



# MICRO TECHNOLOGY

High-tech clamping solutions for delicate workpieces

**RÖHM**  
driven by technology





Geräte  
G...

Blanks

Blanks

2

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# HIGH-TECH CLAMPING SOLUTIONS FOR DELICATE WORKPIECES

Ever smaller and more delicate workpieces as well as their shape and material diversity make new demands on the machining processes and therefore also on the clamping tools. With its **Micro Technology (MT) series**, RÖHM offers individual high-tech clamping solutions for micro-machining.

In the medical, watch and jewelry industry as well as in the consumer electronics industry – the number of high-precision applications in the field of micro-machining has increased enormously in recent years. The advantages of micro-machining are clear: the almost limitless variety of shapes, especially when using 5-axis machines, and the ability to economically process any machinable material both in high and low volume quantities. Micro-machining,

with its ever smaller and more delicate workpieces as well as the almost unlimited shape design and material diversity, is very demanding on clamping tools. The greatest precision in the micrometer range, high workpiece change rates and repeatability as well as deformation-free clamping of workpieces are expected. To meet these requirements, RÖHM has developed the individual high-tech clamping solutions of the **Micro Technology (MT) series**.

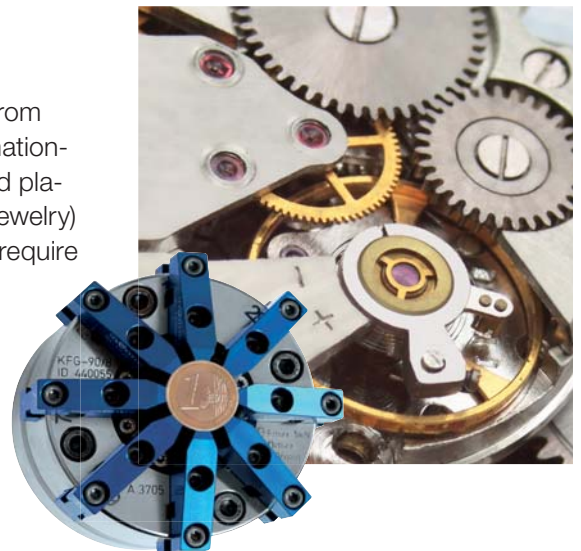


## DLC-COATING

Another special feature in the **Micro Technology (MT) series** is the DLC-coated basic jaws. The diamond-like carbon (DLC) coating offers high abrasion resistance and an extremely low friction coefficient combined with great hardness and top precision.

## WATCH & JEWELRY INDUSTRY

The watch and jewelry industry is characterized by production ranging from individual order production up to large series. Here, delicate and deformation-sensitive workpieces with complex geometries such as watch cases and plates, bezels, sapphire glasses, pushers, dials, bracelet links and rings (jewelry) are processed. The top-quality materials as well as the mix of materials require highest precision, and reduced reject rates are the top priority.



## MEDICAL TECHNOLOGY

In medical technology, high-quality and certified materials (for example, ceramics, titanium, zirconium, etc.) are used as a rule; they enable the best possible connection of the implant to the biological tissue. This is why the sensitive yet safe and precise clamping of implants for dentistry or for hip and knee joints, for instance, is so important. Another requirement in medical technology is the hydraulic-free machine interior. The machining ranges from individual production of dental implants to series production of plates and screws for the treatment of arm and leg fractures, intramedullary nails as well as systems for the external fixation of fractures.



## CONSUMER ELECTRONICS

The production of consumer electronics, such as smart phones, tablets or laptops, requires highest productivity, flexibility and quality of the processing methods used. Only in this way can competitive advantages be created on dynamic markets. With RÖHM's clamping solutions, mobile phone shells, mobile pressure buttons, PCD boards, micro electric motors or two-sided circuit boards are processed.



## MICRO COMPONENTS

In other industries as well, there are small parts that are fitted into a larger whole, such as tire valves, gears for transmissions in the automotive industry or injectors. In all this, the focus, as is the case in other Micro Technology industries, is always on sensitive, deformation-free and precise clamping. Mostly, the micro components are produced in large series production with high quality standards and rapid workpiece change.



# 8-JAW POWER CHUCK KFG-MT 90/8

Self-centering clamping – uniform force distribution over eight clamping jaws for sensitive, deformation-free and centered clamping of delicate workpieces in the watch and jewelry industry as well as in medical technology. It is perfectly suitable for the processing of rings or luxurious jewelry from master craftsman's hand.



KFG-MT 90/8  
ID 440055

## BENEFITS

- ⊕ Large clamping range for flexible application options
- ⊕ Ideal for clamping deformation-sensitive components by centrifugal force compensation
- ⊕ High degree of concentricity and axial run-out precision as well as resilience

## TECHNICAL FEATURES

- Stroke per jaw 12 mm or 16 mm
- DLC-coated basic jaws for minimal wear
- Also available as 2-, 3-, 4- or 6-jaw versions



# 3-JAW POWER CHUCK PKF-MT 100/3

Centric clamping - this 3-jaw chuck is extremely versatile for processing small workpieces. The PKF-MT can be perfectly customised to the workpiece with the optionally available form jaws.



PKF-MT 100/3  
ID 440221

## BENEFITS

- ⊕ High radial and axial run-out accuracy of 0.002 mm
- ⊕ DLC-coating for minimal wear
- ⊕ The special clamping piston construction with two-sided power transmission guarantees a very high clamping accuracy with an unusually long durability

## TECHNICAL FEATURES

- High degree of safety in case of pressure failure thanks to self-locking
- Centric, resp. compensating clamping possible
- Pneumatically or power-operated
- Chuck quick-change system possible
- Clamping diameter from about 1 mm possible



# POWER CHUCKS PKF-MT 100/4, PKF-MT 100/2/2 UND PKF-MT 100/2/4

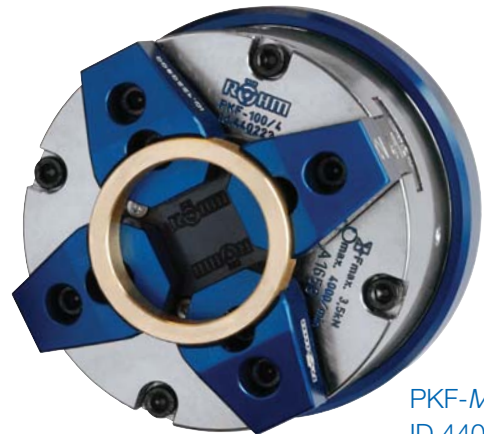
The PKF-MT 100/2/2 4-jaw chuck is ideal for clamping watch parts. The jaws clamp centrally in pairs, but compensate one another. The centric clamping PKF-MT 100/4 4-jaw chuck is also suitable for very precise raw parts. The PKF-MT 100/2/4 was specially developed for the machining of watch housings.

## BENEFITS

- ⌚ High radial and axial run-out accuracy
- ⌚ DLC-coating for minimal wear
- ⌚ The special clamping piston construction with two-sided power transmission guarantees a very high clamping accuracy with an unusually long durability

## TECHNICAL FEATURES

- High degree of safety in case of pressure failure thanks to self-locking
- Pneumatically or power-operated available
- High repeating accuracy
- Chuck quick-change system possible



PKF-MT 100/4  
ID 440222



PKF-MT 100/2/2  
ID 440223



PKF-MT 100/2/4  
ID 440341

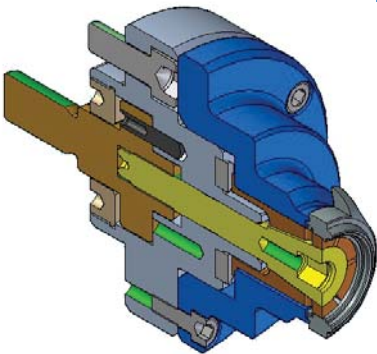


# CARTRIDGE MANDREL KFR

Versatile for turning, grinding, milling, gear cutting, balancing, measuring and for automated loading. Especially suitable for the machining of watch cases and bezels.



ID 1237730



## BENEFITS

- ⊕ Low weight and low overall height due to the compact design, suitable for short clamping lengths
- ⊕ High axial and radial run-out accuracy as well as repeatability
- ⊕ Power-operated or manual-operated (optional)

## SPECIAL FEATURES

Solid, compact design for precise machining. Without axial tightening, resp. with def. axial tightening (e.g. 0.5 mm) – as a result no deformation of the workpiece. The draw-in of the workpiece against the rigid work-stop takes place independently via the operation of the mandrel. Prepared for air sensing.

## TECHNICAL FEATURES

- Hardened low-wear construction
- Compatible with intermediate flange Type 255-9
- Deliverable with segmented sleeve (hardness > 60HRC)
- Integrated manual lubrication
- Quick-change system possible
- Work stop directly in the taper sleeve possible





# SEGMENT CLAMPING AND CARTRIDGE MANDRELS ABSIS, AGILIS AND MZB

## ABSIS power-operated segment clamping mandrel with flanged seat, for internal clamping



### APPLICATION

Turning, grinding, milling, tothing operations, balancing, measuring

### SPECIAL FEATURES

Compact, solid design for precise machining, steady clamping thanks to axial draw-in. The workpiece is automatically drawn down against the rigid work stop by the operation of the clamping mandrel. Vibration damping by the rubber on the segment sleeve. Prepared for air sensing.

## AGILIS power-operated segment clamping mandrel with flanged seat, for internal clamping



### APPLICATION

Grinding, turning, milling, drilling, measuring

### SPECIAL FEATURES

Suitable for very small clamping diameters - from  $\varnothing$  10 mm, steady clamping thanks to axial draw-in. The workpiece is automatically drawn in against the rigid work stop by the operation of the clamping mandrel. Quick changing of the taper sleeves possible. Suitable for short clamping lengths.

## MZB manually operated cartridge mandrel, for internal clamping



### APPLICATION

Turning, milling, grinding and tothing operations, as well as for balancing and measuring

### SPECIAL FEATURES

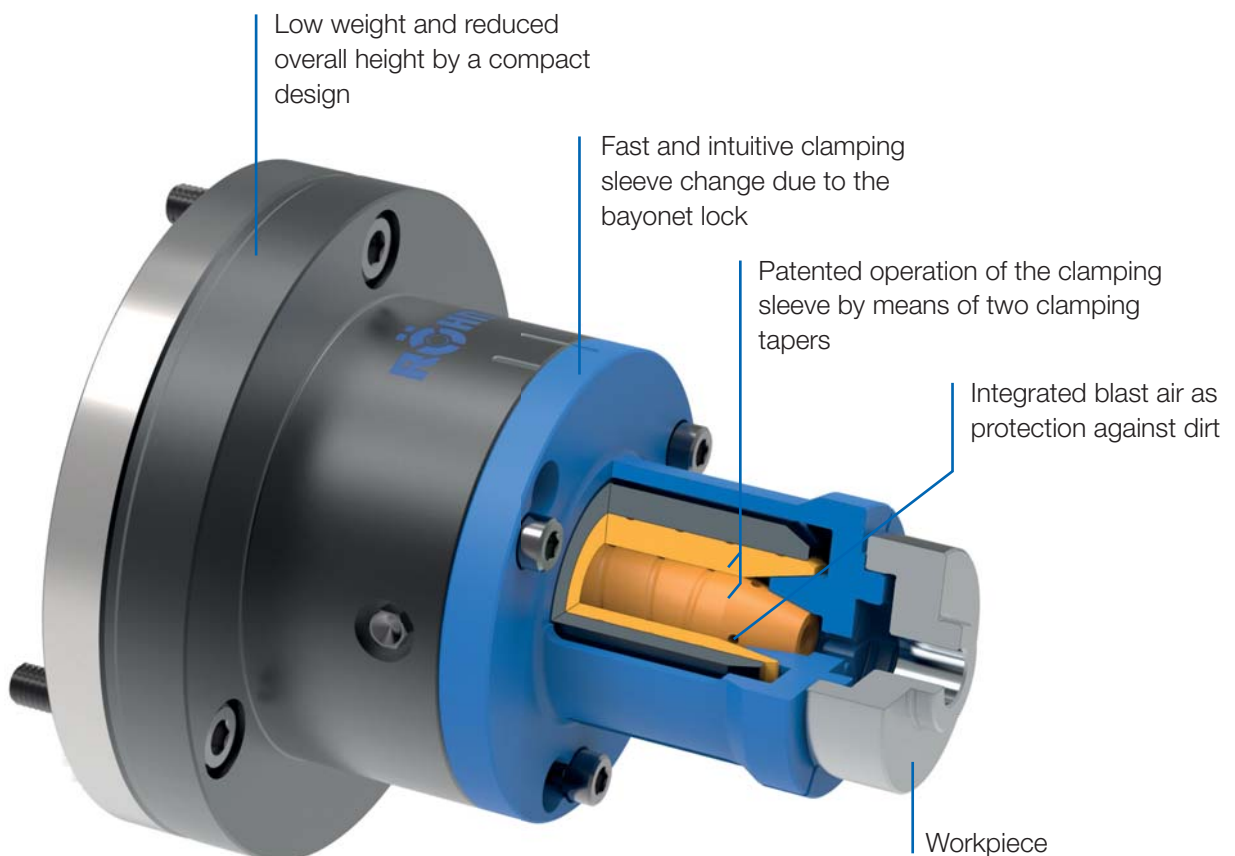
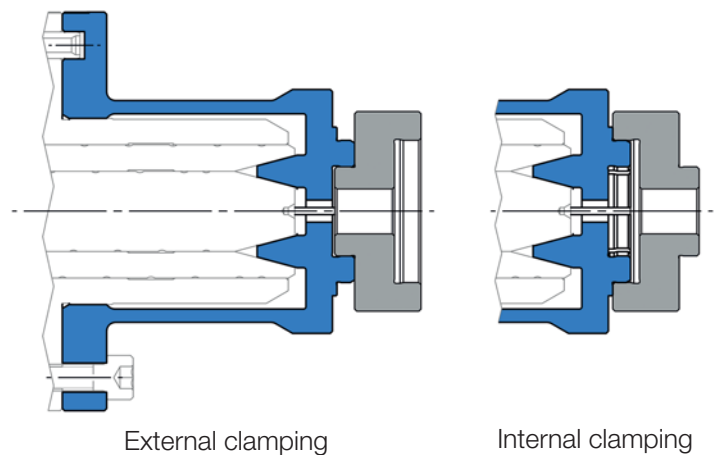
Ideal for very small clamping diameters starting from  $\varnothing$  5.5 mm or small workpieces. Sturdy clamping of the workpiece thanks to axial tension against the workpiece stop. High concentricity and repeatability. Light weight and reduced height thanks to compact design.

# DUPLEX CLAMPING SYSTEM

The new DUPLEX clamping system combines mandrel and collet chuck in a single clamping tool, thereby offering both internal and external clamping. In addition to eliminate time-consuming and expensive changeover of clamping tools, the DUPLEX system offers impressively precise and deformation-free clamping with a radial and axial run-out precision of 0.01 mm.

When workpieces are machined with lathes, they must often be machined both inside and outside. Until now, this involved two operations that either had to be done on two machines or the entire clamping tool had to be changed, which cost time and money.

With the new DUPLEX clamping system, RÖHM engineers succeeded in combining a mandrel and a collet chuck in one clamping tool. With the DUPLEX clamping system, the change from internal to external clamping can ideally be made without conversion or within a few seconds by changing the clamping sleeve using a bayonet lock. The clamping sleeve is indexed on the mandrel to achieve an accurate positioning and repeatability.



# THE BENEFITS AT A GLANCE

## GREATEST ECONOMY

- ⊕ Elimination of time and cost-intensive changeover of clamping tools means due to internal and external clamping in just one clamping tool
- ⊕ Fast and intuitive clamping sleeve change due to the bayonet lock

## GREATEST PRECISION

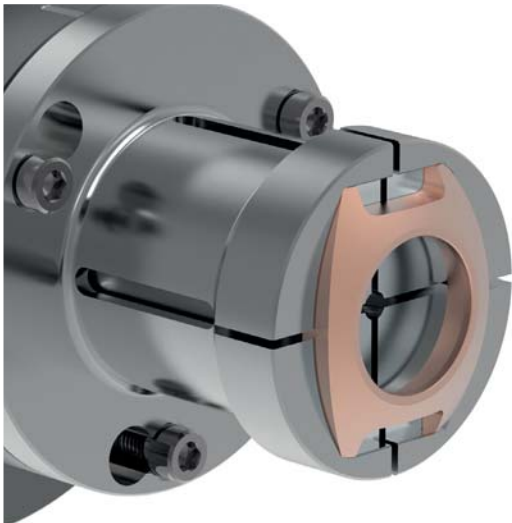
- ⊕ Concentricity and axial run-out precision of 0.01 mm for greatest repeatability
- ⊕ No loss of precision since there is no need to change the clamping taper

## DEFORMATION-FREE & SENSITIVE CLAMPING

- ⊕ Exact adjustment of clamping range (stroke limitation) for deformation-free clamping
- ⊕ Axially fixed clamping sleeve prevents damage to the workpiece surface
- ⊕ Uniform force distribution by enclosing clamping

# DUPLEX CLAMPING SYSTEM IN THE WATCHMAKING INDUSTRY

## EXTERNAL CLAMPING



## INTERNAL CLAMPING





# CAPTIS COLLET CHUCKS

The new, modularly designed CAPTIS clamping system is very impressive with its high level of flexibility and compact design for an enlarged working space. The encompassing clamping of the CAPTIS collets features proven RÖHM quality with its high concentricity and repeatability of 0.005 mm and excellent force distribution.



## CAPTIS-D

With axial pull and with through-hole. Shortest design. Convertible to CAPTIS-A.

- ⌚ Ideal for rod and tube processing



## CAPTIS-A

With axial pull. Workpiece stop can be installed. Pulldown effect at the stop. Convertible to CAPTIS-D.

- ⌚ Ideal for flange-like workpieces



## CAPTIS-AF

With axial fixed collet. Workpiece stop optional.

- ⌚ Ideal for delicate workpieces, short clamping surfaces and for use in opposed spindles or counter spindles

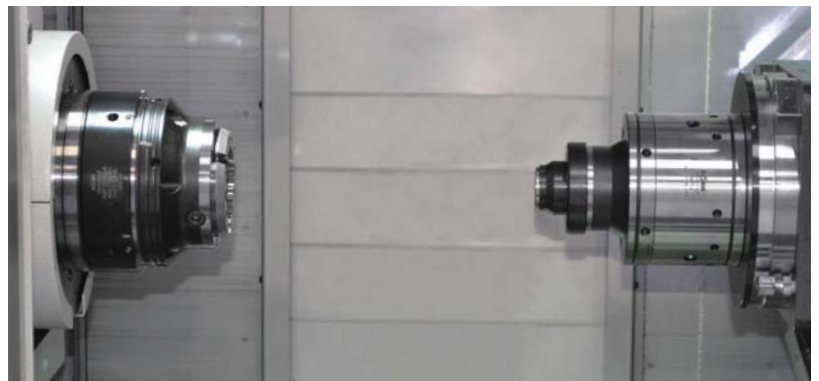
## CAPTIS COLLET

- ⌚ Interchangeable rubber segments made of an innovative rubber compound for maximum durability
- ⌚ Clamping range  $\pm 0.5$  mm
- ⌚ Hardened and ground steel segments for high wear resistance
- ⌚ Different designs for clamping of machined and unmachined parts available



## CHANGING DEVICE

The quick and easy collet change within 15 seconds reduces set-up times.



# POWER-OPERATED COLLET CHUCK KZF

External clamping of round workpieces as well as hexagonal and square profiles. For turning, milling and grinding operations as well as for measuring. Ideal for bar or tube machining on the main spindle. For the use of standardized DIN collets or segment collets.

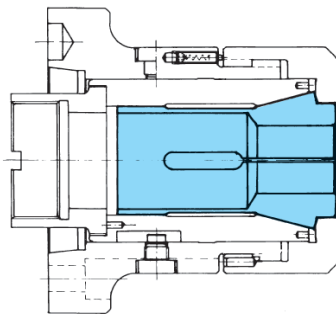


## BENEFITS

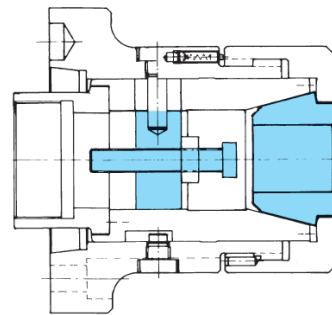
- ⌚ Time-saving collect changing thanks to quick-acting bayonet lock
- ⌚ Adjustable workpiece hard stop can be installed when using segment collets

## TECHNICAL FEATURES

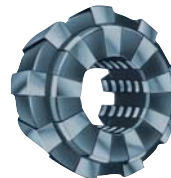
- Cap nut with bayonet lock
- Either with steel collets or segment collets
- All moving parts of high-quality material, hardened and ground
- Profiles can also be chucked when the corresponding collets are fitted



Hollow clamping with steel collet  
DIN 6343



Clamping with segment collet and  
workpiece stop



**Press:**  
Press chuck cover with its entire surface 2 mm towards machine spindle



**Rotate:**  
Turn chuck cover through 45° until the mark "Auf" (open) is aligned with the mark on the chuck



**Remove:**  
Pull off chuck cover and remove collet



**Change:**  
Insert new collet, lock cover by analogy with the description above



**Bayonet lock:**  
The chuck cover can be placed on the chuck at offset by 90°

# POWER-OPERATED CHUCKS FOR BOARD PROCESSING

Boards in square or round shapes can be machined perfectly with the special power chucks. Equipped with a central ejector, these chucks are ideal for automated workpiece change.

## BENEFITS

- ③ DLC-coated axial clamping fingers
- ③ Finely adjustable clamping force

## TECHNICAL FEATURES

- Pneumatically operated
- Clamping force safety with air distributor
- Simple replacement of the workpiece hard stop
- Equipped with a central ejector



ID 440414



KPF-MT 100/3

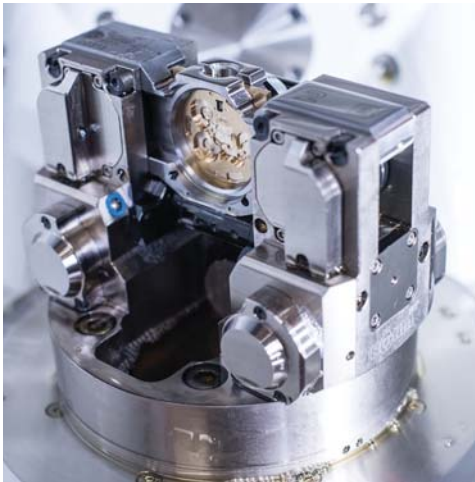


KPF-MT 100/4



# POWER CHUCKS KPF-MT FOR DOUBLE-SIDED MACHINING OF BOARDS

With the KPF-MT power chuck, both round and square boards can be machined on both sides in a single clamping. Thanks to the fully automatically adjustable workpiece support, the board is securely supported during machining at all times.



KPF-MT  
ID 440575

## BENEFITS

- ⌚ Reduction of conversion times and highest degree of accuracy, since the boards do not need to be re-clamped for two-sided processing
- ⌚ Swiveling of the chuck is carried out by a divider or the machine spindle

## TECHNICAL FEATURES

- Suitable for automated production processes
- Integrated blast air
- Pneumatically operation (at least 4 air ducts)
- A fixed workpiece support that serves as zero point

### Machining of the first side:

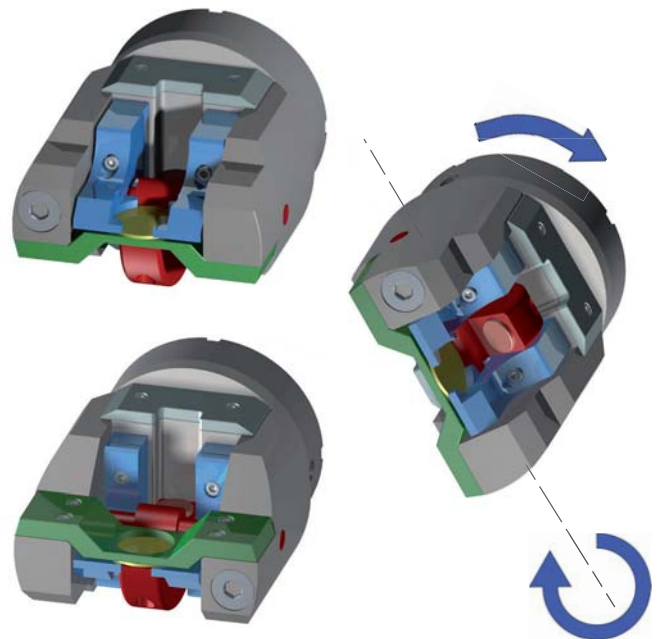
The workpiece (yellow) lies on the workpiece support (green) and is clamped by the clamping jaws (blue). The workpiece support (red) additionally supports the workpiece.

### Swiveling:

The clamping chuck is swiveled 180° by a divider or the machine spindle. The tool support also swivels.

### Machining of the second side:

The tool support is swiveled 180°; the board can now be machined on the second side without reclamping.



KPF-MT  
in use

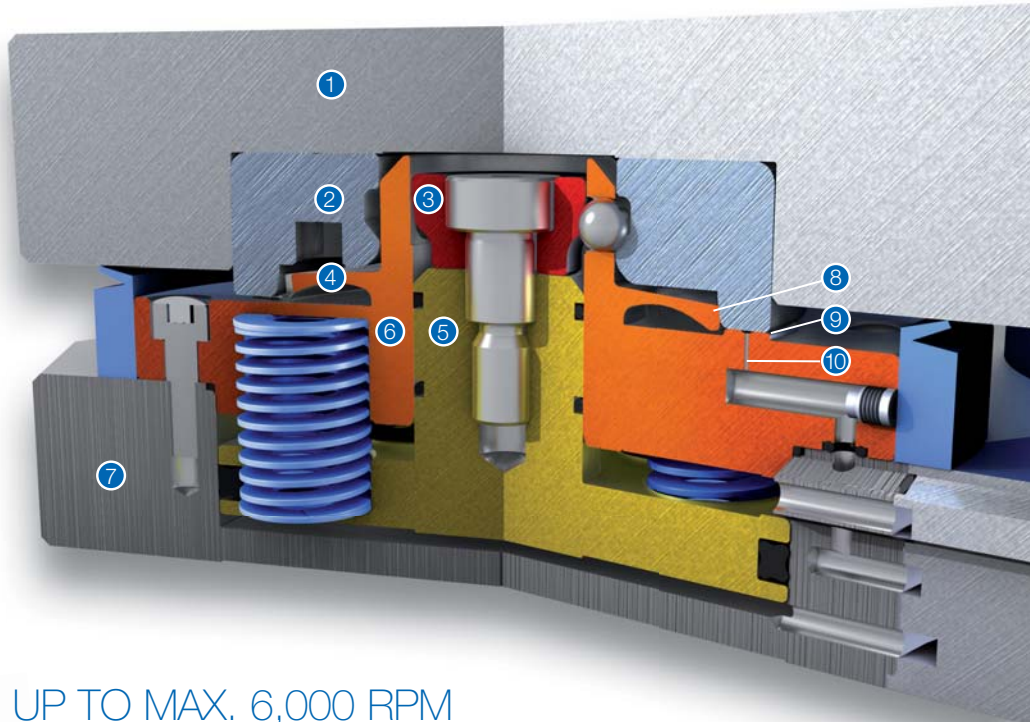


Watch plates

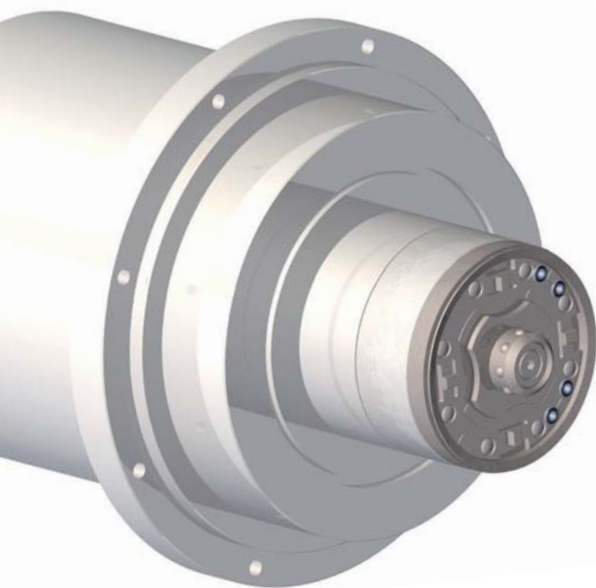
# ZERO-POINT CLAMPING SYSTEM POWER-GRIP

Modular, user-friendly pallet system – the well-designed Power-Grip technology is like a safety belt for the production process. When pallets are changed, contact with reference surfaces made impossible from the very beginning. The axially resilient centering lips compensate for thermal distortion, the Z supports are automatically cleaned during the clamping process. This ensures an extra advantage with regard to reliability and precision.

- 1 Change pallet
- 2 Centering / clamping collet
- 3 Clamping cone
- 4 Axially resilient centering lip
- 5 Piston
- 6 Centering unit
- 7 Pallet carrier
- 8 XY reference surfaces
- 9 Z reference surfaces
- 10 Bore for Z support cleaning



## ROTATIONAL OPERATION UP TO MAX. 6,000 RPM



Machine spindle with mount for chucks, clamping mandrels or other clamping tools.



# ZERO-POINT CLAMPING SYSTEM POWER-GRIP

## STATIONARY OPERATION



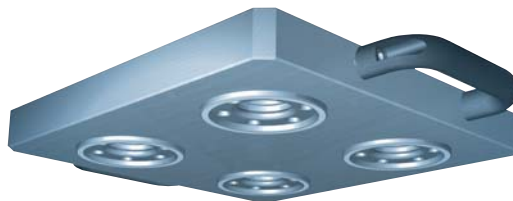
Chucks



Centering vices



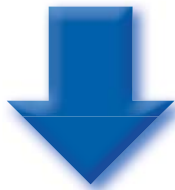
Chucks



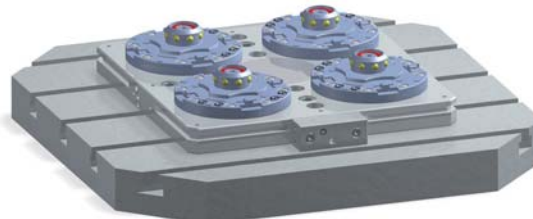
Universal pallets



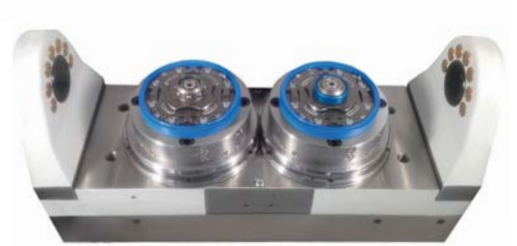
Clamping mandrels



Dividing attachment



Machine table



Swivel axis



More information about RÖHM  
Micro Technology you will find here:  
[www.roehm.biz/microtechnology/](http://www.roehm.biz/microtechnology/)



# LEVER SCROLL CHUCKS

Lever scroll chuck with base plate - 3-jaw chuck with cast body in effective use for the positioning and transporting of ring-shaped workpieces. Ideally suited e.g. to measuring machines.



## TECHNICAL FEATURES

- ③ Cast body
- ③ Lathe chucks have to be regularly lubricated to maintain the clamping force

### Included in the scope of delivery:

- 1 set of outward stepped jaws (BB) mounted in the chuck
- 1 set of inward stepped jaws (DB)
- Size 70 with reversible jaws

# WATCHMAKER'S CHUCKS

Watchmaker's chucks are particularly well suited to light and precise working with low clamping forces in oneoff production. The workpieces are clamped by turning the clamping ring without the use of a key.



The chucks are suitable for light work on ring-shaped and disc-shaped parts. The steps of the soft chuck jaws can be remachined as necessary to meet the requirements of the application. This ensures the highest concentricity. Replacement jaws can be supplied premachined.

# POWER-OPERATED CENTERING VICES KZS-P-MT / KZS-H-MT

For use as stationary clamping tools on drilling, milling and special machines. Optimally suited for the rational clamping in automated work sequences. Power transmission via the proven wedge system.



KZS-P-MT  
ID 440279

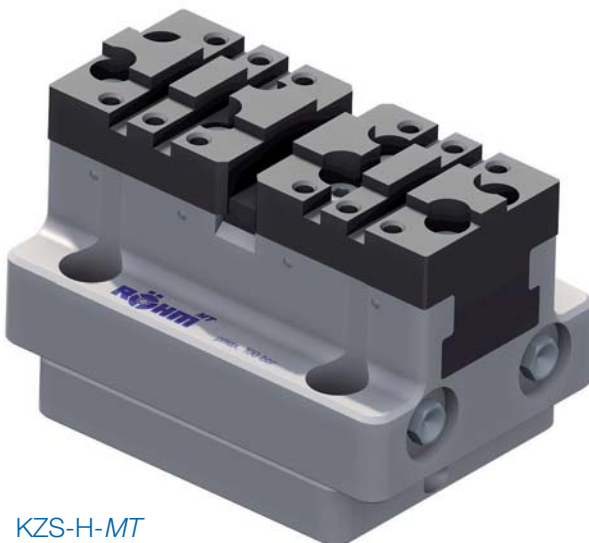
KZS-P-MT – PNEUMATICALLY OPERATED  
KZS-H-MT – HYDRAULICALLY OPERATED

## BENEFITS

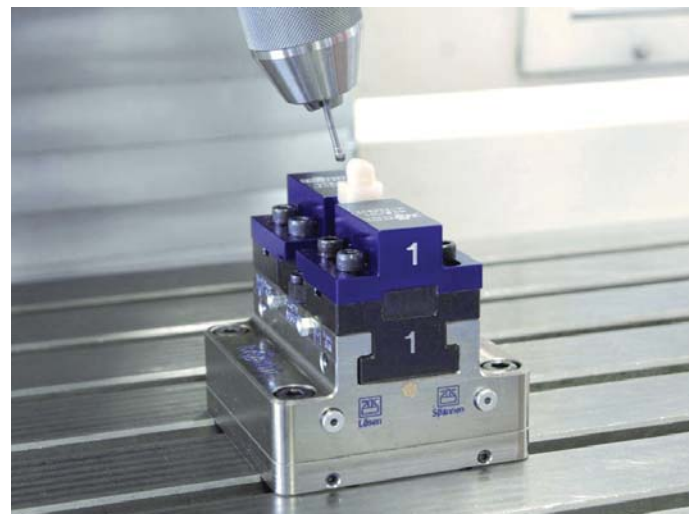
- ⊕ Concentric clamping of round as well as angular parts
- ⊕ High repeating accuracy
- ⊕ High chucking accuracy thanks to constant clamping force at constant pressure
- ⊕ DLC-coated basic jaws for minimal wear

## TECHNICAL FEATURES

- Quick and efficient clamping
- Universal through use of different jaws
- Clamping force adjustable by changing the pressure
- Compact design, large jaw stroke
- Rigid, extra tight jaw guidings
- Smallest centering vice gripper from 64 x 64 mm



KZS-H-MT  
ID 440417



# NC-COMPACT SELF CENTERING VICE

Optimized for 5-axis machining. Clamping system mechanical without power transmitter, manually operated. Centric clamping with two moving clamping jaws.



## BENEFITS

- ⊕ Short, compact design
- ⊕ Large clamping stroke
- ⊕ Constant clamping force at each clamping and high repetition accuracy when using a torque wrench
- ⊕ Clamping accuracy at the centre:  $\pm 0.02$
- ⊕ Repetition accuracy: 0.01

## TECHNICAL FEATURES

- Standard-equipped with stepped top jaws
- Special clamping jaws available on request
- Steel body and all guides are hardened and ground on all sides

# GRINDING AND INSPECTION VICE

Grinding and inspection vices are primarily used in grinding, milling and engraving machines, at jig boring machines, for measurement and inspection work and for manufacturing processes which require the highest standards of clamping precision.



## BENEFITS

- ⊕ Space-saving design
- ⊕ Easy to use and universally applicable
- ⊕ Equipped with different clamping jaws precision vices are perfect for demanding machining tasks

## TECHNICAL FEATURES

- Made of alloyed tool steel, hardened and finely ground



# SMALL-PART GRIPPERS

## 2-jaw parallel grippers



### APPLICATION

Universal gripping of round and angular workpieces with two parallel gripper fingers for handling with robots or portals.

### BENEFITS

- ⊕ High gripping force with low dead weight and compact design
- ⊕ High torque support for using long gripper fingers thanks to elongated jaw guide
- ⊕ Maximum flexibility thanks to versatile connection and fastening options
- ⊕ Long service life and high reliability thanks to specially ground base jaws in proven T-slot guide

## 3-jaw centric grippers



### APPLICATION

Universal gripping of round and cylindrical workpieces with three centrally arranged gripper fingers for handling with robots or portals.

### BENEFITS

- ⊕ High gripping force with low dead weight and compact design
- ⊕ High torque support for using long gripper fingers thanks to elongated jaw guide
- ⊕ Maximum flexibility thanks to versatile connection and fastening options
- ⊕ Long service life and high reliability thanks to specially ground base jaws in proven T-slot guide

## Robot gripper RRMG-MRK



### APPLICATION

Additive manufactured gripper with HRC-function for customer-specific and complex workpiece geometries.

### BENEFITS

- ⊕ Accurate gripping of all conceivable workpiece shapes through form fitting adaption of the gripper fingers by additive manufacturing
- ⊕ Up to 120 N of gripping force, depending on the contour and surface of the workpiece
- ⊕ Maintenance-free for up to 10 million gripping cycles – with up to 100 gripping cycles per minute
- ⊕ Solid, durable design with extremely low net weight (300 g)

# RRMG SYNTHETIC GRIPPER

Whether round profiles, prismatic workpieces or free-form surfaces, the synthetic gripper RRMG from RÖHM is individually adapted and produced to the workpiece. It only needs a 3D-model of the workpiece and RÖHM is developing and producing the individual synthetic gripper RRMG. This customized solution is perfect for gripping and clamping sensitive workpieces with complex geometries.

## 30 % HIGHER GRIPPING FORCE

- ⊕ Secure gripping and clamping of larger workpieces by 30 % higher clamping force
- ⊕ New robust, durable and weight-reduced design

## MAXIMUM PROCESS RELIABILITY

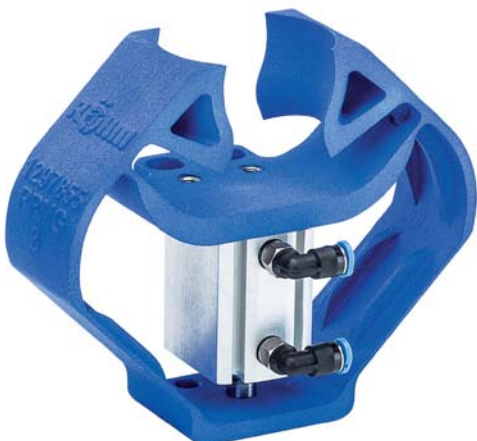
- ⊕ Up to 16 million gripping cycles without maintenance or wear and tear
- ⊕ Optional position monitoring by installable standard sensors

## OPTIMIZED DESIGN

The especially robust and durable design of the new synthetic gripper RRMG allows 30 % higher clamping force and enables secure gripping and clamping of even larger workpieces.

## INDIVIDUAL UNIQUE PIECE

By using the 3D-model of the workpiece, the synthetic gripper RRMG is customized and perfectly adapted to the workpiece. Special jaws with free-form surfaces allow secure gripping and clamping of sensitive workpieces with complex geometries.



# RRMG SYNTHETIC GRIPPER

RÖHM can offer the right solution for practically any workpiece contours

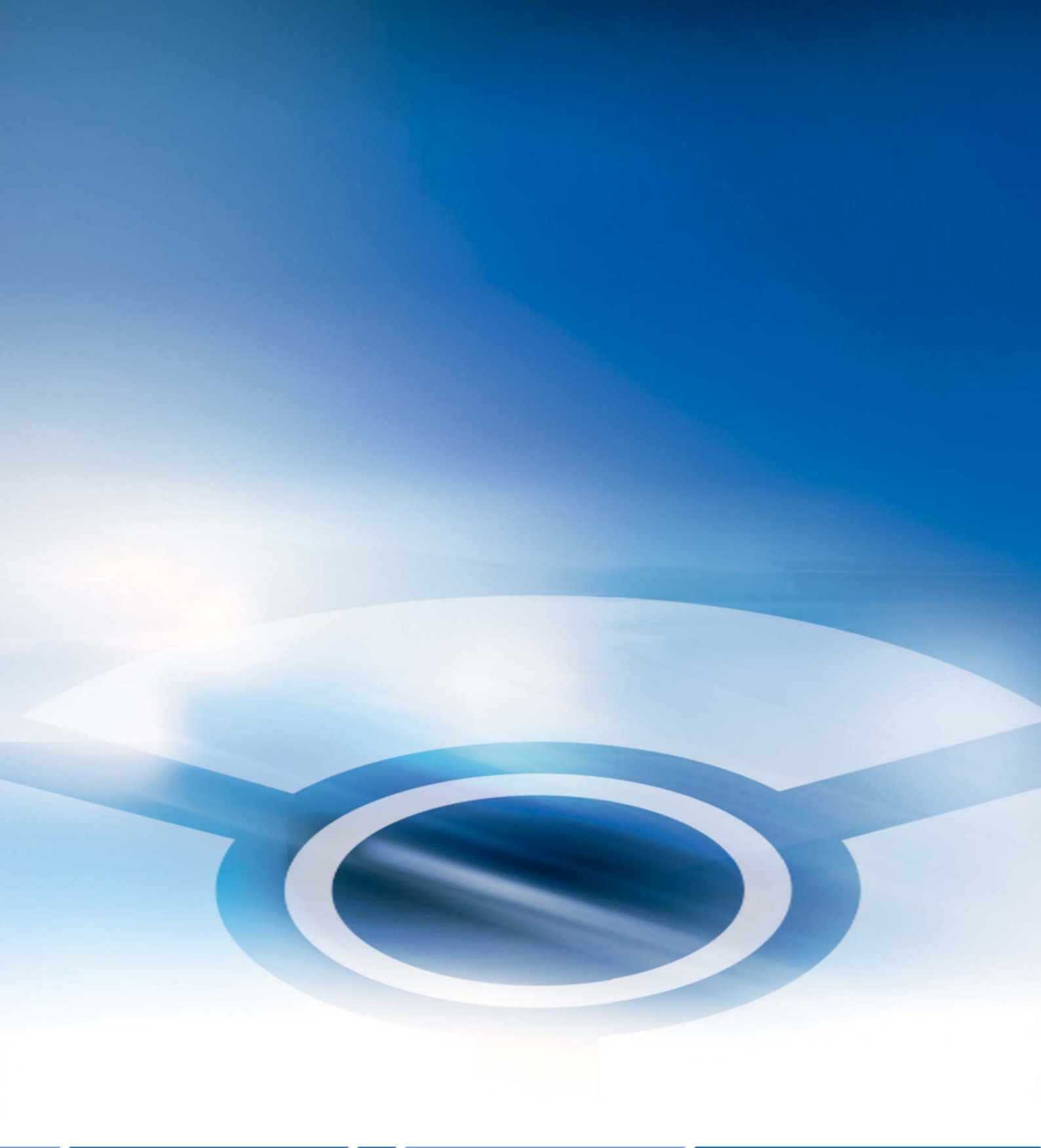


# SYNTHETIC JAWS ON GRIPPERS

Individual jaws are ideal for gripping and transporting delicate workpieces. Thanks to their free-form surfaces, they can adapt perfectly to the workpiece to be gripped. RÖHM guarantees short delivery times thanks to innovative production methods.







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