

simple.
gripping.
future.

Your expert in workholding
and machine tool automation.





Dear Customer,

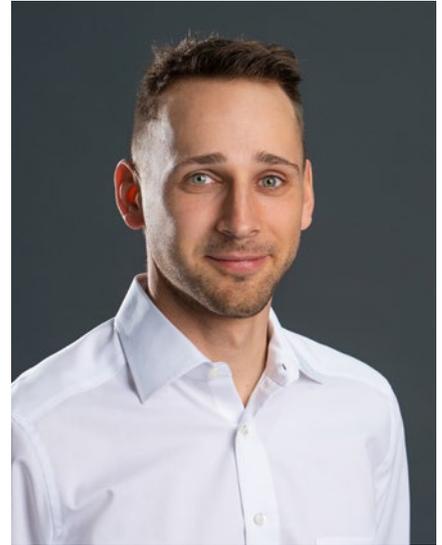
In this brochure about our company, we would like to give you an impression of who we are, what we stand for and why we are the right choice if you are looking for a reliable and competent partner for workholding and automation.

You will read everything important about the various product groups, their benefits and fields of application. The main focus in this brochure is on zero-point clamping, workholding and automation, our three major product groups. Along with the stamping technology they form a perfectly coordinated, proven package, which is what makes us unique in the market. The ideas for our product solutions arise from the quest to make the daily work of our employees as comfortable as possible and to optimise production processes step by step. Practicality and functionality have always played a significant role in our product developments. We use all of our products in our own production, which provides immediate feedback on their performance.

Over the years, a self-consistent product line has matured this way, which has proven itself both with our customers and in our own production. Today, our company is one of the world's market leaders in workholding and automation and many of our products are considered a benchmark in the industry. We would like to pass on our practical experience to you as well, by providing you with solutions that will certainly help you optimise your manufacturing processes and increase your efficiency.

Discover LANG Technik - "The Original"

Philipp Lang
CEO



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simple. gripping. future.

Headquarters:

Holzmaden –
GERMANY

**Subsidiary
LANG Technovation:**

Wisconsin – USA

**Training and
Technology Centres:**

Neuhausen auf den Fildern –
GERMANY

Seelze near Hannover (from 8/21)
GERMANY

140

EMPLOYEES AT
FOUR LOCATIONS

40

EXCLUSIVE
DISTRIBUTORS
WORLDWIDE

450

PRODUCTS

> 1,000

WORKHOLDING SYSTEMS
ARE DISPATCHED EVERY
MONTH

TRADITION AND INNOVATION

LANG Technik is looking back on almost 40 years of experience in the machining industry. Starting as a sub-contractor, we have been developing own products since 1997, always true to the motto "Made in Germany". Since then, numerous patents and pioneering innovations have followed. Today our family business is one of the world's market leaders in workholding and automation.



EXPERTISE

Workholding and automation for the machining industry.

MAIN PRODUCT GROUPS



Zero-Point
Clamping



Workholding



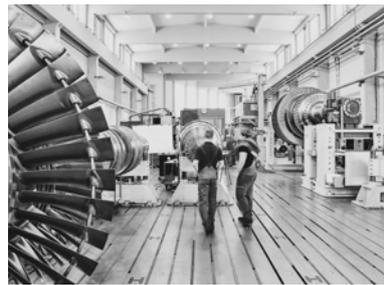
Automation

Regionally rooted –
globally active

SIMPLE USABILITY – ATTRACTIVELY PRICED

SOLUTIONS FOR ANY APPLICATION

Companies of all sizes, from 1-man-operation to global players, from various industries trust our vast experience and innovative strength.



→ Engineering



→ Medical



→ Aerospace



→ Automotive / Racing

→ Power Generation → Defense → Food Industry
→ Precision Engineering → Schools → Universities
→ Research Institutes → and many more

Our V

**Giving every machinin
access to innovative an
solutions, simplifying th
costs and guaranteei**

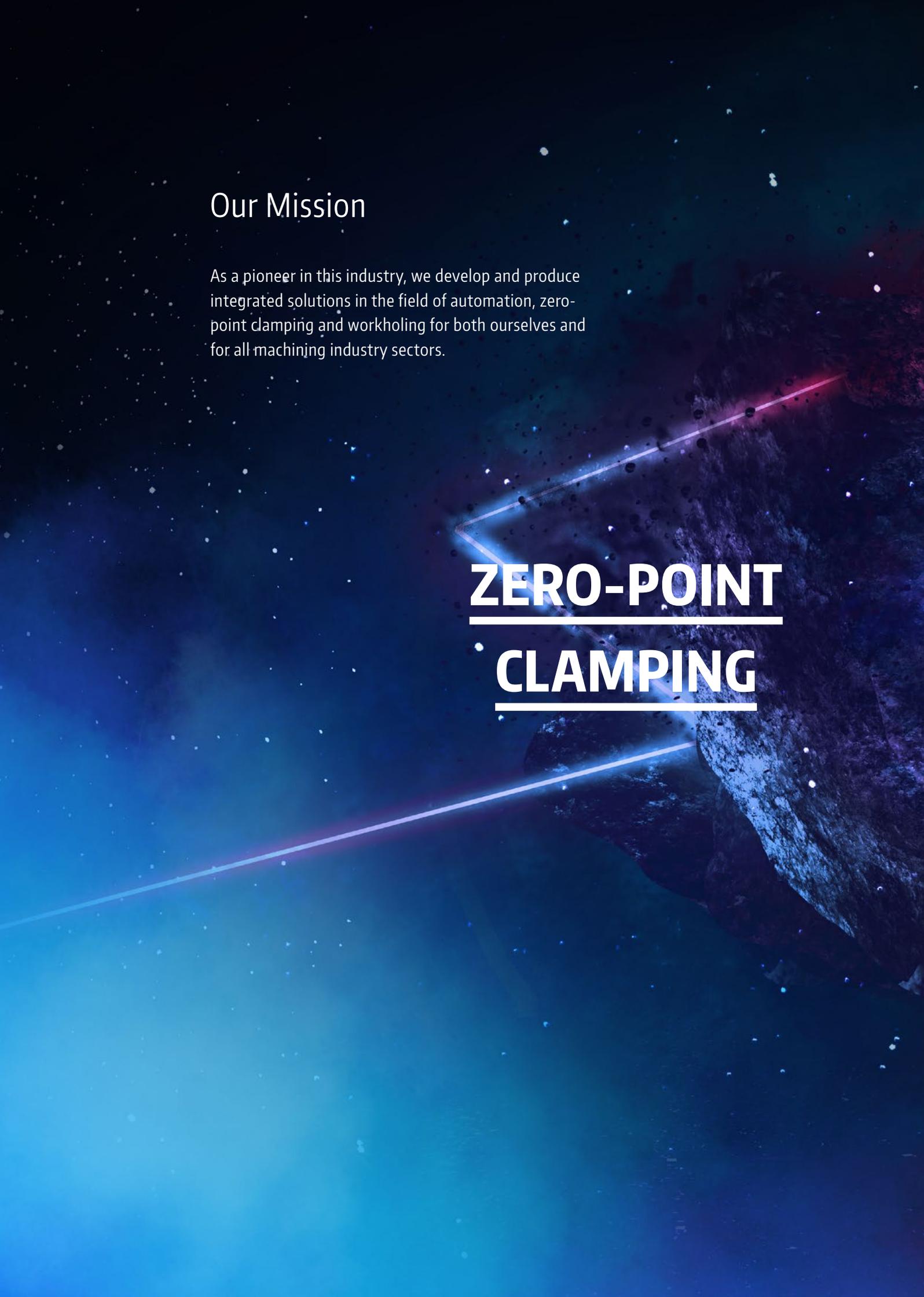


ision

**g company worldwide
d flexible workholding
eir processes, reducing
ng consistent quality.**

Our Mission

As a pioneer in this industry, we develop and produce integrated solutions in the field of automation, zero-point clamping and workholing for both ourselves and for all machining industry sectors.



ZERO-POINT
CLAMPING



WORKHOLDING

AUTOMATION

Our Values

SECURITY

With LANG you always get "The Original" for sure.
High-quality and attractively priced.

PROXIMITY

Our manufacturing processes are at the highest level.
With our partners we work at eye level.

SUSTAINABILITY

We are in the black with green electricity.
Our philosophy: Thinking ahead sustainably.

SIMPLICITY

We make it easy for our customers, not for ourselves.
The result: Simple usability, simple handling,
simple workflows.

INNOVATION

We do not need to say much about our work.
Because four decades of expertise, many successful
patents and our brand speak for themselves.



SECURITY

PROXIMITY

SUSTAINABILITY

SIMPLICITY

INNOVATION

Zero-Point Clamping, Workholding and Automation – all from one source.

Automation



Workholding



Zero-Point
Clamping



A proven and perfectly combined package of workholding, zero-point clamping and automation, along with our unrivaled stamping technology, provides our customers with the necessary requirements to stay efficient and competitive.





LANG

Makro-Grip®

5-Achs-Spanner
Art. Nr. 48155-125

Zu
Close

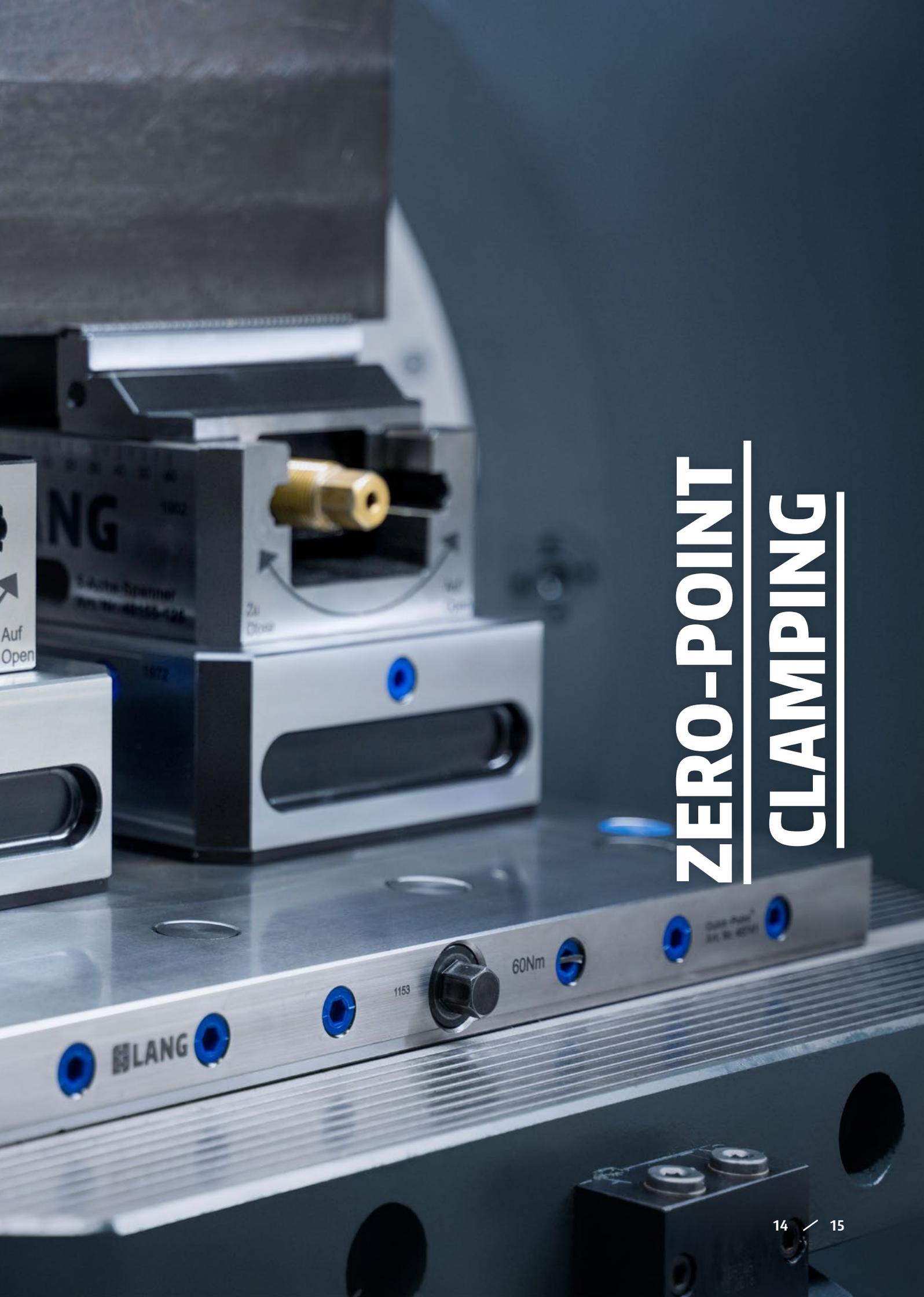
LANG

Quick-Point®

5-Achs-Erhöhung
Art. Nr. 45406

LANG

ZERO-POINT CLAMPING



Flexible, precise and extremely durable.

The Quick-Point® Zero-Point Clamping System combines:

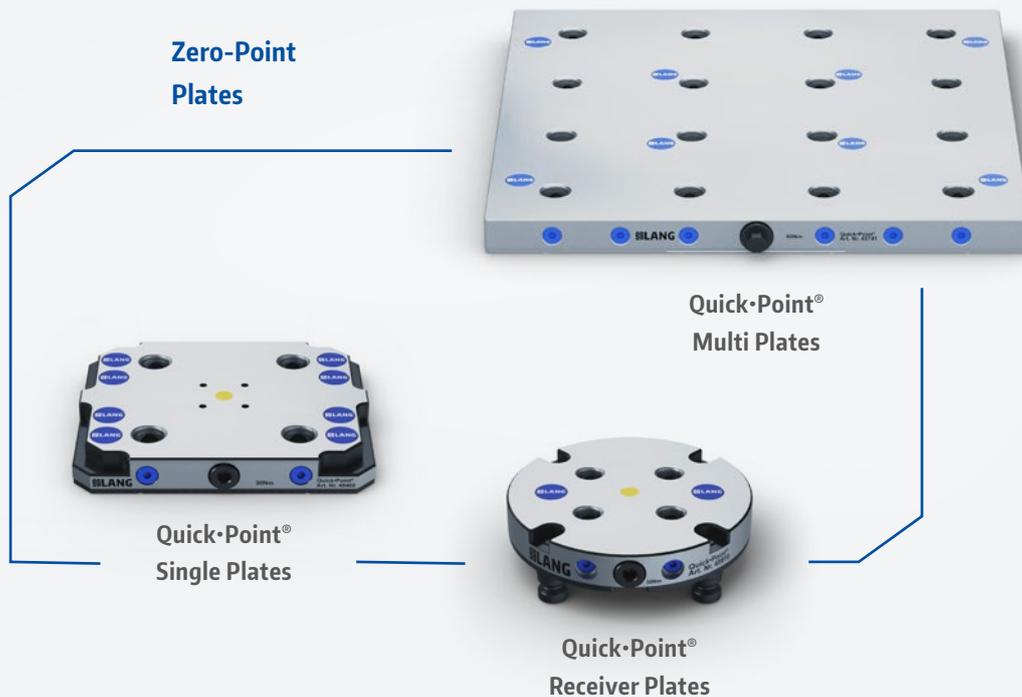
SET-UP TIME SAVINGS

MODULARITY

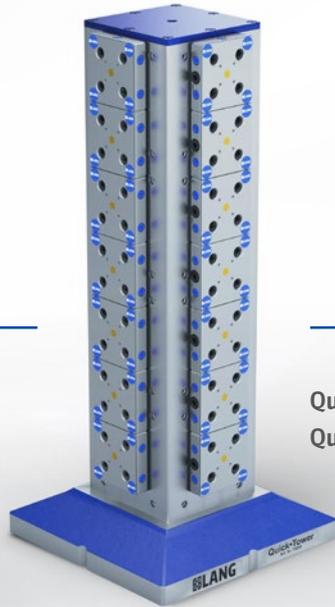
SIMPLE, MECHANICAL OPERATION

As an interface between the machine table and clamping device, Quick-Point® is characterised by an enormous range of variations and high repeatability. Round, rectangular or square in shape, for single or multiple clamping, two different stud sizes and spacings (52 mm and 96 mm), Quick-Point® provides a solution for every

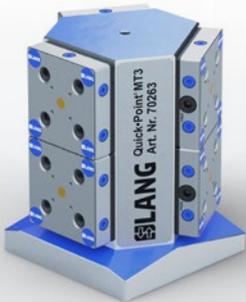
application. It can be used universally in vertical and horizontal machining centres, on 3- and 5-axis tables and 4th axis rotary or trunnion systems. Due to its modularity the system can be expanded precisely at any time.



Multiple clamping systems
and tombstones



Quick-Point®
Quick-Tower Tombstone



Quick-Point®
3-Face & 4-Face Tombstone



Quick-Point®
Twin Base



Quick-Point®
3-Face Pyramid

Additional components



Quick-Point®
5-Axis Riser



Quick-Point®
Automation Zero-Point
Device

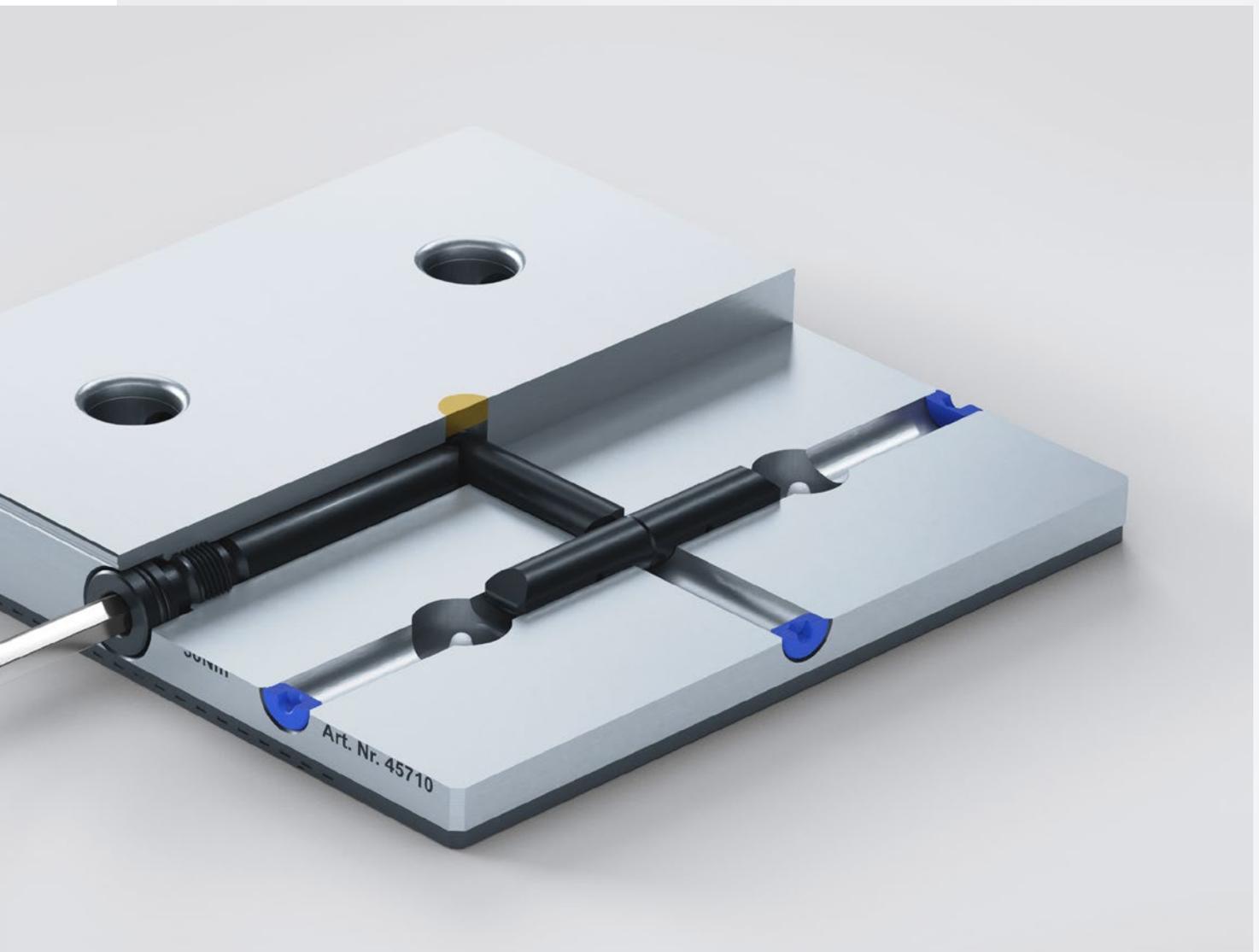


Quick-Point®
Riser

Functional principle of Quick·Point® Zero-Point Plates

By design Quick·Point® is a purely mechanical zero-point system. A patented rod system inside the plate guarantees a repeatability of less than 0.005 mm. Quick·Point® plates are actuated by one screw or the Quick-Lock device to ensure simple and easy operation. An actuation

torque of 30 Nm (60 Nm for 4-fold Grid Plates) results in holding forces of 6,000 kg. Due to a small number of wear-free parts the zero-point system is reliable and virtually maintenance free.





Modular, flexible and always a good fit.

With nearly 50 different types of zero-point plates and diverse customisation possibilities Quick-Point® provides a suitable solution for every type of machine table. On large machine tables a continuous grid can be realised using (multi) grid plates in order to make best use of the available space. Quick-Point® unfolds

its enormous modularity through complementary items, such as risers, tombstones and, in particular, receiver plates with which the zero-point grid size can be reduced from 96 mm to 52 in order to use all sizes of LANG vices flexibly.

Direct clamping of workpieces and fixtures

Quick-Point® clamping studs connect the zero-point system and LANG workholding devices. They can be also mounted directly to a workpiece in order to clamp it directly without a workholding device. Even the mounting to customers own fixtures or conventional

vices is possible to benefit from all the advantages of the Quick-Point® zero-point clamping system. The connection between clamping studs and zero-point plate is extremely robust, very precise and can undoubtedly resist even the strongest machining forces.



Image: Poseidon Propulsion B.V.

Increased productivity with multiple clamping systems and tombstones



For multi-clamping operations LANG presents various options to automatically increase machine running time and at the same time reduce the amount of tool changes. For horizontal machines the Quick-Tower tombstone is a great choice to clamp up to 32 vices at the same time, whereas the MT3 / MT4 tombstones are generally used in smaller 5-axis machines.

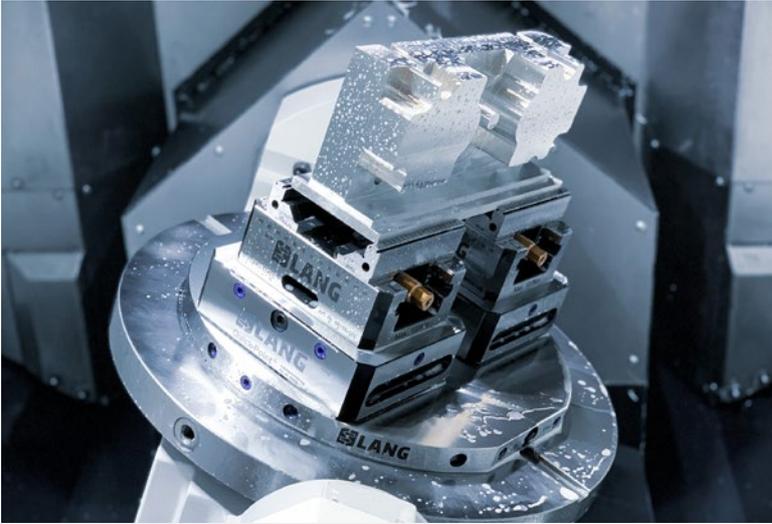


Image: Yamazaki Mazak Central Europe Sp. z o.o. / Poltra Sp. z o.o.

Modular and flexible

A wide range of expansion possibilities upgrade the usability and functionality of the Quick-Point® system. Various riser types provide additional clearance between machine table and workpiece ensuring great accessibility and low interference contours.

Equipping large machine tables

Multiple grid plates increase the amount of clamping possibilities on large machine tables, thus ensuring maximum flexibility.



Image: Orrhaga WaterJet AB



High degree of customisation possibilities

All of our Quick-Point® plates with prefabricated mounting bores are also available without such, in order to be individually adapted to any kind of machine table. If the zero-point plate protrudes the machine table, cutting off the plate's corners provides a nice and clean customisation.

Image: Donner GmbH The Qualifactory

A suitable solution for every application.



Image: EL-Bauteile Handelsgesellschaft GmbH

A great fit for rotary tables

The low overall height, the wide range of customisation options and the mechanical functional principle make the Quick-Point® zero-point clamping system a great choice for rotary tables, e.g. from Kitagawa, Lehmann, Nikken or Haas, just to name a few. Rotary tables and trunnions can be retrofitted easily with Quick-Point® plates which provide added value in terms of flexibility and set-up times.

Automated manufacturing

The Quick-Point® zero-point clamping system is used not only in manual but also in automated, lights-out manufacturing. The zero-point clamping system can be actuated either by the machine tool (pneumatically) or the robot gripper (mechanically or pneumatically). A media interface within the machine is not required.



CONVINCINGLY FLEXIBLE

~ 190,000

Zero-point clamping studs
are sold or assembled yearly.

THIS IS WHAT OUR CUSTOMERS SAY

„In order to be able to react quickly to the requirements of a wide range of clamping applications and to keep set-up times as short as possible, we use the LANG zero-point system. Due to the low overall height, the purely mechanical actuation, and the great variety, the zero-point system of LANG has been a real game-changer to us for years.

The lack of fixed bolts that are sticking out, makes the cleaning process super easy. Simply wipe it clean with a cloth and you're done! The relatively small stud pitch of 52 and 96 mm, in contrast to mostly 200 mm from other manufacturers, is particularly important to us. As a result, we do not lose any space when clamping multiple parts. We are able to place more vices on the same area and thus process more parts in one run.“

Sebastian Thoma, Thoma-Tec

„Since we have been using the Quick·Point® system from LANG Technik we have reduced our set-up costs considerably. We even equipped our self-made clamping devices with Quick·Point® clamping studs. Converting to different vices or fixtures now only takes a few minutes.

Furthermore, we are pretty much sold on its clamping force and the precision in terms of repeatability.“

Martin Reschke, EL-Bauteile Handelsgesellschaft mbH



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 **LANG**

Makro-Grip®

5-Achs-Spa
Art. Nr. 4815

 **LANG**

20x14

WORKHOLDING



Modular workholding systems for any shape and size

Our workholding solutions are best characterised by:

PROCESS RELIABILITY

FLEXIBILITY

SIMPLE OPERATION

Makro-Grip®
Raw part clamping



Makro-Grip®
Raw part clamping

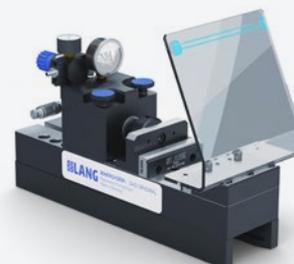


Makro-4Grip
Round part clamping



Makro-Grip® Ultra

ORIGINAL
MAKRO-GRIP



Makro-Grip® Stamping Technology

As a manufacturer of high-quality, innovative products, we are a great choice when you are looking for the right workholding solutions for your milling. From "The Original" pre-stamping and Makro-Grip® technology to profile clamping vices and different types of chucks, there is definitely a workholding system that fits your challenging clamping tasks – from raw material to the finished workpiece.

Thanks to its holding forces enabled by pre-stamping the unrivalled Makro-Grip® vice is your choice for 5-axis machining. For round parts, pre-machined contours and rear-face machining applications, there are several jaw and collet chucks, as well as different types of centring vices available. The workholding system is completed by Makro-Grip® Ultra, which is suitable for large components up to a clamping range of 810 mm.

Conventional Workholding



Avanti
Profile Clamping Vice



Profilo
Profile Clamping Vice



Vasto-Clamp
6-Jaw Chuck

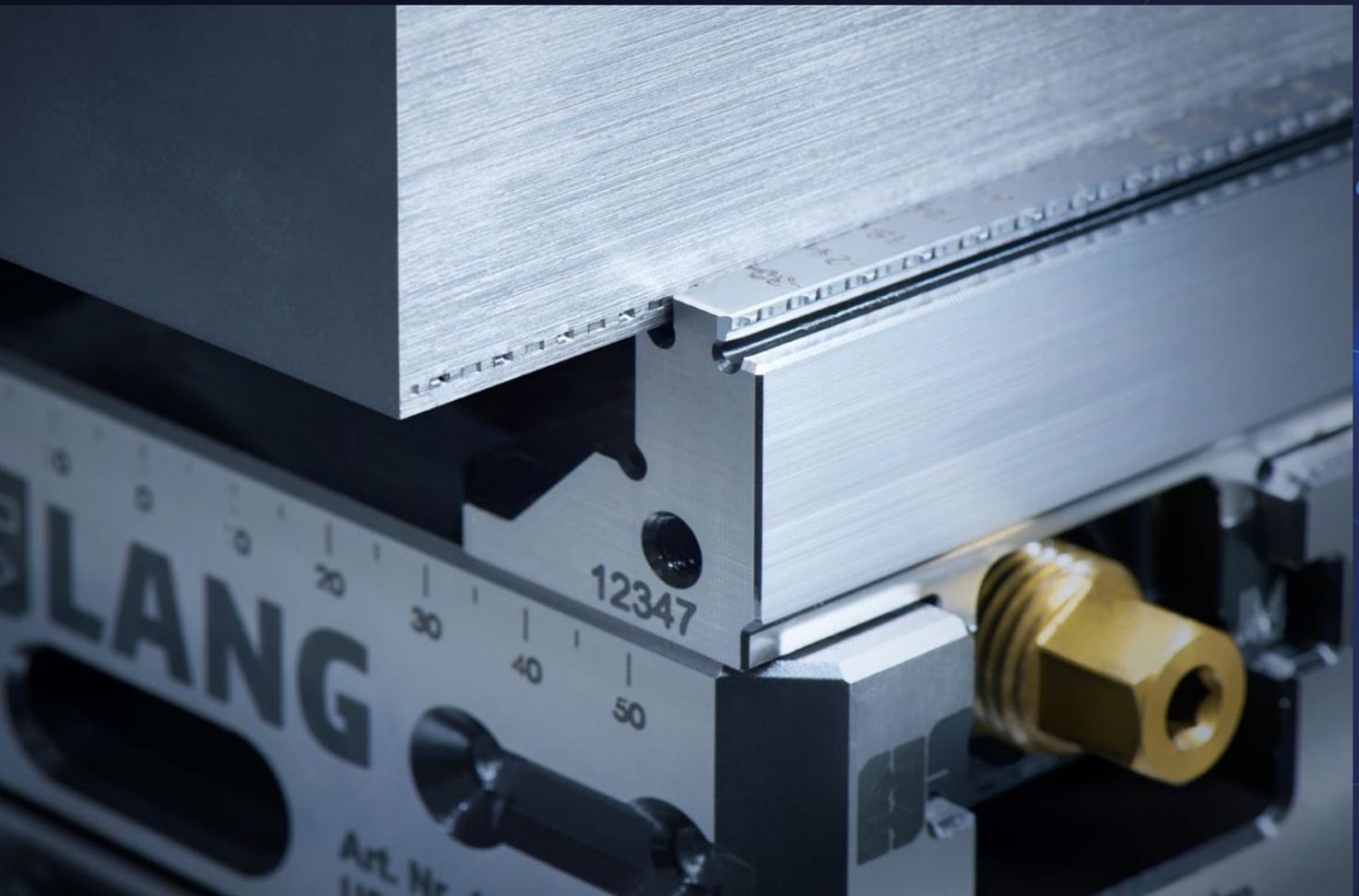


Vario-Tec
Centring Vice



Preci-Point
Collet Chuck

Makro-Grip® Stamping Technology



The stamping technology was invented by LANG nearly 20 years ago and can be regarded as the heart of the Makro-Grip® workholding. It guarantees highest holding forces and ideal accessibility in 5-axis machining of blanks. The pre-stamping of workpiece blanks favors a variety of factors that have a positive effect on process reliability and cost-efficient production, which is why the Makro-Grip® technology is considered the benchmark in today's workholding. During the pre-stamping process workpieces are prepared with a defined contour

at an external stamping unit under high pressure, which generates a form-fit between serrated jaws of the Makro-Grip® 5-Axis Vice and the stamping contour when clamping the workpiece. As pre-stamping is conducted externally, no additional machine capacities have to be spent in order to prepare the workpiece. The process only takes about 5 seconds – but these 5 seconds will forever change your manufacturing processes and the way you clamp your workpieces.

Highest holding forces and process reliability thanks to clamping by form-fit

Conventional vices penetrate the workpiece blank with high forces exposing both, the vice 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 Vice can hold the workpiece by

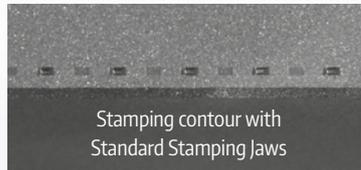
form-fit, absolutely gently and securely with low clamping pressure – always with the same clamping jaws, regardless of the material and the hardness. Due to the low clamping pressure, distortion on the workpiece as well as wear on the vice can virtually be ruled out. Even with high-tensile material an always consistent clamping quality is guaranteed, which is crucial to achieving the desired quality of the machined workpiece.



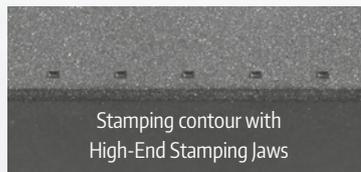
The pre-stamping process



Pre-stamping of raw material



Stamping contour with Standard Stamping Jaws



Stamping contour with High-End Stamping Jaws

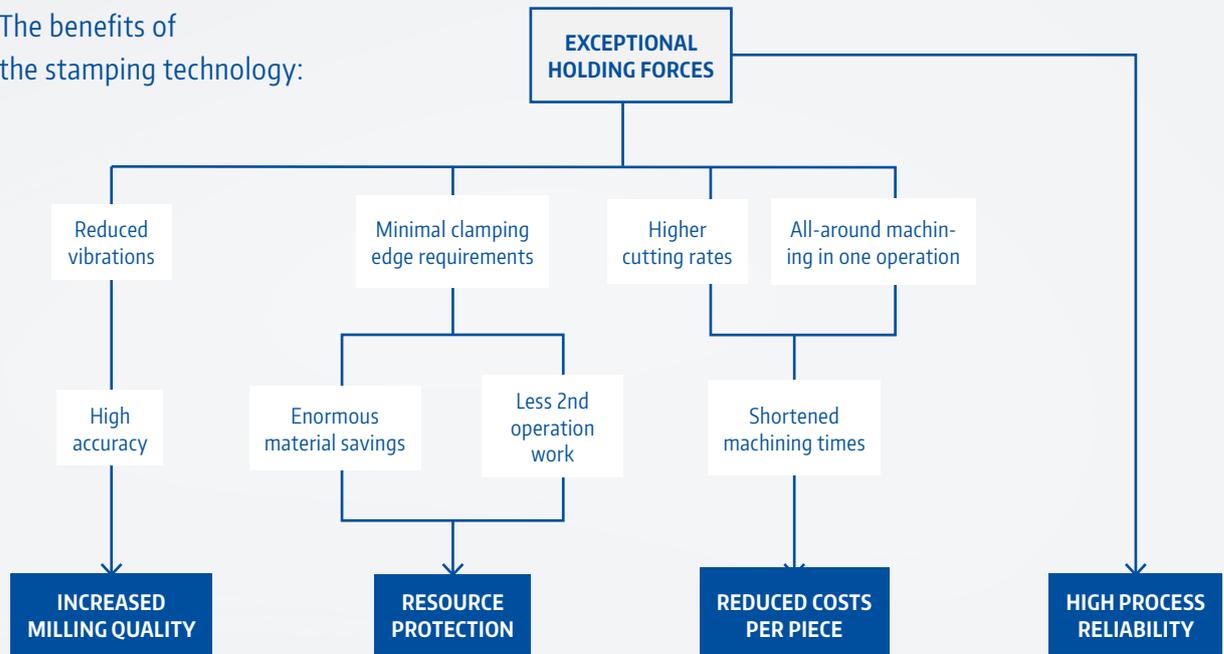


Clamping by form-fit

The raw material is stamped directly on its saw cut or cinder layer. Additional preparatory work is generally not necessary. Depending on the material hardness there are two types of stamping jaws available: Standard stamping jaws for materials up to 35 HRC and High-End stamping jaws for material up to 45 HRC. Stamping pressure and depth are different, which means that the

imprints also look different. With standard stamping jaws the raw material must be stamped in such a way that control marks between the imprints are visible. With harder materials between 35 and 45 HRC it is not necessary to stamp as deeply because of the higher toughness of the material.

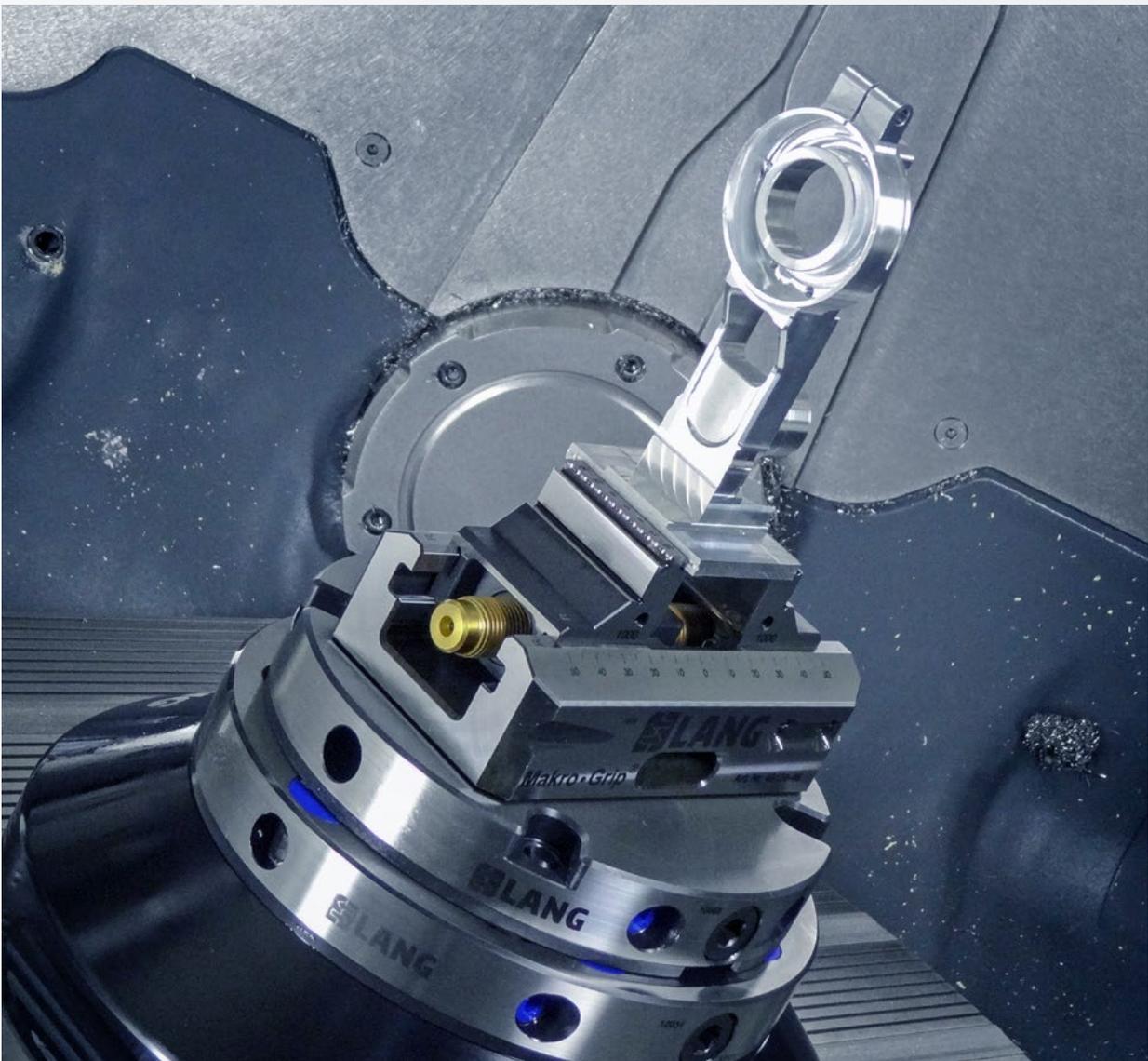
The benefits of the stamping technology:



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.



Leaving an impression: Different types of Stamping Units

Stamping Units are available in a stationary version for workbenches as well as mobile on a trolley. The actual stamping base is available in two different lengths with either Standard Stamping Jaws for materials up to 35 HRC or with High-End Stamping Jaws for materials up to 45 HRC.

The Dual Stamping Unit is suitable for extremely long workpieces. The mobile Stamping Unit offers great flexibility, allowing workpieces to be pre-stamped wherever they are needed. Pre-stamping is conducted conveniently via foot pedal, so both hands remain free to hold and insert heavy workpieces.



Makro-Grip® Stamping Unit for workbenches



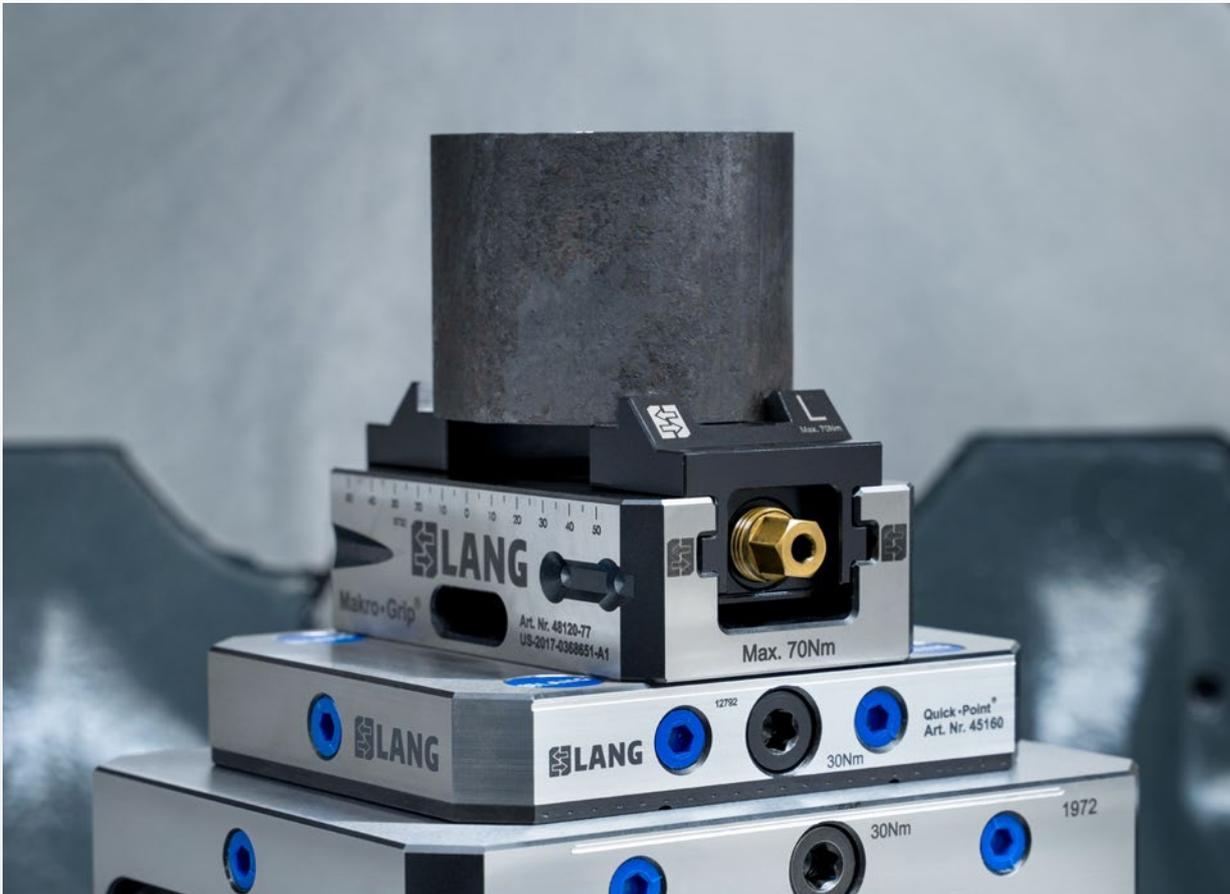
Trolley with Makro-Grip® Stamping Unit



Trolley with Makro-Grip® Stamping Unit,
extended version, on T-slot plate



Trolley with Makro-Grip® Dual Stamping Unit,
extended version, on T-slot plate



The stamping technology – for round parts!

With the Makro-4Grip clamping system there are completely new possibilities and applications for the stamping technology. By retrofitting the Makro-Grip® stamping unit and a LANG centring vice the form-fit clamping principle can be applied for round parts now

easily and cost-efficiently. Makro-4Grip covers a clamping range of Ø 36 to Ø 300 mm and thus provides a seamless transition from the maximum clamping range of the Preci-Point Collet Chuck.



Makro-Grip® Raw Part Clamping



The Makro-Grip® 5-Axis Vice is the perfect workholding device for 5-axis machining of blanks. Due to its very compact design and low interference contours, it offers best accessibility to the workpiece. Due to form-fit clamping, it achieves highest holding forces even with low clamping pressure. Not only during the actual machining process but also when (un-)clamping the workpiece, the low clamping pressure makes sure that

distortion on the workpiece as well as wear on the vice jaws can be ruled out, even with high-tensile material up to 45 HRC.

Form-fit clamping with the Makro-Grip® makes it possible to achieve a permanently consistent clamping quality, which ensures reliability and process safety – two very important factors, especially in automated manufacturing processes.

What makes Makro·Grip® special?

- ➔ **Enormous holding forces**
- ➔ **Ideal accessibility**
- ➔ **Wear- and distortion-free clamping**

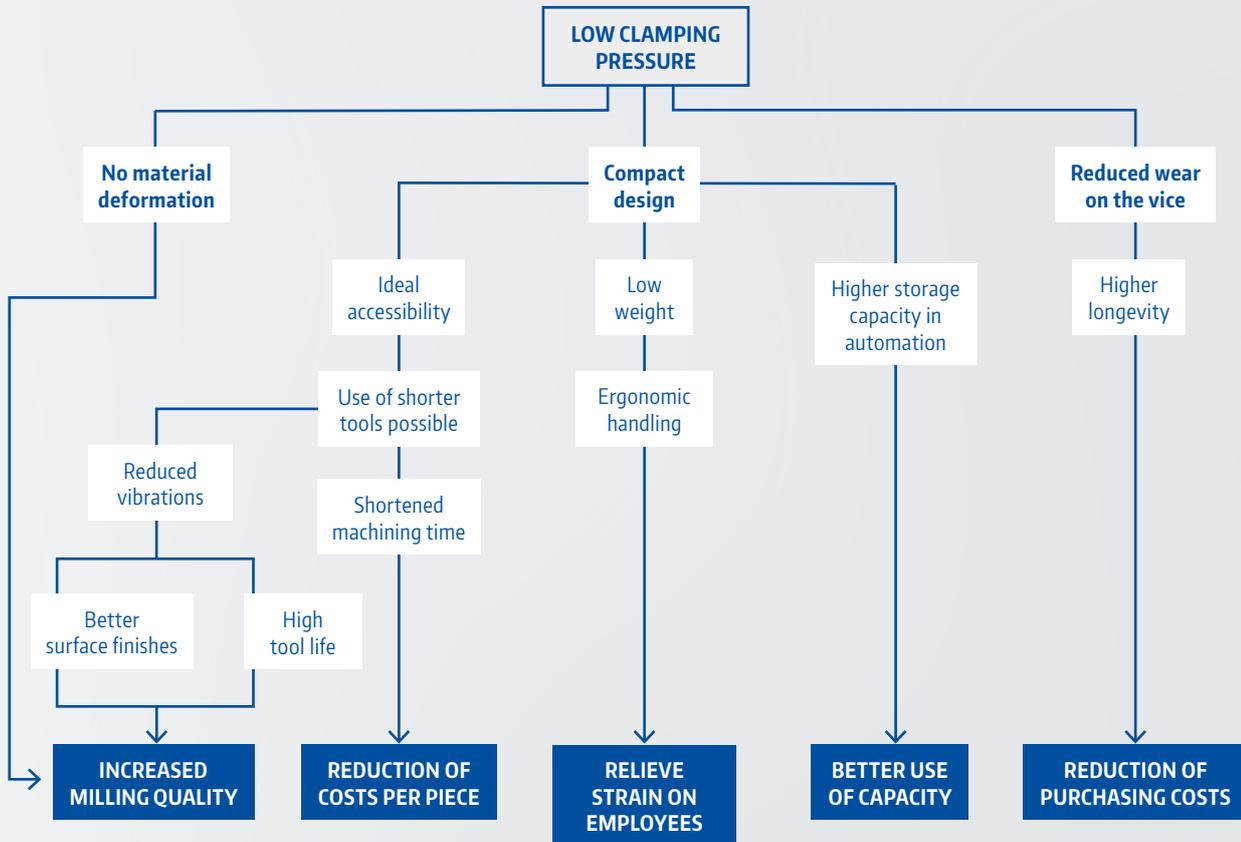
What are your benefits?

- ➔ **Highest process reliability**
- ➔ **Efficient machining**
- ➔ **Simple operation**

The benefits of pre-stamping on the clamping process

The external pre-stamping of the workpiece relieves the 5-Axis Vice. While conventional machining vices with serrated teeth have to work double duty (1. indent the material, 2. hold the workpiece), the Makro·Grip® 5-Axis

Vice's function is limited to only holding the workpiece. The compact build of the Makro·Grip® 5-Axis Vice is possible due to the requirement of much lower clamping forces. The resulting advantages are shown below.



Different versions of the 5-Axis Vice

Makro-Grip® 5-Axis Vice 77

Base width:
77 mm



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



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



Jaw width: 77 mm
Base length: 130 mm

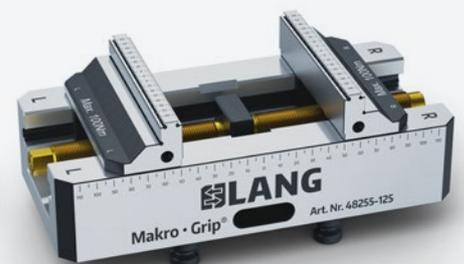
Makro-Grip® Night King:
A pure 5-Axis Vice for automated
manufacturing with RoboTrex.

Makro-Grip® 5-Axis Vice 125

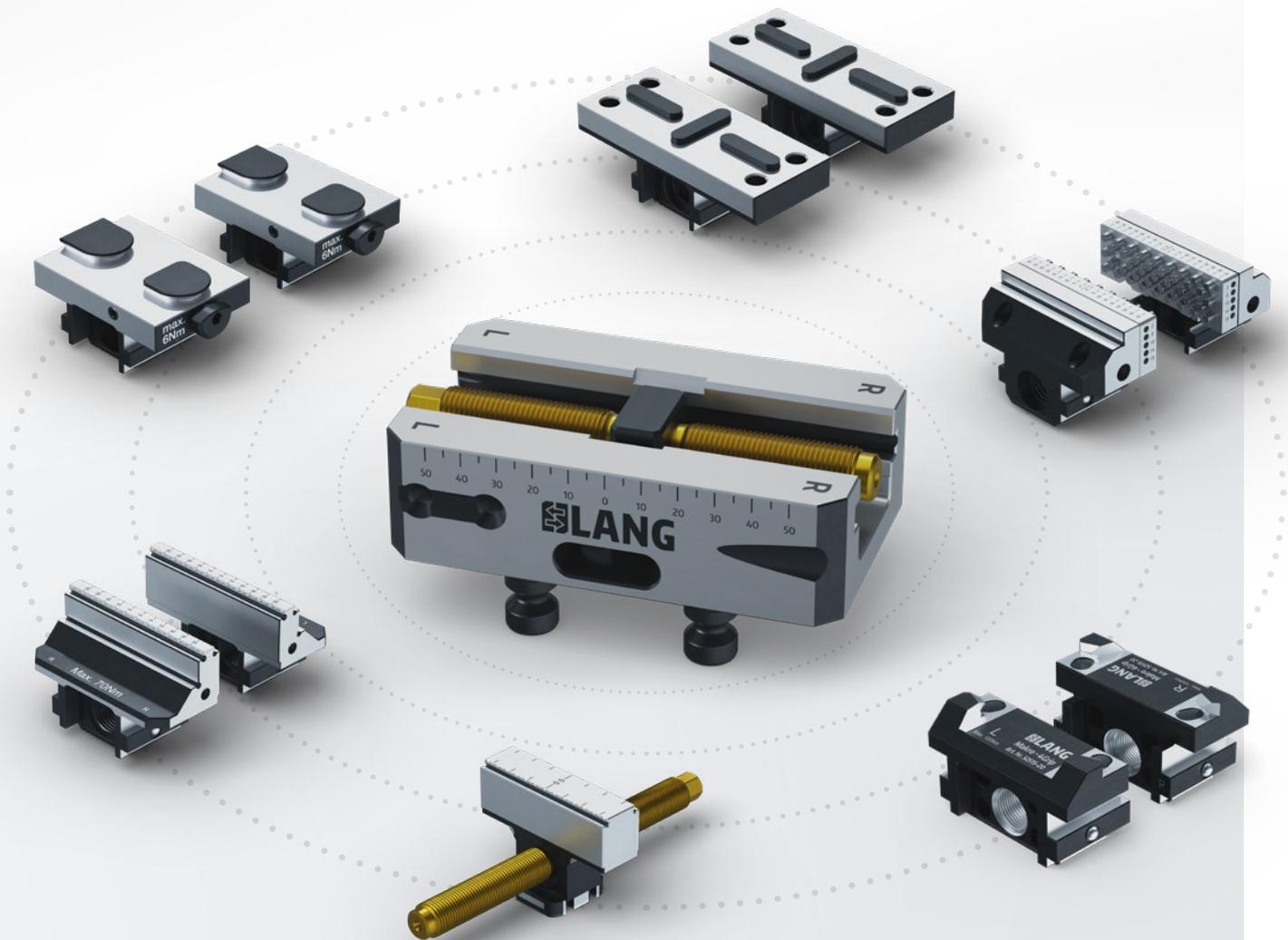
Base width:
125 mm



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



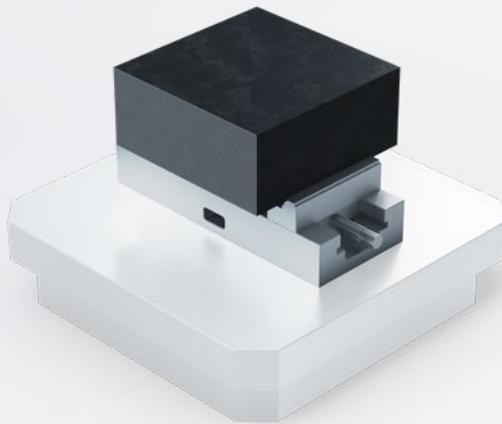
Jaw width: 125 mm
Base lengths:
160 / 210 / 260 / 310 / 360 mm



One base, many clamping jaw options

A fitting solution for any challenging clamping task – with only one vice base! All LANG vices use the same base in different lengths and widths. This guarantees that all jaw types are interchangeable and compatible to each other. It also means that you do not necessarily

have to invest in two vices. The interchangeability of the jaws allows you to build a flexible "vice fleet" regardless of the vice type you start with. Additional jaws can be added at a later time according to demand and application.



Conventional vice
on automation pallet 400 × 400 mm.
Workpiece dimensions 205 × 205 × 90 mm.

Same workpiece clamped with
a Makro-Grip® 5-Axis Vice 125,
in the RoboTrex zero-point clamping system.

Optimised use of space in automated manufacturing

Pre-stamping and the Makro-Grip® technology allow the 5-Axis Vice to clamp workpieces which substantially exceed its volume. The compact design is in particular beneficial in automated manufacturing, as a huge amount of vices can be stored on a small footprint resulting in a more efficient use of space on the automation trolley and inside the machine.

Another huge advantage is that the Makro-Grip® is

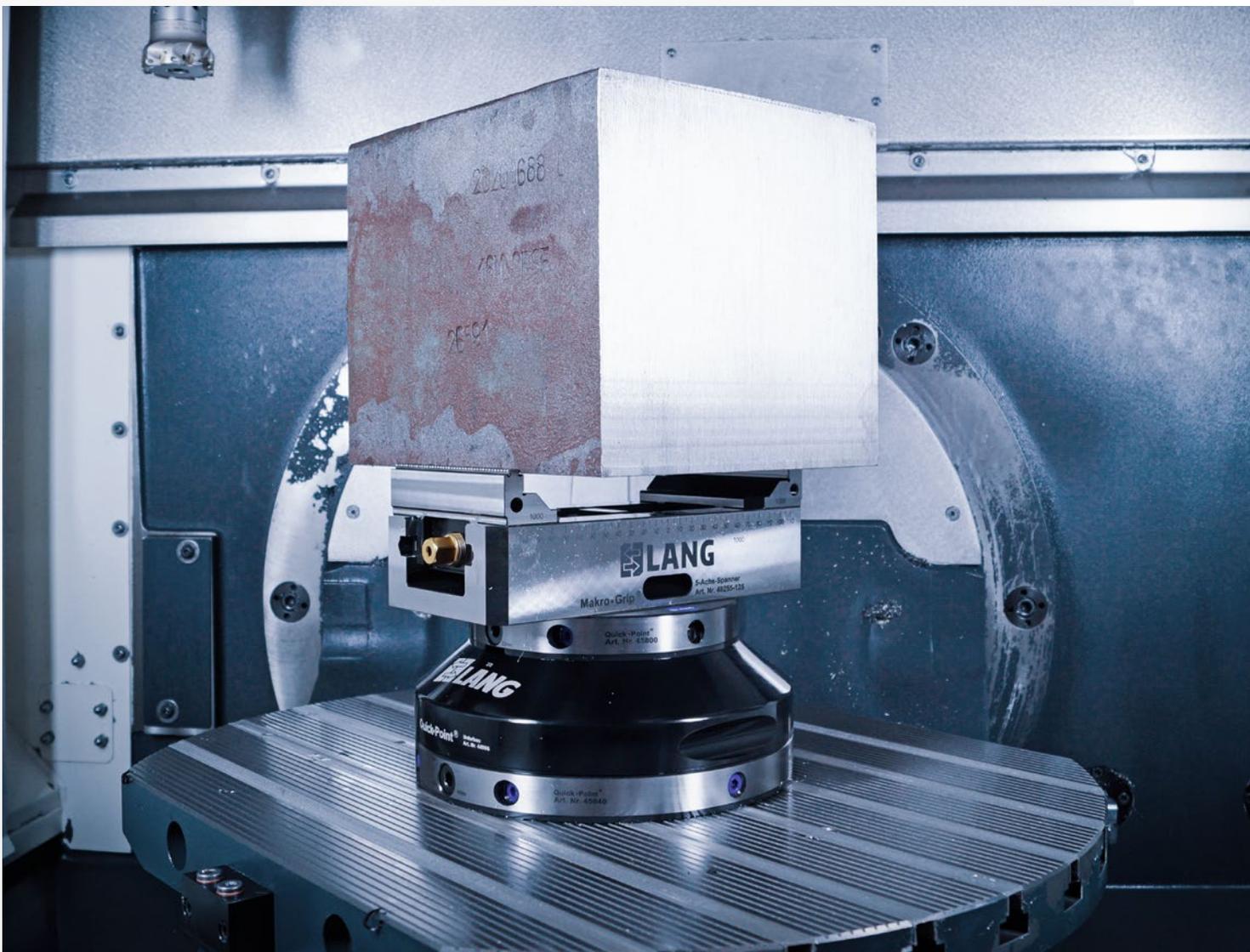
directly handled by the robot without the requirement of a bulky and expensive pallet, meaning that less weight has to be handled by the robot.

Since there are no additional interfaces to the zero-point clamping system and the Makro-Grip® jaws are milled from solid, the 5-Axis Vice offers enormous stability advantages and at the same time ensures an easy and convenient handling thanks to its low weight.

Ideal accessibility due to low interference contours

The compact design and low interference contours provide ideal accessibility and allow the use of short tools, resulting in higher speeds and feeds but also reducing

vibrations during the machining process. Ultimately, this works in favor of the tool life, the overall quality of the manufactured parts and reduces costs per piece.



Main product groups:

Zero-Point Clamping

Various Makro·Grip® applications

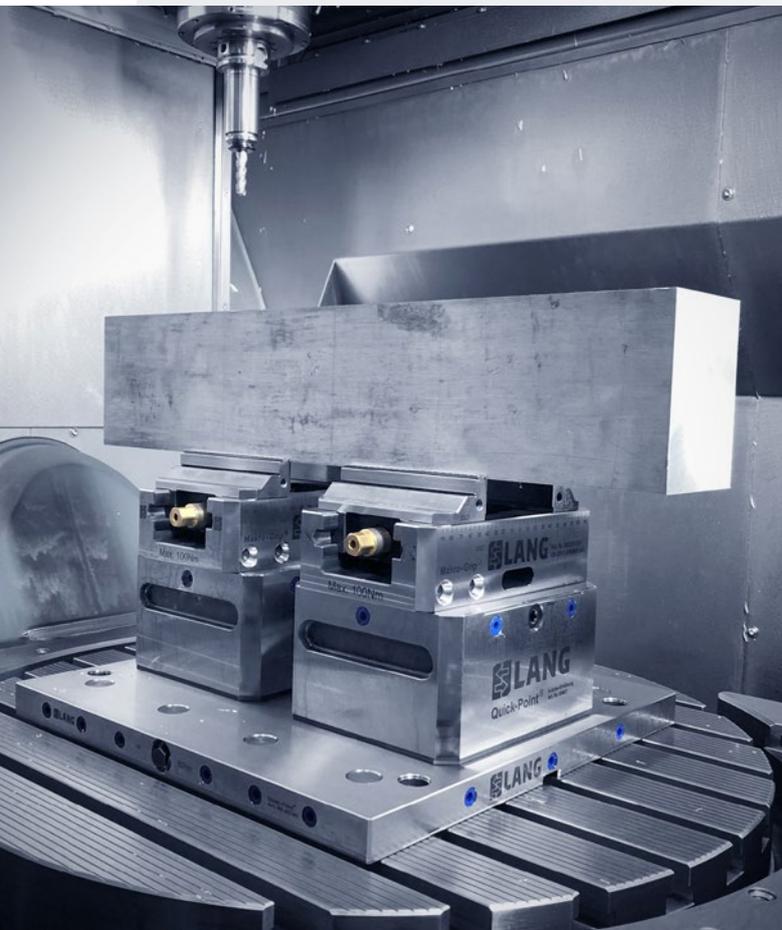
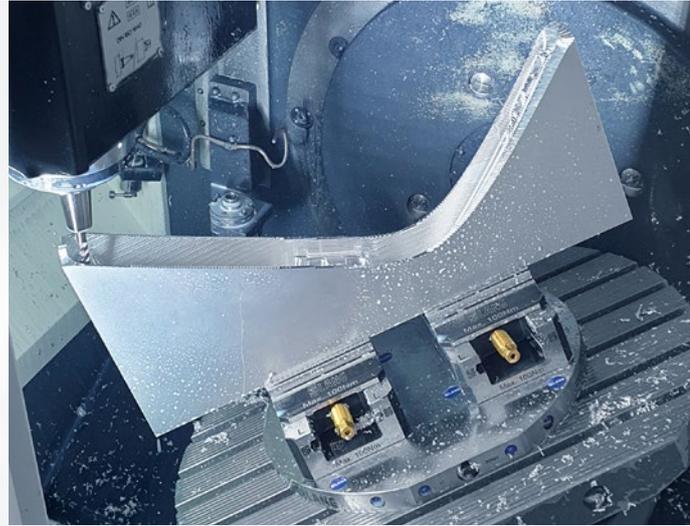


Image: Nueva Precision

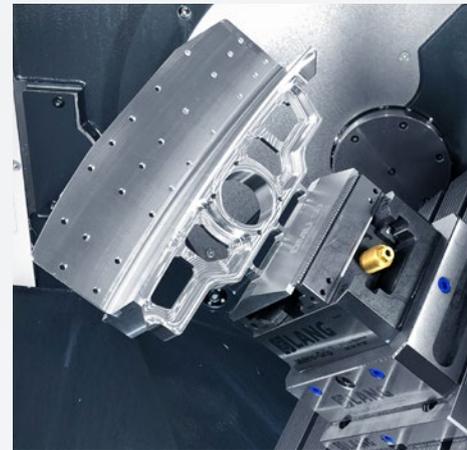
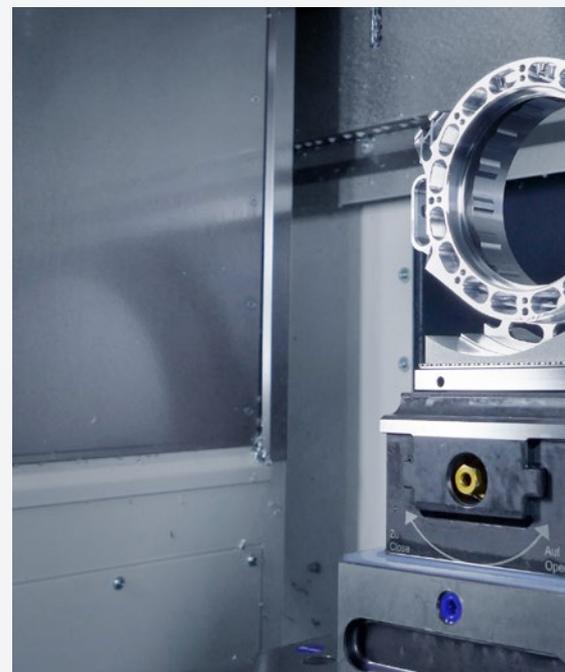


Image: Tebis AG



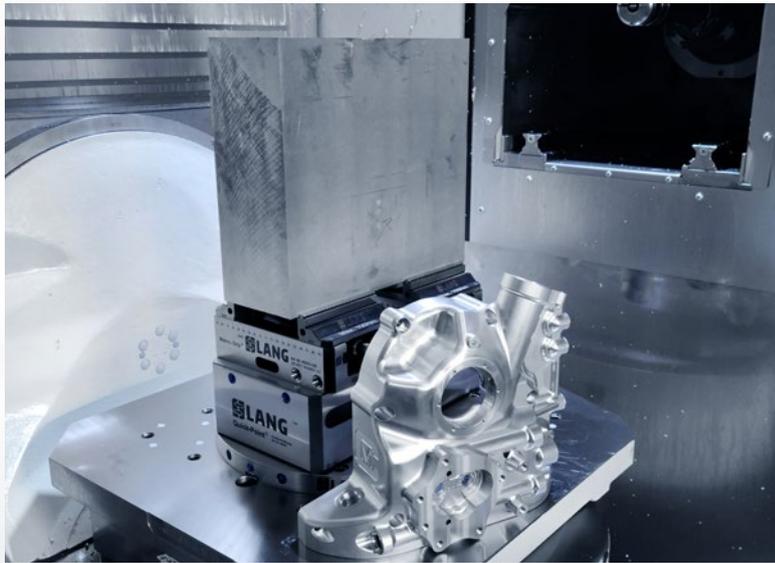


Image: Chips Motorsports LLC

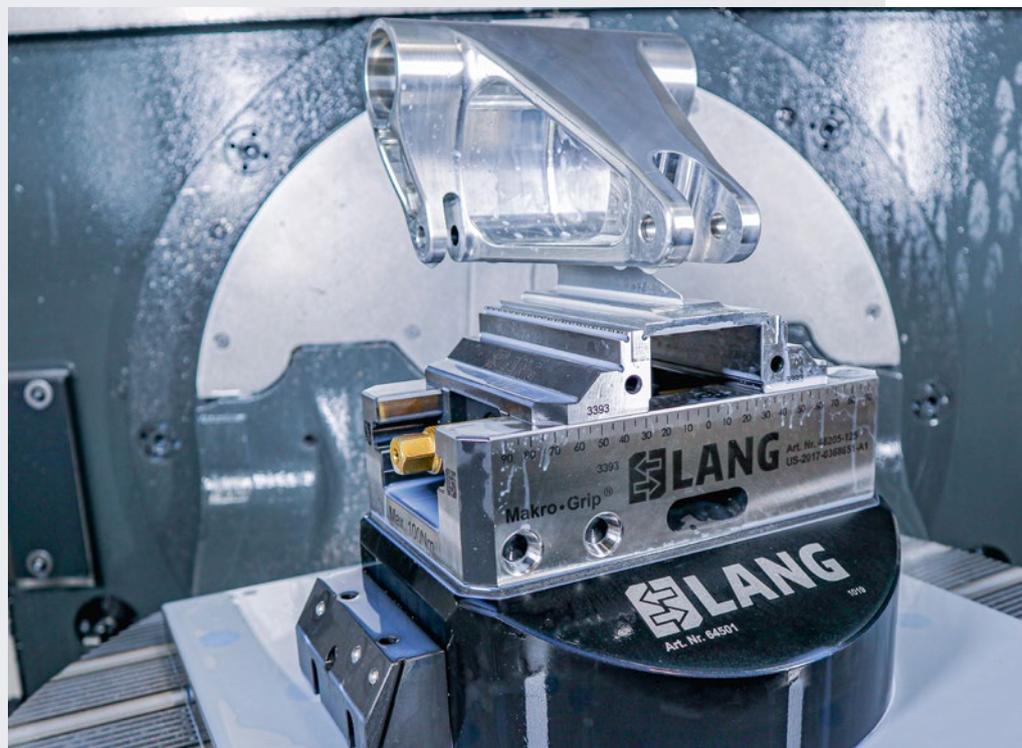
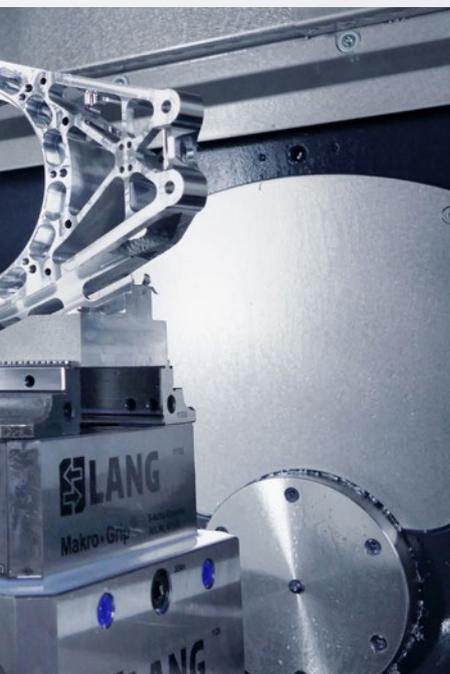


Image: Aximech AB

CONVINCINGLY RELIABLE

> 20,000

LANG vices are sold and shipped every year.

THIS IS WHAT OUR CUSTOMERS SAY

„Through initial recommendations from the formula 1 industry, we equipped our first 5-axis machine with LANG's Makro-Grip® and their associated Zero-Point System. Needless to say, we've never looked back. The Makro-Grip® vices offers great work access around the material stock. The high clamping force in combination with indentations by the serrated jaws has never failed to hold our parts firmly, even with seemingly too large overhangs.

The repeatability of the self-centring vices in combination with the Zero-Point System ensures we can offer consistent quality components to our customers. A great bonus is the ability to remove and reinstate parts for inspection, while trusting the positional accuracy is left unaffected. The versatile and modular Makro-Grip® system permit us to clamp virtually any type of geometric shape, thereby making it our most used machine accessory.“

Fredrik Larsson, Aximech AB

„I switched over to LANG Technik workholding products one year ago. I was immediately impressed by the quality and precision of LANG products. My favorite feature by far is the Makro-Grip® system. I've noticed a tremendous increase in part stability due to the minimal clamping pressure required to accurately retain parts. Eliminating the need for stock preparation or dovetailing in a CNC machine has been a gamechanger as well. Efficiency has increased considerably. I look forward to growing my collection of LANG workholding products!“

Eddie Casanueva, Nueva Precision

Makro-Grip® Ultra



The modular workholding system for mould making and clamping applications of flat and large components.

Incredible modularity meets enormous application variety! The Makro-Grip® Ultra product line offers countless clamping possibilities and can be changed quickly and easily at the same time.

Thanks to the expandability of its modules Makro-Grip® Ultra is capable of clamping parts of 810 mm length and beyond safely. With its size it pushes the LANG workholding to new heights and is suitable for mould making and clamping applications of flat and

large parts. Different system heights, individually expandable clamping ranges, interchangeable clamping jaw types and useful accessories – Makro-Grip® Ultra is extremely flexible and equally applicable for single part or multiple clamping, cubic, round or asymmetrical workpieces. Through its wide range of possible configurations the modular system practically covers any imaginable clamping application.

What makes Makro·Grip® Ultra special?

- **Modularity**
- **Precision**
- **Easy operation**

What are your benefits?

- **Enormous set-up time savings**
- **High clamping quality**
- **Application diversity**

Advantages of Makro·Grip® Ultra:



Changeover of clamping configuration in seconds



Gently and smooth clamping of material sensitive to distortion



Clamping of asymmetrical parts



All-around machining without changeovers

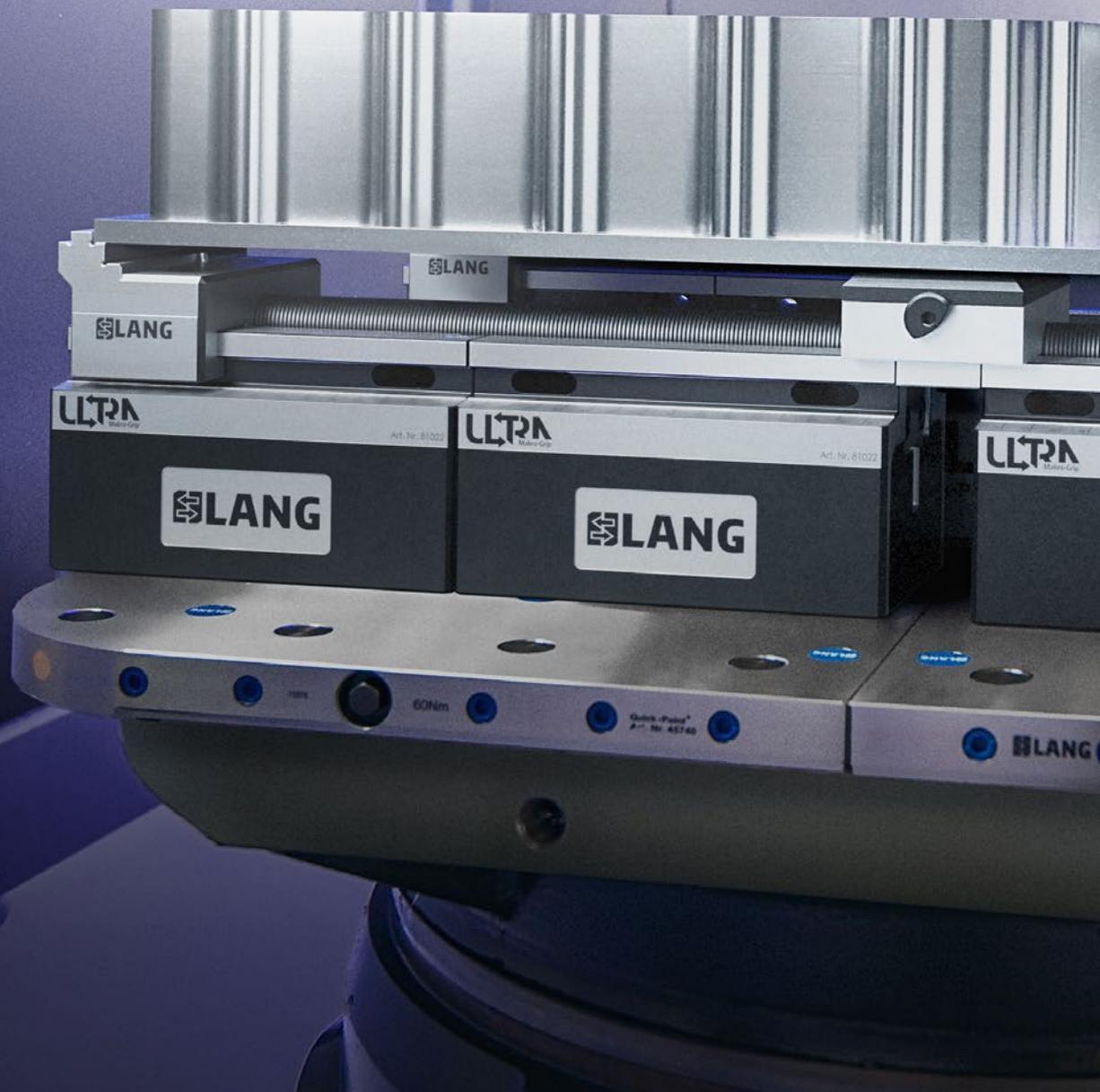


Integration of automated machining processes without removing the clamping system



Simple cleaning and maintenance

simple.
gripping.
bigger.

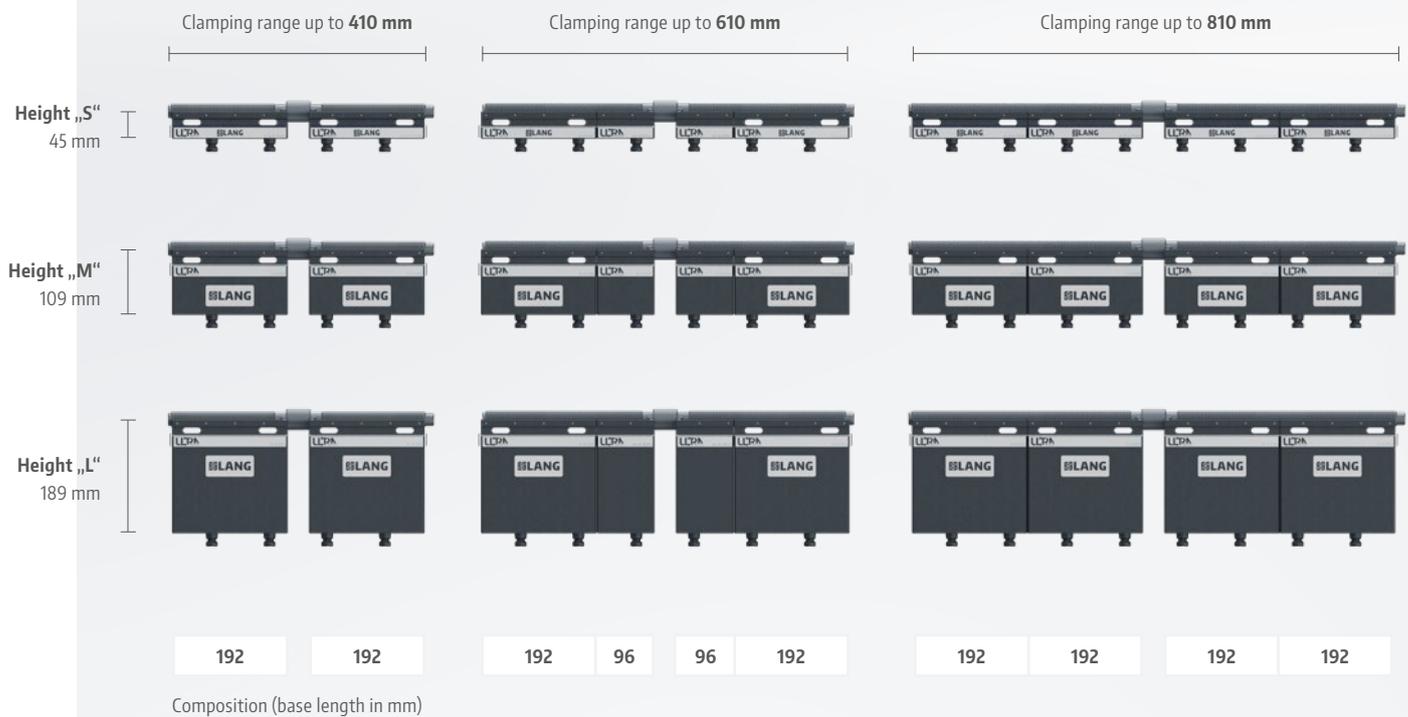




Completely modular – Makro-Grip® Ultra Base Sets

The Base Set is available in three different heights. There are two different base lengths (96 mm and 192 mm) which result in three different clamping ranges when stringed together in different compositions. Base Sets are sold including clamping studs, a threaded spindle

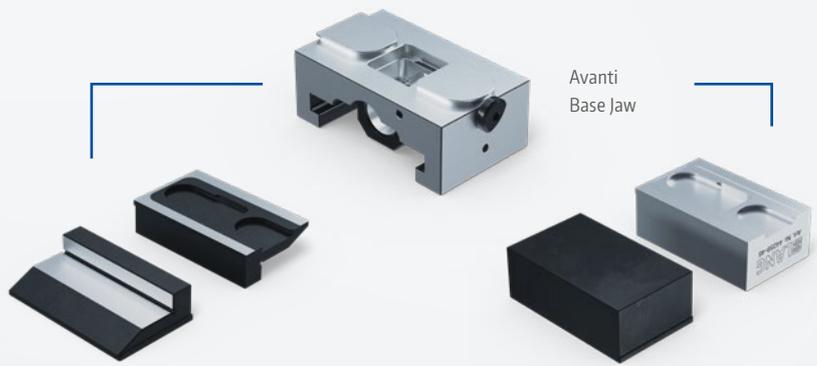
and centring plates. Clamping jaws, on the other hand, are available separately, which means that the clamping system can be put together in a very modular way, according to the application requirements.



Clamping Jaws



Serrated Makro-Grip® Clamping Jaw (clamping depth 3 mm and 5 mm) milled from solid.



Top Jaw with plain clamping step (clamping depth 16 mm) and Avanti interface.



Soft Avanti Top Jaws for individual contours.

Centre flexibility

The Makro-Grip® Ultra spindle is solely fitted between two high-precision centring plates which allows for a quick and comfortable setup process and at the same

time simplifies cleaning and maintenance after and in between machining processes.



In order to provide an additional resting surface, a support jaw can be mounted.



With a centre jaw (serrated or with plain clamping step) multiple clamping can be realised.



Even without centre top or support jaw the centre base jaw can be used as a resting surface.

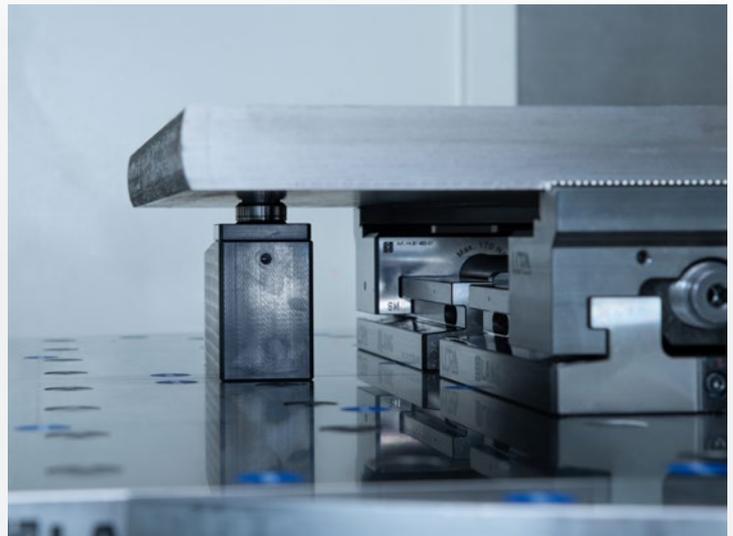
Technical features

Threaded caps for quick jaw adjustment, expanding the workholding system for an increased clamping range or reducing vibrations with the Hydro-Sup screw jack –

Makro-Grip® Ultra offers some helpful and ingenious functions and tools which makes the system one of a kind.



Adding further bases for an increased clamping range



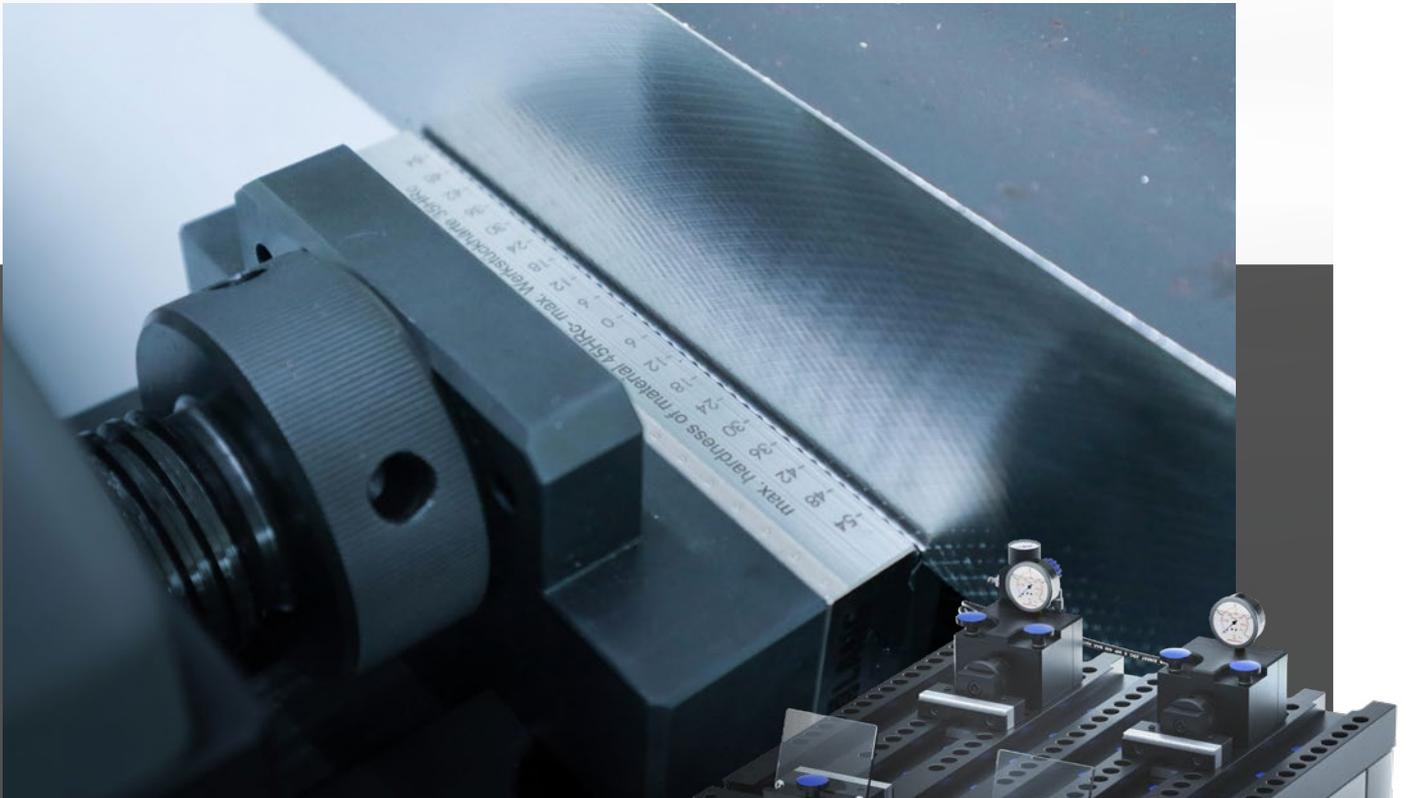
Low-vibration clamping using the Hydro-Sup screw jack



Innovative quick jaw adjustment via removable threaded caps



Easy cleaning and maintenance thanks to quick removal of components



ORIGINAL
MAKRO·GRIP

Makro·Grip® Ultra Stamping Unit

The stamping technology is now available for large parts as well. The form-fit effect which is made possible by pre-stamping guarantees highest holding forces at low tightening torque:

Features:

- Designed as a dual-stamping unit
- 3 different sizes for stamping parts up to 420 / 630 / 810 mm
- Flexible positioning in the 96 mm grid





2nd OP / rear-face machining using contour jaws.

Clamping of a round component supported by the Hydro-Sup screw jack.

Various Makro-Grip® applications

Plate clamping across several Makro-Grip® Ultra units.



Image: Großmann Präzisionstechnik

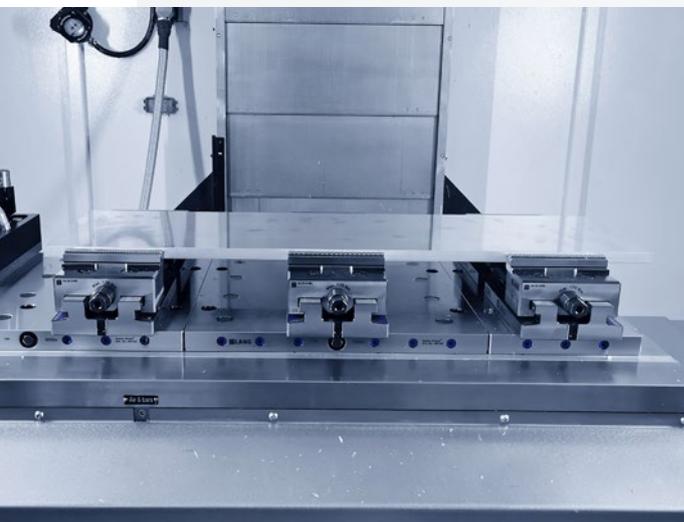


Image: ifm electronic gmbh

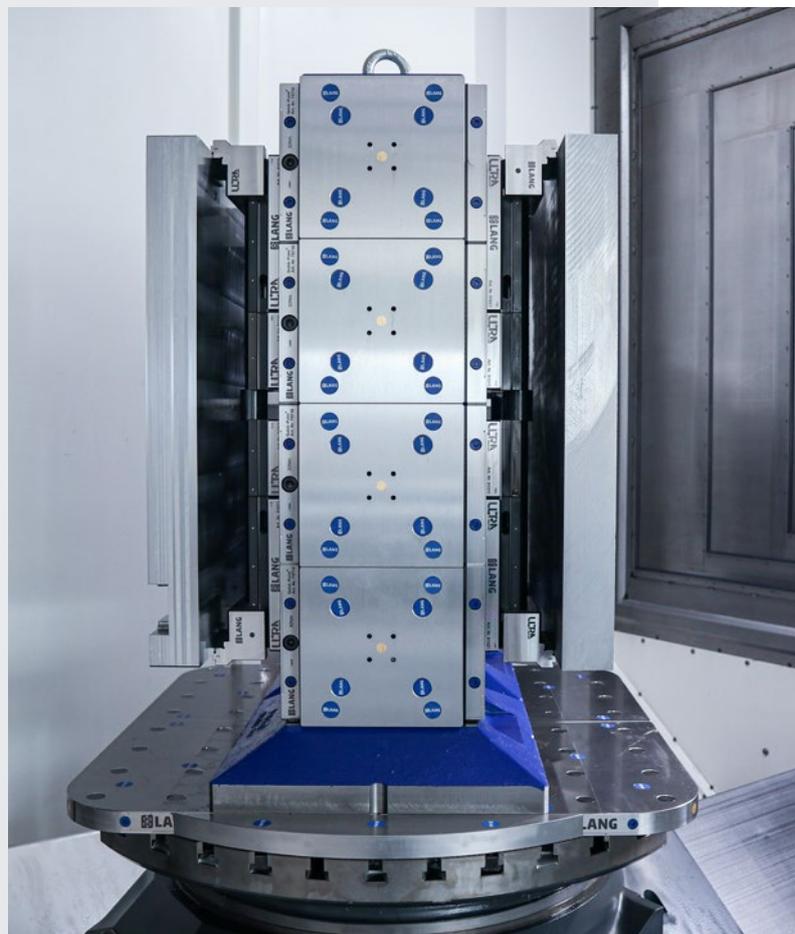
Integration of automated manufacturing without removing Makro-Grip® Ultra.



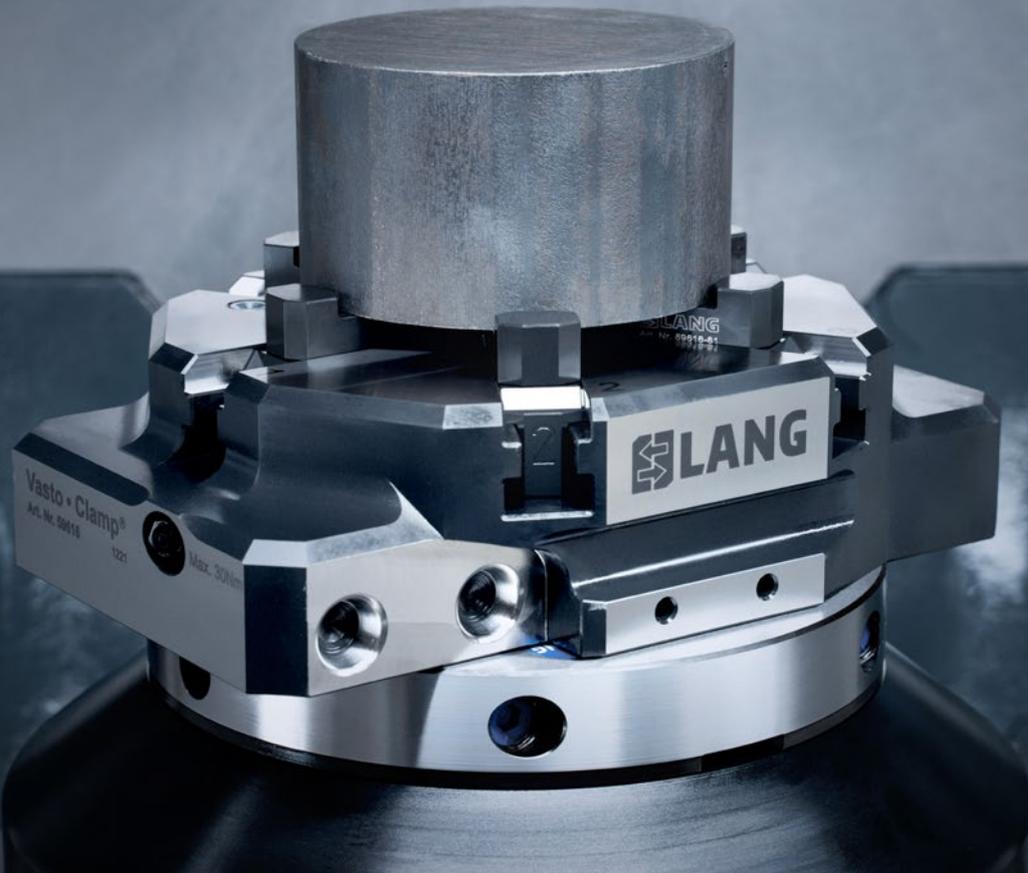


5-axis machining with serrated Makro-Grip® Ultra clamping jaws.

Large plate clamping on the Quick-Tower tombstone.



Conventional Workholding



Diverse clamping solutions for milling round or pre-machined components.

While the strengths of Makro-Grip® stamping technology and the 5-Axis Vices are mainly seen in the processing of unmachined parts, workholding devices of the „Conventional Workholding“ category offer various options for smooth clamping of round or pre-machined components.

To solve the respective clamping task, a 6-jaw chuck, a collet chuck and a total of three different types of cen-

tring vices are available to the operator. They differ only in the type of their clamping jaws. They use the same base body as the Makro-Grip® 5-Axis Vice, which ensures full compatibility and interchangeability. The different types of jaws of the „Conventional Workholding“ are ideally suited for demanding rear-face machining tasks and perfectly complement the 5-Axis Vice in order to machine all faces of a workpiece.

Workholding for clamping round parts

Vasto-Clamp 6-Jaw Chuck

The flexible chuck with quick jaw exchange.

The Vasto-Clamp 6-Jaw Chuck with quick jaw exchange system can be used for clamping raw parts or components sensitive to deformation and works both ways – for inner and outer diameter clamping.

According to requirements the operator can choose between hardened gripping jaws and soft top jaws. Both jaw types use a friction-based clamping principle. The mounting and exchange of the jaws is realised without any tools by an innovative click mechanism, which provides a highly rigid and robust connection. The Vasto-Clamp chuck is available with integrated clamping studs for our Quick-Point® zero-point system, as well as an interface for the LANG RoboTrex automation.



Preci-Point Collet Chuck

The compact Collet Chuck for milling round parts.

The Preci-Point collet chucks are designed for standard ER 32 and ER 50 collets. Diameters of $\varnothing 3 - 20$ mm (ER 32) and $\varnothing 6 - 34$ mm (ER 50) can be clamped with Preci-Point. As a customised solution, a Collet Chuck for type 5C collets has already been realised. Its slim design offers excellent ergonomic characteristics and ensures ideal accessibility in milling. It is equipped with $\varnothing 16$ mm clamping studs for a quick and highly accurate clamping in the Quick-Point® zero-point system.

Profile Clamping Vices by LANG Technik

Avanti and Profilo – Different strengths, different purposes

The two vice types Profilo and Avanti serve a similar purpose – namely the clamping of round and pre-machined parts – but have different strengths.

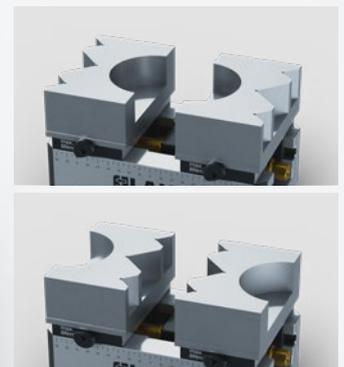
If setup times are important and operators have to change between different jaw types consistently, the Avanti is clearly the right choice. Thanks to extremely low purchasing costs, there is no need to manufacture Avanti top jaws in-house or spend additional machine capacities for their preparation.

The Profilo, on the other hand, impresses with its flexibility and the possibility of using self-made top jaws or fixtures on the vice.

Both vice types use an interchangeable jaw system and can be converted into multiple clamping vices by adding centre jaws. By default, the top jaws are available in aluminum and steel, but are mounted differently, which is described on the next page.

Avanti Profile Clamping Vice

The universal vice with great handling characteristics and extremely fast jaw exchange.



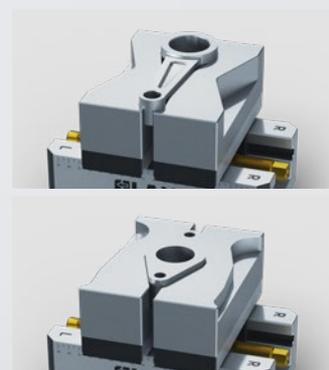
Large-volume steel or aluminium top jaws are available in different heights. They are clamped from the outside with just one screw allowing the complete block to be used for contours.

Profilo and Avanti – a head-to-head comparison:

PROFILO	VS.	AVANTI
Highly flexible due to self-made top jaws	SPECIALTY	Quick changeover
no / yes / yes	FOR JAW WIDTH 46 / 77 / 125	yes / yes / yes
Yes	IN-HOUSE MANUFACTURING OF TOP JAWS POSSIBLE	No
No	TOP JAWS AVAILABLE IN DIFFERENT HEIGHTS	Yes
Yes	CUSTOMISED TOP JAWS UPON REQUEST	Yes
No	QUICK RELEASE FASTENER	Yes
Feather keys	POSITIONING	Dovetail
4 cylinder head screws per jaw, mounted from the top or bottom	MOUNTING	Lateral force by tightening one screw and pull-down effect by dovetail

Profile Clamping Vice

The versatile clamping system for all round or pre-machined parts.



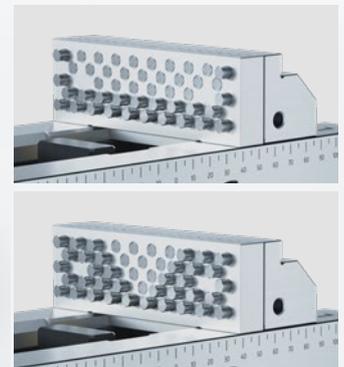
Just like the Avanti, the Profilo top jaws are available in aluminium and steel. The large-volume blocks allow contours to be added on both sides of the jaws.

Vario-Tec **support and positioning system**

The convenient and versatile clamping solution for (semi-) finished parts

Vario-Tec clamping jaws are equipped with highly-precise movable pins which can be blown out row by row with compressed air and pushed back individually when not in use. The pins equally serve as a support and

workpiece endstop. Parallels or other endstop which affect accessibility negatively are not needed anymore. Vario-Tec was LANG's first patented product. To this day, users still enjoy the ingenious simplicity of Vario-Tec.



One base for all jaw types

All vice types use the same base in different lengths and jaw widths. This guarantees that all jaw types are interchangeable and compatible to each other. Working with one base and two or more jaw types ensures even more efficiency with low resource investment!



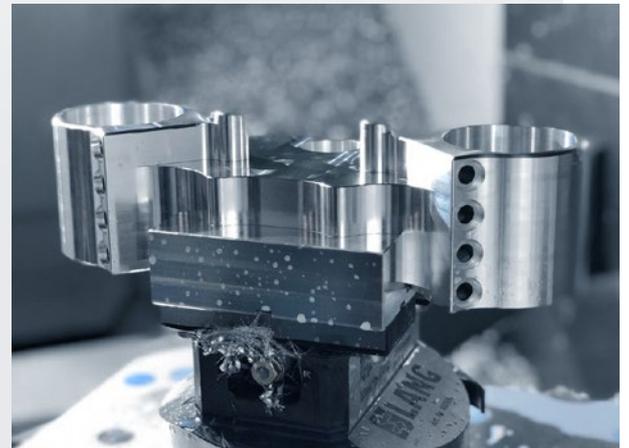
Various Conventional Workholding applications



Preci-Point Collet Chuck.
Image: Ratiotechnik Milde GmbH.



Avanti 125 Profile Clamping Vice with aluminium top jaws. Image: Thoma Tec.



Profilo 77 Profile Clamping Vice

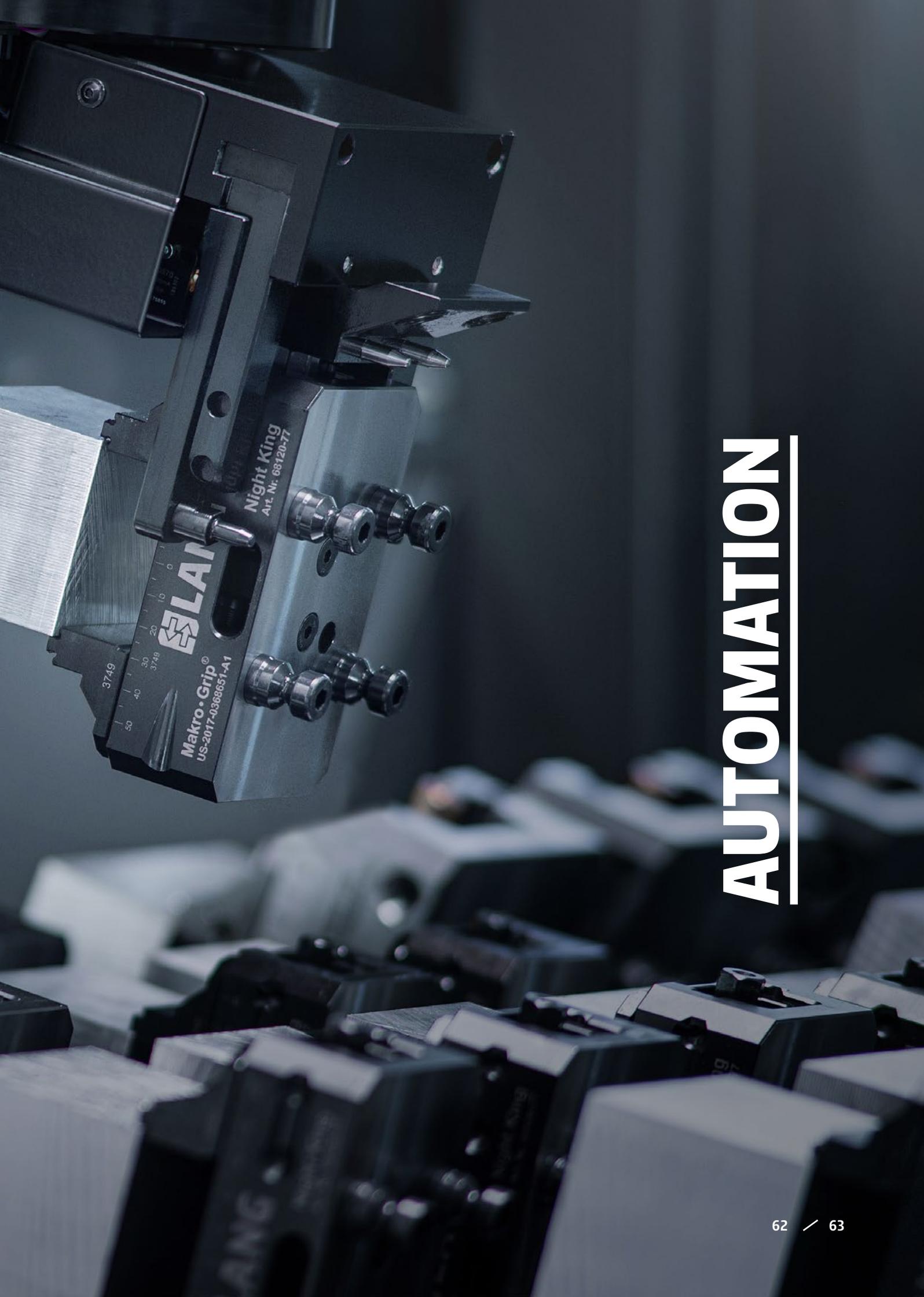


Vasto-Clamp 6-Jaw Chuck. Image: CNC-Technik Ortlieb GmbH & Co. KG.



Vario-Tec 77 Centring Vice





Night King
Art. Nr. 08120-77

BLAN

3749
50 40 30 20 10 0
3749
Makro-Grip®
US-2017-0368651-A1

AUTOMATION

More efficiency, automatically!

Automation systems by LANG Technik are characterised by:

SIMPLE OPERATION

SET-UP TIME SAVINGS

FLEXIBILITY



RoboTrex 96
Automation System



Grippers
mechanical / pneumatic



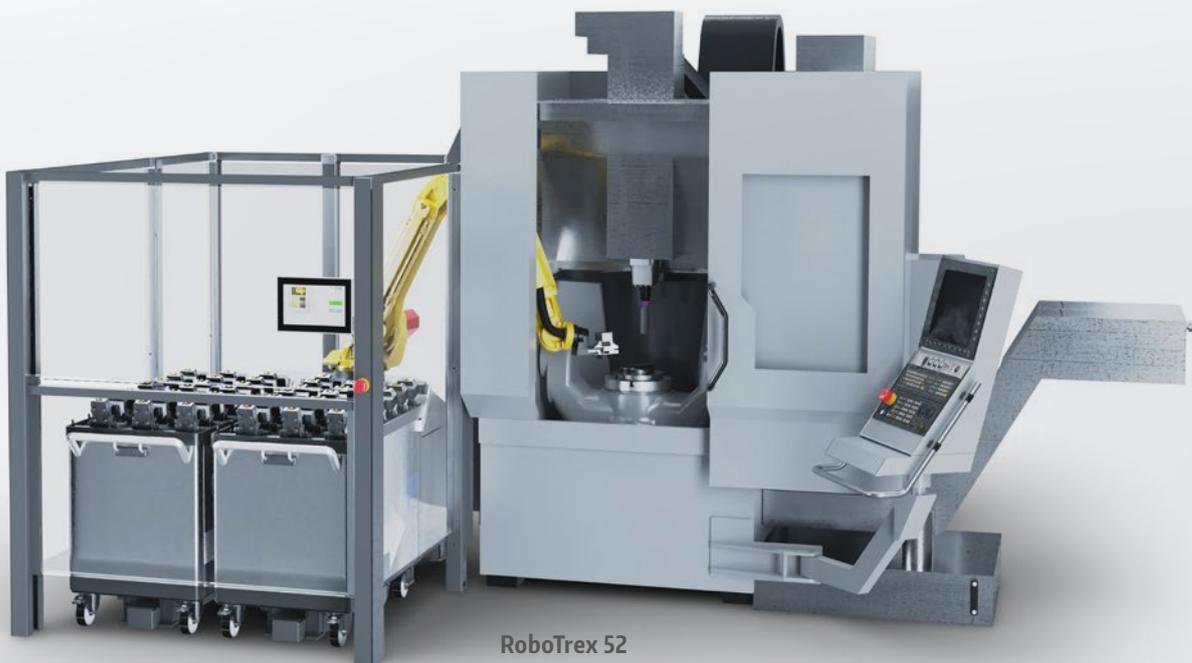
Gripper Exchange
Interface



Zero-Point Clamping Devices
mechanical / pneumatic

Efficiency, speed and flexibility – RoboTrex combines all these attributes and prepares your manufacturing for the future! Automation systems by LANG cover every need from single part to large-scale production.

They are flexible, easy to use and offer best value for money. This makes them appealing for SME's and for those just starting out.



**RoboTrex 52
Automation System**



**Makro-Grip® Night King
5-Axis Vice**



**Clean-Tec
Chip Fan**



grip the future ■■



Machine tools we have already equipped with an automation:

Alzmetall, Awea, Bridgeport, Brother, Chiron, DMG Mori, Doosan, Emco, Fanuc, Feeler, Fehlmann, Grob, GMC, Haas, Hedelius, Hermle, Hitachi Seiki, Hurco, Huron, Hyundai, Kern, Leadwell, Litz, Makino, Matec, Matsuura, Mazak, Mikron, Mitsui Seiki, MT Cut, Müga, OKK, Okuma, Quaser, Spinner, Stama, Victor, YCM, uvm.

The RoboTrex Automation System

The innovative and patented automation trolley as the storage of the automation system ensures highest flexibility and machine tool utilisation, even in a mostly unmanned shift.

By preparing the trolleys offline, the RoboTrex automation system can be re-equipped within a few moments without any machine downtime. Thank to the special, angled mounting of the vices, the trolley has a high storage capacity on a relatively small footprint, which is why RoboTrex can be integrated in nearly any machine shop. RoboTrex is not only suitable for batch

production of homogeneous parts but can also process single parts flexibly, by assigning a NC programm to every vice position. It is also possible to deselect certain vice positions or entire rows to handle parts with excess width or height. Whether a completely new machine tool or as a retrofit to an existing one, due to the simple communication, RoboTrex fits almost every machine tool. The simple and uncomplicated operation provides an easy start in automated manufacturing. In economic terms, it offers a great value-for-money ratio and guarantees a quick return on investment.

Advantages of the RoboTrex Automation System:



(Re-) equipping of automation within just a few seconds



Simple operation, no knowledge about robots required



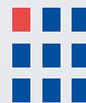
Minimum training expenses



No skilled labour required



Works with almost every machine tool



Single part or large-scale production

Main components of the RoboTrex Automation System



The enclosure

Trolley entry system and robot pedestral, fenced in a robust metal/ Makrolon enclosure which features an automatic window for trolley insertion. Additional access door for front-loading of machine tool.



The control

Simple and user-friendly control which does not require any knowledge about robots. Flexible job management for single-part or batch production.



The robot

Pre-adjusted robot with different types of grippers for pneumatical or mechanical zero-point actuation, and – in the case of RoboTrex 96 – gripper exchange interface.



The automation trolley

Flexible trolley with patented mounting of vices and excellent manoeuvrability. Thanks to the offline preparation of the trolleys the automation system can be re-equipped rapidly without machine downtime.



The zero-point system

Interface between machine table and workholding device. Depending on the gripper type, the zero-point system is actuated either pneumatically or mechanically. Also applicable in manual production.



The vice

Vices are directly picked up by the robot and placed in the zero-point system. No further interfaces or pallets are necessary which ensures a very efficient utilisation of space.

RoboTrex 52 and 96 – head-to-head comparison



RoboTrex 52
Automation System



RoboTrex 96
Automation System

30 / 42 Vices	STORAGE CAPACITY OF TROLLEY	15 / 16 Vices
max. 4 pcs.	QTY OF TROLLEYS	max. 4 pcs.
max. 120 / 168 Vices	TOTAL STORAGE CAPACITY	60 / 64 Vices
max. 120 × 120 × 100 / max. 120 × 100 × 70 mm	WORKPIECE DIMENSIONS WITH FULLY EQUIPPED TROLLEY	max. 205 × 205 × 90 / max. 205 × 150 × 150 mm
max. 12 kg	WORKPIECE WEIGHT	max. 25 kg, optional: max. 45 kg
no	GRIPPER EXCHANGE INTERFACE	yes
mechanical or pneumatical	ACTUATION OF ZERO-POINT SYSTEM	pneumatical
from 1.70 × 2.20 m	FOOTPRINT	from 2.00 × 2.70 m
through machine door or side window	LOADING	through machine door or side window

Perfectly coordinated – and even suitable with other systems

All essential RoboTrex components are also available as individual components in order to be used with conventional automation systems. Whether it's a connection to an existing robotic system, an integration in robot cells and shelf systems or a flexible in-house solution, LANG workholding systems make every automated manufacturing process more efficient.

The automation trolley – heart of the RoboTrex system

In the true sense of the word, the automation trolleys are simply mobile storage units. The special feature is the patented, angled positioning of the vices. It ensures maximum space utilisation on a small footprint. Great accessibility to the vice allows set up and changeover right on the trolley. This can take place anywhere, off-line. Thanks to the integrated entry system, if an

automation trolley is pre-loaded, the RoboTrex system can be equipped within seconds by simply exchanging trolleys. An automation trolley with finished workpieces can be removed or replaced at any time during the operating mode. Due to their interchangeability they can be used on different RoboTrex systems, which helps to increase the flexibility of production processes.



Makro·Grip® Night King 5-Axis Vice

A vice for raw part clamping in its purest form, reduced to its basic requirements for 5-axis machining: Accessibility and Holding Power. The top-selling and most popular Makro·Grip® 5-Axis Vice in a new version for automation

systems. Featuring all benefits of the approved LANG stamping and clamping technology at an unbeatable value-for-money ratio.



Through the darkest of nights,
there is one who stands tall.

The Night King by LANG Technik.
Incredibly strong, incredibly affordable.

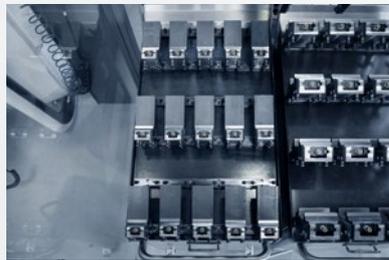
Batch production or individual program assignment for single parts

Besides the rather conventional processing of identical parts per trolley, the RoboTrex automation system offers further possibilities, which enables a flexible job management for a diverse range of parts. From the

deselection of certain vice positions or rows – in order to process parts with excess width or height – to a very individual single part production by assigning a NC program to each vice position – everything is imaginable.



Start and stop mark

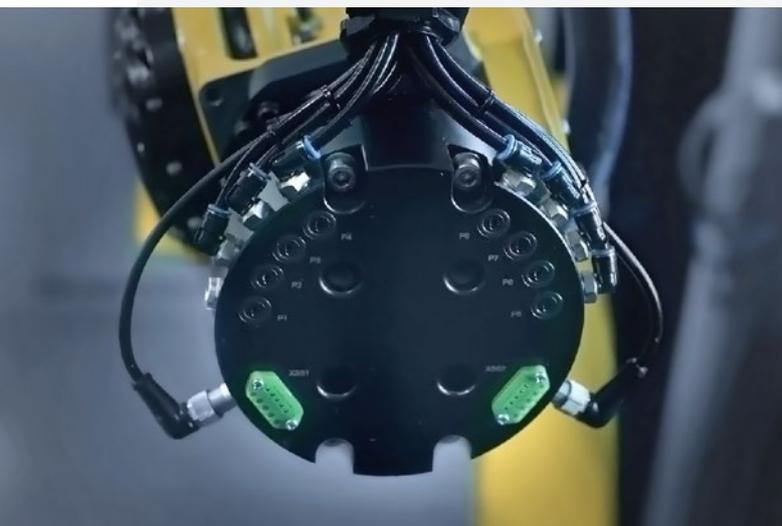


Deselection of vice positions



Individual program assignment

RoboTrex 96 – the flexible 2-in-1 solution



The gripper exchange interface, a new standard feature of RoboTrex 96, is a zero-point adaptation on the robot arm which ensures even more options and flexibility when it comes to the variety of processable part sizes. The new interface allows switching between different gripper sizes and thus using both, RoboTrex 96 and 52 trolleys (and all associated components) in the same system. This makes RoboTrex 96 a flexible 2-in-1 solution that can not only handle bigger and heavier parts up to 25 kg (or 45 kg), but also smaller parts in larger lot sizes efficiently.

Clean·Tec Chip Fan – The most simple way to automate manufacturing processes



The Clean·Tec Chip Fan cleans the machine interior after machining processes, removing chips and coolant without the operator having to open the machine tool door, which is why it is a must-have tool in automated manufacturing. As a final step in the machining process,

the Chip Fan is called up via the machine program and selected from the tool magazine. Its blades are opened and closed by controlling the speed of the machine tool spindle.



With every Clean·Tec Chip Fan sold, we donate 2 € to the BILD hilft e.V. "Ein Herz für Kinder" foundation.

RoboTrex in action



RoboTrex 96 with gripper exchange interface and different sizes of trolleys. Image: Waibel GmbH CNC-Teilefertigung



Makino DA 300 with RoboTrex 52.



4-trolley RoboTrex 52 version attached to a DMU 60evo.
Image: Peter Josef Klein Feinmechanik GmbH



2 Grob G350 machine tools with RoboTrex 96 and 52.
Image: Lindauer DORNIER GmbH

RoboTrex 52 with four automation trolleys attached to a Hermle C 400.



3 Hermle C 22 U machine tools with RoboTrex 96 automation system.



RoboTrex 52 retrofitted to a DMU 50 by DMG Mori.



Fanuc Robodrill with RoboTrex 52 automation system. Image: Vedos Verspanende Techniek B.V.



CONVINCINGLY EFFICIENT

Every fourth

RoboTrex customer has
already ordered another
LANG automation system.

THIS IS WHAT OUR CUSTOMERS SAY

„One of the main reasons for RoboTrex was how easy it is to use. It does not require a Profibus and is limited to the most necessary communication with the CNC machine. The Fanuc robots of the RoboTrex 96 as well as the RoboTrex 52 run very reliably and almost trouble-free.

We now have some additional automation trolleys with Makro-Grip® and Avanti vices. It allows us to pre-equip a trolley offline which is very convenient and to change-over to a different workpiece type within the shortest time possible. It also means that smaller quantities can also be produced with this type of automation. Our positive experience with the first two systems prompted us to now integrate the third RoboTrex into our production.“

Albrecht Schmid, Abteilung FNC, Lindauer DORNIER GmbH

„By using the RoboTrex automation system we were able to generate an incredible number of additional machining hours. In some cases, our machining centres run for over 200 hours without any downtime. Since we run our batches automatically in the evenings, at night or on the weekends, our employees can then use the hours during the day to produce single parts and prototypes.

In our 5-axis area, six of seven machines are currently automated with LANG and all RoboTrex automations are systems with 4 trolleys. This adds up to a considerable quantity with approximately 600 vices. Thanks to the Makro-Grip® form-closure technology we often push them to the limit of what is feasible in terms of the workpieces dimensions.“

Peter und Julian Klein, PJK Feinmechanik

Are you ready to make your production more efficient?

Benefit from our vast experience in workholding and automation. With our hands-on mentality we offer help and advice for our customers and know how to make the best of existing capabilities.

→ **Personal customer contact**

Get in touch by phone, e-mail, video conference or welcome our outside sales representative at your company.

→ **Experience the future live**

If you have a certain need for workholding and automation systems or if you are just looking for more detailed information about our products, you are welcome to visit one of our training and technology centres.

→ **Visit our website**

Learn more about our products and find out everything you need to know about our company on our website.

Visit us at www.lang-technik.de

Imprint

Title:

simple. gripping. future. – LANG Technik
Date of Printing 6/2021

Editor:

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