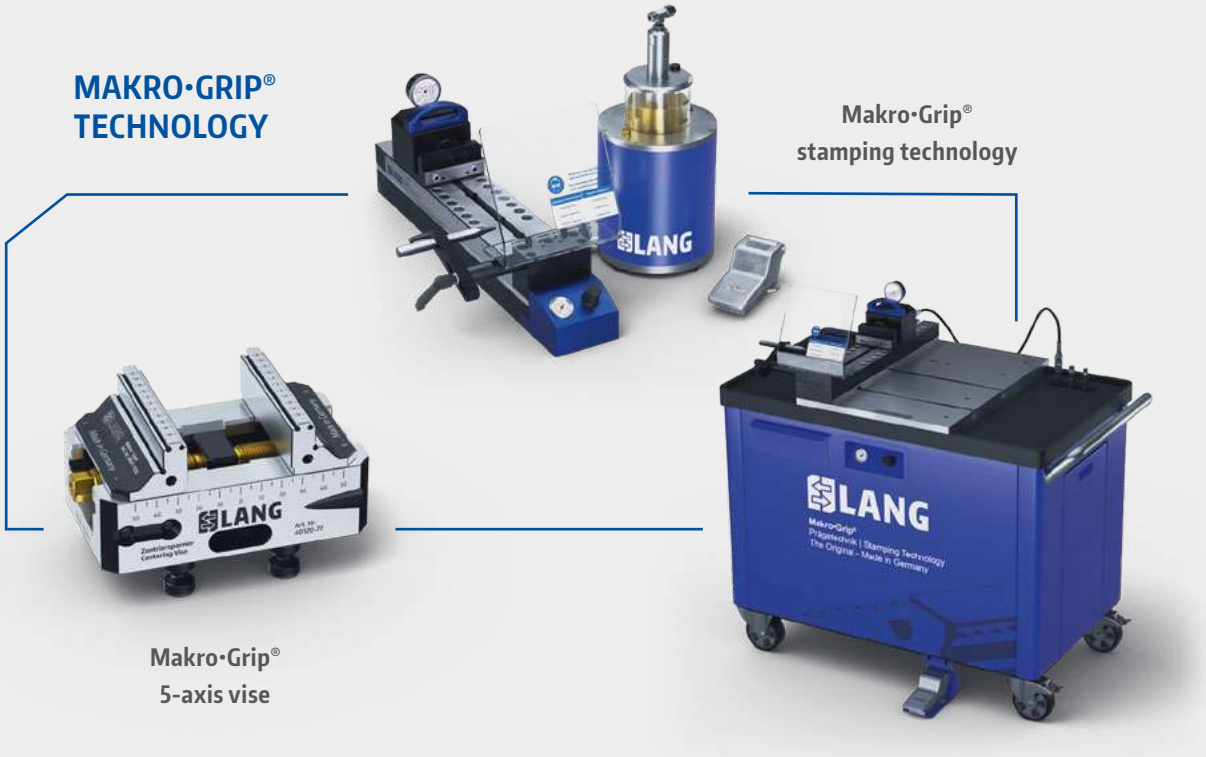
WORKHOLDING

Workholding

Workholding systems from LANG Technik are characterized by:

ENORMOUS HOLDING POWER | **ACCESSIBILITY** | **MODULARITY**

MAKRO·GRIP® TECHNOLOGY



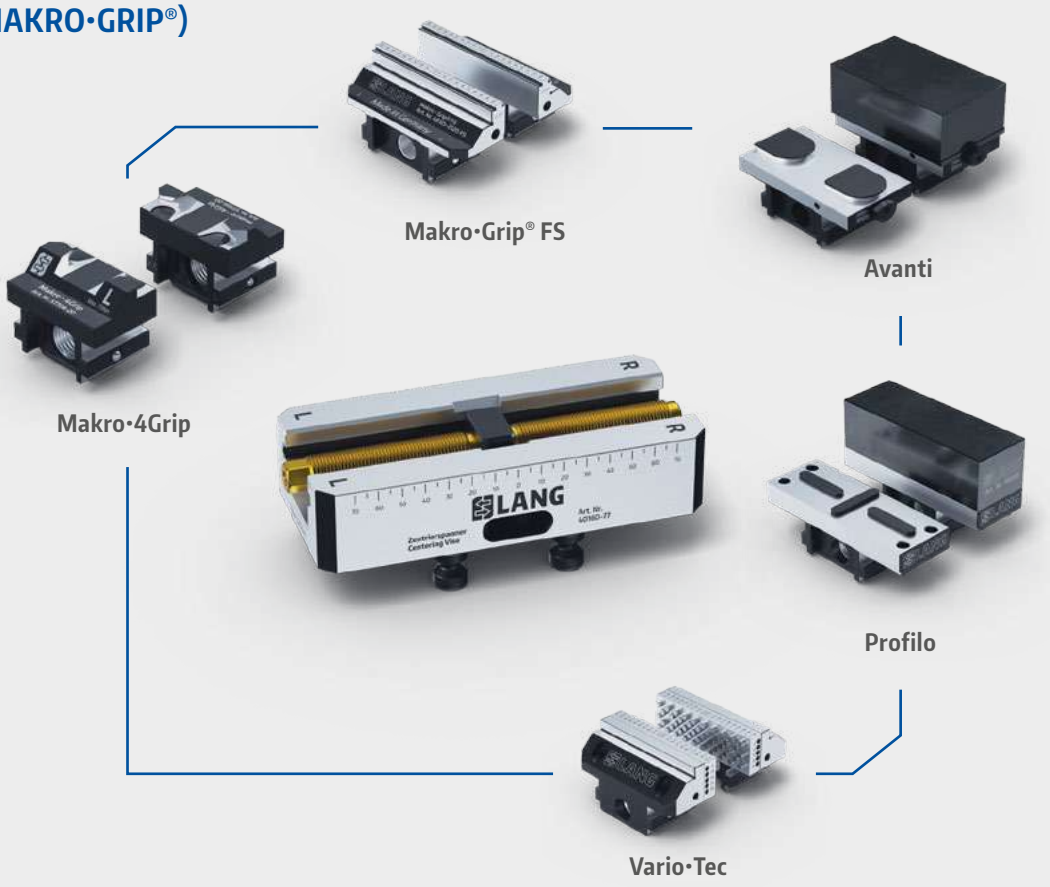
Makro·Grip® stamping technology

Makro·Grip® 5-axis vise

Makro·Grip® Ultra

CLAMPING SYSTEM FOR LARGE PARTS AND PLATES

OTHER CLAMPING SOLUTIONS WITH THE (MAKRO·GRIP®) VISE BASE



Makro·Grip® FS

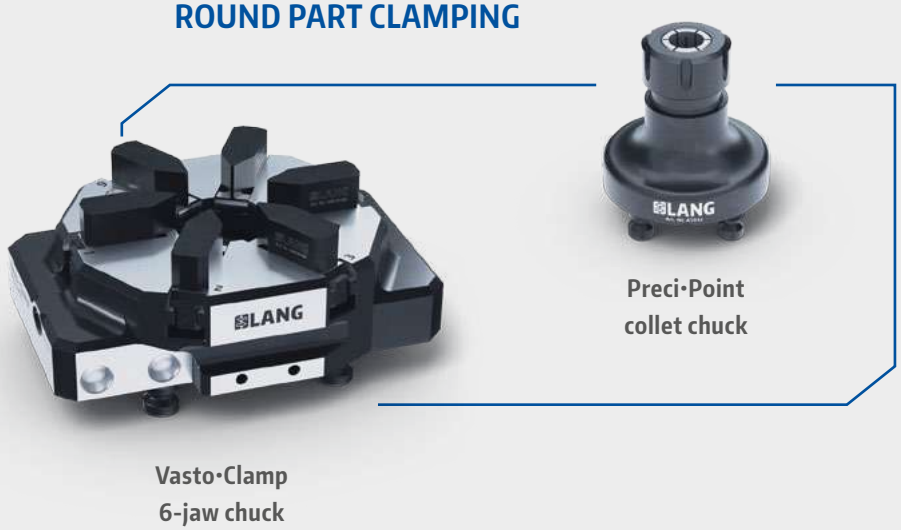
Avanti

Makro·4Grip

Profilo

Vario·Tec

ROUND PART CLAMPING



Preci·Point collet chuck

Vasto·Clamp 6-jaw chuck


LANG
Makro-Grip® FS Prägestation
Das Original
Made in Germany
CE
300
200
100
0
Ser.N.: 338
Ident.-Nr.: 53402

PATENTED

Makro·Grip®

stamping technology

The stamping technology invented by LANG is the centerpiece of the Makro·Grip® workholding technology and guarantees maximum process reliability in the 5-sided machining of raw parts. Due to its great influence on the actual clamping and machining process, stamping technology is considered today's benchmark in workpiece clamping. During pre-stamping, imprints are made in the raw material under high pressure in order to provide it with a contour. Pre-stamping with a stamping unit takes just 5 seconds per workpiece and does not require any machine capacity – but these five seconds will have a lasting effect on your production and the way you clamp your workpieces.

Primary area of application:

- **Form-fit clamping via holding serration**
- **Cuboid components (optional: round)**
- **1st clamping operation, raw part machining**

Benefits:

- **Highest holding forces and maximum process reliability**
- **Fewer clamping operations thanks to ideal accessibility in 5-sided machining**
- **Distortion- and wear-free clamping even with high-tensile material**

Makro·Grip® **stamping technology**

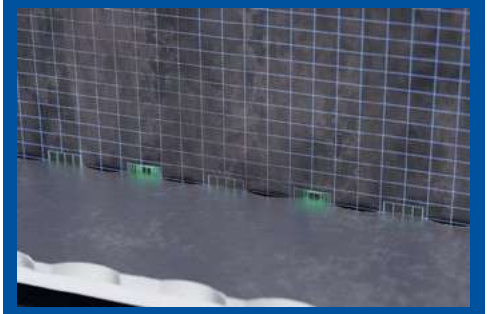
"The Original" – Makro·Grip® clamping technology with form-fit

The requirements for a vise in the CNC machining of raw parts are clearly defined. It should hold the workpiece securely and offer as little interfering contour as possible. However, the approach varies greatly in practice. Some vises hold the blank with smooth clamping jaws via a force or friction fit, while others press into the workpiece with their gripping jaws. However, the most efficient clamping technology is form-fit clamping with pre-stamped blanks. In addition to maximum holding forces, it guarantees absolute process reliability and revolutionized the way workpieces are clamped over 20 years ago. To this day, it is considered the benchmark in 5-sided machining.

Frictional clamping with non-serrated jaws

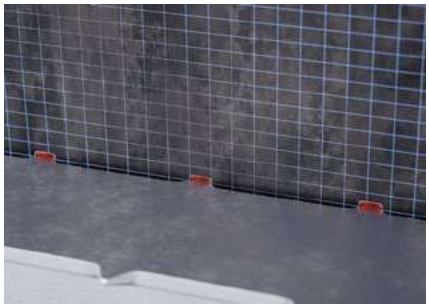
- **high clamping force** is needed,
- therefore **large and bulky vise** is required.
- **parallelism / flatness** of the workpiece **absolutely necessary.**
- **interfering workpiece** stops for positioning necessary.
- often **limited accessibility.**

Form-fit clamping of pre-stamped blanks with Makro·Grip® serration



- **low clamping force** is sufficient,
- therefore **compact vise.**
- **no wear** on the holding serration and **no distortion** when releasing the clamping.
- **no problem with hard materials.**
- **accurate repeat clamping.**
- permanently **constant clamping quality.**

Clamping with conventional gripping jaws

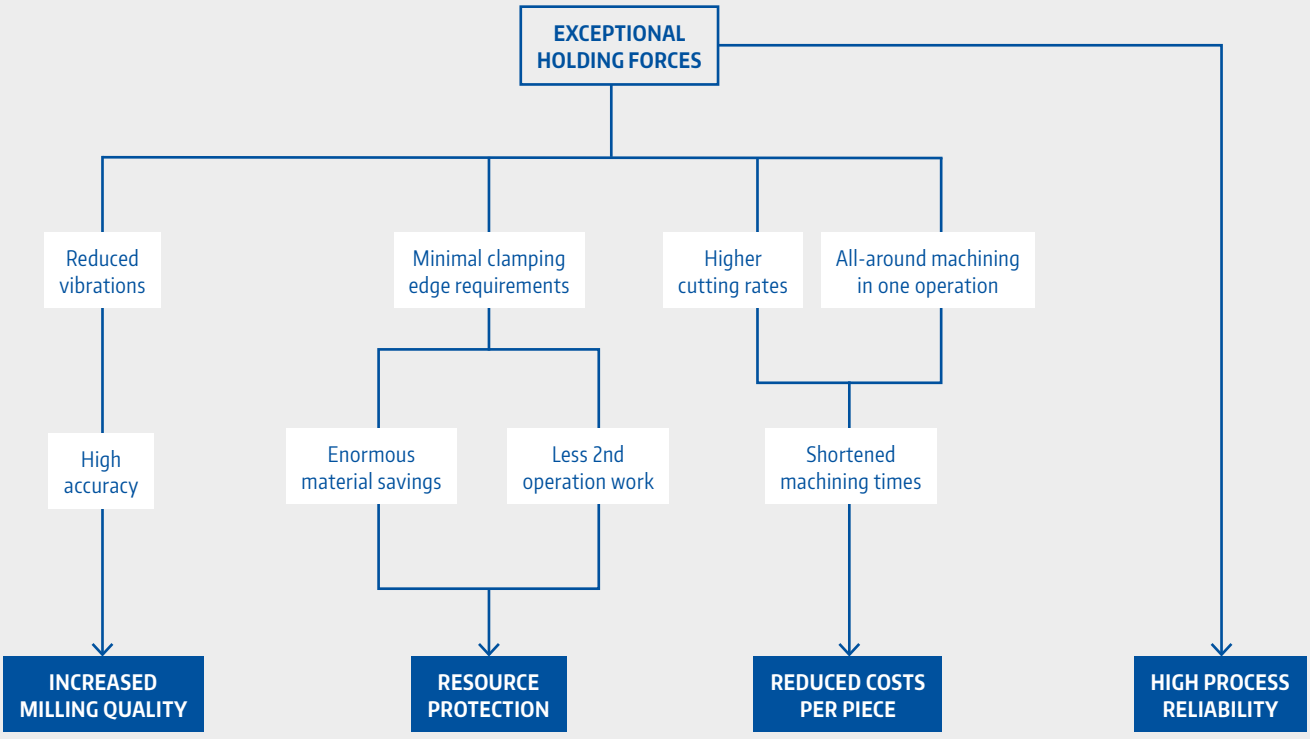


- **high clamping force** is required, especially for hard materials,
- therefore **large vise** is often required.
- **no defined positioning** during reclamping of the workpiece.
- **wear on the serration,** as it has to bite into **the material.**

The cause and effect of pre-stamping

The pre-stamping of blanks has an enormous impact on the entire manufacturing process. Particularly to be emphasized are the strong holding forces, which influence the milling strategy and also have a clear added value in terms of component quality and offer a high cost-saving potential.

Conventional vises penetrate the workpiece blank with high forces exposing both, the vise and the workpiece to high strains. The Makro·Grip® technology however uses a different approach. By pre-stamping the workpiece blank with up to 20 tons of pressure and preparing it with a defined contour, the forces are already applied before the actual clamping process. Once it is prepared with the contour (pyramid-shaped truncated indents), the Makro·Grip® 5-axis vise can hold the workpiece by form-fit, absolutely gently and securely with low clamping pressure – always with the same clamping jaws, regardless of the material and the hardness. Due to the low clamping pressure, distortion on the workpiece as well as wear on the vise can virtually be ruled out. Even with high-tensile material an always consistent clamping quality is guaranteed, which is crucial to achieving the desired quality of the machined workpiece.



Simply explained: Form-fit through pre-stamping

During pre-stamping, the workpiece blank is provided with a defined contour under high pressure. This process takes place at a stamping unit before the actual clamping process. In the clamping process with a 5-axis vise, the holding serration grips this contour and holds the blank with by form-fit without having to penetrate the material.

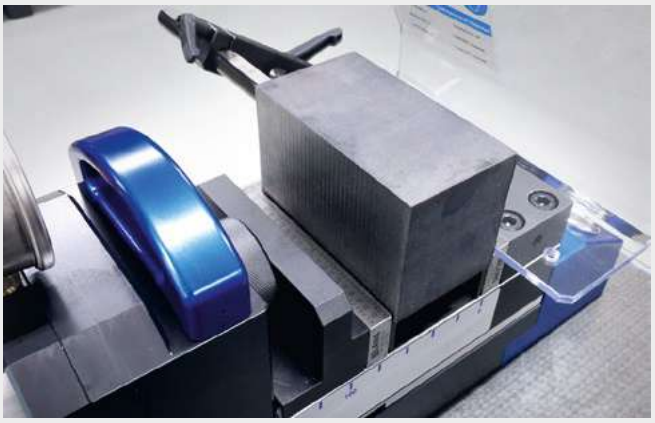
Minimal time investment for maximum added value! How to pre-stamp

Significant added value for workpiece clamping can be achieved in just a few steps by pre-stamping a workpiece blank. The pre-stamping process takes less than five seconds and requires no additional machine capacity. The pre-stamping takes place directly on the saw cut or the oxide layer, without any further preparatory work. The form-fit between the contour in the raw material and the holding serration of the 5-axis vise enables precise positioning without the need for a workpiece end stop.

The space-saving production booster – Where pre-stamping takes place

The options for pre-stamping workpieces are diverse and can be ideally integrated into your work processes and environment. Do you prefer to use your stamping unit flexibly and at different places in your machine shop? Or do you want to position it right next to your saw or the place where you equip your vises? Suitable solutions are available for both options – either on a mobile stamping trolley or in a stationary version for your workbench.

Which part shapes and materials can be pre-stamped?



The stamping technology is suitable for both cylindrical and cuboid blanks (two parallel surfaces) and can be used with all non-brittle materials. Excluded are, for example, graphite, composite fiber materials such as carbon, and in some cases cast iron. Hollow and thin-walled workpieces are only suitable for pre-stamping to a limited extent. If necessary, a test stamping should be conducted at low pressure.

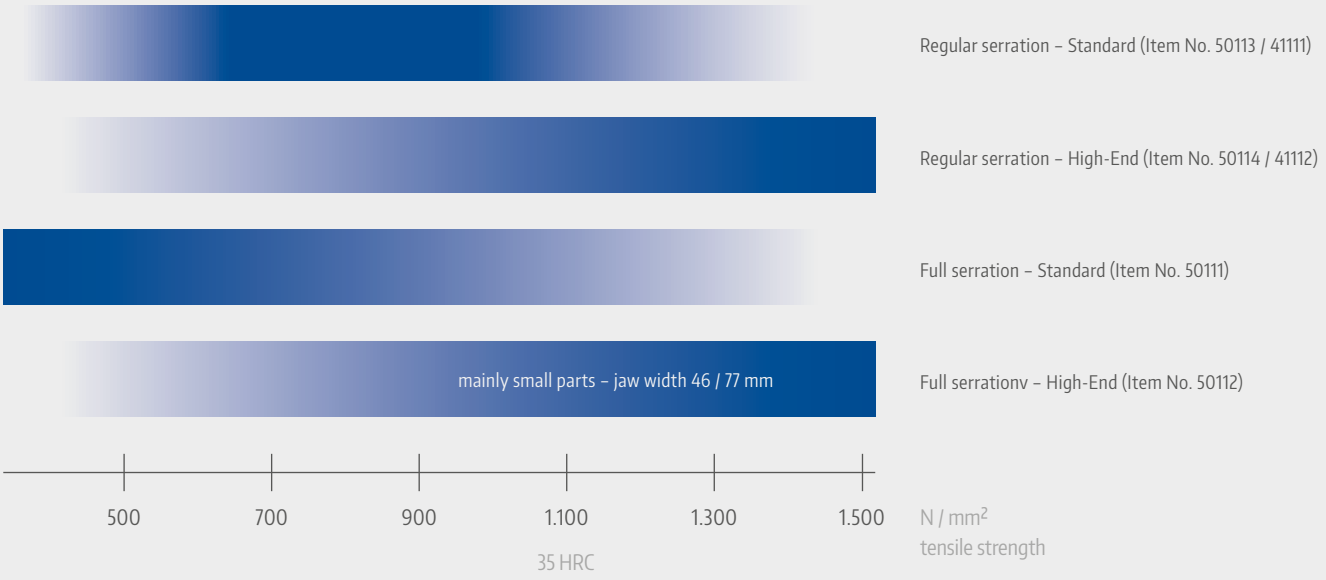
Stamping jaw versions for different materials

Each material is characterized by very specific material properties. Tensile strength and toughness play a particularly important role in pre-stamping. We offer a total of four different stamping jaw versions in order to achieve optimum efficiency in pre-stamping for every material that can be stamped. These are differentiated by the type of stamping serration and are designed for different material hardnesses.

→ The choice of stamping jaws depends on the **tensile strength** and **toughness** of the material.

Effective ranges of the different stamping jaws in terms of tensile strength

The darker the bar, the greater the effective range of the respective stamping jaws.



A CLOSER LOOK:

UP TO 60 % HIGHER HOLDING FORCES

Where Makro·Grip® FS pays off

- for soft materials such as aluminium or materials with high toughness and poor machinability, such as titanium alloys and stainless steels
- for slim workpieces where only a few clamping teeth are engaged
- for high cutting rates in combination with both of the above points

* in the effective area of application.

Makro·Grip® – regular serration

TYPE	MAKRO·GRIP®	
Type of serration	Regular serration	
Tooth-to-tooth distance	6 mm	
Characteristic	Alternating teeth and control marks	
Version	**Standard**	**High-End**
Field of application	Universally applicable up to a tensile strength of 1,100 N / mm²	Ideally suited for all materials over 1,100 N / mm² that can be stamped

Makro·Grip® FS – full serration

PATENTED

UP TO 60 % HIGHER HOLDING FORCES

TYPE	MAKRO·GRIP® FS	
Type of serration	Continuous / full serration	
Tooth-to-tooth distance	3 mm	
Characteristic	Continuous row of teeth	
Version	**Standard**	**High-End**
Field of application	Can be used for soft and tough materials and slim workpieces. Application range up to a tensile strength of 1,100 N / mm²	Ideally suited for all slim workpieces with a high tensile strength over 1,100 N / mm²

Correct stamping with Makro·Grip® stamping jaws

Stamping contour
up to tensile strength 1,100 N / mm²

The stamping contour with alternating stamping imprints and control marks is clearly visible. The depth of the control marks should be around 0.05 mm. The depth of the stamping imprints is approx. 0.20 mm.

Stamping contour
from tensile strength 1,100 N / mm²

For material with a tensile strength of 1,100 N / mm² or more, the control marks should not be visible. The depth of the stamping imprints is approximately 0.10 mm.

Correct stamping with Makro·Grip® FS stamping jaws

Stamping contour
up to tensile strength 550 N / mm²

For materials up to approx. 550 N / mm² tensile strength, the control marks may be visible above and below the stamping contour on the material. The depth of the stamping imprints is then approx. 0.3 mm. This applies across the board for all workpiece widths.

Stamping contour
from tensile strength 550 N / mm²

From a tensile strength of 550 N / mm², the workpiece width defines whether the control marks are visible. For slim workpieces up to approx. 77 mm, the control marks are still visible, although not as clearly.

With wide workpieces of around 125 mm and a tensile strength of 550 N / mm² or more, the control marks are no longer visible. In this case, we recommend using the stamping depth measuring device to set the correct stamping depth (see page 105).

Setting the stamping pressure correctly

The variety of alloys makes it difficult to make an exact statement about the stamping pressure to be set. In addition to the type of material, the width of the workpiece and the surface texture play an important role. In general, we recommend always starting with a low stamping pressure and slowly increasing it until the desired stamping depth is reached in the workpiece. It is therefore recommended to carry out a test stamping before each series of stamping jobs.

The right stamping depth

The stamping pressure is set via the pressure control valve on the stamping unit. The following table provides information on the correct stamping depth for different tensile strengths. This is applied to both types of stamping jaws (Makro·Grip® and Makro·Grip® FS).

TENSILE STRENGTH RM	STAMPING DEPTH
up to 550 N / mm²	approx. 0.3 mm
550 – 1,100 N / mm²	approx. 0.2 mm
1,100 – 1,400 N / mm²	approx. 0.1 mm

If the control marks are not visible when pre-stamping with Makro·Grip® FS stamping jaws due to the tensile strength and/or workpiece width, we recommend using the stamping depth measuring device (item no. 50150 or 50152, see page 114)

Benefits of the stamping depth measuring device

- Defined stamping depth
- Increased process reliability
- Minimization of operating errors

Clamping large workpieces with compact vises

Stamping Technology allows the Makro·Grip® 5-axis vise to clamp workpieces which substantially exceed its volume. Despite a clamping depth of only 3 mm the Makro·Grip® stamping technology guarantees highest process reliability. The compact design in relation to the maximum allowed workpiece size ensures ideal accessibility and thus allows for short tools which results in reduced vibrations and higher cutting rates..

As a guideline, the Makro·Grip® 5-axis vise is able to clamp parts of following size:

Width of workpiece:
3 × jaw width of vise
Height of workpiece:
2 × jaw width of vise

"One and done" – finishing parts in one operation

The form-fit between clamping jaw serration and stamping contour makes it possible to safely pick up the workpiece at its smallest cross-section and clamp it edgewise with ideal accessibility. This strategy allows a lot of parts to be finished in one operation. For automated, lights-out machining it means that complete batches can be produced without the presence of an operator.

Precicut Zerspanungstechnik GmbH & Co. KG

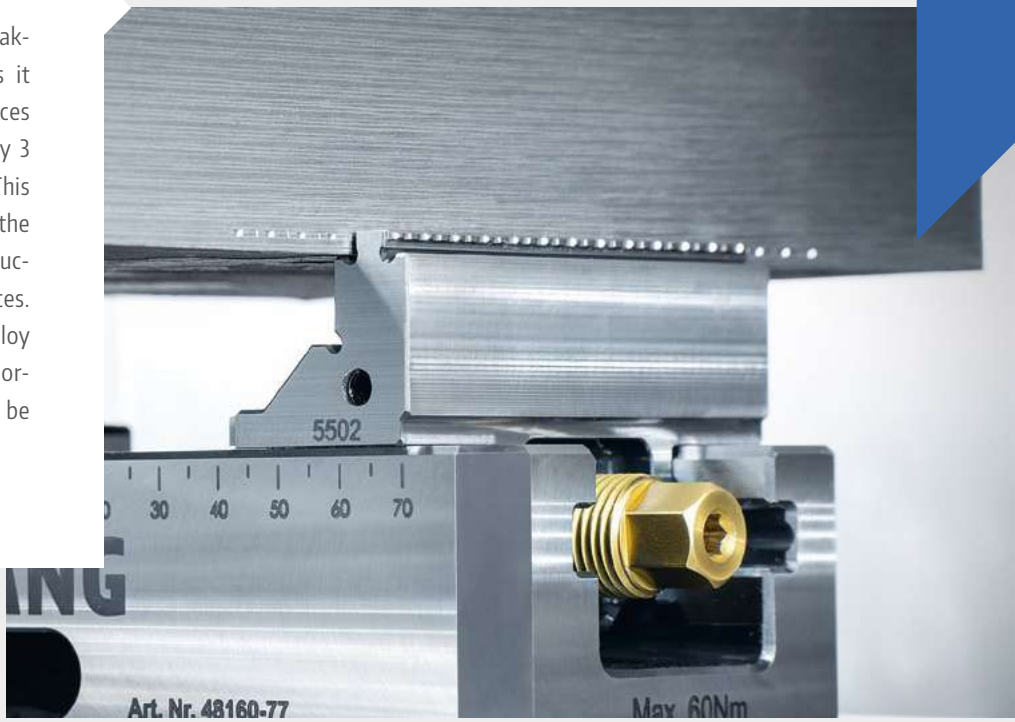
Material of the pre-stamped and clamped component: 1.2714 QT

Wear-free clamping of high-strength material

Since the workpiece is pre-stamped outside of the machine, there is almost no wear on the clamping device or the clamping jaws. The form-fit clamping technology ensures the necessary process reliability, even when machining high-strength materials. Even tough materials that are difficult to machine, such as titanium and stainless steel, can be easily pre-stamped and reliably held in the Makro·Grip® 5-axis vise, without any wear on the gripping jaws, thus guaranteeing consistent clamping quality long-term.

Minimal clamping depth saves material costs

The form-fit clamping with the Makro·Grip® stamping technology makes it possible to hold even large workpieces with a minimal clamping edge of only 3 mm in a safe and reliable manner. This not only means fewer chips during the second operation and thus faster production processes, but also saves resources. In particular, when machining high-alloy steels and high-quality aluminium, enormous raw material cost savings can be achieved this way.



Makro·Grip®

Stamping Unit:

- stamping unit base in two different lengths
- stamping range 260 mm or 410 mm
- quick adjustment of the stamping range
- pneumatic foot or hand switch for triggering the stamping process
- scaled workpiece end stop
- pressure control valve for adjusting the stamping pressure
- quick-connect coupling system on the hydraulic housing
- makrolon protection shield
- pneumatic-hydraulic power multiplier (up to 360 bar)
- optional accessories such as: center marking tool, centering device, stamping depth measuring device

Additional features of the stamping trolley:

- mobile workshop trolley for flexible use at any location
- drawer for storing tools and accessories
- plastic tray with generous space
- option to retrofit a grooved plate
- available in three different versions
  - without grooved plate and a short stamping base
  - with grooved plate and a long stamping base
  - with grooved plate and two long stamping bases


LANG
Makro•Grip®
Prägetechnik | Stamping Technology
The Original - Made in Germany

Makro·Grip® **stamping units**

PLEASE NOTE: STAMPING JAWS MUST NOW BE ORDERED SEPARATELY.

MAKRO·GRIP® STAMPING UNIT FOR WORKBENCHES

ITEM NO.	TYPE	MAX. STAMPING RANGE	WEIGHT
52610	Standard	260 mm	73 kg
54110	Extended	410 mm	83 kg

Includes: Stamping vise, pneumatic-hydraulic power multiplier (1 – 360 bar), foot pedal, protection shield, scaled workpiece end stop

Suitable stamping jaws:

Makro·Grip®
Standard,
regular serration for
materials up to 35 HRC
Item No. 50113

Makro·Grip®
High-End,
regular serration for
materials up to 45 HRC
Item No. 50114

Makro·Grip® FS
Standard,
full serration for
materials up to 35 HRC
Item No. 50111

Makro·Grip® FS
High-End,
full serration for
materials up to 45 HRC
Item No. 50112

Makro·4Grip
stamping jaws for
round blanks for
materials up to 45 HRC
Item No. 51111

LANG recommends:

Conversion set for existing stamping units

Simply retrofit an existing stamping unit (Item No. 41...) and benefit from the latest upgrades to the stamping unit.

- No more reconditioning of your stamping jaw serration
- Increased user-friendliness thanks to new accessories

More information on page 117.

New stamping jaws with four serrated rows

4 times longer service life without reconditioning of stamping jaws.

MAKRO·GRIP® STAMPING JAWS WITH REGULAR SERRATION

ITEM NO.	TYPE	FOR MATERIALS	QTY
50113	Standard	up to 35 HRC	1 pair
50114	High-End	up to 45 HRC	1 pair

Includes: Set of 3 mm parallels

- Universally applicable for all materials up to approximately 1,400 N / mm² that can be pre-stamped

MAKRO·GRIP® FS STAMPING JAWS WITH CONTINUOUS / FULL SERRATION

ITEM NO.	TYPE	FOR MATERIALS	QTY
50111	Standard	up to 35 HRC	1 pair
50112	High-End	up to 45 HRC	1 pair

Includes: Set of 3 mm parallels

- for soft materials such as aluminium or materials with high toughness and poor machinability, such as titanium alloys and stainless steels
- for slim workpieces where only a few clamping teeth are engaged
- for high cutting rates in combination with both of the above points

Makro·Grip® **stamping trolley**

PLEASE NOTE: STAMPING JAWS MUST NOW BE ORDERED SEPARATELY.

STAMPING TROLLEY WITH MAKRO·GRIP® STAMPING UNIT

ITEM NO.	TYPE	MAX. STAMPING RANGE	STAMPING VISES	GROOVED PLATE
52611	Standard	260 mm	1	no
54112	Extended	410 mm	1	yes
54122	Extended	2 × 410 mm	2	yes

Includes: Trolley with stamping vise, pneumatic-hydraulic power multiplier (1 – 360 bar), foot pedal, protection shield, scaled workpiece end stop.
Depending on the version: Second stamping vise, second protection shield, grooved plate

Suitable stamping jaws:

Makro·Grip®
Standard,
regular serration for
materials up to 35 HRC
Item No. 50113

Makro·Grip®
High-End,
regular serration for
materials up to 45 HRC
Item No. 50114

Makro·Grip® FS
Standard,
full serration for
materials up to 35 HRC
Item No. 50111

Makro·Grip® FS
High-End,
full serration for
materials up to 45 HRC
Item No. 50112

Makro·4Grip
stamping jaws for
round blanks for
materials up to 45 HRC
Item No. 51111

ADDITIONAL STAMPING VISE FOR DUAL STAMPING

ITEM NO.	TYPE	MAX. STAMPING RANGE	WEIGHT
52613	Standard	260 mm	29 kg
54113	Extended	410 mm	36 kg

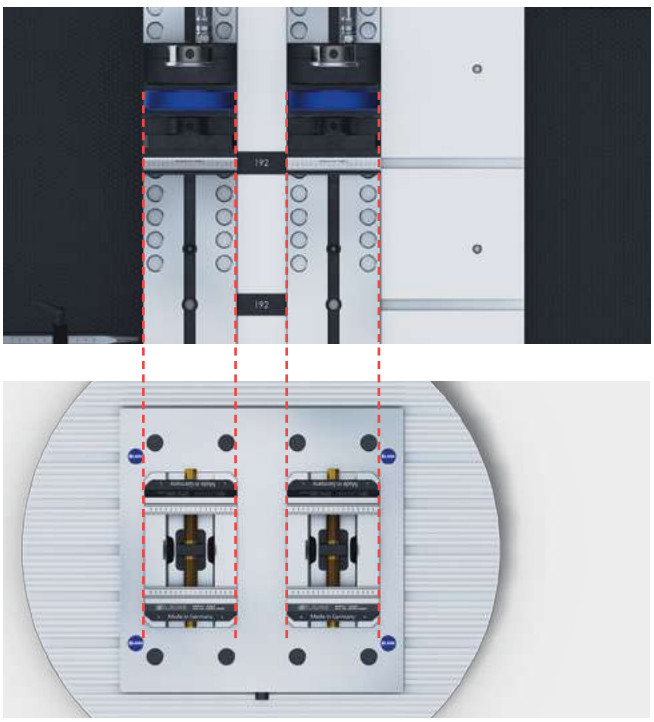
Includes: Mounting and conntecting material

MAKRO·GRIP® STAMPING UNIT SPACERS

ITEM NO.	LENGTHS	QTY
53020	12 / 28 / 68 / 260 mm	1 set

Utilization of stamping unit spacers

Stamping unit spacers are used to quickly and precisely set the exact distance between two stamping vises on a grooved plate. They are inserted into the t-slot and placed between the two base bodies. By using different lengths, common distances of the Quick·Point® zero point clamping system can be simulated: 52 mm, 104 mm, 192 mm and 384 mm.



Accessories for Makro·Grip® stamping units

CENTERING DEVICE FOR MAKRO·GRIP® STAMPING UNIT

ITEM NO.	MAX. WORKPIECE WIDTH	QTY
50151	205 mm	1 pc.

Automatic, centered positioning of the blank (up to workpiece width 205 mm) without prior measuring or setting of a workpiece endstop.

DEPTH GAUGE FOR MAKRO·GRIP® STAMPING UNIT

ITEM NO.	QTY
50152	1 pc.

Convenient setting of the correct input pressure by reading off the correct stamping depth on a dial gauge without additional visual inspection.

CENTERING DEVICE & DEPTH GAUGE SET FOR MAKRO·GRIP® STAMPING UNIT

ITEM NO.	MAX. WORKPIECE WIDTH	QTY
50150	205 mm	1 set

The new accessory set of centering device and depth gauge saves time during setup and reduces the likelihood of operator application errors.

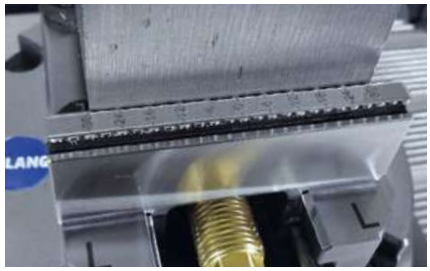
Center marking tool

The center marking tool plunges a notch above the stamping contour at the center of the part. This marking allows the exact and centric positioning of parts in Makro·Grip® 5-axis vises without any end stops.

CENTER MARKING TOOL

ITEM NO.	DESCRIPTION
41010	Center marking tool
41010-01	Spare marking stud

The center marking tool will be mounted to the moveable jaw of the stamping unit with two M 6 × 14 screws (included).



Gauging blocks for measuring wear of stamping jaws

Creating trust! Always the same clamping quality. To ensure consistent holding power in the clamping device, it is necessary to check the wear of the stamping teeth regularly.

MAKRO·GRIP® GAUGING BLOCKS

ITEM NO.	SUITABLE FOR STAMPING JAWS	QTY
41020	Item No. 50113 / 50114 and 41111 / 41112	1 set

MAKRO·GRIP® FS GAUGING BLOCKS

ITEM NO.	SUITABLE FOR STAMPING JAWS	QTY
50153	Item No. 50111 / 50112	1 set

Utilization of gauging blocks

The checking procedure is identical for both variants. First, the two gauging blocks are positioned with the recesses at the outer ends of the stamping jaws and clamped. It is important to ensure that the stamping teeth are placed in the recesses. If the measuring block now fits centrally between the stamping teeth, the service life of the serration has been exceeded. The stamping jaws should be turned (new stamping jaw versions – Item No. 51111 – 51114) or sent in for reconditioning (for stamping jaws with Item No. 41111 / 41112).

Accessories for previous Makro·Grip® stamping units

Stamping jaws

MAKRO·GRIP® STAMPING JAWS WITH REGULAR SERRATION

ITEM NO.	TYPE	FOR MATERIALS	QTY
41111	Standard	up to 35 HRC	1 pair

Includes: Set of 3 mm parallels

MAKRO·GRIP® STAMPING JAWS WITH REGULAR SERRATION

ITEM NO.	TYPE	FOR MATERIALS	QTY
41112	High-End	up to 45 HRC	1 pair

Includes: Set of 3 mm parallels

Reconditioning of **serration**

Left: Stamping jaw with original thickness of 18 mm.
Right: Reconditioned stamping jaw with a thickness of 15 mm.

RECONDITIONING OF STAMPING JAWS

ITEM NO.	DESCRIPTION
41111-01	Standard stamping jaws
41112-01	High-End stamping jaws

When the stamping teeth are worn out the jaws can be reconditioned up to 6 times per pair. The original thickness of a stamping jaw is 18 mm. With every reconditioning process the thickness is reduced by 0.5 mm until it has reached 15 mm (measured at the highest stamping tooth tip). If a stamping tooth is broken off more than the regular 0.5 mm per reconditioning is required. The total amount of possible reconditioning processes is reduced accordingly.
Note for dual stamping: With every reconditioning process we generally supply shims. The thickness of these shims is determined by the remaining thickness of the stamping jaw. Thickness of stamping jaw and shim will always amount to 18 mm. This guarantees that stamping jaws which have been reconditioned at different intervals can be used together, applying the same pressure on the workpiece

LANG recommends:

In order to bridge the time of the reconditioning process we suggest keeping a second pair of stamping jaws in reserve!

Conversion set for existing stamping units

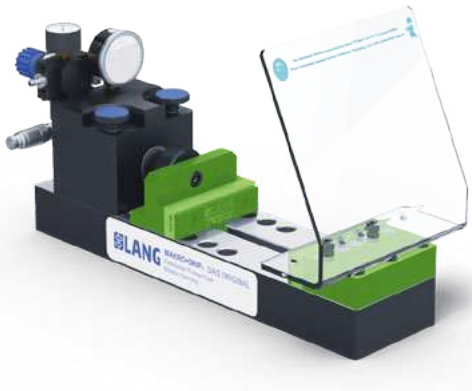
Would you like to equip your existing stamping unit with the new 4-way serrated stamping jaws or improve the handling of your stamping unit with new accessory options? Then this conversion set offers a cost-effective way to upgrade your stamping unit. This set consists of a fixed and a movable carrier jaw, to which the new stamping jaws are attached. It is compatible with all stamping units that begin with Item No. 41...

- No more reconditioning of your stamping jaw serration
- Increased user-friendliness thanks to new accessories

STAMPING UNIT CONVERSION SET

ITEM NO.	FOR	QTY
51260-20	all Makro·Grip® stamping units starting with Item No. 41...	1 pair

The conversion set (consisting of a fixed and movable carrier jaw) can be used to mount new Makro·Grip® stamping jaws, as well as the centering device and stamping depth measuring device, on existing stamping units. Note: Stamping jaws are not included in the scope of delivery!



New 4-way serrated stamping jaws on existing stamping units.

Mounted centering device and stamping depth measuring device on existing stamping unit.

Still available for previous stamping units:

Center marking tool (page 114)
Gauging blocks (page 115)


1002
1002
60 50 40 30 20 10 0 10 20 30 40 50 60
1002
LANG
Makro•Grip®
5-Achs-Spanner
Art. Nr. 48155-125
L
Zu
Close
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Quick•Point®
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PATENTED

Makro·Grip®

5-axis vise

The Makro·Grip® 5-axis vise is the perfect clamping device for 5-sided machining of raw parts. Thanks to its compact design and the low clamping depth of the workpieces, it offers particularly good accessibility and at the same time enables high material savings. Thanks to its form-fit clamping technology, the Makro·Grip® offers the highest holding forces and therefore maximum safety. Despite great holding forces, only low clamping forces are required, which enables distortion-free, secure, and gentle clamping. This has a positive effect on the workpiece quality and the durability of the clamping device.

Primary area of application:

- **Form-fit clamping via holding serration**
- **Cuboid components**
- **1st clamping operation, raw part machining**

Benefits:

- **Highest holding forces and maximum process reliability**
- **Fewer clamping operations thanks to ideal accessibility in 5-sided machining**
- **Distortion and wear-free clamping**

Makro·Grip®

Clamping jaws:

- reversible jaws milled from solid material
- Makro·Grip® clamping technology (form-fit clamping)
- with holding serration on both sides
- 3 mm clamping depth (can be adjusted for raw material with radius)
- minimal interfering contours
- additional clamping options for smooth clamping

Base body:

- made of robust, case-hardened steel
- compact, handy design and low weight
- TIN-coated threaded spindle in encapsulated center piece
- low tightening torque for gentle, distortion-free clamping
- integrated zero point interface
- equipped with automation interface
- fully compatible with the clamping jaw types for 2nd clamping operation
- can be used as a single- or multi-clamping vise
- centering accuracy ± 0.02 mm


LANG
Zentrierspanner
Centering Vise

Different versions of the 5-axis vise

Makro·Grip® 5-axis vise 46

Makro·Grip® Micro

Jaw width: 46 mm
Base width: 46 mm
Base length: 77 mm

Jaw width: 46 mm
Base width: 77 mm
Base length: 77 mm

Makro·Grip® 5-axis vise 77

Jaw width: 46 mm
Base width: 77 mm
Base lengths: 102 / 130 mm

Jaw width: 77 mm
Base width: 77 mm
Base lengths:
102 / 130 / 170 / 210 mm

Makro·Grip® Night King

Jaw width: 77 mm
Base width: 77 mm
Base length: 130 mm

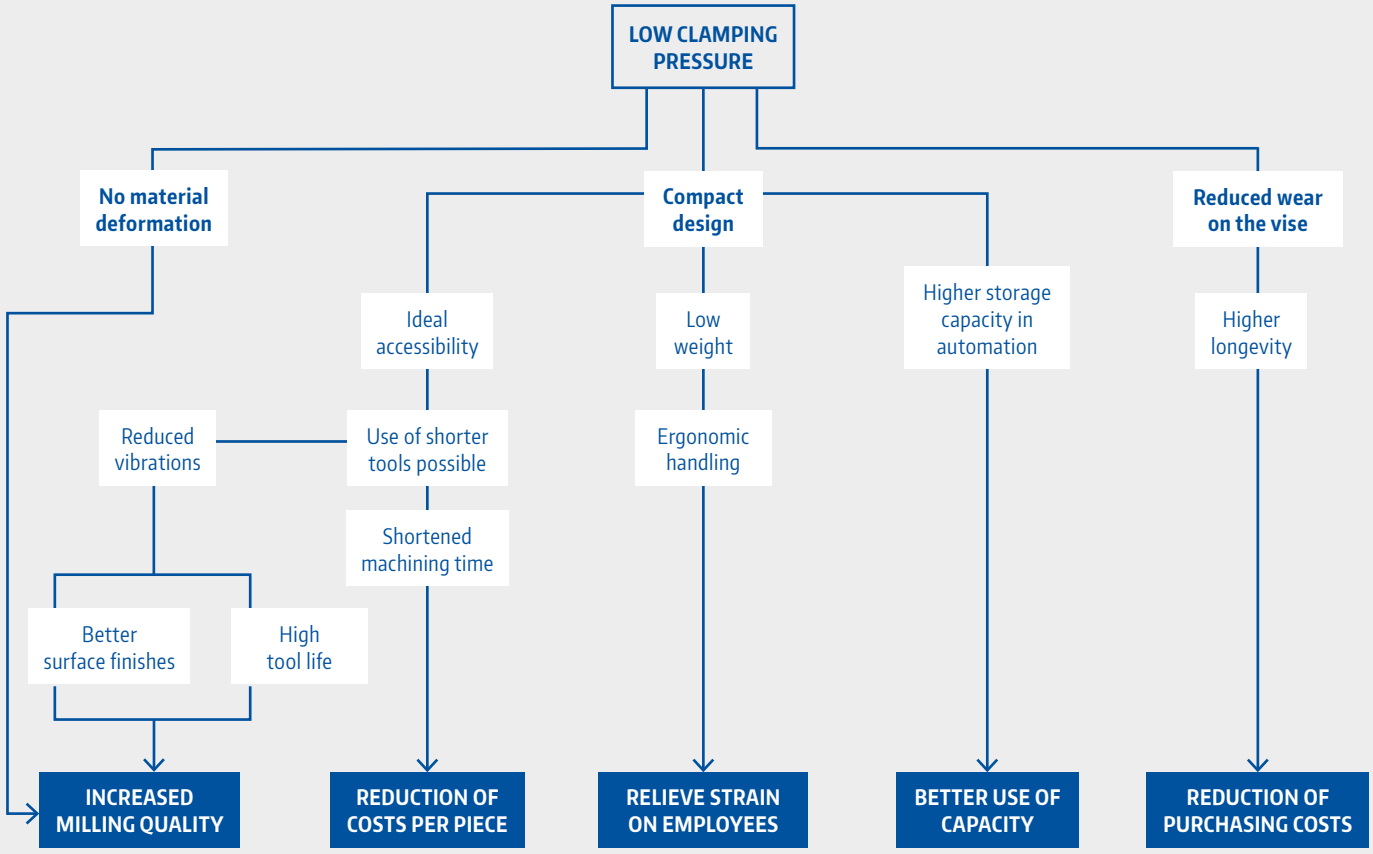
Makro·Grip® 5-axis vise 125

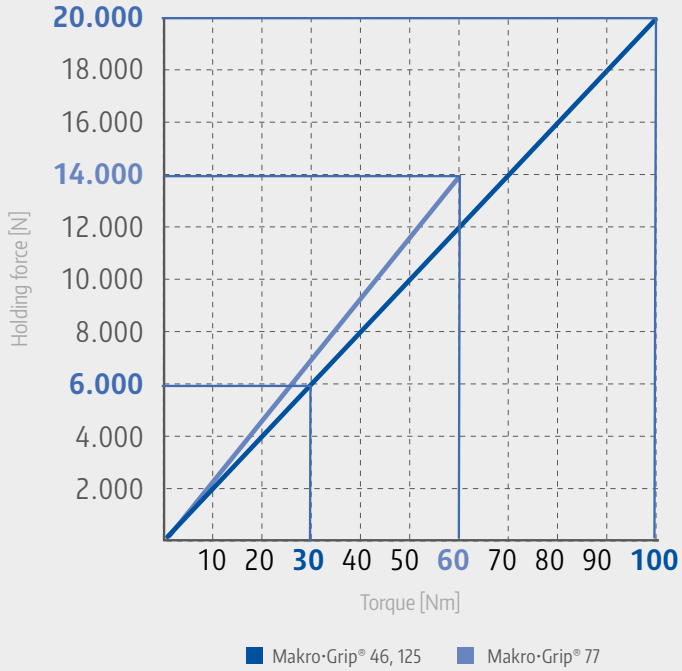
Jaw width: 77 mm
Base width: 125 mm
Base lengths: 160 / 210 mm

Jaw width: 125 mm
Base width: 125 mm
Base lengths:
160 / 210 / 260 / 310 / 360 mm

The benefits of pre-stamping on the clamping process

The external pre-stamping of the workpiece relieves the 5-axis vise. While conventional machining vises with serration have to work double duty (1. indent the material, 2. hold the workpiece), the function of the Makro·Grip® 5-axis vise is limited to only holding the workpiece. The compact build of the Makro·Grip® 5-axis vise is possible due to the requirement of much lower clamping forces. The resulting advantages are shown below.

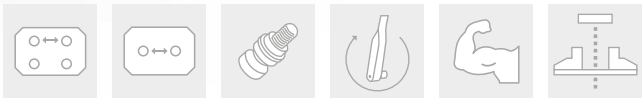




Clamping pressure / holding force ratio

Thanks to the form-fit clamping technology, workpieces can be securely clamped with low clamping pressure. Deformation and distortion of the material while clamping and releasing is impossible! This diagram highlights the relation between the actuation torque and the resulting holding forces with our three vise sizes – 46 mm, 77 mm and 125 mm.

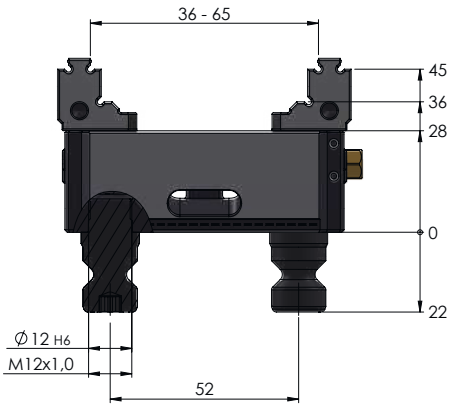
Makro·Grip® **46 Micro, 5-axis vise** jaw width 46 mm

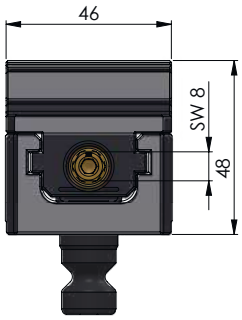


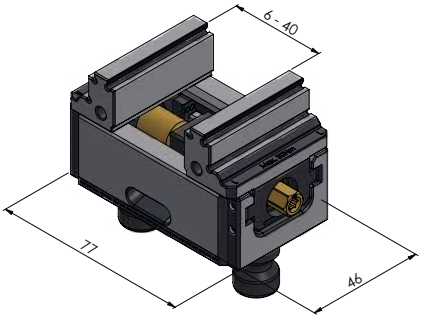
MAKRO·GRIP® 46 MICRO, 5-AXIS VISE JAW WIDTH 46 MM

ITEM NO.	BASE BODY LENGTH	CLAMPING RANGE	WEIGHT	CONSISTS OF:
48040-46 *	77 mm	0 – 65 mm	0.8 kg	40040-46 + 48046-4620

The Makro·Grip® 46 Micro is equipped with two Ø 16 mm clamping studs on its underside for clamping in the Quick·Point® Duo zero point clamping system.
* Suitable for use in the RoboTrex Compact automation system.







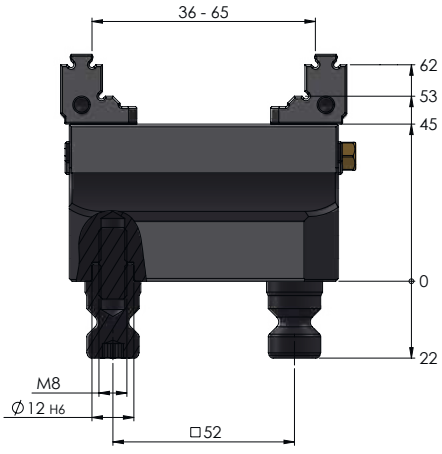
Suitable jaw variants:

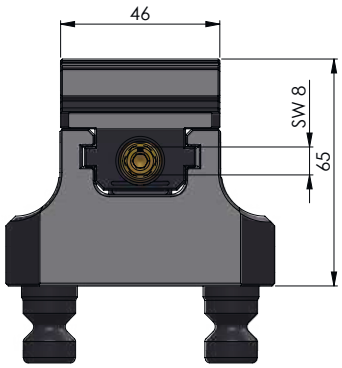
Avanti:	**44461**	Spare jaws:	**48046-4620**
		Spare jaws with FS serration:	**48046-4620 FS**
		Non-serrated spare jaws:	**48046-4622**

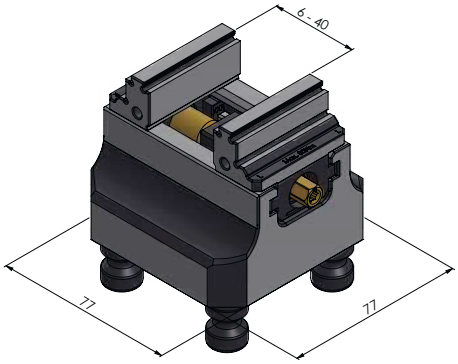
Makro·Grip® **46, 5-axis vise**
jaw width 46 mm

MAKRO·GRIP® 46, 5-AXIS VISE JAW WIDTH 46 MM

ITEM NO.	BASE BODY LENGTH	CLAMPING RANGE	WEIGHT	CONSISTS OF:
48065-46	77 mm	0 – 65 mm	1.8 kg	40065-46 + 48046-4620







Suitable jaw variants:

Avanti: **44461**

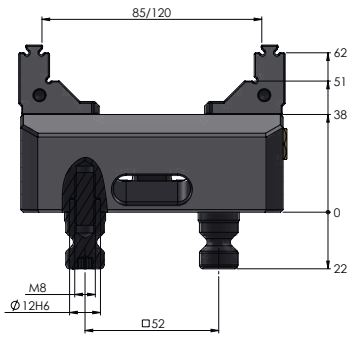
Spare jaws: **48046-4620**
Spare jaws with FS serration: **48046-4620 FS**
Non-serrated spare jaws: **48046-4622**

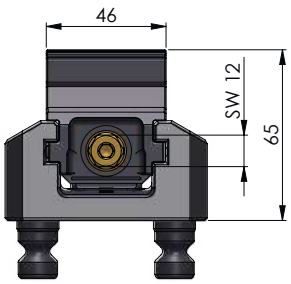
Makro·Grip® **77, 5-axis vise**
jaw width 46 mm

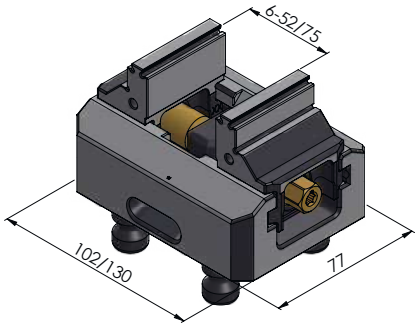
MAKRO·GRIP® 77, 5-AXIS VISE
JAW WIDTH 46 MM

ITEM NO.	BASE BODY LENGTH	CLAMPING RANGE	WEIGHT	CONSISTS OF: **
48085-46	102 mm	0 – 85 mm	2.1 kg	40085-46 + 48085-4620
48120-46 *	130 mm	0 – 120 mm	2.6 kg	40120-46 + 48077-4620

* Suitable for use in the RoboTrex and RoboTrex Compact automation systems.
** The base of the vise is engraved with the individual part number and no longer with the item number of the entire assembly.







Suitable jaw variants:

Makro·4Grip: **57708-20 / 57711-20**
Avanti: **44771-46 / 44771-77**
Profilo: **49077**
Vario·Tec: **42018-77**

Spare jaws: **48085-4620 / 48077-4620**
Spare jaws with FS serration: **48085-4620 FS / 48077-4620 FS**
Non-serrated spare jaws: **48085-4622 / 48077-4622**

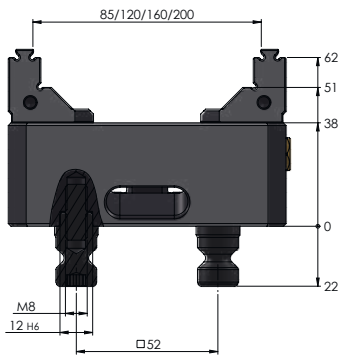
Due to the identical size of the jaw guide, these three variants can also be used with a jaw width of 77 mm.

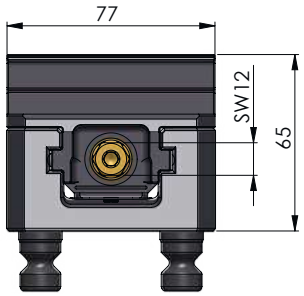
Makro·Grip® **77, 5-axis vise**
jaw width 77 mm

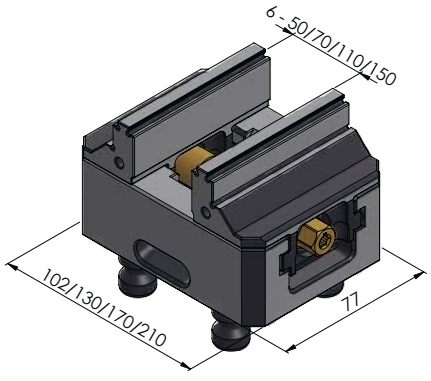
MAKRO·GRIP® 77, 5-AXIS VISE
JAW WIDTH 77 MM

ITEM NO.	BASE BODY LENGTH	CLAMPING RANGE	WEIGHT	CONSISTS OF: **
48085-77	102 mm	0 – 85 mm	2.4 kg	40085-77 + 48085-7720
48120-77 *	130 mm	0 – 120 mm	2.9 kg	40120-77 + 48077-7720
48160-77	170 mm	0 – 160 mm	3.6 kg	40160-77 + 48077-7720
48200-77	210 mm	0 – 200 mm	4.2 kg	40200-77 + 48077-7720

* Suitable for use in the RoboTrex and RoboTrex Compact automation systems.
** The base of the vise is engraved with the individual part number and no longer with the item number of the entire assembly.







Suitable jaw variants:

Makro·4Grip: **57708-20 / 57711-20**
Avanti: **44771-77**
Profilo: **49077**
Vario·Tec: **42018-77**

Spare jaws: **48085-7720 / 48077-7720**
Spare jaws with FS serration: **48085-7720 FS / 48077-7720 FS**
Non-serrated spare jaws: **48085-7722 / 48077-7722**

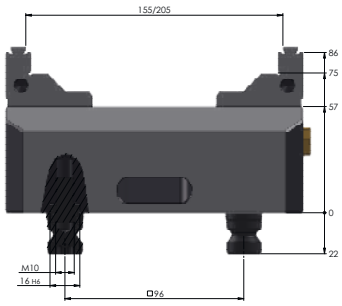
Due to the identical size of the jaw guide, these three variants can also be used with a jaw width of 46 mm.

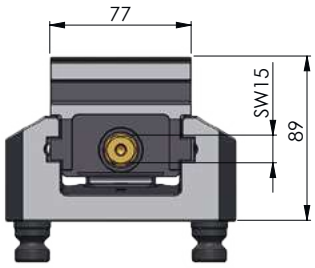
Makro·Grip® **125, 5-axis vise** jaw width 77 mm

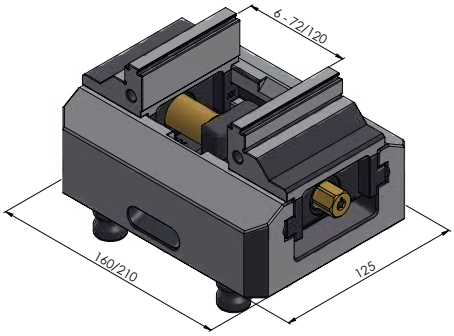
MAKRO·GRIP® 125, 5-AXIS VISE JAW WIDTH 77 MM

ITEM NO.	BASE BODY LENGTH	CLAMPING RANGE	WEIGHT	CONSISTS OF: **
48155-77	160 mm	0 – 155 mm	7.4 kg	40155-77 + 48125-7720
48205-77 *	210 mm	0 – 205 mm	9.1 kg	40205-77 + 48125-7720

* Suitable for use in the RoboTrex96 automation system.
** The base of the vise is engraved with the individual part number and no longer with the item number of the entire assembly.







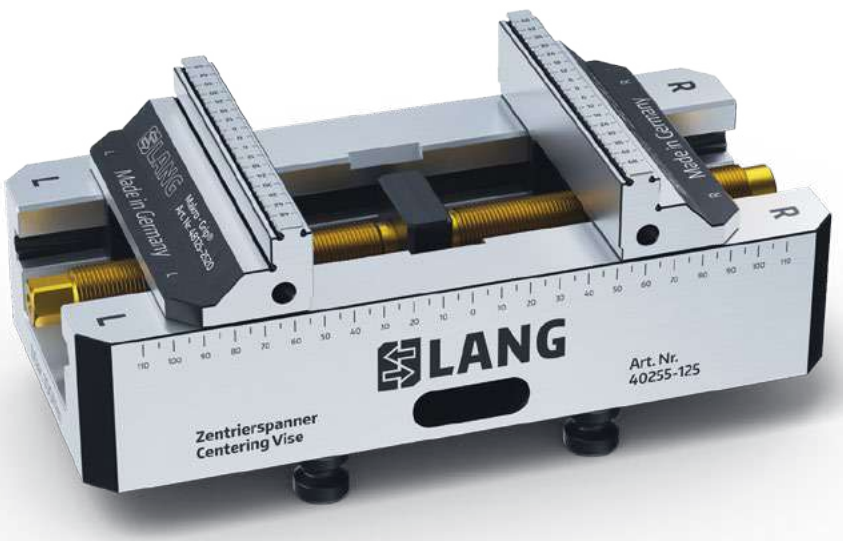
Suitable jaw variants:

Makro·4Grip: **52515-20 / 52530-20**
Avanti: **44251-125**
Profilo: **49125**
Vario·Tec: **42018-125**

Spare jaws: **48125-7720**
Spare jaws with FS serration: **48125-7720 FS**
Non-serrated spare jaws: **48125-7722**

Due to the identical size of the jaw guide, these three variants can also be used with a jaw width of 125 mm.

Makro·Grip® **125, 5-axis vise**
jaw width 125 mm

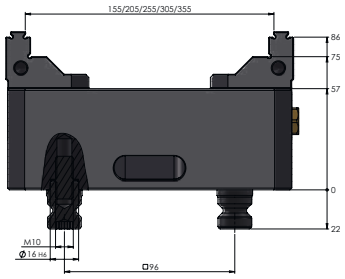


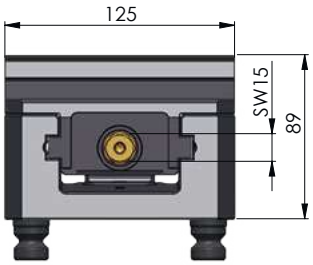
96 | Ø 20 mm | max. 100 Nm | max. 20,000 N | ± 0,02 mm

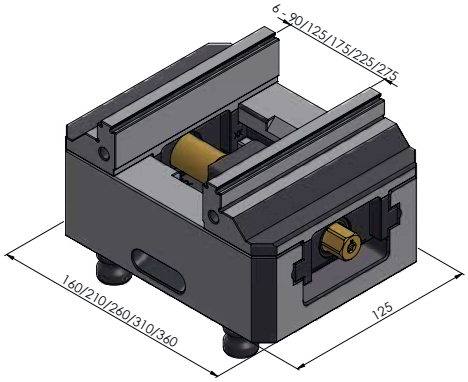
MAKRO·GRIP® 125, 5-AXIS VISE JAW WIDTH 125 MM

ITEM NO.	BASE BODY LENGTH	CLAMPING RANGE	WEIGHT	CONSISTS OF: **
48155-125	160 mm	0 – 155 mm	8.3 kg	40155-125 + 48125-2520
48205-125 *	210 mm	0 – 205 mm	10.1 kg	40205-125 + 48125-2520
48255-125	260 mm	0 – 255 mm	12.0 kg	40255-125 + 48125-2520
48305-125	310 mm	0 – 305 mm	13.9 kg	40305-125 + 48125-2520
48355-125	360 mm	0 – 355 mm	15.7 kg	40355-125 + 48125-2520

* Suitable for use in the RoboTrex96 automation system.
** The base of the vise is engraved with the individual part number and no longer with the item number of the entire assembly.







Suitable jaw variants:

Makro·4Grip: **52515-20 / 52530-20**
Avanti: **44251-125**
Profilo: **49125**
Vario·Tec: **42018-125**

Spare jaws: **48125-2520**
Spare jaws with FS serration: **48125-2520 FS**
Non-serrated spare jaws: **48125-2522**

Due to the identical size of the jaw guide, these three variants can also be used with a jaw width of 77 mm.

Makro·Grip® **5-axis vise**
Spare Parts

SPARE SPINDLE + CENTER PIECE MAKRO·GRIP® 46

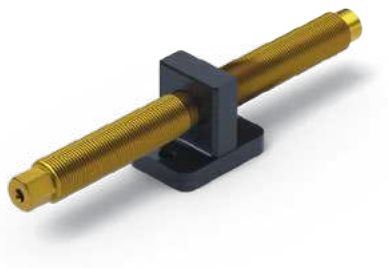
ITEM NO.	FOR	SPINDLE LENGTH	WEIGHT
4846082	48040-46 / 48065-46	82 mm	0.1 kg

Threaded spindle with low-wear TIN coating with internal hexagon (size 4) and external hexagon (size 8).

SPARE SPINDLE + CENTER PIECE MAKRO·GRIP® 77

ITEM NO.	FOR	SPINDLE LENGTH	WEIGHT
4877100	48085-46 / 48085-77	100 mm	0.2 kg
4877135	48120-46 / 48120-77	135 mm	0.3 kg
4877175	48160-77	175 mm	0.3 kg
4877215	48200-77	215 mm	0.4 kg

Threaded spindle with low-wear TIN coating with internal hexagon (size 5) and external hexagon (size 12).



SPARE SPINDLE + CENTER PIECE MAKRO·GRIP® 125

ITEM NO.	FOR	SPINDLE LENGTH	WEIGHT
4825164	48155-77 / 48155-125	164 mm	0.6 kg
4825214	48205-77 / 48205-125	214 mm	0.7 kg
4825264	48255-125	264 mm	0.8 kg
4825314	48305-125	314 mm	0.9 kg
4825364	48355-125	364 mm	1.0 kg

Threaded spindle with low-wear TIN coating with internal hexagon (size 5) and external hexagon (size 15).

Makro·Grip® **5-axis vise**
Accessories

WRENCH FOR MAKRO·GRIP® 5-AXIS VISE

ITEM NO.	FOR	VISE SIZE	WRENCH SIZE
45510	External Hexagon	46	SW 8
45500	External Hexagon	77	SW 12
45501	External Hexagon	125	SW 15
45515	Internal Hexagon	46	SW 4
45505	Internal Hexagon	77 / 125	SW 5

Wrenches for pre-adjusting the clamping range, initial clamping setting (external hexagon) and reversing the clamping jaws (internal hexagon).

HEXAGON SOCKET

ITEM NO.	SQUARE DRIVE	VISE SIZE	WRENCH SIZE
45507	3/8"	46	8 mm
45508	3/8"	77	12 mm
45509	3/8"	125	15 mm

Hexagon Socket (DIN 3120) for a consistent and safe clamping process.

CORDLESS DRILL ATTACHMENT

ITEM NO.	FOR	SIZE
47005	Internal Hexagon	5 mm

The cordless drill attachment is used to achieve centering accuracy of the jaws easier when exchanging them, especially with longer vise bases. You will also speed-up the exchange or reversal of jaws by using the cordless drill attachment.

Service

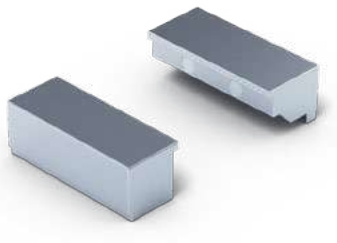
TUNGSTEN-CARBIDE-COATING FOR MAKRO·GRIP® JAWS

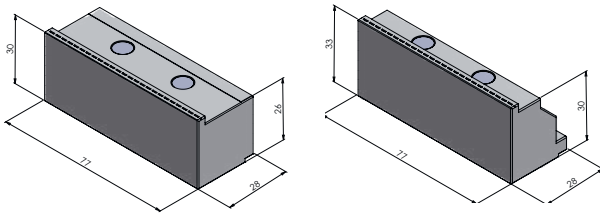
ITEM NO.	JAW WIDTH	QTY
45046-17	46 mm	per pair
45077-17	77 mm	per pair
45125-17	125 mm	per pair

A special Tungsten-Carbide-Coating can be applied on the jaws' planar surfaces in order to intensify the friction when clamping non-stamped workpieces.

Makro·Grip® **77 contour jaws**

The latest generation of Makro·Grip® contour jaws offers convincing ease of use. The contour jaws are attached without changing the Makro·Grip® clamping jaws and without tools, which guarantees a pleasant setup process in seconds. In the process, the contour jaws snap into the Makro·Grip® serration with their stamping contour and hold them in position. Magnets finally pull the contour jaws towards the clamping jaws and ensure a firm fit.





CONTOUR JAWS, ALUMINIUM FOR MAKRO·GRIP® 5-AXIS VISE 77

ITEM NO.	JAW WIDTH	FOR	WEIGHT	QTY
48409-77	77 mm	Inner side	0.3 kg	1 pair
48419-77	77 mm	Outer side	0.3 kg	1 pair

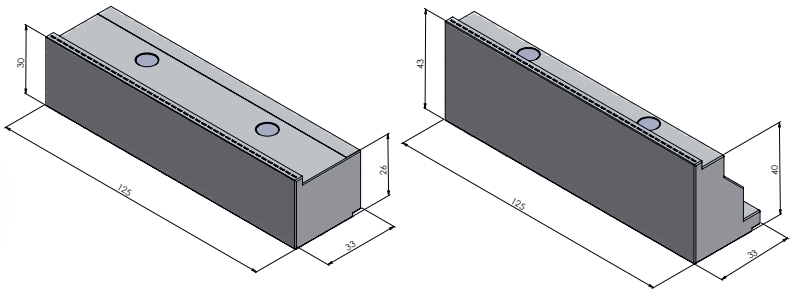
FOR MAKRO·GRIP®	48409-77	48419-77
	CLAMPING RANGE:	
48085-46 *	–	60 mm
48120-46 *	50 mm	100 mm
48085-77	–	60 mm
48120-77	50 mm	100 mm
48160-77	90 mm	140 mm
48200-77	130 mm	180 mm

* Contour jaws can be used if narrowed from 77 mm to 46 mm.

Makro·Grip® **125 contour jaws**

LANG recommends:

These contour jaws can be particularly useful in automated production with RoboTrex. Using them makes it possible to finish parts in the second operation with Makro·Grip® 5-axis vises, without having to switch to other clamping devices.



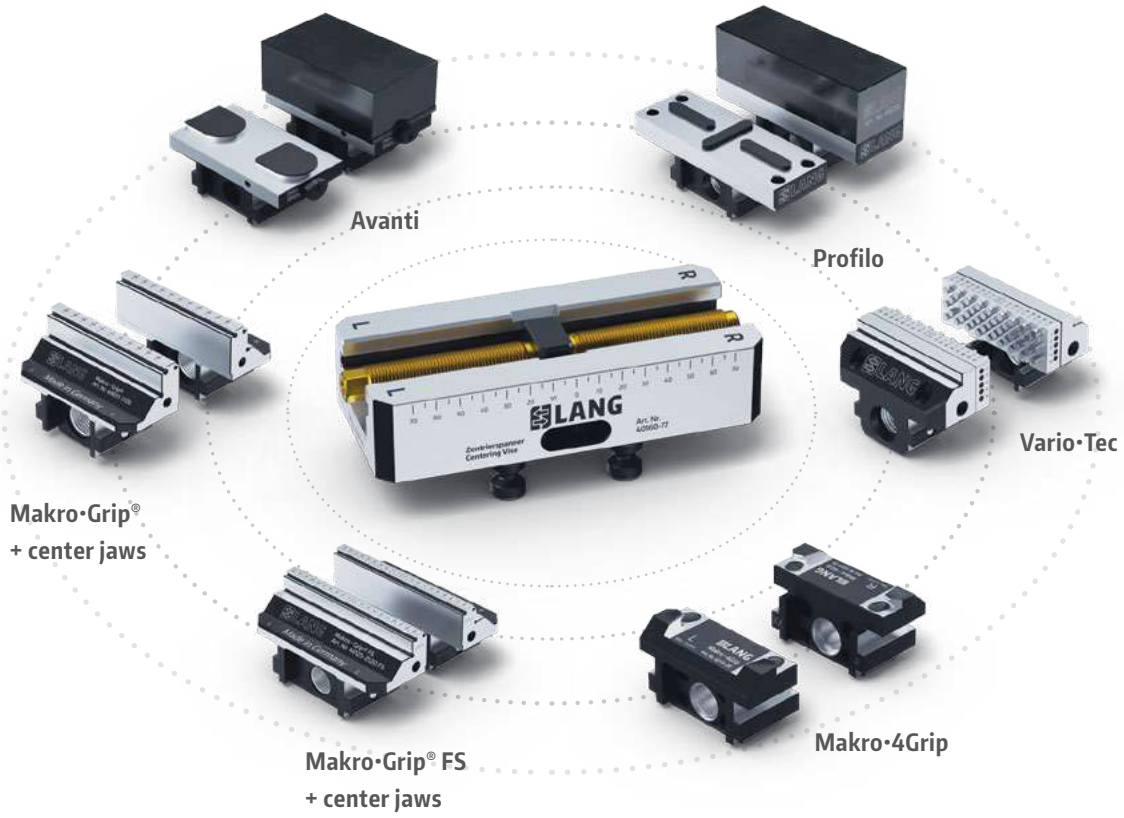
CONTOUR JAWS, ALUMINIUM FOR MAKRO·GRIP® 5-AXIS VISE 125

ITEM NO.	JAW WIDTH	FOR	WEIGHT	QTY
48409-125	125 mm	Inner side	0.6 kg	1 pair
48419-125	125 mm	Outer side	0.6 kg	1 pair

FOR MAKRO·GRIP®	48409-125	48419-125
	CLAMPING RANGE:	
48155-77 *	40 mm	120 mm
48205-77 *	90 mm	170 mm
48155-125	40 mm	120 mm
48205-125	90 mm	170 mm
48255-125	140 mm	220 mm
48305-125	190 mm	270 mm
48355-125	240 mm	320 mm

* Contour jaws can be used if narrowed from 125 mm to 77 mm.

One vise for all component shapes and machining steps



How many different clamping tasks are you facing? Don't worry, because with our vises from LANG Technik you are perfectly well equipped. No matter which type of clamping jaw is required, our vises are universally compatible and offer you the option of replacing the jaws effortlessly. A real added value for your range of components and also very cost-efficient.

- **Makro·Grip®**
  Clamping jaws with regular serration for clamping blanks
- **Makro·Grip® FS**
  Clamping jaws with full serration for clamping blanks
- **Makro·4Grip**
  Clamping jaws for cylindrical blanks
- **Avanti**
  Clamping jaws for contour parts
- **Profilo**
  Clamping jaws for contour parts
- **Vario·Tec**
  Clamping jaws with support and end stop system

Other clamping solutions:

Our **Makro·Grip® Ultra** clamping system is the solution for all your applications. Modular and versatile, it covers clamping ranges of up to 1,000 mm and leaves nothing to be desired.

For machining cylindrical components, we offer **Vasto·Clamp** and **Preci·Point**, versatile clamping and collet chucks that perfectly complement our clamping portfolio. What all our clamping technology solutions have in common? An integrated zero point adaptation for a fast and precise set-up process.

All-around machining through jaw exchange

1. clamping operation

2. clamping operation

LANG offers a suitable solution for every challenging clamping task – and all you need is a single vise! All LANG Technik centering vises use the same base body in different lengths and widths. The interchangeability of the different clamping jaw types allows you to flexibly build up your "vise fleet". Depending on your needs and requirements, suitable jaw types can be added. An investment in several vises is therefore not absolutely necessary.

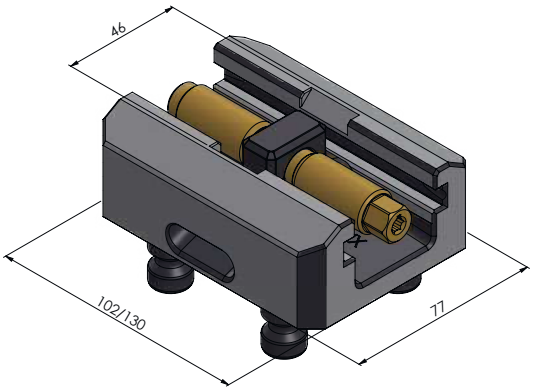
The examples above show different parts after the first and before the second clamping operation – in each case first with the Makro·Grip® 5-axis vise and then with our three clamping jaw types Vario·Tec, Profilo and Avanti.

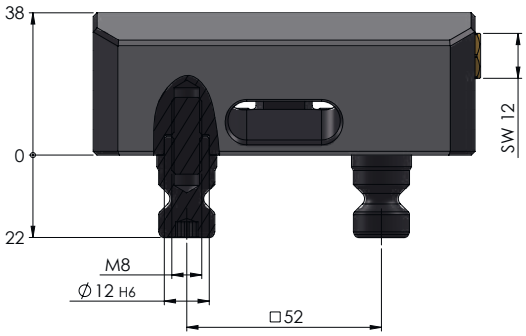
Centering vise **base 77** for jaw width 46 mm

CENTERING VISE BASE 77 FOR JAW WIDTH 46 MM

ITEM NO.	BASE BODY LENGTH	BASE BODY WIDTH	WEIGHT
40085-46	102 mm	77 mm	1.6 kg
40120-46 *	130 mm	77 mm	2.0 kg

* Suitable for use in the RoboTrex and RoboTrex Compact automation systems.





Suitable jaw variants:

Makro·4Grip: **57708-20 / 57711-20**
Avanti: **44771-46 / 44771-77**
Profilo: **49077**
Vario·Tec: **42018-77**

Clamping jaws: **48085-4620 / 48077-4620**
Clamping jaws with FS serration: **48085-4620 FS / 48077-4620 FS**
Non-serrated clamping jaws: **48085-4622 / 48077-4622**

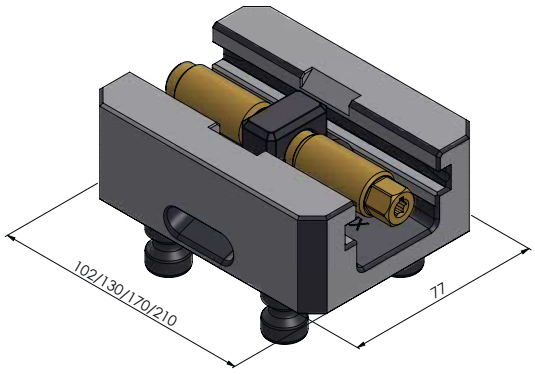
Due to the identical size of the jaw guide, these three variants can also be used with a jaw width of 77 mm.

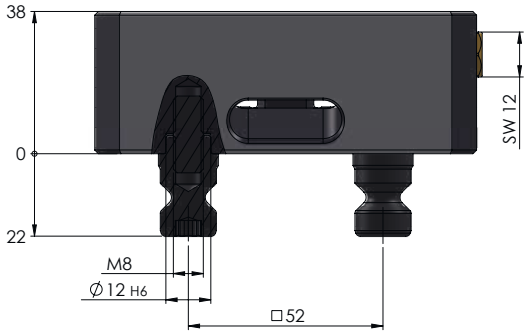
Centering vise **base 77** for jaw width 77 mm

CENTERING VISE BASE 77 FOR JAW WIDTH 77 MM

ITEM NO.	BASE BODY LENGTH	BASE BODY WIDTH	WEIGHT
40085-77	102 mm	77 mm	1.7 kg
40120-77 *	130 mm	77 mm	2.1 kg
40160-77	170 mm	77 mm	2.8 kg
40200-77	210 mm	77 mm	3.5 kg

* Suitable for use in the RoboTrex and RoboTrex Compact automation systems.





Suitable jaw variants:

Makro·4Grip: **57708-20 / 57711-20**
Avanti: **44771-77**
Profilo: **49077**
Vario·Tec: **42018-77**

Clamping jaws: **48085-7720 / 48077-7720**
Clamping jaws with FS serration: **48085-7720 FS / 48077-7720 FS**
Non-serrated clamping jaws: **48085-7722 / 48077-7722**

Due to the identical size of the jaw guide, these three variants can also be used with a jaw width of 46 mm.

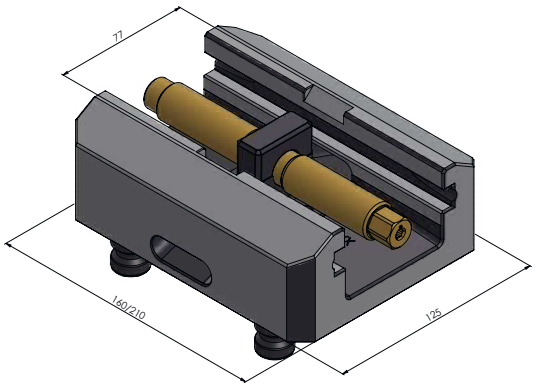
Centering vise **base 125** for jaw width 77 mm

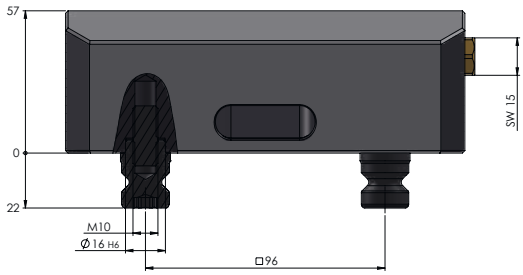
CENTERING VISE BASE 125 FOR JAW WIDTH 77 MM

96	Ø 20 mm	max. 100 Nm	max. 20,000 N	± 0,02 mm

ITEM NO.	BASE BODY LENGTH	BASE BODY WIDTH	WEIGHT
40155-77	160 mm	77 mm	5.5 kg
40205-77 *	210 mm	77 mm	7.2 kg

* Suitable for use in the RoboTrex96 automation system.





Suitable jaw variants:

Makro·4Grip:	**52515-20 / 52530-20**
Avanti:	**44251-125**
Profilo:	**49125**
Vario·Tec:	**42018-125**

Clamping jaws:	**48125-7720**
Clamping jaws with FS serration:	**48125-7720 FS**
Non-serrated clamping jaws:	**48125-7722**

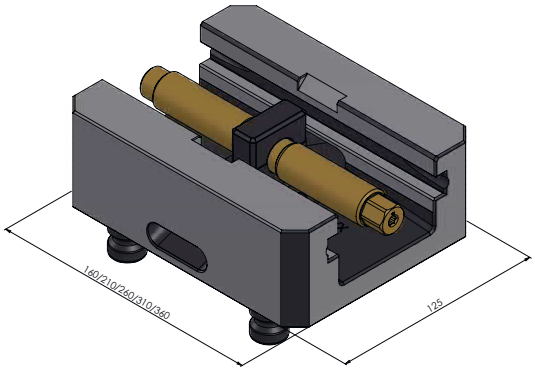
Due to the identical size of the jaw guide, these three variants can also be used with a jaw width of 125 mm.

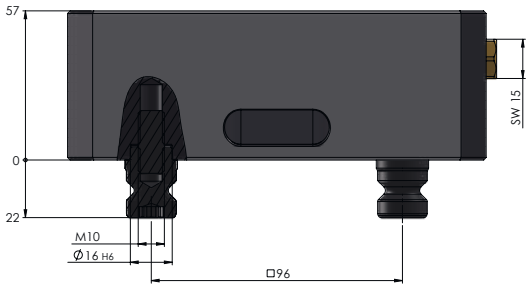
Centering vise **base 125** for jaw width 125 mm

CENTERING VISE BASE 125 FOR JAW WIDTH 125 MM

ITEM NO.	BASE BODY LENGTH	BASE BODY WIDTH	WEIGHT
40155-125	160 mm	125 mm	5.9 kg
40205-125 *	210 mm	125 mm	7.6 kg
40255-125	260 mm	125 mm	9.6 kg
40305-125	310 mm	125 mm	11.5 kg
40355-125	360 mm	125 mm	13.3 kg

* Suitable for use in the RoboTrex96 automation system.





Suitable jaw variants:

Makro·4Grip: **52515-20 / 52530-20**
Avanti: **44251-125**
Profilo: **49125**
Vario·Tec: **42018-125**

Clamping jaws: **48125-2520**
Clamping jaws with FS serration: **48125-2520 FS**
Non-serrated clamping jaws: **48125-2522**

Due to the identical size of the jaw guide, these three variants can also be used with a jaw width of 77 mm.

Makro·Grip® **spare jaws with regular serration**

SPARE JAWS FOR MAKRO·GRIP® 46 (MICRO)
JAW WIDTH 46 MM

ITEM NO.	FOR	WEIGHT	QTY
48046-4620	48040-46 / 48065-46	0.3 kg	1 pair

SPARE JAWS FOR MAKRO·GRIP® 77
JAW WIDTH 46 MM

ITEM NO.	FOR	WEIGHT	QTY
48085-4620	48085-46	0.5 kg	1 pair
48077-4620	48120-46	0.6 kg	1 pair

SPARE JAWS FOR MAKRO·GRIP® 77
JAW WIDTH 77 MM

ITEM NO.	FOR	WEIGHT	QTY
48085-7720	48085-77	0.8 kg	1 pair
48077-7720	48120-77 / 48160-77 / 48200-77	0.8 kg	1 pair

SPARE JAWS FOR MAKRO·GRIP® 125
JAW WIDTH 77 MM

ITEM NO.	FOR	WEIGHT	QTY
48125-7720	all Makro·Grip® 125 with jaw width 77 mm	2.0 kg	1 pair

SPARE JAWS FOR MAKRO·GRIP® 125
JAW WIDTH 125 MM

ITEM NO.	FOR	WEIGHT	QTY
48125-2520	all Makro·Grip® 125 with jaw width 125 mm	2.6 kg	1 pair

Makro·Grip® **non-serrated spare jaws**

SPARE JAWS FOR MAKRO·GRIP® 46 (MICRO)
JAW WIDTH 46 MM, NON-SERRATED

ITEM NO.	FOR	WEIGHT	QTY
48046-4622	48040-46 / 48065-46	0.3 kg	1 pair

SPARE JAWS FOR MAKRO·GRIP® 77
JAW WIDTH 46 MM, NON-SERRATED

ITEM NO.	FOR	WEIGHT	QTY
48085-4622	48085-46	0.5 kg	1 pair
48077-4622	48120-46	0.6 kg	1 pair

SPARE JAWS FOR MAKRO·GRIP® 77
JAW WIDTH 77 MM, NON-SERRATED

ITEM NO.	FOR	WEIGHT	QTY
48085-7722	48085-77	0.8 kg	1 pair
48077-7722	48120-77 / 48160-77 / 48200-77	0.8 kg	1 pair

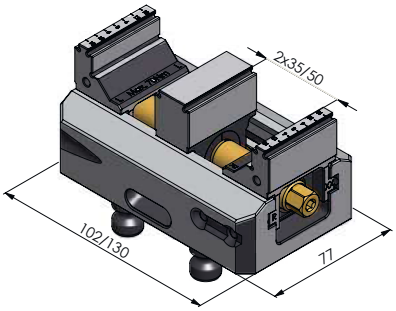
SPARE JAWS FOR MAKRO·GRIP® 125
JAW WIDTH 77 MM, NON-SERRATED

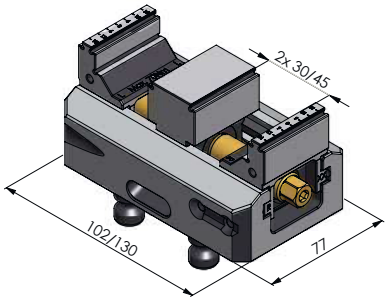
ITEM NO.	FOR	WEIGHT	QTY
48125-7722	all Makro·Grip® 125 with jaw width 77 mm	2.0 kg	1 pair

SPARE JAWS FOR MAKRO·GRIP® 125
JAW WIDTH 125 MM, NON-SERRATED

ITEM NO.	FOR	WEIGHT	QTY
48125-2522	all Makro·Grip® 125 with jaw width 125 mm	2.6 kg	1 pair

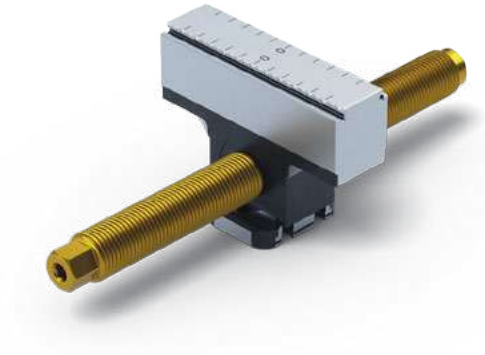
Makro·Grip® **77 center jaws and spindles** for multiple clamping

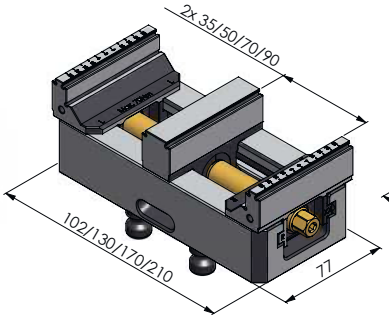


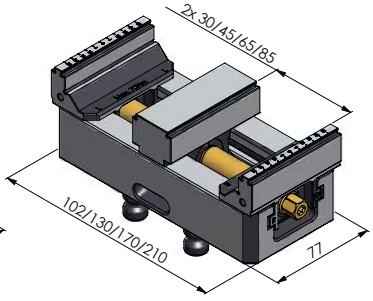


CENTER JAW AND SPINDLE FOR MAKRO·GRIP® 5-AXIS VISE 77 JAW WIDTH 46 MM

ITEM NO.	FOR MAKRO·GRIP®	CENTER JAW WIDTH	SPINDLE LENGTH	CLAMPING RANGE
48085-TG4617	48085-46	17 mm	100 mm	2 × 35 mm
48085-TG4627	48085-46	27 mm	100 mm	2 × 30 mm
48120-TG4617	48120-46	17 mm	135 mm	2 × 50 mm
48120-TG4627	48120-46	27 mm	135 mm	2 × 45 mm



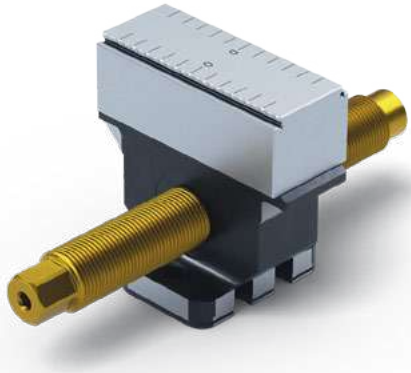


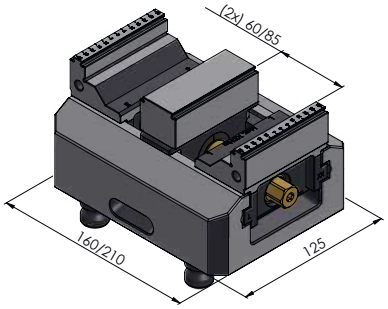


CENTER JAW AND SPINDLE FOR MAKRO·GRIP® 5-AXIS VISE 77 JAW WIDTH 77 MM

ITEM NO.	FOR MAKRO·GRIP®	CENTER JAW WIDTH	SPINDLE LENGTH	CLAMPING RANGE
48085-TG7717	48085-77	17 mm	100 mm	2 × 35 mm
48085-TG7727	48085-77	27 mm	100 mm	2 × 30 mm
48120-TG7717	48120-77	17 mm	135 mm	2 × 50 mm
48120-TG7727	48120-77	27 mm	135 mm	2 × 45 mm
48160-TG7717	48160-77	17 mm	175 mm	2 × 70 mm
48160-TG7727	48160-77	27 mm	175 mm	2 × 65 mm
48200-TG7717	48200-77	17 mm	215 mm	2 × 90 mm
48200-TG7727	48200-77	27 mm	215 mm	2 × 85 mm

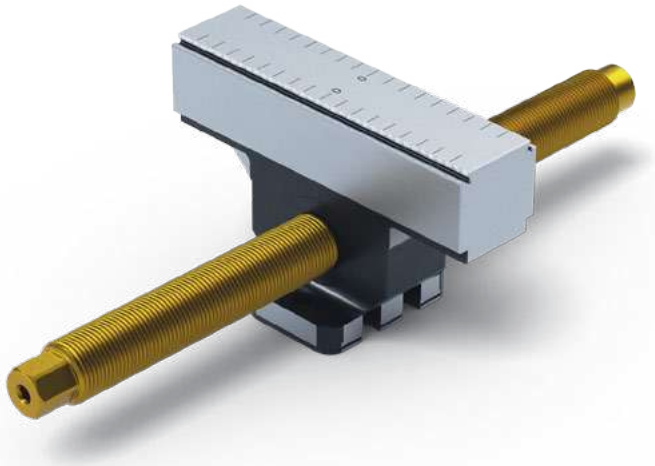
Makro·Grip® **125 center jaws and spindles** for multiple clamping

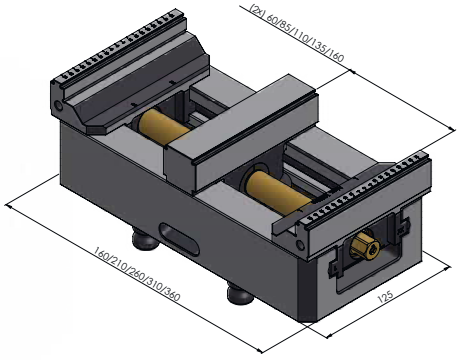




CENTER JAW AND SPINDLE FOR MAKRO·GRIP® 5-AXIS VISE 125 JAW WIDTH 77 MM

ITEM NO.	FOR MAKRO·GRIP®	CENTER JAW WIDTH	SPINDLE LENGTH	CLAMPING RANGE
48155-TG7727	48155-77	27 mm	164 mm	2 × 60 mm
48205-TG7727	48205-77	27 mm	214 mm	2 × 85 mm





CENTER JAW AND SPINDLE FOR MAKRO·GRIP® 5-AXIS VISE 125 JAW WIDTH 125 MM

ITEM NO.	FOR MAKRO·GRIP®	CENTER JAW WIDTH	SPINDLE LENGTH	CLAMPING RANGE
48155-TG2527	48155-125	27 mm	164 mm	2 × 60 mm
48205-TG2527	48205-125	27 mm	214 mm	2 × 85 mm
48255-TG2527	48255-125	27 mm	264 mm	2 × 110 mm
48305-TG2527	48305-125	27 mm	314 mm	2 × 135 mm
48355-TG2527	48355-125	27 mm	364 mm	2 × 160 mm

Makro·Grip® **FS 46 and 77 clamping jaws with full serration**

CLAMPING JAWS FOR MAKRO·GRIP® 46 (MICRO) JAW WIDTH 46 MM

ITEM NO.	FOR	WEIGHT	QTY
48046-4620 FS	48040-46 / 48065-46	0.3 kg	1 pair

CLAMPING JAWS FOR CENTERING VISE 77 JAW WIDTH 46 MM

ITEM NO.	FOR	WEIGHT	QTY
48085-4620 FS	40085-46	0.5 kg	1 pair
48077-4620 FS	40120-46	0.6 kg	1 pair

CLAMPING JAWS FOR CENTERING VISE 77 JAW WIDTH 77 MM

ITEM NO.	FOR	WEIGHT	QTY
48085-7720 FS	40085-77	0.8 kg	1 pair
48077-7720 FS	40120-77 / 40160-77 / 40200-77	0.8 kg	1 pair

Note

If you want to switch flexibly between Makro·Grip® and Makro·Grip® FS clamping jaws, no program adjustments are necessary due to the same jaw geometry. For this reason, no separate dimensioned models are listed on this page. Please compare the models in the Makro·Grip® chapter on pages 124 to 129.

Makro·Grip® **FS 125 clamping jaws with full serration**

CLAMPING JAWS FOR CENTERING VISE 125 JAW WIDTH 77 MM

ITEM NO.	FOR	WEIGHT	QTY
48125-7720 FS	all centering vises 125 with jaw width 77 mm	2.0 kg	1 pair

CLAMPING JAWS FOR CENTERING VISE 125 JAW WIDTH 125 MM

ITEM NO.	FOR	WEIGHT	QTY
48125-2520 FS	all centering vises 125 with jaw width 125 mm	2.6 kg	1 pair

Difference to regular serration

The Makro·Grip® FS full serration differs from the regular holding serration by its continuous row of teeth.

Makro·Grip® FS, full serration

Makro·Grip®, regular serration

Area of application

- for soft materials such as aluminium or materials with high toughness and poor machinability, such as titanium alloys and stainless steels
- for slim workpieces where only a few clamping teeth are engaged
- for high cutting rates in combination with both of the above points

For more information about Makro·Grip® and Makro·Grip® FS, please refer to pages 102 to 103.

Makro·Grip® **FS 77 center jaws and spindles** for multiple clamping

Due to identical dimensions and interfering contours with the regular Makro·Grip® center jaws, no separate dimensioned models are listed on this page.

Please compare the models on pages 142 to 143.

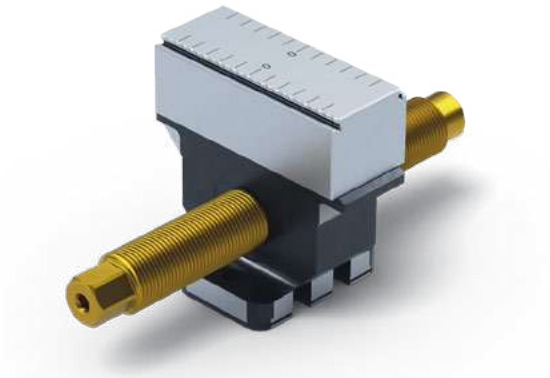
CENTER JAW AND SPINDLE FOR CENTERING VISE 77 JAW WIDTH 46 MM

ITEM NO.	FOR CENTERING VISE	CENTER JAW WIDTH	SPINDLE LENGTH	CLAMPING RANGE
48085-TG4617 FS	40085-46	17 mm	100 mm	2 × 35 mm
48085-TG4627 FS	40085-46	27 mm	100 mm	2 × 30 mm
48120-TG4617 FS	40120-46	17 mm	135 mm	2 × 50 mm
48120-TG4627 FS	40120-46	27 mm	135 mm	2 × 45 mm

CENTER JAW AND SPINDLE FOR CENTERING VISE 77 JAW WIDTH 77 MM

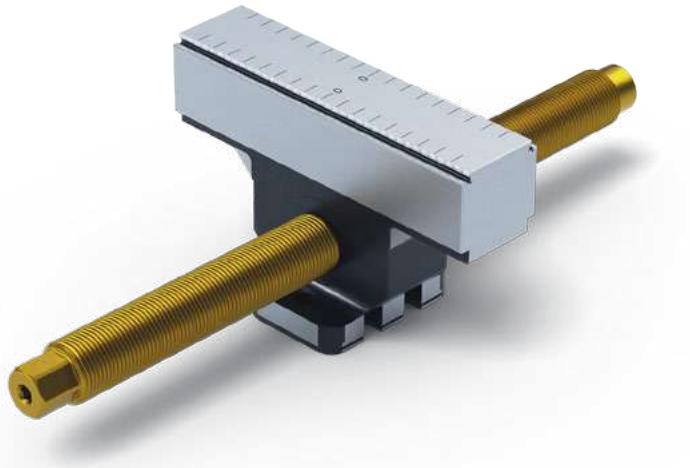
ITEM NO.	FOR CENTERING VISE	CENTER JAW WIDTH	SPINDLE LENGTH	CLAMPING RANGE
48085-TG7717 FS	40085-77	17 mm	100 mm	2 × 35 mm
48085-TG7727 FS	40085-77	27 mm	100 mm	2 × 30 mm
48120-TG7717 FS	40120-77	17 mm	135 mm	2 × 50 mm
48120-TG7727 FS	40120-77	27 mm	135 mm	2 × 45 mm
48160-TG7717 FS	40160-77	17 mm	175 mm	2 × 70 mm
48160-TG7727 FS	40160-77	27 mm	175 mm	2 × 65 mm
48200-TG7717 FS	40200-77	17 mm	215 mm	2 × 90 mm
48200-TG7727 FS	40200-77	27 mm	215 mm	2 × 85 mm

Makro·Grip® **FS 125 center jaws and spindles** for multiple clamping



CENTER JAW AND SPINDLE FOR CENTERING VISE 125 JAW WIDTH 77 MM

ITEM NO.	FOR CENTERING VISE	CENTER JAW WIDTH	SPINDLE LENGTH	CLAMPING RANGE
48155-TG7727 FS	40155-77	27 mm	164 mm	2 × 60 mm
48205-TG7727 FS	40205-77	27 mm	214 mm	2 × 85 mm



CENTER JAW AND SPINDLE FOR CENTERING VISE 125 JAW WIDTH 125 MM

ITEM NO.	FOR CENTERING VISE	CENTER JAW WIDTH	SPINDLE LENGTH	CLAMPING RANGE
48155-TG2527 FS	40155-125	27 mm	164 mm	2 × 60 mm
48205-TG2527 FS	40205-125	27 mm	214 mm	2 × 85 mm
48255-TG2527 FS	40255-125	27 mm	264 mm	2 × 110 mm
48305-TG2527 FS	40305-125	27 mm	314 mm	2 × 135 mm
48355-TG2527 FS	40355-125	27 mm	364 mm	2 × 160 mm


LANG
Makro•Grip®
Art. Nr. 48120-77
US-2017-0368851-A1
Max. 60Nm
LANG
12792
30Nm
30Nm
Quick•Point®

PATENTED

Makro·4Grip

clamping jaws for cylindrical blanks

Makro·4Grip is an innovative technology that makes it possible to use LANG Technik's proven stamping technology for cylindrical materials as well. The form-fit clamping of pre-stamped, cylindrical components achieves maximum holding forces despite low clamping pressure, resulting in maximum process reliability. With a minimum clamping pressure, round components with a support height of just 3 mm can be clamped without distortion. Makro·4Grip is available as an additional pair of jaws for the 5-axis vise (and the stamping unit), which means there are no acquisition costs for additional chucks.

Primary area of application:

- **Form-fit clamping via holding serration**
- **Cylindrical components**
- **1st clamping operation, raw part machining**

Benefits:

- **Highest holding forces and maximum process reliability**
- **High material and cost savings thanks to minimal clamping edge requirements**
- **No need to invest in additional chucks**

Makro·4Grip **round part clamping**

Stamping technology for cylindrical blanks

By retrofitting the Makro·Grip® stamping unit and LANG centering vises the form-fit clamping technology can be applied for cylindrical blanks easily and cost efficiently. The jaws grip the pre-stamped part in four indentations at a clamping depth of 6.5 mm with up to 20 kN and therefore realize the same form-fit effect as for the well-proven system for prismatic parts.

Makro·4Grip covers a clamping range of Ø 36 mm to Ø 300 mm and thus provides a seamless transition from the maximum range of the Preci·Point collet chuck.

The Makro·4Grip system consists of universal stamping jaws including stamping inserts for individual positioning as well as matching clamping jaws for all sizes of LANG centering vises. The clamping jaws are available as a separate set of jaws for all 77 and 125 vises.

Stamping imprint

Opposed to pre-stamping cuboid blanks with regularly serrared stamping jaws where control marks give an indication about the correct stamping depth, the Makro·4Grip technology relies on a visual examination. Stamping round material, the correct imprint is consistently thick and deep.

The required stamping pressure and depth depends on material and its diameter. In general, we recommend always starting with a low stamping pressure and slowly increasing it until the desired stamping depth in the workpiece is achieved.

Makro·4Grip **stamping jaws and inserts**

MAKRO·4GRIP STAMPING JAWS

ITEM NO.	FOR MATERIALS	QTY
51111	up to 45 HRC	1 pair

Includes: 4 stamping jaw inserts
Suitable for all Makro·Grip® stamping unit versions!

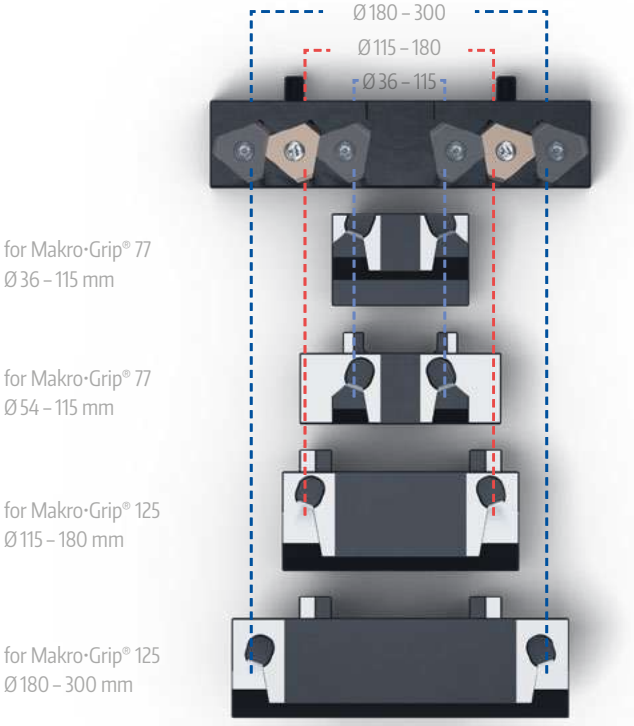
MAKRO·4GRIP STAMPING JAW INSERTS

ITEM NO.	QTY
51111-40	4 pcs.

Each stamping jaw insert has a total of three cutting edges. If a cutting edge is worn, the stamping jaw insert can be turned two more times. For an even stamping and clamping quality, make sure that all four stamping inserts are turned / exchanged at the same time.

Makro·4Grip stamping technology – the right setup

According to the vise and clamping jaw size used in the machining process, the four stamping inserts (2 inserts per stamping jaw) are placed differently in the respective seats. The scheme below shows how the stamping inserts need to be positioned for each clamping setup. Makro·4Grip clamping jaws and their clamping ranges can be found on pages 152 to 155.

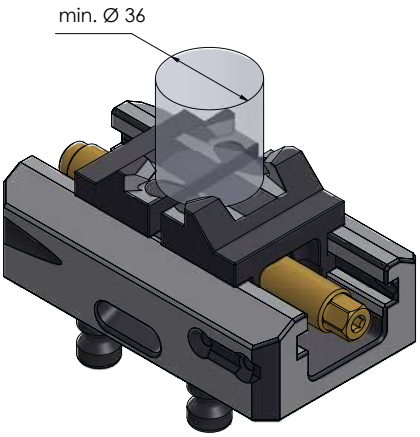


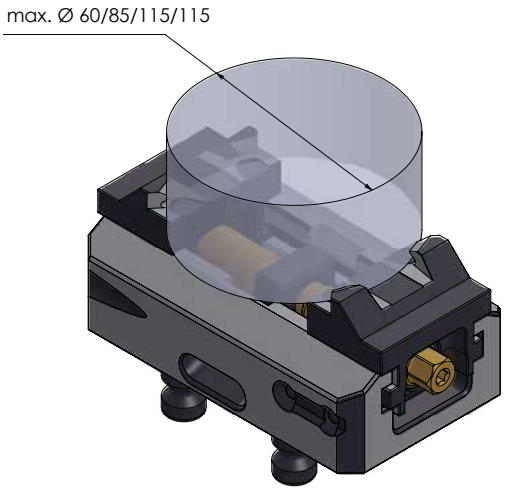
Makro·4Grip **77 clamping jaws**

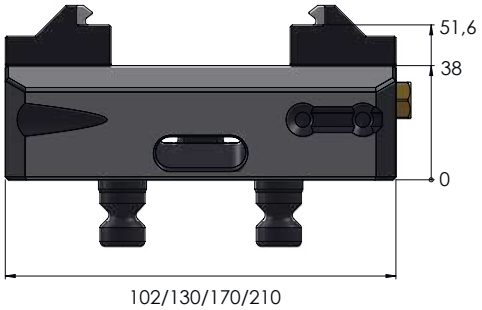
MAKRO·4GRIP 77 CLAMPING JAWS
JAW WIDTH 52 MM, ITEM NO. 57708-20

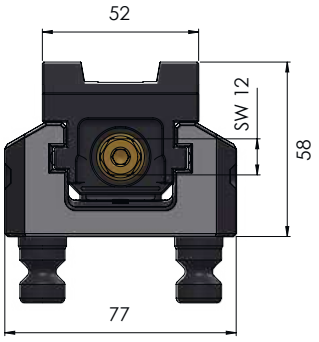
FOR CENTERING VISE 77	CLAMPING RANGE
40085-46 / -77 *	Ø 36 – 60 mm
40120-46 / -77 *	Ø 36 – 85 mm
40160 -77 *	Ø 36 – 115 mm
40200-77 *	Ø 36 – 115 mm
47085 **	Ø 43 – 60 mm
47120 **	Ø 43 – 85 mm
47160 **	Ø 43 – 115 mm
47200 **	Ø 43 – 115 mm

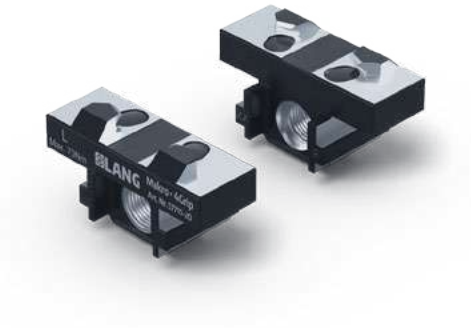
* also suitable for 5-axis vises starting with 48...
** Former Makro·Grip® versions.







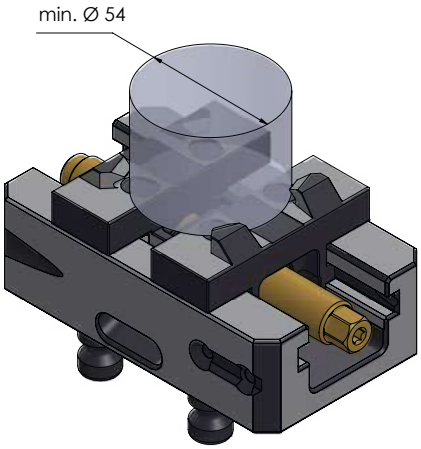


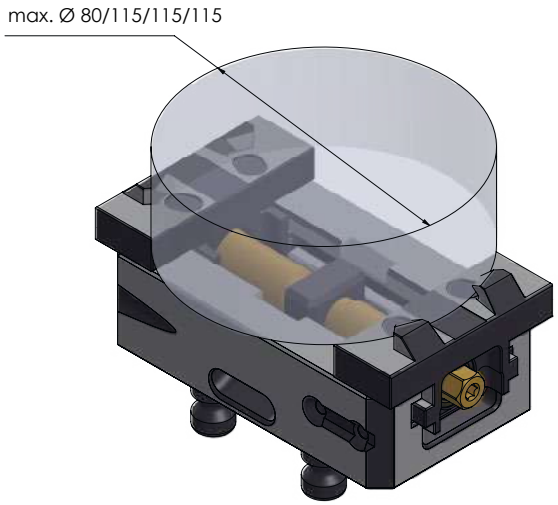


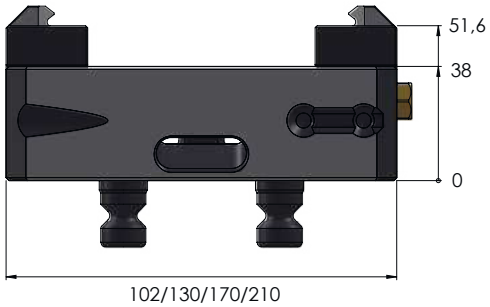
MAKRO·4GRIP 77 CLAMPING JAWS
JAW WIDTH 77 MM, ITEM NO. 57711-20

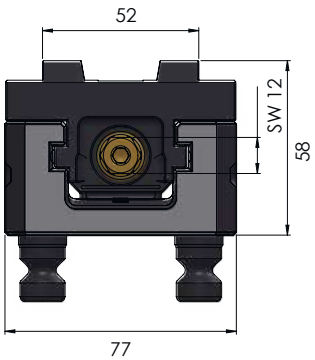
FOR CENTERING VISE 77	CLAMPING RANGE
40085-46 / -77 *	Ø 54 – 80 mm
40120-46 / -77 *	Ø 54 – 115 mm
40160-77 *	Ø 54 – 115 mm
40200-77 *	Ø 54 – 115 mm
47085 **	Ø 65 – 80 mm
47120 **	Ø 65 – 115 mm
47160 **	Ø 65 – 115 mm
47200 **	Ø 65 – 115 mm

* also suitable for 5-axis vises starting with 48...
** Former Makro·Grip® versions.







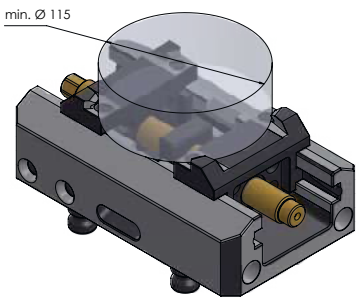


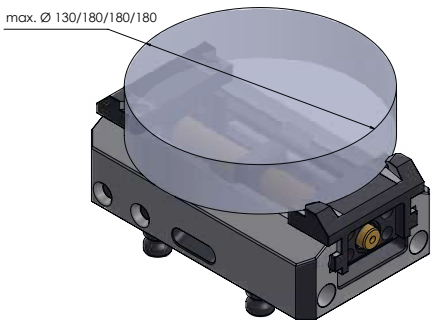
Makro·4Grip **125 clamping jaws**

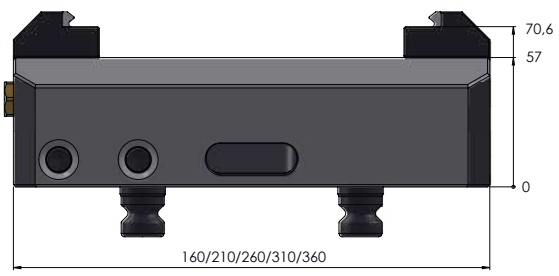
MAKRO·4GRIP 125 CLAMPING JAWS
JAW WIDTH 90 MM, ITEM NO. 52515-20

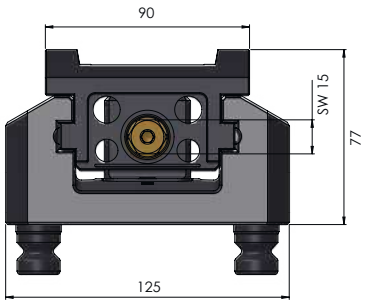
FOR CENTERING VISE 125	CLAMPING RANGE
40155-77 / -125 *	Ø 115 – 130 mm
40205-77 / -125 *	Ø 115 – 180 mm
40255-125 *	Ø 115 – 180 mm
40305-125 *	Ø 115 – 180 mm
40355-125 *	Ø 115 – 180 mm
47155 **	Ø 115 – 130 mm
47205 **	Ø 115 – 180 mm
47255 **	Ø 115 – 180 mm
47305 **	Ø 115 – 180 mm
47355 **	Ø 115 – 180 mm

* also suitable for 5-axis vises starting with 48...
** Former Makro·Grip® versions.





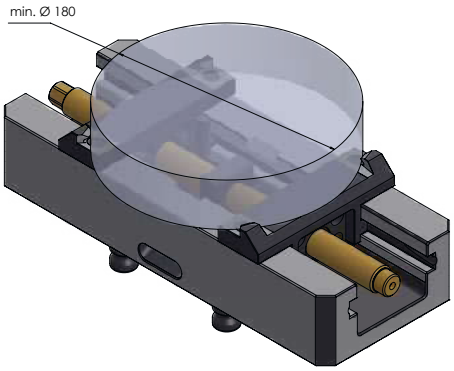


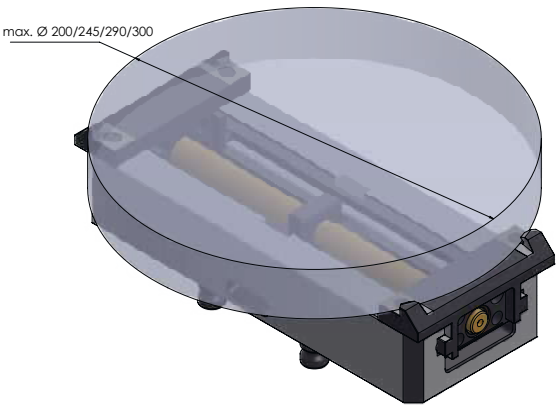


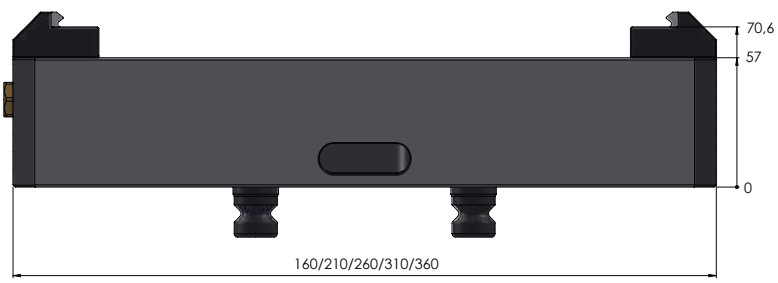
MAKRO·4GRIP 125 CLAMPING JAWS
JAW WIDTH 128 MM, ITEM NO. 52530-20

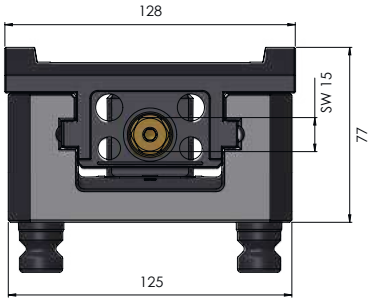
FOR CENTERING VISE 125	CLAMPING RANGE
40155-77 / -125 *	–
40205-77 / -125 *	Ø 180 – 200 mm
40255-125 *	Ø 180 – 245 mm
40305-125 *	Ø 180 – 290 mm
40355-125 *	Ø 180 – 300 mm
47155 **	–
47205 **	Ø 180 – 200 mm
47255 **	Ø 180 – 245 mm
47305 **	Ø 180 – 290 mm
47355 **	Ø 180 – 300 mm

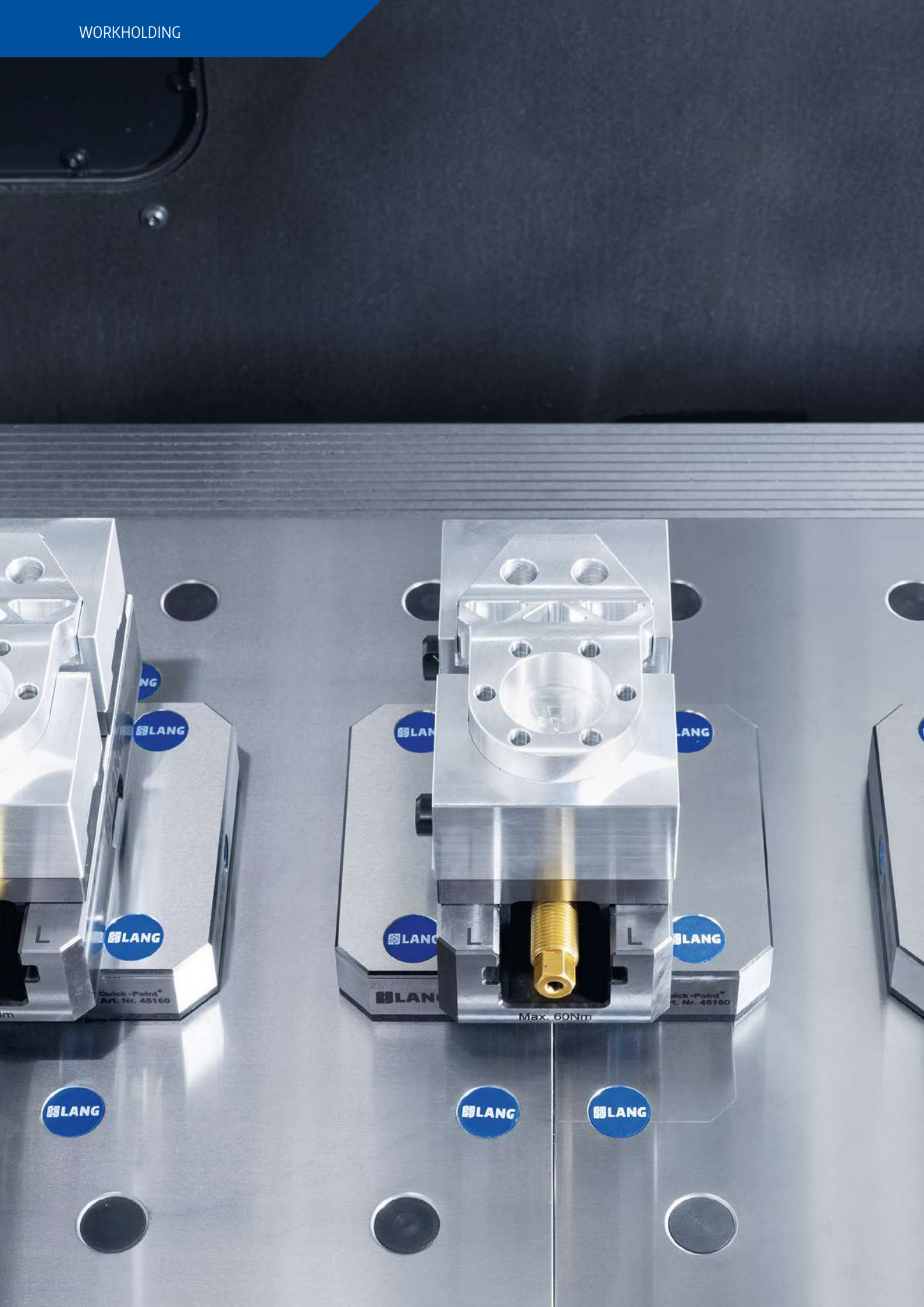
* also suitable for 5-axis vises starting with 48...
** Former Makro·Grip® versions.










LANG
Max. 60Nm

PATENTED

Avanti

clamping jaws for contour clamping

Avanti is a patented contour jaw clamping system for milling that can be used to clamp any workpiece shape. With extremely easy handling characteristics and unbeatably fast mounting of the top jaws, the Avanti is an impressive solution. It is best suited for machining many different parts with frequent changes. The Avanti technology is available as a retrofittable pair of jaws for the 5-axis vise.

Primary area of application:

- → **Smooth clamping via friction**
- → **Cuboid, cylindrical and pre-machined parts**
- → **2nd clamping operation, rear side machining**

Benefits:

- → **High set-up time savings thanks to quick jaw exchange**
- → **Suitable for all part shapes, therefore enormous variety of applications**
- → **Favorable purchase price**

Avanti **46 clamping jaws**
jaw width 46 mm

Suitable:

48040-46

48065-46

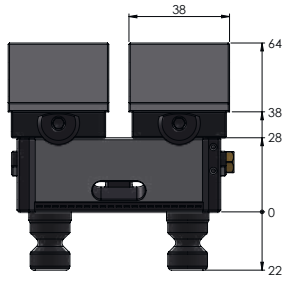
AVANTI 46 BASE JAWS, JAW WIDTH 46 MM

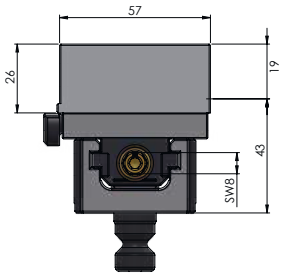
ITEM NO.	DIMENSIONS	WEIGHT	QTY
44461	55 × 36 mm	0.5 kg	1 pair

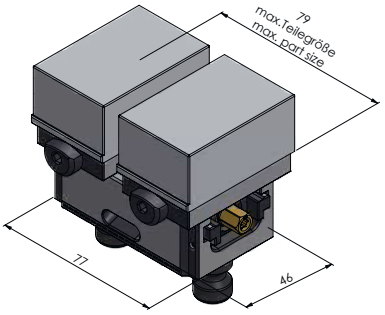
AVANTI 46 TOP JAWS, SOFT

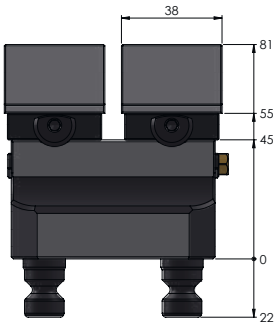
ITEM NO.	MATERIAL	DIMENSIONS	MAX. CONTOUR DEPTH	WEIGHT
44468-26	Steel (16MnCr5)	57 × 38 × 26 mm	19 mm	0.4 kg
44469-26	Aluminium (F50)	57 × 38 × 26 mm	19 mm	0.1 kg

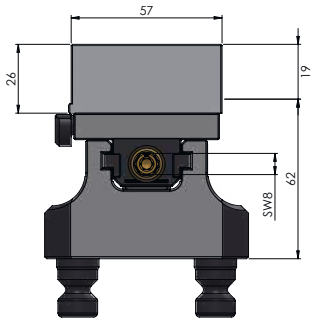
Please note: Avanti top jaws are sold individually (not in pairs).

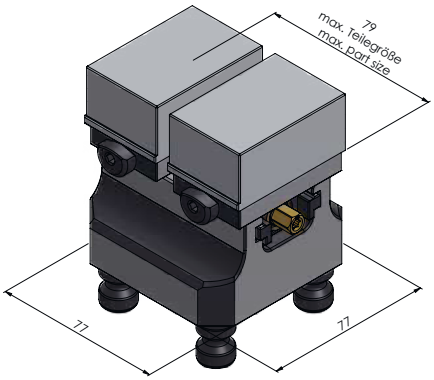












Avanti **77 clamping jaws**
jaw width 46 mm

Suitable:

40085-46 /
40120-46

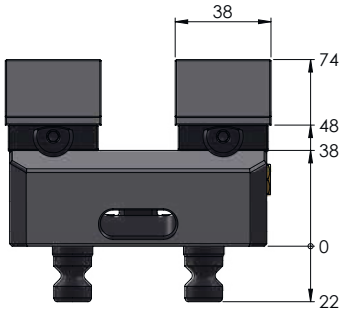
AVANTI 77 BASE JAWS, JAW WIDTH 46 MM

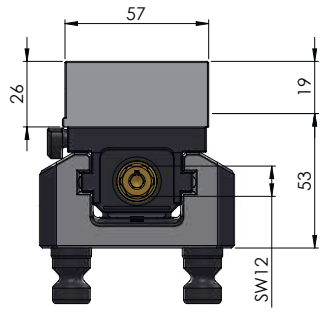
ITEM NO.	DIMENSIONS	WEIGHT	QTY
44771-46	55 × 36 mm	0.6 kg	1 Pair

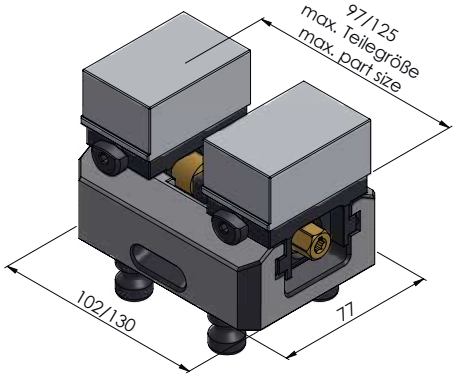
AVANTI 46 TOP JAWS, SOFT

ITEM NO.	MATERIAL	DIMENSIONS	MAX. CONTOUR DEPTH	WEIGHT
44468-26	Steel (16MnCr5)	57 × 38 × 26 mm	19 mm	0.4 kg
44469-26	Aluminium (F50)	57 × 38 × 26 mm	19 mm	0.1 kg

Please note: Avanti top jaws are sold individually (not in pairs).





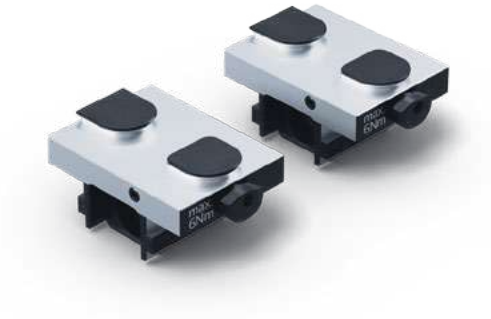


Avanti **77 clamping jaws**
jaw width 77 mm

Suitable:

40120-46

40120-77 to
40200-77



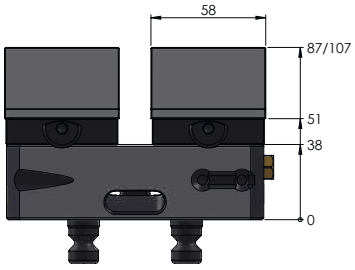
AVANTI 77 BASE JAWS, JAW WIDTH 77 MM

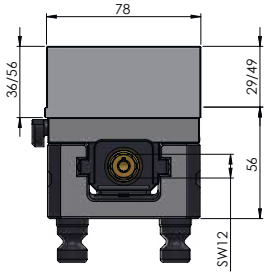
ITEM NO.	DIMENSIONS	WEIGHT	QTY
44771-77	77 × 57 mm	1.4 kg	1 pair

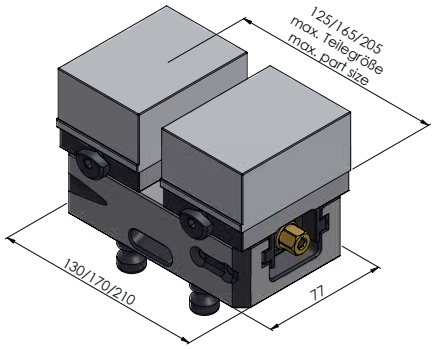
AVANTI 77 TOP JAWS, SOFT

ITEM NO.	MATERIAL	DIMENSIONS	MAX. CONTOUR DEPTH	WEIGHT
44778-36	Steel (16MnCr5)	78 × 58 × 36 mm	29 mm	0.6 kg
44779-36	Aluminium (F50)	78 × 58 × 36 mm	29 mm	0.2 kg
44778-56	Steel (16MnCr5)	78 × 58 × 56 mm	49 mm	1.0 kg
44779-56	Aluminium (F50)	78 × 58 × 56 mm	49 mm	0.3 kg

Please note: Avanti top jaws are sold individually (not in pairs).







Avanti **125 clamping jaws**
jaw width 125 mm

Suitable:

40205-77

40205-125 to
40355-125

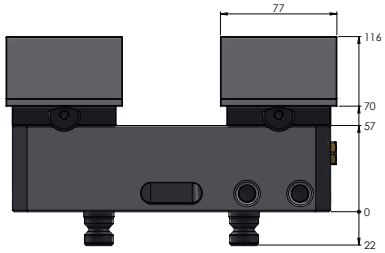
AVANTI 125 BASE JAWS 125 MM

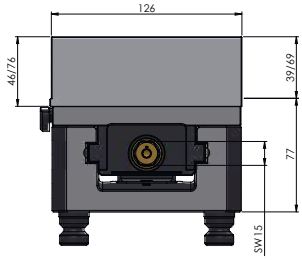
ITEM NO.	DIMENSIONS	WEIGHT	QTY
44251-125	125 × 69 mm	3.6 kg	1 pair

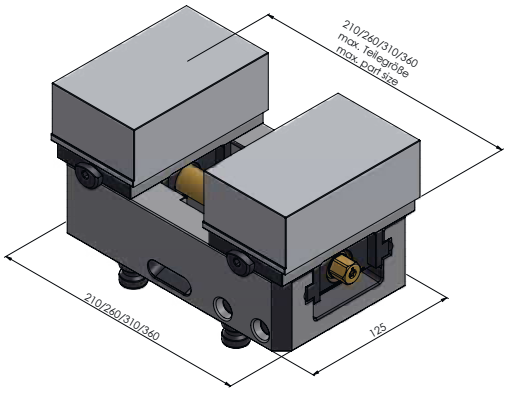
AVANTI 125 TOP JAWS, SOFT

ITEM NO.	MATERIAL	DIMENSIONS	MAX. CONTOUR DEPTH	WEIGHT
44258-46	Steel (16MnCr5)	126×77×46 mm	39 mm	3.3 kg
44259-46	Aluminium (F50)	126×77×46 mm	39 mm	1.2 kg
44258-76	Steel (16MnCr5)	126×77×76 mm	69 mm	5.6 kg
44259-76	Aluminium (F50)	126×77×76 mm	69 mm	2.0 kg

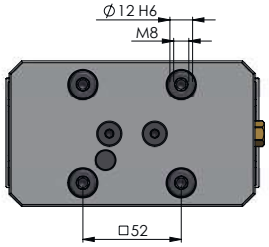
Please note: Avanti top jaws are sold individually (not in pairs).

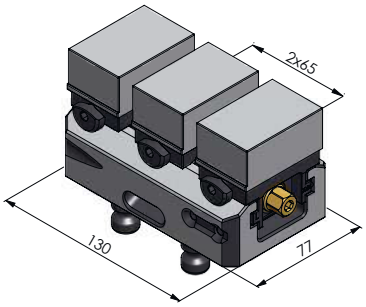






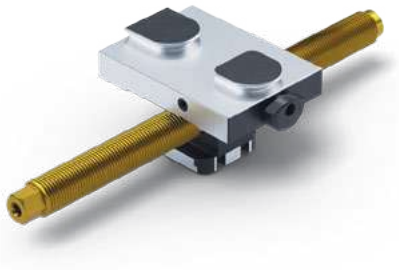
Avanti **77 / 125**
center base jaws and spindles

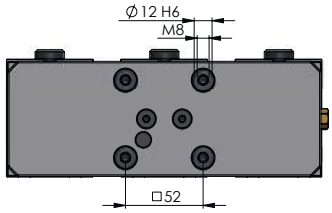


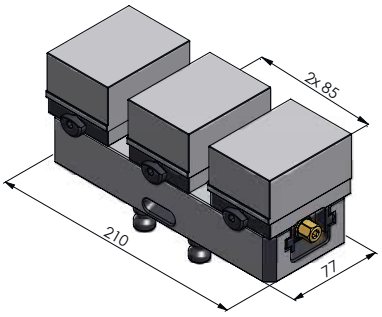


CENTER BASE JAW + SPINDLE FOR CENTERING VISE 77, JAW WIDTH 46 MM

ITEM NO.	SPINDLE LENGTH (+Ø)	FOR CENTERING VISE	WEIGHT
44120-TG46	135 mm (Ø 16 mm)	40120-46	0.5 kg

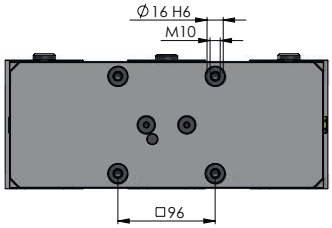


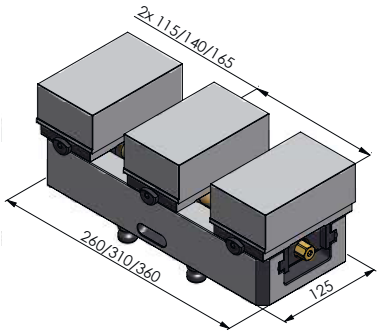




CENTER BASE JAW + SPINDLE FOR CENTERING VISE 77, JAW WIDTH 77 MM

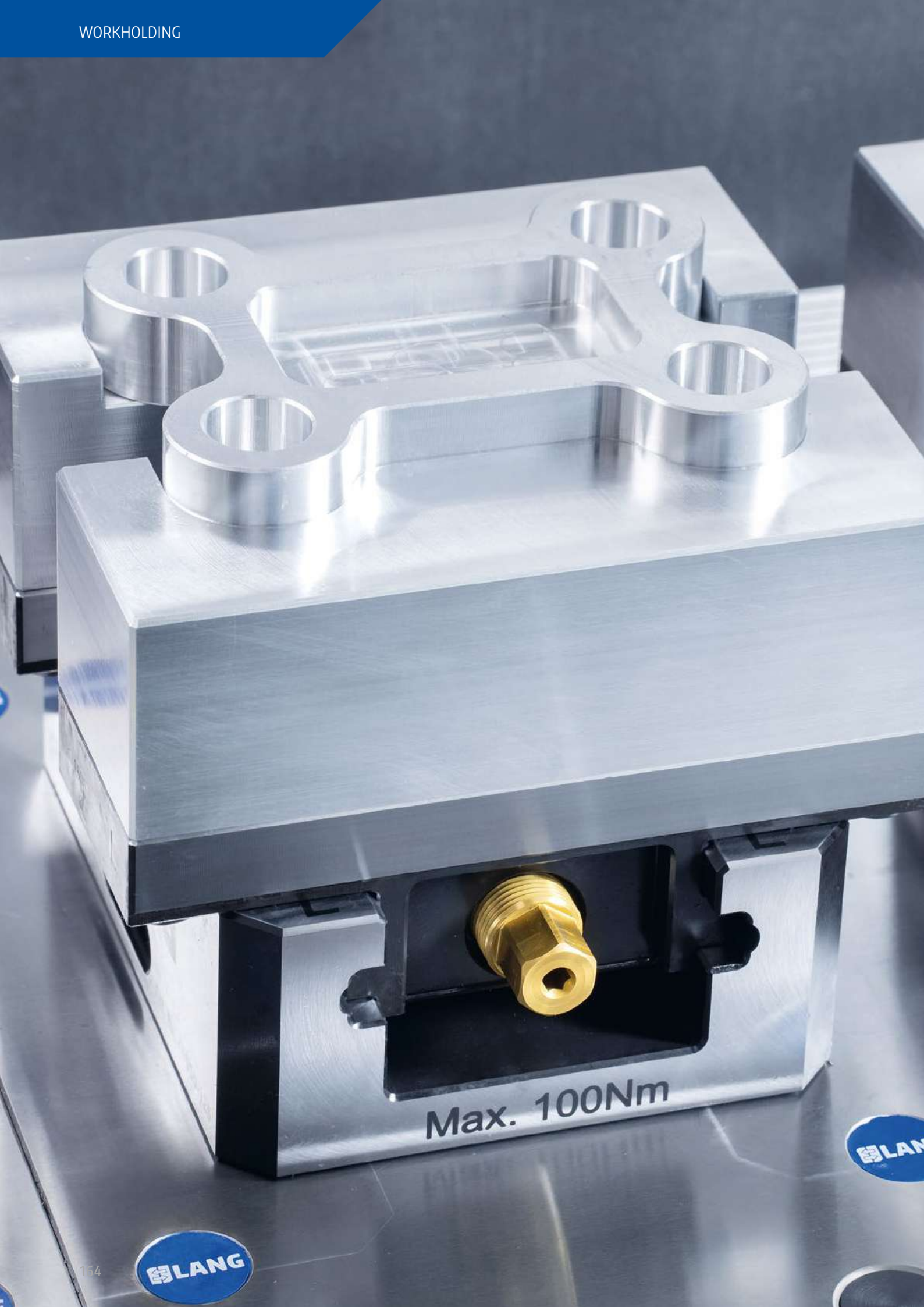
ITEM NO.	SPINDLE LENGTH (+Ø)	FOR CENTERING VISE	WEIGHT
44200-TG77	215 mm (Ø 16 mm)	40200-77	0.9 kg





CENTER BASE JAW + SPINDLE FOR CENTERING VISE 125, JAW WIDTH 125 MM

ITEM NO.	SPINDLE LENGTH (+Ø)	FOR CENTERING VISE	WEIGHT
44255-TG125	264 mm (Ø 20 mm)	40255-125	2.0 kg
44305-TG125	314 mm (Ø 20 mm)	40305-125	2.1 kg
44355-TG125	364 mm (Ø 20 mm)	40355-125	2.2 kg


Max. 100Nm
LANG
LANG

Profilo

clamping jaws for contour clamping

Profilo contour jaw clamping system for milling has enjoyed great popularity for many years. No matter what part shape needs to be clamped, Profilo is always the right solution. Its strengths lie particularly in the possibility of attaching self-made top jaws, which guarantees maximum flexibility and freedom. Profilo technology is available as a retrofittable pair of jaws for the 5-axis vise.

Primary area of application:

- **Smooth clamping via friction**
- **Cuboid, cylindrical and pre-machined parts**
- **2nd clamping operation, rear side machining**

Benefits:

- **Maximum flexibility thanks to in-house production of top jaws**
- **Maximum freedom in the choice of material and the size of the top jaws**
- **Suitable for all part shapes, therefore enormous variety of applications**

Profilo **77 clamping jaws**

Suitable:

40085-46 / 40120-46

40085-77 to 40200-77

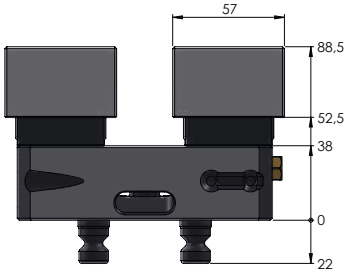
PROFILO 77 BASE JAWS

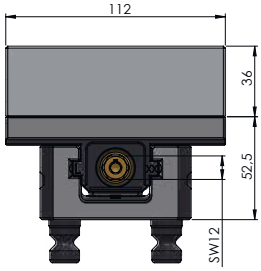
ITEM NO.	DIMENSIONS	WEIGHT	QTY
49077	112×46 mm	1.4 kg	1 pair

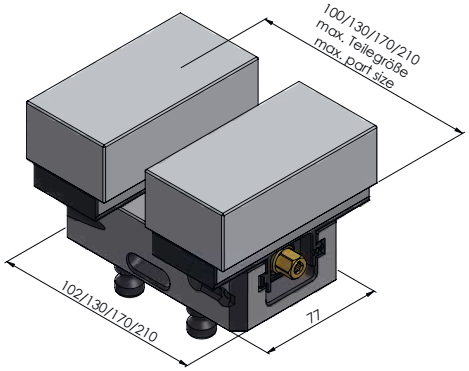
PROFILO 77 TOP JAWS, SOFT

ITEM NO.	MATERIAL	DIMENSIONS	MAX. CONTOUR DEPTH	WEIGHT
49778	Steel (16MnCr5)	112×57×36 mm	36 mm	1.8 kg
49779	Aluminium (F50)	112×57×36 mm	36 mm	0.6 kg

Please note: Profilo top jaws are sold individually (not in pairs).







Profilo **125 clamping jaws**

Suitable:

40155-77 / 40205-77

40155-125 to 40355-125

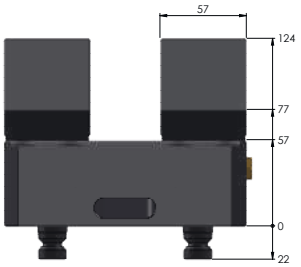
PROFILO 125 BASE JAWS

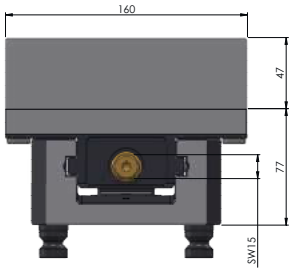
ITEM NO.	DIMENSIONS	WEIGHT	QTY
49125	160×57 mm	4.0 kg	1 pair

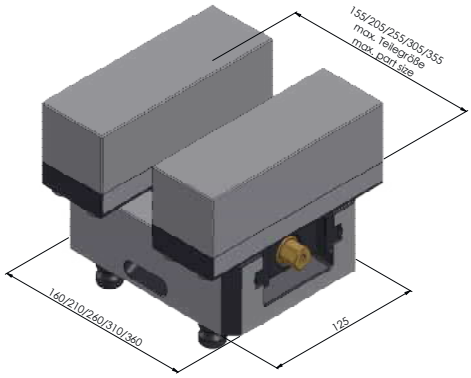
PROFILO 125 TOP JAWS, SOFT

ITEM NO.	MATERIAL	DIMENSIONS	MAX. CONTOUR DEPTH	WEIGHT
49258	Steel (16MnCr5)	160×57×47 mm	47 mm	3.3 kg
49259	Aluminium (F50)	160×57×47 mm	47 mm	1.2 kg

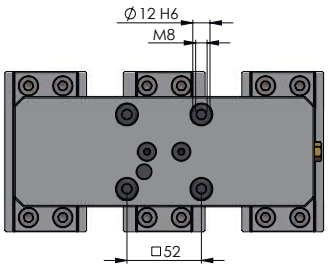
Please note: Profilo top jaws are sold individually (not in pairs).

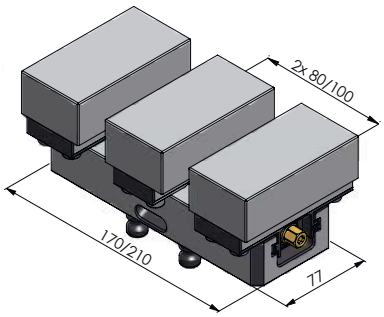






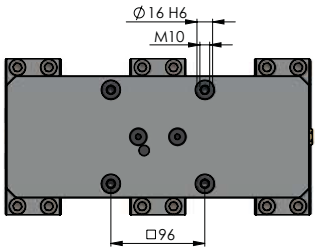
Profilo **77 / 125**
center base jaws and spindles

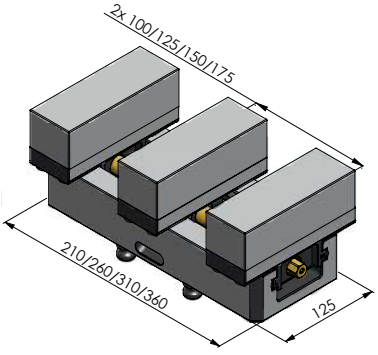




CENTER BASE JAW 112 × 46 MM + SPINDLE FOR CENTERING VISE 77

ITEM NO.	SPINDLE LENGTH (+ Ø)	FOR CENTERING VISE	WEIGHT	COMPARABLE FORMER VERSION
49080-TG77	175 mm (Ø 16 mm)	40160-77	0.8 kg	49080-TG
49120-TG77	215 mm (Ø 16 mm)	40200-77	0.9 kg	49120-TG





CENTER BASE JAW 160 × 57 MM + SPINDLE FOR CENTERING VISE 125

ITEM NO.	SPINDLE LENGTH (+ Ø)	FOR CENTERING VISE	WEIGHT	COMPARABLE FORMER VERSION
49100-TG125	214 mm (Ø 20 mm)	40205-125	2.2 kg	49100-TG
49150-TG125	264 mm (Ø 20 mm)	40255-125	2.3 kg	49150-TG
49200-TG125	314 mm (Ø 20 mm)	40305-125	2.4 kg	49200-TG
49250-TG125	364 mm (Ø 20 mm)	40355-125	2.5 kg	49250-TG


LANG
1258
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Vario•Tec
Art. Nr. 42097-77
Max. 60Nm
Quick-Point®
Art. Nr. 45160
30Nm
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Vario·Tec

clamping jaws with support
and end stop system

The Vario·Tec pin jaw technology offers a reliable and repeatable end stop and support option for clamping pre-machined components. Its pins make both parallels and external workpiece end stops obsolete. With ingenious simplicity, the clamping situation can be changed by pressing in the pins and reset using compressed air. The Vario·Tec technology is available as a retro-fittable pair of jaws for the 5-axis vise.

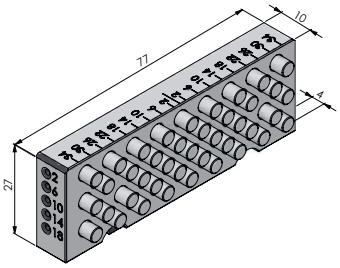
Primary area of application:

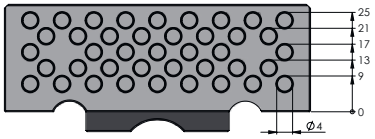
- **Smooth clamping via friction**
- **Cuboid components**
- **2nd clamping, rear side machining**

Benefits:

- **High flexibility thanks to variable clamping depths**
- **High repeat accuracy when inserting the component and process-reliable clamping**
- **Ideal accessibility as no external workpiece end stops are needed**

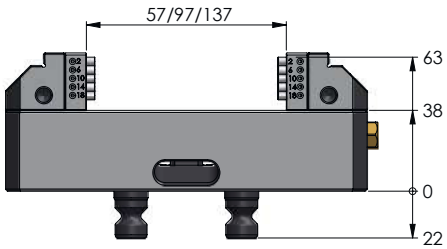
Vario·Tec **77 clamping jaws**

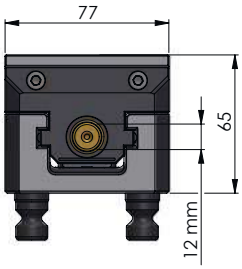


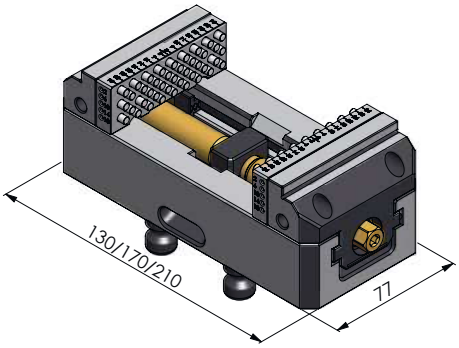


VARIO·TEC 77 CLAMPING JAWS

ITEM NO.	UNIT	WEIGHT	COMPARABLE FORMER VERSION
42018-77	2 pin jaws + 2 carrier jaws	1.2 kg	42077





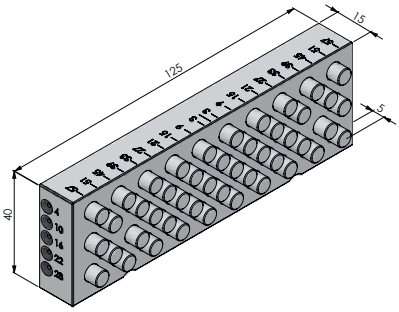


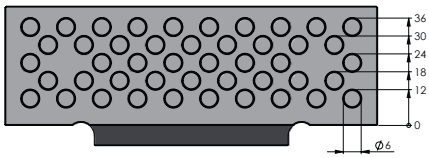
Pins not needed are simply pushed back by hand. The remaining pins act as a support and end stop system.

The pins can be blown out row by row using compressed air. Since the clamping jaws are completely closed at the front, chip clogging can be ruled out.

Resting a workpiece on only two pins ensures great freedom to machine until close to the edge of the workpiece and inner surfaces of the clamping pin jaws.

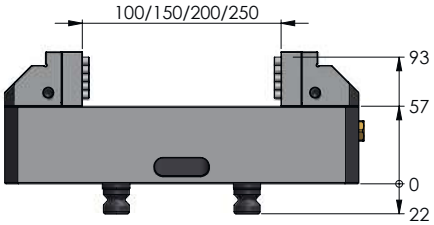
Vario·Tec **125 clamping jaws**

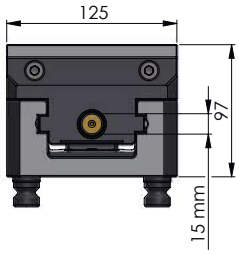


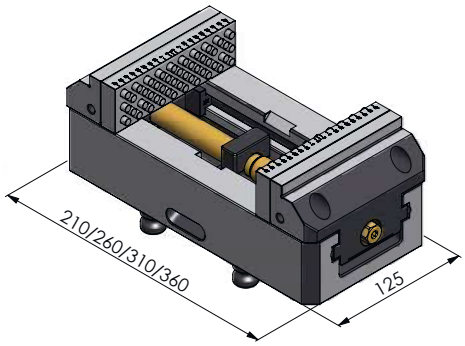


VARIO·TEC 125 CLAMPING JAWS

ITEM NO.	UNIT	WEIGHT	COMPARABLE FORMER VERSION
42018-125	2 pin jaws + 2 carrier jaws	4.6 kg	42125







VARIO·TEC ACCESSORIES

ITEM NO.	DESCRIPTION	QTY
20000	Spare pins Ø 4 mm for Vario·Tec 77	5 pcs.
20001	Spare pins Ø 6 mm for Vario·Tec 125	5 pcs.
200009	O-rings Ø 2 × 1,5 mm for Vario·Tec 77 spare pins	100 pcs.
200010	O-rings Ø 3,5 × 2 mm for Vario·Tec 125 spare pins	100 pcs.
20004	Compressed air gun	1 pc.


Vasto • Clamp®
Art. Nr. 59616
2254
Max. 30Nm
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Quick•Point®
2116
5-Achs-Erhöhung
Art. Nr. 45487
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PATENT PENDING

Vasto·Clamp

6-jaw chuck

The versatile Vasto·Clamp chuck is a true all-rounder in the milling of round material up to Ø 190 mm. It can be used both as a 3- and 6-jaw chuck and therefore delivers outstanding milling results both for heavy machining of blanks and for sensitive components in the second clamping operation. With its innovative quick-change jaw system, the clamping jaws can be attached by hand in just a few seconds without tools. The integrated zero point adaptation also ensures fast set-up speed, time savings and precise positioning.

Primary area of application:

- **Clamping of cylindrical components via gripping jaws**
- **Smooth clamping of cylindrical components via friction**
- **1st clamping operation, raw part machining**
- **2nd clamping, rear side machining**

Benefits:

- **Enormous adaptability to a wide range of clamping situations**
- **High set-up time savings thanks to quick jaw change**
- **Can be used directly in automation without additional pallets**

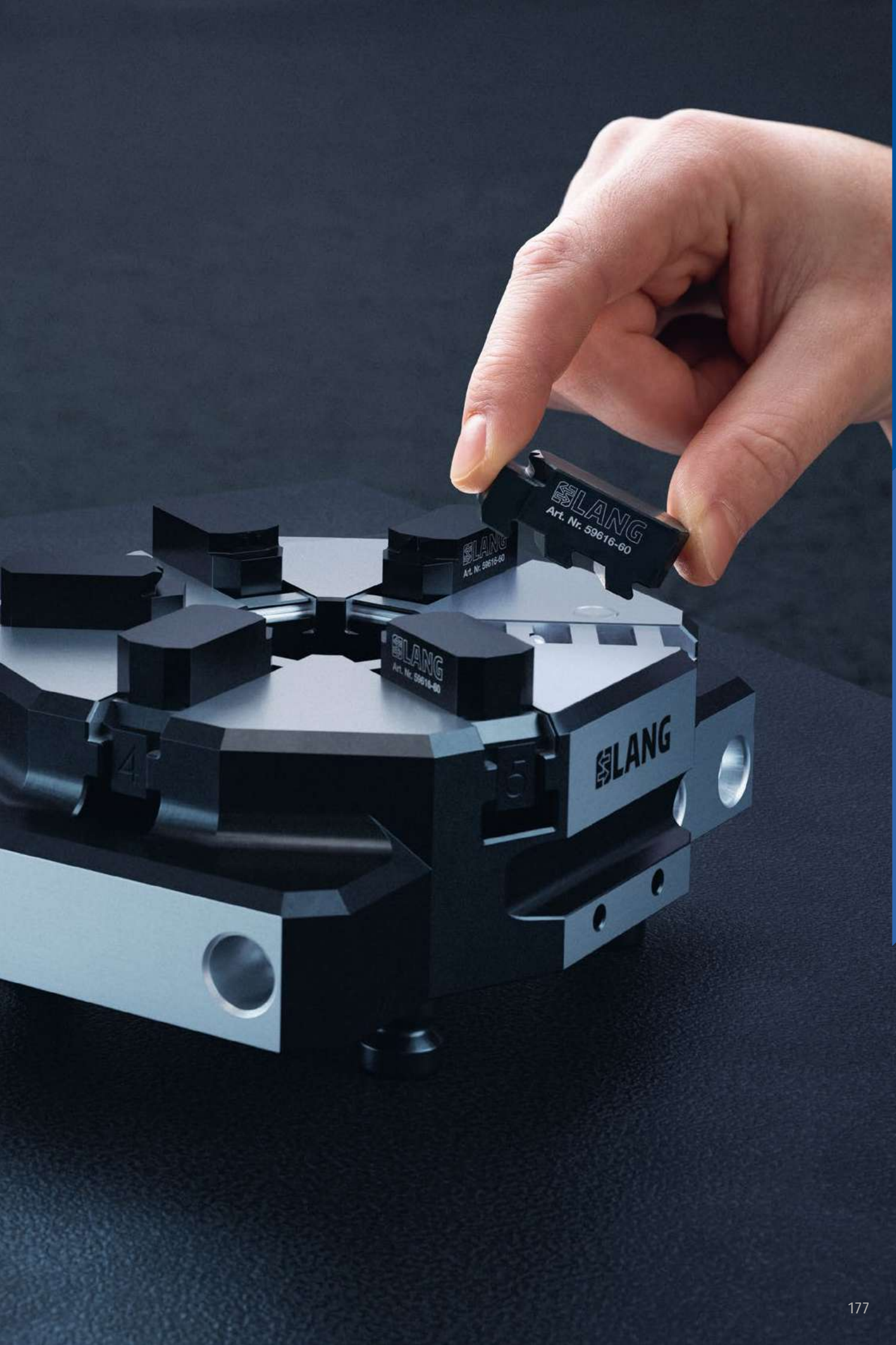
Vasto·Clamp

Clamping jaws:

- hard gripping jaws for clamping cylindrical blanks
- soft top jaws for clamping deformation-sensitive components in the second clamping operation

6-jaw chuck:

- made of robust, case-hardened steel
- innovative click system for quick jaw change
- can be used as a 3- and 6-jaw chuck
- outer and inner diameter clamping
- integrated zero point interface
- equipped with automation interface
- chip and coolant drain
- centering accuracy ± 0.04 mm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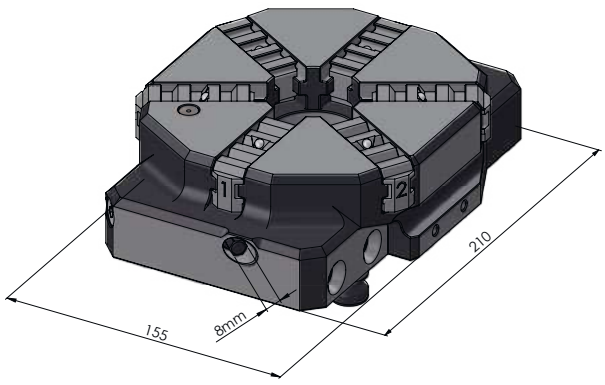
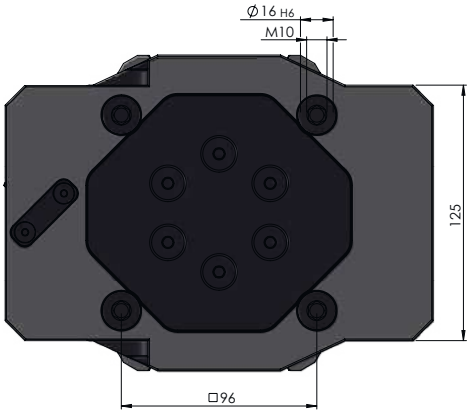
Vasto·Clamp **6-jaw chuck**

VASTO·CLAMP 6-JAW CHUCK

ITEM NO.	DIMENSIONS	CLAMPING RANGE	WEIGHT
59616	210 × 155 × 57 mm	10 – 160 mm	9.6 kg

Includes: Base jaws for outer diamter clamping, hexagonal insert with drive square 1/4", size 8 mm

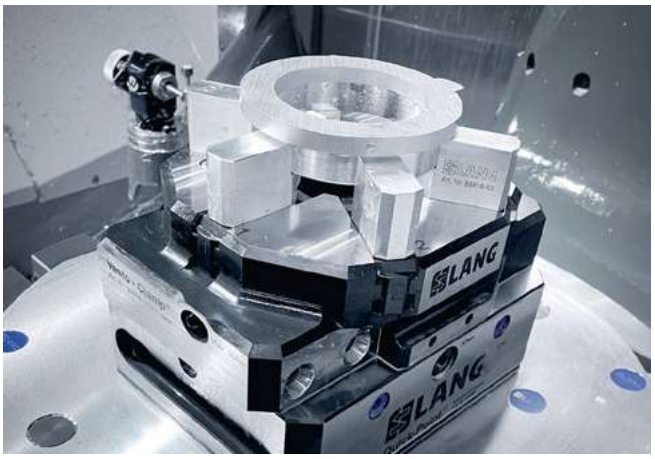




Vasto·Clamp **base jaws for inner diameter clamping**

VASTO·CLAMP BASE JAWS FOR INNER DIAMETER CLAMPING

ITEM NO.	MATERIAL	FOR	QTY
59616-30	Steel (16MnCr5)	59616-70 to 59616-73	6 pcs.

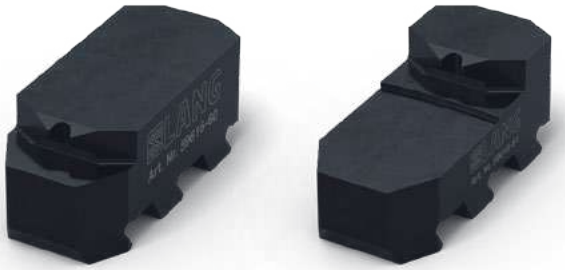


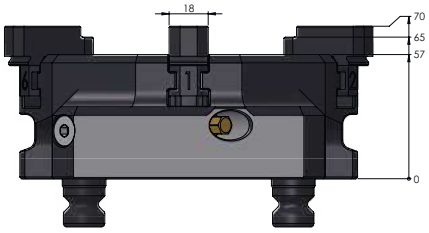
EL-Bauteile Handelsgesellschaft mbH

CNC-Technik ORTLIEB GmbH & Co. KG

Wild-CNC-Technik

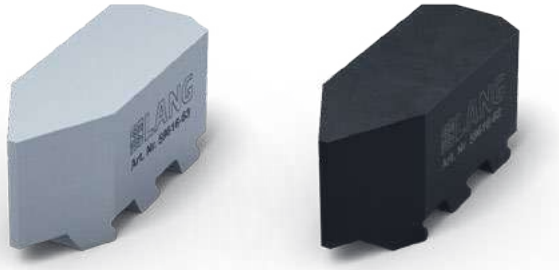
Vasto·Clamp **gripping and top jaws for outer diameter clamping**

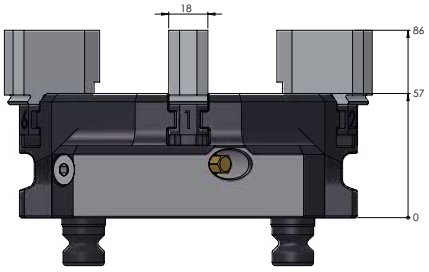




VASTO·CLAMP GRIPPING JAWS, HARDENED

ITEM NO.	MATERIAL	CLAMPING RANGE	QTY
59616-60	Steel (16MnCr5)	30 – 120 mm	6 pcs.
59616-61	Steel (16MnCr5)	75 – 160 mm	6 pcs.

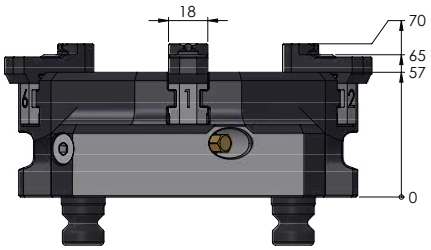




VASTO·CLAMP TOP JAWS, SOFT

ITEM NO.	MATERIAL	CLAMPING RANGE	QTY
59616-62	Steel (16MnCr5)	10 – 160 mm	6 pcs.
59616-63	Aluminium (F50)	10 – 160 mm	6 pcs.

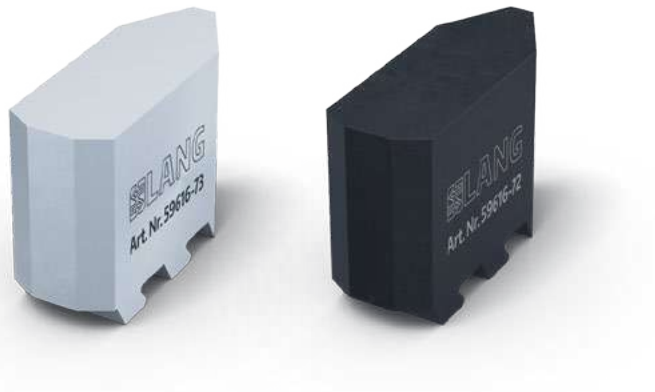
Vasto·Clamp **gripping and top jaws for inner diameter clamping**

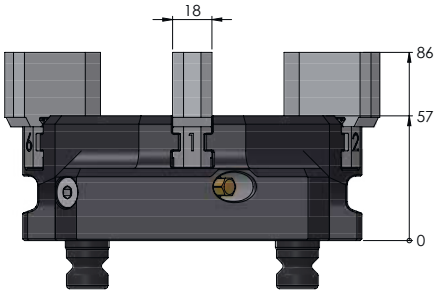


VASTO·CLAMP GRIPPING JAWS, HARDENED

ITEM NO.	MATERIAL	CLAMPING RANGE	QTY
59616-70	Steel (16MnCr5)	50 – 145 mm	6 pcs.
59616-71	Steel (16MnCr5)	90 – 185 mm	6 pcs.

Can only be used in combination with base jaws for inner diameter clamping (Item No. 59616-30).





VASTO·CLAMP TOP JAWS, SOFT

ITEM NO.	MATERIAL	CLAMPING RANGE	QTY
59616-72	Steel (16MnCr5)	10 – 190 mm	6 pcs.
59616-73	Aluminium (F50)	10 – 190 mm	6 pcs.

Can only be used in combination with base jaws for inner diameter clamping (Item No. 59616-30).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Preci·Point

collet chuck

The Preci·Point collet chuck is designed for use in milling operations to clamp round material with a diameter of Ø 3 mm to Ø 34 mm. Using standardized collets of type ER 32 and ER 50 which are already available in many workshops, allows the Preci·Point to be used at no additional investment. Its slim design ensures excellent accessibility to the clamped material. A major advantage is the integrated zero point adaptation, which enables a fast and precise set-up process

Primary area of application:

- → **Clamping of round material in the diameter range from Ø 3 mm to Ø 34 mm**

Benefits:

- → **High set-up time savings thanks to integrated zero point adaptation in the collet chuck**
- → **Compact, slim design for ideal accessibility**
- → **Cost-saving potential thanks to the use of standard (often already existing) collets**

Preci·Point

Collet:

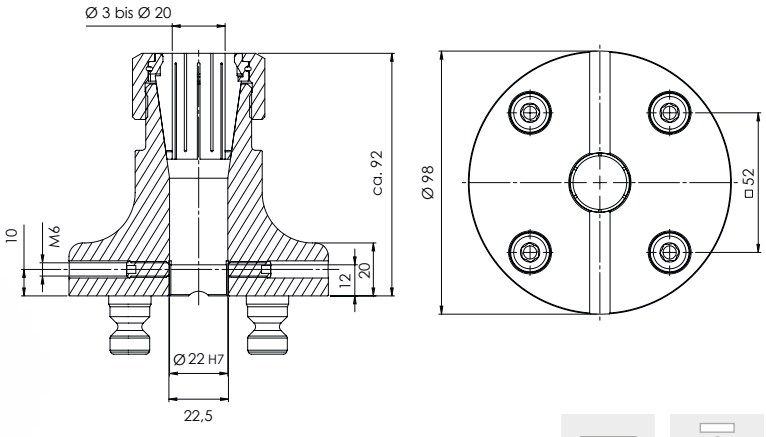
- The collet chuck is suitable for standard collets of the type:
  - ER 32 – clamping ranges Ø 3 mm to Ø 20 mm
  - ER 50 – clamping ranges Ø 6 mm to Ø 34 mm

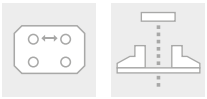
Collet chuck:

- made of case-hardened steel
- compact, handy design
- including through-hole
- M6 threaded hole for workpiece endstop
- integrated zero point interface


LANG
Art. Nr. 41032
ER32UM

Preci·Point **collet chuck**

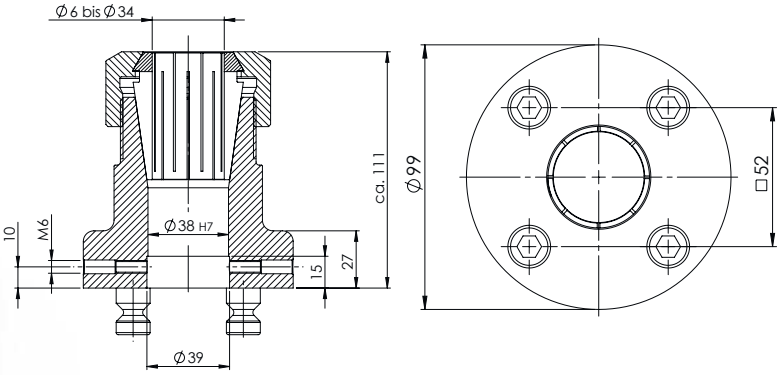


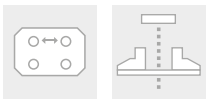


PRECI·POINT COLLET CHUCK FOR ER 32

ITEM NO.	DIMENSIONS	CLAMPING RANGE	WEIGHT
41032	Ø 98 × 92 mm	Ø 3 – 20 mm	1.9 kg

Includes: 4 Quick·Point® 52 clamping studs Ø 16 mm, screw cap.





PRECI·POINT COLLET CHUCK FOR ER 50

ITEM NO.	DIMENSIONS	CLAMPING RANGE	WEIGHT
41052	Ø 99 × 111 mm	Ø 6 – 34 mm	3.0 kg

Includes: 4 Quick·Point® 52 clamping studs Ø 16 mm, screw cap.

PRECI·POINT CLAMPING WRENCH

ITEM NO.	FOR PRECI·POINT
41032-03	ER 32
41052-03	ER 50

Applications

Ratiotechnik Milde GmbH

Berndl Michael & Zellner Julian GbR

Dengler CNC-Technik


LANG
1030
Art. Nr. 81022
ULTRA
Makro-Grip
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PATENTED

Makro·Grip® Ultra

clamping system for large parts and plates

Makro·Grip® Ultra is something like the Swiss army knife among LANG Technik's clamping systems. From small workpieces up to a clamping range of around 800 mm, the modular clamping system covers all sizes and component shapes. The strengths of the clamping system become fully apparent when machining plates. Both raw material and pre-machined components can be held with the versatile clamping system. Its simple handling and uncomplicated, cost-effective expandability make Makro·Grip® Ultra an attractive clamping solution, even for larger and heavier components.

Primary area of application:

- **Form-fit clamping via holding serration**
- **Smooth clamping via friction**
- **Cuboid, cylindrical and pre-machined parts**
- **1st clamping operation, raw part machining**
- **2nd clamping, rear side machining**

Benefits:

- **Absolute adaptability to any component shape and size**
- **Cost-effective expansion of the clamping system**
- **User-friendly, ergonomic set-up process thanks to light weights**

Makro·Grip® Ultra

Clamping jaws:

- reversible jaws milled from solid material
- Makro·Grip® clamping technology (form-fit clamping)
- with holding serration on both sides
- 3 mm and 5 mm clamping depth
- threaded caps for quick adjustment of the clamping range
- support jaw in the clamping system's center
- also: clamping jaws with Avanti technology for contour clamping
- single-part or multiple clamping

Base body:

- made of case-hardened steel
- modular, expandable design thanks to individual base elements
- standard system lengths 410 mm, 610 mm, 810 mm
- threaded spindle in three different lengths
- scaling and snap-in function for jaw positioning
- integrated zero point interface


ULTRA
Art. Nr. 81032
ULTRA
Art. Nr. 81012
ULTRA
Art. Nr. 81022
LANG

Modularity

The modularity and small number of components, as well as the consistent Quick·Point® 96 zero point grid allow to change the clamping setup immediately. Adding base bodies to increase the clamping range, a complete exchange of base bodies to alter the system height and changing jaw types can be done in a few simple steps without special tools.

Easy setting and cleaning

Just as quickly as it is set up, Makro·Grip® Ultra can be disassembled. Clamping jaws and spindles are removed easily which simplifies cleaning and maintenance after and in between machining processes. Clamping tasks that are performed with other fixtures are possible even without having to remove the Makro·Grip® Ultra system. Accessibility still remains and the risk of swarf clogging is low.

Quick jaw adjustment

By removing the threaded cap with a magnetic handle the position of the clamping jaws can be changed in no time without actuating the spindle. Despite their high accuracy of fit the clamping jaws glide smoothly over the guide surface. The threaded cap is kept in place by two extremely resilient hexagon screws (5 mm) which are opened/locked with half a turn.

Scale and snap-in function

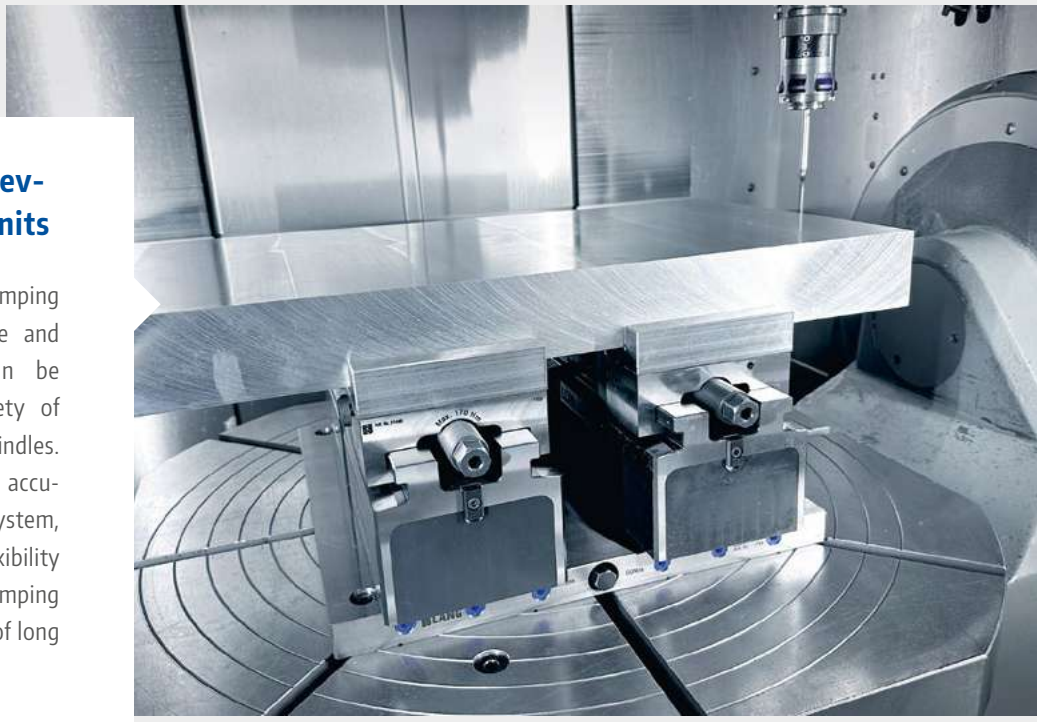
For a quick adjustment into the desired position the clamping jaws feature an integrated snap-in function as an orientation aid where the operator feel resistance every 48 mm. Each base body also has a scale which provides a visual aid when positioning the clamping jaws.

Raw part clamping with serrated Makro·Grip® Ultra jaws

The Makro·Grip® stamping and workholding technology, which has been tried and tested for years, also shows its unique advantages in the clamping of large parts. Moulds, plates and all kinds of components from 40 to 810 mm in length and beyond are pre-stamped and then held by form-fit in the Makro·Grip® clamping jaws at only 3 or 5 mm clamping depth. The workpiece is held reliably with the highest holding forces at relatively low actuation torque, which leads to precise results, especially for deformation-sensitive and flat material.

Clamping plates across several Makro·Grip® Ultra units

Not only nearly unlimited in clamping range, but also highly adaptable and modular. Makro·Grip® Ultra can be assembled flexibly using a variety of clamping jaws, base bodies and spindles. The modularity and high centering accuracy of the Makro·Grip® Ultra system, coupled with the precision and flexibility of the Quick·Point® zero point clamping system, guarantee ideal clamping of long parts and plates.



SAW-Technologie GmbH

2nd operation using contour jaws

Even with geometrically unshaped components, Makro·Grip® Ultra offers a simple but efficient solution: Since the jaws are independently adjustable towards the center, asymmetrical clamping configurations can be realised quickly and easily. This reduces set-up for the second operation to a minimum. The quick and precise adjustment of the jaws is ensured by a removable threaded cap and a scale on the base body.

Increased stability through center support

The serrated Makro·Grip® clamping jaws have an additional clamping step on the outside, which enables workpieces to be fixed securely and smoothly by means of friction clamping. For further stabilization in the center, there is a mounted base jaw on which the workpiece rests. This increases stability and reduces potential vibrations during the machining process. Special support jaws are available to the user for this purpose, or the workpiece can be positioned directly on the dovetail guide of the base jaw, as shown in the picture.

Uhlmann Pac-Systeme GmbH & Co. KG

Overview of the base set system heights with mounted clamping jaws

Base-Set	System height “S”
 + Clamping Jaw type 81483	
 + Clamping Jaw type 81485	
 + Clamping Jaw type 81440 + 81450	
 + Clamping Jaw type 81440 + 44259-46	
 + Clamping Jaw type 81440 + 44259-76	

System height “M”

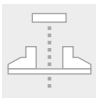
System height “L”

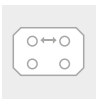
Makro·Grip® Ultra **base set**


170 Nm


max. 30,000 N


125


± 0,05 mm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MAKRO·GRIP® ULTRA BASE SET

ITEM NO.	DESCRIPTION	HEIGHT	SPINDLE LENGTH	CLAMPING RANGE	WEIGHT
81400	Base Set **410 S**	45 mm	441 mm	40 – 410 mm	12.8 kg
81415	Base Set **410 M**	109 mm	441 mm	40 – 410 mm	26.0 kg
81423	Base Set **410 L**	189 mm	441 mm	40 – 410 mm	43.2 kg
81600	Base Set **610 S**	45 mm	617 mm	40 – 610 mm	19.1 kg
81615	Base Set **610 M**	109 mm	617 mm	40 – 610 mm	40.1 kg
81623	Base Set **610 L**	189 mm	617 mm	40 – 610 mm	66.9 kg
81800	Base Set **810 S**	45 mm	825 mm	40 – 810 mm	25.3 kg
81815	Base Set **810 M**	109 mm	825 mm	40 – 810 mm	51.7 kg
81823	Base Set **810 L**	189 mm	825 mm	40 – 810 mm	85.7 kg

The model shown has the item no. 81415.

A base set consists of the base body and the following components:

1 × spindle unit
Item No. 81004 / 81006 / 81008

2 × centering plates
Item No. 81010

Quick·Point® clamping studs
Item No. 45570

1 × Quick·Point® cover plug remover
Item No. 45000-30

1 × Wrench internal hexagon size 5 mm
Item No. 45505

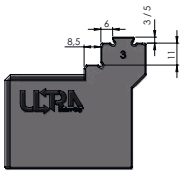
1 × Wrench external hexagon size 19 mm
Item No. 45519

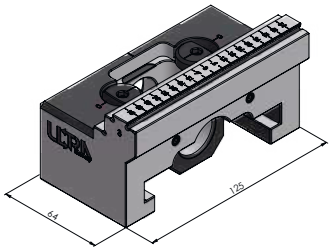
Additionally included in the base sets 610 and 810:

2 × connection plates
Item No. 81015

Clamping jaws for base sets

Depending on requirements, either clamping jaws with the Makro·Grip® serration or base jaws with the Avanti technology can be used on the Makro·Grip® Ultra Base Set. Various types of top jaws are also available for the base jaws, which can be found on page 201. Both clamping and base jaws each require a threaded cap with which they are secured on the threaded spindle.

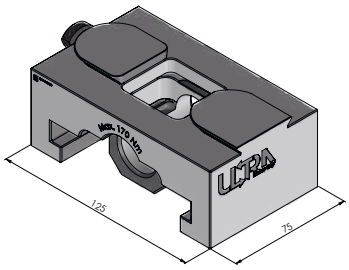




MAKRO·GRIP® ULTRA 125, SERRATED CLAMPING JAW, STEEL (HARDENED)

ITEM NO.	CLAMPING DEPTH	CLAMPING BY	WEIGHT
81483	3 mm	form-fit	2.2 kg
81485	5 mm	form-fit	2.2 kg

Selling unit: 1 piece. For each clamping unit 2 pieces are required.
The specified weight relates to 1 piece.



BASE JAW AVANTI 125, STEEL (HARDENED)

ITEM NO.	APPLICATION	WEIGHT
81440	As a base for regular Avanti top jaws and Avanti top jaws with plain clamping step	2.2 kg

Selling unit: 1 piece. For each clamping unit 2 pieces are required.
The specified weight relates to 1 piece. Suitable top jaws can be found on page 201.

THREADED CAP

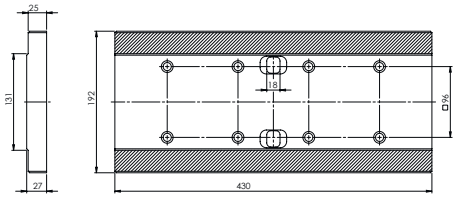
ITEM NO.	DESCRIPTION	WEIGHT	QTY
81080	Threaded cap, right	0.2 kg	1 piece
81090	Threaded cap, left	0.2 kg	1 piece

For each clamping unit 1 left and 1 right threaded cap is required.

Makro·Grip® Ultra **base plates**

If the Makro·Grip® Ultra is to be permanently attached to the machine table, the clamping system can also be used without zero point plates. For this purpose, base plates made of non-hardened steel are available, which are attached to the Makro·Grip® Ultra base sets from below and firmly mounted on the machine table. Fastening in the grooves of a machine table allows flexible positioning in the x-direction in order to adjust the distance to a neighboring clamping unit.

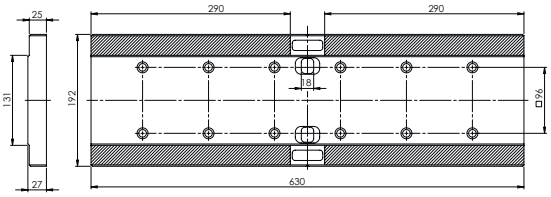
Tip: Can also be used for other LANG vises with base body width 125 mm or zero point spacing 96 mm!



MAKRO·GRIP® ULTRA BASE PLATE 410

ITEM NO.	FOR BASE SETS	DIMENSIONS	WEIGHT
81411	81400, 81415, 81423	430 × 192 × 27 mm	17.1 kg

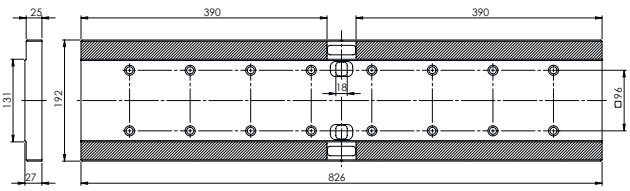
Scope of delivery: 1 × base plate, 8 × bushings, 8 × cylinder head screws M 10 × 30.



MAKRO·GRIP® ULTRA BASE PLATE 610

ITEM NO.	FOR BASE SETS	DIMENSIONS	WEIGHT
81611	81600, 81615, 81623	630 × 192 × 27 mm	25.0 kg

Scope of delivery: 2 × base plates, 1 × connection Set, 12 × bushings, 12 × cylinder head screws M 10 × 30.



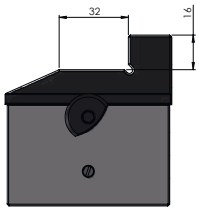
MAKRO·GRIP® ULTRA BASE PLATE 810

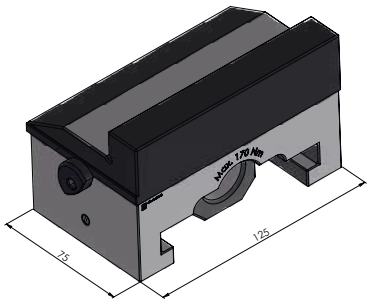
ITEM NO.	FOR BASE SETS	DIMENSIONS	WEIGHT
81811	81800, 81815, 81823	826 × 192 × 27 mm	32.9 kg

Scope of delivery: 2 × base plates, 1 × connection Set, 16 × bushings, 16 × cylinder head screws M 10 × 30.

Top jaws for Makro·Grip® Ultra base jaws

The top jaws shown are used in combination with the base jaws (item no. 81440) on page 199. They are used for smooth clamping of cubic components, of profiles and molds (single or multiple in each case).

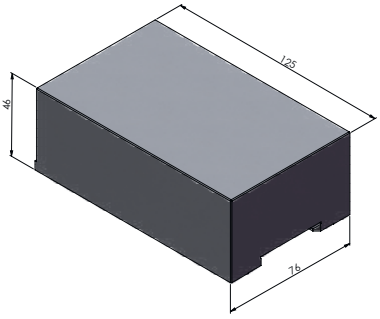


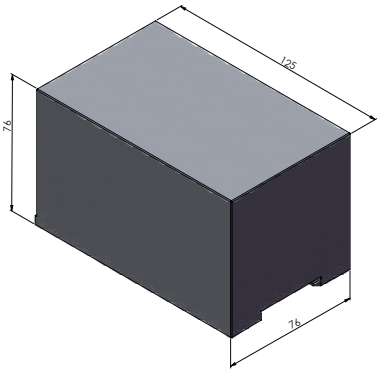


AVANTI 125 TOP JAW WITH PLAIN CLAMPING STEP, STEEL (HARDENED)

ITEM NO.	CLAMPING DEPTH	CLAMPING BY	WEIGHT
81450	16 mm	friction	2.4 kg

Selling unit: 1 pair. The specified weight relates to 1 pair.





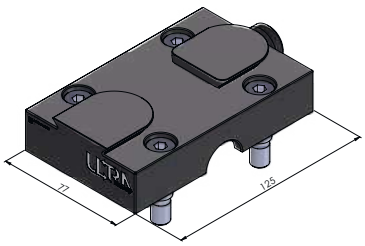
AVANTI 125 TOP JAW (SOFT)

ITEM NO.	MATERIAL	HEIGHT / MAX. CONTOUR DEPTH	WEIGHT
44258-46	Steel (16MnCr5)	46 mm / 39 mm	3.3 kg
44258-76	Steel (16MnCr5)	76 mm / 69 mm	5.5 kg
44259-46	Aluminium (F50)	46 mm / 39 mm	1.2 kg
44259-76	Aluminium (F50)	76 mm / 69 mm	2.0 kg

Selling unit: 1 piece. The specified weight relates to 1 piece.
Note: This type of top jaw is the common version for the Avanti vise.

Clamping and support options for the center

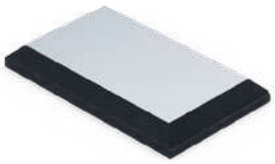
The center base jaw 125 type Avanti is used in combination with a support jaw as an additional support to reduce possible vibrations in the machining process and also as a basis for the center top jaw Avanti 125, as well as conventional Avanti top jaws. For form-fit multiple clamping, the Makro·Grip® 125 center jaw with serration is used.

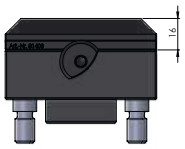


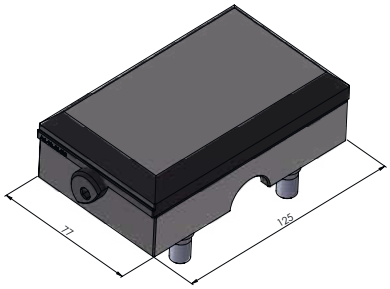
CENTER BASE JAW AVANTI 125, STEEL (HARDENED)

ITEM NO.	APPLICATION	WEIGHT
81440-TG	As a base for support jaws or Avanti top jaws	1.8 kg

Selling unit: 1 piece. The specified weight relates to 1 piece.



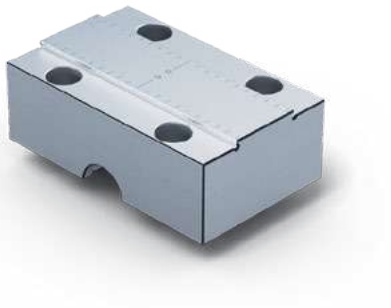


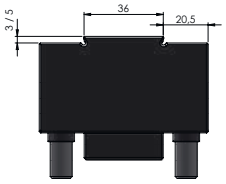


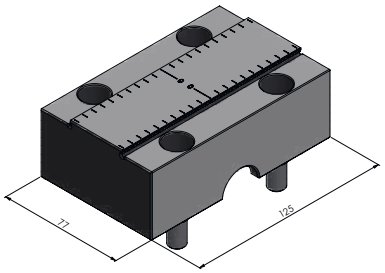
SUPPORT JAW, STEEL (SOFT)

ITEM NO.	FOR	APPLICATION	WEIGHT
81403	81483 / 81450	Single-part clamping by form-fit / friction	1.0 kg
81405	81485	Single-part clamping by form-fit / friction	0.9 kg

Selling unit: 1 piece. The specified weight relates to 1 piece.



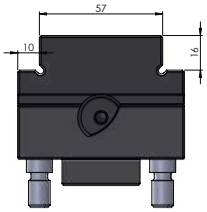


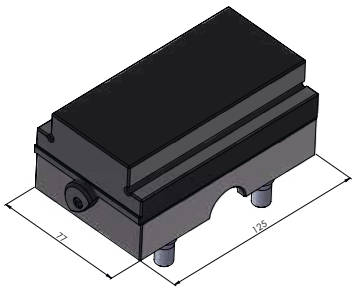


MAKRO·GRIP® ULTRA 125 SERRATED CENTER JAW, STEEL (HARDENED)

ITEM NO.	CLAMPING DEPTH	APPLICATION	WEIGHT
81483-TG	3 mm	Multiple clamping by form-fit	2.3 kg
81485-TG	5 mm	Multiple clamping by form-fit	2.3 kg

Selling unit: 1 piece. The specified weight relates to 1 piece.
The Center Jaw is screwed directly onto the base body and, depending on the variant, used with the Makro·Grip® clamping jaw with serration (item no. 81483 or 81485).





CENTER TOP JAW AVANTI 125 WITH PLAIN CLAMPING STEP, STEEL (HARDENED)

ITEM NO.	CLAMPING DEPTH	APPLICATION	WEIGHT
81450-TG	16 mm	Multiple clamping by friction	1.9 kg

Selling unit: 1 piece. The specified weight relates to 1 piece.
To be used in combination with the center base jaw 125 type Avanti (item no. 81440-TG).

Note: For multiple clamping with mounted center (base) jaw, it is necessary to replace the centering plates installed as standard in the base set with compensating centering plates (item no. 81040). Information on this can be found on p. 198.

Makro·Grip® Ultra **base body**

An individual base body is needed especially when an existing base set is to be expanded. For instance, if you want to go from a clamping range of 410 mm to 610 mm / 810 mm or beyond. With an individual base body Quick·Point® clamping studs are included (4 pcs. for long base bodies, 2 pcs. for short base bodies). Also included are a slot nut and the respective scaling. For stringing together individual base bodies, connection plates are required which can be found on page 206.

SHORT BASE, HEIGHT "S"

ITEM NO.	HEIGHT	LENGTH	WEIGHT
81011	45 mm	96 mm	2.5 kg

SHORT BASE, HEIGHT "M"

ITEM NO.	HEIGHT	LENGTH	WEIGHT
81012	109 mm	96 mm	6.5 kg

SHORT BASE, HEIGHT "L"

ITEM NO.	HEIGHT	LENGTH	WEIGHT
81013	189 mm	96 mm	11.4 kg

LONG BASE, HEIGHT “S”

ITEM NO.	HEIGHT	LENGTH	WEIGHT
81021	45 mm	192 mm	5.2 kg

LONG BASE, HEIGHT “M”

ITEM NO.	HEIGHT	LENGTH	WEIGHT
81022	109 mm	192 mm	11.5 kg

LONG BASE, HEIGHT “L”

ITEM NO.	HEIGHT	LENGTH	WEIGHT
81023	189 mm	192 mm	21.1 kg

Makro·Grip® Ultra **individual components**

SPINDLE

ITEM NO.	DESCRIPTION	LENGTH	WEIGHT
81004	Spindle unit 410	441 mm	1.7 kg
81006	Spindle unit 610	617 mm	2.4 kg
81008	Spindle unit 810	825 mm	3.1 kg

The spindle (M 26 × 2) comes in three different lengths and is equally used for single-part and multiple clamping. For clamping ranges beyond 810 mm the spindle can be ordered as a customized solution in a longer version. The actuation torque is 170 Nm.

CENTERING PLATE

ITEM NO.	APPLICATION	QTY
81010	Single-part clamping, concentric	1 pc.
81040	Multiple clamping, compensating	1 pc.

For each clamping unit 2 centering plates of the same kind are required. They are mounted to the inner ends of the base bodies and ensure an accurate positioning of the spindle. Two different versions are available for single-part and multiple clamping. The centering plate for multiple clamping has a recess which allows to clamp workpieces with a 4 mm variance in length.

CONNECTION PLATE

ITEM NO.	DESCRIPTION	QTY
81015	Connection plate	1 pc.

Connection plates are already included in delivery of base sets. They are used for stringing together base bodies.

PLASTIC COVERS

ITEM NO.	DESCRIPTION	QTY
81500	Plastic covers for base bodies	20 pcs.

To cover the bores on the upper guide surface of the base body, if center jaws are not mounted.

WRENCHES

ITEM NO.	FOR	WRENCH SIZE
45505	Internal hexagon	5 mm
45519	External hexagon	19 mm

Wrenches for the initial clamping setting (external hexagon) and actuation of the threaded caps' screws (internal hexagon).

HYDRO·SUP HEXAGON WRENCH

ITEM NO.	LENGTH	WRENCH SIZE
45512	230 mm	12 mm

For actuation of the Hydro·Sup screw jack.

HEXAGON SOCKET

ITEM NO.	SQUARE DRIVE	WRENCH SIZE
45511	1/2"	19 mm

Hexagon socket for commercial torque wrenches.

QUICK·POINT® COVER PLUG REMOVER

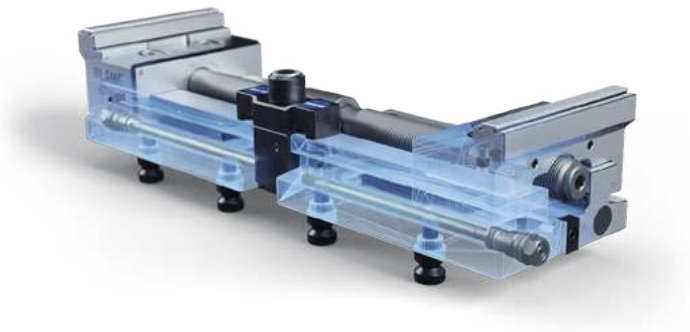
ITEM NO.	DESCRIPTION
45000-30	Cover Plug Remover

Comfortable magnetic handle for removing threaded caps from the clamping jaws and steel plugs from the Quick·Point® plates.

Makro·Grip® Ultra
mechanical support

The mechanical support is suitable for the system height "S" of the Makro·Grip® Ultra clamping system and is installed in the center of the system. Thanks to its pendulum support, it provides additional support in the center of the system for the clamped workpiece and prevents deflection and vibrations when machining plates or thin workpieces.

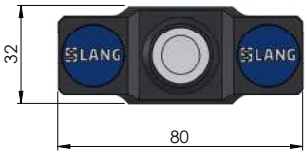
NEW

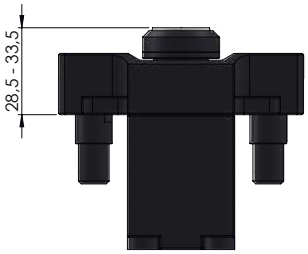


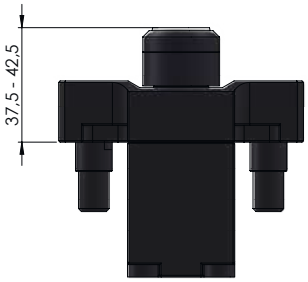
MAKRO·GRIP® ULTRA MECHANICAL SUPPORT

ITEM NO.	DESCRIPTION	FOR	WEIGHT
82586	mechanical support	System height "S"	0.7 kg

Includes: 2 pendulums, 3 operating rods in different lengths, clamping screw size 15.







The operating rods are actuated via hexagon socket. This allows the support height of the mechanical support to be adjusted from a minimum of 28.5 mm to a maximum of 42.5 mm.

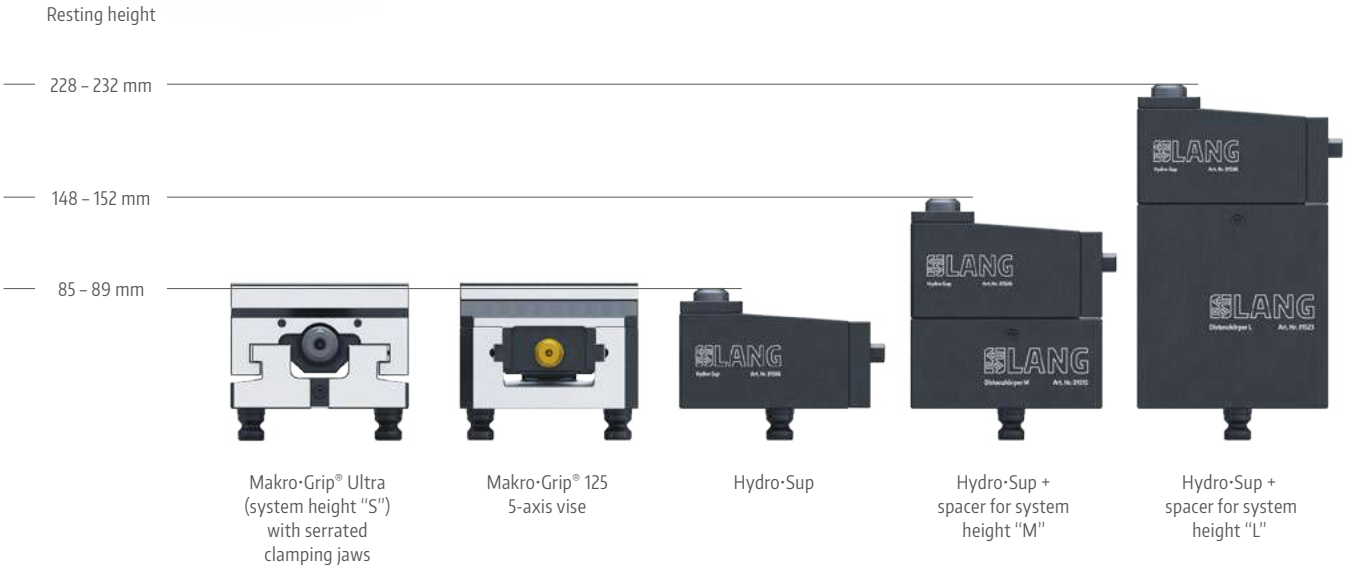
Makro·Grip® Ultra
Hydro·Sup screw jack

The hydraulic screw jack Hydro·Sup with pendulum support is used to reduce vibration during the machining of protruding components. With its integrated clamping stud, it is clamped like a conventional vise in a zero point plate.

HYDRO·SUP SCREW JACK

ITEM NO.	DESCRIPTION	RESTING HEIGHT	WEIGHT
81586	Hydro·Sup hydraulic screw jack	85 – 89 mm	2.8 kg
81515	Spacer for system height "M"	148 – 152 mm	2.9 kg
81523	Spacer for system height "L"	228 – 232 mm	6.6 kg

The suitable socket wrench for operating Hydro-Sup can be found on page 207. Please note: The hydraulic screw jack is not included with the two spacers. It must always be ordered separately.



With a height of 86 mm, Hydro·Sup matches the support height of Ultra's system size "S". By using spacers, the overall height of the system heights "M" and "L" can be achieved. In addition, Hydro·Sup can also be used with regular Makro·Grip® 125 5-axis vises.

Spare parts for former vise versions

On this double page you find all spare parts for older vises (versions until September 2018)

5-AXIS VISE

SPARE JAWS		
Makro·Grip® 46	48046-4620	Spare Jaws Makro·Grip® 46
Makro·Grip® 77	47077-20	Spare Jaws Makro·Grip® 77
	47085-20	Spare Jaws Makro·Grip® 77, for Item No. 47085
Makro·Grip® 125	47125-20	Spare Jaws Makro·Grip® 125

AVANTI

BASE JAWS	
44771	Avanti Base Jaws 77
44251	Avanti Base Jaws 125

PROFILO

BASE JAWS	
49771	Profilo Base Jaws 77
49251	Profilo Base Jaws 125
CENTER BASE JAWS + SPINDLES	
49080-TG	Center Base Jaw 77 + Spindle Ø 16 mm, length 175 mm
49120-TG	Center Base Jaw 77 + Spindle Ø 16 mm, length 215 mm
49100-TG	Center Base Jaw 125 + Spindle Ø 20 mm, length 215 mm
49150-TG	Center Base Jaw 125 + Spindle Ø 20 mm, length 265 mm
49200-TG	Center Base Jaw 125 + Spindle Ø 20 mm, length 315 mm
49250-TG	Center Base Jaw 125 + Spindle Ø 20 mm, length 365 mm

VARIO·TEC

SPARE JAW SETS	
42077	Spare Jaw Set 77 (2 pin jaws + 2 carrier jaws)
42125	Spare Jaw Set 125 (2 pin jaws + 2 carrier jaws)

5-AXIS VISE

	CENTER PIECES + SPINDLES	
Makro·Grip® 46	4046082	Center Piece + Spindle Ø 12 mm, length 82 mm
	4046122	Center Piece + Spindle Ø 12 mm, length 122 mm
	4046162	Center Piece + Spindle Ø 12 mm, length 162 mm
Makro·Grip® 77	4077102	Center Piece + Spindle Ø 16 mm, length 102.5 mm
	4077135	Center Piece + Spindle Ø 16 mm, length 135 mm
	4077175	Center Piece + Spindle Ø 16 mm, length 175 mm
	4077215	Center Piece + Spindle Ø 16 mm, length 215 mm
Makro·Grip® 125	4025165	Center Piece + Spindle Ø 20 mm, length 165 mm
	4025215	Center Piece + Spindle Ø 20 mm, length 215 mm
	4025265	Center Piece + Spindle Ø 20 mm, length 265 mm
	4025315	Center Piece + Spindle Ø 20 mm, length 315 mm
	4025365	Center Piece + Spindle Ø 20 mm, length 365 mm
	CENTER JAWS + SPINDLES FOR DUAL CLAMPING	
Makro·Grip® 46	47065-TG	Center Jaw + Spindle Ø 12 mm, length 82 mm
	47105-TG	Center Jaw + Spindle Ø 12 mm, length 122 mm
	47145-TG	Center Jaw + Spindle Ø 12 mm, length 162 mm
Makro·Grip® 77	47085-TG17	Center Jaw 17 mm + Spindle Ø 16 mm, length 102.5 mm
	47085-TG27	Center Jaw 27 mm + Spindle Ø 16 mm, length 102.5 mm
	47120-TG17	Center Jaw 17 mm + Spindle Ø 16 mm, length 135 mm
	47120-TG27	Center Jaw 27 mm + Spindle Ø 16 mm, length 135 mm
	47160-TG17	Center Jaw 17 mm + Spindle Ø 16 mm, length 175 mm
	47160-TG27	Center Jaw 27 mm + Spindle Ø 16 mm, length 175 mm
	47200-TG17	Center Jaw 17 mm + Spindle Ø 16 mm, length 215 mm
	47200-TG27	Center Jaw 27 mm + Spindle Ø 16 mm, length 215 mm
Makro·Grip® 125	47155-TG17	Center Jaw 17 mm + Spindle Ø 20 mm, length 165 mm
	47155-TG27	Center Jaw 27 mm + Spindle Ø 20 mm, length 165 mm
	47205-TG17	Center Jaw 17 mm + Spindle Ø 20 mm, length 215 mm
	47205-TG27	Center Jaw 27 mm + Spindle Ø 20 mm, length 215 mm
	47255-TG17	Center Jaw 17 mm + Spindle Ø 20 mm, length 265 mm
	47255-TG27	Center Jaw 27 mm + Spindle Ø 20 mm, length 265 mm
	47305-TG17	Center Jaw 17 mm + Spindle Ø 20 mm, length 315 mm
	47305-TG27	Center Jaw 27 mm + Spindle Ø 20 mm, length 315 mm
	47355-TG17	Center Jaw 17 mm + Spindle Ø 20 mm, length 365 mm
	47355-TG27	Center Jaw 27 mm + Spindle Ø 20 mm, length 365 mm

AUTOMATION