



THE RVM
FROM RÖHM.



**THE POWERHOUSE
AMONG THE
FIVE-AXIS CLAMPS**

THE RVM. FROM RÖHM.

The RVM is a manually and mechanically actuated component clamp without force transmission for clamping workpieces made of all common materials. It is characterized by its secure hold, flexible application possibilities and good accessibility. These features enable the exact transfer of machine accuracy to the workpiece.

The RVM is ideal for five-axis machining. It is designed as an eccentric clamp (single clamp) with one fixed jaw and one movable jaw. The RVM can be mounted on the machine table either directly or via a zero-point clamping system.



WHERE?

As a manual workpiece clamp for 5-axis machining

FOR WHAT?

- For all common materials
- For workpieces of various sizes and geometry
- For series and single-part machining

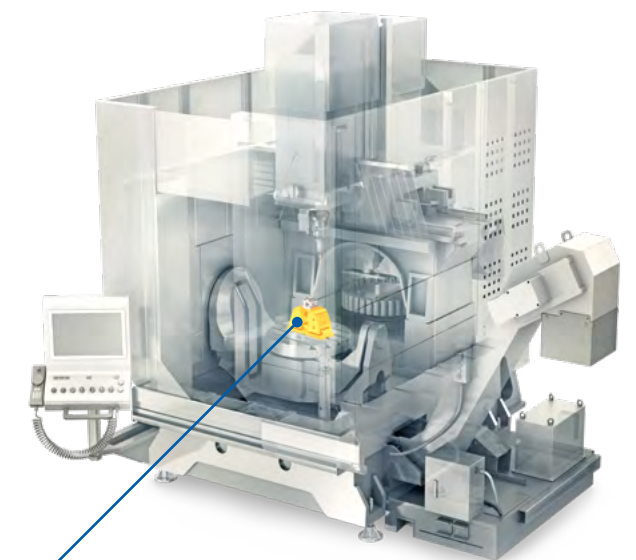
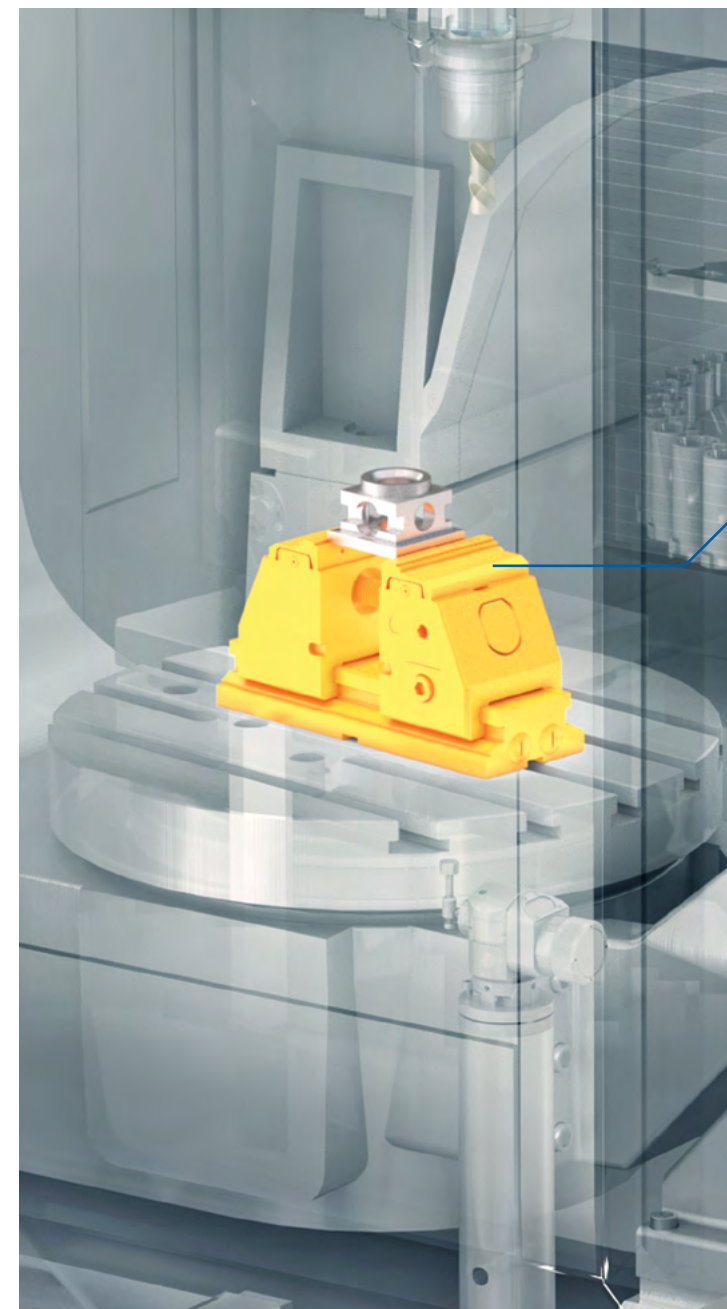
WHY?

- High accuracy transfer from the machine to the workpiece
- Good accessibility (low interference contour)
- Easy handling
- Easy to clean

HOW MUCH?

- Large clamping range
- High clamping force (up to 40 kN per jaw or up to 80 kN in total)
- Low overall height

MANUAL CLAMP WITH MULTITASKING CAPABILITY.

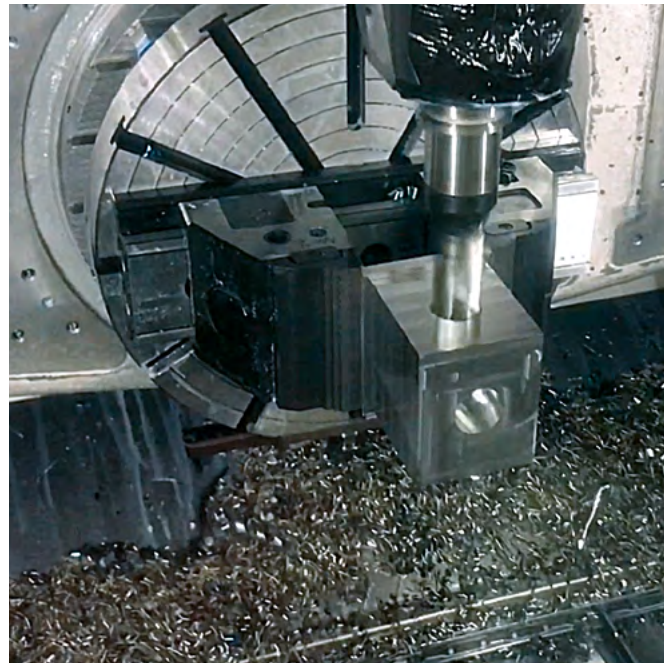


The RVM from RÖHM in a milling machine

ADVANTAGES

IF YOU DON'T WANT TO LEAVE EVERYTHING TO THE MACHINE, THEN: RVM.

If you want to machine workpieces with complicated geometry with high precision, it is best to do so on a five-axis machine. This saves changeover operations, which are at the expense of work efficiency and accuracy. However, this also requires a clamp that can keep up with the five-axis capability – one that is designed in such a way that the workpiece can be approached from all sides in a single clamping operation. The fact that such a clamp can be operated by hand is part of the job. There are cases where you simply cannot leave everything to automation. This is exactly what the RVM was developed for.



The RVM is characterized by full accessibility from five sides



ALSO FIRST CHOICE AS A SINGLE MASTER.

Often, it is not a question of series production, but of single-part production. This is where the RVM comes into its own. It clamps workpieces of different sizes and shapes one after the other. Its freely positionable clamping center turns the usual long changeover time into a short one. Its quick-change jaw system and the large adjustment range of the spindle allow adaptation in seconds. Ultimately, this also makes the RVM the ideal clamp for prototyping and toolmaking.



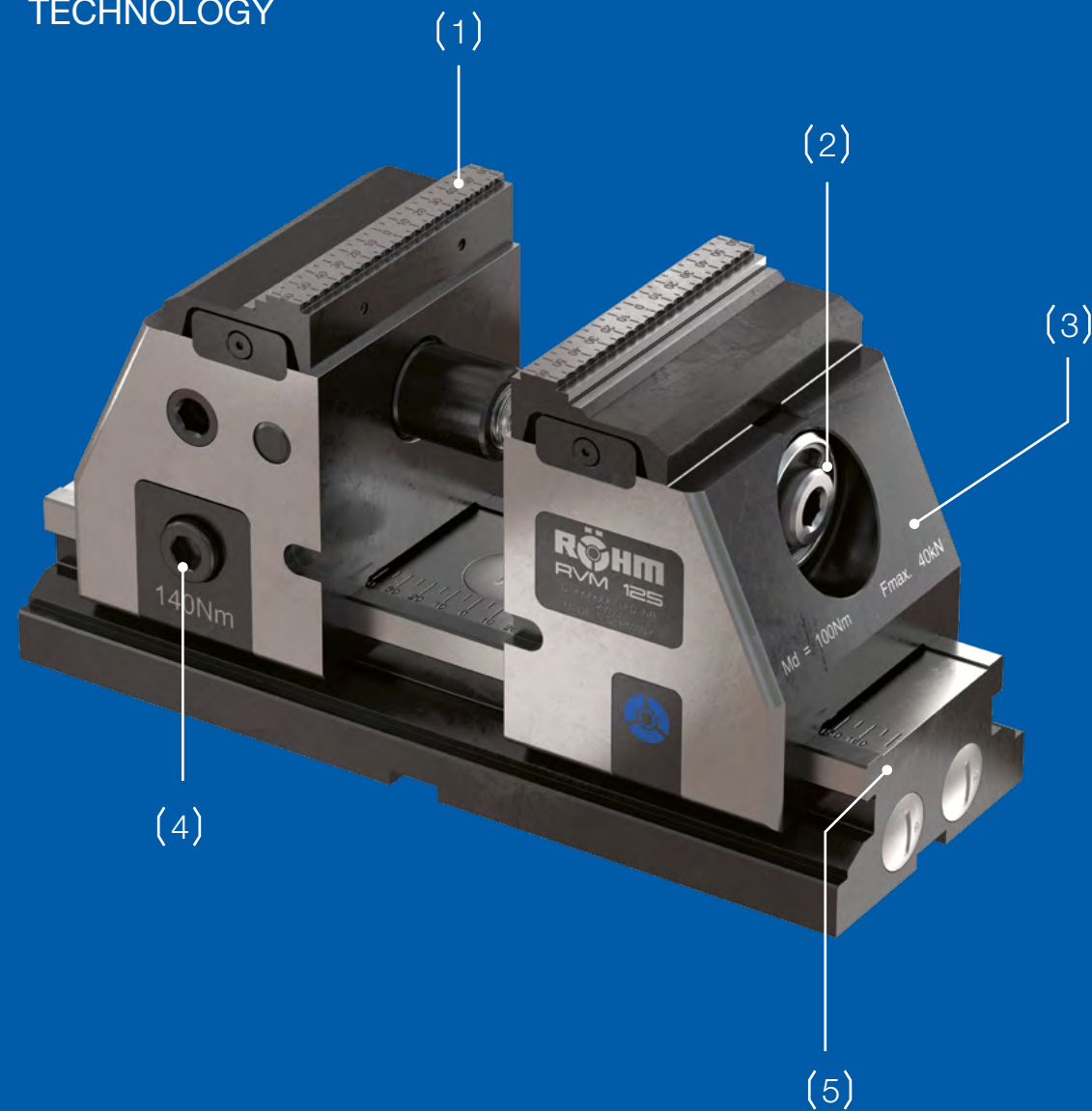
Clamps workpieces of various sizes and geometries effortlessly: the RVM

Advantages of RVM at a glance

- True five-axis capability
- Freely positionable clamping center
- Quick-change clamping jaw system
- Connection to zero-point clamping system

GOOD TO KNOW

TECHNOLOGY



- (1) Top jaws with jaw quick-change geometry
- (2) Bearing mounted spindle for clamping force generation
- (3) Solid yet slim base jaws for minimal interference contour
- (4) Central clamping screw for locking and unlocking of the fixed base jaw
- (5) Base body with dimensional scale for adjustment and pre-positioning of the fixed base jaw

THIS IS WHAT A GOOD FIVE-AXIS DESIGN LOOKS LIKE.

Solid, yet slim and, if possible, not too high in order to provide sufficient clearance – this is how a vise with true five-axis capability must be designed. On the one hand, a solid design is required in the interest of high stability and thus working accuracy. On the other hand, five-axis design means high accessibility, i.e. a low interference contour. It is not enough to be able to access the workpiece from all sides in

one clamping operation. Proximity is what counts. If possible, it should be possible to use short clamping tools. This prevents vibrations that could impair the precision of the machining.

The RVM brings the two aspects of stability and accessibility into particularly good harmony.

EASY CLAMPING.

The threaded sleeve of the RVM, which is connected to the precision spindle on bearings, can be easily adjusted manually. A torque wrench is only required for the final tightening.

FAST CHANGE.

The flat top clamping jaws also help to reduce the interference contour. Equipped with a positive-locking quick-change mechanism, their replacement is a matter of seconds. Simply apply the screwdriver, lever out the top jaws. Click in the new jaws and you're done.

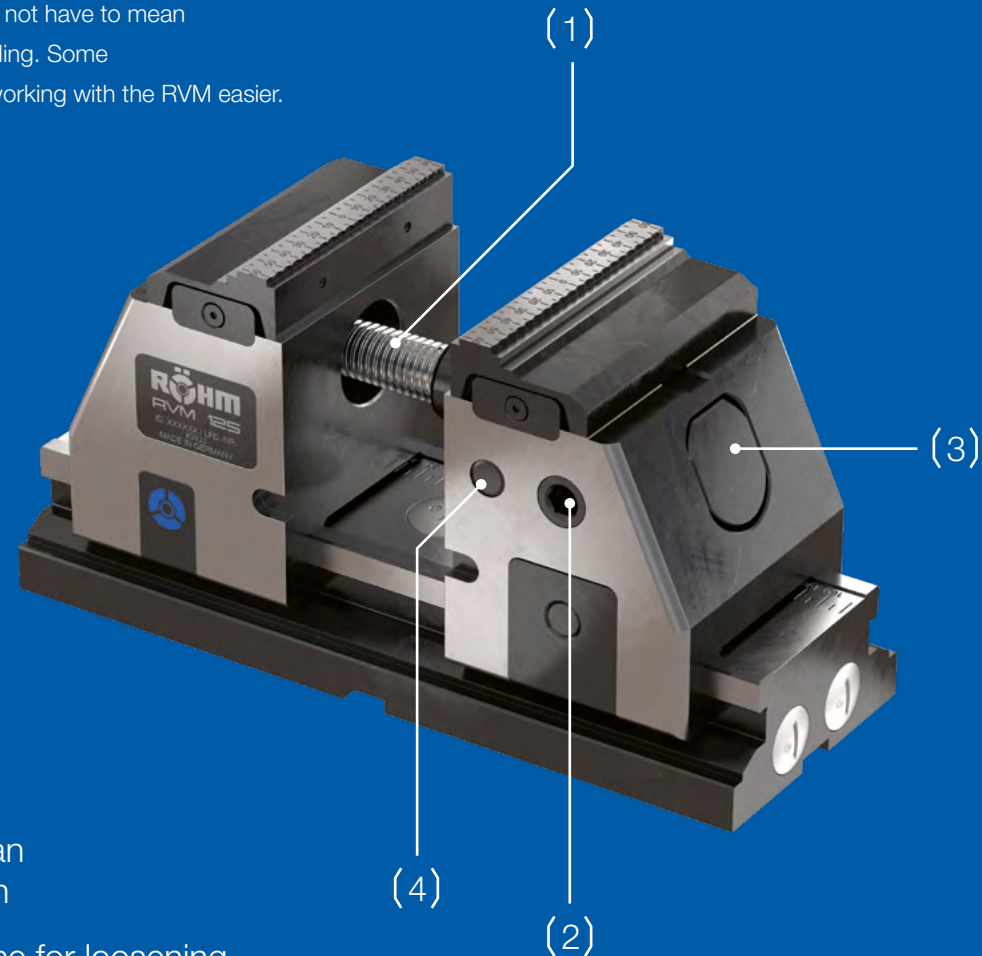
HARDLY ANY RETOOLING.

With the RVM, changing to an entirely different workpiece is only a matter of adjusting the clamping centre for which the RVM does not first have to be removed from the machine table. Simply loosen the central clamping screw of the fixed base jaw provided for this purpose and move it to the new position with the aid of the measuring scale on the base body. Tighten the clamping screw again, and you're done. In this way, the pre-positioning can also be recorded in the setup plan and exactly reproduced if the workpiece is to be set-up again.

TECHNOLOGY

EASY HANDLING.

Solid construction does not have to mean with cumbersome handling. Some special features make working with the RVM easier.



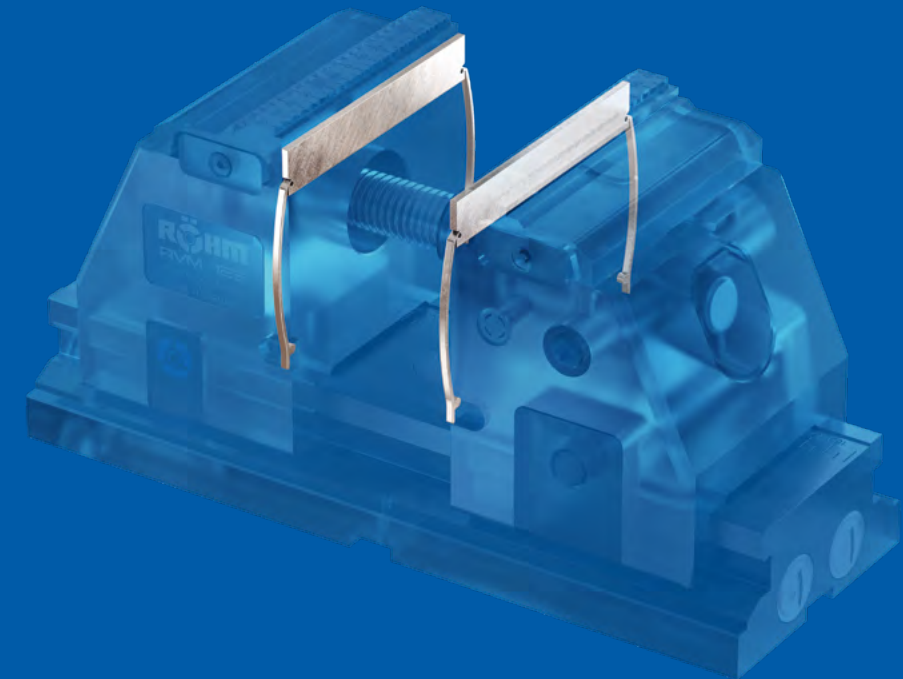
- (1) Easy to clean open design
- (2) Quick release for loosening the spindle sleeve
- (3) Threaded sleeve – forms the power clamping unit together with the spindle
- (4) Threaded hole for screwable workpiece stop

OPEN FOR CLEANLINESS.

The thread of the spindle is deliberately not encapsulated. Other suppliers swear by this to prevent contamination. Wishful thinking! At some point, chips and cooling lubricant find their way inside, and then the encapsulation has to be dismantled at great expense. RÖHM wants to spare the customers this. Chips can be easily flushed out of the open spindle of the RVM, ideally by the cooling lubricant. If thorough cleaning is required, the spindle can be removed, cleaned and reinserted in just a few steps.

PRECISE WORKPIECE SUPPORT.

With heavy or voluminous workpieces, it is important to be able to support them easily and safely in the RVM during clamping and unclamping. The CLIPARC workpiece support strips, equipped with quick-clamping arms, allow you to do just that. Available as a set consisting of strips and arms in different heights.



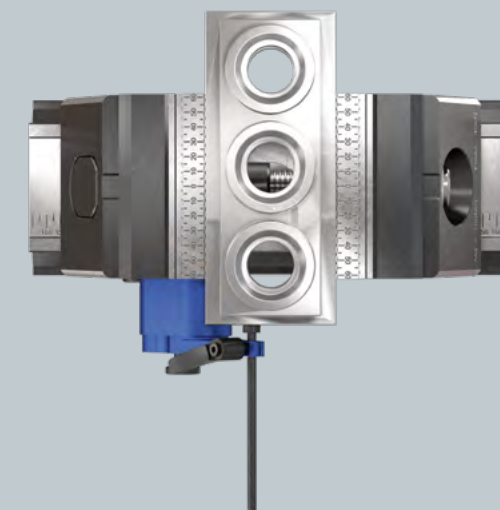
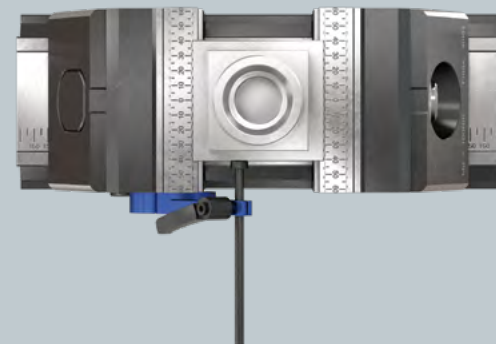
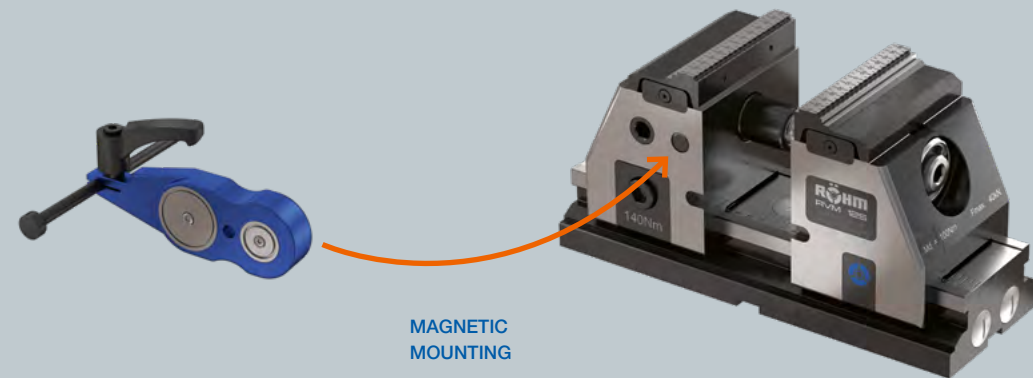
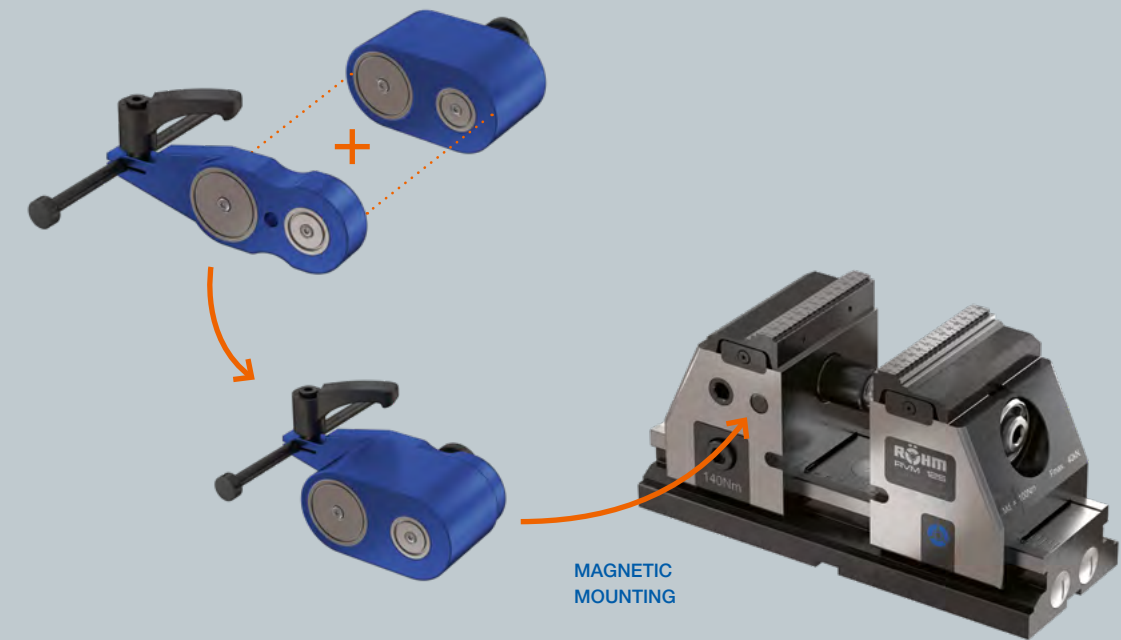
The clamping screw and the quick-clamping screw for locking and unlocking the fixed base jaw can be operated with the same Allen key.

GOOD TO KNOW

TECHNOLOGY

UP TO THE STOP.

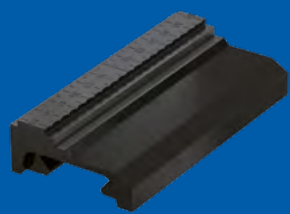
If the RVM is used in series production of identical components, the workpieces must be inserted in the same position. Traditionally, a workpiece stop is screwed on for this purpose. In five-axis machining, this results in an additional interference contour, and machining the area around the stop is often not possible. A magnetic workpiece stop helps to avoid these difficulties. It can be mounted repeatedly for loading and easily removed after the loading process.



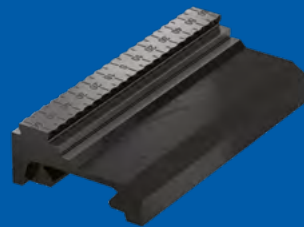
TECHNOLOGY

CLAMPING JAWS WITH A BITE. AND ONES THAT ARE GENTLE.

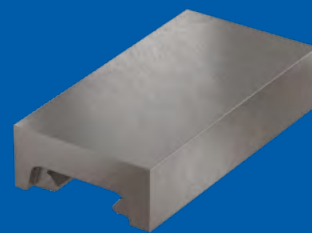
RÖHM offers stepped jaws in two designs with which a majority of the workpieces can be clamped. Block jaws are also available, which can be modified by the customer with workpiece-specific contours.



Stepped jaws, 3 mm step height



Stepped jaws, 5 mm step height



Block jaws

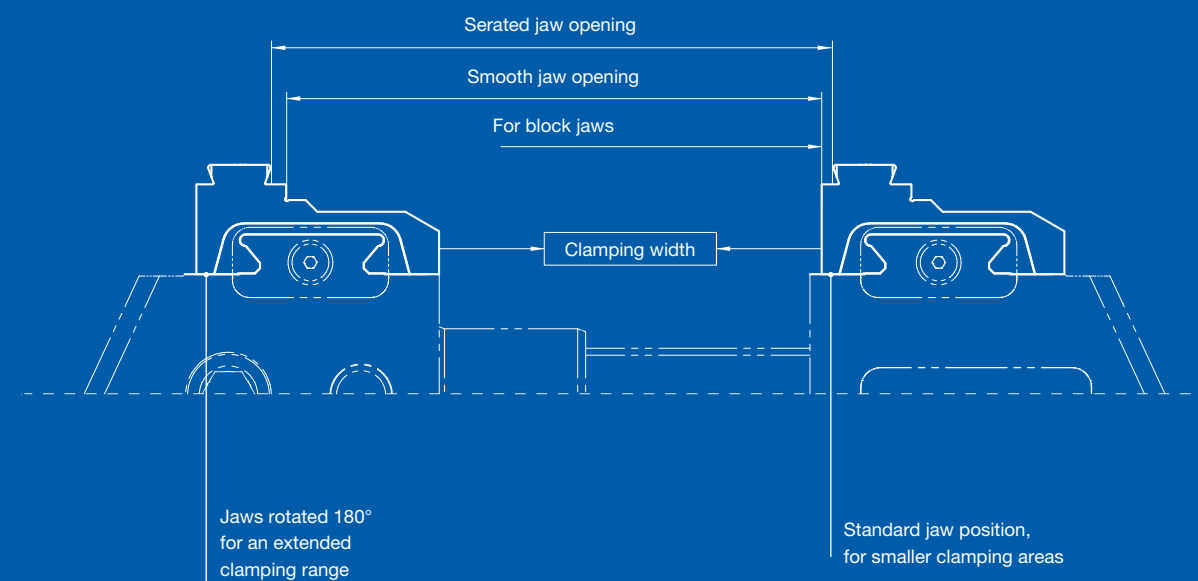
ALREADY FINISHED: STEPPED JAWS

The hardened stepped jaws are alternatively available with clamping steps of 3 mm and 5 mm height. The step contour is serrated, so it imprints itself into the workpiece surface for a better grip. Which stepped jaws should be selected for an absolutely firm hold depends on the workpiece geometry and the material to be machined. It is a case-by-case decision. RÖHM therefore advises to have both pairs of jaws available.

The stepped jaws can be reversed, allowing the clamping range to be further increased. The stepped jaws also have smooth surfaces to enable clamping of pre-machined workpieces.

TO FINISH: BLOCK JAWS

The block jaws are not hardened. They can therefore be individually machined and adapted to the required clamping situation. Of course, these jaws already have the geometry for a quick jaw change. The machined jaws can also be hardened afterwards, if necessary.



Top clamping jaws are optional accessories. Please decide which type or which types you need and order the jaws with your RVM.

GOOD TO KNOW

Further information on the RVM can be found on our website:
roehm.biz/rvm



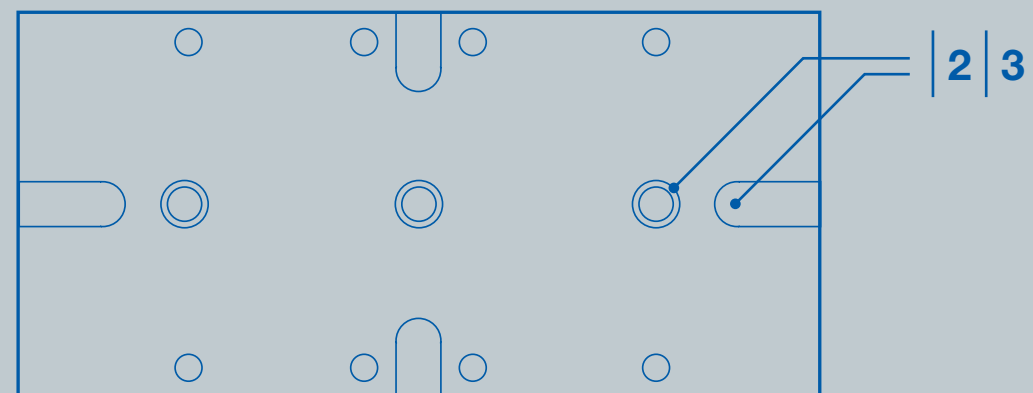
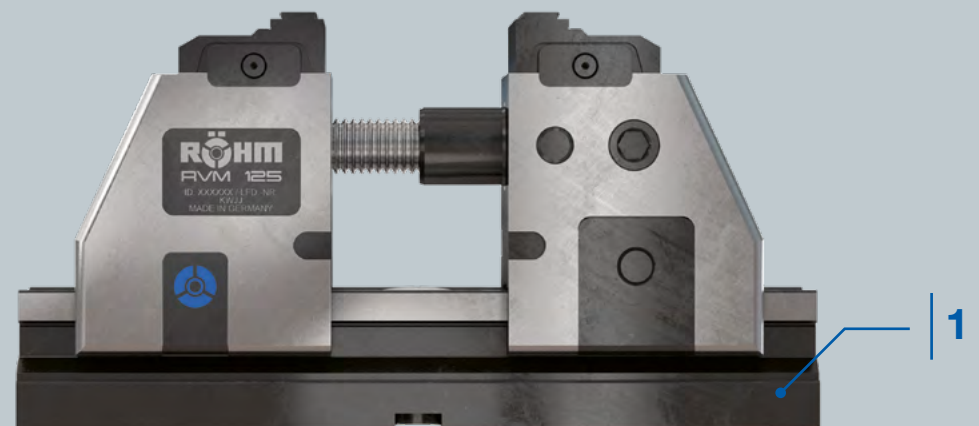
ASSEMBLY

MOUNTING TO THE MACHINE TABLE.

In most cases, the RVM is attached directly to the machine table. There are two possibilities for this. The first is fastening by means of clamping claws and fixed T-slot nuts. Depending on the design of the table, they are offered for six different T-slot sizes. Using the T-slot nuts screwed onto the RVM, it can be aligned with the T-slot of the table and fastened with the clamping claws.

The second option is by means of screws and fixed T-slot nuts. Three extra screw holes are provided for fastening and are located in the base body. The alignment is again done with the T-slot nuts.

In the third alternative, fastening is not carried out directly but via a zero-point clamping system. The clamping pins of this system are fastened in the base body – again at the screw holes mentioned above (see also pages 17 and 18).



1.

Direct fastening
by means of clamping
claws and T-slot nuts



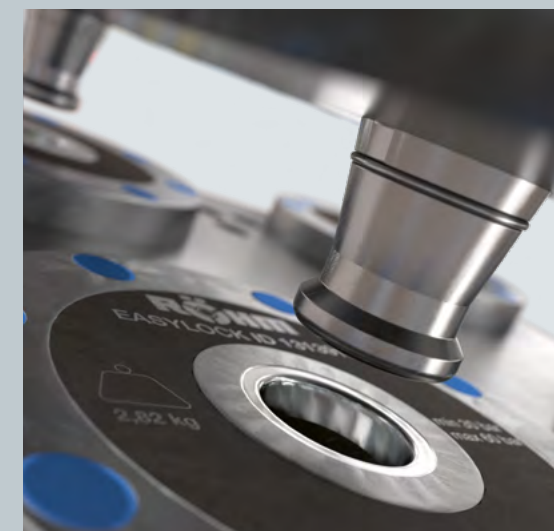
2.

Direct fastening
by means of screws
and T-slot nuts



3.

Fastening via a
zero-point clamping system

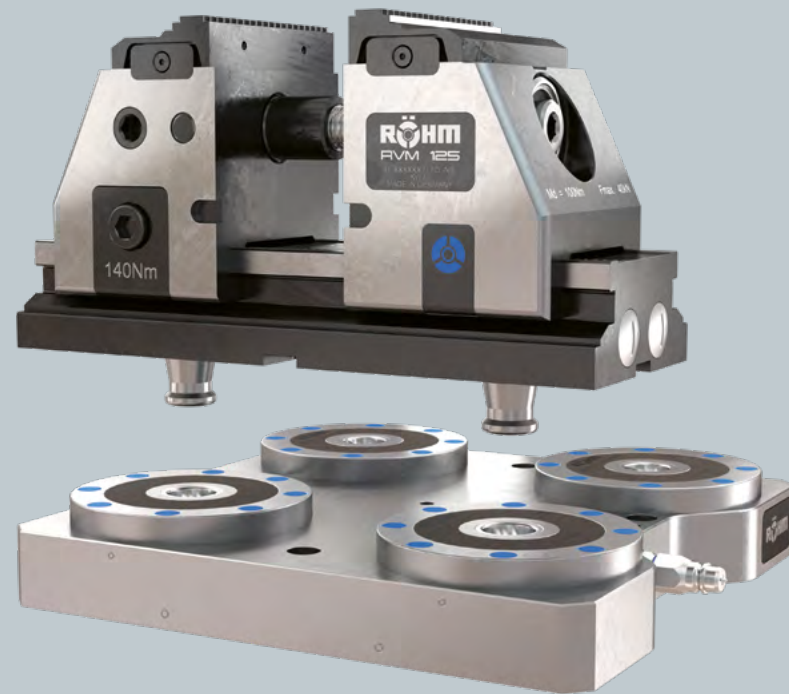


ASSEMBLY

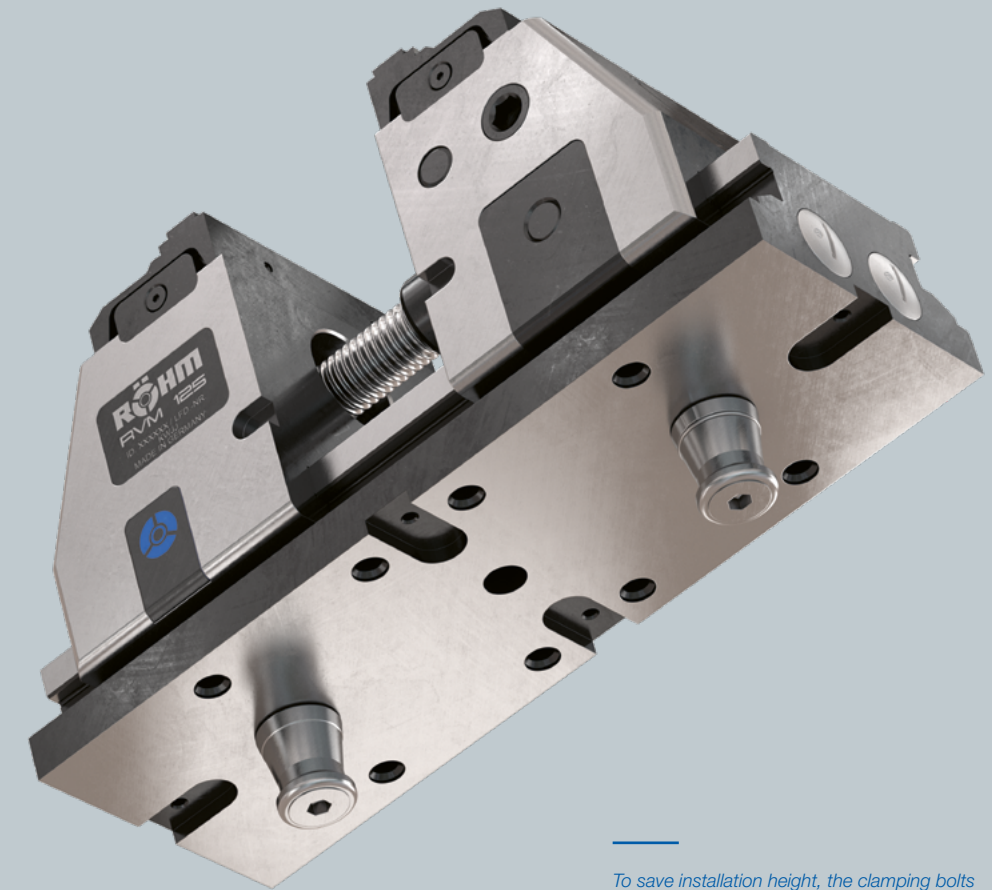
LET'S GO TO THE ZERO POINT CLAMPING SYSTEM!

The use of zero-point clamping systems has become a standard in automated serial machining. Handling robots load the machine with already clamped components, which are then positioned on the machine with exact and repeatable accuracy in a matter of seconds with the help of the system.

But even in single-part machining, a zero-point clamping system can be valuable: If different clamping devices are also required for a different portfolio of workpieces, changing them frequently increases machine downtime. With a zero-point clamping system, on the other hand, the change, including fastening, can be accomplished in no time at all.



Compatible with the RVM:
EasyLock zero point clamping system
from RÖHM



To save installation height, the clamping bolts of the zero-point clamping system are screwed directly into the base body of the RVM

ONLY HALF THE SYSTEM NEEDED.

Normally, zero point clamping systems have a sandwich-like structure consisting of the base beam at the bottom and the pallet at the top, both connected to each other via the clamping bolts. The designers at RÖHM found that this adds too much weight and thus reduces accessibility. Therefore, the RVM is equipped so that the bolts are attached directly to the base body of the clamp via through bolts, allowing them to engage with the base beam of the zero point clamping system. The pallet is not required. This saves overall height – despite the zero point clamping system, the full five-axis capability is still guaranteed.

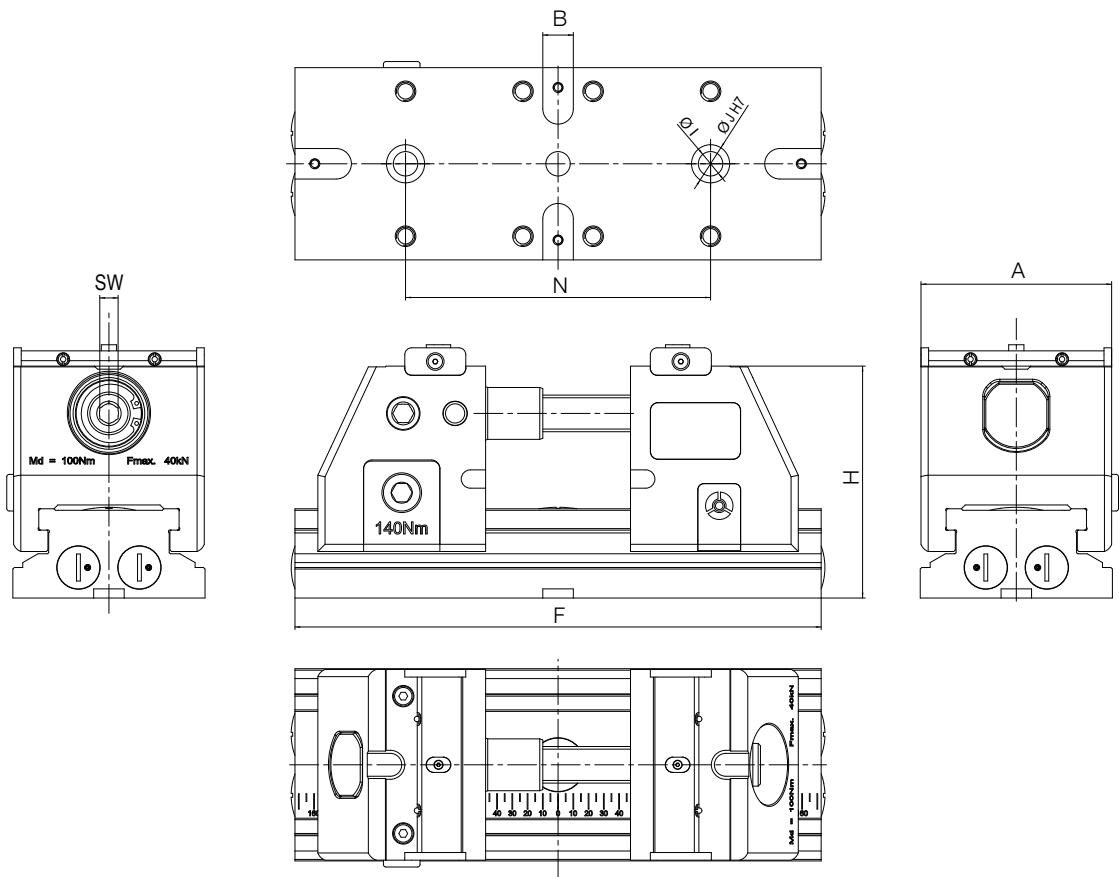
- The RVM can be connected to the EasyLock zero point clamping system Ø112 from RÖHM.
- Position and sword clamping bolts ensure exact positioning.
- The distance between the clamping bolts is 200 mm.

GOOD TO KNOW

FACTS AND FIGURES

FIVE-AXIS CAPABILITY
ON THE
TEST BENCH.

In terms of performance parameters, dimensions and mass, the RVM is exactly within the range of its product category. The design of the metal cutting machines, namely their range of working space, provides a corridor here that must be adhered to. Nevertheless: Where many dimensions and other parameters of the design have to be coordinated, there is scope for design, which ultimately also influences the usage properties of the clamp. So the engineers at RÖHM have worked out the best possible optimization for the RVM.



ID no.	184666	184717
Jaw width A	125 mm	125 mm
Clamping range stepped jaws (clamping at the step)	7 mm - 174 mm	7 mm - 174 mm
Clamping range stepped jaws (clamping in the smooth area)	7 mm - 102 mm	7 mm - 102 mm
Clamping range block jaws	0 mm - 195 mm	0 mm - 195 mm
Jaw height H (without top clamping jaws)	152 mm	152 mm
Length of base plate F	345 mm	345 mm
Width B of the slots to accommodate the T-slot nuts	20 H7 mm	20 H7 mm
Hole spacing N for bolts of the zero-point clamping system	200 ± 0,01 mm	200 ± 0,01 mm
Bore diameter I for bolts of the zero-point clamping system	16 mm	13.5 mm
Bore diameter J for bolts of the zero-point clamping system	25 + 0,01 mm	25 + 0,01 mm
Diameter of hexagon SW of tightening screw	12 mm	12 mm
Clamping force per jaw / tightening torque	40 kN / 100 Nm	40 kN / 100 Nm
Weight (without top jaws)	31.9 kg	31.9 kg

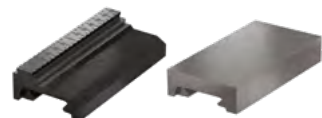
ACCESSORIES

SO THAT YOU GET THE RIGHT ACCESSORIES TO ORDER YOUR RVM.



WORKPIECE STOP

Description	ID no.
Workpiece stop, magnetic, premium	184740
Workpiece stop, screwable M12	320400



CLAMPING JAW

Description	ID no.	Length (mm)	Width (mm)	Height (mm)
Stepped jaws, 3 mm step height, set	184704	125	62	26
Stepped jaws, 5 mm step height, set	184705	125	62	28
Block jaw, set	184706	125	62	32



ZERO-POINT CLAMPING SYSTEM EASYLOCK

Description	ID no.
Base support EasyLock Ø 112, 4s, pneumatic actuation	1314886
Set of clamping bolts (position and sword clamping bolts) EasyLock Ø 112	184709



CLAMPING CLAWS SPE

Description	ID no.
Clamping claw complete, groove width 12	149121
Clamping claw complete, groove width 14	149122
Clamping claw complete, groove width 16	149123
Clamping claw complete, groove width 18	149124
Clamping claw complete, groove width 20	155722
Clamping claw complete, groove width 22	151507



T-SLOT NUT E

Description	ID no.
Set of keyway nuts complete, 20 x 12	14823
Set of keyway nuts complete, 20 x 14	14825
Set of keyway nuts complete, 20 x 16	14827
Set of keyway nuts complete, 20 x 18	14829
Set of keyway nuts complete, 20 x 20	14831
Set of keyway nuts complete, 20 x 22	14833



MOUNTING BY MEANS OF SCREWS

Description	ID no.
Direct mounting screws RVM KP	184742



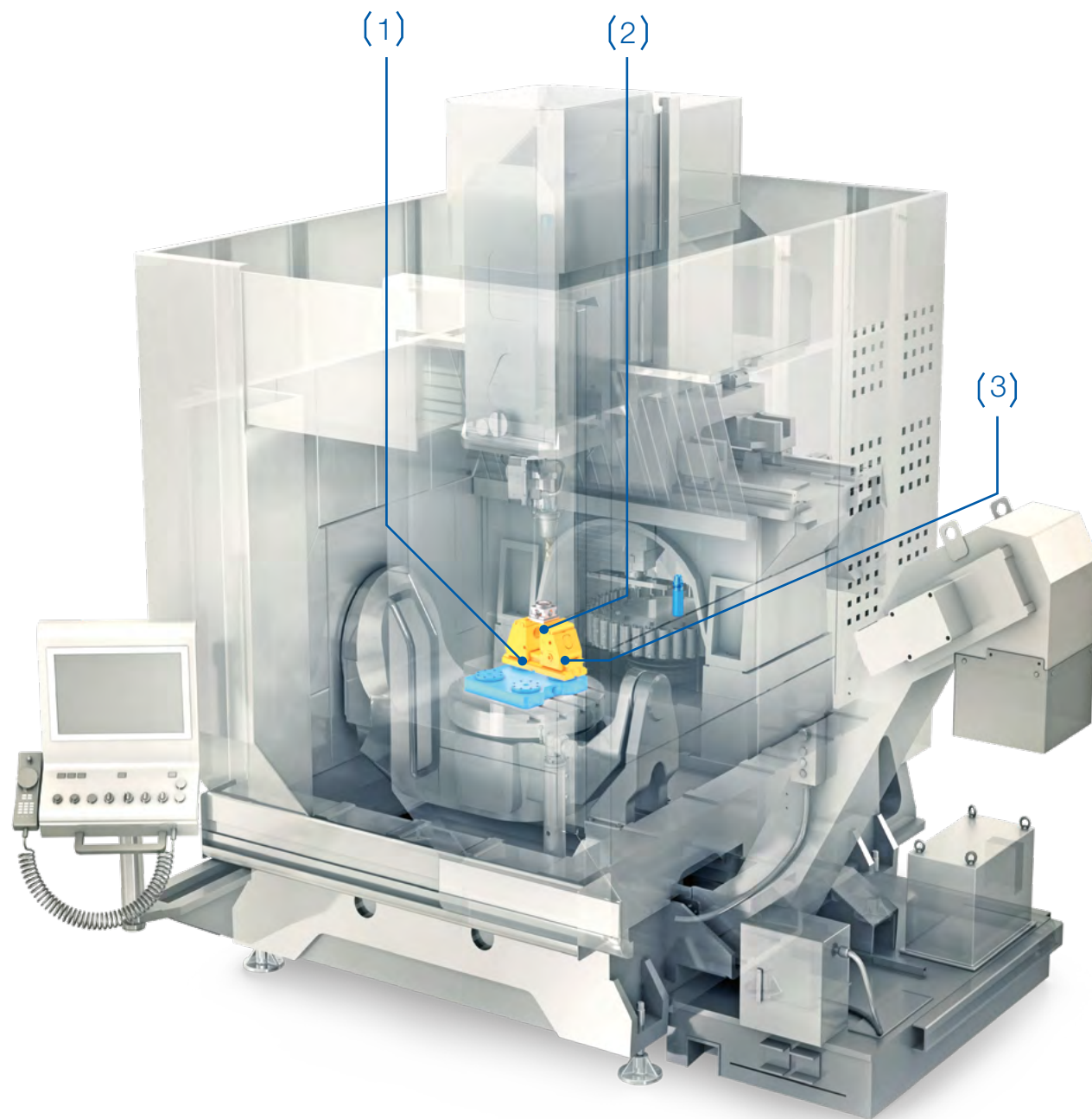
WORKPIECE SUPPORT STRIPS CLIPARC

Description	ID no.
Set in wooden case with 5 pairs of strips of different heights (10 / 13 / 15 / 18 / 20 mm) and 4 clamping brackets	184710



LUBRICATING GREASE FOR CLAMPS

Description	ID no.
Grease F91, cartridge, 0.4 kg	777021



DO YOU NEED THE WHOLE SYSTEM...

...to be able to use the advantages of your RVM properly? RÖHM offers the accessories with which you can turn a good product into a complete, good system. Here are some important components.

(1)



... to clamp your workpieces in such a way that they hold securely on the one hand and are not damaged on the other? Our torque wrench ensures both. Choose between the versions "20 to 120 Nm" (ID no. 10004116) or "60 to 320 Nm" (ID no. 10004117).

(2)



... to precisely measure the clamping forces on the tool and workpiece. The F-Senso 2 force measuring device allows you to.



You can buy clamping and gripping technology from RÖHM conveniently 24/7 in our online shop:

eshop247.roehm.biz

PERHAPS YOU NEED SOMETHING ELSE...

... because the RVM answers just one of your workpiece clamping questions? RÖHM offers all kinds of clamping and gripping technology, including many machine vises. Here is a small selection. You can find the whole range on our website.

... because you need a manual five-axis clamp for the application on smaller machine tables. Our RZM centering vise.



... because you are looking for the highest clamping accuracy with fully automated machining? The hydraulically actuated NC compact clamps of the RKE series.



... because you also want automated clamping?
We recommend the KZS power clamp. With pneumatic or hydraulic actuation, with standard or long stroke.



... because you mainly machine rotationally symmetrical parts?
The three-jaw vise SSP.



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