Engineering" • or on the DVD under Engineering Tools.




Standard O.D. tubing

Type	 Plastic tubing, DUO plastic tubing PUN, PUN-DUO	 Plastic tubing, DUO plastic tubing PUN-H, PUN-H-DUO	 Plastic tubing PUN-CM	 Plastic tubing PUN-V0
O.D.	3 ... 16 mm	2 ... 16 mm	4 ... 12 mm	4 ... 16 mm
I.D.	2.1 ... 11 mm	1.2 ... 11 mm	2.5 ... 8 mm	2 ... 11.8 mm
Temperature-dependent operating pressure	-0.95 ... 10 bar	-0.95 ... 10 bar	-0.95 ... 10 bar	-0.95 ... 10 bar
Ambient temperature	-35 ... 60 °C	-35 ... 60 °C	-35 ... 60 °C	-35 ... 60 °C
Description	<ul style="list-style-type: none"> • Highly flexible plastic tubing • Polyurethane • RoHS-compliant • Operating medium: compressed air, vacuum • Suitable for use with energy chains • High resistance to stress cracks • Also in the form of DUO plastic tubing 	<ul style="list-style-type: none"> • Polyurethane • Also in the form of DUO plastic tubing • Operating medium: compressed air, vacuum • Approved for use in the food industry • High resistance to microbes and hydrolysis • Suitable for use with energy chains • Suitable for use with water as an operating medium 	<ul style="list-style-type: none"> • Highly flexible plastic tubing, antistatic, electrically conductive • Polyurethane • Operating medium: compressed air, vacuum • High resistance to UV radiation • Suitable for use with energy chains 	<ul style="list-style-type: none"> • Highly flexible single-sheath plastic tubing • Flame retardant to UL 94 V0 ... V2 • For use in the immediate vicinity of welding applications • Polyurethane • Operating medium: compressed air, vacuum • High resistance to microbes and hydrolysis
→ Page/online	991	992	pun-cm	pun-v0




Standard O.D. tubing

Type	 Plastic tubing PEN	 Plastic tubing PAN	 Plastic tubing PAN-MF	 Plastic tubing PAN-R
O.D.	4 ... 16 mm	4 ... 16 mm	4 ... 16 mm	4 ... 16 mm
I.D.	2.7 ... 10.8 mm	2.9 ... 12 mm	2.5 ... 12 mm	2.5 ... 10 mm
Temperature-dependent operating pressure	-0.95 ... 10 bar	-0.95 ... 19 bar	-0.95 ... 31 bar	-0.95 ... 35 bar
Ambient temperature	-30 ... 60 °C	-30 ... 80 °C	-60 ... 100 °C	-30 ... 80 °C
Description	<ul style="list-style-type: none"> • Polyethylene • RoHS-compliant • Operating medium: compressed air, vacuum • Good resistance to chemicals and very good resistance to hydrolysis • Resistant to most cleaning agents and lubricants • Suitable for use with water as an operating medium 	<ul style="list-style-type: none"> • High thermal and mechanical load capacities • High resistance to microbes • Polyamide • Operating medium: compressed air, vacuum 	<ul style="list-style-type: none"> • Meets the requirements according to DIN 73378 "Polyamide tubing for use in motor vehicles" • Polyamide • Operating medium: compressed air, mineral oil 	<ul style="list-style-type: none"> • For applications with a high pressure range • High resistance to microbes • Polyamide • Operating medium: compressed air, vacuum
→ Page/online	990	pan	pan	pan-r




Standard O.D. tubing

Type	 Plastic tubing PAN-V0	 Plastic tubing PLN	 Plastic tubing PFAN
O.D.	6 ... 14 mm	4 ... 16 mm	4 ... 12 mm
I.D.		2.9 ... 12 mm	2.9 ... 8.4 mm
Temperature-dependent operating pressure	-0.95 ... 12 bar	-0.95 ... 14 bar	-0.95 ... 16 bar
Ambient temperature	-30 ... 90 °C	-30 ... 80 °C	-20 ... 150 °C
Description	<ul style="list-style-type: none"> • Double-sheath tubing • PVC, polyamide • Flame retardant to UL 94 V0 • Operating medium: compressed air, vacuum, water, mineral oil • High resistance to microbes and UV radiation • Suitable for use with energy chains • Suitable for use with water as an operating medium 	<ul style="list-style-type: none"> • High resistance to chemicals, microbes, hydrolysis • Approved for use with food • Resistant to most cleaning agents and lubricants • Operating medium: compressed air, vacuum, water • Polyethylene • RoHS-compliant • Suitable for use with water as an operating medium 	<ul style="list-style-type: none"> • Pneumatic tubing with resistance to high temperatures and chemicals • Approved for use with food • High resistance to chemicals, microbes, UV radiation, hydrolysis, stress cracks • Perfluoroalkoxy alkane • RoHS-compliant • Operating medium: compressed air, vacuum • Suitable for use with water as an operating medium
→ Page/online	pan-v0	pln	pfan





Standard I.D. tubing

			
Type	Plastic tubing PU	Plastic tubing PCN	Rubber hose P
O.D.	11.6 ... 17.6 mm	6.5 mm	13 ... 31 mm
I.D.	9 ... 13 mm	4 mm	6 ... 19 mm
Temperature-dependent operating pressure	-0.95 ... 10 bar	-0.5 ... 0.25 bar	-0.95 ... 16 bar
Ambient temperature	-35 ... 60 °C	-10 ... 60 °C	-20 ... 80 °C
Description	<ul style="list-style-type: none"> Highly flexible plastic tubing High resistance to abrasion and kinks Polyurethane with reinforcing fabric Operating medium: compressed air, vacuum 	<ul style="list-style-type: none"> For use with condensate drains on D series service units PVC with reinforcing fabric Operating medium: compressed air, water 	<ul style="list-style-type: none"> P-6 and P-9: nitrile rubber P-13 and P-19: ethylene propylene rubber, styrene butadiene rubber With textile reinforcement for female hose connector N Operating medium: compressed air, vacuum, water
→ Page/online	pu	pcn	p





Spiral tubing

			
Type	Spiral plastic tubing, DUO spiral plastic tubing PUN-S, PUN-S-DUO	Spiral plastic tubing PUN-SG	Spiral plastic tubing PPS
O.D.	4 ... 12 mm	9.5 ... 11.7 mm	6.3 ... 7.8 mm
I.D.	2.6 ... 8 mm	6.4 ... 7.9 mm	4.7 ... 6.2 mm
Working length	0.5 ... 6 m	2.4 ... 6 m	7.5 ... 15 m
Temperature-dependent operating pressure	-0.95 ... 10 bar	-0.95 ... 15 bar	-0.95 ... 21.2 bar
Ambient temperature	-35 ... 60 °C	-40 ... 60 °C	-30 ... 80 °C
Description	<ul style="list-style-type: none"> Highly flexible plastic tubing Suitable for use with energy chains Polyurethane High resistance to UV radiation, stress cracks Operating medium: compressed air, vacuum Also in the form of DUO tubing 	<ul style="list-style-type: none"> Pre-assembled with captive rotatable fittings Polyurethane, nickel-plated brass, polyacetal High resistance to microbes, hydrolysis Operating medium: compressed air, vacuum 	<ul style="list-style-type: none"> Pre-assembled with 2 rotatable connectors and captive sealing rings OL Polyamide, brass, galvanised steel Operating medium: compressed air, vacuum, water Suitable for use with energy chains High resistance to microbes RoHS-compliant
→ Page/online	spiral	spiral	pps



Push-in fittings

Type	 Push-in fitting NPQH	 Push-in fitting NPQM	 Push-in fitting NPQP	 Cartridge QSP10, QSPK, QSPKG, QSPLK, QSPLKG, QSPLLK, QSPLLLK
Pneumatic connection	Male thread M5, M7, G1/8, G1/4, G3/8, G1/2, for tubing O.D. 4mm, 6mm, 8mm, 10mm, 12mm, 14mm, female thread G1/8, G1/4	G1/8, G1/4, G3/8, G1/2, M5, M7, push-in sleeve QS-4, QS-6, QS-8, QS-10, QS-12, for tubing O.D. 4, 6, 8, 10, 12 mm	Male thread R1/8, R1/4, R3/8, R1/2, push-in sleeve QS-4, QS-6, QS-8, QS-10, QS-12, for tubing O.D. 4, 6, 8, 10, 12 mm	QSP...10, 14, 18, 20, for tubing O.D. 3, 4, 6, 8, 10, 12 mm
Pneumatic connection, outlet	for tubing O.D. 4mm, 6mm, 8mm, 10mm, 12mm, 14mm	For tubing O.D. 3, 4, 6, 8, 10, 12 mm		
Operating pressure	-0.95 ... 20 bar	-0.95 ... 16 bar	-0.95 ... 10 bar	-0.95 ... 10 bar
Temperature-dependent operating pressure				
Ambient temperature	0 ... 150 °C	-20 ... 70 °C	-20 ... 60 °C	-5 ... 60 °C
Description	<ul style="list-style-type: none"> Pressure-resistant All metal push-in fitting made of chemically nickel-plated brass High corrosion and chemical resistance 	<ul style="list-style-type: none"> Standard series Attractively priced metal push-in fitting Male or female thread with external or internal hex Suitable for use with water as an operating medium 	<ul style="list-style-type: none"> Low-cost alternative to stainless steel: resistant to most cleaning agents in combination with tubing PLN Polypropylene fitting for use in extreme media conditions Safe for use with food 	<ul style="list-style-type: none"> Plug-in cartridges Straight or angled design Suitable for vacuum Operating medium: compressed air to ISO 8573-1:2010 [7:-:-]
→ Page/online	npqh	995	1001	qsp





Push-in fittings

Type	 Push-in fitting QSM, QSMC, QSMF, QSMP, QSMS, QSML, QSMLL, QSMLV, QSMLLV, QSMT, QSMTL, QSMX, QSMY	 Push-in fitting QSM-B, QSML-B, QSMT-B	 Push-in fitting QS, QSF, QSS, QSSF, QSC, QSH, QSL, QSLL, QSLF, QSLV, QST, QSTF, QSTL, QSW, QSX, QSY, QSYL, QSYLV, QSYTF	 Push-in fitting QS-B, QSL-B, QSLL-B, QST-B, QSTL-B, QSY-B
Pneumatic connection	Male thread G1/8, M3, M5, M6, M6x0.75, M7, M8x0.75, R1/8, female thread M3, M5, push-in sleeve QS-3, QS-4, QS-6, for tubing O.D. 3, 4, 6 mm	Male thread M3, M5, M7, R1/8, for tubing O.D. 3, 4, 6 mm	Male thread G1/8, G1/4, G3/8, G1/2, M5, R1/8, R1/4, R1/2, R3/8, female thread G1/8, G1/4, G3/8, G1/2, push-in sleeve QS-4, QS-6, QS-8, QS-10, QS-12, QS-16, for tubing O.D. 4, 6, 8, 10, 12 and 16 mm	Male thread R1/8, R1/4, R3/8, R1/2, for tubing O.D. 4, 6, 8, 10, 12, 16 mm
Pneumatic connection, outlet	For tubing O.D. 2, 3, 4, 6 mm	For tubing O.D. 3, 4, 6 mm	Female thread G1/8, G1/4, G3/8, G1/2, for tubing O.D. 4, 6, 8, 10, 12, 16 mm	For tubing O.D. 4, 6, 8, 10, 12, 16 mm
Operating pressure				
Temperature-dependent operating pressure	-0.95 ... 14 bar	-0.95 ... 10 bar	-0.95 ... 14 bar	-0.95 ... 10 bar
Ambient temperature	-10 ... 80 °C	-10 ... 60 °C	-10 ... 80 °C	-10 ... 60 °C
Description	<ul style="list-style-type: none"> Mini series Compact for maximum component density in confined spaces Male or female thread with external or internal hex 	<ul style="list-style-type: none"> Mini series, core functionality Compact for maximum component density in confined spaces Male thread with external or internal hex 	<ul style="list-style-type: none"> Standard series Male or female thread with external or internal hex Wide range of variants: wide selection for maximum flexibility in standard applications Resistant to pressure: economical for pneumatic installations in the high-pressure range Suitable for use with water as an operating medium 	<ul style="list-style-type: none"> Standard series, core functionality Male thread with external or internal hex Economical, suitable for universal use and attractive price High resistance Easy to install
→ Page/online	1008	qsm-b	1014	qs-b




Push-in fittings

			
Type	Push-in fitting CRQS, CRQSL, CRQSS, CRQST, CRQSY	Push-in fitting QS-V0, QSL-V0, QST-V0	Self-sealing/rotary push-in fitting QSK, QSSK, QSKL, QSR, QSRL
Pneumatic connection	Male thread M5, R1/8, R1/4, R3/8, R1/2, for tubing O.D. 4, 6, 8, 10, 12, 16 mm	G1/8, G1/4, G3/8, G1/2, R1/8, R1/4, R3/8, R1/2, for tubing O.D. 4, 6, 8, 10, 12 mm	Male thread G1/8, G1/4, G3/8, G1/2, M5, R1/8, R1/4, R3/8, R1/2, for tubing O.D. 4, 6, 8, 10, 12 mm
Pneumatic connection, outlet	For tubing O.D. 4, 6, 8, 10, 12, 16 mm	For tubing O.D. 4, 6, 8, 10, 12 mm	For tubing O.D. 4, 6, 8, 10, 12 mm
Operating pressure	-0.95 ... 10 bar	-0.95 ... 10 bar	
Temperature-dependent operating pressure			-0.95 ... 14 bar
Ambient temperature	-15 ... 120 °C	0 ... 60 °C	-10 ... 80 °C
Description	<ul style="list-style-type: none"> Stainless steel Maximum corrosion resistance (corrosion resistance class 4 according to Festo standard 940 070) and chemical resistance Approved for use in the food and beverage industry Male thread with internal and external hex Suitable for use with water as an operating medium 	<ul style="list-style-type: none"> Flame-retardant For use in all areas where there is a risk of fire Reliable even for applications in close proximity to welding splatter Male thread with external hex Suitable for use with water as an operating medium 	<ul style="list-style-type: none"> Standard series Male thread with external hex Push-in fitting that blocks the air flow after the tubing is disconnected Push-in fitting with swivel connection, rotatable by 360° with max. 500 rpm
→ Page/online	crqs	qs-v0	1028



Barbed fittings

				
Type	Quick connector NPCK	Barbed fitting CN, CRCN, FCN, L-PK, LCN, N, RTU, SCN, LCNH, T-PK, TCN, V-PK, Y-PK	Female hose connector C-P, N-P, N-MS, SK	Quick connector ACK, CK, QCK, SCK, CV-PK, GCK-KU, LCK, LCKN, TCK, KCK-KU, FCK-KU, MCK, LK, TK, VT
Nominal size	1.3 ... 16.5 mm	1.3 ... 16.5 mm	2.5 ... 16.5 mm	1.7 ... 12 mm
Pneumatic connection	G1/8, G1/4, G3/8, M5	G1/8, G1/4, G3/8, M3, M5, PK-2, PK-3, PK-4, PK-6	G1/8, G1/4, G3/8, G1/2, G3/4, M5, PK-3, PK-4, PK-6, PK-9, PK-13, PK-19, R1	G1/8, G1/4, G3/8, G1/2, M5, M6x0.75, M10x1, M12x1, M16x1, with union nut: PK-3, PK-4, PK-6, PK-9, PK-13, R1/8, R1/4, R3/8
Operating pressure	-0.95 ... 12 bar			-0.9 ... 16 bar
Ambient temperature	-20 ... 120 °C	0 ... 60 °C		-20 ... 80 °C
Description	<ul style="list-style-type: none"> Suitable for the food industry, satisfies all Clean Design requirements Stainless steel design With male thread Straight shape Suitable for use with water as an operating medium 	<ul style="list-style-type: none"> With male thread or with male thread and external hex Stainless steel design Straight shape, T-shape, L-shape, V-shape, Y-shape 	<ul style="list-style-type: none"> For hose clip Female hose connector with or without sealing ring Hose clip to DIN 3017 Brass, aluminium design 	<ul style="list-style-type: none"> Quick connector Bulkhead quick connector Sealing cap for plastic tube fittings and barbed connectors T-distributor Union nut for CK tube fitting Multiple distributor Female or male thread with sealing ring Aluminium or polymer design
→ Page/online	npck	n_070302f	n_cnp	ck


Threaded fittings

			
Type	Threaded fitting NPFC	Adapter NPFV	Reducer, sleeve, double nipple D, E, ESK, FR, G, LJK, NPFA, QM, QMR, QSP10, SCM, TJK
Pneumatic connection 1	G1/8, G1/4, G3/8, G1/2, G3/4, G1, M5, M7, R1/8, R1/4, R3/8, R1/2, R3/4, R1	G1/4	G1/8, G1/4, G3/8, G1/2, G3/4, G1, M3, M5, M7, R1/8, R1/4, R3/8, R1/2
Pneumatic connection 2	G1/8, G1/4, G3/8, G1/2, G3/4, G1, M5, R1/8, R1/4, R3/8, R1/2, R3/4, R1	G1/4, NPT1/4-18	G1/8, G1/4, G3/8, G1/2, G3/4, G1, M3, M5, M7, R1/8, R1/4, R3/8, R1/2
Operating pressure	-0.95 ... 50 bar	≤ 8 bar	-0.95 ... 16 bar
Nominal size		6 mm	2.5 ... 18.6 mm
Ambient temperature	-20 ... 150 °C		-10 ... 80 °C
Description	<ul style="list-style-type: none"> • Sleeve • Reducing sleeve • Extension • Double nipple • Reducing nipple • L, T, Y or X-fitting • With female and male thread 	<ul style="list-style-type: none"> • Adapter with filter • From G1/4 to NPT1/4 or G1/4 	<ul style="list-style-type: none"> • Reducing nipple • Reducing sleeve • Double nipple • Distributor block • Female bulkhead fitting • Sleeve
→ Page/online	npfc	npfv	esk




Threaded fittings

		
Type	Ring piece, hollow bolt LK, TK, VT	Blanking plug B
Pneumatic connection 1	M5, G1/8, G1/4, G3/8, PK-3, PK-4, PK-6 with union nut	M3, M5, M7, G1/8, G1/4, G3/8, G1/2, G3/4, G1
Pneumatic connection 2		
Operating pressure	0 ... 10 bar	
Nominal size		
Ambient temperature		
Description	<ul style="list-style-type: none"> • Multiple distributor consisting of hollow bolt VT and ring piece LK or TK • With two to six outlets and one common air feed 	<ul style="list-style-type: none"> • With sealing ring
→ Page/online	lk	b-1

Click fittings

	
Type	Click fitting NPKA
Pneumatic connection 1	G1/8
Pneumatic connection 2	For tubing O.D. 6 mm
Operating pressure	-0.95 ... 10 bar
Nominal size	4 mm
Ambient temperature	-10 ... 60 °C
Description	<ul style="list-style-type: none"> • Suitable for the food industry • Made entirely of plastic • Suitable for use in areas requiring intensive cleaning • Quick and easy tubing installation thanks to one-hand operation • Straight shape, L-shape, T-shape • Male thread with internal or external hex • Suitable for use with water as an operating medium
→ Page/online	npka

Piping

			
Type	Plastic pipe PQ-PA	Pipe PQ-AL	Plastic-coated metal tube PM
O.D.	12 ... 28 mm	12 ... 28 mm	6 ... 8 mm
Information on tubing materials	PA	Wrought aluminium alloy	Wrought aluminium alloy, PE
Operating pressure	-0.95 ... 7 bar	-0.95 ... 7 bar	
Temperature-dependent operating pressure			-0.95 ... 30 bar
Ambient temperature	-25 ... 75 °C	-30 ... 75 °C	-29 ... 65 °C
Description	<ul style="list-style-type: none"> • Rigid pipe made from high-quality polyamide • Operating medium: compressed air, vacuum, liquids • Flexible, maintenance-free • Smooth inside wall ensures optimum flow conditions 	<ul style="list-style-type: none"> • Rigid aluminium pipe • Operating medium: compressed air, vacuum, liquids • Corrosion-resistant • Smooth inside wall ensures optimum flow conditions 	<ul style="list-style-type: none"> • Operating medium: compressed air, vacuum • Resistant to deformation • Can be bent straight and reshaped several times without a pipe-bending device and without being damaged • Polyethylene, wrought aluminium alloy • RoHS-compliant
→ Page/online	pq-pa	pq-al	pm





Push-in fittings for piping PQ

	
Type	Push-in fitting CQ, CQA, CQC, CQD, CQH, CQL, CQO, CQSR, CQT
Pneumatic connection	Male thread G3/8, G1/2, G3/4, G1, push-in sleeve CQ-12, CQ-15, CQ-18, CQ-22, CQ-28, push-in sleeve QS-12, QS-16, for pipe/tubing O.D. 12, 15, 18, 22, 28 mm
Nominal size	8 ... 24.9 mm
Temperature-dependent operating pressure	-0.95 ... 15 bar
Ambient temperature	-25 ... 75 °C
Description	<ul style="list-style-type: none"> • For pipes PQ-PA, PQ-AL and tubing PAN and PUN • Operating medium: compressed air, vacuum, liquids • Push-in fitting • Push-in connector • Push-in connector with push-in sleeve • Push-in sleeve • Blanking plug • Distributor • Fluid separator • Retaining ring • Releasing tool • Male thread
→ Page/online	cq



Couplings

				
Type	Quick coupling socket, quick coupling plug KDMS6, KDS6, KSS6	Quick coupling socket, quick coupling plug KD1, KD2, KD3, KD4, KD5, KS1, KS2, KS3, KS4, KS5	Multiple connector KSV, KDVF, KDV	Multi-tube connector KM
Pneumatic connection	Male thread G1/4, G3/8, G1/2, G1/8, G1/4, G3/8, G1/2, female thread G1/4, G3/8, G1/2, with union nut: PK-9, PK-13, barbed connector PK-9	Male thread G1/8, G1/4, G1/2, M5, G1/8, G1/4, G3/8, G1/2, female thread G1/8, G1/4, G3/8, G1/2, M5, M3, M5, PK-2, P-13, with union nut: PK-3, PK-4, PK-6, PK-9, PK-13, barbed connector PK-4, PK-6, PK-9	PK-2, PK-3, PK-4, PK-6, for tubing O.D. 3 mm, 4 mm, 6 mm	PK-2, PK-3, PK-4
Standard nominal flow rate	936 ... 1,935 l/min	44 ... 2,043 l/min		
Operating pressure	-0.95 ... 12 bar	-0.95 ... 15 bar	-0.95 ... 16 bar	-0.95 ... 8 bar
Ambient temperature	-10 ... 60 °C	-10 ... 80 °C	-10 ... 60 °C	-10 ... 60 °C
Description	<ul style="list-style-type: none"> • Safety coupling • Shut-off on one side • With male or female thread • Coupling variants: plastic and metal 	<ul style="list-style-type: none"> • Quick connection coupling: for standard applications without safety function • With male or female thread or with barbed fitting or quick connector • Shut-off at one or both ends 	<ul style="list-style-type: none"> • Multi-plug, multi-socket • Terminal plug and terminal socket 	<ul style="list-style-type: none"> • For max. 22 lines • Used as control cabinet outlets
→ Page/online	kdms	1030	ksv	km





Distributors

				
Type	Multiple distributor QSLV, QSQ, QST3	Multiple distributor QSYTF	Distributor block FR	Rotary distributor GF
Pneumatic connection, supply line	Male thread G1/8, G1/4, G3/8, G1/2, male thread R1/8, R1/4, R3/8, R1/2, for tubing O.D. 6, 8, 10 mm	Male thread G1/8, G1/4, G3/8, G1/2, male thread R1/8, R1/4, R3/8, R1/2	G1/8, G3/8, G1/2, G3/4, R1/8, R1/4, R3/8, R1/2	
Pneumatic connection				Male thread G1/4, G3/8, G1/8, G1/4, G1/2, female thread G1/4, G3/8
Pneumatic connection, outlet	For tubing O.D. 4, 6, 8, 10, 12 mm	Female thread G1/8, G1/4, G3/8, G1/2, for tubing O.D. 6, 8, 10, 12 mm	G1/8, G1/4, G1/2, M3, M5, PK-3, PK-4, R1/8, R1/4, R3/8, R1/2	Female thread M5, G1/8, G1/4, G1/2
No. of supply lines	1	1	1	1
No. of outlets	2 ... 6	3	3 ... 12	2, 4
Max. speed				300 ... 3,000 rpm
Description	<ul style="list-style-type: none"> • Standard series • Temperature range up to 80 °C • L-shape, T-shape • Rotatable 360° • Connection via threaded connection or push-in connector • Reducing design • Suitable for use with water as an operating medium 	<ul style="list-style-type: none"> • Standard series • Y-shape • Rotatable 360° • Female and male thread with external hex 	<ul style="list-style-type: none"> • Die-cast aluminium or anodised aluminium • Operating pressure 0 ... 16 bar • 4, 8, 9 or 12 connections 	<ul style="list-style-type: none"> • 4 outlets or 2 axial and radial outlets • Single or multiple rotary distributor • Design with air through-feeds • Operating pressure -0.95 ... +10 bar
→ Page/online	1036	qsytf	fr	gf

Protective conduit systems

		
Type	Protective conduit MK, MKG, MKR, MKV	Protective conduit fitting HMZAS, HMZV, MKA, MKGV, MKM, MKRL, MKRS, MKRT, MKRV, MKVM, MKVV, MKY
I.D.	7.5 ... 48 mm	
O.D.	10 ... 52 mm	
Design	Strip-wound metal conduit, internally and externally corrugated all-plastic conduit, separable	
Ambient temperature	-50 ... 220 °C	-40 ... 200 °C
Description	<ul style="list-style-type: none"> • Metal or plastic design • High alternate bending strength • For protecting pneumatic tubing and electrical cables 	<ul style="list-style-type: none"> • Installation kit • Junction box • Adapter connector • Protective conduit fitting • Lock nut • Straight protective conduit fitting, L-shape • Protective conduit connector • Y-distributor
→ Page/online	mkg	mka

Accessories

				
Type	Sealing material CRO, GWB, O, OK, OL	Pipe and tubing cutter PAN, ZDS, ZMS, ZR, ZRS	Pipe clamp PQ	Tubing accessories KK, NPAW, PB, PKB, PKS, QSO, SK
Description	<ul style="list-style-type: none"> • Sealing ring • Sealing ring assortment • Thread sealing tape 	<ul style="list-style-type: none"> • Tubing cutter • Disconnecting pliers • Connecting pliers • Pipe cutter • Pipe and tubing cutter 	<ul style="list-style-type: none"> • For pipes with an O.D. of 12 ... 28 mm 	<ul style="list-style-type: none"> • Tubing strap • Spiral wrap for tubing • Tubing support • Multi-tube holder
→ Page/online	1040	zds	pq	npaw



- 9 diameters, standard O.D.
- Also in the form of DUO tubing
- Food industry approval, halogen-free, hydrolysis-resistant, suitable for use with energy chains, free of paint-wetting impairment substances to FN 942 010
- ★ Quick ordering of basic designs → 994

→ www.festo.com/catalogue/tubing

Key features



PUN-DUO/PUN-H-DUO:
Two lengths of plastic tubing are fused together into a tubing pair. For fitting, the paired tubing is separated as required at both ends.

Type	O.D. [mm]	Material	Suitable for use in the food industry	Halogen-free	Suitable for use with energy chains	Approved by the German Technical Control Board (TUV)	Resistance				Flexibility	Shore hardness
							Hydrolysis	Chemicals	Microbes	UV radiation		
PEN	4, 6, 8, 10, 12, 14, 16	PE	-	■	■	■	+++	++	++	++ ¹⁾	++	D 52 ± 3
PUN	3, 4, 6, 8, 10, 12, 14, 16	TPE-U(PU)	-	■	■	■	+	-	-	++ ¹⁾	+++	D 52 ± 3
PUN-DUO	4, 6, 8, 10	TPE-U(PU)	-	■	■	■	+	-	-	+	++	D 52 ± 3
PUN-H	2	TPE-U(PU)	-	■	■	-	++	+	++	++ ¹⁾	+++	D 52 ± 3
	3, 4, 6, 8, 10, 12, 14, 16	TPE-U(PU)	■	■	■	■	++	+	++	++ ¹⁾	+++	D 52 ± 3
PUN-H-DUO	4, 6, 8, 10	TPE-U(PU)	■	■	■	■	++	+	++	+	++	D 52 ± 3

+++ Highly suitable

++ Suitable

+ Limited suitability (on request)

- Not suitable

1) Applies to black colour.

Product range overview

Type	O.D. [mm]	Packaging unit [m]	Product options													→ Page/ online		
			Colour															
			SI	BL	SW	GE	GN	RT	BR	WS	NT	BS	TXT	CB	HA			
PEN	4, 6, 8, 10, 12, 14, 16	50, 100, 200, 300, 400, 500	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	990
PUN	3, 4, 6, 8, 10, 12, 14, 16	50, 100, 200, 300, 400, 500	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	991
PUN-DUO	4, 6, 8, 10	50	■	-	-	-	-	-	-	-	-	-	■	-	-	-	993	
PUN-H	2	50	-	-	■	-	-	■	-	-	■	-	-	-	-	-	992	
	3, 4, 6, 8, 10, 12, 14, 16	50, 100, 200, 300, 400, 500	■	■	■	■	■	■	■	■	■	■	■	■	■	■	992	
PUN-H-DUO	4, 6, 8, 10	50	-	-	-	-	-	-	-	-	-	-	■	-	-	-	993	

Product options

SI Silver
BL Blue
SW Black
GE Yellow

GN Green
RT Red
BR Brown
WS White

NT Natural
BS Blue/black
TXT Customer-specific tubing inscription (on request)

25 Packaging unit 25 m
CB Cardboard box
HA Reel

Plastic tubing PEN, standard O.D.

Technical data

Technical data		Download CAD data → www.festo.com						
O.D.	[mm]	4	6	8	10	12	14	16
I.D.	[mm]	2.7	4	5.7	7	8.4	9.5	10.8
Min. bending radius	[mm]	10	13.5	22.5	23.5	33	45	57.5
Bending radius relevant for flow rate	[mm]	20	26	35	40	58	80	122

Operating conditions	
Operating medium	Compressed air to ISO 8573-1:2010 [7:--:-] Water as per manufacturer's declaration ¹⁾
Temperature-dependent operating pressure	[bar] -0.95 ... +10
Ambient temperature	[°C] -30 ... +60

1) Additional information at www.festo.com/sp → User Documentation.

Order code

PEN

-

x

-

-

Type	
PEN	Plastic tubing

O.D. [mm]	
	Wall thickness [mm]
4	0.75
6	1
8	1.25
10	1.5
12	1.75
14	2
16	2.5

Colour	
SI	Silver 1
BL	Blue 1
SW	Black
GE	Yellow 1
GN	Green 1
RT	Red 1
NT	Natural

Packaging unit [m]		
-	50	
100	100	2
200	200	3
300	300	4
400	400	5
500	500	6

- 1 Not with O.D. 14
- 4 Only with O.D. 10 and colours SI, BL, SW
- 2 Only with O.D. 16 and colours SI, BL, SW
- 5 Only with O.D. 8 and colours SI, BL, SW
- 3 Only with O.D. 12 and colours SI, BL, SW
- 6 Only with O.D. 4, 6 and colours SI, BL, SW

Order example:

PEN-8x1,25-BL-400
 Plastic tubing PEN - O.D. 8 mm - wall thickness 1.25 mm - colour blue - packaging unit 400 m

Ordering – Product options

Configurable product

This product and all its options can be ordered using the configurator.

The configurator can be found under Products on the DVD or
 → www.festo.com/catalogue/...

Enter the type code in the search field.

Technical data

Technical data		Download CAD data → www.festo.com							
O.D.	[mm]	3	4	6	8	10	12	14	16
I.D.	[mm]	2.1	2.6	4	5.7	7	8	9.8	11
Min. bending radius	[mm]	9	8	16	24	28	33	45	45
Bending radius relevant for flow rate	[mm]	12	17	26.5	37	54	62	84	88

Operating conditions

Operating medium	Compressed air to ISO 8573-1:2010 [7:--:-]	
Temperature-dependent operating pressure	[bar]	-0.95 ... +10
Ambient temperature	[°C]	-35 ... +60

Order code

Type		PUN - [] x [] - [] - []	
PUN	Plastic tubing		
O.D. [mm]			
	Wall thickness [mm]		
3	0.5		
4	0.75		
6	1		
8	1.25		
10	1.5		
12	2		
14	2		
16	2.5		
Colour			
SI	Silver		
BL	Blue		
SW	Black		
GE	Yellow	[1]	
GN	Green	[1]	
RT	Red	[1]	
Packaging unit [m]			
-	50		
100	100	2	
200	200	3	
300	300	4	
400	400	5	
500	500	6	

[1] Not with O.D. 14

[2] Only with O.D. 16 and colours SI, BL, SW

[3] Only with O.D. 12 and colours SI, BL, SW

[4] Only with O.D. 10 and colours SI, BL, SW

[5] Only with O.D. 8 and colours SI, BL, SW

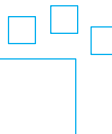
[6] Only with O.D. 3, 4, 6 and colours SI, BL, SW

Order example:

PUN-14x2-SI

Plastic tubing PUN - O.D. 14 mm - wall thickness 2 mm - colour silver - packaging unit 50 m

Ordering – Product options

	Configurable product	This product and all its options can be ordered using the configurator.	The configurator can be found under Products on the DVD or → www.festo.com/catalogue/...	Enter the type code in the search field.
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Plastic tubing PUN-H, standard O.D.

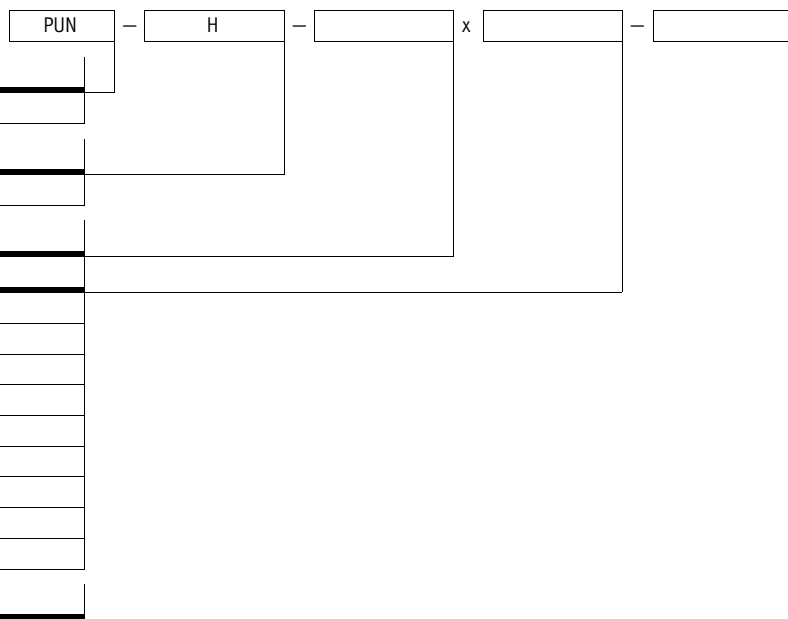
Technical data

Technical data		Download CAD data → www.festo.com								
O.D.	[mm]	2	3	4	6	8	10	12	14	16
I.D.	[mm]	1.2	2.1	2.6	4	5.7	7	8	9.8	11
Min. bending radius	[mm]	5	6	8	10	21	28	33	38	38
Bending radius relevant for flow rate	[mm]	8	12	16	26	37	52	62	78	88

Operating conditions										
O.D.	[mm]	2	3	4	6	8	10	12	14	16
Operating medium		Compressed air to ISO 8573-1:2010 [7:-:-]								
		– Water as per manufacturer's declaration ¹⁾								
Temperature-dependent operating pressure	[bar]	–0.95 ... +10								
Ambient temperature	[°C]	–35 ... +60								
Suitable for use in the food industry		– As per manufacturer's declaration ¹⁾								

1) Additional information at www.festo.com/sp → User Documentation.

Order code



Type	
PUN	Plastic tubing

Alternative material properties	
H	Hydrolysis-resistant

O.D. [mm]	
	Wall thickness [mm]
2	0.4
3	0.5
4	0.75
6	1
8	1.25
10	1.5
12	2
14	2
16	2.5

Colour	
SI	Silver 1 2
BL	Blue 1
SW	Black
GE	Yellow 1 2
GN	Green 1 2
RT	Red 2
NT	Natural

Packaging unit [m]		
–	50	
100	100	3
200	200	4
300	300	5
400	400	6
500	500	7

- 1 Not with O.D. 2
- 2 Not with O.D. 14
- 3 Only with O.D. 16 and colours SI, BL, SW, NT
- 4 Only with O.D. 12 and colours SI, BL, SW, NT
- 5 Only with O.D. 10 and colours SI, BL, SW, NT
- 6 Only with O.D. 8 and colours SI, BL, SW, NT
- 7 Only with O.D. 3, 4, 6 and colours SI, BL, SW, NT

Order example:

PUN-H-6x1-SW-500

Plastic tubing PUN, hydrolysis-resistant - O.D. 6 mm - wall thickness 1 mm - colour black - packaging unit 500 m

Technical data

Download CAD data → www.festo.com

Technical data		PUN-DUO				PUN-H-DUO			
Type									
O.D.	[mm]	4	6	8	10	4	6	8	10
I.D.	[mm]	2.6	4	5.7	7	2.6	4	5.7	7
Min. bending radius	[mm]	8	16	24	28	8	10	21	28
Bending radius relevant for flow rate	[mm]	17	26.5	37	54	16	26	37	52

Operating conditions

Type		PUN-DUO	PUN-H-DUO
Operating medium		Compressed air to ISO 8573-1:2010 [7:-:-]	Water as per manufacturer's declaration ¹⁾
Temperature-dependent operating pressure	[bar]	-0.95 ... +10	
Ambient temperature	[°C]	-35 ... +60	
Suitable for use in the food industry		-	As per manufacturer's declaration ¹⁾

1) Additional information at www.festo.com/sp → User Documentation.

Order code

PUN - x - DUO -

Type	
PUN	Plastic tubing
Alternative material properties	
-	Standard
H	Hydrolysis-resistant
O.D. [mm]	
	Wall thickness [mm]
4	0.75
6	1
8	1.25
10	1.5
Tubing type	
DUO	DUO tubing
Colour	
PUN	
SI	Silver
BS	Blue/black
PUN-H	
-	Blue/black

Order example:

PUN-H-6x1-DUO

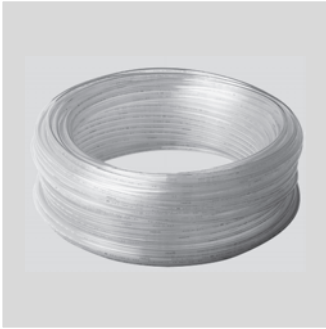
Plastic tubing PUN, hydrolysis-resistant - O.D. 6 mm - wall thickness 1 mm - duo tubing - colour blue/black

Plastic tubing PUN/PUN-H, standard O.D.

FESTO

★ Quick ordering¹⁾

PUN/PUN-H



O.D. [mm]	I.D. [mm]	Min. bending radius [mm]	Bending radi- us relevant for flow rate [mm]	Colour	Part No.	Type	PU ²⁾
PUN							
3	2.1	9	21	Silver	152583	PUN-3x0,5-SI	50
				Blue	159660	PUN-3x0,5-BL	50
				Black	159661	PUN-3x0,5-SW	50
4	2.6	8	17	Silver	152584	PUN-4x0,75-SI	50
				Blue	159662	PUN-4x0,75-BL	50
				Black	159663	PUN-4x0,75-SW	50
6	4	16	26.5	Silver	152586	PUN-6x1-SI	50
				Blue	159664	PUN-6x1-BL	50
				Black	159665	PUN-6x1-SW	50
8	5.7	24	37	Silver	152587	PUN-8x1,25-SI	50
				Blue	159666	PUN-8x1,25-BL	50
				Black	159667	PUN-8x1,25-SW	50
10	7	28	54	Silver	152588	PUN-10x1,5-SI	50
				Blue	159668	PUN-10x1,5-BL	50
				Black	159669	PUN-10x1,5-SW	50
12	8	33	62	Silver	152589	PUN-12x2-SI	50
				Blue	159670	PUN-12x2-BL	50
				Black	159671	PUN-12x2-SW	50
14	9.8	45	84	Silver	570389	PUN-14x2-SI	50
				Blue	570390	PUN-14x2-BL	50
				Black	570391	PUN-14x2-SW	50
16	11	45	88	Silver	152590	PUN-16x2,5-SI	50
				Blue	159672	PUN-16x2,5-BL	50
				Black	159673	PUN-16x2,5-SW	50
PUN-H, hydrolysis-resistant							
2	1.2	5	8	Black	133039	PUN-H-2x0,4-SW	50
3	2.1	6	12	Blue	197382	PUN-H-3x0,5-BL	50
				Black	197389	PUN-H-3x0,5-SW	50
				Silver	558277	PUN-H-3x0,5-SI	50
4	2.6	8	16	Blue	197383	PUN-H-4x0,75-BL	50
				Black	197390	PUN-H-4x0,75-SW	50
				Silver	558278	PUN-H-4x0,75-SI	50
6	4	10	26	Blue	197384	PUN-H-6x1-BL	50
				Black	197391	PUN-H-6x1-SW	50
				Silver	558279	PUN-H-6x1-SI	50
8	5.7	21	37	Blue	197385	PUN-H-8x1,25-BL	50
				Black	197392	PUN-H-8x1,25-SW	50
				Silver	558280	PUN-H-8x1,25-SI	50
10	7	28	52	Blue	197386	PUN-H-10x1,5-BL	50
				Black	197393	PUN-H-10x1,5-SW	50
				Silver	558281	PUN-H-10x1,5-SI	50
12	8	33	62	Blue	197387	PUN-H-12x2-BL	50
				Black	197394	PUN-H-12x2-SW	50
				Silver	558282	PUN-H-12x2-SI	50
14	9.8	38	78	Blue	570386	PUN-H-14x2-BL	50
				Black	570387	PUN-H-14x2-SW	50
16	11	38	88	Blue	197388	PUN-H-16x2,5-BL	50
				Black	197395	PUN-H-16x2,5-SW	50
				Silver	558283	PUN-H-16x2,5-SI	50

1) All products in this table are easy to select and quick to order.

2) Packaging unit in metres



- Attractively priced metal push-in fittings for pneumatic applications with a temperature range up to 70 °C and a pressure range up to 16 bar
- Brass housing
- Suitable for use with water as an operating medium
- Male thread with external hex
- Push-in bulkhead connector

→ www.festo.com/catalogue/npqm

Product range overview

Type	Version	Design	Pneumatic connection 1				Pneumatic connection 2		→ Page/ online
			M thread	G thread	Tubing O.D.	Push-in sleeve	Tubing O.D.	Push-in sleeve	
NPQM-D	Push-in fitting	Straight	–	■	–	–	■	–	996
	Push-in connector		–	–	■	–	■	–	
	Push-in connector		–	–	■	–	–	■	997
	Push-in sleeve		–	–	–	■	–	–	
NPQM-DK	Push-in fitting		■	–	–	■	–		
NPQM-H	Push-in bulkhead connector		–	–	■	–	■	–	
NPQM-L	Push-in fitting	L-shape	■	■	–	–	■	–	998
	Push-in connector		–	–	■	–	■	–	
	Push-in connector		–	–	■	–	–	■	
NPQM-LH	Push-in fitting		■	■	–	–	■	–	999
NPQM-LK	Push-in fitting		■	■	–	–	■	–	
NPQM-LFK	Multiple distributor	F-shape	–	■	–	–	■	–	
NPQM-T	Push-in fitting	T-shape	–	■	–	–	■	–	1000
	Push-in connector		–	–	■	–	■	–	
	Push-in connector		–	–	■	–	–	■	
NPQM-Y	Push-in connector	Y-shape	–	–	■	–	■	–	

Technical data

Operating conditions	
Operating medium	Compressed air to ISO 8573-1:2010 [7:-:-] Water as per manufacturer's declaration ¹⁾
Note on operating/pilot medium	Lubricated operation possible
Operating pressure for entire temperature range [bar]	–0.95 ... +16
Ambient temperature [°C]	–20 ... +70

1) Additional information at www.festo.com/sp → User Documentation.

Materials	
Housing	Nickel-plated brass
Tubing seal	NBR

Push-in fittings NPQM

Ordering data

Push-in fitting NPQM-D

Male thread with internal/external hex



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ¹⁾
1	2 Tubing O.D. [mm]				
G thread with sealing ring					
G ³ / ₈	4	3	558661	NPQM-D-G18-Q4-P10	10
	6	4	558662	NPQM-D-G18-Q6-P10	10
	8	6	558663	NPQM-D-G18-Q8-P10	10
G ¹ / ₄	6	4	558664	NPQM-D-G14-Q6-P10	10
	8	6	558665	NPQM-D-G14-Q8-P10	10
	10	8	558666	NPQM-D-G14-Q10-P10	10
	12	8	558667	NPQM-D-G14-Q12-P10	10
G ³ / ₈	8	6	558668	NPQM-D-G38-Q8-P10	10
	10	8	558669	NPQM-D-G38-Q10-P10	10
	12	10	558670	NPQM-D-G38-Q12-P10	10
	14	10	570450	NPQM-D-G38-Q14-P10	1
G ¹ / ₂	10	8	558671	NPQM-D-G12-Q10-P10	10
	12	10	558672	NPQM-D-G12-Q12-P10	10
	14	12	570451	NPQM-D-G12-Q14-P10	1

Push-in fitting NPQM-D

Female thread with external hex



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ¹⁾
1	2 Tubing O.D. [mm]				
G ³ / ₈	4	3	558674	NPQM-D-G18F-Q4-P10	10
	6	5	558675	NPQM-D-G18F-Q6-P10	10
	8	7	558676	NPQM-D-G18F-Q8-P10	10
G ¹ / ₄	6	5	558678	NPQM-D-G14F-Q6-P10	10
	8	7	558679	NPQM-D-G14F-Q8-P10	10
	10	9	558680	NPQM-D-G14F-Q10-P10	10

Push-in connector NPQM-D



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ¹⁾
1 Tubing O.D. [mm]	2 Tubing O.D. [mm]				
4	4	3	558760	NPQM-D-Q4-E-P10	10
6	6	5	558761	NPQM-D-Q6-E-P10	10
8	8	7	558762	NPQM-D-Q8-E-P10	10
10	10	9	558763	NPQM-D-Q10-E-P10	10
12	12	11	558764	NPQM-D-Q12-E-P10	10
14	14	13	570452	NPQM-D-Q14-E-P10	1

1) Packaging unit per part

Ordering data

Push-in connector NPQM-D
with push-in sleeve

Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ¹⁾
1 Tubing O.D. [mm]	2 Push-in sleeve				
4	QS-6	3	558765	NPQM-D-Q4-S6-P10	10
	QS-8	3.5	558766	NPQM-D-Q4-S8-P10	10
6	QS-4	2.5	558767	NPQM-D-Q6-S4-P10	10
	QS-8	5	558768	NPQM-D-Q6-S8-P10	10
	QS-10	5.5	558769	NPQM-D-Q6-S10-P10	10
	QS-12	5.5	558770	NPQM-D-Q6-S12-P10	10
	QS-14	5	570457	NPQM-D-Q6-S14-P10	1
8	QS-6	4	558771	NPQM-D-Q8-S6-P10	10
	QS-10	7	558772	NPQM-D-Q8-S10-P10	10
	QS-12	7	558773	NPQM-D-Q8-S12-P10	10
	QS-14	7	570458	NPQM-D-Q8-S14-P10	1
10	QS-12	9	558774	NPQM-D-Q10-S12-P10	10
	QS-14	9	570456	NPQM-D-Q10-S14-P10	1
12	QS-14	11	570459	NPQM-D-Q12-S14-P10	1

Push-in sleeve NPQM-D



Pneumatic connection	Nominal size [mm]	Part No.	Type	PU ¹⁾
1 Push-in sleeve				
QS-4	2	558811	NPQM-D-S4-E-P10	10
QS-6	4	558812	NPQM-D-S6-E-P10	10
QS-8	6	558813	NPQM-D-S8-E-P10	10
QS-10	8	558814	NPQM-D-S10-E-P10	10
QS-12	10	558815	NPQM-D-S12-E-P10	10
QS-14	12	570455	NPQM-D-S14-E-P10	1

Push-in fitting NPQM-DK
Male thread with internal hex

Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ¹⁾
1	2 Tubing O.D. [mm]				
Metric thread with sealing ring					
M5	4	2.5	558657	NPQM-DK-M5-Q4-P10	10
	6	2.5	558658	NPQM-DK-M5-Q6-P10	10
M7	4	3	558659	NPQM-DK-M7-Q4-P10	10
	6	3	558660	NPQM-DK-M7-Q6-P10	10

Push-in bulkhead connector NPQM-H



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ¹⁾
1 Tubing O.D. [mm]	2 Tubing O.D. [mm]				
4	4	3	558806	NPQM-H-Q4-E-P10	10
6	6	5	558807	NPQM-H-Q6-E-P10	10
8	8	7	558808	NPQM-H-Q8-E-P10	10
10	10	9	558809	NPQM-H-Q10-E-P10	10
12	12	11	558810	NPQM-H-Q12-E-P10	10

1) Packaging unit per part

Push-in fittings NPQM

Ordering data

Push-in L-fitting NPQM-L

Male thread with external hex



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ¹⁾
1	2 Tubing O.D. [mm]				
Metric thread with sealing ring					
M5	4	3	558704	NPQM-L-M5-Q4-P10	10
	6	3.5	558705	NPQM-L-M5-Q6-P10	10
G thread with sealing ring					
G $\frac{1}{8}$	4	3	558708	NPQM-L-G18-Q4-P10	10
	6	5	558709	NPQM-L-G18-Q6-P10	10
	8	5.5	558710	NPQM-L-G18-Q8-P10	10
G $\frac{1}{4}$	6	5	558711	NPQM-L-G14-Q6-P10	10
	8	5.5	558712	NPQM-L-G14-Q8-P10	10
	10	8.5	558713	NPQM-L-G14-Q10-P10	10
	12	11	558714	NPQM-L-G14-Q12-P10	10
G $\frac{3}{8}$	8	6	558715	NPQM-L-G38-Q8-P10	10
	10	8.5	558716	NPQM-L-G38-Q10-P10	10
	12	11	558717	NPQM-L-G38-Q12-P10	10
	14	12	570460	NPQM-L-G38-Q14-P10	1
G $\frac{1}{2}$	10	8.5	558718	NPQM-L-G12-Q10-P10	10
	12	11	558719	NPQM-L-G12-Q12-P10	10
	14	12	570461	NPQM-L-G12-Q14-P10	1

Push-in L-connector NPQM-L



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ¹⁾
1 Tubing O.D. [mm]	2 Tubing O.D. [mm]				
4	4	3	558776	NPQM-L-Q4-E-P10	10
6	6	5	558777	NPQM-L-Q6-E-P10	10
8	8	7	558778	NPQM-L-Q8-E-P10	10
10	10	9	558779	NPQM-L-Q10-E-P10	10
12	12	11	558780	NPQM-L-Q12-E-P10	10
14	14	12	570453	NPQM-L-Q14-E-P10	1

Push-in L-connector NPQM-L

with push-in sleeve



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ¹⁾
1 Tubing O.D. [mm]	2 Push-in sleeve				
4	QS-4	3	558781	NPQM-L-Q4-S4-P10	10
6	QS-6	5	558782	NPQM-L-Q6-S6-P10	10
8	QS-8	5.5	558783	NPQM-L-Q8-S8-P10	10
10	QS-10	8.5	558784	NPQM-L-Q10-S10-P10	10

1) Packaging unit per part

Ordering data

Push-in L-fitting NPQM-LH

Male thread with external hex



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ¹⁾
1	2 Tubing O.D. [mm]				
Metric thread with sealing ring					
M5	4	3	558827	NPQM-LH-M5-Q4-P10	10
	6	3.5	558828	NPQM-LH-M5-Q6-P10	10
G thread with sealing ring					
G $\frac{1}{8}$	4	3	558829	NPQM-LH-G18-Q4-P10	10
	6	5	558830	NPQM-LH-G18-Q6-P10	10
	8	6.5	558831	NPQM-LH-G18-Q8-P10	10
G $\frac{1}{4}$	6	5	558832	NPQM-LH-G14-Q6-P10	10
	8	6.5	558833	NPQM-LH-G14-Q8-P10	10
G $\frac{3}{8}$	8	7	558834	NPQM-LH-G38-Q8-P10	10
	10	8.5	558835	NPQM-LH-G38-Q10-P10	10
	12	10.5	558836	NPQM-LH-G38-Q12-P10	10

Push-in L-fitting NPQM-LK

Male thread with internal hex



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ¹⁾
1	2 Tubing O.D. [mm]				
Metric thread with sealing ring					
M5	3	2	558816	NPQM-LK-M5-Q3-P10	10
	4	2	558817	NPQM-LK-M5-Q4-P10	10
G thread with sealing ring					
G $\frac{1}{8}$	4	4	558818	NPQM-LK-G18-Q4-P10	10
	6	4	558819	NPQM-LK-G18-Q6-P10	10
	8	4	558820	NPQM-LK-G18-Q8-P10	10
G $\frac{1}{4}$	6	5.5	558821	NPQM-LK-G14-Q6-P10	10
	8	5.5	558822	NPQM-LK-G14-Q8-P10	10
	10	5.5	558823	NPQM-LK-G14-Q10-P10	10
G $\frac{3}{8}$	10	7	558825	NPQM-LK-G38-Q10-P10	10

Multiple distributor NPQM-LFK

Male thread with internal hex



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ¹⁾
1	2 Tubing O.D. [mm]				
G thread with sealing ring					
G $\frac{1}{8}$	4	4	558837	NPQM-LFK-G18-Q4-P10	10
	6	4	558838	NPQM-LFK-G18-Q6-P10	10
	8	4	558839	NPQM-LFK-G18-Q8-P10	10
G $\frac{1}{4}$	6	5.5	558840	NPQM-LFK-G14-Q6-P10	10
	8	5.5	558841	NPQM-LFK-G14-Q8-P10	10

1) Packaging unit per part

Push-in fittings NPQM

FESTO

Ordering data

Push-in T-fitting NPQM-T

Male thread with external hex



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ¹⁾
1	2 Tubing O.D. [mm]				
G thread with sealing ring					
G $\frac{1}{8}$	4	3	558736	NPQM-T-G18-Q4-P10	10
	6	5	558737	NPQM-T-G18-Q6-P10	10
	8	5.5	558738	NPQM-T-G18-Q8-P10	10
G $\frac{1}{4}$	6	5	558739	NPQM-T-G14-Q6-P10	10
	8	5.5	558740	NPQM-T-G14-Q8-P10	10
	10	8.5	558741	NPQM-T-G14-Q10-P10	10
G $\frac{3}{8}$	8	6	558743	NPQM-T-G38-Q8-P10	10
	10	8.5	558744	NPQM-T-G38-Q10-P10	10
	12	11	558745	NPQM-T-G38-Q12-P10	10
G $\frac{1}{2}$	12	11	558747	NPQM-T-G12-Q12-P10	10

Push-in T-connector NPQM-T



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ¹⁾
1 Tubing O.D. [mm]	2 Tubing O.D. [mm]				
4	4	3	558786	NPQM-T-Q4-E-P10	10
6	6	5	558787	NPQM-T-Q6-E-P10	10
8	8	7	558788	NPQM-T-Q8-E-P10	10
10	10	9	558789	NPQM-T-Q10-E-P10	10
12	12	11	558790	NPQM-T-Q12-E-P10	10
14	14	12	570454	NPQM-T-Q14-E-P10	1

Push-in T-connector NPQM-T

with push-in sleeve



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ¹⁾
1 Tubing O.D. [mm]	2 Push-in sleeve				
4	QS-4	3	558791	NPQM-T-Q4-S4-P10	10
6	QS-6	5	558792	NPQM-T-Q6-S6-P10	10
8	QS-8	5.5	558793	NPQM-T-Q8-S8-P10	10
10	QS-10	8.5	558794	NPQM-T-Q10-S10-P10	10

Push-in Y-connector NPQM-Y



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ¹⁾
1 Tubing O.D. [mm]	2 Tubing O.D. [mm]				
4	4	3.5	558798	NPQM-Y-Q4-E-P10	10
6	6	5.5	558799	NPQM-Y-Q6-E-P10	10
8	8	7.5	558800	NPQM-Y-Q8-E-P10	10
10	10	9.5	558801	NPQM-Y-Q10-E-P10	10
12	12	11.5	558802	NPQM-Y-Q12-E-P10	10
Reducing					
6	4	3.5	558803	NPQM-Y-Q6-Q4-P10	10
8	6	5.5	558804	NPQM-Y-Q8-Q6-P10	10
10	8	7.5	558805	NPQM-Y-Q10-Q8-P10	10

1) Packaging unit per part



- Low-cost alternative to stainless steel: resistant to most cleaning agents in combination with tubing PLN
- Housing made from polypropylene
- Male thread with external hex
- Push-in bulkhead connector

→ www.festo.com/catalogue/npqp

Product range overview

Type	Version	Design	Pneumatic connection 1			Pneumatic connection 2		→ Page/ online
			R thread	Tubing O.D.	Push-in sleeve	Tubing O.D.	Push-in sleeve	
NPQP-D	Push-in fitting	Straight	■	–	–	■	–	1002
	Push-in connector		–	■	–	■	–	
	Push-in connector		–	■	–	–	■	
	NPQP-H		Push-in bulkhead connector	–	■	–	■	
NPQP-P	Blanking plug		–	–	■	–	–	1003
NPQP-L	Push-in fitting	L-shape	■	–	–	■	–	1004
	Push-in connector		–	■	–	■	–	
NPQP-T	Push-in fitting	T-shape	■	–	–	■	–	1004
	Push-in connector		–	■	–	■	–	
NPQP-Y	Push-in fitting	Y-shape	■	–	–	■	–	1005
	Push-in connector		–	■	–	■	–	

Technical data

Operating conditions	
Operating medium	Compressed air to ISO 8573-1:2010 [7:--:--]
Note on operating/pilot medium	Lubricated operation possible
Temperature-dependent operating pressure [bar]	–0.95 ... +10
Ambient temperature [°C]	–20 ... +60 Extended temperature range on request
Suitable for use in the food industry	As per manufacturer's declaration ¹⁾

1) Additional information at www.festo.com/sp → User Documentation.

Materials	
Housing	PP
Tube retaining claw	High-alloy stainless steel

Note

Leaks can occur with large temperature fluctuations due to the high expansion coefficient of polypropylene in combination with the R thread.

To avoid this it is recommended to seal the thread with Loctite®55 thread sealing cord.

Push-in fittings NPQP

Ordering data

Push-in fitting NPQP-D

Male thread with external hex



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ¹⁾
1	2 Tubing O.D. [mm]				
R ¹ / ₈	4	2.1	133041	NPQP-D-R18-Q4-FD-P10	10
	6	3.4	133043	NPQP-D-R18-Q6-FD-P10	10
	8	5.3	133045	NPQP-D-R18-Q8-FD-P10	10
R ¹ / ₄	4	2.1	133042	NPQP-D-R14-Q4-FD-P10	10
	6	3.4	133044	NPQP-D-R14-Q6-FD-P10	10
	8	5.3	133046	NPQP-D-R14-Q8-FD-P10	10
	10	6.2	133047	NPQP-D-R14-Q10-FD-P10	10
R ³ / ₈	10	6.2	133048	NPQP-D-R38-Q10-FD-P10	10
	12	7.2	133049	NPQP-D-R38-Q12-FD-P10	10
R ¹ / ₂	12	7.2	133050	NPQP-D-R12-Q12-FD	1

Push-in connector NPQP-D



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ¹⁾
1 Tubing O.D. [mm]	2 Tubing O.D. [mm]				
4	4	2.6	133091	NPQP-D-Q4-E-FD-P10	10
6	6	4	133092	NPQP-D-Q6-E-FD-P10	10
8	8	5	133093	NPQP-D-Q8-E-FD-P10	10
10	10	6.7	133094	NPQP-D-Q10-E-FD-P10	10
12	12	8.7	133095	NPQP-D-Q12-E-FD-P10	10
Reducing					
6	4	2.6	133096	NPQP-D-Q6-Q4-FD-P10	10
8	6	4	133097	NPQP-D-Q8-Q6-FD-P10	10
10	8	5	133098	NPQP-D-Q10-Q8-FD-P10	10
12	10	6.7	133099	NPQP-D-Q12-Q10-FD-P10	10

Push-in connector NPQP-D

with push-in sleeve



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ¹⁾
1 Tubing O.D. [mm]	2 Push-in sleeve				
4	QS-6	2.5	133133	NPQP-D-Q4-S6-FD-P10	10
	QS-8	2.4	133134	NPQP-D-Q4-S8-FD-P10	10
6	QS-8	3.8	133135	NPQP-D-Q6-S8-FD-P10	10
	QS-10	3.8	133136	NPQP-D-Q6-S10-FD-P10	10
8	QS-10	5.4	133137	NPQP-D-Q8-S10-FD-P10	10
	QS-12	5.4	133138	NPQP-D-Q8-S12-FD-P10	10
10	QS-12	6.3	133139	NPQP-D-Q10-S12-FD-P10	10

Push-in bulkhead connector NPQP-H



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ¹⁾
1 Tubing O.D. [mm]	2 Tubing O.D. [mm]				
4	4	2.3	133100	NPQP-H-Q4-E-FD	1
6	6	3.7	133101	NPQP-H-Q6-E-FD	1
8	8	4.9	133102	NPQP-H-Q8-E-FD	1
10	10	7.1	133103	NPQP-H-Q10-E-FD	1
12	12	7.8	133104	NPQP-H-Q12-E-FD	1

1) Packaging unit per part

Ordering data

Blanking plug NPQP-P



Pneumatic connection		Part No.	Type	PU ¹⁾
1	2			
Push-in sleeve				
QS-4		133128	NPQP-P-S4-FD-P10	10
QS-6		133129	NPQP-P-S6-FD-P10	10
QS-8		133130	NPQP-P-S8-FD-P10	10
QS-10		133131	NPQP-P-S10-FD-P10	10
QS-12		133132	NPQP-P-S12-FD-P10	10

Push-in L-fitting NPQP-L

Male thread with external hex



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ¹⁾
1	2 Tubing O.D. [mm]				
R $\frac{1}{8}$	4	2.1	133051	NPQP-L-R18-Q4-FD-P10	10
	6	3.3	133053	NPQP-L-R18-Q6-FD-P10	10
	8	4.7	133055	NPQP-L-R18-Q8-FD-P10	10
R $\frac{1}{4}$	4	2.1	133052	NPQP-L-R14-Q4-FD-P10	10
	6	3.3	133054	NPQP-L-R14-Q6-FD-P10	10
	8	4.7	133056	NPQP-L-R14-Q8-FD-P10	10
	10	5.7	133057	NPQP-L-R14-Q10-FD-P10	10
R $\frac{3}{8}$	10	5.7	133058	NPQP-L-R38-Q10-FD-P10	10
	12	6.9	133059	NPQP-L-R38-Q12-FD-P10	10
R $\frac{1}{2}$	12	6.9	133060	NPQP-L-R12-Q12-FD	1

Push-in L-fitting NPQP-LQ

Male thread with external hex



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ¹⁾
1	2 Tubing O.D. [mm]				
R $\frac{1}{8}$	4	2	133061	NPQP-LQ-R18-Q4-FD-P10	10
	6	3.3	133063	NPQP-LQ-R18-Q6-FD-P10	10
	8	4.8	133065	NPQP-LQ-R18-Q8-FD-P10	10
R $\frac{1}{4}$	4	2	133062	NPQP-LQ-R14-Q4-FD-P10	10
	6	3.3	133064	NPQP-LQ-R14-Q6-FD-P10	10
	8	4.8	133066	NPQP-LQ-R14-Q8-FD-P10	10
	10	5.8	133067	NPQP-LQ-R14-Q10-FD-P10	10
R $\frac{3}{8}$	10	5.8	133068	NPQP-LQ-R38-Q10-FD-P10	10
	12	6.9	133069	NPQP-LQ-R38-Q12-FD-P10	10
R $\frac{1}{2}$	12	6.9	133070	NPQP-LQ-R12-Q12-FD	1

Push-in L-connector NPQP-L



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ¹⁾
1 Tubing O.D. [mm]	2 Tubing O.D. [mm]				
4	4	2.3	133105	NPQP-L-Q4-E-FD-P10	10
6	6	3.6	133106	NPQP-L-Q6-E-FD-P10	10
8	8	4.6	133107	NPQP-L-Q8-E-FD-P10	10
10	10	6.2	133108	NPQP-L-Q10-E-FD-P10	10
12	12	7.7	133109	NPQP-L-Q12-E-FD-P10	10

1) Packaging unit per part

Push-in fittings NPQP

Ordering data

Push-in T-fitting NPQP-T

Male thread with external hex



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ¹⁾
1	2 Tubing O.D. [mm]				
R ¹ / ₈	4	2	133071	NPQP-T-R18-Q4-FD-P10	10
	6	3.2	133073	NPQP-T-R18-Q6-FD-P10	10
	8	4.7	133075	NPQP-T-R18-Q8-FD-P10	10
R ¹ / ₄	4	2	133072	NPQP-T-R14-Q4-FD-P10	10
	6	3.2	133074	NPQP-T-R14-Q6-FD-P10	10
	8	4.7	133076	NPQP-T-R14-Q8-FD-P10	10
	10	5.8	133077	NPQP-T-R14-Q10-FD-P10	10
R ³ / ₈	10	5.8	133078	NPQP-T-R38-Q10-FD-P10	10
	12	6.9	133079	NPQP-T-R38-Q12-FD-P10	10
R ¹ / ₂	12	6.9	133080	NPQP-T-R12-Q12-FD	1

Push-in T-connector NPQP-T



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ¹⁾
1 Tubing O.D. [mm]	2 Tubing O.D. [mm]				
4	4	2.6	133110	NPQP-T-Q4-E-FD-P10	10
6	6	4	133111	NPQP-T-Q6-E-FD-P10	10
8	8	5	133112	NPQP-T-Q8-E-FD-P10	10
10	10	6.7	133113	NPQP-T-Q10-E-FD-P10	10
12	12	8.7	133114	NPQP-T-Q12-E-FD-P10	10
Reducing					
6	4	2.3	133115	NPQP-T-Q6-Q4-FD-P10	10
8	6	3.6	133116	NPQP-T-Q8-Q6-FD-P10	10
10	8	5	133117	NPQP-T-Q10-Q8-FD-P10	10
12	10	6.4	133118	NPQP-T-Q12-Q10-FD-P10	10

Push-in Y-fitting NPQP-Y

Male thread with external hex



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ¹⁾
1	2 Tubing O.D. [mm]				
R ¹ / ₈	4	2	133081	NPQP-Y-R18-Q4-FD-P10	10
	6	2.8	133083	NPQP-Y-R18-Q6-FD-P10	10
	8	4.5	133085	NPQP-Y-R18-Q8-FD-P10	10
R ¹ / ₄	4	2	133082	NPQP-Y-R14-Q4-FD-P10	10
	6	2.8	133084	NPQP-Y-R14-Q6-FD-P10	10
	8	4.5	133086	NPQP-Y-R14-Q8-FD-P10	10
	10	5.3	133087	NPQP-Y-R14-Q10-FD-P10	10
R ³ / ₈	10	5.3	133088	NPQP-Y-R38-Q10-FD-P10	10
	12	6.2	133089	NPQP-Y-R38-Q12-FD-P10	10
R ¹ / ₂	12	6.2	133090	NPQP-Y-R12-Q12-FD	1

1) Packaging unit per part

Ordering data

Push-in Y-connector NPQP-Y



Tubing O.D.		Nominal size [mm]	Part No.	Type	PU ¹⁾
1 Tubing O.D. [mm]	2 Tubing O.D. [mm]				
4	4	2.3	133119	NPQP-Y-Q4-E-FD-P10	10
6	6	3.6	133120	NPQP-Y-Q6-E-FD-P10	10
8	8	4.6	133121	NPQP-Y-Q8-E-FD-P10	10
10	10	5.9	133122	NPQP-Y-Q10-E-FD-P10	10
12	12	7	133123	NPQP-Y-Q12-E-FD-P10	10
Reducing					
6	4	2.3	133124	NPQP-Y-Q6-Q4-FD-P10	10
8	6	3.6	133125	NPQP-Y-Q8-Q6-FD-P10	10
10	8	4.7	133126	NPQP-Y-Q10-Q8-FD-P10	10
12	10	5.9	133127	NPQP-Y-Q12-Q10-FD-P10	10

1) Packaging unit per part

Push-in fittings QS, Quick Star



- Simple and reliable connection and release
- With R, G and metric thread
- Wide range of variants
- Rotatable
- ★ Quick ordering of basic designs → 1008

→ www.festo.com/catalogue/quick_star

Key features

QSM, Quick Star, mini



Miniature push-in fittings for high component density in confined spaces. Tubing O.D. of 2, 3, 4 and 6 mm with connecting threads M3, M5, M6, M7, R1/8 and G1/8.

QS, Quick Star



Wide selection of push-in fittings. Tubing O.D. of 4, 6, 8, 10, 12 and 16 mm with connecting threads R1/8 ... R1/2 and G1/8 ... G1/2.

Product range overview

Type	Version	Design	Pneumatic connection 1					Pneumatic connection 2		→ Page/online
			M thread	R thread	G thread	Tubing O.D.	Push-in sleeve	Tubing O.D.		
QSM, Quick Star, mini										
QSM	Push-in fitting	Straight	■	■	■	-	-	■	1008	
	Push-in connector		-	-	-	■	■	■	1009	
QSMS	Push-in bulkhead connector		-	-	-	■	-	■	qsmp qsmc	
QSMF	Push-in fitting		■	-	-	-	-	■		
QSMPL	Push-in fitting		■	-	-	-	-	■		
QSMC	Push-in cap		-	-	-	■	-	-		
	Blanking plug	-	-	-	-	■	-			
QSM	Push-in fitting	L-shape	■	■	■	-	-	■	1010	
	Push-in connector		-	-	-	■	■	■	1011	
QSMPLV	Push-in fitting	■	-	-	-	-	■	1012		
QSM	Push-in fitting	T-shape	■	■	■	-	-		■	
	Push-in connector		-	-	-	■	-		■	
QSMPL	Push-in fitting		■	■	■	-	-	■		
QSMX	Push-in connector	X-shape	-	-	-	■	-	■	qsmx	
QSMY	Push-in connector	Y-shape	-	-	-	■	-	■	1013	

Product range overview

Type	Version	Design	Pneumatic connection 1					Pneumatic connection 2		→ Page/ online
			M thread	R thread	G thread	Tubing O.D.	Push-in sleeve	Tubing O.D.		
QS, Quick Star										
QS	Push-in fitting	Straight	–	■	■	–	–	■	1014	
	Push-in connector		–	–	–	■	–	■	1015	
	Push-in connector		–	–	–	–	■	■	1016	
QSS	Push-in bulkhead connector		–	–	–	■	–	■		
QSF	Push-in fitting		–	–	■	–	–	■		
QSSF	Push-in bulkhead fitting		–	–	■	–	–	■	qssf	
QSC	Push-in cap		–	–	–	■	–	–	qsc	
	Blanking plug		–	–	–	–	■	–		
QSH	Push-in sleeve		–	–	–	–	■	–	qsh	
QSL	Push-in fitting		L-shape	–	■	■	–	–	■	1017
	Push-in connector	–		–	–	■	■	■	1019	
QSLF	Push-in fitting	–		–	■	–	–	■		
QSLV	Push-in fitting	■	■	■	–	–	■	1020		
QST	Push-in fitting	T-shape	–	■	■	–	–	■	1022	
	Push-in connector		–	–	–	■	–	■	1023	
QSTF	Push-in fitting		–	■	■	–	–	■		
QSTL	Push-in fitting	W-shape	–	■	■	–	–	■	1024	
	Push-in connector		–	–	–	–	■	■	1025	
QSX	Push-in connector	X-shape	–	–	–	■	–	■	qsx	
QSY	Push-in fitting	Y-shape	■	■	■	–	–	■	1025	
	Push-in connector		–	–	–	■	■	■	1026	
QSYL	Push-in fitting	Y-shape	–	■	■	–	–	■	1027	
QSYLV	Push-in fitting		–	■	■	–	–	■		
QSYTF	Push-in fitting		–	■	■	–	–	■	qsytf	

Technical data

Operating conditions		QSM	QS
Operating medium		Compressed air to ISO 8573-1:2010 [7:-:-]	Water as per manufacturer's declaration ¹⁾
Note on operating/pilot medium		Lubricated operation possible	
Operating pressure for entire temperature range [bar]		–0.95 ... +6	
Temperature-dependent operating pressure [bar]		–0.95 ... +14	
Ambient temperature [°C]		–10 ... +80	

1) Additional information at www.festo.com/sp → User Documentation.

Materials

Housing	PBT, nickel-plated brass
Tube retaining claw	High-alloy stainless steel
Releasing ring	POM
Tubing seal	NBR

Push-in fittings QSM, Quick Star, mini

★ Quick ordering¹⁾

Push-in fitting QSM

Male thread with external hex



Pneumatic connection		Nominal size	Part No.	Type	PU ²⁾
1	2				
Male thread	Tubing O.D. [mm]	[mm]			
Metric thread with sealing ring					
M3	2	0.9	133027	QSM-M3-2	10
	3	0.9	153301	QSM-M3-3	10
	4	1.1	153303	QSM-M3-4	10
M5	2	1.1	133028	QSM-M5-2	10
	3	2	153302	QSM-M5-3	10
	4	2.2	153304	QSM-M5-4	10
	6	2.1	153306	QSM-M5-6	10
M6	6	2.8	132600	QSM-M6-6	10
R thread					
R $\frac{1}{8}$	4	2.9	153305	QSM-R $\frac{1}{8}$ -4	10
	6	4.5	153307	QSM-R $\frac{1}{8}$ -6	10
G thread with sealing ring					
G $\frac{1}{8}$	4	2.9	186264	QSM-G $\frac{1}{8}$ -4	10
	6	2.8	186265	QSM-G $\frac{1}{8}$ -6	10

Push-in fitting QSM-...-I

Male thread with internal hex



Pneumatic connection		Nominal size	Part No.	Type	PU ²⁾
1	2				
Male thread	Tubing O.D. [mm]	[mm]			
Metric thread with sealing ring					
M3	2	1.1	133026	QSM-M3-2-I	10
	3	1.6	153312	QSM-M3-3-I	10
	4	1.5	153314	QSM-M3-4-I	10
M5	3	1.9	153313	QSM-M5-3-I	10
	4	2.5	153315	QSM-M5-4-I	10
	6	2.6	153317	QSM-M5-6-I	10
M7	4	3.1	153319	QSM-M7-4-I	10
	6	4.1	153321	QSM-M7-6-I	10
R thread					
R $\frac{1}{8}$	4	3.1	153316	QSM-R $\frac{1}{8}$ -4-I	10
	6	4.1	153318	QSM-R $\frac{1}{8}$ -6-I	10
G thread with sealing ring					
G $\frac{1}{8}$	4	3.1	186266	QSM-G $\frac{1}{8}$ -4-I	10
	6	4.1	186267	QSM-G $\frac{1}{8}$ -6-I	10

1) All products in this table are easy to select and quick to order.

2) Packaging unit per part

★ Quick ordering¹⁾

Push-in connector QSM



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ²⁾
1 Tubing O.D. [mm]	2 Tubing O.D. [mm]				
3	3	1.9	153323	QSM-3	10
4	4	2.6	153324	QSM-4	10
6	6	3.7	153325	QSM-6	10
Reducing					
3	2	1.1	133029	QSM-3-2	10
4	3	1.7	153326	QSM-4-3	10
6	4	2.7	153327	QSM-6-4	10

Push-in connector QSM-...H

with push-in sleeve



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ²⁾
1 Push-in sleeve	2 Tubing O.D. [mm]				
QS-3	2	1.1	133035	QSM-3H-2	10
QS-4	3	1.7	153328	QSM-4H-3	10
QS-6	4	2.6	153329	QSM-6H-4	10

Push-in bulkhead connector QSMS



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ²⁾
1 Tubing O.D. [mm]	2 Tubing O.D. [mm]				
3	3	1.7	153375	QSMS-3	10
4	4	2.2	153376	QSMS-4	10
6	6	3.7	153377	QSMS-6	10

Push-in fitting QSMF

Female thread with external hex



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ²⁾
1 Female thread	2 Tubing O.D. [mm]				
M3	3	1.3	153308	QSMF-M3-3	10
	4	2.1	153310	QSMF-M3-4	10
M5	3	1.9	153309	QSMF-M5-3	10
	4	1.8	153311	QSMF-M5-4	10

1) All products in this table are easy to select and quick to order.

2) Packaging unit per part

Push-in fittings QSM, Quick Star, mini

★ Quick ordering¹⁾

Push-in L-fitting QSML

Rotatable, male thread with external hex



Pneumatic connection		Nominal size	Part No.	Type	PU ²⁾
1	2				
Male thread	Tubing O.D. [mm]	[mm]			
Metric thread with sealing ring					
M3	2	0.8	133030	QSML-M3-2	10
	3	0.8	153330	QSML-M3-3	10
	4	1.3	153332	QSML-M3-4	10
M5	2	0.9	133031	QSML-M5-2	10
	3	1.5	153331	QSML-M5-3	10
	4	1.7	153333	QSML-M5-4	10
	6	2.1	153335	QSML-M5-6	10
M7	4	2	186352	QSML-M7-4	10
	6	2.4	186353	QSML-M7-6	10
R thread					
R $\frac{1}{8}$	4	2.5	153334	QSML- $\frac{1}{8}$ -4	10
	6	3.3	153336	QSML- $\frac{1}{8}$ -6	10
G thread with sealing ring					
G $\frac{1}{8}$	4	2.5	186268	QSML-G $\frac{1}{8}$ -4	10
	6	3.3	186269	QSML-G $\frac{1}{8}$ -6	10

Push-in long L-fitting QSMLL

Rotatable, male thread with external hex



Pneumatic connection		Nominal size	Part No.	Type	PU ²⁾
1	2				
Male thread	Tubing O.D. [mm]	[mm]			
Metric thread with sealing ring					
M3	2	0.8	133032	QSMLL-M3-2	10
	3	0.9	153337	QSMLL-M3-3	10
	4	1.1	153338	QSMLL-M3-4	10
M5	2	0.9	133033	QSMLL-M5-2	10
	3	1.5	130838	QSMLL-M5-3	10
	4	2	153339	QSMLL-M5-4	10
	6	2	153341	QSMLL-M5-6	10
M7	4	2	186354	QSMLL-M7-4	10
	6	2.4	186355	QSMLL-M7-6	10
R thread					
R $\frac{1}{8}$	4	2.3	153340	QSMLL- $\frac{1}{8}$ -4	10
	6	3.1	153342	QSMLL- $\frac{1}{8}$ -6	10
G thread with sealing ring					
G $\frac{1}{8}$	4	2.3	186270	QSMLL-G $\frac{1}{8}$ -4	10
	6	3.1	186271	QSMLL-G $\frac{1}{8}$ -6	10

1) All products in this table are easy to select and quick to order.

2) Packaging unit per part

★ Quick ordering¹⁾

Push-in L-connector QSML



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ²⁾
1 Tubing O.D. [mm]	2 Tubing O.D. [mm]				
3	3	1.7	153343	QSML-3	10
4	4	2.5	153344	QSML-4	10
6	6	3.4	153345	QSML-6	10

Push-in L-connector QSML-...H

with push-in sleeve



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ²⁾
1 Push-in sleeve	2 Tubing O.D. [mm]				
QS-3	3	1.2	153346	QSML-3H	10
QS-4	4	1.9	153347	QSML-4H	10
QS-6	6	3.2	153348	QSML-6H	10
Reducing					
QS-4	3	1.7	153349	QSML-4H-3	10
QS-6	4	1.9	153350	QSML-6H-4	10

Push-in L-fitting QSMLV-...-I

Rotatable, male thread with internal hex



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ²⁾
1 Male thread	2 Tubing O.D. [mm]				
Metric thread with sealing ring					
M5	3	1.7	130830	QSMLV-M5-3-I	10
	4	1.8	130831	QSMLV-M5-4-I	10
M7	4	1.9	130832	QSMLV-M7-4-I	10
	6	1.8	130833	QSMLV-M7-6-I	10

Push-in long L-fitting QSMLLV-...-I

Rotatable, male thread with internal hex



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ²⁾
1 Male thread	2 Tubing O.D. [mm]				
Metric thread with sealing ring					
M5	3	1.6	130834	QSMLLV-M5-3-I	10
	4	1.8	130835	QSMLLV-M5-4-I	10
M7	4	1.9	130836	QSMLLV-M7-4-I	10
	6	1.9	130837	QSMLLV-M7-6-I	10

1) All products in this table are easy to select and quick to order.

2) Packaging unit per part

Push-in fittings QSM, Quick Star, mini

★ Quick ordering¹⁾

Push-in T-fitting QSMT

Rotatable, male thread with external hex



Pneumatic connection		Nominal size	Part No.	Type	PU ²⁾
1	2				
Male thread	Tubing O.D. [mm]	[mm]			
Metric thread with sealing ring					
M3	3	0.9	153351	QSMT-M3-3	10
	4	1.3	153353	QSMT-M3-4	10
M5	3	1.6	153352	QSMT-M5-3	10
	4	2.2	153354	QSMT-M5-4	10
	6	2.1	153356	QSMT-M5-6	10
R thread					
R1/8	4	2.4	153355	QSMT-1/8-4	10
	6	3.3	153357	QSMT-1/8-6	10
G thread with sealing ring					
G1/8	4	2.4	186272	QSMT-G1/8-4	10
	6	3.3	186273	QSMT-G1/8-6	10

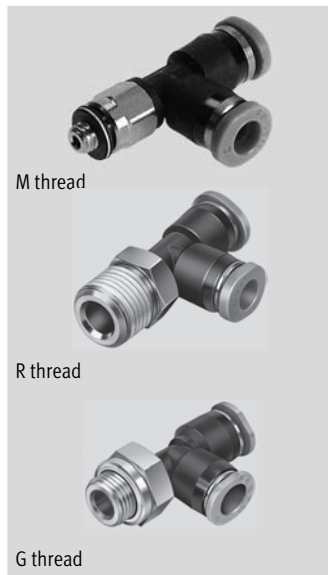
Push-in T-connector QSMT



Pneumatic connection		Nominal size	Part No.	Type	PU ²⁾
1	2				
Tubing O.D. [mm]	Tubing O.D. [mm]	[mm]			
2	2	0.9	133034	QSMT-2	10
3	3	1.6	153365	QSMT-3	10
4	4	2.4	153366	QSMT-4	10
6	6	3.4	153367	QSMT-6	10
Reducing					
4	3	1.7	153368	QSMT-4-3	10
6	4	2.6	153369	QSMT-6-4	10

Push-in T-fitting QSMTL

Rotatable, male thread with external hex



Pneumatic connection		Nominal size	Part No.	Type	PU ²⁾
1	2				
Male thread	Tubing O.D. [mm]	[mm]			
Metric thread with sealing ring					
M3	3	0.9	153358	QSMTL-M3-3	10
	4	1.1	153360	QSMTL-M3-4	10
M5	3	1.7	153359	QSMTL-M5-3	10
	4	1.6	153361	QSMTL-M5-4	10
	6	1.7	153363	QSMTL-M5-6	10
R thread					
R1/8	4	2.4	153362	QSMTL-1/8-4	10
	6	3.3	153364	QSMTL-1/8-6	10
G thread with sealing ring					
G1/8	4	2.4	186274	QSMTL-G1/8-4	10
	6	3.3	186275	QSMTL-G1/8-6	10

1) All products in this table are easy to select and quick to order.

2) Packaging unit per part

★ Quick ordering¹⁾

Push-in Y-connector QSMY



Pneumatic connection		Nominal size	Part No.	Type	PU ²⁾
1 Tubing O.D. [mm]	2 Tubing O.D. [mm]	[mm]			
2	2	0.9	133037	QSMY-2	10
3	3	1.6	153370	QSMY-3	10
4	4	1.7	153371	QSMY-4	10
6	6	2.9	153372	QSMY-6	10
2 reducing outlets					
4	3	1.6	153373	QSMY-4-3	10
6	4	2.8	153374	QSMY-6-4	10

1) All products in this table are easy to select and quick to order.

2) Packaging unit per part

Push-in fittings QS, Quick Star

★ Quick ordering¹⁾

Push-in fitting QS

Male thread with external hex



Pneumatic connection		Nominal size	Part No.	Type	PU ²⁾
1	2				
Male thread	Tubing O.D. [mm]	[mm]			
R thread					
R $\frac{1}{8}$	4	2.6	153001	QS-$\frac{1}{8}$-4	10
	6	4	153002	QS-$\frac{1}{8}$-6	10
	8	5	153004	QS-$\frac{1}{8}$-8	10
	10	5.4	190643	QS-$\frac{1}{8}$-10	10
R $\frac{1}{4}$	4	2.6	190644	QS-$\frac{1}{4}$-4	10
	6	4	153003	QS-$\frac{1}{4}$-6	10
	8	5	153005	QS-$\frac{1}{4}$-8	10
	10	6.7	153007	QS-$\frac{1}{4}$-10	10
	12	8.7	164980	QS-$\frac{1}{4}$-12	10
R $\frac{3}{8}$	6	4	190645	QS-$\frac{3}{8}$-6	10
	8	5	153006	QS-$\frac{3}{8}$-8	10
	10	6.7	153008	QS-$\frac{3}{8}$-10	10
	12	8.7	153009	QS-$\frac{3}{8}$-12	10
	16	10.3	164957	QS-$\frac{3}{8}$-16	1
R $\frac{1}{2}$	10	6.7	190646	QS-$\frac{1}{2}$-10	1
	12	8.7	153010	QS-$\frac{1}{2}$-12	1
	16	12	153011	QS-$\frac{1}{2}$-16	1
G thread with sealing ring					
G $\frac{1}{8}$	4	2.6	186095	QS-G$\frac{1}{8}$-4	10
	6	4	186096	QS-G$\frac{1}{8}$-6	10
	8	5	186098	QS-G$\frac{1}{8}$-8	10
G $\frac{1}{4}$	6	4	186097	QS-G$\frac{1}{4}$-6	10
	8	5	186099	QS-G$\frac{1}{4}$-8	10
	10	6.7	186101	QS-G$\frac{1}{4}$-10	10
	12	6.3	186350	QS-G$\frac{1}{4}$-12	10
G $\frac{3}{8}$	8	5	186100	QS-G$\frac{3}{8}$-8	10
	10	6.7	186102	QS-G$\frac{3}{8}$-10	10
	12	8.7	186103	QS-G$\frac{3}{8}$-12	10
	16	10.3	186347	QS-G$\frac{3}{8}$-16	1
G $\frac{1}{2}$	12	8.7	186104	QS-G$\frac{1}{2}$-12	1
	16	12	186105	QS-G$\frac{1}{2}$-16	1

1) All products in this table are easy to select and quick to order.

2) Packaging unit per part

★ Quick ordering¹⁾

Push-in fitting QS-...-I

Male thread with internal hex



Pneumatic connection		Nominal size	Part No.	Type	PU ²⁾
1	2				
Male thread	Tubing O.D. [mm]	[mm]			
R thread					
R $\frac{1}{8}$	4	2.1	153012	QS- $\frac{1}{8}$ -4-I	10
	6	3.7	153013	QS- $\frac{1}{8}$ -6-I	10
	8	4.7	153015	QS- $\frac{1}{8}$ -8-I	10
	10	4.9	190647	QS- $\frac{1}{8}$ -10-I	10
R $\frac{1}{4}$	6	3.7	153014	QS- $\frac{1}{4}$ -6-I	10
	8	5	153016	QS- $\frac{1}{4}$ -8-I	10
	10	5	153018	QS- $\frac{1}{4}$ -10-I	10
	12	5.7	190649	QS- $\frac{1}{4}$ -12-I	10
R $\frac{3}{8}$	8	5	153017	QS- $\frac{3}{8}$ -8-I	10
	10	5	153019	QS- $\frac{3}{8}$ -10-I	10
	12	7.1	153020	QS- $\frac{3}{8}$ -12-I	10
R $\frac{1}{2}$	10	5	190648	QS- $\frac{1}{2}$ -10-I	1
	12	7.1	153021	QS- $\frac{1}{2}$ -12-I	1
G thread with sealing ring					
G $\frac{1}{8}$	4	2.1	186106	QS-G $\frac{1}{8}$ -4-I	10
	6	3.7	186107	QS-G $\frac{1}{8}$ -6-I	10
	8	4.7	186109	QS-G $\frac{1}{8}$ -8-I	10
	10	4.9	132999	QS-G $\frac{1}{8}$ -10-I	10
G $\frac{1}{4}$	6	3.7	186108	QS-G $\frac{1}{4}$ -6-I	10
	8	5	186110	QS-G $\frac{1}{4}$ -8-I	10
	10	6.7	186112	QS-G $\frac{1}{4}$ -10-I	10
G $\frac{3}{8}$	8	5	186111	QS-G $\frac{3}{8}$ -8-I	10
	10	6.7	186113	QS-G $\frac{3}{8}$ -10-I	10
	12	7.1	186114	QS-G $\frac{3}{8}$ -12-I	10
G $\frac{1}{2}$	12	7.1	186115	QS-G $\frac{1}{2}$ -12-I	1

Push-in connector QS



Pneumatic connection		Nominal size	Part No.	Type	PU ²⁾
1	2				
Tubing O.D. [mm]	Tubing O.D. [mm]	[mm]			
4	4	2.6	153031	QS-4	10
6	6	4	153032	QS-6	10
8	8	5	153033	QS-8	10
10	10	6.7	153034	QS-10	10
12	12	8.7	153035	QS-12	10
16	16	13.7	153036	QS-16	1
Reducing					
6	4	2.6	153037	QS-6-4	10
8	4	2.3	130606	QS-8-4	10
	6	4	153038	QS-8-6	10
10	6	3.7	130607	QS-10-6	10
	8	5	153039	QS-10-8	10
12	8	5.2	130608	QS-12-8	10
	10	6.7	153040	QS-12-10	10

1) All products in this table are easy to select and quick to order.

2) Packaging unit per part

Push-in fittings QS, Quick Star

★ Quick ordering¹⁾

Push-in connector QS-...H

with push-in sleeve



Pneumatic connection		Nominal size	Part No.	Type	PU ²⁾
1	2				
Push-in sleeve	Tubing O.D. [mm]	[mm]			
QS-6	4	2.5	153041	QS-6H-4	10
QS-8	4	2.4	130622	QS-8H-4	10
	6	3.8	153042	QS-8H-6	10
QS-10	6	3.8	130623	QS-10H-6	10
	8	5.4	153043	QS-10H-8	10
QS-12	6	3.8	132981	QS-12H-6	10
	8	5.4	130624	QS-12H-8	10
	10	6.3	153044	QS-12H-10	10

Push-in bulkhead connector QSS



With fixed collar

Pneumatic connection		Nominal size	Part No.	Type	PU ²⁾
1	2				
Tubing O.D. [mm]	Tubing O.D. [mm]	[mm]			
4	4	2.6	153157	QSS-4	10
6	6	4	153158	QSS-6	10
8	8	5	153159	QSS-8	10
10	10	6.7	153160	QSS-10	10
12	12	9.5	153161	QSS-12	10
With fixed collar					
8	8	5.5	130642	QSS-8-F	10
10	10	6.5	130643	QSS-10-F	10
12	12	7.5	130644	QSS-12-F	10

Push-in fitting QSF

Female thread with external hex



Pneumatic connection		Nominal size	Part No.	Type	PU ²⁾
1	2				
Female thread	Tubing O.D. [mm]	[mm]			
G ¹ / ₈	4	2.6	153022	QSF- ¹ / ₈ -4-B	10
	6	4	153023	QSF- ¹ / ₈ -6-B	10
	8	5.8	153025	QSF- ¹ / ₈ -8-B	10
G ¹ / ₄	4	2.8	190650	QSF- ¹ / ₄ -4-B	10
	6	4	153024	QSF- ¹ / ₄ -6-B	10
	8	5.8	153026	QSF- ¹ / ₄ -8-B	10
	10	7.4	153028	QSF- ¹ / ₄ -10-B	10
	12	7.2	190651	QSF- ¹ / ₄ -12-B	10
G ³ / ₈	6	4.1	190652	QSF- ³ / ₈ -6-B	10
	8	5.8	153027	QSF- ³ / ₈ -8-B	10
	10	7.4	153029	QSF- ³ / ₈ -10-B	10
	12	9.5	153030	QSF- ³ / ₈ -12-B	10
G ¹ / ₂	12	9.5	190653	QSF- ¹ / ₂ -12-B	1
	16	10.6	190654	QSF- ¹ / ₂ -16-B	1

1) All products in this table are easy to select and quick to order.

2) Packaging unit per part

★ Quick ordering¹⁾

Push-in L-fitting QSL

Rotatable, male thread with external hex



Pneumatic connection		Nominal size	Part No.	Type	PU ²⁾
1	2				
Male thread	Tubing O.D. [mm]	[mm]			
R thread					
R $\frac{1}{8}$	4	2.3	153045	QSL- $\frac{1}{8}$ -4	10
	6	3.6	153046	QSL- $\frac{1}{8}$ -6	10
	8	4.6	153048	QSL- $\frac{1}{8}$ -8	10
	10	5.3	190658	QSL- $\frac{1}{8}$ -10	10
R $\frac{1}{4}$	4	2.3	190659	QSL- $\frac{1}{4}$ -4	10
	6	3.6	153047	QSL- $\frac{1}{4}$ -6	10
	8	4.6	153049	QSL- $\frac{1}{4}$ -8	10
	10	6.2	153051	QSL- $\frac{1}{4}$ -10	10
	12	7.7	164981	QSL- $\frac{1}{4}$ -12	10
R $\frac{3}{8}$	6	3.6	190660	QSL- $\frac{3}{8}$ -6	10
	8	4.6	153050	QSL- $\frac{3}{8}$ -8	10
	10	6.2	153052	QSL- $\frac{3}{8}$ -10	10
	12	7.7	153053	QSL- $\frac{3}{8}$ -12	10
	16	10.1	164958	QSL- $\frac{3}{8}$ -16	1
R $\frac{1}{2}$	10	6.2	190661	QSL- $\frac{1}{2}$ -10	1
	12	7.7	153054	QSL- $\frac{1}{2}$ -12	1
	16	10.9	153055	QSL- $\frac{1}{2}$ -16	1
G thread with sealing ring					
G $\frac{1}{8}$	4	2.3	186116	QSL-G $\frac{1}{8}$ -4	10
	6	3.6	186117	QSL-G $\frac{1}{8}$ -6	10
	8	4.6	186119	QSL-G $\frac{1}{8}$ -8	10
G $\frac{1}{4}$	6	3.6	186118	QSL-G $\frac{1}{4}$ -6	10
	8	4.6	186120	QSL-G $\frac{1}{4}$ -8	10
	10	6.2	186122	QSL-G $\frac{1}{4}$ -10	10
	12	6.2	186351	QSL-G $\frac{1}{4}$ -12	10
G $\frac{3}{8}$	8	4.6	186121	QSL-G $\frac{3}{8}$ -8	10
	10	6.2	186123	QSL-G $\frac{3}{8}$ -10	10
	12	7.7	186124	QSL-G $\frac{3}{8}$ -12	10
	16	10.1	186348	QSL-G $\frac{3}{8}$ -16	1
G $\frac{1}{2}$	12	7.7	186125	QSL-G $\frac{1}{2}$ -12	1
	16	10.9	186126	QSL-G $\frac{1}{2}$ -16	1

1) All products in this table are easy to select and quick to order.

2) Packaging unit per part

Push-in fittings QS, Quick Star

★ Quick ordering¹⁾

Push-in long L-fitting QSLL

Rotatable, male thread with external hex



Pneumatic connection		Nominal size	Part No.	Type	PU ²⁾
1	2				
Male thread	Tubing O.D. [mm]	[mm]			
R thread					
R ¹ / ₈	4	2.3	153076	QSLL-R¹/₈-4	10
	6	3.6	153077	QSLL-R¹/₈-6	10
	8	4.6	153079	QSLL-R¹/₈-8	10
R ¹ / ₄	4	2.9	190662	QSLL-R¹/₄-4	10
	6	3.6	153078	QSLL-R¹/₄-6	10
	8	4.6	153080	QSLL-R¹/₄-8	10
	10	6.2	153082	QSLL-R¹/₄-10	10
R ³ / ₈	6	3.5	190663	QSLL-R³/₈-6	10
	8	4.8	153081	QSLL-R³/₈-8	10
	10	6.2	153083	QSLL-R³/₈-10	10
	12	7.5	153084	QSLL-R³/₈-12	10
R ¹ / ₂	10	6.4	190664	QSLL-R¹/₂-10	1
	12	8.3	153085	QSLL-R¹/₂-12	1
G thread with sealing ring					
G ¹ / ₈	4	2.3	186127	QSLL-G¹/₈-4	10
	6	3.6	186128	QSLL-G¹/₈-6	10
	8	4.6	186130	QSLL-G¹/₈-8	10
G ¹ / ₄	6	3.6	186129	QSLL-G¹/₄-6	10
	8	4.6	186131	QSLL-G¹/₄-8	10
	10	6.2	186133	QSLL-G¹/₄-10	10
	12	8	132596	QSLL-G¹/₄-12	1
G ³ / ₈	8	4.8	186132	QSLL-G³/₈-8	10
	10	6.2	186134	QSLL-G³/₈-10	10
	12	7.5	186135	QSLL-G³/₈-12	10
G ¹ / ₂	12	8.3	186136	QSLL-G¹/₂-12	1
	16	10	190665	QSLL-G¹/₂-16	1

1) All products in this table are easy to select and quick to order.

2) Packaging unit per part

★ Quick ordering¹⁾

Push-in L-connector QSL



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ²⁾
1 Tubing O.D. [mm]	2 Tubing O.D. [mm]				
4	4	2.3	153070	QSL-4	10
6	6	3.6	153071	QSL-6	10
8	8	4.6	153072	QSL-8	10
10	10	6.2	153073	QSL-10	10
12	12	7.7	153074	QSL-12	10
16	16	10.8	153075	QSL-16	1

Push-in L-connector QSL-...H

with push-in sleeve



Long push-in sleeve

Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ²⁾
1 Push-in sleeve	2 Tubing O.D. [mm]				
QS-4	4	2	153056	QSL-4H	10
QS-6	6	3.2	153057	QSL-6H	10
QS-8	8	4.7	153058	QSL-8H	10
QS-10	10	5.7	153059	QSL-10H	10
QS-12	12	6.8	153060	QSL-12H	10
Reducing					
QS-6	4	2.4	153061	QSL-6H-4	10
QS-8	6	3.5	153062	QSL-8H-6	10
QS-10	8	4.9	153063	QSL-10H-8	10
QS-12	10	6.1	153064	QSL-12H-10	10
Long push-in sleeve					
QS-4	4	2	153065	QSL-4HL	10
QS-6	6	3.1	153066	QSL-6HL	10
QS-8	8	4.5	153067	QSL-8HL	10
QS-10	10	5.6	153068	QSL-10HL	10
QS-12	12	6.7	153069	QSL-12HL	10

Push-in L-fitting QSLF

Female thread with external hex



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ²⁾
1 Female thread	2 Tubing O.D. [mm]				
G thread					
G $\frac{1}{8}$	4	2.1	153273	QSLF- $\frac{1}{8}$ -4-B	10
	6	3.6	153274	QSLF- $\frac{1}{8}$ -6-B	10
	8	4.7	153276	QSLF- $\frac{1}{8}$ -8-B	10
G $\frac{1}{4}$	6	3.6	153275	QSLF- $\frac{1}{4}$ -6-B	10
	8	4.7	153277	QSLF- $\frac{1}{4}$ -8-B	10
	10	5.4	153279	QSLF- $\frac{1}{4}$ -10-B	10
G $\frac{3}{8}$	8	4.8	153278	QSLF- $\frac{3}{8}$ -8-B	10
	10	6.2	153280	QSLF- $\frac{3}{8}$ -10-B	10

1) All products in this table are easy to select and quick to order.

2) Packaging unit per part

Push-in fittings QS, Quick Star

★ Quick ordering¹⁾

Push-in L-fitting QSLV

Rotatable, male thread with external hex



Pneumatic connection		Nominal size	Part No.	Type	PU ²⁾
1	2				
Male thread	Tubing O.D. [mm]	[mm]			
Metric thread with sealing ring					
M5	6	1.6	190666	QSLV-M5-6	10
R thread					
R $\frac{1}{8}$	4	2.4	153086	QSLV-$\frac{1}{8}$-4	10
	6	3.7	153087	QSLV-$\frac{1}{8}$-6	10
	8	4.4	153089	QSLV-$\frac{1}{8}$-8	10
R $\frac{1}{4}$	6	3.8	153088	QSLV-$\frac{1}{4}$-6	10
	8	5	153090	QSLV-$\frac{1}{4}$-8	10
	10	5.4	153092	QSLV-$\frac{1}{4}$-10	10
R $\frac{3}{8}$	8	5.2	153091	QSLV-$\frac{3}{8}$-8	10
	10	6.3	153093	QSLV-$\frac{3}{8}$-10	10
	12	7.1	153094	QSLV-$\frac{3}{8}$-12	10
R $\frac{1}{2}$	12	8	153095	QSLV-$\frac{1}{2}$-12	1
	16	8.9	153096	QSLV-$\frac{1}{2}$-16	1
G thread with sealing ring					
G $\frac{1}{8}$	4	2.3	186137	QSLV-G$\frac{1}{8}$-4	10
	6	3.5	186138	QSLV-G$\frac{1}{8}$-6	10
	8	4	186140	QSLV-G$\frac{1}{8}$-8	10
G $\frac{1}{4}$	6	3.7	186139	QSLV-G$\frac{1}{4}$-6	10
	8	4.9	186141	QSLV-G$\frac{1}{4}$-8	10
	10	5.3	186143	QSLV-G$\frac{1}{4}$-10	10
G $\frac{3}{8}$	8	5.4	186142	QSLV-G$\frac{3}{8}$-8	10
	10	6.4	186144	QSLV-G$\frac{3}{8}$-10	10
	12	6.4	186145	QSLV-G$\frac{3}{8}$-12	10
G $\frac{1}{2}$	12	7	186146	QSLV-G$\frac{1}{2}$-12	1
	16	8.1	186147	QSLV-G$\frac{1}{2}$-16	1

1) All products in this table are easy to select and quick to order.

2) Packaging unit per part

★ Quick ordering¹⁾

Push-in L-fitting QSLV-...-I

Rotatable, male thread with internal hex



Pneumatic connection		Nominal size	Part No.	Type	PU ²⁾
1	2				
Male thread	Tubing O.D. [mm]	[mm]			
R thread					
R $\frac{1}{8}$	6	3	153097	QSLV-$\frac{1}{8}$-6-I	10
	8	4.2	153099	QSLV-$\frac{1}{8}$-8-I	10
R $\frac{1}{4}$	6	3.1	153098	QSLV-$\frac{1}{4}$-6-I	10
	8	4	153100	QSLV-$\frac{1}{4}$-8-I	10
	10	5.4	153102	QSLV-$\frac{1}{4}$-10-I	10
R $\frac{3}{8}$	8	4.2	153101	QSLV-$\frac{3}{8}$-8-I	10
	10	5.4	153103	QSLV-$\frac{3}{8}$-10-I	10
	12	6.9	153104	QSLV-$\frac{3}{8}$-12-I	10
R $\frac{1}{2}$	12	6.4	153105	QSLV-$\frac{1}{2}$-12-I	1
G thread with sealing ring					
G $\frac{1}{8}$	6	3	186148	QSLV-G$\frac{1}{8}$-6-I	10
	8	4.2	186150	QSLV-G$\frac{1}{8}$-8-I	10
G $\frac{1}{4}$	6	3.1	186149	QSLV-G$\frac{1}{4}$-6-I	10
	8	4	186151	QSLV-G$\frac{1}{4}$-8-I	10
	10	5.4	186153	QSLV-G$\frac{1}{4}$-10-I	10
G $\frac{3}{8}$	8	4.2	186152	QSLV-G$\frac{3}{8}$-8-I	10
	10	5.4	186154	QSLV-G$\frac{3}{8}$-10-I	10
	12	6.9	186155	QSLV-G$\frac{3}{8}$-12-I	10
G $\frac{1}{2}$	12	6.4	186156	QSLV-G$\frac{1}{2}$-12-I	1

1) All products in this table are easy to select and quick to order.

2) Packaging unit per part

Push-in fittings QS, Quick Star

★ Quick ordering¹⁾

Push-in T-fitting QST

Rotatable, male thread with external hex



Pneumatic connection		Nominal size	Part No.	Type	PU ²⁾
1	2				
Male thread	Tubing O.D. [mm]	[mm]			
R thread					
R $\frac{1}{8}$	4	4.1	153106	QST-$\frac{1}{8}$-4	10
	6	4.7	153107	QST-$\frac{1}{8}$-6	10
	8	5.4	153109	QST-$\frac{1}{8}$-8	10
	10	5.6	190667	QST-$\frac{1}{8}$-10	10
R $\frac{1}{4}$	4	2.3	190668	QST-$\frac{1}{4}$-4	10
	6	5.7	153108	QST-$\frac{1}{4}$-6	10
	8	6	153110	QST-$\frac{1}{4}$-8	10
	10	7.3	153112	QST-$\frac{1}{4}$-10	10
	12	6.2	190669	QST-$\frac{1}{4}$-12	10
R $\frac{3}{8}$	6	3.6	190670	QST-$\frac{3}{8}$-6	10
	8	7.2	153111	QST-$\frac{3}{8}$-8	10
	10	8	153113	QST-$\frac{3}{8}$-10	10
	12	8.8	153114	QST-$\frac{3}{8}$-12	10
	16	10.1	164959	QST-$\frac{3}{8}$-16	1
R $\frac{1}{2}$	10	6.2	190672	QST-$\frac{1}{2}$-10	1
	12	9.9	153115	QST-$\frac{1}{2}$-12	1
	16	10.8	153116	QST-$\frac{1}{2}$-16	1
G thread with sealing ring					
G $\frac{1}{8}$	4	2.3	186157	QST-G$\frac{1}{8}$-4	10
	6	3.6	186158	QST-G$\frac{1}{8}$-6	10
	8	4.6	186160	QST-G$\frac{1}{8}$-8	10
G $\frac{1}{4}$	6	3.6	186159	QST-G$\frac{1}{4}$-6	10
	8	4.6	186161	QST-G$\frac{1}{4}$-8	10
	10	6.2	186163	QST-G$\frac{1}{4}$-10	10
	12	8	132597	QST-G$\frac{1}{4}$-12	1
G $\frac{3}{8}$	8	4.6	186162	QST-G$\frac{3}{8}$-8	10
	10	6.2	186164	QST-G$\frac{3}{8}$-10	10
	12	7.7	186165	QST-G$\frac{3}{8}$-12	10
	16	10.1	186349	QST-G$\frac{3}{8}$-16	1
G $\frac{1}{2}$	12	7.7	186166	QST-G$\frac{1}{2}$-12	1
	16	10.8	186167	QST-G$\frac{1}{2}$-16	1

1) All products in this table are easy to select and quick to order.

2) Packaging unit per part

★ Quick ordering¹⁾

Push-in T-connector QST



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ²⁾
1 Tubing O.D. [mm]	2 Tubing O.D. [mm]				
4	4	2.6	153128	QST-4	10
6	6	4	153129	QST-6	10
8	8	5	153130	QST-8	10
10	10	6.7	153131	QST-10	10
12	12	8.7	153132	QST-12	10
16	16	10.7	153133	QST-16	1
Reducing					
6	4	2.3	153134	QST-6-4	10
8	4	2.3	130613	QST-8-4	10
8	6	3.5	153135	QST-8-6	10
10	6	3.7	130614	QST-10-6	10
10	8	4.9	153136	QST-10-8	10
12	8	5.1	130615	QST-12-8	10
12	10	6.1	153137	QST-12-10	10
16	12	7.6	130616	QST-16-12	1

Push-in T-fitting QSTF

Rotatable, female and male thread with external hex



R thread

G thread

Pneumatic connection			Nominal size [mm]	Part No.	Type	PU ²⁾
1 Male thread	2 Female thread	Tubing O.D. [mm]				
R thread						
R $\frac{1}{8}$	G $\frac{1}{8}$	4	2.5	153182	QSTF- $\frac{1}{8}$ -4-B	1
		6	3.3	153183	QSTF- $\frac{1}{8}$ -6-B	1
		8	3.6	153185	QSTF- $\frac{1}{8}$ -8-B	1
R $\frac{1}{4}$	G $\frac{1}{4}$	6	3.6	153184	QSTF- $\frac{1}{4}$ -6-B	1
		8	4.4	153186	QSTF- $\frac{1}{4}$ -8-B	1
		10	4.4	153188	QSTF- $\frac{1}{4}$ -10-B	1
R $\frac{3}{8}$	G $\frac{3}{8}$	8	4.9	153187	QSTF- $\frac{3}{8}$ -8-B	1
		10	5.6	153189	QSTF- $\frac{3}{8}$ -10-B	1
		12	6	153190	QSTF- $\frac{3}{8}$ -12-B	1
R $\frac{1}{2}$	G $\frac{1}{2}$	12	7.4	153191	QSTF- $\frac{1}{2}$ -12-B	1
G thread with sealing ring						
G $\frac{1}{8}$	G $\frac{1}{8}$	4	2.4	186199	QSTF-G $\frac{1}{8}$ -4	1
		6	3.2	186200	QSTF-G $\frac{1}{8}$ -6	1
		8	3.7	186202	QSTF-G $\frac{1}{8}$ -8	1
G $\frac{1}{4}$	G $\frac{1}{4}$	6	3.7	186201	QSTF-G $\frac{1}{4}$ -6	1
		8	4.4	186203	QSTF-G $\frac{1}{4}$ -8	1
		10	4.9	186205	QSTF-G $\frac{1}{4}$ -10	1
G $\frac{3}{8}$	G $\frac{3}{8}$	8	4.9	186204	QSTF-G $\frac{3}{8}$ -8	1
		10	5.8	186206	QSTF-G $\frac{3}{8}$ -10	1
		12	6	186207	QSTF-G $\frac{3}{8}$ -12	1
G $\frac{1}{2}$	G $\frac{1}{2}$	12	7	186208	QSTF-G $\frac{1}{2}$ -12	1

1) All products in this table are easy to select and quick to order.

2) Packaging unit per part

Push-in fittings QS, Quick Star

★ Quick ordering¹⁾

Push-in T-fitting QSTL

Rotatable, male thread with external hex



Pneumatic connection		Nominal size	Part No.	Type	PU ²⁾
1	2				
Male thread	Tubing O.D. [mm]	[mm]			
R thread					
R $\frac{1}{8}$	4	2.6	153117	QSTL- $\frac{1}{8}$ -4	10
	6	4	153118	QSTL- $\frac{1}{8}$ -6	10
	8	5	153120	QSTL- $\frac{1}{8}$ -8	10
R $\frac{1}{4}$	6	4	153119	QSTL- $\frac{1}{4}$ -6	10
	8	5	153121	QSTL- $\frac{1}{4}$ -8	10
	10	6.7	153123	QSTL- $\frac{1}{4}$ -10	10
R $\frac{3}{8}$	8	5	153122	QSTL- $\frac{3}{8}$ -8	10
	10	6.7	153124	QSTL- $\frac{3}{8}$ -10	10
	12	8.7	153125	QSTL- $\frac{3}{8}$ -12	10
R $\frac{1}{2}$	12	8.7	153126	QSTL- $\frac{1}{2}$ -12	1
	16	10.9	153127	QSTL- $\frac{1}{2}$ -16	1
G thread with sealing ring					
G $\frac{1}{8}$	4	2.6	186168	QSTL-G $\frac{1}{8}$ -4	10
	6	4	186169	QSTL-G $\frac{1}{8}$ -6	10
	8	5	186171	QSTL-G $\frac{1}{8}$ -8	10
G $\frac{1}{4}$	6	4	186170	QSTL-G $\frac{1}{4}$ -6	10
	8	5	186172	QSTL-G $\frac{1}{4}$ -8	10
	10	6.7	186174	QSTL-G $\frac{1}{4}$ -10	10
G $\frac{3}{8}$	8	5	186173	QSTL-G $\frac{3}{8}$ -8	10
	10	6.7	186175	QSTL-G $\frac{3}{8}$ -10	10
	12	8.7	186176	QSTL-G $\frac{3}{8}$ -12	10
G $\frac{1}{2}$	12	8.7	186177	QSTL-G $\frac{1}{2}$ -12	1
	16	10.9	187178	QSTL-G $\frac{1}{2}$ -16	1

Push-in fitting QSW

Rotatable, male thread with external hex



Pneumatic connection		Nominal size	Part No.	Type	PU ²⁾
1	2				
Male thread	Tubing O.D. [mm]	[mm]			
R thread					
R $\frac{1}{8}$	4	2.5	130596	QSW- $\frac{1}{8}$ -4	10
	6	3.3	130597	QSW- $\frac{1}{8}$ -6	10
	8	5.3	130598	QSW- $\frac{1}{8}$ -8	10
R $\frac{1}{4}$	6	3.3	130599	QSW- $\frac{1}{4}$ -6	10
	8	5.3	130600	QSW- $\frac{1}{4}$ -8	10
	10	7	130601	QSW- $\frac{1}{4}$ -10	10
R $\frac{3}{8}$	10	7	130602	QSW- $\frac{3}{8}$ -10	10
	12	7.5	130603	QSW- $\frac{3}{8}$ -12	10
R $\frac{1}{2}$	12	7.5	130604	QSW- $\frac{1}{2}$ -12	1
	16	10.7	130605	QSW- $\frac{1}{2}$ -16	1

1) All products in this table are easy to select and quick to order.

2) Packaging unit per part

★ Quick ordering¹⁾

Push-in connector QSW-...HL
with push-in sleeve



Pneumatic connection		Nominal size	Part No.	Type	PU ²⁾
1	2				
Push-in sleeve	Tubing O.D. [mm]	[mm]			
QS-4	4	2	130617	QSW-4HL	10
QS-6	6	2.7	130618	QSW-6HL	10
QS-8	8	5	130619	QSW-8HL	10
QS-10	10	6.3	130620	QSW-10HL	10
QS-12	12	6.9	130621	QSW-12HL	10

Push-in Y-fitting QSY

Rotatable, male thread with external hex



Pneumatic connection		Nominal size	Part No.	Type	PU ²⁾
1	2				
Male thread	Tubing O.D. [mm]	[mm]			
Metric thread with sealing ring					
M5	4	1.4	190673	QSY-M5-4	10
	6	1.4	190674	QSY-M5-6	10
R thread					
R $\frac{1}{8}$	4	2.3	153138	QSY- $\frac{1}{8}$ -4	10
	6	3.6	153139	QSY- $\frac{1}{8}$ -6	10
	8	4.6	153141	QSY- $\frac{1}{8}$ -8	10
R $\frac{1}{4}$	4	2.3	190675	QSY- $\frac{1}{4}$ -4	10
	6	3.6	153140	QSY- $\frac{1}{4}$ -6	10
	8	4.6	153142	QSY- $\frac{1}{4}$ -8	10
	10	6.2	153144	QSY- $\frac{1}{4}$ -10	10
R $\frac{3}{8}$	8	4.6	153143	QSY- $\frac{3}{8}$ -8	10
	10	6.2	153145	QSY- $\frac{3}{8}$ -10	10
	12	6.9	153146	QSY- $\frac{3}{8}$ -12	10
R $\frac{1}{2}$	12	6.9	153147	QSY- $\frac{1}{2}$ -12	1
G thread with sealing ring					
G $\frac{1}{8}$	4	2.3	186179	QSY-G $\frac{1}{8}$ -4	10
	6	3.6	186180	QSY-G $\frac{1}{8}$ -6	10
	8	4.6	186182	QSY-G $\frac{1}{8}$ -8	10
G $\frac{1}{4}$	6	3.6	186181	QSY-G $\frac{1}{4}$ -6	10
	8	4.6	186183	QSY-G $\frac{1}{4}$ -8	10
	10	6.2	186185	QSY-G $\frac{1}{4}$ -10	10
G $\frac{3}{8}$	8	4.6	186184	QSY-G $\frac{3}{8}$ -8	10
	10	6.2	186186	QSY-G $\frac{3}{8}$ -10	10
	12	6.9	186187	QSY-G $\frac{3}{8}$ -12	10
G $\frac{1}{2}$	12	6.9	186188	QSY-G $\frac{1}{2}$ -12	1

1) All products in this table are easy to select and quick to order.

2) Packaging unit per part

Push-in fittings QS, Quick Star

FESTO

★ Quick ordering¹⁾

Push-in Y-connector QSY



Pneumatic connection		Nominal size	Part No.	Type	PU ²⁾
1	2				
Tubing O.D. [mm]	Tubing O.D. [mm]	[mm]			
4	4	2.3	153148	QSY-4	10
6	6	3.6	153149	QSY-6	10
8	8	4.6	153150	QSY-8	10
10	10	5.9	153151	QSY-10	10
12	12	7	153152	QSY-12	10
16	16	8.5	130609	QSY-16	1
2 reducing outlets					
6	4	2.3	153153	QSY-6-4	10
8	4	1.7	130610	QSY-8-4	10
8	6	3.2	153154	QSY-8-6	10
10	6	3.3	130611	QSY-10-6	10
10	8	4.5	153155	QSY-10-8	10
12	8	4.5	130612	QSY-12-8	10
12	10	5.8	153156	QSY-12-10	10
16	12	7	190708	QSY-16-12	1

Push-in Y-fitting QSY-...H

with push-in sleeve



Pneumatic connection		Nominal size	Part No.	Type	PU ²⁾
1	2				
Push-in sleeve	Tubing O.D. [mm]	[mm]			
QS-4	4	1.6	130628	QSY-4H	10
QS-6	6	3.1	133145	QSY-6H-B	10
QS-8	8	4.6	133146	QSY-8H-B	10
QS-10	10	5.9	133148	QSY-10H-B	10
QS-12	12	7.3	133150	QSY-12H-B	10
Reducing					
QS-6	4	2.3	130633	QSY-6H-4	10
QS-8	6	3.6	133147	QSY-8H-6-B	10
QS-10	8	4.6	133149	QSY-10H-8-B	10
QS-12	10	5.9	133151	QSY-12H-10-B	10

1) All products in this table are easy to select and quick to order.

2) Packaging unit per part

★ Quick ordering¹⁾

Push-in Y-fitting QSYL

Rotatable, male thread with external hex



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ²⁾
1 Male thread	2 Tubing O.D. [mm]				
R thread					
R $\frac{1}{8}$	4	1.9	153172	QSYL- $\frac{1}{8}$ -4	1
	6	3	153173	QSYL- $\frac{1}{8}$ -6	1
	8	4.3	153175	QSYL- $\frac{1}{8}$ -8	1
R $\frac{1}{4}$	6	2.9	153174	QSYL- $\frac{1}{4}$ -6	1
	8	4.3	153176	QSYL- $\frac{1}{4}$ -8	1
	10	5.8	153178	QSYL- $\frac{1}{4}$ -10	1
R $\frac{3}{8}$	8	4.4	153177	QSYL- $\frac{3}{8}$ -8	1
	10	5.9	153179	QSYL- $\frac{3}{8}$ -10	1
	12	7.4	153180	QSYL- $\frac{3}{8}$ -12	1
R $\frac{1}{2}$	12	7.3	153181	QSYL- $\frac{1}{2}$ -12	1
G thread with sealing ring					
G $\frac{1}{8}$	4	1.9	186189	QSYL-G $\frac{1}{8}$ -4	1
	6	3	186190	QSYL-G $\frac{1}{8}$ -6	1
	8	4.3	186192	QSYL-G $\frac{1}{8}$ -8	1
G $\frac{1}{4}$	6	2.9	186191	QSYL-G $\frac{1}{4}$ -6	1
	8	4.3	186193	QSYL-G $\frac{1}{4}$ -8	1
	10	5.8	186195	QSYL-G $\frac{1}{4}$ -10	1
G $\frac{3}{8}$	8	4.4	186194	QSYL-G $\frac{3}{8}$ -8	1
	10	5.9	186196	QSYL-G $\frac{3}{8}$ -10	1
	12	7.4	186197	QSYL-G $\frac{3}{8}$ -12	1
G $\frac{1}{2}$	12	7.3	186198	QSYL-G $\frac{1}{2}$ -12	1

Push-in Y-fitting QSYLV

Rotatable, male thread with external hex



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ²⁾
1 Male thread	2 Tubing O.D. [mm]				
R thread					
R $\frac{1}{8}$	6	3.3	153192	QSYLV- $\frac{1}{8}$ -6	1
R $\frac{1}{4}$	8	4.4	153193	QSYLV- $\frac{1}{4}$ -8	1
R $\frac{3}{8}$	10	5.7	153194	QSYLV- $\frac{3}{8}$ -10	1
R $\frac{1}{2}$	12	7.1	153195	QSYLV- $\frac{1}{2}$ -12	1
G thread with sealing ring					
G $\frac{1}{8}$	6	3.5	186209	QSYLV-G $\frac{1}{8}$ -6	1
G $\frac{1}{4}$	8	4.7	186210	QSYLV-G $\frac{1}{4}$ -8	1
G $\frac{3}{8}$	10	5.2	186211	QSYLV-G $\frac{3}{8}$ -10	1
G $\frac{1}{2}$	12	7	186212	QSYLV-G $\frac{1}{2}$ -12	1

1) All products in this table are easy to select and quick to order.

2) Packaging unit per part

Self-sealing/rotary push-in fittings QS, Quick Star



- 3 thread versions
- Self-sealing push-in fitting blocks the air flow after the tubing is disconnected
- Rotary push-in fitting, rotates 360°, with ball bearing
- ★ Quick ordering of basic designs → 1029

→ www.festo.com/catalogue/qs

Key features

Rotatable



The fitting can be aligned after assembly.

Rotatable 360°, with ball bearing



Permits rotational movement of up to 500 rpm during use.

Product range overview

Type	Version	Design	Pneumatic connection 1				Pneumatic connection 2		→ Page/online
			M thread	R thread	G thread	Tubing O.D.	Tubing O.D.		
Self-sealing push-in fitting QS, Quick Star									
QSK	Push-in fitting	Straight	■	■	■	-	■	qsk	
	Push-in connector		-	-	-	■	■		
QSSK	Push-in bulkhead connector		-	-	-	■	■	1029	
QSKL	Push-in fitting	L-shape	■	■	■	-	■	qskl	
Rotary push-in fitting QS, Quick Star									
QSR	Push-in fitting	Straight	■	■	■	-	■	qsr	
QSRL	Push-in fitting	L-shape	■	■	■	-	■	qsrl	

Technical data

Operating conditions		Self-sealing push-in fitting QS, Quick Star	Rotary push-in fitting QS, Quick Star
Type			
Operating medium		Compressed air to ISO 8573-1:2010 [7:-:-]	
		Water as per manufacturer's declaration ¹⁾	-
Note on operating/pilot medium		Lubricated operation possible	
Operating pressure for entire temperature range	[bar]	-0.95 ... +6	
Temperature-dependent operating pressure	[bar]	-0.95 ... +14	
Ambient temperature	[°C]	-10 ... +80	0 ... +60

1) Push-in bulkhead connector QSSK only.
Additional information at www.festo.com/sp → User Documentation.

Materials	
Housing	PBT, nickel-plated brass
Tube retaining claw	High-alloy stainless steel
Releasing ring	POM
Tubing seal	NBR

★ Quick ordering¹⁾

Push-in bulkhead connector QSSK



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ²⁾
1 Tubing O.D. [mm]	2 Tubing O.D. [mm]				
4	4	1.5	130637	QSSK-4	1
6	6	3	130638	QSSK-6	1
8	8	4.3	130639	QSSK-8	1
10	10	5.4	130640	QSSK-10	1
12	12	6.3	130641	QSSK-12	1

1) All products in this table are easy to select and quick to order.

²⁾ Packaging unit per part



- Plug-in couplings with shut-off at one or both ends for standard applications
- Safety couplings
- Simple release principle
- With high flow rates
- Wide range of variants

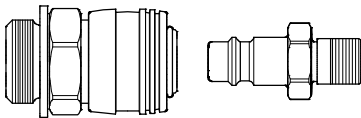
→ www.festo.com/catalogue/couplings

Key features

Mode of operation

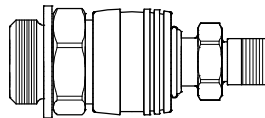
Plug-in coupling with quick coupling socket KD and quick coupling plug KS, shut-off at one or both ends

Coupling



To lock the coupling, push the plug into the socket. The plug automatically engages with an audible click when in a specific position.

Uncoupling

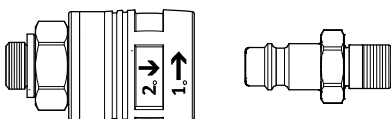


To unlock, push the releasing sleeve.

When uncoupling it is important to hold the quick coupling plug until it is fully vented.

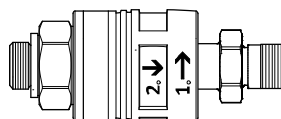
Safety coupling with quick coupling socket KDMS/KDS and quick coupling plug KSS

Coupling



To lock the coupling, push the plug into the socket. The plug automatically engages with an audible click when in a specific position.

Uncoupling



1. To vent, start by turning the releasing sleeve. This releases the pin locking mechanism of the coupling. The plug moves approx. 5 mm out of the coupling and is held in this position by the ball locking mechanism of the coupling. The air from the

plug and the components connected to it can escape. The air on the coupling side is shut off.
 2. Then unlock the plug fully by pulling the releasing sleeve. The plug should only be removed after all the air has been vented.

Note

The maximum pressure that should be applied when mating and releasing the couplings is 10 bar.

Note

Quick coupling sockets and plugs with the same function and size are compatible.

Product range overview

Quick coupling socket/plug	Pneumatic connection 1						Standard nominal flow rate [l/min]	→ Page/ online
	Male thread	Female thread	Quick connector with union nut	Bulkhead quick connector with union nut	Barbed fitting	Barbed bulkhead fitting		
Plug-in coupling, shut-off at one end								
KD1/KS1	■/-	-	-	-	-/■	-	44	1032
KD2/KS2	■/■	■/■	■/■	-	■/■	■/■	68 ... 139	
KD3/KS3	■/■	■/■	■/■	-	■/■	■/■	158 ... 666	
KD4/KS4	■/■	■/■	■/■	■/■	■/■	-	252 ... 1350	1033
KD5/KS5	-/■	■/-	-/■	-	-/■	-	1710 ... 2043	
Plug-in coupling, shut-off at both ends								
KD3/KS3	■/■	-	-	-	-	-	563	1034
KD4/KS4	■/■	-	-	-	-	-	765	
Safety coupling, shut-off at one end								
KDMS6/KSS6	■/■	-/■	-/■	-/■	-/■	-	968 ... 2043	1034
KDS6/KSS6	■/■	■/■	■/■	■/■	■/■	-	882 ... 1818	

Technical data

Operating conditions	
Operating medium	Compressed air to ISO 8573-1:2010 [7:-:-]
Note on operating/pilot medium	Lubricated operation possible
Operating pressure for entire temperature range [bar]	-0.95 ... +12
Ambient temperature [°C]	-10 ... +60

Materials					
Quick coupling socket/plug	Plug-in coupling, shut-off at one end				
	KD1/KS1	KD2/KS2	KD3/KS3	KD4/KS4	KD5/KS5
Quick coupling socket housing	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass	Galvanised steel
Quick coupling plug housing	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass	Galvanised steel
Releasing sleeve	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass	PP	Galvanised steel

Quick coupling socket/plug	Plug-in coupling, shut-off at both ends		Safety coupling, shut-off at one end	
	KD3/KS3	KD4/KS4	KDMS6/KSS6	KDS6/KSS6
Quick coupling socket housing	Brass	Brass	Nickel-plated brass	Nickel-plated brass
Quick coupling plug housing	Brass	Brass	Hardened steel	Hardened steel
Releasing sleeve	Brass	PP	Nickel-plated brass	POM

Coupling/tubing combination options									→ Page/ online
Pneumatic connection 1		CN-2	CK-3	CK-4, CN-4	CK-6, CN-6, N-6	CK-9, N-9	CK-13, N-13		
For tubing O.D.	[mm]	PAN	-	4	6	8	-	-	pan
	[mm]	PUN	3	4	6	8	-	-	989
For tubing I.D.	[mm]	PU	-	-	-	-	9	13	pu
	[mm]	P	-	-	-	6	9	13	p

Ordering data – Plug-in coupling, shut-off at one end

Quick coupling socket/plug KD1/KS1



Pneumatic connection 1	Quick coupling socket			Quick coupling plug		
	Nominal size [mm]	Part No.	Type	Nominal size [mm]	Part No.	Type
Male thread						
M3	1.5	151995	KD1-M3-A	–	–	–
Barbed fitting						
CN-2	–	–	–	1.5	151996	KS1-CN-2

Quick coupling socket/plug KD2/KS2



Pneumatic connection 1	Quick coupling socket			Quick coupling plug		
	Nominal size [mm]	Part No.	Type	Nominal size [mm]	Part No.	Type
Male thread						
M5	2.4	4087	KD2-M5-A	2.4	531658	KS2-M5-A
Female thread						
M5	2.7	531620	KD2-M5-I	2.7	531660	KS2-M5-I
Quick connector with union nut						
CK-3	2	531621	KD2-CK-3	2	4091	KS2-CK-3
CK-4	2.9	531622	KD2-CK-4	2.7	4090	KS2-CK-4
Barbed fitting						
CN-4	3.2	531623	KD2-CN-4	2.4	531663	KS2-CN-4
Barbed bulkhead fitting						
CN-4	2.5	531624	KD2-CN-4-S	2.7	531664	KS2-CN-4-S

Quick coupling socket/plug KD3/KS3



Pneumatic connection 1	Quick coupling socket			Quick coupling plug		
	Nominal size [mm]	Part No.	Type	Nominal size [mm]	Part No.	Type
Male thread						
G $\frac{1}{8}$	4.95	2142	KD3- $\frac{1}{8}$ -A	4.95	3492	KS3- $\frac{1}{8}$ -A
G $\frac{1}{4}$	5	531626	KD3- $\frac{1}{4}$ -A	4.95	531666	KS3- $\frac{1}{4}$ -A
Female thread						
G $\frac{1}{8}$	5	531627	KD3- $\frac{1}{8}$ -I	4.95	531668	KS3- $\frac{1}{8}$ -I
G $\frac{1}{4}$	5	531628	KD3- $\frac{1}{4}$ -I	4.95	531669	KS3- $\frac{1}{4}$ -I
Quick connector with union nut						
CK-4	2.9	531629	KD3-CK-4	2.9	3326	KS3-CK-4
CK-6	4.9	531630	KD3-CK-6	4.9	3478	KS3-CK-6
Barbed fitting						
CN-6	4.9	531631	KD3-CN-6	4.9	531672	KS3-CN-6
Barbed bulkhead fitting						
CN-6	4.9	531632	KD3-CN-6-S	4.9	531673	KS3-CN-6-S

Ordering data – Plug-in coupling, shut-off at one end

Quick coupling socket/plug KD4/KS4



Pneumatic connection 1	Quick coupling socket ¹⁾			Quick coupling plug		
	Nominal size [mm]	Part No.	Type	Nominal size [mm]	Part No.	Type
Male thread						
G $\frac{1}{4}$	8	2143	KD4-$\frac{1}{4}$-A	7.85	2154	KS4-$\frac{1}{4}$-A
G $\frac{3}{8}$	10	2144	KD4-$\frac{3}{8}$-A	7.85	2155	KS4-$\frac{3}{8}$-A
G $\frac{1}{2}$	10	2145	KD4-$\frac{1}{2}$-A	7.85	531676	KS4-$\frac{1}{2}$-A
Female thread						
G $\frac{1}{4}$	7.2	531636	KD4-$\frac{1}{4}$-I	7.85	531678	KS4-$\frac{1}{4}$-I
G $\frac{3}{8}$	7.2	531637	KD4-$\frac{3}{8}$-I	7.85	531679	KS4-$\frac{3}{8}$-I
G $\frac{1}{2}$	7.2	531638	KD4-$\frac{1}{2}$-I	7.85	531680	KS4-$\frac{1}{2}$-I
Quick connector with union nut						
CK-4	–	–	–	2.9	2150	KS4-CK-4
CK-6	4.9	531639	KD4-CK-6	4.9	2151	KS4-CK-6
CK-9	7.4	531640	KD4-CK-9	7.4	531683	KS4-CK-9
Bulkhead quick connector with union nut						
CK-9	7.4	531642	KD4-CK-9-S	7.4	531686	KS4-CK-9-S
Barbed fitting						
N-6	–	–	–	4.5	2152	KS4-N-6
N-9	7.4	531641	KD4-N-9	7	2153	KS4-N-9

1) Quick coupling sockets KD4 can be combined with all quick coupling plugs KSS6. The hardened quick coupling plugs KSS6 are recommended for use with couplings that are frequently subject to pressure surges or that have to be frequently mated.

Quick coupling socket/plug KD5/KS5



Pneumatic connection 1	Quick coupling socket			Quick coupling plug		
	Nominal size [mm]	Part No.	Type	Nominal size [mm]	Part No.	Type
Male thread						
G $\frac{1}{2}$	–	–	–	13	531687	KS5-$\frac{1}{2}$-A
Female thread						
G $\frac{1}{2}$	13	4088	KD5-$\frac{1}{2}$-I	–	–	–
Quick connector with union nut						
CK-13	–	–	–	11.7	4096	KS5-CK-13
Barbed fitting						
N-13	–	–	–	11	4089	KS5-N-13

Ordering data – Plug-in coupling, shut-off at both ends

Quick coupling socket/plug KD3/KS3



Pneumatic connection 1	Quick coupling socket			Quick coupling plug		
	Nominal size [mm]	Part No.	Type	Nominal size [mm]	Part No.	Type
Male thread						
G $\frac{1}{8}$	5	531659	KD3- $\frac{1}{8}$ -A-R	4.2	531667	KS3- $\frac{1}{8}$ -A-R

Quick coupling socket/plug KD4/KS4



Pneumatic connection 1	Quick coupling socket			Quick coupling plug		
	Nominal size [mm]	Part No.	Type	Nominal size [mm]	Part No.	Type
Male thread						
G $\frac{1}{4}$	8	531694	KD4- $\frac{1}{4}$ -A-R	8	531677	KS4- $\frac{1}{4}$ -A-R

Ordering data – Safety coupling, shut-off at one end

Quick coupling socket/plug KDMS6/KDS6/KSS6



Pneumatic connection 1	Quick coupling socket ¹⁾			Quick coupling plug		
	Nominal size [mm]	Part No.	Type	Nominal size [mm]	Part No.	Type
Male thread, releasing sleeve made from brass material, optical pressure indication						
G $\frac{1}{8}$	–	–	–	5	151781	KSS6- $\frac{1}{8}$ -A
G $\frac{1}{4}$	8	151776	KDMS6- $\frac{1}{4}$ -A	7.85	151779	KSS6- $\frac{1}{4}$ -A
G $\frac{3}{8}$	10	151777	KDMS6- $\frac{3}{8}$ -A	7.85	151780	KSS6- $\frac{3}{8}$ -A
G $\frac{1}{2}$	13	151778	KDMS6- $\frac{1}{2}$ -A	7.85	531693	KSS6- $\frac{1}{2}$ -A
Male thread, releasing sleeve made from polymer						
G $\frac{1}{8}$	–	–	–	5	151781	KSS6- $\frac{1}{8}$ -A
G $\frac{1}{4}$	8	531647	KDS6- $\frac{1}{4}$ -A	7.85	151779	KSS6- $\frac{1}{4}$ -A
G $\frac{3}{8}$	10	531648	KDS6- $\frac{3}{8}$ -A	7.85	151780	KSS6- $\frac{3}{8}$ -A
G $\frac{1}{2}$	10	531649	KDS6- $\frac{1}{2}$ -A	7.85	531693	KSS6- $\frac{1}{2}$ -A
Female thread						
G $\frac{1}{4}$	7.2	531650	KDS6- $\frac{1}{4}$ -I	7.85	531695	KSS6- $\frac{1}{4}$ -I
G $\frac{3}{8}$	7.2	531651	KDS6- $\frac{3}{8}$ -I	7.85	531696	KSS6- $\frac{3}{8}$ -I
G $\frac{1}{2}$	7.2	531652	KDS6- $\frac{1}{2}$ -I	7.85	531697	KSS6- $\frac{1}{2}$ -I
Quick connector with union nut						
CK-9	7.4	531653	KDS6-CK-9	7.4	531698	KSS6-CK-9
CK-13	10	531654	KDS6-CK-13	7.85	531699	KSS6-CK-13
Bulkhead quick connector with union nut						
CK-9	7.4	531656	KDS6-CK-9-S	7.4	531701	KSS6-CK-9-S
Barbed fitting ²⁾						
N-9	7	531655	KDS6-N-9	7	531700	KSS6-N-9

1) The quick coupling sockets KDMS6/KDS6 must only be used in combination with the hardened quick coupling plugs KSS6.

2) Tube clamps appropriate to the pressure must be used.



- Easy to insert
- Easy to release
- Up to 6 outlets
- Rotatable

→ www.festo.com/catalogue/quick_star

Key features



The fitting can be aligned after assembly.

Product range overview

Type	Version	Design	Pneumatic connection 1			Pneumatic connection 2	→ Page/ online
			R thread	G thread	Tubing O.D.	Tubing O.D.	
QSLV2	Multiple distributor, 2 outlets	L-shape	■	■	–	■	1036
QSLV3	Multiple distributor, 3 outlets		■	■	–	■	
QSLV4	Multiple distributor, 4 outlets		■	■	–	■	1037
QSLV6	Multiple distributor, 6 outlets		■	■	–	■	
QSQ	Multiple distributor, 4 outlets	Straight	■	■	■	■	1038
QST3	Multiple distributor, 4 outlets	T-shape	■	■	■	■	qst3

Technical data

Operating conditions	
Operating medium	Compressed air to ISO 8573-1:2010 [7:-:-] Water as per manufacturer's declaration ¹⁾
Note on operating/pilot medium	Lubricated operation possible
Operating pressure for entire temperature range [bar]	–0.95 ... +6
Temperature-dependent operating pressure [bar]	–0.95 ... +14
Ambient temperature [°C]	–10 ... +80

1) Additional information at www.festo.com/sp → User Documentation.

Materials	
Housing	PBT
Tube retaining claw	High-alloy stainless steel
Releasing ring	POM
Tubing seal	NBR

Ordering data

Multiple distributor QSLV2

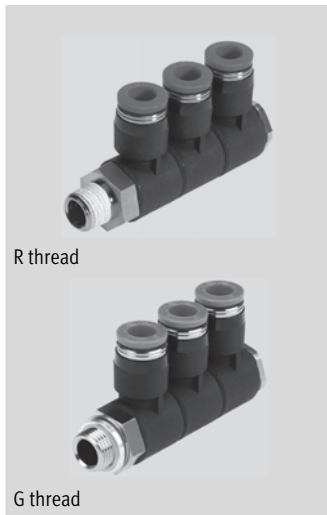
2 outlets, rotatable



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ¹⁾
1 Male thread	2 Tubing O.D. [mm]				
R thread					
R $\frac{1}{8}$	4	2.4	153211	QSLV2- $\frac{1}{8}$ -4	1
	6	3.2	153212	QSLV2- $\frac{1}{8}$ -6	1
	8	4.2	153214	QSLV2- $\frac{1}{8}$ -8	1
R $\frac{1}{4}$	6	3.2	153213	QSLV2- $\frac{1}{4}$ -6	1
	8	4.3	153215	QSLV2- $\frac{1}{4}$ -8	1
	10	5.2	153217	QSLV2- $\frac{1}{4}$ -10	1
R $\frac{3}{8}$	8	4.3	153216	QSLV2- $\frac{3}{8}$ -8	1
	10	5.3	153218	QSLV2- $\frac{3}{8}$ -10	1
	12	6.3	153219	QSLV2- $\frac{3}{8}$ -12	1
R $\frac{1}{2}$	12	6.4	153220	QSLV2- $\frac{1}{2}$ -12	1
G thread with sealing ring					
G $\frac{1}{8}$	4	2.4	186223	QSLV2-G $\frac{1}{8}$ -4	1
	6	3.2	186224	QSLV2-G $\frac{1}{8}$ -6	1
	8	4.2	186226	QSLV2-G $\frac{1}{8}$ -8	1
G $\frac{1}{4}$	6	3.2	186225	QSLV2-G $\frac{1}{4}$ -6	1
	8	4.3	186227	QSLV2-G $\frac{1}{4}$ -8	1
	10	5.2	186229	QSLV2-G $\frac{1}{4}$ -10	1
G $\frac{3}{8}$	8	4.3	186228	QSLV2-G $\frac{3}{8}$ -8	1
	10	5.3	186230	QSLV2-G $\frac{3}{8}$ -10	1
	12	6.3	186231	QSLV2-G $\frac{3}{8}$ -12	1
G $\frac{1}{2}$	12	6.4	186232	QSLV2-G $\frac{1}{2}$ -12	1

Multiple distributor QSLV3

3 outlets, rotatable



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ¹⁾
1 Male thread	2 Tubing O.D. [mm]				
R thread					
R $\frac{1}{8}$	4	2.4	153221	QSLV3- $\frac{1}{8}$ -4	1
	6	3.2	153222	QSLV3- $\frac{1}{8}$ -6	1
	8	4.3	153224	QSLV3- $\frac{1}{8}$ -8	1
R $\frac{1}{4}$	6	3.2	153223	QSLV3- $\frac{1}{4}$ -6	1
	8	4.2	153225	QSLV3- $\frac{1}{4}$ -8	1
	10	5.2	153227	QSLV3- $\frac{1}{4}$ -10	1
R $\frac{3}{8}$	8	4.3	153226	QSLV3- $\frac{3}{8}$ -8	1
	10	5.3	153228	QSLV3- $\frac{3}{8}$ -10	1
	12	6.4	153229	QSLV3- $\frac{3}{8}$ -12	1
R $\frac{1}{2}$	12	6.5	153230	QSLV3- $\frac{1}{2}$ -12	1
G thread with sealing ring					
G $\frac{1}{8}$	4	2.4	186233	QSLV3-G $\frac{1}{8}$ -4	1
	6	3.2	186234	QSLV3-G $\frac{1}{8}$ -6	1
	8	4.3	186236	QSLV3-G $\frac{1}{8}$ -8	1
G $\frac{1}{4}$	6	3.2	186235	QSLV3-G $\frac{1}{4}$ -6	1
	8	4.2	186237	QSLV3-G $\frac{1}{4}$ -8	1
	10	5.2	186239	QSLV3-G $\frac{1}{4}$ -10	1
G $\frac{3}{8}$	8	4.3	186238	QSLV3-G $\frac{3}{8}$ -8	1
	10	5.3	186240	QSLV3-G $\frac{3}{8}$ -10	1
	12	6.4	186241	QSLV3-G $\frac{3}{8}$ -12	1
G $\frac{1}{2}$	12	6.5	186242	QSLV3-G $\frac{1}{2}$ -12	1

1) Packaging unit per part

Ordering data

Multiple distributor QSLV4

4 outlets, rotatable



R thread

G thread

Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ¹⁾
1 Male thread	2 Tubing O.D. [mm]				
R thread					
R $\frac{1}{8}$	4	2.3	153231	QSLV4- $\frac{1}{8}$ -4	1
	6	2.9	153232	QSLV4- $\frac{1}{8}$ -6	1
	8	4	153234	QSLV4- $\frac{1}{8}$ -8	1
R $\frac{1}{4}$	6	2.9	153233	QSLV4- $\frac{1}{4}$ -6	1
	8	4.1	153235	QSLV4- $\frac{1}{4}$ -8	1
	10	5	153237	QSLV4- $\frac{1}{4}$ -10	1
R $\frac{3}{8}$	8	4.1	153236	QSLV4- $\frac{3}{8}$ -8	1
	10	5.1	153238	QSLV4- $\frac{3}{8}$ -10	1
	12	6	153239	QSLV4- $\frac{3}{8}$ -12	1
R $\frac{1}{2}$	12	6.2	153240	QSLV4- $\frac{1}{2}$ -12	1
G thread with sealing ring					
G $\frac{1}{8}$	4	2.3	186243	QSLV4-G $\frac{1}{8}$ -4	1
	6	2.9	186244	QSLV4-G $\frac{1}{8}$ -6	1
	8	4	186246	QSLV4-G $\frac{1}{8}$ -8	1
G $\frac{1}{4}$	6	2.9	186245	QSLV4-G $\frac{1}{4}$ -6	1
	8	4.1	186247	QSLV4-G $\frac{1}{4}$ -8	1
	10	5	186249	QSLV4-G $\frac{1}{4}$ -10	1
G $\frac{3}{8}$	8	4.1	186248	QSLV4-G $\frac{3}{8}$ -8	1
	10	5.1	186250	QSLV4-G $\frac{3}{8}$ -10	1
	12	6	186251	QSLV4-G $\frac{3}{8}$ -12	1
G $\frac{1}{2}$	12	6.2	186252	QSLV4-G $\frac{1}{2}$ -12	1

Multiple distributor QSLV6

6 outlets, rotatable



R thread

G thread

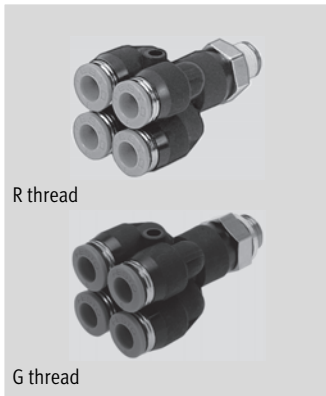
Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ¹⁾
1 Male thread	2 Tubing O.D. [mm]				
R thread					
R $\frac{1}{8}$	4	2.3	153241	QSLV6- $\frac{1}{8}$ -4	1
	6	2.9	153242	QSLV6- $\frac{1}{8}$ -6	1
	8	4	153244	QSLV6- $\frac{1}{8}$ -8	1
R $\frac{1}{4}$	6	2.9	153243	QSLV6- $\frac{1}{4}$ -6	1
	8	4	153245	QSLV6- $\frac{1}{4}$ -8	1
	10	5.2	153247	QSLV6- $\frac{1}{4}$ -10	1
R $\frac{3}{8}$	8	4.1	153246	QSLV6- $\frac{3}{8}$ -8	1
	10	5.2	153248	QSLV6- $\frac{3}{8}$ -10	1
	12	6.3	153249	QSLV6- $\frac{3}{8}$ -12	1
R $\frac{1}{2}$	12	6.3	153250	QSLV6- $\frac{1}{2}$ -12	1
G thread with sealing ring					
G $\frac{1}{8}$	4	2.3	186253	QSLV6-G $\frac{1}{8}$ -4	1
	6	2.9	186254	QSLV6-G $\frac{1}{8}$ -6	1
	8	4	186256	QSLV6-G $\frac{1}{8}$ -8	1
G $\frac{1}{4}$	6	2.9	186255	QSLV6-G $\frac{1}{4}$ -6	1
	8	4	186257	QSLV6-G $\frac{1}{4}$ -8	1
	10	5.2	186259	QSLV6-G $\frac{1}{4}$ -10	1
G $\frac{3}{8}$	8	4.1	186258	QSLV6-G $\frac{3}{8}$ -8	1
	10	5.2	186260	QSLV6-G $\frac{3}{8}$ -10	1
	12	6.3	186261	QSLV6-G $\frac{3}{8}$ -12	1
G $\frac{1}{2}$	12	6.3	186262	QSLV6-G $\frac{1}{2}$ -12	1

1) Packaging unit per part

Ordering data

Multiple distributor QSQ

4 outlets, rotatable



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ¹⁾
1 Male thread	2 Tubing O.D. [mm]				
R thread					
R $\frac{1}{8}$	4	2	153206	QSQ-$\frac{1}{8}$-4	1
	6	2.1	153208	QSQ-$\frac{1}{8}$-6	1
R $\frac{1}{4}$	4	2	153207	QSQ-$\frac{1}{4}$-4	1
	6	2.1	153288	QSQ-$\frac{1}{4}$-6	1
G thread with sealing ring					
G $\frac{1}{8}$	4	1.4	186220	QSQ-G$\frac{1}{8}$-4	1
	6	3.4	186222	QSQ-G$\frac{1}{8}$-6	1
G $\frac{1}{4}$	4	1.3	186221	QSQ-G$\frac{1}{4}$-4	1
	6	3	186263	QSQ-G$\frac{1}{4}$-6	1



Pneumatic connection		Nominal size [mm]	Part No.	Type	PU ¹⁾
1 Tubing O.D. [mm]	2 Tubing O.D. [mm]				
Push-in connector, reducing					
6	4	1.4	153209	QSQ-6-4	1
8	6	3.2	153210	QSQ-8-6	1

1) Packaging unit per part



- Sealing materials
- Pipe and tubing cutters
- Tubing clips/straps

→ www.festo.com/catalogue/ctype

Product range overview

Type	Function	M3	M5	M7	G1/8	G1/4	G3/8	G1/2	G3/4	G1	→ Page/ online
Sealing materials											
O	Sealing ring	■	■	-	■	■	■	■	■	■	1040
CRO	Sealing ring	-	■	-	■	■	■	■	■	■	
OL	Sealing ring, sealing ring assortment	-	■	-	■	■	■	■	■	-	
OK	Sealing ring, sealing ring assortment	■	■	■	■	■	■	■	■	-	1041
GWB	Thread sealing tape	-									
Pipe and tubing cutters											
PAN-VOS	Tubing cutter	For cutting plastic tubing PAN-V0, flame-retardant									pan-vos
ZDS	Disconnecting pliers	For removing plastic tubing from barbed fittings									zds
ZMS	Connecting pliers	For connecting plastic tubing to barbed fittings									zms
ZR	Pipe cutter	For cutting to length plastic piping PQ-PA									zr
ZRS	Pipe/tubing cutter	For cutting to length plastic tubing with and without textile insert up to O.D. 20 mm									zrs
Tubing clips/straps											
PB	Tubing strap	Bundle Ø 30, 45, 100 mm									pb
PKB	Spiral wrap for tubing	Max. bundle Ø 50 mm									pkb
PKS	Tubing support	For tubing O.D. 6, 8, 11 mm									pks
NPAW	Tubing support	Mounting component for guiding cables and tubing									npaw
KK	Multi-tube holder	For tubing O.D. 4.3, 6, 8, 11.5, 17.6 mm									kk

Ordering data

Sealing ring O/CRO



For thread	Suitable for use in the food industry	Part No.	Type	PU ¹⁾
PA				
M3	-	30290	O-M3-B	1
PVC				
M5	-	3565	O-M5	1
		534226	O-M5-500	500
G ¹ / ₈	-	2223	O-¹/₈	1
		534227	O-¹/₈-500	500
G ¹ / ₄	-	2224	O-¹/₄	1
		534228	O-¹/₄-200	200
G ³ / ₈	-	2225	O-³/₈	1
		534229	O-³/₈-200	200
G ¹ / ₂	-	2226	O-¹/₂	1
		534230	O-¹/₂-100	100
G ³ / ₄	-	2227	O-³/₄	1
G1	-	210893	O-1	1
PVDF				
M5	As per manufacturer's declaration ²⁾	165191	CRO-M5	1
G ¹ / ₈		575895	CRO-¹/₈	1
G ¹ / ₄		165193	CRO-¹/₄	1
G ³ / ₈		165194	CRO-³/₈	1
G ¹ / ₂		165195	CRO-¹/₂	1
G ³ / ₄		165196	CRO-³/₄	1
G1		165197	CRO-1	1

2) Additional information at www.festo.com/sp → User Documentation.

Sealing ring OL

with metal body, based on standard ISO 16030



For thread	Part No.	Type	PU ¹⁾
Stainless steel, NBR			
M5	34634	OL-M5	1
	534231	OL-M5-500	500
G ¹ / ₈	33840	OL-¹/₈	1
	534232	OL-¹/₈-500	500
G ¹ / ₄	34635	OL-¹/₄	1
	534233	OL-¹/₄-200	200
Aluminium, NBR			
G ³ / ₈	34636	OL-³/₈	1
	534234	OL-³/₈-200	200
G ¹ / ₂	34637	OL-¹/₂	1
	534235	OL-¹/₂-100	100
G ³ / ₄	34638	OL-³/₄	1

Sealing ring assortment OL-S1



Contents	Quantity	Part No.	Type
OL-M5	50	161355	OL-S1
OL- ¹ / ₈	100		
OL- ¹ / ₄	100		
OL- ³ / ₈	40		
OL- ¹ / ₂	30		
OL- ³ / ₄	10		

1) Packaging unit per part

Ordering data

Sealing ring OK

with support ring, based on standard ISO 16030



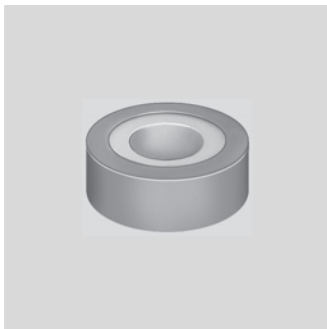
For thread	Part No.	Type	PU ¹⁾
Stainless steel, NBR			
M3	130849	OK-M3	1
M5	130850	OK-M5	1
M7	130851	OK-M7	1
PA, TPE-U(PU)			
G1/8	531771	OK-1/8	1
G1/4	531772	OK-1/4	1
G3/8	531773	OK-3/8	1
G1/2	531774	OK-1/2	1
G3/4	531775	OK-3/4	1

Sealing ring assortment OK-S1



Contents	Quantity	Part No.	Type
OK-M3	50	570465	OK-S1
OK-M5	100		
OK-M7	50		
OK-1/8	100		
OK-1/4	100		
OK-3/8	40		
OK-1/2	30		
OK-3/4	10		

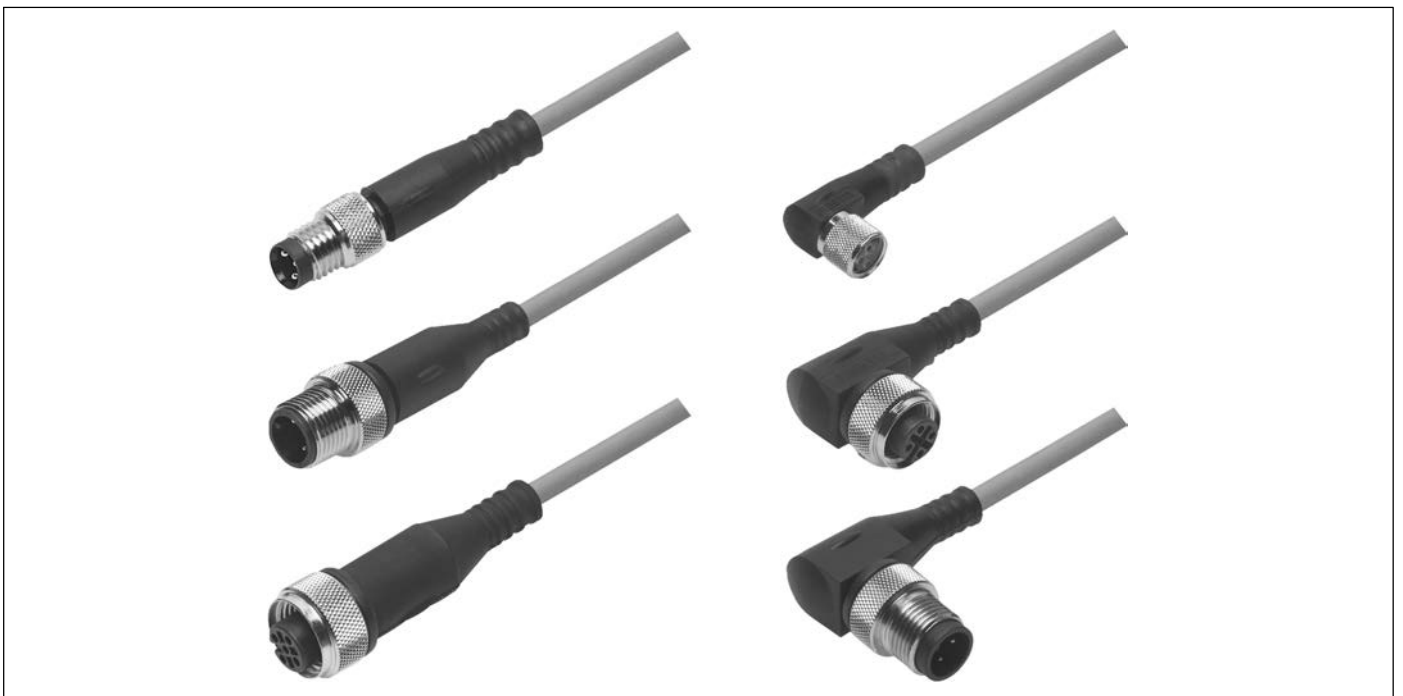
Thread sealing tape GWB-0,1




Width [mm]	Thickness [mm]	Length [m]	Part No.	Type
10	0.1	12.5	9076	GWB-0,1

1) Packaging unit per part





14 Electrical connection technology




Software tool

<p>Configurator</p>		<p>Design a product with numerous features reliably and quickly with the help of the configurator. Select all the required product features step-by-step. The use of logic checks ensures that only correct configurations are available for selection.</p>	<p>The configurator is part of the electronic catalogue and is not available as a separate software program.</p>
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Universal connecting cables

<p>Type</p>	 <p>Connecting cable NEBU</p>	 <p>Plug socket with cable SIM</p>	 <p>Flat cable KASI</p>	 <p>Connecting cable KEA</p>
<p>Electrical connection</p>	<p>Socket: straight, angled, rotatable, plug: straight, angled, M5x0.5, M8x1, M12x1, 7/8", 2-pin, 3-pin, 4-pin, 5-pin, 8-pin, rotatable thread, open end</p>	<p>3-pin, 4-pin, 5-pin, 8-pin, straight socket, M12x1, socket M8, clip</p>	<p>2-pin, open cable end</p>	<p>25-pin, socket, Sub-D</p>
<p>Cable length</p>	<p>0.1 ... 30 m</p>	<p>2 ... 10 m</p>	<p>100 m</p>	<p>5 ... 10 m</p>
<p>Description</p>	<ul style="list-style-type: none"> • Designs for static, standard, energy chain and robot applications • Design with switching status indication • Designs for connecting sensors and actuators 	<ul style="list-style-type: none"> • Pre-assembled at both ends 	<ul style="list-style-type: none"> • For AS-Interface • 2-wire • Reverse polarity protected • Contact using insulation displacement technology • No need to strip cable and wire insulation • Two different colours: yellow (preferred for the AS-Interface network) and black (for auxiliary power supply) 	<ul style="list-style-type: none"> • For multi-pin plug connection • Type of mounting: 2 screws M3x16 • Operating voltage range 250 V AC/DC
<p>→ Page/online</p>	<p>1053</p>	<p>sim</p>	<p>kasi</p>	<p>kea</p>





Universal connecting cables

<p>Type</p>	 <p>Connecting cable KM8, KM12</p>
<p>Electrical connection</p>	<p>3-pin, 4-pin, 8-pin, 4-wire, M8x1, M12x1, plug: straight, socket: straight, angled</p>
<p>Cable length</p>	<p>0.5 ... 5 m</p>
<p>Description</p>	<ul style="list-style-type: none"> • For connecting inputs and outputs or for connecting individual valves or sensors • Pre-assembled at both ends: straight plug with straight or angled socket • Type of mounting: union nut, threaded connector
<p>→ Page/online</p>	<p>km8</p>





Connecting cables for control systems

Type	 Connecting cable NEBC	 Cable SBOA	 Connecting cable FEC-KBG	 Addressing cable KASI-ADR
Electrical connection	5-pin, 9-pin, 15-pin, 3-wire, socket: straight, plug: straight, angled, open end, cable, M9, M12x1, Sub-D, square design	Straight plug/straight socket/straight socket, angled plug/straight socket	RJ11 plug/Sub-D, socket, 15-pin, RJ12 plug/Sub-D, socket, 15-pin	4-pin/4-pin/2-pin, straight socket/angled plug/straight socket
Cable length	0.3 ... 5 m	2 m	1.2 m, 1.8 m	2.5 m
Description	<ul style="list-style-type: none"> For I/O interface For connecting motor controller CMMS-ST to any controller 	<ul style="list-style-type: none"> Used as an Ethernet diagnostic cable, for integration in a CPI system, for I/O extension, for compact vision system type SBOC-Q, SBOI-Q 	<ul style="list-style-type: none"> For connecting terminal CPX to operator unit FED 	<ul style="list-style-type: none"> For AS-Interface For any slaves such as individual valve interface, valve terminal with AS-Interface Reverse polarity protected
→ Page/online	nebc	sboa	fec-kbg	kasi-adr


Connecting cables for control systems

Type	 Control cable KES	 Programming cable KDI	 Programming cable PS1-ZK11	 Connecting cable KV-M12
Electrical connection		4-pin, 5-pin, 9-pin, 25-pin, straight socket, straight plug, M8x1, M12x1, Sub-D		Straight plug/straight socket
Cable length	2.5 ... 10 m	2.5 ... 5 m	1.5 m	1.5 ... 3.5 m
Description	<ul style="list-style-type: none"> For I/O interface for connecting motor controller SFC-DC to any controller For I/O interface for connecting motor unit MTR-DCI to any controller 	<ul style="list-style-type: none"> Pre-assembled at both ends For diagnostic interface For servo motor MTR-DCI 	<ul style="list-style-type: none"> Connecting cable for motor controller CMMS-ST 	<ul style="list-style-type: none"> Plug socket with cable for diagnostic interface (to electrical terminal CPX) Pre-assembled at both ends 5-pin/4-wire Round plug Mounting via union nut M12
→ Page/online	kes	kdi	cmms-st	kv-m12

Connecting cables for motors

Type	 Encoder cable NEBM	 Motor cable KMTR	 Motor cable KMTRE	 Supply cable KPWR
Electrical connection	Connection technology, left-hand end: M12, A-coded, M23, M40, Sub-D, ITT M3, connection technology, right-hand end: open end, M12, A-coded, Sub-D, ITT M3			
Cable length	5 ... 15 m	2.5 ... 10 m	5 ... 10 m	2.5 ... 10 m
Description	<ul style="list-style-type: none"> For servo motor EMMS-AS and stepper motor EMMS-ST Suitable for use with energy chains 	<ul style="list-style-type: none"> For motor controller SFC-DC 	<ul style="list-style-type: none"> Screened cable Can be used at -40 ... +125°C Suitable for use with energy chains Protection class IP67 For stepper motor MTR-DCI 	<ul style="list-style-type: none"> For motor unit MTR-DCI For motor controller SFC-DC for connecting load and logic supply
→ Page/online	nebm	kmtr	kmtre	kpwr

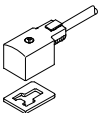
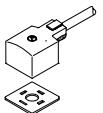

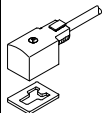
Connecting cables for positioning

	Connecting cable NEBP
Type	
Electrical connection	Plug: screw connector M9x0.5, socket: screw connector M16x0.75
Cable length	2 m
Description	<ul style="list-style-type: none"> • Connection between linear drive DGPI, DGPIL or displacement encoder MME and measuring module CPX-CMIX
→ Page/online	nebp





Connecting cables for valves

				
Type	Connecting cable NEDV	Plug socket with cable KMYZ-2, KMYZ-3, KMYZ-4, KMYZ-9	Plug socket with cable KMEB-1, KMEB-2, KMEB-3	Plug socket with cable KME
Electrical connection	M12, 3-pin, 2x angled socket, 1x angled plug, M8, 4-pin	2-pin, 3-pin, 2-wire, socket: angled, plug: straight, angled, cable, square design, M8x1, open end, square design/open end, square design/square design	2-pin, 3-pin, 4-pin, 5-pin, angled socket, type C, to DIN EN 175301-803	3-pin, angled socket, type C, to DIN EN 175301-803
Cable length	0.2 m	0.2 ... 10 m	0.5 ... 10 m	2.5 ... 10 m
Description	<ul style="list-style-type: none"> • For valve VPWP • Pre-assembled • For mounting on sub-base VAPV-S3 	<ul style="list-style-type: none"> • For valve with ZB solenoid coil: MZBH, MOZBH • For valve with ZC solenoid coil: CPE10-M1BH, CPE14-M1BH, MH2, MH3 • Mounting via central screw 	<ul style="list-style-type: none"> • For valve with EB solenoid coil: CPE18, CPE24, MEBH, MOEBH, JMEBH, JMEBDH, JMN2DH • Polyvinyl chloride or polyurethane cable • Mounting via central screw 	<ul style="list-style-type: none"> • For valve with E solenoid coil: MEH, MOEH, JMEH • Mounting via central screw • Polyvinyl chloride cable • Temperature range -20 ... +80 °C
→ Page/online	nedv	kmyz-2	kmeb-1	kme


Connecting cables for valves

				
Type	Plug socket with cable KMF	Plug socket with cable KMC	Plug socket with cable KMH	Plug socket with cable KMV
Electrical connection	Socket	Socket, type A	2-pin, 3-pin, socket	Socket, type B
Cable length	2.5 ... 10 m	2.5 ... 10 m	0.5 ... 5 m	2.5 ... 10 m
Description	<ul style="list-style-type: none"> • For valve with F solenoid coil: MFH, MOFH, JMFH, JMFDH, NVF3, MUFH • Mounting via central screw • Polyvinyl chloride cable • Temperature range -20 ... +80 °C 	<ul style="list-style-type: none"> • For valve with D solenoid coil: MDH, MODH, JMDH • For valve with N1 solenoid coil: MN1H, JMN1H, JMN1DH • Polyvinyl chloride cable • Mounting via central screw • Temperature range -20 ... +80 °C 	<ul style="list-style-type: none"> • For miniature valve MHA1 and MHP1 • For fast-switching valve MHA2 and MHP2 • Mounting via clip • Temperature range -40 ... +80 °C • Polyvinyl chloride cable 	<ul style="list-style-type: none"> • For valves with V solenoid coils • Mounting via central screw M3 • Polyvinyl chloride cable • Temperature range -20 ... +80 °C
→ Page/online	kmf	kmc	kmh	kmv





Connecting cables for valves

				
Type	Electrical plug-in base MHAP-PI	Plug socket with cable KMPPE	Connecting cable KMPYE-AIF, KMPYE-5, KMPYE-...	Connecting cable MHJ9-KMH
Electrical connection	2-pin, 3-pin, socket	8-pin, angled, socket M16		2-pin/2-pin/4-wire, straight socket/ straight socket/cable
Cable length	0.5 ... 1 m	2.5 m, 5 m	0.3 ... 5 m	0.5 ... 2.5 m
Description	<ul style="list-style-type: none"> Plug base with cable for connecting individual valve Pre-assembled 2-pin or 3-pin socket Mounting via clip 	<ul style="list-style-type: none"> For the proportional pressure regulators MPPE and MPPES Temperature range -30 ... +80 °C Mounting via union nut M16x0.75 Polyvinyl chloride cable 	<ul style="list-style-type: none"> Plug socket with cable, screened, for proportional directional control valve MPYE with 5 m cable 	<ul style="list-style-type: none"> For valves MHJ9 With plug sockets KMH With control electronics for two valves
→ Page/online	mhap	kmppe	kmpye	mhj9-kmh


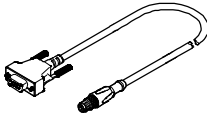


Connecting cables for valves

	
Type	Connecting cable NEBV-H1, NEBV-M8
Electrical connection	2-wire, 3-wire, 4-wire, socket: straight, angled, plug: straight, cable, M8x1, square design
Cable length	0.5 ... 10 m
Description	<ul style="list-style-type: none"> Connecting cable for valves with ZC solenoid coils (CPE10, CPE14), for valves VUVG Pre-assembled
→ Page/online	nebv


Connecting cables for valve terminals

				
Type	Connecting cable NEBV-S1	Connecting cable KMP3, KMP4, KMP6	Connecting cable KRP	Connecting cable KVI
Electrical connection	10-pin, 15-pin, 25-pin, 26-pin, 37-pin, 44-pin, socket: straight, angled	15-pin, 25-pin, 26-pin, 9-pin, socket, Sub-D	2-pin, angled socket	Straight plug/straight socket, angled plug/angled socket, 5-pin round plug
Cable length	2.5 m, 5 m, 10 m	2.5 ... 10 m	2.5 ... 5 m	0.25 ... 8 m
Description	<ul style="list-style-type: none"> Connecting cable for multi-pin plug connection Pre-assembled 	<ul style="list-style-type: none"> Plug socket with cable for multi-pin plug connection Pre-assembled Mounting via union nut, with 2 screws 	<ul style="list-style-type: none"> Plug socket with cable for connecting relay plates (valve terminal CPV10 and CPV14) Pre-assembled Mounting via self-tapping central screw 	<ul style="list-style-type: none"> For fieldbus connection (CP bus valve terminal CPV and CPI installation system) Pre-assembled at both ends Suitable for use with energy chains
→ Page/online	nebv	kmp	krp	kvi

Connecting cables for valve terminals

				
Type	Connecting cable KVIA	Fieldbus adapter FBA-CO, FBA-PB	T-adapter FB-TA	Connecting cable VMPA-KMS1, VMPA-KMS2, VMPAL-KM, VMPAL-KMSK
Electrical connection	Straight plug, straight socket, angled socket	9-pin/5-pin, Sub-D/M12x1	5-pin, M12x1/M8x1, plug/socket	25-pin, 44-pin, Sub-D socket
Cable length	5 ... 10 m		1.4 m	2.5 ... 10 m
Description	<ul style="list-style-type: none"> For inputs/outputs (analogue connections) Pre-assembled at both ends 4-pin/5-pin round plug Suitable for use with energy chains 	<ul style="list-style-type: none"> 9-pin Sub-D plug to 5-pin round plug/M12 socket 	<ul style="list-style-type: none"> For fieldbus connection (for valve terminal CPV and CP installation system) Branch line for connecting and disconnecting fieldbus components With open cable end or with 5-pin push-in connector 	<ul style="list-style-type: none"> Plug socket with cable for multi-pin connection (to valve terminal MPA) Variant suitable for use with energy chains Cable outlet straight or to side Pre-assembled at one end Polyvinyl chloride or polyurethane cable
→ Page/online	kvia	fba	fb-ta	vmpa-kms

Connecting cables for sensors




	
Type	Connecting cable NEBS
Electrical connection	Socket, square design L1, 4-pin, socket, square design L2, 4-pin, socket, square design L2, 5-pin
Cable length	2.5 ... 5 m
Description	<ul style="list-style-type: none"> For pressure sensor SPAB Protection class IP40
→ Page/online	nebs

Universal plug connectors





				
Type	Plug socket with cable NEFU	Plug NECU, NECU-HX	Push-in T-connector NEDU	Multi-pin plug distributor NEDU
Electrical connection	Socket, M12x1, 4-pin, A-coded	3-pin, 4-pin, 5-pin, 8-pin, 9-pin, Sub-D, straight socket, straight plug, spring-loaded terminal, screw terminal, insulation displacement connector, 7/8", AIDA push-pull, M8x1, M12x1, for self-assembly, can be screened, square design	4-pin/3-pin, 4-pin/4-pin, A-coded/A-coded, M12x1/M12x1, M12x1/M8x1, M8x1/M8x1, plug/socket	3-pin, 8-pin, M8, M12, socket, plug
Connection cross section		0.08 ... 2.5 mm ²		
Protection class	IP65, in assembled state	IP40, IP65, IP67, IP68	IP65, IP67	IP68
Description	<ul style="list-style-type: none"> Cable socket for branching the AS-Interface network at any desired point Reconnecting AS-Interface flat cable to 5-pin M12 socket Reverse polarity protected 	<ul style="list-style-type: none"> Power supply socket for fieldbus connection Plug and socket for power supply Can be assembled with any cable lengths NECU-HX: reconnectable M8 and M12 round plug connectors with Harax® quick connection technology for low-voltage applications 	<ul style="list-style-type: none"> For fieldbus connection Branch line for connecting and disconnecting fieldbus components 	<ul style="list-style-type: none"> Multi-pin plug distributor Particularly compact
→ Page/online	nefu	necu	nedu	nedu

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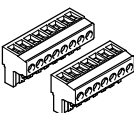
Universal plug connectors

			
Type	Plug SEA	Cable distributor ASI-KVT	Plug socket with cable ASI-SD
Electrical connection	3-pin, 4-pin, 5-pin, angled socket, straight plug, screw terminal, insulation displacement connector, solder connection, type A, M8x1, M12x1	2-pin, 4-pin, socket M12, insulation displacement technology	2-pin, 4-pin, 5-pin, straight socket, straight socket/insulation displacement technology, screw terminal
Connection cross section	0.14 ... 0.75 mm ²	1.5 mm ²	0.75 ... 1.5 mm ²
Protection class	IP65, IP67	IP65, in assembled state	IP65, IP67
Description	<ul style="list-style-type: none"> • Sensor plug, socket for inputs/outputs • Can be assembled with any cable lengths 	<ul style="list-style-type: none"> • Flat cable distributor for branching or for reconnecting AS-Interface flat cables • Reverse polarity protected 	<ul style="list-style-type: none"> • For AS-Interface • Flat cable socket for connecting AS-Interface stations to the AS-Interface bus system • M12 connection • Reverse polarity protected • Detachable connection
→ Page/online	sea	asi-kvt	asi-sd





Plug connectors for control systems

				
Type	Plug NECC	Plug PS1-SAC, PS1-ZC	Plug FBS-SUB-9-WS	Plug FBS-RJ45
Electrical connection	11-pin, 9-pin/9-pin, spring-loaded terminal, plug, Sub-D/screw terminal	10-pin/10-pin, 10-pin/30-pin, socket/terminal strip	5-pin, type A, M12x1, straight plug/screw terminal	5-pin, type A, M12x1, straight plug/screw terminal
Connection cross section	0.2 ... 2.5 mm ²	0.08 ... 0.75 mm ²	0.75 mm ²	0.75 mm ²
Protection class	IP40		IP40, in assembled state, to IEC 60529	IP40, IP65, IP67, in assembled state
Description	<ul style="list-style-type: none"> • Encoder plug for motor controller CMMS-ST, CMMS-AS • Plug for multi-axis controllers CMXR for interface housing CAMI-C, 11-pin • Plug for multi-axis controllers CMXR and for modular controllers CECC for peripheral modules • 2-pin, 4-pin, 6-pin, 8-pin, 11-pin, 18-pin 	<ul style="list-style-type: none"> • For power supply • Cable connection using clamping technology • Individually or as a set 	<ul style="list-style-type: none"> • Plug connector for bus connection CAN Bus and PROFIBUS • Cable connection 2x horizontal or 2x vertical • Printed circuit terminal block with screw connector 	<ul style="list-style-type: none"> • Ethernet plug with 8-pin RJ45 connection • High transmission quality • Detachable connection
→ Page/online	necc	ps1	fbs-sub-9-ws	fbs-rj




Plug connectors for control systems

	
Type	Plug assortment NEKM
Electrical connection	2 ... 9-pin, screw connector
Connection cross section	0.2 ... 2.5 mm ²
Protection class	
Description	<ul style="list-style-type: none"> • For motor cable, encoder cable, power supply, reference switch, STO safety function • Comprising plug for power supply and plug for motor connection
→ Page/online	nekm




Plug connectors for valves

				
Type	Plug socket MSSD	Soldering base PCBC	Multi-pin plug socket NECA	Angled socket MPPE-3-B
Electrical connection	3-pin, 4-pin, angled socket, type A, type B, type C, to DIN EN 175301-803, to DIN EN 61984, square design	2-pin, 3-pin	9-pin/9-pin, Sub-D/screw terminal	8-pin, angled socket, solderable
Connection cross section	0.22 ... 1.5 mm ²		0.34 ... 1 mm ²	0.75 mm ²
Protection class	IP40, IP65, IP67, in assembled state, to IEC 60529	IP40	IP65	IP67
Description	<ul style="list-style-type: none"> For valves with F, D, N1, V, E, EB, N2, Y, Z, ZB, ZC, MD-2, MH-2 solenoid coils For connecting individual valves Cable connection using clamping screws, insulation displacement technology or push-in connector With or without LED 	<ul style="list-style-type: none"> For mounting miniature valves MHA1 and MHP1 on a PCB with plug connection underneath (-PI) 	<ul style="list-style-type: none"> For soft-start/quick exhaust valve MS6-SV, MS series Electrical connection via 9-pin Sub-D, 9-pin screw terminal 	<ul style="list-style-type: none"> For the proportional pressure regulators MPPE and MPPES Mounting via union nut
→ Page/online	mssd	pcbc	ms6-sv	mppe-3-b

Plug connectors for valves

			
Type	Time delay insert MFZ	Illuminating seal MF-LD, MC-LD, MV-LD, ME-LD, MEB-LD	Indicator insert MCL, MCLZ, MFL, MFLZ
Electrical connection	For connector socket or device plug, type F	Type A, B, C, to DIN EN 175301-803, square design, MSC	Plug-in to DIN 43650, plug-in for F coil
Connection cross section			
Protection class	IP64	IP65	IP64 (without seal: IP40)
Description	<ul style="list-style-type: none"> Electronic timer with adjustable time delay of between 0 ... 10 s For mounting between the solenoid coil and connector socket or device plug 	<ul style="list-style-type: none"> For mounting between the plug socket and solenoid coil The seal is illuminated yellow when the power is switched on For F, D, N1, V, E, EB solenoid coils 	<ul style="list-style-type: none"> For mounting between the solenoid coil and plug connection With yellow LED indicator Variant with integrated protective circuit
→ Page/online	mfz	mc-ld	mcl



Plug connectors for valve terminals

				
Type	Bus connection FBSD-KL	Plug, plug socket FBS, FBSD	Power supply socket NTSD	Bus connection FBA-1, FBA-2
Electrical connection	5-pin/5-pin, angled socket/screw terminal	4-pin, 5-pin, socket: straight, angled, plug: straight, screw terminal, type A, M12x1	4-pin, 5-pin, socket: straight, angled, plug: straight, screw terminal	9-pin/5-pin, straight socket/straight plug, straight socket/plug and socket, Sub-D/-, Sub-D/M12x1
Connection cross section	0.2 ... 2.5 mm ²	0.75 mm ² , 0.2 ... 2.5 mm ²	0.75 ... 2.5 mm ²	
Protection class	IP20	IP20, IP67, in assembled state	IP67	IP40, IP65, IP67
Description	<ul style="list-style-type: none"> 5-pin angled socket, 5-pin screw terminal 	<ul style="list-style-type: none"> For fieldbus connection Straight and angled design Can be assembled with any cable lengths 	<ul style="list-style-type: none"> Straight and angled design For power supply Can be assembled with any cable lengths 	<ul style="list-style-type: none"> Can be assembled with any cable lengths
→ Page/online	fbzd-kl	fbs	ntsd	fba-1

Plug connectors for valve terminals

Type	 Plug FBS-SUB	 Sensor socket SIE-GD, SIE-WD	 Cover cap ISK	 Plug socket, plug SD-SUB
Electrical connection	Fieldbus plug with 9-pin Sub-D connection	4-pin, straight socket, angled socket, M12x1		25-pin, plug, Sub-D
Connection cross section		0.25 ... 0.75 mm ²		
Protection class	IP65, IP67, in assembled state	IP67		IP65
Description	<ul style="list-style-type: none"> • Variants for PROFIBUS DP, INTERBUS nodes CPX and CPV, CC-Link CPX and CPV, CPX-FEC • Position of DIL switches can be read externally • Easy mounting 	<ul style="list-style-type: none"> • For customised fabrication of cables • Pin adapter for fieldbus connection • With screw terminals • Straight or angled design 	<ul style="list-style-type: none"> • For sealing unused ports/openings • Thread M8, M12 	<ul style="list-style-type: none"> • Socket for multi-pin plug connection • Plug for inputs/outputs • Can be assembled with any cable lengths
→ Page/online	fbs-sub	sie-gd	isk	sd-sub

Plug connectors for sensors

Type	 Angled socket PEV-WD	 Angled socket SD-4-WD
Electrical connection	4-pin, angled socket	4-pin, plug, Sub-D
Connection cross section		
Protection class	IP65	IP65
Description	<ul style="list-style-type: none"> • For pressure switch PEV • 15 ... 30, 180 V DC, 230 V AC • Angled design • Optionally with LED indicator 	<ul style="list-style-type: none"> • For swivel module DSMI • Angled design
→ Page/online	pev*wd	sd-4-wd



- Connecting cables for basic, standard, energy chain and robot applications
- Versions with switching status display
- Cable length 0.1 ... 30 m freely selectable
- ★ Quick ordering of basic designs → 1059

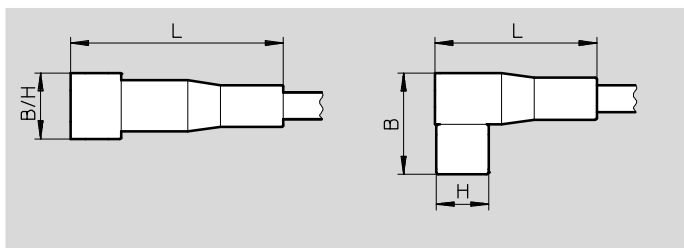
→ www.festo.com/catalogue/nebu

Product range overview

Type	Electrical connection	Cable characteristics	Electrical connection	Number of wires	Cable length [m]	→ Page/online
	Left		Right			
NEBU-LE	Open end	Basic	Plug M8x1	3, 4, 5	0.1 ... 30	1054
			Plug M12x1			
		Standard	Plug M8x1	3, 4, 5	0.1 ... 30	1054
			Plug M12x1			
NEBU-M5	Socket M5x0.5	Standard	Open end	3	5	nebu-m5
			Plug M8x1	3	1	
			Plug M12x1	4	1	
NEBU-M8	Socket M8x1	Basic	Open end	2, 3, 4	0.1 ... 30	1054
			Plug M8x1			
			Plug M12x1			
		Standard	Open end	2, 3, 4	0.1 ... 30	1054
			Plug M8x1			
			Plug M12x1			
		Suitable for use with energy chains	Open end	3, 4	0.1 ... 30	1054
			Plug M8x1			
			Plug M12x1			
		Suitable for robot applications	Open end	3, 4	0.1 ... 30	1054
			Plug M8x1			
			Plug M12x1			
With switching status display	Open end	3	0.1 ... 30	1054		
	Plug M8x1					
	Plug M12x1					
NEBU-M12	Socket M12x1	Basic	Open end	3, 4, 5	0.1 ... 30	1054
			Plug M8x1			
			Plug M12x1			
		Standard	Open end	3, 4, 5	0.1 ... 30	1054
					8	
			Plug M8x1	3, 4, 5	0.1 ... 30	
		Suitable for use with energy chains	Open end	3, 4, 5	0.1 ... 30	1054
			Plug M8x1			
			Plug M12x1			
		Suitable for robot applications	Open end	3, 4, 5	0.1 ... 30	1054
			Plug M8x1			
			Plug M12x1			
With switching status display	Open end	3	0.1 ... 30	1054		
	Plug M8x1					
	Plug M12x1					
NEBU-G78	Socket 7/8"	Standard	Open end	5	2	nebu-g78

Connecting cables NEBU

Technical data



Technical data		NEBU-LE	NEBU-M8	NEBU-M12
Type				
Conforms to standard		EN 61076-2-101	–	EN 61076-2-101
		EN 61076-2-104	EN 61076-2-104	–
		EN 61984		
Cable characteristics	NEBU-...-P	Basic		
	NEBU-...-K	Standard		
	NEBU-...-E	Suitable for use with energy chains, cables halogen-free and oil-resistant		
	NEBU-...-R	Suitable for robot applications, cables halogen-free and oil-resistant		

Electrical connection	Socket M8x1		Plug M8x1		Socket M12x1		Plug M12x1		
	Straight	Angled	Straight	Angled	Straight	Angled	Straight	Angled	
Cable composition	2x0.25 mm ²				–				
	3x0.25 mm ²				3x0.25 mm ²				
	4x0.25 mm ²				4x0.25 mm ²				
	–				5x0.25 mm ²				
	–				5x1.00 mm ²				
Conductor nominal cross section	[mm ²]	0.25				0.25			
	[mm ²]	–				1	–	1	–
Cable diameter	[mm]	4.5				4.5			
Cable length	[m]	0.1 ... 30				0.1 ... 30			
Plug coding		–				A			
Length L/width W/height H	[mm]	35/9/9	27/17/9	42/10/10	27/24/10	48/15/15	38/26/15	55/15/15	38/33/15

Type	NEBU-...P	NEBU-...N	NEBU-...L	NEBU-...P2
Display	LED, PNP	LED, NPN	LED, DC	2x LED, PNP
Ready status display	Green LED	Green LED	–	Green LED
Switching status display	Yellow LED	Yellow LED	Yellow LED	Yellow LED
	–	–	–	Blue LED

Electrical data		NEBU-M8				
Type		2x0.25 mm ²		3x0.25 mm ²		4x0.25 mm ²
Cable composition		L		–		P, N
Display		L		–		P, N
Operating voltage range ¹⁾	[V AC]	–		0 ... 60		–
	[V DC]	21.6 ... 30		0 ... 60		10 ... 30
Surge capacity ¹⁾	[kV]	0.8		1.5		0.8
	[A]	3		–		0.8
Acceptable current load at 40 °C ¹⁾		3		–		0.8
Degree of contamination		3				

1) When different connection technologies are combined the lower value applies.

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Technical data

Type	NEBU-M12					
Cable composition	3x0.25 mm ²		4x0.25 mm ²		5x0.25 mm ²	5x1.00 mm ²
Display	–	P, N	–	P2	–	–
Operating voltage range ¹⁾	[V AC]	0 ... 250	–	0 ... 250	–	0 ... 60
	[V DC]	0 ... 250	10 ... 30	0 ... 250	10 ... 30	0 ... 60
Surge capacity ¹⁾	[kV]	2.5 ²⁾	0.8	2.5	0.8	1.5
Acceptable current load at 40 °C ¹⁾	[A]	4				
Degree of contamination	3					

1) When different connection technologies are combined the lower value applies.

2) 0.8 kV applies for alternative number of wires = 3.

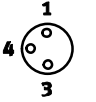
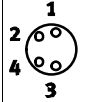
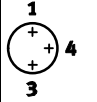
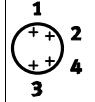
Materials

Type	NEBU-...-P	NEBU-...-K	NEBU-...-E	NEBU-...-R
Cable characteristics	Basic	Standard	Suitable for use with energy chains	Suitable for robot applications
Housing	PUR	PUR	PUR	PUR
Union nut	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass	Nickel-plated brass
Cable sheath	PVC	PUR	PUR	PUR
Pin contacts	Gold-plated brass	Gold-plated brass	Gold-plated brass	Gold-plated brass
Insulating sheath	PVC	PVC	TPE-E	TPE-E

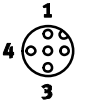
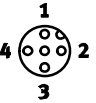
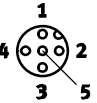
Operating conditions

Type	NEBU-...-P	NEBU-...-K	NEBU-...-E	NEBU-...-R
Cable characteristics	Basic	Standard	Suitable for use with energy chains	Suitable for robot applications
Ambient temperature	[°C] –25 ... +70	–25 ... +70	–25 ... +80	–25 ... +80
Ambient temperature with flexible cable installation	[°C] –5 ... +80	–5 ... +70	–5 ... +80	–5 ... +80
Degree of protection	IP65, IP68			

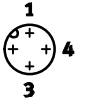
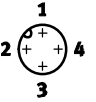
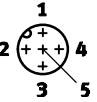
Pin allocation to EN 60947-5-2

Socket M8x1						Plug M8x1					
3-pin	Pin	Wire colour	4-pin	Pin	Wire colour	3-pin	Pin	Wire colour	4-pin	Pin	Wire colour
	1	Brown		1	Brown		1	Brown		1	Brown
	3	Blue		2	White		3	Blue		2	White
	4	Black		3	Blue		4	Black		3	Blue
				4	Black					4	Black





Socket M12x1

3-pin	Pin	Wire colour	4-pin	Pin	Wire colour	5-pin	Pin	Wire colour
	1	Brown		1	Brown		1	Brown
	3	Blue		2	White		2	White
	4	Black		3	Blue		3	Blue
				4	Black		4	Black
							5	Grey

Plug M12x1

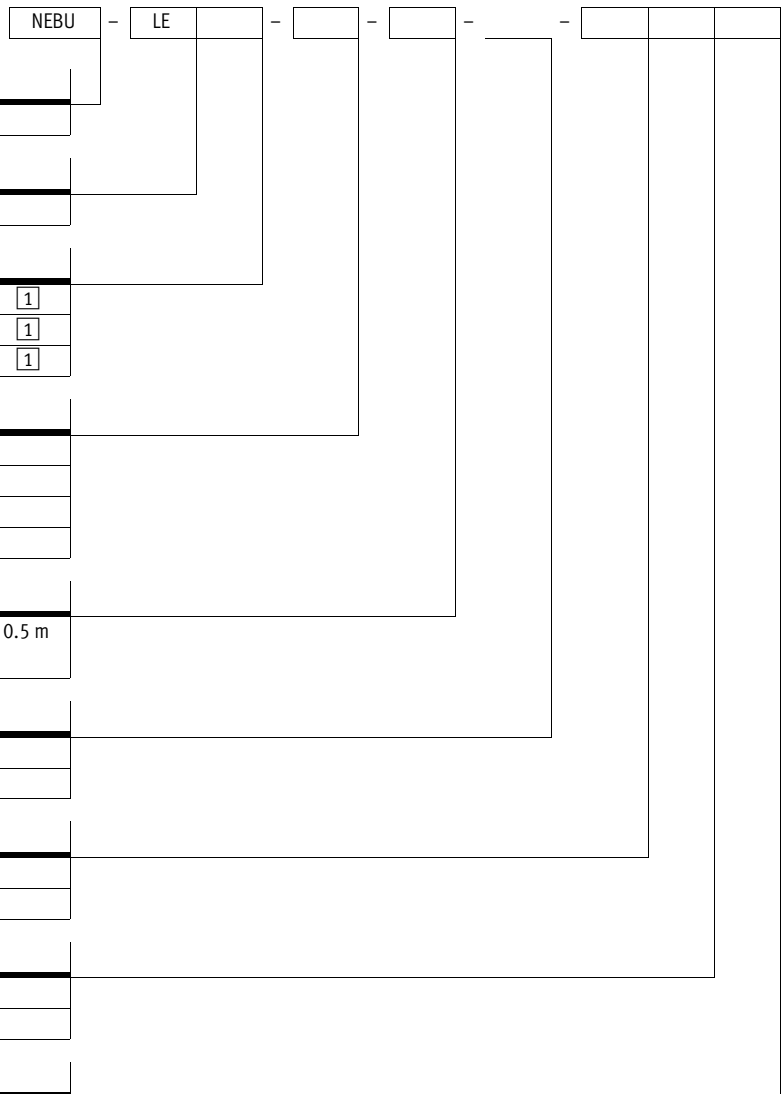
3-pin	Pin	Wire colour	4-pin	Pin	Wire colour	5-pin	Pin	Wire colour
	1	Brown		1	Brown		1	Brown
	3	Blue		2	White		2	White
	4	Black		3	Blue		3	Blue
				4	Black		4	Black
							5	Grey

Pin allocation – Display L

Socket M8x1			Plug M8x1			Plug M12x1	
4-pin	Pin	Wire colour	3-pin	Pin	4-pin	2-pin	Pin
	3	Black		3			3
	4	Black		4			4

Connecting cables NEBU-LE

Order code



Function	
NEBU	Connecting cable

Connection technology, left-hand end	
LE	Open end

Number of pins/wires (left-hand end)		
3	3-pin (suitable for open end, plug M8)	<input type="text" value="1"/>
4	4-pin (suitable for open end, plug M8)	<input type="text" value="1"/>
5	5-pin (suitable for 3, 4 and 5-pin plug M12)	<input type="text" value="1"/>

Cable characteristics	
P	Basic
K	Standard
E	Suitable for use with energy chains
R	Suitable for robot applications

Cable length	
0.1 ... 30	0.1 ... 30 m (0.1 ... 2.5 m in 0.1 m increments, 2.5 ... 30 m in 0.5 m increments)

Cable designation	
-	With inscription label holder (standard)
N	Without inscription label holder

Connection technology, right-hand end	
M8	Plug with connecting thread M8
M12	Plug with connecting thread M12, A-coded

Plug design	
G	Straight
W	Angled

Number of pins/wires (right-hand end)		
3	3-pin (suitable for socket M8/M12)	<input type="text" value="2"/>
4	4-pin (suitable for socket M8/M12)	<input type="text" value="2"/>
5	5-pin (suitable for socket M12)	<input type="text" value="2"/>

- 1 With LE connection technology at left-hand end, the number of wires selected must be equal to the number of pins (right-hand end).
- 2 With LE connection technology at left-hand end, the number of wires (left-hand end) must be copied over.

Order example:

NEBU-LE5-K-1-N-M12G5

Connecting cable NEBU – open end, 5-pin – standard – cable length 1 m – without inscription label holder – plug M12x1, A-coded, straight, 5-pin

Order code

NEBU - M8 - - - - -	
Function	
NEBU	Connecting cable
Connection technology, left-hand end	
M8	Socket with connecting thread M8
Socket design	
G	Straight
W	Angled
Number of pins/wires (left-hand end)	
3	3-pin (suitable for open end, plug M8)
4	4-pin (suitable for open end, plug M8)
Display	
-	Without LED, DC (standard)
P	LED, PNP 1
N	LED, NPN 1
L	LED, DC 2
Cable characteristics	
P	Basic
K	Standard
E	Suitable for use with energy chains
R	Suitable for robot applications
Cable length	
0.1 ... 30	0.1 ... 30 m (0.1 ... 2.5 m in 0.1 m increments, 2.5 ... 30 m in 0.5 m increments)
Cable designation	
-	With inscription label holder (standard)
N	Without inscription label holder
Connection technology, right-hand end	
LE	Open end
M8	Plug with connecting thread M8
M12	Plug with connecting thread M12, A-coded
Plug design	
-	Open end 3
G	Straight 4
W	Angled 4
Number of pins/wires (right-hand end)	
2	2-pin 5
3	3-pin (suitable for socket M8/M12)
4	4-pin (suitable for socket M8/M12)

- 1 Can only be combined with socket design W and 3 pins/wires (left-hand end).
- 2 Can only be combined with 4 pins/wires (left-hand end), M8 connection technology at right-hand end with 3, 4 pins/wires (right-hand end) or with LE, M12 connection technology at right-hand end with 2 pins/wires (right-hand end) (always a 2-wire cable), cable characteristics K.

- 3 Must be selected with LE connection technology at right-hand end.
- 4 Must be selected with M8, M12 connection technology at right-hand end.
- 5 Can only be combined with LE connection technology at right-hand end. Cannot be combined with cable characteristics P, E, R.

Order example:

NEBU-M8G4-K-5-LE4

Connecting cable NEBU – socket M8x1, straight, 4-pin, without LED, DC – standard – cable length 5 m – with inscription label holder – open end, 4-pin

Order code

NEBU - M12 5 - - - - -

Function	
NEBU	Connecting cable
Connection technology, left-hand end	
M12	Socket with connecting thread M12, A-coded
Socket design	
G	Straight
W	Angled
Number of pins/wires (left-hand end)	
5	5-pin
Display	
-	Without LED, DC (standard)
P	LED, PNP 1
N	LED, NPN 1
P2	2x LED, PNP 2
Cable characteristics	
P	Basic
K	Standard
E	Suitable for use with energy chains
R	Suitable for robot applications
Cable length	
0.1 ... 30	0.1 ... 30 m (0.1 ... 2.5 m in 0.1 m increments, 2.5 ... 30 m in 0.5 m increments)
Cable designation	
-	With inscription label holder (standard)
N	Without inscription label holder
Wire cross section	
-	0.25 mm ² (standard)
Q8N	1 mm ² 3
Connection technology, right-hand end	
LE	Open end
M8	Plug with connecting thread
M12	Plug with connecting thread, A-coded
Plug design	
-	Open end 4
G	Straight 5
W	Angled 5
Number of pins/wires (right-hand end)	
3	3-pin (suitable for socket M8/M12) 6
4	4-pin (suitable for socket M8/M12) 6
5	5-pin (suitable for socket M12) 6

- 1 Can only be combined with socket design W and 5 pins/wires (left-hand end) and 3 pins/wires (right-hand end).
- 2 Can only be combined with socket design W and 4 pins/wires (right-hand end).
- 3 Can only be combined with M12 connection technology at left-hand end and socket design G with 5 pins/wires, M12 connection technology at right-hand end and socket design G with 5 pins/wires, cable characteristics E.

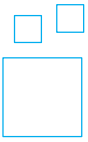
- 4 Must be selected with LE connection technology at right-hand end.
- 5 Must be selected with M8, M12 connection technology at right-hand end.
- 6 With LE open end at right-hand end, the number of pins/wires must be less than or equal to the number of pins on the opposite side.

Order example:

NEBU-M12W5P-E-3.5-N-M8G3

Connecting cable NEBU – socket M12x1, A-coded, angled, 5-pin, LED, PNP display – suitable for use with energy chains – cable length 3.5 m – without inscription label holder – plug M8x1, straight, 3-pin

Ordering – Product options



Configurable
product

This product and all its options can
be ordered using the configurator.

The configurator can be found under
Products on the DVD or

→ www.festo.com/catalogue/...

Enter the type code in the search field.

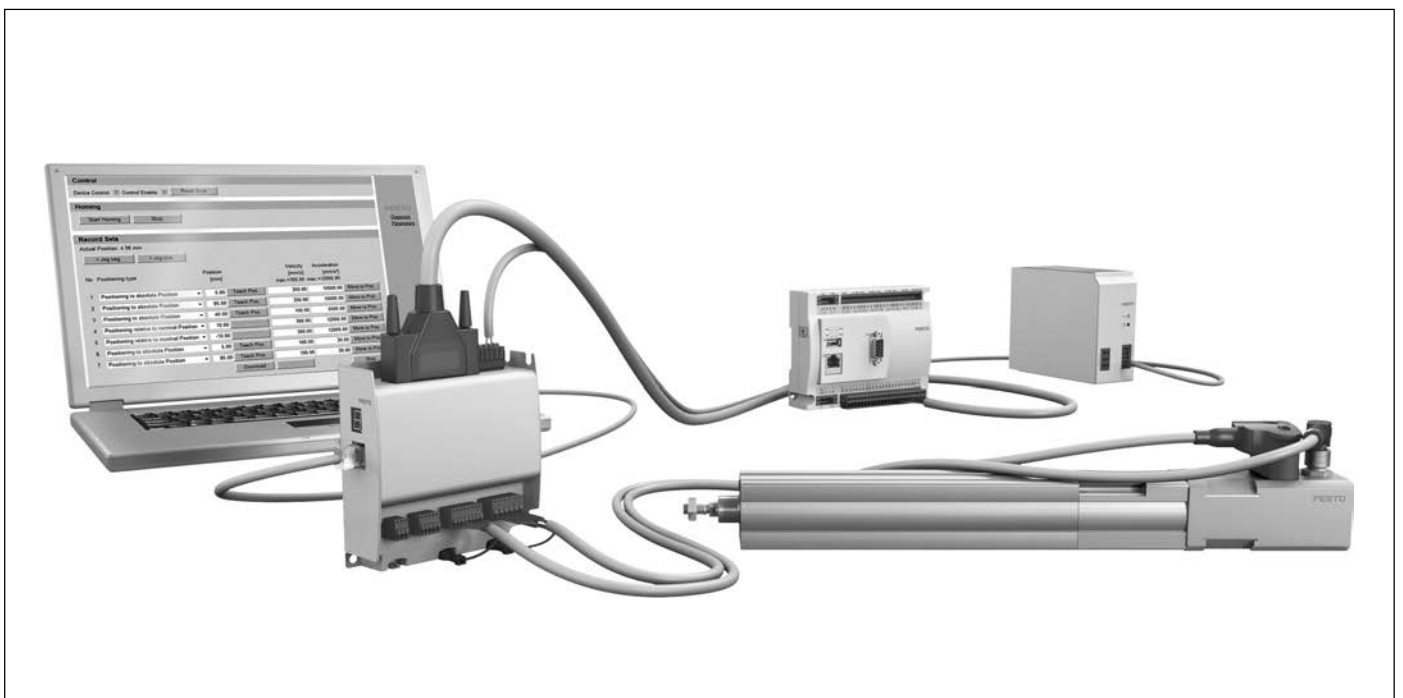
★ Quick ordering¹⁾

	Cable length [m]	Part No.	Type
Straight socket, 3-pin, M8			
Open cable end, 3-wire	2.5	541333	NEBU-M8G3-K-2.5-LE3
	5	541334	NEBU-M8G3-K-5-LE3
	10	541332	NEBU-M8G3-K-10-LE3
Straight plug, 3-pin, M8	0.5	541346	NEBU-M8G3-K-0.5-M8G3
	1	541347	NEBU-M8G3-K-1-M8G3
	2.5	541348	NEBU-M8G3-K-2.5-M8G3
	5	541349	NEBU-M8G3-K-5-M8G3
Angled socket, 3-pin, M8			
Open cable end	2.5	541338	NEBU-M8W3-K-2.5-LE3
	5	541341	NEBU-M8W3-K-5-LE3
	10	541335	NEBU-M8W3-K-10-LE3




	Cable length [m]	Part No.	Type
Angled socket, 3-pin, M8			
Open cable end, for NPN N/O contact	2.5	541336	NEBU-M8W3N-K-2.5-LE3
	5	541339	NEBU-M8W3N-K-5-LE3
Open cable end, for PNP N/O contact	2.5	541337	NEBU-M8W3P-K-2.5-LE3
	5	541340	NEBU-M8W3P-K-5-LE3
Straight socket, 5-pin, M12			
Straight plug, 5-pin, M12	5	574321	NEBU-M12G5-E-5-Q8N-M12G5
	7.5	574322	NEBU-M12G5-E-7.5-Q8N-M12G5
	10	574323	NEBU-M12G5-E-10-Q8N-M12G5
Open cable end, 3-wire	2.5	541363	NEBU-M12G5-K-2.5-LE3
	5	541364	NEBU-M12G5-K-5-LE3
Open cable end, 4-wire	2.5	550326	NEBU-M12G5-K-2.5-LE4
	5	541328	NEBU-M12G5-K-5-LE4

1) All products in this table are easy to select and quick to order.


15 Control technology and software






Pneumatic and electro-pneumatic controllers

Type	 Pulse oscillator TAA, TAB	 Memory module SBA-2N	 Pulse oscillator VLG
Pneumatic connection	Barbed connections for 3 mm plastic tubing	Barbed connections for 3 mm plastic tubing	G1/8, G1/4
Type of mounting	On mounting frame	On mounting frame	Through-hole in housing
Nominal size	2 mm	3 mm	3.5 mm, 7 mm
Standard nominal flow rate	60 l/min	70 l/min	120 l/min, 600 l/min
Description	<ul style="list-style-type: none"> For ensuring a logical program sequence Poppet valve with integrated AND as well as OR gate 	<ul style="list-style-type: none"> For input logic operations For simplifying the design and installation of pneumatic controllers 	<ul style="list-style-type: none"> For generating infinitely adjustable signals in controllers For high-speed cylinder movements with single and double-acting diaphragm cylinders
→ Page/online	taa	sba	vlg




Software tool

CODESYS		<p>CODESYS for standardised programming of embedded devices to IEC 61131-3. It makes your life easier with simple commissioning, fast programming and parameterisation.</p> <p>Advantages</p> <ul style="list-style-type: none"> Hardware-neutral software platform for quick and easy configuration, programming and commissioning of pneumatic and electrical automation solutions Extensive module libraries for single or multi-axis positioning motions 	<ul style="list-style-type: none"> The IEC 61131-3 standard means that CODESYS is flexible and open for all types of control tasks Modular: offline and online functions as well as components for hardware configuration and visualisation User-friendly IEC function block extension Re-use of existing application parts <p>The CODESYS parameterisation software can be found on the website under Support > Support Portal > enter search term.</p>
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Electronic controllers

Type	 Controller CECC-D, CEDD-LK, CECC-S	 Controller CECX-X-M1	 Controller CECX-X-C1
Operating voltage	19.2 ... 30 V DC	19.2 ... 30 V DC	19.2 ... 30 V DC
CPU data	400 MHz processor	64 MB DRAM, 400 MHz processor	64 MB DRAM, 400 MHz processor
Type of fieldbus interface	CAN	CAN	CAN
Ethernet, connector plug	RJ45	RJ45	RJ45
Description	<ul style="list-style-type: none"> Modern, compact and versatile controller Programming with CODESYS to IEC 61131-3 12 digital inputs, 8 digital outputs, additionally 2 high-speed counters up to 250 kHz Ethernet 10/100 Mbit/s USB interface for transferring data CECC-LK with CANopen, IO-Link, I-Port and Modbus TCP protocol 	<ul style="list-style-type: none"> Motion controller with CODESYS and SoftMotion Programming to standard IEC 61131-3 Three plug-in slots for optional modules Optional: communication module for PROFIBUS 	<ul style="list-style-type: none"> Modular master controller with CODESYS Programming to standard IEC 61131-3 Three plug-in slots for optional modules Optional: communication module for PROFIBUS
→ Page/online	1069	cecx-x-m1	cecx-x-c1




Electronic controllers

			
Type	Input/output module CECX-D-E8A, CECX-A-4E4A	Input module CECX-D-16E, CECX-A-4E-V, CECX-E-E-T-P	Output module CECX-D-14A-2, CECX-A-4A-V
Operating voltage	19.2 ... 30 V DC		24 V DC
CPU data			
Type of fieldbus interface			
Ethernet, connector plug			
Description	<ul style="list-style-type: none"> • Digital modules: 6 or 8 digital inputs and 8 digital outputs • Analogue modules for voltage: 4 analogue voltage inputs and 4 analogue voltage outputs • Analogue modules for current: 4 analogue current inputs and 4 analogue current outputs • Address setting function, short circuit monitoring function for outputs, debounce function, interrupt function, sensor failure detection function 	<ul style="list-style-type: none"> • Digital modules: 16 digital inputs • Analogue modules for voltage: 4 analogue voltage inputs • Temperature input modules: 4 or 6 temperature inputs 	<ul style="list-style-type: none"> • Digital modules: 14 digital outputs • Analogue modules: 4 analogue voltage outputs
→ Page/online	cecx	cecx	cecx





Electronic controllers

				
Type	Encoder interface CECX-C-2G	Fieldbus interface CECX-F-PB-S-V, CECX-F-PB-V1, CECX-B-CO	Electrical interface CECX-C-2S1	AS-i module CESA
Operating voltage	19.2 ... 30 V DC			30 V DC
CPU data				
Type of fieldbus interface		CAN Bus, PROFIBUS master DP-V1, PROFIBUS slave DP-V0, PROFIBUS slave DP-V1		CANopen, PROFIBUS
Ethernet, connector plug	9-pin, socket, RJ45	8-pin, socket, 9-pin, plug	9-pin, plug	
Description	<ul style="list-style-type: none"> • Distance measurement function • Pulse counter • Speed measurement function • Shaft encoder monitoring function • Counter reading latch function • Sensor break monitoring • Status indication function 	<ul style="list-style-type: none"> • PROFIBUS master DP-V1 • Connection via CAN Bus to the modular controller • For connecting decentralised peripheral modules in series 	<ul style="list-style-type: none"> • For extending the controller with two RS232 serial interfaces 	<ul style="list-style-type: none"> • AS-i master gateway • Duplicate address recognition • Direct operation • Graphical display • Comprehensive diagnostics via LED and display • Specification 3.0
→ Page/online	cecx	cecx	cecx	cesa



Electrical peripherals

Type	 Terminal CPX-P	 Input module CTSL	 Fieldbus module CTEU
Max. no. of inputs	Digital 512, analogue 32	16	128
Max. no. of outputs	Digital 512, analogue 18		128
No. of module positions	Max. 9 electric		32
Electrical actuation	Fieldbus, integrated controller	IO-Link, I-Port	CANopen, DeviceNet, CC-Link, PROFIBUS, EtherCAT, I-Port
Description	<ul style="list-style-type: none"> • Use of harmonised remote I/O and valve terminals in a control cabinet • Unique modular design • Comprehensive integrated diagnostic and maintenance function • Combination with modules of the electrical terminal CPX, which enables use for hybrid applications • IP65, IP20 	<ul style="list-style-type: none"> • For installation system CTEL • For recording sensor input signals • Display of the input statuses for each input signal via an assigned LED • Diagnostic LED for short circuit/overload in sensor supply 	<ul style="list-style-type: none"> • For valve terminals VTUB-12, VTUG, MPA-L, CPV, VTOC • Versatility thanks to high protection class IP65/67 • Fieldbus-typical LEDs, interfaces and switching elements available • Isolated power supply for electronics and valves • Optional basic diagnostics: undervoltage, short circuit • Optionally expandable for low-cost, decentralised installation of two additional valve terminals with I-Port
→ Page/online	1074	ctsl	cteu




Electrical peripherals

Type	 CPI installation system CTEC	 Terminal CPX	 Electrical interface CPX-CTEL	 AS-Interface® components ASI
Max. no. of inputs	128	Digital 512, analogue 32	256	
Max. no. of outputs	128	Digital 512, analogue 18	256	
No. of module positions	Max. 4 installation strings, max. 4 CP modules per string	Max. 9 electric input/output modules	Max. 4 modules with I-Port interface	
Electrical actuation	Fieldbus, integrated controller	Fieldbus, integrated controller	I-Port	AS-Interface
Description	<ul style="list-style-type: none"> • Complete concept for decentralised machine and system structure • Combination of centralised and decentralised installation possible in combination with terminal CPX • Decentralised pneumatic components and sensors for fast processes • Centralised electrical components for fieldbus and common power supply • With valve terminal CPV, MPA, CPV-SC 	<ul style="list-style-type: none"> • Centralised, decentralised, hybrid installation system with maximum modularity and flexibility • IP65 and IP67 or IP20 • Choice of plastic or metal housing with individual linking • Open to common fieldbus protocols and Ethernet • Integrated diagnostic and service function • Operating modes: stand-alone, as remote I/O or with valve terminals MPA-S, MPA-F, MPA-L, VTSA/VTSA-F 	<ul style="list-style-type: none"> • Cost-effective: fieldbus connection for the price of a multi-pin interface • Decentralised input modules and valve terminals with short tubing, short cycle times and low energy consumption in combination with terminal CPX • Standardised M12 connections reduce cost, installation time and logistical complexity 	<ul style="list-style-type: none"> • Accessories for AS-Interface • Installation system • Modules for actuating individual valves ASI-EVA • Cable distributor ASI-KVT • Addressing device ASI-PRG-ADR • Compact I/O modules (IP65, IP67) • AS-Interface power supply unit SVG
→ Page/online	ctec	cpx	cpx-ctel	as-interface





Operator units, text-based

		
Type	Operator unit FED-40, FED-50, FED-60, FED-90	Operator unit CPX-MMI
Display	Monochrome LCD, with backlighting	LCD display, with backlighting
Display size	4 x 20 characters	128 x 64 pixels
Recipe memory	16 KB	
Ethernet interface	Optional, 10 MBd	
No. of user LEDs	5 ... 13	
No. of function keys	4 ... 12	3
Description	<ul style="list-style-type: none"> • Straightforward designing of human-machine dialogues • Semi-graphical display of process values makes them easier to read • 4-line text display and operating buttons • Serial interface • Recipe handling • Password protection 	<ul style="list-style-type: none"> • Data retrieval from, configuration of and diagnostics of terminal CPX • 3 function keys, 4 arrow keys • Connection to the CPX bus nodes or control block using a pre-assembled M12 cable
→ Page/online	fed	cpx-mmi




Operator units, with touchscreen

			
Type	Operator unit CDSA	Operator unit FED-301, FED-400, FED-501, FED-550, FED-700, FED-770, FED-1000, FED-2000, FED-3000, FED-5000	Operator unit CDPX
Display	Colour TFT	Monochrome LCD, TFT colour	Colour TFT
Display size	6.5"	3.8", 4.3", 5.6", 5.7", 7", 7.5", 10.4", 12.1", 13.3", 15"	4.3", 7", 10.4", 13.3"
Recipe memory		1/4 VGA, 320x240 pixels, 480x272 pixels, SVGA, 800x600 pixels, VGA, 640x480 pixels, WVGA, 800x480 pixels, WXGA, 1280x800 pixels, XGA, 1024x768 pixels	WQVGA 480x272 pixels, WVGA, 800x480 pixels, SVGA, 800x600 pixels, WXGA, 1280x800 pixels
Ethernet interface	2nd Ethernet interface optional 10 MBd, RJ45 10/100 MBd	100 MBd, 2nd Ethernet interface optional 10 MBd, RJ45 10/100 MBd, optional, 10 MBd	RJ45 10/100 MBd
No. of function keys	31		
Description	<ul style="list-style-type: none"> • Interfaces for Ethernet, RS-422-A/RS-232-C, USB host/USB client • Designs with colour touchscreen 	<ul style="list-style-type: none"> • Graphics-capable for maximum flexibility when displaying processes and data • No programming effort in the PLC program • Convenient FED Designer WYSIWYG design tool • Shorter project planning thanks to re-usable objects • Trend display • Program sequences display • Can be connected to all FEC® units • Extremely sturdy thanks to metal housing 	<ul style="list-style-type: none"> • Powerful processors combined with wide screen technology • Remote access, remote control • FTP and HTTP servers • Open for web and multimedia applications
→ Page/online	cdsa	fed	cdpx


Software

				
Type	Operator package GSIB	Operator package P.BP	Software GSPF	Software and manual P.SW
Description	<ul style="list-style-type: none"> Information software and documentation for motor controller CMMD-AS, CMMS-AS, CMMP-AS, CMMS-ST Operator package contains CD-ROM with user documentation for motor controller and FCT (Festo Configuration Tool) configuration software and brief description 	<ul style="list-style-type: none"> Information software and documentation for motor controller CMMP-AS and SFC-DC, handling module HSP/HSW and motor unit MTC-DCI Operator package contains CD-ROM with user documentation for motor controller and FCT (Festo Configuration Tool) configuration software and brief description 	<ul style="list-style-type: none"> Programming software and documentation for motor controller CMMP-AS with additional functions for cam disc functionality Software for configuring, programming, commissioning and maintaining the controller CECC Programming software for creating custom application programs for safety systems CMGA Operating software for configuring, programming and for AS-Interface diagnostics using serial connecting cable Software package contains CD-ROM with user documentation for motor controller 	<ul style="list-style-type: none"> For configuring the terminal CPX, for parameterising the CPX modules, for programming the controller CPX-FEC Software for Checkbox CHB-C for image evaluation, display, protocol and adaptation of the I/O parameters Software for Checkbox CHB-C for complete analysis of the recognition processes
→ Page/online	gsib	software	gspf	software


Software

			
Type	Software licence GSLO	Software (FluidDraw S5®) GSWF-S5	Software (FluidDraw P5®) GSWF-P5
Description	<ul style="list-style-type: none"> For activating tools on the compact vision system SBOC-Q/SBOI-Q 	<ul style="list-style-type: none"> Quick and easy creation of pneumatic circuit diagrams Extensive library of pneumatic symbols Easy, user-friendly operator guidance Interface to Festo products (catalogue, online shop) 	<ul style="list-style-type: none"> Quick and easy creation of pneumatic circuit diagrams Comprehensive library of pneumatic and electrical symbols User-specific product databases and translation tables Terminal plans, cable diagrams, cable lists, parts lists Dimensioning function for preparing simple control cabinet and system layouts Consistent equipment identification Multi-level project tree
→ Page/online	gslo	gswf-s5	gswf-p5

Documentation

	
Type	Manuals GDCW, GDCP, GDCC, GSIB, P.BE, P.BP
Description	<ul style="list-style-type: none"> • For software • For control blocks • For motors and controllers • For valve terminals and electrical peripherals • For vision systems
→ Page/online	documentation

Learning systems

	
Type	EduTrainer® D
Description	<ul style="list-style-type: none"> • PLC EduTrainer® support system for use in teaching and training • Equipped with PLCs from different manufacturers • Two series: Universal and Compact • Equipped with 19" simulation modules • Individually configurable or pre-assembled
→ Page/online	edutrainner



- Compact controller with 400 Mhz processor
- CoDeSys provided by Festo
- 12 digital inputs
- 8 digital outputs

→ www.festo.com/catalogue/cecc

Application

Controller



The controllers CECC are modern, compact and versatile controllers that enable programming with CoDeSys according to IEC 61131-3.

State-of-the-art programming

CoDeSys V3 pbF offers a user-friendly interface with the following new functions:

- Object-oriented programming
- Modern editors for simplified input
- Simplified configuration for fieldbus

- New configurator for IO-Link masters



- Multiple controllers in one project
- Improved troubleshooting function
- Simplified project navigation

Basic functions of the CECC-D

The controllers CECC (CECC-D) offer the following basic functions:

- 12 digital inputs, 8 digital outputs, additionally 2 high-speed counters up to 250 kHz
- Ethernet 10/100 Mbps, Modbus TCP client/server, EasyIP, TCP/IP, OPC server available

- CANopen master: connection of the electric drives
- USB interface for data transfer
- Can be connected directly with modern HMI devices: CDPX

Additional functions CECC-LK

- This variant of the CECC offers four IO-Link masters and one IO-Link device interface
- The integrated IO-Link interface of the CECC-LK enables quick and easy connection of Festo valve terminals and sensors to a controller

- All modern, compact valve terminals from the CTEU series can be connected to IO-Link masters: VTUB, VTUG, MPA, CPV, VTOC and upcoming devices, as well as the input box CTSL

Additional functions of the CECC-S

- 2 RS232 interfaces
- 1 RS422/RS485 interface, allows freely configurable communication with different devices
- The RS422 interface can optionally be used as an encoder interface. For this operating mode, there are numerous setting options on the encoder type, comparison functions and referencing
- In addition, the CECC offers an IO-Link master and an IO-Link device interface

Fieldbus interfaces

The CECC-LK and CECC-S can be connected to a combination of CTEU nodes and CAPC on various fieldbuses via the IO-Link device interface:

- PROFIBUS
- EtherCAT
- DeviceNet
- CANopen
- AS-interface



System configuration

The CECC can communicate with all electric drive controllers from Festo and actuate all valve terminals via CANopen. The CECC communicates with other controllers and operator units from Festo via Ethernet, such as the modern, new HMI device series CDPX and the camera SBOx-Q for image evaluation.

Technical data



Technical data	
CPU data	400 MHz processor
Degree of protection	IP20
Status displays	LED
Electrical connection technology for I/O	Socket strip, grid 3.5 mm

Digital inputs	
Number	12
Switching logic	Positive logic (PNP)
High-speed clock pulse inputs	2, each with max. 180 kHz
Input signal delay [ms]	Typically 3
Input voltage [V DC]	24
Permissible connecting cable length [m]	30

Digital outputs	
Number	8
Switching logic	Positive logic (PNP)
Contact	Transistor
Output voltage [V DC]	24
Output current [mA]	500
Switching frequency [kHz]	Max. 1
Protection against short circuit	Yes

Serial interfaces	
USB interface	USB 1.1 for connecting external storage media
Ethernet interface	RJ45 for connecting external operator units
IO-Link interface	Cage Clamp, master 5-pin
Fieldbus interface	
Programming software	CoDeSys provided by Festo
Fieldbus interface type	CAN bus, master
Connection technology	Sub-D plug, 9-pin
Transmission rate [kbps]	125, 250, 500, 800, 1000
	Adjustable via software

Operating and environmental conditions		CECC-LK	CECC-D	CECC-S
Operating voltage [V DC]		19.2 ... 30		20.4 ... 30
Current consumption at 24 V DC [mA]		100		
Ambient temperature [°C]		0 ... +55		

Order code

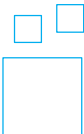
		CECC	
Type			
CECC			
Function module			
LK	With 14 digital inputs and 8 digital outputs, Ethernet, USB, CANopen, 4 IO-Link masters, 1 IO-Link device		
D	With 14 digital inputs and 8 digital outputs, Ethernet, USB, CANopen		
S	With 14 digital inputs and 8 digital outputs, Ethernet, USB, CANopen, 2 RS232, 1 RS485/RS422/encoder, 1 IO-Link master, 1 IO-Link device		

Order example:

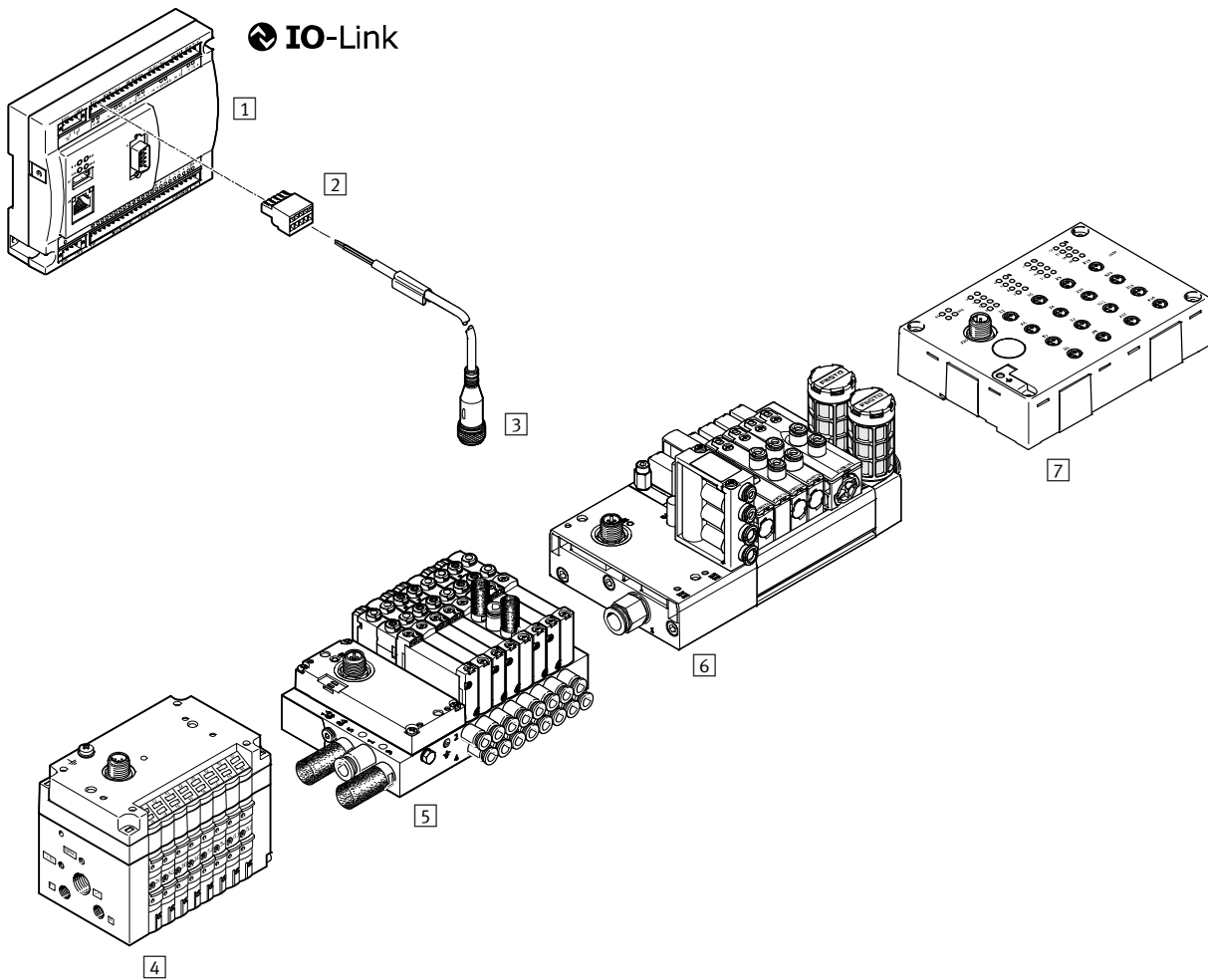
CECC-LK

Function module CECC-LK, with 14 digital inputs and 8 digital outputs, Ethernet, USB, CANopen, 4 IO-Link masters, 1 IO-Link device

Ordering – Product options

	Configurable product	This product and all its options can be ordered using the configurator.	The configurator can be found under Products on the DVD or → www.festo.com/catalogue/...	Enter the type code in the search field.
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
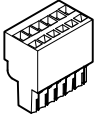



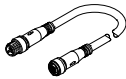

Accessories



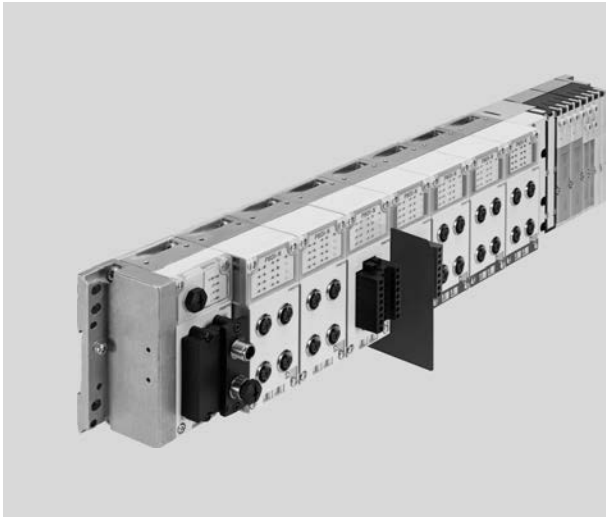
		→ Page/ online
1	Controller CECC	1070
2	Plug NECC	1073
3	Connecting cable NEBU	1073
4	Valve terminal CPV	cpv

		→ Page/ online
5	Valve terminal VTUG	vtug
6	Valve terminal VTUB	vtub
7	Input module CTSL	ctsl
-	CoDeSys V3 software	1073

Accessories – Ordering data

	Description	Part No.	Type
2 Plug			
	–	575303	NECC-L2G4-C1-M
	2-pin	575302	NECC-L2G2-C1
	4-pin	8024782	NECC-L2G4-C1
	5-pin	575304	NECC-L2G5-C1
	6-pin	575305	NECC-L2G6-C1
	8-pin	575306	NECC-L2G8-C1
	24-pin	575307	NECC-L2G24-C1
	9-pin	576031	NECC-S1G9-C2-M
3 Connecting cables Technical data → 1053			
	Straight socket, 5-pin, cable length 2.5 m	541330	NEBU-M12G5-K-2,5-LE5
	Angled socket, 5-pin, cable length 2.5 m	567843	NEBU-M12W5-K-2,5-LE5
	Up to 20 m can be used ¹⁾	★	574321 NEBU-M12G5-E-5-Q8-M12G5
		★	574322 NEBU-M12G5-E-7,5-Q8-M12G5
		★	574323 NEBU-M12G5-E-10-Q8-M12G5
Programming software			
	–	542000	GSPF-CDS-3

1) Modular product, more information → Internet: nebu



- Use of harmonised remote I/O and valve terminals in a control cabinet
- Unique modular structure
- Comprehensive integrated diagnostic and maintenance functions
- Combination with modules of the electrical terminal CPX, which enables use for hybrid applications

→ www.festo.com/catalogue/cpx-p

Product range overview

Type	Designation	Code ¹⁾	Address space		→ Page/ online
			Inputs	Outputs	
CPX-FEC-1-IE	Front End Controller Remote I/O	T05	512 bit	512 bit	cpx-p
CPX-FB11	Bus node for DeviceNet	F11	512 bit	512 bit	1082
CPX-FB13	Bus node for PROFIBUS DP	F13	512 bit	512 bit	1082
CPX-FB32	Bus node for EtherNet/IP	F32	128 bit	128 bit	1083
CPX-FB33	Bus node for PROFINET RT, 2 x M12	F33	512 bit	512 bit	1083
CPX-P-8DE-N-IS	Input module, 8 digital inputs to NAMUR, intrinsically safe	BW	16 bit ²⁾	8 bit ²⁾	1084
CPX-P-8DE-N	Input module, 8 digital inputs to NAMUR	BR	16 bit ²⁾	8 bit ²⁾	1084
CPX-16DE	Input module, 16 digital inputs	M	16 bit	–	1085
CPX-4DA	Output module, 4 digital outputs	A	–	4/8 bit ³⁾	1085
CPX-8DA	Output module, 8 digital outputs	L	–	8 bit	cpx-p
CPX-4AE-U-I	Input module, 4 analogue inputs	NI	64 bit	–	cpx-p
CPX-2AA-U-I	Output module, 2 analogue outputs	P	–	32 bit	1086
VMPA-FB-EPLM	Pneumatic interface to MPA-S	–D	16 ... 512 bit	4 ... 512 bit	1088

- 1) Code letter within the order code for a valve terminal configuration.
- 2) If the inputs are configured as counters, an address space of 80-bit inputs and 16-bit outputs is required.
- 3) Number of occupied bits is dependent on the upstream bus node/control block.

Note

The electrical terminal can be ordered quickly and easily online.
The convenient product configurator can be found at:

→ www.festo.com/catalogue/cpx-p

Note

- The bus node and control block provide the aforementioned address space.
- Input/output modules, etc. use the specified address space.

Key features

Installation concept

- Economical from the smallest configuration up to the maximum number of modules
- Up to 9 electrical input/output modules plus bus nodes and pneumatic interface/electronics modules for valves
- Extensive range of functions and connection options for the electrical modules
- Choice of connection technology for technically and economically optimised connections
- Can be used as a dedicated remote I/O module

Electrics

- High operating voltage tolerance ($\pm 25\%$)
- Open to all fieldbus protocols and Ethernet
- IT services and TCP/IP such as remote maintenance, remote diagnostics, web server, SMS and e-mail alert
- Digital inputs and outputs, 4-way/8-way/16-way, optionally available with individual channel diagnostics
- Analogue inputs and outputs, 2-way/4-way
- Input modules for connecting NAMUR sensors
- IP65 or IP20

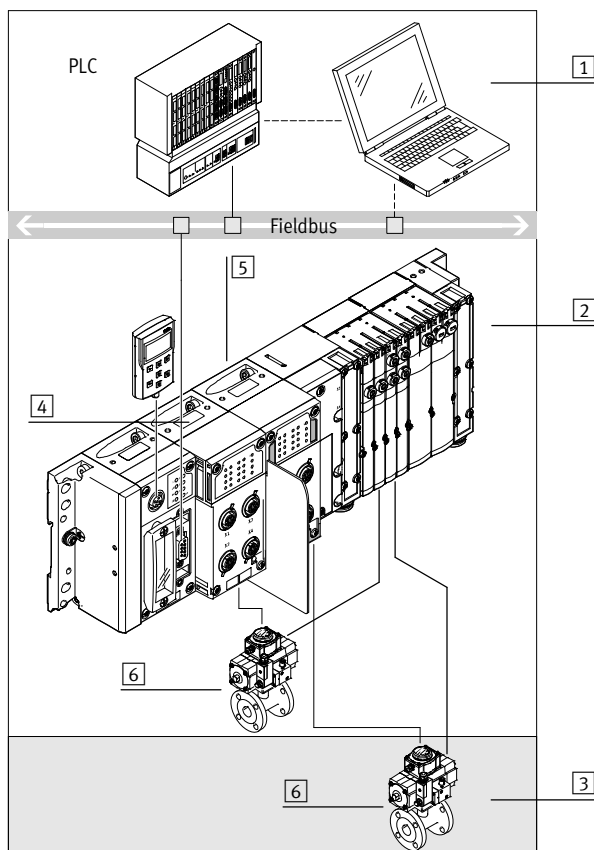
Mounting

- Wall or H-rail mounting, also on mobile units
- Conversions/extensions are possible at any time, individual linking
- Modular system offering a range of configuration options
- Fully assembled and tested unit
- Lower costs for selection, ordering, assembly and commissioning thanks to the central CPX-P terminal
- Choice of pneumatic components for optimised control chain system design

Operation

- Fast troubleshooting thanks to an extensive selection of LEDs (some of which are multi-coloured) on the bus node and on all I/O modules
- Suitable for direct machine mounting (IP65/IP67) or in a control cabinet with a terminal connection (IP20)
- Supports module and channel-oriented diagnostics
- On-the-spot diagnostics in plain text via operator unit (CPX-MMI)
- Fieldbus/Ethernet remote diagnostics
- Innovative diagnostic support with integrated web server/web monitor or maintenance tool (CPX-FMT) with USB adapter (NEFC) for PC
- Optimised commissioning thanks to parameterisable functions
- Reliability of service with connection blocks and modules that are quick to replace without changing the wiring

CPX modules for NAMUR sensors, intrinsically safe circuits for ATEX applications



- 1 Higher-order controller
- 2 Non-ATEX zone; non-intrinsically safe circuits are permitted
- 3 ATEX zone; only intrinsically safe circuits are permitted
- 4 CPX input module for NAMUR sensors, non-intrinsically safe design
- 5 CPX input module for NAMUR sensors, intrinsically safe design
- 6 Actuator/machine component with NAMUR sensors

CPX-P modules are suitable for configuring intrinsically safe or non-intrinsically safe circuits depending on the design selected.

This enables components from both safe and hazardous zones to be connected to the CPX-P terminal.

The components for the intrinsically safe zone are marked in blue or entirely coloured blue to distinguish them visually.

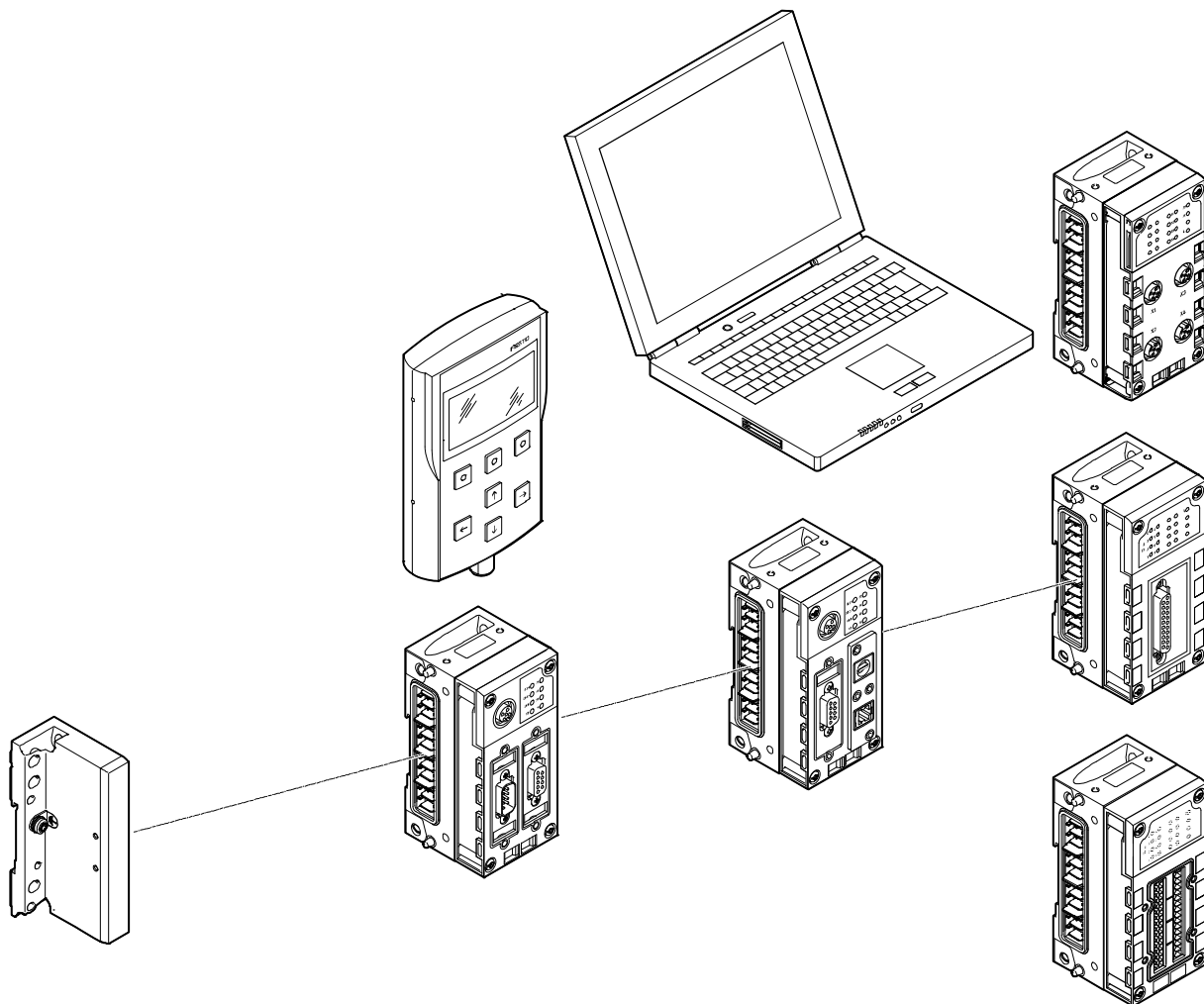
Note

Intrinsically safe circuits are circuits which release so little energy during operation, or in the event of certain faults under specified test conditions, that no ignition can occur in a particular potentially explosive atmosphere.

Terminal CPX-P

Variants

Complete overview of modules



End plate

- Mounting holes for wall mounting
- Functional earth connection

Bus node

- Fieldbus/Industrial Ethernet connection using various types of connection technology
- Setting of fieldbus parameters via DIL switch
- Display of fieldbus and peripheral equipment status via LED

Operator unit

- Connection to bus nodes or control block
- Display and modification of parameter settings
- Plain-text display for texts, messages (e.g. individual channel diagnostics, condition monitoring), menus, etc.

Control block

- Remote unit CPX-FEC-1-IE
- Connection via EtherNet TCP/IP or Sub-D programming interface
- Setting of operating modes via DIL switch and program selection via rotary switch

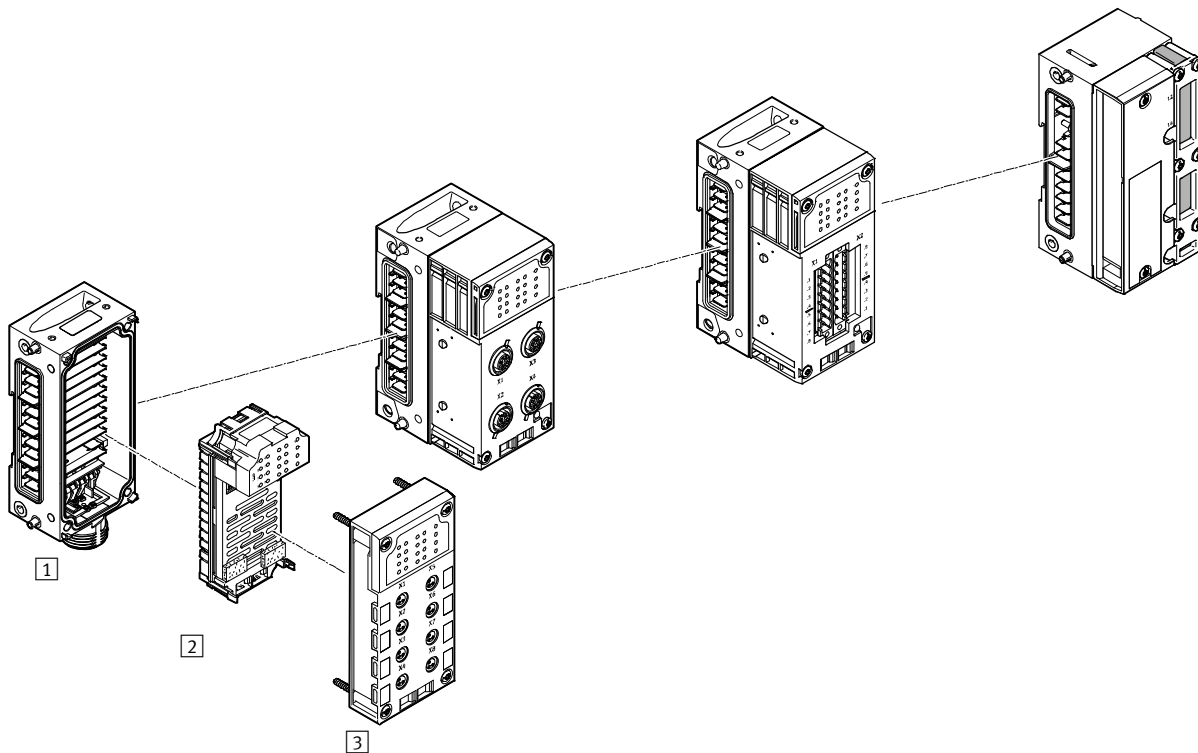
Input/output modules

Combination of

- Interlinking block
- Electronics module
- Connection block

Variants

Complete overview of modules



Input/output modules

1 Interlinking block

- Internal linking of the power supply and serial communication
- External power supply for the entire system
- Additional power supply for outputs
- Connection accessories for 7/8"
- Individual linking with M6 screws, individually expandable

2 Electronics module

- Digital inputs for connecting the sensors
- Digital outputs for activating additional actuators
- Analogue inputs
- Analogue outputs

3 Connection block

- Choice of connection technology
- Protection class IP65 or IP20
- Can be combined with the electronics modules
- Connection accessories for M8/M12/Sub-D/quick connection, etc.
- M8/M12/Sub-D, etc. connecting cables
- Modular system for connecting cables

Pneumatic interface

- Actuation of the solenoid coils
- MPA-S
- Actuation of pressure sensors
- Actuation of proportional pressure regulators

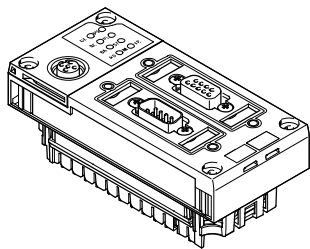
Terminal CPX-P

Variants

Individual overview of modules

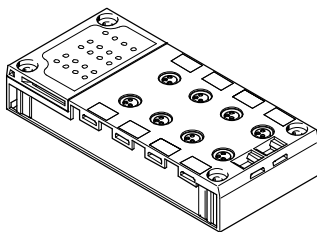
Bus node

Technical data → 1083 ff.



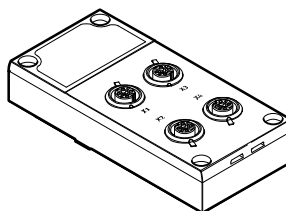
- Bus node for
- PROFIBUS DP
 - DeviceNet
 - EtherNet/IP (integrated web server)
 - PROFINET (integrated web server)

Plastic connection block



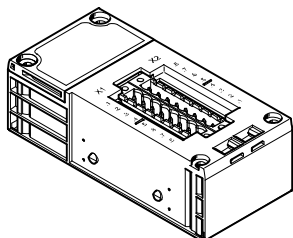
- Direct machine mounting (protection class IP65/IP67)
- M8 3-pin or 4-pin
 - M12 5-pin, 5-pin with quick lock/metal thread screened, 8-pin, optional screening plate
 - Sub-D
 - Quick connection
 - Spring-loaded terminal with protection to IP20 or with cover

Metal connection block



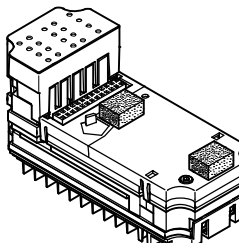
- Direct machine mounting (connection block to IP65/IP67)
- M12-5POL

Connection block for NAMUR sensors



- Direct machine mounting (connection block to IP65)
- M12-4POL
- Protected fitting space (connection block to IP20)
- Screw terminal
 - Spring-loaded terminal

Module for NAMUR sensors

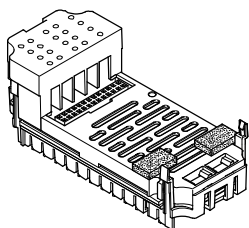


Technical data → 1084

- Digital inputs
- 8 digital inputs for NAMUR sensors or wired mechanical contacts
 - Intrinsically safe design with additional protective measures in the event of failure

Digital electronics module

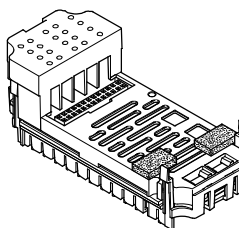
Technical data → 1085 ff.



- Digital inputs
- 16 digital inputs
- Digital outputs
- 4 digital outputs (1 A per channel, individual channel diagnostics)
 - 8 digital outputs (0.5 A per channel, individual channel diagnostics)

Analogue electronics module

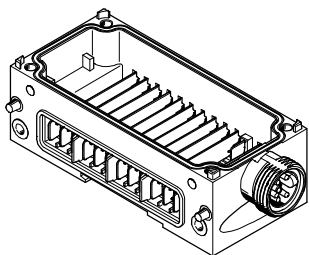
Technical data → 1086 ff.



- Analogue inputs
- 4 analogue inputs (1 ... 5 V, 0 ... 10 V, -5 ... +5 V, -10 ... +10 V, 0 ... 20 mA, 4 ... 20 mA, -20 ... +20 mA)
- Analogue outputs
- 2 analogue outputs (0 ... 10 V DC, 0 ... 20 mA, 4 ... 20 mA)

Individual overview of modules

Metal interlinking block – Individual linking



- System linking
- Different voltages for supplying the modules
 - Serial communication between the modules

- System supply
- 7/8" 5-pin

- In addition to system linking, power supply for the
- electronics plus sensors (8 A)
 - valves plus actuators (8 A)

- Additional power supply
In addition to system linking, power supply for the
- actuators (8 A per supply)

Technical data → 1087 ff.

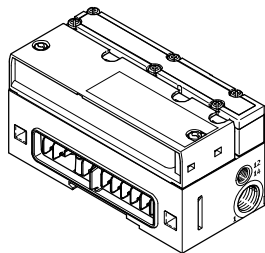
- Expandability
- Can be expanded as required by up to 10 interlinking blocks

Note
The 7/8" supply is subject to the following restriction due to the available accessories:

- 5-pin 8 A

Variants

Pneumatic interface MPA-S

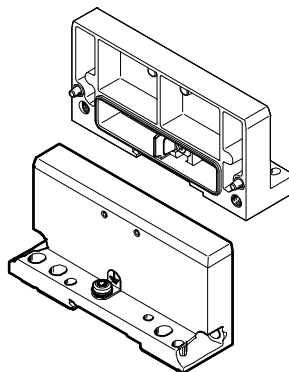


→ 1088

Valve terminal

- MPA1 (360 l/min)
- MPA2 (700 l/min)
- Up to 128 solenoid coils
- Up to 16 modules can be configured
- Actuation of pressure sensors
- Proportional pressure regulators
- Pressure sensors
- Proportional pressure regulators

End plate



End plate

- Left-hand
- Right-hand (for use without valves)

General basic data and guidelines

Max. 11 modules in total:

- One bus node and/or one control block
- Up to 9 additional input/output modules
- An additional pneumatic interface,
 - always positioned as the last module on the right-hand side
 - 16 MPA modules can be configured


- Address capacity max. 512 inputs and 512 outputs, depending on bus node or control block
- One interlinking block with system supply
- Multiple interlinking blocks with additional power supply, always positioned to the right of the interlinking block with system supply

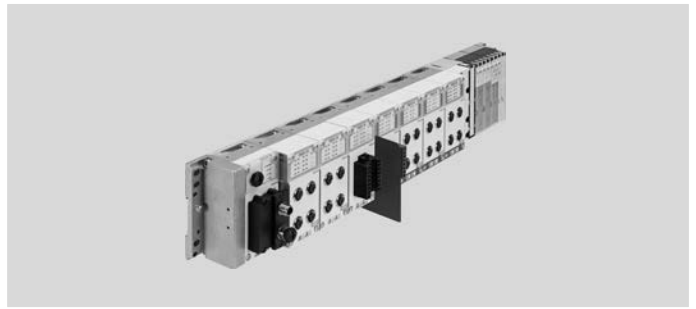
- The connection blocks can, with just a few exceptions, be combined with the electronics modules for inputs/outputs (→ table below)
- The electronics modules can be combined with various interlinking blocks

Combinations of connection blocks and digital and analogue electronics modules for inputs and outputs

	Digital electronics modules					Analogue electronics modules	
	For inputs	For outputs		For NAMUR sensors		CPX-4AE-U-I	CPX-2AA-U-I
	CPX-16DE	CPX-4DA	CPX-8DA	CPX-P-8DE-N	CPX-P-8DE-N-IS		
Connection blocks, plastic design							
CPX-AB-8-M8-3POL	-	■	■	-	-	-	-
CPX-AB-8-M8X2-4POL	■	■	■	-	-	-	-
CPX-AB-4-M12x2-5POL	-	■	■	-	-	■	■
CPX-AB-4-M12x2-5POL-R	-	■	■	-	-	■	■
CPX-P-AB-4XM12-4POL	-	-	-	■	-	-	-
CPX-P-AB-4XM12-4POL-8DE-N-IS	-	-	-	-	■	-	-
CPX-AB-8-KL-4POL	■	■	■	-	-	■	■
CPX-P-AB-2XKL-8POL	-	-	-	■	-	-	-
CPX-P-AB-2XKL-8POL-8DE-N-IS	-	-	-	-	■	-	-
CPX-AB-1-SUB-BU-25POL	■	■	■	-	-	■	■
CPX-AB-4-HAR-4POL	-	■	■	-	-	-	-
Connection blocks, metal design							
CPX-M-AB-4-M12X2-5POL	-	■	■	-	-	■	■

Technical data – Electrical terminal CPX-P

-  - Module width
50 mm



General technical data		
Max. number of modules ¹⁾	Control block	1
	Bus node	1
	I/O modules	9
	Pneumatic interface	1
Max. address capacity	Inputs/outputs	[byte] 64/64
Configuration support	Fieldbus-specific	
LED displays	Bus node/control block	Up to 4 LEDs, bus-specific 4 LEDs, CPX-P-specific PS = Power system PL = Power load SF = System fault M = Modify parameter/forcing active
		I/O modules
	Pneumatic interface	One centralised diagnostic LED Valve status LED on valve
Diagnostics	Channel and module-oriented diagnostics for inputs/outputs and valves	
	Detection of module undervoltage for the different potential values	
	Storage of the last 40 errors with timestamp (acyclic access)	
Parameterisation, module-specific and entire system, for example:	Diagnostic behaviour	
	Condition monitoring	
	Profile of inputs	
	Fail-safe response of outputs and valves	
Commissioning support	Forcing of inputs and outputs	
Degree of protection to EN 60529	IP20, IP65	
Tests	Vibration test to DIN IEC 68	With wall mounting: severity level 2
		With H-rail mounting: severity level 1
	Shock test to DIN IEC 68	With wall mounting: severity level 2
		With H-rail mounting: severity level 1
Resistance to interference	EN 61000-6-2 (Industry)	
Emitted interference	EN 61000-6-4 (Industry)	
Grid dimension	[mm]	50

1) A maximum of 11 modules in total can be combined
(e.g. 1 control block + 9 I/O modules + 1 pneumatic interface, or 1 control block + 1 bus node + 8 I/O modules + 1 pneumatic interface)

Technical data – Electrical terminal CPX-P

Download CAD data → www.festo.com

Electrical data		
Power supply	Interlinking block with system supply	
	Electronics plus sensors [V DC]	24, max. 8 A
	Actuators plus valves [V DC]	24, max. 8 A
Additional power supply	Actuators [V DC]	24, max. 8 A per supply
	Current consumption	Depending on system configuration
Power failure bridging (bus electronics only)	[ms]	10
Power supply connection		7/8" 5-pin
Fuse concept		Per module with electronic fuses
Isolation test for galvanically isolated circuits to IEC 1131 Part 2	[V DC]	500
Galvanic isolation of electrical voltages	[V DC]	80
Protection against direct and indirect contact		PELV

Operating conditions

Temperature range, electronics	Operation	[°C]	-5 ... +50
	Storage/transport	[°C]	-20 ... +70
Temperature range, electronics plus pneumatic components	Operation	[°C]	-5 ... +50
	Storage/transport	[°C]	-20 ... +40

Materials

Housing	Die-cast aluminium, PA reinforced, PC
---------	---------------------------------------

Certifications and approvals – Maximum values

ATEX category for gas	II 3G
Explosion ignition protection type for gas	Ex nA IIC T4 X Gc
Explosion-proof temperature [°C]	-5 ≤ Ta ≤ +50
CE marking (see declaration of conformity)	To EU Explosion Protection Directive (ATEX)
	To EU EMC Directive ¹⁾
Degree of protection to EN 60529	IP20, IP65
Certification	cULus Recognized (OL)
	C-Tick
Explosion protection certification outside the EU	EPL Gc (Ru)

- 1) For information about the area of use see the EC declaration of conformity at: www.festo.com → Support → User Documentation.
If the component is subject to usage restrictions in residential, office or commercial locations or small businesses, further measures for the reduction of the emitted interference may be necessary.

Note

The values indicated represent the maximum performance limits that can be achieved with the fully assembled product. Depending on the individual components used, the value actually achieved for the overall product may be lower.

You can select e.g. the individual components required to achieve the ATEX category by choosing the corresponding features in the online product configurator:

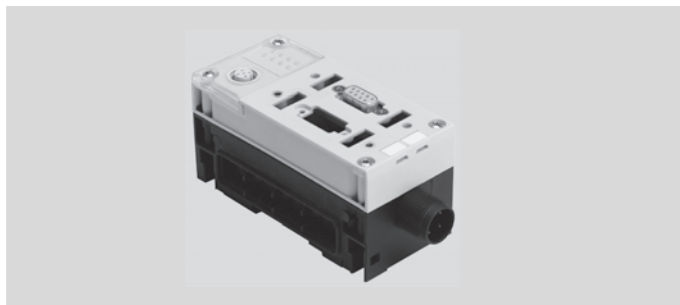
→ Internet:cpx-p

Technical data – Bus node CPX-FB11



Technical data				Download CAD data → www.festo.com
Fieldbus interface	Either			Micro style bus connection: 2x M12 with protection to IP65/IP67 Open style bus connection: 5-pin terminal strip, IP20
Baud rates		[kbps]		125, 250, 500
Addressing range				0 ... 63, set using DIL switch
Communication types				Polled I/O, change of state/cyclic, strobed I/O and explicit messaging
Max. address capacity	Inputs/outputs	[byte]		64/64
Parameterisation				Module and system parameterisation via configuration interface in plain text (EDS) Online in run or program mode
Additional functions				Storage of the last 40 errors with timestamp (access via EDS) 8-bit system status in image table for inputs 2-byte inputs and 2-byte outputs, system diagnostics in image table
Current consumption		[mA]		Max. 200
Length/width/height (incl. interlinking block)		[mm]		107/50/50

Technical data – Bus node CPX-FB13

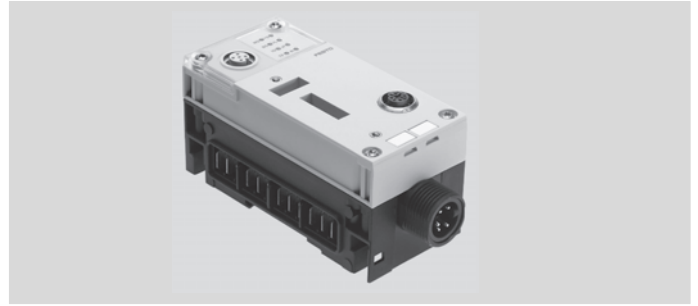


Technical data				Download CAD data → www.festo.com
Fieldbus interface				Sub-D socket, 9-pin (EN 50170), galvanically isolated 5 V
Baud rates		[Mbps]		0.0096 ... 12
Addressing range				1 ... 125, set using DIL switch
Communication types	DPV0			Cyclic communication
	DPV1			Acyclic communication
Max. address capacity	Inputs/outputs	[byte]		64/64
Parameterisation				Start-up via configuration interface in plain text (GSD) Acyclic parameterisation via DPV1
Additional functions				Storage of the last 40 errors with timestamp (access via DPV1) 8-bit system status in image table for inputs 2-byte inputs and 2-byte outputs, system diagnostics in image table
Current consumption		[mA]		Max. 200
Length/width/height (incl. interlinking block)		[mm]		107/50/50

Technical data – Bus node CPX-FB32

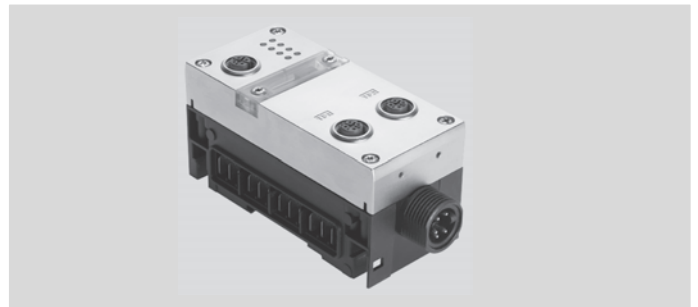
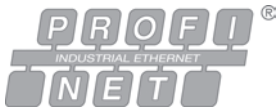


IT services:



Technical data		Download CAD data → www.festo.com
Fieldbus interface		Plug connector M12, D-coded, 4-pin
Baud rates	[Mbps]	10/100, full/half duplex
IP addressing		Via DHCP, DIL switch or network software
Max. address capacity	Inputs/outputs	[byte] 64/64
Parameterisation		Start-up parameterisation
		Acyclic parameterisation via explicit messaging
Additional functions		Storage of the last 40 errors with timestamp (access via system diagnostics)
		8-bit system status in image table for inputs
		2-byte I/O, system diagnostics via image table
Current consumption	[mA]	Typically 65
Length/width/height (incl. interlinking block)	[mm]	107/50/50

Technical data – Bus node CPX-FB33



Technical data		Download CAD data → www.festo.com
Fieldbus interface		2x M12 socket, D-coded, 4-pin
Baud rates	[Mbps]	100
Max. address capacity	Inputs/outputs	[byte] 64/64
Parameterisation		System parameters
		Diagnostic behaviour
		Signal setup
		Fail-safe response
		Forcing of channels
Additional functions		Start-up parameterisation in plain text via fieldbus
		Fast start-up (FSU)
		Channel-oriented diagnostics via fieldbus
		Acyclic data access via fieldbus
		System status can be displayed using process data
		Additional diagnostic interface for operator units
		Acyclic data access via Ethernet
Current consumption	[mA]	Typically 120
Length/width/height (incl. interlinking block)	[mm]	107/50/50

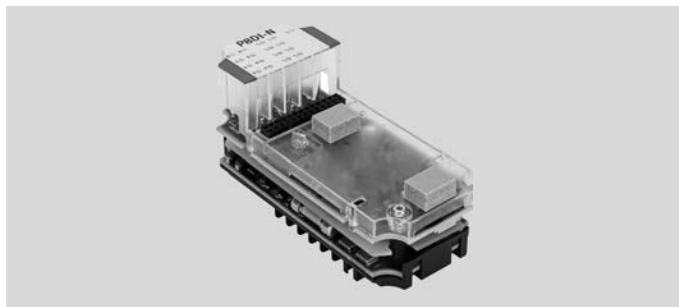
Technical data – Digital input module with 8 NAMUR inputs, CPX-P-8DE-N CPX-P-8DE-N-IS

Possible connection blocks CPX-P-8DE-N

- CPX-P-AB-4XM12-4POL
- CPX-P-AB-2XKL-8POL

Possible connection blocks CPX-P-8DE-N-IS

- CPX-P-AB-4XM12-4POL-8DE-N-IS
- CPX-P-AB-2XKL-8POL-8DE-N-IS



Technical data		Download CAD data → www.festo.com
Number of inputs		8
Max. cable length	[m]	200
Internal electronic fuse		Per channel
Intrinsic current consumption at operating voltage	[mA]	Typically 75
Electrical isolation	Channel – channel	No
	Channel – internal bus	Yes
Switching level		To EN 60947-5-6
Input characteristic		To EN 60947-5-6
Parameterisation	Data format	
	Input debounce time per channel	
	Input function per channel	
	Replacement value in diagnostic case per channel	
	Upper limit value per channel	
	Signal extension time per channel	
	Gate time per channel	
	Limit value monitoring per channel	
	Monitoring of short circuit per channel	
	Monitoring of wire break per channel	
	Monitoring of parameters	
	Lower limit value per channel	
	Counter configuration per channel	
Additional functions	Frequency measurement	
	Counter function	

Certifications and approvals – Maximum values		
Type	CPX-P-8DE-N	CPX-P-8DE-N-IS
ATEX category for gas	–	II (1) G
Explosion ignition protection type for gas	–	[Ex ia Ga] IIC
ATEX category for dust	–	II (1) D
Explosion ignition protection type for dust	–	[Ex ia Da] IIIC
Explosion protection certification outside the EU	–	EPL Da (IEC-EX)
	–	EPL Ga (IEC-EX)
Explosion-proof temperature	[°C]	–5 ≤ Ta ≤ +70
Certificate issuing authority	–	IECEX ZLM 12.0007 X
	–	ZELM 12 ATEX 0500 X

Note

The module CPX-P-8DE-N-IS has additional safety measures for possible faults such as non-resettable fuses to ensure safe operation as per the ignition protection type. If the module is operated within the permissible parameters, these protective measures will be irrelevant.

Note

Only the end plate, the pneumatic interface or another module in intrinsically safe design are permitted directly to the right of modules in intrinsically safe design (CPX-P-8DE-N-IS) within the CPX-P terminal.

Note

The insulating plate CPX-P-AB-IP must be mounted between a module in intrinsically safe design (CPX-P-8DE-N-IS) and another, non-intrinsically safe CPX input or output module.

Note

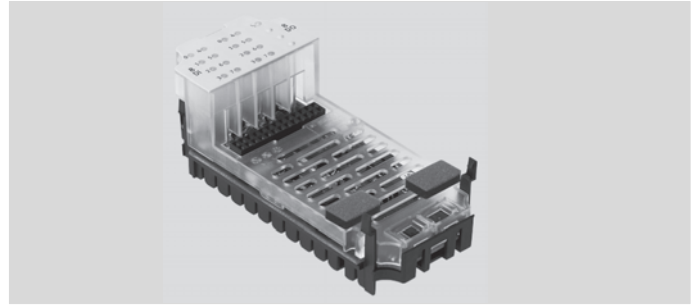
The above-mentioned certifications for the module CPX-P-8DE-N-IS do not apply if the module is used outside the appropriately configured terminal CPX-P.

Technical data – Digital input module with 16 inputs, CPX-16DE

Possible connection blocks

CPX-16DE

- CPX-AB-8-M8X2-4POL
- CPX-AB-8-KL-4POL
- CPX-AB-1-SUB-BU-25POL

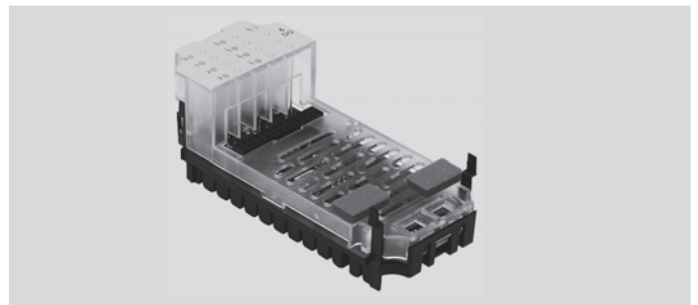


Technical data		Download CAD data → www.festo.com	
Type		CPX-16DE	
Number of inputs		16	
Max. residual current of inputs per module	[A]	1.8	
Internal electronic fuse		Per module	
Intrinsic current consumption at operating voltage	[mA]	Typically 15	
Sensor supply voltage	[V DC]	24 ±25%	
Electrical isolation	Channel – channel	No	
	Channel – internal bus	No	
Switching level	Signal 0 [V DC]	≤ 5	
	Signal 1 [V DC]	≥ 11	
Input characteristic		IEC 1131-2	
Switching logic		Positive logic (PNP)	
Parameterisation		Module monitoring	
		Behaviour after short circuit	
		Input debounce time	
		Signal extension time	

Technical data – Digital output module with 4 outputs, CPX-4DA

Possible connection blocks:

- CPX-AB-8-M8-3POL
- CPX-AB-8-M8X2-4POL
- CPX-AB-4-M12X2-5POL
- CPX-AB-4-M12X2-5POL-R
- CPX-AB-8-KL-4POL
- CPX-AB-1-SUB-BU-25POL
- CPX-AB-4-HAR-4POL
- CPX-M-AB-4-M12X2-5POL

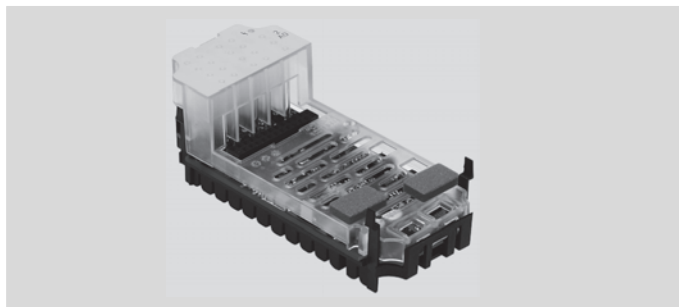


Technical data		Download CAD data → www.festo.com	
Type		CPX-4DA	
Number of outputs		4	
Max. power supply	Per module [A]	4	
	Per channel [A]	1 (24 W lamp load, 4 channels can be connected in parallel)	
Fuse protection (short circuit)		Internal electronic fuse per channel	
Module current consumption (voltage supply for electronics)	[mA]	Typically 16	
Supply voltage	[V DC]	24 ±25%	
Electrical isolation	Channel – channel	No	
	Channel – internal bus	Yes, using intermediate supply	
Output characteristic		To IEC 1131-2	
Switching logic		Positive logic (PNP)	
Parameterisation		Module monitoring	
		Behaviour after short circuit	
		Fail-safe channel x	
		Forcing channel x	
		Idle mode channel x	

Technical data – Analogue output module with 2 inputs, CPX-2AA-U-I

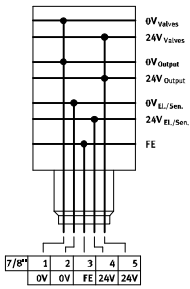
Possible connection blocks:

- CPX-AB-4-M12X2-5POL
- CPX-AB-4-M12X2-5POL-R
- CPX-AB-8-KL-4POL
- CPX-AB-1-SUB-BU-25POL
- CPX-M-AB-4-M12X2-5POL



Technical data		Download CAD data → www.festo.com	
Type		CPX-2AA-U-I	
		Voltage output	Current output
Number of outputs		2	2
Max. actuator supply per module [A]		2.8	2.8
Fuse protection		Internal electronic fuse for actuator supply	
Current consumption from 24 V sensor supply (at full load) [mA]		Max. 150	Max. 150
Current consumption from 24 V actuator supply (at full load) [A]		4 ... 10	4 ... 10
Supply voltage for actuators [V DC]		24 ±25%	24 ±25%
Signal range (parameterisable for each channel by means of DIL switch or software)		0 ... 10 V DC	0 ... 20 mA 4 ... 2 mA
Resolution		12 bit	12 bit
Absolute accuracy [%]		±0.6	±0.6
Encoder selection	Load resistance for ohmic load [kΩ]	Min. 1	Max. 0.5
	Load resistance for capacitive load [μF]	Max. 1	–
	Load resistance for inductive load [mH]	–	Max. 1
	Short circuit protection for analogue output	Yes	–
	Short circuit current of analogue output [mA]	Approx. 20	–
	Open circuit voltage [V DC]	–	18
	Destruction limit against externally applied voltage [V DC]	15	15
	Actuator connection	2 wires	2 wires
Response time	For ohmic load [ms]	0.1	0.1
	For capacitive load [ms]	0.7	–
	For inductive load [ms]	–	0.5
Data format		15 bits + prefix, linear scaling 12 bits left-aligned, S7 compatible 12 bits left-aligned, S5 compatible	
Cable length [m]		Max. 30 (screened)	
Parameterisation		Short circuit monitoring, actuator supply	
		Short circuit monitoring, analogue output	
		Behaviour after short circuit, actuator supply	
		Data format	
		Lower limit value/full-scale value	
		Upper limit value/full-scale value	
		Monitoring of value falling below nominal range/full-scale value	
		Monitoring of value exceeding nominal range/full-scale value	
		Monitoring of wire break	
Signal range			

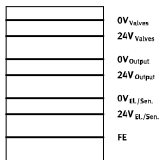
Technical data – Interlinking block with system supply, CPX-M-GE-EV-S-7/8-5POL



Download CAD data → www.festo.com

Technical data			Download CAD data → www.festo.com
Type			CPX-M-GE-EV-S-7/8-5POL
Electrical connection			7/8", 5-pin
Nominal operating voltage	[V DC]		24
Current supply	Sensors and electronics	[A]	Max. 8
	Valves and outputs	[A]	Max. 8
Degree of protection to EN 60529			Depending on connection block
Ambient temperature	[°C]		-5 ... +50
Type of mounting			Angled fitting
Length/width/height	[mm]		107/50/35

Technical data – Interlinking block without supply, CPX-M-GE-EV

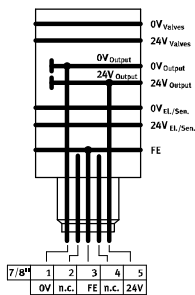


Download CAD data → www.festo.com

Technical data			Download CAD data → www.festo.com
Type			CPX-M-GE-EV
Electrical connection			-
Nominal operating voltage	[V DC]		24
Acceptable current load (per contact/contact rail)	[A]		16
Degree of protection to EN 60529			Depending on connection block
Ambient temperature	[°C]		-5 ... +50
Type of mounting			Angled fitting
Length/width/height	[mm]		107/50/35

Terminal CPX-P

Technical data – Interlinking block with additional power supply for outputs, CPX-M-GE-EV-Z-7/8-5POL



Download CAD data → www.festo.com

Technical data		Type	
Type		CPX-M-GE-EV-Z-7/8-5POL	
Electrical connection		7/8", 5-pin	
Nominal operating voltage		[V DC]	24
Current supply		Outputs	[A] Max. 8
Degree of protection to EN 60529		Depending on connection block	
Ambient temperature		[°C]	-5 ... +50
Type of mounting		Angled fitting	
Length/width/height		[mm]	107/50/35

Technical data – Pneumatic interface for valve terminal MPA-S, VMFA-FB-EPLM

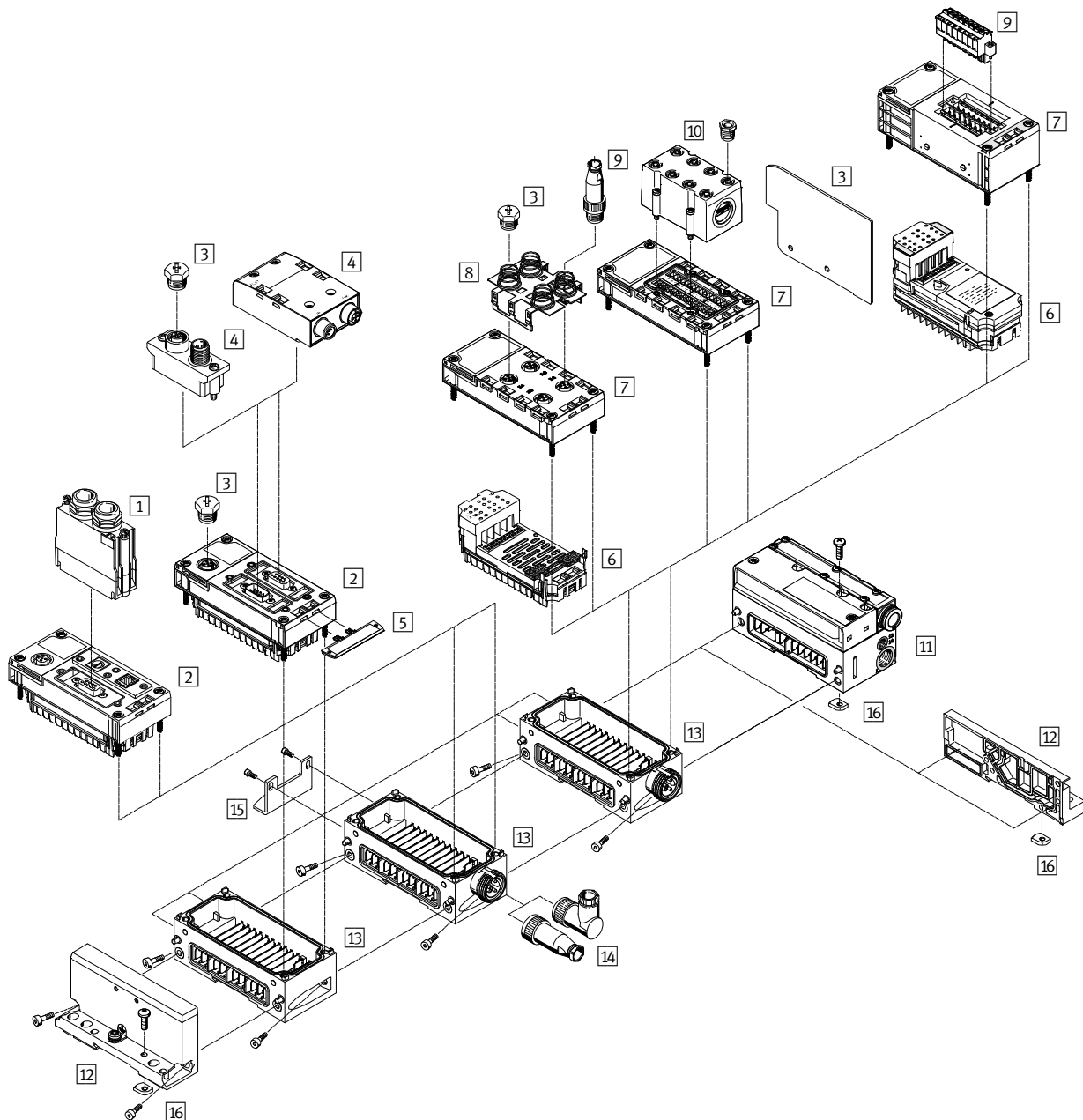
Operating voltage
 24 V DC



Download CAD data → www.festo.com

Technical data		Type	
Type		VMFA-FB-EPLM	
Type of mounting		Angled fitting	
Number of solenoid coils		128	
Max. intrinsic current consumption per electronics module at 24 V		[mA]	20 (regardless of the switching status of the valves)
Max. intrinsic current consumption at 24 V (regardless of the switching status of the valves) per electronics module			
VMFA1-FB-EMS-8 or VMFA2-FB-EMS-4		[mA]	3 not galvanically isolated (max. signal line length 10 m)
VMFA1-FB-EMG-8 or VMFA2-FB-EMG-4		[mA]	23 galvanically isolated
Diagnostic message on undervoltage U _{OFF} Load voltage outside function range		[V]	17.5 ... 16
Nominal pick-up current/duration per solenoid coil at nominal voltage		MPA1	[mA] 58/24 ms
		MPA2	[mA] 99/24 ms
Nominal current per solenoid coil at nominal voltage with current reduction		MPA1	[mA] 9 after 24 ms
		MPA2	[mA] 18 after 24 ms
Length/width/height		[mm]	107/51/55

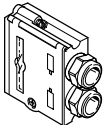
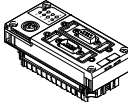

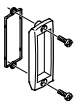
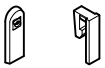
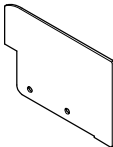





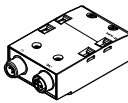


Accessories




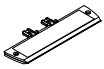

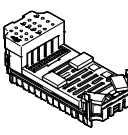
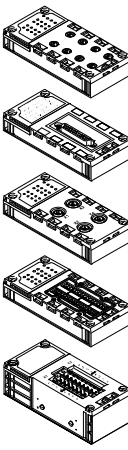
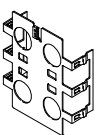
		→ Page/ online
1	Plug FBS-SUB-9 for fieldbus connection (version dependent on bus type)	1090
2	CPX bus node CPX-FB	1090
3	Cover cap ISK/CPX-P-KDS/CPX-P-AB/AK-SUB (for unused connections)	1090
4	Connector plug FBA/FBS/NECU/FBSD/CPX-AB for fieldbus connection	1090
5	Inscription label IBS/CPX-ST	1091
6	CPX module CPX (analogue/digital/NAMUR input/output module)	1091
7	Connection block CPX-AB/CPX-M-AB/CPX-P-AB	1091
8	Screening plate CPX-AB-S	1091
9	Connector plug/connecting cable KM12/KM8 for inputs/outputs	1092

		→ Page/ online
10	Cover AK-8KL for CPX-AB-8-KL-4POL (IP65/67)	1092
11	Pneumatic interface VMPA-FB-EPLM	1092
12	End plate CPX-M-EP	1092
13	Interlinking block CPX-M-GE (with/without voltage supply)	1092
14	Connector plug NECU for power supply	1093
15	Mounting components CPX-M-BG-RW for wall mounting	1093
16	H-rail mounting CPX-CPA-BG-NRH	1093
-	Hood CAFC	1093
-	Memory card CPX-SK-2 for PROFINET bus node	1093
-	User documentation P.BE-CPX	1093

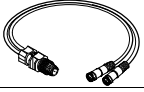
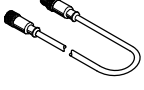
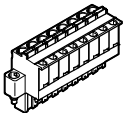
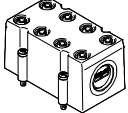
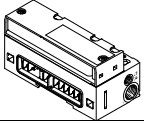
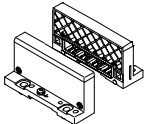
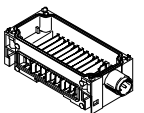
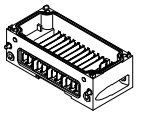
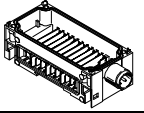
Accessories – Ordering data

	Description	Part No.	Type
1 Plug for fieldbus connection, Sub-D Technical data online: → fbs			
	For DeviceNet/CANopen	532219	FBS-SUB-9-BU-2x5POL-B
	For PROFIBUS DP	532216	FBS-SUB-9-GS-DP-B
2 CPX bus node Technical data → 1083			
	DeviceNet	526172	CPX-FB11
	PROFIBUS DP	195740	CPX-FB13
	EtherNet/IP with M12	541302	CPX-FB32
	PROFINET with M12, D-coded, 4-pin	548755	CPX-FB33
3 Cover cap			
	For M8 connections (packaging unit 10 pieces)	177672	ISK-M8
	For M12 connections (packaging unit 10 pieces)	165592	ISK-M12
	Inspection cover, for DIL switch and bus connection	Transparent	533334 AK-SUB-9/15-B
	Coding element (96 pieces of each)	For NECU-L3G8	565713 CPX-P-KDS-AB-2XKL
	Insulating plate for safe separation of intrinsically safe and non-intrinsically safe areas of the CPX-P terminal	565708	CPX-P-AB-IP ¹⁾
4 Connector plug for fieldbus connection Technical data online: → necu			
	M12 adapter (B-coded) for PROFIBUS DP	533118	FBA-2-M12-5POL-RK
	Micro style, 2x M12 for DeviceNet/CANopen	525632	FBA-2-M12-5POL
	Socket for micro style connection, M12	18324	FBSD-GD-9-5POL
	Plug for micro style connection, M12	175380	FBS-M12-5GS-PG9
	Plug M12x1, 4-pin, D-coded, for PROFINET	543109	NECU-M-S-D12G4-C2-ET
	Socket M12x1, for FBA-2-M12-5POL-RK and CPX-AB-2-M12-RK-DP	1067905	NECU-M-B12G5-C2-PB
	Plug M12x1, for FBA-2-M12-5POL-RK and CPX-AB-2-M12-RK-DP	1066354	NECU-M-S-B12G5-C2-PB
	M12 adapter for PROFIBUS DP (B-coded)	541519	CPX-AB-2-M12-RK-DP
	Open style for 5-pin terminal strip, for DeviceNet/CANopen	525634	FBA-1-SL-5POL
	5-pin terminal strip, for DeviceNet/CANopen	525635	FBSD-KL-2x5POL


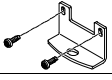
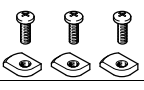
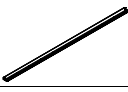
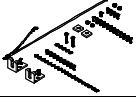
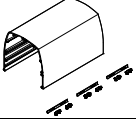

Accessories – Ordering data

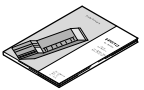
	Description	Part No.	Type	
5 Inscription label				
	Inscription labels 6x10 mm, in frame (64 pieces)	18576	IBS-6x10	
	Inscription label holder for connection block M12	536593	CPX-ST-1	
	Screws for attaching an inscription label holder to the bus node (12 pieces)	550222	CPX-M-M2,5X8-12X	
6 CPX module Technical data → 1084				
	8 digital inputs to NAMUR	565934	CPX-P-8DE-N-IS	
	8 digital inputs to NAMUR, intrinsically safe design	565933	CPX-P-8DE-N	
	8 digital inputs PNP	195750	CPX-8DE	
	8 digital inputs NPN	543813	CPX-8NDE	
	16 digital inputs	543815	CPX-16DE	
	4 digital outputs	195754	CPX-4DA	
	2 analogue outputs	526170	CPX-2AA-U-I	
7 Connection block				
	For NAMUR modules			
	For intrinsically safe design	4x socket, M12, 4-pin	565705	CPX-P-AB-4XM12-4POL-8DE-N-IS
		2x plug, 8-pin	565703	CPX-P-AB-2XKL-8POL-8DE-N-IS
	For non-intrinsically safe design	4x socket, M12, 4-pin	565706	CPX-P-AB-4XM12-4POL
		2x plug, 8-pin	565704	CPX-P-AB-2XKL-8POL
	Plastic design			
	8 connections M8, 3-pin		195706	CPX-AB-8-M8-3POL
	8 connections M8, 4-pin		541256	CPX-AB-8-M8X2-4POL
	4 connections M12, 5-pin		195704	CPX-AB-4-M12x2-5POL
	4 connections M12, 5-pin, with quick lock and metal thread		541254	CPX-AB-4-M12x2-5POL-R
8 spring-loaded terminal connections, 4-pin		195708	CPX-AB-8-KL-4POL	
Sub-D socket, 25-pin		525676	CPX-AB-1-SUB-BU-25POL	
4 connections in HARAX fast connection technology, 4-pin		525636	CPX-AB-4-HAR-4POL	
Metal design				
4 connections M12, 5-pin		549367	CPX-M-AB-4-M12x2-5POL	
8 Screening plate				
	For M12 connections	526184	CPX-AB-S-4-M12	

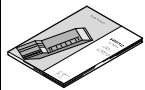
Accessories – Ordering data

Description		Part No.	Type	
9 Connector plug/connecting cable for inputs/outputs, DUO connecting cable M12, 4-pin		Technical data online: → km12		
	2x straight socket	18685	KM12-DUO-M8-GDGD	
	2x straight/angled socket	18688	KM12-DUO-M8-GDWD	
	2x angled socket	18687	KM12-DUO-M8-WDWD	
Connecting cable		Technical data → 1053		
	M8-M8 3-pin/3-pin	0.5 m	175488 KM8-M8-GSGD-0,5	
		1.0 m	175489 KM8-M8-GSGD-1	
		2.5 m	165610 KM8-M8-GSGD-2,5	
		5.0 m	165611 KM8-M8-GSGD-5	
	M12-M12 4-pin/4-pin	2.5 m	18684 KM12-M12-GSGD-2,5	
		5.0 m	18686 KM12-M12-GSGD-5	
		1.0 m	185499 KM12-M12-GSWD-1-4	
Plug connector		Technical data online: → necu		
	8-pin socket	Spring-loaded terminal	Black	565712 NECU-L3G8-C1
			Gentian blue	565711 NECU-L3G8-C1-IS ¹
		Screw terminal	Black	565710 NECU-L3G8-C2
			Gentian blue	565709 NECU-L3G8-C2-IS ¹
10 Cover for CPX-AB-8-KL-4POL (IP65/67)				
	– 8 cable through-feeds M9 – 1 cable through-feed for multi-pin plug		538219 AK-8KL	
	Fittings kit for cover AK-8KL		538220 VG-K-M9	
11 Pneumatic interface, for valve terminal MPA-S		Technical data → 1088		
	Ducted exhaust air	Internal pilot air	552286 VMPA-FB-EPLM-G	
		External pilot air	552285 VMPA-FB-EPLM-E	
	Flat plate silencer	Internal pilot air	552288 VMPA-FB-EPLM-GU	
		External pilot air	552287 VMPA-FB-EPLM-EU	
12 End plates				
	Metal design	Right-hand	550214 CPX-M-EPR-EV	
		Left-hand	550212 CPX-M-EPL-EV	
13 Interlinking block, with system supply		Technical data → 1087		
	Metal design	7/8" connection, 5-pin	550208 CPX-M-GE-EV-S-7/8-5POL	
Without supply				
	Metal design		550206 CPX-M-GE-EV	
With additional power supply for outputs				
	Metal design	7/8" connection, 5-pin	550210 CPX-M-GE-EV-Z-7/8-5POL	

Accessories – Ordering data

	Description	Part No.	Type	
14	Connector plug for power supply			Technical data online: → ntsd
	7/8" connection	5-pin	543107	NECU-G78G5-C2
15	Attachment for wall mounting			
	For long valve terminals, 2 mounting brackets and 4 screws, for metal manifold sub-bases		550217	CPX-M-BG-RW-2x
16	H-rail mounting			
	For mounting CPX terminal and valve terminal on H-rail		526032	CPX-CPA-BG-NRH
Hood				
	Mounting rail for attaching the hood, 1 m		572256	CAFC-X1-S
	Mounting kit for CPX hood		572257	CAFC-X1-BE
	Hood section	200 mm	572258	CAFC-X1-GAL-200
		300 mm	572259	CAFC-X1-GAL-300
Memory card				
	For PROFINET bus node (CPX-FB33), 2MB		568647	CPX-SK-2


	Description	Part No.	Type
Manual			
	Bus node CPX-FB11		
	German	526421	P.BE-CPX-FB11-DE
	English	526422	P.BE-CPX-FB11-EN
	French	526424	P.BE-CPX-FB11-FR
	Italian	526425	P.BE-CPX-FB11-IT
	Spanish	526423	P.BE-CPX-FB11-ES
	Swedish	526426	P.BE-CPX-FB11-SV
	Bus node CPX-FB13		
	German	526427	P.BE-CPX-FB13-DE
	English	526428	P.BE-CPX-FB13-EN
	French	526430	P.BE-CPX-FB13-FR
	Italian	526431	P.BE-CPX-FB13-IT
	Spanish	526429	P.BE-CPX-FB13-ES
	Swedish	526432	P.BE-CPX-FB13-SV
	Bus node CPX-FB32		
	German	541304	P.BE-CPX-FB32-DE
	English	541305	P.BE-CPX-FB32-EN
	Spanish	541306	P.BE-CPX-FB32-ES
	Bus node CPX-FB33		
	German	548759	P.BE-CPX-PNIO-DE
	English	548760	P.BE-CPX-PNIO-EN
	Spanish	548761	P.BE-CPX-PNIO-ES

	Description	Part No.	Type
Manual			
	CPX system manual		
	German	526445	P.BE-CPX-SYS-DE
	English	526446	P.BE-CPX-SYS-EN
	Spanish	526447	P.BE-CPX-SYS-ES
	French	526448	P.BE-CPX-SYS-FR
	Italian	526449	P.BE-CPX-SYS-IT
	Swedish	526450	P.BE-CPX-SYS-SV
	Digital input/output modules		
	German	526439	P.BE-CPX-EA-DE
	English	526440	P.BE-CPX-EA-EN
	Spanish	526441	P.BE-CPX-EA-ES
	Analogue input/output modules		
	German	526415	P.BE-CPX-AX-DE
	English	526416	P.BE-CPX-AX-EN
	Spanish	526417	P.BE-CPX-AX-ES



16 Other pneumatic devices







Air cushion plates

	
Type	Air cushion plate ATBT
Size	100
Operating pressure	≤2 bar
Pneumatic connection	G1/4
Bearing length	100 ... 1,500 mm
Max. surface load during operation	400 kg/m ²
Repetition accuracy of the cushion height	±10 μm
Description	<ul style="list-style-type: none"> • Works without contact by means of an air cushion, with low compressed air consumption • Uniform air flow ensures maximum precision and allows for short cycle times • For transporting and conveying flat products • Suitable for vacuum, can be used as a flat suction cup
→ Page/online	atbt




Air reservoirs

		
Type	Air reservoir VZS	Air reservoir CRVZS
Volume	20 l	0.1 l, 0.4 l, 0.75 l, 2 l, 5 l, 10 l, 20 l
Information on air reservoir materials	Steel, painted	High-alloy stainless steel
Conforms to standard	EN 286-1	AD 2000
Condensate drain connection	G3/8	G3/8
Description	<ul style="list-style-type: none"> • Compensation of pressure fluctuations • Provision of large quantities of compressed air for supplying fast pulsing drives • Volume 20 l • With condensate drain 	<ul style="list-style-type: none"> • Corrosion-resistant • Volume up to 20 l • Available with condensate drain • Can be used to compensate pressure fluctuations, and act as accumulators in the event of sudden air consumption • Provision of large quantities of compressed air for supplying fast pulsing drives • Designs in accordance with EU Pressure Equipment Directive
→ Page/online	vzs	1099



Silencers

				
Type	Silencer AMTE	Silencer U	Silencer UC	Silencer AMTC
Information on silencer insert materials	Bronze	Bronze, PE	PE	PE
Pneumatic connection	G1/8, G1/4, G3/8, G1/2, G3/4, G1, M3, M5, NPT1/8, NPT1/4, NPT-3/8, NPT-1/2, UNF10-32	G1/8, G1/4, G3/8, G1/2, G3/4, G1, NPT3/4-14, PK-3, PK-4, NPT1-11	G1/8, G1/4, M5, M7, QS-3, QS-4, QS-6, QS-8, QS-10	Cartridge 10 mm
Noise level	55 ... 95 dB(A)	65 ... 84 dB(A)	58 ... 68 dB(A)	58 dB(A)
Description	<ul style="list-style-type: none"> • Metal design • Barbed fitting or threaded connection 	<ul style="list-style-type: none"> • Compact design, plastic or die-cast • Barbed fitting or threaded connection • RoHS-compliant designs 	<ul style="list-style-type: none"> • Design with push-in sleeve for push-in fitting QS or threaded connection for solenoid valves CPE • Plastic design 	<ul style="list-style-type: none"> • For solenoid valve VUVBST12/valve terminal VTUB-12 • Attached via pin (spring clip), included in the scope of delivery of the valve
→ Page/online	amtec	1100	1100	1100



Silencers

			
Type	Silencer UO	Silencer UOS-1	Silencer UOM, UOMS
Information on silencer insert materials	PE	PE	PU foam
Pneumatic connection	G1/8, G1/4, M7	G1	G1/4, G3/8
Noise level			
Description	<ul style="list-style-type: none"> • Special minimal resistance silencer • For vacuum generator VN • Facilitates trouble-free operation 	<ul style="list-style-type: none"> • For soft-start/quick exhaust valve MS6-SV, MS series • Mounting via male thread 	<ul style="list-style-type: none"> • Silencer and silencer extension • For vacuum generators • Special minimal resistance silencer • Facilitates trouble-free operation of the vacuum generator • Silencer extension for extending the silencer for further noise reduction
→ Page/online	uo	uos	uom


Air guns

		
Type	Low consumption air gun LSP	Air nozzle LPZ
Exhaust function	Metered blowing	
Pneumatic connection	Female thread G1/4	Male thread M12x1.25
Information on housing materials	Wrought aluminium alloy, PA6 reinforced	Aluminium, brass, die-cast zinc, chrome-plated, nickel-plated
Description	<ul style="list-style-type: none"> • Precise, infinitely variable, lever-operated flow metering • Interchangeable nozzles • Pneumatic connection via female thread 	<ul style="list-style-type: none"> • With protective air shield or silencer • Targeted, strong air jet or powerful, focused air jet • Low noise level
→ Page/online	lsp	lpz

Pneumatic indicators

		
Type	Pressure indicator OH	Pneumatic terminal, end clamp, distributor LT, LTE, LTV
Design	Indicator plate with 16 pressure indicators, indicating pin with spring return, reflection principle	
Size	8, 10, 22	
Operating pressure	-1 ... 8 bar	0.1 ... 8 bar
Pneumatic connection	G1/8, barbed connector PK-3	Barbed connector PK-3, barbed connector PK-4, G1/8
Type of mounting	Front panel mounting, 2 through-holes in the housing or on 2n mounting frame	Can be snapped onto mounting rail type NRC-32
Description	<ul style="list-style-type: none"> • Visual indicator • Indicator colours: red, blue, yellow or green 	<ul style="list-style-type: none"> • Pneumatic terminal for checking the incoming and outgoing signals at the controller input or output • Up to 15 distributor pieces with common air supply, for easy connection
→ Page/online	oh	lt

Inscription systems

		
Type	Inscription label ASLR, BZ, HWF, IBS, KM, KMC, MH, SBS, SIEZ-LB	Inscription label holder CPV10-VI-ST, CPV14-VI-ST, CPV18-VI-ST, CPVSC1-ST, CPX-ST, IBT, MN2H-BZT, MVH-BZ, VMPA1-ST
Type of mounting	Inscription clip is pressed onto a cable, pressed into a holder or carrier, through-hole	Plug on, snap in, clip on
Height	4.5 ... 11 mm	
Width	9 ... 20 mm	
Description	<ul style="list-style-type: none"> • For labelling items • Can be inserted in holders or carriers on suitably equipped components 	<ul style="list-style-type: none"> • Holder for inscription labels • For components without pre-assembled carriers
→ Page/online	aslr	ascf



- Stainless steel design
- Volume:
up to 20 l
- AD 2000
- Approved by the German Technical Control Board (TÜV)

→ www.festo.com/catalogue/crvzs

Technical data

Technical data		Download CAD data → www.festo.com						
Type		CRVZS-0.1	CRVZS-0.4	CRVZS-0.75	CRVZS-2	CRVZS-5	CRVZS-10	CRVZS-20
Pneumatic connection		G1/8	G1/4		G1/2	G1		
Condensate drain connection		-				G3/8		
Type of mounting		Via retaining clips			Via through-hole			
Mounting position		Any				Condensate drain underneath		
Volume	[l]	0.1 ±20%	0.4 ±20%	0.75 ±20%	2 ±10%	5 ±10%	10 ±10%	20 ±10%
Length/width/height	[mm]	132/51/71	240/54/84	248/60/95	300/134/110	330/162/195	558/162/195	740/162/233

Operating conditions

Operating medium		Compressed air to ISO 8573-1:2010 [-:-:-]						
		Nitrogen						
Operating pressure	[bar]	-0.95 ... +16						
Ambient temperature	[°C]	-10 ... +100 (observe operating range of tubing and piping)						
Suitable for use in the food industry		As per manufacturer's declaration ¹⁾						

1) Additional information at www.festo.com/sp → User Documentation.

Materials

Type	CRVZS-0.1	CRVZS-0.4	CRVZS-0.75	CRVZS-2	CRVZS-5	CRVZS-10	CRVZS-20
Air reservoir	High-alloy stainless steel						
Retaining clips	High-alloy stainless steel				-		

Order code

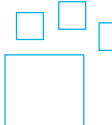
CRVZS		-		
Type				
CRVZS	Air reservoir			
Volume [l]				
0.1, 0.4, 0.75, 2, 5, 10, 20				

Order example:

CRVZS-2

Air reservoir CRVZS - volume 2 l

Ordering – Product options

 <p>Configurable product</p>	<p>This product and all its options can be ordered using the configurator.</p>	<p>The configurator can be found under Products on the DVD or → www.festo.com/catalogue/...</p>	<p>Enter the type code in the search field.</p>
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- Simple screw-in attachment
- Compact design
- High flow rates:
up to 19,900 l/min
- Wide range of variants:
M5, M7 and G1/8 to G1
- ★ Quick ordering of basic designs → 1101

→ www.festo.com/catalogue/u

Product range overview

Type	Version	Pneumatic connection					→ Page/ online
		Male thread	Female thread	Barbed connector	Push-in sleeve	Cartridge	
U	Brass	–	–	PK-3, PK-4	–	–	u-pk-*
	Polymer	G1/8, G1/4, G3/8, G1/2, G3/4, G1	–	–	–	–	1101
		–	G1/8	–	–	–	u
	Die cast	G1/8, G1/4, G3/8, G1/2, G3/4, G1	–	–	–	–	1101
NPT3/4-14, NPT1-11 1/2		–	–	–	–	u	
UC	–	–	–	–	QS-3, QS-4, QS-6, QS-8, QS-10	–	1101
	M5, M7, G1/8, G1/4, G3/8	–	–	–	–	–	1101
AMTC	–	–	–	–	–	10 mm	1102

Technical data

Operating conditions		Type		
		U	UC	AMTC
Operating medium		Compressed air to ISO 8573-1:2010 [7:-:-]		
Note on operating/ pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)		
Operating pressure	[bar]	0 ... 10		
Ambient temperature	[°C]	-10 ... +70	-10 ... +70	-5 ... +60

Note

Clean silencers with kerosene or benzene (not with trichloroethylene).

Materials

Type	U			UC	AMTC
	Sintered metal	Polymer	Die cast		
Threaded plug	Brass	POM	Die-cast aluminium	PE	PE
Silencer insert	Bronze	PE	PE	PE	PE

Ordering data

Silencer U

Polymer



Pneumatic connection	Noise level ¹⁾ [dB (A)]	Flow rate with respect to atmosphere ²⁾ [l/min]	Part No.	Type	PU ³⁾
G $\frac{1}{8}$	< 77	2050	★ 2307	U- $\frac{1}{8}$	1
			534222	U- $\frac{1}{8}$ -50	50
G $\frac{1}{4}$	< 77	3400	★ 2316	U- $\frac{1}{4}$	1
			534223	U- $\frac{1}{4}$ -20	20
G $\frac{3}{8}$	< 82	5900	★ 2309	U- $\frac{3}{8}$	1
			534224	U- $\frac{3}{8}$ -20	20
G $\frac{1}{2}$	< 80	10,600	★ 2310	U- $\frac{1}{2}$	1
			534225	U- $\frac{1}{2}$ -20	20
G $\frac{3}{4}$	< 83	15,000	2311	U- $\frac{3}{4}$	1
G1	< 84	19,900	2312	U-1	1

Die cast



Pneumatic connection	Noise level ¹⁾ [dB (A)]	Flow rate with respect to atmosphere ²⁾ [l/min]	Part No.	Type	PU ³⁾
G $\frac{1}{8}$	< 74	1204	★ 6841	U- $\frac{1}{8}$ -B	1
G $\frac{1}{4}$	< 80	2838	★ 6842	U- $\frac{1}{4}$ -B	1
G $\frac{3}{8}$	< 80	5734	★ 6843	U- $\frac{3}{8}$ -B	1
G $\frac{1}{2}$	< 80	7622	★ 6844	U- $\frac{1}{2}$ -B	1
G $\frac{3}{4}$	< 81	13,266	6845	U- $\frac{3}{4}$ -B	1
G1	< 80	15,102	151990	U-1-B	1

Silencer UC

with push-in sleeve



Pneumatic connection	Noise level ¹⁾ [dB (A)]	Flow rate with respect to atmosphere ²⁾ [l/min]	Part No.	Type	PU ³⁾
QS-3	< 60	170	165005	UC-QS-3H	1
QS-4	< 60	350	165006	UC-QS-4H	1
QS-6	< 60	800	165007	UC-QS-6H	1
QS-8	< 60	1500	175611	UC-QS-8H	1
QS-10	< 68	3100	526475	UC-QS-10H	1

Threaded connection



Pneumatic connection	Noise level ¹⁾ [dB (A)]	Flow rate with respect to atmosphere ²⁾ [l/min]	Part No.	Type	PU ³⁾
M5	< 60	350	165003	UC-M5	1
			534217	UC-M5-50	50
M7	< 58	800	161418	UC-M7	1
			534218	UC-M7-50	50
G $\frac{1}{8}$	< 59	1700	161419	UC- $\frac{1}{8}$	1
			534219	UC- $\frac{1}{8}$ -50	50
G $\frac{1}{4}$	< 60	3200	165004	UC- $\frac{1}{4}$	1
			534220	UC- $\frac{1}{4}$ -20	20
G $\frac{3}{8}$	< 60	5000	1707427	UC- $\frac{3}{8}$	1
			576759	UC- $\frac{3}{8}$ -20	20

3) Packaging unit

1) Measured at 6 bar with respect to atmosphere at a distance of 1 m.

2) Measured at p₁ = 6 bar.

Ordering data

Silencer AMTC

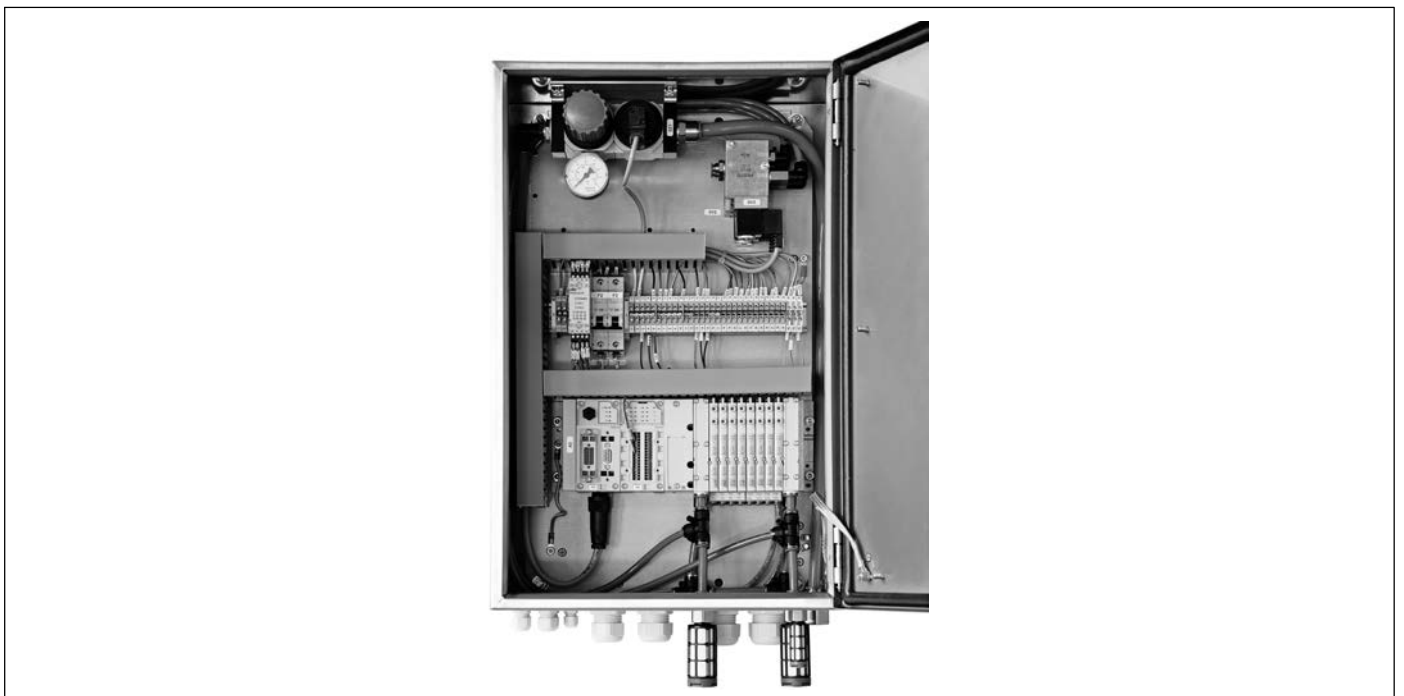


Pneumatic connection	Noise level ¹⁾ [dB (A)]	Flow rate with respect to atmosphere ²⁾ [l/min]	Part No.	Type	PU ³⁾
Cartridge 10 mm	< 58	800	1224460	AMTC-P-PC10	1




1) Measured at 6 bar with respect to atmosphere at a distance of 1 m.

2) Measured at p₁ = 6 bar.



17 Ready-to-install solutions





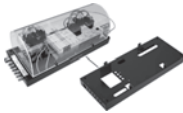

Control cabinets

Type	 Factory automation	 Process automation	 Control cabinets for controllers
Technical data	<ul style="list-style-type: none"> • Simple to complex control cabinet designs • Application-specific combination of components • Fully tested, with test certificate • Ready-to-install • Complete documentation • Design conforms to: <ul style="list-style-type: none"> – EN 60204-1 – ATEX zone 1 and 21 (pneumatic only), ATEX zone 2 and 22 (electric and electro-pneumatic) – UL508A • Implementation of safety functions • Different bus technologies 	<ul style="list-style-type: none"> • Simple to complex control cabinet designs • Application-specific combination of components • Different operating voltages • Fully tested, with test certificate • Ready-to-install • Complete documentation • Design conforms to: <ul style="list-style-type: none"> – EN 60204-1 – ATEX zone 1 and 21 (pneumatic only), ATEX zone 2 and 22 (electric and electro-pneumatic) – UL508A • Implementation of safety functions • Wide range of bus technologies • Compliance with special cleanliness and hygiene requirements • Special materials • Protected against the ingress of liquids and foreign matter • Heating or cooling elements • Intrinsically safe valve terminal technology • Hot swap inspection window 	<ul style="list-style-type: none"> • Simple to complex control cabinet designs • 1 ... 31 axes • Application-specific combination of components • Use of the latest innovations and technologies • Fully tested, with test certificate • Ready-to-install • Complete documentation • Design conforms to: <ul style="list-style-type: none"> – EN 60204-1 – ATEX zone 1 and 21 (pneumatic only), ATEX zone 2 and 22 (electric and electro-pneumatic) – UL508A • Implementation of safety functions • Wide range of bus technologies
Description	<ul style="list-style-type: none"> • Control cabinets made to measure • Pneumatic, electric, combined • Individually configured • Adapted to requirements in industrial automation • Design and sizing included 	<ul style="list-style-type: none"> • Control cabinets made to measure • Pneumatic, electric, combined • Individually configured • Adapted to requirements in process automation • Design and sizing included 	<ul style="list-style-type: none"> • Made-to-measure control cabinets for handling systems • Software package for third-party devices included • Individually configurable • Adapted to requirements for handling solutions → 565
→ Page/online	1107	1109	1110


Mounting plates and assemblies

Type	 Mounting plates	 Assemblies
Technical data	<ul style="list-style-type: none"> • Customised shape • Support plate in different materials • Application-specific combination of components • Fully assembled, connected and wired • Defined interfaces • Ready-to-install • Fully tested, with test certificate • Complete documentation • Design conforms to: <ul style="list-style-type: none"> – EN 60204-1 – ATEX zone 1 and 21 (pneumatic only), ATEX zone 2 and 22 (electric and electro-pneumatic) – UL508A • Implementation of safety functions 	<ul style="list-style-type: none"> • Combination of various pneumatic and/or electrical components to create a single unit • Application-specific combination of components • Accessories mounted on sub-assembly • Use of the latest innovations and technologies • Ready-to-install • Fully tested, with test certificate • Complete documentation • Design conforms to: <ul style="list-style-type: none"> – EN 60204-1 – ATEX zone 1 and 21 (pneumatic only), ATEX zone 2 and 22 (electric and electro-pneumatic) – UL508A • Implementation of safety functions
Description	<ul style="list-style-type: none"> • Machine-specific pre-assembly of pneumatic and electrical components on support plate • Tubing and wiring included • Defined interfaces for easy installation directly in the system 	<ul style="list-style-type: none"> • Pneumatic and electrical components pre-assembled to create a function unit • Can be combined from around 30,000 catalogue components • Connections included • For integration in machines
→ Page/online	1111	1113

Integration solutions

Type	 Manifold duct plates	 Cartridge solutions	 Sheet-metal constructions and special housings	 Function blocks
Technical data	<ul style="list-style-type: none"> • Freely selectable manifold duct plate shape • Combination of over 30,000 catalogue components • High density of components • No tubing • Variable positioning of mechanical, pneumatic and electrical interfaces • Integration of customised components • Available with protective cover • Fully tested • Ready-to-install • Complete documentation • Implementation of safety functions 	<ul style="list-style-type: none"> • Space-saving thanks to extremely compact design • Pneumatic functions integrated in a single compact housing • Housing in different materials • No tubing required • Minimal cabling required • Significant design freedom • Variable integration options on and within the machine • Sturdy design • Fully tested • Ready-to-install • Complete documentation 	<ul style="list-style-type: none"> • Sheet-metal constructions <ul style="list-style-type: none"> – Customised shape and size – Reduced weight and number of assembly parts • Special housing <ul style="list-style-type: none"> – Customised shape – Customised dimensions – Various materials – Compact, space-optimised format – Protection against environmental influences and unauthorised access • In combination <ul style="list-style-type: none"> – Alternative to conventional control cabinets – Variable integration options on and within the machine – Short tubing and cable lengths – Attractive design 	<ul style="list-style-type: none"> • No tubing required thanks to drilled ducts • Housing available in different materials • Customised design of the pneumatic interfaces for the system • Ideal for a small number of components and variable connection options • Extremely economical, even for small quantities
Description	<ul style="list-style-type: none"> • Ideal for a large number of pneumatic connections in an extremely compact space • No tubing • Compact • Easy to service • Immune to malfunction 	<ul style="list-style-type: none"> • Integration of various pneumatic functions in one component • No need for single housings • Ideal for applications that require a highly compact design 	<ul style="list-style-type: none"> • Reduced weight thanks to optimal use of materials with sheet-metal constructions • Protection against environmental influences and unauthorised access • Ideally combined as a control cabinet directly in the system 	<ul style="list-style-type: none"> • Compressed air supply for pneumatic components via drilled ducts • Ideal for a small number of pneumatic components and variable connection options • Compact and easy to service
→ Page/online	1115	1117	1119	1121

Integration solutions

Type	 Profile solutions
Technical data	<ul style="list-style-type: none"> • Profiles in customised cross sections and lengths • Integrated ducts for straight-line routing of the compressed air • Common air supply for multiple valves or valve terminals via a single duct • Combination of exhaust air and supply air without tubing, even over long distances • Supply of compressed air at different locations • No tubing required • Significantly reduced cabling • Modular, easy to realise construction • Optional: profile as mechanical mounting element for other components or as a supporting part of the machine frame
Description	<ul style="list-style-type: none"> • Extruded profiles in combination with valves as a valve terminal • For the distribution of compressed air in the machine concept • Customised profile cross sections available
→ Page/online	1123

8 The benefit to you

- Low logistical costs when ordering just one item
- Minimal assembly and installation effort with Festo plug & work®
 - Straightforward assembly principles
 - Defined interfaces
 - Teach-in or parameterisation functions

Our service

- Delivery of a ready-to-install system
- Commissioning service

1 The benefit to you

- Consideration of application-specific requirements
- Systematic support right from the start
- Expert know-how included

Our service

- Personal advice in 59 countries
- Pneumatic, servopneumatic, electrical and mechatronic technologies
- Application- and industry-specific

7 The benefit to you

- Complete documentation, quickly integrated into overall documentation

Our service

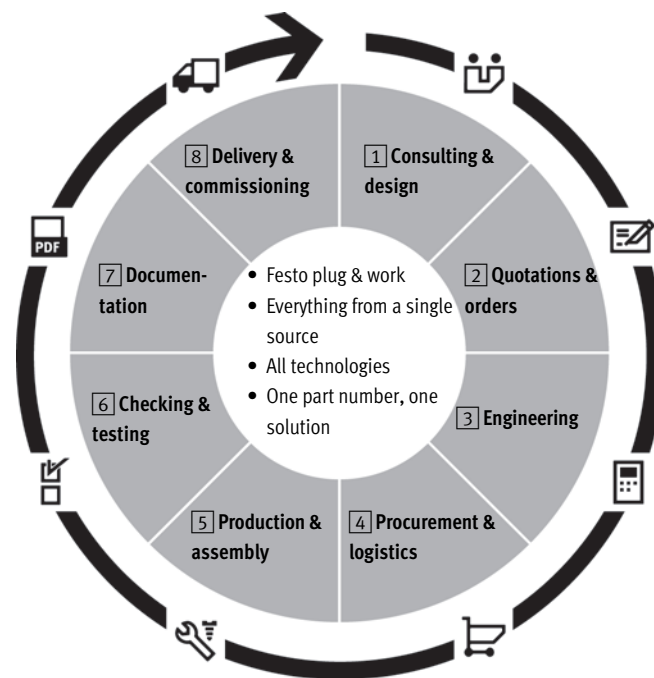
- Detailed system documentation:
 - Assembly drawing
 - Bill of materials
 - Circuit diagrams
 - Operating instructions for components

6 The benefit to you

- Maximum reliability with regard to function and quality
- Including expertise on standards and directives

Our service

- 100% functional test
- Leak test
- Test certificate
- Certifications, e.g. EN 60204-1, ATEX, UL-508A



2 The benefit to you

- Detailed quotation with engineering concept
- Easy order processing with just one order item for the entire solution
- One delivery date

Our service

- Quotation includes:
 - 2D/3D concept
 - Bill of materials
 - Scope of services
 - Functional sequence

3 The benefit to you

- No engineering effort required
- Individually tailored solutions based on application-specific requirements
- Solution based on the latest technological standards

Our service

- Complete engineering solution:
 - Technology and component selection
 - Sizing of solutions
 - CAD design (2D/3D)
 - Circuit diagram creation
 - Simulation

5 The benefit to you

- Reduced manufacturing involvement as no in-house machining is required
- Easy to service and clear layout

Our service

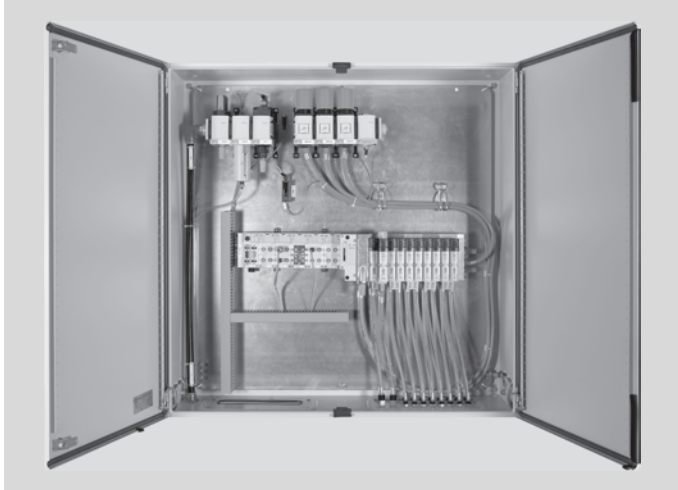
- Application-specific mechanical production
- Assembly of all individual components
- Installation of third-party components possible
- Complete tubing and wiring

4 The benefit to you

- Reduced costs thanks to single sourcing
- No procurement and logistical costs

Our service

- Procurement of all components and foreign parts



- Control cabinets made to measure
- Individually configured
- Adapted to requirements in industrial automation
- Design and sizing included

Festo made-to-measure control cabinets provide protection for all pneumatic, electrical and electronic system components.

The control cabinets are individually

designed and built for the respective application, taking into account specific industry requirements such as those in the food or automotive industries, for example. The design is also influenced by

local conditions such as weather and climate.

Along with Festo components, third-party components are integrated into the control cabinets as required.

The operationally tested system is delivered ready-to-install – directly to where it will be used, if requested.

Technical data

- Simple to complex control cabinet designs
 - Pneumatic
 - Electrical
 - Combined
- Application-specific combination of components
- Use of the latest innovations and technologies
- Fully tested, with test certificate
- Ready-to-install
- Complete documentation

- Design conforms to:
 - EN 60204-1
 - ATEX zone 1 and 21 (pneumatic only), ATEX zone 2 and 22 (electric and electro-pneumatic)
 - UL-508A
- Implementation of safety functions

- Different bus technologies:
 - PROFIBUS
 - PROFIBUS DP
 - PROFIBUS PA
 - PROFIBUS FMS
 - PROFINET
 - INTERBUS
 - EtherCAT
 - CANopen
 - MODBUS
 - DeviceNet
 - EtherNet/IP
 - CC-Link
 - AS-Interface

Ready-to-install – the benefits to you

Ordering

Just one order number for the entire control cabinet.

Engineering

Complete engineering solution according to your application-specific requirements by Festo specialists.

Production & assembly

The entire production and assembly process is taken care of for you.

Checking & testing

The control cabinet is fully tested.

Documentation

You receive detailed system documentation, which you can quickly and easily integrate into your overall documentation:

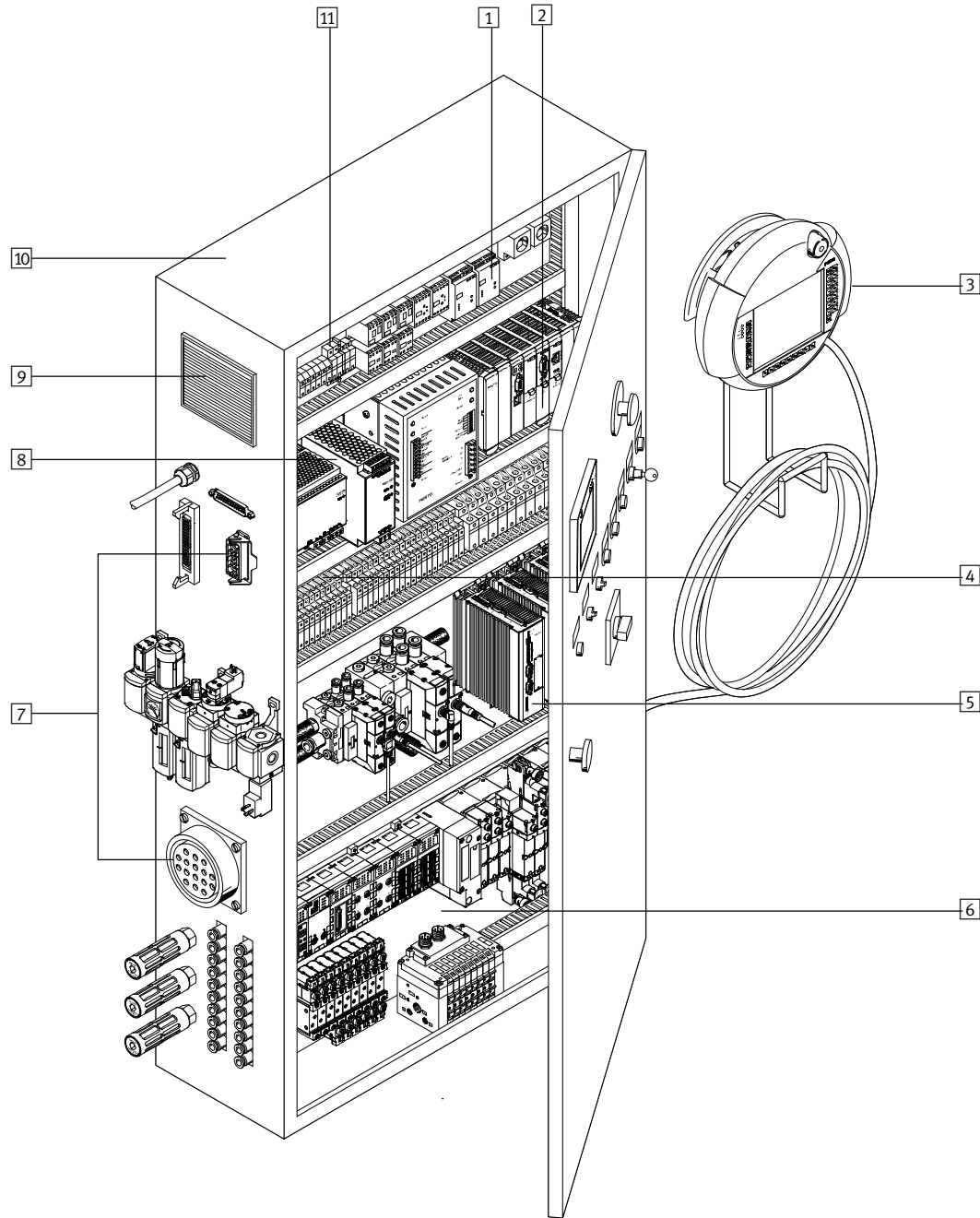
- Assembly drawing
- Bill of materials
- Circuit diagrams (EPLAN/Promis)
- Operating instructions for components

Interested in control cabinets for factory automation?

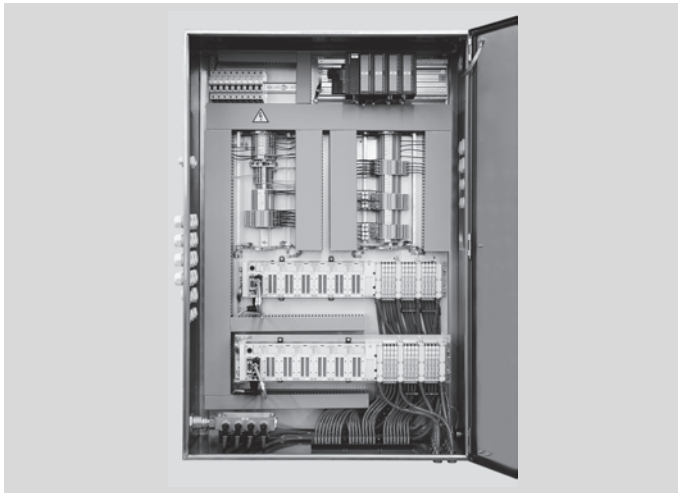
Ask your Festo sales engineer, who will be happy to help.

Or visit your local website at www.festo.com,

where you will find further information on ready-to-install solutions.



- | | | | |
|---|---|--|--|
| <p>1 Power supply</p> <ul style="list-style-type: none"> - 24 V DC, up to 20 A - 48 V DC - Single-phase/three-phase - Plug sockets <p>2 Control system</p> <ul style="list-style-type: none"> - CMXR, CECX, FED, CPX - Robot control system - Third-party control systems - Up to 6 axes - Safety relays <p>3 Operator units</p> <ul style="list-style-type: none"> - Mobile: MMI, CDSA - Integration in the control cabinet: emergency off, key actuator, control elements | <p>4 Wiring/tubing</p> <ul style="list-style-type: none"> - Number of wires - Cross section - Cable harness/individual cables - Cable inscription - Tubing diameter - Tubing colour/material - Tubing designation <p>5 Controller</p> <ul style="list-style-type: none"> - Servo motor - Stepper motor - DC motor | <p>6 Pneumatics</p> <ul style="list-style-type: none"> - Valves/valve terminals - Compressed air preparation - Pressure regulators - Sensors - Servopneumatics <p>7 Outputs</p> <ul style="list-style-type: none"> - Pneumatic, electrical - Multi-pin interfaces <p>8 Power supply unit</p> <ul style="list-style-type: none"> - Converts AC voltage/frequency - Speed regulation | <p>9 Cooling/heating</p> <ul style="list-style-type: none"> - Active - Passive <p>10 Housing</p> <ul style="list-style-type: none"> - Sheet steel/stainless steel/ aluminium/plastic - Standard sizes - Special sizes - Illuminated - Control cabinet colour RAL 7035 or special colour - Labels <p>11 Fuses</p> <ul style="list-style-type: none"> - Safety fuse - Circuit breaker |
|---|---|--|--|



- Control cabinets made to measure
- Individually configured
- Adapted to requirements in process automation
- Design and sizing included

Festo made-to-measure control cabinets provide protection for all pneumatic, electrical and electronic system components.

The control cabinets are individually

designed and built for the respective application, taking into account specific process industry requirements. The design is also influenced by local conditions such as weather and climate as

well as compliance with hygiene criteria or protection classes.

Along with Festo components, third-party components are integrated into the

control cabinets as required.

The operationally tested system is delivered ready-to-install – directly to where it will be used, if requested.

Technical data

- Simple to complex control cabinet designs
 - Pneumatic
 - Electrical
 - Combined
- Application-specific combination of components
- Different operating voltages possible
- Use of the latest innovations and technologies
- Fully tested, with test certificate
- Ready-to-install
- Complete documentation
- Design conforms to:
 - EN 60204-1
 - ATEX zone 1 and 21 (pneumatic only), ATEX zone 2 and 22 (electric and electro-pneumatic)
 - UL-508A

- Implementation of safety functions
- Wide range of bus technologies
- Compliance with special cleanliness and hygiene requirements
- Special materials, e.g. stainless steel, for use in virtually all ambient conditions
- Protected against the ingress of liquids and foreign matter
- Installation of heating or cooling elements
- Intrinsically safe valve terminal technology

- Replacement of individual terminal valves during operation (hot swap)
- Installation of inspection windows
- Control elements on the outside
- Safe thanks to key lock system on the service unit: to switch off, all employees responsible must remove their lock

Ready-to-install – the benefits to you

Ordering

Just one order number for the entire control cabinet.

Engineering

Complete engineering solution according to your application-specific requirements by Festo specialists.

Production & assembly

The entire production and assembly process is taken care of for you.

Checking & testing

The control cabinet is fully tested.

Documentation

You receive detailed system documentation, which you can quickly and easily integrate into your overall documentation:

- Assembly drawing
- Bill of materials
- Circuit diagrams (EPLAN/Promis)
- Operating instructions for components

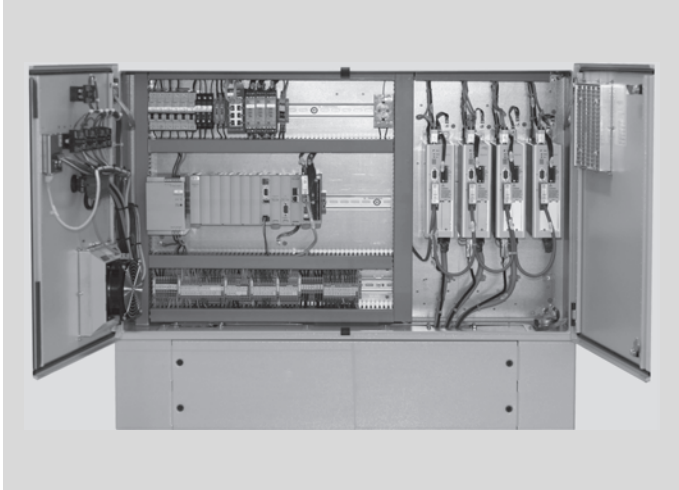
Interested in control cabinets for process automation?

Ask your Festo sales engineer, who will be happy to help.

Or visit your local website at www.festo.com,

where you will find further information on ready-to-install solutions.

Control cabinets for controllers



- Made-to-measure control cabinets for handling systems
- Software package for third-party devices included
- Individually configurable
- Adapted to requirements for handling solutions → 566

Festo made-to-measure control cabinets for controllers provide protection for control components for single-axis and multi-axis systems, from solutions involving simple control tasks to the

complex control of highly dynamic movements, such as with the tripod. The control cabinets are individually designed and built for the respective application, taking into account specific

industry requirements such as those in the food or pharmaceuticals industries, for example. Festo can also integrate third-party components, including software packages, as

required. The operationally tested system is delivered ready-to-install – directly to where it will be used, if requested.

Technical data

- Simple to complex control cabinet designs
- 1 ... 31 axes
- Application-specific combination of components
- Use of the latest innovations and technologies

- Fully tested, with test certificate
- Ready-to-install
- Complete documentation
- Design conforms to:
 - EN 60204-1
 - ATEX zone 1 and 21 (pneumatic only), ATEX zone 2 and 22 (electric and electro-pneumatic)
 - UL-508A

- Implementation of safety functions
- Wide range of bus technologies

Ready-to-install – the benefits to you

Everything from a single source
Handling system and control cabinet perfectly co-ordinated.

Ordering
Just one order number for the entire control cabinet.

Engineering
Complete engineering solution according to your application-specific requirements by Festo specialists.

Production & assembly
The entire production and assembly process is taken care of for you.

Checking & testing
The control cabinet is fully tested.

Documentation
You receive detailed system documentation, which you can quickly and easily integrate into your overall documentation:

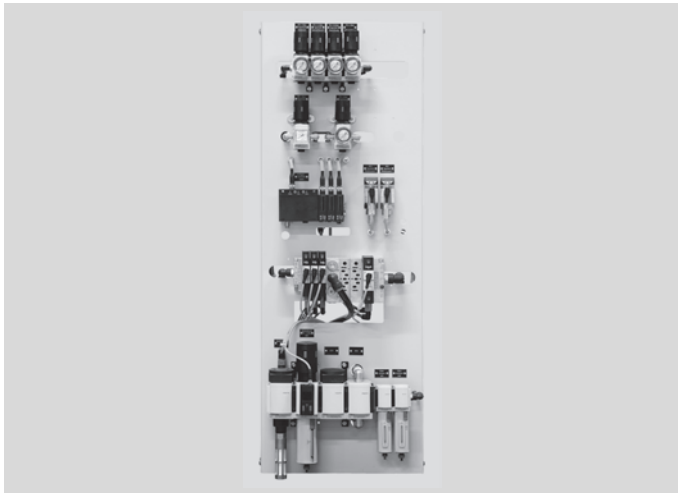
- Assembly drawing
- Bill of materials
- Circuit diagrams (EPLAN/Promis)
- Operating instructions for components

Interested in control cabinets for controllers?

Ask your Festo sales engineer, who will be happy to help.

Or visit your local website at www.festo.com,

where you will find further information on ready-to-install solutions.



- Machine-specific pre-assembly of pneumatic and electrical components on support plate
- Tubing and wiring included
- Defined interfaces for simple installation directly in the system

Festo mounting plates are used for the function-specific pre-assembly of pneumatic and electrical components. They support the individual components and are integrated directly into the system concept.

Each mounting plate has a customised design based on the respective application and with a customised combination of components. In addition to Festo components, third-party components can be

integrated as required.

The mounting plate is supplied ready-to-install – fully connected and tested. It can be installed directly in the machine. Suitable mounting attachments are

already fitted to or integrated into the support plate. The pneumatic and electrical connections are also provided. These simply have to be connected to the machine.

Technical data

- Customised support plate shape
- For a wide range of industrial applications
- Support plate available in different materials, e.g. sheet steel, stainless steel, etc.
- Application-specific combination of components
- Fully assembled, connected and wired

- Defined interfaces
- Use of the latest innovations and technologies
- Ready-to-install: All steps from engineering and assembly to quality inspection are carried out by Festo specialists
- Fully tested, with test certificate
- Complete documentation

- Design conforms to:
 - EN 60204-1
 - ATEX zone 1 and 21 (pneumatic only), ATEX zone 2 and 22 (electric and electro-pneumatic)
 - UL-508A
- Implementation of safety functions

Ready-to-install – the benefits to you

Ordering

Just one order number for the entire solution.

Engineering

Complete engineering solution according to your application-specific requirements by Festo specialists.

Production & assembly

The mounting plate is ready-to-install. The entire assembly process, including wiring and connection, is thus taken care of for you.

Documentation

You receive detailed system documentation, which you can quickly and easily integrate into your overall documentation:

- Assembly drawing
- Bill of materials
- Circuit diagrams
- Operating instructions for components

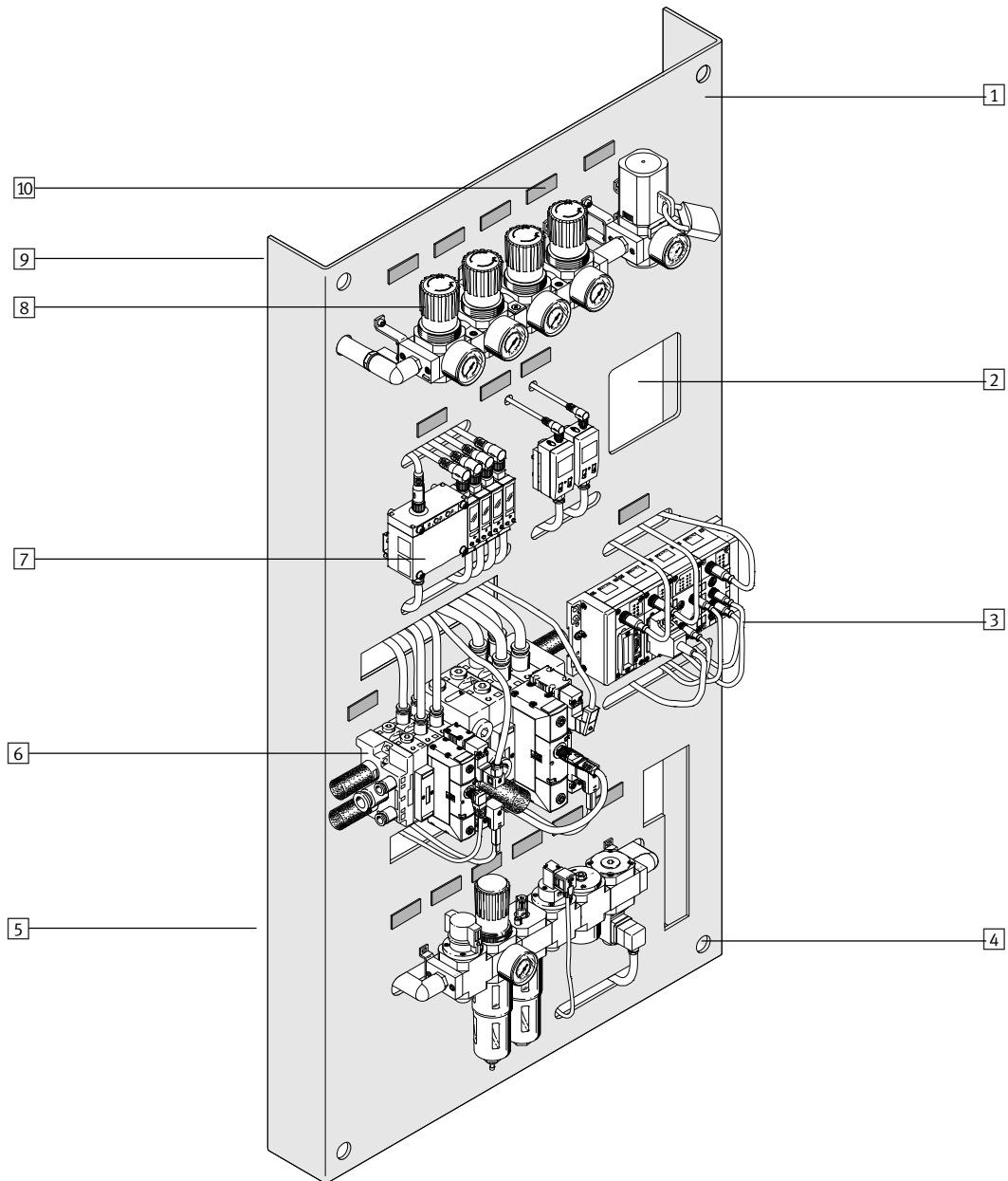
Interested in mounting plates?

Ask your Festo sales engineer, who will be happy to help.

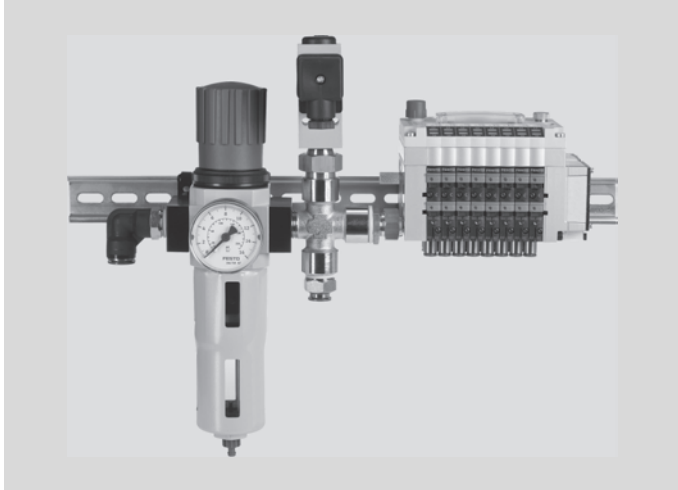
Or visit your local website at www.festo.com,

where you will find further information on ready-to-install solutions.

Mounting plates



- | | | | |
|---|---|--|--|
| <p>1 Support plate</p> <ul style="list-style-type: none"> - Sheet steel/stainless steel/ aluminium/plastic - Individually adapted shape and size - Plate is integrated directly into the machine concept as a supporting component - Labelling | <p>2 Cut-outs</p> <ul style="list-style-type: none"> - For tubing - For connections - etc. <p>3 Wiring/tubing</p> <ul style="list-style-type: none"> - Number of wires - Cross section - Cable harness/individual cables - Cable inscription | <p>4 Mounting options</p> <ul style="list-style-type: none"> - For mounting in the system <p>5 Electrical installation</p> <ul style="list-style-type: none"> - Implementation of electrical circuit diagrams in a solution (not shown) <p>6 Valves and valve terminals</p> <p>7 Sensors</p> <ul style="list-style-type: none"> - Pressure - Flow rate - Position | <p>8 Compressed air preparation</p> <ul style="list-style-type: none"> - MS series - D series - Customised configuration of modules <p>9 Defined interfaces for the machine</p> <ul style="list-style-type: none"> - Tubing/cables in specified length - Customised coupling - etc. <p>10 Customised inscriptions</p> |
|---|---|--|--|



- Pneumatic and electrical components pre-assembled to create a function unit
- Can be combined from around 30,000 catalogue components
- Connections included
- For integration in machines

The product range from Festo comprises about 30,000 individual components, which can be pre-assembled to form a functional module. Accessories such as fittings and connections can also be assembled on the unit. The sub-assembly

can thus be installed directly in the system or in the higher-level system as a ready-to-install subsystem. A sub-assembly can be made up of a wide range of components. Typical combinations include:

- Cylinder/valve combinations
 - Components for compressed air preparation combined with valves
 - Valve manifolds
- Third-party components can be integrated and the sub-assembly can be mounted on a plate as required.

A complete functional test of the entire unit is carried out after completion. The sub-assembly is supplied ready-to-install.

Technical data

- Combination of various pneumatic and/or electrical components to create a single unit
- For a wide range of industrial applications
- Application-specific combination of components
- Optional: Accessories mounted on sub-assembly
- Use of the latest innovations and technologies

- Ready-to-install: All steps from engineering and assembly to quality inspection are carried out by Festo specialists
- Fully tested, with test certificate
- Complete documentation

- Design conforms to:
 - EN 60204-1
 - ATEX zone 1 and 21 (pneumatic only), ATEX zone 2 and 22 (electric and electro-pneumatic)
 - UL-508A
- Implementation of safety functions

Ready-to-install – the benefits to you

Ordering

Just one order number for the entire solution.

Production & assembly

The entire production and assembly process, including wiring and connection, is taken care of for you. Connections to the system can be pre-installed on the sub-assembly if required.

Checking & testing

The sub-assembly is fully tested.

Documentation

You receive detailed system documentation, which you can quickly and easily integrate into your overall documentation:

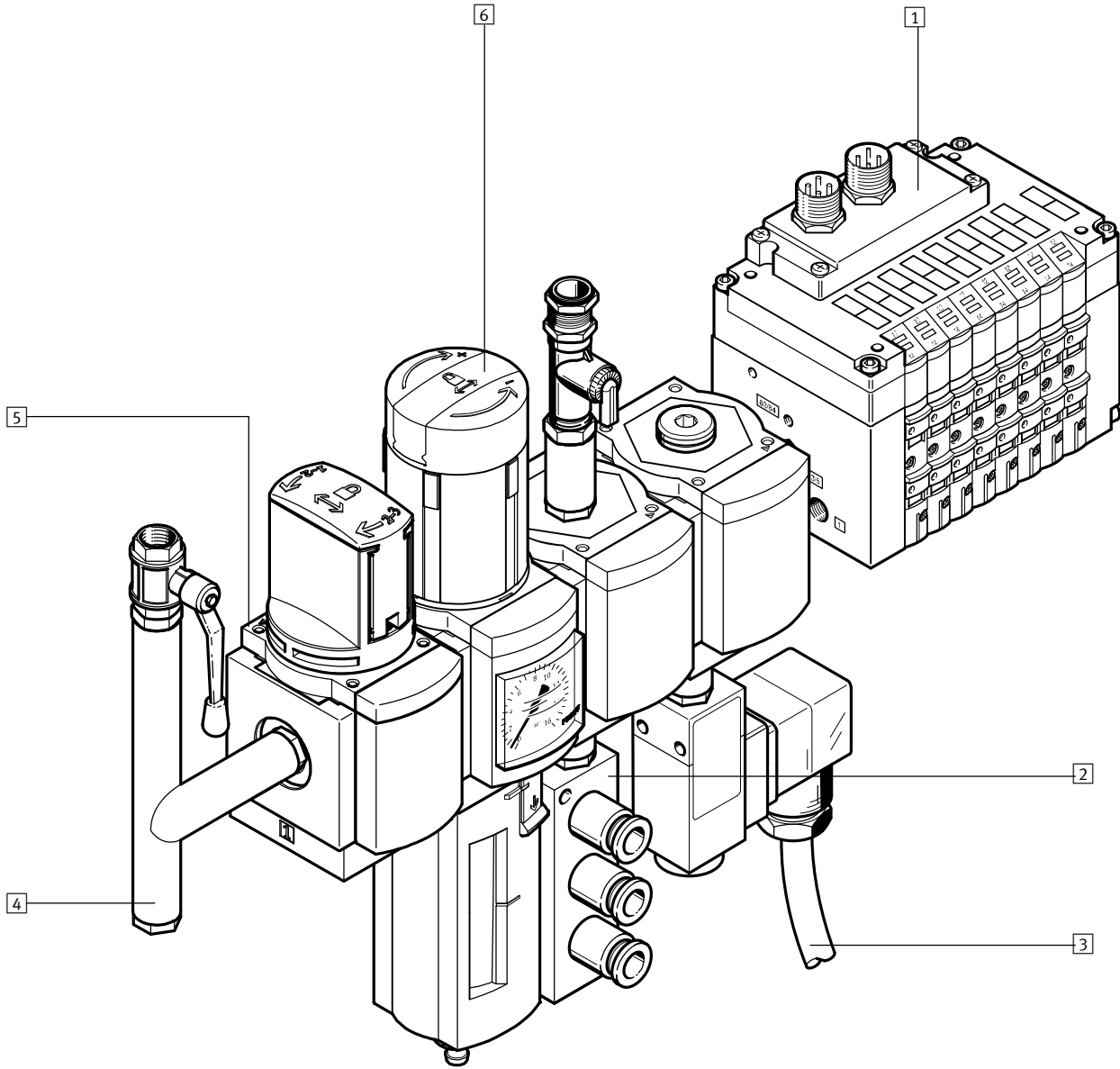
- Assembly drawing
- Bill of materials
- Circuit diagrams
- Operating instructions for components

Interested in sub-assemblies?

Ask your Festo sales engineer, who will be happy to help.

Or visit your local website at www.festo.com,

where you will find further information on ready-to-install solutions.

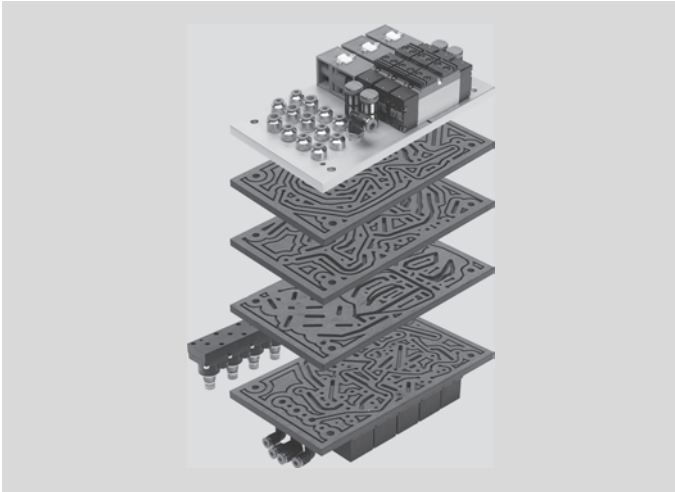


- 1** Valves and valve terminals
- 2** Other pneumatic components
 - Cylinders
 - Pressure regulators
 - Pressure gauges
 - Third-party components
 - Connections
 - Sensors
 - Servopneumatics
 - etc.

- 3** Tubing, wiring and piping
 - Number of wires
 - Cross section
 - Cable harness/individual cables
 - Cable inscription

- 4** Outputs
 - Pneumatic
 - Electrical
 - Multi-pin interfaces
- 5** Mounting options
 - For mounting in the system

- 6** Compressed air preparation
 - MS series
 - D series
 - Customised configuration of modules



- Ideal for a large number of pneumatic connections in an extremely compact space
- No tubing
- Compact
- Easy to service
- Immune to malfunction

Manifold duct plates are used primarily in applications that demand a large number of pneumatic connections in a very small space.

Festo manifold duct plates made from polyurethane structural foam make conventional individual tubing completely

superfluous. Instead, they route the air to the individual components using defined ducts.

The omission of the tubing means that components can be positioned in the smallest of spaces. This means that screws, mountings attachments, etc.

remain easily accessible and ensures ease of servicing and maintenance.

The shape of the plate is freely selectable – depending on the space available. The interfaces can also be freely positioned. Aligned and glued in sandwich design, the entire block is extremely sturdy and

absolutely leak-proof thanks to multi-layer technology. It is the ideal solution for a high level of protection and is not subject to malfunction.

Technical data

- Freely selectable manifold duct plate shape
- Combination of over 30,000 catalogue components, e.g. valves, regulators, filters, sensors, etc.
- High density of components
- No tubing

- Variable positioning of mechanical, pneumatic and electrical interfaces
- Integration of customised components
- Compact
- Sturdy and immune to malfunction
- Sealed and protected unit

- Easy to service
- Available with protective cover
- Fully tested
- Ready-to-install
- Complete documentation
- Implementation of safety functions

Ready-to-install – the benefits to you

Ordering

Just one order number for the entire solution.

Engineering

Complete engineering solution according to your application-specific requirements by Festo specialists.

Production & assembly

The entire production and assembly process is taken care of for you.

Checking & testing

The solution is fully tested.

Documentation

You receive detailed system documentation, which you can quickly and easily integrate into your overall documentation.

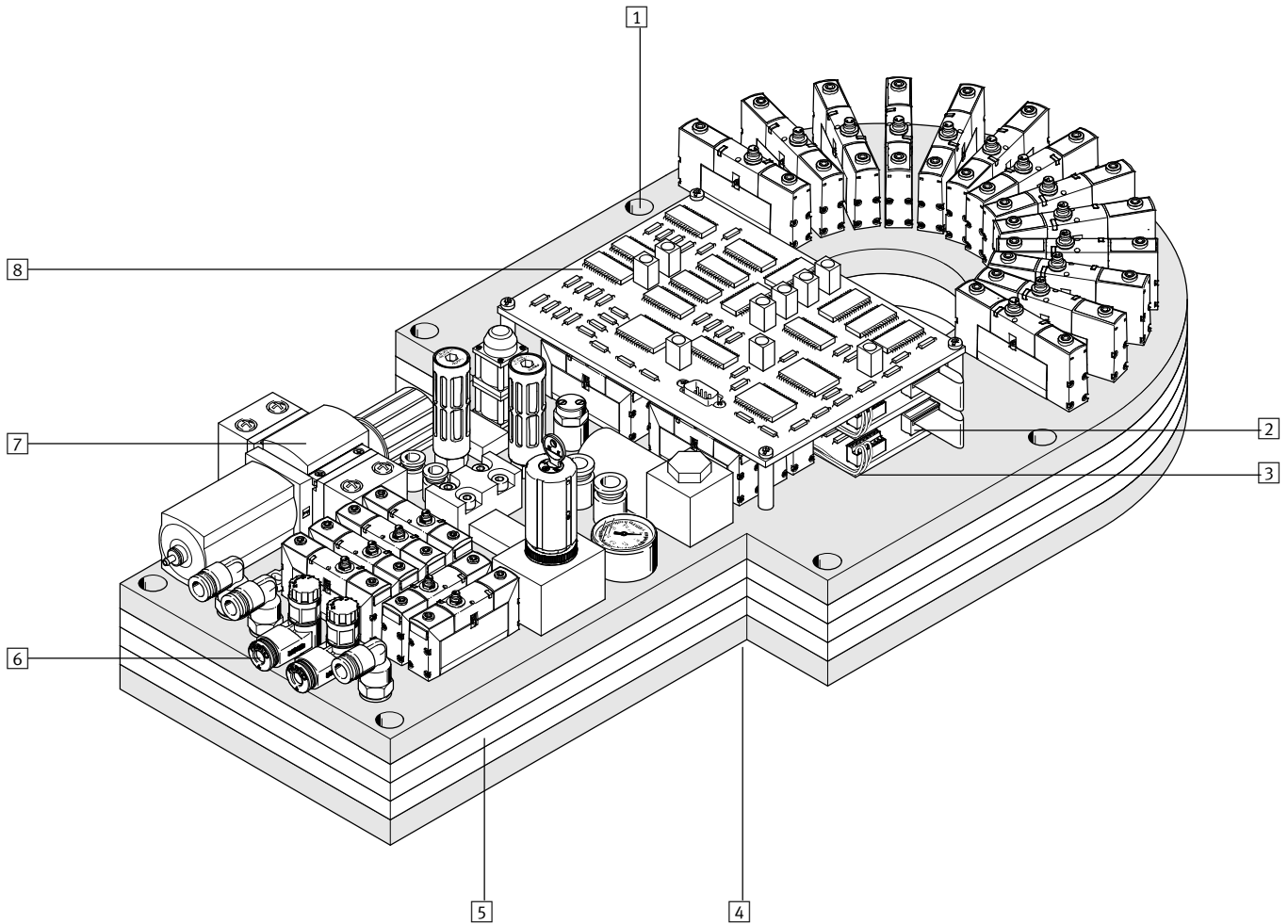
Interested in manifold duct plates?

Ask your Festo sales engineer, who will be happy to help.

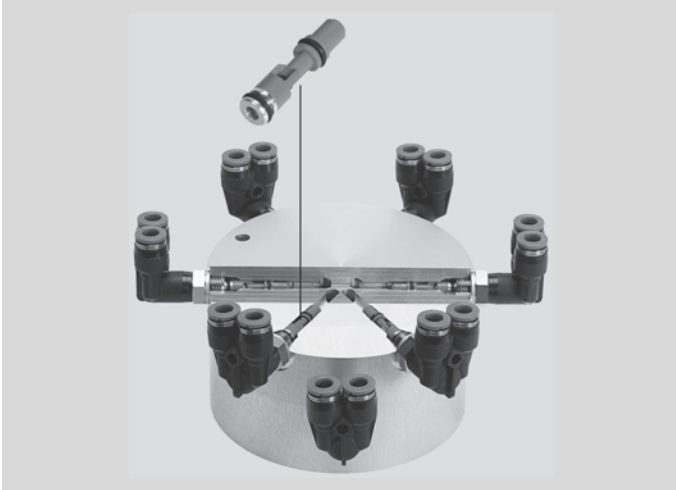
Or visit your local website at www.festo.com,

where you will find further information on ready-to-install solutions.

Manifold duct plates



- | | | | |
|---|--|---|--|
| <p>1 Mounting options</p> <ul style="list-style-type: none"> - For mounting in the system <p>2 Electrical installation</p> <ul style="list-style-type: none"> - Cabling - PCBs <p>3 Sensors</p> <ul style="list-style-type: none"> - Pressure - Flow rate - Position | <p>4 Customised shape</p> <ul style="list-style-type: none"> - For precise integration in the system <p>5 Manifold duct plates</p> <ul style="list-style-type: none"> - Made from polyurethane structural foam - Variable number depending on the number of air ducts | <p>6 Outputs</p> <ul style="list-style-type: none"> - Freely selectable positioning - Pneumatic, electrical - Multi-pin interfaces <p>7 Pneumatics</p> <ul style="list-style-type: none"> - Compressed air preparation - Valves - Valve terminals - Pressure regulators - Pressure gauges - Third-party components | <p>8 Electronics</p> <ul style="list-style-type: none"> - Customised - Integrated or developed by Festo |
|---|--|---|--|



- Integration of various pneumatic functions in one component
- No need for single housings
- Ideal for applications that require a highly compact design

Cartridge solutions integrate one or more pneumatic functions in a closed unit. There is no need for individual housings, as the "insides" of the parts are housed in the component itself. Festo cartridge solutions are used

wherever an extremely compact design and component protection are required – with just a small number of pneumatic functions. Functionality provided by standard technology, such as directional control valves

or flow control valves, is fully integrated into the housing, thus reducing the required installation space. The housing has a customised design based on specific application requirements, which means that the cartridge

solution can be attached or installed just about anywhere on the machine.

Technical data

- Space-saving thanks to extremely compact design
- Pneumatic functions integrated in a single compact housing, e.g.:
 - Directional control valves
 - Flow control valves
 - Non-return valves
 - Vacuum generators
 - Pressure regulators
 - Pneumatic logic functions

- Housing available in different materials
- No tubing required
- Minimal cabling required
- Significant design freedom
- Variable integration options on and within the machine
- Sturdy design thanks to protected installed parts and smooth surfaces

- Fully tested
- Ready-to-install
- Complete documentation

Ready-to-install – the benefits to you

Engineering

Complete engineering solution according to your application-specific requirements by Festo specialists.

Production & assembly

The entire production and assembly process is taken care of for you.

Documentation

You receive detailed system documentation, which you can quickly and easily integrate into your overall documentation.

Checking & testing

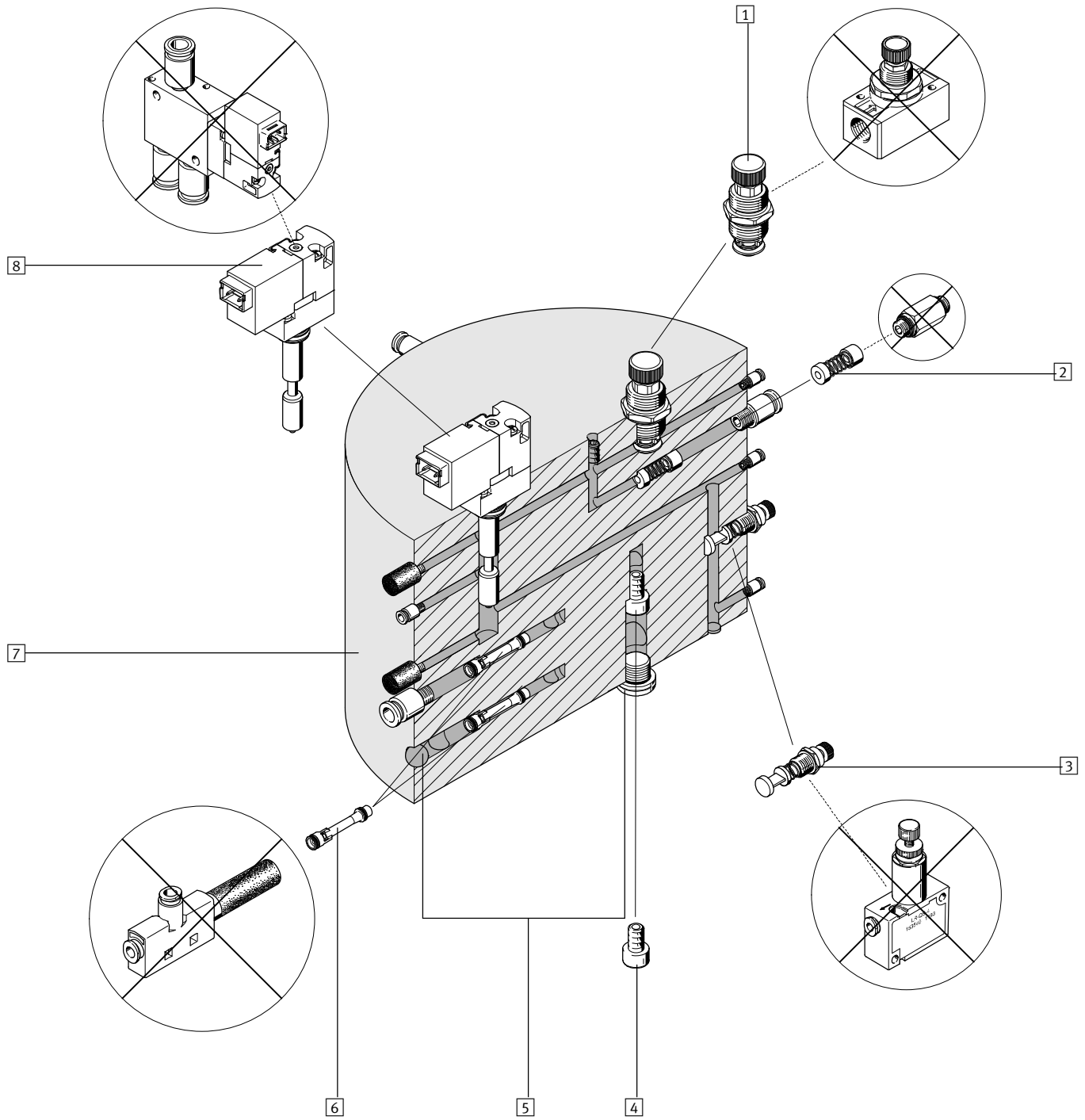
The solution is fully tested.

Interested in cartridge solutions?

Ask your Festo sales engineer, who will be happy to help.

Or visit your local website at www.festo.com,

where you will find further information on ready-to-install solutions.

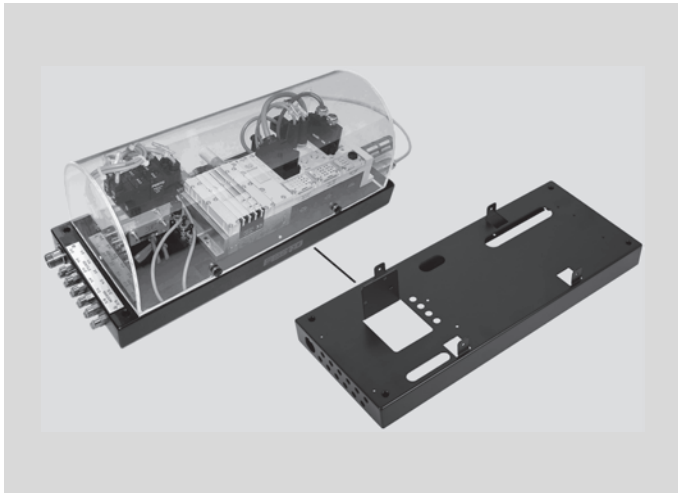


- 1** Flow control valve
– Integrated
- 2** Non-return valve
– Integrated
- 3** Pressure regulator
– Integrated

- 4** Fixed restrictor
– Screw-in
- 5** Sealing of holes
– Integrated
- 6** Vacuum generator
– Various sizes

- 7** Housing
– Aluminium
– Brass
– Steel
– POM
– PEEK
– PA
– etc.

- 8** Valve
– Integrated



- Reduced weight thanks to optimal use of materials with sheet-metal constructions
- Protection against environmental influences and unauthorised access
- Ideally combined as a control cabinet directly in the system

A sheet-metal construction acts as a support for pneumatic and electrical components. The well thought-out design makes it possible to get the most out of the material used. Upright steel parts perform the function of mounting

brackets in this case. This means fewer components and reduced weight, making the entire system into a compact unit. Special housings protect electrical and pneumatic components against environmental influences and unauthorised

access. They also lend applications a more attractive appearance. They are developed for specific applications in a space-saving design. When combined, sheet-metal constructions and special housings produce a

small control cabinet, which can be fitted directly in or on the application. The short tubing and cable lengths achieved result in significantly reduced switching times.

Technical data

- Sheet-metal constructions
 - Customised shape and size
 - Reduced weight and number of assembly parts

- Special housing
 - Customised shape (flat, curved, rectangular, etc.)
 - Customised dimensions
 - Different materials (metal, aluminium, plastic, etc.)
 - Compact, space-saving format
 - Protection against environmental influences and unauthorised access

- In combination
 - Alternative to conventional control cabinets
 - Variable integration options on and within the machine
 - Short tubing and cable lengths
 - Attractive design

Ready-to-install – the benefits to you

Engineering

Complete engineering solution according to your application-specific requirements by Festo specialists.

Production & assembly

The entire production and assembly process is taken care of for you.

Checking & testing

The solution is fully tested.

Documentation

You receive detailed system documentation, which you can quickly and easily integrate into your overall documentation.

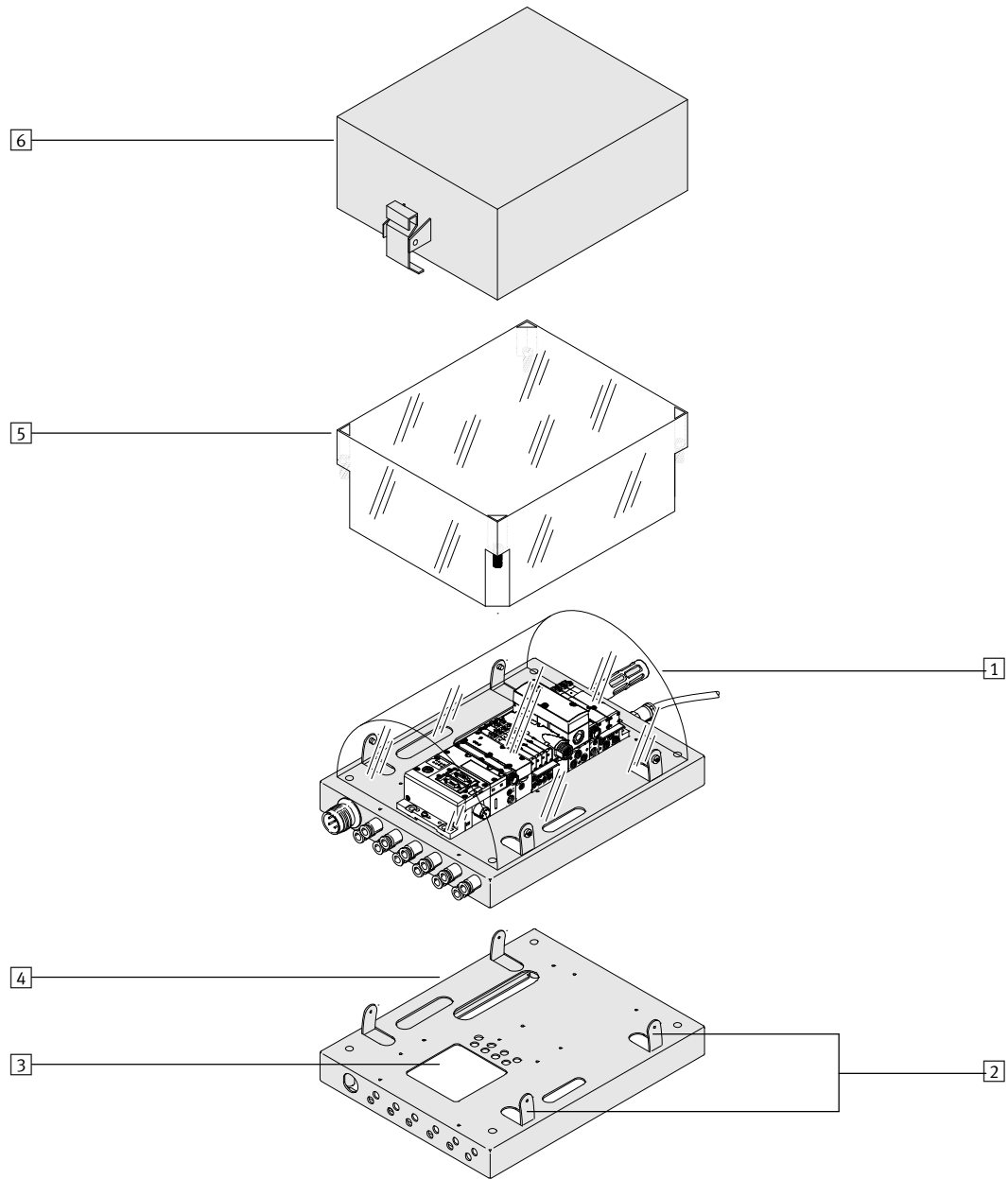
Interested in sheet-metal constructions and special housings?

Ask your Festo sales engineer, who will be happy to help.

Or visit your local website at www.festo.com,

where you will find further information on ready-to-install solutions.

Sheet-metal constructions and special housings

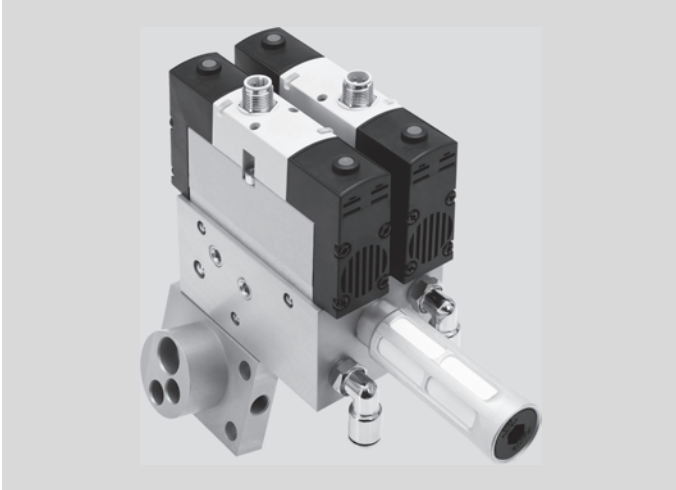


- 1** One basic solution
 - Small control cabinet
- 2** Upright sheet-metal parts
 - As mounting brackets
- 3** Cut-outs
 - For tubing
 - For connections
 - etc.

- 4** Sheet-metal construction
 - Customised dimensions
 - Customised shapes

- 5** Material
 - Metal
 - Plastic
 - etc.

- 6** Special housing
 - Customised dimensions
 - Customised shapes (flat, curved etc.)



- Compressed air supply for pneumatic components via drilled ducts
- Ideal for small number of pneumatic components and variable connection options
- Compact and easy to service

For applications that require the installation of only a small number of pneumatic components in a compact space, Festo function blocks with drilled ducts

represent a practical alternative to manifold duct plates. The position of the connections must be variable and not subject to any special requirements.

In the function block, the air supply connections are established using intersecting ducts – individual sub-bases are no longer required. The components are

mounted directly on the function block, which means that no tubing is required.

Technical data

- No tubing required thanks to drilled ducts
- Housing available in different materials:
 - Aluminium
 - Brass
 - Steel
 - POM
 - PEEK
 - PA
 - etc.

- Customised design of the pneumatic interfaces for the system
- Ideal for a small number of components and variable connection options

- Extremely economical, even for small quantities

Ready-to-install – the benefits to you

Engineering

Complete engineering solution according to your application-specific requirements by Festo specialists.

Production & assembly

The entire production and assembly process is taken care of for you.

Documentation

You receive detailed system documentation, which you can quickly and easily integrate into your overall documentation.

Checking & testing

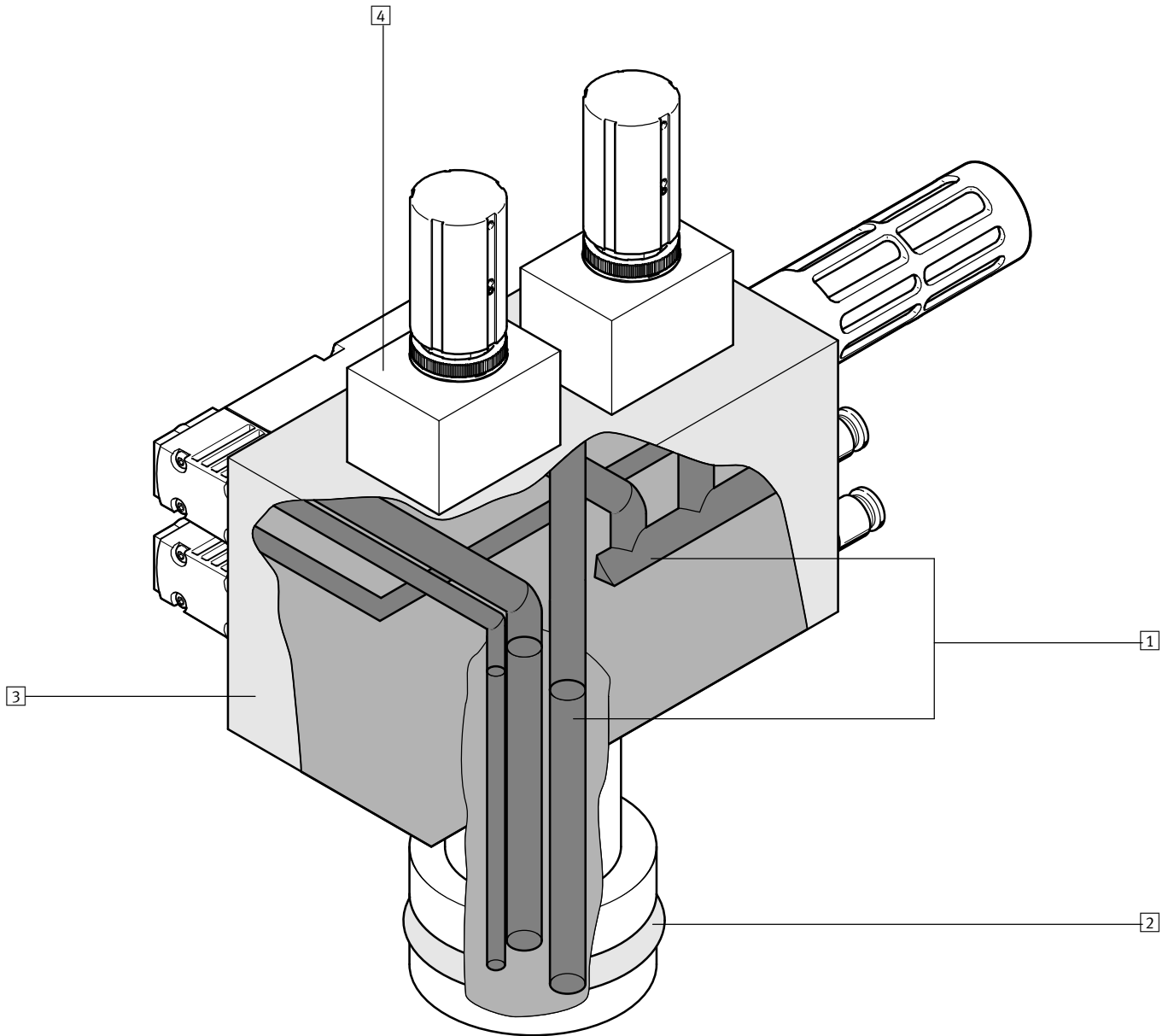
The solution is fully tested.

Interested in function blocks?

Ask your Festo sales engineer, who will be happy to help.

Or visit your local website at www.festo.com,

where you will find further information on ready-to-install solutions.

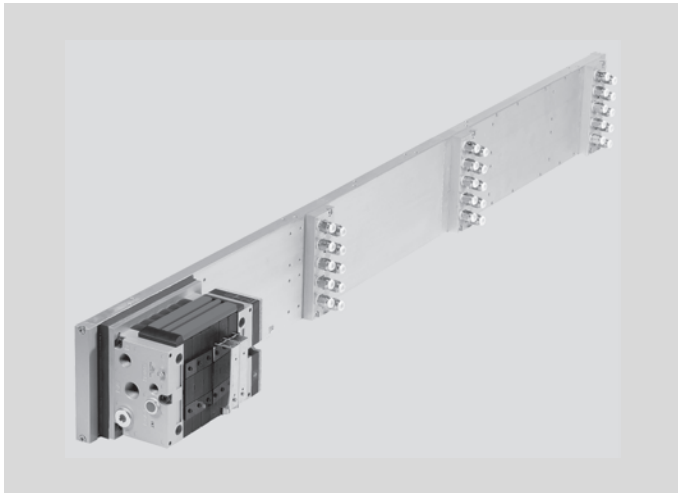


1 Drilled ducts
– For the air supply

2 Pneumatic interfaces for the machine
– Customised

3 Housing
– Aluminium
– Brass
– Steel
– POM
– PEEK
– PA
– etc.

4 Pneumatics
– Compressed air preparation
– Valves
– Valve terminals
– Pressure regulators
– Pressure gauges
– Third-party components
– Connections



- Extruded profiles in combination with valves as a valve terminal
- For the distribution of compressed air in the machine concept
- Customised profile cross sections available

Profile solutions enable valve terminal concepts to be adapted to the machine design. Space optimisation, high performance in a small space and optimal distribution of compressed air within the

system are just some of the main advantages. The compressed air flows into integrated ducts. Exhaust air and supply air can thus be combined over long distances

without any tubing. The compressed air is then provided at different locations according to specific requirements. Festo profiles have different cross

sections and lengths depending on application requirements. The valves and valve terminals can be mounted on the profile in a freely definable grid.

Technical data

- Profiles in customised cross sections and lengths
- Integrated ducts for straight-line routing of the compressed air
- Common air supply for multiple valves or valve terminals via a single duct

- Combination of exhaust air and supply air without tubing, even over long distances
- Supply of compressed air at different locations
- No tubing required

- Significantly reduced cabling
- Modular structure easy to achieve
- Optional: profile as mechanical mounting element for other components or as a supporting part of the machine frame

Ready-to-install – the benefits to you

Engineering

Complete engineering solution according to your application-specific requirements by Festo specialists.

Production & assembly

The entire production and assembly process is taken care of for you.

Documentation

You receive detailed system documentation, which you can quickly and easily integrate into your overall documentation.

Checking & testing

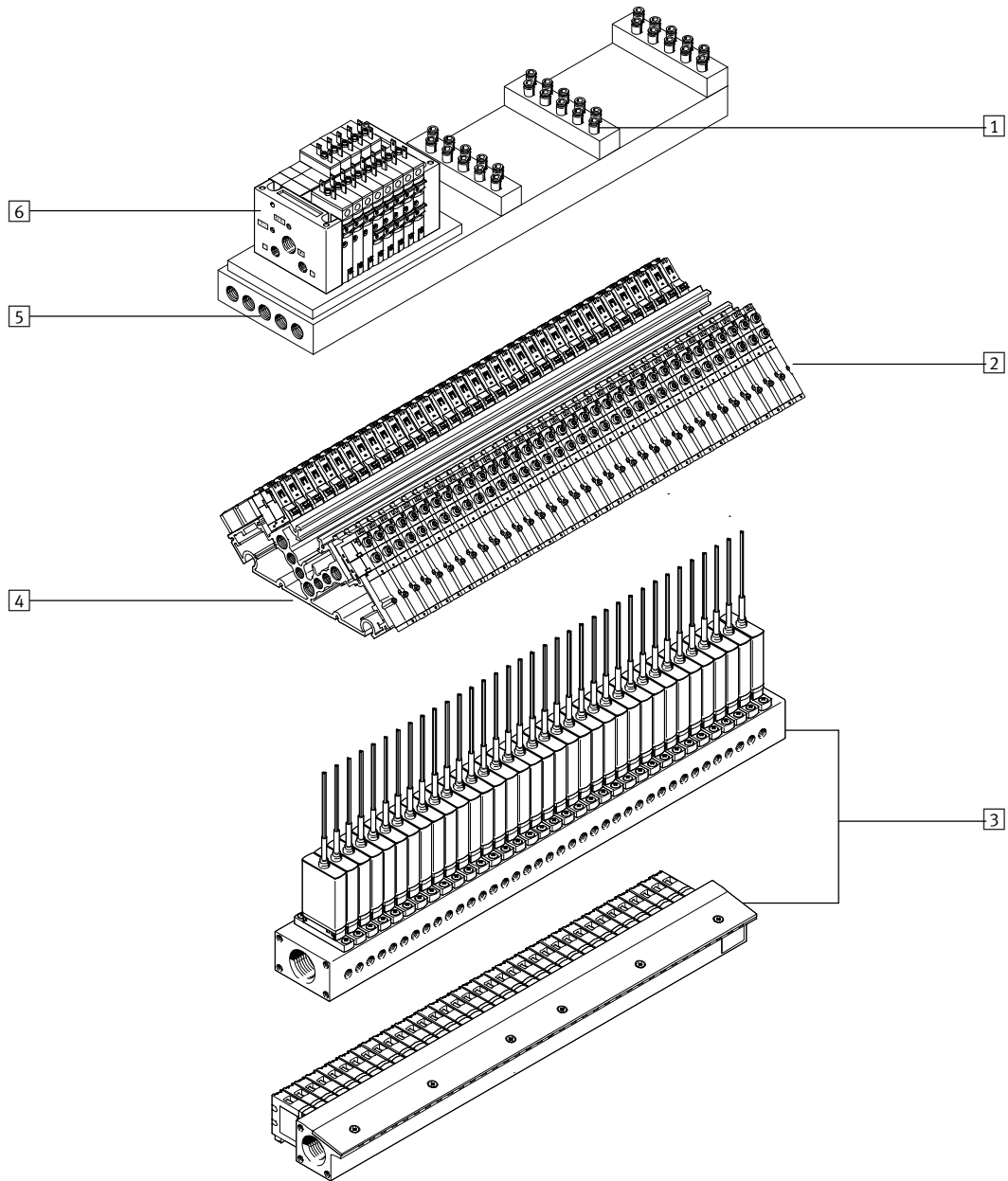
The solution is fully tested.

Interested in profile solutions?

Ask your Festo sales engineer, who will be happy to help.

Or visit your local website at www.festo.com,

where you will find further information on ready-to-install solutions.



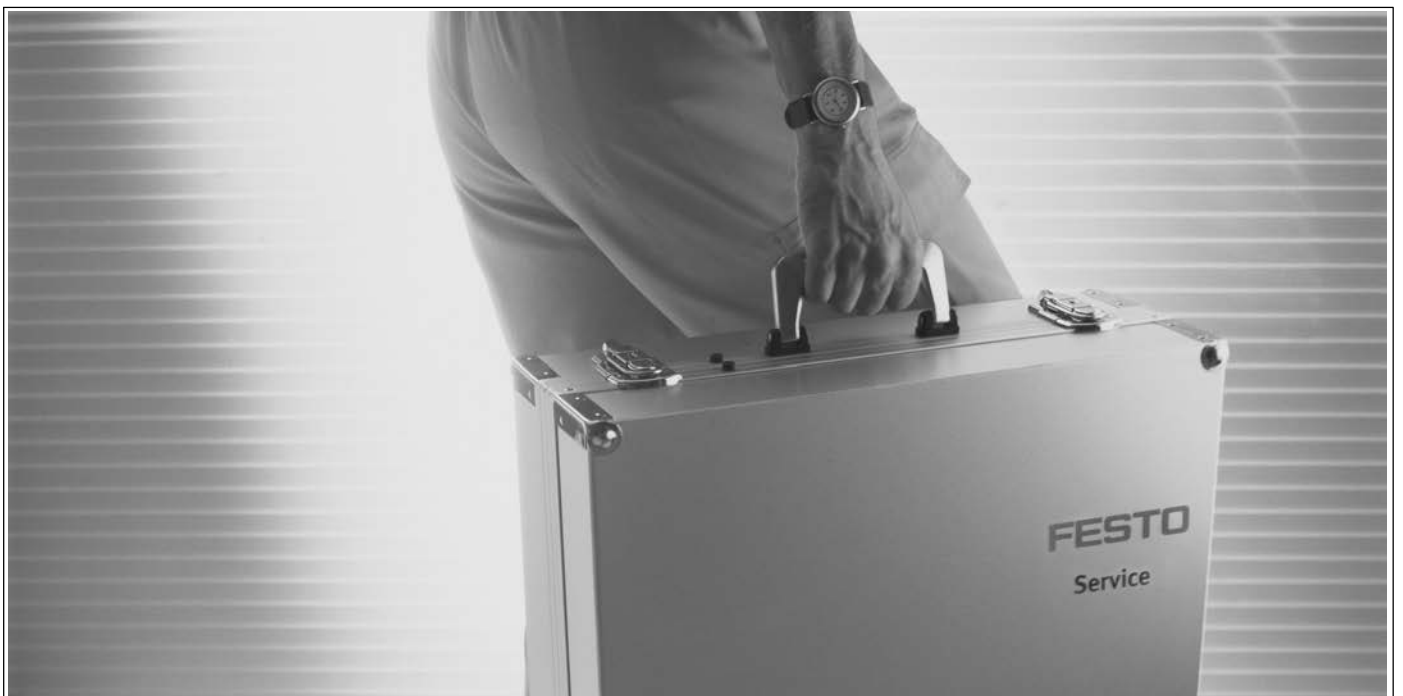
- 1 Air ducts
 - Supply of compressed air at different locations
- 2 Valves and valve terminals
 - Freely definable grid
 - Freely definable number

- 3 Customised pneumatic connection
 - Optimised for the machine concept



- 4 Extruded aluminium profile
 - Customised shape (round, square, trapezoidal, etc.)
 - Customised profile cross sections
 - Freely definable lengths

- 5 Air ducts
 - For the distribution of compressed air in the system
- 6 Valve terminals





18 Services

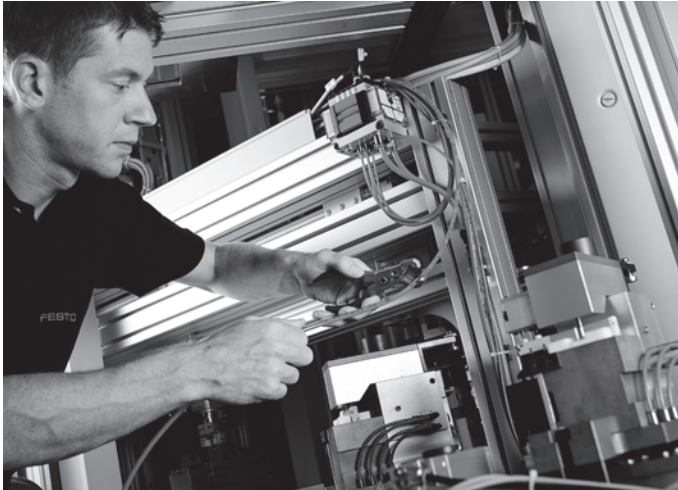


Operating phase

	 Maintenance	 Repair service
Services	Implementation of the following preventive maintenance measures to DIN 31051: <ul style="list-style-type: none"> • Inspections <ul style="list-style-type: none"> – Checking for damage and wear characteristics – Checking of mechanical, pneumatic and electrical connections and connectors – Checking of lubrication – Checking of compressed air preparation – Carrying out of component-specific inspections • Service <ul style="list-style-type: none"> – Lubrication/relubrication of guides – Tightening of connectors – Replacement of air filters – Replacement of silencers – Carrying out of component-specific preventive maintenance tasks • Repair <ul style="list-style-type: none"> – Troubleshooting – Solution finding – Error elimination – Elimination of leakages – Replacement or repair of components 	<ul style="list-style-type: none"> • Inspection • Analysis of economic efficiency • Repair or replacement of faulty components or wearing parts • Leakage testing • Functional test Please send the faulty component and a detailed error description to your Festo national company. Detailed spare parts lists can be found on the Festo website.
Description	<ul style="list-style-type: none"> • Preventive and corrective maintenance • Directly on your system • For high machine availability and rapid assistance should the worst happen 	<ul style="list-style-type: none"> • Send high-quality components and assemblies to Festo for repair • Extended service life • Reduced costs
→ Page/online	1128	1129

Energy Saving Services

	 Energy analysis of compressed air generation	 Compressed air consumption analysis	 Compressed air quality analysis	 Leakage detection
Services	<ul style="list-style-type: none"> • Measurement of compressor operating times as well as load/idling times • Power consumption measurement • Flow measurement/consumption measurement • Pressure measurement (level and band width) • Estimation of leakage volume • Comparison of energy consumption and compressed air volume supplied 	<ul style="list-style-type: none"> • Installation and removal of the measuring equipment with standard components (fittings, tubing, etc.) • Measurement of flow rate, consumption and pressure with machine running and when idle • Determination and analysis of different characteristics <ul style="list-style-type: none"> – Consumption per machine cycle – Average consumption per minute – Average pressure – Max./min. pressure – Max./min. rate of air flow • Documentation of measurement results including graphical representation of measurement results, optionally available as PDF file or colour printout • 3 hours on-site service (additional time on request) 	<ul style="list-style-type: none"> • Inspection of decentralised air preparation at point of usage • Measurement of the residual oil content up to class 2 (ISO 8573-1:2010) • Measurement of the pressure dew point up to class 2 (ISO 8573-1:2010) • Analysis of measurement results and recommendation of improvement measures (if applicable) • Documentation of all measurement results • 3 hours on-site service (max. 3 measurements; additional time on request) 	<ul style="list-style-type: none"> • Detection of compressed air leakages using highly sensitive ultrasound detectors during operation • Checking of the complete compressed air system from the compressor to the pneumatic application • Classification of the leakages according to size and cost • Documentation of faulty components as well as of the type and cause of fault • Leakage report containing: <ul style="list-style-type: none"> – Recommended measures – Spare parts required – Estimation of repair time – Prioritisation of measures – Assessment as to whether repair can be carried out while machine is in operation • Information on optimisation options • Documentation of measures carried out
Description	<ul style="list-style-type: none"> • Energy Saving Services – the service package for energy efficiency • Identification and optimum utilisation of potential savings for compressed air • Save up to 60% on compressed air costs • Energy saving begins with the compressor 	<ul style="list-style-type: none"> • Determination of exact compressed air consumption • Optimal configuration of compressed air supply • No pressure drop due to undersupply • No unnecessary energy costs due to oversupply 	<ul style="list-style-type: none"> • Optimisation of compressed air quality • Increased service life of components • Reduction of maintenance costs 	<ul style="list-style-type: none"> • Detection and repair of leakages in production plants • Immediate energy and operating cost savings
→ Page/online	1130	1132	1134	1136



Complex automation technology increasingly requires specialist knowledge, whether it's for preventive maintenance or for troubleshooting with subsequent fault elimination.

Our qualified service technicians are specially trained for this task and have extensive automation expertise. They will come to your plant and assist you directly on-site at the machine.

- Preventive and corrective maintenance
- Directly at your system
- For high machine availability and rapid assistance should the worst happen

Objectives

- Optimal preventive maintenance of pneumatic and electrical automation components and systems
- Prevention of unplanned production downtime
- Fast and effective support in the event of malfunctions or production downtime
- Reduced energy consumption

Services

Implementation of the following preventive maintenance measures to DIN 31051:

Inspections

- Checking for damage and wear characteristics
- Checking of mechanical, pneumatic and electrical connections and connectors
- Checking of lubrication
- Checking of compressed air preparation
- Carrying out of component-specific inspections

Service

- Lubrication/relubrication of guides
- Tightening of connectors
- Replacement of air filters
- Replacement of silencers
- Carrying out of component-specific preventive maintenance tasks

Repair

- Troubleshooting
- Solution finding
- Error elimination
- Elimination of leakages
- Replacement or repair of components

The benefits to you

- Professional implementation of preventive maintenance measures for optimum machine operation by specialists from Festo
- Professional and fast support in the event of malfunctions and production downtime
- Reduced workload for your maintenance personnel
- Individual services available on request

Are you interested in this service?

Ask your Festo sales engineer, who will be happy to help.

Or visit your local website at www.festo.com,

to find out more about our services.



- Send high-quality components and assemblies to Festo for repair
- Extended service life
- Reduced costs

Replacing wearing parts is often a cost-effective way of extending the service life

of components and assemblies.

Objectives

- To extend the service life of high-quality components and assemblies cost-effectively.

Services

- Inspection
- Analysis of economic efficiency
- Repair or replacement of faulty components or wearing parts
- Leakage testing
- Functional test

Please send the faulty component and a detailed error description to your Festo national company.

Detailed spare parts lists can be found on the Festo Internet site.

The benefits to you

- Extended service life of components and assemblies
- Reduced maintenance costs

- High process security
- Reduced energy costs

- Also available in some countries as an Express Repair Service (e.g. repair within 2 hours) and at a fixed price

Are you interested in this service?

Ask your Festo sales engineer, who will be happy to help.

Or visit your local website at www.festo.com,

to find out more about our services.



- Energy efficiency is becoming an increasingly important factor when considering production plants. The majority of savings can be achieved in plant operation. This is where Energy Saving Services come in – delivering a customised service package for energy efficiency
- Identification and optimum utilisation of potential savings for compressed air
- Save up to 60% on compressed air costs
- Lower operating costs, higher machine availability and longer service life of components

The efficiency of a compressed air system begins with compressed air generation. Determining current energy and compressed air consumption provides the basis for being able to calculate and

assess current costs and potential savings. Possible optimisations can also be worked out.

Objectives

- Recording and analysis of the power consumption of the compressor station(s)
- Recording of the compressed air consumption
- Working out of current energy costs
- Identification of potential savings

Services

- Measurement of compressor operating times as well as load/idling times
- Power consumption measurement
- Flow measurement/consumption measurement
- Pressure measurement (level and tube size)
- Estimation of leakage volume
- Comparison of energy consumption and compressed air volume supplied

General technical conditions

- Simultaneous power consumption measurement on up to 3 compressors
- Simultaneous power consumption measurement on 4 to 11 compressors available on request
- Pressure measurement up to 16 bar
- Volumetric flow rate measurement in main line up to DN 300 (approx. 39,500 Nm³/h)
- Flow sensor can be installed during operation and under pressure
- Measurement duration 1 week (different measurement duration on request)
- Documentation of results as PDF file and printout in colour

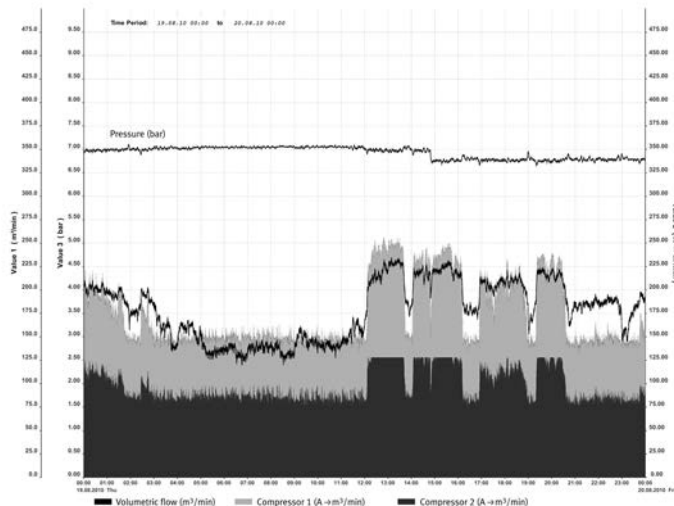
The benefits to you

- Information about potential compressed air savings
- Information about current compressed air costs
- Transparent energy consumption of the entire system
- Information about the output reserves of compressed air system
- Fully independent, objective measurement by Festo
- Installation of the measuring devices during operation

Are you interested in this service?

Ask your Festo sales engineer, who will be happy to help.

Or visit your local website at www.festo.com to find out more about our services.



Measurement graph for two compressors: pressure and flow rate over a period of 24 hours



- Determination of exact compressed air consumption
- Optimal configuration of compressed air supply
- No pressure drop due to undersupply
- No unnecessary energy costs due to oversupply

The compressed air consumption of machines and systems is becoming an increasingly important factor. Whether your priority is a reliable compressed air supply or precise cost planning, knowing

the air consumption of your machines and systems in detail is vital for optimum sizing of the compressed air supply. This enables you to avoid unwanted pressure drops, undersupply or unnecessary

energy consumption due to oversupply. The exact efficiency rating of the machine can also be evaluated, which frequently creates new optimisation potential.

Objectives

- Determination and analysis of compressed air consumption and of the leakage of machines and machine lines
- Identification of inappropriate compressed air usage and of improvement potential

Services

- Installation and removal of the measuring equipment with standard components (fittings, tubing, etc.)
- Measurement of flow rate, consumption and pressure with machine running and when idle
- Determination and analysis of different characteristics
 - Consumption per machine cycle
 - Average consumption per minute
 - Average pressure
 - Max./min. pressure
 - Max./min. rate of air flow
- Documentation of measurement results including graphical representation of measurement results, optionally available as PDF file or colour printout
- 3 hours on-site service (additional time on request)

General technical conditions

- Measurement of flow rates from 0.5 l/min ... 5,000 l/min (higher flow rates on request)
- Accuracy of flow rate measurements: +/-4.5%
- Flow measurements in 1" ... 12" lines on request
- Applied measuring principles: usually calorimetric, sometimes differential pressure method
- Pressure range 1 ... 10 bar
- Pressure range up to 50 bar on request
- Sensor installation in supply line or bypass as special solution
- Brief interruption of the compressed air supply line for installation/removal of the measurement technology required
- Compressed air quality min. class 7:4:2 (to ISO 8573-1:2010)
- Provision of measurement results as a CSV file and as a colour printout
- Parallel measurement of multiple flow rates and pressures, including documentation, on request

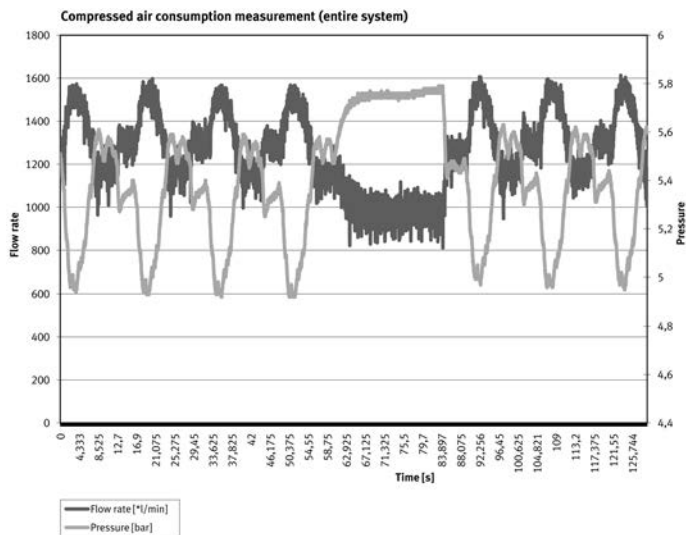
The benefits to you

- Information about potential compressed air savings
- Use of state-of-the-art, highly accurate pressure and flow measurement technology
- All relevant measuring ranges are covered
- No in-house measurement technology expertise or suitable measurement technology required
- Analysis of measurement results by compressed air specialists
- Documentation of all measurement results

Are you interested in this service?

Ask your Festo sales engineer, who will be happy to help.

Or visit your local website at www.festo.com to find out more about our services.



Measurement of compressed air consumption: comparison of pressure and flow rate during operation



- Optimisation of compressed air quality
- Increased service life of components
- Reduction of maintenance costs

Oil, water or particles in compressed air have a negative effect on the service life of pneumatic components. They cause washout of lifetime lubrication and increased wear and damage to seals.

As a result, energy and operating costs rise; in worst-case scenarios, they can lead to unexpected production downtime. Reasons enough to keep an eye on the quality of compressed air.

Objectives

- Optimisation of the current compressed air quality of the compressed air system
- Increase in machine availability and process reliability
- Reduction of maintenance costs

Services

- Inspection of decentralised air preparation at point of usage
- Measurement of residual oil content
- Measurement of pressure dew point
- Analysis of measurement results and recommendation of improvement measures (if applicable)
- Documentation of all measurement results
- 3 hours on-site service (max. 3 measurements; additional time on request)

General technical conditions

- Sampling ideally using standard push-pull fittings or standard O.D. tubing
- Brief interruption of the compressed air supply necessary to install the measurement technology
- Pressure range up to 10 bar
- Measurement of the residual oil content up to class 2 (ISO 8573-1:2010)
- Ester-based oils cannot be verified
- Measurement of the pressure dew point up to class 2 (ISO 8573-1:2010)
- Measurement of pressure dew points lower than -40 °C on request and subject to individual quotation

The benefits to you

- Information about the specific compressed air quality
- Knowledge of required improvement measures
- Use of state-of-the-art measurement technology
- No in-house measurement technology expertise or suitable measurement technology required
- Analysis of measurement results by compressed air specialists
- Documentation of all measurement results

Are you interested in this service?

Ask your Festo sales engineer, who will be happy to help.

Or visit your local website at www.festo.com to find out more about our services.





- Detection and repair of leakages in production plants
- Immediate energy and operating cost savings

Systematically identifying leaks in compressed air systems and professionally eliminating them considerably reduces compressed air costs, because leaky compressed air components are an unnecessary waste of energy and money.

According to a study by the Fraunhofer ISI Institute ("Compressed Air Systems in the European Union", 2000) about 42% of the total potential savings can be achieved in this area alone.

Objectives

- Reduction in pressure drops due to leakages
- Lower compressed air requirements and thus lower operating costs
- Increased process reliability
- Lower CO2 emissions

Services

- Detection of compressed air leakages using highly sensitive ultrasound detectors during operation
- Checking of the complete compressed air system from the compressor to the pneumatic application
- Classification of the leakages according to size and cost
- Documentation of faulty components as well as of the type and cause of the fault
- Leakage report
 - Recommended measures
 - Spare parts required
 - Estimation of repair time
 - Prioritisation of measures
 - Assessment as to whether repair can be carried out while machine is in operation
- Information on optimisation options
- Documentation of measures carried out

General technical conditions

- Contactless ultrasound detection and classification of compressed air leakages (other gases on request)
- Detection while the machines are running, usually no or only short production downtimes required
- Max. detection distance: 20 m
- Documentation of results as Excel file and in some cases as printout in colour

The benefits to you

- Information about potential compressed air savings
- Fast and professional checking of your entire plant for compressed air leakages
- Detection while the machines are running
- Detailed documentation
- Software tools for optimum planning of leakage rectification
- No additional workload for your maintenance personnel
- No investment in measurement technology for leakage detection needed
- Experience from many major projects



Are you interested in this service?

Ask your Festo sales engineer, who will be happy to help.

Or visit your local website at www.festo.com to find out more about our services.

Energy Saving Portal - MyProjects Projects Logoff

Project Administrate

FestID: 10260
Status: Leak Detection

Tags Charts Documents Workflow

Toggle display Export tags Print tags

Values leakages	Total	Open	Done	%share tags	Flow in l/min	%share tot.flow	Costs p./year
Total l/min	3.225,8	1.690,3	1.535,5	Total tags	298	100%	3.225,8
m ³ per year	1.625.814,8	851.925,3	773.889,5	High > 8,7 l/min	74	25%	2.244,4
Costs per year	29.264,67	15.334,66	13.930,01	Medium 2,5 to 8,7 l/min	184	62%	917,5
Cost per m ²	0,018			Low < 2,5 l/min	32	11%	63,9
Co2 per year (kg)	162.243,309723			Optimisation	6	2%	

Total repair time			Repair progress	
Minutes	7716		Open	134
Hours	128,58		Done	162
Days	18,37			

Tag	L.Level	L.Cost	Building	Department	Machine	Manufacturer	Article	Type	Component	Action	Rep	RepProd	Time
1	Med	24,92	RKW	Kesselhaus	RKW	?	L22BA452BC17G61	Kugelhahn	Fitting	Replace	<input type="checkbox"/>	<input type="checkbox"/>	10
2	Med	23,84	Kesselhaus	Kesselhaus	Rohwasserbehälter B2	Norgren	2636000	Kugelhahn	Valve/valve terminal	Replace	<input checked="" type="checkbox"/>	<input type="checkbox"/>	30
3	Med	22,83	Kesselhaus	Kesselhaus	Rohwasserbehälter B2	Norgren	2636000	Kugelhahn	Fitting	Replace	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10
4	Med	26,32	Kesselhaus	Kesselhaus	BM-5	?	2636000	QSL-1/8-8	Fitting	Replace	<input type="checkbox"/>	<input type="checkbox"/>	30
5	High	78,80	Kesselhaus	Kesselhaus	Straße 1/2 verteiler	?		QSL-1/8-8	Fitting	Replace	<input type="checkbox"/>	<input type="checkbox"/>	30
6	Med	26,80	Kesselhaus	Kesselhaus	K1KLA6, VE-Anlage Straße 1/2	Herion	2638110		Valve/valve terminal	Replace	<input type="checkbox"/>	<input type="checkbox"/>	10

Leakage report with all the necessary information for easy and fast leakage rectification – on the Energy Saving Assessment Portal

What must be taken into account when using Festo products?

The limit values specified in the technical data and any specific safety instructions must be adhered to by the user in order to ensure correct functioning.

When using pneumatic components, ensure that they are operated using correctly prepared compressed air without aggressive media and that they comply with environmental specifications (e.g. climate).

When Festo products are used in safety-oriented applications, all national and international laws and regulations, for example the Machinery Directive, together with the relevant references to standards, trade association rules and the applicable international regulations must be observed and complied with.

Unauthorised conversions or modifications to products and systems from Festo involve a safety risk and are thus not permitted.

Festo does not accept any liability for resulting damages.

You should contact Festo's advisors if one of the following applies to your application:

- The ambient conditions and conditions of use or the operating medium differ from the specified technical data.
- The product is to perform a safety function.
- A risk or safety analysis is required.
- You are unsure about the product's suitability for use in the planned application.
- You are unsure about the product's suitability for use in safety-oriented applications.

All technical data are correct at the time of going to print.

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All technical data are subject to change according to technical updates.

Standards in pneumatics

Standards are also of great importance in pneumatics. Standards mean harmonisation. Standardisation is also the basis for the free trade of goods and services between companies nationally as well as internationally.

Standards in industry describe the state-of-the-art technology. They provide a common basis for the evaluation of technical aspects. Standards relevant for pneumatics deal with dimensions, safety

and quality. Festo has for many years been actively working with the relevant national and international standards organisations.

Pneumatic drives

- Standards-based cylinders to ISO 6432
- Standards-based cylinders to ISO 21287

- Standards-based cylinders to ISO 15552 (ISO 6431, DIN ISO 6431, VDMA 24562), NFE 49003.1 and UNI 10290

- Rod clevises to ISO 8140 and DIN 71752

- Rod eyes to ISO 12240-4, dimensional series K

Valves/valve terminals

- Valve terminals for standard valves
- Solenoid and pneumatic valves with port pattern to ISO 15407-1
- Valve sub-bases to ISO 15407-1
- Valve terminals with port pattern to ISO 15407-2

- Solenoid and pneumatic valves with port pattern to ISO 5599-1
- Valve terminals with port pattern to DIN ISO 5599-2

- Valve sub-bases with port pattern to ISO 5599-1 and external dimensions to VDMA 24345

- Solenoid valves with port pattern to VDI/VDE 3845 (NAMUR)

Compressed air preparation

- Compressed air quality to ISO 8573-1:2010
- Bourdon tube pressure gauge to EN 837-1
- Capsule pressure gauge to EN 837-3

- Reservoirs to directive 97/23/EC, 87/404/EEC or EN 286-1

Why compressed air preparation?

Properly prepared compressed air helps to prevent faults in pneumatic components. It increases the service life of the components and reduces machine failures and downtime, thereby increasing process reliability. Compressed air contains contaminants in the form of

- particles,
- water and
- oil.

Particles

Particles in the compressed air usually occur in the form of dust (carbon black, abraded and corrosion particles). Metal chips (e.g. from conversion work) and residues of sealants such as PTFE tape can also occasionally get into the

Water and oil can be in liquid or gaseous form and change from one state to another within the compressed air system. An actual compressed air system will not have any of these contaminants in their pure form; they will occur in a mixture. The composition of this mixture can vary greatly at different times in different places in the system. For example, water can collect in branch lines or particles

compressed air via the compressed air system.

The particles are classified as fine dust: size 0.1 ... 5 µm and coarse dust: size > 5 µm in accordance with ISO 8573-1:2010.

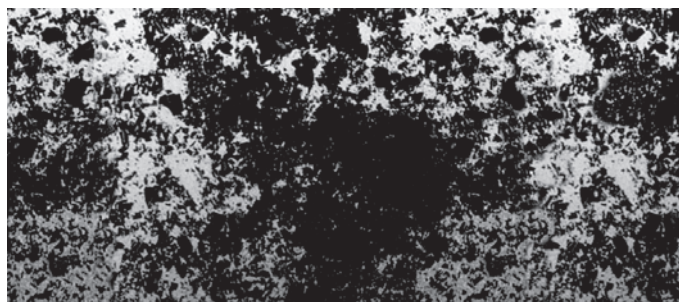
can become deposited in empty spaces over time, and then be propelled along at one stroke by a pressure surge.

Poorly prepared compressed air causes faults such as:

- Accelerated wearing of seals
- Oil-fouled valves in the control section
- Dirty silencers

Possible effects for the user and machine:

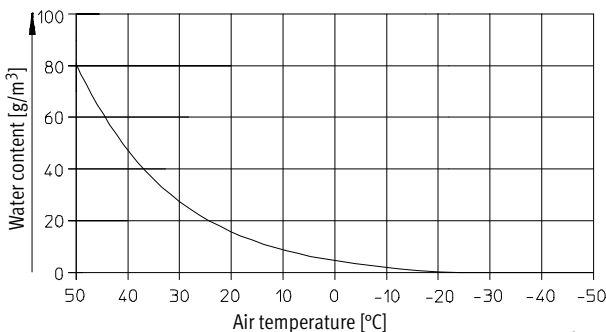
- Reduced machine availability
- Higher energy costs due to leakages
- Higher maintenance costs
- Shorter component and system service life



Water content in air

The maximum water content in air (100% relative air humidity) is dependent on temperature. Air can only absorb a certain amount of water (in g) per volumetric unit (in m³), irrespective of pressure. The warmer the air, the more water it can absorb. Excessive humidity manifests itself as condensation. If the air temperature drops, for example from 20 °C to 3 °C,

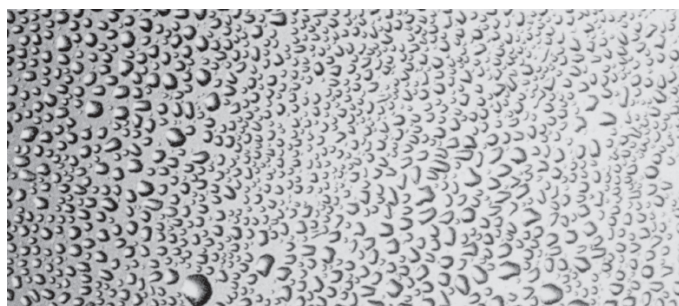
the maximum water content of compressed air is reduced from 18 g/m³ to 6 g/m³. The compressed air can therefore only absorb approx. 1/3 as much water as before. The rest (12 g/m³) is precipitated as drops (dew) and must be drawn off so that it cannot cause any malfunctions.



Water condensation

Water is always present in the air in the form of humidity. During the cooling of compressed air, water is released in large quantities. Drying helps to prevent

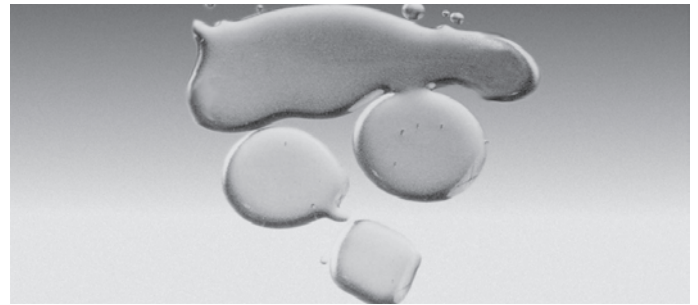
corrosion damage in compressed air systems and prevents malfunctions in the connected consuming devices.



Oil contamination

Similarly, in the case of oil-free operating compressors, oil aerosols present in the drawn-in air also lead to a corresponding residue of oil pollutants. However, this

oil is not suitable for the lubrication of drives and can even lead to the clogging of sensitive parts.

**How clean should compressed air be?**

The compressed air quality is determined by the requirements

The answer is quite simple: compressed air must be so clean that it cannot cause any malfunctions or damage.

As each filter also creates a flow

resistance, compressed air should be as clean as possible for economic reasons. The wide application range of

compressed air places many different requirements on compressed air quality. If high quality is required, several filtration

stages are necessary → page 1144. If just a single "fine" filter were used, it would quickly become ineffective.

Sizing**Note**

Equipment at an air branching/air distribution input should have a high flow rate as it must supply the total air requirement.

More information
→ Chapter 12

The size of the service unit depends on the system's air consumption. Undersizing leads to pressure fluctuations and to reduced filter service life. For cost reasons, high quality

compressed air should only be used where it is absolutely necessary. Branching modules between the individual filter stages enable the user to tap off compressed air of various qualities.

Service unit functions

Compressed air filters remove particles and moisture droplets from the air. Particles > 40 ... 5 µm (depending on the grade of filtration) are retained by a sintered filter. Liquids are separated with the aid of centrifugal force. The condensate which accumulates in the filter bowl must be emptied from time to time, because it would otherwise be drawn in

by the air flow. Various industries often require finely filtered air. Fine and micro filters are used for this. Fine filters are used for pre-filtering down to a particle size of 1 µm.

Micro filters further purify pilot air, removing practically all remaining water and oil droplets and contamination

particles. The degree of compressed air filtration is 99.999% relative to a particle size of 0.01 µm.

The pressure regulator maintains a constant working pressure (secondary side), regardless of the pressure variations in the system (primary side) and the air consumption. Supply pressure must always

be greater than working pressure. The compressed air lubricator provides pneumatic components with adequate lubricant if required. Oil is drawn from a reservoir and atomised when it comes into contact with the air stream. The lubricator is only functional when the air flow is sufficiently strong.

Lubricated compressed air

The following notes must be observed when lubricated compressed air is used:

- Use Festo special oil OFSW-32 or the alternatives listed in the Festo catalogue (as specified in DIN 51524-HLP 32; viscosity 32 cSt at 40 °C).
- If lubricated compressed air is used, additional lubrication must not exceed 25 mg/m³ (ISO 8573-1:2010). The quality of compressed air downstream of the compressor must correspond to that of unlubricated compressed air.
- The lifetime lubrication required for unlubricated operation can be

"flushed out" when products are operated using lubricated compressed air. This can result in malfunctions if a system is switched back to unlubricated operation after lubricated operation.

- The lubricators should, where possible, always be installed directly upstream of the cylinders used in order to prevent operating the entire system with lubricated air.
- Never over-lubricate the system. To determine the correct lubricator settings, the following "oil form test" can be implemented: hold a piece of white card

approx. 10 cm away from the exhaust port (without silencer) of a working valve of the most distant cylinder. Allow the system to work for some time, the card should only show a pale yellow coloration. If oil droplets appear, this is an indication that too much oil has been used.

- The colour and condition of the exhaust silencer provide further evidence of over-lubrication. Marked yellow coloration and dripping oil indicate that the lubrication setting is too high.
- Dirty or incorrectly lubricated

compressed air will reduce the service life of the pneumatic components.

- Service units must be inspected at least twice a week for condensate and correct lubrication settings. These inspections should be included in the machine maintenance plan.
- To protect the environment, as little lubrication as possible should be used. Festo pneumatic valves and cylinders have been designed in such a manner that, under permitted operating conditions, additional lubrication is not required and yet a long service life is guaranteed.

Oil content

A differentiation must be made between residual oil for operation with unlubricated air and additional oil for operation with lubricated air.

Unlubricated operation:

Examinations involving residual oil content have revealed that the various types of oil have entirely different effects. For this reason, a distinction must be made

between the following oil types when analysing the residual oil content:

- Bio-oils: oils based on synthetic or natural ester (e.g. rapeseed oil methyl ester). In this case, residual oil content must not exceed 0.1 mg/m³. This corresponds to ISO 8573-1:2010 class 2 → Chapter 12. Larger amounts of oil result in damage to O-rings, seals and other equipment parts (e.g. filter

bowls) in pneumatic systems, and may result in premature product failure.

- Mineral oils (e.g. HLP oils to DIN 51524, part 2) or similar oils based on polyalphaolefin (PAO). In this case, residual oil content must not exceed 5 mg/m³. This corresponds to ISO 8573-1:2010 class 4 → Chapter 12. A higher residual oil content is not permitted, regardless of the

compressor oil, because permanent lubrication would otherwise be flushed out over a period of time. This can lead to malfunctions.

Humidity

Max. pressure dew point 3 °C.
Corresponds to ISO 8573-1:2010, at least class 4 → Chapter 12.

Note

The pressure dew point must be at least 10 K lower than the temperature of the medium, since ice would otherwise form in the expanded compressed air.

Solids

Permissible particle load max. 10 mg/m³, particle size max. 40 µm.
Corresponds to ISO 8573-1:2010 class 7 → Chapter 12.

Suitable oils

Special oil in 1 litre containers:
Order code OFSW-32

Note

Optimum compressed air preparation means fewer machine failures and greater process reliability. See **Compressed air quality analysis** → 1134

Purity classes for particles to ISO 8573-1:2010

Class	Maximum number of particles per m ³ as a function of particle size d		
	0.1 μm < d ≤ 0.5 μm	0.5 μm < d ≤ 1.0 μm	1.0 μm < d ≤ 5.0 μm
0	As stipulated by the user or supplier of the equipment, stricter requirements than class 1		
1	≤ 20,000	≤ 400	≤ 10
2	≤ 400,000	≤ 6,000	≤ 100
3	Not specified	≤ 90,000	≤ 1,000
4	Not specified	Not specified	≤ 10,000
5	Not specified	Not specified	≤ 100,000

Class	Mass concentration C _p [mg/m ³]
6 ¹⁾	0 < C _p ≤ 5
7 ¹⁾	5 < C _p ≤ 10
X	C _p > 10

- 1) Air cleaned using universal filters designed for particle sizes of 5 μm (class 6) and 40 μm (class 7) is normally used for the compressed air supply to industrial tools and pneumatic machines. These designs have been used for many years, before the latest systems for measuring particle sizes were developed, and have enabled satisfactory operation while minimising pressure (and therefore performance) losses. These filters are not 100% efficient; they offer an efficiency of at least 95% based on the specified particle size, i.e. for class 6, 95% of all particles of size 5 μm are filtered; for class 7, 95% of all particles of size 40 μm are filtered (measured as per ISO 125003).

Purity classes for humidity and liquid water to ISO 8573-1:2010

Class	Pressure dew point [°C]
0	As stipulated by the user or supplier of the equipment, stricter requirements than class 1
1	≤ -70
2	≤ -40
3	≤ -20
4	≤ +3
5	≤ +7
6	≤ +10

Class	Concentration of liquid water C _w [g/m ³]
7	C _w ≤ 0.5
8	0.5 < C _w ≤ 5
9	5 < C _w ≤ 10
X	C _w > 10

Purity classes for total oil content to ISO 8573-1:2010

Class	Total concentration of oil (liquid, aerosol and vapour) [mg/m ³]
0	As stipulated by the user or supplier of the equipment, stricter requirements than class 1
1	≤ 0.01
2	≤ 0.1
3	≤ 1
4	≤ 5
X	> 5

Compressed air preparation

Compressed air quality in use

Designation to ISO 8573-1:2010
[particle:water:oil]

The class that can be achieved with compressed air preparation depends on the quality of the compressed air

downstream of the compressor. The specifications apply to typical

compressed air systems (this list is not exhaustive).

Central air preparation		Air distribution	Decentralised air preparation		Typical applications
Component	Class	Class	Component	Class ³⁾	
Compressor	[-:-:-]	[-:-:-]	Water separator	[-:7:4]	All applications where the compressed air must be virtually free from condensate. No defined particle filtering
Compressor + pre-filter + air dryer	[7:4:4] ¹⁾	[-:4:-] ²⁾	Filter 40 µm	[7:4:4]	Operating medium for valves, cylinders, secondary packaging (standard)
			Filter 5 µm	[6:4:4]	Servopneumatic positioning using proportional directional control valves, compressed air tools
			Filter 5 + 1 µm	[5:4:3]	Applications with a residual oil content < 0.5 mg/m ³ , textile industry, pneumatic spinning machines, paper industry
			Filter 5 + 1 + 0.01 µm	[1:4:2]	Applications with a residual oil content < 0.01 mg/m ³ , e.g. air bearings, painting, powder coating
			Filter 5 + 1 + 0.01 µm + activated carbon filter	[1:4:1]	Applications with a residual oil content < 0.003 mg/m ³ , reduction of oil vapours and odours, optical instruments, sealing air for precision glass scales/lasers, primary packaging
			Filter 5 + 1 + 0.01 µm + activated carbon filter + membrane dryer	[1:3:1]	Semiconductor industry, pharmaceutical products
			Filter 5 + 1 µm + adsorption dryer	[2:2:2]	Applications in the low-temperature range, dry process air, powder transportation, food production [1:2:1]

1) Much higher classes are possible with suitable air preparation downstream of the compressor.
 2) Pipe systems can increase the particle content of the compressed air (chips, rust, etc.), liquid oil can accumulate in some lines of the compressed air distribution system. Specifications apply at normal room temperature. If parts in the compressed air system are subject to lower temperatures, the humidity class must be chosen so that the pressure dew point is 10 K below the minimum expected temperature.
 3) Class according to ISO 8573-1:2010 at room temperature (20 °C).

Definition of the compressed air purity class to ISO 8573-1:2010

The quality of the compressed air is determined by

- solid contaminants (particles),
- humidity and water, and
- oil content.

The air purity class is specified as follows:

- A = Particles
- B = Humidity
- C = Oil content

Example:

ISO 8573-1:2010 [-:7:-]
 Particles: Not defined
 Humidity: ≤ 0.5 g/m³
 Oil content: Not defined

Medium

Under normal operating conditions, pneumatic valves from Festo can be operated with lubricated or unlubricated compressed air.

If any particular product requires a different quality of compressed air, this is indicated in the technical data for the relevant product.

Nominal size

The nominal size provides information about the smallest cross section in the main flow of the valve. It specifies the diameter of the orifice and is expressed

Standard nominal flow rate

Standard nominal flow rate q_{nN} is the flow rate characteristic used by Festo for a device or component expressed in l/min.

The standard nominal flow rate q_{nN} is the flow rate based on standard conditions (to DIN 1343) under the following measurement conditions:

- Test medium air
- Temperature 20 ± 3 °C (temperature of medium)

Pressure and pressure ranges

Pressure

Force per area. There is a difference between differential pressure with respect to atmosphere and absolute pressure. Pressure specifications for pneumatic devices must normally be assumed to be the differential pressure with respect to atmosphere, unless expressly indicated otherwise.

Pilot pressure range

The range between the lowest required and highest permissible pilot pressure for correct operation of a valve or system.

The following pressures, for example, have been standardised to ISO 4399: 2.5, 6.3, 10, 16, 40 and 100 bar.

Operation with unlubricated compressed air is made possible by the selection of the material combinations, the shape of the dynamic seals and the basic lubrication applied ex works.

Operation with unlubricated compressed air is not possible under the following operating conditions:

in mm. This is a measurement that only provides a limited comparison between different components. To compare

- Test specimen at ambient temperature
- The pressures to be set are for components with constant cross section (e.g. directional control valves):
Supply pressure $p_1 = 6$ bar
Output pressure $p_2 = 5$ bar

Standard conditions to DIN 1343:

- $t_n = 0$ °C (standard temperature)
- $p_n = 1.013$ bar (standard pressure)

Symbol

Differential pressure with respect to atmosphere p

Absolute pressure p_{abs}

Unit: bar, Pa (pascal)

1 bar = 100,000 Pa

Drop-off pressure

Pressure which, if no longer maintained, causes a monostable directional control valve to return to the normal position by means of its spring.

- Once the valves have been operated with lubricated compressed air, it is essential that lubricated compressed air is always used subsequently since the oil in the lubricated air will have flushed away the basic lubrication.

products, the standard nominal flow rate must also be considered.

Exception 1:

Silencer

Supply pressure $p_1 = 6$ bar

Output pressure $p_2 = p_{amb}$

p_{amb} = atmospheric pressure

Exception 2:

Low-pressure components

Supply pressure $p_1 = 0.1$ bar

Output pressure $p_2 = p_{amb}$

Operating pressure

Data quoted as "max." or "max. permissible" values refer to the maximum safe pressure at which a component or system can be operated.

Absolute pressure

Zero pressure occurs in a completely air-free space (100% vacuum). Pressure that is calculated from this theoretical zero point is absolute pressure.

- In all cases, a grade of filtration is required that removes contaminants up to 40 μm (standard filter cartridge version).

Micro compressed air filtration may be required for special applications.

Exception 3:

For pressure regulators:

Supply pressure $p_1 = 10$ bar (constant)

and output pressure $p_2 = 6$ bar at

$q = 0$ l/min are set for the test specimen.

Subsequently, the flow rate is slowly and constantly increased using the flow control valve until the output pressure reaches a value of $p_2 = 5$ bar. The resulting flow rate is measured.

Operating pressure range

The range between the lowest required and highest permissible operating pressure for safe operation of a component or system. This pressure range is also referred to in pneumatics as the working pressure range.

Response pressure

Pressure at which a directional control valve is actuated. Catalogue specifications for response pressure signify that the indicated minimum pressure must be present at the signal input to safely switch the valve.

Port designations of pneumatic components to ISO 5599

Port designations	Using ISO 5599 numbers (5/2-way and 5/3-way valves)	Using letters ¹⁾
	Supply port	1
Working ports	2	B
	4	A
		C
Exhaust ports	3	S
	5	R
		T
Pilot ports (signal)	10 ²⁾	Z ²⁾
	12	Y
	14	Z
Pilot air ports (power supply)	81 (12)	
	81 (14)	
Pilot exhaust ports	83 (82)	
	83 (84)	
Leakage lines		L

1) Still frequently used

2) Clears the output signal

Medium

Under normal operating conditions, pneumatic drives from Festo can be operated with lubricated or unlubricated dried compressed air. If any particular product requires a different quality of compressed air, this is indicated in the

technical data for the relevant product. Operation with unlubricated compressed air is made possible by the choice of materials used, the material combinations, the shape of the dynamic seals and the basic lubrication applied ex works.

Operation with unlubricated compressed air is not possible under the following operating conditions:

- Once the drives have been operated with lubricated compressed air, it is essential that lubricated compressed air is always used subsequently since the oil in the lubricated air will have flushed away the basic lubrication.

Recommended operating conditions

Pneumatic drives are intended to convert pressure energy into motion energy; this process involves the transmission and dissipation of forces. "Recommended

operating conditions" do not include use as a spring or cushioning device, since this would involve additional loads.

Frequency

If pneumatic drives are operated at maximum possible speed, a pause time must be taken into account between the stroke movements. For operation with

unlubricated compressed air, the maximum frequency should be based on an average speed of 1 m/s.

Assembly position

In general, drives from Festo can be installed in any desired position. If any limitations or special measures apply, these are indicated in the technical data for the relevant product.

Operating pressure

Data quoted as "max." or "max. permissible" values refer to the maximum safe pressure at which a drive or system can be operated.

Operating pressure range

The range between the lowest required and highest permissible operating pressure for safe operation of a component or

system. This pressure range is also referred to in pneumatics as the working pressure range.

Effective force with single-acting cylinders

Permissible deviation of spring forces in accordance with DIN 2095, quality class 2, must be taken into consideration for the cylinders' effective force. The effective

force must also be reduced by the value of prevailing frictional forces.

The degree of friction depends upon the assembly position and the type of load involved. Lateral forces increase friction. Frictional force must be lower than spring

return force. In as far as this is possible, single-acting cylinders should be operated without lateral forces.

Permissible stroke deviations for standard cylinders

ISO 15552 (corresponds to the withdrawn standards ISO 6431, DIN ISO 6431, VDMA 24562, NFE 49003.1, UNI 10290), ISO 6432

and ISO 21287 permit a certain amount of stroke length deviation from the nominal value due to manufacturing tolerances. These tolerances are always

positive. Refer to the table for details regarding precise permissible deviations.

Standard	Piston \varnothing [mm]	Stroke length [mm]	Permissible stroke deviation [mm]
ISO 6432	8, 10, 12, 16, 20, 25	0 ... 500	+1.5
ISO 15552	32	0 ... 500	+2
	40, 50	500 ... 12,500	+3.2
	63	0 ... 500	+2
	80, 100	500 ... 12,500	+4
	125, 160	0 ... 500	+4
	200, 250, 320	500 ... 2,000	+5
ISO 21287	20, 25	0 ... 500	+1.5
	32, 40, 50	0 ... 500	+2
	63, 80, 100	0 ... 500	+2.5

Note

In the case of stroke lengths larger than those shown in the table, the tolerances must be agreed upon between the manufacturer and the user.

Contactless position sensing

Pneumatic drives from Festo with contactless position sensing are fitted with a permanent magnet on the cylinder piston, the magnetic field of which is used to actuate proximity sensors. Proximity

sensors can be used to detect end or intermediate positions of cylinders. One or more proximity sensors can be clamped to a cylinder, either directly or using mounting kits.



Piston diameter



This pictogram is used to indicate piston diameter. This is represented by \varnothing only in the dimensions table.

Pressure/force table

Piston force [N] ∅	Operating pressure [bar]							
	1	2	3	4	5	6	7	8
2.5	0.4	0.9	1.3	1.8	2.2	2.7	3.1	3.5
3.5	0.9	1.7	3.8	3.5	4.3	5.2	6.1	6.9
5.35	2	4	6.1	8.1	10.1	12.1	14.2	16.2
6	2.5	5.1	7.6	10.2	12.7	15.3	17.8	20.4
8	4.5	9	13.6	18.1	22.6	27.1	31.7	36.2
10	7.1	14.1	21.2	28.3	35.3	42.4	49.5	56.5
12	10.2	20.4	30.5	40.7	50.9	61.0	71.3	81.4
16	18.1	36.5	54.3	72.4	90.5	109	127	145
20	28.3	56.5	84.8	113	141	170	198	226
25	44.2	88.4	133	177	221	265	309	353
32	72.4	145	217	290	362	434	507	579
40	113	226	339	452	565	679	792	905
50	177	353	530	707	884	1,060	1,240	1,410
63	281	561	842	1,120	1,400	1,680	1,960	2,240
80	452	905	1,360	1,810	2,260	2,710	3,170	3,620
100	707	1,410	2,120	2,830	3,530	4,240	4,950	5,650
125	1,100	2,210	3,310	4,420	5,520	6,630	7,730	8,840
160	1,810	3,620	5,430	7,240	9,050	10,900	12,700	14,500
200	2,830	5,650	8,480	11,300	14,100	17,000	19,800	22,600
250	4,420	8,840	13,300	17,700	22,100	26,500	30,900	35,300
320	7,240	14,500	21,700	29,000	36,200	43,400	50,700	57,900

Piston force [N] ∅	Operating pressure [bar]						
	9	10	11	12	13	14	15
2.5	4	4.4	4.9	5.3	5.7	6.2	6.6
3.5	7.8	8.7	9.5	10.4	11.3	12.1	13
5.35	18.2	20.2	22.2	24.3	26.3	28.3	30.3
6	22.9	25.4	28	30.5	33.1	35.6	38.2
8	40.7	45.2	49.8	54.3	58.8	63.3	67.9
10	63.6	70.7	77.8	84.8	91.9	99	106
12	91.6	101	112	122	132	143	153
16	163	181	199	217	235	253	271
20	254	283	311	339	368	396	424
25	398	442	486	530	574	619	663
32	651	724	796	869	941	1,010	1,090
40	1,020	1,130	1,240	1,360	1,470	1,580	1,700
50	1,590	1,770	1,940	2,120	2,300	2,470	2,650
63	2,520	2,810	3,090	3,370	3,650	3,930	4,210
80	4,070	4,520	4,980	5,430	5,880	6,330	6,790
100	6,360	7,070	7,780	8,480	9,190	9,900	10,600
125	9,940	11,000	12,100	13,300	14,400	15,500	16,600
160	16,300	18,100	19,900	21,700	23,500	25,300	27,100
200	25,400	28,300	31,100	33,900	36,800	39,600	42,400
250	39,800	44,200	48,600	53,000	57,400	61,900	66,300
320	65,100	72,400	79,600	86,900	94,100	101,000	109,000

The piston force F can be calculated from the piston area A, the operating pressure p and the friction R using the following formulae:

Piston force (final pressure)

$$F = p \cdot A - R$$

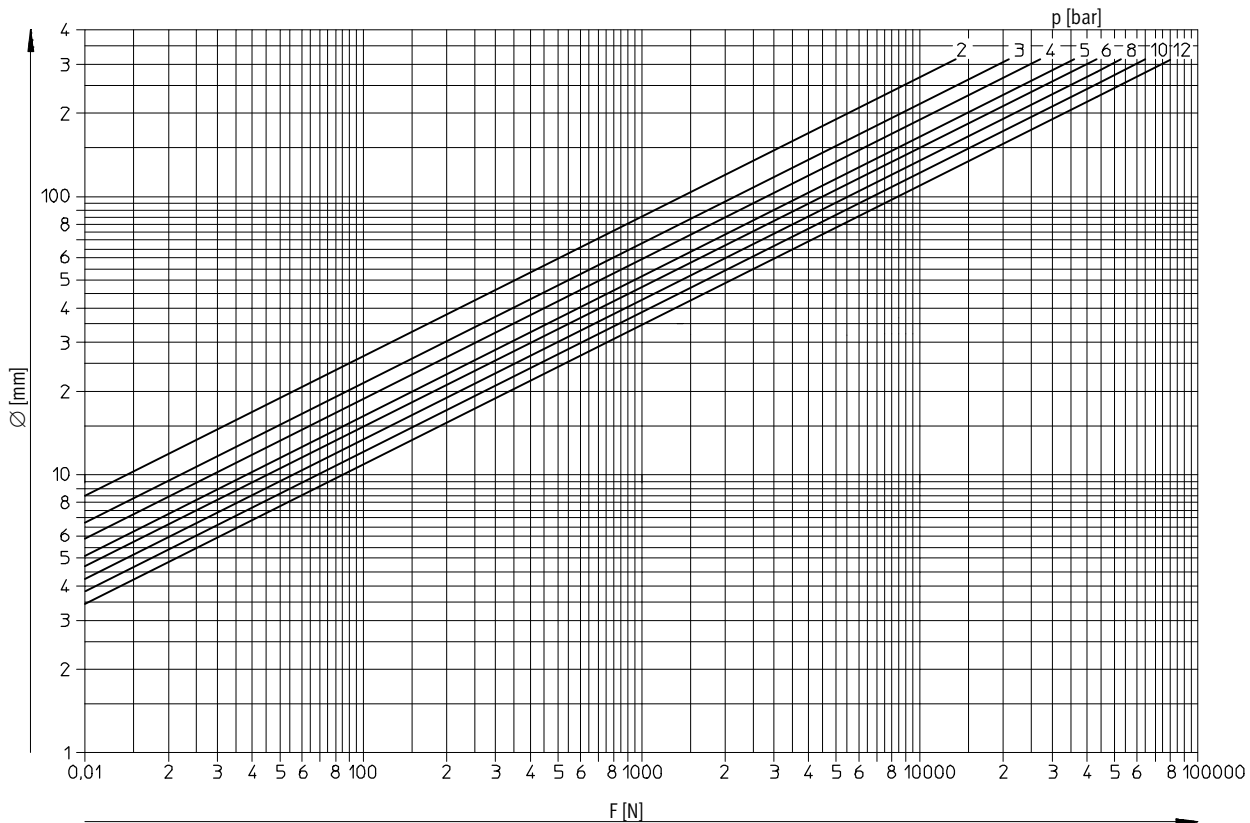
$$F = p \cdot 10 \cdot \frac{d^2 \cdot \pi}{4} - R$$

- p = Operating pressure [bar]
- d = Piston diameter [cm]
- R = Friction ~10% [N]
- A = Piston area [cm²]
- F = Effective piston force [N]

ProPneu software tool for sizing can be found on the DVD and at www.festo.com

Operating pressure p as a function of piston diameter and force F

An allowance of 10% has been included for frictional force



Given:

Load 800 N

Available system pressure 6 bar

To be found:

Required piston diameter

Operating pressure to be set

Procedure:

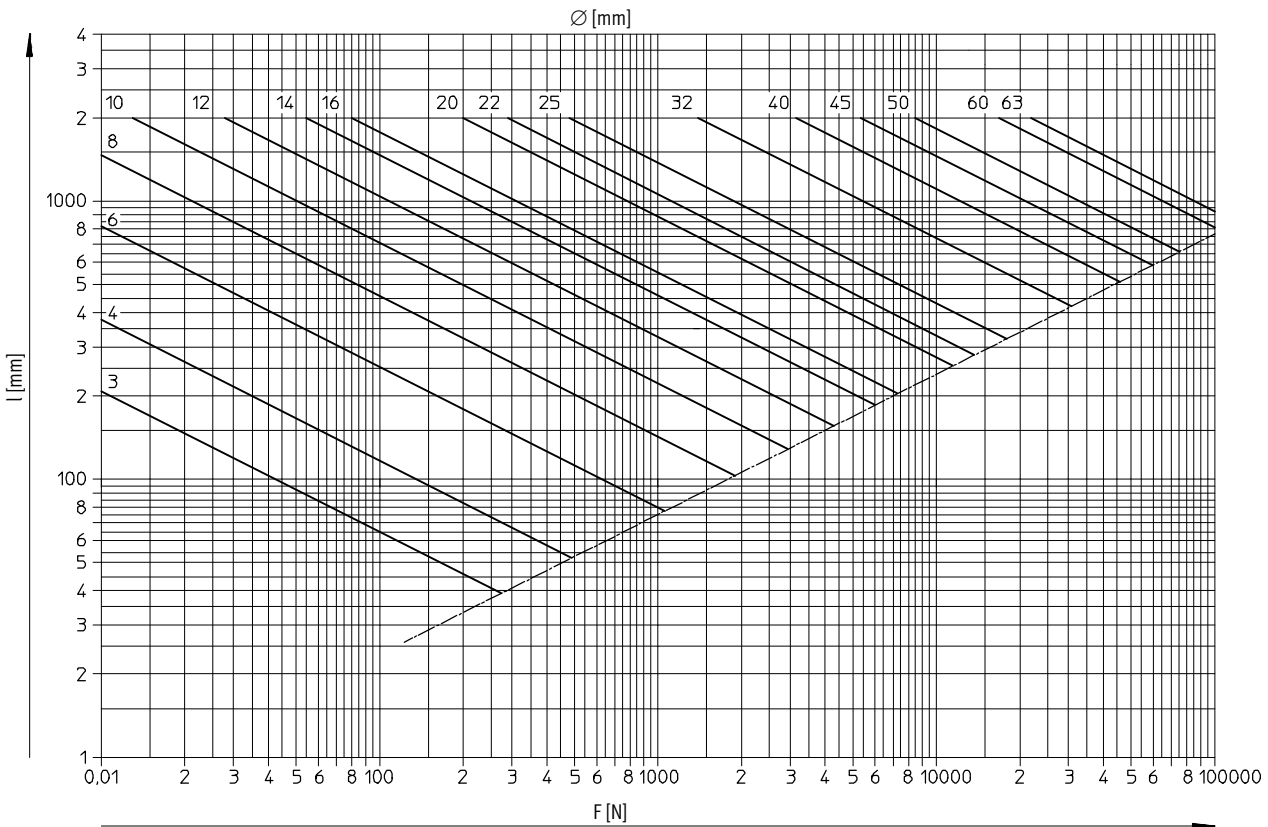
From $F = 800$ N go vertically upwards to the point of intersection with the 6 bar line. The next largest piston diameter, 50 mm, lies between the lines for 4 and 5 bar, which means that the operating pressure should be set to approx. 4.5 bar.

The selection of pneumatic drives is governed primarily by the forces to be overcome and the distances to be travelled. A small percentage of the piston force is used to overcome friction, the remainder is used to drive the load. Only approximate values can be given, since frictional force depends on

numerous factors (lubrication, operating pressure, back pressure, seal design, etc.). Back pressure generates a force which acts in the opposite direction and partially cancels out the effective force. Back pressure occurs in particular when exhaust air flow controls are used or the exhaust port is constricted.

Buckling load graph

Piston rod diameter as a function of stroke length l and force F



Given:
 Load 800 N
 Stroke length 500 mm
 Piston diameter 50 mm

To be found:
 Piston rod diameter
 Cylinder type: Standard cylinder

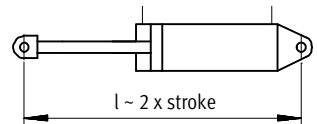
Procedure:
 From F = 800 N go vertically upwards to the point of intersection with the horizontal line through l = 500 mm. The next largest piston rod diameter in the graph is 16 mm. The standard cylinder DNC-50-500 with a piston rod diameter of 20 mm is suitable for this stroke length.

Due to buckling stress, the maximum permissible load for a piston rod with a long stroke length is lower than the value suggested by the maximum permissible operating pressure and piston area. This load must not exceed certain maximum values. These depend upon stroke length and piston rod diameter.

The graph shows this relationship based on the following formula:

$$F_K = \frac{\pi^2 \cdot E \cdot J}{l^2 \cdot S}$$

- F_K = Permissible buckling force [N]
- E = Modulus of elasticity [N/mm²]
- J = Moment of inertia [cm⁴]
- l = Buckling length
= 2x stroke length [cm]
- S = Safety factor (selected value: 5)



Note
 The least satisfactory type of mounting for this kind of stress is a swivel mounting. The permissible load is higher for other types of mounting.

Air Consumption sizing software

The "Air Consumption" sizing software determines the air consumption of a cylinder (approximate value), taking into consideration the following parameters:

- Mode of operation of the cylinder
- Piston diameter
- Number of cycles
- Stroke length
- Operating pressure

This tool can be found online under Support in the Engineering software area.

Calculating air consumption using the sizing software

Given:

Cylinder: DNC-32-500

Piston diameter: 32 mm

Piston rod diameter: 12 mm

Stroke length: 500 mm

Operating pressure: 6 bar

Number of cycles per minute: 60 1/min

To be found:

Air consumption


Result:

Once the parameters have been entered, the following values are returned for the air consumption:

Per cycle: 5.23 l

Per minute: 314.03 l

Cylinder Air Consumption

Operating mode: single acting, pulling  Number of cycles: 60 1/min

Size: 32 mm Stroke Length: 500 mm

NOTE: Using estimated piston rod diameter of 12 mm.

Energy Saving Turn on energy saving to differentiate between working stroke and return stroke

Clear table Add

Selected cylinders and their air consumption					
Op. Mode	Size [mm]	Stroke Length [mm]	Pressure	Number of cycles [1/min]	Air Consumption [per Cycle] [per Minute]
Utilization	Working pressure: 6 bar	Air Consumption: per Minute: 0 l, per day: 0 m³, per Year: 0 l	Energy Costs: Currency: €, Price: 0.04 €/m³, per day: €	Working hours per day: 8 h	

NOTE: The air consumption values determined in this way are only guide values. Particularly with high cycle speeds, pressurised chambers are not fully exhausted, which means that actual air consumption may be significantly lower.

Calculating air consumption using the formula

$$Q = \frac{\pi}{4} \cdot (d_1^2 - d_2^2) \cdot h \cdot (p + 1) \cdot 10^{-6}$$

Q = Air consumption per cm stroke [l]

d1 = Piston diameter [mm]

d2 = Piston rod diameter [mm]

h = Stroke [mm]

p = Operating pressure, relative [bar]

Forward stroke:

$$Q = \frac{\pi}{4} \cdot (32\text{mm})^2 \cdot 500\text{mm} \cdot (6\text{bar} + 1\text{bar}) \cdot 10^{-6}$$

$$Q = 2.815\text{l}$$

Return stroke:

$$Q = \frac{\pi}{4} \cdot ((32\text{mm})^2 - (12\text{mm})^2) \cdot 500\text{mm} \cdot (6\text{bar} + 1\text{bar}) \cdot 10^{-6}$$

$$Q = 2.419\text{l}$$

Air consumption per cycle:

$$Q = 2.815\text{l} + 2.419\text{l} = 5.234\text{l}$$

Pneumatics and explosion protection – Directive 94/9/EC (ATEX)

What does ATEX mean?

Explosive atmospheres are a constant hazard in the chemical and petrochemical industries because of the processing techniques used. These explosive atmospheres are caused by escaping gas,

vapours and mist, for example. Explosive atmospheres can also be expected in mills, silos and sugar and feed processing plants because of the dust/

oxygen mixtures that occur there. For this reason, electrical equipment in potentially explosive areas is subject to a special directive, 94/9/EC. This directive

was also extended to non-electrical equipment on 01.07.2003.

ATEX - Directive 94/9/EC

ATEX is an acronym of the French expression "Atmosphère explosible".



- **Directive 94/9/EC** stipulates the minimum safety requirements for equipment and protective systems that are to be operated in explosive atmospheres and that have their own ignition sources.

- It applies to the sale of equipment and protective systems in/within the European Economic Area.

- It relates to both electrical and non-electrical equipment, if they have their own potential ignition source.

Dual responsibility

When equipment for explosion protection areas is being produced, system manufacturers and component suppliers must work closely together to ensure that the correct category and explosion protection zone are chosen.

Explosion protection documentation from system manufacturer	Festo/equipment supplier
System rating Directive 99/92/EC 	Equipment rating Directive 94/9/EC 
Result: <ul style="list-style-type: none"> • Zone classification • Temperature classes • Explosion groups • Ambient temperature 	Result: <ul style="list-style-type: none"> • Equipment categories • Temperature classes • Explosion groups • Ambient temperature
Zone	Category

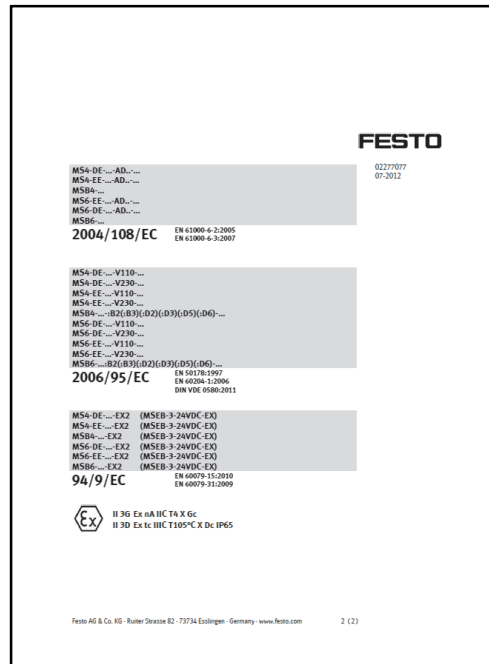
Explosion protection classes

Gas zone	Dust zone	Frequency	Equipment group	Equipment category	Area of application
–	–	–	I	M	Mining
				M1	
				M2	
			II	–	All non-mining areas of application
0	–	Constant, frequent, long-term	II	1G	Gas, mist, vapour
–	20		II	1D	Dust
1	–	Occasional	II	2G	Gas, mist, vapour
–	21		II	2D	Dust
2	–	Seldom, short-term in the event of a fault	II	3G	Gas, mist, vapour
–	22		II	3D	Dust

ATEX at Festo

Products requiring approval

Products requiring approval are those that have their own potential ignition risk. They are labelled with the CE marking and the explosion protection hexagon; operating instructions and the EC declaration of conformity are provided.



→ www.festo.com/catalogue/ex

Products not requiring approval

Products not requiring approval are those that do not have their own potential ignition source. These products can be used in specific explosion zones in compliance with our manufacturer's instructions:

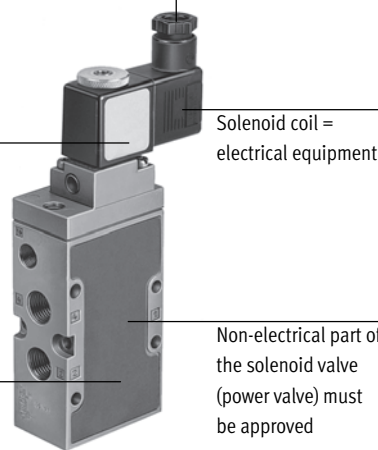
- Pneumatic accessories
- Tubing
- Fittings
- Pneumatic sub-bases
- Flow control and non-return valves
- Non-electrical service units
- Mechanical accessories

Festo's product range for explosion protection includes products for equipment category II



According to the directive 94/9/EC, both the solenoid coil and the power valve require approval in the case of valves. At Festo, each have a separate rating plate so that it is possible to tell at a glance where the valve may be used.

Important: The equipment with the lowest equipment category defines the category for the module.



For the module in this example:
II 3G T4

Note

The permissible technical catalogue data for the equipment in question as well as the safety instructions and safety information in the special documentation provided (including operating instructions or, if applicable, device document) must be observed.

EC directives (CE marking)



Festo AG & Co. KG adheres in principle to the applicable regulations. All information is based on the state of knowledge today and is subject to change. We carefully follow any amendments/additions to these regulations and will produce our products accordingly. This guarantees that products from Festo AG & Co. KG always comply with the currently valid requirements.

Most pneumatic products are not subject to any EC directive and consequently must not be labelled with the CE marking. Currently, products from the sales range of Festo AG & Co. KG that are labelled with the CE marking are subject to one or more of the following six EC directives in Europe.

1. EC Machinery Directive 2006/42/EC
Pneumatic products from Festo AG & Co. KG are designed in compliance with the standards for pneumatic systems to ISO 4414 as well as EN 983 "Safety requirements for fluid systems and their pneumatic components". Our pneumatic products do not fall within the scope of application specified in the EC Machinery Directive.

They must therefore not be labelled with the CE marking in accordance with the Machinery Directive. Exceptions to this are safety components. As of 29.12.2009, incomplete machines also fall under the scope of application of the Machinery Directive. These include handling systems intended for installation in machines, for example. Incomplete machines are not labelled with the CE marking. A declaration of incorporation is enclosed with the machines instead of a declaration of conformity.

2. EC Directive on Electromagnetic Compatibility (2004/108/EC), including amendments.

The directive must be applied to our electronic and electronic/pneumatic products. This means that corresponding products have had the CE marking since 01.01.1996 and the corresponding declaration of conformity is available. For you, this means a guarantee that this equipment complies with the fundamental requirements in industrial areas. The use of this equipment in residential areas is restricted if no additional measures are taken to guarantee compliance with the fundamental requirements of the directive for residential areas. Solenoid coils are not affected by the EMC Directive.

3. EC Low Voltage Directive (2006/95/EC), including amendments.

Since 01.01.1997, electrical and electronic products from Festo designated for use within specific voltage limits (50 ... 1,000 V AC and 75 ... 1,500 V DC) must be labelled with the CE marking. The corresponding declarations of conformity are available.

These products are labelled with the CE marking. The declaration of conformity is available.

4. EC Directive on Simple Pressure Vessels (2009/105/EC), including amendments.

In force since 30.06.1991. The simple pressure vessels made from non-alloyed steel offered by Festo AG & Co. KG comply with the requirements of this directive. These air reservoirs require CE marking above a certain volume.

5. EC Directive on Pressure Equipment (97/23/EC), including amendments.

In force since 29.05.2002. The pressure vessels offered by Festo AG & Co. KG comply with the requirements of this directive. These pressure vessels require CE marking above a certain pressure/volume product or pressure/diameter product.

These products are labelled with the CE marking. The declaration of conformity is available.

Reservoirs made from stainless steel are subject to the Directive on Pressure Equipment rather than the Directive on Simple Pressure Vessels.

6. EC Directive on Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres - ATEX (94/9/EC).

In force since 01.07.2003. The products offered by Festo AG & Co. KG which are intended for use in potentially explosive atmospheres and which have their own potential ignition risk comply with the requirements of this directive. Products that are subject to this directive are correspondingly labelled with the CE marking and identified in compliance with the directive. The corresponding declaration of conformity and the operating instructions are available.

Product markings	
	See above
	In accordance with EU directive 94/9/EC (ATEX) Additional marking for equipment and protective systems for use in accordance with regulations in a potentially explosive atmosphere.
	UL certification for use in Canada and the USA. Recognized Product intended for installation, for example MPA-S valve terminal.
	UL certification for use in Canada and the USA. Listed Product, a ready-to-use device, for example limit switch with cable and plug.
	CSA certification for Canada and the USA.

Food compatibility to HACCP



The HACCP standard (HACCP = Hazard Analysis Critical Control Points) describes a procedure for the identification, assessment and prevention of risks and hazards. The main focus is on biological, chemical and physical risks in the production process. The HACCP standard is also part of the EC Directive on Food Hygiene (93/43/EEC).

Design awards



product design award



reddot

Festo products appear regularly on the winners' rostrum in major design competitions. There is much more to good design than being "pleasing to the eye". The design emphasises and symbolises the cutting-edge technology and long-standing value of Festo products.

Clean room suitability

→ www.festo.com/en/cleanroom



Qualifizierungsbescheinigung
Certificate of qualification

Cost-effective series for clean room class 7

At Festo, cost-effective standard pneumatic components take the place of complex special designs. This is possible because the quality concept is compatible with almost all standard production products. These standard pneumatic components are suitable for use in a class 7 clean room according to ISO 14644-1.

Individuality made to measure

If you need to go as far as class 1, the products will be manufactured according to your specific requirements. Festo integrates these application-oriented solutions in close-to-standard production, which means they will be available the next time you need them.

The reliability to meet the highest requirements

Festo works with the Fraunhofer Institute for Production Technology and Automation (IPA) and the renowned Nanyang Technological University in Singapore to ensure that its products meet the high requirements for use in clean rooms. A dedicated Competence Centre for Cleanroom Technology at Festo Singapore offers the necessary infrastructure for the production of pneumatic clean room products.



IPA-Qualifizierungsurkunde

Kennzettel und Bescheinigung, die für ein bestimmtes Produkt des Herstellers:
Festo KG
Inhaltsverzeichnis
des Qualitätsmanagementplans des Bereichs Nummer
FE 9805-153 erlassen wurde.
Das entsprechende Regelwerk, die Bandabdeckung und Unterdruckabsaugung ist in der IP-IP-Standardisierung herangezogen worden, um die Qualität des Produktes zu gewährleisten. Die Qualität ist durch die Prüfung bestätigt worden.
Die Qualität ist durch die Prüfung bestätigt worden.
Nachtrag am 11. Mai 2008
Die Qualität ist durch die Prüfung bestätigt worden. Die Übertragung der Qualität ist durch die Prüfung bestätigt worden.
Nürnberg, den 11. Mai 2008

[Signature]

Fraunhofer
Institut
Produktionstechnik und
Automatisierung

Paint-wetting impairment substances and resistance to media

PWIS-free products

	PW	I	S
Paint-wetting			
impairment			
substances			

PWIS are substances that cause small concave indentations at various points in the paint layer when surfaces are painted.

Silicone, fluoric materials, certain oils and greases may contain substances of this kind.

The following are PWIS-free

- Individual parts and modules that are manufactured without using materials, consumables or sundries containing paint-wetting impairment substances. Tests carried out during the sampling

Components used in the automotive industry, and especially in painting equipment, must be free of paint-wetting impairment substances.

Because it is impossible to determine the level of paint-wetting impairment substances contained in substances and

procedure as well as random sample testing of incoming goods by means of extraction must not cause any paint-wetting impairment effects.

components with the naked eye, Volkswagen developed the testing standard PV 3.10.7.

All products from Festo and the lubricants used in them undergo this test. Products from Festo are free of

- Liquid or paste-like sundry materials (e.g. lubricating greases) that do not cause any paint-wetting impairment effects through application as a result of the test.

paint-wetting impairment substances as standard.

However, it is necessary to use grease containing paint-wetting impairment substances for some products for functional and other reasons.

- Products that consist of PWIS-free parts and contain PWIS-free lubricants.

Media resistance database

It is well known that the resistance of materials depends on many parameters such as concentration of contact medium, temperature, pressure, length of contact, stroke speed and switching frequency, surface finish in the case of mating frictional parts, current speed and stress as well as ageing.

This applies in particular to the compatibility of elastomers with special chemical compounds.

The Festo resistance database shows you the suitable material and its resistance to chemical substances.

The information contained in this database is based on lab tests from raw material manufacturers, material tables

from semi-finished product and seal suppliers and practical experience. The information is evaluated and the tables are created based on the knowledge available. Although every effort has been made to ensure the accuracy of this database, its contents should only be used for reference purposes.

Please note that the recommendations in this resistance database can neither be guaranteed nor serve as the basis for a warranty claim.

Wherever possible and especially in cases of doubt, it is advisable to perform a practical test with the desired product under actual operating conditions.

www.festo.com/media-resistance

The screenshot shows the Festo Media Resistance Database interface. It includes a search bar, a navigation menu, and a table of results. The table lists various materials (Tubings, Elastomers, Metals, Plastics) and their resistance to different concentrations of acetic acid (CH₃COOH) at various temperatures. A key explains the symbols used in the table: '+' for resistant, 'o' for conditionally resistant, '-' for not resistant, and blank for no specification.

Media resistance	Tubings	Elastomers	Metals	Plastics	SearchResult		
Acetic acid(CH ₃ COOH) Concentration 10%, Temperature 30°C	PUN-H	PUN	PLN	PAN/PAN-PEN	PFAN	PAN-R	PUN-V0-B
Acetic acid(CH ₃ COOH) Concentration 50%, Temperature 40°C	PUN-H	PUN	PLN	PAN/PAN-PEN	PFAN	PAN-R	PUN-V0-B
Acetic acid(CH ₃ COOH) Concentration 25%, Temperature 40°C	PUN-H	PUN	PLN	PAN/PAN-PEN	PFAN	PAN-R	PUN-V0-B
Acetic acid(CH ₃ COOH) Concentration 100%, Temperature 20°C	PUN-H	PUN	PLN	PAN/PAN-PEN	PFAN	PAN-R	PUN-V0-B

Protection of electrical equipment

The terminology for "IP" (International Protection) is defined by IEC/EN 60529 "Degree of Protection Provided by Enclosures (IP Code)" and DIN 40050 "IP Protection Classes" (standard for electrical equipment in road vehicles). These standards describe the classification of the degrees of protection provided by enclosures for electrical equipment with rated voltages of up to and including 72.5 kV. They set forth requirements for the following:

- Protection of individuals against contact with live or moving components within enclosures (protection against accidental contact).
- Protection of equipment inside the housing against ingress of solid foreign matter, including dust (protection against foreign matter).
- Protection of electrical equipment against damage that would result if water were to enter the enclosure (protection against water).

The IP code to IEC/EN 60529

The protection class provided by an enclosure is established using standardised testing methods. The IP code is used for classifying this protection class. The IP code is made up of the letters IP and a two-digit code number. The definition of both digits is explained in the table on the next page → 1158.

Meaning of digit 1:

Digit 1 denotes firstly the protection of individuals. It specifies the extent to which the enclosure prevents individuals from coming into contact with dangerous parts. The enclosure prevents or restricts the entry of body parts or of objects held by an individual. Secondly, digit 1 specifies the extent to which the equipment is protected against the ingress of solid foreign objects.

Meaning of digit 2:

Digit 2 refers to the protection of equipment. It rates the protection class of the enclosure with respect to the harmful effects on the equipment due to water entering the enclosure.

Note

The food industry generally uses components with IP protection class 65 (dustproof and hose-water proof) or IP67 (dustproof and capable of brief submersion). The use of IP65 or IP67 depends on the specific application, as each is governed by completely different test criteria. IP67 is not necessarily better than IP65. A component that fulfils the IP67 criteria does therefore not automatically meet the criteria for IP65.

Protection classes according to IEC/EN 60529

IP codes

IP 6 5

Code letters	
IP	International Protection

Digit 1	Brief description	Definition
0	Not protected	–
1	Protected against solid foreign objects, 50 mm and larger	A probing object, a ball of 50 mm in diameter, must not enter or penetrate the enclosure.
2	Protected against solid foreign objects, 12.5 mm and larger	A probing object, a ball of 12.5 mm in diameter, must not enter or penetrate the enclosure.
3	Protected against solid foreign objects, 2.5 mm and larger	A probing object, a ball of 2.5 mm in diameter, must not penetrate at all.
4	Protected against solid foreign objects, 1.0 mm and larger	A probing object, a ball of 1 mm in diameter, must not penetrate at all.
5	Protected against dust	The ingress of dust is not completely prevented. The amount of dust that enters must not impair the safety or satisfactory operation of the equipment.
6	Dustproof	No ingress of dust.

Digit 2	Brief description	Definition
0	Not protected	–
1	Protected against water droplets	Vertically falling droplets may not have any harmful effect.
2	Protected against water droplets	Vertically falling droplets must not have any harmful effect when the enclosure is at an angle of 15° either side of the vertical.
3	Protected against spray water	Water sprayed at any angle of up to 60° either side of the vertical must not have any harmful effect.
4	Protected against water splashes	Water splashing against the enclosure from any angle must not have any harmful effect.
5	Protected against water jets	Water jets directed at the enclosure from any angle must not have any harmful effect.
6	Protected against powerful water jets	Powerful water jets directed against the enclosure from any angle must not have any harmful effect.
7	Protected against the effect of brief submersion in water	Water must not enter the equipment in amounts that can have a harmful effect if the enclosure is briefly submerged in water under standardised pressure and time conditions.
8	Protected against the effect of continuous submersion in water	Water must not enter the equipment in amounts that can have a harmful effect if the enclosure is continuously submerged in water. The conditions must be agreed between the manufacturer and the user. The conditions must, however, be more severe than code 7.
9K	Protected against water from high-pressure and steam jet cleaning	Water directed at the enclosure from any angle under high pressure must not have any harmful effect.

Concepts for ensuring protection against electric shock to IEC 60364-4-41/VDE 0100 Part 410**Definitions**

Protection against electric shock means protection against indirect and direct contact.

Protection against direct contact implies that under normal operating conditions, live parts which are not insulated are protected against accidental contact.

Protection against indirect contact implies that in the event of an insulation fault between live parts and bodies or enclosures, contact voltages outside of the permissible range cannot occur or are disconnected promptly.

The three best-known and most widely used concepts for ensuring protection against electric shock are also referred to as protection class I to III in specialist literature and standardisation documentation.

Protection class I – Protective earth conductor

In the case of electrical equipment in protection class I, protection against direct contact is ensured by means of basic insulation.

Protection against indirect contact is provided by means of prompt

disconnection of the fault voltage. This disconnection is ensured by the contacting of the protective earth conductor on the equipment enclosure via protective earth.

If an insulation fault occurs in the

equipment, the fault current flows via the protective circuit against the earth potential, thereby triggering the upstream fuse element (e.g. residual current device protection or circuit-breaker).

Equipment in protection class I includes lights, white goods (washing machines, dryers, etc.) and industrial machinery. Symbol:

**Protective class II – Protective insulation**

In the case of equipment in protection class II, the protection refers to direct and indirect contact with the improved enclosure insulation. The enclosure insulation is reinforced or doubled so that it

is not possible to come into contact with contact voltages outside of the permissible range either in the event of a fault or during operation.

Equipment in protection class II must not be connected to the protective circuit. Therefore the equipment does not have a protective contact on the plug.

Equipment in protection class II includes hi-fi components, electric power tools and household appliances and is identified with the following symbol:

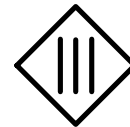
**Protective class III – Protective extra-low voltage**

In the case of equipment in protection class III, protection against direct and indirect contact is ensured both by means of a sufficiently high IP protection

class (protection against direct contact with live parts) and electrical supply of the component with PELV (protective ex-

tra-low voltage) or SELV (safety extra-low voltage) (protection against indirect contact in the event of a fault).

Equipment in protection class III is frequently identified (no mandatory identification) with the following symbol:



Special protection class for components from Festo

Protection class III

On the basis of the information currently available, all 24 V DC valve terminals (e.g. CPV, MPA), position controllers (e.g. PLCs), sensors (proximity sensors, pressure switches, pressure sensors) and proportional valves from Festo belong to protection class III.

This means that, in the case of the 24 V DC components from Festo, protection against direct and indirect contact is ensured by means of a sufficiently high IP protection class as well as a protective extra-low voltage supply to the component: PELV "Protective Extra-Low Voltage".

The use of a PELV supply ensures that no contact voltages outside of the permissible range can occur in the event of a fault due to the high dielectric strength (4 kV) from the primary to the secondary side.

The earth terminal therefore is a functional earthing (discharge of electromagnetic disturbances) rather than a protective earth function and must always make contact.



Why does Festo use protection class III?

Due to the increasingly compact designs of modern automation components, protection class I is no longer the optimum solution with respect to construction

size. This is because the standards specify minimum distances for the air and leakage paths, which means that a further minimising of the size of the com-

ponents is no longer possible. It is for this reason that protection class III (no protective earth conductor, as protection against electric shock is provided

by protective extra-low voltage) is used in modern automation components.

What do customers need to know about installing equipment in protection class III?

The electrical supply to the equipment must only be provided by PELV circuits to IEC/EN 60204-1. The general requirements for PELV circuits as per IEC/EN 60204-1 must be taken into account.

Power sources are permitted if reliable electrical isolation of the operating voltage to IEC/EN 60204-1 is guaranteed. The earth terminals on the components, where available, are used for discharging

electromagnetic disturbances, equipotential bonding and thus ensuring proper functioning. They must be connected to the earth potential with low resistance (short cables with large cross section).

Spark arresting of switch contacts in circuits incorporating solenoid coils

The inductance of solenoid coils stores electromagnetic energy when the circuit is switched on and this is discharged when switched off. Depending on the

switch used, this energy is either converted to a voltage peak (switch-off overvoltage), which can cause a breakdown

in the insulation, or an arc which can burn away the contacts (material creep). Various types of components can be used

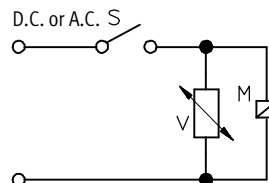
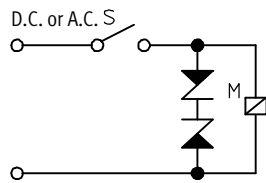
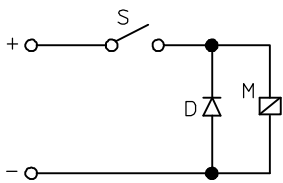
to avoid these effects by slowly and constantly discharging the electromagnetic energy.

Electronic arc arrestors

If the polarity in DC circuits is clearly defined, a simple diode can be used, wired parallel to the coil. It must be noted that this considerably increases the solenoid switch-off time.

A more suitable arrangement consists of two breakdown diodes, wired with opposing polarity parallel to the coil, which can be used for DC and AC. This prevents switch-off delay. However, several breakdown diodes must be wired in series for voltages over 150 V.

Varistors are ideal elements for reducing switch-off overvoltage; their leakage current only rises if the rated voltage is exceeded. They are suitable for DC and AC.



100% duty cycle

Within DIN VDE 0580, the 100% duty cycle test covers only the electrical part of the solenoid coil. Festo also includes the pneumatic part in this test.

The worst-case scenario is reviewed in the test. The test constitutes functional testing of the solenoid. If the solenoid is also used on valve terminals, the 100%

duty cycle test is performed on the individual device and on equipment in a manifold assembly.

Conditions

- The solenoids are operated with the maximum permissible voltage (continuous operation S1 to DIN VDE 0580).
- The solenoids are subjected to the maximum permissible ambient temperature in a temperature cabinet (non-convecting).
- The solenoids are supplied with the maximum permissible operating pressure with sealed working ports.

Procedure

The solenoids are operated for at least 72 hours under the above conditions. At the end of this period, the following tests are carried out:

- Drop-off current measurement: drop-off behaviour when switched to de-energised state.
- Starting behaviour when immediately energised with the minimum operating voltage and with the least favourable pressure ratios for excitation.

- Leakage measurements.
- Once the results have been recorded, this process is repeated again until the units being tested have reached a total duty cycle of at least 1,000 hours or a termination criterion has been fulfilled.
- Following completion of the 100% duty cycle test, the sealing nipples are inspected visually for damage.

Termination criterion

The drop-off behaviour, starting behaviour or leakage exceeds or falls below the following limit values:

- Drop-off current: > 1.0 mA
- Starting voltage: > UN+10%
- Leakage: > 10 l/h

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Type	Page/online	Type	Page/online
A		B	
ABP		BV, Pneumatic feed unit	bv
– Slot cover for spindle axis EGC-BS	379	BZ, Inscription label	bz
– Slot cover for spindle axis EGC-HD-BS	390		
– Slot cover for toothed belt axis EGC-HD-TB	411		
– Slot cover for toothed belt axis EGC-TB	402		
ABP-5-S			
– Slot cover for compact cylinder ADNGF	137		
– Slot cover for compact cylinder to ISO 21287	47		
– Slot cover for guided drive DFM	324		
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– Adapter for compact cylinder to ISO 21287	46		
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ADN-EL, Compact cylinder	adn-el		
ADNE-LAS, Linear drive	adne-las		
ADNGF, Compact cylinder	adngf		
ADNH, High-force cylinder, standard hole pattern	adnh		
ADNM, Multi-position cylinder, standard hole pattern	adnm		
ADNP			
– Compact cylinder	adnp		
– Compact cylinder to ISO 21287, with polymer end caps, double-acting	35		
ADVC, Short-stroke cylinder, double-acting	140		
ADVU, Compact cylinder, double-acting	advu		
ADVUL			
– Compact cylinder, double-acting	advul		
– Compact cylinder, non-rotating	advul		
AEN, Compact cylinder to ISO 21287, single-acting	35		
AEVC, Short-stroke cylinder, single-acting	140		
AEVU, Compact cylinder, single-acting	aevu		
AEVUZ, Compact cylinder, single-acting, pulling	aevuz		
AK-8KL			
– Cover for terminal CPX	784		
– Cover for terminal CPX-P	1092		
AKM, Cover cap for swivel module DSM-B	233		
AMTC, Silencer	1102		
AMTE, Silencer	amte		
AS-i, AS-Interface® components	as-i		
ASCF, Inscription label holder for valve terminal VTSA	716		
ASCF-H, Inscription label holder for valve terminal VTUG	736		
ASI-KVT, Cable distributor	asi-kvt		
ASI-SD, Cable socket	asi-sd		
ASLR, Inscription label	aslr		
– For proximity sensor	815, 825		
ASLR-D-L1			
– Inscription label holder for valve VUVG	672		
– Inscription label holder for valves VUVG, valve terminal VTUG	735		
ATBT, Air cushion plate	atbt		

Type	Page/online	Type	Page/online
C			
C-P, Female hose connector	n_cnp	CN, Barbed fitting	cn
CACN		CODESYS, Software tool	Software
– Power supply unit	cacn	CPI, Installation system	ctec
– Power supply unit for motor controller CMMS-ST	529	CPI installation system, CTEC	ctec
CAFM-F1-H, H-rail mounting for connecting block CAPC-F1-E-M12	737	CPV, Valve terminal, Compact Performance	cpv
CAMC		CPV-SC, Valve terminal, Smart Cubic	cpv-sc
– Plug-in card for additional I/Os, for motor controller CMMD-AS	512	CPV10-VI-ST, Inscription label holder	cpv10-vi-st
– Plug-in card for fieldbus interface, for motor controller CMMD-AS	512	CPV10-M1H, Vacuum generator for valve terminal CPV	cpv10-m1h
– Plug-in card for fieldbus interface, for motor controller CMMP-AS	521	CPV14-VI-ST, Inscription label holder	cpv14-vi-st
– Plug-in card for fieldbus interface, for motor controller CMMS-AS	516	CPV14-M1H, Vacuum generator for valve terminal CPV	cpv14-m1h
– Plug-in card for fieldbus interface, for motor controller CMMS-ST	529	CPV18-VI-ST, Inscription label holder	cpv18-vi-st
CAPC-F1-E-M12, Connecting block for valve terminal VTUG		CPV18-M1H, Vacuum generator for valve terminal CPV	cpv18-m1h
with fieldbus node CTEU	737	CPVSC1-ST, Inscription label holder	cpvsc1-st
CASM, Sensor interface	casm	CPX, Terminal	747
CCES, Adding counter	cces	CPX-CTEL, Electrical interface	cpx-ctel
CDC		CPX-MMI, Operator unit, text-based	cpx-mmi
– Compact cylinder, double-acting, Clean Design	cdc	CPX-ST, Inscription label holder	cpx-st
CDPX, Operator unit, with touchscreen	cdpx	CPX-AB	
CDSA, Operator unit, with touchscreen	cdsa	– Connection block for terminal CPX	784
CDVI, Valve terminal	cdvi	– Connection block for terminal CPX-P	1091
CDVI5.0		CPX-AB-2-M12-RK	
– 2/2-way valve, Clean Design	cdvi5.0	– Bus connection for terminal CPX	782
– 2x3/2-way valve, Clean Design	cdvi5.0	– Bus connection for terminal CPX-P	1090
– 3/2-way valve, Clean Design	cdvi5.0	CPX-AB-S-4-M12	
– 5/2-way valve, Clean Design	cdvi5.0	– Screening plate for terminal CPX	784
– 5/3-way valve, Clean Design	cdvi5.0	– Screening plate for terminal CPX-P	1091
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CECX-A-4E-V, Input module	cecx	– Wall mounting for terminal CPX-P	1093
CECX-A-4E4A, Output module	cecx	CPX-CEC	
CECX-B-CO, Fieldbus interface	cecx	– Control block, for terminal CPX	cpx-cec
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CECX-C-2S1, Electrical interface	cecx	CPX-CM-HPP, FHPP gateway for terminal CPX	783
CECX-D-14A-2, Output module	cecx	CPX-CMAX, Axis controller	cpx-cmax
CECX-D-16E, Input module	cecx	CPX-CMIX, Measuring module	cpx-cmix
CECX-D-E8A, Input module	cecx	CPX-CMPX, End-position controller for Soft Stop	cpx-cmpx
CECX-E-E-T-P, Input module	cecx	CPX-CMXX, Control block, for terminal CPX	cpx-cmxx
CECX-F-PB-S-V, Fieldbus interface	cecx	CPX-CP, CP interface for terminal CPX	783
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CESA, AS-i module	cesa	CPX-EP	
CHB, Checkbox	chb	– End plate for terminal CPX	785
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CHB-CB, Countbox	chb-cb	CPX-EPFE-EV, Earthing component for terminal CPX	781
CHB-IB, Identbox	chb-ib	CPX-FB	
CHB-SB, Sortbox	chb-sb	– Bus node for terminal CPX	781
CK, Quick connector	n_ck	– Bus node for terminal CPX-P	1090
CLR, Linear/swivel clamp	clr	CPX-FEC, Control block for terminal CPX	781
CMCA, Control system	cmca	CPX-GE-EV, Interlinking block for terminal CPX	785
CMFL, End-position controller	cmfl	CPX-M-GE-EV, Interlinking block for terminal CPX-P	1092
CMGA, Safety system	530	CPX-MMI-1, Operator unit for terminal CPX	757
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CMMS-ST, Motor controller for stepper motor	526	CPX-ZA, Tie rod for terminal CPX	781
CMSX, Positioner	cmsx	CQ, Push-in fitting	n_36446
CMXR-C1, Controller	cmxr-c1	CRCN, Barbed fitting, stainless steel	crcn
CMXR-C2, Controller	cmxr-c2	CRDNG, Standard cylinder, corrosion-resistant	crdng
		CRDNGS, Standard cylinder, corrosion-resistant	crdngs

Type	Page/online	Type	Page/online
CRDSNU		D	
– Round cylinder, stainless steel	crdsnu	D	
– Standard cylinder, corrosion-resistant	crdsnu	– EduTrainer®	edutrainner
CRFNG, Flange mounting for standard cylinder DSBF-C to ISO 15552	84	– Reducing nipple	d-1
CRHD, Round cylinder, double-acting, stainless steel	crhd	DADE, Measured-value transducer	dade
CRHNC, Foot mounting for standard cylinder DSBF-C to ISO 15552	84	DADL-EC, Clamping component	dadl-ec
CRLNG, Clevis foot for standard cylinder DSBF-C to ISO 15552	85	DADL-EL	
CRLNZG, Trunnion support for standard cylinder DSBF-C to ISO 15552	84	– Clamping unit	dadl
CRO, Sealing ring	1040	– Clamping unit for semi-rotary drive DRRD	254
CRQS, Push-in fitting, stainless steel	crqs	DADS, Cover for mini slide DGSL	295
CRSG, Rod clevis for standard cylinder DSBF-C to ISO 15552	85	DAMD, Blanking screw for standard cylinder DSBF to ISO 15552	85
CRSGS, Rod eye for standard cylinder DSBF-C to ISO 15552	85	DAMS, Swivel flange for electric cylinder ESBF	360
CRSMB-8, Mounting kit, for proximity sensors, for T-slot	815	DAMT	
CRSMBR, Mounting kit for proximity sensor, for round cylinder DSNU/ESNU	128	– Trunnion mounting kit for electric cylinders DNCE	369
CRSMEO-4, Proximity sensor, corrosion-resistant, round design	crsmeo-4	– Trunnion mounting kit for electric cylinder ESBF	361
CRSMT-8, Proximity sensor for T-slot, magneto-resistive, corrosion resistant	crsmt-8	– Trunnion mounting kit for standard cylinder DSBC to ISO 15552	61
CRSMT-8M, Proximity sensor for T-slot, Magneto-resistive, Suitable for the food industry	812	– Trunnion mounting kit for standard cylinder to ISO 15552	93
CRVZS, Air reservoir	1099	DAPS, Quarter turn actuator, Sypar	daps
CRZNG, Trunnion flange for standard cylinder DSBF-C to ISO 15552	84	DAPZ, Limit switch attachments	dapz
CTEC		DASI-KT, Sensing kit for semi-rotary drive DRRD	254
– CPI installation system	ctec	DASP-M4-125-A, Mounting kit, for proximity sensors, for T-slot	815
– Installation system	ctec	DAYH, Reducing sleeve for mini slide DGSL	294
CTEU, Fieldbus module	cteu	DDLI, Linear drive, integrated displacement encoder	ddli
CTSL, Input module	ctsl	DDPC, Standard cylinder, integrated displacement encoder	ddpc
		DFAW, Hinge cylinder	dfaw
		DFC, Mini guided drive	dfc
		DFK, Flanged cylinder, double-acting	dfk
		DFM, Guided drive	320
		DFME-LAS, Guided drive	dfme-las
		DFP, Guided drive, double-acting	dfp
		DFPB, Quarter turn actuator, for process automation	dfpb
		DFPI, Linear drive, with displacement encoder	dfpi
		DFSP, Stopper cylinder	dfsp
		DFST, Stopper cylinder	dsft
		DG, Round cylinder, double-acting, miniature cylinder	dg
		DGC-FA, Passive guide axis	dgc-fa
		DGC-G, Linear drive, basic design	173
		DGC-GF, Linear drive with plain-bearing guide	173
		DGC-HD, Linear drive with heavy-duty guide	201
		DGC-K, Linear drive	161
		DGC-KF, Linear drive with recirculating ball bearing guide	173
		DGCI, Linear drive, with displacement encoder	dgci
		DGE-SP	
		– Spindle axis with recirculating ball bearing guide	dge-sp
		– Spindle axis without guide	dge-sp
		DGE-ZR, Toothed belt axis without guide	dge-zr
		DGE-ZR-HD, Toothed belt axis with heavy-duty guide, recirculating ball bearing guide	dge-zr
		DGE-ZR-KF, Toothed belt axis with recirculating ball bearing guide	dge-zr
		DGE-ZR-RF, Toothed belt axis with roller guide	dge-zr
		DGEA-ZR, Cantilever axis with recirculating ball bearing guide	dgea
		DGO, Linear drive, magnetic force transmission	dgo
		DGPI, Linear drive, with displacement encoder	dgpi
		DGPIL, Linear drive, with displacement encoder	dgpil
		DGPL, Linear drive, with guide	dGPL
		DGRF, Guided drive, Clean Design	dgrf
		DGSL, Mini slide	288
		DHDS, Three-point gripper	550
		DHEB, Bellows gripper	dheb
		DHPS, Parallel gripper	545
		DHRS, Radial gripper	559
		DHTG, Rotary indexing table	dhtg
		DHWS, Angle gripper	554

Type	Page/online	Type	Page/online
DLP, Linear actuator	dlp	DYEF-S, Shock absorber for mini slide DGSL	294
DMES, Positioning axis	dmes	DYHR, Hydraulic cushioning cylinder	dyhr
DMM, Multimount cylinder, double-acting	dmm	DYSC	
DMML, Multimount cylinder, double-acting, non-rotating	dmml	– Shock absorber	dysc
DMSP, Fluidic muscle, with press-fitted connection	dmsp	– Shock absorber for swivel module DSM-B	231
DNC, Standard cylinder to ISO 15552 (ISO 6431 and VDMA 24562), double-acting	88	DYSR, Shock absorber	dysr
DNC-KP, Standard cylinder, with clamping unit	dnc-kp	DYSW	
DNC-V, Standard cylinder, cylinder/valve combination	dnc-v	– Shock absorber	dysw
DNCE, Electric cylinder with piston rod	365	– Shock absorber for mini slide DGSL	294
DNCE-LAS, Electric cylinder	dnce-las	– Shock absorber for rotary/lifting module EHMB	457
DNCI, Standard cylinder, with displacement encoder	dnci	DZF, Flat cylinder, double-acting	dzf
DNCKE, Cylinder, with clamping unit	dncke	DZH, Flat cylinder, double-acting	dzh
DNCKE-S, Cylinder, with clamping unit, safety component	dncke-s		
DNCT, Tandem cylinder, standard hole pattern	dnct		
DNG, Standard cylinder, to ISO 15552	dng		
DNGZS, Standard cylinder, to ISO 15552	dngzs		
DPA, Pressure booster	dpa		
DPA-MA-SET, Pressure gauge kit for pressure booster DPA	dpa		
DPNA			
– Multi-position kit for compact cylinder ADNGF	136		
– Multi-position kit for compact cylinder to ISO 21287	45		
DPNC			
– Multi-position kit, For short-stroke cylinder ADVC/AEVC	150		
– Multi-position kit for standard cylinder DSBC to ISO 15552	62		
– Multi-position kit for standard cylinder DSBG to ISO 15552	71		
– Multi-position kit for standard cylinder to ISO 15552	92		
DPZ, Twin-piston cylinder, with guide	dpz		
DPZJ, Twin cylinder, with guide, with two yoke plates	dpzj		
DRQ, Semi-rotary drive	drq		
DRQD, Semi-rotary drive	263		
DRQD-B, Semi-rotary drive	263		
DRRD, Semi-rotary drive	242, 247		
DSBC, Standard cylinder to ISO 15552 (ISO 6431 and VDMA 24562), double-acting	54		
DSBF-C, Standard cylinder to ISO 15552 (ISO 6431 and VDMA 24562), double-acting, Clean Design	81		
DSBG, Standard cylinder to ISO 15552 (ISO 6431 and VDMA 24562), double-acting	65, 74		
DSL-B, Swivel/linear drive unit	dsl		
DSM-...-B, Cushioning mount for swivel module DSM-B	231		
DSM-...-P-B, Cushioning kit for swivel module DSM-B	231		
DSM-B, Swivel module	223		
DSM-FF			
– Adapter for stop kit KSM, for swivel module DSM	216		
– Adapter for mounting kit WSM, for swivel module DSM	216		
DSM-T-B, Swivel module with tandem rotary vanes	223		
DSMI, Swivel module, with displacement encoder	dsmi		
DSN, Standard cylinder to ISO 6432, double-acting	96		
DSNU			
– Round cylinder, double-acting	118		
– Standard cylinder to ISO 6432, double-acting	96		
DSNUP, Standard cylinder to ISO 6432, double-acting	96		
DSR, Semi-rotary drive, with spigot shaft	dsr		
DSRL, Semi-rotary drive, with hollow flanged shaft	dsrl		
DW, Hinge cylinder	dw		
DWA, Hinge cylinder	dwa		
DWB, Hinge cylinder	dwb		
DWC, Hinge cylinder	dwc		
DYEF			
– Shock absorber	dyef		
– Shock absorber for mini slide DGSL	294		
– Shock absorber for swivel module DSM-B	231		

Type	Page/online	Type	Page/online
E			
E, Double nipple	e-1	EGC-HD-TB, Toothed belt axis with heavy-duty guide	406
EADC, Compensating component for electric cylinders DNCE	370	EGC-TB-KF, Toothed belt axis with recirculating ball bearing guide	396
EAGF, Guide unit	eagf	EGSK, Electric slide	egsk
EAHA, Adapter kit for electric cylinder EPCO	352	EGSL, Mini slide, electric	416
EAHF		EGSP, Electric slide	egsp
– Foot mounting for electric cylinder EPCO	352	EGZ, Cartridge cylinder	egz
– Profile mounting for electric cylinder DNCE	370	EHAM, Adapter plate kit for rotary/lifting module EHMB	457
– Profile mounting for electric cylinder ESBF	361	EHMB, Rotary/lifting modules, electric	452
– Profile mounting for mini slide EGSL	421	EL, Electric limit switch, with toggle lever	el
EAHH		ELFR, Passive guide axis	elfr
– Flange mounting for electric cylinder EPCO	352	ELGA-TB-RF, Toothed belt axis	elga
– Flange mounting for electric cylinder ESBF	361	ELGA-TB, Toothed belt axis	427
EAHS, Swivel mounting for electric cylinder EPCO	352	ELGG, Toothed belt axis	elgg
EAMB, Drive shaft for toothed belt axis EGC-TB	402	ELGL, Linear drive, with air bearings and linear motor	elgl
EAMC, Coupling	eamc	ELGR, Toothed belt axis	440
EAMD, Coupling	eamd	EMGA-SAS, Gear unit	537
EAMM-A		EMGA-SST, Gear unit	535
– Axial kit for electric cylinder ESBF	363	EMM, Multimount cylinder, single-acting	emm
– Axial kit for mini slide EGSL	420	EMML, Multimount cylinder, single-acting, non-rotating	emml
– Axial kit for rotary module ERMB	448	EMMS-AS, Servo motor	467, 478
– Axial kit for spindle axis EGC-BS	381	EMMS-ST, Stepper motor	501
– Axial kit for spindle axis EGC-HD-BS	391	EPCO, Electric cylinder with piston rod	347
– Axial kit for toothed belt axis EGC-HD-TB	410	ER, Electric limit switch, with roller lever	er
– Axial kit for toothed belt axis EGC-TB	401	ERMB, Rotary module, electric	446
– Axial kit for toothed belt axis ELGA	434	ESBF, Electric cylinder with spindle drive	356
– Axial kit for toothed belt axis ELGR	444	ESF, Filter	esf
– Axial kit for electric cylinder DNCE	373	ESG, Suction gripper	esg
EAMM-U		ESH, Suction cup holder	esh
– Parallel kit for electric cylinder ESBF	362	ESK, Double nipple	esk
– Parallel kit for mini slide EGSL	419	ESN, Standard cylinder to ISO 6432, single-acting	96
– Parallel kit for spindle axis EGC-BS	380	ESNU	
– Parallel kit for spindle axis EGC-HD-BS	391	– Round cylinder, single-acting	118
– Parallel kit for electric cylinder DNCE	371	– Standard cylinder to ISO 6432, single-acting	96
EAPM		ESS, Suction cup	ess
– Sensor bracket for toothed belt axis ELGA-TB	434	ESV, Suction cup	esv
– Sensor bracket for toothed belt axis ELGR	443	ESWA, Angle compensation	eswa
– Switch lug for mini slide EGSL	421	EV, Clamping module	ev
– Switch lug for toothed belt axis ELGA-TB	434	EXCM, Planar surface gantry	excm
– Switch lug for toothed belt axis ELGR	443	EXPT, Tripod	expt
EAPS, Cam for rotary/lifting module EHMB	457	EZH, Flat cylinder, single-acting	ezh
EAPS-...-CK, Cam for rotary module ERMB	448		
EAPS-...-H, Housing for rotary module ERMB	448		
EAPS-...-S, Sensing kit for rotary module ERMB	448		
EAPS-...-S-WH, Sensing kit without housing for rotary module ERMB	448		
EAPS-...-SH, Sensor bracket for rotary module ERMB	448		
EASA, Protective conduit fitting EASA for rotary/lifting module EHMB	456		
EASC			
– Cover for mini slide EGSL	418		
– Cover for rotary/lifting module EHMB	456		
EASC-...-F, Cover for mini slide EGSL	418		
EAYH			
– Retainer for spindle axis EGC-HD-BS	390		
– Retainer for toothed belt axis EGC-HD-TB	410		
– Shock absorber retainer for rotary/lifting module EHMB	457		
EB, Bellows actuator, bellows	eb		
EBS, Bellows actuator, rolling bellows	ebs		
EFK, Flanged cylinder, single-acting	efk		
EG, Round cylinder, single-acting, miniature cylinder	eg		
EG-PK, Round cylinder, single-acting, micro cylinder	eg-pk		
EGC-FA, Passive guide axis	egc		
EGC-BS-KF, Spindle axis with recirculating ball bearing guide	375		
EGC-HD-BS, Spindle axis with heavy-duty guide	386		

Type	Page/online	Type	Page/online
F			
F			
– Foot valve, 3/2-way valve	f-3	FMA, Flanged pressure gauge	fma
– Foot valve, 5/2-way valve	f-5	FMAP, Flanged precision pressure gauge	fmap
F-3-M5, Pushbutton valve, 3/2-way valve	n_vm5	FNC	
FB-TA, T-adapter	fb-ta	– Flange mounting for compact cylinder ADNGF	135
FBA-1, Bus connection	fba-1	– Flange mounting for compact cylinder to ISO 21287	45
FBA-1-KL-5POL, Bus connection for terminal CPX	782	– Flange mounting for short-stroke cylinder ADVC/AEVC	149
FBA-1-SL-5POL		– Flange mounting for standard cylinder DSBC to ISO 15552	60
– Bus connection for terminal CPX	782	– Flange mounting for standard cylinder DSBG to ISO 15552	69
– Bus connection for terminal CPX-P	1090	– Flange mounting for standard cylinder to ISO 15552	92
FBA-2, Bus connection	fba-2	– Flange mounting for electric cylinder DNCE	369
FBA-2-M12-5POL		– Foot mounting for electric cylinder ESBF	360
– Bus connection for terminal CPX	782	FNG, Flange mounting for standard cylinder DSBG-160/200 to ISO 15552	77
– Bus connection for terminal CPX-P	1090	FO	
FBA-CO		– Foot valve, 3/2-way valve	f-3
– Fieldbus adapter	fba-co	– Foot valve, 5/2-way valve	f-5
– Fieldbus adapter for CANopen and DeviceNet for motor unit MTR-DCI	499	FP	
FBA-PB		– Foot valve with detent, 3/2-way valve	fp-3
– Fieldbus adapter	fba-pb	– Foot valve with detent, 5/2-way valve	fp-5
– Fieldbus adapter for PROFIBUS for motor unit MTR-DCI	499	FPB	
FBN		– Foot valve with detent, 3/2-way valve	fpb-3
– Flange mounting for round cylinder DSNU/ESNU	127	– Foot valve with detent, 5/2-way valve	fpb-5
– Flange mounting for standard cylinder to ISO 6432	112	FR, Distributor block	fr
FBS, Plug	fbs	FRC	
FBS-RJ45		– Service unit combination, D series, metal	frc
– Ethernet connection for terminal CPX	781	– Service unit, D series, metal	frc
– Plug	fbs-rj45	– Service unit, D series, polymer	frc
FBS-SUB, Plug	fbs-sub	FRC-DB, Service unit, D series, polymer	frc
FBS-SUB-9		FRCS, Service unit, D series, metal	frcs
– Bus connection for terminal CPX	781	FRM, Branching module, D series, metal	frm
– Bus connection for terminal CPX-P	1090	FRZ, Distributor block for D series, metal	frz
FBS-SUB-9-WS, Plug	fbs-sub-9	FSS, Quickstepper	fss
FBSD, Plug socket	fbsd	FCT, Festo Configuration Tool, software tool, see Software	
FBSD-KL, Bus connection	fbsd-kl	FVAM	
FBSD-KL-2x5POL		– Vacuum gauge	fvam
– Bus connection for terminal CPX	782	– Vacuum gauge to EN 837-1	fvam
– Bus connection for terminal CPX-P	1090	FVS, Whisker valve, 3/2-way valve	fvs
FCN, Barbed fitting	n_070302f	FVSO, Whisker valve, 3/2-way valve	fvso
FDG, Passive guide axis	fdg	FWSR	
FDG-ZR-RF, Passive guide axis	fdg	– Push-on flange for swivel module DSM	216
FEC-KBG, Connecting cable	fec-kgb	– Push-on flange for swivel module DSM-B	231
FED			
– Operator unit, text-based	fed		
– Operator unit, with touchscreen	fed		
FEN, Guide unit for standard cylinder	fen		
FENG, Guide unit for standard cylinder	feng		
FK			
– Self-aligning rod coupler for electric cylinder DNCE	369		
– Self-aligning rod coupler for compact cylinder to ISO 21287	46		
– Self-aligning rod coupler for electric cylinder EPCO	352		
– Self-aligning rod coupler for electric cylinder ESBF	361		
– Self-aligning rod coupler for round cylinder DSNU/ESNU	127		
– Self-aligning rod coupler for short-stroke cylinder ADVC/AEVC	151		
– Self-aligning rod coupler for standard cylinder DSBC to ISO 15552	61		
– Self-aligning rod coupler for standard cylinder DSBG to ISO 15552	70		
– Self-aligning rod coupler for standard cylinder DSBG-160/200 to ISO 15552	78		
– Self-aligning rod coupler for standard cylinder to ISO 15552	93		
– Self-aligning rod coupler for standard cylinder to ISO 6432	112		
FKC, Moment compensator for linear drive DGC	165, 184		
FLSM			
– Freewheel unit for swivel module DSM	216		
– Freewheel unit for swivel module DSM-B	231		

Type	Page/online	Type	Page/online
G		H	
G, Elbow	g-m5	H	
GF, Rotary distributor	gf	– Finger lever valve, 4/3-way valve	h-4/3
GG, One-way flow control valve	gg	– Hand lever valve, 3/2-way valve	n_v14
GGO, One-way flow control valve	gg	– Hand lever valve, 5/2-way valve	n_v14
GR, One-way flow control valve, in-line installation	692	– Non-return valve with female/male thread	h-qs
GR-H, Retainer	692	– Non-return valve with push-in connector QS	h-qs
GR		– Toggle lever valve, 5/3-way valve	h-5/3
– One-way flow control valve with female thread, in-line installation	gr	HA, Non-return valve	h-qs
– One-way flow control valve with push-in connector QS, in-line installation	gr	HAB, Manual override, for non-return valve HGL	hab
GRA, One-way flow control valve, in-line installation	693	HB, Non-return valve	h-qs
GRA, One-way flow control valve with female thread, in-line installation	gr	HBN	
GRE		– Foot mounting for round cylinder DSNU/ESNU	127
– Exhaust air flow control valve	gru	– Foot mounting for standard cylinder to ISO 6432	112
– Flow control/silencer combination	gru	HE	
GRF, One-way flow control valves for mounting frame 2N	m5 compact	– On-off valve, D series, metal	he
GRGO, mini, Flow control valve with push-in connector QS	glo	– Shut-off valve	686
GRK, Cover cap	692, 693	HE-LO, Shut-off valve	he-lo
GRLA, One-way flow control valve, standard	689	HEE, On-off valve, D series, metal	hee
GRLO, mini		HEL, Soft-start valve, D series, metal	hel
– Flow control valve with female thread	glo	HEP, On-off valve, D series, metal	hep
– Flow control valve with push-in connector QS	glo	HGDD, Three-point gripper	hgdd
GRLO, standard		HGDS, Swivel/gripper unit	hgds
– Flow control valve with barbed connector	glo	HGDT, Three-point gripper	hgdt
– Flow control valve with female thread	glo	HGL, Non-return valve, piloted	685
GR LZ, One-way flow control valve, standard	689	HGP, Parallel gripper	hgp
GRM, Hex nut	692, 693	HGPC, Parallel gripper	hgpc
GRO		HGPD, Parallel gripper	hgpd
– Flow control valve with female thread, in-line installation	gro	HGPL, Parallel gripper	hgpl
– Flow control valve with push-in connector QS, in-line installation	gro	HGPLE, Parallel gripper, sturdy with long stroke, electric	hgple
GRP, Precision one-way flow control valve	grp	HGPM, Parallel gripper	hgpm
GRPO, Precision flow control valve	grpo	HGPP, Parallel gripper	hgpp
GRR, One-way flow control valve	gg	HGPT-B, Parallel gripper	hgpt
GRU, Flow control/silencer	gru	HGRC, Radial gripper	hgrc
GRXA-HG, One-way flow control valve	grxa-hg	HGRT, Radial gripper	hgtr
GSIB, Operator package, software	gsib	HGWC, Angle gripper	hgwc
GSLO, Software licence	gslo	HGWM, Angle gripper	hgwm
GSPF		HMBN, Slot nut for linear drive DGC	166, 184
– Software	gspf	HMP, Linear module	hmp
– Software for configuring, programming, commissioning and maintaining automation solutions	1073	HMZAS, Installation kit for protective conduits	hmzas
GSWF-P5, Software, FluidDraw S5®	gswf	HMZV, Junction box, for protective conduits	hmzv
GSWF-S5, Software, FluidDraw S5®	gswf	HNA, Foot mounting for compact cylinder to ISO 21287	45
GWB, Thread sealing tape	1041	HNC	
		– Foot mounting for electric cylinder ESBF	360
		– Foot mounting for short-stroke cylinder ADVC/AEVC	149
		– Foot mounting for standard cylinder DSBC to ISO 15552	60
		– Foot mounting for standard cylinder DSBG to ISO 15552	69
		– Foot mounting for standard cylinder to ISO 15552	92
		– Foot mounting for electric cylinder DNCE	369
		HNCE, Foot mounting for electric cylinder DNCE	369
		HNG, Foot mounting for standard cylinder DSBG-160/200 to ISO 15552	77
		HPC, Foot mounting for linear drive DGC	166, 184
		HPE	
		– Foot mounting for spindle axis EGC-BS	379
		– Foot mounting for toothed belt axis EGC-TB	402
		– Foot mounting for toothed belt axis ELGA-TB	435
		HPV, Feed separator	hpv
		HPVS, Feed separator	hpvs
		HR, Mounting bracket for precision pressure regulator LRP	977
		HSM, Mounting plate for swivel module DSM-B	231
		HSP, Handling module	hsp
		HSW-AP, Handling module, pneumatic	hsw
		HSW-AS, Handling module, without drive	hsw

Type	Page/online	Type	Page/online
HW, Selector switch, 3/6-way valve	hw	I	
HWF, Inscription label	hwf	IBS, Inscription label	ibs
HWS-EGC		IBS-6x10	
– Sensor bracket for linear drive DGC-HD with heavy-duty guide	205	– Inscription label for terminal CPX	783
– Sensor bracket for spindle axis EGC-BS	379	– Inscription label for terminal CPX-P	1091
– Sensor bracket for spindle axis EGC-HD-BS	390	– Inscription label for valve terminal MPA-L	746
– Sensor bracket for toothed belt axis EGC-HD-TB	410	IBS-9x20, Inscription label for valves, to ISO 15407-1	612
– Sensor bracket for toothed belt axis EGC-TB	400	IBT, Inscription label holder	ibt
		ISK, Cover cap	isk
		ISV, Vacuum security valve	isv

Type	Page/online	Type	Page/online
J		K	
J		K-3-M5, Pushbutton valve, 3/2-way valve	n_vm5
– 5/2-way valve, midi pneumatic	n_mdp	K/O-3-PK, Pushbutton valve, 3/2-way valve	n_vpl
– 5/2-way valve, pneumatic valve, to ISO 5599-1	iso 5599-1	KASI, Flat cable, for AS-i system components	kasi
– Double pilot valve 5/2-way for mounting frame 2N	m5 compact	KASI-ADR, Addressing cable	kasi-adr
J-B, 5/2-way valve, Tiger 2000	tiger 2000	KD1, Quick coupling socket	1032
JD		KD2, Quick coupling socket	1032
– 5/2-way valve, pneumatic valve, to ISO 5599-1	iso 5599-1	KD3, Quick coupling socket	1032
– Double pilot valve 5/2-way for mounting frame 2N	m5 compact	KD4, Quick coupling socket	1033
JMEBH, Double solenoid valve, to ISO 5599-1	613, 617	KD5, Quick coupling socket	1033
JMEH, 5/2-way valve, midi pneumatic	n_mdp	KDI, Programming cable	kdi
JMEBH, 5/2-way valve, midi pneumatic	n_mdp	KDI-MC, Programming cable for motor unit MTR-DCI	499
JMFH		KDMS6, Quick coupling socket	1034
– Double solenoid valve, to ISO 5599-1	627	KDS6, Quick coupling socket	1034
– Solenoid valve for mounting frame 2N	m5 compact	KDV, Terminal socket	kdv
JMFH-B, Double solenoid valve, Tiger 2000	tiger 2000	KDVF, Multi-socket	kdvf
JMN1H, Double solenoid valve, to ISO 5599-1	613	KEA, Connecting cable	kea
JMVH-B, 5/2-way valve, Tiger 2000	tiger 2000	KEC, Clamping unit	kec
		KEC-S, Clamping unit	kec
		KES, Control cable	kes
		KES-MC, Control cable for motor unit MTR-DCI	499
		KH/O, Toggle lever valve, 3/2-way valve	kh/o
		KK, Multi-tube holder	kk
		KM	
		– Inscription label	km
		– Multi-tube connector	km
		KM12	
		– Connecting cable	n_km12_km8
		– Connecting cable for solenoid coil EB, to ISO 5599-1	632
		KM12-DUO-M8	
		– Connecting cable for terminal CPX	784
		– Connecting cable for terminal CPX-P	1092
		KM12-M12	
		– Connecting cable for terminal CPX	784
		– Connecting cable for terminal CPX-P	1092
		KM8, Connecting cable	n_km12_km8
		KM8-M8	
		– Connecting cable for terminal CPX	784
		– Connecting cable for terminal CPX-P	1092
		KMC	
		– Connecting cable for solenoid coil MSN1G, MSN1W, to ISO 5599-1	632
		– Inscription label	kmc
		– Plug socket with cable	kmc
		KME, Plug socket with cable	kme
		KMEB, Plug socket with cable	kmeb
		KMF	
		– Connecting cable for solenoid coil MSFG, MSFW	684
		– Plug socket with cable	kmf
		KMH, Plug socket with cable	kmh
		KMP-6, Connecting cable for valve terminal VTUG	736
		KMP3, Connecting cable	kmp
		KMPPE, Plug socket with cable	kmppe
		KMPYE, Connecting cable	kmpye
		KMTR, Motor cable	kmtr
		KMTRE, Motor cable	kmtre
		KMV, Plug socket with cable	kmv
		KMYZ, Plug socket with cable	kmyz
		KP, Clamping cartridge	kp
		KPE, Clamping unit	kpe
		KPWR, Supply cable	kpwr
		KPWR-MC, Supply cable for motor unit MTR-DCI	499
		KRP, Connecting cable	krp
		KS1, Quick coupling plug	1032

Type	Page/online
KS2, Quick coupling plug	1032
KS3, Quick coupling plug	1032
KS4, Quick coupling plug	1033
KS5, Quick coupling plug	1033
KSG	
– Coupling piece for compact cylinder to ISO 21287	46
– Coupling piece for electric cylinder EPCO	352
– Coupling piece for round cylinder DSNU/ESNU	127
– Coupling piece for short-stroke cylinder ADVC/AEVC	150
– Coupling piece for standard cylinder DSBC to ISO 15552	61
– Coupling piece for standard cylinder DSBG to ISO 15552	70
– Coupling piece for standard cylinder to ISO 15552	93
– Coupling piece for standard cylinder to ISO 6432	112
KSK, Connecting shaft	ksk
KSM, Stop kit for swivel module DSM	216
KSS6, Quick coupling plug	1034
KSV, Multi-plug	ksv
KSZ	
– Coupling piece for compact cylinder to ISO 21287	46
– Coupling piece for electric cylinder ESBF	361
– Coupling piece for round cylinder DSNU/ESNU	127
– Coupling piece for standard cylinder to ISO 6432	112
– Coupling piece for electric cylinder DNCE	369
KV-M12	
– Connecting cable	kv-m12
– Connecting cable for terminal CPX	784
KVI, Connecting cable	kvi
KVI-CP, Connecting cable for terminal CPX	783
KVIA, Connecting cable	kvia
KYE	
– Shock absorber retainer for spindle axis EGC-BS	379
– Shock absorber retainer for toothed belt axis EGC-TB	400

Type	Page/online
L	
L	
– Roller lever valve with idle return, 3/2-way valve	l-3
– Roller lever valve with idle return, 5/2-way valve	l-5
L-PK, Barbed fitting	n_070302f
L/O, Roller lever valve with idle return, 3/2-way valve	l/o-3
LBG	
– Clevis foot for compact cylinder to ISO 21287	45
– Clevis foot for electric cylinder EPCO	352
– Clevis foot for electric cylinder ESBF	360
– Clevis foot for round cylinder DSNU/ESNU	129
– Clevis foot for standard cylinder DSBC to ISO 15552	60
– Clevis foot for standard cylinder DSBG to ISO 15552	69
– Clevis foot for standard cylinder to ISO 15552	92
– Clevis foot mounting for compact cylinder ADNGF	136
– Clevis foot used with rod eye SGS for short-stroke cylinder ADVC/AEVC	150
– Clevis foot used with swivel flange SNCS for short-stroke cylinder ADVC/AEVC	150
– Clevis foot for electric cylinder DNCE	369
LBN	
– Clevis foot for compact cylinder to ISO 21287	45
– Clevis foot for electric cylinder EPCO	352
– Clevis foot for round cylinder DSNU/ESNU	127
– Clevis foot for standard cylinder to ISO 6432	112
LCN, Barbed fitting	n_070302f
LCNH, Barbed fitting	n_070302f
LDM1, Membrane air dryer, D series, metal	ldm1
LF, Filter, D series, metal	lf
LFMA, Fine and micro filter, D series, metal	lfma
LFMB, Fine and micro filter, D series, metal	lfmb
LFMBA, Filter combination, D series, metal	lfmba
LFMBA	
– Filter regulator, D series, metal	lfr
– Filter regulator, D series, polymer	lfr
– Service unit combination, D series, metal	lfr
LFMBA, Filter regulator, D series, polymer	lfr
LFRS	
– Filter regulator, D series, metal	lfrs
– Service unit combination, D series, metal	lfrs
LFU, Filter silencer	lfu
LFX, Activated carbon filter, D series, metal	lfx
LJK, Elbow fitting	ljk
LK, Ring piece	lk
LN/LNG, Clevis foot for standard cylinder DSBG-160/200 to ISO 15552	78
LNG	
– Clevis foot for electric cylinder ESBF	360
– Clevis foot for short-stroke cylinder ADVC/AEVC	150
– Clevis foot for standard cylinder DSBC to ISO 15552	60
– Clevis foot for standard cylinder DSBG to ISO 15552	69
– Clevis foot for standard cylinder to ISO 15552	92
– Clevis foot for electric cylinder DNCE	369
LNZG	
– Trunnion support for electric cylinder DNCE	369
– Trunnion support for compact cylinder ADNGF	136
– Trunnion support for compact cylinder to ISO 21287	45
– Trunnion support for electric cylinder EPCO	352
– Trunnion support for electric cylinder ESBF	360
– Trunnion support for short-stroke cylinder ADVC/AEVC	149
– Trunnion support for standard cylinder DSBC to ISO 15552	60
– Trunnion support for standard cylinder DSBG to ISO 15552	69
– Trunnion support for standard cylinder to ISO 15552	92
LO, Roller lever valve with idle return, 3/2-way valve	lo-3
LOE, Lubricator, D series, metal	loe

Type	Page/online	Type	Page/online
LOS, Roller lever valve with idle return, 3/2-way valve	los-3	M	
LPZ, Air nozzle	lpz	MA, Pressure gauge for MS series	973
LQG		MA-EN, Pressure gauge	ma
– Right-angle clevis foot for electric cylinder DNCE	369	MAP	
– Right-angle clevis foot for compact cylinder to ISO 21287	46	– Precision pressure gauge	map
– Right-angle clevis foot for electric cylinder EPCO	352	– Precision pressure gauge for MS series	973
– Right-angle clevis foot for electric cylinder ESBF	360	– Precision pressure gauge for precision pressure regulator LRP	977
– Right-angle clevis foot for round cylinder DSNU/ESNU	129	MAS, Fluidic muscle, with screwed connection	mas
– Right-angle clevis foot for short-stroke cylinder ADVC/AEVC	150	MC, Illuminating seal for solenoid coil MSN1G, MSN1W, to ISO 5599-1	632
– Right-angle clevis foot for standard cylinder DSBC to ISO 15552	61	MC-LD, Illuminating seal	n_mc_ld
– Right-angle clevis foot for standard cylinder DSBG to ISO 15552	70	MCL, Indicator insert	mcl
– Right-angle clevis foot for standard cylinder to ISO 15552	93	MCLZ, Indicator insert	mclz
LR, Pressure regulator, D series, metal	lr	MDH-3/2..., MD-3/2...EX, Standard valve with square plug, type A	iso 15218
LR-DB, Pressure regulator, D series, polymer	lr-db	ME-LD, Illuminating seal	n_mc_ld
LR-G, Pressure regulator	lr-g	MEB, Illuminating seal for plug type C, to ISO 15407-1	612
LR-QS, Pressure regulator	lr-qs	MEB-LD, Illuminating seal	n_mc_ld
LRB, Pressure regulator, D series, metal	lrb	MEBH	
LRB-DB, Pressure regulator combination, D series, polymer	lrb-db	– 3/2-way valve, midi pneumatic	n_mdpc
LRB-K, Pressure regulator, manifold combination, D series, metal	lrb	– 5/2-way valve, midi pneumatic	n_mdpc
LRBS, Pressure regulator, D series, metal	lrbs	– 5/2-way valve, to ISO 5599-1	613
LRL, Differential pressure regulator	lrl	– 5/3-way valve, midi pneumatic	n_mdpc
LRLI, Differential pressure regulator	lrl	– 5/3-way valve, to ISO 5599-1	613
LRMA-QS, Pressure regulator	lrma	MEH	
LRP, Precision pressure regulator	975	– 3/2-way valve, midi pneumatic	n_mdpc
LRPS, Precision pressure regulator	975	– 5/2-way valve, midi pneumatic	n_mdpc
LRS, Pressure regulator, D series, metal	lrs	– 5/3-way valve, midi pneumatic	n_mdpc
LRS-G, Pressure regulator	lrs-g	MF-LD	
LRVS, Regulator lock for precision pressure regulator LRP	977	– Illuminating seal	n_mc_ld
LRVS-D		– Illuminating seal for solenoid coil MSFG, MSFG	684
– Padlock for MS series	974	MFH	
– Padlock for precision pressure regulator LRP	977	– 5/2-way valve, to NAMUR	namur
LS		– Solenoid valve for mounting frame 2N	m5 compact
– Roller lever valve with idle return, 3/2-way valve	ls-3	MFH-B	
– Roller lever valve with idle return, 4/2-way valve	ls-4	– 5/2-way valve, Tiger 2000	tiger 2000
LSN		– 5/3-way valve, Tiger 2000	tiger 2000
– Clevis foot	lsn	MFHE, Solenoid valve	mfhe
– Clevis foot for electric cylinder ESBF	360	MFL, Indicator insert	mfl
– Clevis foot for short-stroke cylinder ADVC/AEVC	150	MFLZ, Indicator insert	mflz
– Clevis foot for standard cylinder DSBC to ISO 15552	60	MFZ, Time delay insert	mfz
– Clevis foot for standard cylinder DSBG to ISO 15552	69	MGTBH	
– Clevis foot for standard cylinder DSBG-160/200 to ISO 15552	78	– 5/2-way valve, to NAMUR	namur
– Clevis foot for standard cylinder to ISO 15552	93	– Solenoid valve to Namur	iso 15218
– Clevis foot for electric cylinder DNCE	369	MGXIAH, Solenoid valve to Namur	iso 15218
LSNG		MH, Inscription label	mh
– Clevis foot for electric cylinder ESBF	360	MH1	
– Clevis foot for short-stroke cylinder ADVC/AEVC	150	– Solenoid valve, miniature	mh1
– Clevis foot for standard cylinder DSBC to ISO 15552	60	– Valve terminal	mh1
– Clevis foot for standard cylinder DSBG to ISO 15552	69	MHA2-M1H, Sub-base valve without electronics, fast-switching valve	mh2
– Clevis foot for standard cylinder DSBG-160/200 to ISO 15552	77	MHA2-MS1H, Sub-base valve with electronics, fast-switching valve	mh2
– Clevis foot for standard cylinder to ISO 15552	92	MHA3-M1H, Sub-base valve without electronics, fast-switching valve	mh2
– Clevis foot for electric cylinder DNCE	369	MHA3-MS1H, Sub-base valve with electronics, fast-switching valve	mh2
LSNSG		MHA4-M1H, Sub-base valve without electronics, fast-switching valve	mh2
– Clevis foot for electric cylinder ESBF	360	MHA4-MS1H, Sub-base valve with electronics, fast-switching valve	mh2
– Clevis foot for short-stroke cylinder ADVC/AEVC	150	MHAP-PI, Electrical plug-in base	mhap
– Clevis foot for standard cylinder DSBC to ISO 15552	60	MHE2-M1H, In-line valve without electronics, fast-switching valve	mh2
– Clevis foot for standard cylinder DSBG to ISO 15552	69	MHE2-MS1H, In-line valve with electronics, fast-switching valve	mh2
– Clevis foot for standard cylinder to ISO 15552	92	MHE3-M1H, In-line valve without electronics, fast-switching valve	mh2
– Clevis foot for electric cylinder DNCE	369	MHE3-MS1H, In-line valve with electronics, fast-switching valve	mh2
LSP, Low consumption air gun	lsp	MHE4-M1H, In-line valve without electronics, fast-switching valve	mh2
LT, Pneumatic terminal	lt	MHE4-MS1H, In-line valve with electronics, fast-switching valve	mh2
LTE, End clamp	lte	MHJ10, Solenoid valve	mhj9
LTV, Distributor	ltv	MHJ9, Solenoid valve	mhj9
		MHJ9-KMH, Connecting cable	mhj9-kmh

Type	Page/online	Type	Page/online
MHP1		MS-SV-MH, Cover for MS series	973
– 2/2-way valve, semi in-line valve, miniature	mh1	MS-SV-MK, Cover for MS series	973
– 3/2-way valve, semi in-line valve, miniature	mh1	MS-WB, Mounting bracket for MS series	971
MHP2-M1H, Semi in-line valve without electronics, fast-switching valve	mh2	MS-WBM, Mounting bracket for MS series	971
MHP2-MS1H, Semi in-line valve with electronics, fast-switching valve	mh2	MS-WP, Mounting bracket for MS series	971
MHP3-M1H, Semi in-line valve without electronics, fast-switching valve	mh2	MS-WPB, Mounting bracket for MS series	971
MHP3-MS1H, Semi in-line valve with electronics, fast-switching valve	mh2	MS-WPE, Mounting bracket for MS series	971
MHP4-M1H, Semi in-line valve without electronics, fast-switching valve	mh2	MS-WPM, Mounting bracket for MS series	971
MHP4-MS1H, Semi in-line valve with electronics, fast-switching valve	mh2	MS-WR, Mounting bracket for MS series	971
MK, Protective metal conduit	mk	MS-WRS, Hex nut for MS series	971
MKA, Adapter connector, for protective conduits	mka	MS12-DE, Soft-start valve, MS series	ms12-de
MKG, Protective conduit	mkg	MS12-LF, Filter, MS series	ms12-lf
MKGV, Protective conduit fitting	mkgv	MS12-LFM, Fine and micro filter, MS series	ms12-lfm
MKR		MS12-LFX, Activated carbon filter, MS series	ms12-lfx
– Protective conduit	mkr	MS12-LOE, Lubricator, MS series	ms12-loe
– Protective conduit for rotary/lifting module EHMB	456	MS4/MS6-DE, Soft-start valves, MS series	ms4-de
MKRL, Elbow connector for protective conduit	mkrl	MS4/MS6-FRM-FRZ, Distributor block, MS series	ms4-frz
MKV, Protective conduit	mkv	MS4/MS6-LDM1, Membrane air dryer, MS series	ms4-ldm1
MKY, Y-distributor, for protective conduits	mky	MS4/MS6-LF, Filter, MS series	ms4-lf
MLC-8		MS4/MS6-LFM, Fine and micro filter, MS series	ms4-lfm
– Pneumatic valve, for pneumatic feed unit BV	mlc	MS4/MS6-LFX, Activated carbon filter, MS series	ms4-lfx
– Solenoid valve, for pneumatic feed unit BV	mlc	MS4/MS6-LOE, Lubricator, MS series	ms4-loe
MLO-POT-LWG, Displacement encoder	mlo	MS4/MS6/MS12-LWS, Water separator, MS series	ms6-lws
MLO-POT-TLF, Displacement encoder	mlo	MS6-LRE, Electrical pressure regulator, MS series	ms6-lre
MME-MTS-TLF, Displacement encoder	mme	MS6-LRP, Precision pressure regulator, MS series	ms6-lrp
MN1H		MS6-LRPB, Precision pressure regulator, MS series	ms6-lrpb
– 5/2-way valve, to ISO 5599-1	613	MS6-SV, Soft start/quick exhaust valve, MS series	ms6-sv
– 5/2-way valve, to NAMUR	namur	MS9-LF, Filter, MS series	ms9-lf
– 5/3-way valve, to ISO 5599-1	613	MS9-LFM, Fine and micro filter, MS series	ms9-lfm
MN1H-2, 2/2-way valve	mn1h-2	MS9-LFX, Activated carbon filter, MS series	ms9-lfx
MN2H-BZT, Inscription label holder	mn2h-bzt	MS9-LOE, Lubricator, MS series	ms9-loe
MOEBH, 3/2-way valve, midi pneumatic	n_mdp	MSB, Service unit combination, MS series	888
MOEH, 3/2-way valve, midi pneumatic	n_mdp	MSE6, Service unit combination	mse6
MPA, Valve terminal	mpa-s	MSFG	
MPA-C, Valve terminal	mpa-c	– Solenoid coil for Tiger Classic valve	684
MPA-L, Valve terminal MPA-L	738	– Solenoid coil for valves, to ISO 5599-1	634
MPPE, Proportional pressure regulator, 3-way pressure regulator	mppe	MSFW	
MPPE-3-B, Angled socket	mppe-3-b	– Solenoid coil for Tiger Classic valve	684
MPPEs, Proportional pressure regulator, 3-way pressure regulator	mppes	– Solenoid coil for valves, to ISO 5599-1	634
MPYE		MSN1G, Solenoid coil for valves, to ISO 5599-1	634
– Proportional directional control valve	mpye	MSN1W, Solenoid coil for valves, to ISO 5599-1	634
– Proportional directional control valve, 5/3-way valve	mpye	MSSD	
MS-AEND, Mounting plate for MS series	971	– Plug socket	mssd
MS-AG, Connecting plate kit for MS series	971	– Plug socket for solenoid coil MSFG, MSFW	684
MS-AMV, Module connector for MS series	974	– Plug socket for solenoid coil MSN1G, MSN1W, to ISO 5599-1	632
MS-ARMV, Module connector for MS series	974	MTR-DCI, Motor unit	496
MS-DL, Soft-start valve, MS series	952	MTRE-ST, Stepper motor	mtre
MS-EE, On-off valve, MS series	944	MUC, Profile mounting for linear drive DGC	166, 184
MS-EM, On-off valve, MS series	937	MUE	
MS-EM1, On-off valve, MS series	937	– Profile mounting for mini slide EGSL	421
MS-END, Cover cap for MS series	971	– Profile mounting for spindle axis EGC-BS	379
MS-FRM, Branching module, MS series	964	– Profile mounting for spindle axis EGC-HD-BS	390
MS-LFP-C, Filter cartridge for MS series	974	– Profile mounting for toothed belt axis EGC-HD-TB	411
MS-LFP-E, Filter cartridge for MS series	974	– Profile mounting for toothed belt axis EGC-TB	402
MS-LFR, Filter regulator, MS series	900	– Profile mounting for toothed belt axis ELGA-TB	435
MS-LR, Pressure regulator, MS series	916	MUFH, Solenoid valve for mounting frame 2N	m5 compact
MS-LRB, Pressure regulator, MS series	926	MV-LD, Illuminating seal	n_mc_ld
MS-LRP, Precision pressure regulator, MS series	932	MVH-BZ, Inscription label holder	mvh-bz
MS-LWS, Water separator, MS series	911	MVH-B	
MS-MV, Module connector for MS series	971	– 5/2-way valve, Tiger 2000	tiger 2000
MS-MVM, Module connector for MS series	971	– 5/3-way valve, Tiger 2000	tiger 2000
MS-RMV, Module connector for MS series	974		
MS-SV-C, Soft start/quick exhaust valve, MS series	957		

Type	Page/online	Type	Page/online
N			
N, Barbed fitting	n_070302f	NEFC, Connection block for motor controller CMMO-ST	525
N-MS, Female hose connector	n_cnp	NEFU, Cable socket	nefu
N-P, Female hose connector	n_cnp	NEKM, Plug assortment	nekm
NAS		NEV	
– Individual sub-base, ports at side, to ISO 5599-1	632	– End plate kit, to ISO 15407-1	611
– Individual sub-base, to ISO 15407-1	612	– End plate kit, to ISO 5599-1	633
NAU, Individual sub-base, ports underneath, to ISO 5599-1	632	NPAA, Tubing support	npaw
NAV, Manifold sub-base, to ISO 5599-1	633	NPCK, Quick connector	npck
NAW, Manifold sub-base, to ISO 15407-1	611	NPE	
NDV, Blanking plate for vacant position, to ISO 15407-1	611	– Emergency buffer for spindle axis EGC-BS	379
NEBC		– Emergency buffer for spindle axis EGC-HD-BS	390
– Connecting cable	nebc	– Emergency buffer for toothed belt axis EGC-HD-TB	410
– Connecting cable for motor controller CMMO-ST	525	NPFA, Adapter	npfa
– Control cable for motor controller CMMD-AS	512	NPFC	
– Control cable for motor controller CMMO-ST	525	– Reducing nipple for standard cylinder DSBG-160/200 to ISO 15552	78
– Control cable for motor controller CMMP-AS	521	– Threaded fitting	npfc
– Control cable for motor controller CMMS-AS	516	NPFA, Adapter	npfv
– Control cable for motor controller CMMS-ST	529	NPKA, Click fitting	npka
NEBC-M9W5, Connecting cable for terminal CPX	784	NPQH, Push-in fitting	npqh
NEBM		NPQM, Push-in fitting	npqm
– Encoder cable	nebm	NPQM-D	
– Encoder cable for motor controller CMMO-ST	354, 525	– Push-in connector	996
– Encoder cable for servo motor EMME-AS	476, 491	– Push-in fitting	996
– Encoder cable for stepper motor EMMS-ST	506	– Push-in sleeve	997
– Motor cable for motor controller CMMO-ST	524	NPQM-DK, Push-in fitting	997
– Motor cable for servo motor EMME-AS	476	NPQM-H, Push-in bulkhead connector	997
– Motor cable for servo motor EMMS-AS	491	NPQM-L	
– Motor cable for stepper motor	354	– Push-in L-connector	998
– Motor cable for stepper motor EMMS-ST	506	– Push-in L-fitting	998
– Resolver cable for servo motor	491	NPQM-LFK, Multiple distributor	999
NEBP, Connecting cable	nebp	NPQM-LH, Push-in L-fitting	999
NEBS, Connecting cable	nebs	NPQM-LK, Push-in L-fitting	999
NEBU		NPQM-T	
– Connecting cable	1053	– Push-in T-connector	1000
– Connecting cable for solenoid valve VSVA, to ISO 15407-1	611, 612	– Push-in T-fitting	1000
NEBU-M12G5, Connecting cable for valve terminal MPA-L	746	NPQM-Y, Push-in Y-connector	1000
NEBV, Connecting cable	nebv	NPQP-D	
NEBV-S1, Connecting cable	nebv	– Push-in connector	1002
NEBV-H1G2, Connecting cable for E-box VAVE	672	– Push-in fitting	1002
NEBV-S1G44-K, Connecting cable for valve terminal VTUG	736	NPQP-H, Push-in bulkhead connector	1002
NEBV-S1WA25-K, Connecting cable for valve terminal VTUG	736	NPQP-L	
NEBV-S1WA44-K, Connecting cable for valve terminal VTUG	736	– Push-in L-connector	1003
NECA, Multi-pin plug socket	neca	– Push-in L-fitting	1003
NECC		NPQP-LQ, Push-in L-fitting	1003
– Encoder plug for motor controller CMMD-AS	512	NPQP-P, Blanking plug	1003
– Encoder plug for motor controller CMMP-AS	521	NPQP-T	
– Encoder plug for motor controller CMMS-AS	516	– Push-in T-connector	1004
– Encoder plug for motor controller CMMS-ST	529	– Push-in T-fitting	1004
– Plug for controllers CECC	1073	NPQP-Y	
– Plug, for controllers	necc	– Push-in Y-connector	1005
NECU, Plug	necu	– Push-in Y-fitting	1004
NECU-G78		NSC, Isolating disc for creating pressure zones, to ISO 5599-1	633
– Power supply for terminal CPX	786	NST	
– Power supply for terminal CPX-P	1093	– Slot nut for spindle axis EGC-BS	379
NECU-L3G8, Plug connector for terminal CPX-P	1092	– Slot nut for spindle axis EGC-HD-BS	390
NECU-M		– Slot nut for toothed belt axis EGC-HD-TB	411
– Bus connection for terminal CPX	782	– Slot nut for toothed belt axis EGC-TB	402
– Bus connection for terminal CPX-P	1090	NTSD	
NEDU		– Power supply for terminal CPX	786
– Multi-pin plug distributor	nedu	– Power supply socket	ntsd
– Push-in T-connector	nedu	NVF3, 5/2-way valve, to NAMUR	namur
NEDEV, Connecting cable	nebv	NZV , Intermediate plate for connecting the valve terminal sizes O2 and O1, to ISO 15407-1	611

Type	Page/online	Type	Page/online
O		P	
O, Sealing ring	1040	P, Rubber hose	p
OFSW, Special oil for MS series	974	P.BE-CPX	
OGGB, Bernoulli gripper	oggb	– User documentation for terminal CPX	787
OH, Pressure indicator	oh	– User documentation for terminal CPX-P	1093
OK, Sealing ring	1041	P.BP, Operator package, software	software
OK-S1, Sealing ring assortment	1041	P.SW, Software and manual	software
OL, Sealing ring	1040	PAGN	
OL-S1, Sealing ring assortment	1040	– Pressure gauge	pag
OS, OR gate	os	– Pressure gauge for regulator plate VABF	716
OVEM, Vacuum generator, metric	ovem	PAL, Manifold rail for Tiger Classic valve	684
		PAN	
		– Plastic tubing	pan
		– Tubing cutter	zds
		PAN-R, Plastic tubing, for high pressure range	pan-r
		PAN-V0, Plastic tubing, flame-retardant	pan-v0
		PAN-MF, Plastic tubing	pan-mf
		Parallel kinematic, EXPT	expt
		PB, Tubing strap	pb
		PCBC, Soldering base	pcbc
		PCN, Plastic tubing	pcn
		PDAD, Adsorption dryer	pdad
		PE, Pressure switch	pe
		PELV, Protective extra-low voltage	1159
		PEN	
		– Differential pressure switch	pen
		– Plastic tubing, standard O.D., Resistant to cleaning agents	990
		PEV, Pressure switch	pev
		PEV-WD, Angled socket	pev*wd
		PFAN, Plastic tubing, approved for foodstuffs	pfan
		PKB, Spiral wrap for tubing	pkb
		PKS, Tubing support	pks
		PLN, Plastic tubing	pln
		PM, Plastic-coated metal tube	n_070100
		PPL, Cylinder signal generator	ppl
		PPS, Spiral plastic tubing	pps
		PQ, Pipe clamp	pq
		PQ-AL, Pipe	n_070100
		PQ-PA, Plastic pipe	pq
		Pressure sensor, SPAW	spaw
		Proximity sensor for C-slot	
		– SME-10, Magnetic reed	819
		– SME-10M, Magnetic reed	817
		Proximity sensor for T-slot	
		– CRSMT-8M, Magneto-resistive, Suitable for the food industry	812
		– SME-8, Magnetic reed	805
		– SME-8M, Magnetic reed	803
		– SMT-8M-A, Magneto-resistive	808
		PRS, Manifold block for Tiger Classic valve	684
		PRSB, Blanking plate for vacant position, Tiger Classic valve	684
		PS1	
		– Programming cable for motor controller CMMD-AS	512
		– Programming cable for motor controller CMMP-AS	521
		– Programming cable for motor controller CMMS-AS	516
		– Programming cable for motor controller CMMS-ST	529
		PS1-ZK11, Programming cable	cmms-st
		PS1-SAC, Plug	ps1
		PS1-ZC, Plug	ps1
		PU, Plastic tubing	pu
		PUN, Plastic tubing, standard O.D.	991, 994
		PUN-CM, Plastic tubing	pun-cm
		PUN-V0, Plastic tubing, flame-retardant	pun-v0
		PUN-DUO, DUO tubing, standard O.D.	993

Type	Page/online	Type	Page/online
PUN-H, Plastic tubing, standard O.D., hydrolysis-resistant	992, 994	Q	
PUN-H-DUO, DUO tubing, standard O.D., hydrolysis-resistant	993	QH, Ball valve, manually actuated, with female thread	qh
PUN-S, Spiral plastic tubing	pun-s	QH-DR, Limit switch attachment	qh-dr
PUN-S-DUO, Spiral plastic tubing, DUO tubing	pun-s	QH-QS, Ball valve, manually actuated, with push-in connector	qh
PUN-SG, Spiral plastic tubing	pun-sg	QHS-QS, Ball valve, manually actuated, with push-in connector and bulkhead fitting	qh
PV-3-1/8, Heavy-duty palm button valve, 3/2-way valve	n_v18	QM, Sleeve	qm
PWEA, Condensate drain	pwea	QMR, Reducing sleeve	qmr
PZA, Counter	pza	QS	
PZV, Counter	pza	– Push-in connector, Quick Star	1015
PZVT, Timer	pzvt	– Push-in fitting, Quick Star	1014
		QS-B, Push-in fitting, standard	qs-b
		QS-V0, Push-in fitting, flame-retardant	qs-v0
		QSF, Push-in fitting, Quick Star	1016
		QSK, Self-sealing, push-in fitting, standard	qsk
		QSL	
		– Push-in L-connector, Quick Star	1019
		– Push-in L-fitting, Quick Star	1017
		QSLF, Push-in L-fitting, Quick Star	1019
		QSLL, Push-in long L-fitting, Quick Star	1018
		QSLV, Push-in L-fitting, Quick Star	1020
		QSLV2, Multiple distributor, Quick Star	1036
		QSLV3, Multiple distributor, Quick Star	1036
		QSLV4, Multiple distributor, Quick Star	1037
		QSLV6, Multiple distributor, Quick Star	1037
		QSM	
		– Push-in connector, Quick Star, mini	1009
		– Push-in fitting, Quick Star, mini	1008
		QSM-B, Push-in fitting, mini	qsm-b
		QSMF, Push-in fitting, Quick Star, mini	1009
		QSMML	
		– Push-in L-connector, Quick Star, mini	1011
		– Push-in L-fitting, Quick Star, mini	1010
		QSMMLL, Push-in long L-fitting, Quick Star, mini	1010
		QSMMLLV, Push-in long L-fitting, Quick Star, mini	1011
		QSMMLV, Push-in L-fitting, Quick Star, mini	1011
		QSMS, Push-in bulkhead connector, Quick Star, mini	1009
		QSMT	
		– Push-in T-connector, Quick Star, mini	1012
		– Push-in T-fitting, Quick Star, mini	1012
		QSMTL, Push-in T-fitting, Quick Star, mini	1012
		QSMY, Push-in Y-connector, Quick Star, mini	1013
		QSO, Releasing tool, for tubing	qso
		QSP, Cartridge, push-in cartridge	qsp
		QSP10, Adapter	qsp10
		QSQ, Multiple distributor, Quick Star	1038
		QSR, Rotary push-in fitting, standard	qsr
		QSS, Push-in bulkhead connector, Quick Star	1016
		QSSK, Push-in bulkhead connector, Quick Star	1029
		QST	
		– Push-in T-connector, Quick Star	1023
		– Push-in T-fitting, Quick Star	1022
		QSTF, Push-in T-fitting, Quick Star	1023
		QSTL, Push-in T-fitting, Quick Star	1024
		QSW	
		– Push-in connector, Quick Star	1025
		– Push-in fitting, Quick Star	1024
		QSY	
		– Push-in Y-connector, Quick Star	1026
		– Push-in Y-fitting, Quick Star	1025
		QSYL, Push-in Y-fitting, Quick Star	1027
		QSYLV, Push-in Y-fitting, Quick Star	1027
		QSYTF, Multiple distributor	qsytf

Type	Page/online	Type	Page/online
R		S	
R		S-3-PK, Stem actuated micro valve, 3/2-way valve	s-3-pk
– Roller lever valve, 3/2-way valve	r-3	S-3, Micro switch	s-3
– Roller lever valve, 5/2-way valve	r-5	SBA-2N, Memory module	sba
R/O, Roller lever valve, 3/2-way valve	r/o-3	SBN	
RFL, Reflex sensor	rfl	– Swivel mounting for round cylinder DSNU/ESNU	127
RML, Micro reflex sensor	rml	– Swivel mounting for standard cylinder to ISO 6432	112
RO, Roller lever valve, 3/2-way valve	ro-3	SBOA, Cable	sboa
ROS, Roller lever valve, 3/2-way valve	ros-3	SBOA-M-SYSTAINER, Vision system	sbox
RS		SBOC-M, Compact vision system, for standard lenses	
– Roller lever valve, 3/2-way valve	rs-3	with C/CS mount connection	sbox
– Roller lever valve, 4/2-way valve	rs-4	SBOC-Q, Compact vision system, for standard lenses	
RW, Swivel lever valve, 3/2-way valve	rw-3	with C mount connection	sbox
RW/O, Swivel lever valve, 3/2-way valve	rw/o-3	SBOI-Q, Compact vision system, with integrated lens	sbox
RWN/O, Pneumatic limit valve, 3/2-way valve	rwn/o-3	SBS, Inscription label	sbs
		SBSI-B, Code reader	sbsi
		SBSI-Q, Object sensor	sbsi
		SCM, Bulkhead fitting	scm
		SCN, Barbed fitting	n_070302f
		SD, Back pressure end stop	sd-2
		SD-4-WD, Angled socket	sd-4-wd
		SD-SUB	
		– Plug	sd-sub
		– Plug socket	sd-sub
		SDAT-MHS, Proximity sensor, for T-slot	sdatt-mhs
		SDBT, Proximity sensor, N/O contact	sdbt
		SDE1, Pressure sensor with display	834
		SDE3, Pressure sensor with display	sde3
		SDE5, Pressure sensor	839
		SDK, Limit valve, 3/2-way valve	sdk
		SDV, Limit stop signal generator, 3/2-way valve	sdv
		SE, Quick exhaust valve	se
		SEA	
		– Plug	sea
		– Plug socket for solenoid coil EB, to ISO 5599-1	632
		SEA-M12, Plug for I-Port/IO-Link, valve terminal VTUG	736
		SEC-ST, Motor controller	sec-st
		Sensor bracket for opto-electronic sensors, SIEZ	859
		SEU, Quick exhaust valve	seu
		SF-EGC-1	
		– Switch lug for linear drive DGC-HD with heavy-duty guide	205
		– Switch lug for spindle axis EGC-BS	379
		– Switch lug for spindle axis EGC-HD-BS	390
		– Switch lug for toothed belt axis EGC-HD-TB	410
		– Switch lug for toothed belt axis EGC-TB	400
		SF-EGC-2	
		– Switch lug for linear drive DGC-HD with heavy-duty guide	205
		– Switch lug for spindle axis EGC-BS	379
		– Switch lug for spindle axis EGC-HD-BS	390
		– Switch lug for toothed belt axis EGC-HD-TB	410
		– Switch lug for toothed belt axis EGC-TB	400
		SFAB, Flow sensor	sfab
		SFAM, Flow sensor	sfam
		SFC-DC, Motor controller	sfc-dc
		SFC-LACI, Motor controller	sfc-laci
		SFE3, Flow sensor	sfe3
		SFET, Flow sensor	sfet
		SFEV, Flow indicator	sfev
		SFL, Air barrier, receiver/sender nozzle	sfl
		SG	
		– Rod clevis for electric cylinder DNCE	369
		– Rod clevis for compact cylinder to ISO 21287	46
		– Rod clevis for electric cylinder EPCO	352

Type	Page/online	Type	Page/online
– Rod clevis for electric cylinder ESBF	361	SL-DSM, Sensor bracket for swivel module DSM-B	231
– Rod clevis for round cylinder DSNU/ESNU	127	SLE, Linear drive unit, with recirculating ball bearing guide	sle
– Rod clevis for short-stroke cylinder ADVC/AEVC	150	SLF, Mini slide, flat design	slf
– Rod clevis for standard cylinder DSBC to ISO 15552	61	SLG, Linear drive, flat design	slg
– Rod clevis for standard cylinder DSBG to ISO 15552	70	SLM, Linear drive, with guide	slm
– Rod clevis for standard cylinder DSBG-160/200 to ISO 15552	78	SLS, Mini slide, slim design	sls
– Rod clevis for standard cylinder to ISO 15552	93	SLT, Mini slide	309
– Rod clevis for standard cylinder to ISO 6432	112	SLTE, Mini slide, electric	slte
SGA		SMAT-8E, Position transmitter for T-slot, magnetic	smat-8e
– Rod clevis for electric cylinder DNCE	369	SMAT-8M, Position transmitter for T-slot, magnetic	smat-8m
– Rod clevis for compact cylinder to ISO 21287	46	SMB-8C, Mounting kit, for proximity sensors, for T-slot	815
– Rod clevis for electric cylinder EPCO	352	SMB-8E, Mounting kit, for proximity sensors, for T-slot	815
– Rod clevis for electric cylinder ESBF	360	SMB-FENG, Mounting kit, for proximity sensors, for T-slot	815
– Rod clevis for round cylinder DSNU/ESNU	129	SMBK	
– Rod clevis for short-stroke cylinder ADVC/AEVC	150	– Clip for toothed belt axis EGC-TB	402
– Rod clevis for standard cylinder to ISO 15552	61	– Clip for toothed belt axis ELGA-TB	435
– Rod clevis for standard cylinder DSBG to ISO 15552	70	SMBK-8, Cable clip, For T-slot	815
– Rod clevis for standard cylinder DSBG-160/200 to ISO 15552	78	SMBN-10, Mounting, For proximity sensor for C-slot	825
– Rod clevis for standard cylinder to ISO 15552	93	SMBR	
SGS		– Mounting kit, for proximity sensors, for T-slot	815
– Rod eye for electric cylinder DNCE	369	– Mounting kit, for proximity sensors, for round cylinders DSNU/ESNU	128
– Rod eye for compact cylinder to ISO 21287	45	– Mounting kit, For proximity sensor for C-slot	825
– Rod eye for electric cylinder EPCO	352	– Mounting kit for proximity sensor, for standard cylinder DSNU to ISO 6432	112
– Rod eye for electric cylinder ESBF	361	SMBR-8-8/100-S6, Mounting kit, for proximity sensors, for T-slot	815
– Rod eye for rotary/lifting module EHMB	457	SMBZ-8, Mounting kit, for proximity sensors SME/SMT-8	815
– Rod eye for round cylinder DSNU/ESNU	127	SME-1, Proximity sensor, block design	sme-1
– Rod eye for short-stroke cylinder ADVC/AEVC	150	SME-10, Proximity sensor for C-slot, Magnetic reed	816, 819
– Rod eye for standard cylinder DSBC to ISO 15552	61	SME-10M, Proximity sensor for C-slot, Magnetic reed	817
– Rod eye for standard cylinder DSBG to ISO 15552	70	SME-8, Proximity sensor for T-slot, Magnetic reed	801
– Rod eye for standard cylinder DSBG-160/200 to ISO 15552	78	– Heat-resistant	805
– Rod eye for standard cylinder to ISO 6432	112	SME-8M, Proximity sensor for T-slot, Magnetic reed	803
SIE-GD, Sensor socket	sie-gd	SMEO	
SIE-WD, Angled socket	sie-wd	– Proximity sensor, round design, for round cylinder DSNU/ESNU	128
SIE..., Proximity sensor, inductive	826	– Proximity sensor, round design, for standard cylinder to ISO 6432	113
SIEA, Proximity sensor, inductive, analogue output	siea	SMEO-1, Proximity sensor, block design	smeo-1
SIED		SMEO-2, Proximity sensor, block design	smeo-2
– Proximity sensor, inductive, standard switching distance, for DC and AC voltage	sied	SMEO-4U, Proximity sensor, round design	smeo-4
– Proximity sensor, inductive, standard switching distance, for DC and AC voltage, polyamide housing	sied	SMEO-8E	
SIEF, Proximity sensor, inductive, reduction factor 1 for all metals	sief	– Proximity sensor for T-slot, magnetic reed	smeo
SIEF...-WA, Proximity sensor, inductive, reduction factor 1 for all metals, welding field immune	sief	– Proximity sensor for T-slot, magnetic reed, heat-resistant	smeo
SIEH		SMH-AE, Evaluation unit	smh-ae
– Proximity sensor, inductive, increased switching distance	sieh	SMH-S1, Position sensor	smh-1
– Proximity sensor, inductive, increased switching distance, stainless steel housing	sieh	SML, Air barrier, sender nozzle	sml
SIEN		SMM-10, Position marker, For proximity sensor for C-slot	825
– Proximity sensor, inductive, standard switching distance	827	SMM-8, Position marker, For proximity sensor for T-slot	815
– Proximity sensor, inductive, standard switching distance, polyamide housing	828	SMPO-1, Proximity sensor, block design, pneumatic	smpo
SIES-Q, Proximity sensor, inductive, special design	sies-q	SMPO-8E, Proximity sensor, for T-slot, block design	smpo
SIES-8M, Proximity sensor, inductive for T-slot	831	SMT-8-SL, Proximity sensor, N/O contact, sturdy	790
SIEZ		SMT-8F, Proximity sensor, N/O contact, ATEX	smt-if
– Sensor bracket for inductive proximity sensor	830	SMT-8G, Proximity sensor, N/O contact, gripper sensing	smt-8g
– Sensor bracket for opto-electronic sensors	859	SMT-10, Proximity sensor for C-slot, Magneto-resistive	816
SIEZ-8M, Sensor bracket for proximity sensor	833	SMT-10M, Proximity sensor for C-slot, Magneto-resistive	821
SIEZ-LB		SMT-8, Proximity sensor for T-slot, Magneto-resistive	802
– Inscription label	siez-lb	SMT-8M-A, Proximity sensor for T-slot, Magneto-resistive	808
– Inscription label for inductive proximity sensor	830	SMT-C1, Proximity sensor, block design, magneto-inductive	smt-c1
SIEZ-LB for opto-electronic sensors, Inscription label	859	SMTO	
SIM, Plug socket with cable	sim	– Proximity sensor, round design, for round cylinder DSNU/ESNU	128
SK, Hose clip	sk	– Proximity sensor, round design, for standard cylinder to ISO 6432	113
		SMTO-1, Proximity sensor, block design	smto-1
		SMTO-4U, Proximity sensor, round design	smto-4
		SMTO-8E, Proximity sensor for T-slot, magneto-resistive	smto
		SMTSO-1, Proximity sensor, block design	smtso-1

Type	Page/online	Type	Page/online
SMTSO-8E, Proximity sensor for T-slot, magneto-resistive, welding field immune	smtso	SPC11, End-position controller	spc11
SNC		SPTE, Pressure transmitter	spte
– Swivel flange for electric cylinder DNCE	369	SPTW, Pressure transmitter	sptw
– Swivel flange for electric cylinder DNCE	360	SPZ, Slide unit, twin piston	spz
– Swivel flange for short-stroke cylinder ADVCAEVC	149	SRAP, Sensor box, analogue	srap
– Swivel flange for standard cylinder DSBC to ISO 15552	60	SRBF, Limit switch attachments	srbf
– Swivel flange for standard cylinder DSBG to ISO 15552	69	SRBP, Sensor box, binary	srbp
– Swivel flange for standard cylinder to ISO 15552	92	STAF, Stopper cylinder, with flange mounting	staf
SNCB		SV	
– Swivel flange for electric cylinder DNCE	369	– Front panel valve, 3/2-way valve	sv-3
– Swivel flange for compact cylinder ADNGF	135	– Front panel valve, 5/2-way valve	sv-5
– Swivel flange for compact cylinder to ISO 21287	45	SV/O, Front panel valve, 2x3/2-way valve	sv/o
– Swivel flange for electric cylinder EPCO	352	SVE4, Evaluation unit	sve4
– Swivel flange for electric cylinder ESBF	360	SVG, Power supply units	svg
– Swivel flange for short-stroke cylinder ADVCAEVC	150	SVOS, Front panel valve, 3/2-way valve	svos
– Swivel flange for standard cylinder DSBC to ISO 15552	60	SVS	
– Swivel flange for standard cylinder DSBG to ISO 15552	69	– Front panel valve, 3/2-way valve	svs
– Swivel flange for standard cylinder to ISO 15552	92	– Front panel valve, 4/2-way valve	svs
SNCB...R3, Swivel flange for standard cylinder DSBF-C to ISO 15552	85		
SNCL			
– Swivel flange for electric cylinder DNCE	369		
– Swivel flange for compact cylinder ADNGF	135		
– Swivel flange for compact cylinder to ISO 21287	45		
– Swivel flange for electric cylinder EPCO	352		
– Swivel flange for electric cylinder ESBF	360		
– Swivel flange for short-stroke cylinder ADVCAEVC	150		
– Swivel flange for standard cylinder DSBC to ISO 15552	60		
– Swivel flange for standard cylinder DSBG to ISO 15552	69		
– Swivel flange for standard cylinder to ISO 15552	92		
SNCS			
– Swivel flange for electric cylinder DNCE	369		
– Swivel flange for compact cylinder ADNGF	136		
– Swivel flange for compact cylinder to ISO 21287	45		
– Swivel flange for electric cylinder EPCO	352		
– Swivel flange for electric cylinder ESBF	360		
– Swivel flange for short-stroke cylinder ADVCAEVC	150		
– Swivel flange for standard cylinder DSBC to ISO 15552	60		
– Swivel flange for standard cylinder DSBG to ISO 15552	69		
– Swivel flange for standard cylinder to ISO 15552	92		
SNG, Swivel flange for standard cylinder DSBG-160/200 to ISO 15552	77		
SNGB, Swivel flange for standard cylinder DSBG-160/200 to ISO 15552	77		
SNGL, Swivel flange for standard cylinder DSBG-160/200 to ISO 15552	77		
SO-3-PK, Stem actuated micro valve, 3/2-way valve	so-3-pk		
SOE-LKS for opto-electronic sensors, Fibre-optic cutter	859		
SOE4, Fibre-optic unit	soe4		
SOEC-RT, Colour sensor	soec		
SOEG-, SOEL-, Opto-electronic sensor	843		
SOEZ, Fibre-optic cable	soez		
SOEZ-HW, Mounting bracket for opto-electronic sensors	859		
SOEZ-LLG for opto-electronic sensors, Fibre-optic cable, glass fibre	859		
SOEZ-LLK for opto-electronic sensors, Fibre-optic cable, polymer	859		
SOEZ-RFF for opto-electronic sensors, Reflector foil	859		
SOEZ-RFL for opto-electronic sensors, Reflector for laser light	859		
SOEZ-RFS for opto-electronic sensors, Reflector	859		
SOOC			
– Diffuse sensor	sooc		
– Fibre-optic unit	sooc		
SOOF, Fork light barrier	soof		
SOPA, Air gap sensor	sopa		
SPAB, Pressure sensor with display	spab		
SPAW, Pressure sensor	spaw		
SPBA, Pressure sensor for solenoid valve VSVA	spba		

Type	Page/online	Type	Page/online
T		U	
T-5/3-1/4, Pushbutton valve, 5/3-way valve	n_v14	U, Silencer	1101
T-PK, Barbed fitting	n_070302f	UC, Silencer	1101
TAA, Pulse oscillator	taa	UO, Silencer	uo
TAB, Pulse oscillator	tab	UOM, Silencer	uom
TCN, Barbed fitting	n_070302f	UOMS	
TH		– Silencer	uoms
– Finger lever valve, 3/2-way valve	th-3	– Silencer extension	uoms
– Finger lever valve, 5/2-way valve	th-5	UOS, Silencer	uos
TH/O-3-PK-3, Finger lever valve, 3/2-way valve	n_vpk		
THO, Finger lever valve 3/2-way valve	th-3		
Tiger Classic, Solenoid valve	673		
TJK, T-fitting	tjk		
TK, Ring piece	tk		

Type	Page/online	Type	Page/online
V			
V			
– Stem actuated valve, 3/2-way valve	v-3	– Vacuum gauge to EN 837-1	vam
– Stem actuated valve, 5/2-way valve	v-5	– Vacuum gauge to EN 837-1, with red-green range	vam
V-PK, Barbed fitting	n_070302f	VAME	
V/O, Stem actuated valve, 3/2-way valve	v/o	– H-rail mounting for valve terminal VTUG	735
VABA, Pneumatic interface for terminal CPX	785	– Mounting bracket for valve terminal VTSA	717
VABB, Blanking plate for vacant position, valve terminal VTUG	735	VAME-T-M4, H-rail mounting for VUVG	672
VABB-L1-10-W, Blanking plate for vacant position, sub-base valve VUVG, M5/M7	659	VAPB, Ball valve, 2-way ball valve	vapb
VABB-L1-10S, Blanking plate for vacant position, in-line valve VUVG, M5/M7	641	VAS, Suction cup	vas
VABB-L1-14		VASB, Suction cup	vasb
– Blanking plate for vacant position, in-line valve VUVG, G1/8	647	VAVE-L1, E-box for valve VUVG	672
– Blanking plate for vacant position, sub-base valve VUVG, G1/8	665	VBNF, Non-return valve	vbnf
VABB-L1-18		VBOH, Hand slide valve	vboh
– Blanking plate for vacant position, in-line valve VUVG, G1/4	653	VBQF, Quick exhaust valve	vbqf
– Blanking plate for vacant position, sub-base valve VUVG, G1/4	671	VFFK, Flow control/silencer	695
VABD		VFOC, One-way flow control valve	vfof
– Separator for pressure zone separation for manifold rail VABM-L1-14W	665	VFOF	
– Separator for valve terminal VTUG	735	– One-way flow control valve, flat	691
VABF		– One-way flow control valve, function combination	694
– 90° connection plate for valve terminal VTSA	717	VHEM-L, Finger lever valve	vhem-l
– Pressure regulator plate	603	VHEM-P, Pushbutton valve	vhem-p
VABF-L1, Supply plate for valve terminal VTUG	735	VHER, Hand lever valve	vher
VABF-L1-10-P3A4-M5		VK, Amplifier module	os
– Supply plate for in-line valve VUVG, manifold rail M5	641	VL	
– Supply plate for sub-base valve VUVG, manifold rail M5	659	– 5/2-way valve, midi pneumatic	n_mdp
VABF-L1-10-P3A4-M7		– 5/2-way valve, pneumatic valve, to ISO 5599-1	iso 5599-1
– Supply plate for in-line valve VUVG, manifold rail M7	641	– 5/3-way valve, midi pneumatic	n_mdp
– Supply plate for sub-base valve VUVG, manifold rail M7	659	– 5/3-way valve, pneumatic valve, to ISO 5599-1	iso 5599-1
VABF-L1-14-P3A4-G18		– Pneumatic valve 5/2-way for mounting frame 2N	m5 compact
– Supply plate for manifold rail G1/8 for in-line valve VUVG	647	VL-B	
– Supply plate for sub-base valve VUVG, manifold rail G1/8	665	– 5/2-way valve, Tiger 2000	tiger 2000
VABF-L1-18-P3A4-G14		– 5/3-way valve, Tiger 2000	tiger 2000
– Supply plate for in-line valve VUVG, manifold rail G1/4	653	VL/O, Pneumatic valve 3/2-way for mounting frame 2N	m5 compact
– Supply plate for sub-base valve VUVG, manifold rail G1/4	671	VLG, Pulse oscillator	vlg
VABM-L1-10G, Manifold rail M5/M7 for in-line valve VUVG	733	VLHE, Pneumatic valve	vlhe
VABM-L1-10HW		VLO, OR gate	os
– Manifold rail M5/M7 for sub-base valve VUVG	733	VLX, 2/2-way valve	vlx
– Manifold rail M7 for sub-base valve VUVG	659	VMEM	
VABM-L1-10S, Manifold rail M5/M7 for in-line valve VUVG	641	– Stem actuated valve, 3/2-way valve	vmem
VABM-L1-10W, Manifold rail for sub-base valve VUVG, M5	659	– Stem actuated valve, 5/2-way valve	vmem
VABM-L1-14G, Manifold rail G1/4 for in-line valve VUVG	733	VMPA-FB-EPLM, Pneumatic interface for terminal CPX-P	1092
VABM-L1-14S, Manifold rail G1/8 for in-line valve VUVG	647	VMPA-HB, Cover cap for manual override for valves VUVG, valve terminal VTUG	735
VABM-L1-14W		VMPA-KMS, Connecting cable	vmpa-kms
– Manifold rail G1/4 for sub-base valve VUVG	733	VMPA1	
– Manifold rail G1/8 for sub-base valve VUVG	665	– Solenoid valve, 2x2/2-way valve	vmpa1
VABM-L1-18S, Manifold rail G1/4 for in-line valve VUVG	653	– Solenoid valve, 2x3/2-way valve	vmpa1
VABM-L1-18W, Manifold rail G1/4 for sub-base valve VUVG	671	– Solenoid valve, 3/2-way valve	vmpa1
VAD, Vacuum generator	vad	– Solenoid valve, 5/2-way valve	vmpa1
VAD-M, Vacuum generator	vad-m	– Solenoid valve, 5/3-way valve	vmpa1
VAD-M-I, Vacuum generator	vad-m	VMPA1-ST, Inscription label holder	vmpa1-st
VADM, Vacuum generator	vadm	VMPAL-BD, Mounting bracket for valve terminal MPA-L	746
VADMI, Vacuum generator	vadmi	VMPAL-ST, Inscription label holder for valve terminal MPA-L	746
VAEM-L1-S-M1, Sub-D, electrical interface for valve terminal VTUG	735	VN	
VAEM-L1-S-M3, Flat cable plug, electrical interface for valve terminal VTUG	735	– Vacuum generator cartridge	vn
VAEM-L1-S-PT, I-Port interface, electrical interface for valve terminal VTUG	735	– Vacuum generator, electro-pneumatic	vn
VAF, Vacuum filter	vaf	– Vacuum generator, pneumatic	vn
VAK, Vacuum generator	vak	VO, Stem actuated valve, 3/2-way valve	vo-3
VAL, Height compensator	val	VOFA	
VAM		– Control block	vofa
– Vacuum gauge	vam	– Control block for valve terminal VTSA	717
		VOFC	
		– 3/2-way valve	vofc
		– 5/2-way valve	vofc

Type	Page/online	Type	Page/online
VOFD, 3/2-way valve	vofd	– Solenoid valve, 5/3-way valve for valve terminal VTUG	718
VOS, Stem actuated valve, 3/2-way valve	vos	VUVG-L	
VOVG		– Solenoid valve, 2x3/2-way valve	635
– 3/2-way valve, in-line valve	vovg	– Solenoid valve, 5/2-way valve	635
– 3/2-way valve, semi in-line valve	vovg	– Solenoid valve, 5/3-way valve	635
– 3/2-way valve, sub-base valve	vovg	VUVG-S	
– 5/2-way valve, semi in-line valve	vovg	– Solenoid valve, 2x3/2-way valve	635
– 5/2-way valve, sub-base valve	vovg	– Solenoid valve, 5/2-way valve	635
– Solenoid valve	vovg	– Solenoid valve, 5/3-way valve	635
VPE, Pressure switch, for vacuum	vpe	VUVG-S-T1	
VPPE, Proportional pressure regulator, 3/2-way valve	vppe	– Solenoid valve, 2x3/2-way valve for valve terminal VTUG	718
VPPM, Proportional pressure regulator, 3/2-way valve	vppm	– Solenoid valve, 5/2-way valve for valve terminal VTUG	718
VPPX, Proportional pressure regulator, 3/2-way valve	vppx	– Solenoid valve, 5/3-way valve for valve terminal VTUG	718
VPWP		VUVS, Solenoid valve	vuvs
– Proportional directional control valve	vpwp	VUWG	
– Proportional pressure regulator, 5/3-way valve	vpwp	– 2x3/2-way valve, pneumatic valve	vuwg
VS		– 5/2-way valve, pneumatic valve	vuwg
– Stem actuated valve, 3/2-way valve	vs-3	– 5/3-way valve, pneumatic valve	vuwg
– Stem actuated valve, 4/2-way valve	vs-4	VUWS, Pneumatic valve	vuws
VSCS, Pilot valve for valves, to ISO 15407-1	612	VZ, Time delay valve for mounting frame 2N	m5 compact
VSCS-B-M32...C1, Standard valve with square plug, type C	iso 15218	VZA, Time delay valve	vza
VSCS-B-M32...R3, Standard valve with round plug	iso 15218	VZB, Time delay valve	vza
VSNB		VZBA	
– 3/2-way valve, to NAMUR	namur	– Ball valve actuator unit	vzba
– 5/2-way valve, to NAMUR	namur	– Ball valve, 2-way ball valve	vzba
VSNC, Solenoid valve	vsnc	– Ball valve, 3-way ball valve	vzba
VSPA		VZBC	
– 2x3/2-way valve, to ISO 15407-1	606	– Ball valve actuator unit	vzbc
– 5/2-way valve, double pilot, to ISO 15407-1	607	– Ball valve, corrosion-resistant	vzbc
– 5/2-way valve, single pilot, to ISO 15407-1	606	VZO, Time delay valve for mounting frame 2N	m5 compact
– 5/3-way valve, to ISO 15407-1	607	VZOA, Time delay valve	vza
VSVA		VZOB, Time delay valve	vza
– 2x 3/2-way valve, to ISO 5599-1	613	VZPR, Ball valve actuator unit	vzpr
– 2x3/2-way valve, to ISO 15407-1	599	VZQA, Proportional media valve	vzqa
– 5/2-way valve, double solenoid, to ISO 15407-1	600	VZS, Air reservoir	vzs
– 5/2-way valve, single solenoid, to ISO 15407-1	599	VZWD, 2/2-way valve	vzwd
– 5/2-way valve, to ISO 5599-1	613	VZWE, Reverse jet pulse valve, 2/2-way valve	vzwe
– 5/3-way valve, to ISO 15407-1	600	VZWF, 2/2-way valve, force pilot operated	vzwf
– 5/3-way valve, to ISO 5599-1	613	VZWM	
– Double solenoid valve, to ISO 5599-1	621	– 2/2-way valve	vzwm-l
VSVA-T1, Standard valve for valve terminal VTSA	vsva	VZWP, 2/2-way valve, servo controlled	vzwp
VT		VZXF, Angle seat valve	vzxf
– Hollow bolt	vt		
– Hollow bolt for manifold block PRS, Tiger Classic valve	684		
– Hollow bolt for manifold rail PAL, Tiger Classic valve	684		
VTIA, Valve terminal	vtia		
VTOC, Valve terminal	vtoc		
VTSA, Valve terminal VTSA	703		
VTSA-F, Valve terminal	vtsa-f		
VTUB, Valve terminal	vtub		
VTUB-12, Valve terminal	vtub-12		
VTUS, Manifold assembly	vtus		
VUVB			
– Solenoid valve, 3/2-way valve	vuvb		
– Solenoid valve, 4/2-way valve	vuvb		
VUVG, Solenoid valve	635		
VUVG-B			
– Solenoid valve, 2x3/2-way valve	635		
– Solenoid valve, 5/2-way valve	635		
– Solenoid valve, 5/3-way valve	635		
VUVG-B-T1			
– Solenoid valve, 2x3/2-way valve for valve terminal VTUG	718		
– Solenoid valve, 5/2-way valve for valve terminal VTUG	718		

Type	Page/online	Type	Page/online
W			
W, Hand slide valve, 3/2-way valve	w-3	Y-PK, Barbed fitting	n_070302f
WA, Condensate drain	wa	YD, Hydraulic cushioning cylinder	yd
WBN			
– Swivel mounting for round cylinder DSNU/ESNU	127	YSR-C, Shock absorber	ysr-c
– Swivel mounting for standard cylinder to ISO 6432	112	YSRW	
WSM			
– Mounting kit, For proximity sensor for swivel module DSM	825	– Shock absorber	ysrw
– Mounting kit for proximity sensor, for swivel module DSM	216	– Shock absorber for linear drive DGC	183
		– Shock absorber for linear drive DGC-HD with heavy-duty guide	205
		– Shock absorber for toothed belt axis EGC-HD-TB	410
		– Shock absorber for toothed belt axis EGC-TB	400
		YSRW-DGC, Shock absorber	ysrw
		YSRWJ, Shock absorber	ysrwj
		YXCF, Planar surface gantry 2D	yxcf
		YXCL, Linear gantry 2D	yxcl
		YXCS	
		– 3D Gantry	yxcr
		– Single-axis system	yxcsc
		YZL, Hydraulic cushioning cylinder	yzl

Type	Page/online	Type	Page/online
Z			
ZBH			
- Centring sleeve for guided drive DFM	325		
- Centring sleeve for linear drive DGC	183		
- Centring sleeve for linear drive DGC-HD with heavy-duty guide	205		
- Centring sleeve for mini slide DGSL	294, 313		
- Centring sleeve for rotary module ERMB	448		
- Centring sleeve for spindle axis EGC-HD-BS	390		
- Centring sleeve for toothed belt axis EGC-BS	379		
- Centring sleeve for toothed belt axis EGC-HD-TB	410		
- Centring sleeve for toothed belt axis EGC-TB	400		
- Centring sleeve for twin-piston semi-rotary drive DRQD	272		
ZBS			
- Centring pin for linear drive DGC	183		
- Centring pin for linear drive DGC-HD with heavy-duty guide	205		
- Centring pin for spindle axis EGC-HD-BS	390		
- Centring pin for toothed belt axis EGC-BS	379		
- Centring pin for toothed belt axis EGC-HD-TB	410		
- Centring pin for toothed belt axis EGC-TB	400		
ZBV, Connector sleeve for mini slide DGSL	295		
ZDS, Disconnecting pliers, for tubing	zds		
ZK			
- AND module	zk		
- Logic component, AND function	zk		
ZMS, Connecting pliers, for tubing	zms		
ZNCF			
- Trunnion flange for electric cylinder DNCE	369		
- Trunnion flange for compact cylinder ADNGF	136		
- Trunnion flange for compact cylinder to ISO 21287	45		
- Trunnion flange for electric cylinder EPCO	352		
- Trunnion flange for electric cylinder ESBF	360		
- Trunnion flange for short-stroke cylinder ADVC/AEVC	149		
- Trunnion flange for standard cylinder DSBC to ISO 15552	60		
- Trunnion flange for standard cylinder DSBG to ISO 15552	69		
- Trunnion flange for standard cylinder to ISO 15552	92		
ZR, Pipe cutter	zr		
ZRS, Pipe and tubing cutter	zrs		
ZSB, Control block for two-hand start	zsb		

Type	Page/online	Type	Page/online
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Designation	Page/online	Designation	Page/online
A			
Accessories for drives, see Drive accessories			
Activated carbon filter			
– LFX, D series, metal	lfx	– EAMM-A for spindle axis EGC-BS	381
– MS12-LFX, MS series	ms12-lfx	– EAMM-A for spindle axis EGC-HD-BS	391
– MS4/MS6-LFX, MS series	ms4-lfx	– EAMM-A for toothed belt axis EGC-HD-TB	410
– MS9-LFX, MS series	ms9-lfx	– EAMM-A for toothed belt axis EGC-TB	401
Adapter		– EAMM-A for toothed belt axis ELGA	434
– AD	ad	– EAMM-A for toothed belt axis ELGR	444
– AD for compact cylinder to ISO 21287	46	– EAMM-A for electric cylinder DNCE	373
– AD for standard cylinder to ISO 15552	93	Axis controller, CPX-CMAX	cpx-cmax
– DSM-FF for mounting kit WSM, for swivel module DSM	216		
– DSM-FF for stop kit KSM, for swivel module DSM	216		
– FB-TA, T-shape	fb-ta		
– NPFA	npfa		
– NPFV	npfv		
– QSP10	qsp10		
Adapter connector, MKA, for protective conduits	mka		
Adapter kit, EAHA for electric cylinder EPCO	352		
Adapter plate kit, EHAM for rotary/lifting module EHMB	457		
Adding counter, CCES	cces		
Addressing cable, KASI-ADR	kasi-adr		
Adsorption dryer, PDAD	pdad		
Air barrier			
– SFL, receiver/sender nozzle	sfl		
– SML, sender nozzle	sml		
Air consumption	1151		
Air cushion plate, ATBT	atbt		
Air dryer, see Adsorption dryer			
Air gap sensor, SOPA	sopa		
Air nozzle, LPZ	lpz		
Air reservoir			
– CRVZS	1099		
– VZS	vzs		
Amplifier module, VK	os		
AND module, ZK	zk		
Angle compensation, ESWA	eswa		
Angle gripper			
– DHWS	554		
– HGWC	hgwc		
– HGWM	hgwm		
Angle seat valve, VZXF	vzxf		
Angled socket			
– MPPE-3-B	mppe-3-b		
– PEV-WD	pev*wd		
– SD-4-WD	sd-4-wd		
– SIE-WD	sie-wd		
Approvals	1154		
AS-Interface® components, AS-i	as-i		
AS-i module, CESA	cesa		
AS-interface	AS-i		
Assemblies	1113		
ATEX 94/9/EC	1152		
Attachment for H-rail mounting			
– CPX-CPA-BG-NRH for terminal CPX	786		
– CPX-CPA-BG-NRH for terminal CPX-P	1093		
Attachment for wall mounting			
– CPX-BG-RW for terminal CPX	786		
– CPX-BG-RW for terminal CPX-P	1093		
Axial kit			
– EAMM-A for electric cylinder ESBF	363		
– EAMM-A for mini slide EGSL	420		
– EAMM-A for rotary module ERMB	448		

Designation	Page/online	Designation	Page/online
B			
Back pressure end stop, SD	sd-2	- FBA-2	fb-a-2
Ball valve		- FBA-2-M12-5POL for terminal CPX	782
- VAPB, 2-way ball valve	vapb	- FBA-2-M12-5POL for terminal CPX-P	1090
- VZBA, 2-way ball valve	vzba	- FBS-SUB-9 for terminal CPX	781
- VZBA, 3-way ball valve	vzba	- FBS-SUB-9 for terminal CPX-P	1090
- VZBC, corrosion-resistant	vzbc	- FBSD-KL	fb-sd-kl
Ball valve actuator unit		- FBSD-KL-2x5POL for terminal CPX	782
- VZBA	vzba	- FBSD-KL-2x5POL for terminal CPX-P	1090
- VZBC	vzbc	- NECU-M for terminal CPX	782
- VZPR	vzpr	- NECU-M for terminal CPX-P	1090
Ball valve, manually actuated		Bus node	
- QH-QS, with push-in connector	qh	- CPX-FB for terminal CPX	781
- QH, with female thread	qh	- CPX-FB for terminal CPX-P	1090
- QHS-QS, with push-in connector and bulkhead fitting	qh	Butterfly valve, see Hygienic butterfly valve	
Barbed fitting			
- CN	n_070302f		
- CRCN, stainless steel	n_070302f		
- FCN	n_070302f		
- L-PK	n_070302f		
- LCN	n_070302f		
- LCNH	n_070302f		
- N	n_070302f		
- RTU	n_070302f		
- SCN	n_070302f		
- T-PK	n_070302f		
- TCN	n_070302f		
- V-PK	n_070302f		
- Y-PK	n_070302f		
- Basic valve LC			
- Pneumatic valve	lc		
- Solenoid valve	lc		
Bellows actuator			
- EB, bellows	eb		
- EBS, rolling bellows	ebs		
Bellows gripper, DHEB	dheb		
Bernoulli gripper, OGGB	oggb		
Blanking plate for vacant position			
- NDV-VDMA for standard valves, to ISO 15407-1	611		
- PRSB for manifold block PRS, Tiger Classic valve	684		
- VABB for valve terminal VTUG	735		
- VABB-L1-10 S for in-line valve VUVG, manifold rail M5/M7	641		
- VABB-L1-10-W for sub-base valve VUVG, manifold rail M5/M7	659		
- VABB-L1-14 for in-line valve VUVG, manifold rail G1/8	647		
- VABB-L1-14 for sub-base valve VUVG, manifold rail G1/8	665		
- VABB-L1-18 for in-line valve VUVG, manifold rail M5/M7	653		
- VABB-L1-18 for sub-base valve VUVG, manifold rail G1/4	671		
Blanking plug			
- B	b-1		
- NPQP-P	1003		
Blanking screw, DAMD for standard cylinder DSBF to ISO 15552	85		
Branching module			
- FRM, D series, metal	frm		
- MS-FRM, MS series	964		
Buckling load graph	1150		
Bulkhead fitting, SCM	scm		
Bus connection			
- CPX-AB-2-M12-RK for terminal CPX	782		
- CPX-AB-2-M12-RK for terminal CPX-P	1090		
- FBA-1	fb-a-1		
- FBA-1-KL-5POL for terminal CPX	782		
- FBA-1-SL-5POL for terminal CPX	782		
- FBA-1-SL-5POL for terminal CPX-P	1090		

Designation	Page/online	Designation	Page/online
C			
Cable, SBOA	sboa	– LBG for compact cylinder to ISO 21287	45
Cable clip, SMBK-8, For T-slot	815	– LBG for electric cylinder EPCO	352
Cable distributor, ASI-KVT	asi-kvt	– LBG for electric cylinder ESBF	360
Cable socket		– LBG for round cylinder DSNU/ESNU	129
– ASI-SD	asi-sd	– LBG for standard cylinder DSBC to ISO 15552	60
– NEFU	nefu	– LBG for standard cylinder DSBG to ISO 15552	69
Cam		– LBG for standard cylinder to ISO 15552	92
– EAPS for rotary/lifting module EHMB	457	– LBG used with rod eye SGS for short-stroke cylinder ADVC/AEVC	150
– EAPS-...-CK, for rotary module ERMB	448	– LBG used with swivel flange SNCS for short-stroke cylinder ADVC/AEVC	150
Cantilever axis, DGEA-ZR with recirculating ball bearing guide	dgea	– LBN	lbn
Cartridge, QSP, push-in cartridge	qsp	– LBN for compact cylinder to ISO 21287	45
Cartridge cylinder, EGZ	egz	– LBN for electric cylinder EPCO	352
Cartridge solutions	1117	– LBN for round cylinder DSNU/ESNU	127
Cassette valve		– LBN for standard cylinder to ISO 6432	112
– Pneumatic valve	cm	– LN	ln
– Solenoid valve	cm	– LN/LNG for standard cylinder DSBG-160/200 to ISO 15552	78
CE marking	1154	– LNG	lng
Centring pin		– LNG for electric cylinder ESBF	360
– ZBS	zbs	– LNG for short-stroke cylinder ADVC/AEVC	150
– ZBS for linear drive DGC	183	– LNG for standard cylinder DSBC to ISO 15552	60
– ZBS for linear drive DGC-HD with heavy-duty guide	205	– LNG for standard cylinder DSBG to ISO 15552	69
– ZBS for spindle axis EGC-HD-BS	390	– LNG for standard cylinder to ISO 15552	92
– ZBS for toothed belt axis EGC-BS	379	– LSN for electric cylinder ESBF	360
– ZBS for toothed belt axis EGC-HD-TB	410	– LSN for short-stroke cylinder ADVC/AEVC	150
– ZBS for toothed belt axis EGC-TB	400	– LSN for standard cylinder DSBC to ISO 15552	60
Centring sleeve		– LSN for standard cylinder DSBG to ISO 15552	69
– ZBH	zbh	– LSN for standard cylinder DSBG-160/200 to ISO 15552	78
– ZBH for guided drive DFM	325	– LSN for standard cylinder to ISO 15552	93
– ZBH for linear drive DGC	183	– LSNG	lsng
– ZBH for linear drive DGC-HD with heavy-duty guide	205	– LSNG for electric cylinder ESBF	360
– ZBH for mini slide DGSL	294, 313	– LSNG for short-stroke cylinder ADVC/AEVC	150
– ZBH for rotary module ERMB	448	– LSNG for standard cylinder DSBC to ISO 15552	60
– ZBH for spindle axis EGC-HD-BS	390	– LSNG for standard cylinder DSBG to ISO 15552	69
– ZBH for toothed belt axis EGC-BS	379	– LSNG for standard cylinder to ISO 15552	77
– ZBH for toothed belt axis EGC-HD-TB	410	– LSNG for standard cylinder to ISO 15552	92
– ZBH for toothed belt axis EGC-TB	400	– LSNSG for electric cylinder ESBF	360
– ZBH for twin-piston semi-rotary drive DRQD	272	– LSNSG for short-stroke cylinder ADVC/AEVC	150
Checkbox		– LSNSG for standard cylinder DSBC to ISO 15552	60
– CHB	chb	– LSNSG for standard cylinder DSBG to ISO 15552	69
– CHB-C, Compact	chb-c	– LSNSG for standard cylinder to ISO 15552	92
Clamping cartridge, KP	kp	Click fitting, NPKA	npka
Clamping component, DADL-EC	dadl-ec	Clip	
Clamping module, EV	ev	– SMBK for toothed belt axis EGC-TB	402
Clamping unit		– SMBK for toothed belt axis ELGA-TB	435
– DADL-EL	dadl-el	Code reader, SBSI	sbsi
– DADL-EL for semi-rotary drive DRRD	254	Colour sensor, SOEC-RT	soec
– KEC	kec	Compact cylinder	
– KEC-S	kec	– ADN-EL	adn-el
– KPE	kpe	– ADNGF	adngf
Clean room suitability	1155	– ADNGF, with guide rods and yoke plate, double-acting	132
Clevis foot		– ADNP	adnp
– CRLBN, stainless steel	crlnb	– ADVU, double-acting	advu
– CRLNG for standard cylinder DSBF-C to ISO 15552	85	– ADVUL, double-acting	advul
– CRLNG, stainless steel	crlnb	– ADVUL, non-rotating	advul
– CRSBS, stainless steel	crsbs	– AEVU, single-acting	aevu
– LBG	lbg	– CDC	cdc
– LBG for compact cylinder ADNGF	136	– CDC, double-acting, Clean Design	cdc
– LBG for electric cylinder DNCE	369	– ADN-KP, double-acting, standard hole pattern with clamping unit	40
– LNG for electric cylinder DNCE	369	Compact cylinder to ISO 21287	
– LSN for electric cylinder DNCE	369	– ADN, double-acting	35
– LSNG for electric cylinder DNCE	369	– AEN, single-acting	35
– LSNSG for electric cylinder DNCE	369	Compact cylinder to ISO 21287, with polymer end caps, ADNP, double-acting	35
		Compact Performance, Solenoid valve CPE	cpe

Designation	Page/online	Designation	Page/online
Compact vision system		Connecting shaft, KSK	ksk
– SBOC-M, for standard lenses with C/CS mount connection	sbox	Connection block	
– SBOC-Q, for standard lenses with C mount connection	sbox	– CPX-AB for terminal CPX	784
– SBOI-Q, with integrated lens	sbox	– CPX-AB for terminal CPX-P	1091
Compensating component, EADC for electric cylinders DNCE	370	– NEFC for motor controller CMMO-ST	525
Components, see AS-Interface® components		Connector sleeve, ZBV for mini slide DGSL	295
Compressed air consumption analysis	1132	Control block	
Compressed air generation, Energy analysis	1130	– CPX-CEC, For terminal CPX	cpx-cec
Compressed air piping, see Pipe; Plastic pipe; Plastic-coated metal tube		– CPX-CEC for terminal CPX	781
Compressed air preparation	1140	– CPX-CMXX, For terminal CPX	cpx-cmxx
Compressed air quality analysis	1134	– CPX-FEC for terminal CPX	781
Condensate drain		– VOFA	vofa
– PWEA	pwea	– VOFA for valve terminal VTSA	717
– WA	wa	Control block for two-hand start, ZSB	zsb
Connecting block, CAPC-F1-E-M12 for valve terminal VTUG		Control cabinets	1107, 1109, 1110
with fieldbus node CTEU	737	Control cabinets for controllers	1110
Connecting cable		Control cabinets for handling systems	1110
– FEC-KBG	fec-kgb	Control cable	
– KEA	kea	– KES	kes
– KM12	n_km12_km8	– KES-MC for motor unit MTR-DCI	499
– KM12 for solenoid coil EB, to ISO 5599-1	632	– NEBC for motor controller CMMD-AS	512
– KM12-DUO-M8 for terminal CPX	784	– NEBC for motor controller CMMO-ST	525
– KM12-DUO-M8 for terminal CPX-P	1092	– NEBC for motor controller CMMP-AS	521
– KM12-M12 for terminal CPX	784	– NEBC for motor controller CMMS-AS	516
– KM12-M12 for terminal CPX-P	1092	– NEBC for motor controller CMMS-ST	529
– KM8	n_km12_km8	Control system, CMCA	cmca
– KM8-M8 for terminal CPX	784	Controller	
– KM8-M8 for terminal CPX-P	1092	– CECX-X	cecxc
– KMC for solenoid coil MSN1G, MSN1W, to ISO 5599-1	632	– CECX-C1	cecxc-x-c1
– KMF for solenoid coil MSFG, MSFW	684	– CECX-M1	cecxc-x-m1
– KMP3	kmp	– CMXR-C1	cmxr-c1
– KMP4	kmp	– CMXR-C2	cmxr-c2
– KMP6	kmp	Countbox, CHB-CB	chb-cb
– KMP6 for multi-pin plug connection, valve terminal VTUG	736	Counter	
– KMPYE	kmpye	– PZA	pza
– KRP	krp	– PZV	pza
– KV-M12	kv-m12	Coupling	
– KV-M12 for terminal CPX	784	– EAMC	eamc
– KVI	kvi	– EAMD	eamd
– KVI-CP for terminal CPX	783	Coupling piece	
– KVIA	kvia	– KSG	ksg
– MHJ9-KMH	mhj9-kmh	– KSG for compact cylinder to ISO 21287	46
– NEBC	nebc	– KSG for electric cylinder EPCO	352
– NEBC for motor controller CMMO-ST	525	– KSG for round cylinder DSNU/ESNU	127
– NEBC-M9W5 for terminal CPX	784	– KSG for short-stroke cylinder ADVC/AEVC	150
– NEBP	nebp	– KSG for standard cylinder DSBC to ISO 15552	61
– NEBS	nebs	– KSG for standard cylinder DSBG to ISO 15552	70
– NEBU	1053	– KSG for standard cylinder to ISO 15552	93
– NEBU for solenoid valve VSVA, to ISO 15407-1	611, 612	– KSG for standard cylinder to ISO 6432	112
– NEBU-M12G5 for valve terminal MPA-L	746	– KSZ	ksz
– NEBV	nebv	– KSZ for electric cylinder DNCE	369
– NEBV-S1	nebv	– KSZ for compact cylinder to ISO 21287	46
– NEBV-H1G2 for E-box VAVE	672	– KSZ for electric cylinder ESBF	361
– NEBV-S1G44-K for multi-pin plug connection, valve terminal VTUG	736	– KSZ for round cylinder DSNU/ESNU	127
– NEBV-S1WA25-K for multi-pin plug connection, valve terminal VTUG	736	– KSZ for standard cylinder to ISO 6432	112
– NEBV-S1WA44-K for multi-pin plug connection, valve terminal VTUG	736	Cover	
– NEDV	nebv	– AK-8KL for terminal CPX	784
– VMPA-KMS	vmpa-kms	– AK-8KL for terminal CPX-P	1092
Connecting cables, see Plug socket with cable, flat cable, connecting cable, cable, addressing cable, control cable, programming cable		– DADS for mini slide DGSL	295
Connection plate, 90°, VABF, for valve terminal VTSA	717	– EASC for mini slide EGSL	418
Connecting plate kit, MS-AG for MS series	971	– EASC for rotary/lifting module EHMB	456
Connecting pliers, ZMS, for tubing	zms	– EASC-...-F for mini slide EGSL	418
		– MS-SV-MH for MS series	973

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– MS-SV-MK for MS series	973	D	
Cover cap		Description	documentation
– AKM for swivel module DSM-B	233	Design awards	1155
– GRK	692, 693	Differential pressure regulator	
– ISK	isk	– LRL	lrl
– MS-END for MS series	971	– LRLl	lrl
– VMPA-HB for manual override for valves VUVG, valve terminal VTUG	735	Differential pressure switch, PEN	pen
CP interface, CPX-CP for terminal CPX	783	Disconnecting pliers, ZDS, for tubing	zds
CPV10-EX-VI, Manifold assembly to ATEX	cpv10-ex	Displacement encoder	
CPX terminal	747	– MLO-POT-LWG	mlo
CPX-P terminal	1074	– MLO-POT-TLF	mlo
Cushioning kit, DSM-P-B for swivel module DSM-B	231	– MME-MTS-TLF	mme
Cushioning mount, DSM-...-B for swivel module DSM-B	231	Display and control unit for sensors, see Signal converter	
Cylinder		Distributor, LTV	ltv
– DNCKE-S, with clamping unit, safety component	dncke-s	Distributor block	
– DNCKE, with clamping unit	dncke	– FR	fr
Cylinder signal generator, PPL	ppl	– FRZ, for D series, metal	frz
Cylinder/valve combination, DNC-V, standard cylinder	dnc-v	– MS4/MS6-FRM-FRZ, MS series	ms4-frz
		Double nipple	
		– E	e-1
		– ESK	esk
		Double pilot valve 5/2-way	
		– J for mounting frame 2N	m5 compact
		– JD for mounting frame 2N	m5 compact
		Drive accessories, see Adapter; Central mounting; Centring pin; Centring sleeve; Clevis foot; linear guide; clamping cartridge; clamping unit; Coupling piece; Hex nut; Right-angle clevis foot; Rod clevis; Rod eye; Self-aligning rod coupler; Slot cover; Slot nut; Threaded pin; Trunnion support	
		Drive shaft, EAMB for toothed belt axis EGC-TB	402
		DUO tubing, standard O.D.	
		– PUN-DUO	993
		– PUN-H-DUO, hydrolysis-resistant	993

Designation	Page/online	Designation	Page/online
E		Exhaust air flow control valve, GRE	gru
E-box, VAVE-L1 for valve VUVG	672	Explosion protection directive 94/9/EC	1152
Earthing component, CPX-EPFE-EV for terminal CPX	781		
EC directives	1154		
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– HGPD	hgpd	– NECU-L3G8 for terminal CPX-P	1092
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– HGPLE, electric, sturdy with long stroke	hgple	– FBSD	fbsd
– HGPM	hgpm	– MSSD	mssd
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– EAMM-U for spindle axis EGC-HD-BS	391	– KME	kme
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Pipe and tubing cutter, ZRS	zrs	Plug-in card for additional I/Os, CAMC for motor controller CMMD-AS	
Pipe clamp, PQ	pq	Plug-in card for fieldbus interface	
Pipe cutter, ZR	zr	– CAMC for motor controller CMMD-AS	512
Piston rod attachments, see Adapter; Coupling piece; Hex nut; Rod clevis; Rod eye;			
Self-aligning rod coupler			
Planar surface gantry, EXCM	excm	– CAMC for motor controller CMMP-AS	521
Planar surface gantry 2D, YXCF	yxcf	– CAMC for motor controller CMMS-AS	516
Plastic pipe, PQ-PA	pq	– CAMC for motor controller CMMS-ST	529
Plastic tubing, see Spiral plastic tubing			
– PAN	pan	Pneumatic feed unit, BV	
– PAN-R, for high pressure range	pan-r	Pneumatic interface, VMPA-FB-EPLM for terminal CPX-P	
– PAN-V0, flame-retardant	pan-v0	Pneumatic limit valve, RWN/O, 3/2-way valve	
– PAN-MF	pan-mf	Pneumatic sensors, see Air gap sensor	
– PCN	pcn	Pneumatic terminal, LT	
– PFAN, approved for foodstuffs	pfan	Pneumatic valve	
– PLN	pln	– 2x3/2-way valve VSPA, to ISO 15407-1	606
– PU	pu	– 5/2-way valve VSPA, to ISO 15407-1	606
– PUN-CM	pun-cm	– 5/3-way valve VSPA, to ISO 15407-1	606
– PUN-V0, flame-retardant	pun-v0	– Basic valve LC	lc
Plastic tubing, standard O.D.			
– PEN, resistant to cleaning agents	990	– Cassette valve	cm
– PUN	991, 994	– Midi pneumatic	mebh
– PUN-H, hydrolysis-resistant	992, 994	– MLC-8, for pneumatic feed unit BV	mlc
Plastic-coated metal tube, PM	n_070100	– Supplementary range	vl
Plug			
– FBS	fbs	– VLHE	vlhe
– FBS-RJ45	fbs-rj45	– VUWS	vuws
– FBS-SUB	fbs-sub	Pneumatic valve 3/2-way, VL/O for mounting frame 2N	m5 compact
– FBS-SUB-9-WS	fbs-sub-9	Pneumatic valve 5/2-way, VL for mounting frame 2N	m5 compact
– NECC, for controllers	necc	Pneumatic valve, 2/2-way valve, VLX	vlx
– NECU	necu	Pneumatic valve, 2x3/2-way valve, VUWG	vuwg
– PS1-SAC	ps1	Pneumatic valve	5/2-way valve
– PS1-ZC	ps1	– J-B, Tiger 2000	tiger 2000
		– J, to ISO 5599-1	iso 5599-1
		– JD, to ISO 5599-1	iso 5599-1
		– JMVH-B, Tiger 2000	tiger 2000
		– MVH-B, Tiger 2000	tiger 2000
		– VL-B, Tiger 2000	tiger 2000
		– VL, to ISO 5599-1	iso 5599-1
		– VUWG	vuwg
		Pneumatic valve	
		– MVH-B, Tiger 2000	tiger 2000
		– VL-B, Tiger 2000	tiger 2000
		– VL, to ISO 5599-1	iso 5599-1

Designation	Page/online	Designation	Page/online
– VUWG	vuwg	Pressure sensor with display	
Pneumatics interface, VABA for CPX terminal	785	– SDE1	834
Position marker		– SDE3	sde3
– SMM-10, For proximity sensor for C-slot	825	– SPAB	spab
– SMM-8, For proximity sensor for T-slot	815	Pressure switch	
Position sensor, SMH-S1	smh-1	– PE	PE
Position transmitter for T-slot		– PEV	pev
– Magnetic, SMAT-8E	smat-8e	– VPE, for vacuum	vpe
– Magnetic, SMAT-8M	smat-8m	Pressure transmitter	
Positioner, CMSX	cmsx	– SPT	spt
Positioning axis, DMES	dmes	– SPTW	sptw
Power supply		Pressure/force graph	1149
– NECU-G78 for terminal CPX	786	Pressure/force table	1148
– NECU-G78 for terminal CPX-P	1093	Process automation	1109
– NTSD for terminal CPX	786	Profile mounting	
Power supply cable, KPWR-MC for motor unit MTR-DCI	499	– EAHF for electric cylinder ESBF	361
Power supply socket, NTSD	ntsd	– EAHF for electric cylinder DNCE	370
Power supply unit		– EAHF for mini slide EGSL	421
– CACN	cacn	– MUC for linear drive DGC	166, 184
– CACN for motor controller CMMS-ST	529	– MUE for mini slide EGSL	421
– SVG	svg	– MUE for spindle axis EGC-BS	379
Precision flow control valve, GRPO	grpo	– MUE for spindle axis EGC-HD-BS	390
Precision one-way flow control valve, GRP	grp	– MUE for toothed belt axis EGC-HD-TB	411
Precision pressure gauge		– MUE for toothed belt axis EGC-TB	402
– MAP	map	– MUE for toothed belt axis ELGA-TB	435
– MAP for MS series	973	Profile solutions	1123
– MAP for precision pressure regulator LRP	977	Programming cable	
Precision pressure regulator		– KDI	kdi
– LRP	975	– KDI-MC for motor unit MTR-DCI	499
– LRPS	975	– PS1 for motor controller CMMD-AS	512
– MS-LRP, MS series	932	– PS1 for motor controller CMMP-AS	521
– MS6-LRP, MS series	ms6-lrp	– PS1 for motor controller CMMS-AS	516
– MS6-LRPB, MS series	ms6-lrpb	– PS1 for motor controller CMMS-ST	529
Pressure booster, DPA	dpa	– PS1-ZK11	cmms-st
Pressure gauge,		Proportional directional control valve	
see Flanged pressure gauge, flanged precision pressure gauge, pressure gauge kit,		– MPYE	mpye
vacuum gauge		– MPYE, 5/3-way valve	mpye
– MA for MS series	973	– VPWP	vpwp
– MA-EN	ma	Proportional media valve, VZQA	vzqa
– PAGN	pagn	Proportional pressure regulator	
– PAGN for regulator plate VABF	716	– MPPE, 3-way pressure regulator	mppe
Pressure gauge kit, DPA-MA-SET for pressure booster DPA	dpa	– MPPES, 3-way pressure regulator	mppes
Pressure indicator, OH	oh	Proportional pressure regulator	3/2-way valve
Pressure regulator		– VPPE	vppe
– LR-DB, D series, polymer	lr-db	– VPPM	vppm
– LR-G	lr-g	– VPPX	vppx
– LR-QS	lr-qs	Proportional pressure regulator, 5/3-way valve, VPWP	vpwp
– LR, D series, metal	lr	Protection classes	
– LRB-K, manifold combination, D series, metal	lrb	– EN 60529	1157
– LRB, D series, metal	lrb	– IEC 60144	1157
– LRBS, D series, metal	lrbs	Protective conduit	
– LRMA-QS	lrma	– MKG	mkg
– LRS-G	lrs-g	– MKR	mkr
– LRS, D series, metal	lrs	– MKR for rotary/lifting module EHMB	456
– MS-LR, MS series	916	– MKV	mkv
– MS-LRB, MS series	926	Protective conduit fitting, EASA for rotary/lifting module EHMB	456
Pressure regulator combination, LRB-DB, D series, polymer	lrb-db	Protective earth	1159
Pressure regulator plate, VABF, to ISO 15407-1	603	Protective extra-low voltage PELV	1159
Pressure sensor		Protective metal conduit, MK	mk
– SDE5	839	Proximity sensor	
– SPBA, for solenoid valve VSPA	spba	– CRSMEO-4, corrosion-resistant, round design	crsmeo-4
		– SDAT-MHS, for T-slot	sdat-mhs
		– SDBT, N/O contact	sdbt

Designation	Page/online	Designation	Page/online
– SIEA, inductive, analogue output	siea	– NPQH	npqh
– SIED, inductive, standard switching distance, for DC and AC voltage	sied	– NPQM	npqm
– SIED, inductive, standard switching distance, for DC and AC voltage, polyamide housing	sied	– NPQM-D	996
– SIES-Q, inductive, special design	sies-q	– NPQM-DK	997
– SME-1, block design	sme-1	– NPQP-D	1002
– SME-10, For C-slot, Magnetic reed	816	– QS-B, standard	qs-b
– SME-8, For T-slot, Magnetic reed	801	– QS-VO, flame-retardant	qs-vo
– SMEO-1, block design	smeo-1	– QS, Quick Star	1014
– SMEO-2, block design	smeo-2	– QSF, Quick Star	1016
– SMEO-4U, round design	smeo-4	– QSM-B, mini	qsm-b
– SMEO, round design, for round cylinder DSNU/ESNU	128	– QSM, Quick Star, mini	1008
– SMEO, round design, for standard cylinder to ISO 6432	113	– QSMF, Quick Star, mini	1009
– SMP0-1, block design, pneumatic	smpo	– QSW, Quick Star	1024
– SMP0-8E, for T-slot, block design	smpo	Push-in L-connector	
– SMT-10, For C-slot, Magneto-resistive	816	– NPQM-L	998
– SMT-8, For T-slot, Magneto-resistive	802	– NPQP-L	1003
– SMT-8-SL, N/O contact, strudy	smt-8-sl	– QSL, Quick Star	1019
– SMT-8F, N/O contact, ATEX	smt-8f	– QSML, Quick Star, mini	1011
– SMT-8G, N/O contact, gripper sensing	smt-8g	Push-in L-fitting	
– SMT0-1, block design	smt0-1	– NPQM-L	998
– SMT0-4U, round design	smt0-4	– NPQM-LH	999
– SMT0, round design, for round cylinder DSNU/ESNU	128	– NPQM-LK	999
– SMT0, round design, for standard cylinder to ISO 6432	113	– NPQP-L	1003
– SMTSO-1, block design	smtso-1	– NPQP-LQ	1003
Proximity sensor for T-slot		– QSL, Quick Star	1017
– Magnetic reed, heat-resistant, SMEO-8E	smeo	– QSLF, Quick Star	1019
– Magnetic reed, SMEO-8E	smeo	– QSLV, Quick Star	1020
– Magnetic, SMAT-8E	smat-8e	– QSML, Quick Star, mini	1010
– Magnetic, SMAT-8M	smat-8m	– QSMLV, Quick Star, mini	1011
– Magneto-resistive, corrosion-resistant, CRSMT-8	crsmt-8	Push-in long L-fitting	
– Magneto-resistive, SMT0-8E	smt0	– QSLL, Quick Star	1018
– Magneto-resistive, welding field immune, SMTSO-8E	smtso	– QSMLL, Quick Star, mini	1010
Proximity sensor, block design, Magneto-inductive, SMT-C1	smt-c1	– QSMLLV, Quick Star, mini	1011
Proximity sensor, inductive		Push-in sleeve, NPQM-D	997
– SIE...	826	Push-in T-connector	
– SIEF-...-WA, reduction factor 1 for all metals, welding field immune	sief	– NEDU	nedu
– SIEF, reduction factor 1 for all metals	sief	– NPQM-T	1000
– SIEH, increased switching distance	sieh	– NPQP-T	1004
– SIEH, increased switching distance, stainless steel housing	sieh	– QSMT, Quick Star, mini	1012
– SIEN, standard switching distance	827	– QST, Quick Star	1023
– SIEN, standard switching distance, polyamide housing	828	Push-in T-fitting	
Proximity sensor, inductive for T-slot, SIES-8M	831	– NPQM-T	1000
Pulse oscillator		– NPQP-T	1004
– TAA	taa	– QSMT, Quick Star, mini	1012
– TAB	tab	– QSMTL, Quick Star, mini	1012
– VLG	vlg	– QST, Quick Star	1022
Pushbutton valve, see Heavy-duty palm button valve		– QSTF, Quick Star	1023
Push-in bulkhead connector		– QSTL, Quick Star	1024
– NPQM-H	997	Push-in Y-connector	
– NPQP-H	1002	– NPQM-Y	1000
– QSMS, Quick Star, mini	1009	– NPQP-Y	1005
– QSS, Quick Star	1016	– QSMY, Quick Star, mini	1013
– QSSK, Quick Star	1029	– QSY, Quick Star	1026
Push-in connector		Push-in Y-fitting	
– NPQM-D	996	– NPQP-Y	1004
– NPQP-D	1002	– QSY, Quick Star	1025
– QS, Quick Star	1015	– QSYL, Quick Star	1027
– QSM, Quick Star, mini	1009	– QSYLV, Quick Star	1027
– QSW, Quick Star	1025	Push-on flange	
Push-in fitting		– FWSR for swivel module DSM	216
– CQ	n_36446	– FWSR for swivel module DSM-B	231
– CRQS, stainless steel	crqs	Pushbutton valve	
		– F-3-M5, 3/2-way valve	n_vm5

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- K-3-M5, 3/2-way valve	n_vm5	Q	
- K/O-3-PK, 3/2-way valve	n_vpl	Quarter turn actuator	
- T-5/3-1/4, 5/3-way valve	n_v14	- DAPS, Sypar	daps
- VHEM-P	vhem-p	- DFPB, for process automation	dfpb
		Quick connector	
		- CK	n_ck
		- NPCK	npck
		Quick coupling plug	
		- KS1	1032
		- KS2	1032
		- KS3	1032
		- KS4	1033
		- KS5	1033
		- KSS6	1034
		Quick coupling socket	
		- KD1	1032
		- KD2	1032
		- KD3	1032
		- KD4	1033
		- KD5	1033
		- KDMS6	1034
		- KDS6	1034
		Quick exhaust valve	
		- SE	se
		- SEU	seu
		- VBQF	vbqf
		Quickstepper, FSS	fss

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R			
Radial gripper			
– DHRS	559	– SGA for standard cylinder DSBC to ISO 15552	61
– HGRC	hgrc	– SGA for standard cylinder DSBG to ISO 15552	70
– HGRT	hgrt	– SGA for standard cylinder DSBG-160/200 to ISO 15552	78
Ready-to-install solutions	1106	– SGA for standard cylinder to ISO 15552	93
Reducing nipple		Rod eye	
– D	d-1	– CRSGS for standard cylinder DSBF-C to ISO 15552	85
– NPFC for standard cylinder DSBG-160/200 to ISO 15552	78	– CRSGS, stainless steel	crsgs
Reducing sleeve		– SGS	sgs
– DAYH for mini slide DGSL	294	– SGS for electric cylinder DNCE	369
– QMR	qmr	– SGS for compact cylinder to ISO 21287	45
Reflector, SOEZ-RFS for opto-electronic sensors	859	– SGS for electric cylinder EPCO	352
Reflector foil, SOEZ-RFF for opto-electronic sensors	859	– SGS for electric cylinder ESBF	361
Reflector for laser light, SOEZ-RFL for opto-electronic sensors	859	– SGS for rotary/lifting module EHMB	457
Reflex sensor, RFL	rfl	– SGS for round cylinder DSNU/ESNU	127
Regulator lock, LRVS for precision pressure regulator LRP	977	– SGS for short-stroke cylinder ADVC/AEVC	150
Releasing tool, QSO, for tubing	qso	– SGS for standard cylinder DSBC to ISO 15552	61
Repair	1128	– SGS for standard cylinder DSBG to ISO 15552	70
Repair service	1129	– SGS for standard cylinder DSBG-160/200 to ISO 15552	78
Resistance to media	1156	– SGS for standard cylinder to ISO 15552	93
Resolver cable, NEBM for servo motor	491	– SGS for standard cylinder to ISO 6432	112
Retainer		Roller lever valve	
– EAYH for spindle axis EGC-HD-BS	390	– R, 3/2-way valve	r-3
– EAYH for toothed belt axis EGC-HD-TB	410	– R, 5/2-way valve	r-5
– GR-H	692	– R/O, 3/2-way valve	r/o-3
Reverse jet pulse valve, VZWE, 2/2-way valve	vzwe	– RO, 3/2-way valve	ro-3
Right-angle clevis foot		– ROS, 3/2-way valve	ros-3
– LQG	lqg	– RS, 3/2-way valve	rs-3
– LQG for electric cylinder DNCE	369	– RS, 4/2-way valve	rs-4
– LQG for compact cylinder to ISO 21287	46	Roller lever valve with idle return	
– LQG for electric cylinder EPCO	352	– L, 3/2-way valve	l-3
– LQG for electric cylinder ESBF	360	– L, 5/2-way valve	l-5
– LQG for round cylinder DSNU/ESNU	129	– L/O, 3/2-way valve	l/o-3
– LQG for short-stroke cylinder ADVC/AEVC	150	– LO, 3/2-way valve	lo-3
– LQG for standard cylinder DSBC to ISO 15552	61	– LOS, 3/2-way valve	los-3
– LQG for standard cylinder DSBG to ISO 15552	70	– LS, 3/2-way valve	ls-3
– LQG for standard cylinder to ISO 15552	93	– LS, 4/2-way valve	ls-4
Ring piece		Rotary and semi-rotary drive, see Swivel modules	
– LK	lk	Rotary distributor, GF	gf
– TK	tk	Rotary indexing table, DHTG	dhtg
Rod clevis		Rotary module, electric, ERMB	446
– CRSG for standard cylinder DSBF-C to ISO 15552	85	Rotary push-in fitting, QSR, standard	qsr
– CRSG, stainless steel	crsg	Rotary/lifting modules, electric, EHMB	452
– SG	sg	Round cylinder	
– SG for compact cylinder to ISO 21287	46	– CRDSNU, standard cylinder, stainless steel	crdsnu
– SG for electric cylinder EPCO	352	– CRDSW, double-acting, stainless steel	crdsw
– SG for electric cylinder ESBF	361	– DG, double-acting, miniature cylinder	dg
– SG for round cylinder DSNU/ESNU	127	– DSNU, double-acting	118
– SG for short-stroke cylinder ADVC/AEVC	150	– EG-PK, single-acting, micro cylinder	eg-pk
– SG for standard cylinder DSBC to ISO 15552	61	– EG, single-acting, miniature cylinder	eg
– SG for standard cylinder DSBG to ISO 15552	70	– ESNU, single-acting	118
– SG for standard cylinder DSBG-160/200 to ISO 15552	78	Rubber hose, P	p
– SG for standard cylinder to ISO 15552	93	Rubber tubing, see Plastic tubing	
– SG for standard cylinder to ISO 6432	112		
– SG for electric cylinder DNCE	369		
– SGA for electric cylinder DNCE	369		
– SGA	sga		
– SGA for compact cylinder to ISO 21287	46		
– SGA for electric cylinder EPCO	352		
– SGA for electric cylinder ESBF	360		
– SGA for round cylinder DSNU/ESNU	129		
– SGA for short-stroke cylinder ADVC/AEVC	150		

Designation	Page/online	Designation	Page/online
S			
Safety system, CMGA	530	Service unit	
Sales and service network, International	1163	– FRC-DB, D series, polymer	frc
Screening plate		– FRC, D series, metal	frc
– CPX-AB-S-4-M12 for terminal CPX	784	– FRC, D series, polymer	frc
– CPX-AB-S-4-M12 for terminal CPX-P	1091	– FRCS, D series, metal	frcs
Screw, M10 for short-stroke cylinder ADVC/AEVC	149	Service unit combination	
Sealing ring		– FRC, D series, metal	frc
– CRO	1040	– LFR, D series, metal	lfr
– O	1040	– LFRS, D series, metal	lfrs
– OK	1041	– MSB, MS series	888
– OL	1040	– MSE6	mse6
Sealing ring assortment		Service units, MS series	881
– OK-S1	1041	Servo motor, EMMS-AS	467, 478
– OL-S1	1040	Sheet-metal constructions	1119
Selector switch, HW, 3/6-way valve	hw	Shock absorber	
Self-aligning rod coupler		– DYEY	dyef
– FK for electric cylinder DNCE	369	– DYEY for mini slide DGSL	294
– FK	fk	– DYEY for swivel module DSM-B	231
– FK for compact cylinder to ISO 21287	46	– DYEY-S for mini slide DGSL	294
– FK for electric cylinder EPCO	352	– DYSC	dysc
– FK for electric cylinder ESBF	361	– DYSC for swivel module DSM-B	231
– FK for round cylinder DSNU/ESNU	127	– DYSR	dysr
– FK for short-stroke cylinder ADVC/AEVC	151	– DYSW	dysw
– FK for standard cylinder DSBC to ISO 15552	61	– DYSW for mini slide DGSL	294
– FK for standard cylinder DSBG to ISO 15552	70	– DYSW for rotary/lifting module EHMB	457
– FK for standard cylinder DSBG-160/200 to ISO 15552	78	– YSR-C	ysr-c
– FK for standard cylinder to ISO 15552	93	– YSRW	ysrw
– FK for standard cylinder to ISO 6432	112	– YSRW for linear drive DGC	183
Self-sealing, push-in fitting, QSK, standard	qsk	– YSRW for linear drive DGC-HD with heavy-duty guide	205
Semi-rotary drive		– YSRW for toothed belt axis EGC-HD-TB	410
– DRQ	drq	– YSRW for toothed belt axis EGC-TB	400
– DRQD	263	– YSRW-DGC	ysrw
– DRQD-B	263	– YSRWJ	ysrwj
– DRRD	242, 247	Shock absorber retainer	
– DSR, with spigot shaft	dsr	– EAYH for rotary/lifting module EHMB	457
– DSRL, with hollow flanged shaft	dsrl	– EAYH for toothed belt axis EGC-HD-TB	410
Sensing kit		– KYE for spindle axis EGC-BS	379
– DASI-KT for semi-rotary drive DRRD	254	– KYE for toothed belt axis EGC-TB	400
– EAPS-...-S for rotary module ERMB	448	Short-stroke cylinder	
– EAPS-...-S-WH without housing for rotary module ERMB	448	– ADVC, double-acting	140
Sensor box		– AEVC, single-acting	140
– SRAP, analogue	SRAP	Shut-off valve	
– SRBP, binary	SRBP	– HE	686
Sensor bracket		– HE-LO	he-lo
– EAPM for toothed belt axis ELGA-TB	434	Signal converter, SVE4	sve4
– EAPM for toothed belt axis ELGR	443	Silencer	
– EAPS-...-SH, for rotary module ERMB	448	– AMTC	1102
– HWS-EGC for linear drive DGC-HD with heavy-duty guide	205	– AMTE	amte
– HWS-EGC for spindle axis EGC-BS	379	– U	1101
– HWS-EGC for spindle axis EGC-HD-BS	390	– UC	1101
– HWS-EGC for toothed belt axis EGC-HD-TB	410	– UO	uo
– HWS-EGC for toothed belt axis EGC-TB	400	– UOM	uom
– SIEZ for inductive proximity sensor	830	– UOMS	uoms
– SIEZ-8M for proximity sensor	833	– UOS-1	uos
– SL-DSM for swivel module DSM-B	231	Silencer extension, UOMS	uoms
Sensor interface, CASM	casm	Single-axis system, YXCS	yxcs
Sensor socket, SIE-GD	sie-gd	Sleeve, QM	qm
Separator		Slide unit, SPZ, twin piston	spz
– VABD for pressure zone separation for manifold rail VABM-L1-14W	665	Slot cover	
– VABD for valve terminal VTUG	735	– ABP for spindle axis EGC-BS	379
Service	1128	– ABP for spindle axis EGC-HD-BS	390
		– ABP for toothed belt axis EGC-HD-TB	411
		– ABP for toothed belt axis EGC-TB	402

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– ABP-5-S for compact cylinder ADNGF	137	– JMFH for mounting frame 2N	m5 compact
– ABP-5-S for compact cylinder to ISO 21287	47	– JMFH for Tiger 2000	tiger 2000
– ABP-5-S for guided drive DFM	324	– MFH for mounting frame 2N	m5 compact
– ABP-5-S for linear drive DGC	165, 184	– MFH for Tiger 2000	tiger 2000
– ABP-5-S for short-stroke cylinder ADVC/AEVC	151	– MFHE	mfhe
– ABP-5-S for spindle axis EGC-BS	379	– MGTBH, standard valve to NAMUR	iso 15218
– ABP-5-S for spindle axis EGC-HD-BS	390	– MGXIAH, standard valve to NAMUR	iso 15218
– ABP-5-S for standard cylinder DSBC to ISO 15552	61	– MHJ10	mhj9
– ABP-5-S for standard cylinder to ISO 15552	93	– MHJ9	mhj9
– ABP-5-S for toothed belt axis EGC-TB	402	– Midi pneumatic	mebh
– ABP-5-S for twin-piston semi-rotary drive DRQD	273	– MLC-8, for pneumatic feed unit BV	mlc
Slot nut		– MUFH for mounting frame 2N	m5 compact
– HMBN	hmbn	– Supplementary range	bmc
– HMBN for linear drive DGC	166, 184	– Tiger Classic	673
– NST	nst	– VSNC	VSNC
– NST for spindle axis EGC-BS	379	– VUVG	635
– NST for spindle axis EGC-HD-BS	390	– VUVS	vuvs
– NST for toothed belt axis EGC-HD-TB	411	Solenoid valve	2/2-way valve
– NST for toothed belt axis EGC-TB	402	– CDVI5.0, Clean Design	cdvi5.0
– NSTH	nsth	– MHA1-2/2, miniature	mh1
– NSTL	nstl	– MHP1-2/2, miniature	mh1
Socket head screw		– MN1H-2	mn1h-2
– For mounting kit WSM, for swivel module DSM	216	– VZWD	vzwd
– For stop kit KSM, for swivel module DSM	216	– VZWF, force pilot operated	vzwf
SOEG-L, Opto-electronic sensor	850	– VZWM	vzwm-l
SOEG-RSP, Opto-electronic sensor	846	– VZWP, servo controlled	vzwp
SOEG-RT, Opto-electronic sensor	844	Solenoid valve, 2/2-way valve, VZWM	vzwm-l
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SOEG-S/E, Opto-electronic sensor	848	Solenoid valve, 2x3/2-way valve	
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