micro technology

Clamping technology for the smallest workpieces

RÖHM

driven by technology

Clamping technology for the machining of filigree workpieces

→ Microcomponents

→ Watches and Jewellery

→ Medical technology

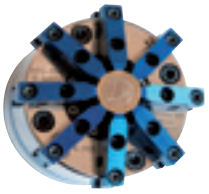
High-tech in a minimum compass is offered by RÖHM's individual clamping solutions. For the processing of delicate microcomponents like watch housings, bezels, cogwheels, pushers and many other clock and watch parts, we supply the tools that are needed.

One example is the new KFG-*MT* 90/8. With its 8 jaws, it is capable of exceedingly sensitive clamping without any risk of deformation – and with a diameter of just 90 mm.

And when it comes to medical technology, RÖHM also has exciting clamping solutions. Dental implants for example, as well as implants for hip and knee joints, are manufactured with RÖHM's clamping chucks, centric clamping units and micro clamping systems.

Take a look at the following examples. We are happy to find the right solution for you. Contact us!

Contents



Power chucks

8-jaw-power chucks KFG-*MT* 90/8 Page 4
3-jaw-power chucks PKF-*MT* 100/3 Page 4
4-jaw-power chucks PKF-*MT* 100/4 Page 5
4-jaw-power chucks PKF-*MT* 100/2/2 Page 5
3-jaw-power chucks PKF-*MT* 100/2/4 Page 5

Mandrels

Cartridge mandrels KFR Page 6
ABSIS and AGILIS segment clamping mandrels Page 7
DUPLEX mandrels Page 7

Power-operated collet chucks

KZZT, KZZT-A, KZZT-AF Page 8
KZF, KZZF Page 9

Power-operated chucks for board processing

KPF-*MT* Page 10-11

Palett systems

Power Grip Page 12-13

Lever scroll chucks

Lever scroll chucks with base plate, watchmaker‘s chucks Page 14

Gripping technology

Small-part grippers Page 15
Synthetic gripper RRMP Page 16 - 17
Synthetic jaws on grippers Page 17

Self-centering and precision vices

Power-operated centering vices KZS-P /KZS-H Page 18
Precision vices / NC compact centering vices Page 19

Tool clamping systemsnnung

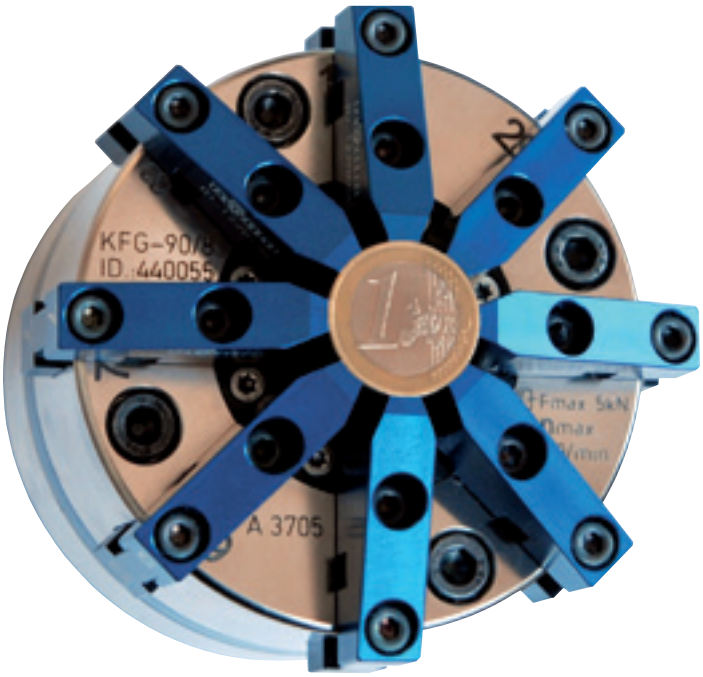
SUPER LOCK clamping system Page 20
Micro clamping systems Page 21

Drill chucks

Micro universal chucks Page 22
Drill chucks for medical technology Page 23

8-jaw power chuck KFG-*MT* 90/8

Centric clamping. For sensitive, deformation-free and centric clamping of workpieces in the watch, jewellery or medical technology. Constant distribution of force across 8 clamping jaws.



High-tech power chuck KFG-MT 90/8 for luxurious jewellery from the hand of a master craftsman. Superbly suited for machining of rings.

Technical features:
- Large clamping range, therefore flexible application options
- High radial and axial run-out accuracy
- High load capacity
- Long service life
- Ideal for clamping deformation-sensitive parts due to centrifugal force compensation
- 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 your workpiece with the optionally available form jaws.

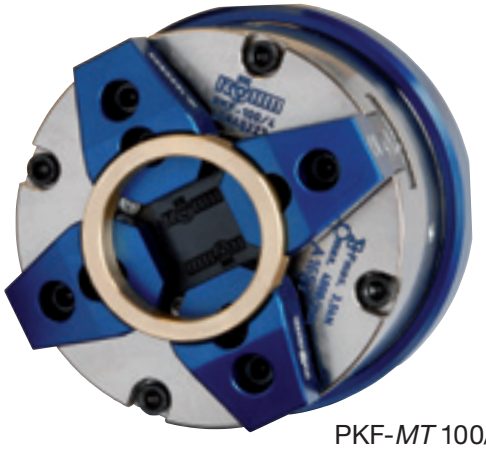
Technical features:
- High radial and axial run-out accuracy
- High load capacity
- Long service life
- The special clamping piston construction with two-sided power transmission guarantees a very high clamping accuracy with an unusually long durability
- Self-locking, this provides high security in the case of pressure failure
- Centric, resp. compensating clamping possible
- Pneumatisch oder kraftbetätigt
- Pneumatic or power actuated
- Chuck quick-change system possible

PKF-*MT* 100/3

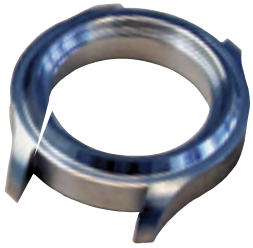
Power chucks PKF-*MT* 100/4, PKF-*MT* 100/2/2 and PKF-*MT* 100/2/4

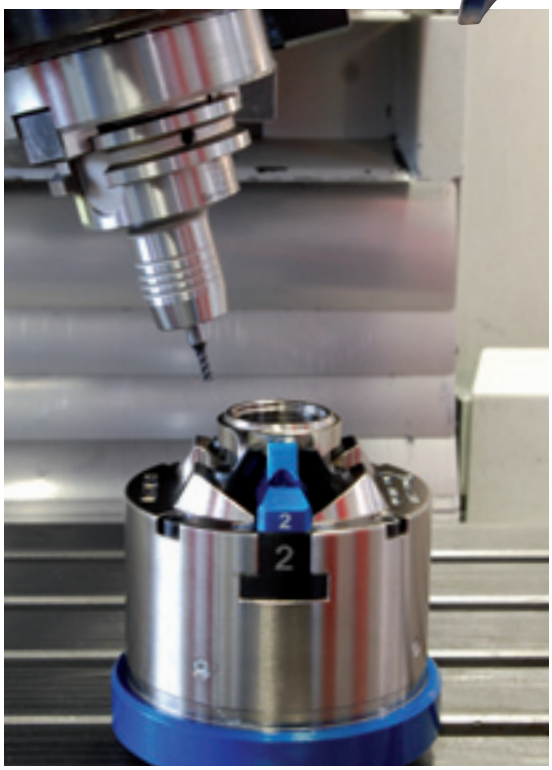
Our PKF-MT 100/2/2 4-jaw chuck is ideal, for example, for clamping watch parts. The jaws clamp centrically in pairs, but compensate one another. The centric clamping PKF-MT 100/4 4-jaw chuck is also suitable for very precise raw parts.
The PKF-MT 100/2/4 was specially developed for the machining of watch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

Technical features:
- High radial and axial run-out accuracy
- High load capacity
- Long service life
- The special clamping piston construction with two-sided power transmission guarantees a very high clamping accuracy with an unusually long idle time
- Self-locking, this provides high security in the case of pressure failure
- Pneumatic or power actuated
- Available with different interfaces
- Chuck quick-change system possible



PKF-*MT* 100/4





PKF-*MT* 100/2/2

PKF-*MT* 100/2/4

Cartridge mandrel KFR

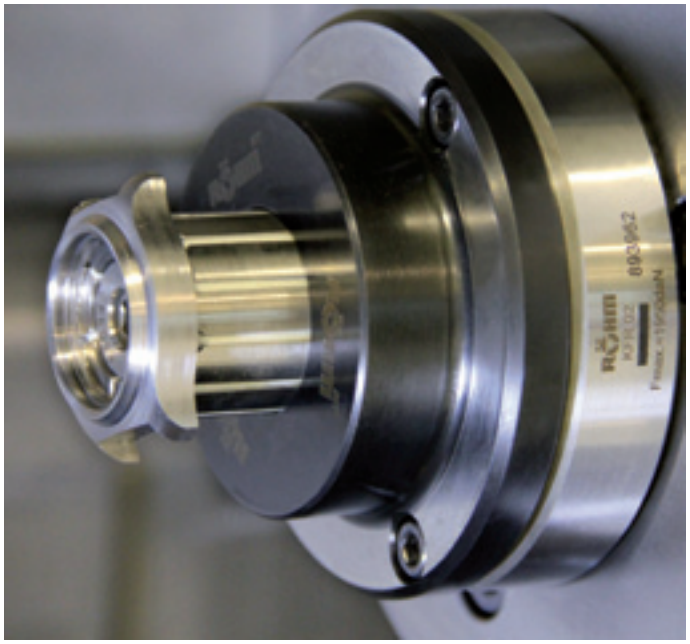
Compact design for precise machining. No workpiece deformation through definable axial tightening. High repeating accuracy. Suitable for automatic charging.

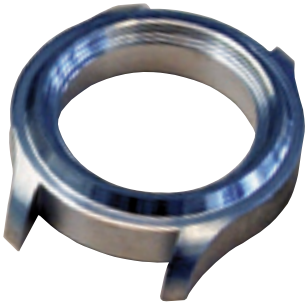
Versatile applications for turning, grinding, cutting, toothcutting, balancing, measuring.

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 work piece.
The draw-in of the work-pieces against the rigid work-stop takes place independently via the operation of the mandrel.
Prepared for air sensing.

Technical features:
- Power operated or hand operated (optional)
- High axial and radial run-out accuracy
- High repeating accuracy
- 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

Customer advantages:
Low weight and low height through compact design, suitable for short span length.





ABSIS and AGILIS segment clamping mandrels

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

Application:
Turning, grinding, milling, tooth cutting, 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 actuation 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 Ø10mm, steady clamping thanks to axial draw-in. The workpiece is automatically drawn in against the rigid work stop by the actuation of the clamping mandrel.
Quick changing of the taper sleeves possible.
Suitable for short clamping lengths.

DUPLEX power-operated clamping mandrel

Application:
Turning, grinding, milling, balancing, measuring

Special features:
Compact, solid design for precise machining, no axial draw-in, hence no workpiece deformation.
Clamping tool for internal and external clamping. No changing of the taper sleeve or actuating element necessary!
Design for actuation via clamping cylinder or direct pneumatic actuation.

Power-operated collet chucks

Ideally suited to bar machining.

Smooth version

Version with lateral grooves

KZZT
- Clamping via pull-down
- With draw-down effect

KZZT-A
- Additionally with workpiece support

KZZT-AF
- Clamping via trust piece
- No axial movement of the clamping jaw
- With workpiece hard stop

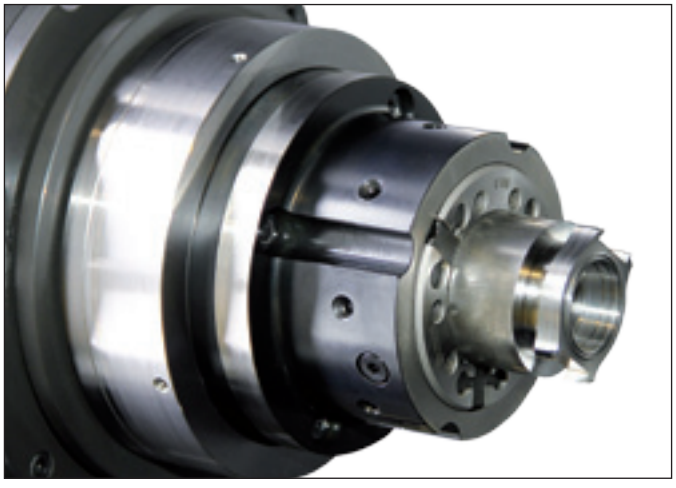
Top Grip clamping jaw
for KZZT / KZZT-A / KZZT-AF

- High-quality rubber-steel segment clamping jaw
- With replaceable vulcanisation, on request
- Highest clamping forces and rigidity
- Clamping tolerance + 0.5 mm.

Applications:

- Turning, milling and grinding
- For bar work and inserts

Top Grip clamping jaws are available ex works with diameters increasing in increments of 0.5 mm. Special clamping jaws with square bore and hexagonal bore on request.



Experience the KZZT-A:
youtube.com/user/RoehmTV

Power-operated collet chucks

Ideally suited to bar machining.

KZF

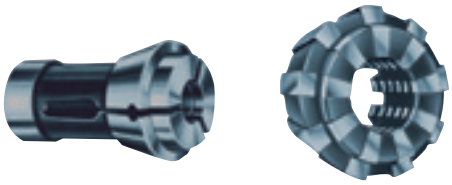
KZF - Fixed collet,
clamping by pressure sleeve

KZZF - With draw-down effect,
clamping by axial draw-in

- Time-saving collect changing thanks to quick-acting bayonet catch
- Cap nut with locking screw
- Either with dead length collets or segment collets
- Adjustable workpiece hard stop can be installed when using segment collets
- All moving parts of high-quality material, hardened and ground
- Profiles can also be chucked when the corresponding collets are fitted.
- Either with dead length collets or segment collets

KZZF

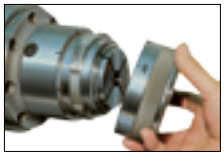
Matching collets:



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 system:
The chuck cover can be placed on the chuck at offset by 90°

Power-operated chucks for board processing

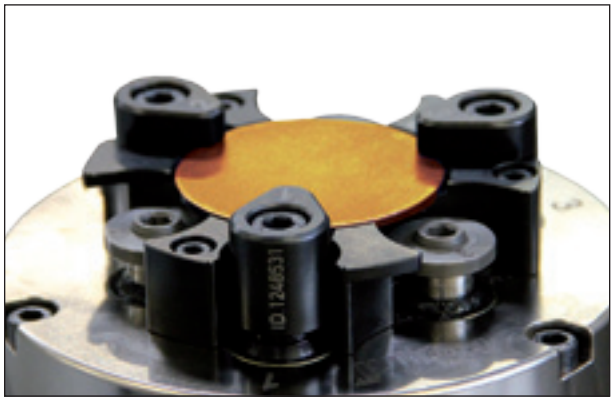
Ideally suited to bar machining.

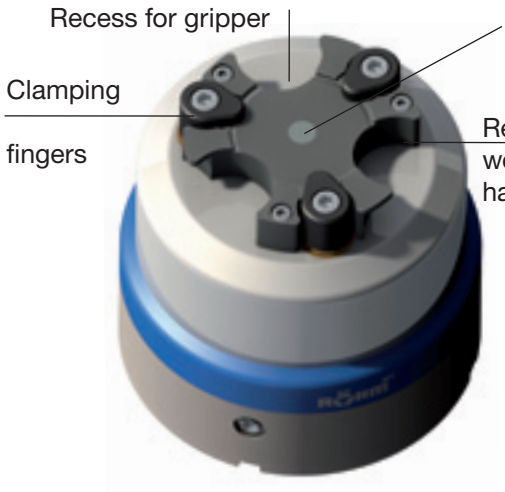
Square or round boards can be perfectly machined using our special chucks.

Equipped with a central ejector, these chucks are ideal for automated workpiece changing.

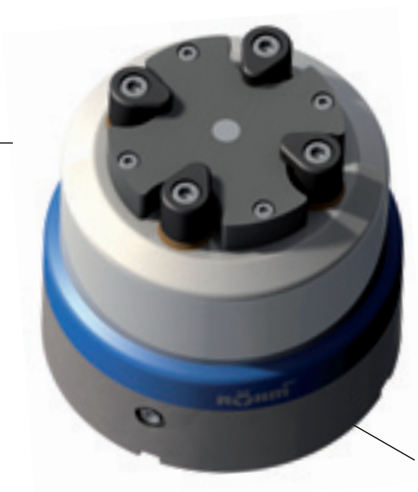
Special features:

- Pneumatically actuated
- Precisely adjustable clamping force
- Clamping force safety with air distributor
- DLC-coated axial clamping fingers
- Simple replacement of the workpiece hard stop





KPF-MT 100/3

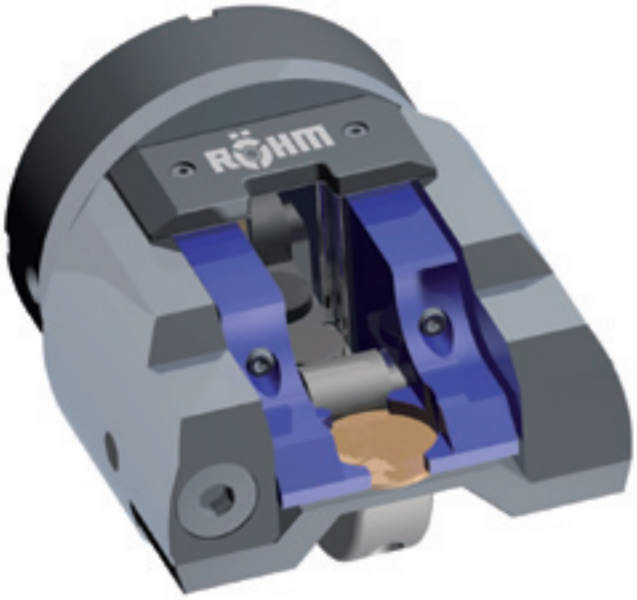


View from below

Power Grip (option) palett system (integrated centering and clamping collet)

KPF-MT 100/4

Power chucks for double-sided machining of boards in one chucking

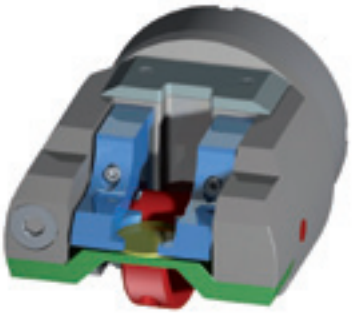


Machining of boards on both sides in just one chucking. Thanks to the fully automatic adjustable workpiece support, the board is reliably supported at all times during machining.

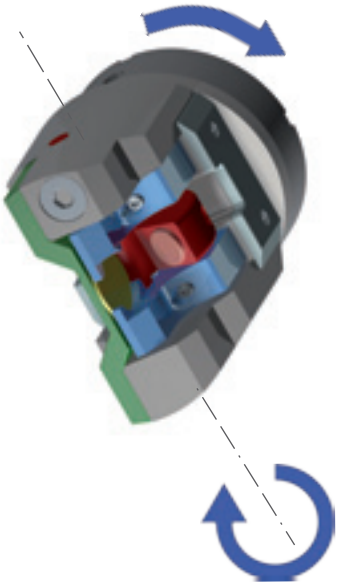
Special features:

- Pneumatically actuated
- A sturdy workpiece support that serves as reference point
- The chuck is swivelled by a dividing attachment or the machine spindle.
- The workpiece support swivelling is actuated by the chuck
- Also suitable for rectangular boards

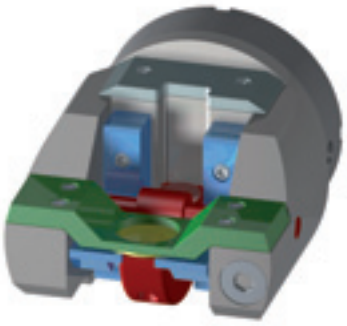
Machining of the first side:
The workpiece (yellow) is lying on the workpiece rest (green) and is clamped by the chuck jaws (blue). The workpiece support (red) provides additional support for the workpiece.



Swivelling:
The chuck is swivelled through 180° by a dividing attachment or the machine spindle. The workpiece support is also swivelled at the same time.

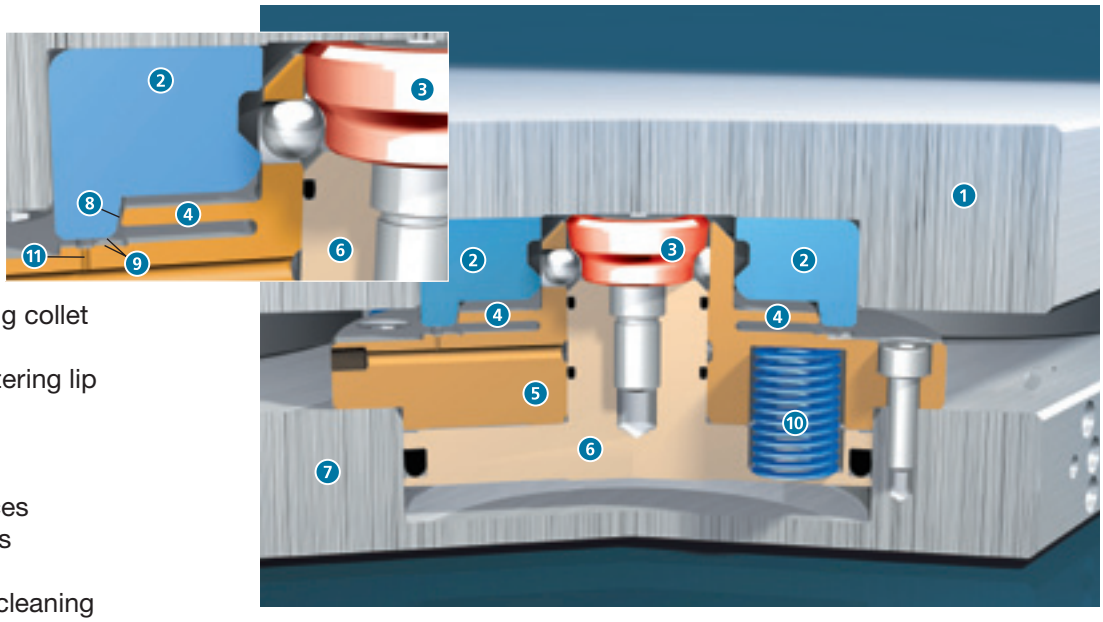


Machining of the second side:
The workpiece support has been swivelled through 180°, the board can now be machined on the second side without rechucking.



Palett system

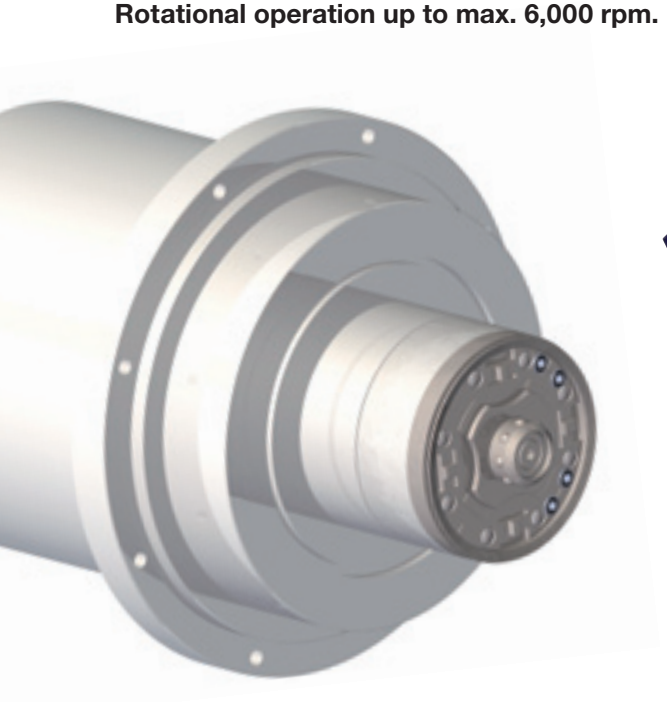
User-friendly, modular palett system



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

The well-designed Power Grip technology is the safety belt for your production. Contact with reference surfaces during pallet changes is ruled out from the very beginning.
The axially resilient centering lips compensate any thermal distortion, the Z supports are cleaned automatically during the chucking process – an added bonus when it comes to safety and precision.

Rotational operation up to max. 6,000 rpm.

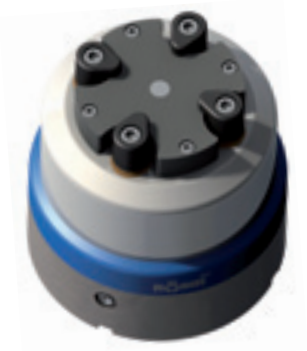


Machine spindle with mount for chucks, clamping mandrels or other clamping tools.

Stationary operation

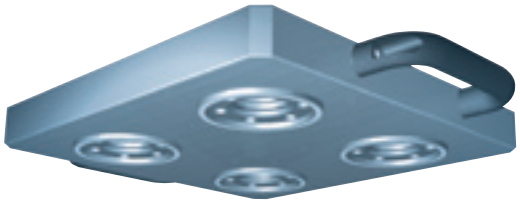
Chucks

Centric grippers

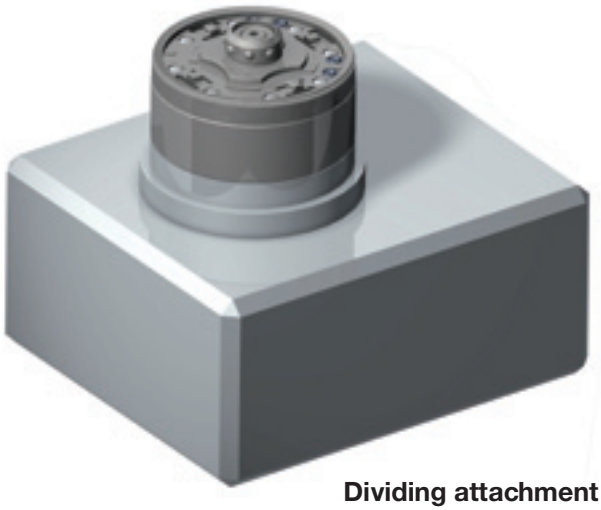


Chucks

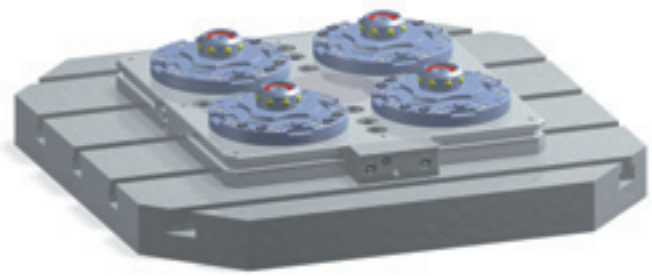
Clamping mandrels



Universal pallets



Dividing attachment



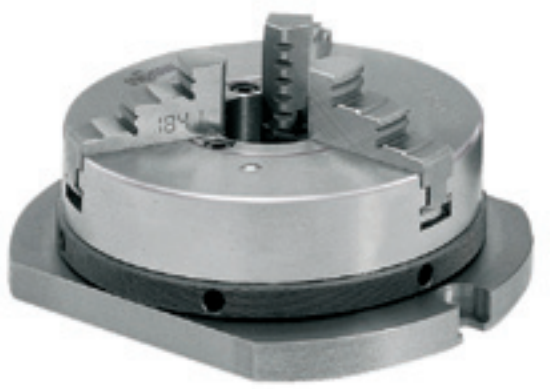
Machine table

Everything on RÖHM micro technology can be found at:
www.roehm.biz/microtechnology/

Lever scroll chucks

Lever scroll chucks 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:

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

Included in the scope of supply:
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

Our watchmaker‘s chucks are particularly well suited to light and precise working with low clamping forces in one-off 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.

Small-part grippers

Perfect for handling and workpiece transport. Secure gripping and transporting.

Parallel grippers

Small-part grippers with sturdy flat guide.

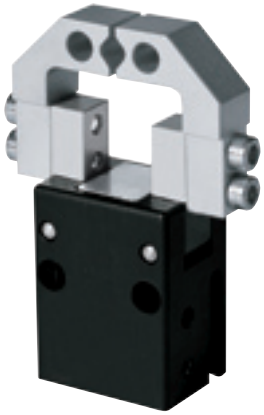
- Flat guide to absorb high forces and torques
- Jaws of ground and hardened steel
- Sturdy housing of hard-coated aluminium alloy
- Compact design and minimum interference contour thanks to integrated position sensing
- Maintenance-free up to 10 million cycles
- Available on request: Heat-resistant version (up to approx. 150°C)

Centric grippers

Small-part grippers with precise T-groove

- Durability and precision thanks to jaws of ground and hardened steel
- Centric gripping thanks to synchronised synchronized positive drive
- Direct position sensing of the piston movement by magnetic field sensor
- GA design with integrated mechanical gripping force safety device
- Maintenance-free up to 10 million cycles

Angular grippers



Compact angular grippers for small parts

- High gripping force thanks to optimum direction change of driving force into gripping force
- Direct position sensing of the piston position by magnetic field sensor
- GA design also with integrated mechanical gripping force safety device
- Precise positioning of individual gripping jaws
- Maintenance-free up to 10 million cycles
- Available on request: High-temperature and corrosion-resistant model

Everything on RÖHM micro technology can be found at:
www.roehm.biz/microtechnology/

Synthetic gripper RRMP

No matter whether round stock, prismatic workpieces, free-form surfaces or internal clamping: The RÖHM synthetic gripper RRMP is individually adapted to your workpiece and manufactured just for you within a minimum of time – thanks to innovative production methods.

To produce the gripper so it has a perfect fit, all we need is a 3D model of the workpiece and deliver quickly your individual gripper. In addition, the RRMP is totally maintenance free!

The ideal solution for light workpieces:
- Jaws can be designed with free-form surfaces
- Individually adapted to your workpiece
- Extremely light in weight
- Tested fatigue strength: More than 15 million gripping cycles

The RRMP synthetic gripper in day-to-day operation at RÖHM:

„In our plant, the RRMP moves roughly 16,000 drill chucks daily.
Where in the past maintenance was needed after two million strokes, the synthetic gripper continues to run without any problems. In the meantime,
it has performed more than 15 million gripping cycles without maintenance and with no signs of wear.“
(Joachim Hander,
Head of Production – Drill Chuck Assembly)

Practical demonstration of the RRMP:
youtube.com/user/RoehmTV

Synthetic gripper RRMP

A small selection of the possible variants can be seen below. We can offer the right solution for practically any workpiece contours.

Synthetic jaws on grippers

Our 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. We can guarantee short delivery times thanks to our innovative production methods.

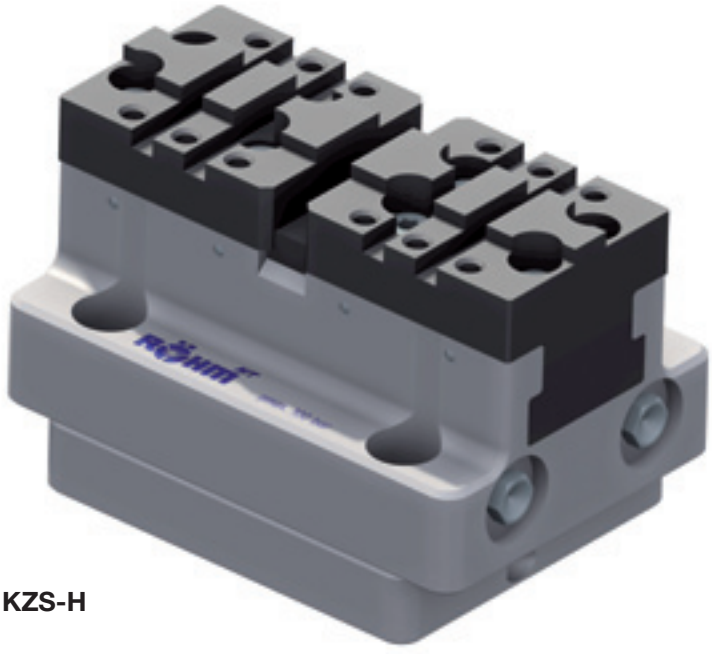
Power-operated centering vices KZS-P / KZS-H

For use as stationary clamping tools on drilling, milling and special machines. Pneumatically (KZS-P) or hydraulically (KZS-H) actuated, power transmission via the proven wedge system.

KZS-P

KZS-P – pneumatically actuated
KZS-H – hydraulically actuated

Technical features:
- Quick and efficient chucking
- Concentric gripping of round as well as angular parts
- Universal through use of different jaws
- Ideal for series production
- Suitable for use in automated work cycles
- Gripping force adjustable by changing the pressure
- High chucking accuracy thanks to constant gripping force at constant pressure
- Compact design, large jaw stroke
- High repeating accuracy
- For internal and extarnal clamping
- Rigid, extra tight jaw guidings
- Smallest centric gripper from 64 x 64 mm!



KZS-H

Precision vices / NC-compact cencentering vice

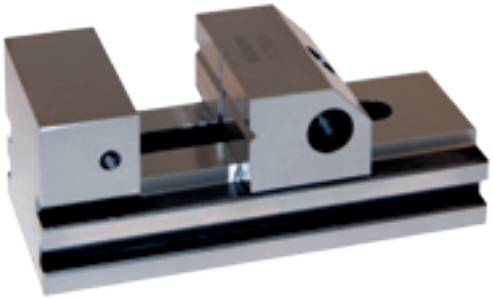
Valuable firmly and without deformation under control. RÖHM precision vices convince in the variety of products, in performance and are highly reliable in their function.

- Predominant use of engraving, grinding and milling machines
- For measurement and control work and manufacturing processes which requires the highest clamping accuracy

Precision vices

The benefits of this clamping solutions are the space-saving design and the application and processing flexibility.

Equipped with different clamping jaws precision vices are perfect for demanding machining tasks.



Customer advantages:

- Equipped as standard with stepped top jaws
- Special clamping jaws available on request

NC-compact centering vice

Particularly suitable for 5-sided machining

Mechanical clamping system without power transmitter, manually actuated.
Centric clamping with two moving clamping jaws

Technical features:

- Short, compact design
- Large clamping stroke
- The steel body and all guides are hardened and ground on all sides
- Constant clamping force at each clamping and high repetition accuracy when using a torque wrench
- Clamping accuracy at the centre: ± 0.02 - Repetition accuracy: 0.01

Tool clamping systems

SUPER LOCK Clamping unit

For measurement and control work and manufacturing processes which requires the highest clamping accuracy.

RÖHM presents a new and innovative clamping technique with a springless locking unit for hollow shank taper in machine tools: Self-locking without spring package. This trend-setting principle not only improves the working procedure, but also distinctly facilitates space saving designs.

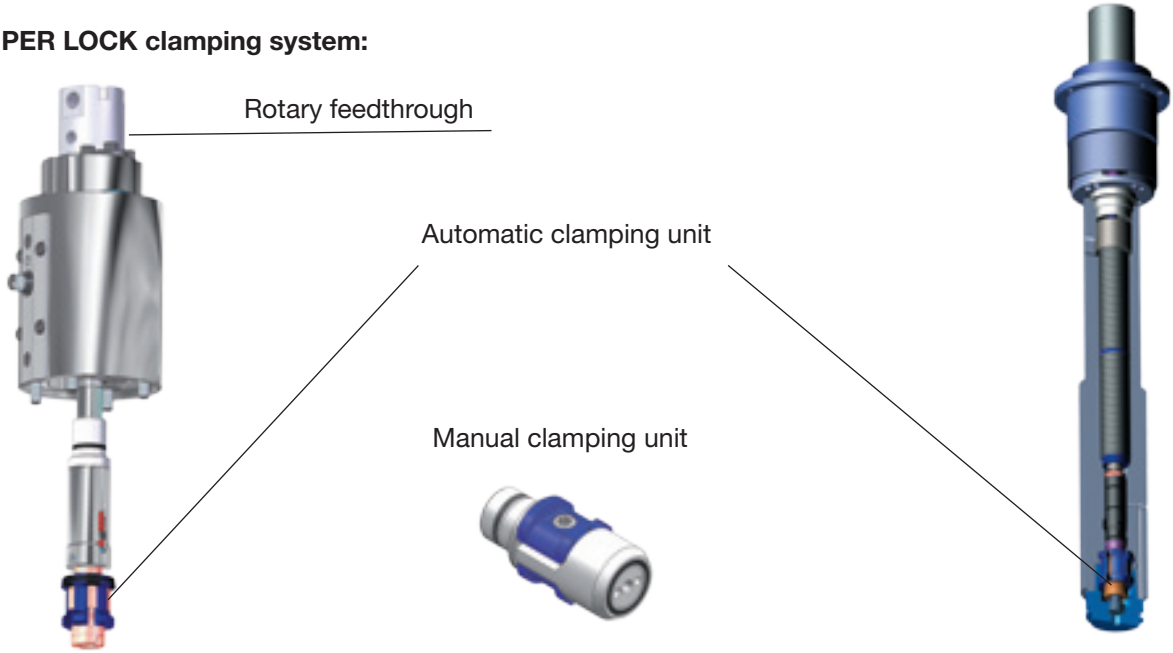
Technical features:

- Clamping without springs and additional retention force
- Highest balancing quality
- Front mounting in short spindles
- Applicable to all HSK sizes, from HSK 25
- Secure clamping even with large HSK tolerances
- Continuous, secure and self-locking
- Optimised for use with high speeds
- Ideal for HSC machining
- Highly suitable for heavy-duty metal cutting
- High stiffness combined with the RÖHM HSK clamping unit

Overview of tool clamping systems:

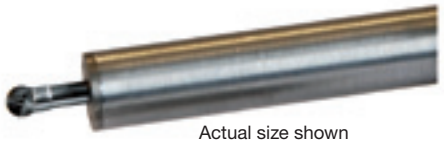
Clamping system with springs

SUPER LOCK clamping system:

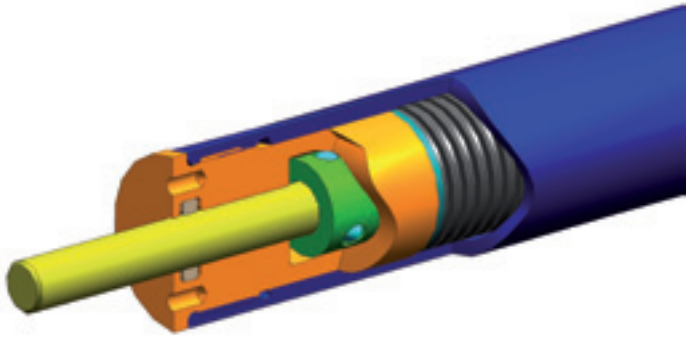


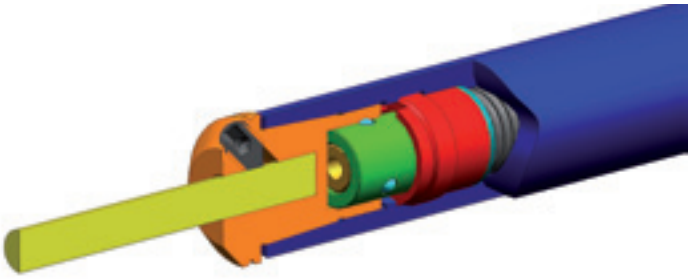
Micro clamping systems

HSK 25 still too large? Our micro clamping systems offer perfect clamping on even less installation space. For example, our micro clamping systems enable the production of implants for prosthetic dentistry.

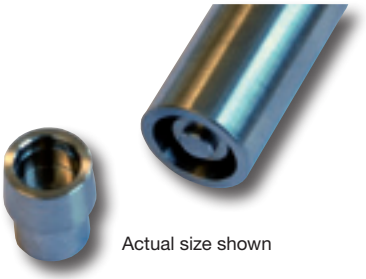


Actual size shown





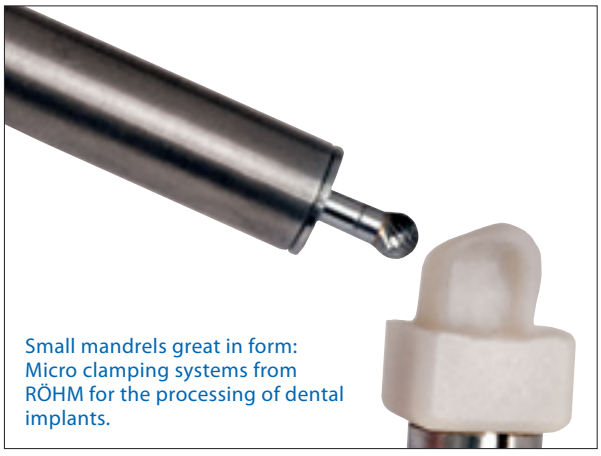
Clamping set version 1:
Direct tool clamping
- no additional tool adapter necessary



Actual size shown

Clamping set version 2:
Tool clamping via a taper mount
- the most varied tool shapes can be clamped via an interface

Technical features of both clamping set versions:
- Depending on the version of the clamping set, the tool can be clamped either directly or via a taper mount.
- Short design for limited installation space
- Smallest external mandrel diameter 10 mm
- Shortest mandrel length 40 mm
- Smallest tool diameter 3 mm
- Simple assembly of the clamping set from the front
- Complete clamping unit can be exchanged with a few manual steps



Small mandrels great in form: Micro clamping systems from RÖHM for the processing of dental implants.

Releasing unit: The clamping set version can be combined with an optional releasing unit.

Micro universal chucks

In order to meet the demands of ever smaller workpieces, we have extended our precision drill chuck range to include a new family – the micro drill chuck. These drill chucks have been developed specifically for the micro-machining market.

The chucks cover a wide clamping range from 0.2 to 3.4 mm, enabling small shank diameters to be precisely and reliably clamped. Machining operations for medical technology, the watchmaking industry, precision mechanics and electrical engineering can be reliably carried out at speeds of up to 60,000 rpm and with a run-out < 0.01 mm. The micro drill chucks offer the possibility of reliably clamping shanks from Ø 0.2 mm or even micro tools with internal cooling with an almost identical interference contour as on shrink chucks.

Advantages of the micro drill chucks

- Large clamping range from Ø 0.2 to 3.4 mm
- Small interference contour
- Secure and fast chucking
- Simple handling
- Available with the shank forms HSK-A, HSK-E, SK and with cylindrical shank
- For spindle speeds up to 60,000 rpm
- High concentricity
- All standard shanks
- Modular system
- Cylindrical extensions

Drill chucks for medical technology

Manually actuated drill chucks for medical applications.

Technical features:

- Manufactured from stainless steel
- Ideal for medical technology applications
- Can be fully dismantled for simple cleaning
- Available in various versions

driven by technology

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