



MULTIZERO CLAMPING SYSTEM
LEGO-LIKE Clamping flexibility

Technology overview

Tradition in Excellence

SINCO Spanntechnik provides high quality and precision clamping solutions to the manufacturing market worldwide. SINCO is a family-owned company that traces its start back to 1973 as a tool shop.

Decades of challenges and optimization of manufacturing process in Tool and Die sector translated into what is today a large and diverse product program of innovative clamping solutions, many of which have been granted international patents.

Today, SINCO's clamping solutions embody a rich tradition of expertise, offering a comprehensive product program designed to meet the evolving needs of modern manufacturing. With SINCO, companies gain access to clamping solutions that will optimize manufacturing processes, enhance efficiency and ensure precision in every application.



PROMISE OF PERFORMANCE Official partner of MAKINO Europe

SINCO Spanntechnik is a proud partner of MAKINO Europe, uniting the commitment to precision and innovation. Aligned with MAKINO's "Promise of Performance," SINCO's clamping solutions embody high-end quality and precision.



 **MAKINO**
Promise of Performance

 **SINCO**
SPANNTTECHNIK

MultiZero Clamping System

No limits of workpiece size, five sided machining, quick change of workpieces on the machine, endless flexibility and modularity

MULTIZERO CLAMPING SYSTEM

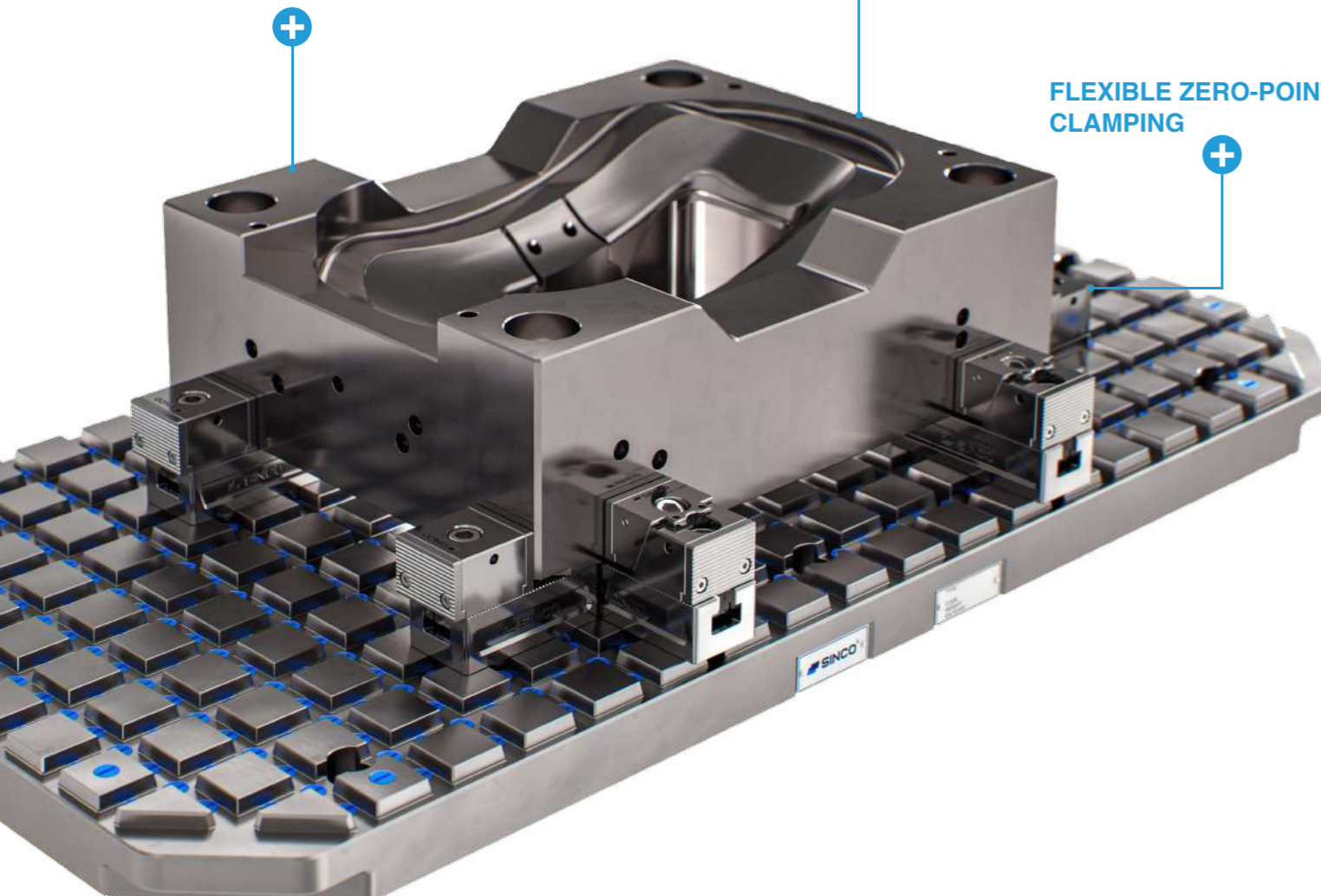
LEGO-LIKE Clamping flexibility

MultiZero Clamping System empowers operators during planning, ensures precise parameters, heightens standardization, improves quality, and streamlines manufacturing processes.

WORKPIECE POSITIONING AND ORIENTATION

SET-UP TIME AND PROCESS OPTIMIZATION

FLEXIBLE ZERO-POINT CLAMPING



MULTIZERO BENEFITS

SET-UP TIME REDUCTION

Reduced setup time by up to 90%, attributed to prior CAD/CAM setup virtualization and simple set-up on or off the machine table.



CONICAL ZERO-POINT POSITIONING

Unique and patented zero-point positioning done by conical slots achieving 5µm repeatable accuracy. Great lateral forces compensation.



LESS SKILLED OPERATORS NEEDED

With prior CAD/CAM setup virtualization and standardization of clamping process there is less need for skilled operators and less room for mistakes.



ZERO-POINT OFFSET AND REPOSITIONING

Move between milling, EDM and measuring operations with workpiece staying in the initial zero-point position. Don't lose the initial point with interruption of the program.



LEGO-LIKE MODULARITY

It enables the formation of various clamping configurations through the array of conical slots and zero-point in every cross section.

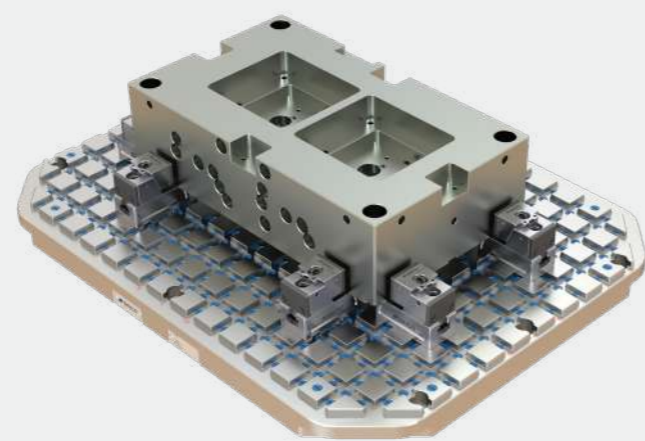


MultiZero Clamping Options & Variants

No limits of workpiece size, five sided machining, quick change of workpieces on the machine, endless flexibility and modularity

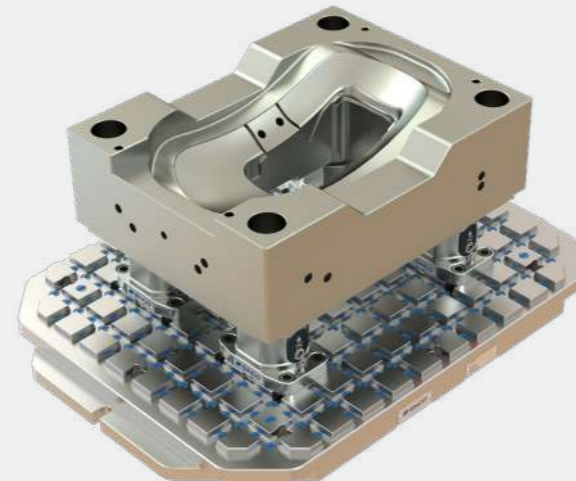
CLAMPING WITH MULTIZERO MODULAR VISES

The MultiZero modular vises provide adaptability to various workpieces no matter the size or shape, through a diverse range of clamping heads, jaws, and dimensions.



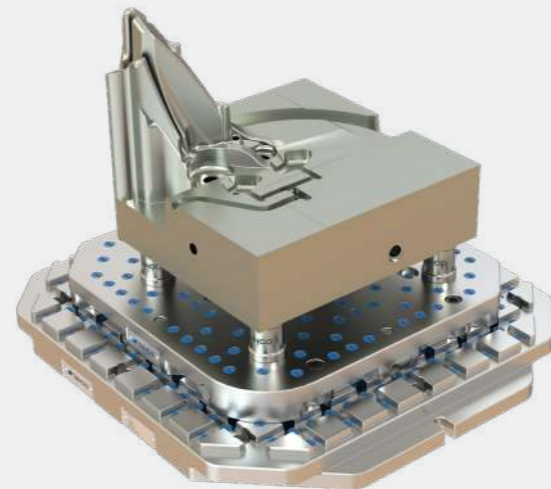
CLAMPING WITH MULTIZERO RISERS

Lifting the workpiece for full machining accessibility with 5 sides of the workpiece being completely free. Perfect for manipulation and clamping of larger workpieces or 5-axis workpieces in general.



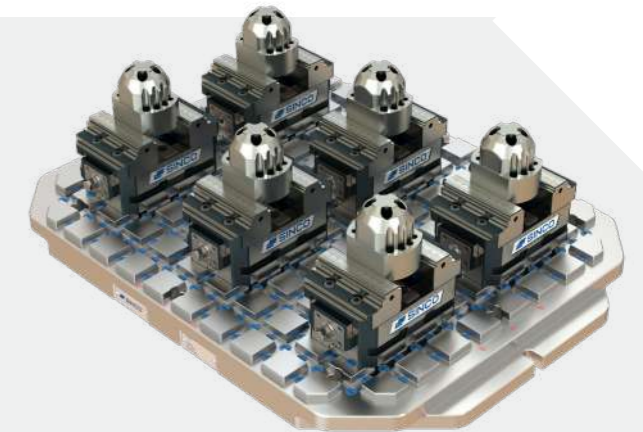
CLAMPING WITH MULTIZERO QUICK-SWITCH PALLETS

Significantly improved machine productivity with quick changes of raw and machined workpieces on the machine table. Additionally, workpieces can be easily transferred between different operations (milling, EDM, measurement) without losing the initial zero-point. Perfect for smaller to medium size parts.



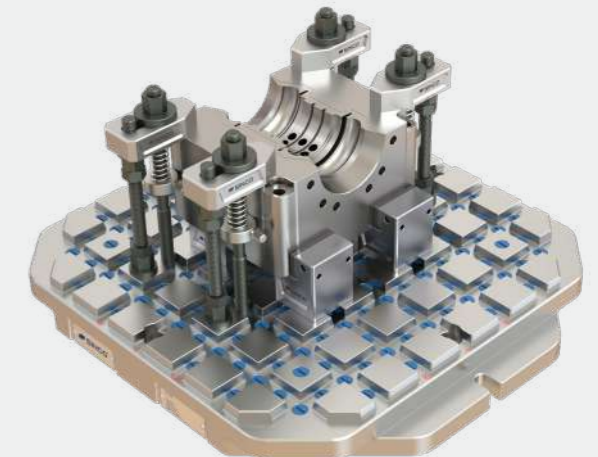
CLAMPING WITH MULTIZERO VISES OR MZ ADJUSTED VISES

Instant positioning and orientation of the vise and workpiece with flexible MultiZero surface enables endless possibilities for clamping. Possibility to use old vises directly or on the MultiZero Pallet.



CLAMPING WITH MULTIZERO CLAMPS AND SUPPORTING ELEMENTS

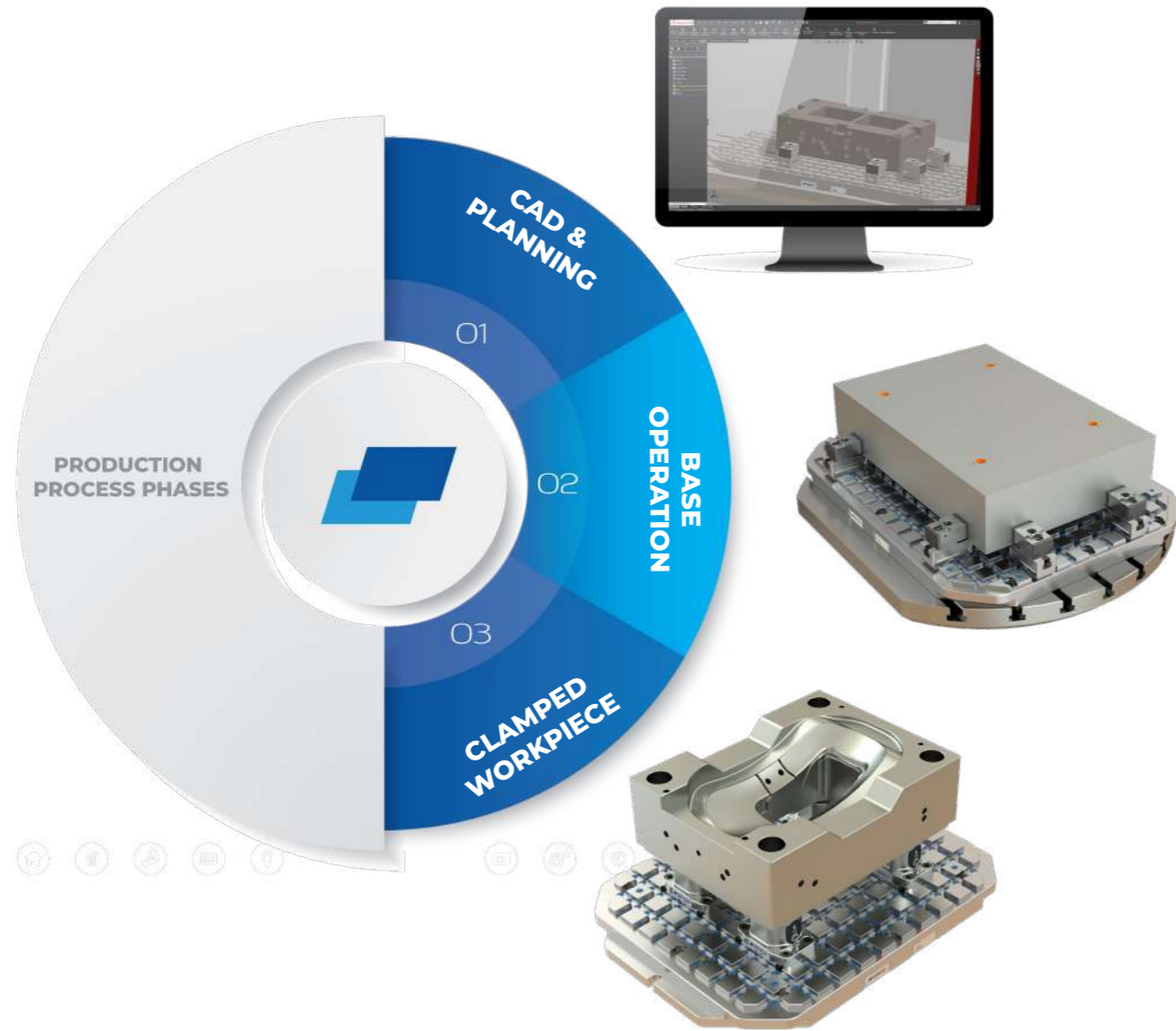
Workpiece underneath support, centering with cylindrical or rectangular stoppers, clamping with clamps, and various other supporting elements for complex shaped workpieces or those undergoing heavy machining processes



MultiZero Production Process Phases

The workpiece moves from technology planning to clamping, where it can always be moved and returned to the initial zero-point position

WORKPIECE PATH FROM PLANNING TO MACHINING



1 CAD&CAM 2 BASE OPERATION 3 CLAMPED WORKPIECE

CAD: Creating a 3D model of the workpiece, incorporating technological holes for MultiZero Pallet or Riser in the design phase.
CAM: Simulating the clamping of the workpiece for each stage of production.

Creating a foundation during the first operation for clamping and precise positioning of the workpiece. Technological holes are placed based on MultiZero positioning pitch (50mm).

Workpieces clamped on MultiZero Pallets or Risers can be quickly exchanged, transferred, and repositioned through different operations without losing the initial zero point.

Maintaining the initial zero position of the workpiece through different machining processes



MILLING

On the milling machine equipped with the MultiZero Base Plate, there is an option to transfer workpieces back (for example, for correction) to the initial zero-point position as before, as well as to clamp the workpieces outside of the machine (on the MultiZero Pallets) and perform a quick exchange of workpieces.



SINK EDM

The MultiZero Base plate is added to the sink EDM to ensure precise positioning repeatability of the workpiece that was transferred with a MultiZero Pallet or Risers from another machining process or for general clamping on sink EDM.



MINIMUM RE-CLAMPING

SIMPLE ZERO-POINT OFFSET

HIGHER ACCURACY RESULTS

LOWER RISK OF MISTAKES



WIRE EDM

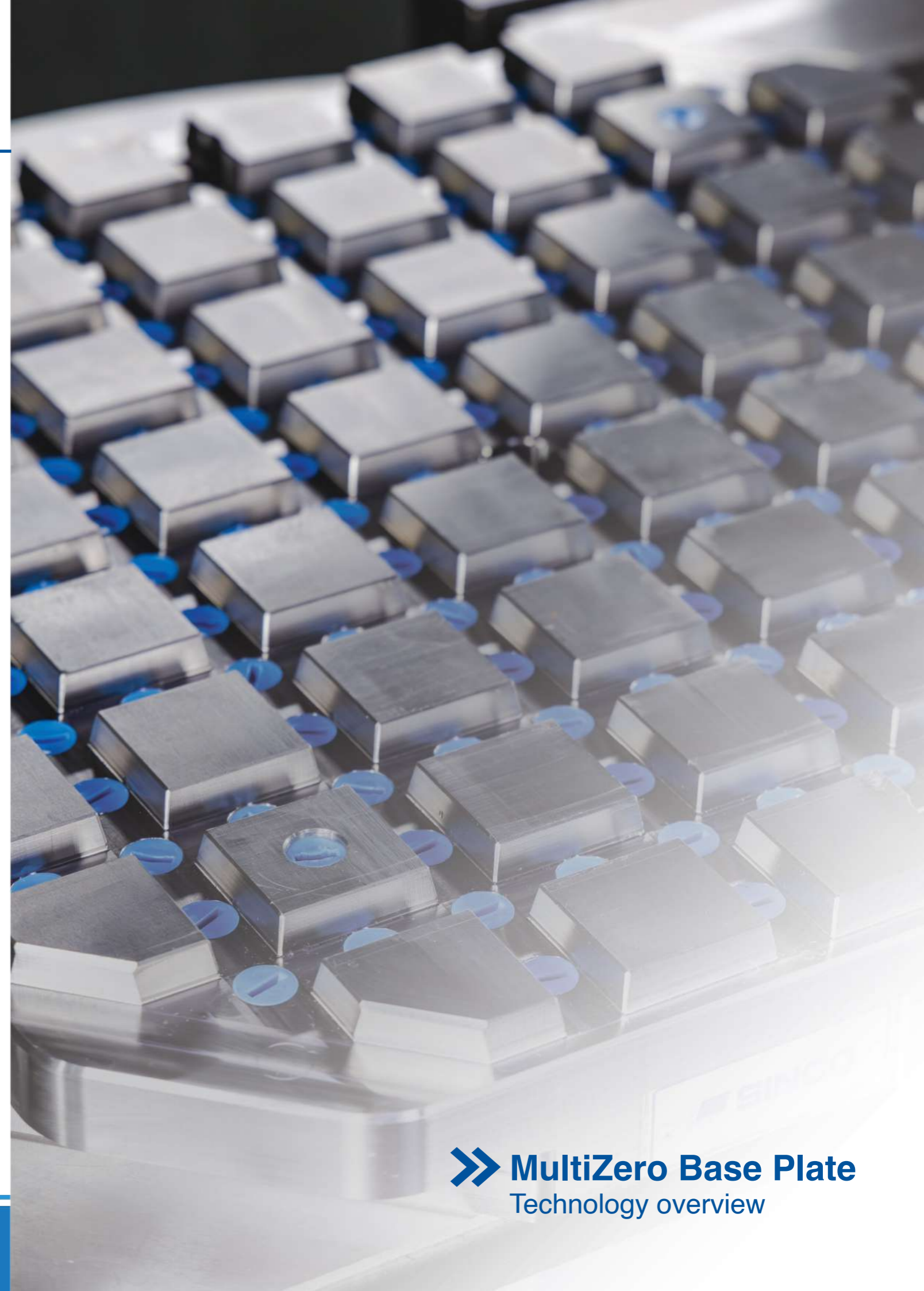
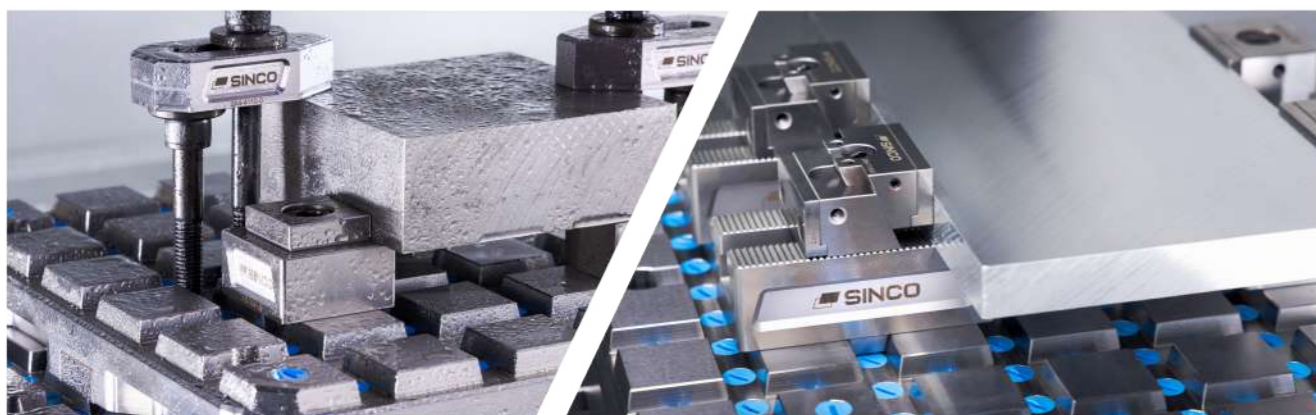
Facilitating workpiece transfer to the wire EDM machine involves adding the MultiZero Adapter Plate on top of MultiZero Clamp Pallet. The adapter plate, along with a clamped workpiece, can be removed for wire EDM processing and then accurately repositioned on the clamp pallet following the completion of the wire EDM process.



MEASURING MACHINE

The MultiZero Base plate is added to the measuring machine to ensure precise positioning repeatability of the workpiece that was transferred onto a MultiZero Pallet or Risers from another machining process (for example, EDM).

Application Examples



MultiZero Base Plate
Technology overview

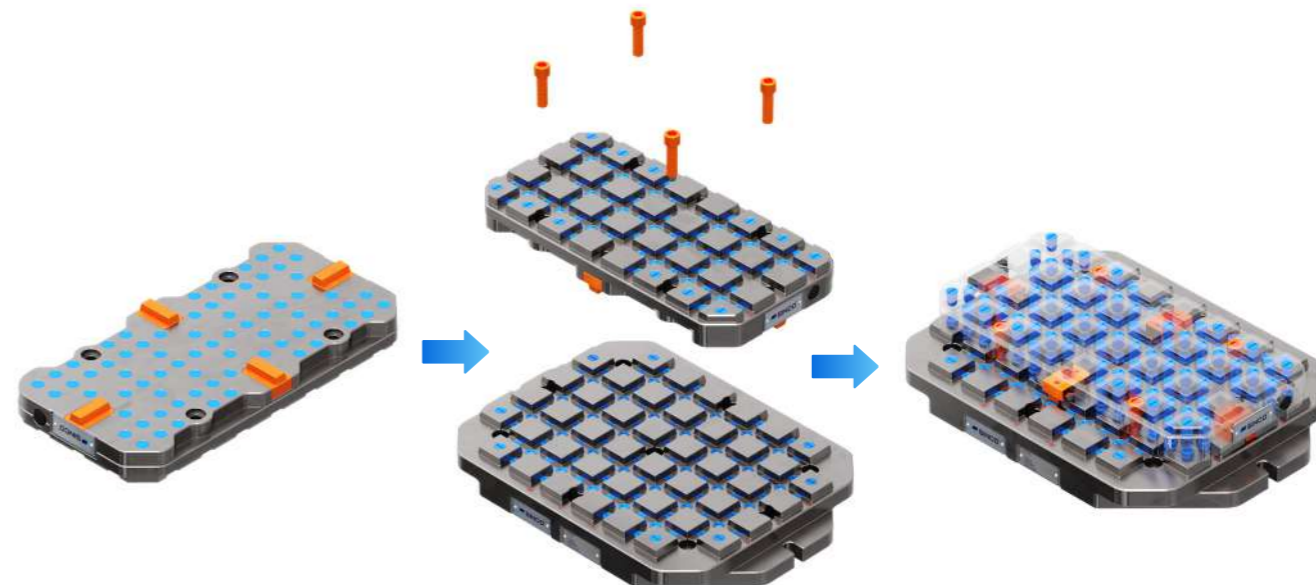
MultiZero Base Plate

MultiZero conical slot framework accurately keeps track of the workpiece's position and orientation throughout the production.

MultiZero Base Plate, featuring an array of conical positioning slots with a pitch of 50mm or 100mm, is secured to the machine table. It serves as the foundation for planning of clamping and facilitates flexible zero-point positioning.

- + Repeatability positioning accuracy of 5µm** achieved by unique conical locking
- + Maximum flexibility in clamping** due to the large array of conical slots (zero-point on every cross section)
- + Possible coverage of the whole machine table** allows to achieve max utilization of the machine table
- + Patented positioning system** of precise matching of conical shapes
- + Extremely compact and corrosion-free** made for a long service life
- + Lateral forces compensation** ensures high vibrations and lateral forces compensation with conical locking
- + High clamping forces** of 65kN per each M12 screw

CLAMPING AND POSITIONING ON A MULTIZERO BASE PLATE EXAMPLE WITH A PALLET



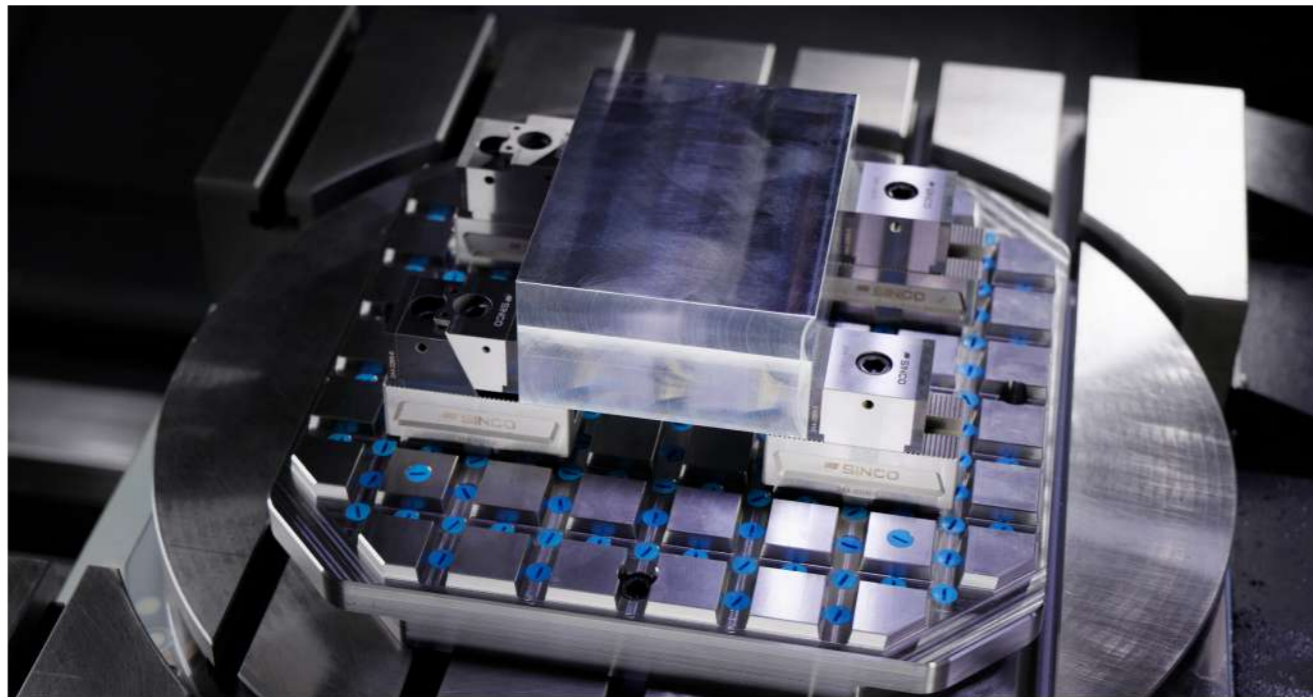
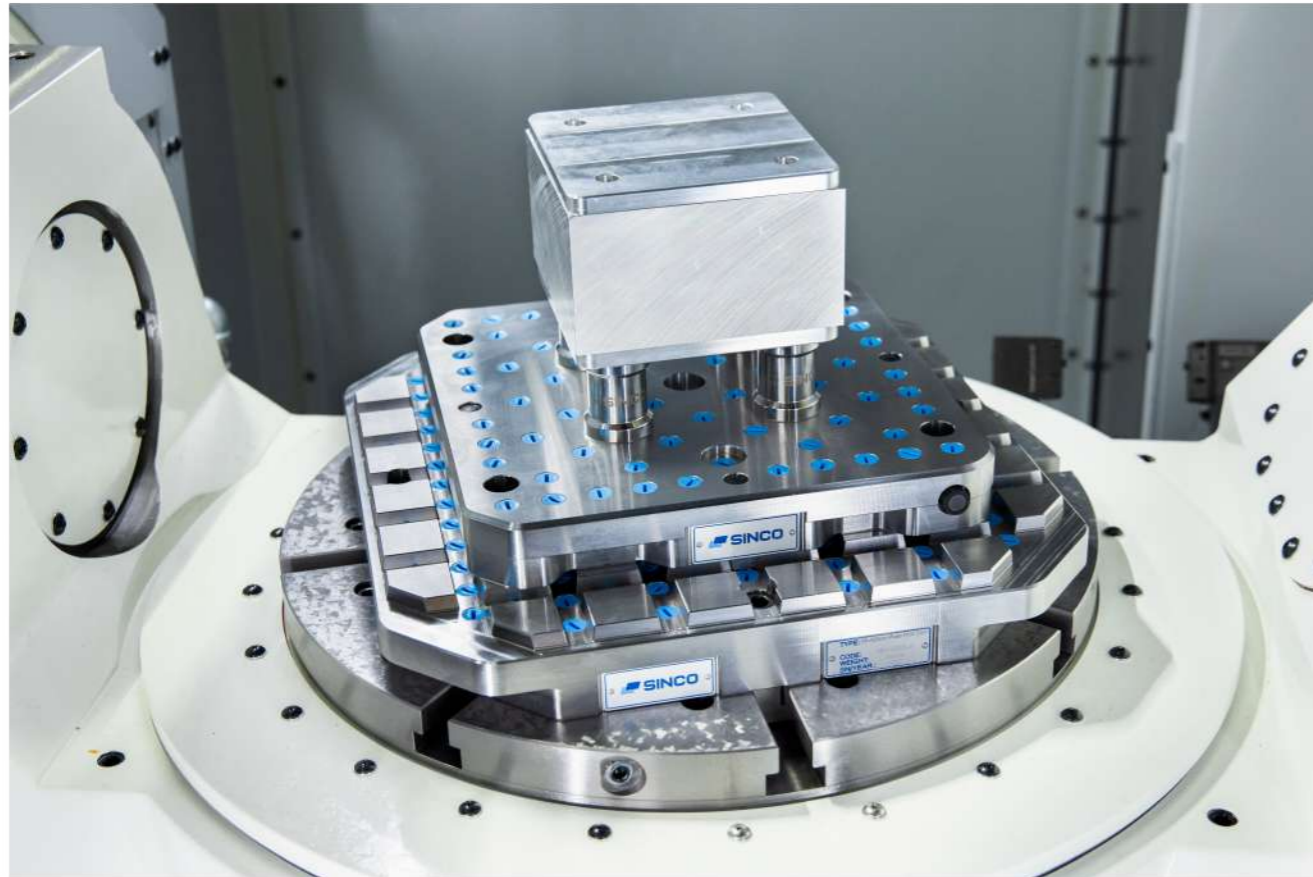
MultiZero positioning rails under every MultiZero vise, pallet, riser or supporting element

Clamping with M12 screw quantity (one, two, four) of which depends on type of MultiZero workholding

5µm repeatable positioning achieved with zero-point locking of conical slots and positioning rails

- Zero-point at every cross section of conical slots.** Security gap – centering elements don't touch the slot bottom
- Plastic protectors for thread holes** (supplied)
- Precise pallet sides used for centering**
- M12 thread holes for lifting eyebolts**


Application Examples



MultiZero Workholding
Set-up examples

MultiZero Modular Vises


No limitations regarding the workpiece size and shape with the modular and flexible MultiZero Vises



PRODUCT DESCRIPTION

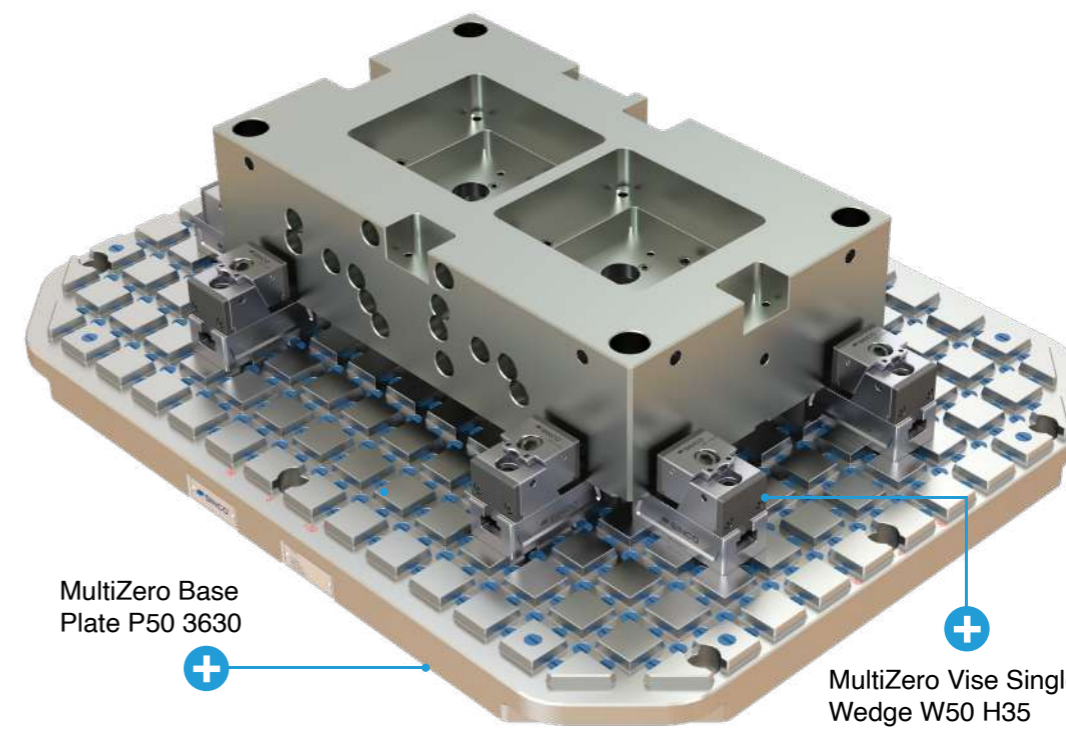
- MultiZero Modular Vises enable flexible and modular clamping that is not dependent on workpiece shape or size.
- Two MultiZero Vise types heights available - 23mm and 35mm.
- Clamping force: 15kN with a 23mm jaw size and 30kN with a 35mm jaw size. The double vise utilizes the stated clamping force on both sides, capable of clamping two workpieces. If there is a need for more clamping force, another vise can be easily added.
- A large number of interchangeable clamping jaws is available.

ASSOCIATED PRODUCTS

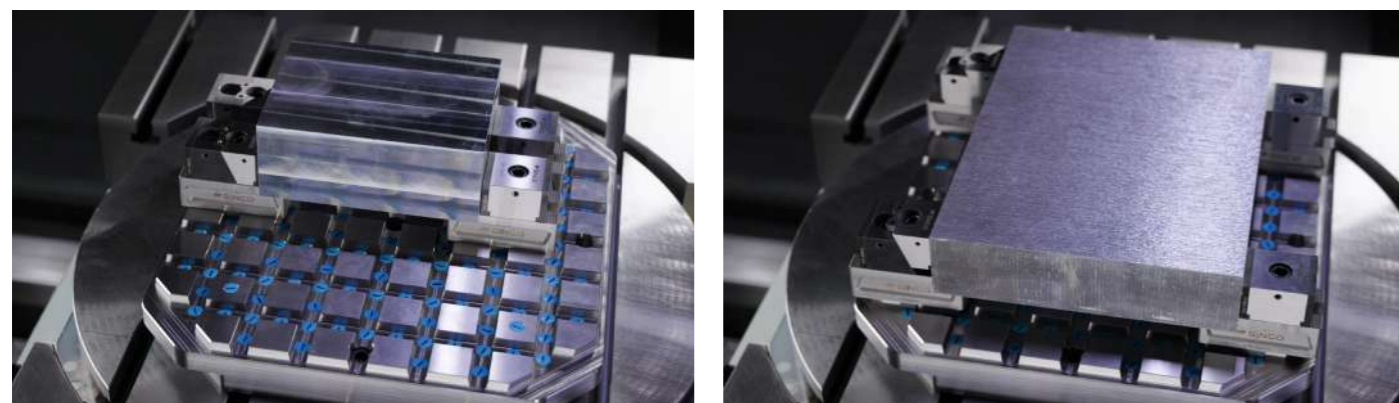


Associated products: MultiZero Rails, Single and Double Wedge Vises, Vise Stoppers and Single Stoppers.

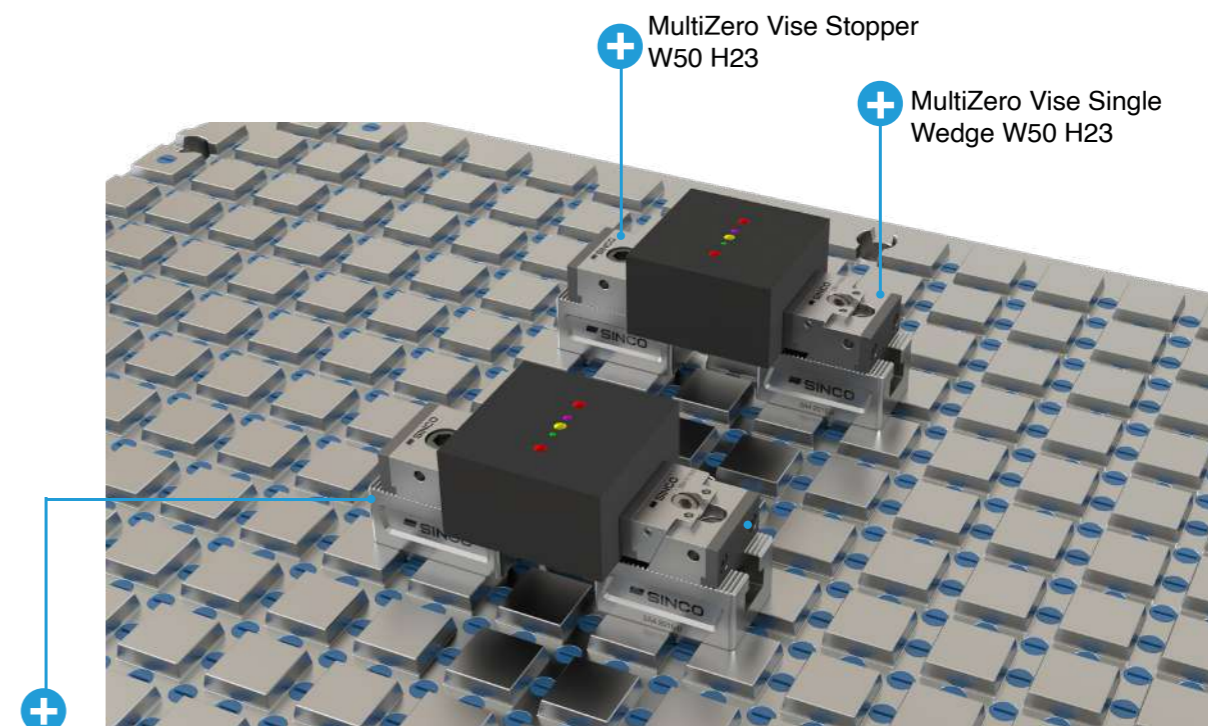
SET-UP EXAMPLES



SET-UP EXAMPLES



Application example of clamping different size workpieces with MultiZero Modular Vises.



MultiZero Riser W80 **NEW!**

Facilitating support, lifting, and easy handling of larger workpieces or 5-axis parts in general for collision-free machining.



PRODUCT DESCRIPTION

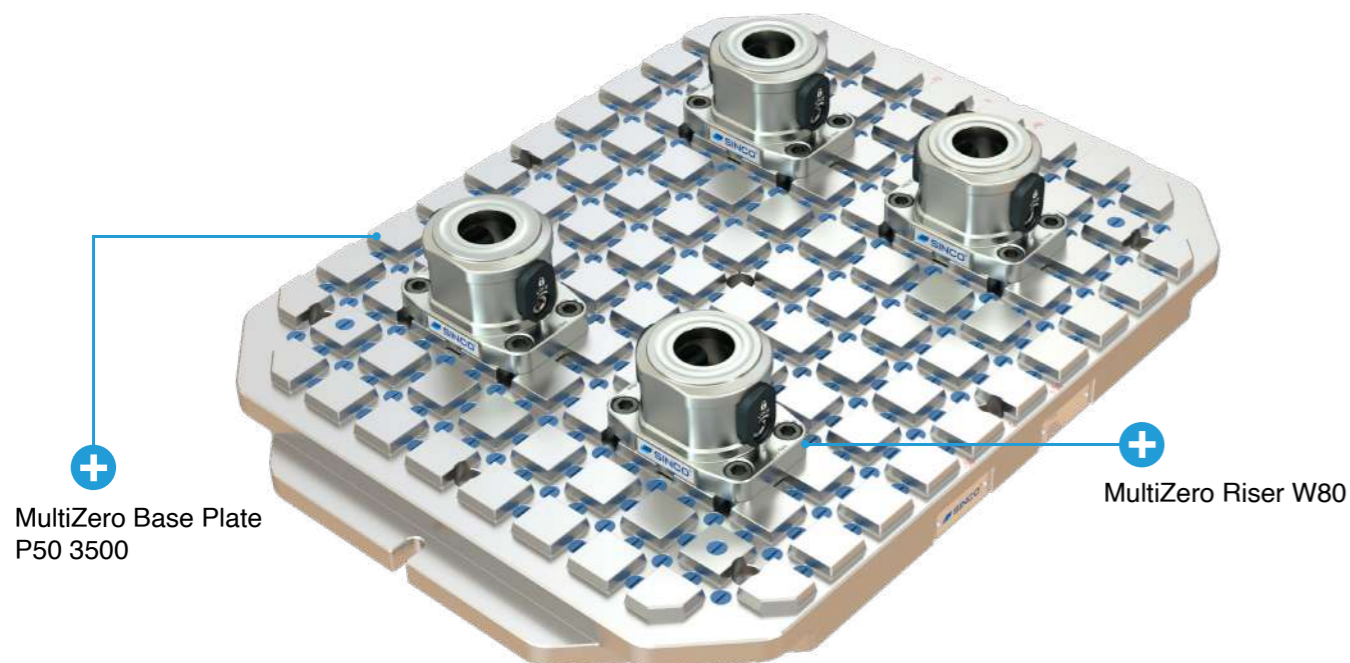
- MultiZero Riser streamlines the user friendly setup of larger components or 5-axis parts in general.
- These risers securely clamp through spring force and position the workpiece with attached centering nipples accurately and repeatably.
- Individual clamping heights can be achieved by utilizing a wide range of Riser Adapters.
- Possible size reduction of the Riser top at the point of contact with the workpiece, allowing for greater machining freedom. This is achieved through the combination of various Riser Adapters.

ASSOCIATED PRODUCTS

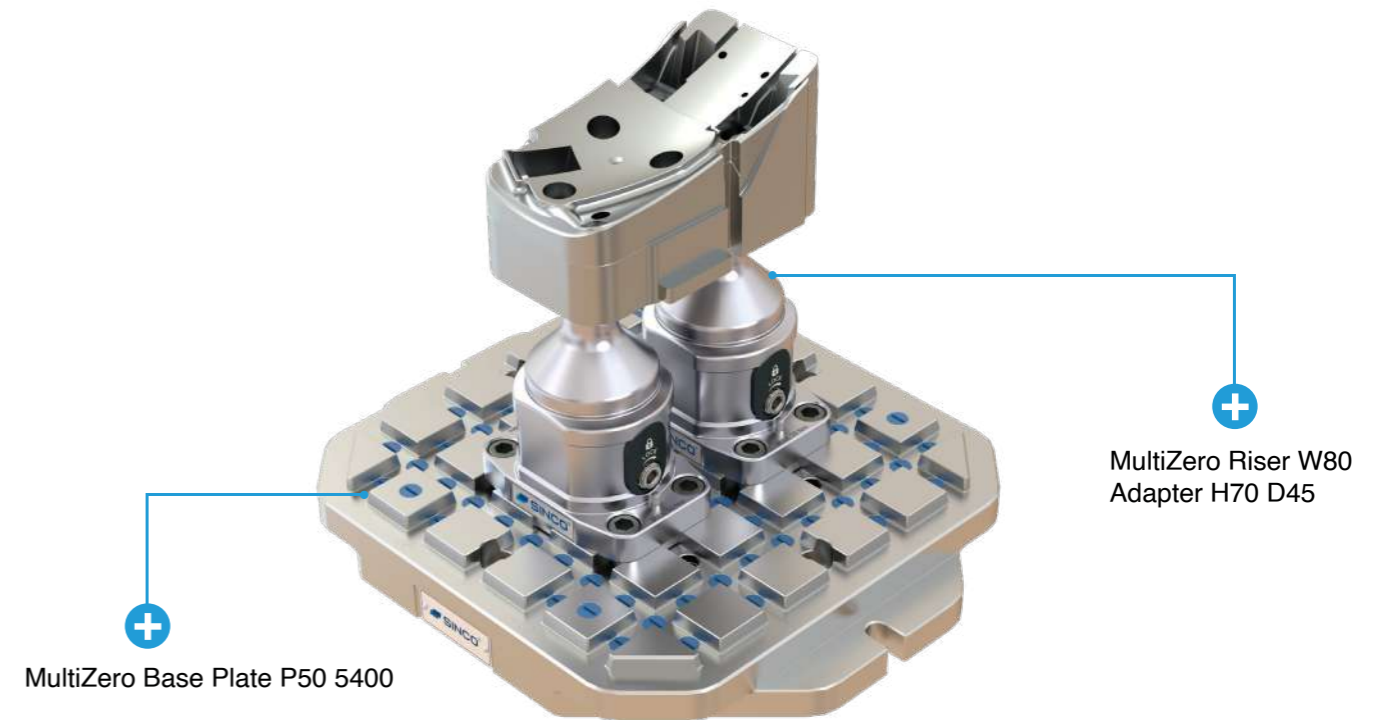
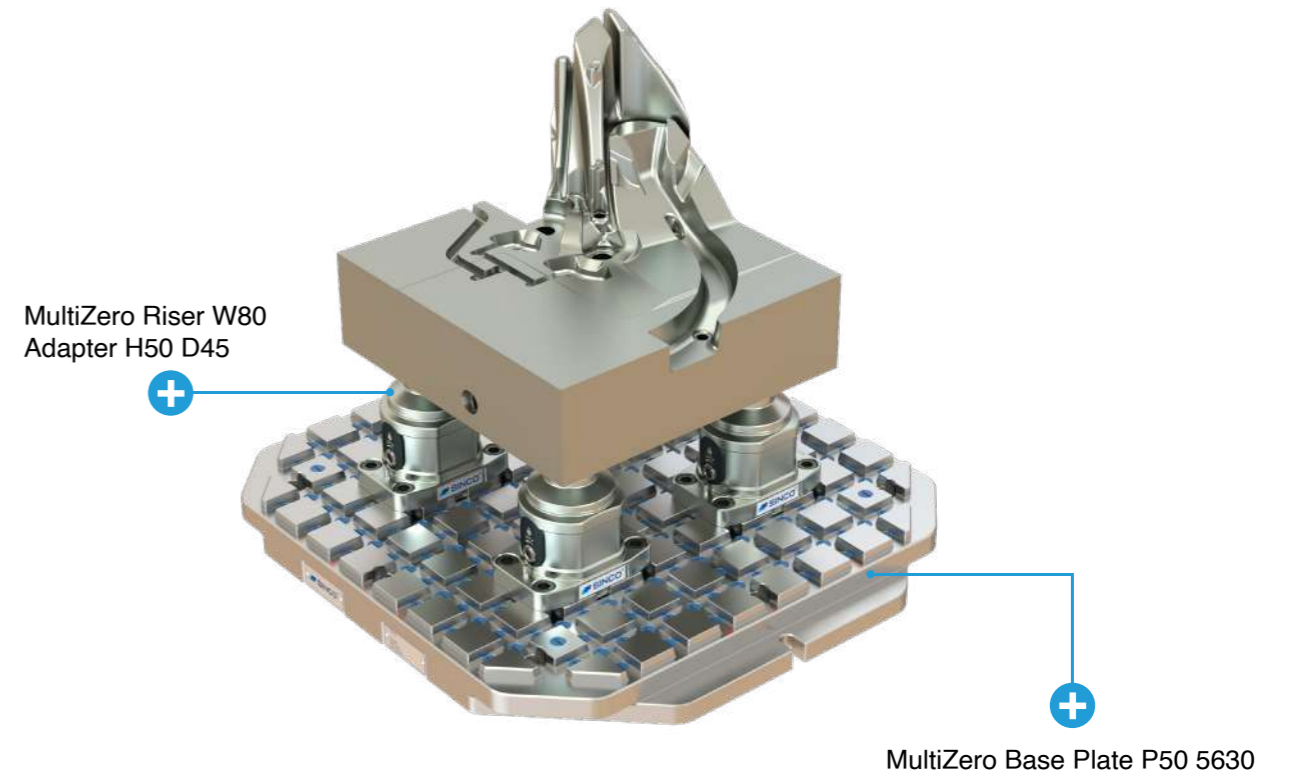


Associated products: MultiZero Riser W80 positioning nipples and clamping height adjustment adapters.

SET-UP EXAMPLES



SET-UP EXAMPLES



MultiZero Quick-Switch Pallets

MultiZero Pallets facilitate swift workpiece exchange and transfer while maintaining the same zero position at all times.

PRODUCT DESCRIPTION

- MultiZero Pallets enable workpiece clamping outside the machine and the transfer of the workpiece to different machines or operations without losing the initial zero point.
- Each MultiZero Pallet is precisely positioned onto the MultiZero Base Plate by the four positioning rails under the pallet.
- The pallet is clamped by four M12 screws, resulting in up to 260 kN of clamping power per pallet.

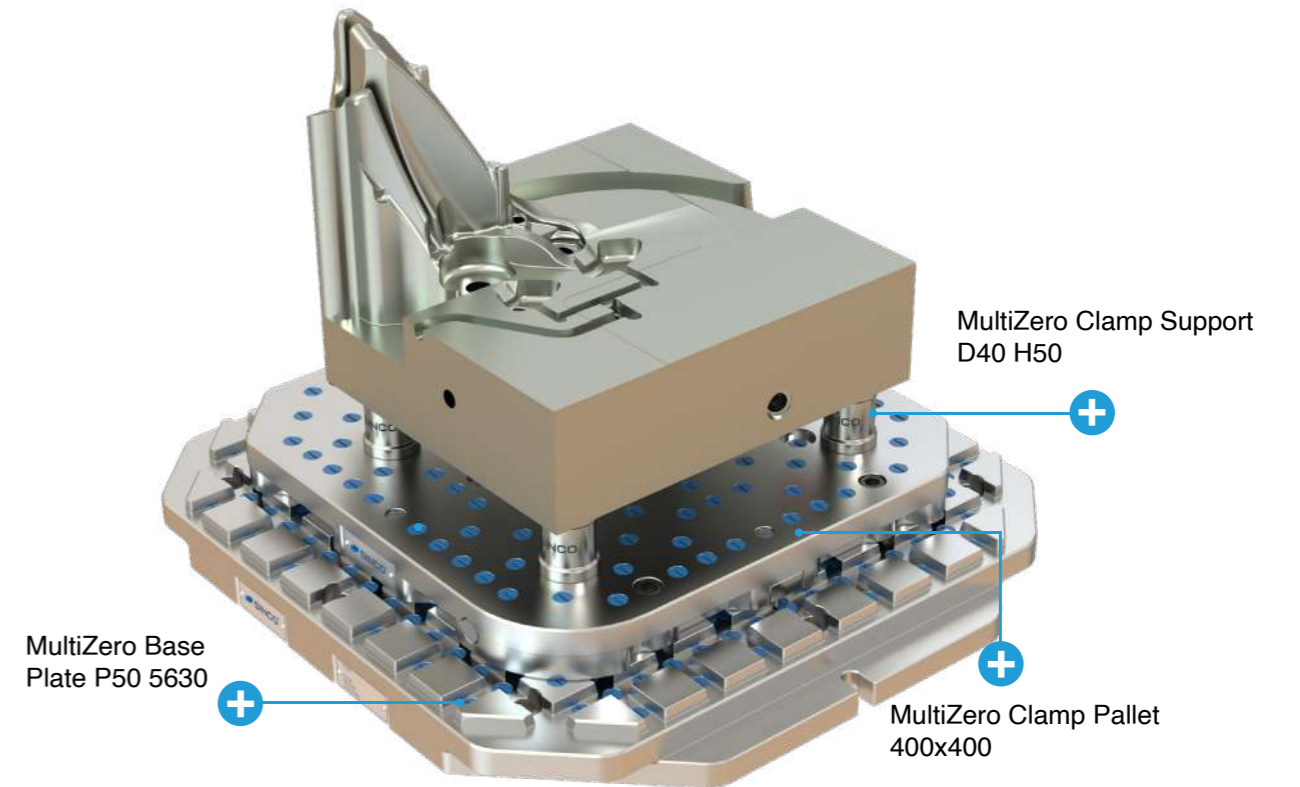


FIVE TYPES OF CLAMPING PALLETS



Different types of MultiZero Pallets: MultiZero Pallet, MultiZero Clamp Pallet, MultiZero Pneumatic Pallet, MultiZero Blank Pallet and MultiZero EDM Pallet.

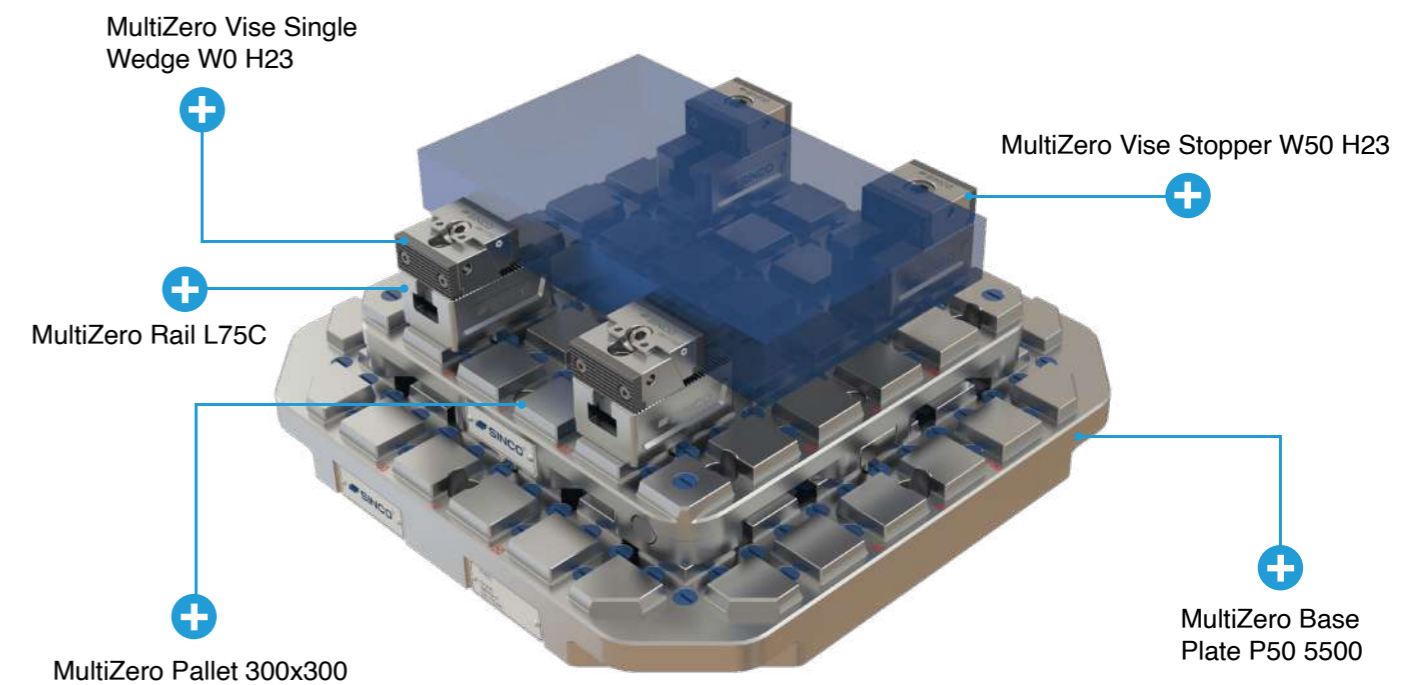
SET-UP EXAMPLES



SET-UP EXAMPLES



An application example involves preparing the workpiece outside of the machine and later transferring it to the machine to minimize the downtime.



MultiZero Clamps and Supporting Elements

Supporting and securing complex-shaped workpieces or those undergoing heavy machining processes



PRODUCT DESCRIPTION

- MultiZero Clamps and Supporting Elements assist in supporting workpieces, especially with challenging shapes or during heavy machining.
- All supporting elements have three reference heights for positioning the workpiece - 25mm, 35mm, 50mm.
- 7 different types and shapes of MultiZero Clamps.
- By combining supporting elements with other MultiZero clamping equipment, such as vises, it enables the best possible flexibility.

Associated products: MultiZero Clamps, Cylindrical Supports, Rectangular Supports, Holders, Stopper Rails, Centering pins, Single Stoppers.

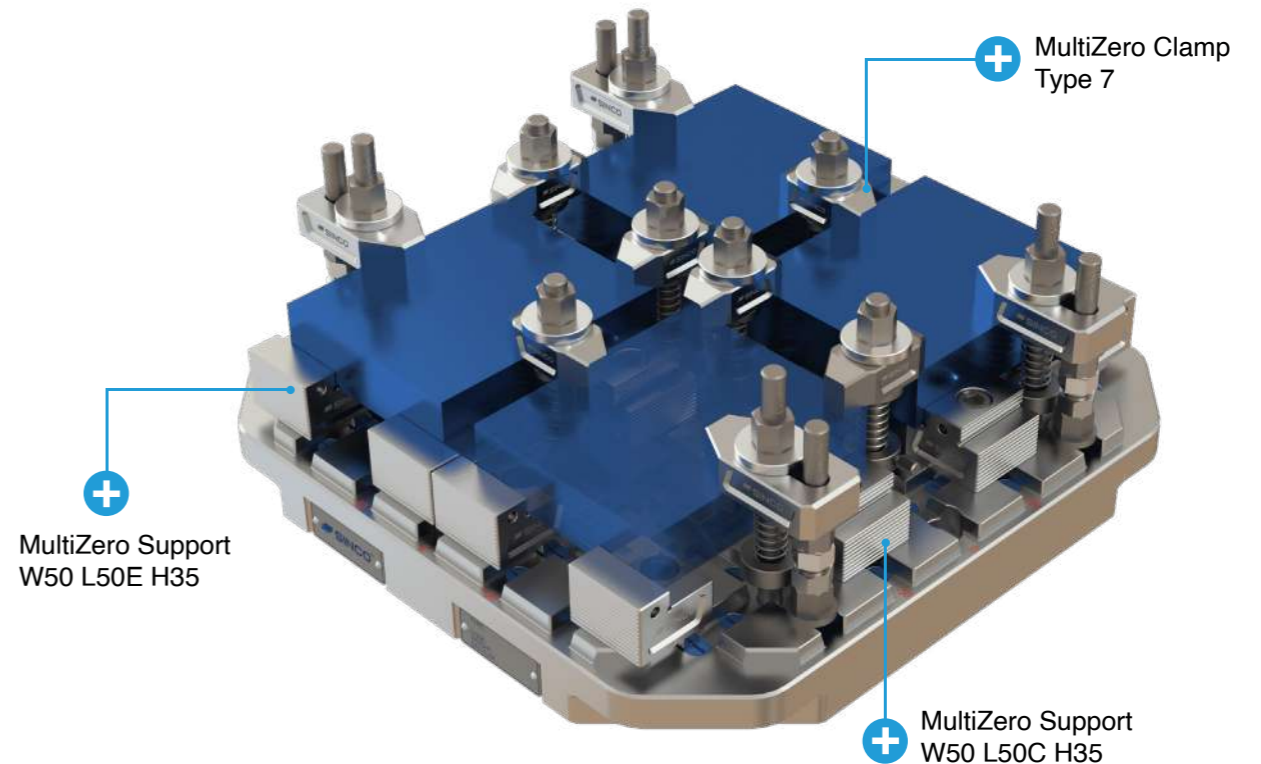
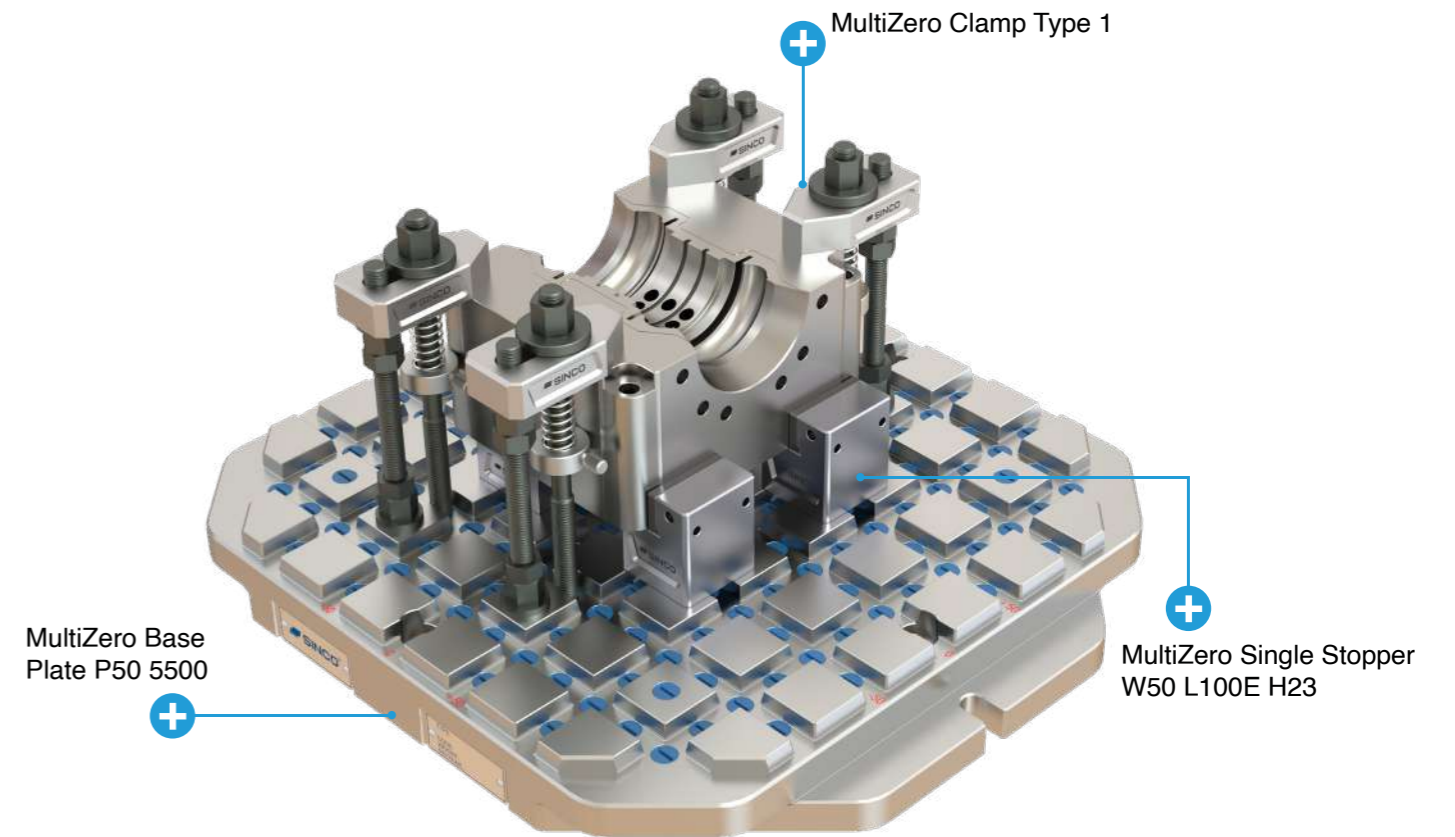
SET-UP EXAMPLES



Application example of clamping with MultiZero Supporting Elements such as holders, supports, stoppers, etc. Clamping is done with MultiZero Clamps.



SET-UP EXAMPLES



➤ Various industry applications

Empowers operators during planning, ensures precise parameters, heightens standardization, improves quality, and streamlines manufacturing processes.

➤ MULTIZERO CLAMPING SYSTEM ACROSS INDUSTRIES

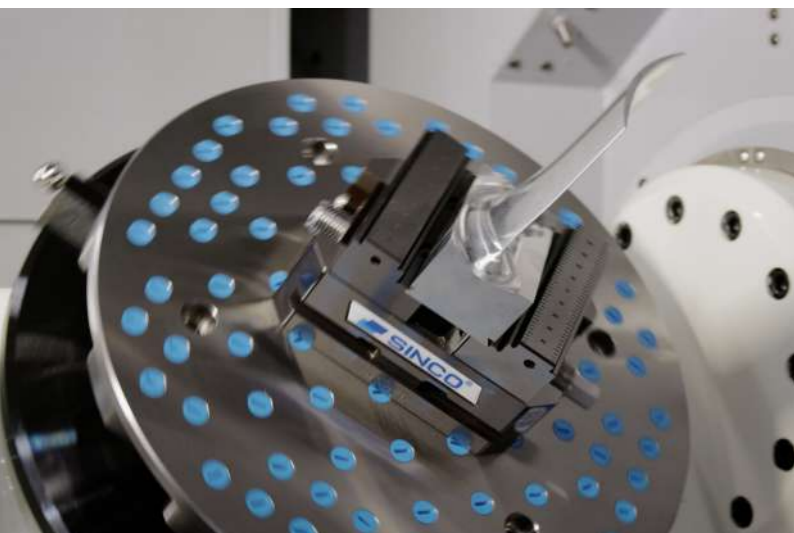
The MultiZero Clamping System is highly flexible and adaptable, making it suitable for a wide range of industry needs. Regardless of the size or shape of the workpiece, this system can accommodate it effectively. This versatility makes it particularly beneficial in industries requiring frequent adjustments to clamping equipment for example in individual part production and smaller serial production. Offering customers access to a 3D data library for clamping operations ensures quick and easy adjustments tailored to any workpiece during the change of machining projects. These adjustments consistently adhere to standard parameters and rules.

MultiZero Clamping System empowers operators during planning, ensures precise parameters, heightens standardization, improves quality, and streamlines manufacturing processes in various applications, such as:



➤ MOLD & DIE

Due to the large diversity of parts in the Mold & Die sector, there's a crucial demand for flexible workpiece clamping. The MultiZero Clamping System offers optimal flexibility, allowing toolmakers to consistently clamp workpieces in the same zero-point position throughout various machining stages. This includes rough milling, post-heat treatment milling, sink EDM, wire EDM, finishing, and measuring. By ensuring standardized positioning, this system significantly enhances machining productivity, reduces errors, and achieves greater precision.



➤ AEROSPACE

Given the complexity and varied geometries of aerospace components, there is a critical need for adaptable and flexible clamping solutions that can accommodate the diverse range of parts encountered in aerospace manufacturing. The MultiZero system allows for precise clamping of workpieces in consistent zero-point positions across multiple machining stages, including rough milling, finishing, and precision measuring. By ensuring standardized positioning, the system reduces errors and enhances overall machining accuracy, which is paramount in aerospace applications where tight tolerances and exacting specifications are essential. Additionally, the MultiZero Clamping System can improve productivity by streamlining the setup process and minimizing downtime associated with repositioning workpieces. Overall, for aerospace companies seeking to optimize their manufacturing processes and achieve superior precision, the MultiZero Clamping System offers a highly effective solution.

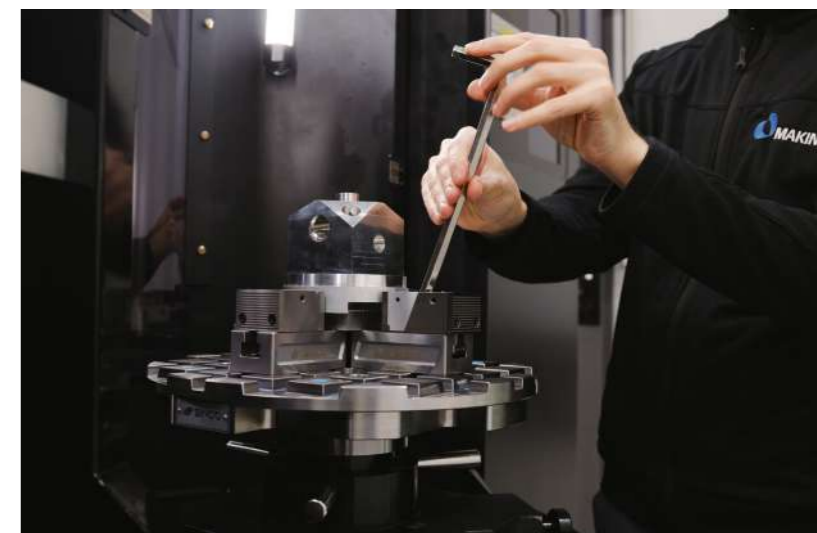
➤ GENERAL MACHINING

MultiZero Clamping System offers a versatile solution for general machining operations. Its precision and adaptability streamline setup processes and reduce change-over times. By enabling consistent clamping in the same zero-point position across various machining stages, it ensures uniformity and accuracy, ultimately enhancing the quality of finished parts. Additionally, the system allows for the accurate and rapid clamping of multiple workpieces simultaneously, further optimizing productivity. Overall, the MultiZero Clamping System enhances efficiency, precision, and throughput in machining operations across different industries.

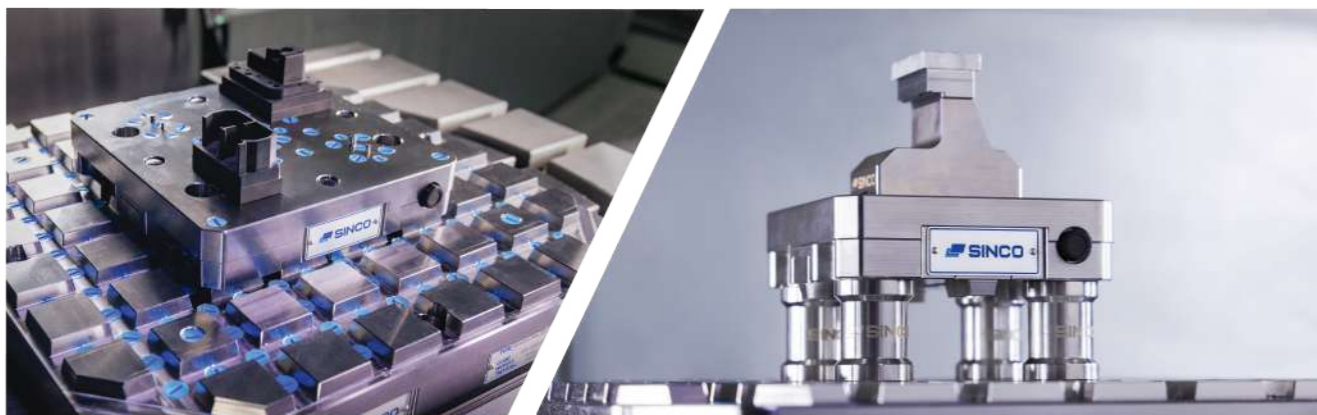
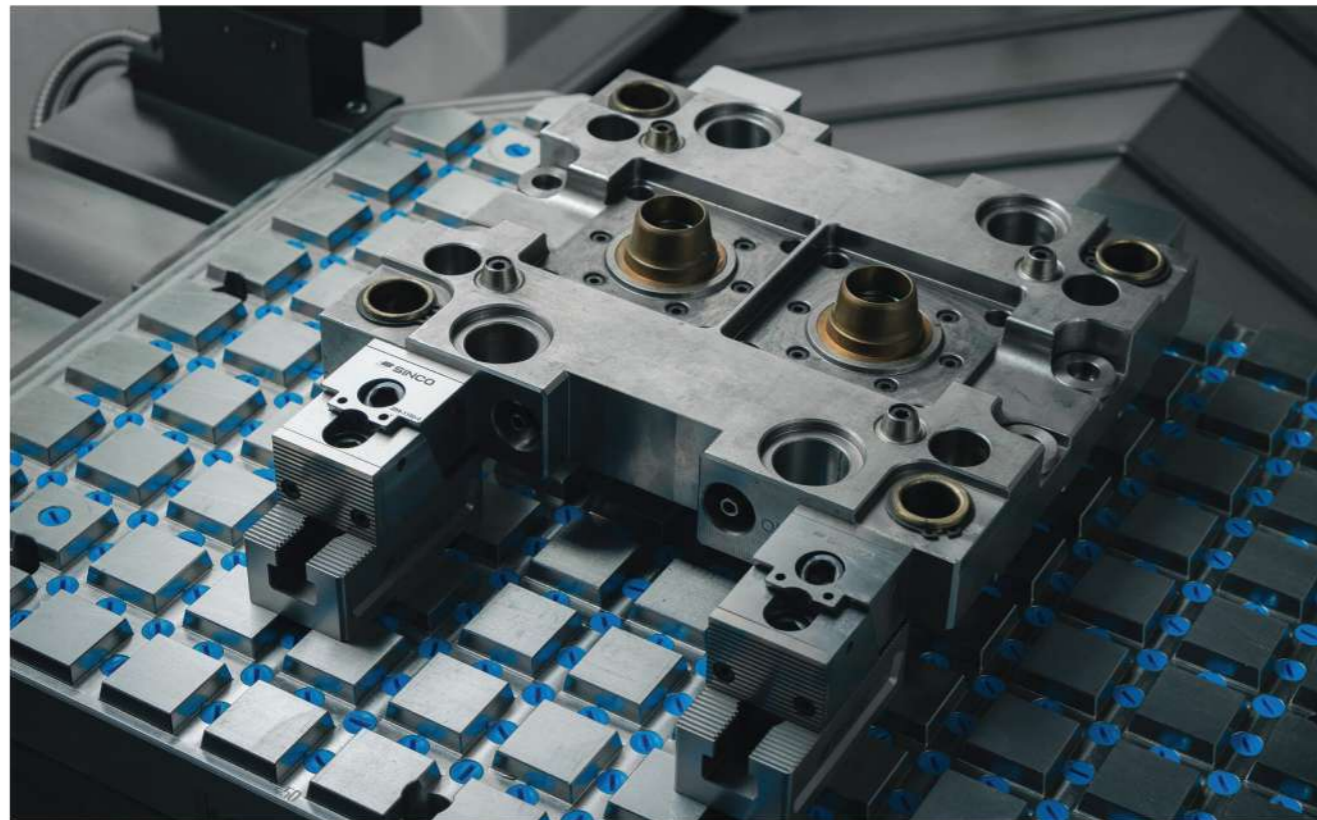


➤ WORKHOLDING FOR AUTOMATION

MultiZero flexible workholding seamlessly integrates into automated cells and pallet systems designed for CNC milling machines. The extensive range of MultiZero workholding equipment and clamping pallets provides maximum flexibility for securing workpieces. MultiZero workholding can be utilized independently or in conjunction with MultiZero Pallets, offering five distinct clamping surfaces. These pallets are lightweight, facilitating hassle-free robot manipulation.



Application Examples





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