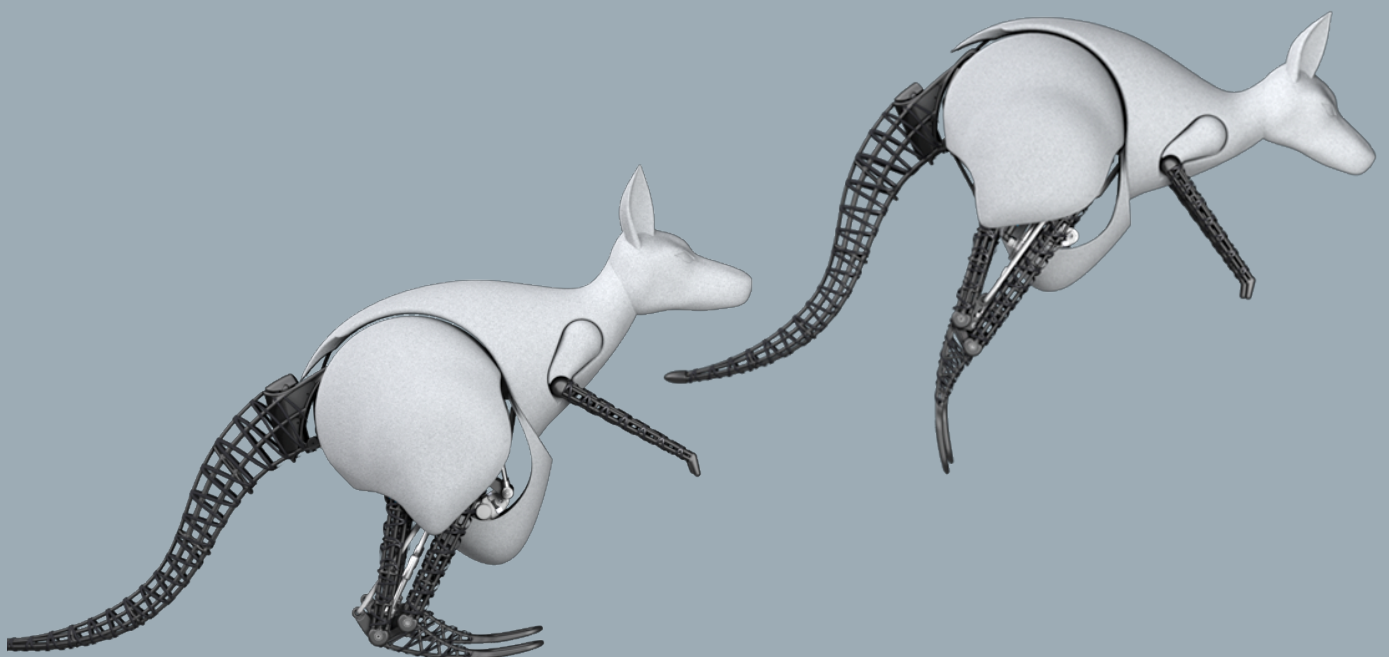


FESTO

Highlights 2015 for more productivity

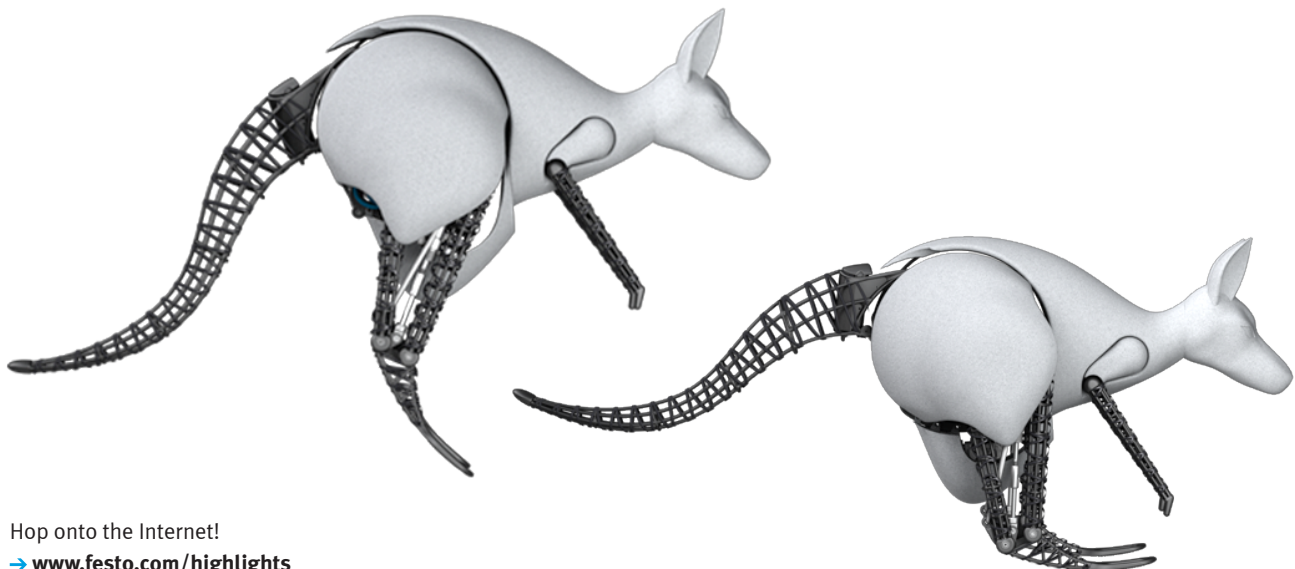


We are pneumatic.

We are electric.

We are 30,000 technology-neutral solutions.

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



Hop onto the Internet!

→ www.festo.com/highlights



Dr. Ansgar Kriwet, Member of the Management Board for Sales of Festo AG

Dear customer,

Fast, flexible and inexpensive – these are the keywords which characterise production today. The relationship between input and output defines economic efficiency. As your partner, Festo provides you with competent support so that you can achieve maximum **productivity**. In **Highlights 2015**, you will find numerous products and valuable information which will put you on the road to the highest levels of productivity.

- You can design any of our standard handling units in less than half an hour with the Handling Guide Online – matched exactly to your requirements. This shortens your planning time by weeks.
- The VUVS is the new benchmark for standard valves. Sturdy, functional and inexpensive – it will surely become your everyday valve.
- You will discover the new NAMUR generation with the valve VSNC. It is certified in accordance with the usual explosion protection standards and can be used in many industry segments and applications.
- The energy efficiency module MSE6-E2M is an absolute world first: it automatically shuts off compressed air supply during idle time, detects leaks and monitors pressure and flow rate.

As you can see, nothing but products and services which increase your productivity. That is our goal – meeting your challenges reliably, simply and efficiently with our automation solutions, services and training programmes.

Discover it again and again: **productivity is our expertise.**

And our passion. That is what makes us the engineers of productivity. Take advantage of it!

A handwritten signature in black ink, appearing to read 'Ansgar Kriwet', with a stylized flourish at the end.

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New approaches to productivity:
automation with superconductors

You want expertise.
You are looking for innovation.
We are the specialists in your industry.

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



Festo: a partner in dialogue, a partner for maximum productivity.

More than ever before, success in our networked world depends on having the right partners. Experts who make a valuable contribution to the achievement of your goals, who know your processes, quickly understand and resolve your challenges – and make you more productive.

To be able to truly respond to your needs, we have reviewed and examined how we can support you more effectively as a business partner. From the very first meeting to full modernisation of your machine or system, we will assist you in all your processes and help you during each and every phase – with services and

support, training and good advice. Take advantage of our expertise whenever you want. Our experts are always at your disposal. They will accompany you on your journey to success with enthusiasm, vision and a strong sense of responsibility. That is the Festo you know, and that is simply the way we are.

Contributing to your success:
your engineers of productivity.



1 What can we do for you? Get to know us!

We do everything we can to make you feel comfortable with us. For example, by making it easy for you to quickly gather information about our entire automation portfolio, ranging from electric and pneumatic solutions for factory automation and process automation to services and industrial training. The applications included in this brochure are a proof of this.

2 Ask us! So you can implement the best possible concept.

Our software tools help you to obtain the most suitable and economically efficient solution quickly. An example is the Handling Guide Online with which you can design your standard handling unit in just 20 minutes – including quotation and CAD data! → More on page 16

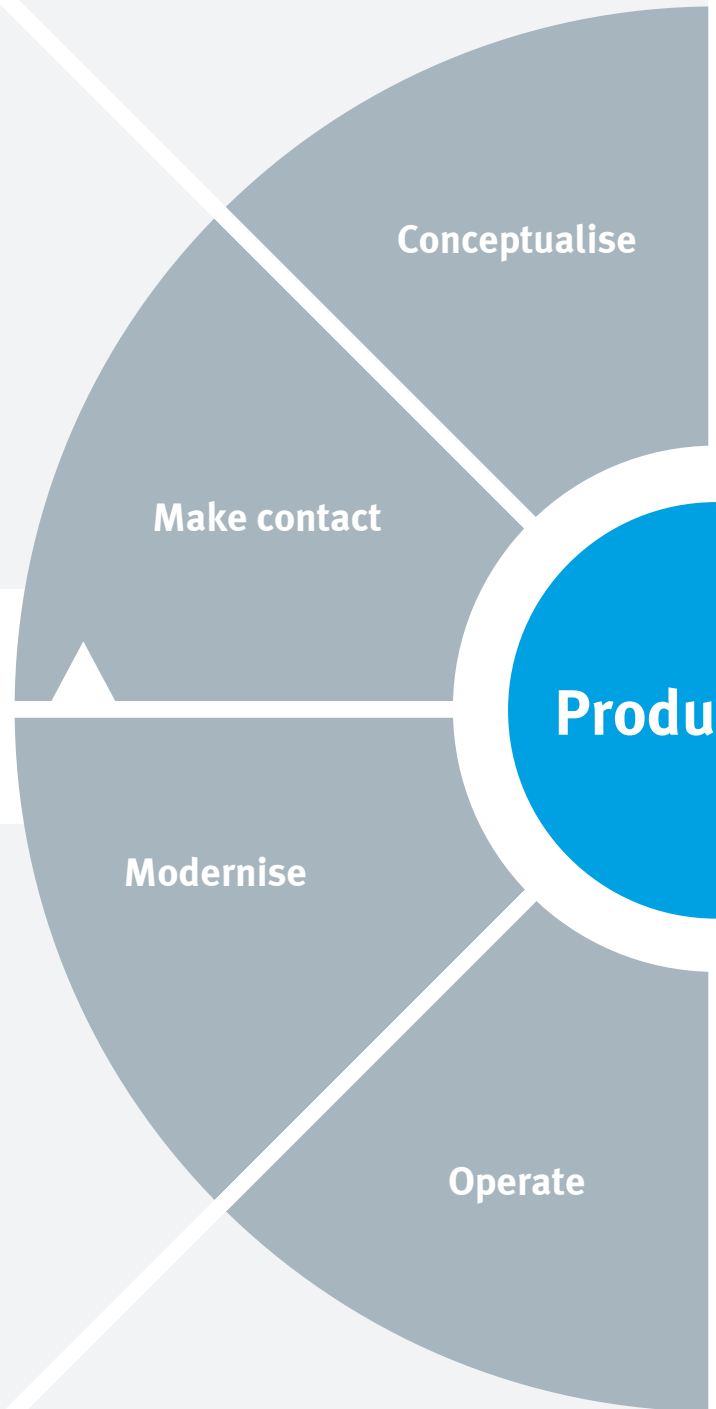
We are ...

8 Modernisation and dismantling are no problem!

We get your machine or system up to date with our modernisation and expansion services – and make it even more productive. As a matter of course, this includes new, frequently simpler and more energy-efficient components with corresponding software. And when a product is phased out? Don't worry! We will suggest a suitable successor product with current software which has been tested for correct functioning. It is always a good feeling to be up-to-date.

7 Everything is up and running!

Minimal downtime and low-maintenance products are important. So is easily exploitable optimisation potential – an additional advantage of having Festo as your partner. For example, the MSE6-E2M saves energy automatically! This world first makes your production line more efficient. → More about the MSE6-E2M on page 32



3 Efficient design right from the start!

Our challenge: your solution must always fit perfectly – and immediately, the first time round. With this in mind, Festo developed the PositioningDrives engineering software for electric drives like the electric cylinder EPCO. → More about the EPCO on page 20

Design

Procure

Assemble

Commission

ctivity

Training and Consulting

4 You can count on us: easy ordering with reliable, on-time delivery.

If you order from our product range marked with the star, you will get Festo quality at an attractive price. For example the new standard valve VUVS for robust applications. Easy to order with just 4 clicks. Price, availability and order tracking – everything is completely transparent. Your order will be ready for shipment within 24 hours. That's a promise! → More about the VUVS on page 24

... there for you!

5 Install and go!

Making installation extremely easy for you – that is our challenge. For example with the new standard cylinder DSBC with self-adjusting cushioning PPS you save loads of time because it adapts itself perfectly to changes in load and speed. No adjustment or readjustment is required. → More about the DSBC on page 12

6 Intelligent and intuitive commissioning.

Simple parameterisation and configuration – even if you are not an expert: for example with the Festo Maintenance Tool for the automation platform CPX. The most important parameters of your valve terminal with CPX interface are then displayed on your laptop.

→ More about the CPX on page 26

Flexible powerhouse: large-diameter cylinder DSBG with tie rods

Completely new design and lots of surprising new functions which make you more productive

The end cap, the piston and the cushioning have been newly developed. The design with tie rods and the redesigned end cap make the DSBG the lightest large-diameter cylinder in its class. Yet its load carrying capacity is greater than that of its predecessor, the DNG, which can be replaced by the current DSBG without any problems at all. Improved protection against overpressure, easier handling and greater efficiency at an attractive price are the advantages of this ground-breaking new design.

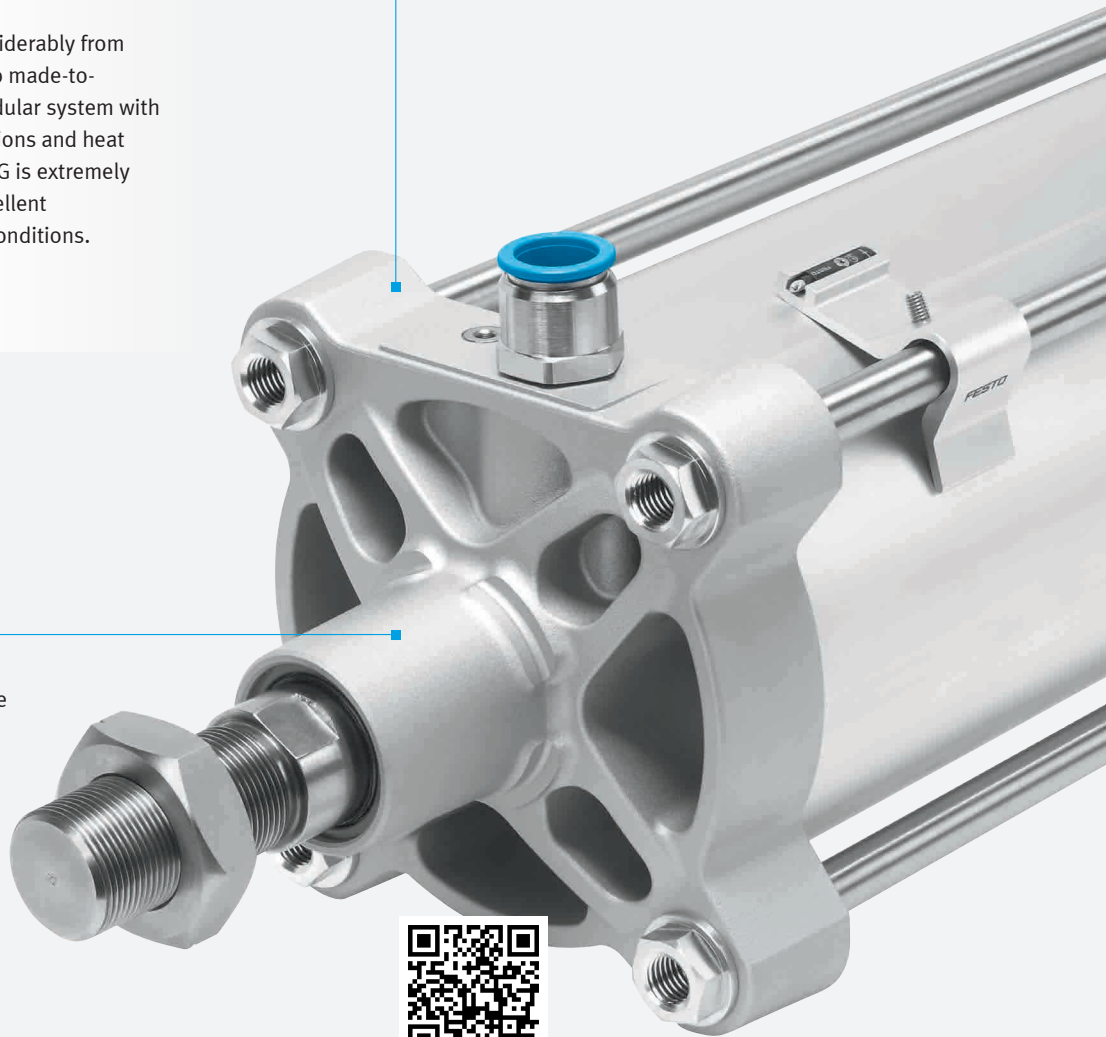
The product concept differs considerably from that of its predecessor. Thanks to made-to-measure strokes and a large modular system with many variants such as ATEX versions and heat resistance up to 150 °C, the DSBG is extremely flexible in use – and delivers excellent performance even under harsh conditions.

New end-cap design

- 20% lighter
- And sturdier at the same time

New rod bearing

- Optimised for a long service life
- ATEX version



Find out more:

→ www.festo.com/dsbg

20% lighter than its predecessor, but more powerful: the DSBG surpasses any other drive in its class. It is packed with the concentrated expertise of its developers and it unites a unique design with an ultramodern product concept.



New piston design

- Lighter
- Longer lasting

Designed for harsh conditions

Matching proximity switches SMT-8M-A and powerful pneumatic connection technology make the DSBG unbeatable in any application, even under harsh conditions.



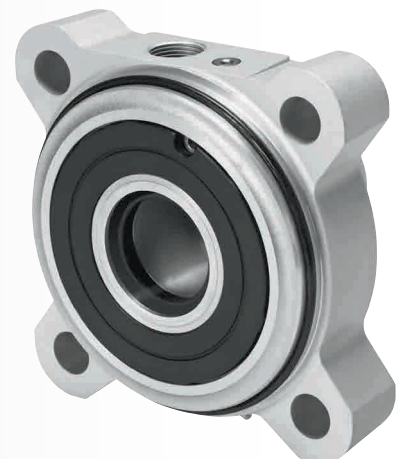
Fits like a glove – retainer DASP-M4-160-A

It provides more secure retention of the proximity switch so that the proximity switch detects the end position accurately, even under harsh conditions.



Inconspicuous but crucial: the elastic cushioning element

The cushioning element is an essential component for the new cylinder. The elastic ring cushions the piston's impact so effectively that it fully absorbs low-level energy and at the same time reduces noise and vibration. At higher energy levels, the elastic cushioning element actively supports the adjustable exhaust air cushioning PPV. The DSBG is very precise in its end positions: even at 3 to 4 bar, the elastomer cushion is compressed after a short time and the piston makes metal-to-metal contact.



Standard cylinder DSBC

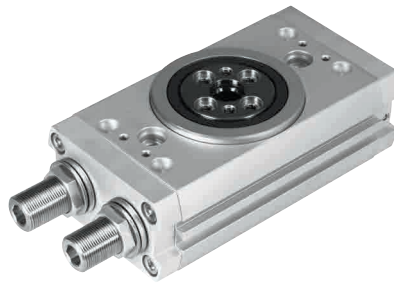


Flexible in use, clever cushioning – reduces setup time!

The DSBC with self-adjusting pneumatic end-position cushioning PPS adapts optimally to changes in load and speed. As a result, you gain time and flexibility and increase process reliability. Its broad range of variants, adaptation to ambient conditions and an individual design make it flexible in use. The DSBC: economical, convenient and reliable.

- Sizes: 32 ... 125 mm
- High process reliability with end-position cushioning PPS
- Extremely low wear
- Time-saving installation
- Easy product selection
- No trouble switching from previous drives DNC/DNCB to DSBC
- Many variants: unrivalled number of features and feature combinations in series products

Semi-rotary drive with piston DRRD



A real go-getter! Big performance for a small price.

The optimised design of the housing, flange and bearings increases its load-bearing capacity and precision. Thanks to its high stability and the absorption of high mass moments of inertia, you can usually opt for one size smaller. And the cushioning is always perfect: elastic for short cycle times, hydraulic for high mass moments of inertia or external hydraulic for full torque in the end position.

- New: now in 11 sizes from 8 ... 63 mm
- More powerful and with a higher load capacity than ever before
- Energy throughfeed for simple and quick supply connections
- Safe: mechanical end-position locking
- Completely sealed variant for harsh environments



product design award



reddot design award winner 2013

2014 ■

Semi-rotary vane drive DRVS



Pure rotary function – at a low price.

The cost-optimised semi-rotary vane drive DRVS is purely focused on performing simple rotary functions. It is a master where rotation is concerned. The compact, sealed design, minimal weight, innovative and simple optional sensing and forces of up to 20 Nm also make it suitable for use in harsh environments, for example in assembly systems, in tool making and in general machine building. It is easy to install and offers infinitely variable rotation up to 270°. The position transmitter SRBS eliminates the need for tedious, time-consuming adjustment during setup. The switching points can be taught in electronically by simply pressing a button – it is easy and error-free.

- Modern, simple and compact design
- Lightweight, sealed, ATEX variants are available
- Wide range of mounting options
- Infinitely adjustable swivel angle
- Comprehensive range of accessories



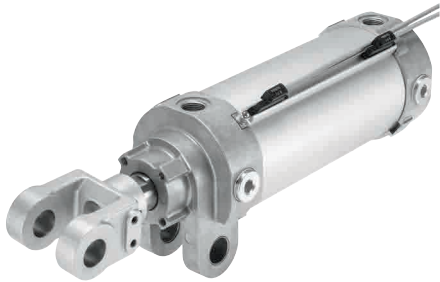
product design award



reddot award 2014 winner

2014 ■

The new generation of hinge cylinders DFAW



Get the weld exactly where it should be: cylinder DFAW and proximity switch SDBT-BSW.

The DFAW clamps components during welding processes. The swivel bearing on the bearing cap makes installation easy and reliable. Included in the accessories are the sensor rail DASP with T-slot and the new, welding spatter-proof proximity switch SDBT-BSW which is fully installed and adjusted on the sensor rail. The rail can be mounted at 3 different positions. Just screw it on and it's ready to go! Special features include integrated, adjustable restrictors for speed control and high-performance, self-adjusting end-position cushioning PPS. The metal scraper protects the piston rod seal against welding spatter.

- Integrated, self-adjusting end-position cushioning PPS
- Low-friction, sintered bronze bushes on the rod clevis and the hinge on the bearing cap
- Adjustable, integrated restrictors at both ends for speed control
- Fully adjusted sensor

Compact cylinder ADN to ISO 21287 with PPS cushioning

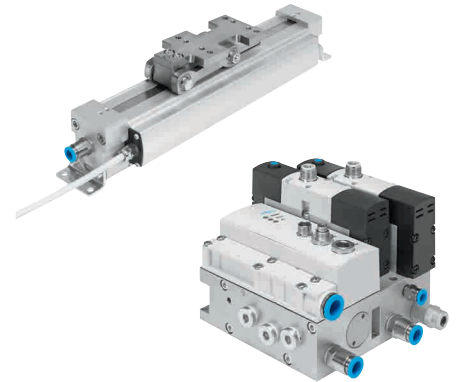


Adjust the cushioning? Fine tuning? You can leave all that to PPS.

ADN-PPS: maximum productivity in tight spaces. The unique pneumatic end-position cushioning system PPS automatically adjusts itself to changes in load and speed. That means you save time. And process reliability is increased too, not least due to reduced vibration.

- Higher cycle rates are possible
- Ideal for OEMs: no tampering
- Up to 50% shorter than the standard cylinder to ISO 15552 – with the same stroke!

Linear drive DDLI



Combine dynamic response, force and flexibility with precise positioning!

High power density and a contactless, absolute displacement encoder combine dynamic response, force and flexibility in servopneumatics with positioning accuracy of up to ± 0.2 mm. For mounting on the user's own guide: the moment compensator DARD which handles misalignment with almost no mechanical backlash.

As system solution in combination with:

- Axis controller CPX-CMAX
- End-position controller CPX-CMPX
- Measuring cylinder CPX-CMIX
- Proportional valve VPWP
- Sub-base VABP for 4 different stop functions



DESIGN
AWARD
2015

Accurate and extremely productive: 500 cylinders dancing synchronously

Less maintenance, increased output, more process reliability: that is why NSM Magnettechnik GmbH, a leading manufacturer of presses, packaging machines and conveyor systems, counts on the standard cylinder DSBC with self-adjusting end-position cushioning PPS in its conveyor lanes.

In this application metal sheets for the production of automotive parts are cut, transported, processed and formed.

Flexible design reduces time by 70%

The system has such a flexible design that any type of metal sheet can be transported and processed. Whether it is processing structural parts, such as metal blanks or body parts like car roofs, bonnets, side panels, floor pans or doors, the system doesn't require any changeovers. This means that 70% of the maintenance work that was previously carried out is eliminated.

Time-saving: DSBC with PPS

Pre-cut metal sheets must first be stamped and stacked highly accurately by the stacking belts before they take on their final shape. This step is carried out by standard cylinders DSBC with self-adjusting cushioning PPS. With more than 500 cylinders in the system, the self-adjusting cushioning saves as much as 70% of the time that used to be taken up by maintenance and setup.

Extremely precise and highly reproducible

The fully synchronous advancing of the cylinders is especially important for the application, as it ensures hitherto unparalleled precision and makes the stamping process 100% reproducible. This is also stressed by Hermann Nelke, Director of Press Automation at NSM Magnettechnik GmbH in Olfen, Germany: "After switching over to the new DSBC cylinder, we're attaining far higher levels of process reliability."

Shorter cycles, simpler installation: the individual valve VUVG

The individual valve VUVG also simplifies design and installation – and it speeds up the system thanks to shorter actuating times. System output is up by 40% as a result. The M8 plugs on the individual valve VUVG dramatically decrease wiring errors and significantly reduce individual wiring effort – from more than 2,500 to "just" 900 plugs.

Increased productivity with the greatest of ease

Simplify, accelerate and increase accuracy – with stable production processes. The components from Festo make a considerable contribution to production efficiency thanks to their design features.

"The changeover to the new cylinders DSBC means that we can offer our customers much better process reliability."

Hermann Nelke,
General manager Press Automation,
NSM Magnettechnik GmbH





Accurate to the millimetre: the cylinders work fully synchronously and with outstanding precision during the stamping process. The metal sheets can be more accurately shaped as a result.



The individual valves VUVG substantially simplify design engineering and assembly, and they ensure up to 40% more output.

Handling Guide Online – 20 minutes to your handling system

Configure your handling system in just a few steps by only entering your application's most important data. The Handling Guide Online automatically works out suitable solutions and suggests alternative systems – including net price, correctly configured CAD model and data sheet.

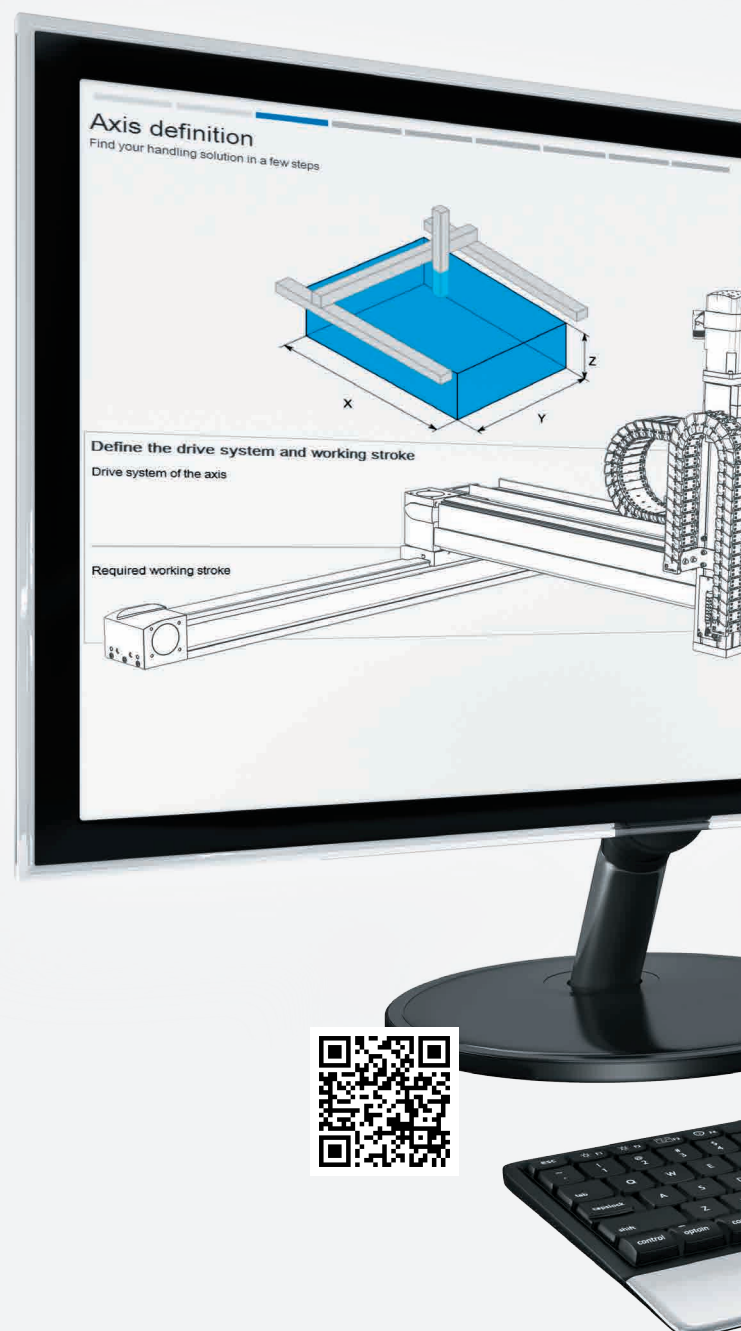
You simply select the desired system, complete the final configuration and place your order via the Online Shop. The ready-to-install handling system will then be delivered very quickly.

Configuration and RFQ platform in one

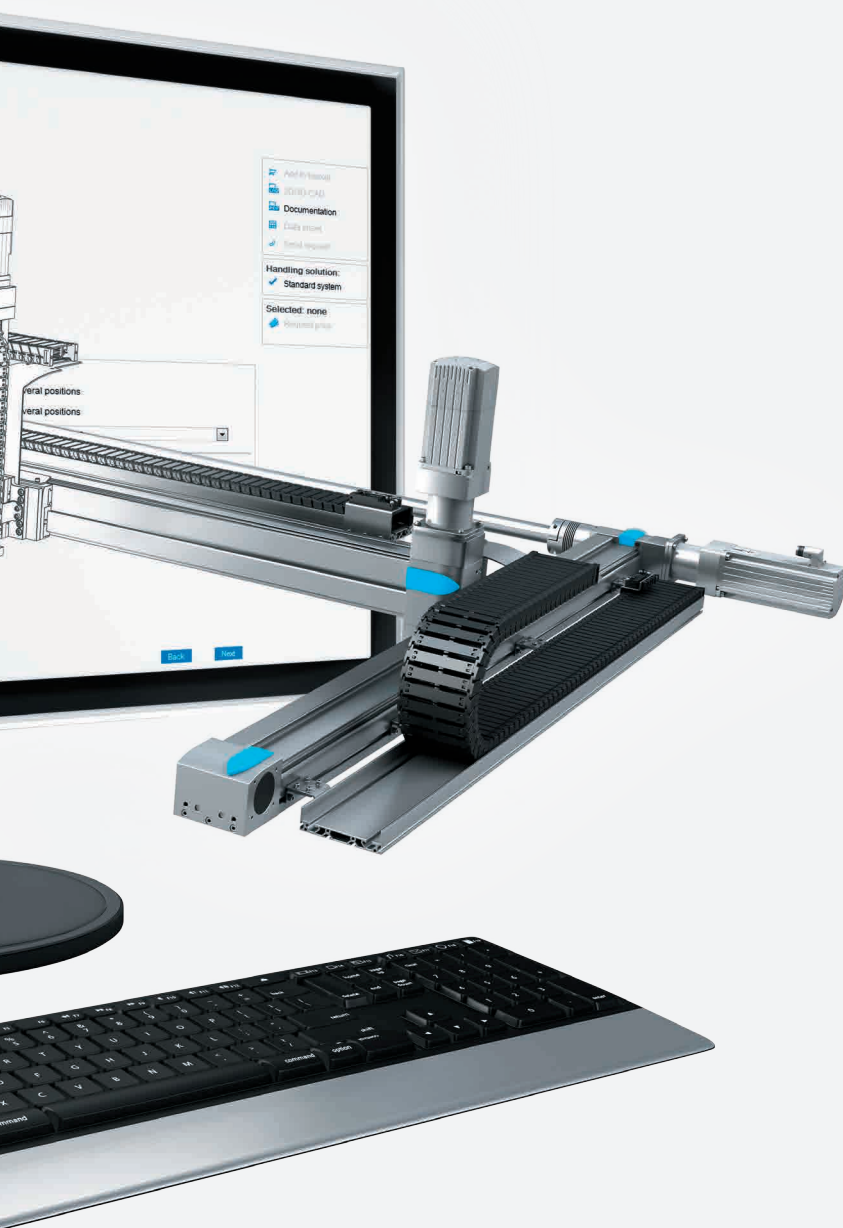
If your technical requirements go above and beyond a standard handling system, enter and send your data to our project engineers with just a single mouse click and receive an individualised quotation.

Your benefits

- **Fast:** the right handling system in just 20 minutes including CAD model and data sheet.
- **Efficient:** the Handling Guide Online cuts your engineering time and effort to a minimum, and you don't need detailed product knowledge.
- **Intuitive:** the Handling Guide Online is very easy to use and features structured prompts for data input.
- **Reliable:** immediate display of net prices allows you to reliably calculate your costs.



Just 20 minutes from the first step to placing an order. You can now configure and order your standard handling system in record-breaking time with the new Handling Guide Online. It is extremely efficient, intuitive and unbelievably fast. And you know everything fits together.



It's quick and easy!

Start the tool:

→ www.festo.com/handling-guide

1 Select the required handling unit and enter your application data.

The tool calculates appropriate handling systems including price: single-axis systems, linear gantries, planar surface gantries, 3D gantries.

2 Select your handling system from the list of suggestions and immediately download the CAD model and the data sheet.

Correctly configured in numerous file formats – quickly integrated into your system design.

3 Add the handling system to your shopping basket and place your order via the Online Shop.

The handling system is delivered quickly – fully assembled and tested including energy chain and connection technology, with a suitable drive package on request. You save up to 70% of the time required for conventional ordering processes.

Find out more:

→ www.festo.com/handling

Planar surface gantry EXCH

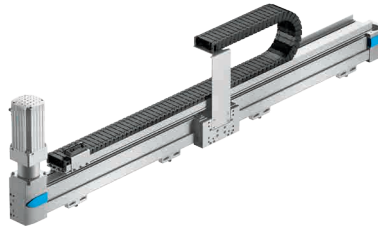


If you want the best possible dynamic response throughout the entire installation space: EXCH.

With 100 picks per minute, the Cartesian handling system with robotic functionality has superb dynamic response and makes optimal use of the installation space – a single EXCH covers the working space of 2 SCARA robots. It is extremely compact and flat, making the large rectangular working space of the XY planar surface gantry highly flexible for handling with free planar movement – ideal for assembly and inspection cells. Supplemented with a Z-axis or a rotary/lifting module, this applies equally to 3D applications.

- Excellent dynamic response thanks to extremely low moving mass
- Virtually vibration-free – can be used with less expensive base frames
- Ready-to-install complete system, fully assembled and wired
- Easy to integrate into systems
- Optional: control package CMCA

Single-axis system YXCS

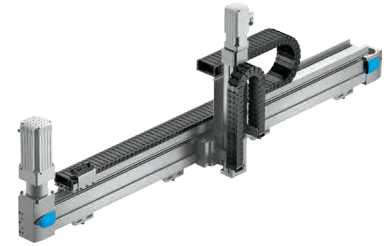


YXCS – comprehensive offering for one-dimensional motion.

The single-axis system YXCS with its high mechanical rigidity and a sturdy design is ideal for long, one-dimensional strokes and large loads. The linear axis is powered by a servo motor. The tried and tested toothed belt axis EGC or the twin-guide axis EGC-HD is used as a gantry axis. A matching motor and motor controller package from Festo, as well as many other options, round off the ready-to-install complete system.

- Process reliability thanks to proven drives and axes
- Fully assembled and tested
- Energy chain for safe operation
- Extremely simple and time-saving: automatic design and configuration with the Handling Guide Online

Linear gantry YXCL

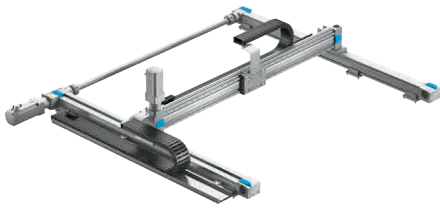


Very precise, even with long strokes: your solution for 2D vertical motion.

The linear gantry YXCL combines two axis modules for 2D vertical motion. High mechanical rigidity makes it reliable and precise, even with very long strokes of up to 3,000 mm in the Y direction. Different sizes and variants make the YXCL suitable for a great variety of applications. The ready-to-install complete system is delivered assembled and tested. Routing of tubing and cables through energy chains ensures outstanding operating and process reliability.

- With matching Festo motor and motor controller package
- User-friendly assembly and installation, even during servicing
- Extremely simple and time-saving: automatic design and configuration with the Handling Guide Online

Planar surface gantry YXCF

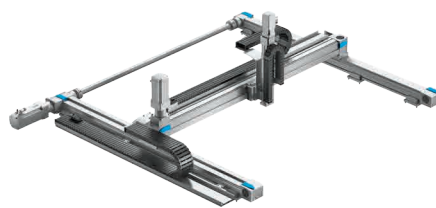


Very accurate, high load capacity: your solution for 2D horizontal motion.

The planar surface gantry YXCF combines several axis modules which transport workpieces horizontally in two directions. Thanks to its high mechanical rigidity and sturdy design, it can be used universally with heavy workpieces as well as large payloads. At the same time, the YXCF is extremely precise – even with long strokes. The numerous tried and tested axis modules and combinations, as well as many other options, make it the right solution for numerous applications.

- Ready-to-install complete system, fully assembled and tested
- With energy chain, matching Festo motor and motor controller package
- Extremely simple and time-saving: automatic design and configuration with the Handling Guide Online

Three-dimensional gantry YXCR

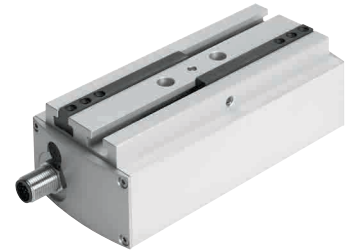


Simple, accurate and inexpensive motion in 3D space.

Ideal for very long strokes of up to 3,000 mm in the X direction, even with heavy loads: the three-dimensional gantry YXCR. The combination of several axis modules can be used anywhere for light to heavy workpieces or large payloads. High mechanical rigidity and a sturdy design make it reliable and precise. Pneumatic and electric components can be freely combined. Different sizes and variants make the YXCR suitable for a great variety of applications. The ready-to-install complete system in various sizes and versions is delivered assembled and tested.

- Extremely precise with a high load capacity, even with very long strokes
- With matching Festo motor and motor controller package, and energy chain
- Extremely simple and time-saving: automatic design and configuration with the Handling Guide Online

Electric long-stroke gripper HGPLE

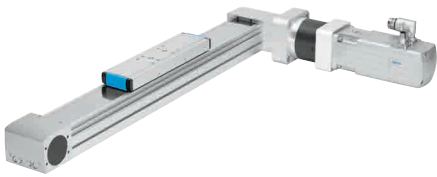


Amazingly sturdy and yet sensitive: get a grip on your application with the HGPLE.

Nothing stands in the way of flexible gripping with the HGPLE and its speed-regulated selection of gripping positions. Its long stroke means it can be used with workpieces of varying sizes while quick gripping is made possible by short opening and closing times and a “holding position” a short distance in front of the workpiece. Thanks to a “tactile” gripping option, the HGPLE is extremely suited for soft and highly sensitive workpieces. But it also grips large, heavy workpieces just as reliably.

- Extremely accurate even with high gripping torque
- “Holding position” for short distances and high cycle rates
- Minimal installation effort
- Integrated displacement measurement without additional sensors

Toothed belt axis and spindle axis ELGA-TB/BS-KF



Powerful, dynamic and protected, the ELGA effortlessly masters your tasks.

Now complete – the modular ELGA family with a wide variety of guides! New: the universally talented ELGA-KF. It features an internal recirculating ball bearing guide for maximum load capacity and rigidity, as well as a cover band for best possible guide protection. The ELGA-G with plain-bearing guide is perfect for simple positioning tasks or as a drive axis where an external guide is used. The roller bearing guide variant ELGA-RF is brilliant for highly dynamic tasks or medium-sized loads. The motor can be flexibly mounted on any of four sides, which can be changed at a later date.

- Very high feed forces with toothed belt and spindle drives
- Sturdy stainless steel cover band for protection against contamination and minimum particle emission
- Optional: food-safe materials and lubricants
- Passive guide axis ELGA-KF in 3 sizes (70, 80 and 120) on request

Electric cylinder ESBF



Fast, precise, powerful: free positioning with the ESBF.

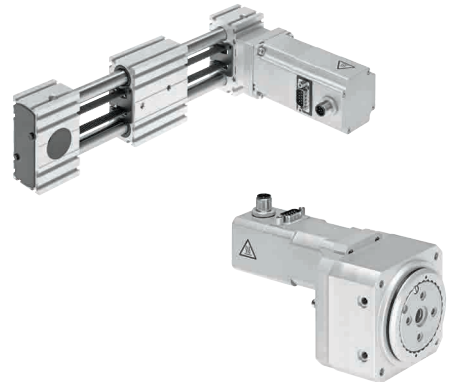
This powerhouse with ball screw drive boasts maximum feed forces of up to 17 kN and is extremely precise and fast with speeds of up to 1.35 m/s. The entire cylinder series is capable of handling all positioning tasks with strokes of up to 1,500 mm, whether in the automotive industry, in assembly and packaging technology or for press-fitting, clamping, gripping and cutting. Interesting for the food and beverage industry: optionally in IP65 with high corrosion protection or FDA-approved grease.

New: sizes 32, 40 and 50 mm!

- Broad product range: 32, 40, 50, 63, 80 and 100 mm
- Ball screw for large loads
- Trapezoidal screw with automatic locking for sizes 32, 40 and 50 mm
- Non-rotating piston rod with plain bearing guide
- CleanLook with smooth surfaces
- Flexible motor attachment



Electric toothed belt axis ELGR and rotary drive ERMO



Optimised motion series: the package for optimising the performance of your systems.

Positioning made easier than ever before: quick, error-free ordering with a single code. And the fully assembled package is extremely easy to commission using WebConfig.

New: toothed belt axis ELGR for simple automation applications

- Long service life of 5,000 km
- 3 sizes for payloads of up to 6.5 kg

New: rotary drive ERMO for simple rotary motion

- Through-hole for attaching gripper solutions

Electric cylinder EPCO with new external guide for simple positioning with strokes of up to 400 mm, motor controller CMMO-ST with integrated web server for all drives, now with IO-Link and Modbus TCP.

Common to all:

- Pre-mounted motor
- Easy commissioning without programming knowledge
- Easy layout, order directly online thanks to engineering and selection software

Running smoothly: total quality and maximum productivity combined

How can maximised productivity and top quality be combined without stopping the system? Belgian company Desimone s.a. and Festo jointly developed a conveyor which inspects quality and accurately sorts defective parts during operation.



Maximised productivity and 100% quality inspection are united in this conveyor. If there are too many defective parts, the belt is slowed down automatically.

Up to 600 balls with a diameter of 3.5 mm pass over the conveyor belt each second at a speed of 30 mm per second. Defective parts are detected by a vision system and reported to the robotics controller CMXR-C2 with tracking function. The high-speed H-gantry EXCH-40 with the cylinder DGSC as Z-axis and suction cup sorts out the defective parts.

No more carry-over of defective parts

Total quality inspection is required in order to prevent overloading of downstream processes. Fast and accurate travel to positions prevents defects being carried over due to undetected quality problems.

Joint development

“This innovative and dynamic solution has even been ordered by a customer in the USA,” says Philippe Onderbeke of Desimone s.a. If there are too many defective parts on the conveyor belt, the integrated motors and controllers from Festo cause the belt to slow down.

A significant contribution

Festo not only supplied the components such as the planar surface gantry EXCH-40, the controller CMXR-C2, the control cabinets and the drives, but also supported the client with extensive know-how from engineering and the robotics function to commissioning – as a reliable partner for complete handling and motion control solutions.

“We exceeded the requirements of our end users with Festo’s ideas.”

Philippe Onderbeke,
Director of Research and Development at
Desimone s.a.

For more productivity and flexibility: the new Multi-Carrier-System

This configurable transport system can be freely integrated into existing intralogistics and precisely synchronised with the process to provide production processes with more flexibility. It seamlessly extends your existing transport solution without a transfer station – exactly where it's required by the process. The other conveyors remain unchanged.

The transport motions, the motion control functions as well as the coordination of additional machine modules can be controlled thanks to the integrated control concept. The result is maximum machine flexibility.

Customisable configuration

The basic mechanical system has a modular design and can be easily adapted to your machine concepts and the requirements of your application. It can thus be perfectly incorporated into existing transport and logistics solutions.

Flexible transport

The carriers can be used without restrictions; they can be freely fed in and out of the existing intralogistics and mixing different configurations of carriers and products within a single system is also possible. The motion profile of the Multi-Carrier-System is freely adjustable for each carrier, as is the grouping together and synchronisation of several carriers.

High productivity

The fast Multi-Carrier-System accelerates smoothly without jerks and positions the carriers with extreme precision. Shorter retooling times, virtually seamless format changeovers and reduced maintenance costs increase the utilisation of the system.

High-performance controller

The Siemens controller integrates motion control tasks for the entire system. In addition to motion control for the transport system, it can coordinate motion with other

servo-driven machine modules, thus significantly reducing the number of interfaces.

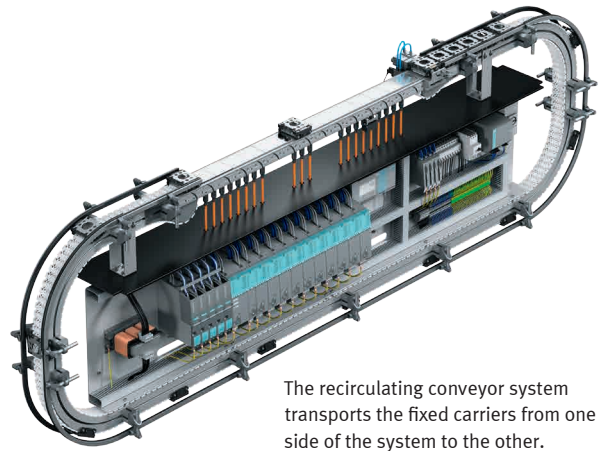
Highlights

- Extremely flexible: the infeed and outfeed of the carriages is transfer-free
- Easily integrated into existing intralogistics
- Freely customisable acceleration, speed and grouping
- Synchronous movement of multiple carriers
- Cam disc mode and movement synchronised with the process
- A single controller, even for additional machine modules
- Dynamic and fast, even with large loads

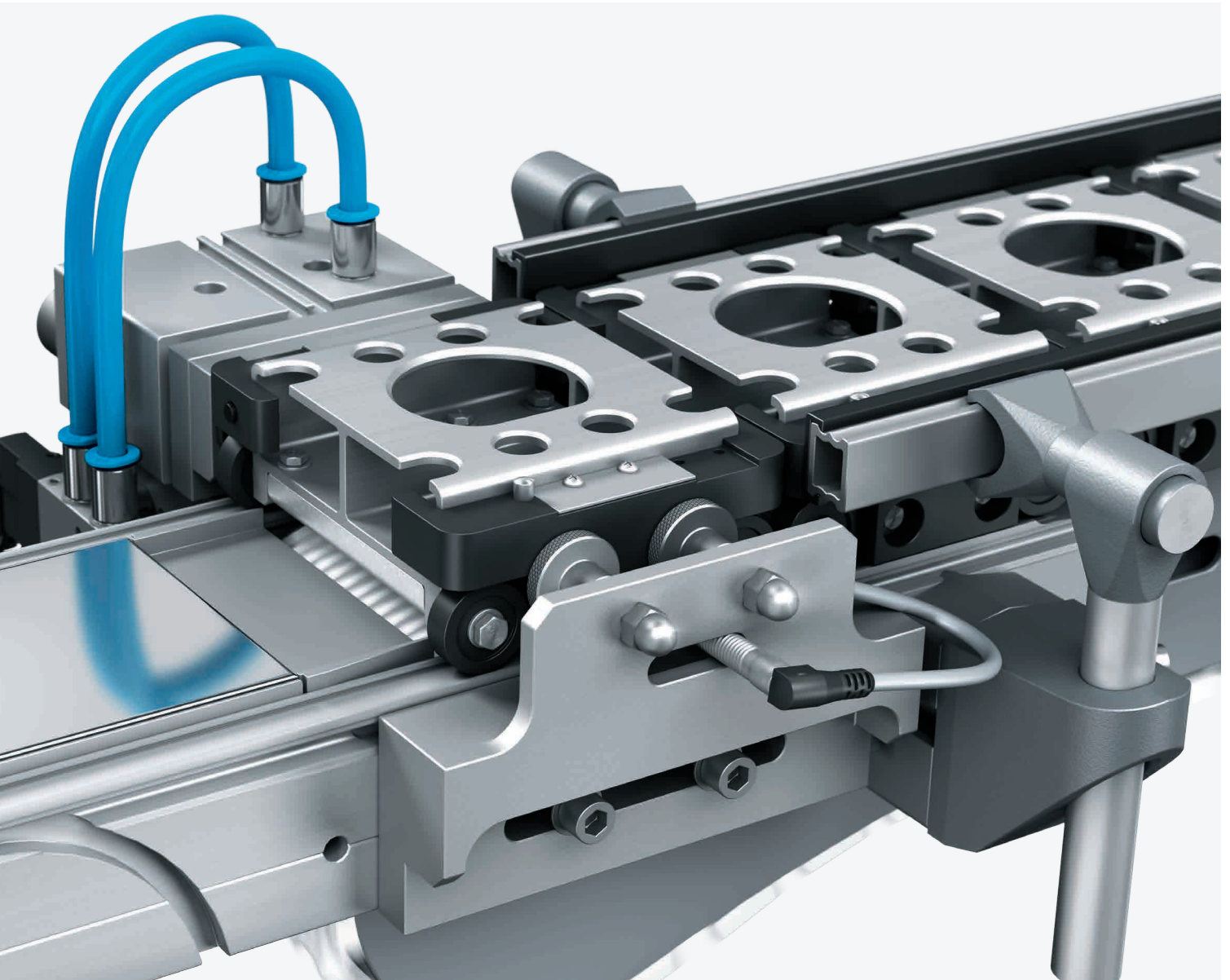
“Our customers enhance the flexibility of their machines with the Multi-Carrier-System, and thus decisively increase productivity.”

Maurizio Haag
Project Manager Multi-Carrier-System at
Festo AG & Co. KG





The recirculating conveyor system transports the fixed carriers from one side of the system to the other.



Highly flexible, fast and easy to integrate: the new Multi-Carrier-System extends your existing transport system precisely where it is needed, and significantly increases productivity.

Sturdy, functional and inexpensive: VUVS is your everyday valve

Together with the compact VUVG, Festo offers an attractive range of individual valves which reliably fulfils all of your requirements, day after day.

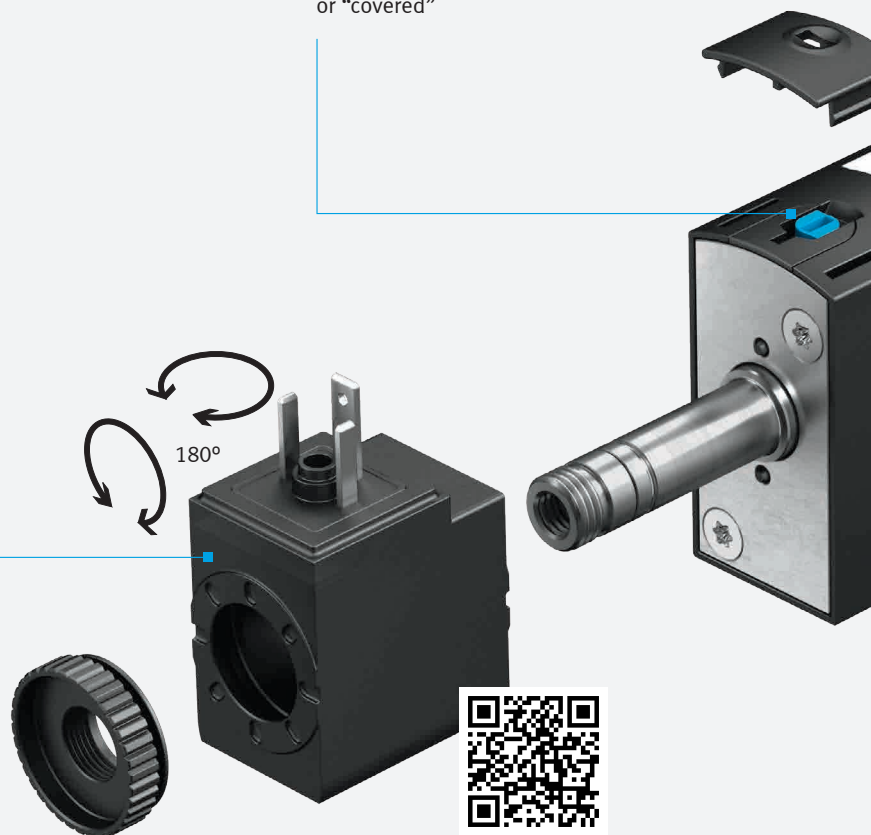
VUVS is perfect for your application. Its modern design is combined with robust quality. Its proven technology, like the patented sealing concept, ensures minimised leakages and a long service life. It also has a broad range of accessories and numerous mounting options. All in all, the VUVS is more flexible than almost any other valve. This valve series has a simple design, is easy to understand and is clearly structured.

At a glance

- Up to 16 valve positions on a manifold
- Sizes: 20, 25 and 30 mm
- Connections: G1/8, G1/4 and G3/8
- Flow rate: 700 ... 2,000 l/min
- Protection: IP65 to 67
- ATEX variants
- Vacuum and pressure zones
- Manifolds for 3/2 and 5/2-way valves
- Electrically or pneumatically actuated valves

Manual override

“Detenting, non-detenting”
or “covered”



Fast and flexible mounting of coils for easily changing the operating voltage

The coil can be rotated in all directions and can thus be adapted perfectly to actual installation conditions.

Find out more:

→ www.festo.com/vuvs

Lots of standard functions, a sturdy and modern design, quality for a long service life – and a low price: if this is what you demand from a standard valve, VUVS is the right choice for you.

Configure your individual VTUS

Ready assembled and tested before delivery.

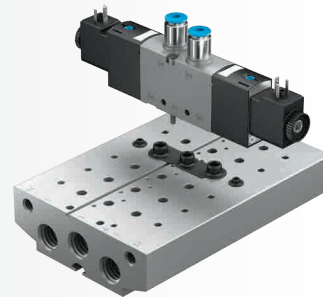


Rugged connection possible direct to metal tubing

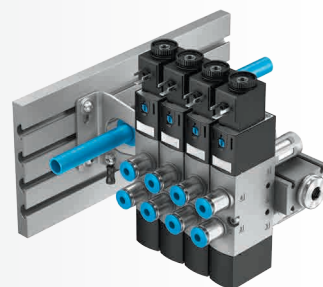
This provides protection against mechanical damage, as well as against very high ambient temperatures.

Valve manifold VTUS

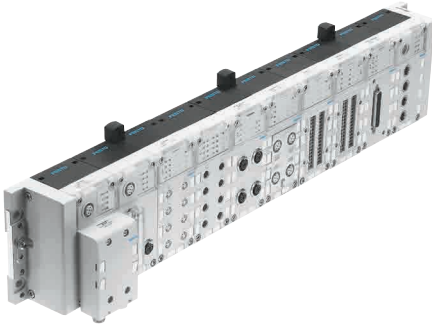
- Unique: external pilot air supply via manifold rail reduces installation and service effort
- Isolators for easy setup of several pressure zones
- Ideal for vacuum and low-pressure range applications
- Manifold concept:
 - PAL manifolds – common supply pressure for all valves on the manifold
 - PRS compact – pressure supply and exhaust via the manifold
 - PRS standard – pressure supply and exhaust via the manifold with external pilot air connection and larger threaded connection than the compact variant for higher flows
- Valve can be quickly attached to the manifold rail with just 2 screws



Diverse range of accessories for quick, versatile mounting of the individual valve VUVS via mounting bracket or mounting plates.



Electrical terminal CPX,
new fieldbus and Ethernet
nodes and fast counter
module



Your automation platform CPX now speaks even more languages – and counts as well.

This improves the efficiency of OEMs and the productivity of end users.

- New: Sercos III (FB39) for perfect motion and I/O control via a bus system
- New: real-time capable Ethernet Powerlink (FB40) with integrated hub and comprehensive report functions
- Updated: EtherCAT (FB37), Ethernet/IP and Modbus/TCP (FB36) with integrated switch, new functions and more processor power
- Updated: CC-Link (FB24) specification V2.0 for up to 512 I/O

And the high-speed counter CPX-2ZE2DA with two channels can do a lot more than just count!

- Significantly expands the CPX as an automation platform – with highly efficient operation
- Highly flexible I/O, counting and measuring modes and output functions

CODESYS V3 embedded
controller CPX-CEC-C1/S1/
M1-V3



Your recipe for success: decentralised control and intelligent preprocessing.

Thanks to the CPX-CEC-...-V3, IP65 valve terminals with remote I/O now feature, for the first time, complete CODESYS-V3 functionality, e.g. with the 3D-CNC editor in accordance with DIN 66025 (G-code). The OPC-UA option is taking a giant step towards Industry 4.0.

In combination with the valve terminals MPA and VTSA, there is now a uniform interface for preprocessing factory and process automation processes, pneumatic and electric drives and sensor signals, and for extensive condition monitoring.

- Complete control of small machines or complex subsystems
- A single platform for electrical functions and pneumatics
- A single platform for fluid and motion control
- Simple configuration of the entire system via CODESYS function libraries

PROFIsafe input module
CPX-F8DE-P



Monitors all you safety sequences on-site!

With the new safe inputs, the entire safety sequence is integrated simply and directly on a single valve terminal: inputs – logic via PROFIsafe – outputs for safety-relevant mechanical or electronic switching devices, e.g. for safety sensors typically found in car body production and heavy machine building such as locking devices, light barriers, emergency stop inputs.

- Compact and sturdy, 8-channel
- For devices or OSSDs with contacts
- Very safe: 4/8 failsafe type 2 digital inputs, PI e/cat. 4/SIL3
- Simple: preprocessing at the module and reliable parameter data via process map
- Efficient, individual passivation for each channel
- Firmware update via PROFINET

IO-Link interface CPX-CTEL-2-M12-5POL-LK



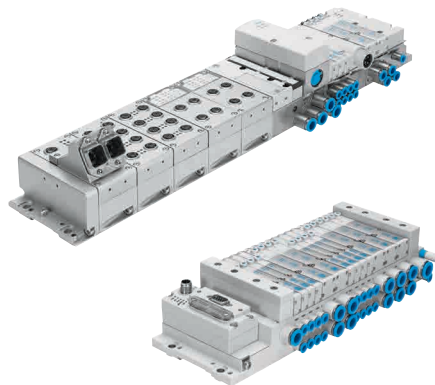
 IO-Link

For easy integration of complex field devices close to a valve terminal!

IO-Link offers high-performance point-to-point connection at field level with which up to two IO-Link devices to V1.0 or V1.1 can be integrated onto the automation platform CPX. The standardised I/O technology (IEC 61131-9) communicates with intelligent, configurable sensors, as well as with actuators – without placing any additional demands on the cabling.

- This makes for a simple, complete, decentralised installation
- Easy commissioning and (post) parameterisation
- Up to eight I-Port masters per CPX terminal for IO-Link devices
- Comprehensive diagnostics, parameters/ data backup, fixed assignment of IO-Link port to device
- US1/US2 electrical isolation for actuators
- Function block IOL_Call from Siemens can be used

Valve terminals MPA-S and MPA-L

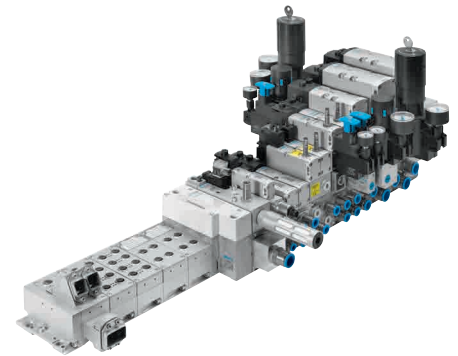


Systematically expanded – so MPA can do even more for you.

There are now additional important functions available for the MPA range. For example, the mechanical spring return on MPA directional control valves of all sizes, the PROFIsafe module CPX-FVDA-P2 for safely isolating valve voltage, and the detenting manual override VAMC-L1-CD. Also new are the vertical pressure supply plate for valve size MPA20 and the fixed throttle for MPA1.

- Intelligent: maximum electrical functionality with CPX
- More safety for valves: spring return, safety-relevant electrical shutdown via PROFIsafe
- Simple and inexpensive: fieldbus connection CTEU for MPA-L
- Fixed throttle – simple and tamper-proof
- Poppet and spool valves
- Valve manifold rails: polymer (MPA-L) or metal (MPA-S)

Valve terminals VTSA/ VTSA-F, control block VOFA

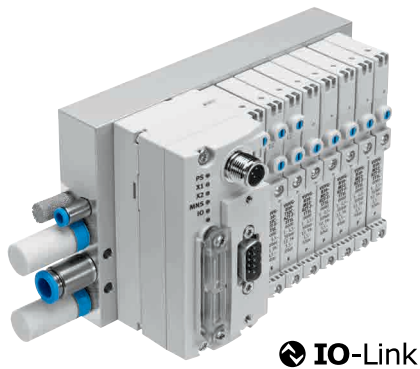


The proven VTSA(-F) – now even more compact and safer!

The new, compact sintered silencers AMTE save lots of space when things are getting cramped. And the hot-swap vertical stacking module (vertical pressure shut-off plate for valve replacement during operation) is now available in a tamper-proof version on request. The VTSA(-F) now also has ATEX valves for the first time. For safe, decentralised venting, the new tested control block VOFA-L26-T32C-... is a fully certified 3/2-way solution.

- Compact sintered silencer
- Tamper-proof vertical pressure shut-off plate eliminates unplanned machine stoppages
- Easy selection and unequivocal identification of ATEX valves
- Extremely safe: VOFA-L26-T32C-... control block optionally up to category 4, PL e
- Tubing sizes: 22 and 28 mm diameter with G3/4 and G1 for larger flows

Fieldbus node CTEU



Make the switch to a simple, low-cost fieldbus technology.

The fieldbus node CTEU makes it easier than ever before to upgrade from multi-pin to fieldbus solutions, or to change between different fieldbuses. All thanks to the extremely flexible "I-Port" communication interface from Festo, which is also compatible with IO-Link. It's smart and intuitive, easy to configure and install and extremely flexible thanks to simple module replacement, making it ideal for OEMs.

- Outstanding value for money
- For CANopen, PROFIBUS, DeviceNet, CC-Link, Ethercat and IO-Link
New: PROFINET and AS-Interface
- 1 fieldbus node CTEU, compatible with valve terminals VTUG, MPA-L, MPA-C, VTUB-12, CPV and VTOC for minimised inventory levels, optimised logistics
- From fieldbus node to compact installation system: with a single bus node, up to 2 I-Port devices can be connected via an adapter CAPC

Clean Design valve terminal MPA-C



Get to know perfect Clean Design: MPA-C.

Very easy to clean, extremely corrosion resistant, extremely sturdy – and extremely functional: that is what the MPA-C is about. With more valve functions, individual modular sub-bases, FDA-compliant materials, IP69K protection, multi-pin plug or fieldbus/Ethernet via CTEU! Nothing is left to be desired, even where the accessories are concerned: the new connecting cable NEBV-C-S1WA... with IP69K protection and the new Clean Design fittings NPCK are a perfect match for the MPA-C.

- FDA compliant materials, NSF-H1 grease
- IP69K protection with redundant sealing system
- Single modular sub-bases: easy retrofitting without unused valve positions
- No pneumatic back-pressure thanks to large pressurisation and exhaust cross-sections

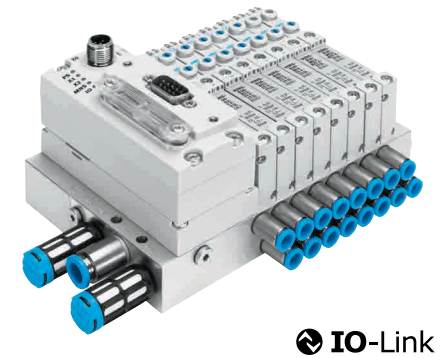


product
design award



2014 ■

Valve series VG



Compact, with high flow rates and inexpensive: the VG range.

The individual valve VUVG is unbeatable as it offers amazingly high flow rates but is nevertheless compact. The lightweight valve is highly suitable for direct mounting on cylinders or robot arms. And the valve terminal VTUG with plug-in is distinguished by numerous multi-pin plug and fieldbus variants, as well as by up to 24 valve positions on a single valve terminal.

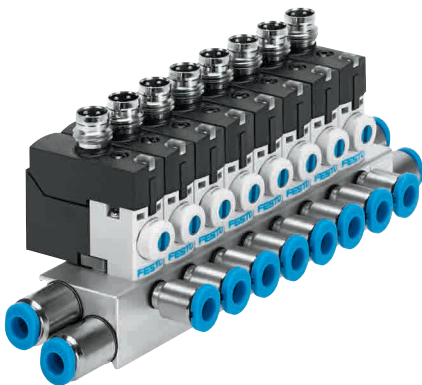
VUVG

- Up to 1,300 l/min
- 5 different thread variants
- Semi-inline valves, sub-base valves
- 2 x 3/2 – one valve, two functions: cuts the number of valves in half
- E-box as coil connection system: lots of variants, easy replacement

VTUG with plug-in

- Simple, inexpensive fieldbus with CTEU for all common fieldbuses and IO-Link
- Several pressure zones on a single valve terminal
- Attractive control cabinet installation
- Interlocking connection for additional safety-relevant applications at the fieldbus
- Individual valves can be activated separately

Miniature valves MH1



Small dimensions and a small price with proven VUVG technology!

Small and lightweight with an outstanding flow rate for a miniature valve: MH1. Electrical connection flexibility from the VUVG range is now available on the miniature valves MH1. The plug and connection concepts for the miniature valves with IP40 or IP65 protection will thus be expanded, adding an M8 connection with IP65 protection and a 24 V AC variant. The good news for customers who are already using the VUVG: the E-boxes and the cables are identical to those of the valve VUVG! This reduces administration and inventory costs. All in all, highly interesting for the electronics, semiconductor and light assembly industries, for the textiles industry, and for precision engineering and medical device manufacturing.

- UL approval
- Valves suitable for vacuum
- Clearly visible LED on the electric sub-base
- Supplied pre-assembled and tested on request
- Simple, flexible mounting, on a manifold as well
- Reduced holding current for low-energy use in portable devices

Proportional pressure regulator VPPX



Achieve new levels of performance and process quality.

The freely parameterisable PID controller, the external sensor input and the Festo Configuration Tool (FCT) make it possible to implement customer-specific tasks and complex controlled systems quickly and easily with VPPX from the VPPM family. The external sensor input substantially increases the process quality by providing an easy way of controlling all influences and interference in the controlled system. All in all, it offers maximum flexibility and top process quality.

- Programmable, freely adjustable PID controller
- FCT plug-in for easy, optimised parameterisation
- Higher process quality via actual value input for external sensors
- Now also up to 7,000 l/min

Proportional pressure regulator VPPM



 IO-Link

The first proportional valve with IO-Link and Festo I-Port connection technology.

With the new VPPM IO-Link, you can quickly and securely transmit complex data packets independent of the fieldbus. And benefit from the advantages provided by IO-Link: no need for addressing or settings – just connect it, load the IODD and you're ready to go. The simple, unshielded cables make it cost-effective too. Even more convenient: Festo I-Port technology for automatic identification of all Festo devices.

- Inexpensive connection independent of the fieldbus
- Short cycle times thanks to point-to-point connection
- 3 predefined controller settings
- 3 available pressure ranges (2, 6 and 10 bar)
- Lots of diagnostics options, e.g. switching-cycle counter for preventive maintenance

Fast, simple, energy-efficient – decentralised valve terminals

Centralised or decentralised installation concept? Decentralised solutions in the field are ideal for maximum performance with minimal installation effort. What is more, the Clean Design valve terminal MPA-C can be used without a control cabinet thanks to IP69K protection.

Decentralised installation concepts have many advantages, for example shorter pneumatic tubing lines. This makes it possible to reduce cycle times thanks to optimum flow rates and short response times.

Short tubing lines, short cycle times

Cycle times can be cut in half by reducing tubing length from five metres to one metre. That reduces the effort required for tubing connections and results in quicker, easier installation – as well as fast access for service and maintenance during operation. The valve terminal layout can be optimised too.

Valve terminals in a control cabinet or directly in the field?

Control cabinets are often the solution of choice. A space-saving alternative involves installation directly in the field without a control cabinet. This significantly reduces the number of adapters and fittings required, permits quick and easy access to the valve terminal and offers a direct view of the function LEDs.

Powerful components

If the automation components are installed directly on the machine, they often have to fulfil very demanding requirements, for example where ease of cleaning is concerned. This makes corrosion resistance against aggressive cleaning agents necessary, as well as a hygienic or Clean Design and IP69K protection. The installation can then be quickly cleaned – even with very high-pressure hoses.

New benchmark: the Clean Design valve terminal MPA-C

Festo's first valve terminal with IP69K protection is setting a new benchmark for decentralised installation without a control cabinet. Festo's highest corrosion resistance class, CRC 4, permits trouble-free cleaning with high pressure and cleaning foams, as well as use in harsh environments. The use of FDA-compliant housing and NSH-H1 grease goes without saying. Furthermore, the dual redundant sealing system ensures high levels of machine availability.

A perfect fit: connection technology

Complete Clean Design so everything fits together perfectly: FDA-compliant tubing/fitting combination NPCK and PFAN, electrical connecting cables NEBV with IP69K protection. All in all, good reasons for installation directly in the field.



Entirely in Clean Design, even the pneumatic and electric connection technology.

“Decentralised installation concepts increase system productivity. That’s why we developed the Clean Design valve terminal MPA-C for use directly in the field.”

Marcio Lopes Silva,
Product Manager at Festo AG & Co. KG



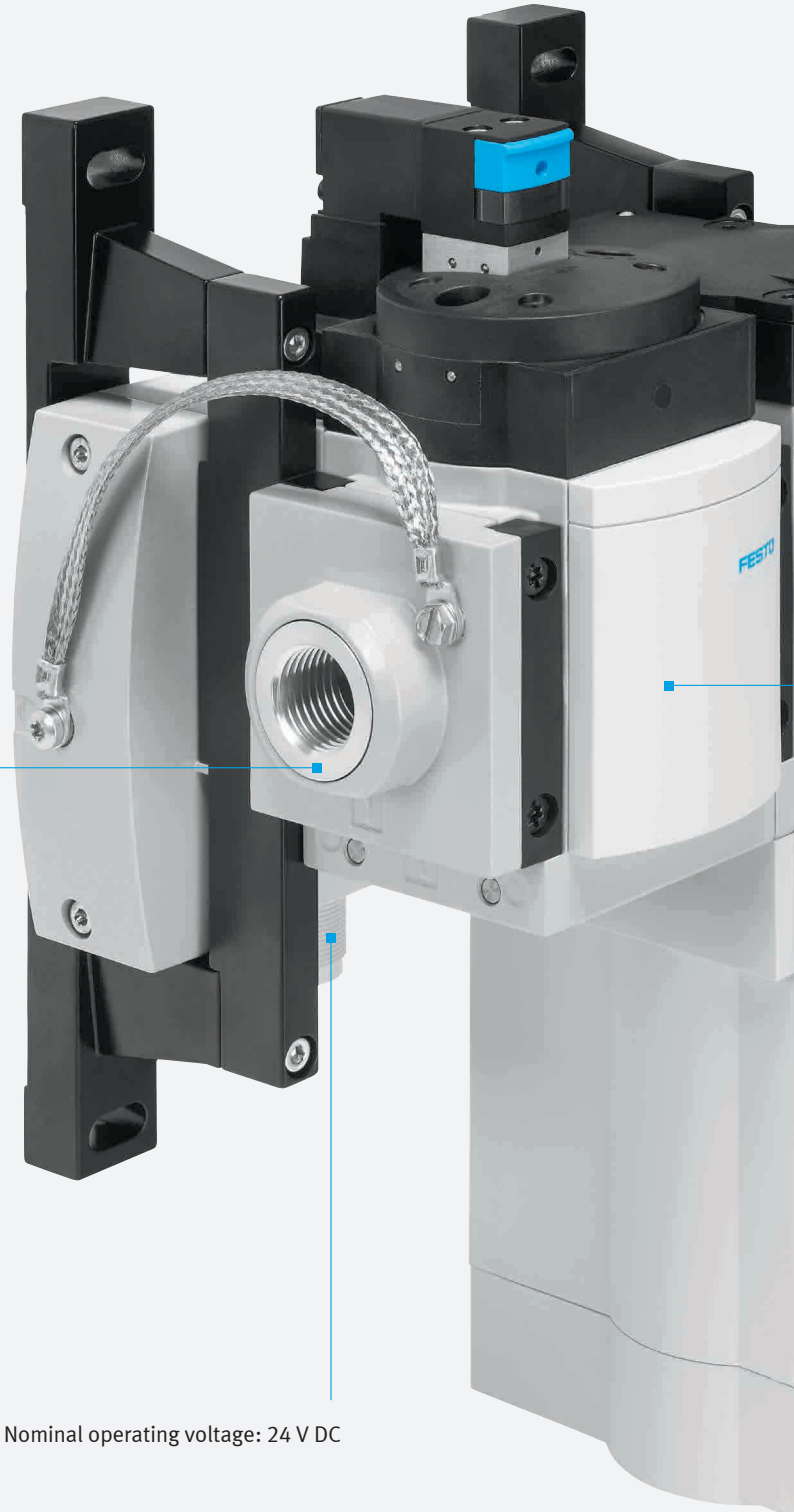
Ideal for decentralised installation in the field. The Clean Design valve terminal MPA-C is sturdy and boasts IP69K protection, outstanding corrosion resistance, FDA-compliant housing and NSF-H1 grease.

A world first: saving energy has never been so easy!

More than just monitoring and analysis – the MSE6-E2M actively intervenes.

The MSE6-E2M immediately reduces compressed air consumption because it automatically shuts off the supply air as soon as a system enters its standby mode. If there are leaks, then pressure loss is prevented. When the supply air is shut off, leakages downstream are evaluated and determined subject to predefined criteria.

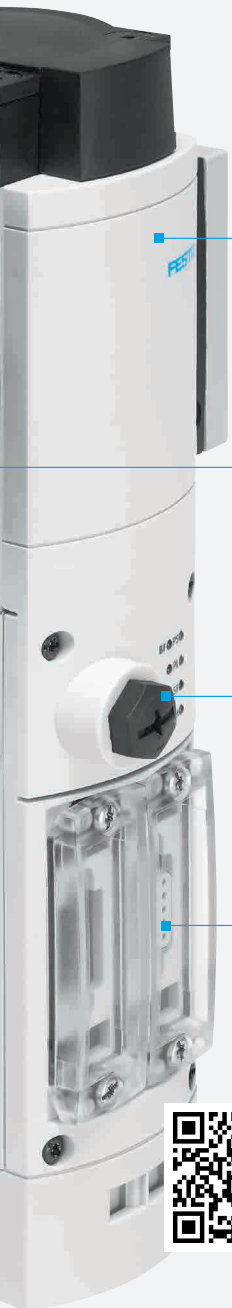
The energy efficiency module can be seamlessly integrated into service units from the MS6 series. The main functions of the MSE6-E2M include a shut-off valve, a flow sensor, a pressure sensor and a PROFIBUS node. It is additionally equipped with measurement, control and diagnostic functions which permit simple system monitoring at the PLC via the fieldbus node.



Pneumatic connection: G1/2
Standard nominal flow rate: 4,400 l/min

Nominal operating voltage: 24 V DC

Energy savings in compressed air systems are automated for the first time ever. The intelligent energy efficiency module MSE6-E2M fully automatically monitors and regulates the compressed air supply in new and existing systems. It actively shuts off the supply air in the standby mode, detects and reports leakages and is equipped to monitor process-relevant data online.



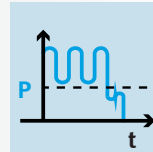
Flow sensor SFAM and pressure sensor

2/2-way shut-off valve

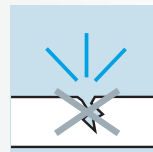
Interface MMI for parameterisation and data read-out

Fieldbus interface CPX-FB13, PROFIBUS-DP

Three functions to save money



Automatic shut-off of the compressed air in standby mode



Detection and notification of leakages



Online monitoring of process-relevant data



Find out more:

→ www.festo.com/mse6-e2m

Safety valve MS6-SV-D for Performance Levels d and e



Ideal for replicating applications: highest levels of safety at a low price.

The MS6-SV-D doesn't let you down when danger threatens. The 2-channel on-off and exhaust valve with integrated position sensing exhausts very quickly in the case of an emergency shutdown and builds up pressure gently after a restart. With corresponding programming of the safety PLC, safe venting in accordance with Performance Level d or e can be achieved with the MS6-SV-D. The MS6-SV-D is an economical alternative to the MS6-SV-E, which is identical in terms of design but also has an integrated electronic system with a preprogrammed monitoring function.

- Performance Levels d and e are possible
- A single product range for PL c, d and e
- Can be connected to MS6 combinations without any problems at all
- Exhaust and pressure build-up in a single valve saves space and money
- Exhaust capacity: 9,000 l/min, flow rate: 4,300 l/min

Service units MSB



Now even simpler: customised compressed air preparation!

Customised to meet your requirements: service units MSB4, MSB6 and MSB9. The new integrated features of the MSBx range leave nothing to be desired thanks to, for example, the red-green pressure gauge for improved monitoring of the pressure range for regulators. Or the M12 socket which is available for our electric on-off valves as a further standard connection option. It's easy to get the combination that suits you best: just make your selection with the convenient product configurator and receive your service unit fully assembled and tested.

- Red-green pressure gauge
- M12 connection for on-off valves
- Expanded selection of pressure sensors
- Pressure gauge with choice of pressure scales

Clip fix tool AGTC



A world first that reduces your employees' workload!

Physical stress and strain is a thing of the past for employees who have to install clips. The clip fix tool AGTC does away with strenuous manual fitting of clips, for example in automotive assembly when attaching internal door panels or clips to hold cables in place. Previously, excessive ergonomic stress often led to compensation time, as well as absenteeism.

- Ergonomic
- Intuitive
- Universal
- Reproducible



Clean Design fitting NPCK in stainless steel



First choice for the food and splash zones.

The NPCK is ideal in these cleaning-intensive areas. It fulfils all Clean Design requirements and is FDA compliant.

The special union nut design prevents dirty edges and the build-up of microorganisms or other forms of contamination. Also of interest for the process automation and pharmaceutical industry: the NPCK can handle a very wide range of media due to the high-grade stainless steel used.

New: now available in all connection sizes from M5 to G3/8.

- Meets all hygienic design requirements
- Resistant to corrosion, cleaning agents and high temperatures
- Clean Design

Polymer click fitting NPKA



NPKA makes changing tubing a breeze.

With the unique click mechanism, you can replace piping or tubing with just one hand. The audible click indicates that the connection is firm, secure and leak-proof – even if you connect and disconnect often. The light, corrosion-free polymer has lots of advantages: it is free of non-ferrous metals, fluorine, silicone and grease, it is FDA approved, and it is suitable for clean rooms. Ideal for the electronics and semiconductor industries, assembly of small parts and battery cells, and for food and beverage production.

New: additional versions now available as “L” and “T” variants.

- Very easy to operate with one hand
- Many possible uses – polymer as the sole material
- Easy-to-clean design with fewer corners and edges

Sturdy silencer AMTE



Compact, sturdy and inexpensive: guaranteed to keep your systems quiet.

The new metal silencers AMTE are very sturdy. And they are twice as small, both in terms of size and price. At full power, they reduce noise levels by as much as 55 dB within a pressure range of 0 to 10 bar and with flow rates of up to 17,000 l/min. They are ideal for standard applications in all industry sectors that make use of automation technology – for example the packaging, automotive and woodworking industries.

- Made of metal, very sturdy
- Very inexpensive
- Compact and space-saving
- Lots of variants: short or long, with metric or imperial connecting thread

Optimised energy efficiency in ice-cream production

Sustainability is an essential part of Unilever's corporate philosophy and reducing energy consumption is one of their most important goals. The company is now using the significantly new energy efficiency module MSE6-E2M to significantly reduce compressed air consumption on a machine producing Magnum ice cream.

The pursuit of increasing sustainability is stipulated in the Unilever Sustainable Living Plan. And thus energy efficiency is at the top of the global corporation's list of priorities. This also applies to the plant in Heppenheim, Germany, which is an important production location for ice cream. The well-known Magnum ice cream is one of several products produced there. More than 20,000 ice cream bars come off the conveyor every hour. Electrical power and compressed air play an important role in mixing and extruding the ingredients, inserting the stick and dipping the ice cream bar into the chocolate coating, as well as packaging.

The new energy efficiency module MSE6-E2M is now reducing compressed air consumption for these systems. Festo prepared the energy efficiency module for series production in close cooperation with the Unilever plant in Heppenheim, Germany. The result is a compact unit which can be fitted into the limited installation space available in the existing systems.

Energy consumption made clear

The ability to visualise and measure compressed air consumption was very important for Unilever. "The energy efficiency module MSE6-E2M enabled us to pinpoint and eliminate leaks and unnecessary consumption for the first time," explains Alexander Hemmerich, Electronics Team Leader. If the system comes to a standstill, the compressed air supply is shut off automatically by the MSE6-E2M. And then we can measure how quickly the system is

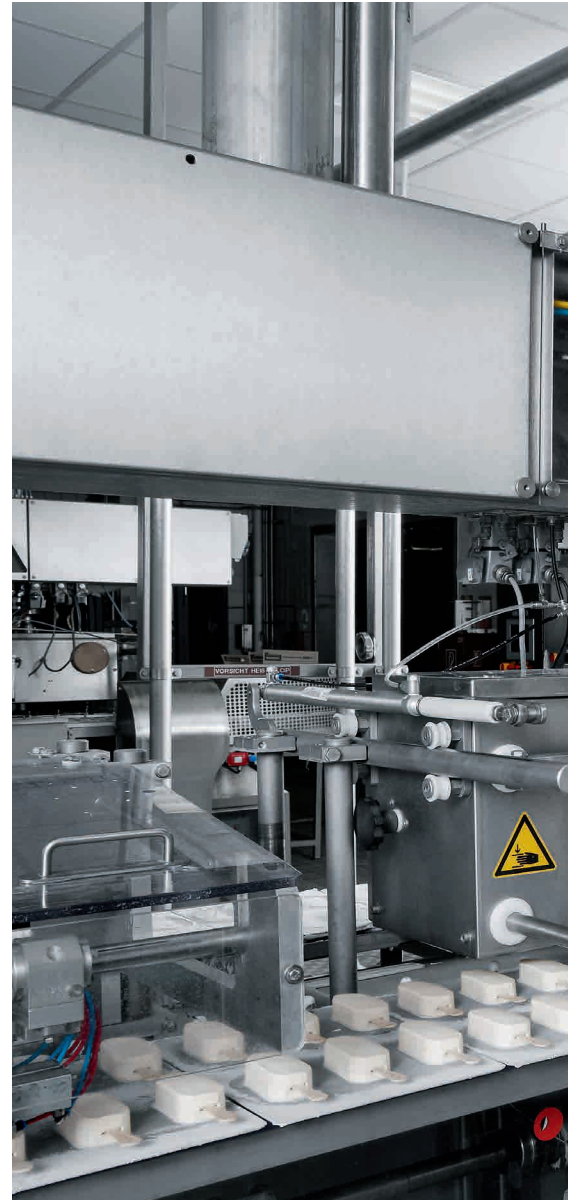
exhausted – an important indicator of possible leaks.

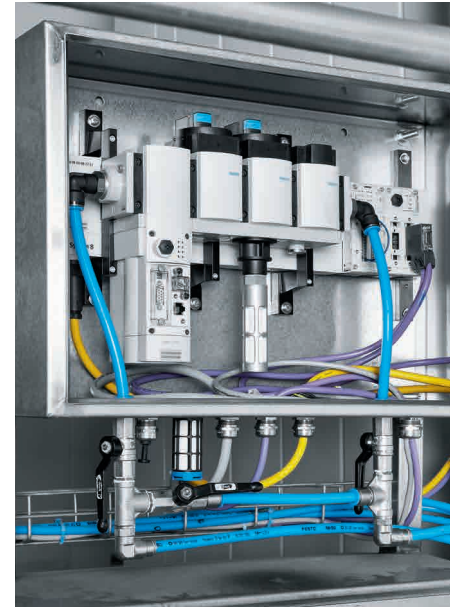
Significantly reduced energy consumption

Today, the new condition monitoring function continuously provides Alexander Hemmerich with process-relevant data such as flow rate, pressure and consumption. The MSE6-E2M exchanges important measuring parameters at regular intervals with the machine controls on the PROFIBUS via a single interface. This simple and efficient energy monitoring function effectively supports companies like Unilever on their way to sustainable growth.

"We've been able to reduce compressed air consumption at the Magnum production system step by step with the energy efficiency module from Festo."

Alexander Hemmerich,
Electronics Team Leader,
Unilever Heppenheim





Compact unit, ideal for upgrading existing systems



Delicious ice-cream produced sustainably. The MSE6-E2M shuts off compressed air supply if the system comes to a standstill and helps to further reduce consumption by means of efficient condition monitoring.

Vision sensors SBSI: image processing made easy

The vision sensors SBSI are distinguished by high performance and fast detection algorithms. Yet their design is simpler than that of complex vision systems – their intuitive software make parameterisation child's play.

Checking product quality and reading codes

The SBSI-B range reads 1D and 2D codes such as data matrix codes. Even directly applied codes, for example laser printed on PCBs or embossed into metal, are readily recognised. Or, as SBSI-Q object sensors, they quality inspect parts, e.g. by checking for completeness and for correct positioning.

Summary

- All-in-one device with optics, lighting, evaluation and communication
- Simple and intuitive: just 3 or 4 steps to the ideal solution
- Powerful, fast software tools
- 360° position tracking, no need to align mechanical parts
- External lighting provided by the new SBAL range can be directly connected – Festo plug and work

Integrated optics:

- 6 or 12 mm focal length depending on model

Flexible lighting concept:

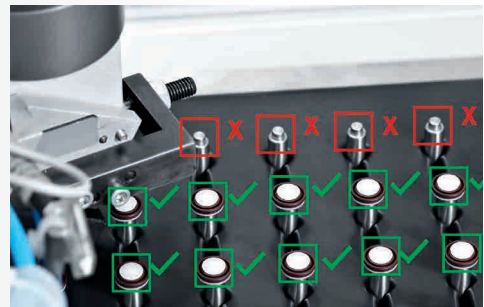
- Integrated LED lighting and connectable, flexible, external lighting SBAL as an option: up to 2 annular lights or 4 floodlights
- Lighting colours: white, red, infrared



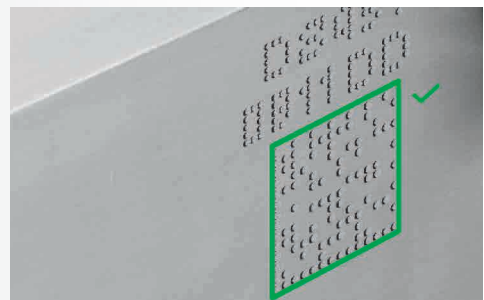
Simple and efficient: the vision sensor SBSI makes life easy for beginners too. Simple camera applications can be implemented quickly and cost-effectively – without expert knowledge! Powerful software tools and 360° parts tracking ensure top results.

Flexible interfaces:

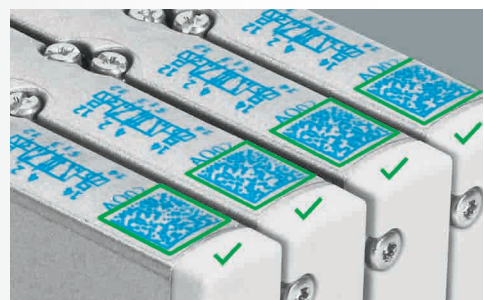
- Industrial Ethernet (TCP/IP, Ethernet/IP, FTP, SMB)
- Digital inputs/outputs: 2 inputs, 4 outputs, 2 selectable I/Os, all switchable to PNP or NPN
- RS232/RS422 for code reader models SBSI-B



Checking for the presence of heads and seals, e.g. in small parts assembly



Reading data matrix codes which are embossed into metal, e.g. in the automotive industry



Reading multi-codes, e.g. in small parts assembly and electronics manufacturing

Sturdy housing:

- IP67 for harsh industrial environments
- Solid metal plug

Find out more:

→ www.festo.com/machine_vision

Position transmitter SDAT-MHS for T-slots



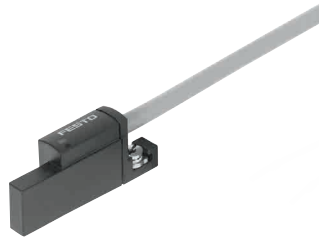
 IO-Link

Reliable and accurate sensing of cylinder stroke positions.

The programmable SDAT-MHS for analogue feedback is inexpensive and efficient. It senses the piston positions precisely and with good repetition accuracy over the entire stroke, including the end positions. Analogue current output, switching output and IO-Link in a single device provide maximum flexibility when selecting signal processing. A simple graphic user interface makes it possible to program up to 4 channels in IO-Link mode, either as a cylinder sensor or a window or hysteresis comparator – for nearly any application, without having to program the analogue output in the PLC.

- High repetition accuracy
- Programmable IO-Link/switching output
- Five sensing ranges to match the most important standard strokes
- Sensor function and mechanical mounting harmonised with Festo drives

Welding spatter-proof proximity sensor SDBT-BSW for hinge cylinder DFAW



Absolutely reliable welding included in the package with DFAW.

The SDBT-BSW is unique as it is welding field immune for medium frequency welding at 1,000 Hz MFDC. And it functions reliably with 50 Hz AC welding as well. Together with hinge cylinders DFAW, for example, it does its job in the automotive industry extremely reliably and indicates the mid or end position of the piston.

- Standardised package solution, safe both mechanically and electrically
- Sensor and cylinder DFAW, ADN or DSBC from a single source
- Immune to magnetic fields generated by typical welding applications
- Cable and housing materials resistant to welding spatter

Position transmitter SRBS-Q1/Q12 for rotary drives DRVS and DSM



It has never been easier or safer to monitor semi-rotary drives.

If you use the rotary drives DRVS or DSM from Festo for automation, we have got good news for you: tedious, time-consuming and error-prone assembly during setup and locating of the sensor switching points are a thing of the past. The SRBS is simply screwed onto the semi-rotary drives as a closed, encapsulated unit in Clean Design, and the switching points are easily and reliably taught in electronically by pressing a button. Done!

- For DRVS 6, 8, 12, 16, 25, 32, 40 and DSM 8, 10, 12 mm
- Quick and easy installation
- Encapsulated design, long service life and reliable operation
- Freely programmable: PNP/NPN, NO/NC
- Just 1 cable for 2 switching points in a single device
- Easier to order, reduces inventory

Pressure sensor and pressure transmitter SPAU



 IO-Link

Custom configuration with uniquely flexible connections.

With the sensor SPAU for measuring, monitoring and sensing pressure, you can view the status at a single glance – and all pressure values are continuously under control. Remote maintenance and parameterisation, as well as simple sensor replacement, are also possible on the IO-Link node. Its flexibility ensures simple installation. For example, the pressure outlet direction can be freely selected at the back or at the bottom, and the outlet direction of the M8/M12 plug can be selected at the top, bottom or back.

- Connection concept with unique flexibility
- Quick and easy mounting and commissioning
- Visual pressure status indication: blue for OK, red for not OK
- Switchable output: PNP/NPN – one sensor for all controllers

Pressure sensor SPAW



Reliably monitors the pressure of liquids and gases.

For hydraulics and pneumatic applications: the compact SPAW with pressure indicator has 9 measuring ranges from -1 ... 1 and 0 ... 100 bar. It is designed for media such as water, coolants or gases which don't corrode the stainless steel housing and the measuring element (316L or 13-8PH). Two process ports (G1/4 internal and G1/2 external thread) and various outputs (2x PNP, 2x NPN, 0 ... 10 V and 4 ... 20 mA) make it flexible in application.

- Versatile: for gases and liquids
- Very large pressure ranges: -1 ... 1 bar and 0 ... 100 bar
- High-quality display for quick, intuitive configuration of the outputs
- Always ideal for reading/operation: housing rotates 320°, display at 45° angle

Pressure transmitter SPAE



 IO-Link

Extremely small, extremely light, extremely convenient: reliable pressure monitoring.

For filtered compressed air from -1 ... 0 and 0 ... 10 bar. Ideal for vacuum applications with pick & place in small parts assembly. Or when you are monitoring pressure in pneumatic applications. Flexible and simple with flange, with push-in sleeve or as an inline solution, as well as with reliable adapters and mounting brackets. IP40 protection, with IO-Link V1.1.

- Grid dimension 10 mm – the world's smallest pressure sensor with display
- Very light – ideal for high dynamic response
- Easy to read, convenient and intuitive to operate

Simple and efficient: label check for total packaging quality

As there were no standard test stations available for quality-checking labels, the Czech company I.A.N. Technic spol s.r.o., a manufacturer of customer-specific conveyor systems, turned to Festo. The two companies worked together to develop a high-performance test station.

The customer is a large producer of fish delicacies of all kinds and uses many production lines. One of these is the filling line on which the fish are canned and labelled. Every minute up to 200 cans pass down the conveyor belts of every line. Labels with product information are affixed to the can bodies and lids. At the end of the line, the filled and sealed cans are printed with a „Best before“ date.

Everything OK with the packaging?

To ensure that the goods leaving the conveyor belt are flawless, vision sensors SBSI check three things: firstly whether the can body and lid have been correctly labelled, secondly that there are no crooked or wrong labels, and finally that the „Best before“ date has been printed on the cans and is correct. If even just one detail is not correct, the conveyor belt is stopped and the machine operator is notified. Cost-intensive waste is quick and efficient avoided.

The solution - developed jointly by the customer and Festo

I.A.N. Technic spol s.r.o. searched the market for a long time but could not find a ready-made solution for this task. The company then turned to Festo. The aim was to work together to develop a tailor-made solution which could be integrated seamlessly into the planned production line. The basic requirements not only called for good quality components suitable for food zones but also included the relevant technical specifications and capabilities for the solution. Furthermore, the customer expressed a wish

for support at the system engineering and planning stages as well as for after-sales service.

Brand, products, support: good reasons to choose Festo

Aleš Novák, executive head of I.A.N. Technic spol s.r.o. explains the reasons why his company chose Festo as a partner. „Firstly, Festo has a very good reputation in our company and is known for its comprehensive customer service and high standards. And then there is the fact that they have the right products for our needs, backed by technical advice and support, both before and after sales.“

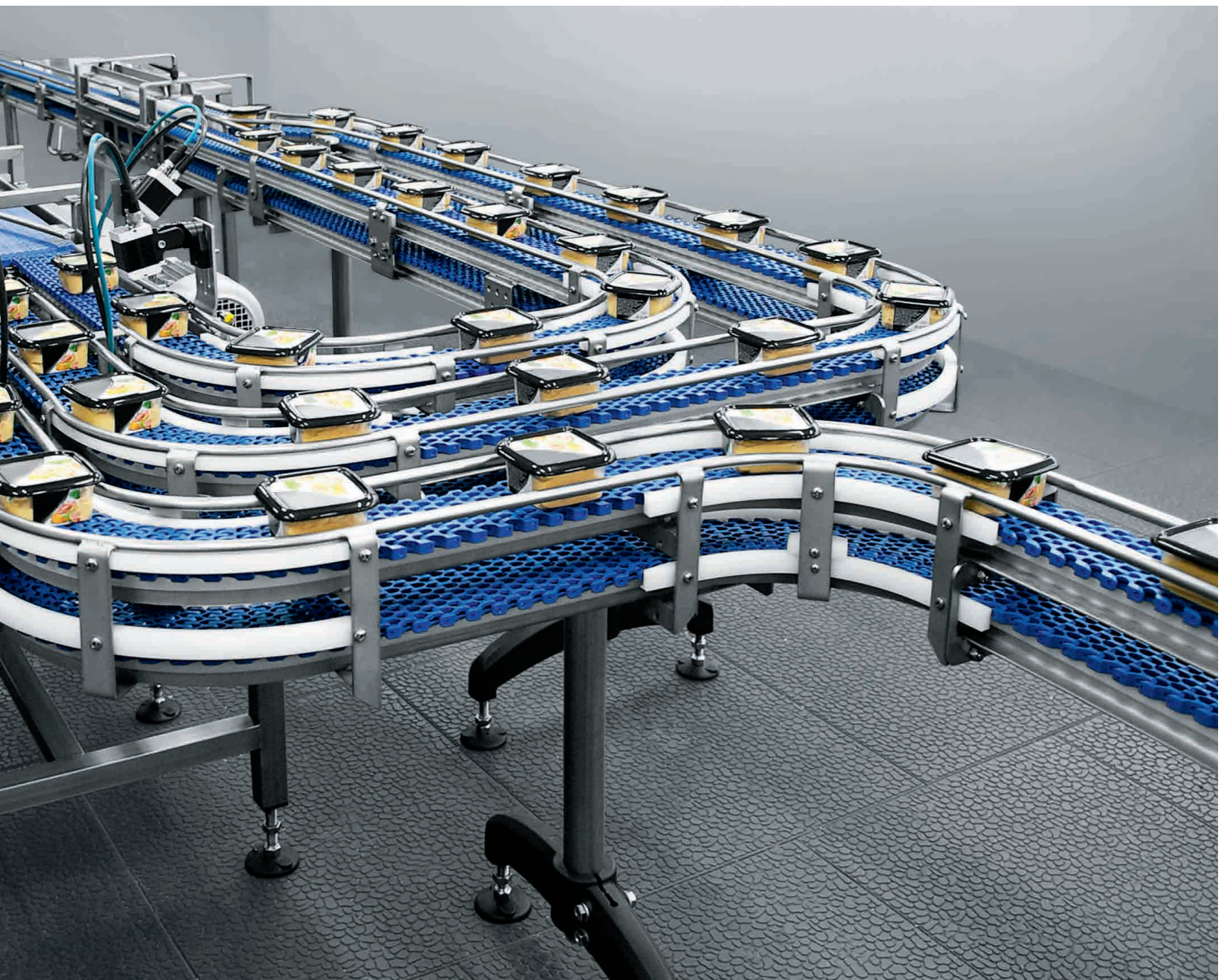
“The right products, backed by good technical advice and excellent support during the operational phase and a good reputation - these are all important factors for the selection of a strategic partner.”

Aleš Novák,
Executive head of I.A.N. Technic spol s.r.o.





Simple, flexible and high-performance: vision sensors SBSI from Festo ensure total packaging quality.



More process reliability: vision sensors SBSI check that the label is undamaged and in the right position and also that the „Best before“ date is present and correct.

Solenoid valve VSNC: the new NAMUR generation

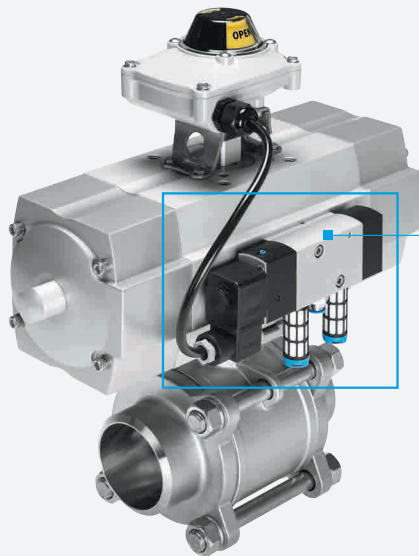
The standard NAMUR valve is a reliable and efficient solenoid valve. It features a diverse range of valve functions and an expanded temperature range of -20 to 60 °C. The uncomplicated conversion option from 5/2 to 3/2-way operation makes it possible to use one and the same valve for single as well as double-acting drives. Just turning the seal 180° is all that needs to be done. In the 3/2-way mode, the exhaust return ensures that the spring chamber is protected against contaminated ambient air. The modularity of the electric interface increases performance and simplifies warehousing.

Streamline your processes with system solutions

For example when using ball valve units, you decide what your solution will look like – and we design a unit which is matched precisely to your needs. You order a complete ball valve unit with just a single part number. And you receive a fully assembled, fully tested and documented system.

Manual override:
detenting, non-detenting, none

Sturdy and capable of high flow rates



The VSNC is certified around the world in accordance with explosion protection standards and can be used in many industry segments and applications. Its distinguishing features include a modern design, durable quality, fully tested technology and material, and excellent value for money. That is what modern NAMUR valves should be!



Flexible Ex solenoid systems as standard solutions with IP65 protection



Changeover seal for quick conversion from 5/2 to 3/2-way and back again

Safety as required: flexible Ex solenoid systems

The flexible electrical interface boosts performance. The sturdy stainless steel armature tube is suitable for all coils – even with different types of ignition protection.

Intrinsically safe coil VACN-...-Ex4A

- Category II 2G II 2D
- Type of ignition protection: Ex-ia
- IEC Ex certification
- ATEX certification



Encapsulated coil VACN-...-Ex4M

- Category II 2G II 2D
- Type of ignition protection: Ex-m
- IEC Ex certification
- ATEX certification



Encapsulated coil with conduit, connection VACN-...-U4M

- Class I; Div I
- Type of ignition protection: AEx-...-m
- FM approval



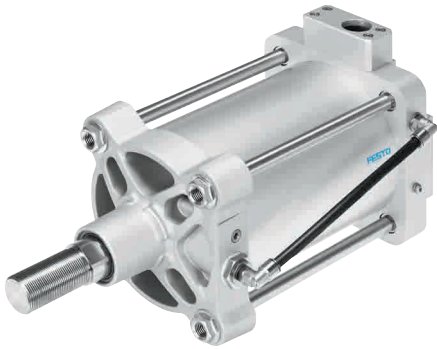
Non-sparking coil VACN-...-Ex2N

- Category II 3G II 3D
- Type of ignition protection: nA
- ATEX certification



Find out more about the VSNC – the new NAMUR generation
→ www.festo.com/vsnc

Closed-loop controlled linear drive DFPI

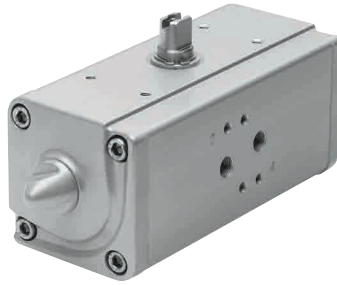


Easy to install – robust, reliable operation.

Ideal for use under harsh ambient conditions: corrosion-resistant linear actuator to ISO 15552 with integrated displacement encoder and sturdy flange socket for protected pneumatic and electrical connections. The ready-to-mount unit is extremely space-saving and is easy to incorporate into nearly any installation situation thanks to a comprehensive range of accessories. Suitable for applications with closed-loop controlled linear motion and for swivel motion where lateral forces are applied to the piston rod.

- Integrated potentiometric displacement encoder
- Simple connection to external positioners
- IP65, IP67, IP69K, NEMA4
- ATEX 2GD approval
- Temperature range: -20 ... 80 °C
- Double-acting

Quarter turn actuator DAPS



Always reliable for ball valves, shut-off valves and multileaf dampers.

The quarter turn actuator DAPS has always been the best solution for swivelling up to 90°. The manual operating mode via the handwheel, the stainless steel version and the low-temperature variant permit flexible use in many applications.

New: the variant for high temperatures of up to 150 °C, which even stands up to processes in hot environments with steam for example.

- Emergency manual operation ensures safety in the event of system failure: DAPS-...-MW
- Stainless steel for longer service life even in corrosive environments: DAPS-...-CR
- Low-temperature version for -50 ... 60 °C: DAPS-...-T6
- High-temperature version for -20 ... 150 °C: DAPS-...-T4

Direct-acting solenoid valve VOFD



VOFD – makes your processes extremely reliable and your systems even more productive.

Especially well-suited for outdoor installation and in potentially explosive atmospheres: the 3/2-way valves are very sturdy and the housing is coated with hard Ematal. This ensures long-term protection against corrosion and mechanical stressing – and it increases process reliability and system availability. It is no wonder that the valve series VOFD controls actuators in the production lines of internationally leading chemical, petrochemical and pharmaceutical companies. Even in failsafe applications, the VOFD is extremely reliable and safe. The solenoid coils are approved for use in potentially explosive atmospheres and are available with common types of ignition protection.

New: low-temperature variants for down to -50 °C and IEC Ex approval.

- Long service life thanks to excellent corrosion resistance
- Stainless steel version
- Ignition protection: Ex-em, Ex-d
- International approvals: IEC Ex, ATEX, Inmetro, Nepsi, UL, Gost
- SIL 2 certified in accordance with IEC 61508

Positioner CMSX for quarter turn actuators



Makes very little impact on your budget, but is absolutely reliable.

Great in zones without potentially explosive atmospheres. The positioner for double-acting actuators offers outstanding value for money, energy-efficient operation and high process reliability thanks to analogue and digital feedback signals. The end position can be flexibly defined via the freely configurable analogue signal.

- Very energy efficient: no compressed air consumption at standstill
- Feedback signal as standard feature
- Pre-definable safety position in the event of power failure
 - Travel to end position
 - Hold last position

Pinch valve VZQA



Negligible flow resistance, no blockages for smoothly flowing media.

The 2/2-way valve controls the flow of substances such as granulates, liquids containing solid particles and highly viscous and abrasive media. The stainless steel housing is corrosion resistant. And maintenance is quick and easy. The sealing cartridge is easy to replace without any special tools. Position sensing via a ring magnet in the piston is now available for the first time in the aluminium variant. New: nominal size DN15 is now also available as a normally closed variant (NC). The NC version is closed in the neutral position, as well as in the event of disturbances in the compressed air supply. When actuated, the valve opens and allows media to flow at full bore.

- Modular, interchangeable component parts
- Clean Design for automated cleaning
- Direct air supply connection, no need for an additional actuator
- Diaphragm material: NBR, EPDM and now silicone as well (NC version with EPDM only)
- Further material information on EPDM: FDA 21 CFR 177.2600

Reverse jet pulse valve VZWE



Ideal for your dust removal systems: the VZWE eliminates the risk of clogging.

Reliably cleans dust filters used in the cement, mining, aluminium, chemical, paper, cellulose and wood industries with a short blast of air. Several bistable valves are often actuated simultaneously for the short, high-volume air blast.

- High flow due to efficient housing design
- Robust for long service life
- Extremely fast opening and closing thanks to special piston unit
- Cost-optimised

Fast, flow-optimised, hygienic: filling drinking water

Flow-optimised but also compact? This does not need to be a contradiction in the filling of liquids and was the reason why Saaremaa Vesi OÜ chose a solution by Festo. At the heart of the filling process for the 5-litre bottles is the process valve VZQA. With this pinch valve, the full cross section can be used for filling.

Saaremaa VESI OÜ has been filling high-quality ground water from the Viidumäe Nature Conservation Area on the island of Saaremaa since 2001. Its production goes as bottled drinking water to the offices and shops.

High flow rate - precise filling

With large-sized 5-litre water bottles, flow rate plays a crucial role. In choosing a process valve, therefore, Mr. Arvo Reino, the engineer of Saaremaa Vesi OÜ, decided on the pinch valve VZQA. This free-flow pinch valve makes it possible to use the full cross-section without reductions. This maximizes the flow to 12,800 l/min. and reduces the filling time, resulting in a very efficient filling process. Each filling station is equipped with four filling units operating in parallel and can fill four bottles at the same time.

Lower costs with quick-closing valve

Another feature of the process is that the fast closing time of the pinch valve VZQA, 250 ms, allows precise filling levels to be achieved in the bottles. These are possible because only the flexible diaphragm is closed by air pressure, and in the normally-open variant no mechanical components are used. A simple closed-loop control system with the flow sensor means that no further sensors are required to determine the filling level. This is reflected in significantly lower costs.

Simple but effective

The simple system consists of three components: the flow sensor, the pinch valve VZQA and the fast-switching valve MHE4 to control the pinch valve. The use of an FDA compliant EPDM diaphragm ensures that

drinking water is bottled in accordance with the applicable standards.

Saaremaa Vesi OÜ had been impressed in previous projects with Festo's problem-solving competency, which led to its decision to work with Festo again as its partner for automation solutions.

“Most important are accuracy and compactness. Now the system is more compact and easier to clean. Filling is accurate, while previously used valves caused overflow.”


Riho Niit,
Technical Manager at Saaremaa Vesi OÜ



Efficient filling process: the free-flow pinch valve VZQA makes it possible to use the full cross-section.



Quick and precise filling of the 5-litre bottles with the solution from Festo. Highlights: the pinch valve VZQA and the fast-switching valve MHE4.


A close-up photograph of a laboratory flask containing a blue liquid, positioned next to a grid of dark, rectangular components, likely superconducting materials. The background is dark and out of focus, with a white circular object visible in the upper right corner.

New approaches to productivity:
automation with superconductors

What are superconductors?

Superconductors are materials which, below a certain temperature, can “freeze” the magnetic field of a permanent magnet at a specified distance and thus cause it to levitate. The gap remains stable in any spatial position. As a result, objects can be suspended and set into motion in a contact-free fashion – without closed-loop control technology and without frictional losses. The gap is used for propulsion, to transfer energy and information and to influence levitation parameters and position.

Superconductors have great potential for industrial applications and Festo is researching this potential.

What will productivity look like in 2020? 

New approaches to productivity: automation with superconductors

What will productivity in automation look like in 2020? No one can make an exact prediction at the moment. But Festo has been researching a promising option for quite some time within the framework of its Future Concepts for superconductivity: SupraMotion 3.0. Levitating motion is demonstrated by superconducting automation modules. This is making entirely new, previously inconceivable processes possible – a great step forward in the field of automation.

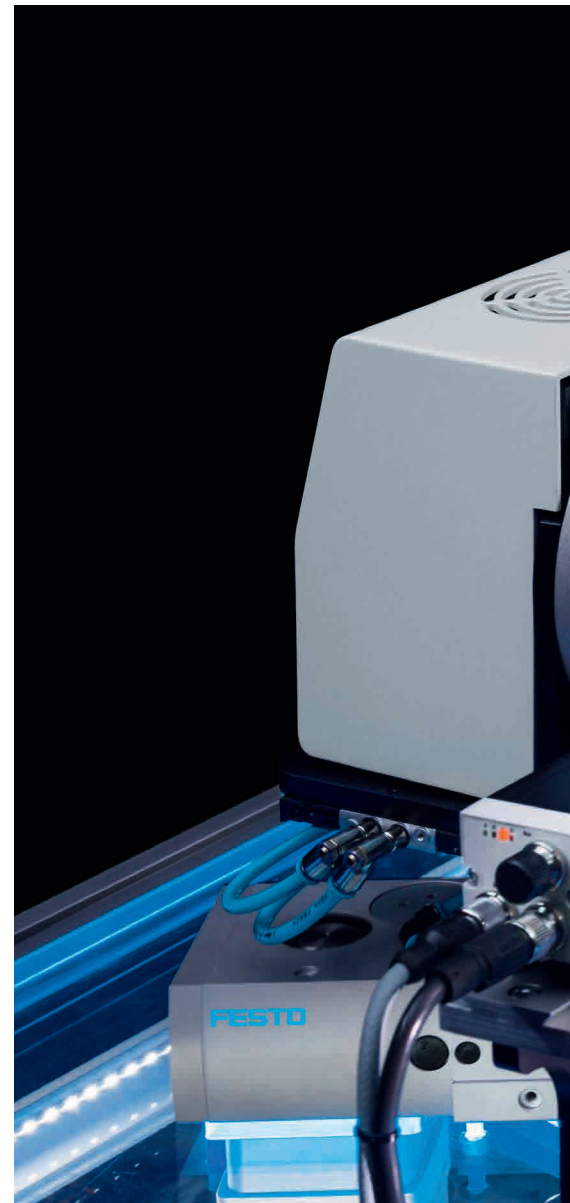
In addition to the conventional fields of automation, automation with superconductors is capable of making inroads into applications which were hitherto considered impossible, or at best very difficult to automate. It could be used to run processes uninterrupted, because enclosures, sluices etc. are no obstacles for superconductivity. This technology could optimise lots of processes for customers in the future, for example for simple cleaning or handling applications in areas that are sensitive and difficult to access. In particular in potentially explosive atmospheres, vacuum applications, clean rooms and extremely harsh environments, the characteristics demonstrated by superconductors open up entirely new perspectives.

Rethinking the processes

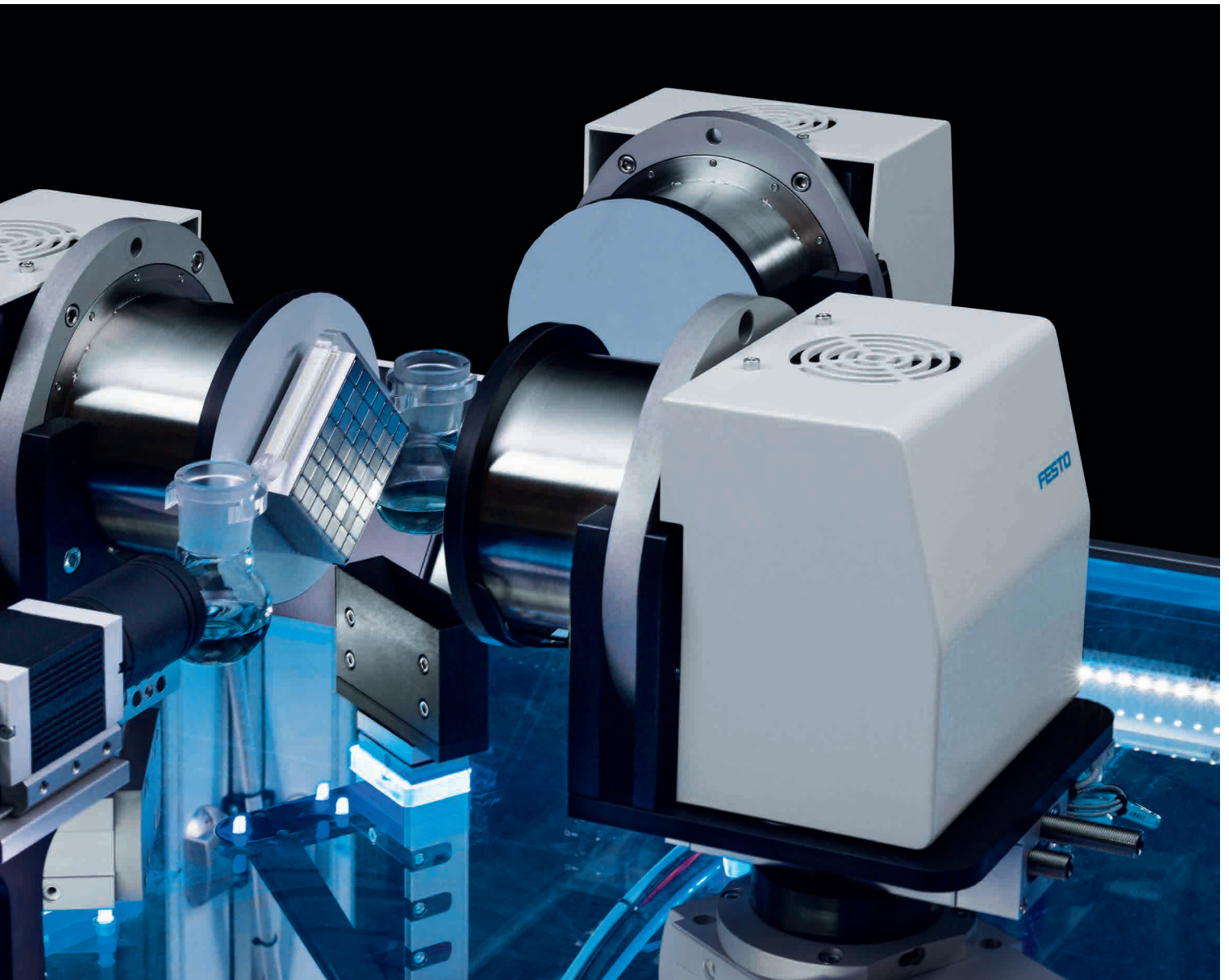
Contactless linear and rotary motion makes new kinematic systems possible with effective, efficient, low-energy processes. Dust-free, abrasion-free motion in all directions in 3D space is ideal for protected transport in very clean or harsh environments, and facilitates effective cleaning. Since the objects levitate fully contactlessly above and beyond the boundaries of the system over the insulating air gap, applications with extremely demanding requirements for cleanliness and sterility can be readily implemented. Handling through walls allows action in other solid, liquid or gaseous media, as well as in a vacuum. Entirely new processes are conceivable in all of these areas.

Simple, durable, reliable

Durability thanks to wear-free processes and low-maintenance, fault-tolerant operation are further advantages of this technology. The predefined positions which are maintained independently by the system's intrinsic resetting forces, regardless of spatial alignment, ensure that loads can be carried and transported without any additional control effort. Thanks to numerous bearing variants and active drives for the superconducting automation modules, any desired levitating motion sequences can be set up. Festo is successively researching and testing important linear and rotary variants with its demonstrators.



Take a look at the new SupraMotion 3.0 demonstrators. >



Festo will have to carry out much more research before SupraMotion can be used for automation. In the case of SupraCycle, for example, the experts are examining how a levitating permanent magnet can be transferred from one superconductor module to another.

New approaches to productivity: Future Concepts for superconductivity. With its new Future Concepts, Festo wants to expand its experience with kinetics: how can an object be suspended and set into motion on levitating rollers? And how can a levitating, rotating conveyor screw with a contactless electric drive concept be implemented? Last but not least, the focus is on motion above and beyond the individual automation module, i.e. active, controlled transfer of a levitating magnetic puck from one superconductor element to the next.

SupraCycle – cross-boundary transport

For the first time ever, SupraCycle demonstrates the active transfer of a levitating permanent magnet from one superconductor automation module to another. Three cryostats which can be rotated 360° were set up with superconductors on a base plate. Two magnetic object carriers are frozen in the cryostats at a distance of several millimetres from the superconductors and then transferred in turn from one cryostat to the next. A fixture on the cryostats provides the necessary integrated intelligence. One possible application based on the SupraCycle would involve contactless transfer of the object carrier between two systems or beyond system boundaries, as demonstrated by the exhibit using glass bottles as an example. Process sequences of any length are made possible for the first time in this way.

SupraHelix – rotating conveyor screw

Two cryostats with superconductors are mounted next to each other on a semi-rotary drive in the SupraHelix exhibit. Cooled to below their transition temperature, they cause a screw with integrated permanent magnet suspended underneath to levitate and keep it at a distance of eight millimetres. The screw is inclined at an angle of 40° with the help of the semi-rotary drive. An integrated, permanently excited stepper motor causes the screw to turn without contacting it, so that it can transport individual rings upwardly along its thread. The exhibit shows how ring-shaped workpieces can be transported from one processing station to the next. This suspended rotating screw could

also be used for polishing or grinding non-ferromagnetic materials.

SupraCarrier – suspension and motion on levitating rollers

Two cryostats with superconductors are mounted on an electric axis, above each of which two magnetic transport rollers are levitating. A flat workpiece carrier is lying on the rollers. The axis moves the superconductor elements in a horizontal direction. A cover with openings is located between the elements and the levitating rollers, through which the rollers disappear when the cryostats are lowered. The workpiece carrier is then lying on top of the cover. Flat, non-ferromagnetic products of any size can be moved with levitating transport rollers of this type. The transport unit is free of lubricants and very easy to clean – the cover protects the automation modules from contamination and the passive rollers can be easily removed and cleaned outside of the system with chemicals or heat. Superconductor technology offers additional positive characteristics as well: the application is nearly maintenance-free, very robust, noiseless and the air gap acts as an insulator.



Products with large surface areas can be suspended and transported on rotatable rollers with the SupraCarrier in a freely levitating fashion.

Find out more:

→ www.festo.com/en/supramotion2015



Productivity

Maximum productivity is a question of ambition

Do you share this attitude? We will be glad to help you achieve this goal – through our four outstanding qualities:

- Security • Efficiency • Simplicity • Competency

We are the engineers of productivity.

Discover new dimensions for your company:

→ www.festo.com/whyfesto