



MADE  
IN  
GERMANY

# POWER TRANSMISSION

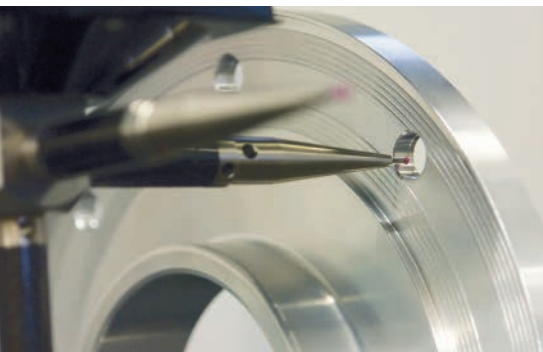


# KEB - Know-how, Engineering, Benefit.

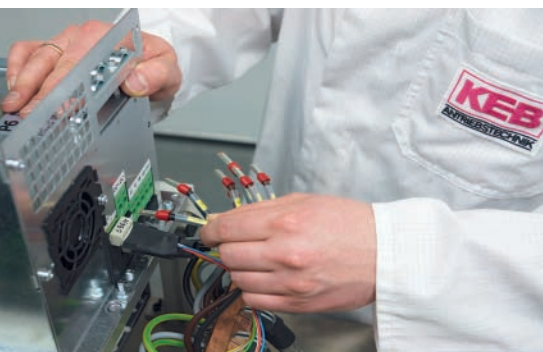
KEB also stands for „optimum solutions“.



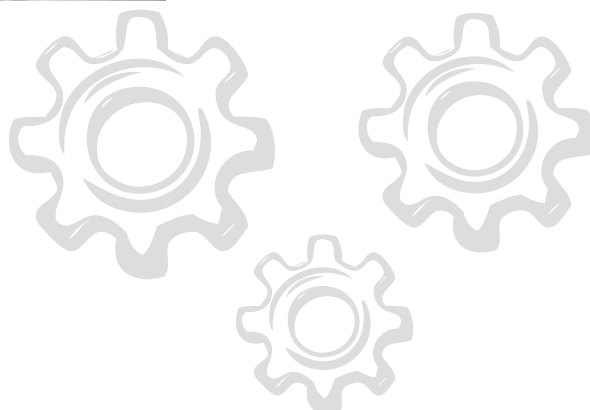
Sound technical knowledge results in know-how. Industry experience results in efficient and targeted engineering. Perfectly aligned products do their part for the benefit of our customers. Extensive production depth, modern facilities, broad application knowledge, innovative products and more than 1,200 committed and motivated employees - all very good reasons why the name KEB is also synonymous with optimum electronic, mechanical and electro-mechanical drive solutions.



Machines, systems and equipment: OEMs value KEB as an application partner for almost all areas of machine and plant building as well as equipment, system and process technology. It is here that we are setting global standards - both in terms of function and quality.



Working together for optimum solutions - a goal we advocate around the globe in our role as a reliable and flexible partner. Production sites, distribution companies and representations in more than 30 countries guarantee geographic proximity and rapid service routes to our customers.





Our goal is clear:

KEB aims to provide its customers with open and trustful assistance in its role as a reliable partner. Therefore, when we speak of optimum drive solutions, we are focusing on results that really fit.

We see partnerships as the key to our success.



We are KEB!

# Trust is not a gift.

## We have developed it. Made in Germany.

1972

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KEB - three letters. Initials. The initial start in 1972.

Karl-Ernst Brinkmann started his own success story with six employees. Based on continuous growth, KEB has developed into a medium-sized company with 1,200 employees. We have remained an owner-managed company in its second generation, which is a source of pride for us. Structured growth for over 40 years, a strong connection to our home base Barntrop and the East Westphalia-Lippe (OWL) economic region: Reliability creates trust - also in our role as an employer.

Long-time employees impressively document the close connections to the company, our suppliers, partners and customers. Against the background of demographic change and an expected shortage of skilled labour, we consider an apprentice ratio of more than ten percent an important investment in the future. This also includes dual educational tracks with parallel studies and the permanent continuing qualification of our employees. We are in good shape for the future. As a result, our nine subsidiaries and production sites in the world markets of Europe, North America and Asia work with centralised data management and state-of-the-art development environments for hardware and software design.



In addition, we have defined global standards for development and production, which have been documented since 1994 based on DIN ISO 9001 certification.



Quality and engineering performance that is proven daily.

today



1,200 employees  
EUR 210 MILLION



*Quality partner for decades.*

# Our customers are among the best.

## Now, if that is not a motivation...

Drive and control electronics, motors and gears, magnetic technology - in our three core areas we maintain a considerable development and production depth, which also enable us to expand our competencies to the benefit of our customers. We are motivated by working for the best, developing the right solutions for special requirements, working together as partners. At KEB, we see these values as the key to mutual success.

KEB drive solutions are used as reliable components in a large number of industries and applications:



**project solutions** for passenger and cargo elevators - tower or bridge cranes - cooling and ventilation technology - wind power generators - small wind generators - cogeneration units - hydro power turbines - boat and traction drives - laundry equipment - medical devices - clean room technology



**machine building** - wood machining - textile production - high-speed compressors - injection moulding and extrusion - warehouse logistics - robotics and handling - food processing and packaging - machine tools

*Ambitious, a leader and strong performer.*

KEB takes a solution-oriented approach to the success of its customers.

As a general drive and automation technology rule, individual products per se do not automatically make a good solution. Rather, the key is to achieve the perfect interplay of all applied components. Against this background, KEB has developed an outstandingly aligned portfolio that offers the following:



## Electronics

- Frequency inverters
- Servo systems
- Supply and regen systems
- EMC technology
- Harmonic and motor filters
- Serial communication
- Embedded and IPC-based control technology

## Motors and gears

Efficient and high-performance gears, combined with synchronous and asynchronous motors

## Magnetic technology

- Electromagnetic clutches and brakes
- Permanent magnetic brakes
- Spring applied brakes
- Rectifiers and switching devices
- Clutch-brake combinations

# KEB COMBIVERT - Absolute precision

## Ingeniously simple - simply ingenious!



KEB COMBIVERT: The name stands for an integrated program of digital drive technology for synchronous and asynchronous three-phase motors. This modular product program is tailored for demanding single and multiple axis applications in machine and plant building. Individually aligned cooling concepts and a wide variety of options for connecting to established field bus systems make integration easy. The goal - an efficient total solution for maximum productivity.





# Frequency inverters and servo systems



Digital drive technology for single and multiple axis applications:

## KEB COMBIVERT



### Frequency inverters **0.37 ... 900 kW**

Built for the control of three-phase motors with or without encoder for voltage classes 230 V, 400 V and 690 V.

### Servo drive **0.75 ... 900 kW**

Our solution for the precise control of motor speed, torque and position of synchronous, torque or linear motors.

### Supply / Regen units **18 ... 1,000 kVA**

The use of regenerative energy in temporary and continuous processes saves on electricity, lowers operating costs - and protects the environment.

### EMC, sinus and harmonic filter technology

Clean filtering: Passive assemblies protect the windings of high-frequency motors and mains from contamination by harmonics.

# KEB COMBICONTROL - Automation

## intelligent and flexible.



KEB COMBICONTROL stands for drive-oriented automation for high-dynamic applications. Our system contains the entire hardware and software environment for the efficient production of real-time automation solutions. Based on state-of-the-art software technology standards according to IEC 61131-3 and PLCopen, the scaled automation portfolio comprises a performance spectrum from Soft PLC with motion control, CAM (cam disks) up to CNC programming in G code. Derived from the functional diversity that exists with regard to single axis solutions, KEB has also introduced a control platform for multi-axis coordinated applications, which works with the newest .net technologies.



# Control technology



Embedded or IPC-based - and always a good fit for your application:

This is why we designed KEB COMBICONTROL as a modular system with regard to capacity, equipment and function. The system is supplemented with high-performance visualisation and remote I/O modules. We think that these are the best criteria for outstanding all-in-one solutions.

## KEB COMBICONTROL

### Embedded controls

the small compact solution for soft PLC and motion

### BOX - IPC controls

industrial PC technology for control panels

### PANEL - IPC controls

graduated processor capacity with touch monitors from 8" to 19"

### VISU - PCs

robust human-machine interfaces for the front end

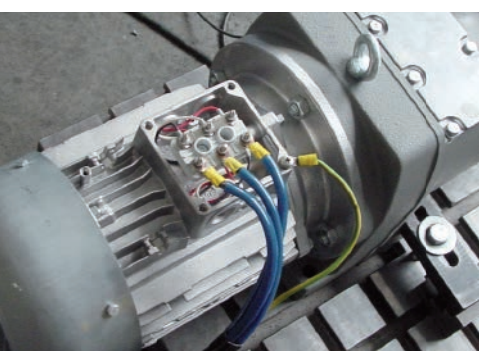
### REMOTE I/O

Ethernet-based decentralised terminal technology



# KEB COMBIGEAR: On the shaft, set, go.

## Innovative and proven.



Longstanding production experience for shaft, gear wheel and body machining and competence in the design and production of efficient motor technology form the foundation of our industrial gear motors. Gear motors from the KEB COMBIGEAR assembly kit offer compact and functional design with large power reserves. The current series are developed and produced in Schneeberg/Germany for the requirements of machine and plant building as well as process technology. The KEB site in Saxony has more than 150 employees.



# Three-phase gear motors



Perfect interaction of motor speed and torque:

A robust design and high rigidity combines the best dynamic properties for mains and inverter operation.

The variability of the KEB COMBIGEAR product family for mechanical and electrical customer interfaces, along with the ability to easily combine these with brakes, feedback sensors or cooling fans, results in matching for convenient installation.

## KEB COMBIGEAR

### **Inline helical gear motors**                      **0.12 ... 45 kW**

Universal installation, minimal backlash clearance, long-lasting: The flange or foot-mounted version of this two- and three-stage series supplies output torques up to 13,000 Nm. Fine speed resolution up to 1.2 rpm provides optimum torque adjustment at the output side.

### **Shaft mount gear motors**                      **0.12 ... 45 kW**

Lean on the shaft: This series, which is available in seven frame sizes, delivers torques up to 9,000 Nm and a minimum output speed of 1.3 rpm. Gears and motors are directly integrated, resulting in equally robust, space-saving and long-lasting machine drive train.

### **Helical bevel gear motors**                      **0.12 ... 45 kW**

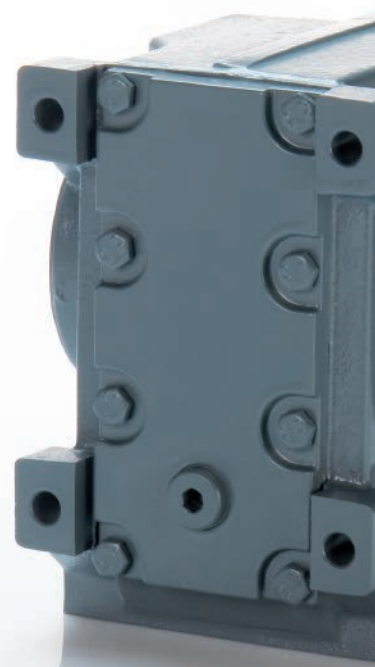
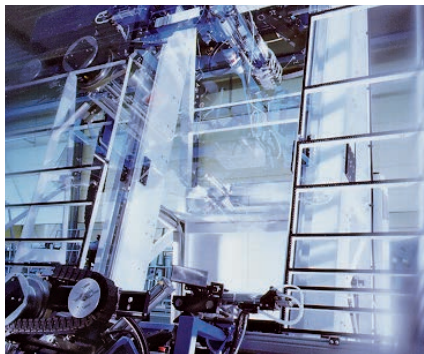
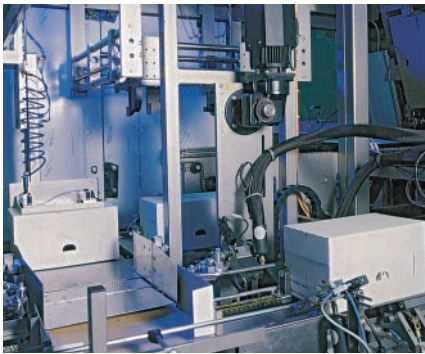
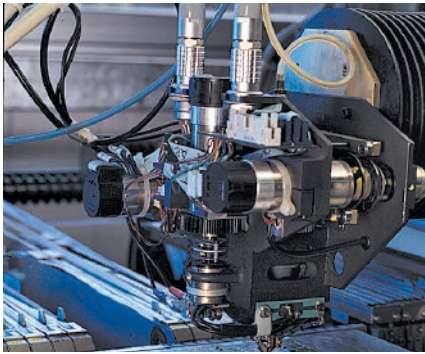
Highest efficiency factor at the angle. The rigid bearing of the shaft or hollow shaft transmits high radial forces even during alternating load conditions and allows for output torques of up to 12,000 Nm. This series is designed for applications with the highest efficiency factor - including alternating load conditions in cycle and reverse operations.

### **Worm gear motors**                                      **0.12 ... 7.5 kW**

The better standard drive: long life-time, various installation design option and models with shaft, hollow shaft and flange turn this series into the ideal standard drive for applications with low motor speeds, good efficiency factor and torque up to 1,200 Nm.

# High dynamic requirements combined with low-backlash transfer.

More dynamics, higher efficiency factor, lower weight - three convincing arguments for the use of synchronous motors. Our product range covers nominal torque rates up to 100 Nm in five frame sizes. The motors have been designed for voltage classes 230 V and 400 V with winding configurations for nominal speed ranging from 1,500 to 6,000 rpm. In connection with different feedback sensor systems and integrated permanent magnetic brakes, these servo motors can manage a variety of requirements with low backlash. With a direct connection (without coupling) in the modular transmission system, these motor series offer a broad program for torque and motor speed adjustments.



# Servo motors



Compact, efficient, high-performance at fine gradation:

## KEB DRIVE

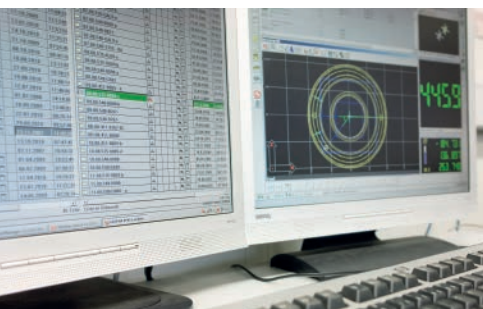
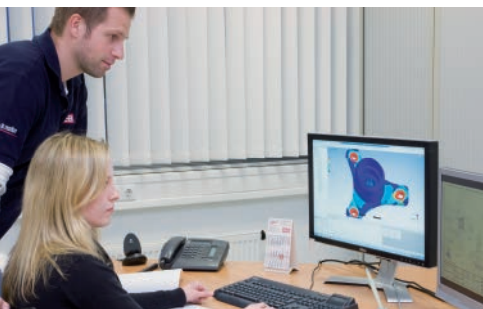
The ideal drive is optimally designed and configured. That is why we have developed KEB DRIVE - our universal product configurator for model selection purposes. This free software tool assists you in finding the right drive - and also supplies the related technical documents, data sheets and characteristic curves. The supplied two- and three-dimensional CAD data for motors and gear motors can be easily integrated into the ongoing machine and equipment design process as dxf or sat files.

KEB DRIVE - our contribution to rapid engineering for planning and design.



# Friction-locked connections.

## Precise starting and safe stop.



We have been using the power of electromagnetics for the starting, stopping, safe stopping and positioning of motion axis in machines and equipment for almost 40 years. To this end, electromagnetic clutches establish friction-locked connections while electromagnetic brakes guarantee safe stopping action. The tasks carried out by clutches and brakes are diverse. That is why we have also developed a modular system, which covers a large range of possible solutions for machine and plant building purposes. With variable torque, supply voltages and installation options, high-performance KEB technology is also used in automotive, equipment and apparatus technology.

## KEB COMBISTOP





# Electromagnetic technology



Compact, efficient, high-performance at fine gradation:

KEB COMBISTOP spring-applied brakes, clutch-brake combinations with KEB COMBIBOX, KEB COMBIPERM series permanent magnetic brakes, electromagnetic clutches and brakes from the KEB COMBINORM family:

Most tasks can be addressed with proven standard products. In addition, our customers also rely on the experienced KEB application team. Special solutions are the result of know-how, industry knowledge and modern design and calculation tools.

## Electromagnetic clutches and brakes

**0.5 ... 750 Nm**

Single surface elements with asbestos-free friction lining for zero-backlash torque transmission without residual torque and short switch times.

## Permanent magnetic brakes

**0.4 ... 145 Nm**

High temperature resistant SmCo / NeFeB magnets for large brake torque with small frame sizes for the zero-backlash maintaining of attained positions. Residual torque free disconnection with large maximum air gaps and wide release window areas.

## Spring-applied brakes

**1 ... 3,000 Nm**

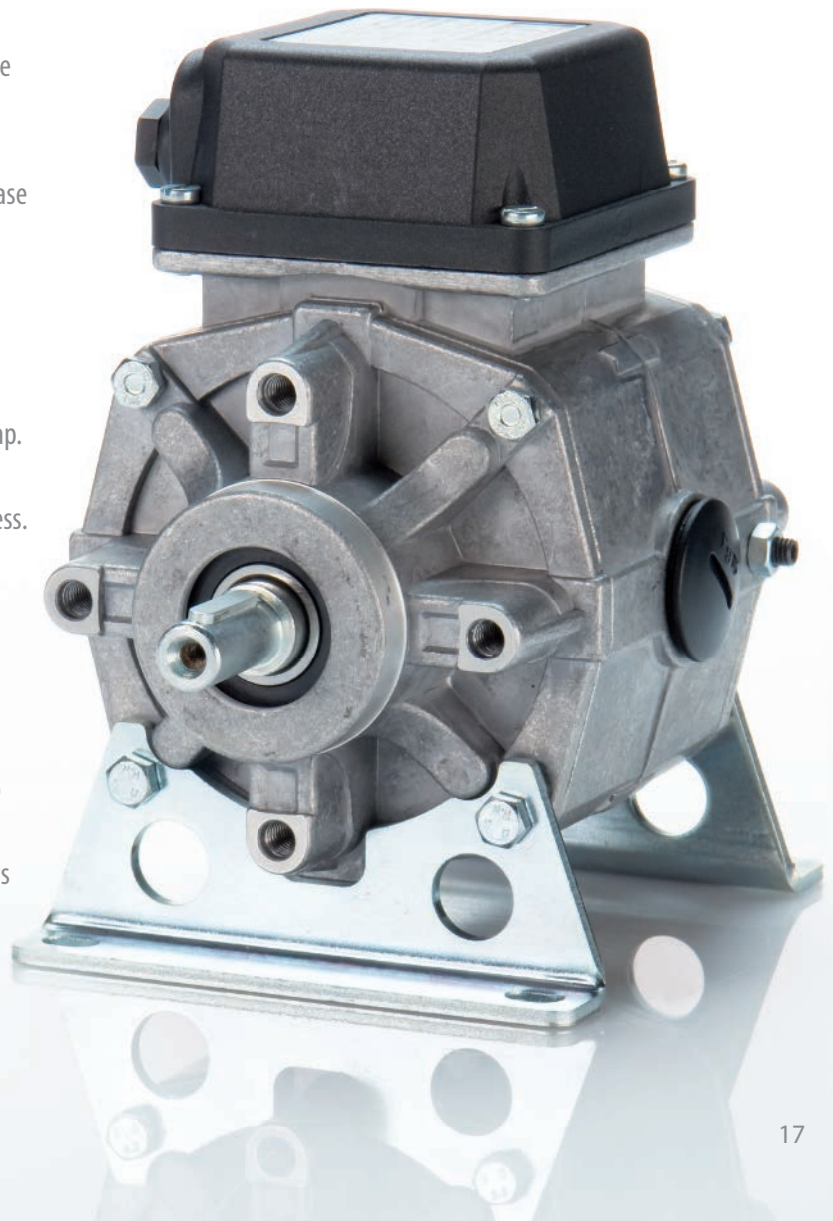
Dual surface brakes with setting and readjustment of air gap. Asbestos-free friction linings with steel insert guarantee maximum security and protection even under extreme stress. The special geometry of armature and magnet creates considerable wear and tear reserves.

## Clutch-brake combination

**7 ... 250 Nm**

Installation-ready clutch-brake combinations for start/stop operations in a housing. The patented air gap adjustment method allows for subsequent wear and tear readjustments without disassembly.

## KEB COMBIBOX



# Permanently precise, always safe.

## Exact positioning.



Switching machine segments on and off, safe stopping and holding of loads or dynamic positioning: Electromagnetic assemblies offer designers efficient, robust, safe and reliable options for customised solutions.

Electromagnetism is one of the four elemental forces, and has made it possible to achieve the most important power transmission in modern drive technology. KEB utilises this power for the special requirements of industries and product areas in a targeted and coordinated manner.



### **Wind turbine generators**

Reliable stopping brakes at a high degree of protection (cold climate version), optionally also with freewheel systems, for pitch and yaw drives in systems up to 10 MW

### **Elevator technology**

Single and dual brakes, optionally with manual release, silencer or microswitch monitoring for passenger and cargo elevators with induction, synchronous or gearless direct drives



### **Medical technology**

Power-on and permanent magnetic power-off holding brakes for lighting systems, patient tables, computer tomography, X-ray systems

### **Material handling**

Stopping brakes for bridge, port and portal crane facilities, brakes and clutches in cycled roll conveyors

## KEB COMBIPERM

## KEB COMBINORM



# Application solutions



Starting, stopping, positioning and safe holding in industry solutions.



## Automotive

Clutch couplings for the automotive industry require high performance in a very small space, as well as robust mechanics and top quality. With our field experience of over 250,000 units, KEB offers solutions that have been specifically tailored to the passenger vehicle, truck, bus and municipal and agricultural utility vehicle segments.

The certified company division develops and produces customer-specific assemblies according to TS 16949 specifications.

## At site: People in motion.

### Support, Service, Engineering, Training

Starting from advisory services, through to project planning, installation, commissioning and after-sales service including repairs, maintenance, spare part deliveries and repairs - KEB provides reliable assistance for the entire product life cycle. And it is good to know that we are always there to address your needs quickly and competently right there where you need us - based on our global service and sales network.





People in motion. People in dialogue. Always moving - managing, advising, assisting.



At KEB, we have high standards for support, service, engineering and training. Therefore we offer extensive onsite and offsite technical training in line with our solutions. In addition, extensive documentation and technical downloads can be obtained from the web - at anytime and anywhere. To us, customer support starts when the first time contact is established, and consists of continuous support, advisory support and assistance - also at a personal level.

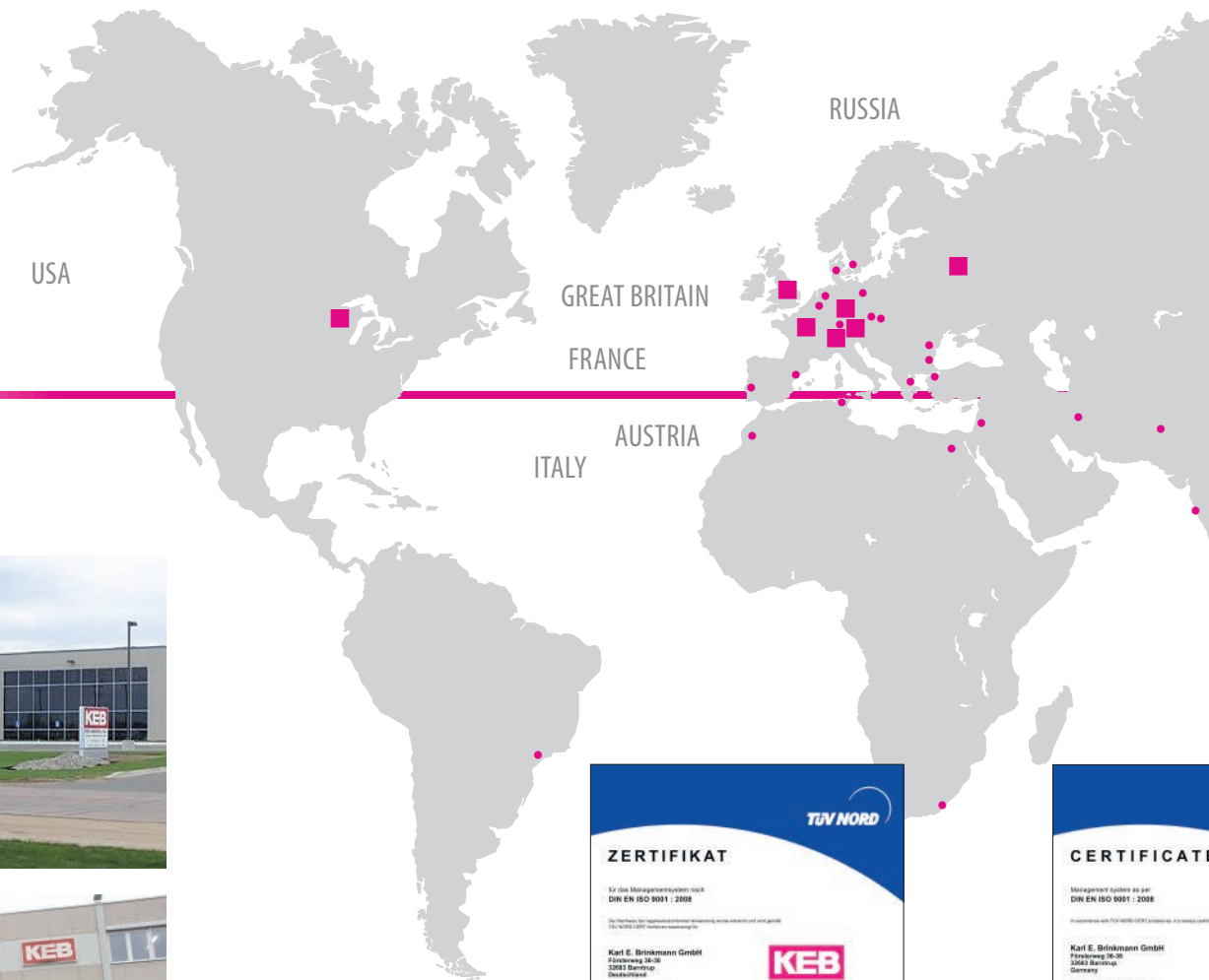
*Our know-how for your benefit...*

# A strong global partner.

## Drive technology for the world.

1,200 employees around the globe work for KEB. With our certified production sites in Germany, North America, China and Japan, we offer global delivery security.

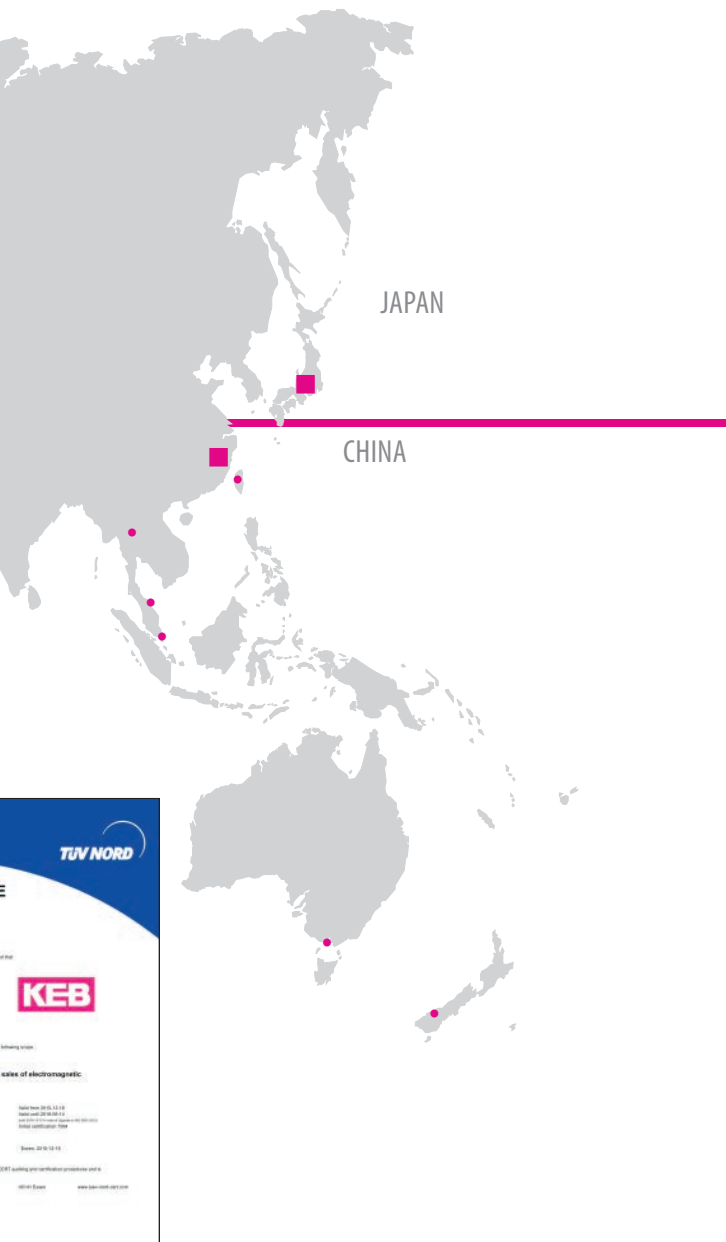
In addition, you can find qualified contacts at long-standing partners of the KEB sales and service network in more than 30 other countries. This flexibility and independence has made us into a strong partner.





# Active in all economic centres.

EUROPE, NORTH AMERICA, ASIA - our regional subsidiaries transport our corporate principles into international markets and act as your KEB onsite location. They are closely linked as part of the same development and production systems. To this end, IT infrastructure provides all service-relevant information around the globe and enables us to provide rapid service and integrated standards for the design, procurement and production of our assemblies.



KEB worldwide

**KEB Automation KG**  
**Südstraße 38**  
**D - 32683 Barntrup**  
**Internet: [www.keb.de](http://www.keb.de)**

**Tel.: + 49 (0) 5263 401-0**  
**Fax: + 49 (0) 5263 401-116**  
**E-mail: [info@keb.de](mailto:info@keb.de)**

## COMPANIES

### AUSTRIA

KEB Antriebstechnik  
Austria GmbH  
Ritzstraße 8  
A - 4614 Marchtrenk  
Tel: +43 (0)7243 53586-0  
Fax: +43 (0)7243 53586-21  
E-mail: [info@keb.at](mailto:info@keb.at)  
Internet: [www.keb.at](http://www.keb.at)

### CHINA

KEB Power Transmission  
Technology (Shanghai) Co. Ltd.  
No. 435 QianPu Road  
Songjiang East Industrial Zone  
CN-201611 Shanghai, PR. China  
Tel: +86 (0)21 37746688  
Fax: +86 (0)21 37746600  
E-mail: [info@keb.cn](mailto:info@keb.cn)  
Internet: [www.keb.cn](http://www.keb.cn)

### GERMANY

KEB Antriebstechnik GmbH  
Wildbacher Straße 5  
D-08289 Schneeberg  
Tel: +49 (0)3772 67-0  
Fax: +49 (0)3772 67-281  
E-mail: [info@keb-drive.de](mailto:info@keb-drive.de)

### FRANCE

Société Française KEB  
Z.I. de la Croix St. Nicolas  
14, rue Gustave Eiffel  
F - 94510 LA QUEUE EN BRIE  
Tel: +33 (0)149620101  
Fax: +33 (0)145767495  
E-mail: [info@keb.fr](mailto:info@keb.fr)  
Internet: [www.keb.fr](http://www.keb.fr)

### GREAT BRITAIN

KEB (UK) Ltd.  
Morris Close  
Park Farm, Wellingborough  
GB - Northants, NN8 6 XF  
Tel: +44 (0)1933 402220  
Fax: +44 (0)1933 400724  
E-mail: [info@keb-uk.co.uk](mailto:info@keb-uk.co.uk)  
Internet: [www.keb-uk.co.uk](http://www.keb-uk.co.uk)

### ITALY

KEB Italia S.r.l. Unipersonale  
Via Newton, 2  
I - 20019 Settimo Milanese (Milano)  
Tel: +39 02 33535311  
Fax: +39 02 33500790  
E-mail: [info@keb.it](mailto:info@keb.it)  
Internet: [www.keb.it](http://www.keb.it)

### JAPAN

KEB - Japan Ltd.  
15 - 16, 2 - Chome  
Takanawa Minato-ku  
J - Tokyo 108 - 0074  
Tel: +81 (0)33 445-8515  
Fax: +81 (0)33 445-8215  
E-mail: [info@keb.jp](mailto:info@keb.jp)  
Internet: [www.keb.jp](http://www.keb.jp)

### RUSSIA

KEB CIS ZAO  
Lesnaya str, house 30  
Dzerzhinsky (MO)  
RUS - 140091 Moscow region  
Tel: +7 (0)495 6320217  
Fax: +7 (0)495 6320217  
E-Mail: [info@keb.ru](mailto:info@keb.ru)  
Internet: [www.keb.ru](http://www.keb.ru)

### USA

KEB America, Inc  
5100 Valley Industrial Blvd. South  
USA - Shakopee, MN 55379  
Tel: +1 952 2241400  
Fax: +1 952 2241499  
E-mail: [info@kebamerica.com](mailto:info@kebamerica.com)  
Internet: [www.kebamerica.com](http://www.kebamerica.com)

Representative offices in [Belgium](#) • [Korea](#) • [Sweden](#) • [Spain](#)

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