HILMA.UC

Jaw width 125 mm, centric – mechanical

Contents

1 Description of the product

Description

The product is designed for universal workpiece clamping on machine tools.
The clamping force is applied by turning the tension spindle clockwise using a torque wrench.

Application

The product is used for machining of dimensionally stable workpieces in single or multiple clamping fixtures.
The product is suitable both for series production and individual production.

Scope of delivery

The scope of delivery includes the clamping system completely assembled with pull-down clamping jaws and spindle set with long tension spindle and long clamping nut. Enclosed is the spindle set with short tension spindle short and short clamping nut. The clamping ranges are stated in chapter 9.4 Jaw openings with spindle and nut pairing.

2 Validity of documentation

This documentation applies to the products:

Products of the catalogue WM-021-003. These are the types or order numbers in the number range 7023 - e.g. the clamping system HILMA.UC with the number 970230101.

3 Target group

Skilled workers, assemblers and setters of machines and equipment, with expertise of mechanical equipment.

Qualification of personnel

Expertise means that personnel must:

- be able to read and fully understand technical specifications and product specific drawing documents,
- have specialised knowledge of the function and structure of the corresponding components.

A **specialist** is a person who has sufficient knowledge based on their professional training and experience and is familiar with the relevant regulations to such an extent that they:

- can assess the assigned work,
- can recognise potential dangers,
- can take the necessary measures to eliminate hazards
- are familiar with recognized technical standards, rules and guidelines,
- have the necessary repair and assembly skills.

4 Symbols and signal words

⚠ WARNING

Personal injury

Indicates a potentially dangerous situation.

If it is not avoided, death or serious injury can result.

⚠ CAUTION

Minor injuries/damage to property

Indicates a potentially dangerous situation.

If not avoided, minor injuries or property damage may result.

Hazardous to the environment

The symbol indicates important information for the proper handling of environmentally hazardous substances.

Failure to observe these instructions may result in serious environmental damage.

Mandatory sign!

The symbol indicates important information on the necessary protective equipment, etc.

NOTE

- The symbol indicates user tips or particularly useful information. This is not a signal word for a dangerous or harmful situation.

5 For your safety

5.1 Basic information

The operating manual serves to provide information and avoid hazards when installing the products in the machine as well as information and notes for transport, storage and maintenance.

Accidents and damage to property can only be avoided and trouble-free operation of the products can only be guaranteed if this operating manual is strictly observed.

Observance of the operating manual also has the same effect:

- avoidance of injuries,
- reduced downtime and repair costs,
- increased service life of the products.

5.2 Safety instructions

The product was manufactured in accordance with the generally recognised rules of technology.

Observe the safety instructions and descriptions of actions in this operating manual to avoid personal injury or damage to property.

- Read this operating manual thoroughly and completely before working with the product.
- Keep the operating manual in a place where it is accessible to all users at all times.
- Pay attention to the current safety regulations, regulations for accident prevention and environmental protection of the country in which the product will be used.
- Use the ROEMHELD product only in perfect technical condition.
- Observe all instructions on the product.
- Only use accessories and spare parts approved by the manufacturer in order to prevent personal injury due to unsuitable spare parts.
- Comply with intended use.
- You may only put the product into operation once it has been established that the incomplete machine or machinery into which the product is to be installed complies with the country-specific provisions, safety regulations and standards.
- Carry out a risk analysis for the incomplete machine or machinery.
  Due to the interaction of the product with the machine / device and the environment, risks may arise that can only be determined and minimised by the user, e.g.
  - forces generated,
  - movements generated,
  - Influence of hydraulic and electrical control,
  - etc.
- Use of personal protective equipment is to be considered for all work steps.

6 Use

6.1 Intended use

The products are intended exclusively for clamping workpieces in industrial use.

The intended use also includes

- Use within the performance limits specified in the technical data (see catalogue).
- Use in the manner described in the operating manual.
- Compliance with the maintenance intervals.
- Personnel qualified or instructed in accordance with the activities.
- The installation of spare parts only with the same specifications as the original part.

6.2 Impromper use

⚠ WARNING

Injury, damage to property or malfunctions!

- Do not modify the product!

The use of the products is not permitted:

- For use at home.
- On pallets or tool tables in primary shaping and forming machines.
- If physical/chemical effects (vibrations, welding currents or others) could damage the product.
- In machines, pallets or tool tables used to change the properties of materials (magnetization, irradiation, photochemical processes, etc.).
- In areas where special guidelines apply, especially for equipment and machinery:
  - For use at fairgrounds and amusement parks.
  - In food processing or in areas with special hygiene regulations.
  - For military purposes.
  - In mines.
  - In explosive and aggressive environments (e.g. ATEX).
  - In medical technology.
  - In the aerospace industry.
  - For passenger transport.

7 Installation

⚠ WARNING

Injury due to falling parts!

- Keep hands and other body parts away from the work area.
- Personal protective equipment

Injury due to movement of the machine!

- When working on the vice, switch off/lock dangerous movements in the operator's danger zone.

Risk of injuries due to improper product fixing!

Improper fixing of the product can cause the product to come loose from the machine table or be damaged during clamping or processing.

- Install the product according to the instructions in this operating manual.
- Before installing the product, ensure that the mounting surface of the product base and machine table are clean.
- The mounting surface of the product substructure must be level and rest on the machine table with at least a 75 % overlap.
- Install the product according to the torque specifications in the operating manual.
- Fasten the product in such a way that it cannot be displaced by the machining forces.

⚠ CAUTION

Heavy weights can fall down

- Some product types have a considerable weight. These must be secured against falling during transport.
- The weight specifications can be found in the "Technical data" chapter.

NOTE

Aggressive media

If there is a possibility that aggressive cutting and cooling fluids with swarf may enter the interior of the clamping slide, the interior of the clamping slide must be cleaned by the customer.

Ease of movement

Ensure ease of movement during assembly!

7.1 Direct longitudinal mounting on T-slot table

The fixing set (970235007) is necessary for easy mounting of the clamping system on a T-slot table. Alternatively, a slot nut (DIN9323) can be used.

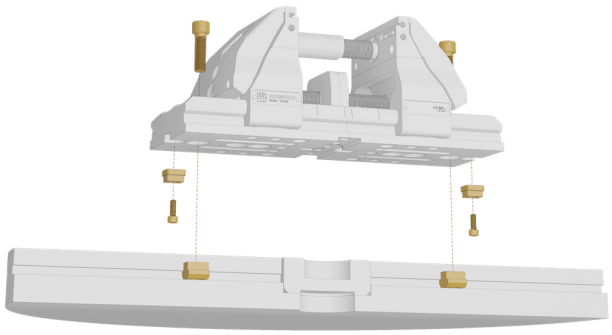


Fig. 1: Mounting on T-slot table

1.) Fit 2x fitting keyblocks with M6x16 screw, keyblock corresponds to 14 mm or 18 mm T-slot width, depending on alignment
2.) Remove swarf from the machine table and clean it thoroughly
3.) Smooth out unevenness of the table with whetstone
4.) Insert T-nuts into T-slot and position roughly
5.) Align the clamp in the T-slot by means of fitting keyblocks
6.) Tighten 2x locking screws M12x40 with 60 Nm

7.2 Direct transverse mounting on T-slot table

The fixing set (970235007) is necessary for easy mounting of the clamping system on a T-slot table. Alternatively, a slot nut (DIN9323) can be used.

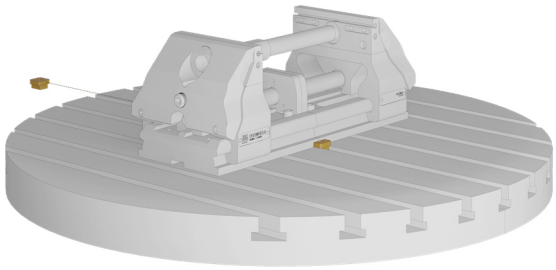


Fig. 2: Mounting on T-slot table

1.) Remove swarf from the machine table and clean it thoroughly
2.) Smooth out unevenness of the table with whetstone
3.) Insert T-nuts into T-slot and position roughly
4.) Insert the slot nuts and align the clamping system in the T-slot
5.) Tighten 4x locking screws M12x40 with 60 Nm with washer DIN125 M12

7.3 Combination with a zero point clamping system

Various options are available for using the clamping system in combination with a zero point clamping system:

- Inserts for M8 thread (970235011)
- Inserts for M10 thread (970235012)
- Inserts for M12 thread (970235013)
- Set for STARK.classic.2 (970235014)
- Set for STARK.basic.M (970235015)

The assembly procedure for the set solutions is described below.

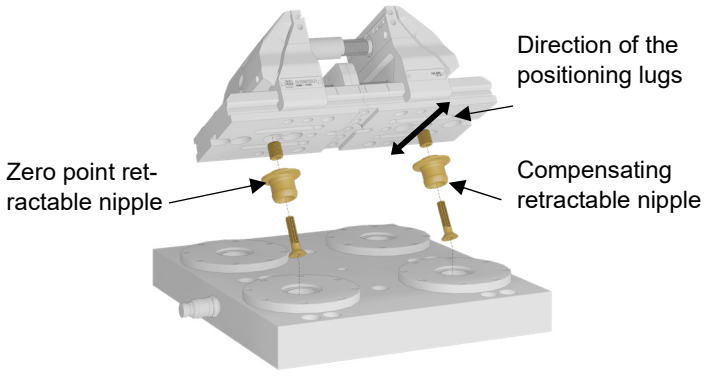


Fig. 3: Mounting on zero point clamping system

On the bottom side of the clamping system there are three different gauges available (150, 200, 282,842) that have been adapted to typical zero point clamping systems.

1.) Mount the appropriate threaded sleeve
   i. Screw the bolt with nut and washer (for M8 and M10) into the threaded sleeve (washer between nut and threaded sleeve).
   ii. Counter nut against threaded sleeve
   iii. Apply medium-strength threadlocker (e.g. Loctite 243) to the threaded sleeve.
   iv. Screw threaded sleeve into bore hole and tighten to 20 Nm
   v. Allow the threadlocker to harden
   vi. Loosen nut from threaded sleeve
   vii. Remove screw and nut
   viii. Note: for gauge 282,842, the nipple is fixed from above; the installation of threaded sleeves is not necessary. This spacing is intended for diagonal clamping to a spacing of 200x200.

2.) Mount the retractable nipple according to the manufacturer's instructions.
   i. Zero point nipples have no rotational orientation
   ii. Equaliser nipples (with threaded hole) must be aligned so that the positioning lugs are at right angles to the centre axis of the retractable nipples
   iii. Observe the tightening torques on the retractable nipples for the thread size

7.4 Combination with a quick-change system 96x96

On the bottom side of the clamping system, there are also 4x Ø 16 fitting holes with M10 thread in a 96x96mm grid. The retractable nipples of the standard quick-change systems can be screwed into these.

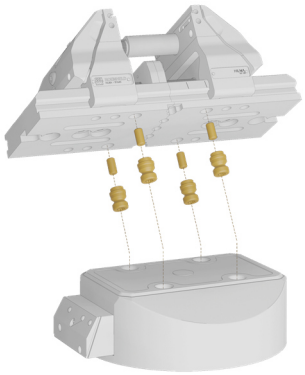


Fig. 4: Mounting on 96x96 mm system

8 Start-up

NOTE

Lubricate before commissioning

- The elements are supplied with minimum lubrication.
- The sliding surfaces have to be lubricated lightly with slide way oil, ISO VG 220, before start-up.
- Check tight fit (check tightening torques of fastening screws).

Operation of the product on grinding machines

When the product is used on grinding machines, the product becomes increasingly dirty.

- Remove dirt from the product at regular intervals.

⚠ WARNING

Risk of injury or material damage due to collision with system components!

Persons may be injured by collision with the system components in the range of motion of the system components or property damage may be caused by collision with other system components.

- Before commissioning, check the movement range of the system components for collisions.

9 Operation

⚠ WARNING

Vibration loosens the fixing of the product!

Vibration impairs the fixing of the workpiece and leads to an improperly fixed workpiece. An improperly fastened workpiece can be ejected from the product during processing and injure people or cause material damage.

- Avoid vibration on the product as far as possible.

Risk of burns from hot workpieces!

Hot workpieces can cause burns to parts of the body.

- Wear heat-resistant protective clothing.

Crushing, burns and broken bones from falling workpieces!

Workpieces can fall during work and cause injuries.

- Wear protective footwear with at least safety level 1 (S1) during work.

Risk of injury due to improperly fitted crank handle or fitted torque wrench!

If the crank handle or torque wrench is not properly attached, it may slip off when cranking or turning and injure the operator.

- Check that the crank handle or torquewrench is correctly seated.

Risk of injury due to restricted range of motion of the crank handle or torque wrench!

When using the crank handle or the torque wrench, extremities may be squeezed between the crank handle and/or the torque wrench and objects in the range of motion.

- The range of motion of the crank handle or torque wrench must be freely accessible.

Risk of injury when clamping the workpiece!

Due to the characteristics of the workpiece, people may be injured during the clamping process because the workpiece is not properly clamped.

- Remove any dirt from the clamping surfaces before clamping.
- Observe the material properties of the workpiece when clamping.
- Observe the shape of the workpiece when clamping.
- Observe the clamping surface of the workpiece when clamping.
- Observe the mass inertia of the workpiece when clamping.

Risk of injury due to flexible or insufficiently clamped workpieces!

Flexible or insufficiently clamped workpieces can be ejected from the machine during processing or fall down and injure people.

- Only use the product for clamping rigid workpieces.
- Clamp the workpiece sufficiently before machining.

Risk of injury due to insufficient clamping force or clamping of the workpiece!

An insufficient clamping force of the product or insufficiently clamped workpieces can be ejected from the machine during processing or fall down and injure people.

- Have the product checked for operational safety by a qualified specialist after prolonged downtime, after repairs and at regular intervals.
- Have the product checked for visual damage or wear by a qualified specialist.
- Before commissioning the product, check that the product is properly secured.
- Before commissioning the product, check that the workpiece is securely clamped.

⚠ CAUTION

Risk of injury due to crushing of limbs when clamping

The product must be used in such a way that no limbs of yourself or others can be crushed during clamping.

- When clamping, keep the clamping area clear of limbs of yourself or others.

Risk of injury when clamping and releasing the product due to the high force exerted

Initially, higher forces have to be overcome when unclamping the product. Persons can slip and injure themselves due to the high exertion when unclamping.

- Release clamping carefully and slowly.

NOTE

Machining with an attached crank handle or torque wrench is not permitted

A crank handle or torque wrench attached to the product is not permitted during machining.

- Before machining a workpiece, remove the crank handle or torque wrench from the product.

9.1 Operating principle

The force is applied via the tension spindle and clamping nut. The clamping claws transfer the force to the clamping jaws and thus to the workpiece. The clamping force is transmitted to the adjusting spindles via the adjusting elements, resulting in a closed force flow. In addition, the adjustment elements are clamped to the base plate when the clamping force is applied. The operating alignment is with the tension spindle in the right half. This half is marked on the adjustment element with a hexagon symbol.

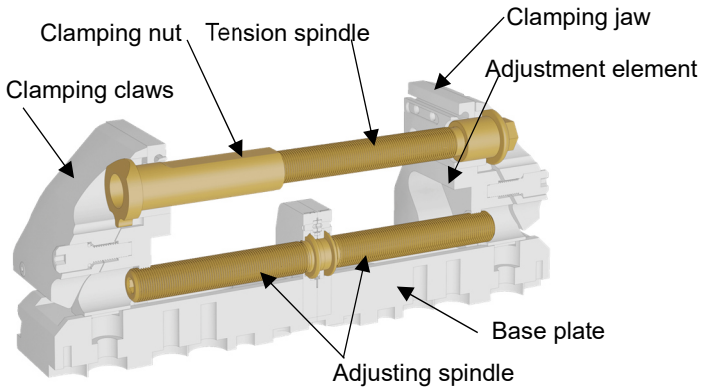


Fig. 5: Structure of the clamping system

- Clamping nut (top left)
- Tension spindle (top right)
- Build-up of clamping force using a torque wrench
- Clamping force is proportional to the torque
- The adjusting spindle at the bottom is used to adjust the clamping range on the workpiece.

The pull-down clamping jaw is pre-assembled in the standard scope of delivery. Due to the bending element of the jaw and the elastic deformation, the workpiece is securely clamped and pressed onto the support surface with repeat accuracy (pull-down effect).

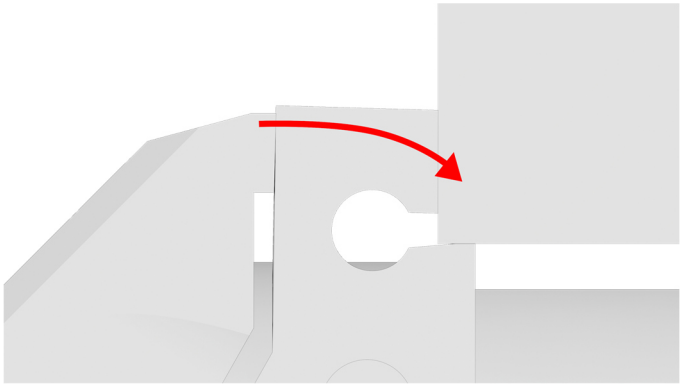


Fig. 6: Function of pull-down clamping jaw

⚠ WARNING

Reduction of pull-down force with support strips!

The pull-down force is reduced when using the support strips! The machining forces must be reduced appropriately!

9.2 Setting the clamping range

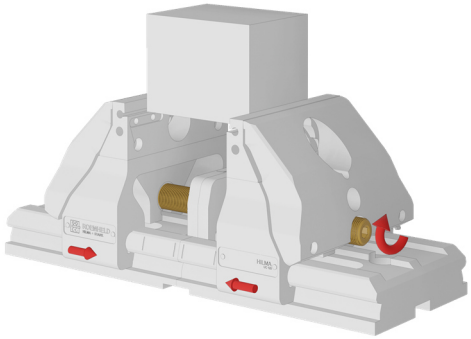


Fig. 7: Setting the clamping range

1.) Turn to the left to open the tension spindle completely and remove it together with the clamping nut. Select the appropriate spindle and nut depending on the clamping range (see chapter 9.4 "Jaw openings with spindle and nut pairing")
2.) Adjust the clamping range on the adjusting spindle until the workpiece can be inserted. Check clamping range overlap
3.) Remount the tension spindle and adjust it to the workpiece by turning it clockwise.
4.) Do not build up any clamping force!

9.3 Clamping and unclamping

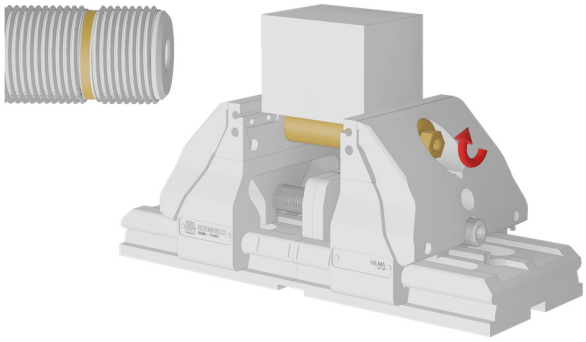


Fig. 8: Clamping and unclamping

1.) Place the workpiece on the workpiece support
2.) Close the adjusting spindle until both slides are in contact with the workpiece. Do **not** build up any clamping force!
3.) The tension spindle must be screwed into the clamping nut at least up to the marking (ring). If this is not the case, the tension spindle/clamping nut pairing must be changed (see chapter 9.4 "Jaw openings with spindle and nut pairing")
4.) Close the tension spindle using a torque spanner and build up the clamping force, observe the maximum values in chapter 13 "Technical data"
5.) To release, open the tension spindle approx. 1-2 turns
6.) Open the adjusting spindle until the workpiece can be removed.

9.4 Jaw openings with spindle and nut pairing

Two clamping spindles and two clamping nuts are included in the standard scope of delivery. In this way, the different clamping ranges can be mapped according to the following diagram:

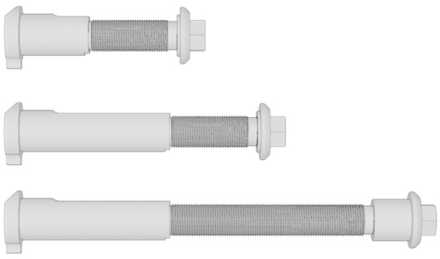


Fig. 9: Jaw openings

1.) Short tension spindle, short clamping nut: 0 mm - 50 mm
2.) Short tension spindle, long clamping nut: 48 mm - 104 mm
3.) Long tension spindle, long clamping nut: 100 mm - 200 mm

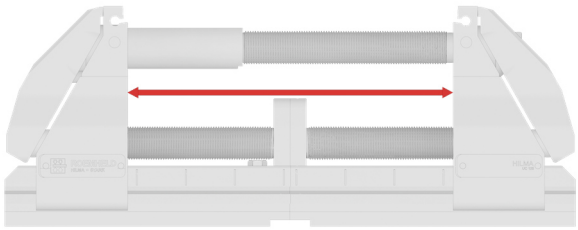


Fig. 10: Jaw opening definition

Note: The jaw opening refers to the distance between the adjustment elements. The actual jaw opening may vary depending on the mounted jaw.

10 Accessories

NOTE

Accessories

- Only the use of original STARK components, such as clamping jaws or corresponding accessories, is approved.

Elevation 35 mm	970235001
Elevation 70 mm	970235054
Extension 200 - 300 mm	970235038
Extension 200 - 400 mm	970235002
Extension 200 - 600 mm	970235003
Extension 200 - 800 mm	970235046
Extension 200 – 1000 mm	970235047
Extension 200 – 300 mm with vice base extension	970235048
Extension 200 – 400 mm with vice base extension	970235049
Extension 200 – 600 mm with vice base extension	970235050
Extension 200 – 800 mm with vice base extension	970235051
Extension 200 – 1000 mm with vice base extension	970235052
Adjusting spindle extension 100 mm	970235031
Adjusting spindle extension 200 mm	970235032
Adjusting spindle extension 400 mm	970235033

Vice base extension 100 mm	970235043
Vice base extension 200 mm	970235044
Vice base extension 400 mm	970235045
Clamping nut 300 mm	970235034
Clamping nut 400 mm	970235035
Clamping nut 500 mm	970235036
Clamping nut 600 mm	970235037
Clamping nut 700 mm	970235039
Clamping nut 800 mm	970235040
Clamping nut 900 mm	970235041
Clamping nut 1000 mm	970235042
Support clamping nut	970235053
Support strip set 3 mm	970235005
Support strip set 5 mm	970235017
Heavy-duty support	970235055
Clamping claw set	970235006
Fixing set	970235007
Fastening set with stroke limiter and cover plate	970235027
Adapter plate 150x400	970235008
Adapter plate 400x400	970235009
Adapter plate 600x400	970235010
Inserts for M8 thread	970235011
Inserts for M10 thread	970235012
Inserts for M12 thread	970235013
Retractable nipple set for STARK.classic.2	970235014
Retractable nipple set for STARK.basic.M	970235015
Workpiece stop	970235030
Pull-down clamping jaws	970236001
Clamping jaw 125 mm with GripPins	970236002
Clamping jaw 60 mm with GripPins	970236003
Replacement grip pins (set of 10)	970235004
Vee jaw	970236004
Clamping jaw with round clamping bolt	970236005
Spare round clamping bolt	970235016
Clamping jaw 125 mm smooth	970236006
Clamping jaw 60 mm smooth	970236007
Clamping jaw, soft 125 mm	970236008
Clamping jaw, soft 160 mm	970236013
Pendulum jaw	970236009
Central jaw base	970236010
Central pull-down jaw	970236011
Central jaw with GripPins	970236012
Socket wrench, width across flats AF 12	S999-1088

10.1 Change of clamping jaws

⚠ WARNING

Clamping jaws must be securely fastened!

Jaws that are not mounted properly can jeopardise the precision of the system as well as the clamping safety.

- Before using the product, ensure that the clamping jaws are securely and properly fastened.

Changing the clamping jaws is done in the following steps.

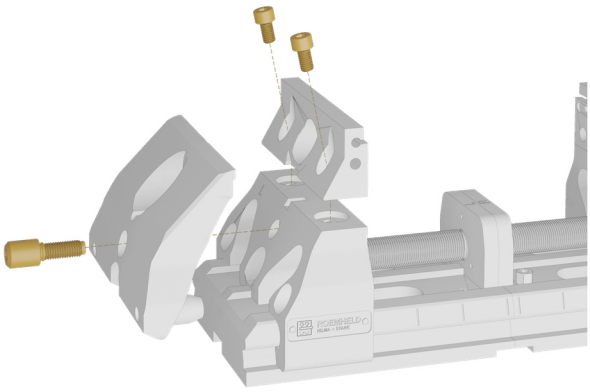


Fig. 11: Procedure for changing the clamping jaws

1.) Remove tension spindle and clamping nut
2.) Loosen clamping claw screw and remove clamping claw
3.) Remove 2x screws M8x16 from the clamping jaws
4.) Replace clamping jaws
5.) Tighten the M8x16 screws hand-tight (20 Nm) and securely
6.) Attach the clamping claw and tighten the clamping claw screw hand-tight (5 Nm)

Different clamping jaws are available for the different workpieces and operations.

10.1.1 Pull-down clamping jaw

Clamping jaws in standard scope of delivery. These have a pull-down effect; due to the bending element of the jaw and the elastic deformation, the workpiece is securely clamped and pressed onto the support surface with repeat accuracy. Only pre-machined or smooth surfaces may be clamped.

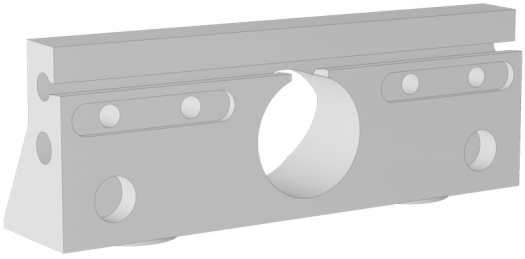


Fig. 12: Pull-down clamping jaw

The pull-down clamping jaw set 970236001 is available as an accessory (2 pull-down clamping jaws as well as 4x M8x16 fixing screws).

⚠ WARNING

Reduction of pull-down force with support strips!

The pull-down force is reduced when using the support strips! The machining forces must be reduced appropriately!

10.1.2 Clamping jaws with GripPins

With these jaws, blanks with saw cut surfaces or cast surfaces can be clamped. The plastic deformation of the workpiece creates a form fit. The clamping of uneven surfaces becomes much more secure.

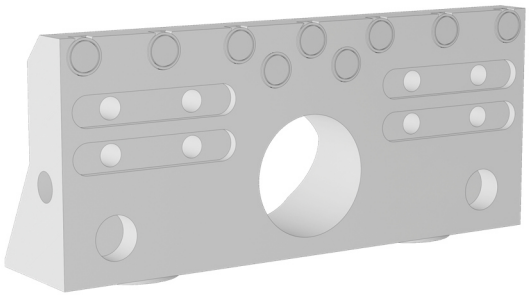


Fig. 13: Clamping jaw 125 mm with GripPins

The clamping jaw set 970236003 is also available with a jaw width of 60 mm for narrower workpieces to optimise accessibility

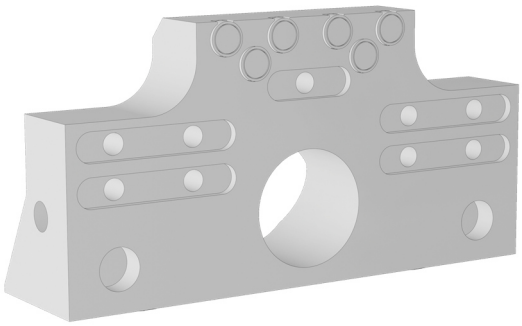


Fig. 14: Clamping jaw 60 mm with GripPins

The clamping jaw sets include 2x clamping jaws with pre-assembled GripPins and 4x M8x16 fastening screws.

The clamping surfaces of the workpiece are imprinted by the deformation during the clamping process. The imprints are still visible after unclamping!

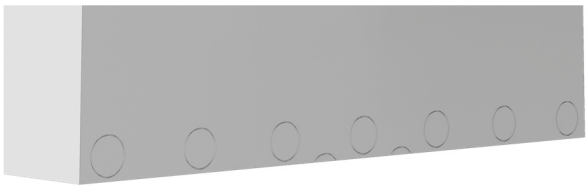


Fig. 15: Exemplary clamping imprints of the GripPins

The GripPins are available as spare parts (970235004, 10 GripPins) to replace worn GripPins.

1.) Knock damaged GripPins out of the jaw from the rear using a punch
2.) Carefully knock the new GripPins into the jaw

10.1.3 Smooth clamping jaws

These clamping jaws are primarily used for clamping the second side.

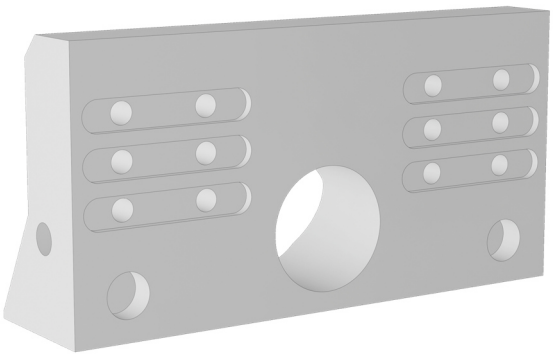


Fig. 16: Clamping jaw 125 mm smooth

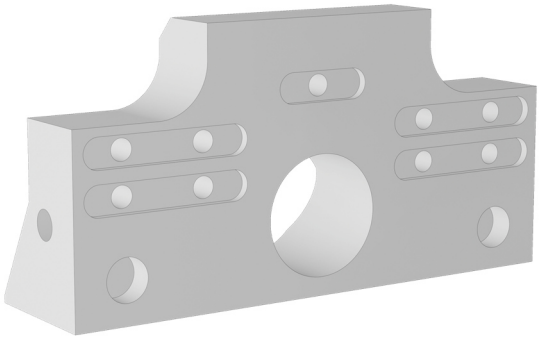


Fig. 17: Clamping jaw 60 mm, smooth

The clamping jaw sets (2x clamping jaws and 4x M8x16 fastening screws) are also available here with jaw widths of 125 mm (970236006) and 60 mm (970236007).

10.1.4 Vee jaw

These clamping jaws are designed for clamping cylindrical workpieces. Cylindrical parts with a diameter of 8 to 40 mm can be clamped horizontally as well as vertically (single central or double external).

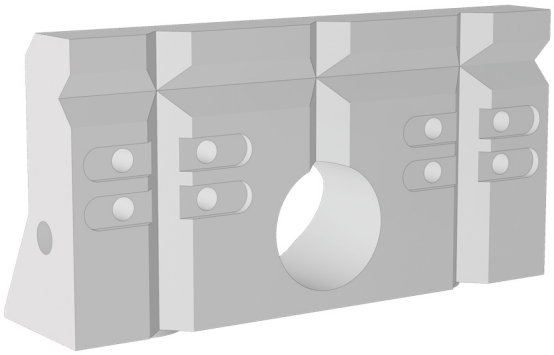


Fig. 18: Vee jaw

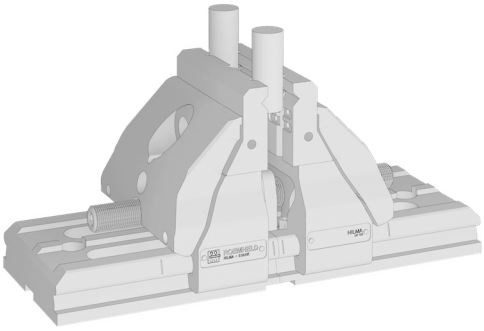


Fig. 19: Two vertically clamped workpieces

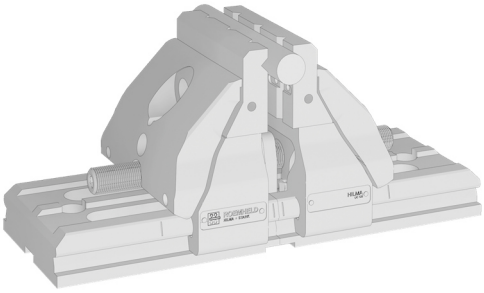


Fig. 20: Workpiece clamped horizontally

The clamping jaw set includes 2x vee jaws and 4x M8x16 fastening screws.

10.1.5 Clamping jaw with round clamping bolt

With these clamping jaws, cylindrical workpieces with a 30 to 200 mm diameter can be clamped vertically. The diameter range that can be clamped is adjusted by repositioning the round clamping bolts; in addition, the round clamping bolts can be exchanged. Clamping imprints on the surface are possible. Three- and four-point clamping can be realised.

1.) Loosen and remove the round clamping bolt
2.) Insert the round clamping bolt in the desired position
3.) Hand-tighten the round clamping bolt

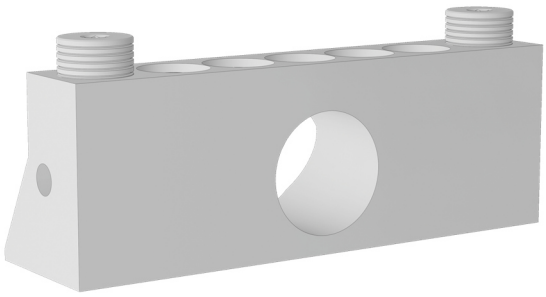


Fig. 21: Clamping jaw with round clamping bolt

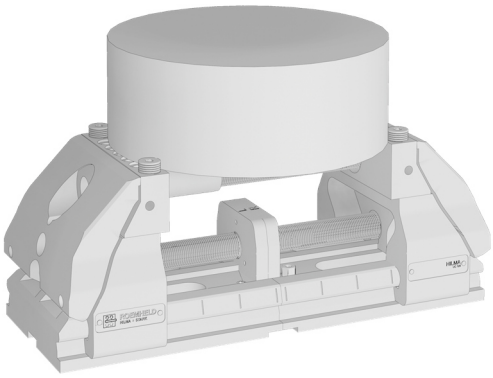


Fig. 22: Clamping jaw with round clamping bolt and clamped workpiece

The round clamping bolts are available as a spare part (970235016, 2x round clamping bolt) to replace the round clamping bolts when worn.

The clamping jaw set includes 2x clamping jaws, 4x pre-assembled round clamping bolts and 4x M8x16 fastening screws.

10.1.6 Clamping jaw, soft

Workpiece-specific clamping contours can be incorporated in these jaws, which cannot be covered with the other range of jaws. Available in jaw widths of 125 mm and 160 mm for extra-wide workpieces.

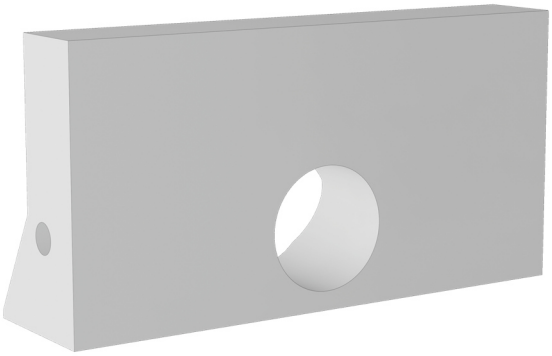


Fig. 23: Clamping jaw, soft

The clamping jaw set includes 2x clamping jaws, soft, and 4x M8x16 fastening screws.

10.1.7 Pendulum jaw

For cut surfaces or uneven parts, the pendulum jaw can be used to compensate for angular errors of up to 3°. The pendulum jaw is only mounted once; a clamping jaw with GripPins (970239002) is required as a counterpart.

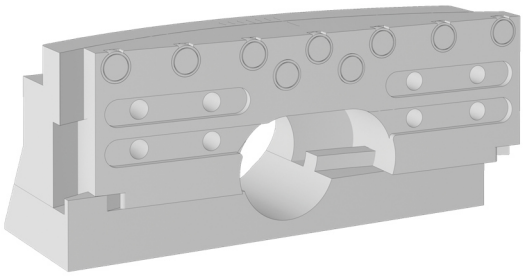


Fig. 24: Pendulum jaw

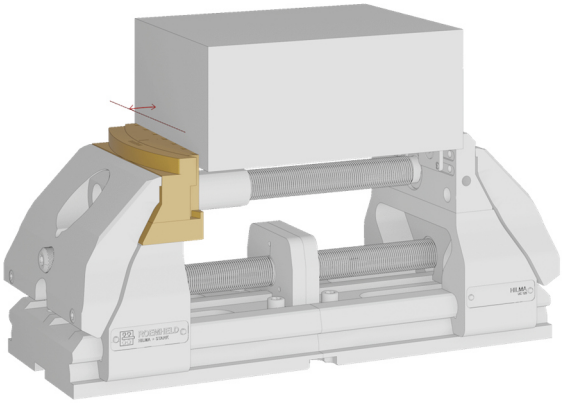


Fig. 25: Pendulum jaw assembly

The clamping jaw set includes 1x pendulum jaws and 2x M8x16 fastening screws.

10.1.8 Central jaw base

The central jaw base forms the basis for multiple clamping of raw or finished parts. It can be mounted on the base or base extensions. When pushed against the bearing plate, a centric position is achieved; for workpieces of different sizes, the central jaw can be pushed to other positions.

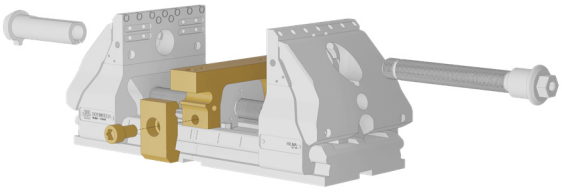


Fig. 26: Assembly central jaw base

Assembly of the central jaw base
1.) Remove tension spindle and clamping nut
2.) Unscrew the clamping claw of the central jaw base
3.) Place the central jaw base on the base or the base extension at the desired position
4.) Assembly the clamping claw, do not tighten the screw
5.) Align the central jaw base (on the bearing plate, on the workpiece)
6.) Tighten M12 screw to 60 Nm

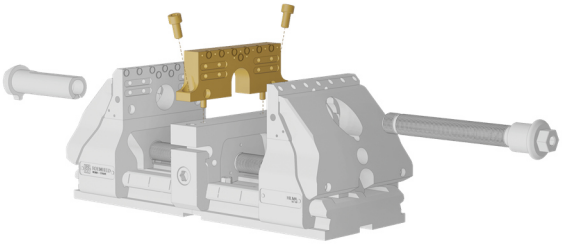


Fig. 27: Assembly of the central jaw

Change the central jaws
1.) Attach centre jaw, alignment is done using slot nuts
2.) Tighten M8x16 screws hand-tight (20 Nm)
3.) To remove the centre jaw, loosen the M8x16 screws
4.) Pull off the central jaw

10.1.9 Central pull-down jaw

The central pull-down jaw can be used to clamp two workpieces with the pull-down jaws (970236001) of the clamping system included in the scope of delivery. The clamping level corresponds to that of the pull-down jaws, but there is no active pull-down effect with the central jaw.

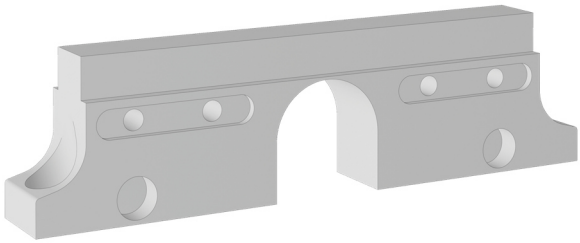


Fig. 28: Central pull-down jaw

The clamping jaw set includes 1x centre pull-down jaw and 2x M8x16 fastening screws.

10.1.10 Central jaw with GripPins

The central jaw with GripPins can be used to clamp two blanks in combination with the clamping jaw set with GripPins (970236002) as well as two pendulum jaws (2x 970236009).

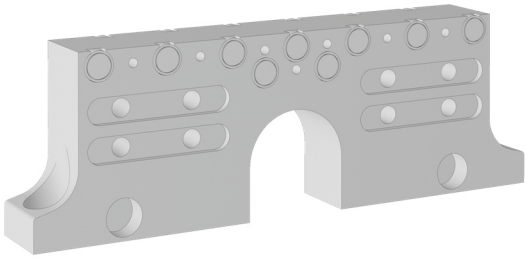


Fig. 29: Central jaw with GripPins

The clamping jaw set includes 1x central jaw with pre-assembled GripPins and 2x M8x16 fastening screws.

10.1.11 Heavy-duty support

If large and heavy workpieces are to be clamped, the heavy-duty support provides a more stable support than the support strips. Mounted on the central jaw base (970236010), two or more heavy-duty supports can be positioned on the base or base extension regardless of the clamping width. The handling of large components is simplified as the insertion clearance can be increased.
The support height can be adjusted using the shim discs; for intermediate heights or lower heights, the screw heads can be milled over.

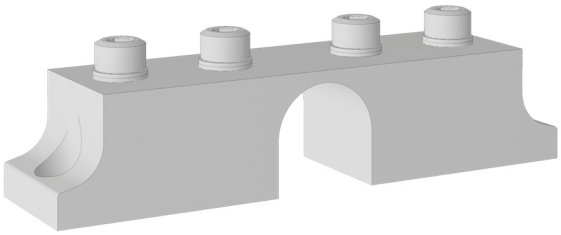


Fig. 30: Heavy-duty support

The heavy-duty support set includes 1x heavy-duty support, 8x shim disc D8x1, 4x support screws, 2x M8x16 fastening screws

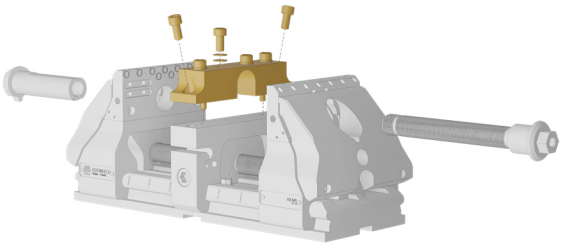


Fig. 31: Assembly of heavy-duty support

Changing the heavy-duty support see chapter 10.1.8 "Central jaw base"

Change of support height:
1.) Loosen 4x support screws
2.) Insert the required number of shim discs
3.) Tighten 4x support screws to 10 Nm

10.1.12 Swivelling workpiece stop

A stop for workpieces can be mounted with the swivelling workpiece stop. Different clamping widths can also be set at different clamping heights (e.g. clamping jaw smooth high). The spring-loaded pressure piece secures the stop on the clamping jaw and prevents it from slipping into the tool path.

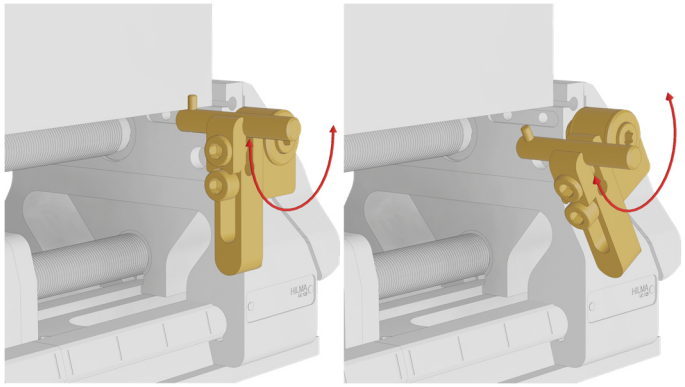


Fig. 32: Swivelling workpiece stop

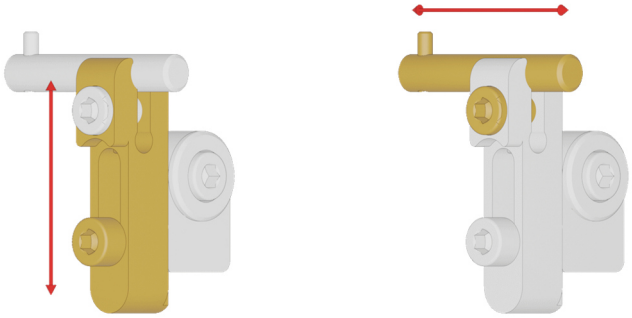


Fig. 33: Adjustment directions of the stop

To adjust the stop, loosen the screw for the relevant direction (see illustration above for assignment), set the stop and tighten the screw hand-tight. To switch between large/small clamping widths, the 'pin carrier' (illustration above, right half) can be turned round.

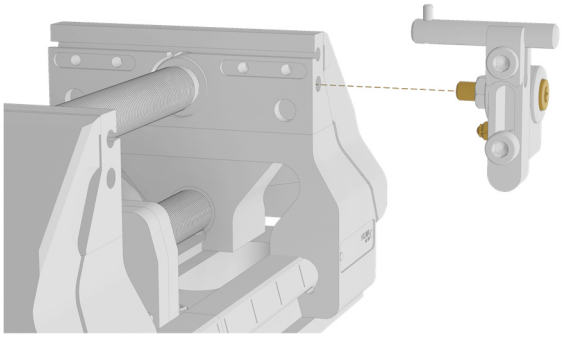


Fig. 34: Assembly of the stop

Assembly:
1.) Hold the stop by hand and screw the M8 screw into the thread on the jaw and tighten by hand

Dismantling:
1.) Loosen the stop using the M8 screw, hold the stop and unscrew it from the jaw

10.1.13 Support strips

With the support strips, a support surface for the workpiece is created on the clamping jaws (except soft clamping jaws). The possible clamping depths are 3, 5, 8 and 10 mm, depending on the alignment of the selected support strip. The distance between the grooves for the support strips is 10 mm.

Fig. 35: Different support strips

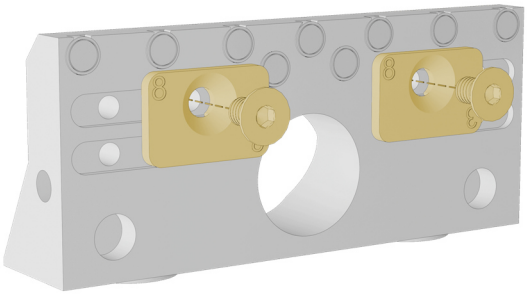


Fig. 36: Mounting the support strips

1.) Select the support strips according to the desired clamping depth, align them and insert them into the appropriate groove
2.) Screw on with countersunk screw M6x10
3.) Tighten the screw hand-tight

The support strip sets include 4x support strip 3/8 mm, 4x support strip 5/10 mm and 4x M6x10 fastening screws.

10.2 Raising the Z-axis

If an elevated workpiece position is required for better accessibility, the clamping system can be raised by 35 mm using the elevation set 970235001. The clamping system is raised by 70 mm with the raising set 970235054. The fixing screws supplied are longer, otherwise there are no differences to the installation instructions below.

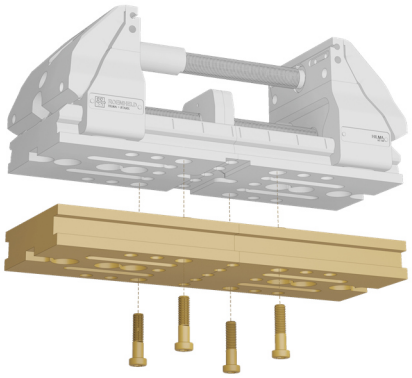


Fig. 37: Fasten raiser

1.) Place the raiser on the vice base
2.) Fasten with the 4x M10x40 screws and hand-tighten
3.) Several raisers can be mounted on top of each other; the screw length must be adjusted

The same fastening options on the machine table are available for the raisers as for the clamping system (direct clamping or via zero point clamping system). The M12x75 screws for fixation of the system are included in the scope of delivery.
The raiser has the same alignment options with slot nuts as the clamping system.

Alternatively, clamping claws can be used to fix the clamping system with raisers on the machine table. The clamping claw fixing set (970235006) is necessary for this.

10.3 Clamping claw fixing set

The clamping claw set can be used to attach raisers and adapter plates to the machine table.

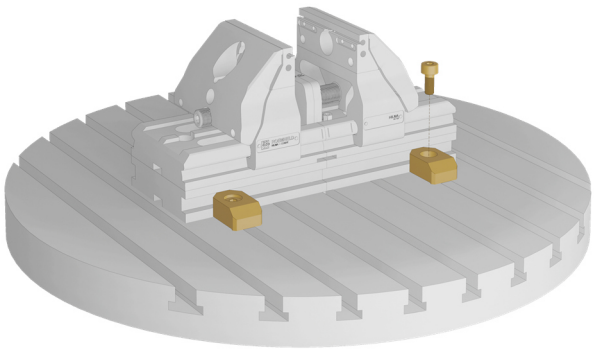


Fig. 38: Mounting on raiser using clamping claws

1.) Align the clamping system on the machine table (manually or with keyblocks, see chapter 7 "Installation")
2.) Push keyblocks into T-slot
3.) Place the clamping claw on the vice
4.) Insert locking screw M12x30 and tighten to 60 Nm

10.4 Fixing set

The use of the fastening set is explained in more detail in chapter 7 "Installation". In addition to fastening screws, washers and T-slot nuts, the set includes dowel pins for aligning with adapter plates and special slot nuts for 14 mm and 18 mm machine slots.

10.5 Fastening set with cover plate and stroke limiter

This set basically has the same contents as the one prior. Two cover plates and a stroke limiter are also included. The cover plate closes the chip nests of the fastening grooves in the vice base, the stroke limiter prevents the adjustment elements from being unscrewed from the adjustment spindle, e.g. with cordless screwdrivers.

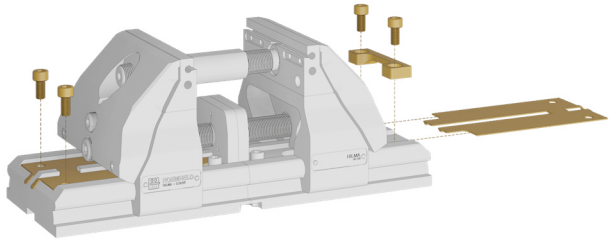


Fig. 39: Assembly of cover plate and stroke limiter

1.) Adjust clamping system to half clamping width
2.) Insert the cover plate between the vice base and the adjustment element; the plate must be bent so that it covers the positioning bar up to the fastening bore gauge 282,842; the lugs of the plate must engage in the holes in the bearing plate
3.) The plate snaps into the fastening bore gauge 282,842 mm. The non-drive-side plate can now be secured with the M8x10 fastening screws, hand-tightened
4.) Place the stroke limiter on the drive-side plate and secure with the M8x10 fastening screws, hand-tightened

10.6 Extension of the clamping range

The clamping system can be extended to a clamping range of up to 1000 mm with extensions. Large workpieces can thus be clamped easily. The extension to 400 mm is shown.
The extended clamping system can be mounted directly on the machine table, raisers or adapter plates.

10.6.1 Extension with adjusting spindle extension

The adjusting spindle extension is the simple variant for extending the clamping system, but has disadvantages in terms of handling (clamping system consists of disconnected individual parts, alignment of the adjustment elements is necessary when clamping without an adapter plate).

1.) Position the adjustment elements on one of the markings on the vice base (see Fig. 41)
2.) Loosen the locking screws and both connecting bolts (see Fig. 40)
3.) Pull the clamping system apart. The adjusting spindles must not be turned when pulled apart (loss of centre)
4.) Insert adjusting spindle extension, observe alignment of the dowel pins (see Fig. 41)
5.) Fastening of both halves of the clamping system (see chapter 7 "Installation"), there must be no gap between the adjusting spindle extension and adjusting spindles, if necessary, the adjustment elements/jaws must be aligned with each other
6.) Insert long tension spindle and extended clamping nut (see Fig. 42)

7.) Set the clamping width and clamp the workpiece (see chapter 9 "Operation")
8.) Tightening torque of the screws of the connecting bolts when dismantling to standard configuration: 20 Nm

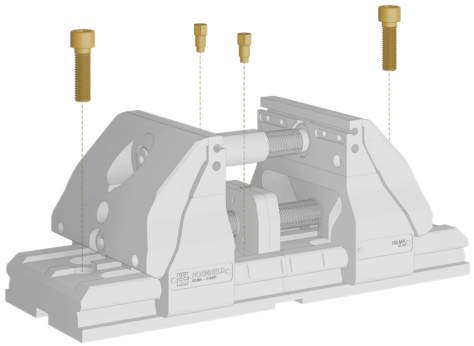


Fig. 40: Loosen connecting bolts and fastening screws

Fig. 41: Inserting the adjusting spindle extension

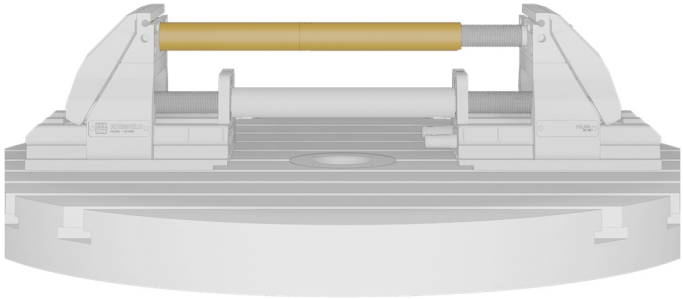


Fig. 42: Inserting the tension spindle and extended clamping nut

The different tension spindle/clamping nut combinations allow the clamping range to be extended up to 1000mm.

Fig.43: Configuration for clamping range 900 - 1000 mm

If a clamping system with adjusting spindle extension is clamped directly on the machine table, the adjustment elements/jaws must be aligned with each other, as otherwise unsafe clamping may occur.

10.6.2 Extension with vice base extension

With the vice base extension, the bases of the clamping system are firmly connected to each other and the clamping system can be handled as one element again. Positioning options, fastening holes and retractable nipple holes are integrated into the vice base extensions; several vice base extensions can be mounted together with little risk of instability.

1.) Position the adjustment elements on one of the markings on the base plate (see Fig. 45)
2.) Loosen the locking screws and screws on the connecting bolts (see Fig. 44), on the vice base and on the vice base extension
3.) Pull the clamping system apart. The adjusting spindles must not be turned when pulled apart (loss of centre)
4.) Clean the contact surfaces of the clamping system and the vice base extension
5.) Insert vice base extension, observe alignment of the dowel pins (see Fig. 45)
6.) Hand-tighten the screws of the connecting bolts on the vice bases and on the vice base extension (20 Nm); there must be no gap between the vice bases and the vice base extension (see Fig. 46)
7.) Fastening the clamping system (see chapter 7 "Installation")
8.) Insert long tension spindle and extended clamping nut
9.) Set the clamping width and clamp the workpiece (see chapter 9 "Operation")

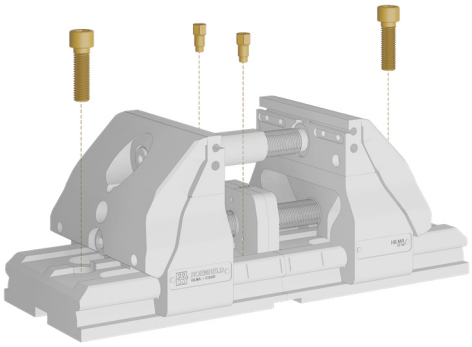


Fig. 44: Loosen connecting bolts and fastening screws

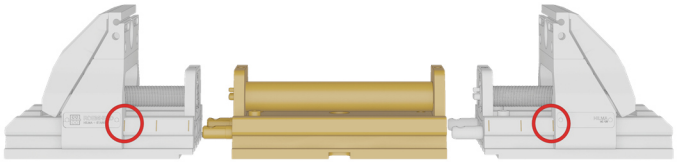


Fig. 45: Inserting the vice base extension

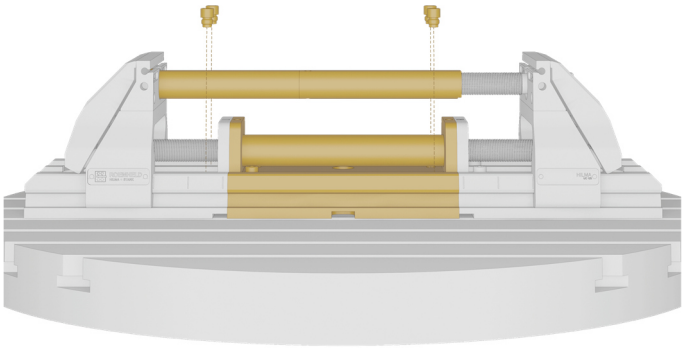


Fig. 46: Fixing the connecting bolts

The different tension spindle/clamping nut combinations allow the clamping range to be extended up to 1000mm.

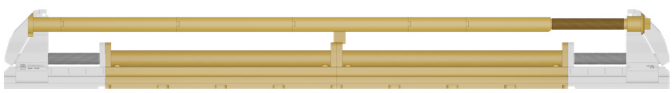


Fig. 47: Configuration for clamping range 900 - 1000 mm

10.6.3 Modification of clamping nuts

The clamping nuts have a modular design. To achieve the desired clamping width, the clamping nut may need to be modified. The following table lists the required extension elements for each clamping width. The base part (570235034) and threaded sleeve (570235035) are required for each clamping range.
An AF 12 socket spanner with a length of 140 mm is required for installation (S999-1088).

Clamping range	Ext. 100 mm (570235036)	Ext. 200 mm (570235037)
196 – 300 mm	0x	0x
296 – 400 mm	1x	0x
396 – 500 mm	0x	1x
496 – 600 mm	1x	1x
596 – 700 mm	0x	2x
696 – 800 mm	1x	2x
796 – 900 mm	0x	3x
896 – 1000 mm	1x	3x

Dismantling:
1.) Clamp the clamping nut in a vice with aluminium jaws (ideally just below the parting plane of the segments to be loosened)
2.) Loosen the connecting screw with an AF 12 socket spanner
3.) Remove segment

Assembly:
1.) Clamp the clamping nut in a vice with aluminium jaws (ideally just below the parting plane of the segments to be connected)
2.) Attach segment
3.) Tighten the connecting screw with a socket spanner AF 12 to 100 Nm

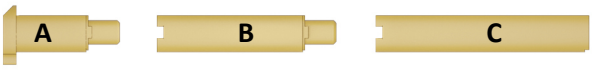


Fig. 48: setup extended clamping nut, base part (A), extension(s) (B), threaded sleeve (C)

10.6.4 Support clamping nut

The clamping nut support can be fitted to simplify the handling of long clamping nuts. This supports the clamping nut. Ideally, the short extension should be fitted to the operating side so that the support is as close as possible to the tension spindle. Can only be used with vice base extensions.
For reference see Fig. 47.

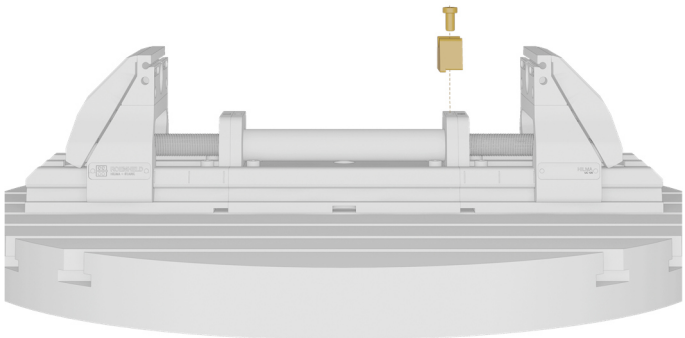


Fig. 49: Assembly of support clamping nut

Assembly:
1.) Place the support clamping nut at the desired position
2.) Tighten M8x16 screw hand-tight
3.) Insert clamping nut

10.7 Adaptor plates

The available adapter plates allow the flexibility of the system to be optimally utilised. Dowel pins (Ø12m6x20) facilitate the exact positioning of the clamping system on the adapter plate, both in the assembled and in the split version (clamping range extension).

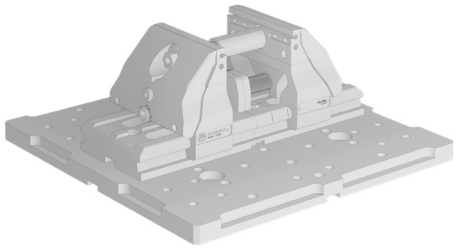


Fig. 50: Clamping system centred on 400x400 mm adapter plate

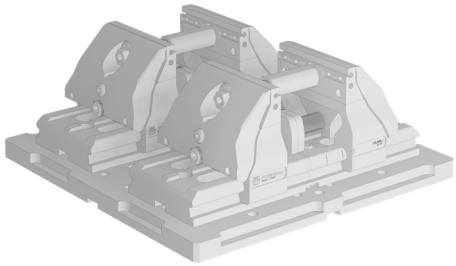


Fig. 51: Two clamping systems on 400x400 mm adapter plate

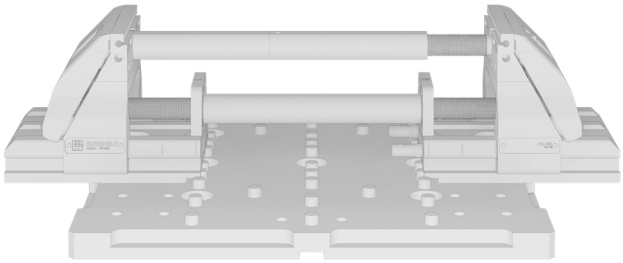


Fig. 52: Clamping system with clamping range extension on 400x400 mm adapter plate

The clamping system is aligned using dowel pins Ø12m6x20 and mounted using M12x40 screws (both included in the fastening set 970235007).

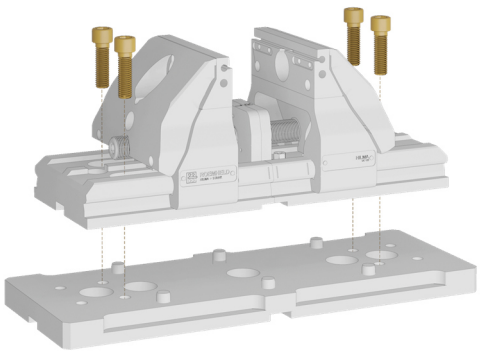


Fig. 53: Mounting on adapter plate

The adapter plate itself can in turn be fastened either using a zero-point clamping system, a direct screw connection in T-slots or clamping claws. All adapter plates can be aligned with slot nuts.

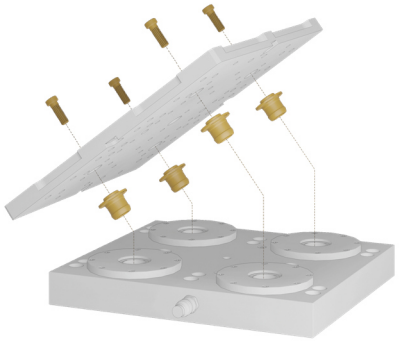


Fig. 54: Combination of adapter plate with zero point clamping system

11 Maintenance

⚠ WARNING

Risk of burns from hot surfaces!

- During operation, surface temperatures on the product can exceed 70 °C.
- Only carry out maintenance and repair work when the unit has cooled down or when wearing protective gloves.

Risk of injury due to breakage of parts of the product!

During operation, parts of the product may break and cause injury to persons.

- Observe the maintenance intervals for the parts in accordance with the operating manual.
- Components and materials subject to wear must be replaced before a dangerous failure occurs.

11.1 Maintenance schedule

Maintenance work	Interval	Implementation
Cleaning	As required	Operator
Regular checks	Daily	Operator
Regular lubrication	At least once a month, at the latest after 200 clamping procedures! (see chapter 11.4)	Operator ⚠**Caution!** If this lubrication is not carried out, the clamping system may fail!
Repair	As required	Specialised personnel

11.2 Cleaning

⚠ CAUTION

Damage to the moving components!

Avoid damaging the moving components (spindle and slides).

Aggressive cleaning agents

The product must not be cleaned with:

- corrosive or caustic components or
- organic solvents such as halogenated or aromatic hydrocarbons and ketone (nitro thinner, acetone etc.)

The element must be cleaned at regular intervals. In particular, the spindle drive and housing area must be cleaned of chips and other liquids.

In case of heavy contamination, cleaning must be carried out at shorter intervals.

11.3 Regular checks

Comply with maintenance intervals

11.4 Regular lubrication and cleaning

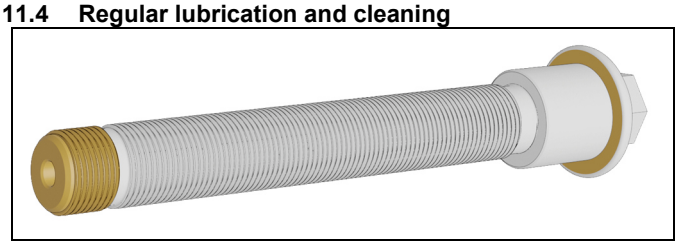


Fig. 55: Surfaces of the tension spindle to be lubricated

1.) The spindle and spindle head must be cleaned and greased (Metaflux 70-81 or similar) every 200 clamping processes
2.) Spray all surfaces once a week with anti-corrosion oil
3.) Every 200 clamping processes, loosen clamping claw and remove swarf from the space in between

11.5 Service / maintenance service

1. Austria and Germany
   Repair at the manufacturer's factory:
   Please return the clamping system carriage paid with a STARK return note.

   Stark Spannsysteme GmbH
   Römergrund 14
   6830 Rankweil, Austria
   Tel: +43 5522 37400
   E-mail: info@stark-roemheld.com

   Repair at the customer's factory:
   Please request the maintenance service.

   Service telephone: +49 6405 89400
   E-mail: service@roemheld.de

2. Third country
   Please contact the HILMA-RÖMHELD general importer or your local dealer.

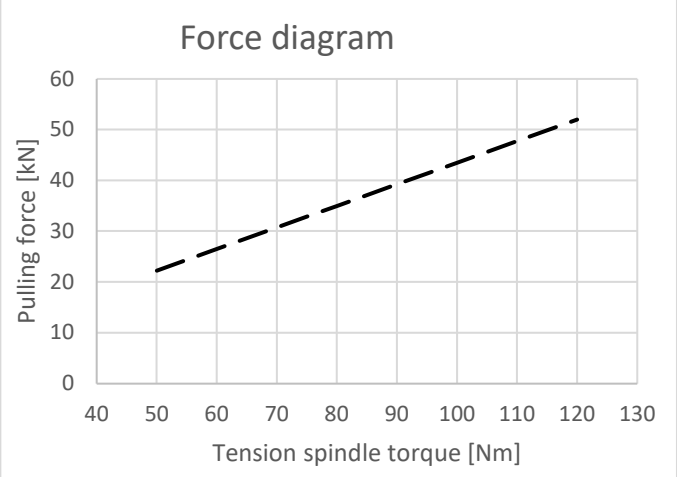
12 Troubleshooting

Fault	Cause	Remedy
Clamping system does not function	Individual parts defective	Vice Replace
No clamping force build up	Clamping range set incorrectly.	See chapter 9.2 "Setting the clamping range".

13 Technical data

Characteristic values

Jaw width [mm]	125
Max. pulling force [kN]	52
Max. torque [Nm]	120
Base length [mm]	350
Weight [kg]	20



Legend:
— — Pulling force (determined in external device)

NOTE

Further details

- Further technical data can be found in the catalogue.

NOTE

- The specified values are to be regarded as guide values and must be designed by the user depending on the application!
  See note!

Thread	Tightening torques (MA) [Nm]		
	8.8	10.9	12.9
M6	10	15	18
M8	25	36	45
M10	49	72	84
M12	85	125	145
M14	135	200	235
M16	210	310	365
M20	425	610	710

Note: Valid for workpieces and shaft screws made of steel with metric thread and head dimensions such as DIN 912, 931, 933, 934 / ISO 4762, 4014, 4017, 4032
The table values for tightening torques (MA) are taken into account:
Steel/steel design, coefficient of friction μtotal = 0.14 - not lubricated, utilisation of minimum yield strength = 90%.

13.1 Storage

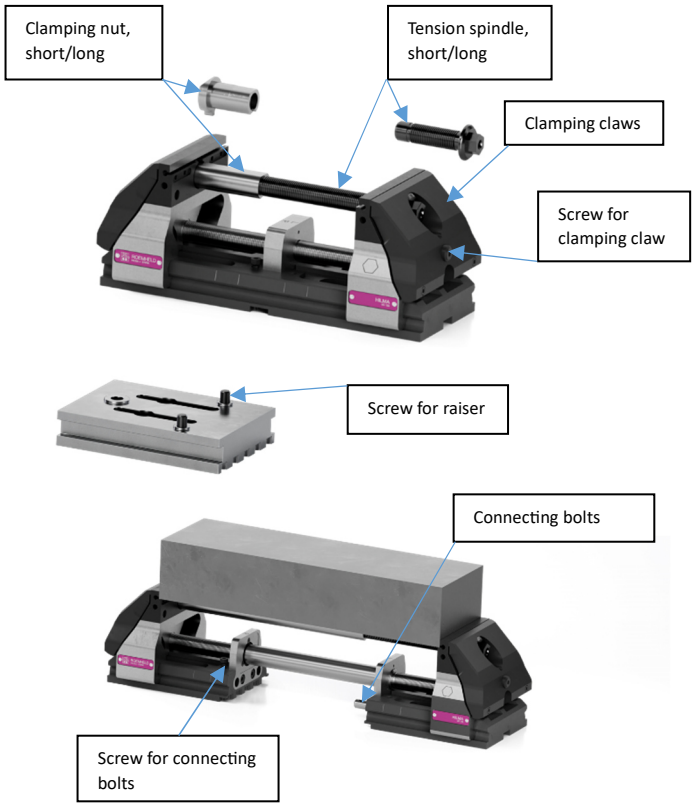
⚠ CAUTION

Storage of components!

- Storage not in compliance with the storage conditions is inadmissible.
- Improper storage can lead to resinification of the anti-corrosion oil or corrosion of the element.

On the outside, the products are treated with an anti-corrosion agent.
The oil film remaining after the test provides six months of internal corrosion protection when stored in dry and evenly tempered rooms.
For longer storage periods, the product must be filled with a non-resinifying corrosion inhibitor and the outer surfaces must be treated.

13.2 Spare parts



Denomination	Pc (s)	Spare part no.
Tension spindle, short	1	570235018
Tension spindle, long	1	570235019
Clamping nut, short	1	570235020
Clamping nut, long	1	570232021
Clamping claws	1	770235022
Screw for clamping claw	1	570235023
Connecting bolt	1	570235024
Screw for connecting bolt	1	570235025
Screw for raiser	1	570235026

Subject to modifications

14 Disposal

Hazardous to the environment
Due to possible environmental pollution, the individual components must be disposed of by an authorised specialist company.

The individual materials must be disposed of in accordance with the applicable guidelines and regulations as well as the environmental conditions.
Special attention must be paid to the disposal of components with residual pressurised fluids. The instructions for disposal in the safety data sheet must be observed.
When disposing of electrical and electronic components (e.g. position measuring systems, proximity switches, etc.), the country-specific legal regulations and provisions must be observed.

15 Declaration of Incorporation

Manufacturer

STARK Spannsysteme GmbH
Römergrund 14
6830 Rankweil Austria
Tel.: +43 5522 37400-0
E-mail: info@stark-roemheld.com
Internet: www.stark-roemheld.com

They are designed and manufactured in line with the relevant versions of the directives **2006/42/EC** (EC MSRL) and in compliance with the valid technical rules and standards.
According to the MD, these products are components that are not ready for use and are intended exclusively for installation in a machine, device or system.
The products may only be put into operation once it has been established that the incomplete machine / machinery into which the product is to be installed complies with the provisions of the Machinery Directive (2006/42/EC).

The manufacturer undertakes to provide the specific documentation of the products to national authorities on request.
The technical documentation in accordance with Annex VII Part B has been prepared for the products.

16 List of applied standards

Product Safety Act; November 2011

DIN EN ISO 12100, 2011--03, Safety of machinery; Basic concepts, general principles for design (replacement for parts 1 and 2)

DIN EN ISO 13857; 2008--06, Safety of machinery; Safety distances to prevent hazard zones being reached by upper and lower limbs. (replaced: DIN EN 294)

DIN EN 349, 2008--09, Safety of machinery; Minimum gaps to avoid crushing of parts of the human body.

DIN EN 81714--2, 2007--08; Design of graphical symbols for use in the technical documentation of products

DIN EN 82079; 2010--10, Preparation of instructions for use; Structuring, content and presentation – Part 1

STARK SPANNSYSTEME GmbH
Martin Greif
Managing director

Rankweil, 27.05.2026

STARK Spannsysteme

A company of the ROEMHELD group

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