



ROEMHELD
HILMA ■ STARK



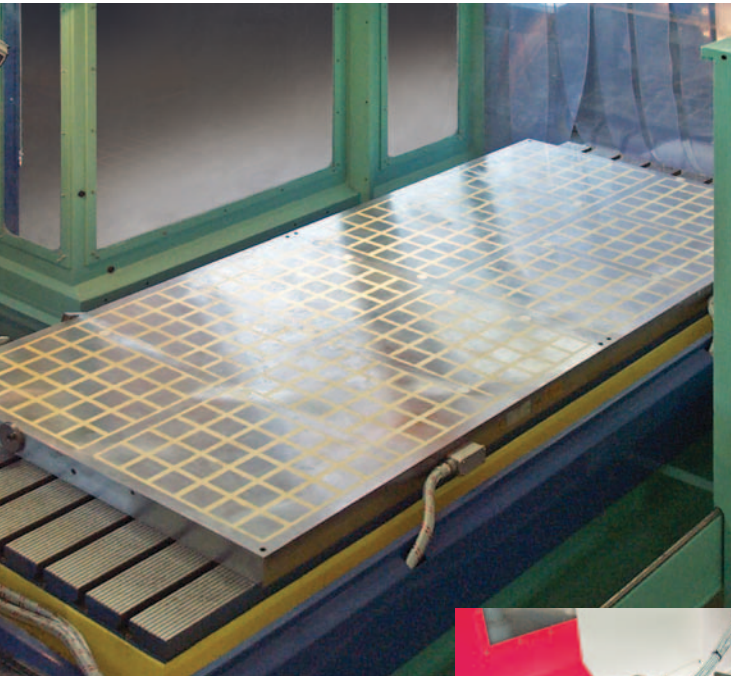
Workholding Systems

Magnetic clamping plates

M-TECS SP 50 · M-TECS SP 70



M-TECS square poles
for extremely heavy machining



M-TECS square poles
on a vertical machining centre

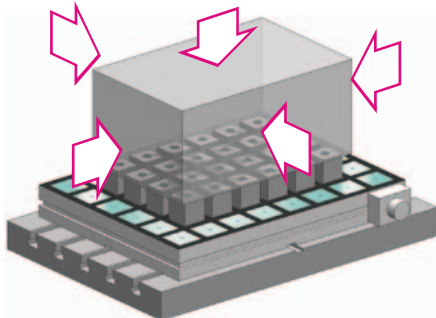


Use as a clamping cube
on a horizontal machining centre

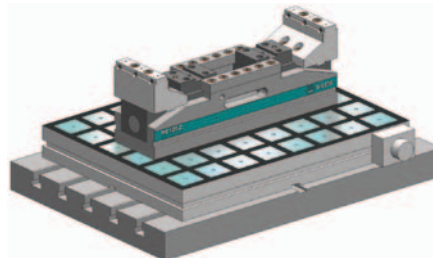
Your benefits at a glance:

- ★ 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

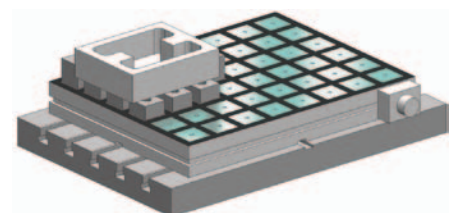
Whatever your individual wishes and requirements, Hilma magnetic clamping systems and the extensive product range of the ROEMHELD Group offer suitable clamping solutions specific to your clamping task. Each magnetic plate can be individually adapted to the particular machine table. Exact positioning on the machine table is ensured using 20H7 longitudinal and transverse slots. The fixation is made in an all around clamping groove by means of clamping claws. Combinations with Hilma machine vices or Stark zero point clamping systems can be easily realised, as they all come from a single supplier. Additional T-slots, mounting 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.



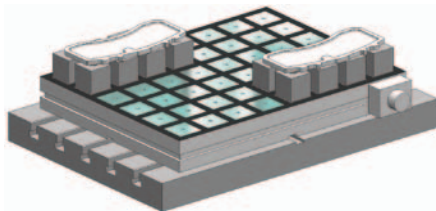
5-axis machining



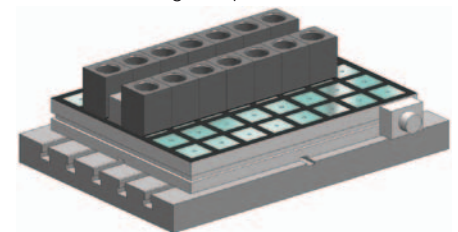
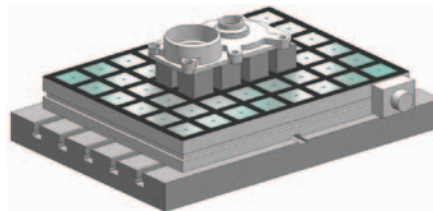
Machine vice on a magnetic plate



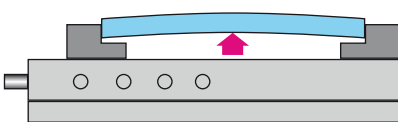
Direct workholding with pole extension



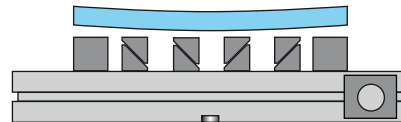
Use with pole extension



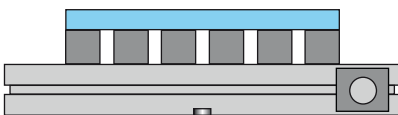
With pole extension as a stop



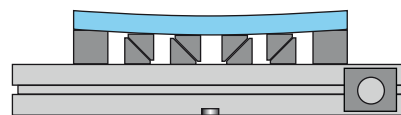
Traditional clamping



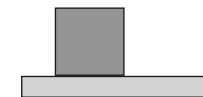
Movable pole extension with compensation function



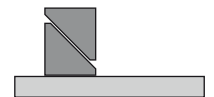
Magnetic clamping with fixed pole extension



Movable pole extension, clamped



Fixed pole extension



Movable pole extension

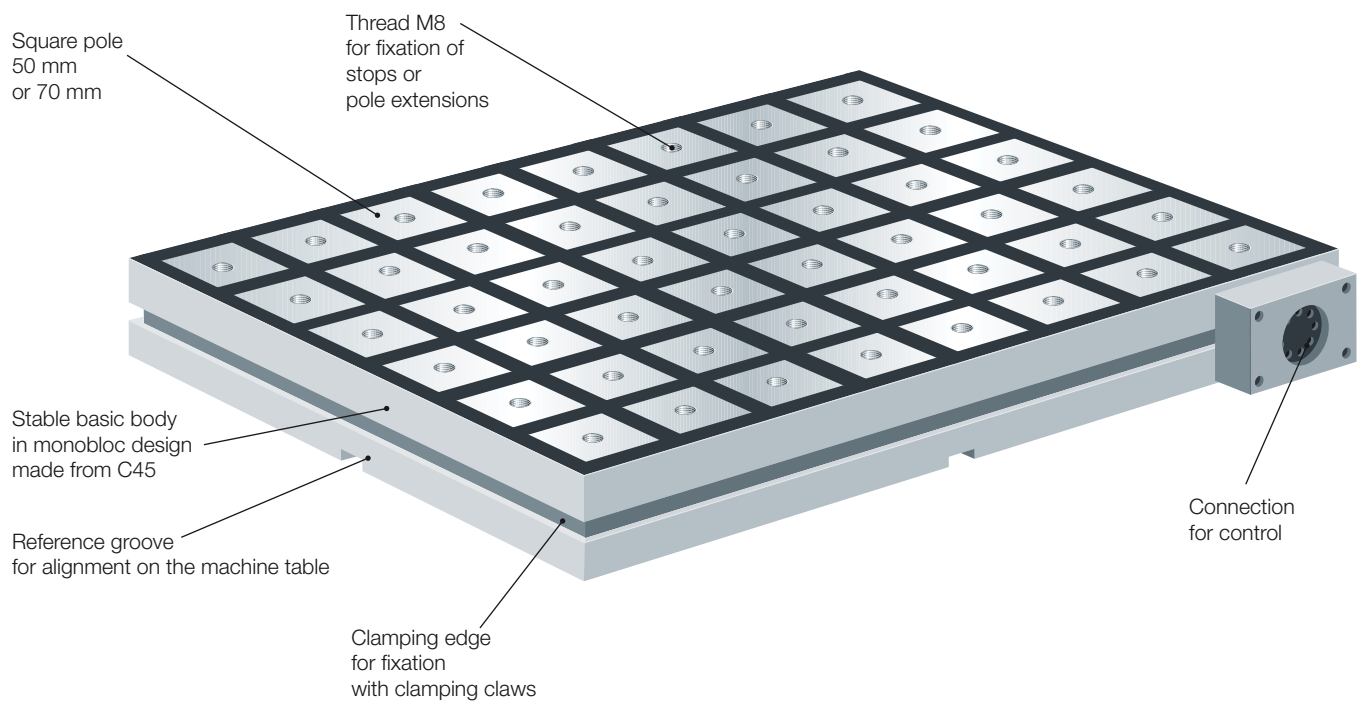
The workpieces are positioned against lateral stops or using pole extensions on the magnetic plate.

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 retention force of the M-TECS SP clamping system. Thus, workpiece distortion is avoided.

Less wear of tools results from the uniform and high magnetic retention 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.

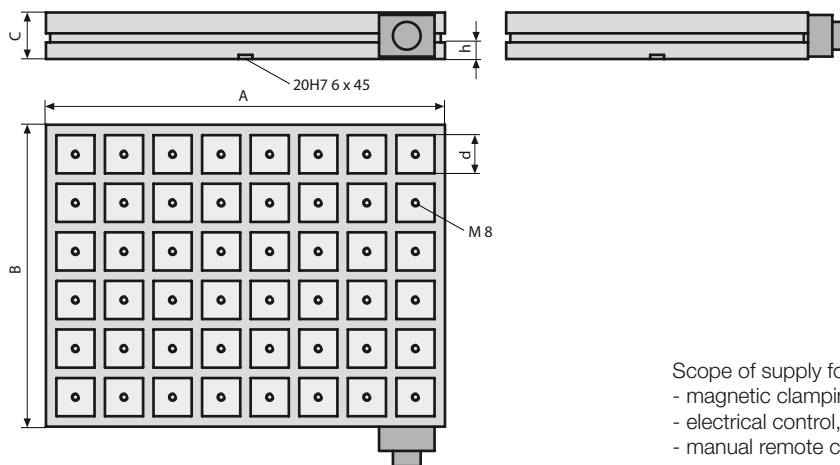


The series M-TECS SP50 or SP70 is the versatile clamping system for your machining centre. Electro-permanent magnetic clamping plates with square pole technology produced by Hilma are designed for maximum retention force and the highest flexibility. Large and small workpieces of unalloyed or alloyed steels, tool steels or ferrous steels with a high ferro-magnetic content can be clamped rapidly and with high process reliability.

Hilma-Römhheld 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, single-channel (for the control of up to 126 poles)
- manual remote control with a cable length of 4 m, operating manual

Retention forces and standard dimensions

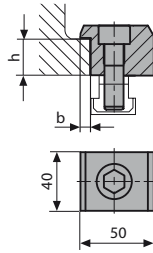
Type	Part no.	Retention force/pole [daN]	Number of poles	d Pole size [mm]	Dimensions in mm				Weight [kg]
					A	B	C	h	
M-TECS	9.1050.0304	350	12	50 x 50	310	250	55	24	34
M-TECS	9.1050.0606	350	36	50 x 50	430	430	55	24	80
M-TECS	9.1050.0906	350	54	50 x 50	430	610	55	24	113
M-TECS	9.1050.0908	350	72	50 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.



Set of clamping claws with screws

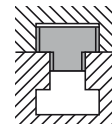
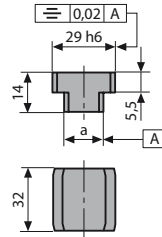
Part no. for 4 off = 1 set	h	Socket head cap screw DIN 912
9.3777.2011	24	M 12 x 45 8.8



Set of key blocks DIN 6323

For precise alignment of the clamping device on the machine table the key blocks are inserted laterally.

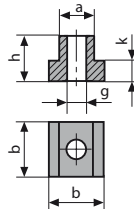
Part no. for 2 off = 1 set	Table slot a
9.3917.4121	14 h6
9.3917.4141	18 h6



Application example

Set of T-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 extensions - fixed

for pole size 50 and 70 mm

Part no.	Type	Dimensions [mm]
9.1250.0007	fixed	50 x 50 x 32
9.1270.0002	fixed	70 x 70 x 45

Pole extensions - movable

for pole size 50 and 70 mm

Part no.	Type	Dimensions [mm]
9.1250.0008	movable	50 x 50 x 32
9.1270.0007	movable	70 x 70 x 45

Control unit



Multi-channel device for control of 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 equipped 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

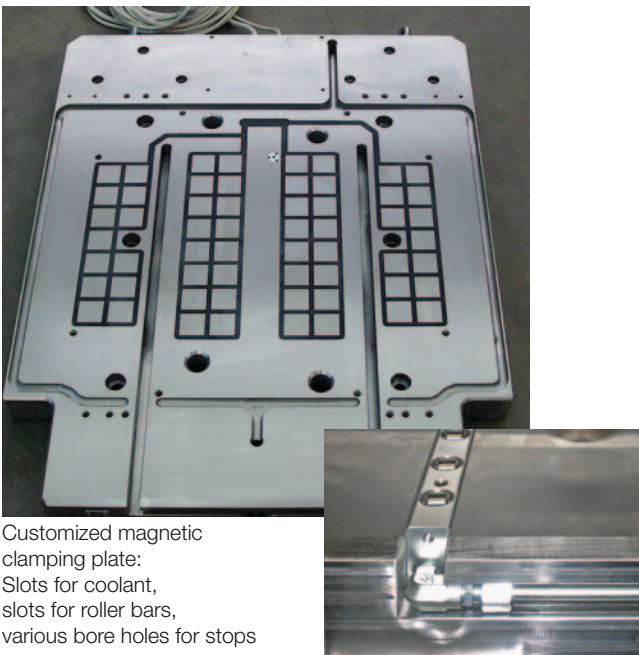
- The magnetic clamping plates have the CE mark
- Low voltage directives 73/23/EEC
- Electromagnetic compatibility EMC 89/336



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



Long poles for heavy machining, plate size 2200 x 1200 mm with 2 connections, magnetic retention force 800 kN



Customized magnetic clamping plate:
Slots for coolant,
slots for roller bars,
various bore holes for stops



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



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



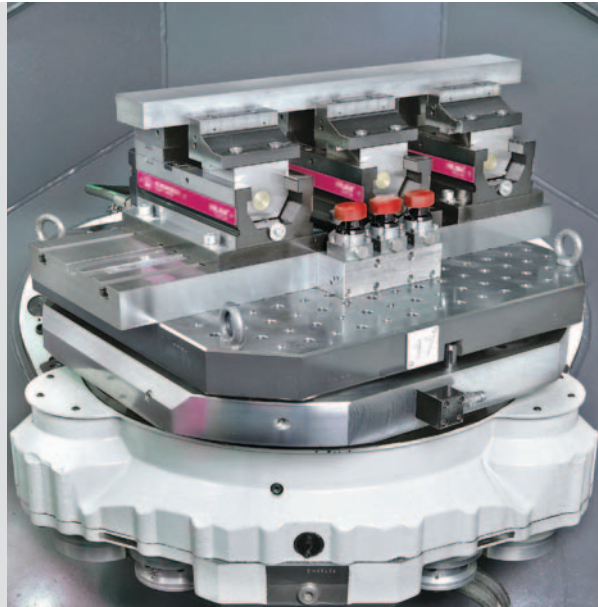
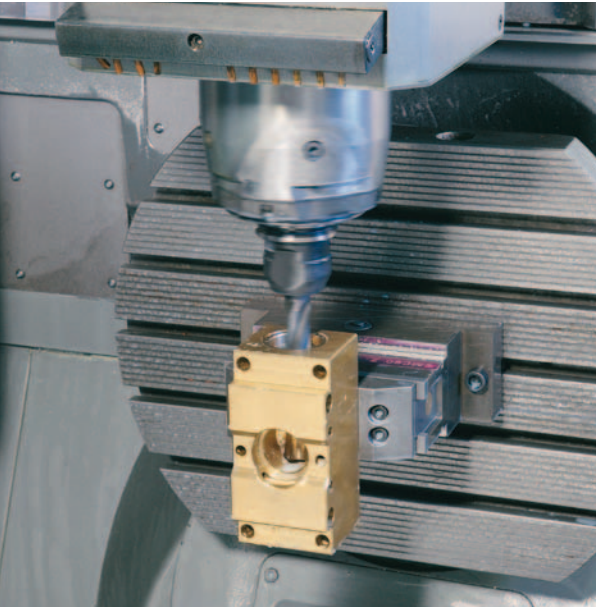
Magnetic clamping system for a mould carrier 1500 x 1000 mm, retention force 200 kN, temperature range up to 120 °C



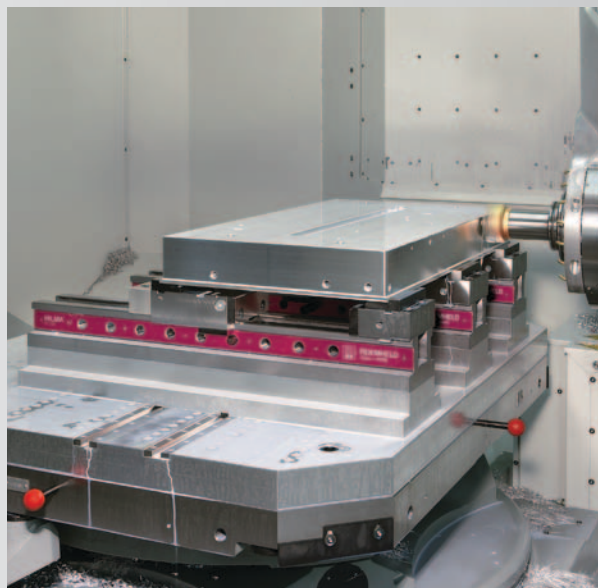
ROEMHELD
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MC 60 Z and QUINTUS 1
on a 5-axis machining centre

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 design using Varioline for large
workpieces



Clamping of plate-shaped workpieces
with high cutting performance

Hilma-Römheld GmbH
Schützenstraße 74 · 57271 Hilchenbach, Germany
Phone: +49 27 33 / 281-0 · Fax: +49 27 33 / 281-169
E-mail: info@hilma.de · www.hilma.de

P r o d u c t s f o r p r o d u c t i v i t y