SILVER CLAMP

→ Production, assembly and machining



Overview of the modular SILVER CLAMP systems

The new MATRIX clamping systems have decisive advantages for professional users.

Anyone looking to achieve fast results in prototype construction or in preproduction runs, needs a fast, flexible and easy-to-operate clamping system. This is why professionals choose the innovative and patented MATRIX SILVER CLAMP system.

The perfect form closure can be guaranteed maximum hold with minimum force, which can effortlessly withstand the machining forces.

Ideal especially for free-form parts or parts with sensitive surfaces. And everything is mounted with one single tool.

With the SILVER CLAMP systems you have exactly the clamping system that you need. Complexly shaped workpieces can be clamped quickly, easily and reliably. With extensive, modular accessories, MATRIX offers undreamt-of possibilities.

The SILVER CLAMP systems delivers excellent results in the light and medium machining process, as well as in prototype and small series construction.

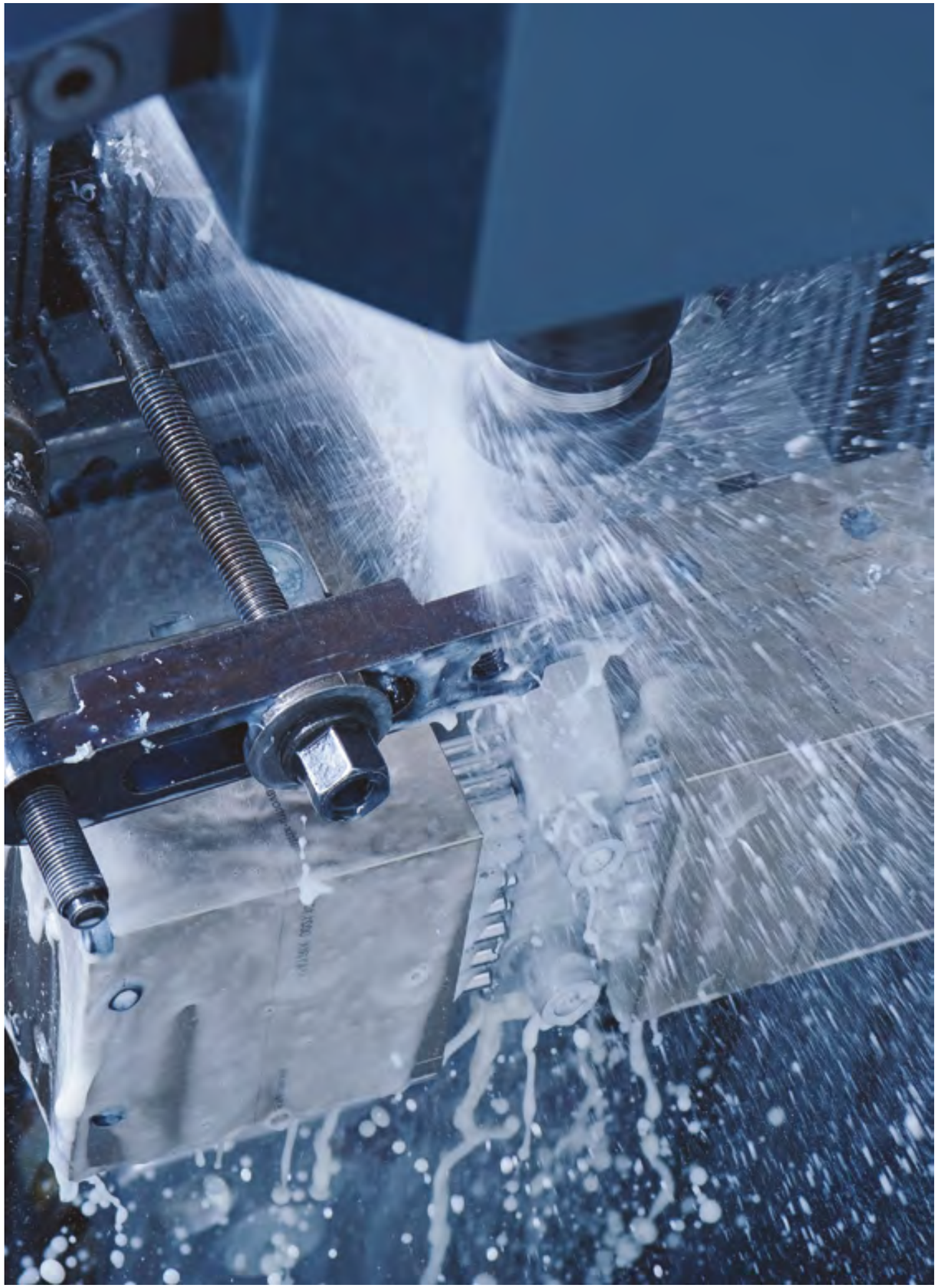
MATRIX SILVER CLAMP
In perfect shape

The use of the MATRIX SILVER CLAMP at Daimler shows how form closure clamping can be realized in seconds when manufacturing delicate vehicle parts. Where previously an elaborate three-point support was used, clamping can today be performed instantly without sustaining damage.

At Daimler AG's plant in Untertürkheim, vehicle parts are manufactured in the rapid prototyping department to be used in future series production. Materials ranging from aluminum to high-grade stainless steel are processed here. The parts themselves and their susceptibility during workpiece clamping are complex in equal measure.
Matthias Miller and Bastian Bosl are both employed by Daimler in the rapid prototyping department. They were previously always faced with the problem of how to clamp, for example, an unprocessed mirror support or a raw intake manifold onto the 5-axis machining center using form closure, in order to mill the first surface. Today, they simply lock the MATRIX SILVER CLAMP top jaw into the existing vise. Through a low amount of spring pressure on the moving pins, the complex-shape workpiece generates an absolutely true-to-shape contour or adaption. "In just seconds, I can obtain a form closure based on the workpiece's given, complex actual shape;" Miller says in summary.

Measured Workpiece Clamping: The mold is thereby fixed mechanically – and the mold jaw is complete. The workpiece can now be clamped using the vise as appropriate.

The underlying principle of the flexible MATRIX pin system is the idea of shaping its support with the help of the workpiece. Through a low amount of spring pressure on the moving pins, the workpiece generates an absolutely true-to-shape contour. This mold is mechanically fixed. The part-specific and sturdy mold support is complete. Tasks that previously required elaborate milled or shaped supports can now be completed in seconds.



SILVER CLAMP im Einsatz bei der Daimler AG:
Beim Fräsen wird durch den stabilen Formschluss höhere Fertigungsqualität erreicht, bei gleichzeitig kürzeren Rüstzeiten.

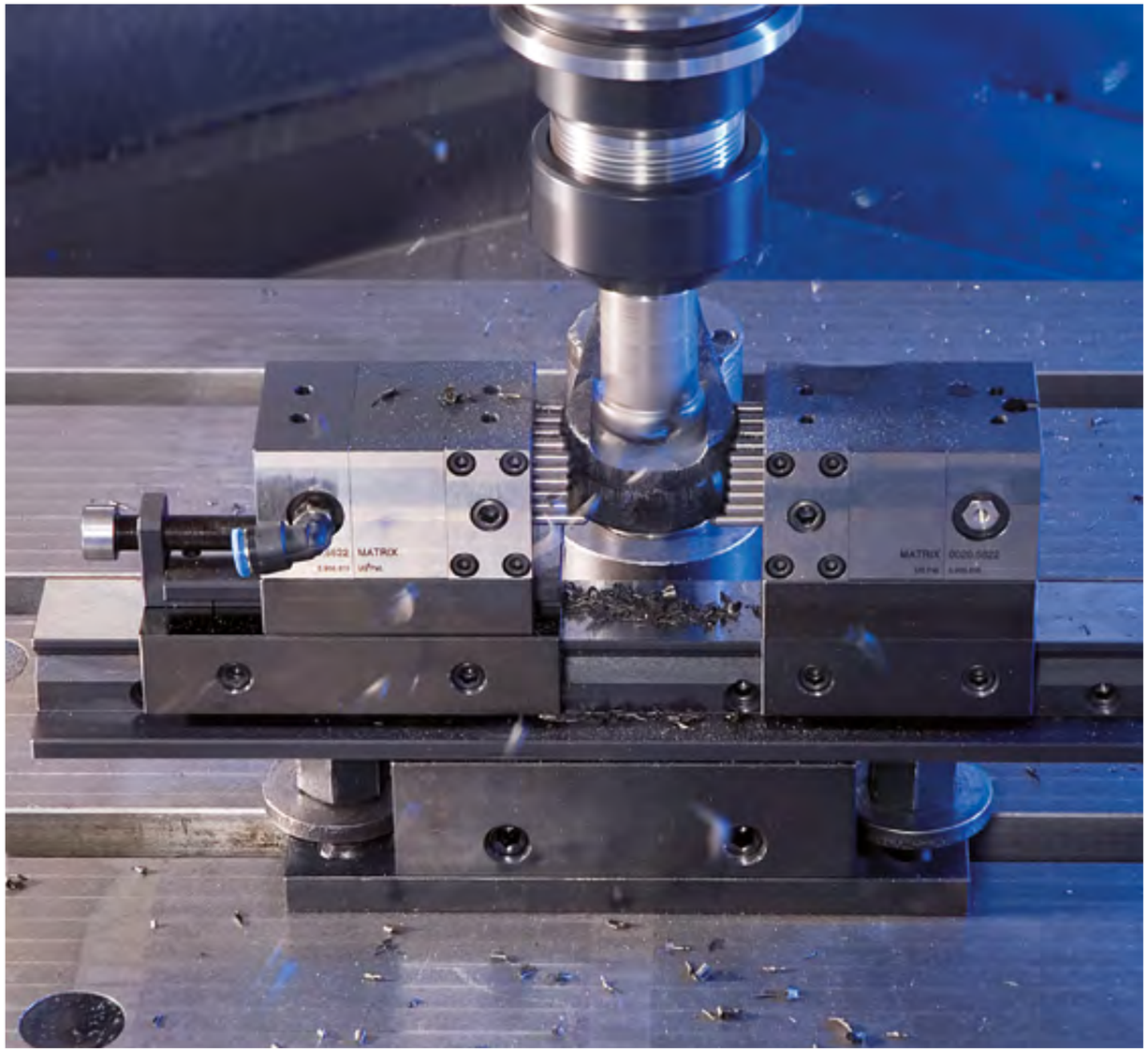
Realized in just seconds – it enables part-specific and stable mold supports …

While regular supports can only be used for a single workpiece, the Matrix pin system adjusts to fit every workpiece. Everything can be fixed with one single tool.

"The mold clamping system can be used to clamp complex workpieces during machining or as part of defined supply at automated manufacturing and assembly plants," Hubert Meintrup, MATRIX Managing Director, says in outlining the product's range of application. „This way, the manufacturer can save an enormous amount of time during clamping and in the supply of complex workpieces in assembly." Meintrup says that Matrix systems are very robust, durable, and self-cleaning too. The integrated blocking air system simplifies any required maintenance and ensures reliable operation. Nowadays, complex requirements are placed on jig systems for small and medium-sized batch runs. Technically, a high degree of precision and rigidity is required. Commercially, minimizing setup times is desirable, MATRIX's Managing Director says." In Daimler's prototype department, the X-Clamp is particularly effective due to its high flexibility, fast convertibility and simple operation. Constructional changes are namely a usual occurrence there and often lead to quickly changing clamping requirements.

"The SILVER CLAMP system is ideally-suited to our demanding parts," Miller and Bosl say in agreement. The various defined clamping points prevent damage from occurring to the surface and shape of the workpieces. Daimler had previously only been able to achieve this using elaborate milled or sintered mold jaws. The classic three-point support is now only rarely used, since the SILVER CLAMP systems do not generate vibrations during milling thanks to its stable form closure and thus increases quality. „By embedding the workpiece, we can avoid using additional end stops", Miller says in closing.

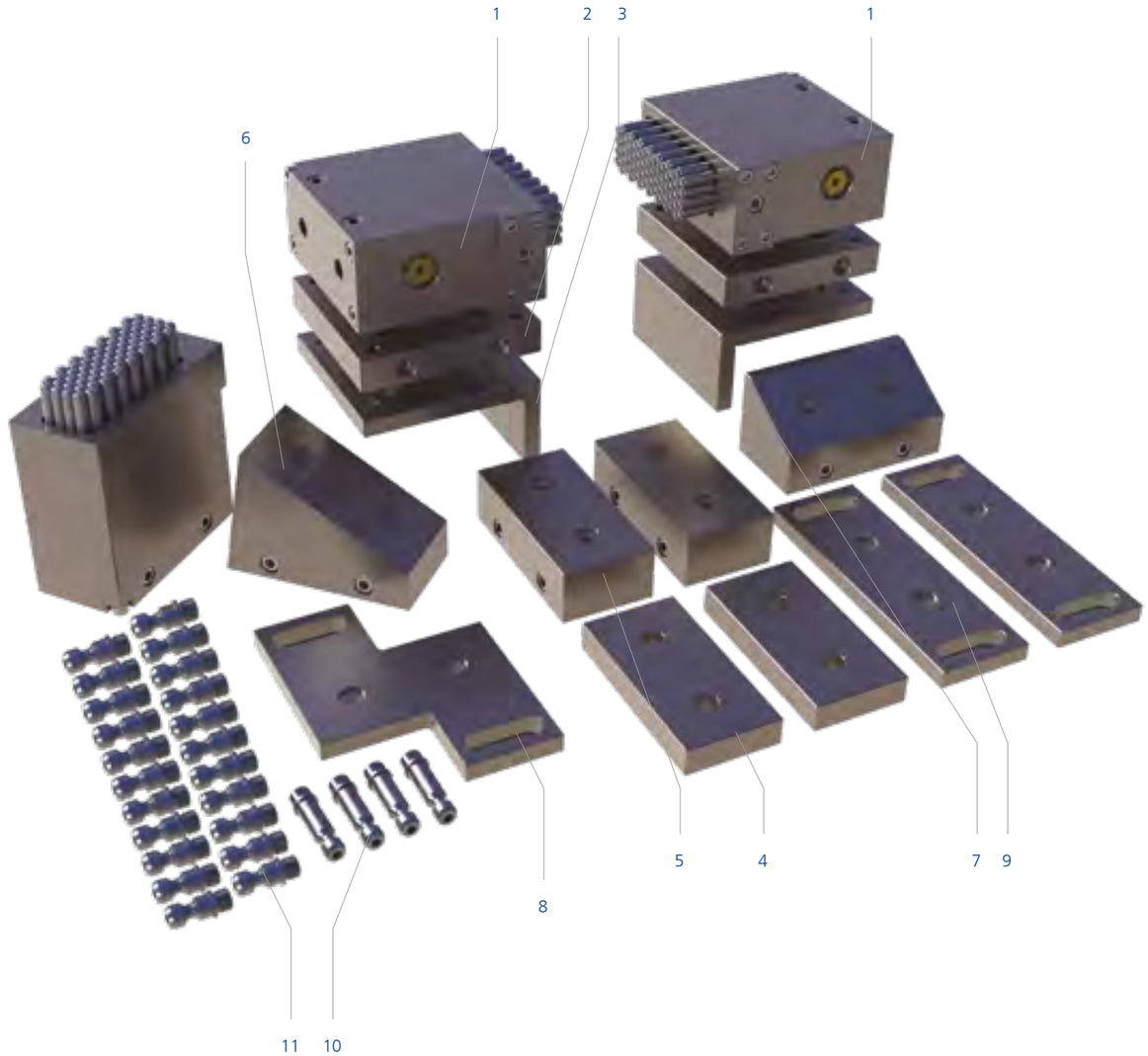
Source: PROBLEM + LÖSUNG Fertigung/Fahrzeugteile, MATRIX Spannsysteme bei der DAIMLER AG



The complex workpiece must be clamped stably for processing. Clamping was previously performed using an elaborate three-point support.

X-CLAMP 100 BASE KIT SMALL

ORDER NUMBER: 0020.1070



X-CLAMP 100 BASE KIT SMALL

The X-CLAMP 100 is the ideal solution for mold clamping. The option of using the modules as mold jaw and as pin elements is revolutionary. Your vise can be easily transformed into a support system for complexly shaped workpieces. The result: You always have the correct jig for every workpiece.



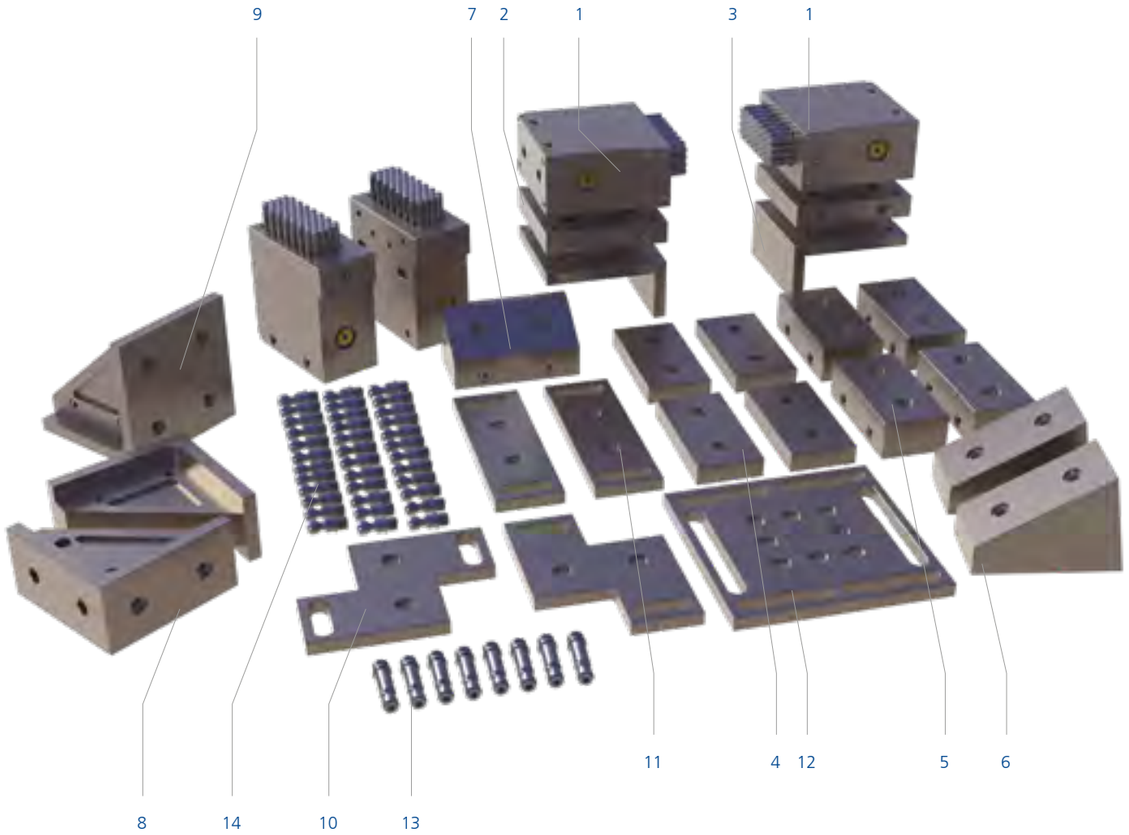
The modular system consists of the following individual components:

Fig.	Article no.	Quantity	Description	Dimension	Pin field	Number of pins	Pin diameter	Pin stroke
1	0020.6720	3	X-CLAMP 100 Module	50 x 105 x 100 mm	30 x 80 mm	67 Stück	6 mm	21 mm
	Further information about the module:			Weight: 3.1 kg, Material housing/pins: Stainless steel, Installation location: any, Cleaning: Air and coolant connections, Data sheet and CAD data on request				
2	0020.1026	2	Adapter plate for X-CLAMP 100	100 x 100 x 18,5 mm	–	–	–	–
3	0020.1039	2	Adapter angle	100 x 100 x 50 mm (Fastening bores optional)	–	–	–	–
4	0020.1015	2	Adapter for X-CLAMP 100	50 x 100 x 15 mm	–	–	–	–
5	0020.1016	2	Adapter for X-CLAMP 100	50 x 10 x 30 mm	–	–	–	–
6	0020.1030	1	Angle for X-CLAMP 100	30°, 50 x 100 mm	–	–	–	–
7	0020.1031	1	Angle for X-CLAMP 100	30°, 100 x 50 mm	–	–	–	–
8	0020.0120	1	S-Base plate for X-CLAMP 100	130 x 100 x 10 mm	–	–	–	–
9	0020.0100	2	Base plate for X-CLAMP 100	50 x 150 x 10 mm	–	–	–	–
10	0020.0042	4	Connection pin for X-CLAMP	M10 x 42 mm	–	–	–	–
11	0020.0027	22	Connection pin for X-CLAMP	M10 x 27 mm	–	–	–	–
12	–	1	Torque wrench	MICRO 6-30 Nm	–	–	–	–
13	0900.9000	1	MATRIX case	–	–	–	–	–



X-CLAMP 100 BASE KIT LARGE

ORDER NUMBER: 0020.1071



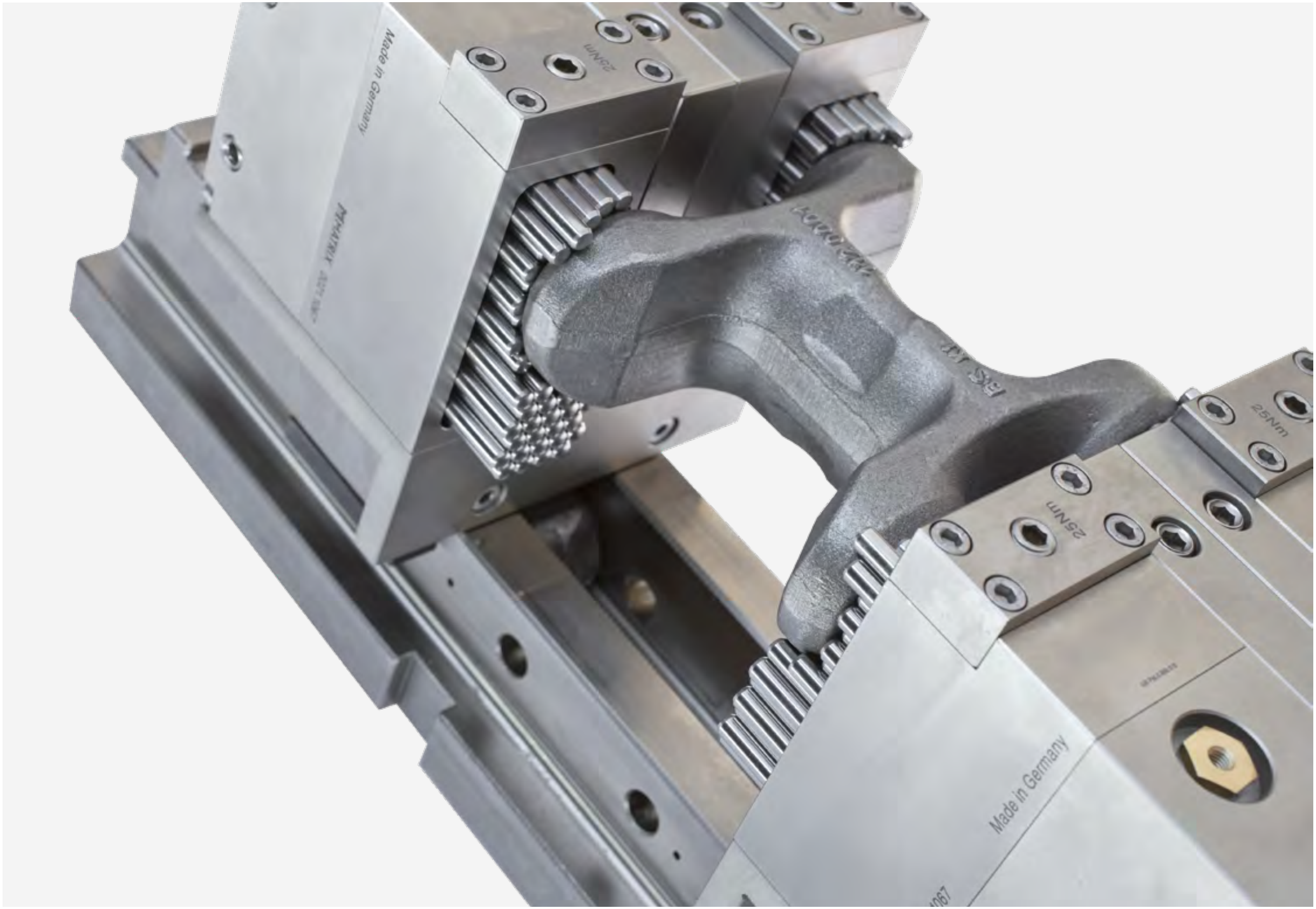
The modular system consists of the following individual components:

Fig.	Article no.	Quantity	Description	Dimension	Pin field	Number of pins	Pin diameter	Pin stroke
1	0020.6720	4	X-CLAMP 100 Module	50 x 105 x 100 mm	30 x 80 mm	67 Pieces	6 mm	21 mm
	Further information about the module:			Weight: 3.1 kg, Material housing/pins: Stainless steel, Installation location: any, Cleaning: Air and coolant connections, Data sheet and CAD data on request				
2	0020.1026	2	Adapter plate for X-CLAMP 100	100 x 100 x 18,5 mm	–	–	–	–
3	0020.1039	2	Adapter angle	100 x 100 x 50 mm (Fastening bores optional)	–	–	–	–
4	0020.1015	4	Adapter for X-CLAMP 100	50 x 100 x 15 mm	–	–	–	–
5	0020.1016	4	Adapter for X-CLAMP 100	50 x 10 x 30 mm	–	–	–	–
6	0020.1030	2	Angle for X-CLAMP 100	30°, 50 x 100 mm	–	–	–	–
7	0020.1031	1	Angle for X-CLAMP 100	30°, 100 x 50 mm	–	–	–	–
8	0020.1035	2	Angle with sup-porting strut for X-CLAMP 100	50 x 100 x 100 mm	–	–	–	–
9	0020.1036	1	Angle with two sup-porting strut for X-CLAMP 100	100 x 100 x 100 mm	–	–	–	–
10	0020.0120	2	S-Base plate for X-CLAMP 100	130 x 100 x 10 mm	–	–	–	–
11	0020.0100	2	Base plate for X-CLAMP 100	50 x 150 x 10 mm	–	–	–	–
12	0020.0150	1	Double base plate für X-CLAMP 100	150 x 150 x 10 mm				
13	0020.0042	8	Connection pin for X-CLAMP	M10 x 42 mm	–	–	–	–
14	0020.0027	36	Connection pin for X-CLAMP	M10 x 27 mm	–	–	–	–
15	–	1	Torque wrench	MICRO 6-30 Nm	–	–	–	–
–	–	1	Hex wrenches (set)	–	–	–	–	–
16	0900.9000	2	MATRIX case	–	–	–	–	–

X-CLAMP 100 BASE KIT LARGE

The X-CLAMP 100 is the logical and comprehensive extension for a multitude of applications. With the SILVER CLAMP system MATRIX offers fast solutions for mold clamping. The option of using the modules as mold jaw and as support elements is revolutionary. Your vise can be easily transformed into a support system for complexly shaped workpieces. The result: You always have the correct jig for every workpiece.

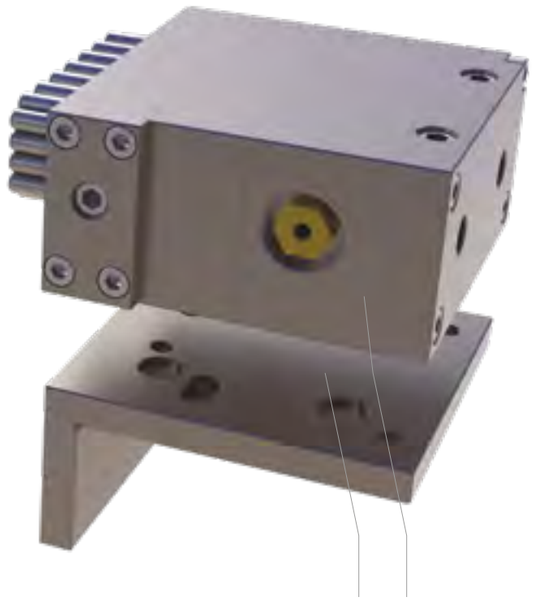



Made in Germany
25Nm
Made in Germany

ACCESSORIES: X-CLAMP 100 JAW SET

ORDER NUMBER: 0020.1068



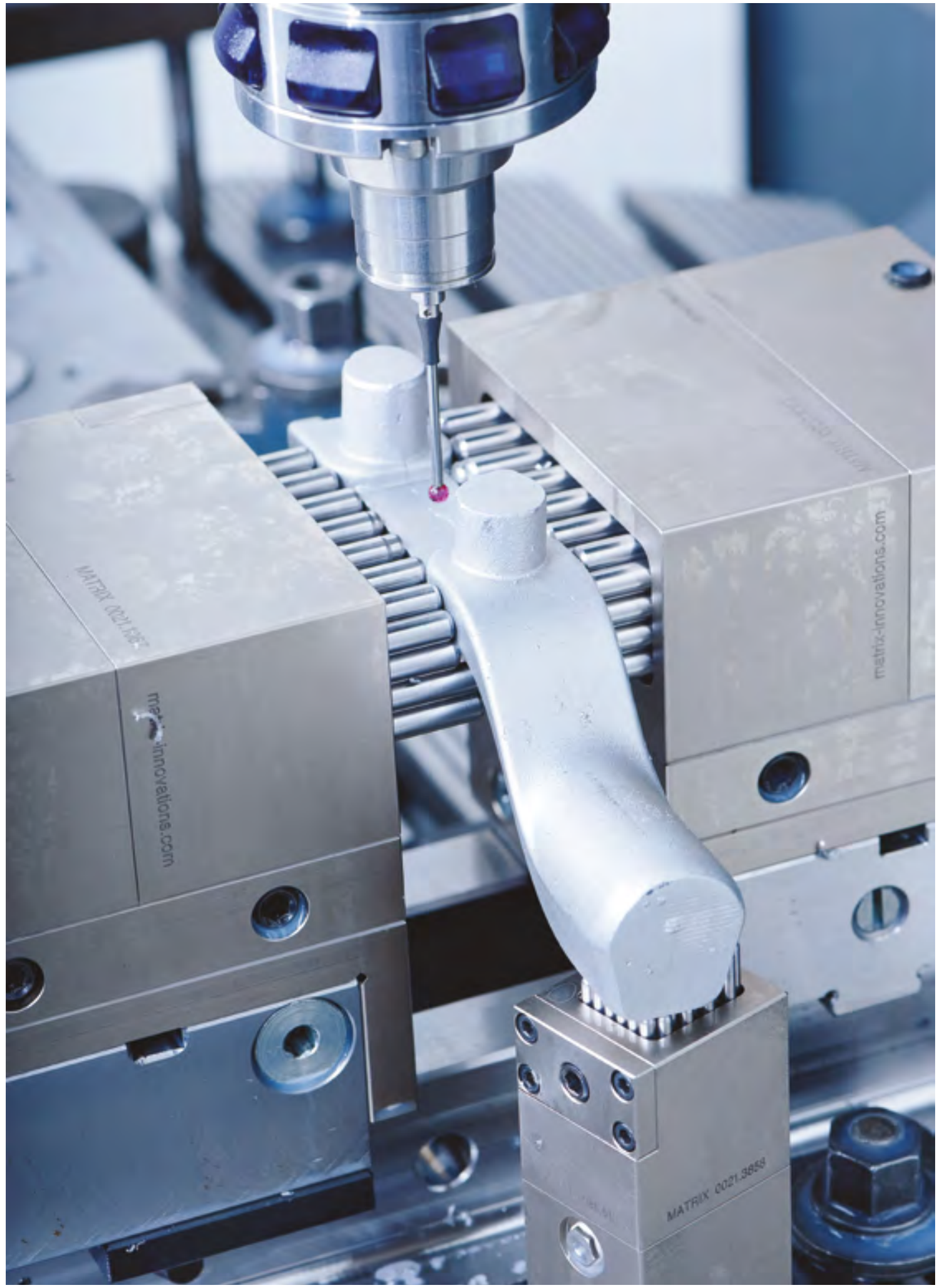


X-CLAMP 100 JAW SET

The X-CLAMP 100 JAW SET is the ideal addition for machine vises with 100 mm jaw widths of all manufacturers. Providing optimum hold for difficult workpieces.

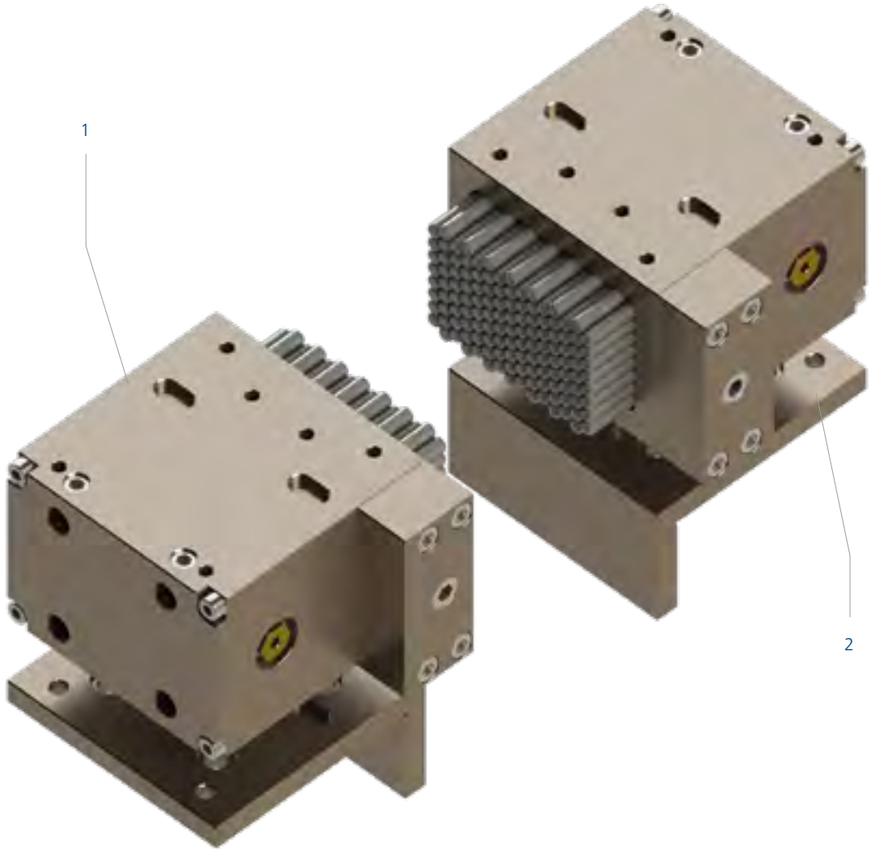
The modular system consists of the following individual components:

Fig.	Article no.	Quantity	Description	Dimension	Pin field	Number of pins	Pin diameter	Pin stroke
1	0020.6720	2	X-CLAMP 100 Module	50 x 105 x 100 mm	30 x 80 mm	67 Pieces	6 mm	21 mm
	Further information about the module:			Weight: 3.1 kg, Material housing/pins: Stainless steel, Installation location: any, Cleaning: Air and coolant connections, Data sheet and CAD data on request				
2	0020.1039	2	Adapter angle	100 x 100 x 50 mm (Fastening bores optional)	–	–	–	–
–	–	1	Torque wrench	MICRO 6-30 Nm	–	–	–	–
–	0900.9000	1	MATRIX case	–	–	–	–	–



ACCESSORIES: X-CLAMP 127 JAW SET

ORDER NUMBER: 0020.1128



X-CLAMP 127 JAW SET

The X-Clamp 127 comes with an extra-large pin-field that is twice the size of the X-Clamp 100. It can be used as mounting jaws for machine vises with jaw width 100mm or be integrated into the X-Clamp 100 modular building kits.

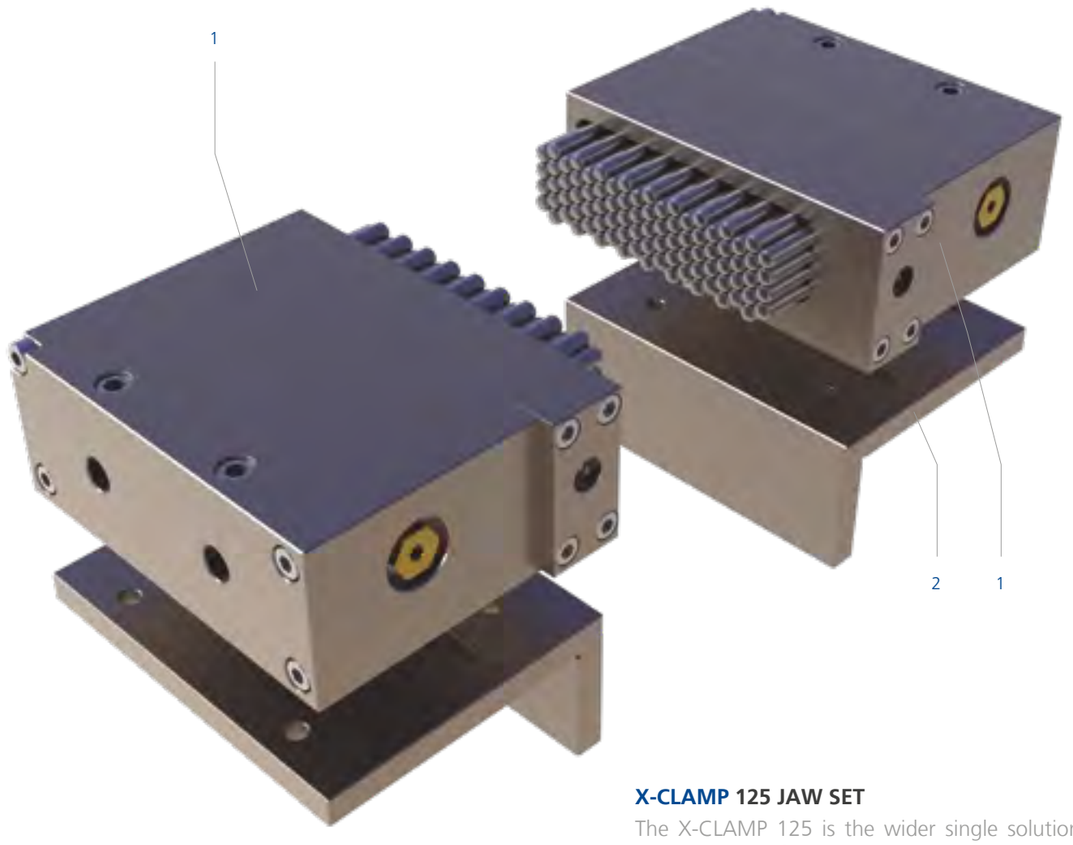
The modular system consists of the following individual components:

Fig.	Article no.	Quantity	Description	Dimension	Pin field	Number of pins	Pin diameter	Pin stroke
1	0020.1127	2	X-CLAMP 127 Module	50 x 255 x 75 mm	60 x 80 mm	127 Pieces	6 mm	21 mm
	Further information about the module:			Weight: 4.9 kg, Material housing/pins: Stainless steel, Installation location: any, Cleaning: Air and coolant connections, Data sheet and CAD data on request				
2	0020.1039	2	Adapter angle	100 x 100 x 50 mm (Fastening bores optional)	–	–	–	–
–	–	1	Torque wrench	20-100 Nm	–	–	–	–
–	0900.9000	1	MATRIX case	–	–	–	–	–



ACCESSORIES: X-CLAMP 125 JAW SET

ORDER NUMBER: 0020.1286



X-CLAMP 125 JAW SET

The X-CLAMP 125 is the wider single solution as mounting jaws for machine vises with jaw width of 125 mm.

The modular system consists of the following individual components:

Fig.	Article no.	Quantity	Description	Dimension	Pin field	Number of pins	Pin diameter	Pin stroke
1	0020.8520	2	X-CLAMP 125 Module	50 x 130 x 100 mm	30 x 100 mm	85 Pieces	6 mm	21 mm
	Further information about the module:			Weight: 3.9 kg, Material housing/pins: Stainless steel, Installation location: any, Cleaning: Air and coolant connections, Data sheet and CAD data on request.				
2	0020.1239	2	Adapter angle	100 x 125 x 30 mm (Fastening bores optional)	–	–	–	–
–	–	1	Torque wrench	MICRO 6-30 Nm	–	–	–	–
–	0900.9000	1	MATRIX case	–	–	–	–	–

X-CLAMP - OPTIONAL

ADD-ONS (TO BE ORDERED SEPERATELY)

Fig.	Article no.	Quantity	Description	Dimension
4	0020.1226	1	Adapter plate for X-CLAMP 125	125 x 100 x 18,5 mm

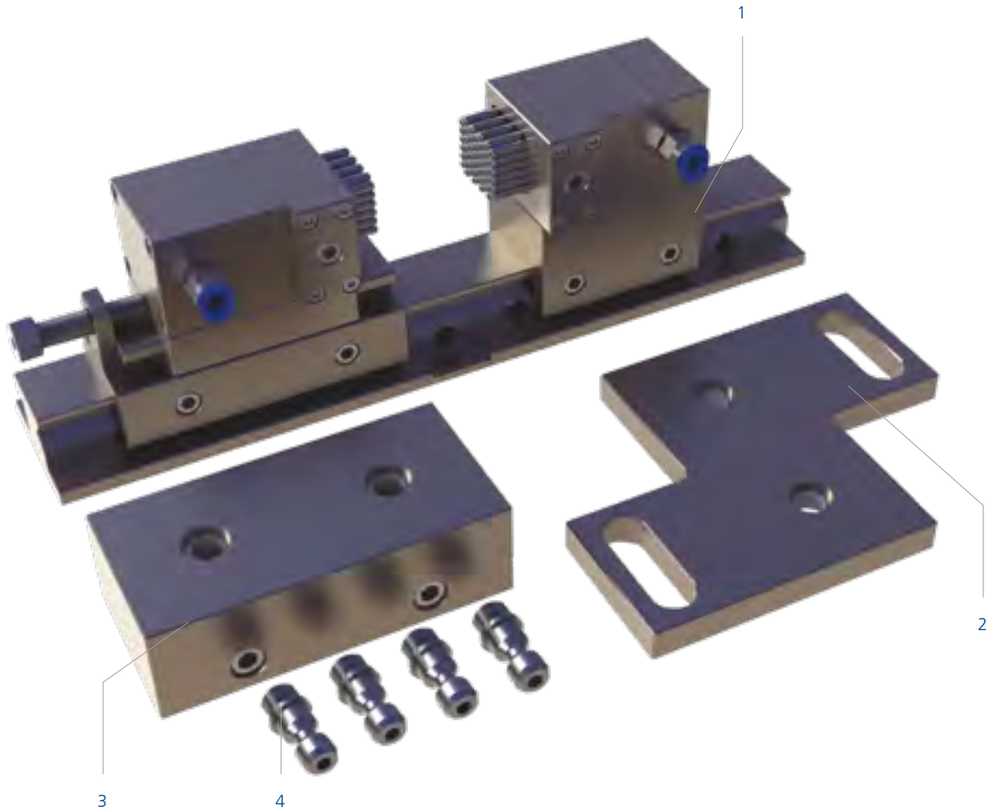


4



X-CLAMP 40 MINIATURE MACHINE VISE BASE KIT SMALL

ORDER NUMBER: 0020.3859



X-CLAMP 40 BASE KIT SMALL

The X-CLAMP 40 miniature machine vise is unbeatable as mold clamping system for small workpieces with complicated shapes.

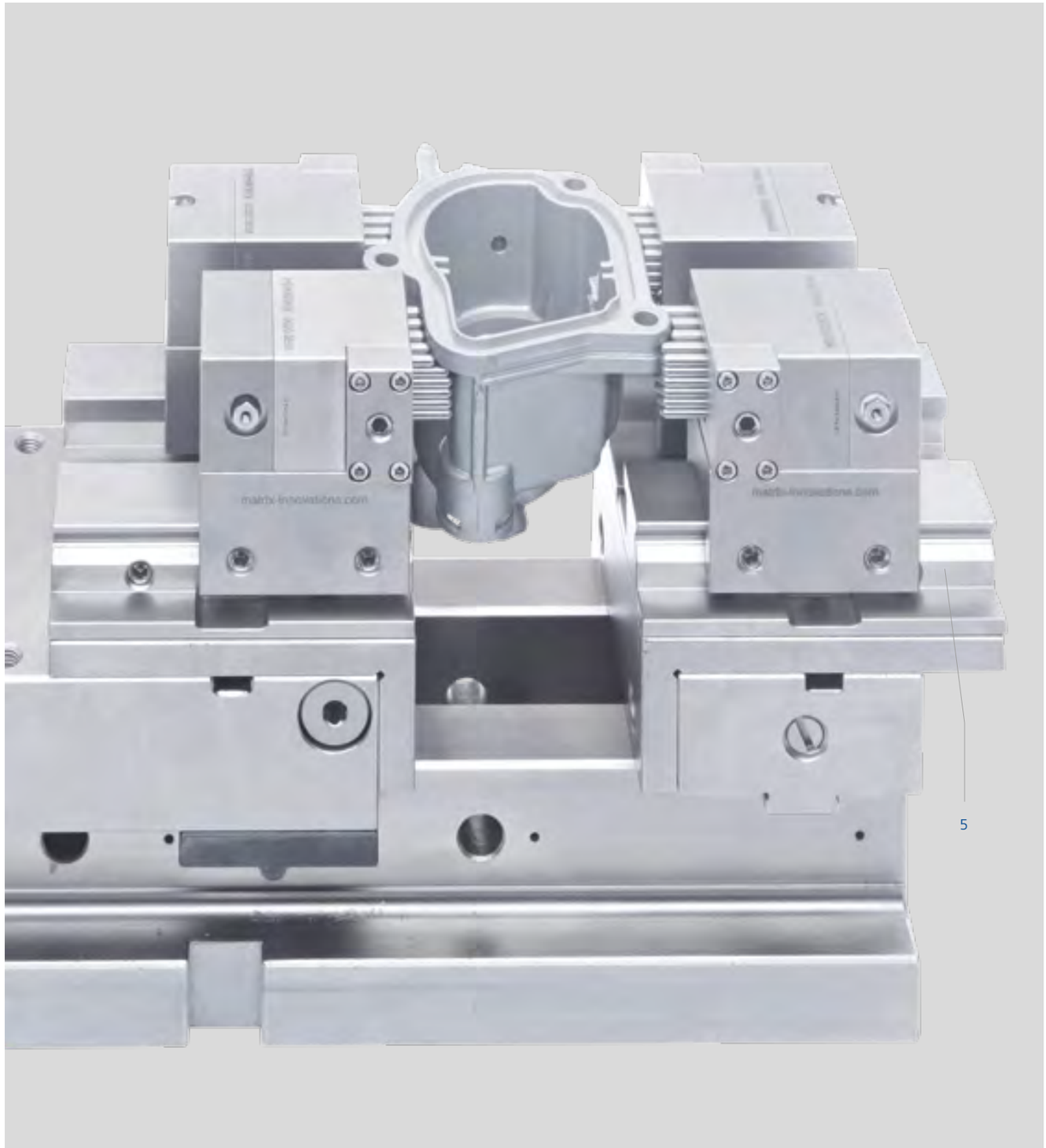
The modular system consists of the following individual components:

Fig.	Article no.	Quantity	Description	Dimension	Pin field	Number of pins	Pin diameter	Pin stroke
1	0020.3858	1	X-CLAMP 40 Miniature machine vise	38 x 255 x 75 mm	21 x 24 mm	58 Pieces (2x)	3 mm	12 mm
	Further information about the module:			Weight: 3 kg, Material housing/pins: Stainless steel, Installation location: any, Cleaning: Air and coolant connections, Data sheet and CAD data on request				
2	0020.0120	1	S-Base plate for X-CLAMP 100	130 x 100 x 10 mm	–	–	–	–
3	0020.3116	1	Adapter for X-CLAMP 100	50 x 100 x 30 mm	–	–	–	–
4	0020.0027	4	Connection pin for X-CLAMP	M10 x 27 mm	–	–	–	–
–	–	1	Torque wrench	MICRO 6-30 Nm	–	–	–	–
–	0900.9000	1	MATRIX case	–	–	–	–	–

X-CLAMP 40 - OPTIONAL

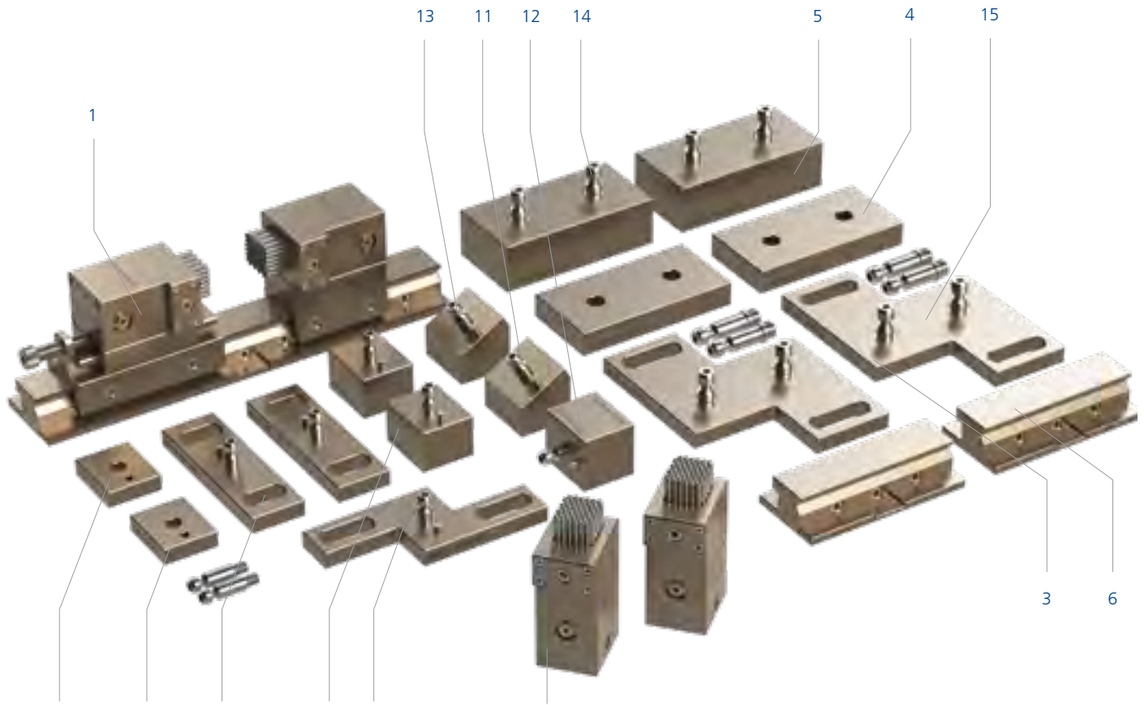
ADD-ONS (TO BE ORDERED SEPERATELY)

Fig.	Article no.	Quantity	Description	Dimension
5	0020.3800	1	Adaptive guide rail for X-CLAMP 40	100 x 50 mm



X-CLAMP 40 MINIATURE MACHINE VISE BASE KIT LARGE

ORDER NUMBER: 0020.3860

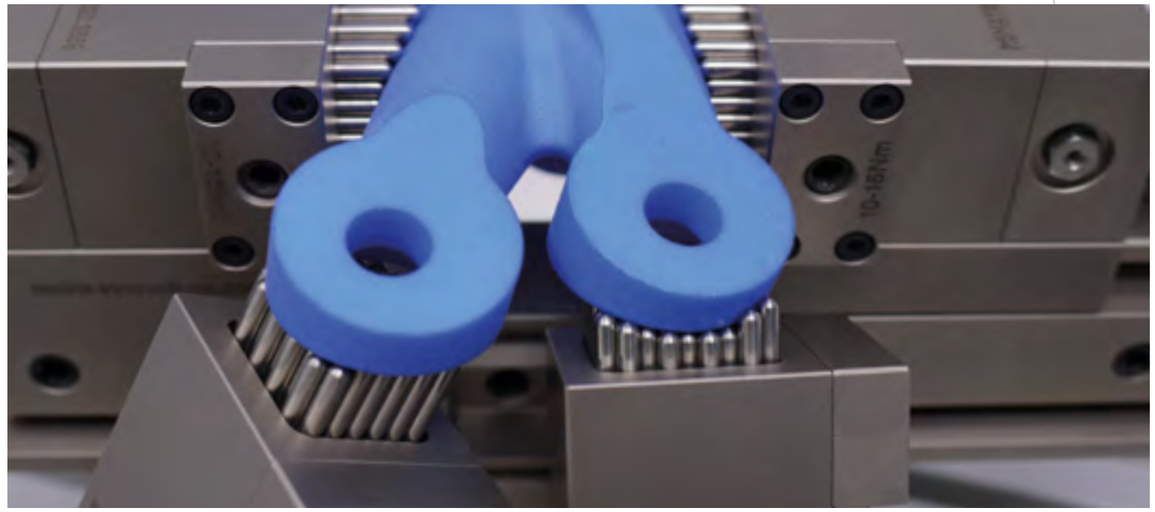


X-CLAMP 40 BASE KIT LARGE

Miniature machine vise with two additional pin-modules for workpiece support – ideal for the machining of filigree parts. Handles even the most complex geometries.

The modular system consists of the following individual components:

Fig.	Article no.	Quantity	Description	Dimension	Pin field	Number of pins	Pin diameter	Pin stroke
1	0020.3858	1	X-CLAMP 40 Miniature vise	50 x 255 x 75 mm	21 x 24 mm	58 Pieces (2x)	3 mm	12 mm
	Further information about the module:			Miniature machine vise with two adjustable jaws and clamping unit on 255 mm straight guide rail. Weight: 3 kg, Material housing/pins: Stainless steel, Installation location: any, Cleaning: Air and coolant connections, Data sheet and CAD data on request. Jaws can be mounted individually on short 100 mm guide rails.				
2	0021.3858	2	X-Support 40 Module	32 x 43 x 58 mm	21 x 24 mm	58 Pieces	3 mm	12mm
	Further information about the module:			Weight: 0.6 kg, Material housing/pins: Stainless steel, Installation location: any, Cleaning: Air and coolant connections, Data sheet and CAD data on request.				
3	0020.0120	2	X-Clamp 100 S-Base plate	130 x 100 x 10 mm				
4	0020.1015	2	X-Clamp 100 Intermediate module	15 mm				
5	0020.1016	2	X-Clamp 100 Intermediate module	30 mm				
6	0020.3800	2	X-Clamp 40 Short guide rail	100 x 50 mm				
7	0021.3810	2	X-Support 40 Intermediate module	38 x 32 x 10 mm				
8	0021.3825	2	X-Support 40 intermediate module	38 x 32 x 25 mm				
9	0021.3828	1	X-Support 40 S-base plate	120 x 50 mm				
10	0021.3829	2	X-Support 40 Base plate	32 x 100 mm				
11	0021.3830	2	X-Support 40 Angle 30°	38 x 32 mm				
12	0021.3831	1	X-Support 40 Angle 90°	38 x 32 mm				
13	0021.0033	2	Connection pin 33 mm	33 mm, M6, hexagon socket SW4				
14	0020.0027	8	Connection pin X-Clamp 27 mm	27 mm, M10, hexagon socket SW4				
15	0020.0042	4	Connection pin X-Clamp 42 mm	42 mm, M10, hexagon socket SW4				
16	0050.1245	8	Connection pin X-Support 40, 23 mm	23 mm, M6 hexagon socket SW4				
-	-	1	Torque wrench	MICRO 6-30 Nm				
-	0900.9000	2	MATRIX Case					

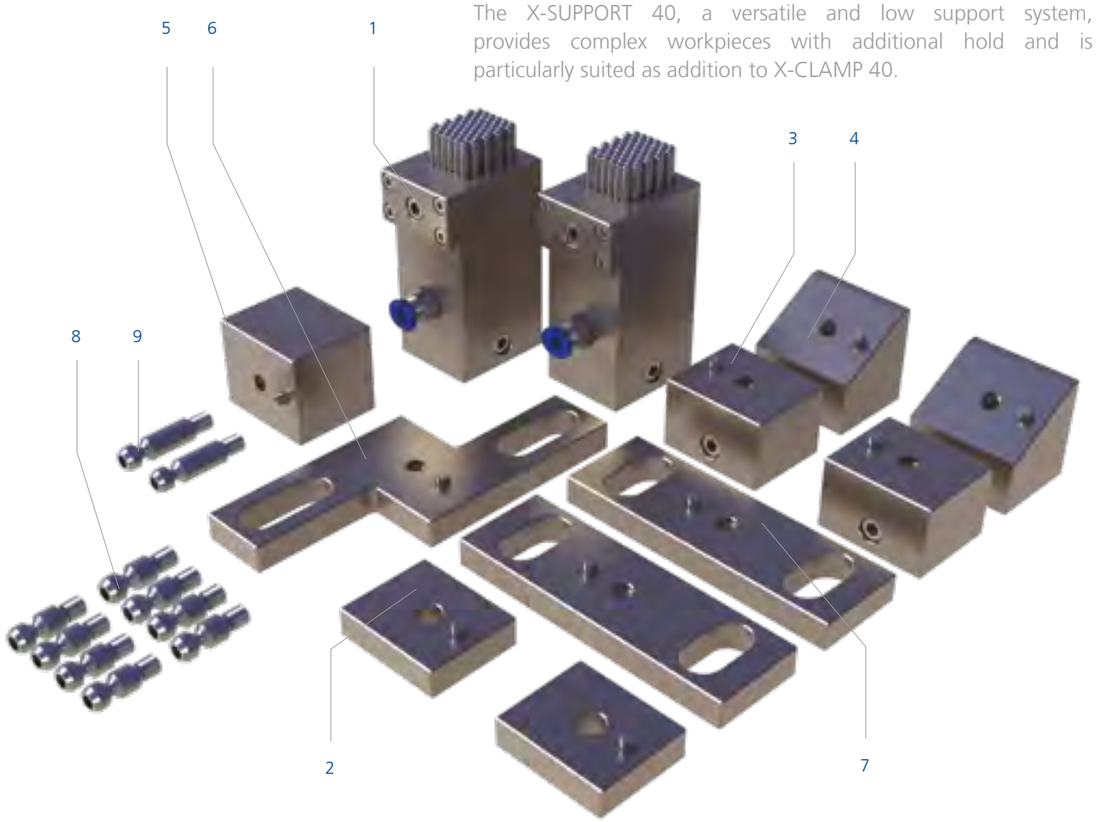


ACCESSORIES: X-SUPPORT 40

ORDER NUMBER: 0021.3860

X-SUPPORT 40

The X-SUPPORT 40, a versatile and low support system, provides complex workpieces with additional hold and is particularly suited as addition to X-CLAMP 40.



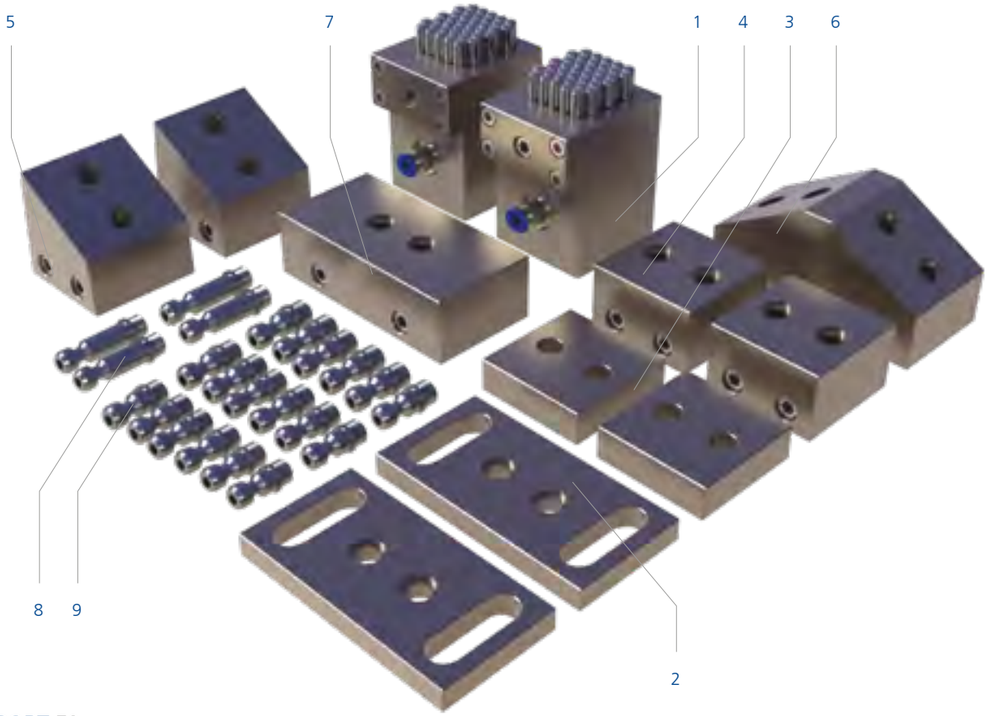
The modular system consists of the following individual components:

Fig.	Article no.	Quantity	Description	Dimension	Pin field	Number of pins	Pin diameter	Pin stroke
1	0021.3858	2	X-SUPPORT 40 Module	32 x 43 x 58 mm	21 x 24 mm	58 Pieces	3 mm	12 mm
	Further information about the module:			Weight: 0.6 kg, Material housing/pins: Stainless steel, Installation location: any, Cleaning: Air and coolant connections, Data sheet and CAD data on request				
2	0021.3810	2	Adapter for X-SUPPORT 40	38 x 32 x 10 mm	–	–	–	–
3	0021.3825	2	Adapter for X-SUPPORT 40	38 x 32 x 25 mm	–	–	–	–
4	0021.3830	2	Angle for X-SUPPORT 40	30°, 38 x 32 mm	–	–	–	–
5	0021.3831	1	Angle for X-SUPPORT 40	90°, 38 x 32 mm	–	–	–	–
6	0021.3828	1	S-Base plate for X-SUPPORT 40	120 x 50 x 10 mm	–	–	–	–
7	0021.3829	2	Base plate for X-SUPPORT 40	100 x 32 x 10 mm	–	–	–	–
8	0050.1245	8	Connection pin	M6 x 23 mm	–	–	–	–
9	0020.0033	2	Connection pin	M6 x 33 mm	–	–	–	–
–	–	1	Torque wrench	MICRO 6-30 Nm	–	–	–	–
–	0900.9000	1	MATRIX case	–	–	–	–	–



ACCESSORIES: X-SUPPORT 50

ORDER NUMBER: 0020.3139



X-SUPPORT 50

The X-SUPPORT 50 expands the range of applications in production. Owing to its low overall height and form clamping surface, the entire setting is closer to the workpiece. The system is compatible with the entire SILVER CLAMP modular system.

The modular system consists of the following individual components:

Fig.	Article no.	Quantity	Description	Dimension	Pin field	Number of pins	Pin diameter	Pin stroke
1	0020.3124	2	X-SUPPORT 50 Module	50 x 60 x 70 mm	37 x 30 mm	31 Pieces	6 mm	12 mm
	Further information about the module:			Weight: 1.2 kg, Material housing/pins: Stainless steel, Installation location: any, Cleaning: Air and coolant connections, Data sheet and CAD data on request				
2	0020.5000	2	Base plate	100 x 50 x 10 mm	–	–	–	–
3	0020.3115	2	Adapter	50 x 50 x 15 mm	–	–	–	–
4	0020.3116	2	Adapter	50 x 50 x 30 mm	–	–	–	–
5	0020.3130	2	Angle	30°, 50 x 50 mm	–	–	–	–
6	0020.3132	1	Double angle	30°, 100 x 50 mm	–	–	–	–
7	0020.3150	1	Adapter for X-CLAMP 100	100 x 50 x 30 mm	–	–	–	–
8	0020.0042	4	Connection pin for X-CLAMP	M10 x 42 mm	–	–	–	–
9	0020.0027	18	Connection pin for X-CLAMP	M10 x 27 mm	–	–	–	–
–	–	1	Torque wrench	MICRO 6-30 Nm	–	–	–	–
–	0900.9000	1	MATRIX case	–	–	–	–	–

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