ROEMHELD
HILMA ▪ STARK

Workholding systems

Magnetic clamping plates

M-TECS SP 50 · M-TECS SP 70

M-TECS SP Magnetic clamping system

M-TECS square poles
for extremely heavy machining

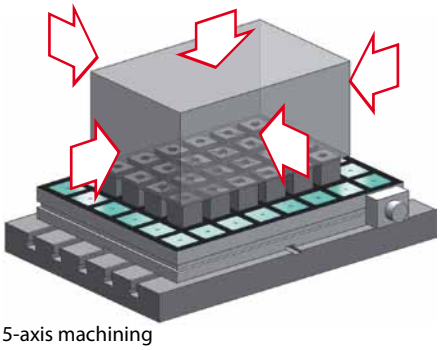
M-TECS square poles on a
vertical machining centre

Use as a clamping cube
on a horizontal machining centre

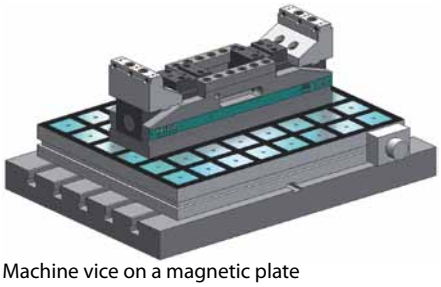
Benefits to you at a glance:

- ☆ Rapid positioning of workpieces
- ☆ Suitable for each workpiece shape and size
- ☆ 5-axis workpiece machining with one single clamping operation
- ☆ Low tool wear as a result of avoiding vibration
- ☆ Long service life, low investment costs

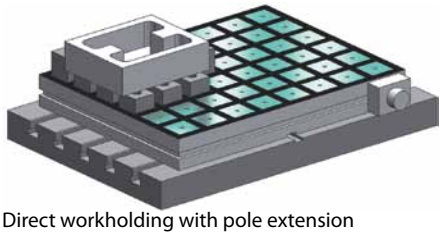
Whatever your individual wishes and requirements, Hilma magnetic clamping systems and the extensive product range of the Römheld Group offer suitable clamping solutions specific to your clamping task. Each magnetic plate can be individually adapted to the particular machine table. Exact positioning is ensured using 20H7 longitudinal and transverse slots. The workpiece is fastened in an all around clamping groove by means of clamping claws. Combinations with Hilma machine vices or Stark zero point clamping systems are readily achievable, as they all come from a single supplier. Additional T-slots, fastening holes, stops and special dimensions are not a problem to us. The versatile, flexible application of Hilma magnetic clamping plates allows almost any type of milling process to be performed.



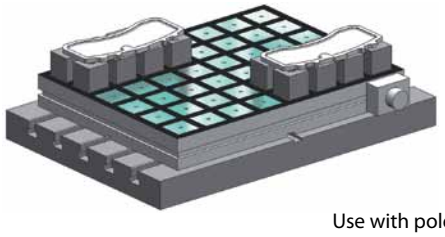
5-axis machining

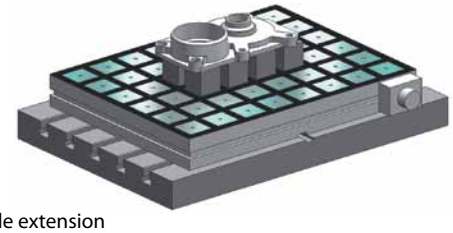


Machine vice on a magnetic plate



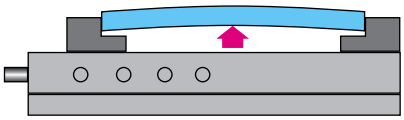
Direct workholding with pole extension



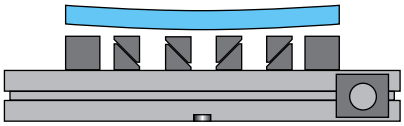


Use with pole extension

With pole extension as a stop

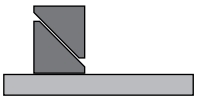


Traditional clamping

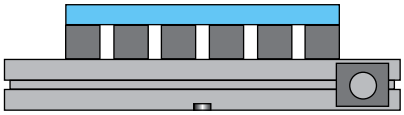


Movable pole extension with compensation function

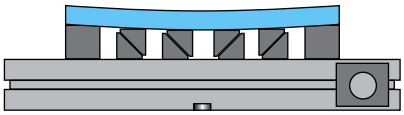
Fixed pole extension



Movable pole extension



Magnetic clamping with fixed pole extension



Movable pole extension, clamped

The workpieces are positioned against lateral stops or using pole extensions on the magnetic plate.

Perfect adaptation to the workpiece contour. Workpieces of any shape can be clamped perfectly using flexible Hilma pole extensions. The pole extensions adapt ideally to the workpiece contour, the workpiece is supported from beneath and is positioned in a stable manner for 5-axis machining.

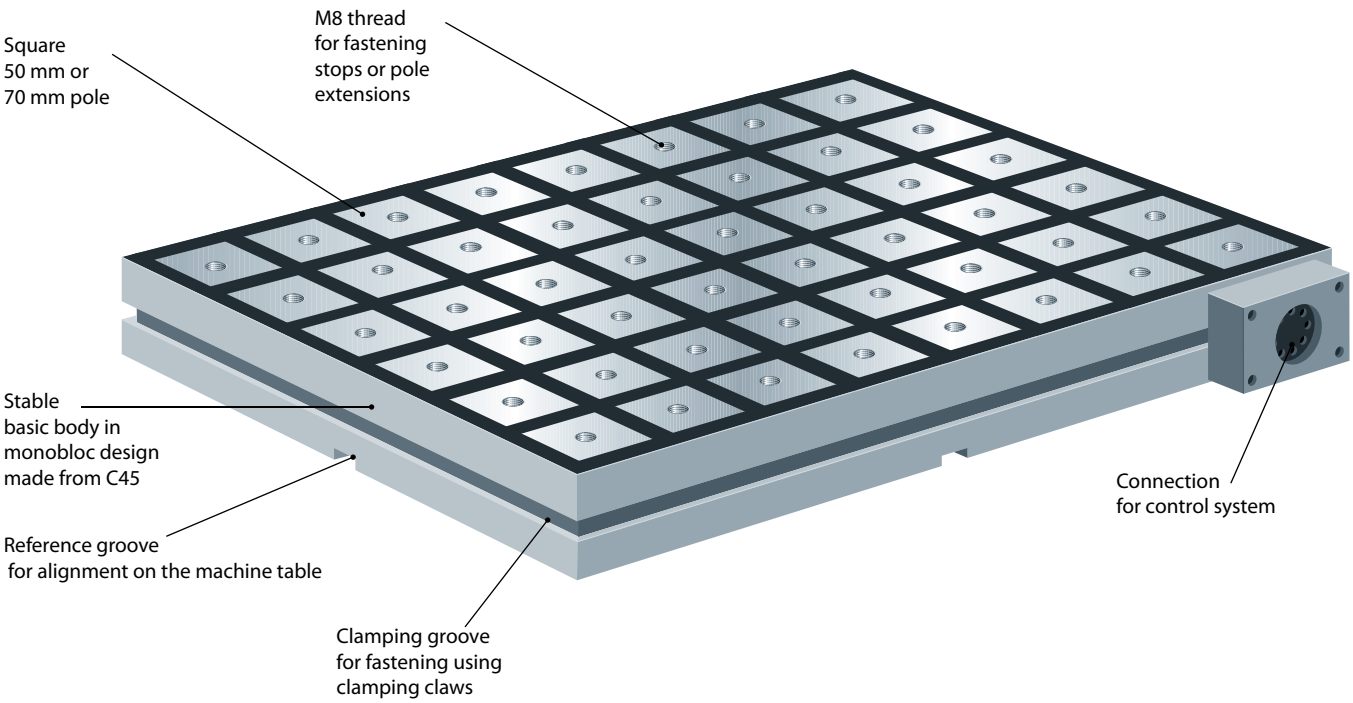
The 5 axes are freely accessible and can be machined in one single clamping operation. Thin-walled or delicate workpieces are clamped gently and safely by the magnetic clamping system. Incorrect clamping is avoided.

Less wear of tools results from the uniform and high magnetic force over the complete workpiece. Vibrations are effectively minimized. This leads to improved surfaces and clearly higher precision.

Low investment costs, usable independently from the machine.
Long service life by regrinding of the clamping plate up to 3 mm.

Further data may be provided as a PDF or a CAD file. Please request them from info@hilma.de

M-TECS SP Magnetic clamping system

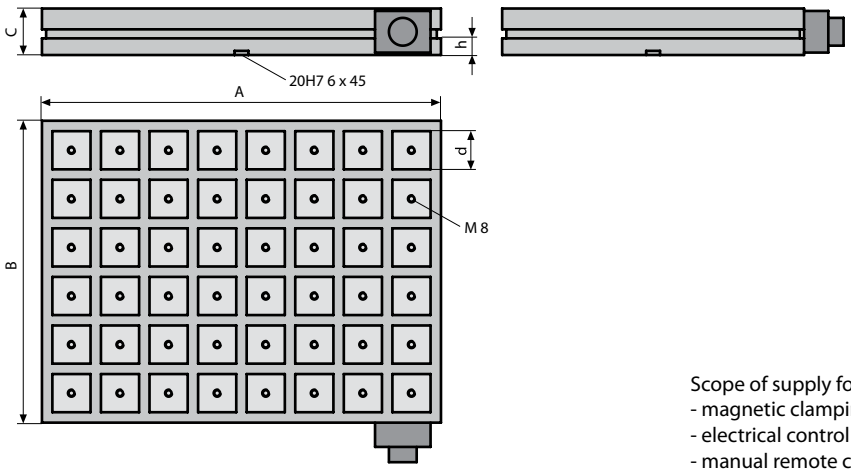


The M-TECS SP50 or 70 series is the versatile clamping system for your machining centre. Electro-permanent magnetic clamping plates with square pole technology produced by Hilma are designed for maximum retaining force and the highest flexibility. Large and small workpieces of unalloyed or alloyed steels, tool steels or ferrous steels with a high ferro-magnetic content can be clamped rapidly and with high process reliability.

Hilma-Römheld magnetic clamping plates are only electrically energized during the magnetizing and demagnetizing phases. Thus, the system is clamped independent of the power supply which is energy-saving and ensures the required safety.

The magnetizing and demagnetizing cycles are activated by means of a separate remote control. The process just takes 1 - 2 seconds and is controlled electronically.

The control system is designed to allow the connection of a safety signal (machine safety option). Then starting of the machine is blocked if the plate is not magnetized.



Scope of supply for the standard version:
- magnetic clamping plate(s)
- electrical control system, single-channel (for the control of up to 126 poles)
- manual remote control with a cable length of 4 m, operating instructions

Retaining forces and standard dimensions

Type	Part no.	Retaining force/pole (daN)	Number of poles	d Pole size (mm)	Dimensions (mm) A (mm)	B (mm)	C (mm)	h (mm)	Weight (kg)
M-TECS	9.1050.0304	350	12	50 x 50	310	250	55	24	34
M-TECS	9.1050.0606	350	36	50 x 50	430	430	55	24	80
M-TECS	9.1050.0906	350	54	50 x 50	430	610	55	24	113
M-TECS	9.1050.0908	350	72	50 x 50	580	610	55	24	153
M-TECS	9.1050.0410	350	40	50 x 50	700	310	55	24	94
M-TECS	9.1050.0914	350	126	50 x 50	1000	610	55	24	263
M-TECS	9.1070.0602	750	12	70 x 70	235	575	67	24	71
M-TECS	9.1070.0404	750	16	70 x 70	435	405	67	24	81
M-TECS	9.1070.0406	750	24	70 x 70	605	405	67	24	129
M-TECS	9.1070.0606	750	36	70 x 70	605	575	67	24	183
M-TECS	9.1070.0408	750	32	70 x 70	775	405	67	24	165
M-TECS	9.1070.0610	750	60	70 x 70	975	575	67	24	295

Further dimensions and special designs on request.

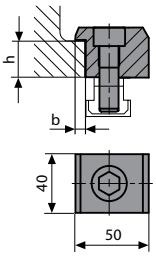
Further data may be provided as a PDF or a CAD file. Please request them from info@hilma.de

M-TECS SP Magnetic clamping system

Accessories

Set of clamping claws with screws

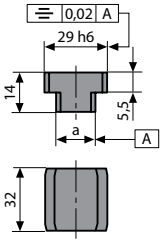
Part no. for 4 OFF = 1 set	h	Cylinder screw DIN 912
9.3777.2011	24	M 12 x 45 8.8

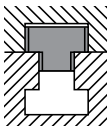


Set of slot nuts DIN 6323

The slot nuts are laterally inserted for correct alignment of the clamping device on the machine table

Part no. for 2 OFF = 1 set	Slot in the table a
9.3917.4121	14 h6
9.3917.4141	18 h6

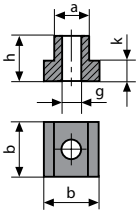




Example of application

Set of T-slot nuts DIN 508

Part no. for 4 OFF = 1 set	a	b	g	h	k
9.3777.3211	14	22	M 12	16	8
9.3777.3231	18	28	M 12	20	10
9.3777.3311	18	28	M 16	20	10



Pole extension - fixed

for pole size 50 x 50 mm

Part no.	Type	Dimensions (mm)
9.1250.0001	fixed	50 x 50 x 30
9.1250.0002	fixed	48 x 40 x 53,5
9.1250.0003	fixed	Ø 50 x 15
9.1250.0004	fixed	Ø 50 x 30
9.1250.0005	fixed	Ø 50 x 50

Pole extension - fixed

for pole size 70 x 70 mm

Part no.	Type	Dimensions (mm)
9.1270.0001	fixed	70 x 70 x 30
9.1270.0002	fixed	70 x 70 x 50
9.1270.0003	fixed	70 x 70 x 86,5
9.1270.0004	fixed	Ø 70 x 15
9.1270.0005	fixed	Ø 70 x 30
9.1270.0006	fixed	Ø 70 x 50

Pole extension - movable

for pole size 70 x 70 mm / 50 x 50 mm

Part no.	Type	Dimensions (mm)
9.12 70.0007	movable	70 x 70 x 86,5
9.12 50.0006	movable	48 x 40 x 53,5

Control unit

Multi-channel device for controlling several magnetic plates

Hilma magnetic clamping plates are supplied with a well-proven electronic control unit and a separate manual remote control which are suitable for the control of single and multiple clamping plates.
Each control unit is provided with a current sensor for measuring the power supply.
The multi-channel control units are equipped to fit into a machine safety system.

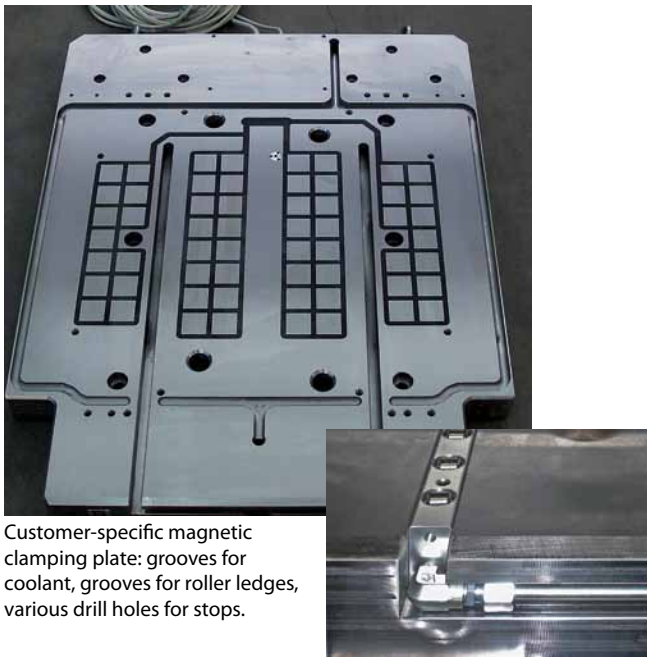
The separate manual remote control is supplied with a magnetic surface (standard version) which allows positioning on a metallic surface close to the operator.

M-TECS safety
- The magnetic clamping plates are provided with the CE-sign
- Low voltage directives 73/23 EEC
- Electromagnetic compatibility EMC 89/336

Individual solutions and adaptations

Magnetic clamping plate with square poles 70 x 70,
plate size 630 x 630 mm, with laterally drilled holes for stop bars

Long poles for heavy machining, plate size 2200 x 1200 mm, with 2 connections. Magnetic retaining force 800 kN.



Customer-specific magnetic clamping plate: grooves for coolant, grooves for roller ledges, various drill holes for stops.

M-TECS long LP poles with power concentration for very small moulds and special applications

Magnetic clamping system for a sliding table 2500 x 1200 mm, retaining force 800 kN, temperature range up to 230°C.

Magnetic clamping system for a mould carrier 1500 x 1000 mm, retaining force 200 kN; temperature range up to 120°C.

Further data may be provided as a PDF or a CAD file. Please request them from info@hilma.de

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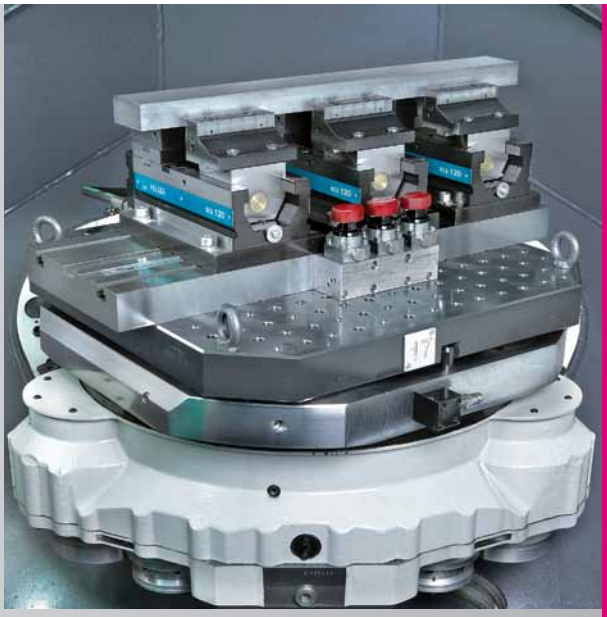
Other examples of applications using Hilma clamping systems

MC 60 Z and Quintus 1
on a 5 axis machining centre

3 SCS 120 H as a customer-specific system in a pallet station. The clamping pressure is controlled by the hydraulic system of the machine.



Tower system with VarioLine for large workpieces

Clamping of plate-shaped workpieces requiring heavy machining.

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