BLUE CLAMP

→ Metrology & assembly



Overview of the modular BLUE CLAMP systems

MATRIX replaces cost-intensive, special-purpose jigs.

Special emphasis is put on the development of the pin and function modules which are combined into effective modular sets.

All components of these modular systems are multifunctional and compatible. The number of individual modules is purposely kept small. The present range with only a few modules achieves the objective quickly and cost-effectively.

The following BLUE CLAMP systems are available:

X-SUPPORT

- X-SUPPORT XL
- X-SUPPORT XL LIGHT
- X-SUPPORT SXS
- X-SUPPORT XS

X-GRIP

- X-GRIP XL
- X-GRIP XS
- X-GRIP XS LIGHT

ACCESORY

- X-SUPPORT PROFIL
- X-SHIFT
- X-TABLE
- X-GRID / X-SUPPORT OPTIONAL

MATRIX BLUE CLAMP
a must-have in metrology

Turbine blades and other complex parts need to be held securely in position during machining or measuring, which is often impossible with conventional systems. With its ingenious system, MATRIX offers a universal solution that is modular, adaptable and easy to use.

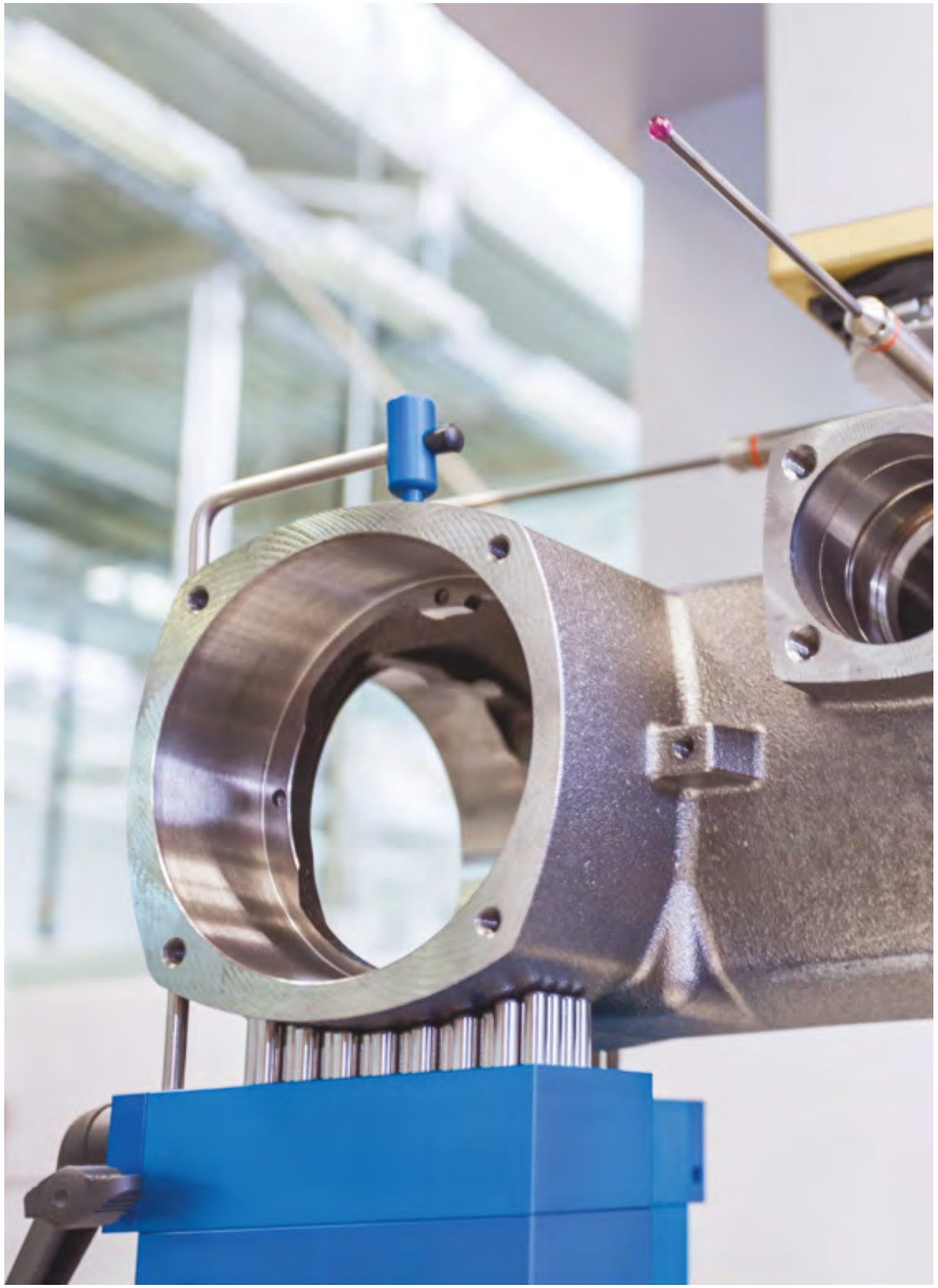
If measuring the turbine blades is a requirement, which it is, the next question is how to hold these geometrically complex parts, which vary from part to part, in place in order to work unobstructed? The answer is provided by the clever supporting, holding and clamping system that has been developed by MATRIX. As a system, it has been designed to replace conventional, expensive and inflexible clamping systems.

Jigs rigged together from miscellaneous parts are now a thing of the past. The system's structural design is ingenious. Individually manufactured pins of stainless steel generate a light resistance. The molded jaws are formed within seconds by the workpiece itself and locked in position with a single movement of a lever.

The user then has a part-specific support almost instantly. If a new mold is required, the initial position can be restored by releasing the locating screw. Because the clamping system consists of various modules and since these can be combined in any way with one another, the system is extremely versatile. Pre-assembled sets are available for fast deployment and already cover a comprehensive array of applications.



MATRIX X-SUPPORT XL is a simple and quick-action form clamping system, which is perfectly suited for use on parts with varying geometries.



Holding, clamping, supporting of parts with complex shapes – such as cast housings – without using force

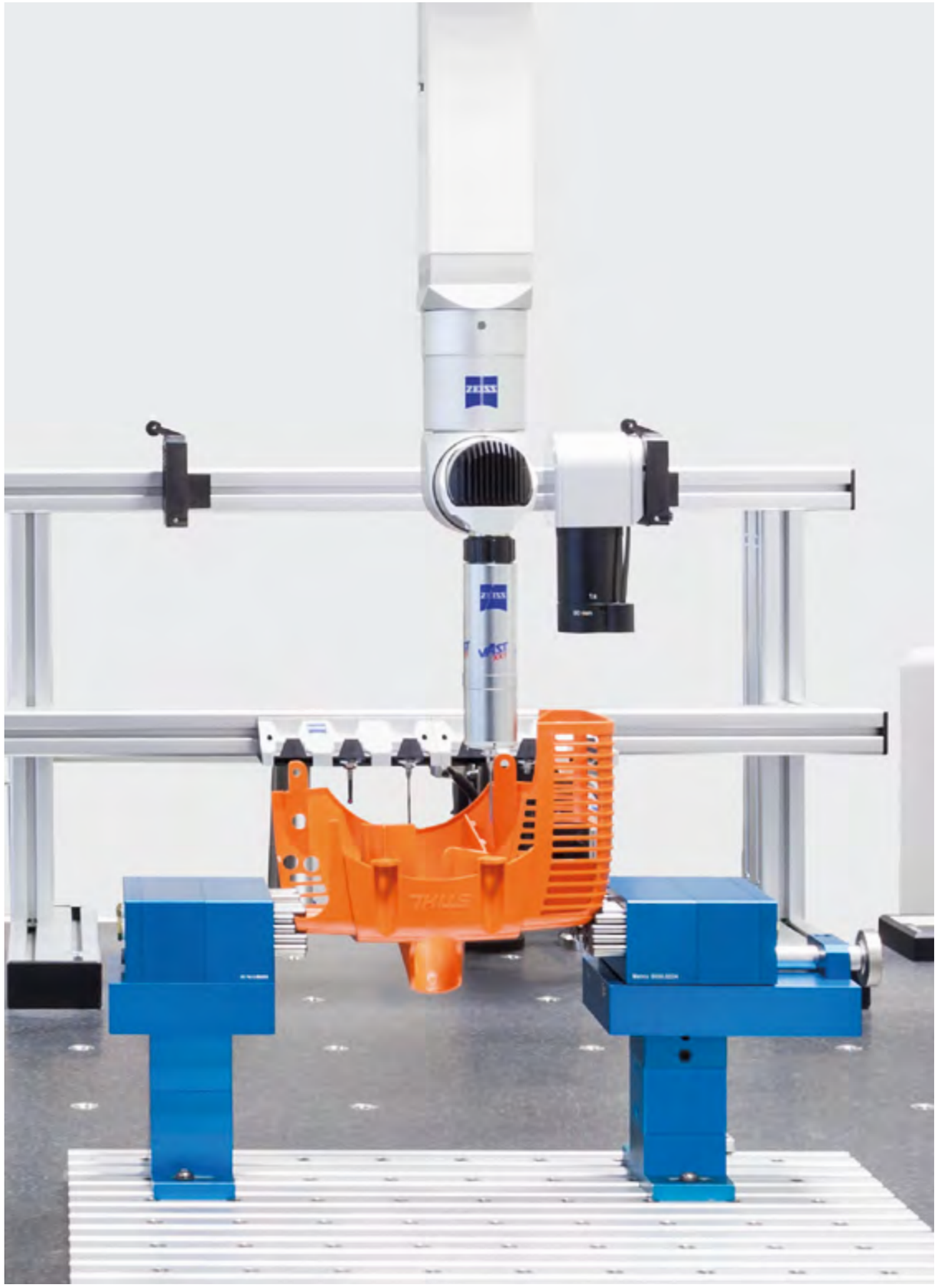
Due to the wide range of available components, the clamping system is a fit for every task. Sets can, for example, comprise of the X-Support-XL module in a 90-degree housing with 67 pins, each of which is 6 mm in diameter and has a 21 mm pin stroke. A T-slot profile plate is used as a base. Added to this are connectors, base plates, adapters, horizontal clamps, pressure pads and numerous other components.

Handling and maintenance of the MATRIX clamping system is very simple and fast, which is important in measuring labs and on the shop floor. Consequently, the components are also provided in a clearly structured, well assorted case. Since the clamping components only consist of the holder with the clamping pins and a the clamping force is achieved by turning a hand lever or Allen wrench, the system remains virtually free of wear. Pressure spots on the workpieces are non-existent because of the form fit. The pins, which cradle the workpiece, are made of stainless steel and the modules are made of aluminum alloy. The result: a high degree of stability combined with low intrinsic weight and maintenance free.

Source: Dietmar Kuhn, Blechnet 1/2012
www.blechnet.com

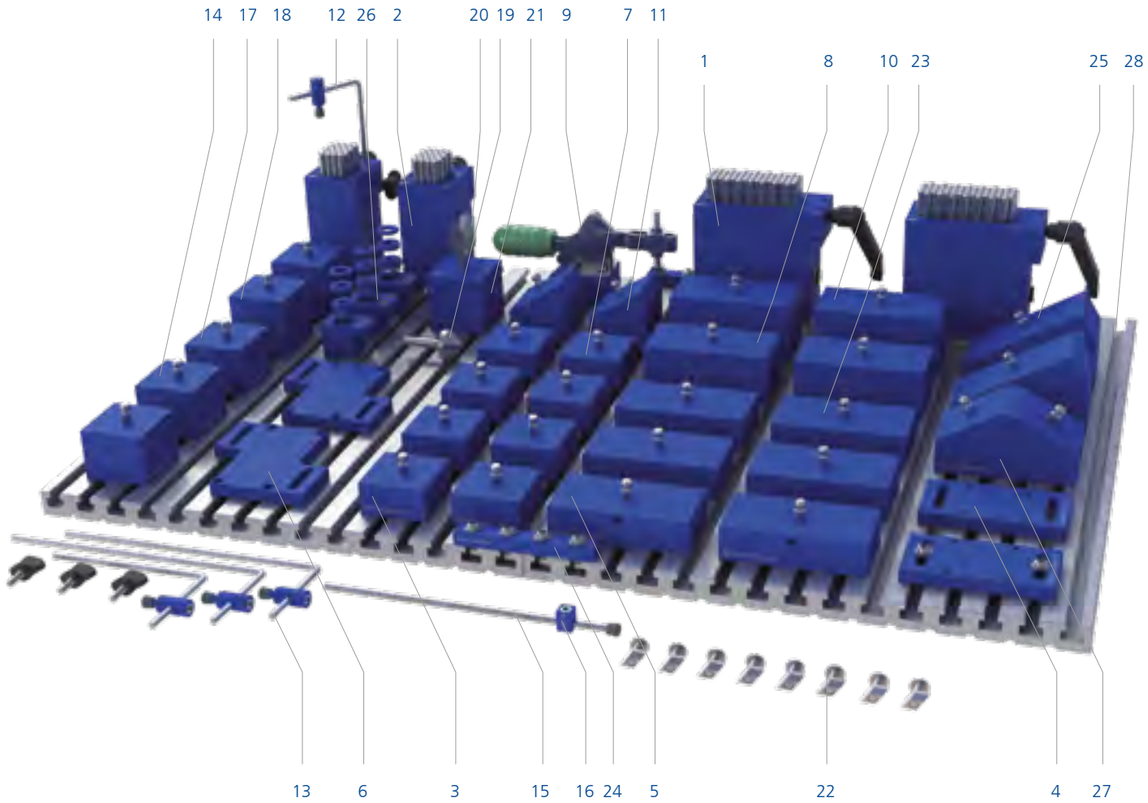
The advantages of the MATRIX BLUE CLAMP clamping systems at a glance:

- Optimum holding of complex workpieces.
- Very fast, true-to-contour holding of the workpiece.
- No need to stock separate workpiece supports.
- Up to 80% cost reduction in jig-and-fixture construction.
- Individual, multi-purpose and modular system.
- Easy handling and storing in the MATRIX® case.



X-SUPPORT XL

ORDER NUMMER: 0050.3168



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	0050.6724	2	X-SUPPORT XL Module	50 x 100 x 100 mm	79 x 30 mm	67 Stück	6 mm	21 mm
2	0050.3124	2	X-SUPPORT XL Module	50 x 50 x 100 mm	37 x 30 mm	31 Stück	6 mm	21 mm
3	0050.3127	2	Connector	25 x 50 x 50 mm	–	–	–	–
4	0050.3128	2	Base plate	10 x 50 x 100 mm	–	–	–	–
5	0050.6727	2	Connector	25 x 50 x 100 mm	–	–	–	–
6	0050.6728	2	Base plate	10 x 100 x 100 mm	–	–	–	–
7	0050.3125	6	Adapter	25 x 50 x 50 mm	–	–	–	–
8	0050.6740	2	Adapter	40 x 50 x 100 mm	–	–	–	–
9	0050.3129	1	Horizontal clamp	–	–	–	–	–

The modular system consists of the following individual components:

Fig.	Article no.	Quantity	Description	Dimension
10	0050.6750	2	Adapter	50 x 50 x 100 mm
11	0050.3130	2	Angle	30°, 50 x 50 mm
12	0050.3115	2	Pressure pad	120 mm
13	0050.3116	2	Pressure pad	200 mm
14	0050.3140	2	Adapter	40 x 50 x 50 mm
15	0050.3117	1	Stop	–
16	0050.3119	1	Adjusting ring	–
17	0050.3141	1	Adapter for pressure pad	40 x 50 x 50 mm
18	0050.3118	4	Joint	–
19	0900.4001	1	Cone support	90°
20	0900.4002	1	Prism support	90°
21	0050.3151	1	Element for cone/ prism insert	50 x 50 x 50 mm
22	0900.2501	1 Set = 8 Pieces	Set of fastening parts	–
23	0050.6725	4	Adapter	25 x 50 x 100 mm
24	0900.2500	1 Set = 2 Pieces	Connector	–
25	0050.6730	2	Angle	30°, 50 x 100 mm
26	0900.0501	1 Set = 3 Pieces	Gripper pads	–
27	0050.6732	1	Double angle	30°, 50 x 100 mm
28	0900.0500	2	T-slot profile plate	375 x 500 x 20 mm Nutenbreite: 8 mm
–	0900.3620	2	Bow-type handles	–
–	0900.0000	1	Screwdriver	–
–	0900.9000	2	MATRIX case	–

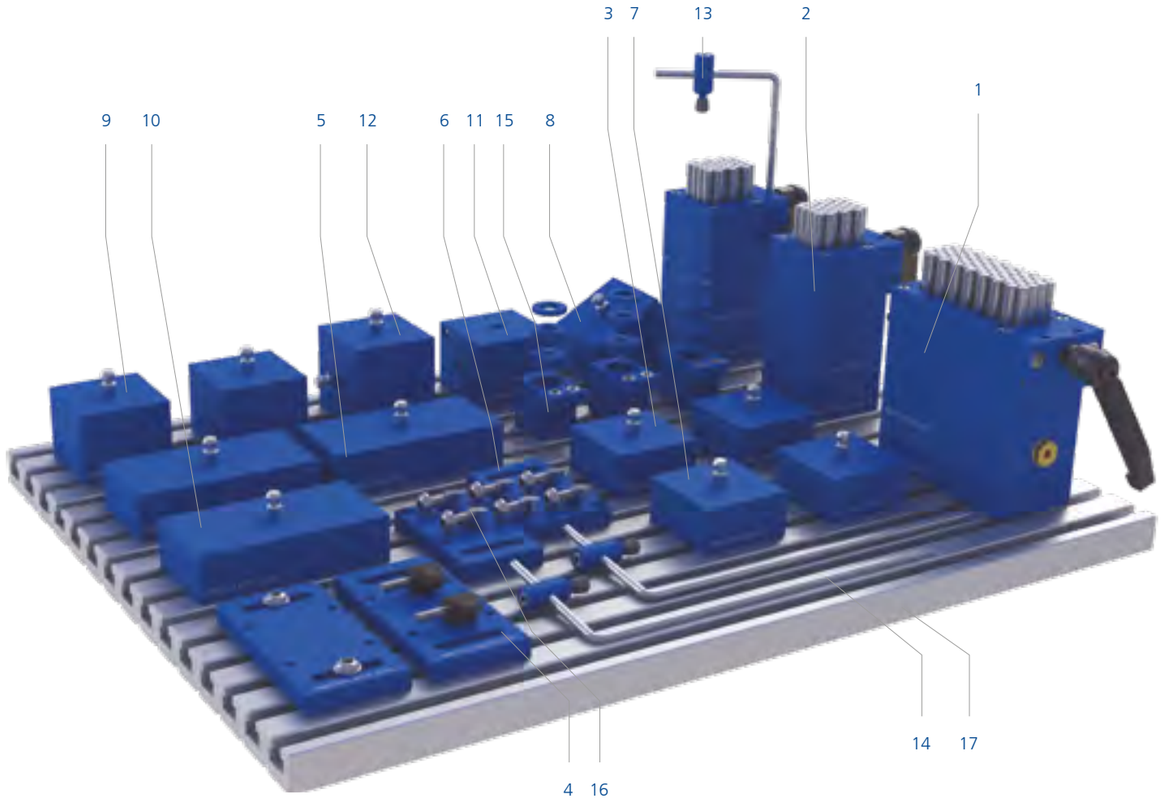
X-SUPPORT XL

As specialist for complicated plastic, cast and car body parts, X-SUPPORT XL is especially suited for use with measuring equipment and in assembly facilities. – The perfect solution!



X-SUPPORT XL LIGHT

ORDER NUMBER: 0050.3169



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	0050.6724	1	X-SUPPORT XL Module	50 x 100 x 100 mm	79 x 30 mm	67 Pieces	6 mm	21 mm
2	0050.3124	2	X-SUPPORT XL Module	50 x 50 x 100 mm	37 x 30 mm	31 Pieces	6 mm	21 mm
3	0050.3127	2	Connector	25 x 50 x 50 mm	–	–	–	–
4	0050.3128	2	Base plate	10 x 50 x 100 mm	–	–	–	–
5	0050.6727	1	Connector	25 x 50 x 100 mm	–	–	–	–
6	0050.6728	1	Base plate	10 x 100 x 100 mm	–	–	–	–
7	0050.3125	2	Adapter	25 x 50 x 50 mm	–	–	–	–
8	0050.3130	1	Angle	30°, 50 x 50 mm	–	–	–	–
9	0050.3140	2	Adapter	40 x 50 x 50 mm	–	–	–	–
10	0050.6725	2	Adapter	25 x 50 x 100 mm	–	–	–	–
11	0050.3141	1	Adapter for pressure pad	40 x 50 x 50 mm	–	–	–	–
12	0050.3150	1	Joint	50 x 50 x 50 mm	–	–	–	–
13	0050.3115	1	Pressure pad	120 mm	–	–	–	–
14	0050.3116	2	Pressure pad	200 mm	–	–	–	–
15	0900.0501	1 Set = 3 Stück	Gripper pads	–	–	–	–	–
16	0900.2501	1 Set = 8 Stück	Set of fastening parts	–	–	–	–	–
17	0900.0500	1	T-slot profile plate	375 x 500 x 20 mm Slot width: 8 mm	–	–	–	–
–	0900.3620	2	Bow-type handles	–	–	–	–	–
–	0900.0000	1	Screwdriver	–	–	–	–	–
–	0900.9000	1	MATRIX case	–	–	–	–	–

X-SUPPORT XL LIGHT

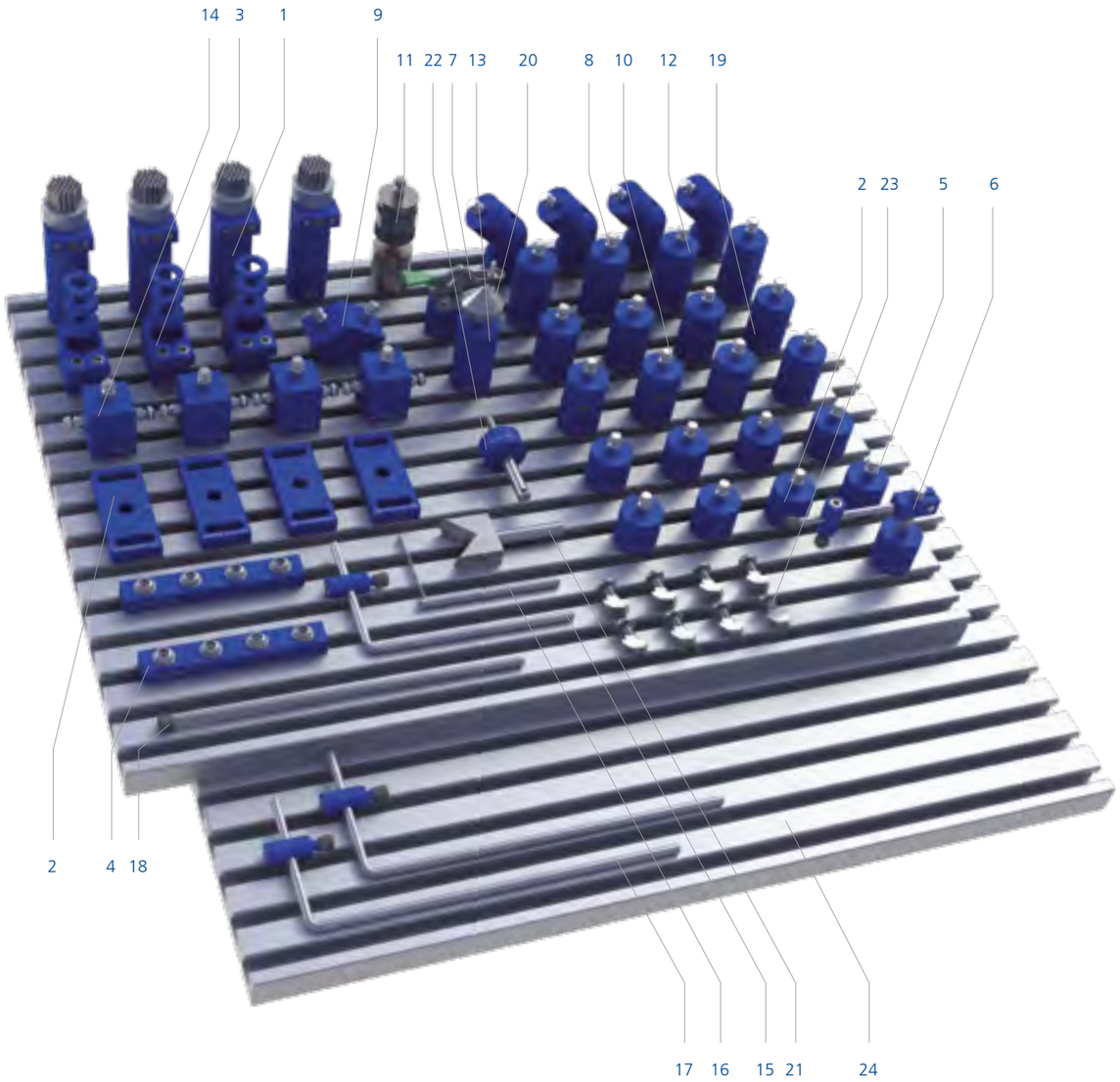
Smaller version of the X-SUPPORT XL also for heavy loads and medium-sized workpieces.





X-SUPPORT SXS

ORDER NUMBER: 0050.1210



X-SUPPORT SXS

If the interfering contour needs to be kept particularly smalll, the X-Support SXS is the ideal choice. Despite its small footprint, complex work pieces can be held securely. – Impressive diversity!

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	0050.1237	4	X-SUPPORT SXS Module	ø 26 mm	–	37 Pieces	2,5 mm	12 mm
2	0050.1227	4	Connector and base plate	ø 26 x 35 mm	–	–	–	–
3	0900.0501	1 Set = 3 Pieces	Gripper pads	–	–	–	–	–
4	0900.2500	1 Set = 2 Pieces	Connector	–	–	–	–	–
5	0050.1225	4	Adapter	ø 26 x 25 mm	–	–	–	–
6	0050.1216	1	Pressure pad	ø 26 mm	–	–	–	–
7	0050.1229	1	Horizontal clamp	–	–	–	–	–
8	0050.1230	4	Angle, infinitely variable	ø 26 mm	–	–	–	–
9	0050.1232	1	Double angle	30°	–	–	–	–
10	0050.1240	4	Adapter	ø 26 x 40 mm	–	–	–	–
11	0050.1243	1	Stepless height-adjustable module (15 mm)	ø 26 mm	–	–	–	–
12	0050.1250	4	Adapter	ø 26 x 50 mm	–	–	–	–
13	0050.1251	1	Element for cone/ prism insert	ø 26 x 50 mm	–	–	–	–
14	0050.1252	4	Joint	90°	–	–	–	–
15	0050.1425	1	Pressure pad	–	–	–	–	–
16	0050.3115	1	Pressure pad	120 mm	–	–	–	–
17	0050.3116	2	Pressure pad	200 mm	–	–	–	–
18	0050.3117	1	Stop	–	–	–	–	–
19	0050.1241	4	Component for pressure pad	ø 26 x 40 mm	–	–	–	–
20	0900.4001	1	Cone support	90°	–	–	–	–
21	0900.4002	1	Prism support	90°	–	–	–	–
22	0900.4003	1	Single pin insert	–	–	–	5 mm	19 mm
23	0900.2501	1 Set = 8 Pieces	Set of fastening parts	–	–	–	–	–
24	0900.0500	2	T-slot profile plate	375 x 500 x 20 mm Slot width: 8 mm	–	–	–	–
–	0900.3620	2	Bow-type handles	–	–	–	–	–
–	0900.0000	1	Screwdriver	–	–	–	–	–
–	0900.9000	1	MATRIX case	–	–	–	–	–



MATRIX CASE

Delivery of the systems in MATRIX case.
(Order number: 0900.9000)



X-SUPPORT XS

ORDER NUMBER: 0050.1424



X-SUPPORT XS

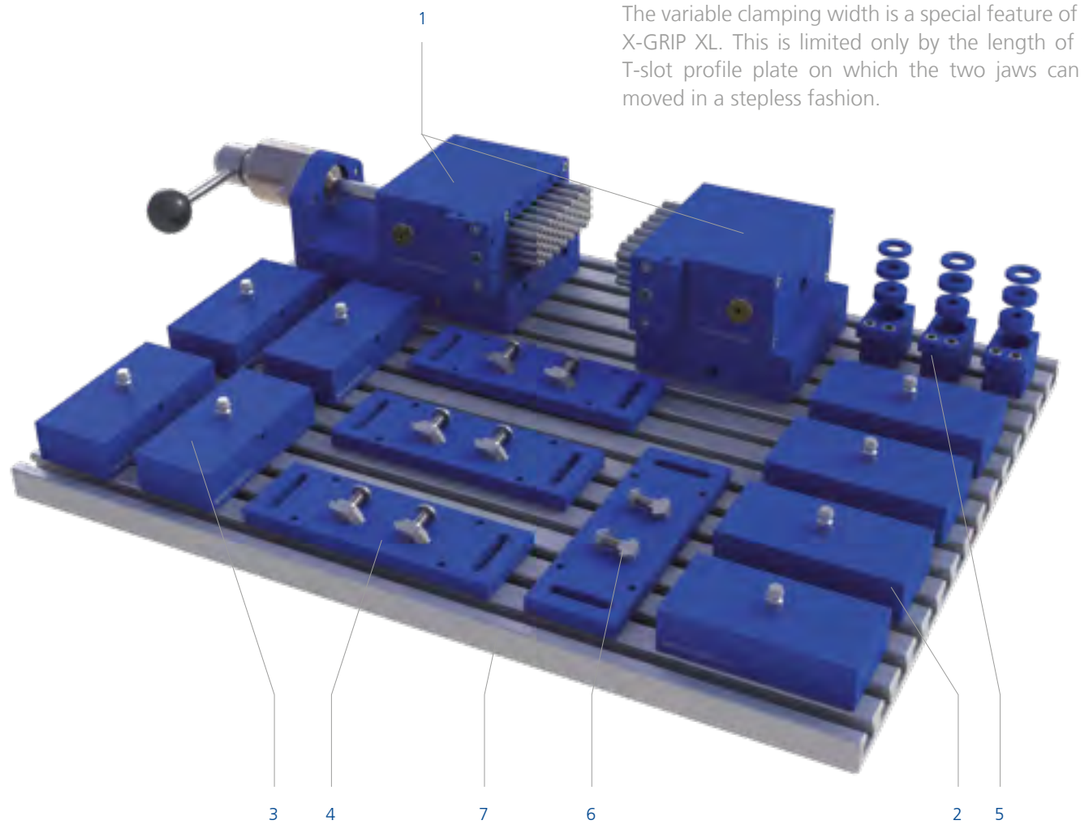
As support specialist for consistently changing parts, X-SUPPORT XS has a proven track record in the advertising/promotional materials industry as well as in metrology.

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	0050.1423	2	X-SUPPORT XS Module	50 x 50 x 58 mm	39 x 29 mm	142 Pieces	2,5 mm	12 mm
2	0050.3127	2	Connector	25 x 50 x 50 mm	–	–	–	–
3	0050.3128	2	Base plate	10 x 50 x 100 mm	–	–	–	–
4	0050.1425	2	Pressure pad	–	–	–	–	–
5	0900.2501	1 Set = 8 Pieces	Set of fastening parts	–	–	–	–	–
6	0900.0200	1	T-slot profile plate	250 x 200 x 20 mm Slot width: 8 mm	–	–	–	–
–	0900.0000	1	Screwdriver	–	–	–	–	–
–	0900.9000	1	MATRIX case	–	–	–	–	–

X-GRIP XL

ORDER NUMBER: 0050.6225



X-GRIP XL

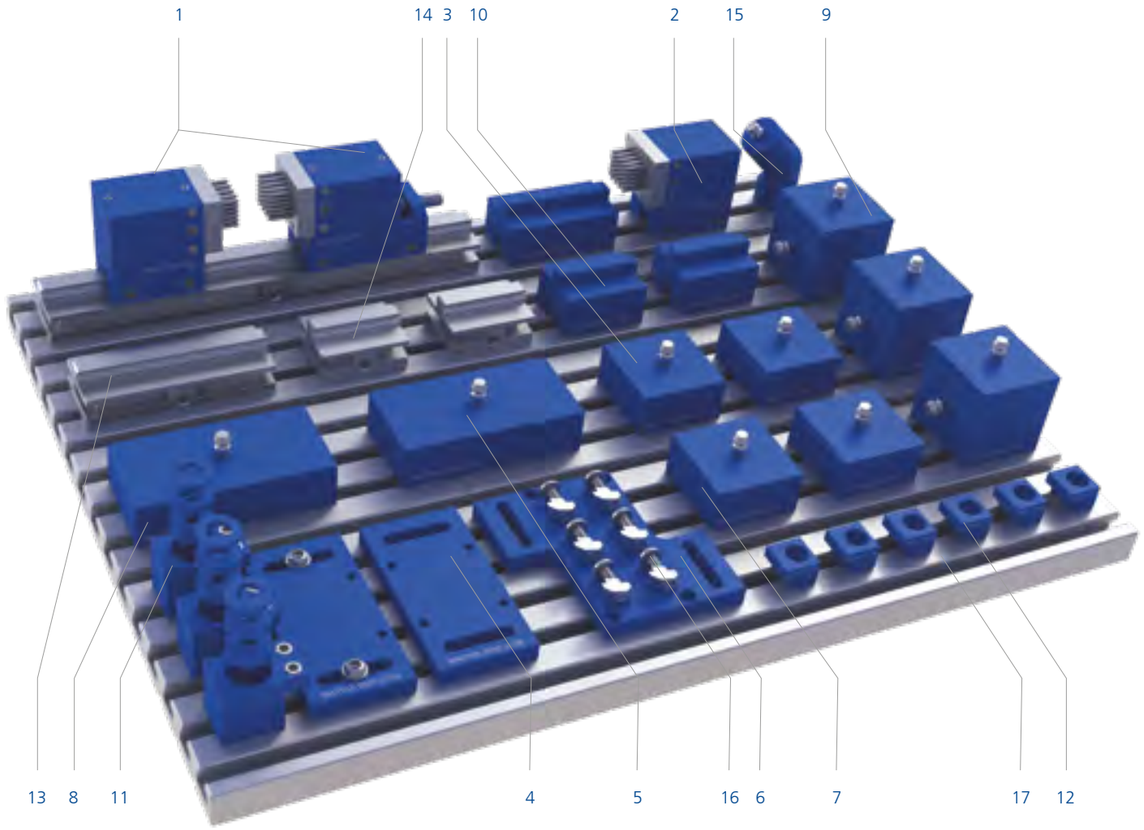
The variable clamping width is a special feature of the X-GRIP XL. This is limited only by the length of the T-slot profile plate on which the two jaws can be moved in a stepless fashion.

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	0050.6224	1	X-GRIP XL Module with fixed jaws	100 x 100 mm	79 x 30 mm	67 Pieces	6 mm	21 mm
		1	X-GRIP Module with movable jaws	150 x 100 mm	79 x 30 mm	67 Pieces	6 mm	21 mm
2	0050.6725	4	Adapter	25 x 50 x 100 mm	–	–	–	–
3	0050.6727	4	Connector	25 x 50 x 100 mm	–	–	–	–
4	0050.7150	4	Base plate	10 x 50 x 150 mm	–	–	–	–
5	0900.0501	1 Set = 3 Pieces	Gripper pads	–	–	–	–	–
6	0900.2501	1 Set = 8 Pieces	Set of fastening parts	–	–	–	–	–
7	0900.0500	1	T-slot profile plate	375 x 500 x 20 mm Slot width: 8 mm	–	–	–	–
–	0900.3620	2	Bow-type handles	–	–	–	–	–
–	0900.0000	1	Screwdriver	–	–	–	–	–
–	0900.9000	1	MATRIX case	–	–	–	–	–

X-GRIP XS

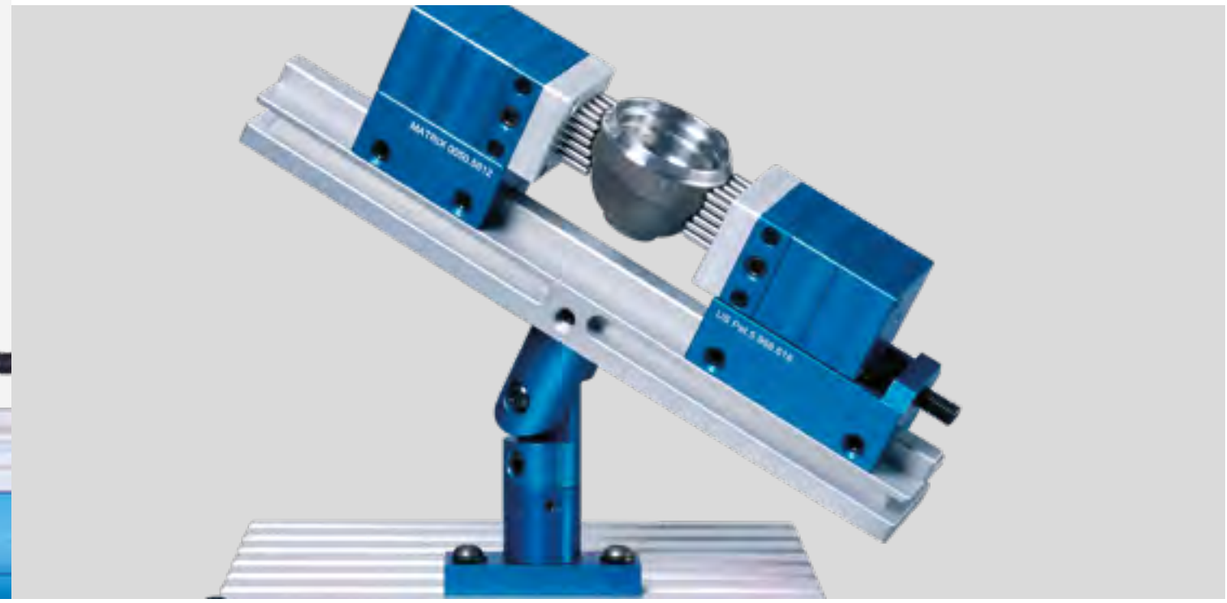
ORDER NUMBER: 0050.5815



X-GRIP XS

Position your workpiece exactly as you want it ... With its stepless angle joint, the X-GRIP XS can be tilted up to 360° and brought into the optimum working position.





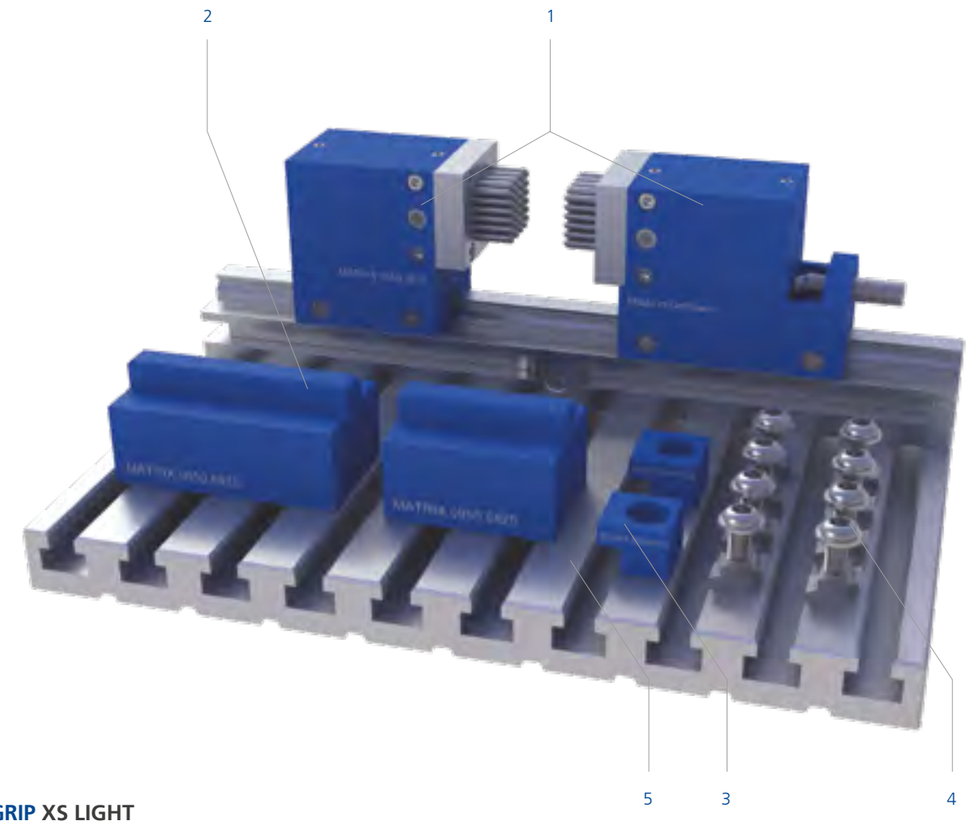
The modular system consists of the following individual components:

Fig.	Article no.	Quantity	Description	Dimension	Pin field	Number of pins	Pin diameter	Pin stroke
1	0050.5812	1	X-GRIP XS Module on guide rail 250 mm	38 x 250 mm	20 x 23 mm	58 Pieces	2,5 mm	12 mm
2	0050.5816	1	Additional top jaws	–	20 x 23 mm	58 Pieces	2,5 mm	12 mm
3	0050.3125	2	Connector	25 x 50 x 50 mm	–	–	–	–
4	0050.3128	2	Base plate	10 x 50 x 100 mm	–	–	–	–
5	0050.6727	1	Connector	25 x 50 x 100 mm	–	–	–	–
6	0050.6728	1	Base plate	10 x 100 x 100 mm	–	–	–	–
7	0050.3127	2	Adapter	25 x 50 x 50 mm	–	–	–	–
8	0050.6725	1	Adapter	25 x 50 x 100 mm	–	–	–	–
9	0050.3150	3	Joint	50 x 50 x 50 mm	–	–	–	–
10	0050.5826	1 Set = 3 Parts	Adapter	2x: 25 x 50 x 50 mm 1x: 25 x 50 x 70 mm	–	–	–	–
11	0900.0501	1 Set = 3 Pieces	Gripper pads	–	–	–	–	–
12	0900.0506	1 Set = 6 Pieces	Gripper pads	–				
13	0050.5867	1	Guide rail for movable jaws	100 mm	–	–	–	–
14	0050.5831	2	Guide rail for fixed jaws	50 mm	–	–	–	–
15	0050.1230	1	Angle, infinitely variable	ø 26 mm	–	–	–	–
16	0900.2501	1 Set = 8 Pieces	Set of fastening parts	–	–	–	–	–
17	0900.0500	1	T-slot profile plate	375 x 500 x 20 mm Slot width: 8 mm	–	–	–	–
–	0900.3620	2	Bow-type handles	–	–	–	–	–
–	0900.0000	1	Screwdriver	–	–	–	–	–
–	0900.9000	1	MATRIX case	–	–	–	–	–



X-GRIP XS LIGHT

ORDER NUMBER: 0050.5813



X-GRIP XS LIGHT

Perfect stability even for smaller workpieces through optimum form fit. Due to its small footprint, the X-GRIP XS LIGHT can be mounted even in small CMMs.

Fig.	Article no.	Quantity	Description	Dimension	Pin field	Number of pins	Pin diameter	Pin stroke
1	0050.5812	1	X-GRIP XS Module on guide rail 250 mm	38 x 250 mm	20 x 23 mm	Per jaw: 58 Pieces	2,5 mm	12 mm
2	0050.5825	1 Set = 2 Parts	Adapter	25 x 50 x 50 mm, 25 x 50 x 70 mm	–	–	–	–
3	0900.0502	1 Set = 2 Pieces	Gripper parts	–	–	–	–	–
4	0900.2501	1 Set = 8 Pieces	Set of fastening parts	–	–	–	–	–
5	0900.0200	1	T-slot profile plate	250 x 200 x 20 mm Slot width: 8 mm	–	–	–	–
–	0900.0000	1	Screwdriver	–	–	–	–	–
–	0900.9000	1	MATRIX case	–	–	–	–	–



BLUE CLAMP – Equipment and accessories

Overview of the MATRIX profile systems:

Ideal for car bodywork – the MATRIX systems in combination with aluminium profiles allow larger and more complex jigs and fixtures. Convenient: after use these jigs can be dismantled and stored more compact. This saves storage costs.

Your benefits:

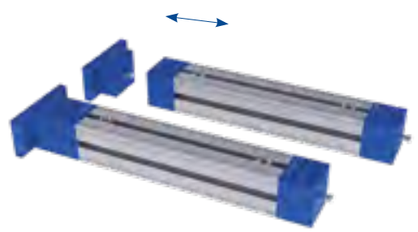
- Very short assembly times
- Easy access during measuring
- Stepless adjustment with all MATRIX modules
- You can react to measurement orders quickly and flexibly with the MATRIX profile system, especially in car body and door production

Proven profile systems from MATRIX:

- X-SUPPORT PROFIL
- X-SHIFT
- X-TABLE

Both systems are fully compatible with the MATRIX BLUE CLAMP modular systems and their modules:

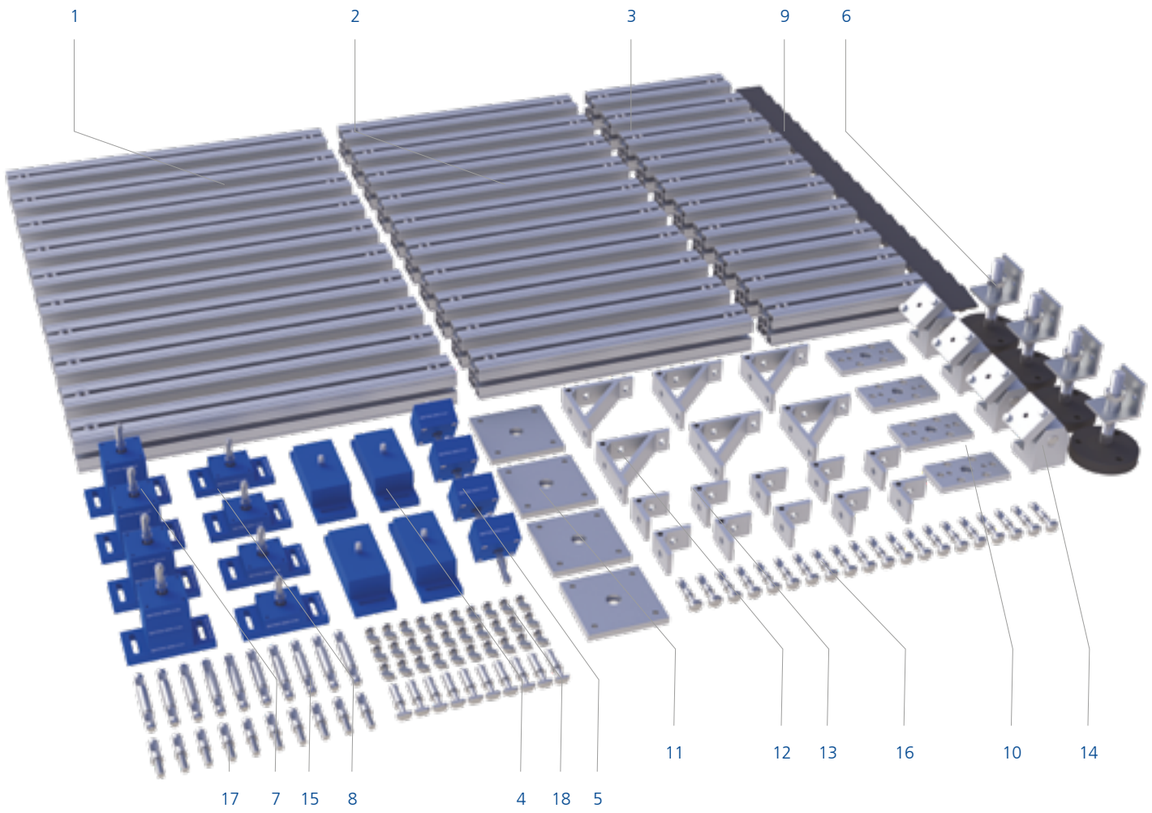




Proven MATRIX connections between the module and the profile systems allow very short set-up times.

X-SUPPORT PROFIL

ORDER NUMBER: 0800.2550



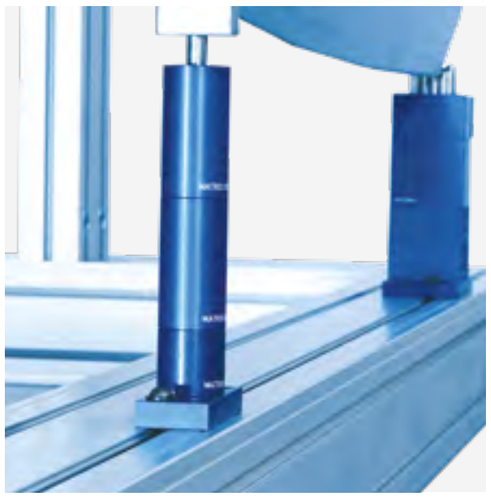


X-SUPPORT PROFIL

Especially in car body and door assembly, your metrology lab can react quickly to job orders when using the MATRIX profile system.

Fig.	Article no.	Quantity	Description	Dimension
1	0800.0500	10	Profile	50 x 50 x 500 mm
2	0800.0400	10	Profile	50 x50 x 400 mm
3	0800.0250	10	Profile	50 x 50 x 250 mm
4	0050.6727	4	Connector	–
	0050.7150	4	Base plate	–
5	0050.3127	4	Connector	–
	0800.3128	4	Base plate	–
	0800.3517	4	Connector module	–
6	0800.6702	4	Swivel Pad	–
	0800.3526	4	Angle	–
7	0800.3127	4	Base plate	–
	0050.3126	4	Plate with connector, quick connectors	–
	0050.3127	4		–
	0050.3128	4		–
	0800.3517	4		–

Fig.	Article no.	Quantity	Description	Dimension
8	0800.3127	4	Connector	Plate with connector profile
	0050.3128	4	Base plate	
	0800.3517	4	Connector	
9	0800.3566	20	Cover cap	50 x 50 mm
10	0800.3714	4	Base plate joint	–
11	0800.3646	4	Base plate profile	–
12	0800.3597	6	Angle large	–
13	0800.3594	10	Angle small	–
14	0800.3701	4	Joint stepless	±90°
15	0800.3510	10	Extension	–
	0800.3519	10	Connector	–
16	0800.3517	20	Round-head connector	–
17	0800.3501	10	Threaded connector	–
18	0900.2554	1 Set = 54 Pcs.	Set of fastening parts	–





X-SHIFT

ORDER NUMBER: 0400.1001

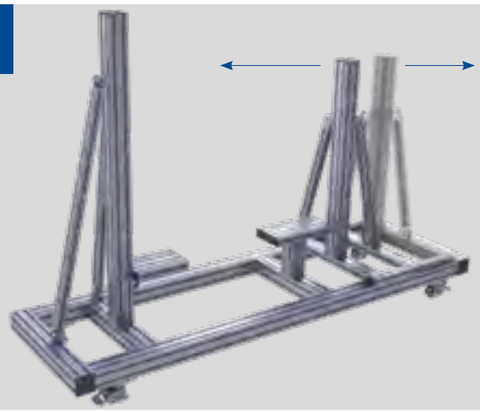


MATRIX X-SHIFT profile system

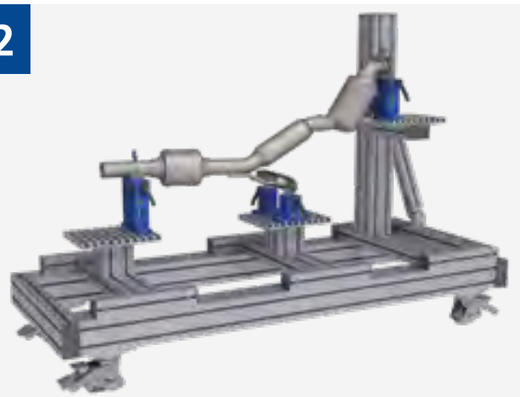
In frame-and-body construction the X-SHIFT profile system is used to hold large parts in position to measure back panel flaps, bonnets or side panels.

The distance between the two upright elements can be adjusted to the various workpiece sizes by sliding 1 the carriage in the appropriate position. The high-strength aluminum profiles are supplemented with MATRIX X-SUPPORT components 2 from the BLUE CLAMP series. The dimensions of the X-SHIFT: 2700 x 800 x1850 mm.

1



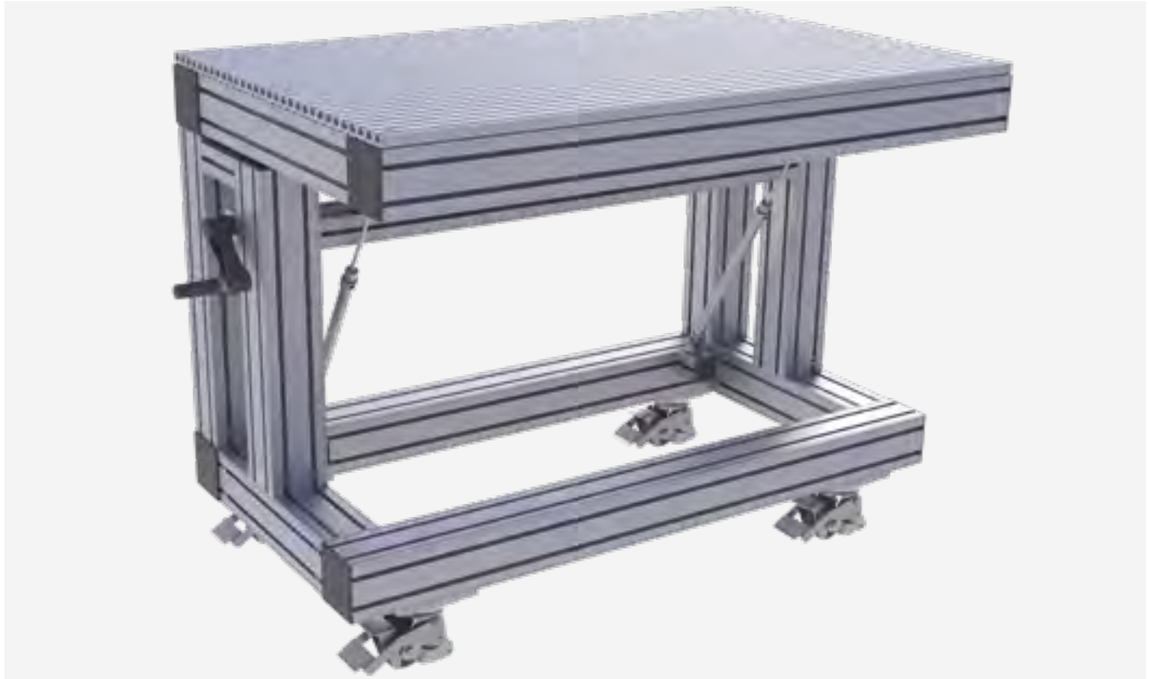
2





X-TABLE

ORDER NUMBER: 0400.1200 ODER 0400.1500



MATRIX X-TABLE profile system

The X-TABLE is a roller table that is matched to the BLUE CLAMP series and its angle of incline can be variably adjusted.

It is available in two sizes:
1200 x 750 mm H 910 mm
1500 x 750 mm H 910 mm

The table can be set up comfortably in horizontal position and then inclined for an optimum measuring position (vehicle position 1 and 2). Lifting rollers are used to lift the table from the leveling feet and move it easily.

1

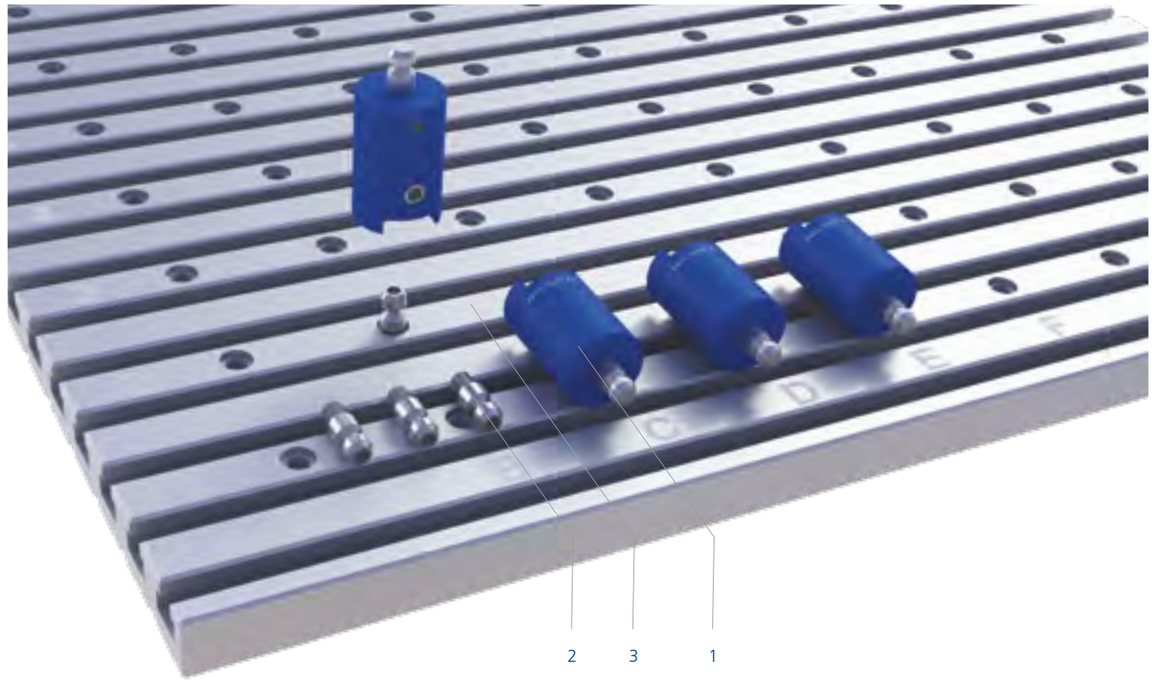


2



X-GRID

ORDER NUMBER: 0900.0510



The **X-GRID** plate is the perfect combination of grid and T-slot support. The parts can be set up in a reproducible manner without sacrificing slot flexibility.

Fig.	Article no.	Quantity	Description	Dimension
1	0050.1244	4	Connector	ø 26 x 40 mm
2	0050.1245	4	Connection pin	–
3	0900.0505	1	Base plate with grid	375 x 500 x 20 mm Slot width: 8 mm Grid width: 50 x 50 mm Thread insert: M6 Positions: 63
–	0900.0000	1	Screwdriver	–

X-SUPPORT - OPTIONAL

ADD-ONS (TO BE ORDERED SEPERATELY)


1


2


3

Fig.	Article no.	Quantity	Description	Dimension
1	0900.9210	1	Magnetic base	Holding force ~ 700N 55 x 50 x 75 mm
2	0700.5001	1	Adapter for hole-matrix jigs	ø 12 mm
3	0700.5002	1	Adapter for hole-matrix jigs	ø 20 mm



MATRIX interfaces
Versatile – also for third-party systems

MATRIX systems are not only strong as an adaptable fixture, but can also be used as support and connection elements in combination with existing jigs – a simple and economical add-on.

Simple handling. Always compatible. Different assemblies for workpieces of various shapes and sizes can be assembled with all MATRIX systems. Simply and quickly, using only a single tool.







MATRIX pin variants
Perfect molding of the workpiece

For the MATRIX BLUE CLAMP product series, simple operation and handling of the workpiece are key aspects, however, the option of use in customized solutions that adapt to the size and surface properties of the workpieces was squarely kept in view. Special pin types have been designed for unusual applications. Every requirement for individual and industry-specific requirements can be met.

For use in CT analyses, the pins of the BLUE CLAMP system are also available in plastic (2+3) of high quality PEEK. As a result, the system is pervious to radiation, non-ageing and compatible. In cases of very sensitive parts (painted surfaces), the variant with plastic pins (1) has proven to be very effective as well.
For use of the BLUE CLAMP series in very robust assembly work, specially manufactured variants of high-strength steel (4) are used.









