Linear technology

Clamping and braking elements
+ for profile rails
+ for round bars
+ for rotary axes

THE KNOW-HOW FACTORY

www.zimmer-group.com

ZIMMER group

THE KNOW-HOW FACTORY

ZIMMER GROUP
COMMITTED TO OUR CUSTOMERS

WE HAVE SUCCEEDED FOR YEARS BY OFFERING OUR CUSTOMERS INNOVATIVE AND INDIVIDUALIZED SOLUTIONS. ZIMMER HAS GROWN CONTINUOUSLY AND TODAY WE HAVE REACHED A NEW MILESTONE: THE ESTABLISHMENT OF THE KNOW-HOW FACTORY. IS THERE A SECRET TO OUR SUCCESS?

Foundation. Excellent products and services have always been the foundation of our company's growth. Zimmer is a source of ingenious solutions and important technical innovations. This is why customers with high expectations for technology frequently find their way to us. When things get tricky, Zimmer Group is in its best form.

Style. We have an interdisciplinary approach to everything we do, resulting in refined process solutions in six technology fields. This applies not just to development but to production. Zimmer Group serves all industries and stands ready to resolve even the most unique and highly individualized problems. Worldwide.

Motivation. Customer orientation is perhaps the most important factor of our success. We are a service provider in the complete sense of the word. With Zimmer Group, our customers have a single, centralized contact for all of their needs. We approach each customer's situation with a high level of competence and a broad range of possible solutions.

TECHNOLOGIES






HANDLING TECHNOLOGY

More than 30 years of experience and industry knowledge: our pneumatic, hydraulic and electrical handling components and systems are global leaders.

Components. More than 2,000 standardized grippers, pivot units, robot accessories and much more. We offer a complete selection of technologically superior products that are ready for rapid delivery.

Semi-standard. Our modular approach to design enables custom configurations and high rates of innovation for process automation.

DAMPING TECHNOLOGY

Industrial damping technology and Soft Close products exemplify the innovation and pioneering spirit of the Know-How Factory.

Industrial damping technology. Whether standard or customized solutions, our products stand for the highest cycle rates and maximum energy absorption with minimal space requirements.

Soft Close. Development and production of superior quality pneumatic and fluid dampers. High-volume production ensures rapid delivery.

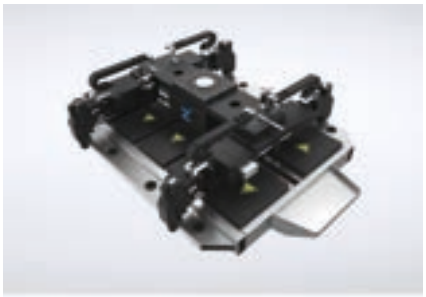
OEM and direct. Whether they need components, returning mechanisms or complete production lines—we are the trusted partner of many prestigious customers.

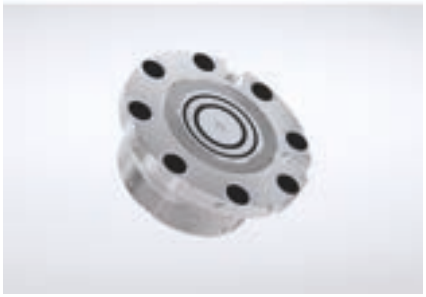
LINEAR TECHNOLOGY

We develop linear technology components and systems that are individually adapted to our customers' needs.

Clamping and braking elements. We offer you more than 4000 types for profiled and round rails as well as for a variety of guide systems from all manufacturers. It makes no difference whether you prefer manual, pneumatic, electric or hydraulic drive.

Flexibility. Our clamping and braking elements ensure that movable components such as Z-axes or machining tables maintain a fixed position and that machines and systems come to a stop as quickly as possible in an emergency.



MACHINE TECHNOLOGY

Zimmer Group develops innovative metal, wood and composite material processing tool systems for all industries. Numerous customers choose us as their systems and innovation partner.

Knowledge and experience. Industry knowledge and a decades-long development partnership for exchangeable assemblies, tool interfaces and tool systems predestine us for new challenges around the world.

Components. We deliver numerous standard components from stock and develop innovative, customized systems for OEM and end customers—far beyond the metal and wood processing industries.

Variety. Whether you have machining centers, lathes or flexible production cells, the power tools, holders, assemblies and drilling heads of Zimmer Group are ready for action.

SYSTEM TECHNOLOGY

Zimmer Group is one of world's leading specialists in the development of customized systems solutions.

Customized. A team made up of more than 20 experienced designers and project engineers develop and produce customized solutions for special tasks in close collaboration with end customers and system integrators. It doesn't matter if it is a simple gripper and handling solutions or a complex system solution.

Solutions. These system solutions are used in many industries, from mechanical engineering to the automotive and supplier industries and from the plastics engineering, electronics and consumer goods industries all the way to foundries. The Know-how Factory helps countless companies to thrive competitively by increasing automation efficiency.

PROCESS TECHNOLOGY

Maximum efficiency is essential for systems and components used in process technology. High-level custom solutions are our trademark.

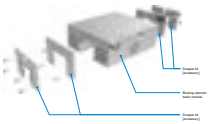
A rich reservoir of experience. Our know-how ranges from the development of materials, processes and tools through product design to production of series products.

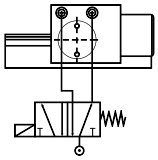
Vertical integration. The Zimmer Group pairs these capabilities with flexibility, quality and precision, even when making custom products.

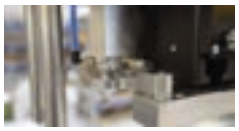
Series production. We manufacture demanding products out of metal (MIM), elastomers and plastics with flexibility and speed.

FULL PRODUCT LINE
OVERVIEW

CLAMPING AND BREAKING ELEMENTS







PIONEERS
WITH LEADERSHIP QUALITIES

ZIMMER GROUP IS A PIONEER IN THE FIELDS OF CLAMPING AND BRAKING ON PROFILE AND ROUND SHAFT GUIDES.

More than 20 years of development and market experience have yielded more than 4,000 products. Zimmer Group offers the most comprehensive and innovative portfolio of products and services reflecting the highest possible quality and reliability.

Clamping and braking elements from Zimmer Group routinely perform critical positioning, holding and braking tasks. They ensure precision during cutting processes and boost efficiency with short cycle times. Their secure hold maximizes safety and protects the machines.

HISTORY

1994	First standardized clamping element for profile rail guides
2000	Braking element with wedge gear for linear-driven tooling machines
2008	Braking element for round guides
2019	Electric clamping element for profile rail guides
2022	Pneumatic and hydraulic clamping elements for extremely precise fixing of rotation axes

ZIMMER CLAMPING AND BRAKING ELEMENTS
HIGH-PERFORMANCE, DURABLE, INNOVATIVE

Our customers have high expectations for reliability, which we fulfill by merging exceptional performance with extraordinary product and manufacturing quality. Naturally we are certified according to DIN EN ISO 9001 and DIN EN ISO 14001:2004.

All of our products pass through multiple development and testing phases before entering series production. We continually optimize the underlying design, meeting new requirements with innovative developments, so our customers can enter new fields and discover new ways to use our products.

Numerous benefits:

- Very high holding force on small dimensions
- No relative movement for the workpiece
- No clamping forces transferred to the guide block
- High positional accuracy
- High stiffness
- Virtually wear free
- Very straightforward installation
- Outstanding price/performance ratio
- Available for all common guide manufacturers
- Economical custom solutions
- Emergency stop-capable series with integrated special surface for braking

With many years of product and market experience, we have a special ability to develop custom solutions that complement our large and diverse range of products. Please share your challenge with us!

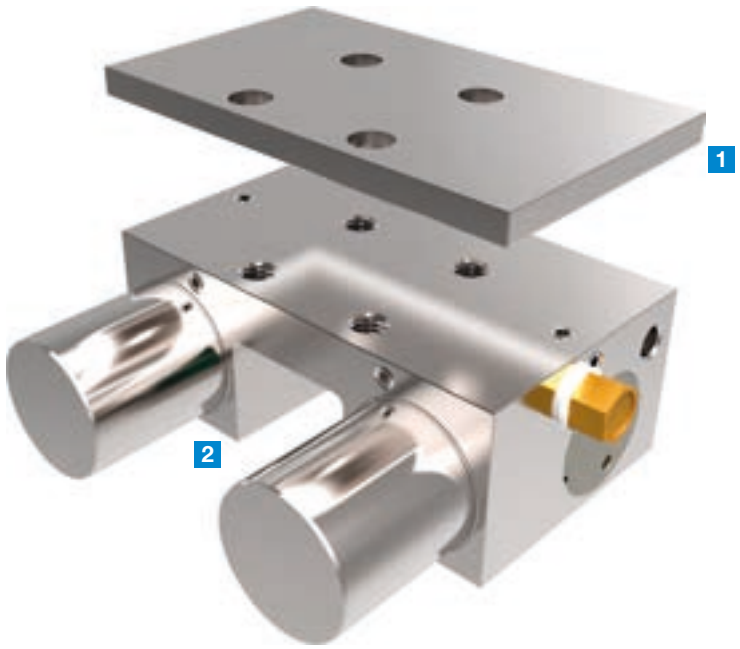
NUMERICAL CODE
EXPLANATION

▶ NUMERICAL CODE OF OUR MKS SERIES (SHOWN AS EXAMPLE)

MK	S	35	03 MR	+	PMK 35-7
Series	Spring energy storage (opened when pressurized)	Installation size	Rail/ carriage combination		Adapter plate

- The tables on the overview pages contain the order numbers of the elements and, when necessary, the order numbers of the associated spacer plate (accessory).
- If a spacer plate is required, please provide both order numbers.
- For dimensions and top view drawings, refer to the respective series.

Example MKS series



1 **Spacer plate** [might have to be ordered additionally as height compensation, depending on the height of the rail carriage (dimension D)]

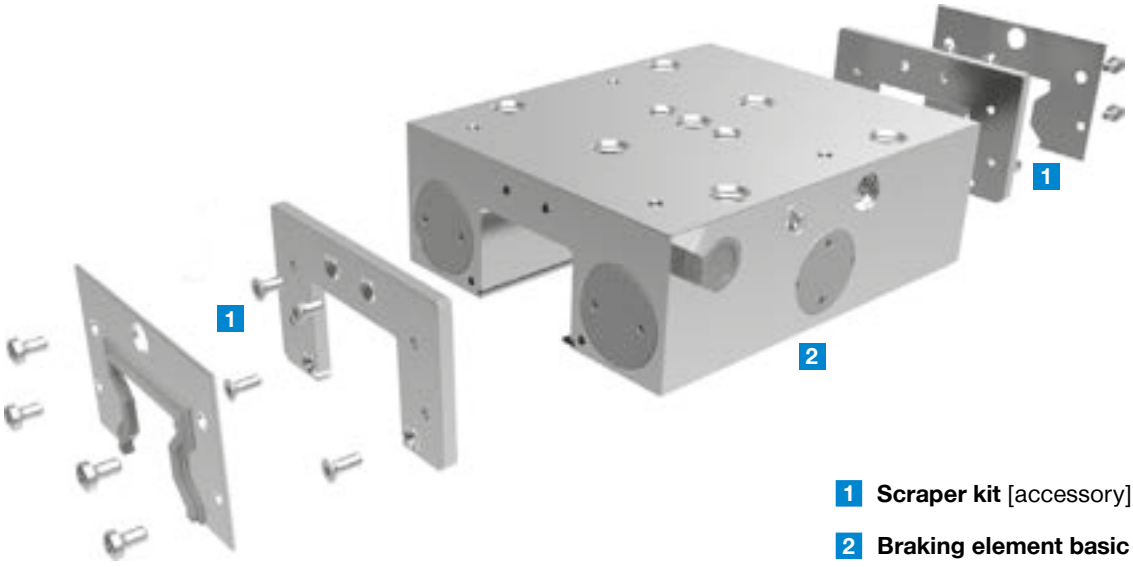
2 **Clamping elementbasic module**

▶ NUMERICAL CODE OF OUR UBPS SERIES (SHOWN AS EXAMPLE)

UBP	S	35	01 A S1	L	A
Series	Spring energy storage (opened when pressurized)	Installation size	Rail/ carriage combination	Long version	Scraper kit

- The tables on the overview pages contain all necessary order numbers, with the exception of the wiper kit.
- If a wiper kit is required, please add the letter „A“ to the order number.
- Our KBHS and RBPS series are always equipped with a wiper!
- Our series MBPS, UBPS, KWH, KBH and LBHS are available with a wiper option!
- For dimensions and top view drawings, refer to the respective series.

Example UBPS series



1 **Scraper kit** [accessory]

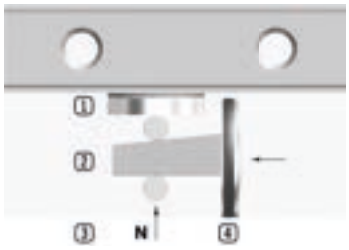
2 **Braking element basic module**

CLAMPING AND BRAKING ELEMENTS
TECHNICAL FUNDAMENTALS

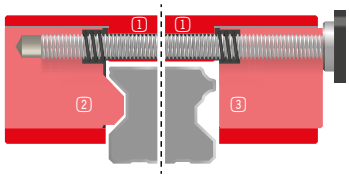
▶ CLAMPING, BRAKING, AREAS OF APPLICATION

Wedge slide gear

1 Contact section
2 Wedge slide gear
3 Resulting transverse movement
4 Piston



1 floating bearing
2 free surface (O arrangement)
3 free surface (X arrangement)

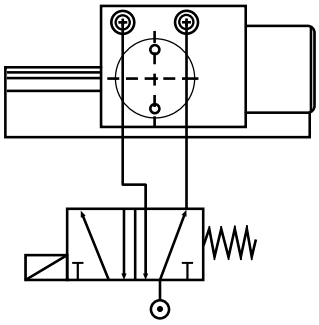


- The MK/MKS/MBPS/UBPS/LKP/LKPS/LBPS/MKR and MKRS series are constructed with two parallel (synchronized) running wedge gears, i.e. the stroke movement of the contract profiles is performed from both sides. Therefore (assuming the proper connection structure), the clamping process is not expected to produce relative movements.
- Series HK/MK/MKS/LKP/LKPS/miniHK/MCP/MCPS/KWH/KBH/LKE/HKR/MKR/MKRS/DKPS1000 and DKHS1000 are designed exclusively for static clamping processes.
- The series MBPS/UBPS/LBPS/LBHS/DKPS1000 and RBPS also allow dynamic use (braking) as a safety feature by using corresponding contact profiles or an optional braking flange in the case of the DKPS1000.
- Series HK/miniHK/MCP/MCPS/KWH/KBH/LKE and HKR have floating bearings, thereby eliminating pinching forces in the connection structure during the clamping process.
- The frictional connection between the clamping element and the linear guide is generated on the free surfaces of the guide rails, avoiding damage to the running surfaces of the ball guides and roller slides.

▶ PNEUMATIC CONNECTIONS

NOTE

- Purified, oiled air shall be used for the pneumatic elements. Recommended filter size is 25 µm. The line diameter of the elements should be the largest permitted by the air connection. Smaller line diameters result in slower response and reaction times for the elements. Lines should be as short as possible; please observe the installation and operating instructions.
- All commercially available pneumatic valves are suitable. Inquire with the manufacturer for each valve's reaction time, especially when used as a brake or as fall protection.



- PLUS connection for higher holding forces
  The holding force of elements MKS/ MCPS and UBPS can be increased with supplementary pressure for the spring energy storage and by installing a 5/2 (overflow free) or 5/3-way valve. In this case, the venting filter is replaced by a second pneumatic line.
- When used as a safety element, note that the higher holding force (PLUS connection) can be achieved only with additional charging with existing pneumatic pressure.

▶ HYDRAULIC CONNECTIONS

NOTE

- The hydraulic clamping elements are filled at the factory with HLP 46 hydraulic oil. There are multiple hydraulic connections on the products for ventilation and alternative pressurization. Charging requires one connection. Special care must be exercised when venting the rigid and flexible hydraulic lines, since entrapped air may lead to damage to sealing elements. Please observe the instructions included with the product during installation and commissioning.

▶ CONNECTION STRUCTURE, INSTALLATION OF THE CLAMPING ELEMENTS

PLEASE OBSERVE!

- In order to avoid negative effects like permanent rubbing at the linear guide, the connection structure must be stiff in its design, in accordance with its loads and requirements. If the clamping elements are not correctly aligned, this may result in rubbing, wear and ultimately damage to the linear guide.
  The default factory setting is adapted to the linear guide and may not be modified during installation. It is very important that you observe the installation instructions for the clamping and braking elements.
  Some spring-loaded elements are equipped with a transport lock between the contact profiles. Remove the safety devices during installation by applying pressure to the element. Once pressure is removed, the transport lock or the associated linear guide must have contact between the contact profiles!
  The clamping elements do not perform any guide function. Therefore, it is not possible to exchange a rail carriage with a clamping element. The ideal position of the clamping element is between two rail carriages. When using multiple clamping elements, they should be distributed evenly on both guide rails in order to achieve maximum rigidity of the overall design.
  Additional installation notices may be found at www.zimmer-group.com.

▶ LUBRICATION, SURFACE PROTECTION, B10D VALUE AND QUICK EXHAUST

NOTE

- Lubrication is not necessary when using the mandated pressure medium.
- All housing parts of the clamping elements are nickel plated, giving them a certain amount of rust protection. Smaller parts made of aluminum are corrosion protected, depending on their requirements.
- The B10d value indicates the number of switching cycles until 10% of tested components have failed.
- The integrated quick exhaust valve allows faster ventilation of the clamping and braking element, which results in less closing time.

CLAMPING AND BRAKING ELEMENTS
BRAKING DISTANCE CALCULATION

▶ THEORETICAL BRAKING DISTANCE CALCULATION

VALUE

A (number of braking elements)	1
F (holding force of the braking element)	3 100 N
tR (reaction time)	0,06 s
tA (response time)	0,01 s
m (mass)	50 kg
vO (initial speed)	2 m/s
µG (kinetic friction)	0,06
µR (static friction)	0,1
g (weight force)	9,81 m/s2

▶ Example: Two guide blocks and one braking element UBPS (size 45)

The values for µG and µR are based on test series and on years of industry experience. Nonetheless, divergent ambient conditions can lead to different results. Values tR and tA are based on measured test values.

▶ STOPPING DISTANCE (HORIZONTAL INSTALLATION)

FORMULAS

▶ Stopping distance (horizontal installation)

The stopping distance is the theoretical distance required to bring a known mass with a defined speed to a complete stop. During braking, kinetic energy is converted to friction energy.
The braking distance is additionally extended by the distance that the entire system requires until the braking process is initiated. Short hose lengths, rapid valves and clean rails shorten the stopping distance.

▶ Energy formulas:

$$W_{Kin} = \tfrac{1}{2} m \times v_0^2 \qquad W_{Frc} = F \times A \times \frac{\mu_G}{\mu_H} \times S_B \qquad W_{Kin} = W_{Frc}$$

▶ Braking distance S_B:

$$S_B = \frac{m \times v_0^2}{2 \times F \times A \times \frac{\mu_G}{\mu_H}} = \frac{50\,kg \times (2\,\frac{m}{s})^2}{2 \times 3.100\,N \times 1 \times \frac{0,06}{0,1}} = 0,054\,m$$

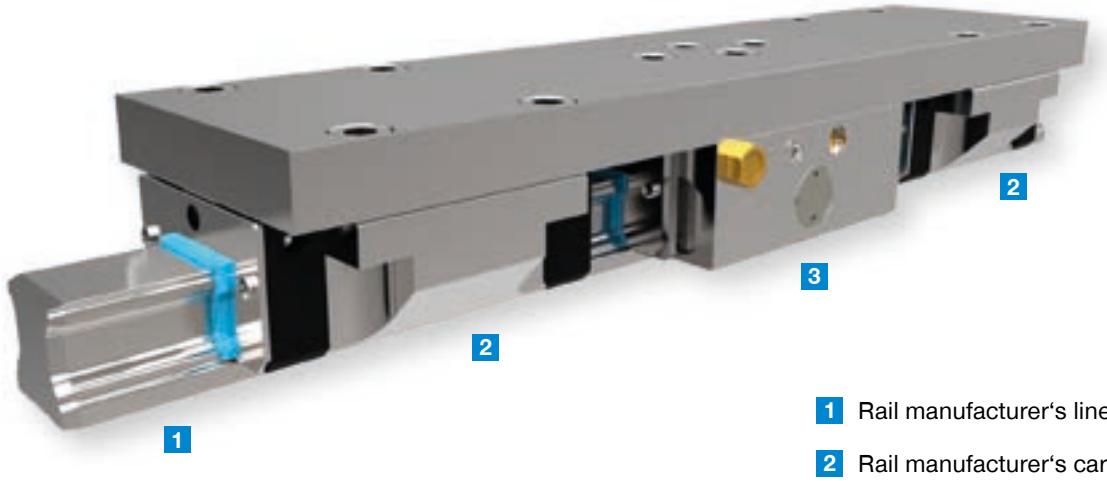
▶ Reaction distance and response distance S_R:

$$S_R = v_0 \times (t_R + t_A) = 2\,\frac{m}{s} \times (0,06\,s + 0,01\,s) = 0,14\,m$$

▶ Stopping distance S_H:

$$S_H = S_B + S_R = 0,054\,m + 0,14\,m = 0,194\,m$$

▶ DESIGN



1 Rail manufacturer‘s linear guide

2 Rail manufacturer‘s carriage

3 Braking element UBPS

▶ The relevant mechanical engineering directives shall be observed when designing the axle, including brakes. We will be happy to provide design assistance.

▶ STOPPING DISTANCE (VERTICAL INSTALLATION)

FORMULAS

▶ **Stopping distance (vertical installation)**

With vertical installation, the system is accelerated by gravity until the braking element triggers and the braking process begins.

▶ **Speed when braking begins V_{Brake}:**

$$V_{Brake} = v_0 + g \times (t_R + t_A) = 2\frac{m}{s} + 9.81\frac{m}{s^2} \times (0.06s + 0.01s) = 2.69\frac{m}{s}$$

▶ **Braking distance S_B:**

$$S_B = \frac{m \times v_{Brake}^2}{2 \times ((F \times A \times \frac{\mu_G}{\mu_H}) - m \times g)} = \frac{50kg \times (2{,}69\frac{m}{s})^2}{2 \times ((3.100N \times 1 \times \frac{0{,}06}{0{,}1}) - 50kg \times 9{,}81\frac{m}{s^2})} = 0{,}132\,m$$

▶ **Reaction distance and response distance S_R:**

$$S_R = v_0 \times (t_R + t_A) + \frac{1}{2} \times g \times (t_R + t_A)^2$$

$$= 2\frac{m}{s} \times (0{,}06s + 0{,}01s) + \frac{1}{2} \times 9{,}81\frac{m}{s^2} \times (0{,}06s + 0{,}01s)^2 = 0{,}164$$

▶ **Stopping distance S_H:**

$$S_H = S_B + S_R = 0{,}132\,m + 0{,}164\,m = 0{,}296\,m$$

CLAMPING AND BRAKING ELEMENTS
PRODUCT FINDER

With over 4,000 clamping and braking elements and more than 20 years of development and market experience, the Zimmer Group provides you with the most comprehensive and innovative product and service portfolio in the technological field of linear technology. The high demands on quality and reliability guide the way for the most varied, highly efficient tasks such as positioning, holding and braking. In particular, ensuring precision in machining operations, short cycle times in production and a secure hold provide maximum safety for both people and machines. The perfect product in just a few steps. When looking for the right components, you can use our online Product Finder to easily find the right product for your application: www.zimmer-group.com/de/plt.

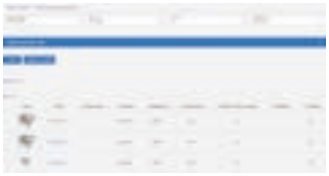
► Profile rail guide

Follow steps 1 to 6. After step 4, you will see results tailored to your search criteria. Optionally, you can refine the filtering using additional selection fields.

1. Select the rail manufacturer
2. Select the rail type
3. Select the rail size
4. Select the carriage type

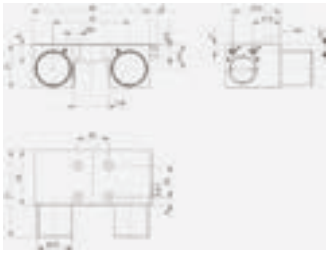
5. Choose the right element from the results list. Here you will get a glimpse of all product-relevant information such as technical characteristics, 3D data, dimensional drawings, etc. Then you can add the product to the shopping basket.

Results



Technical data

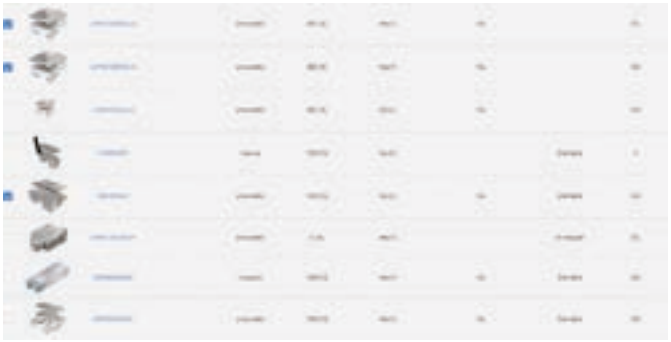
Dimensional drawing



Download CAD data

6. Compare the products. Products can be selected multiple times in the results list and then be added to a comparison. Just mark the products you want to compare with a check mark and then click “COMPARE SELECTED PRODUCTS”.

Choose your products



Comparison in a table

Your benefits

- With a few clicks, our Product Finder will help you find the right clamping and braking element for you.
- A clear overview gives you all the results you need.
  Choose the right product for you from a variety of clamping and braking elements.
  Drawings, technical data or assembly instructions – it's all here at a glance.
- Advanced search using a filter.
  Limit the search based on additional filters and specific criteria to fit your application.

► CIRCULATOR AND SHAFT GUIDES

Follow steps 1 to 3. Select your desired shaft size in step 1. Next, you will see matching results, which we will explain in detail using technical data and the option to download a CAD file.

1. Select the shaft size

2. Choose the right element from the results list. Here you will get a glimpse of all product-relevant information such as technical characteristics, 3D data, dimensional drawings, etc. Then you can add the product to the shopping basket.

Results

Technical data

Download CAD data

3. Compare the products. Products can be selected multiple times in the results list and then be added to a comparison. Just mark the products you want to compare with a check mark and then click "COMPARE SELECTED PRODUCTS".

Choose your products

Comparison in a table

CLAMPING AND BRAKING ELEMENTS
GENERAL INFORMATION

▶ TECHNICAL INFORMATION

All information just a click away at: www.zimmer-group.com/en/
Find data, illustrations, 3D models and operating instructions for your installation size using the order number for your desired model.
Quick, clear and always up-to-date.

▶ CLAMPING AND BRAKING ELEMENT PRODUCT FINDER

Whatever possible use you are looking for, you'll find the right product here.
Easy selection of the right element for any rail-carriage combination: www.zimmer-group.com/de/plt.

▶ PNEUMATIC CONNECTIONS

All clamping and braking elements for profile rail guides can be attached on either side.

▶ CLEANROOM

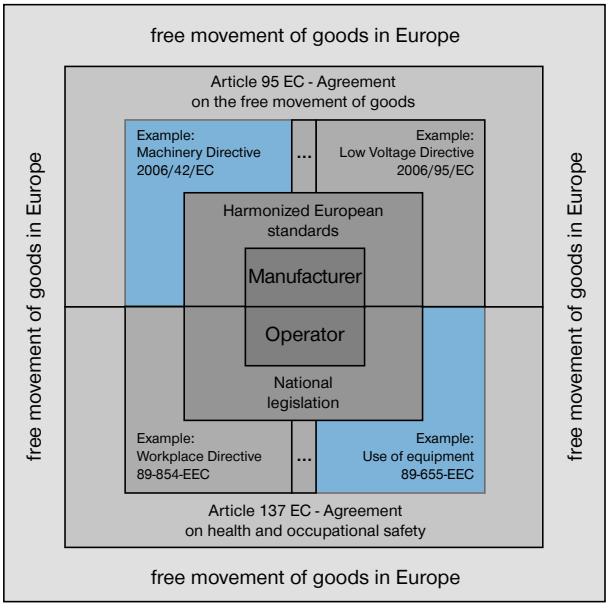
The product-related application class ISO 6, in accordance with DIN EN ISO 14644-1, was determined by TÜV SÜD for the MK and MKS series on the basis of the international test standard DIN EN ISO 14644-14.

CLAMPING AND BRAKING ELEMENTS
SAFETY REQUIREMENTS

▶ BASIC KNOWLEDGE OF SAFETY REQUIREMENTS

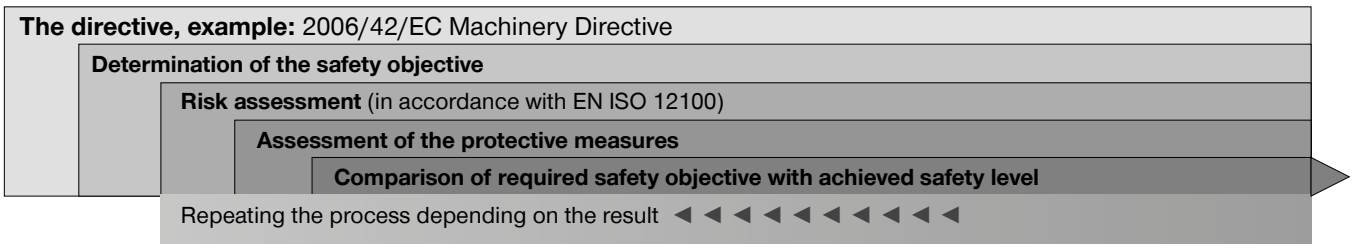
Mechanical engineering is an important technical subsector and one of the core industrial areas of the EC economy. The social costs of numerous accidents resulting directly from machine operation can be reduced if the aspect of safety is incorporated into the design and construction of machines and these machines are installed and maintained properly.

- **European rules and regulations**
  Products must be designed such that humans, animals and the environment are protected. This is the principle on which applicable European rules and regulations are based.
- **CE marking**
  When a manufacturer, distributor or EU authority affixes the CE marking to a product, it is declaring that this product meets the requirements of EU Regulation 765/2008 defined in the legislation of the European Community. The CE marking is a symbol of the free movement of goods within the EU.
  Legally, the CE marking is not a seal of approval (quality), and is only intended to document compliance with the minimum legal requirements.



▶ THE PATH TO A SAFE MACHINE

IDENTIFY THE DANGER, ASSESS THE RISK AND MINIMIZE IT



- Companies like the ZIMMER-Group that manufacture products subject to the scope of validity of the 2006/42/EC Machinery Directive and that can verify a quality management system certified in accordance with ISO 9001 carry out a procedure for Declaration of Conformity in accordance with Appendix VIII of the Machinery Directive. A risk assessment is an integral part of this process carried out during development.
- This risk assessment analyzes danger zones, assesses the associated risks, determines actions for reducing risk and repeats the evaluation until it can be proven that sufficient risk reduction is in place.

Risk = severity of the potential damage + **likelihood** of occurrence

CLAMPING AND BRAKING ELEMENTS
SAFETY REQUIREMENTS

▶ PERFORMANCE LEVEL, FAILURE, DIAGNOSTICS, ETC.

The performance level is a function of:

- ▶ The control category used (Cat. B through 4)
- ▶ The diagnostic coverage (DC)
- ▶ The mean operating time until a failure occurs (MTTFd)
- ▶ The common cause failures (CCF)

THIS MEANS THAT THE PERFORMANCE LEVEL OF AN INDIVIDUAL LINEAR ELEMENT CAN ONLY EVER BE CALCULATED TOGETHER WITH THE CONTROL ARCHITECTURE USED AND THE APPLICATION-RELATED DATA.

VALUE

- ▶ **B10d value:**

  According to statistics, the B10 value is the time at which 10% of the test objects fail. With respect to machine safety, only the dangerous failures are relevant. ISO 13849-1 permits the assumption that every second failure is dangerous.
  Based on this, it is safe to assume the following:

$$B_{10d} = 2 \times B_{10}$$

The B10d value is already specified in the catalog and installation and operating instructions for linear technology. ZIMMER determines this value in its own test laboratories in conjunction with specified authorities.

- ▶ **MTTFd value:**

  Mean operating time until a failure occurs (mean time to failure)

  For all products installed in safety-related parts of control systems and that have a direct effect on the safety function, this value has to be calculated according to the following formula:

$$MTTF_d = \frac{B_{10d}}{0{,}1 \times n_{op}}$$

The identifying feature of the variable nop is that it is directly related to the operating conditions for the user.

nop = mean number of annual actuations

dop = operating days / year

hop = operating hours / day

tcycle = cycle time in [s]

$$n_{op} = \frac{d_{op} \times h_{op} \times 3600\ s/h}{t_{cycle}}$$

▶ PERFORMANCE LEVEL, FAILURE, DIAGNOSTICS, ETC.

VALUE

▶ **DC value:**

Diagnostic coverage = measurement of the effectiveness of the process diagnosis.

Here, the dangerous failures identified are put in proportion to the total number of dangerous failures:

$$DC = \frac{\sum (\text{dangerous detected failures})}{\sum (\text{total dangerous failures})}$$

The total diagnostic coverage can be formed from the sum of the values of individual elements (1 - n) of a control architecture.

$$DC = \frac{\frac{DC_1}{MTTF_{d1}} + \frac{DC_2}{MTTF_{d2}} + \ldots + \frac{DC_n}{MTTF_{dn}}}{\frac{1}{MTTF_{d1}} + \frac{1}{MTTF_{d2}} + \ldots + \frac{1}{MTTF_{dn}}}$$

Diagnostic coverage is particularly important in selecting the necessary control category. This value is not relevant for categories B and 1.

Failure mode and effects analyses (FMEA) can be used in accordance with IEC 60812 to estimate the DC.

Appendix E of ISO 13849-1 offers a simplified approach for estimating the DC.

The DC is specified in one of four levels: none, low, medium and high.

If the DC increases due to improved diagnostic measures, a higher performance level (PL) can be achieved for the same control architecture.

WHAT THIS MEANS IN PRACTICE:

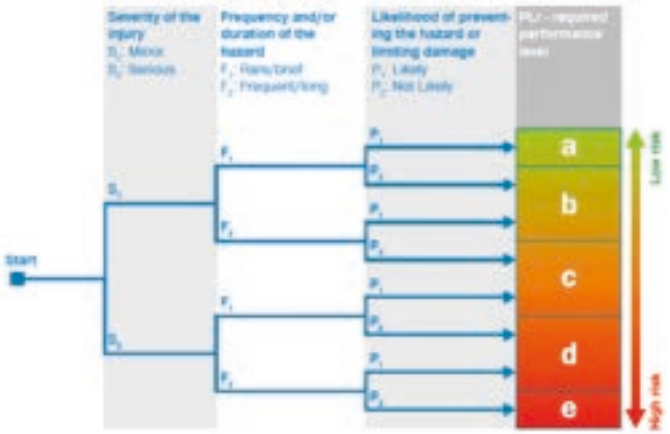
- If an activation valve for a clamping element is monitored by a pressure switch in a single-channel control architecture, this can increase machine safety substantially.
- This can be seen in the table in Chapter 4.5.4 of EN ISO 13849-1. Here, this is indicated by the increased PL d in Category 2
- Without the described monitoring measure (no DC), only PL b/c would be reached in Control category 1.

CLAMPING AND BRAKING ELEMENTS
SAFETY REQUIREMENTS

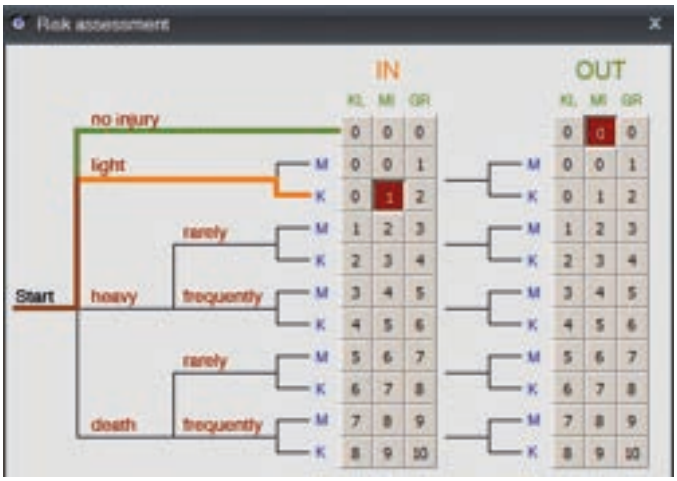
▶ REQUIRED PLR - ACHIEVED PL

▶ STEP 1:

EN ISO 13849-1 also uses a risk graph to determine the required **performance level** PLr.
Parameters S, F and P are used to determine the severity of the risk. The result of the procedure is the **required performance level** (PLr - required performance level)
In practice, the PLr is often defined in the customer's requirements specifications.



Note:
When assessing the effectiveness of the actions taken to reduce risk, we once again encountered the structure of risk graphs used to determine the PLr.
A classification of the achieved risk reduction has taken the place of the column for the PLr. It is in the form of a number, which serves as an abstract symbol for the risk severity.

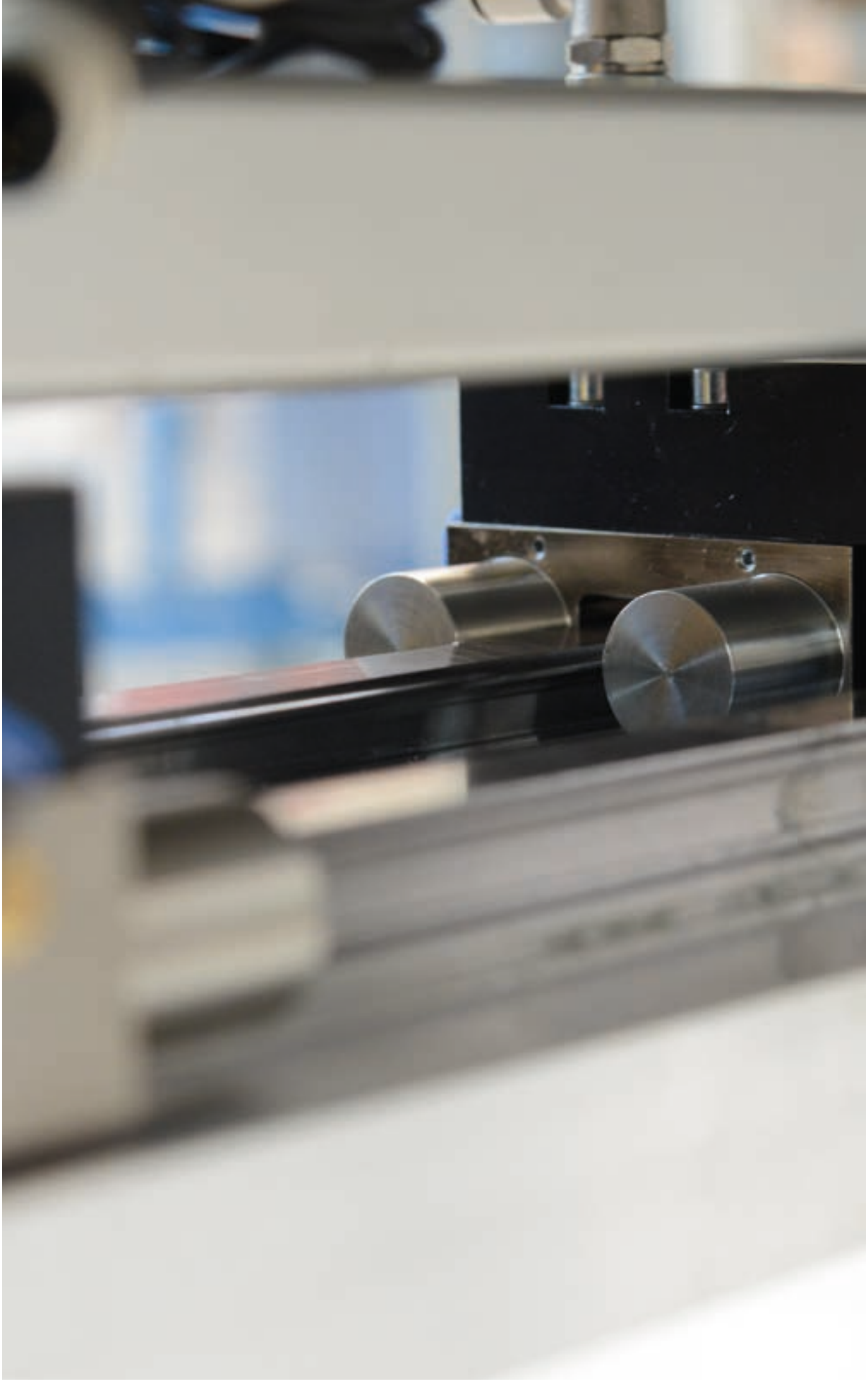


▶ STEP 2:

The achieved performance level **must be determined for all actions that contain control engineering components and that were implemented** as part of the risk assessment
to minimize risk.
In addition, the SISTEMA program of the DGUV (German Social Accident Insurance) is available.

In all cases, the result of this determination must read as follows:

PL ≥ PLr
Achieved performance ≥ required performance level

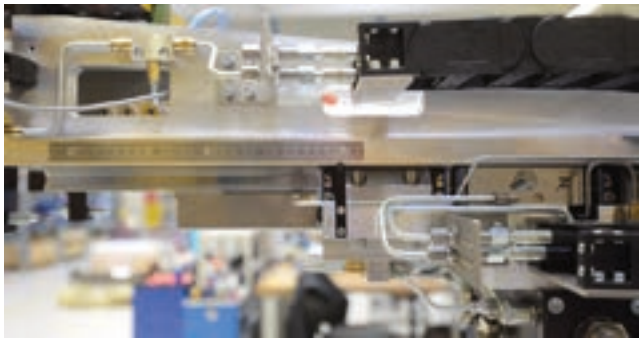


CLAMPING AND BRAKING ELEMENTS
APPLICATIONS

▶ UBPS SERIES

Handling of cylinder heads for ship engines

UBPS braking element with high positioning accuracy for specifying the gripper position and ensuring that power is stored when the system is in an emergency stop in case of a power supply failure.
Special version with reduced opening pressure of 4.5 bar.
The PLUS connection can be used to increase the holding force again.



▶ MBPS SERIES

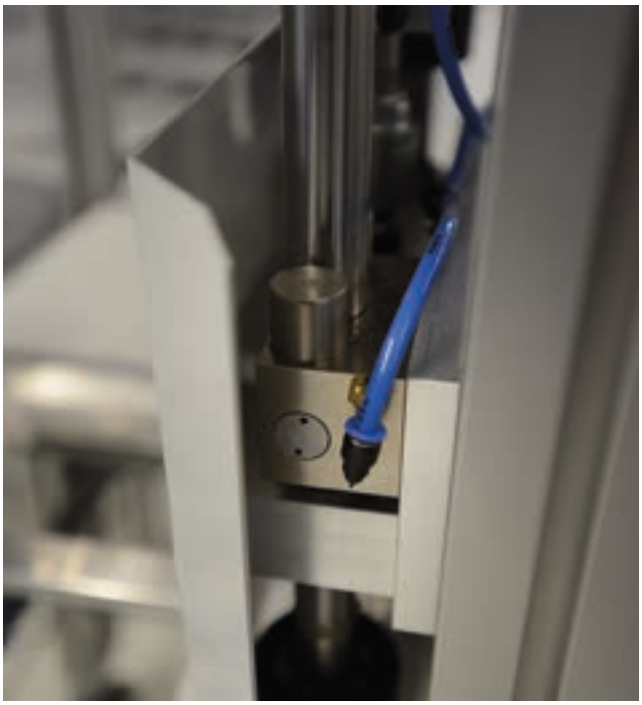
Handling crankshafts with variable gripping distances

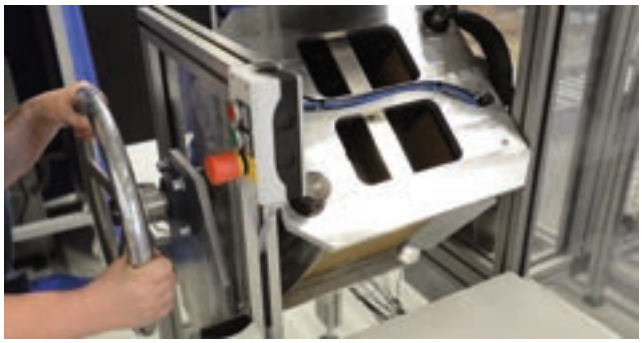
MBPS braking elements that use the built-in spring accumulator to hold the grippers securely in position without the need to use power.

▶ MKRS SERIES

Box filling system

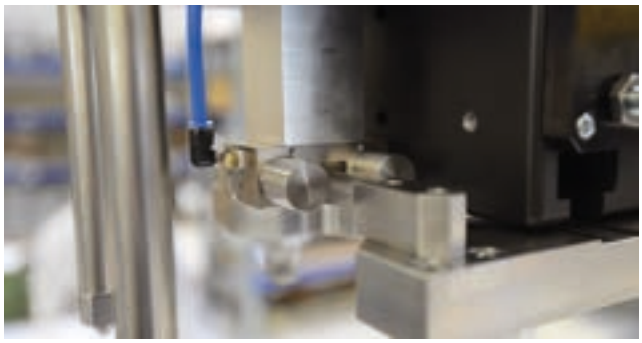
MKRS clamping element for round guides, which holds the box in place during overhead filling.

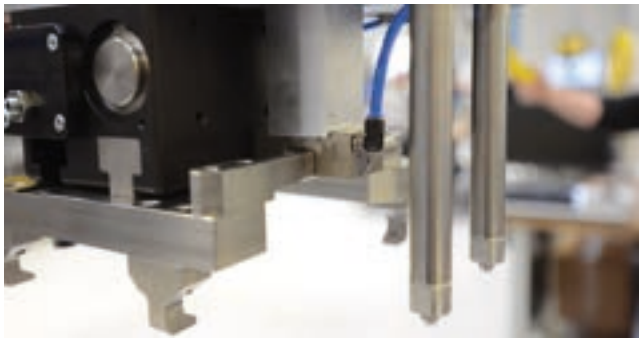




▶ MKS SERIES

MKS clamping element, which ensures the position of the gripper fingers and the gripper force without using energy via the built-in spring accumulator.

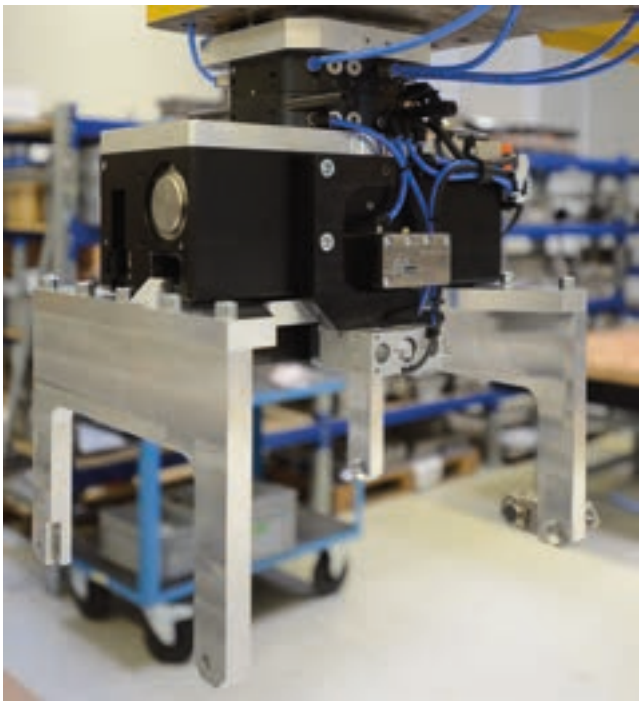




CLAMPING AND BRAKING ELEMENTS
APPLICATIONS

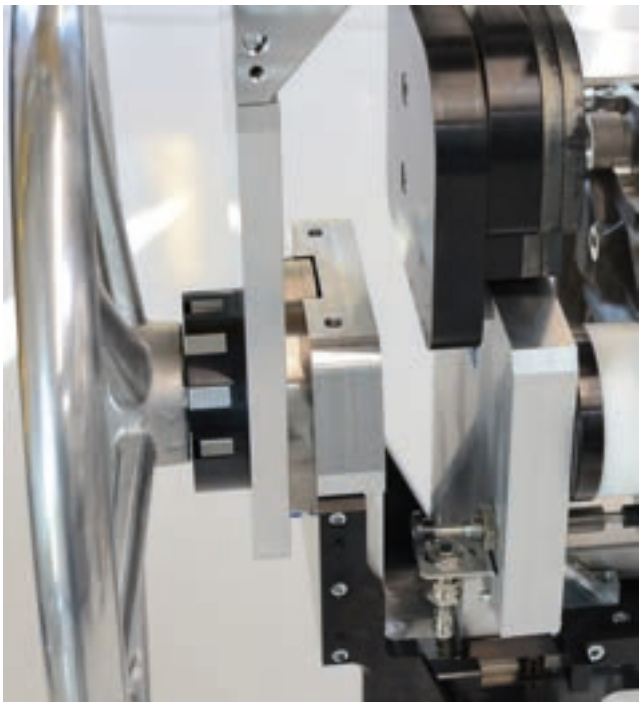
► ZIMMER GRIPPER WITH INTEGRATED CLAMPING ELEMENT

GHK gripper with integrated clamping element for friction-locked gripping force safety device in a compact design.



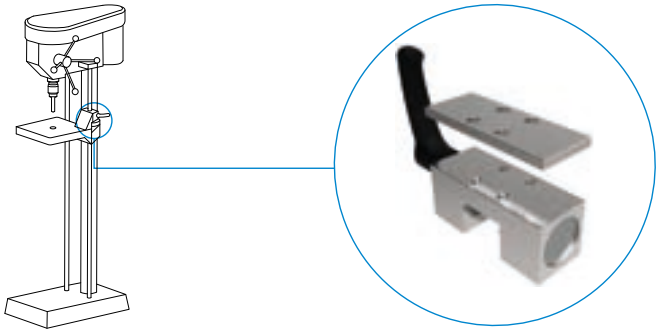
► TPS + MKS SERIES

TPS rotation clamping element, which secures the crank housing precisely at the set rotation angle. Combined with two MKS clamping elements, which use the built-in spring accumulator to secure the gripped crankshaft housing.



BRANCHES APPLICATION EXAMPLES
WOOD MANUFACTURING MACHINES

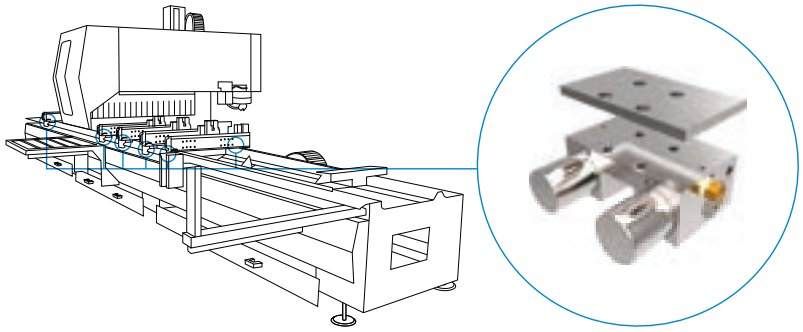
▶ HK SERIES



Simple fixation of working table

- High holding force
- No media supply needed

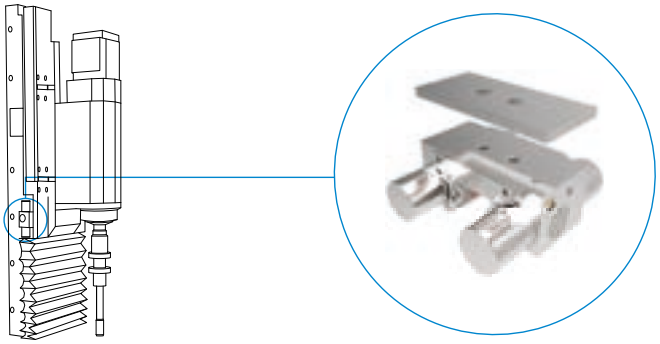
▶ MKS SERIES



Fixation of console tables

- Enhanced accuracy
- Less vibration marks
- Uptake of process forces

▶ MBPS SERIES

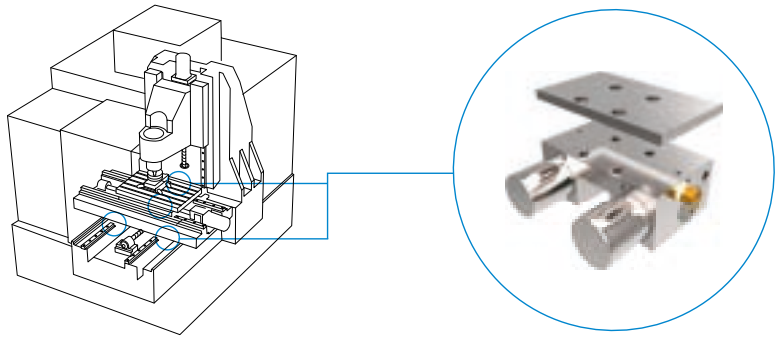


Safeguarding of Z-axis

- Safety in emergency stop
- Less vibrations during process
- Uptake of process forces

BRANCHES APPLICATION EXAMPLES
MILLING/TURNING MACHINES

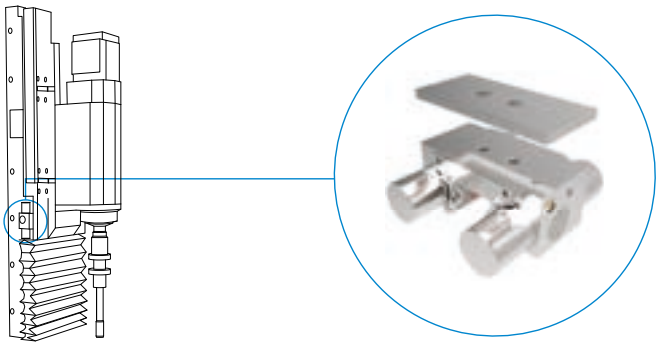
▶ MKS SERIES



Fixation of machine axis

- Enhanced accuracy
- Better dissipation of vibrations into the machine bed
- Uptake of process forces

▶ MBPS SERIES

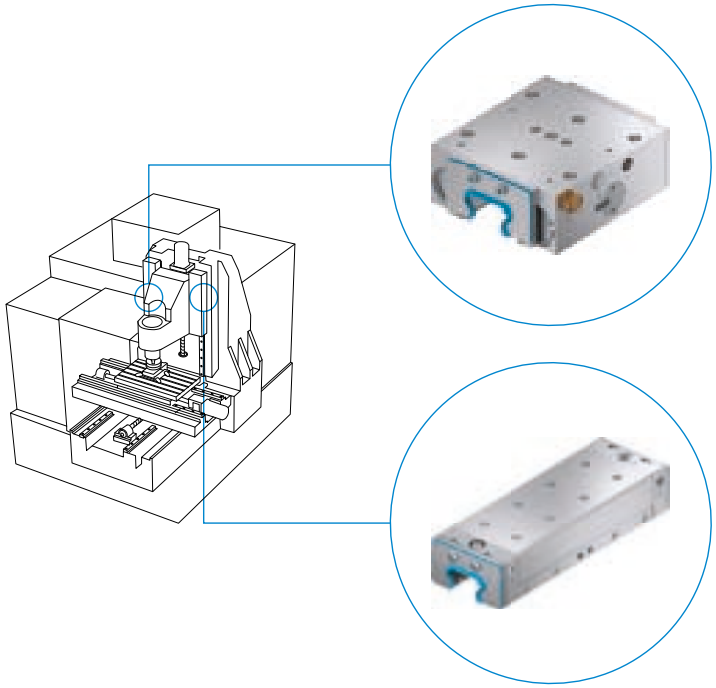


Safeguarding of Z-axis

- Safety in emergency stop
- Less vibrations during process
- Uptake of process forces

BRANCHES APPLICATION EXAMPLES
MILLING/TURNING MACHINES

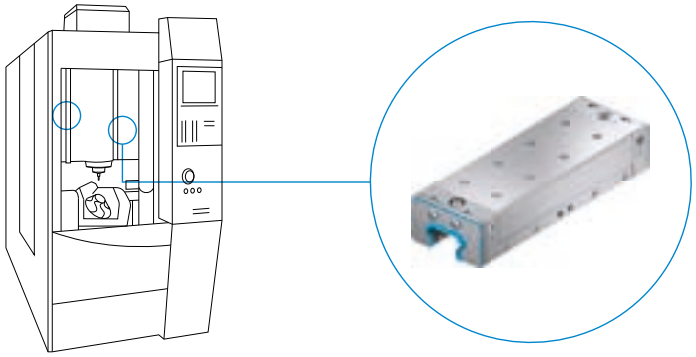
► UBPS / LBHS SERIES



Safeguarding of heavy Z-axis

- Safety in emergency stop
- Less vibrations during process
- Uptake of process forces

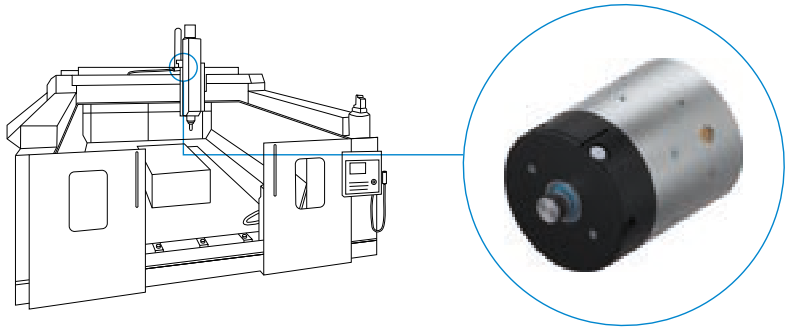
► LBHS SERIES



Safeguarding of dynamic Z-axis with linear drive

- Safety in emergency stop
- Very fast actuation time
- Less vibrations during process
- Uptake of process forces

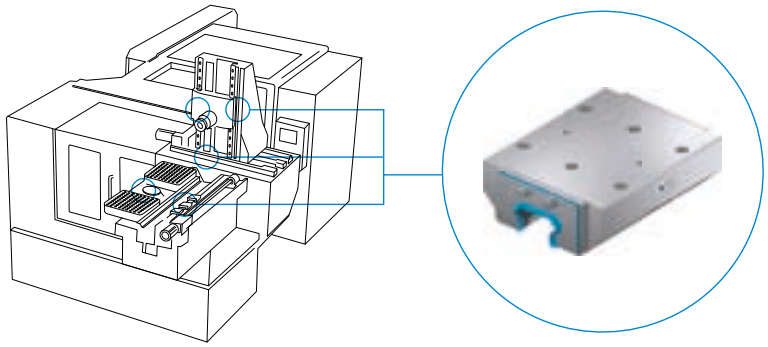
▶ RBPS SERIES



Safeguarding of heavy Z-axis

- Safety in emergency stop
- Small space required
- Integrated sensor slot

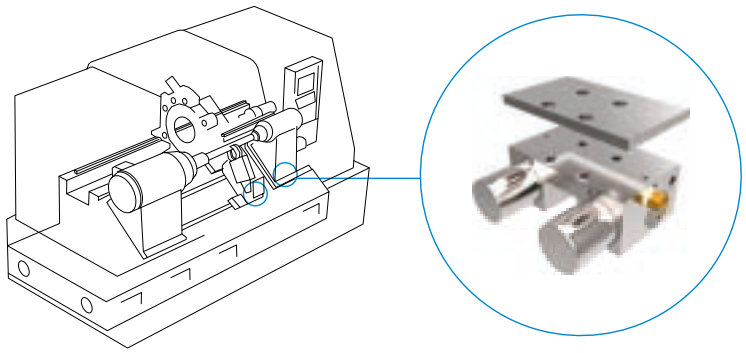
▶ KWH SERIES



Fixation of machine axis

- Less vibrations during process
- Better milling pattern
- Uptake of process forces

▶ MKS SERIES

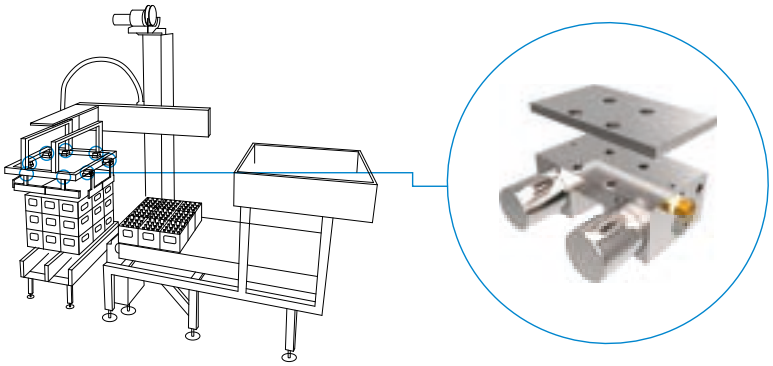


Fixation of pinole

- Enhanced accuracy
- Maintain position and force in closed position during processes over several days
- Uptake of process forces

BRANCHES APPLICATION EXAMPLES
PACKAGING MACHINES

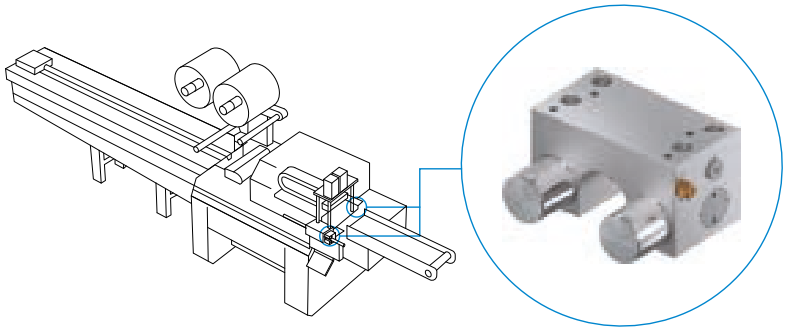
▶ MKS SERIES



Fixation of gripping jaws

- Position is fixed
- Safety by internal springload
- Electric drive is relieved
- Fixation without media supply
- Uptake of dynamic process forces

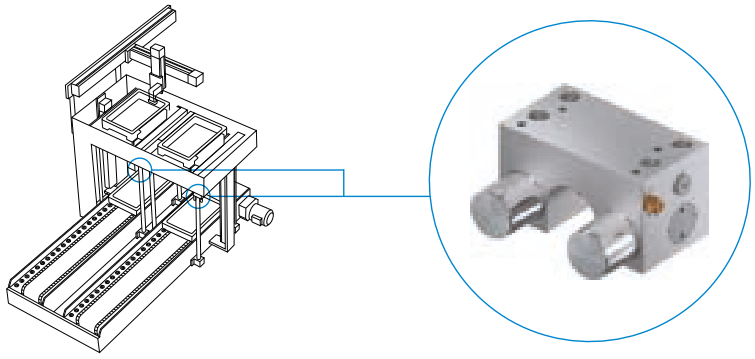
▶ MKRS SERIES



Fixation of packaging width/length/ height

- Usage of smaller actuators
- Fixation without media supply
- Position is held even during emergency stop/overnight
- Uptake of dynamic process forces

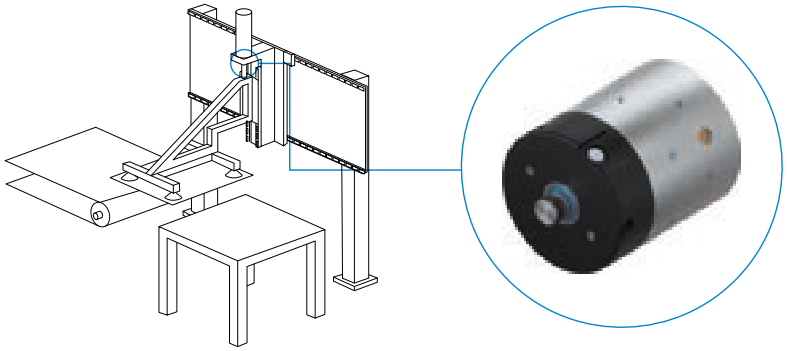
▶ MKRS SERIES



Fixation of trays during process

- Usage of smaller actuators
- Fixation without media supply
- Position is held even during emergency stop/overnight
- Uptake of dynamic process forces

▶ RBPS SERIES

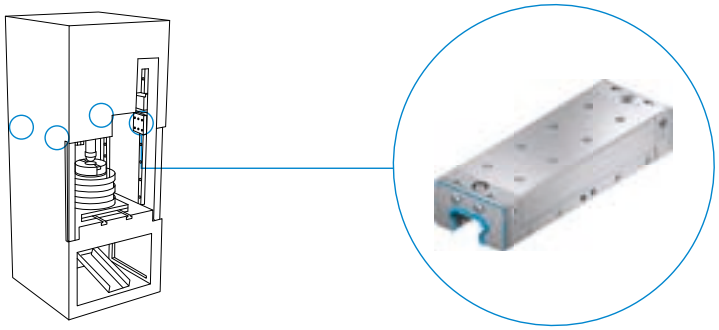


Safeguarding of heavy Z-axis

- Safety in emergency stop
- Small space required
- Usage on cylinder shaft
- Integrated sensor slot

BRANCHES APPLICATION EXAMPLES
PRESSING/PUNCHING MACHINES

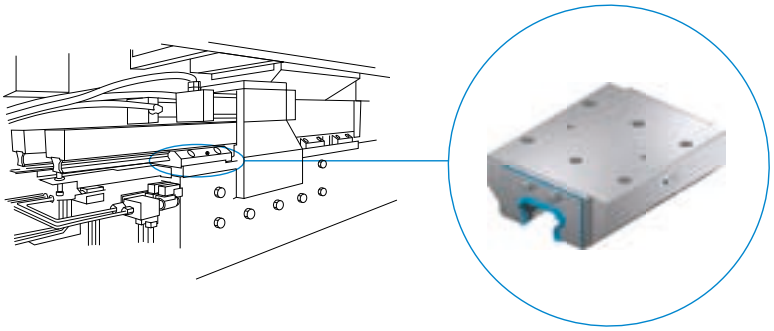
▶ LBHS SERIES



Safeguarding of Z-axis

- Safety in emergency stop
- Holding the lifted mass without energy supply
- Maintain position and force in closed position (e.g. curing time)

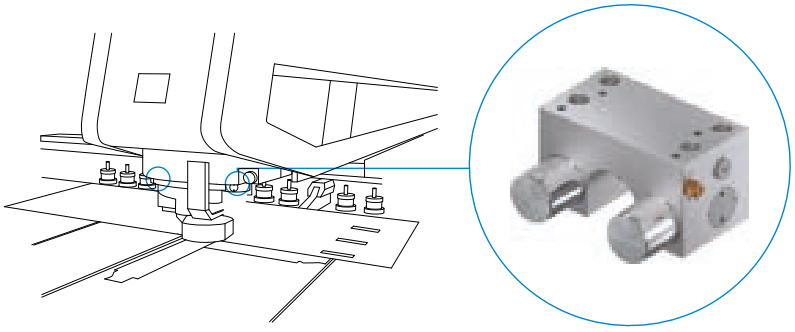
▶ KBH SERIES



Safeguarding of Z-axis

- Holding the lifted mass without energy supply (in combination with pressure reservoir
- Maintain position and force in closed position (e.g. curing time)

▶ MKRS SERIES

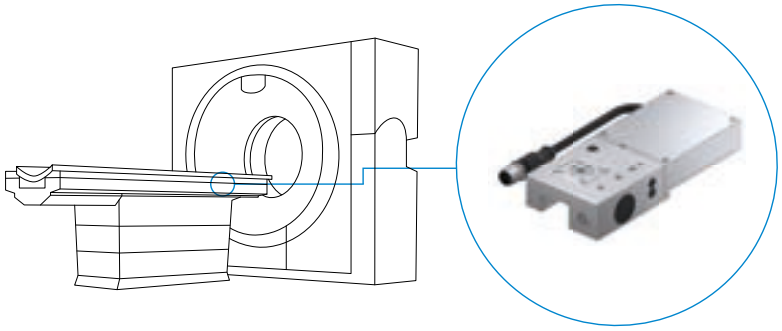


Fixation of the downholder

- Material stays in place
- Downward force is held up

BRANCHES APPLICATION EXAMPLES
MEDICAL EQUIPMENT

► LKE SERIES



Fixation of the patient bed

- Patient is held in position
- Bei Stromausfall kann das Element manuell geöffnet werden

CLAMPING AND BRAKING ELEMENTS
SPECIAL SOLUTIONS

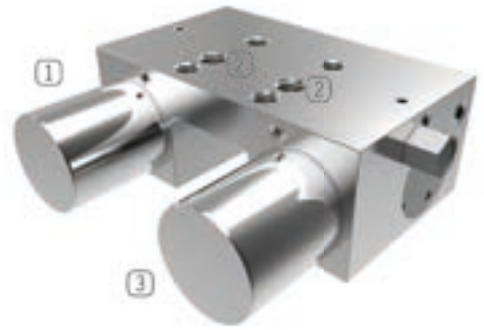
▶ SPECIAL SOLUTIONS

- ▶ Pneumatic clamping element with initiator
- ▶ for sensing piston position (opened)
- ▶ Other series available on request

1 **MKS**
2 **Initiator**

- ▶ Option to change the installation position of the couplings for pneumatic and hydraulic connections
- ▶ For use when it comes into contact with other parts in the standard position

1 **MKS with pneumatic connection**
2 **MKS with alternative pneumatic connection**



- ▶ Pneumatic clamping element with special screw fitting and 4 bar of opening pressure
- ▶ Weaker spring energy storage for opening with 4 bar
- ▶ Other series available on request

1 **MKS**
2 **Special screw fitting**
3 **Spring energy storage**

- ▶ Pneumatic clamping element with special clamping jaws
- ▶ Custom adaptation of clamping jaws to linear guide
- ▶ Other series available on request

1 **MKS**
2 **Special contact profile**

▶ SYSTEMS

- ▶ Pneumatic clamping element for circulator and shaft guides
- ▶ For a size 30 shaft guide
- ▶ Holding force of 6000 N at 10 bar

1 **MKR**

- ▶ Manually activated clamping element with springenergy storage
- ▶ Activated with a bowden cable

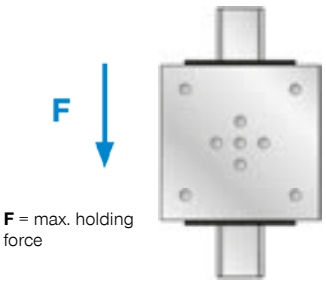
1 **Activation lever (release handle**
2 **Bowden cable**
3 **Linear guide**

- ▶ Pneumatic clamping element for U-profile rails
- ▶ Custom adaptation to a roller slide

CLAMPING AND BRAKING ELEMENTS
IN OVERVIEW

PROFILE RAIL GUIDES

MANUAL	PNEUMATIC		
CLAMPING	CLAMPING		CLAMPING AND BRAKING
N	NO	NC	NC
HK Holding force up to 2000 N	**MK** Holding force up to 2.250 N	**MKS** Holding force up to 3.300 N	**MBPS** Holding force up to 4.700 N
Standard	Standard	Standard	Standard
			
			UBPS Holding force up to 7.700 (9.200) N
			Standard
			
LKP Holding force up to 4.500 N		**LKPS** Holding force up to 750 N	**LBPS** Holding force up to 4.500 N
Narrow		Narrow	Narrow
			
MINIHK Holding force up to 300 N	**MCP** Holding force up to 550 N		**MCPS** Holding force up to 700 N
Miniature	Miniature		Miniature
			



F = max. holding force

Holding force
The holding force is the maximum force that can be generated in the axial direction.
The specified holding forces are tested on every clamping and braking element before delivery using a slightly lubricated rail (ISO VG 68). Using other oil or lubricating substances can influence the coefficient of friction, which can cause a loss of holding force in individual cases.

PROFILE RAIL GUIDES

HYDRAULIC

CLAMPING

NO

KWH Holding force up to 46.000 N

Standard

CLAMPING AND BRAKING

NO

KBH Holding force up to 46.000 N

Standard

NC

LBHS Holding force up to 15.000 N

Narrow

ELECTRICAL

CLAMPING

N

LKE Holding force up to 1.800 N

Standard

CIRCULATOR AND SHAFT GUIDES

MANUAL

CLAMPING

N

HKR Holding force up to 2000 N

Standard

PNEUMATIC

CLAMPING

NO

MKR Holding force up to 1.850 N

Standard

NC

MKRS Holding force up to 1.650 N

Standard

CLAMPING AND BRAKING

NC

RBPS Holding force up to 52.000 N

Standard

ROTATION AXES

PNEUMATIC

CLAMPING

NC

DKPS1000 Holding torque static up to 1.150 Nm

Rotary

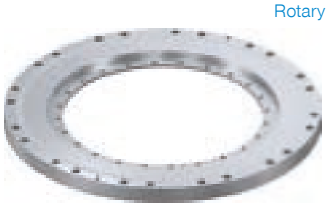
HYDRAULIC

CLAMPING

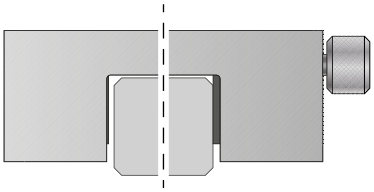
NC

DKHS1000 Holding torque static up to 8.000 Nm

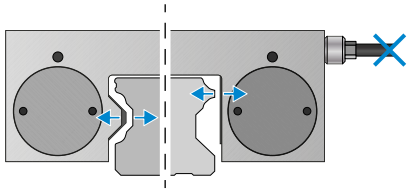
Rotary



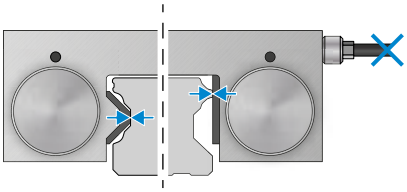
N (bistable):
remains in current position



NO (Normally Open):
open without pressure



NC (Normally Closed):
closed without pressure



CLAMPING AND BRAKING ELEMENTS
IN OVERVIEW

Products		Holding force [N]	Sizes / shaft diameters 5	7	9	10	12	15	16	20	25	28	30	32	35	40	45	50	55	60	65
PROFILE RAIL GUIDES																					
MANUAL																					
miniHK series	Page 42	40 - 300	●	●	●		●														
HK series	Page 44	1200 - 2000						●		●	●		●		●		●		●		●
PNEUMATIC																					
MCP series	Page 46	130 - 550			●		●	●		●	●										
MCPS series	Page 48	80 - 700			●		●	●		●	●										
MK series	Page 50	350 - 2250					●	●		●	●		●		●		●		●		●
MKS series	Page 52	250 - 3300					●	●		●	●		●		●		●		●		●
MBPS series	Page 54	750 - 4700						●		●	●		●		●		●		●		
UBPS series	Page 56	1500 - 7700 (9200)								●	●		●		●		●		●		●
LKP series	Page 58	550 - 4500						●		●	●		●		●		●		●		
LKPS series	Page 60	400 - 750						●		●	●										
LBPS series	Page 62	400 - 4500						●		●	●		●		●		●		●		
HYDRAULIC																					
KWH series	Page 64	1600 - 46000									●		●		●		●		●		●
KBH series	Page 66	2200 - 46000									●		●		●		●		●		●
LBHS series	Page 68									●	●		●		●		●		●		●
ELECTRICAL																					
LKE series	Page 70	600 - 1800						●		●	●		●		●						
CIRCULATOR AND SHAFT GUIDES																					
MANUAL																					
HKR series	Page 72	1200 - 2000					●		●	●	●		●			●		●		●	
PNEUMATIC																					
MKR series	Page 74	650 - 1850					●		●	●	●		●	●	●	●		●		●	
MKRS series	Page 76	350 - 1650					●		●	●	●		●	●	●	●		●		●	
RBPS series *	Page 78	3500 - 52000	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	

		Holding torque static [Nm]	Sizes / shaft diameters 50	60	70	80	90	100	120	140	160	180	200	220	240	260	280	300	320	340	395	460
ROTATION AXES																						
PNEUMATIC																						
DKPS1000 * series	Page 80	100 - 1150	●				●				●											
HYDRAULIC																						
DKHS1000 series	Page 82	800 - 8000										●	●	●	●	●	●	●	●	●	●	●

* Intermediate sizes on request

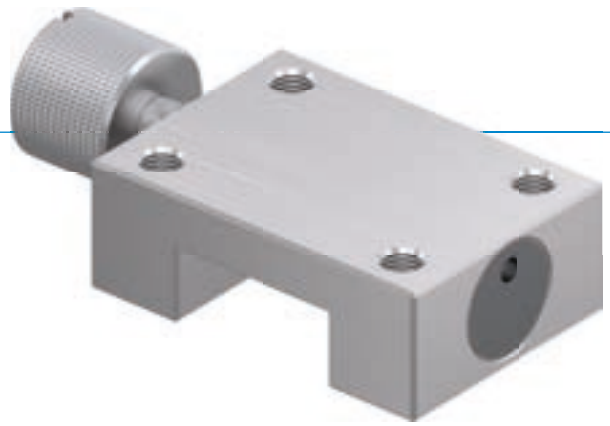
Pneumatic elements without spring storage (NO) can be operated at reduced pressures as low as 3 bar.
Hydraulic elements without spring storage (NO) can be operated at reduced pressures as low as 5 bar.
The holding force behaves in a manner roughly proportional to the applied pressure.

Technical characteristics													Special version			
Deenergized state	Spring accumulator	CE marking	PLUS connection	Wiper kit available	Narrow	Increased positioning accuracy	Opening pressure [bar]	Tightening torque [Nm]	Operating pressure [bar]	Radial rigidity	Clamping cycles (B10d value)	Brake cycles	Sensor query	Integrated sensing	Reduced opening pressure [bar]	Spot face, from above
N								0,07-2,5			50 000					
N								4-22			50 000					
NO					●				6		5 million					
NC	●	●	●		●		5,5		6		5 million				3/4	
NO									6		5 million					●
NC	●	●	●				5,5		6		5 million		●		3/4	●
NC	●	●					4,5		6		5 million	2 000	●		3/4	●
NC	●	●	●	●		●	5,5		6		5 million	2 000	●		3/4	●
NO					●				6		5 million					●
NC	●	●			●		5,5		6		5 million				3/4	●
NC	●	●			●		5,5		6		5 million	500			3/4	●
NO				●		●			100-150		10 million					●
NO				●		●			100-150		10 million	2 000				●
NC	●	●		●	●	●	120		120	●	500 000	500			●	●
N		●									500 000			●*		
N								5-17			50 000					
NO									6		5 million					●
NC	●	●					5,5		6		5 million		●		3/4	●
NC	●	●		●		●	4/5,5		6	●	5 million	2 000	●		3/4	●
NC	●	●					5,5		6	●	3 million		●		4	●
NC	●	●					100		100		5 million		○			

* Status query already integrated

CLAMPING ELEMENTS | MANUAL
SERIES MINIHK

▶ PRODUCT ADVANTAGES



- **small construction**

  For all common miniature profile rail guides
- **Tool-free opening and closing (bi-stable)**

  By turning the knurled screw
- **Maintenance free**

  Up to 50,000 static clamping cycles

▶ THE BEST PRODUCT FOR YOUR APPLICATION

APPLICATION SCENARIOS

- **Assembly aids**
- **Optical equipment**
- **Medical equipment**

FURTHER INFORMATION

- **Spacer plate**

  In addition, a spacer plate might have to be ordered as height compensation, depending on the height of the rail carriage (dimension D).

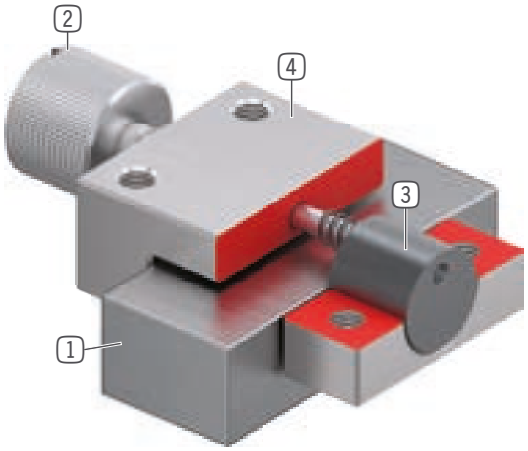
▶ BENEFITS IN DETAIL

1 **Miniature profile rail guide**
- Available for all common miniature profile rail guides

2 **Stainless knurled screw**
- For opening and closing the clamping unit

3 **Clamping jaw**
- The floating bearingsguarantee symmetrical application of force

4 **Housing**



▶ INFORMATION ON THE SERIES

TECHNICAL DATA

Rail size	3-42 mm
Holding force	40-300 N
Clamping torque knurled screw	0,07-2,5 Nm
Spring storage	inexistent
B10d value	up to 50 000
Dynamic braking cycles	not suitable
Operation	manual
Operating temperature	-10 ... +70 [°C]

CLAMPING ELEMENTS | MANUAL
SERIES HK

▶ PRODUCT ADVANTAGES

- **broad range of products**

  For all common profile rail guides
- **Tool-free opening and closing (bi-stable)**

  By turning the clamping lever
- **Maintenance free**

  Up to 50,000 static clamping cycles

▶ THE BEST PRODUCT FOR YOUR APPLICATION

APPLICATION SCENARIOS

- **Table traverses and carriages**
- **Adjustment of width and stops**
- **Positioning of optic instruments and measuring tables**

FURTHER INFORMATION

- **Spacer plate**

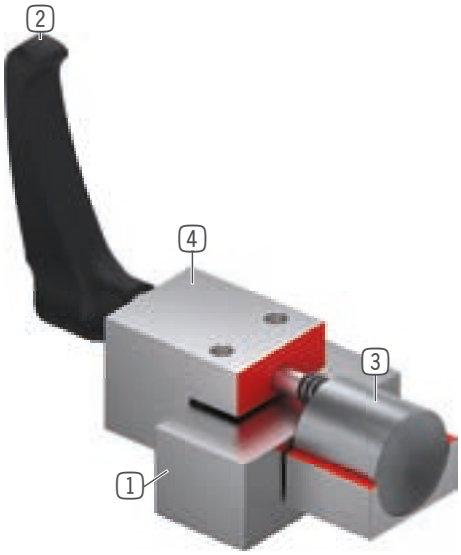
  In addition, a spacer plate might have to be ordered as height compensation, depending on the height of the rail carriage (dimension D).
- **Special variants on request, e.g.**

  Operation using DIN 912 Allen screws

  Extended clamping lever

  made of stainless steel

▶ BENEFITS IN DETAIL



1 **Profile rail guide**
- Available for all common profile rail guides

2 **Clamping lever made from plastic**
- Freely adjustable (release by lifting)

3 **Clamping jaw**
- The floating bearingsguarantee symmetrical application of force

4 **Housing**

▶ INFORMATION ON THE SERIES

TECHNICAL DATA

Rail size	12-100 mm
Holding force	1200-2000 N
Fastening torque clamp lever	4-22 Nm
Spring storage	inexistent
PLUS connection	No
B10d value	up to 50 000
Dynamic braking cycles	not suitable
Operation	manual
Operating temperature	-10 ... +70 [°C]

CLAMPING ELEMENTS | PNEUMATIC
SERIES MCP

▶ PRODUCT ADVANTAGES

- **small construction**

  For all common miniature profile rail guides
- **Energize to close (NO)**

  Closing with pressure
- **high durability**

  Up to 5 million static clamping cycles

▶ THE BEST PRODUCT FOR YOUR APPLICATION

APPLICATION SCENARIOS

- **Clamping of machine tables**
- **Positioning of axes**
- **Fixing of vertical axes in neutral position**

FURTHER INFORMATION

- **Special variants on request, e.g.**

  With additional air connection (from above, from the front)

▶ BENEFITS IN DETAIL

1 **Miniature profile rail guide**
- Available for all common miniature profile rail guides

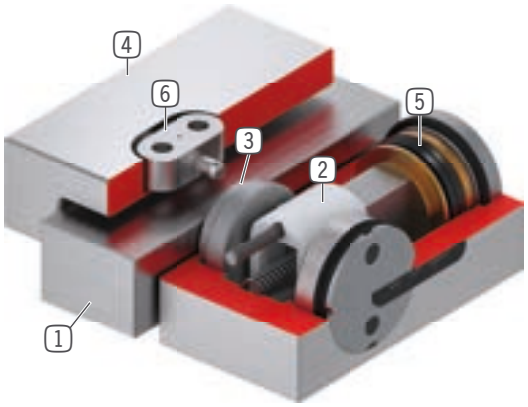
2 **Wedge-type gear**
- Power transmission between piston and clamping jaw

3 **Clamping jaw**
- Pressed at the free surfaces of the profile rail guide

4 **Housing**

5 **Pneumatic piston**
- The piston moves the wedge-type gear longitudinally

6 **Sliding block**
- For floating bearings



▶ INFORMATION ON THE SERIES

TECHNICAL DATA

Rail size	5-25 mm
Holding force	130-550 N
Pressure min. / max.	3 / 6.5
Spring storage	inexistent
PLUS connection	No
B10d value	up to 5 million
Dynamic braking cycles	not suitable
Operation	pneumatic
Operating temperature	-10 ... +70 [°C]

CLAMPING ELEMENTS | PNEUMATIC
SERIES MCPS

▶ PRODUCT ADVANTAGES

- **small construction**
  For all common miniature profile rail guides
- **Energize to open (NC)**
  through spring-loaded energy storage
- **high durability**
  Up to 5 million static clamping cycles
- **Higher holding force**
  Via activation with PLUS air
- **Safety element**
  Safe clamping in case of energy failure

▶ THE BEST PRODUCT FOR YOUR APPLICATION

APPLICATION SCENARIOS

- **Clamping in case of pressure drop**
- **Clamping without energy requirement**

FURTHER INFORMATION

- **Special variants on request, e.g.**
  With low opening pressure (3.0 bar or 4.0 bar)
  With additional air connection (from above, from the front)

▶ BENEFITS IN DETAIL

1 **Miniature profile rail guide**
- Available for all common miniature profile rail guides

2 **Wedge-type gear**
- Power transmission between piston and clamping jaw

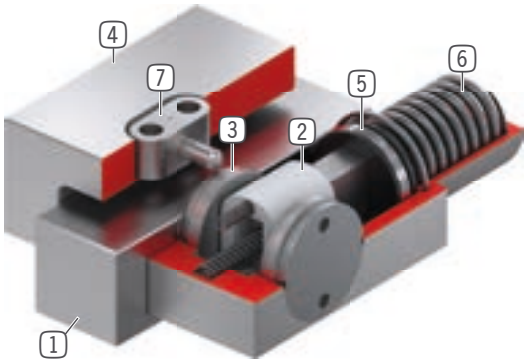
3 **Clamping jaw**
- Pressed at the free surfaces of the profile rail guide

4 **Housing**

5 **Pneumatic piston**
- The piston moves the wedge-type gear longitudinally

6 **Spring-loaded energy storage**
- For non-pressurized closing of the clamping unit

7 **Sliding block**
- For floating bearings



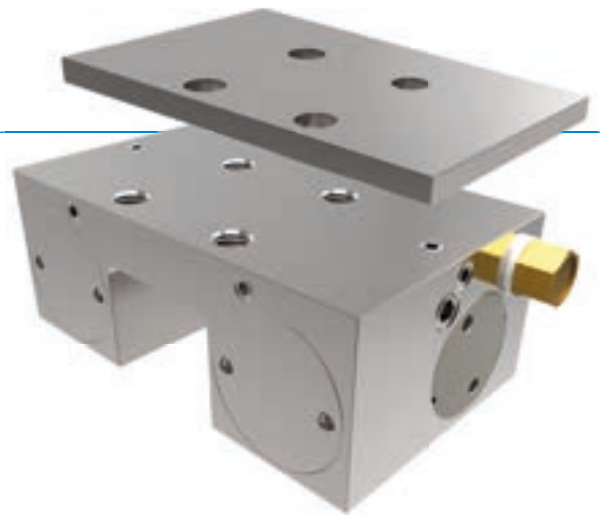
▶ INFORMATION ON THE SERIES

TECHNICAL DATA

Rail size	5-25 mm
Holding force	80-700 N
Pressure min. / max.	5.5 / 6.5
Spring storage	existing
PLUS connection	Yes
B10d value	up to 5 million
Dynamic braking cycles	not suitable
Operation	pneumatic
Operating temperature	-10 ... +70 [°C]

CLAMPING ELEMENTS | PNEUMATIC
SERIES MK

▶ PRODUCT ADVANTAGES



- **broad range of products**

  For all common profile rail guides
- **Energize to close (NO)**

  Closing with pressure
- **high durability**

  Up to 5 million static clamping cycles

▶ THE BEST PRODUCT FOR YOUR APPLICATION

APPLICATION SCENARIOS

- **Positioning of axes**
- **Fixing of vertical axes**
- **Positioning of lifting units**

FURTHER INFORMATION

- **Spacer plate**

  In addition, a spacer plate might have to be ordered as height compensation, depending on the height of the rail carriage (dimension D).
- **Special variants on request, e.g.**

  With proximity switch monitoring

  With additional air connection (from above, from the front)

▶ BENEFITS IN DETAIL

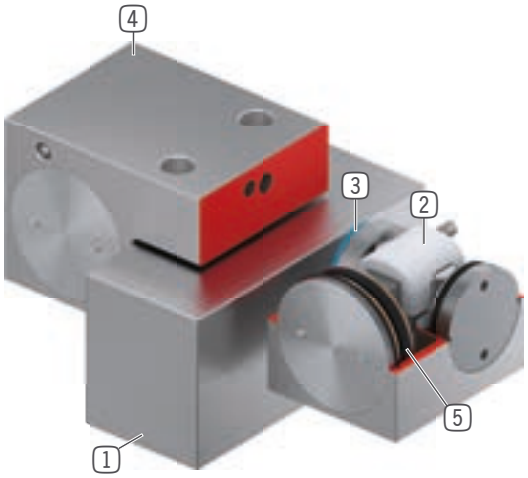
1 **Profile rail guide**
- Available for all common profile rail guides

2 **Wedge-type gear**
- Power transmission between piston and clamping jaw

3 **Clamping jaw**
- Pressed at the free surfaces of the profile rail guide

4 **Housing**

5 **Pneumatic piston**
- The piston moves the wedge-type gear longitudinally



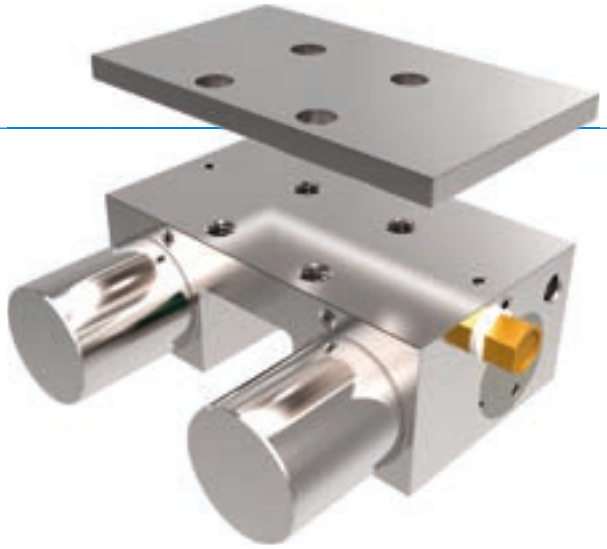
▶ INFORMATION ON THE SERIES

TECHNICAL DATA

Rail size	12-100 mm
Holding force	350-2250 N
Pressure min. / max.	3 / 6.5
Spring storage	inexistent
PLUS connection	No
B10d value	up to 5 million
Dynamic braking cycles	not suitable
Operation	pneumatic
Operating temperature	-10 ... +70 [°C]

CLAMPING ELEMENTS | PNEUMATIC
SERIES MKS

▶ PRODUCT ADVANTAGES



- **broad range of products**

  For all common profile rail guides
- **Energize to open (NC)**

  through spring-loaded energy storage
- **high durability**

  Up to 5 million static clamping cycles
- **Higher holding force**

  Via activation with PLUS air
- **Safety element**

  Safe clamping in case of energy failure

▶ THE BEST PRODUCT FOR YOUR APPLICATION

APPLICATION SCENARIOS

- **Clamping in case of pressure drop**
- **Clamping without energy requirement**

FURTHER INFORMATION

- **Spacer plate**

  In addition, a spacer plate might have to be ordered as height compensation, depending on the height of the rail carriage (dimension D).
- **Special variants on request, e.g.**

  With low opening pressure (3.0 bar or 4.0 bar)

  With proximity switch monitoring

  With additional air connection (from above, from the front)

▶ BENEFITS IN DETAIL

1 **Profile rail guide**
- Available for all common profile rail guides

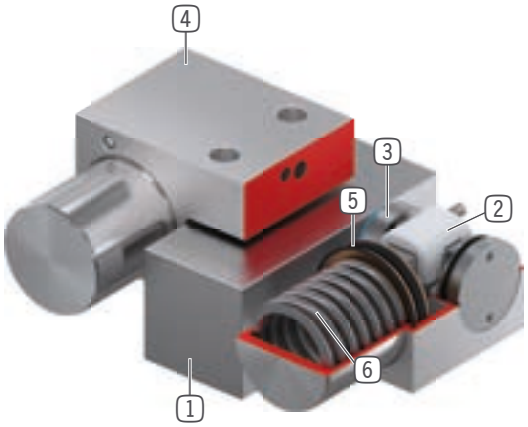
2 **Wedge-type gear**
- Power transmission between piston and clamping jaw

3 **Clamping jaw**
- Pressed at the free surfaces of the profile rail guide

4 **Housing**

5 **Pneumatic piston**
- The piston moves the wedge-type gear longitudinally

6 **Spring-loaded energy storage**
- For non-pressurized closing of the clamping unit



▶ INFORMATION ON THE SERIES

TECHNICAL DATA

Rail size	12-100 mm
Holding force	250-3300 N
Pressure min. / max.	5.5 / 6.5
Spring storage	existing
PLUS connection	Yes
B10d value	up to 5 million
Dynamic braking cycles	not suitable
Operation	pneumatic
Operating temperature	-10 ... +70 [°C]

CLAMPING AND BRAKING ELEMENTS | PNEUMATIC
SERIES MBPS

▶ PRODUCT ADVANTAGES

- **broad range of products**

  For all common profile rail guides
- **Energize to open (NC)**

  through spring-loaded energy storage
- **high durability**

  Up to 5 million static clamping cycles
- **Safety element**

  Safe braking in case of energy failure

▶ THE BEST PRODUCT FOR YOUR APPLICATION

APPLICATION SCENARIOS

- **Clamping in case of pressure drop**
- **Emergency OFF function**
- **Braking linear motors**

FURTHER INFORMATION

- **Spacer plate**

  In addition, a spacer plate might have to be ordered as height compensation, depending on the height of the rail carriage (dimension D).
- **Special variants on request, e.g.**

  With proximity switch monitoring

  With low opening pressure (3.0 bar)

  With additional air connection (from above, from the front)

▶ BENEFITS IN DETAIL

1 **Profile rail guide**
- Available for all common profile rail guides

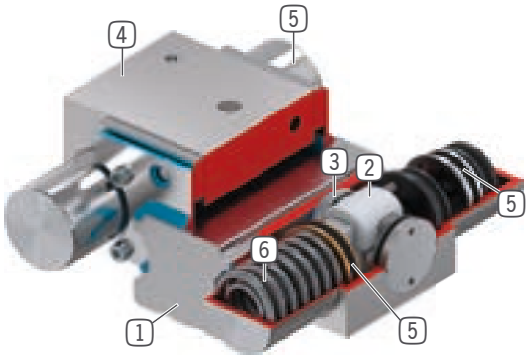
2 **Wedge-type gear**
- Power transmission between the pistons and clamping jaws and brake shoes

3 **Clamping jaws and brake shoes**
- Pressed at the free surfaces of the profile rail guide

4 **Housing**

5 **Pneumatic piston**
- The piston moves the wedge-type gear longitudinally

6 **Spring-loaded energy storage**
- For non-pressurized closing of the clamping unit



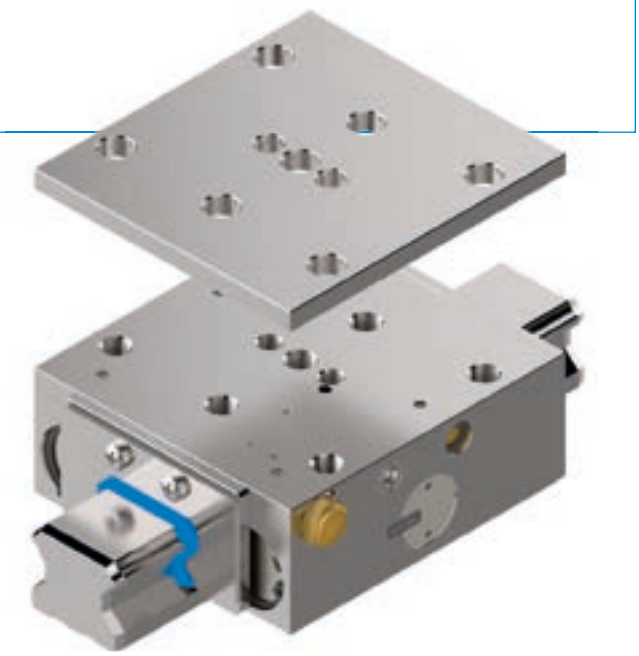
▶ INFORMATION ON THE SERIES

TECHNICAL DATA

Rail size	15-55 mm
Holding force	750-4700 N
Pressure min. / max.	4.5 / 6.5
Spring storage	existing
PLUS connection	No
B10d value	up to 5 million
Dynamic braking cycles	up to 2000
Operation	pneumatic
Operating temperature	-10 ... +70 [°C]

CLAMPING AND BRAKING ELEMENTS | PNEUMATIC
SERIES UBPS

▶ PRODUCT ADVANTAGES



- **broad range of products**
  For all common profile rail guides
- **Energize to open (NC)**
  through spring-loaded energy storage
- **high durability**
  Up to 5 million static clamping cycles
- **Higher holding force**
  Via activation with PLUS air
- **Safety element**
  Safe braking in case of energy failure

▶ THE BEST PRODUCT FOR YOUR APPLICATION

APPLICATION SCENARIOS

- **Emergency OFF function**
- **Z-axes positioning in neutral position**
- **Machine table clamping of work centre**

FURTHER INFORMATION

- **Spacer plate**
  In addition, a spacer plate might have to be ordered as height compensation, depending on the height of the rail carriage (dimension D).
- **Special variants on request, e.g.**
  With proximity switch monitoring
  With low opening pressure (3.0 bar or 4.0 bar)
  With additional air connection (from above, from the front)
  Integrated valve for reduced closing time

▶ BENEFITS IN DETAIL

[1] **Profile rail guide**
- Available for all common profile rail guides

[2] **Wedge-type gear**
- Power transmission between the pistons and clamping jaws and brake shoes

[3] **Clamping jaws and brake shoes**
- Pressed at the free surfaces of the profile rail guide

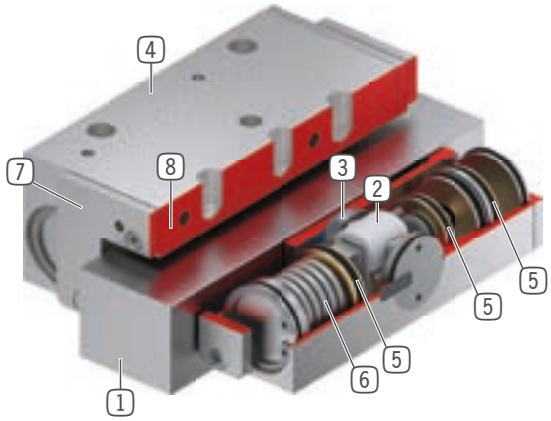
[4] **Housing**

[5] **Pneumatic piston**
- The piston moves the wedge-type gear longitudinally

[6] **Spring-loaded energy storage**
- For non-pressurized closing of the clamping unit

[7] **Scraper**
- Can also be ordered as an option

[8] **Integrated valve (optional)**
- Up to 60% faster closing time
- regardless of the cable length



▶ INFORMATION ON THE SERIES

TECHNICAL DATA

Rail size	20-65 mm
Holding force	1500-7700 (9200) N
Pressure min. / max.	5.5 / 6.5
Spring storage	existing
PLUS connection	Yes
B10d value	up to 5 million
Dynamic braking cycles	up to 2000
Operation	pneumatic
Operating temperature	-10 ... +70 [°C]

CLAMPING ELEMENTS | PNEUMATIC
SERIES LKP

▶ PRODUCT ADVANTAGES

- **broad range of products**

  For all common profile rail guides
- **Energize to close (NO)**

  Closing with pressure
- **high durability**

  Up to 5 million static clamping cycles
- **Small and narrow design**

  By using U-form piston

▶ THE BEST PRODUCT FOR YOUR APPLICATION

APPLICATION SCENARIOS

- **Clamping of machine tables**
- **Positioning of axes**
- **Fixing of vertical axes in neutral position**

FURTHER INFORMATION

- **Spacer plate**

  In addition, a spacer plate might have to be ordered as height compensation, depending on the height of the rail carriage (dimension D).
- **Special variants on request, e.g.**

  With additional air connection (from above, from the front)

▶ BENEFITS IN DETAIL

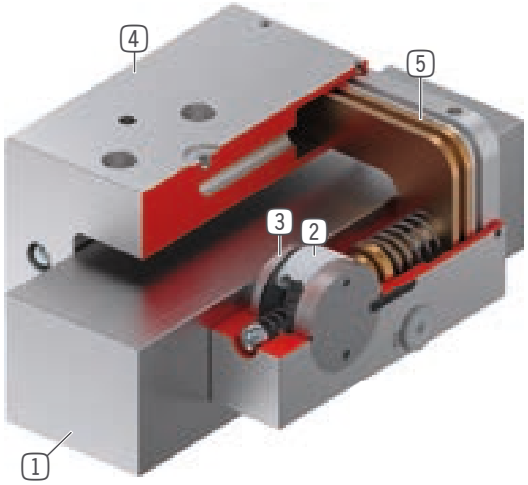
(1) **Profile rail guide**
- Available for all common profile rail guides

(2) **Wedge-type gear**
- Power transmission between piston and clamping jaw

(3) **Clamping jaw**
- Pressed at the free surfaces of the profile rail guide

(4) **Narrow housing**

(5) **Pneumatic piston**
- The piston moves the wedge-type gear longitudinally



▶ INFORMATION ON THE SERIES

TECHNICAL DATA

Rail size	15-35 mm
Holding force	550-4500 N
Pressure min. / max.	3 / 6.5
Spring storage	inexistent
PLUS connection	No
B10d value	up to 5 million
Dynamic braking cycles	not suitable
Operation	pneumatic
Operating temperature	-10 ... +70 [°C]

CLAMPING ELEMENTS | PNEUMATIC
SERIES LKPS

▶ PRODUCT ADVANTAGES

- **broad range of products**

  For all common profile rail guides
- **Energize to open (NC)**

  through spring-loaded energy storage
- **high durability**

  Up to 5 million static clamping cycles
- **Small and narrow design**

  By using U-form piston
- **Safety element**

  Safe clamping in case of energy failure

▶ THE BEST PRODUCT FOR YOUR APPLICATION

APPLICATION SCENARIOS

- **Clamping in case of pressure drop**
- **Clamping without energy requirement**

FURTHER INFORMATION

- **Spacer plate**

  In addition, a spacer plate might have to be ordered as height compensation, depending on the height of the rail carriage (dimension D).
- **Special variants on request, e.g.**

  With low opening pressure (3.0 bar or 4.0 bar)

  With additional air connection (from above, from the front)

▶ BENEFITS IN DETAIL

1 **Profile rail guide**
- Available for all common profile rail guides

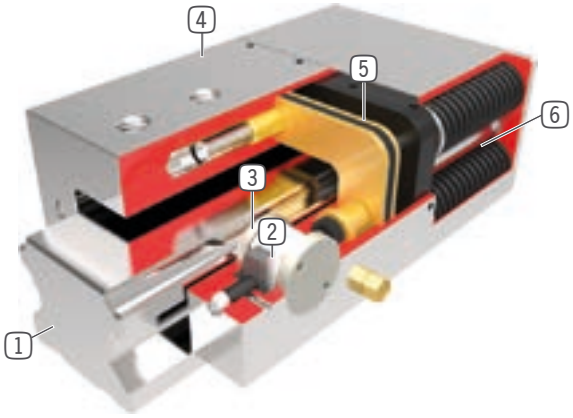
2 **Wedge-type gear**
- Power transmission between piston and clamping jaw

3 **Clamping jaw**
- Pressed at the free surfaces of the profile rail guide

4 **Narrow housing**

5 **Pneumatic piston**
- The piston moves the wedge-type gear longitudinally

6 **Spring-loaded energy storage**
- For non-pressurized closing of the clamping unit



▶ INFORMATION ON THE SERIES

TECHNICAL DATA

Rail size	15-35 mm
Holding force	400-750 N
Pressure min. / max.	5.5 / 6.5
Spring storage	existing
PLUS connection	No
B10d value	up to 5 million
Dynamic braking cycles	not suitable
Operation	pneumatic
Operating temperature	-10 ... +70 [°C]

CLAMPING AND BRAKING ELEMENTS | PNEUMATIC
SERIES LBPS

▶ PRODUCT ADVANTAGES

- **broad range of products**

  For all common profile rail guides
- **Energize to open (NC)**

  through spring-loaded energy storage
- **high durability**

  Up to 5 million static clamping cycles
- **Small and narrow design**

  By using U-form piston
- **Safety element**

  Safe braking in case of energy failure

▶ THE BEST PRODUCT FOR YOUR APPLICATION

APPLICATION SCENARIOS

- **Clamping in case of pressure drop**
- **Braking linear motors**
- **Clamping without energy requirement**

FURTHER INFORMATION

- **Spacer plate**

  In addition, a spacer plate might have to be ordered as height compensation, depending on the height of the rail carriage (dimension D).
- **Special variants on request, e.g.**

  With proximity switch monitoring

  With low opening pressure (3.0 bar or 4.0 bar)

  With additional air connection (from above, from the front)

▶ BENEFITS IN DETAIL

1 **Profile rail guide**
- Available for all common profile rail guides

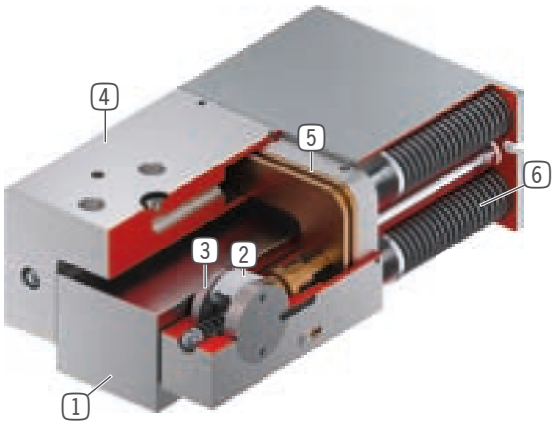
2 **Wedge-type gear**
- Power transmission between the pistons and clamping jaws and brake shoes

3 **Clamping jaws and brake shoes**
- Pressed at the free surfaces of the profile rail guide

4 **Narrow housing**

5 **Pneumatic piston**
- The piston moves the wedge-type gear longitudinally

6 **Spring-loaded energy storage**
- For non-pressurized closing of the clamping unit



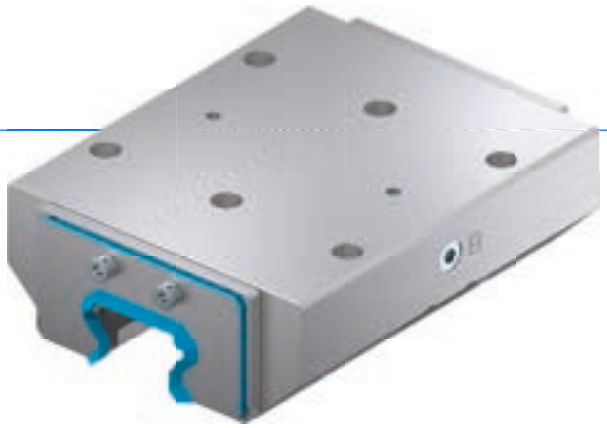
▶ INFORMATION ON THE SERIES

TECHNICAL DATA

Rail size	15-35 mm
Holding force	400-4500 N
Pressure min. / max.	5.5 / 6.5
Spring storage	existing
PLUS connection	No
B10d value	up to 5 million
Dynamic braking cycles	up to 500
Operation	pneumatic
Operating temperature	-10 ... +70 [°C]

CLAMPING ELEMENTS | HYDRAULIC
SERIES KWH

▶ PRODUCT ADVANTAGES



- **broad range of products**

  For all common profile rail guides
- **Energize to close (NO)**

  Closing with pressure
- **extremely durable**

  Up to 10 million static clamping cycles

▶ THE BEST PRODUCT FOR YOUR APPLICATION

APPLICATION SCENARIOS

- **Machine table clamping of heavy cutting work centres**
- **Clamping of heavy handling systems**

FURTHER INFORMATION

- **Spacer plate**

  In addition, a spacer plate might have to be ordered as height compensation, depending on the height of the rail carriage (dimension D).
- **Special variants on request, e.g.**

  With additional hydraulic connection (from above, from the front)

▶ BENEFITS IN DETAIL

1 **Profile rail guide**
- Available for all common profile rail guides

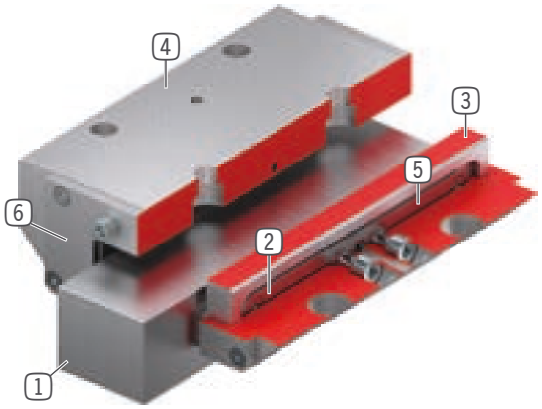
2 **Return spring**
- Interlocked integration in the jaws

3 **Clamping jaw**
- Pressed at the free surfaces of the profile rail guide

4 **Housing**

5 **Membran**
- For pressurization up to 150 bar

6 **Scraper**
- Can also be ordered as an option



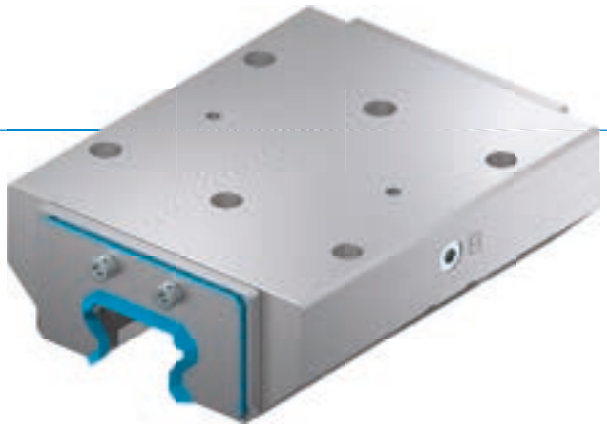
▶ INFORMATION ON THE SERIES

TECHNICAL DATA

Rail size	25-125 mm
Holding force	1600-46000 N
Nominal operating pressure	100/150 [bar]
Operating pressure max.	110/160 [bar]
Spring storage	inexistent
PLUS connection	No
B10d value	up to 10 million
Dynamic braking cycles	not suitable
Operation	hydraulic
Operating temperature	-10 ... +70 [°C]

CLAMPING AND BRAKING ELEMENTS | HYDRAULIC
SERIES KBH

▶ PRODUCT ADVANTAGES



- **broad range of products**

  For all common profile rail guides
- **Energize to close (NO)**

  Closing with pressure
- **extremely durable**

  Up to 10 million static clamping cycles

▶ THE BEST PRODUCT FOR YOUR APPLICATION

APPLICATION SCENARIOS

- **Machine table clamping of heavy cutting work centres**
- **Clamping and braking of heavy handling systems**
- **Braking**

FURTHER INFORMATION

- **Spacer plate**

  In addition, a spacer plate might have to be ordered as height compensation, depending on the height of the rail carriage (dimension D).
- **Special variants on request, e.g.**

  With additional hydraulic connection (from above, from the front)

▶ BENEFITS IN DETAIL

1 **Profile rail guide**
- Available for all common profile rail guides

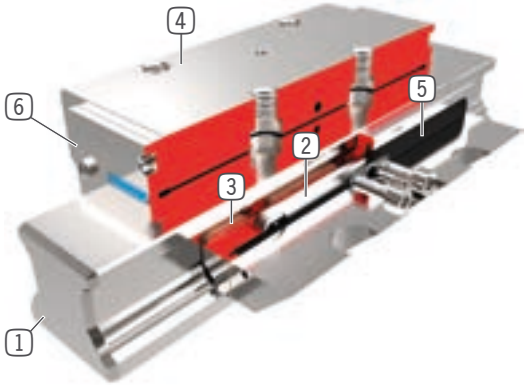
2 **Return spring**
- Interlocked integration in the jaws

3 **Clamping jaws and brake shoes**
- Pressed at the free surfaces of the profile rail guide

4 **Housing**

5 **Membran**
- For pressurization up to 150 bar

6 **Scraper**
- Can also be ordered as an option



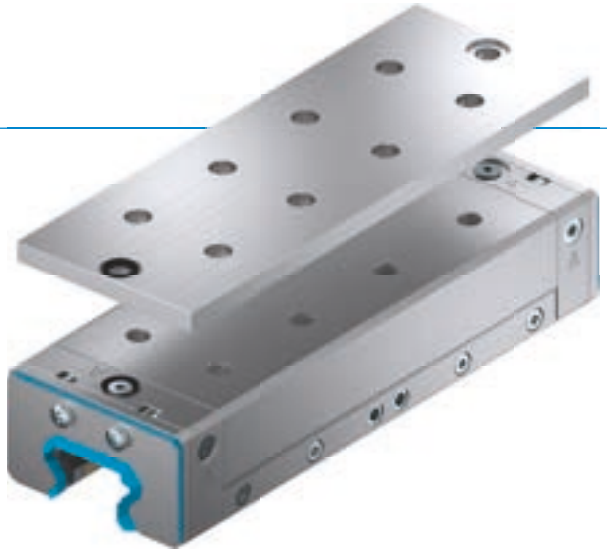
▶ INFORMATION ON THE SERIES

TECHNICAL DATA

Rail size	25-125 mm
Holding force	2200-46000 N
Nominal operating pressure	100/150 [bar]
Operating pressure max.	110/160 [bar]
Spring storage	inexistent
PLUS connection	No
B10d value	up to 10 million
Dynamic braking cycles	up to 2000
Operation	hydraulic
Operating temperature	-10 ... +70 [°C]

CLAMPING AND BRAKING ELEMENTS | HYDRAULIC
SERIES LBHS

▶ PRODUCT ADVANTAGES



- **broad range of products**

  For all common profile rail guides
- **Energize to open (NC)**

  through residual stress
- **the power pack**

  Up to 0.5 million static clamping cycles
- **Safety element**

  Safe braking in case of energy failure

▶ THE BEST PRODUCT FOR YOUR APPLICATION

APPLICATION SCENARIOS

- **Precise positioning through maximum rigidity**
- **Clamping measurement applications**
- **Clamping and braking of heavy handling systems**
- **Braking in emergency OFF situations**
- **Clamping in case of pressure drop**

FURTHER INFORMATION

- **Spacer plate**

  In addition, a spacer plate might have to be ordered as height compensation, depending on the height of the rail carriage (dimension D).
- **Special variants on request, e.g.**

  With additional hydraulic connection (from above, from the front)

▶ BENEFITS IN DETAIL

1 **Profile rail guide**
- Available for all common profile rail guides

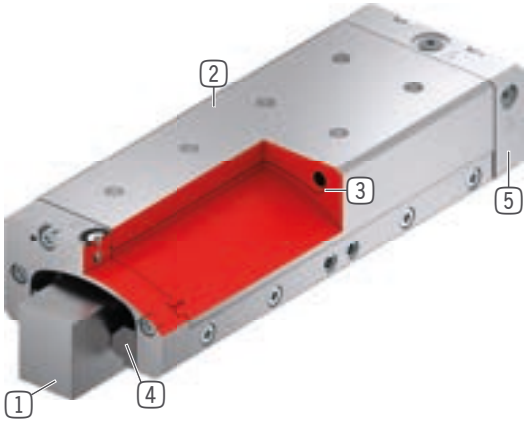
2 **Housing - functional component**
- Generating clamping force by clamping material
- Narrow and low design

3 **Eroding contour**
- Used for opening the element under pressure

4 **Clamping jaws and brake shoes**
- Pressed at the free surfaces of the profile rail guide

5 **Sealing plates**
- for double-sided hydraulic line connection

6 **Scraper**
- Optionally available with “A” article ending



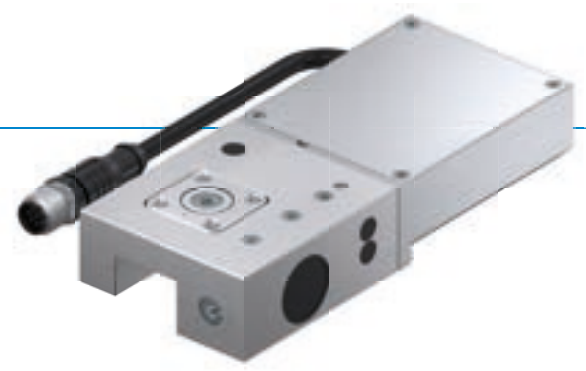
▶ INFORMATION ON THE SERIES

TECHNICAL DATA

Rail size	20-65 mm
Operating pressure min.	120 [bar]
Operating pressure max.	130 [bar]
Spring storage	existing
PLUS connection	No
B10d value	up to 500 000
Dynamic braking cycles	up to 500
Operation	hydraulic
Operating temperature	-10 ... +70 [°C]

CLAMPING ELEMENTS | ELECTRIC
SERIES LKE

▶ PRODUCT ADVANTAGES



- **Energy-efficient (bistable)**

  Opens and closes using 24 V DC voltage
- **Integrated electronics**

  Digital control and status signals
- **Flexible cable outlet**

  For maximum space utilization

▶ THE BEST PRODUCT FOR YOUR APPLICATION

APPLICATION SCENARIOS

- **Axes with electric positioning**
- **Table traverses in medical applications**
- **Electric clamping of machine tables**

FURTHER INFORMATION

- **Spacer plate**

  In addition, a spacer plate might have to be ordered as height compensation, depending on the height of the rail carriage (dimension D).

▶ BENEFITS IN DETAIL

1 **Profile rail guide**
- Available for all common profile rail guides

2 **Eccentric gear**
- Power transmission between motor and clamping jaw

3 **Clamping jaw**
- Pressed at the free surfaces of the profile rail guide

4 **Housing**

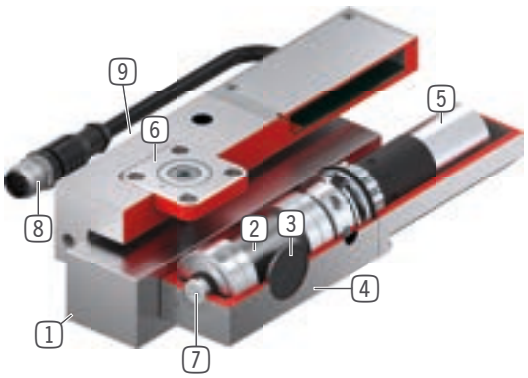
5 **electric drive**
- For generating clamping force

6 **Sliding block**
- For floating bearings

7 **Emergency actuation**
- Manual opening possible in case of power supply failure

8 **Electrical connecting cable**
- Control and power supply

9 **Adjusting screw**
- Correction of the rail tolerance



▶ INFORMATION ON THE SERIES

TECHNICAL DATA

Rail size	15-35 mm
Holding force	600-1800 N
Spring storage	inexistent
B10d value	up to 500 000
Dynamic braking cycles	not suitable
Protection to IEC 60529	IP64
Supply Voltage	24 [V DC]
Operation	electric
Operating temperature	+5 ... +50 [°C]

CLAMPING ELEMENTS | MANUAL
SERIES HKR

▶ PRODUCT ADVANTAGES

- **Independent of the manufacturer**
  For circular guides and shaft guides
- **Tool-free opening and closing (bi-stable)**
  By turning the clamping lever
- **Maintenance free**
  Up to 50,000 static clamping cycles

▶ THE BEST PRODUCT FOR YOUR APPLICATION

APPLICATION SCENARIOS

- **Table traverses in wood industry**
- **Adjustment of width in plastics processing**
- **Positioning of optic instruments and measuring tables**

FURTHER INFORMATION

- **Special variants on request, e.g.**
  Operation using DIN 912 Allen screws
  Extended clamping lever
  made of stainless steel

TECHNICAL DATA

Shaft diameter	12-60 mm
Holding force	1200 - 2000 N
Fastening torque clamp lever	5-17 Nm
Spring storage	inexistent
B10d value	up to 50 000
Dynamic braking cycles	not suitable
Operation	manual
Operating temperature	-10 ... +70 [°C]
Shaft tolerance	+/- 0,01 mm
Hardness	min. 54 HRC

▶ BENEFITS IN DETAIL

1 **Circular guide**
- Compatible with circular and shaft guides

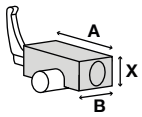
2 **Clamping lever made from plastic**
- Freely adjustable (release by lifting)

3 **Clamping jaw**
- The floating bearingsguarantee symmetrical application of force

4 **Housing**

▶ TECHNICAL DATA

▶ SERIES HKR CLAMPING N (BISTABLE) REMAINS IN CURRENT POSITION



Order no.	Shaft Ø* [mm]	Holding force [N]	Holding torque [Nm]	Tightening torque [Nm]	A [mm]	B [mm]	X [mm]
HKR1200A	12	1200	7	5.00	43	32	18
HKR1600A	16	1200	10	5.00	53	38	22
HKR2000A	20	1200	12	7.00	60	44	25
HKR2500A	25	1200	15	7.00	78	52	30
HKR3000A	30	2000	30	15.00	87	58	35
HKR4000A	40	2000	40	15.00	108	68	45
HKR5000A	50	2000	50	15.00	132	76	50
HKR6000A	60	2000	60	22.00	157	76	60

*Min. hardness of 54 HRC

CLAMPING ELEMENTS | PNEUMATIC
SERIES MKR

▶ PRODUCT ADVANTAGES

- **Independent of the manufacturer**
  For circular guides and shaft guides
- **Energize to close (NO)**
  Closing with pressure
- **high durability**
  Up to 5 million static clamping cycles

▶ THE BEST PRODUCT FOR YOUR APPLICATION

APPLICATION SCENARIOS

- **Fixing of vertical axes**
- **Positioning of lifting units**
- **Clamping of machine tables**

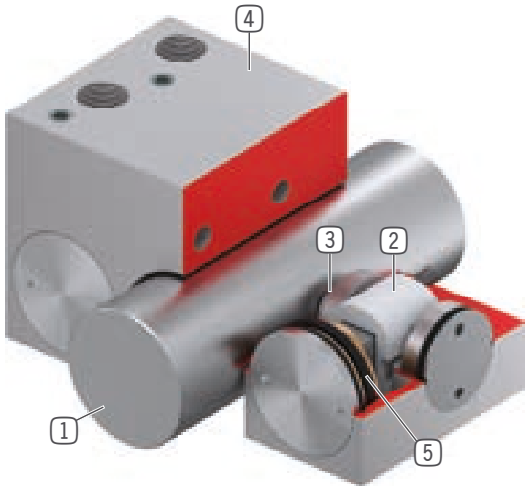
FURTHER INFORMATION

- **Special variants on request, e.g.**
  With proximity switch monitoring
  With additional air connection (from above, from the front)

TECHNICAL DATA

Shaft diameter	12-60 mm
Holding force	650-1850 N
Pressure min. / max.	3 / 6.5 [bar]
Spring storage	inexistent
PLUS connection	No
B10d value	up to 5 million
Dynamic braking cycles	not suitable
Operation	pneumatic
Operating temperature	-10 ... +70 [°C]
Shaft tolerance	+/- 0,01 mm
Hardness	min. 54 HRC

▶ BENEFITS IN DETAIL



1 **Circular guide**
- Compatible with circular and shaft guides

2 **Wedge-type gear**
- Power transmission between piston and clamping jaw

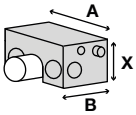
3 **Clamping jaw**
- Pressed at the circular guide

4 **Housing**

5 **Pneumatic piston**
- The piston moves the wedge-type gear longitudinally

▶ TECHNICAL DATA

▶ SERIES MKR CLAMPING NO (NORMALLY OPEN) OPEN WITHOUT PRESSURE

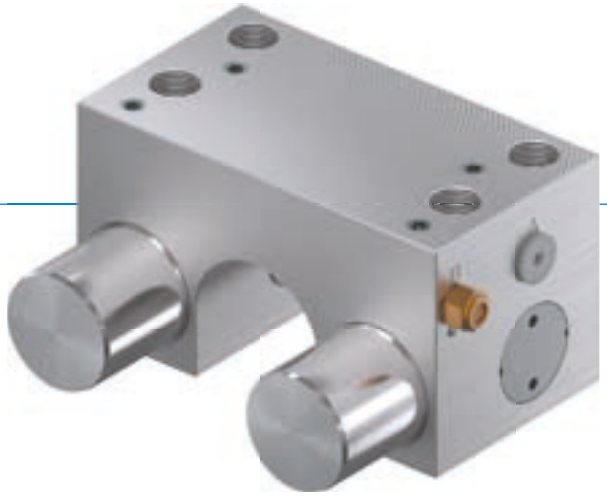


Order no.	Shaft Ø* [mm]	Holding force [N]	Holding torque [Nm]	A [mm]	B1 [mm]	X [mm]
MKR1200A	12	650	4	50.0	37	18
MKR1500A-A	15	650	4		37	22
MKR1600A-A	16	650	5		37	22
MKR2000A	20	1000	10	66.0	38	25
MKR2500A	25	1200	15	77.0	42	30
MKR3000A	30	1750	26	92.0	48.5	35
MKR3200A	32	1850	37	120.0	49	45
MKR4000A	40	1850	40	120.0	49	45
MKR5000A	50	1850	46	132.0	49	50
MKR6000A	60	1850	56	142.0	49	50

*Min. hardness of 54 HRC

CLAMPING ELEMENTS | PNEUMATIC
SERIES MKRS

▶ PRODUCT ADVANTAGES



- **Independent of the manufacturer**
  For circular guides and shaft guides
- **Energize to open (NC)**
  through spring-loaded energy storage
- **high durability**
  Up to 5 million static clamping cycles
- **Safety element**
  Safe clamping in case of energy failure

▶ THE BEST PRODUCT FOR YOUR APPLICATION

APPLICATION SCENARIOS

- **Clamping in case of pressure drop**
- **Clamping without energy requirement**

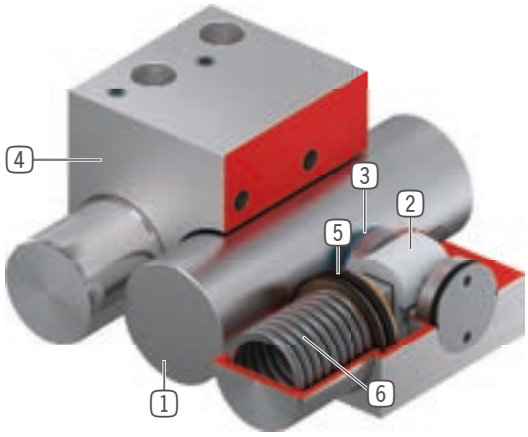
FURTHER INFORMATION

- **Special variants on request, e.g.**
  With proximity switch monitoring
  With low opening pressure (3.0 bar or 4.0 bar)
  With additional air connection (from above, from the front)

TECHNICAL DATA

Shaft diameter	12-60 mm
Holding force	350-1650 N
Pressure min. / max.	5.5 / 6.5 [bar]
Spring storage	existing
PLUS connection	No
B10d value	up to 5 million
Dynamic braking cycles	not suitable
Operation	pneumatic
Operating temperature	-10 ... +70 [°C]
Shaft tolerance	+/- 0,01 mm
Hardness	min. 54 HRC

▶ BENEFITS IN DETAIL



1 **Circular guide**
- Compatible with circular and shaft guides

2 **Wedge-type gear**
- Power transmission between piston and clamping jaw

3 **Clamping jaw**
- Pressed at the circular guide

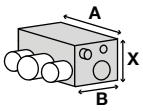
4 **Housing**

5 **Pneumatic piston**
- The piston moves the wedge-type gear longitudinally

6 **Spring-loaded energy storage**
- For non-pressurized closing of the clamping unit

▶ TECHNICAL DATA

▶ SERIES MKRS CLAMPING NC (NORMALLY CLOSED) CLOSED WITHOUT PRESSURE



Order no.	Shaft Ø* [mm]	Holding force [N]	Holding torque [Nm]	A [mm]	B [mm]	X [mm]
MKRS1200A	12	350	2	50	56	18
MKRS1500A-A	15	400	3	54	56	22
MKRS1600A-A	16	400	3	54	56	22
MKRS2000A	20	600	6	66	60	25
MKRS2500A	25	750	9	77	63	30
MKRS3000A	30	1050	16	92	77.5	35
MKRS3200A	32	1650	33	120	82	45
MKRS4000A	40	1650	34	120	82	45
MKRS5000A	50	1650	41	132	82	50
MKRS6000A	60	1650	49	142	82	50

*Min. hardness of 54 HRC

CLAMPING AND BRAKING ELEMENTS | PNEUMATIC
SERIES RBPS

▶ PRODUCT ADVANTAGES

- **sensing with process reliability**
  Sensing of opened/closed state (optional)
- **Energize to open (NC)**
  through spring-loaded energy storage
- **high durability**
  Up to 5 million static clamping cycles
- **Safety element**
  Safe braking in case of energy failure

▶ THE BEST PRODUCT FOR YOUR APPLICATION

APPLICATION SCENARIOS

- **Positioning of axes**
- **Fixing of vertical axes**
- **Positioning of lifting units**

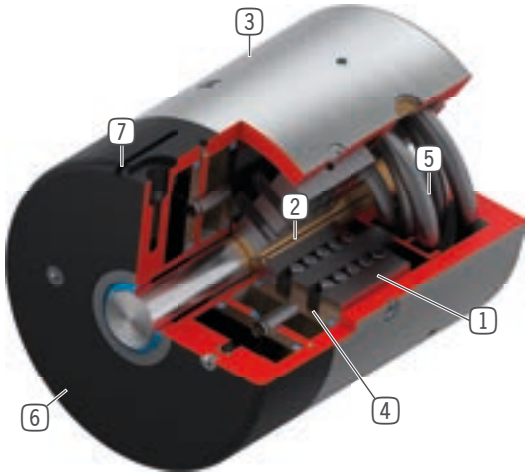
FURTHER INFORMATION

- **Special variants on request, e.g.**
  With low opening pressure (3.0 bar)

TECHNICAL DATA

Shaft diameter	5-60 mm
Holding force	3500-52000 N
Pressure min. / max.	4 / 6.5 [bar]
Spring storage	existing
PLUS connection	No
B10d value	up to 5 million
Dynamic braking cycles	Up to 2000; only static use for rotating applications
Operation	pneumatic
Operating temperature	-10 ... +70 [°C]
Shaft tolerance	f8/g8/h7
Hardness	min. 54 HRC

▶ BENEFITS IN DETAIL



1 **Wedge-type gear**
- Power transmission between piston and collet chuck

2 **Collet chuck for clamping and braking**
- Pressed at the circular guide

3 **Housing**

4 **Pneumatic piston**
- The ring piston moves the wedge-type gear longitudinally

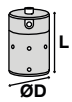
5 **Spring-loaded energy storage**
- For non-pressurized closing of the clamping unit

6 **Cover**

7 **Integrated slot (for size RBPS12 and larger)**
- Mounting and positioning of a magnetic field sensor (optional)

▶ TECHNICAL DATA

▶ SERIES RBPS CLAMPING AND BRAKING NC (NORMALLY CLOSED) CLOSED WITHOUT PRESSURE



Order no.	Shaft Ø* [mm]	Holding force [N]	Holding torque** [Nm]	ØD [mm]	L [mm]
RBPS0500-A	5	3500	5	49	68
RBPS0600-A	6	3500	6	49	68
RBPS0800-A	8	3500	8	49	68
RBPS1000-A ***	10	3500	11	49	68
RBPS1200-A	12	10000	36	99	150
RBPS1400-A	14	10000	42	99	150
RBPS1500-A	15	10000	42	99	150
RBPS1600-A	16	10000	48	99	150
RBPS1800-A	18	10000	54	99	150
RBPS2000-A ***	20	10000	60	99	150
RBPS2200-A	22	18000	120	135	165
RBPS2400-A	24	18000	130	135	165
RBPS2500-A	25	18000	140	135	165
RBPS2600-A	26	18000	140	135	165
RBPS2800-A ***	28	18000	150	135	165
RBPS3000-A	30	35000	320	170	220
RBPS3200-A	32	35000	340	170	220
RBPS3500-A	35	35000	370	170	220
RBPS3600-A	36	35000	380	170	220
RBPS3800-A	38	35000	400	170	220
RBPS4000-A	40	35000	420	170	220
RBPS4200-A	42	35000	440	170	220
RBPS4500-A ***	45	35000	470	170	220
RBPS5000-A	50	52000	780	205	232
RBPS5500-A	55	52000	780	205	232
RBPS6000-A ***	60	52000	780	205	232

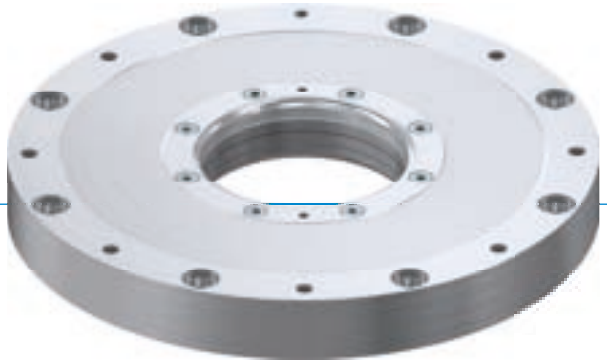
*Min. hardness of 54 HRC

**Only for clamping for static use

*** **Preferred size**

CLAMPING ELEMENTS | PNEUMATIC
SERIES DKPS1000

▶ PRODUCT ADVANTAGES



- **High holding torque without additional air**

  Enhanced safety due to securing the rotation axes
- **Simple status sensing**

  Efficient and fast process flow
- **Market leading cycles**

  Leak-free thanks to a proven piston seal

▶ THE BEST PRODUCT FOR YOUR APPLICATION

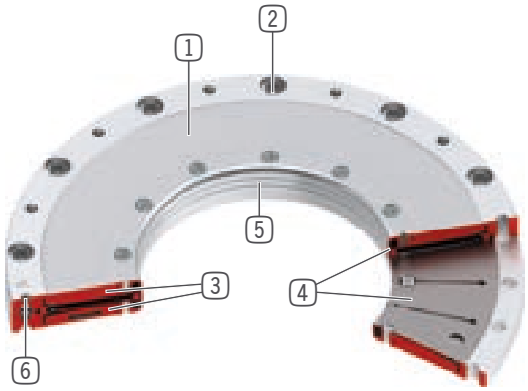
APPLICATION SCENARIOS

- **Torque take-up of shafts**
- **Safety clamping of the torque motor**
- **Clamping of C-axis**
- **Fixing and safeguarding of swivel bridge**
- **Clamping of spindle tilting axis**
- **Clamping of the swiveling axis for portals**

TECHNICAL DATA

Shaft diameter	50-160 mm
Holding torque	100-1150 Nm
Pressure min. / max.	5.5 / 6.5 [bar]
Spring storage	existing
PLUS connection	No
B10d value	up to 5 million
Dynamic braking cycles	not suitable
Operation	pneumatic
Operating temperature	5 ... +80 [°C]

▶ BENEFITS IN DETAIL



1 **Housing**

2 **Housing connection**
- Screw connection to the connecting construction

3 **Piston**
- Special shape for optimal spring deflection

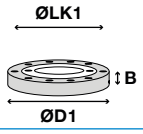
4 **Disk springs/spring accumulators**
- For unpressurized holding torque generation through pre-loading

5 **Clamping area**
- Direct clamping of the rotation axes

6 **Pneumatic connection**

▶ TECHNICAL DATA

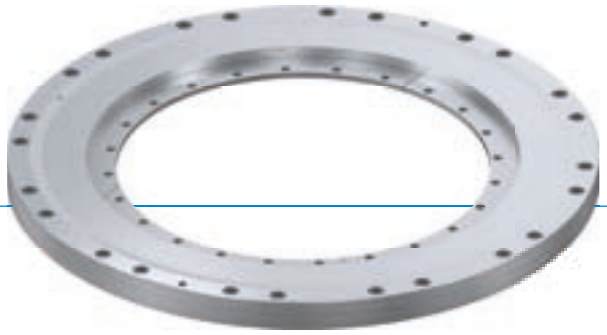
▶ SERIES DKPS1000 PNEUMATIC CLAMPING NC (NORMALLY CLOSED) CLOSED WITHOUT PRESSURE



Order no.	Shaft Ø [mm]	Holding torque [Nm]	B [mm]	ØD1 [mm]	ØLK1 [mm]
DKPS1050-00-A	50	120	17	145	134
DKPS1090-00-A	90	350	17	185	174
DKPS1160-00-A	160	1000	20	288	270

CLAMPING ELEMENTS | HYDRAULIC
SERIES DKHS1000

▶ PRODUCT ADVANTAGES



- **Highest accuracy in rotational axis**

  No moving functional parts and therefore backlash-free

  Drive can be taken out of the drive control

- **Fastest reaction time and pressureless safety function**

  Due to a low displacement volume and internal stress of the housing

- **Market leading cycles**

  Housing strain stays below the elastic fatigue limit

▶ THE BEST PRODUCT FOR YOUR APPLICATION

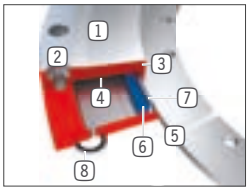
APPLICATION SCENARIOS

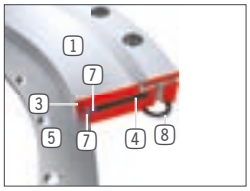
- **Torque take-up of shafts**
- **Clamping of torque drive**
- **Clamping of C-axis**
- **Fixing and safeguarding of swivel bridge**
- **Clamping of spindle tilting axis**

TECHNICAL DATA

Shaft diameter	180-460 mm
Holding torque at 1 arcsec	800-6000 Nm
Holding torque at 5 arcsec	1300-8000 Nm
Pressure min. / max.	100 / 110
Spring storage	existing
PLUS connection	No
B10d value	up to 5 million
Dynamic braking cycles	not suitable
Operation	hydraulic
Operating temperature	5 ... +80 [°C]

▶ BENEFITS IN DETAIL





1 **Housing**
- Holding torque due to pre-stressed, high tensile tool steel

2 **Housing connection**
- Screw connection to the connecting construction

3 **Clamping area**
- Backlash-free Clamping of the rotary axis

4 **Pressure chamber**
- Opens the element under pressure in the elastic range

5 **Shaft connection**
- Connection with the rotary axis

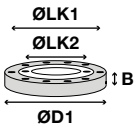
6 **Sealing**
- Prestressed and self-enforcing under pressure

7 **Retain plate**
- Secures and holds the sealing in position

8 **Hydraulic connection**
- Sealing through O-Ring and surrounding cutting ring

▶ TECHNICAL DATA

▶ SERIES DKHS1000 HYDRAULIC CLAMPING NC (NORMALLY CLOSED) CLOSED WITHOUT PRESSURE



Order no.	Shaft Ø	Holding torque		B	ØD1	ØLK1	ØLK2
		at 1 arcsec	at 5 arcsec				
	[mm]	[Nm]		[mm]	[mm]	[mm]	[mm]
DKHS1180-00-A	180	800	1300	20	308	308	169
DKHS1200-00-A	200	1000	1600	20	328	328	189
DKHS1220-00-A	220	1500	1900	20	348	348	209
DKHS1240-00-A	240	1600	2200	20	368	368	229
DKHS1260-00-A	260	1800	2600	22	388	388	249
DKHS1280-00-A	280	2400	3000	22	408	408	269
DKHS1300-00-A	300	2500	3100	22	428	428	289
DKHS1320-00-A	320	2800	3900	22	448	448	309
DKHS1340-00-A	340	3000	4200	22	468	468	329
DKHS1395-00-A	395	4500	6000	26	523	523	382
DKHS1460-00-A	460	6000	8000	26	598	598	447

CHECKLIST
LINEAR TECHNOLOGY

Customer number | Telephone number

Company | Fax number

Contact | E-mail

☐ Mr. ☐ Mrs.

Sales data | **Article**

Editor | Target price

Desired delivery date | Others

Quantity | Pot. quantity (p.a.)

Information about the guide type

Guide designation

Rail type | ☐ With cover ☐ Without cover

Rail size

Carriage type

Flat steel / Shaft | mm | Tolerance | +/- µm

Information on the clamping / braking element

Actuation ☐ Manual ☐ Pneumatic ☐ Electrical ☐ Hydraulic

Energy parameter ☐ bar ☐ VA

Status ☐ NO (Normally Open) ☐ NC (Normally Closed) ☐ N (bistable)

Model series

Applications

Static / Dynamic ☐ Clamping ☐ Braking (emergency stop)

Required holding force | N

Velocity | m/s

Number of cycles min.

Cycle time max. Opening | ms | Closing | ms

Installation position ☐ Horizontal ☐ Vertical ☐ Angle | °

Environment ☐ Shavings ☐ Cooling water ☐ Oil / Grease ☐ Vacuum ☐ Dust

☐ Other ☐ Temperature (min. / max.)

End seal ☐ With end seal ☐ Without end seal

Semi-standard ☐ Stainless steel ☐ Query (initiator) ☐ Power connection on top ☐ Front power connection

☐ Other

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GENERAL

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INDIVIDUAL

DECLARATION OF INCORPORATION IN TERMS OF THE EC DIRECTIVE 2006/42/EC ON MACHINERY (ANNEX II 1 B)

We hereby declare that our elements meet the following basic requirements of the Machinery Directive 2006/42/EC as an incomplete machine

No.1.1.2., No.1.1.3., No.1.1.5., No.1.3.2, No. 1.3.4, No. 1.3.7, No.1.5.3, No.1.5.4, No.1.5.8., No.1.6.4, No.1.7.1, No.1.7.3, No.1.7.4.

We also declare that the specific technical documents were produced in accordance with Annex VII Part B of this Directive. We undertake to provide the market supervisory bodies with electronic versions of the incomplete machine‘s special documents via our documentation department should they have reason to request them.
The incomplete machine may only be commissioned if the machine or system in which the incomplete machine is to be installed has been determined to satisfy the conditions of the Machinery Directive 2006/42/EC and the EC Declaration of Conformity has been produced in accordance with Annex II A.

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