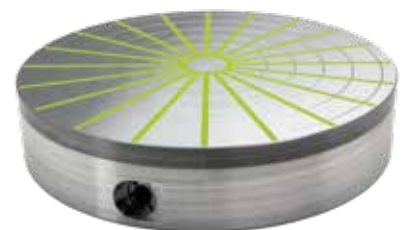


MAGNETIC CLAMPING

CLAMP • PALLETIZE • CONTROL





Flaig Magnetsysteme GmbH from Hardt in the Black Forest has been producing magnets for lifting, clamping and holding. We manufacture a wide range of standard and special solutions of all kinds on modern machines. Our experience and our innovative spirit make us a competent partner for magnetic applications.

Flaig Magnetsysteme - From experience and innovation



Magnetic Clamping

Magnetic clamping devices, such as magnetic chucks, round chucks and clamping blocks, are used in all areas of metalworking. In grinding, milling, eroding and metrology, magnetic clamping devices prove themselves every day through high precision, distortion-free clamping and durability.

In the following chapter „Magnetic clamping“ you will find a large selection of magnetic clamping fixtures for a wide range of applications. In addition to our wide range of standard devices, we also offer you special solutions for your individual clamping problem. The holding forces specified in this catalog refer to a test workpiece with 40 x 40 x 20 mm and a ground surface made of St37.

The following factors reduce the holding forces:

- Poor surface/air gap
- Poorly magnetizable materials such as cast iron or alloy steel
- Full-surface occupancy of the magnetic plate (the total holding force increases, but the holding force per cm² decreases)



Page 4 - 25

Electro-permanent magnetic clamping technology



Page 26 - 29

Permanent magnetic clamping technology



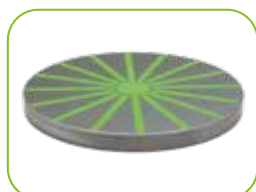
Page 30 - 33

Permanent Magnetic round chuck



Page 34 - 35

Sine tables



Page 36 - 37

Lamella plates and blocks



Page 38 - 39

Permanent Magnetic clamping blocks



Page 40

Magnetic prisms

FXL Electro-Permanent Magnetic clamping systems

Magnetic clamping is fun!

Place the workpiece on the table, activate the clamping system and start machining.

It sounds too good to be true, but in fact this is a feasible reality for many workpieces.

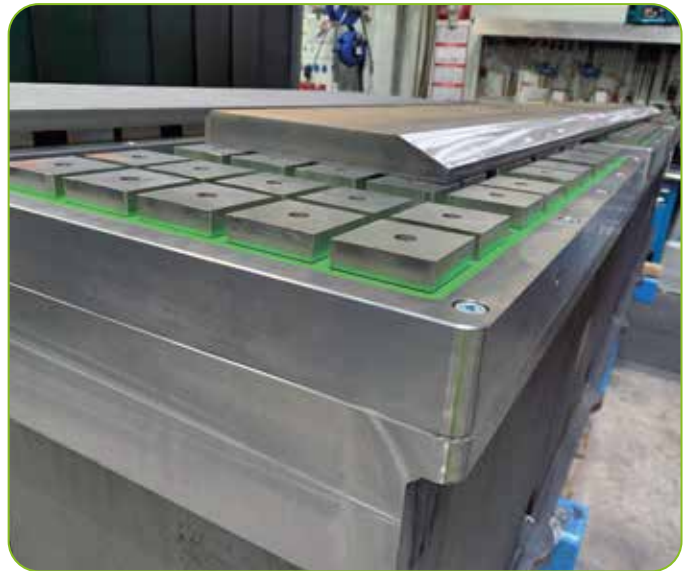
The simplicity of the application is by no means the only argument in favor of magnetic clamping technology:

- Low-vibration machining and clamping of workpieces
- Fast and secure clamping of uneven parts
- Uniform clamping force over the entire surface without warping or distorting the workpiece
- Five-sided machining in just one clamping operation
- Full usability of the travel paths
- Minimal set-up times
- Fast and precise plane-parallel milling
- Clamping of distorted welded constructions in the shortest possible time
- Quick assembly of individual, magnetic clamping fixtures
- Equal holding force in all directions thanks to square pole technology

Depending on the processing and workpiece geometry, rectangular or round plates with square or radial poles are used.



Milling of guideways, clamped in vertical tension on mobile pole extensions



Welding edge preparation in large part production



FXL-R magnetic chuck on a machining center with rotary table D=1250mm



FXL extends the possibilities to 5-axis machines

FXL Electro-Permanent Magnetic clamping systems

The FXL square pole technology is the product of over 20 years of experience in magnetic clamping technology and combines solutions to the most common customer requirements in the highest quality design.

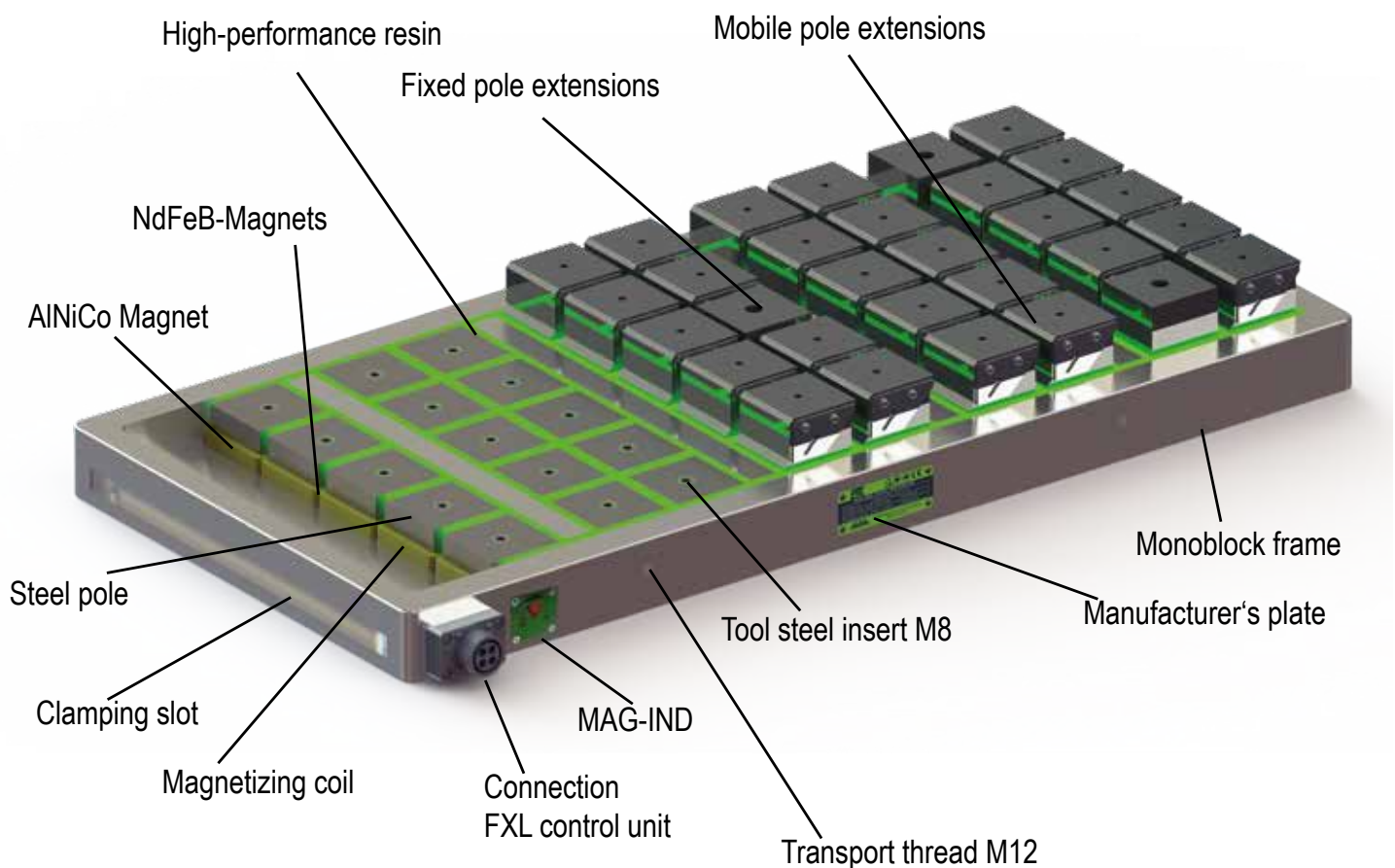
Magnetic poles, powered by AlNiCo and NdFeB magnets, are anchored in a solid, super-rigid monoblock body by means of a tool steel insert with an M8 internal thread. The back of the clamping plate remains flat and can be drilled at all points - for example, to insert a zero-point clamping system - and the magnet system is coated with high-performance resin in a multi-stage process, which has a high mechanical strength and ensures absolute tightness and perfect electrical insulation.

Clamping slots and transport threads help to quickly attach and fix the magnetic chucks; the connection is made via the tried-and-tested 28 mm 4-pin female plug connection or via fixed connection sockets.

FXL magnetic chucks can be controlled with our FXL-C control units or with almost all control units from other leading manufacturers.

We only use materials of the highest quality for our FXL magnetic clamping systems, which are manufactured in Germany.

Various pole sizes and geometries are available. Depending on the expected workpiece geometry, you can choose between 50 square poles, 70 square poles or radial poles.



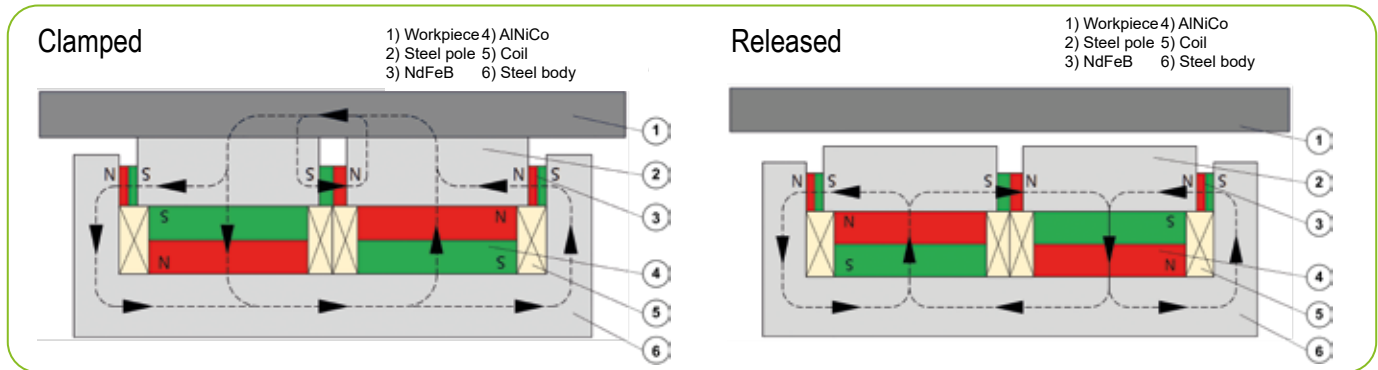
Magnetic Clamping

FXL Elektro-Permanent Magnetic clamping systems

Safe

Electro-permanent magnetic clamping technology only requires the connection to the control unit for clamping and unclamping, the cable can be disconnected during processing.

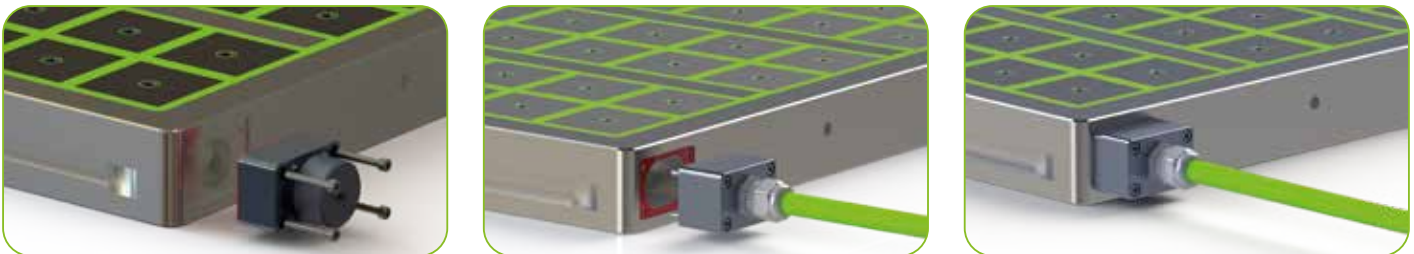
Ideal for palletizing, for rotating clamping plates or just to be able to close the machine door.



Clever

With little effort, it can be converted on site from a plug-in connection to a fixed connection or vice versa. This quickly turns a flexible clamping plate into a fixed clamping plate with maximum availability if requirements or machinery change.

Info: the plug-in connection with closed cover achieves protection class IP67
the fixed connection achieves protection class IP68, tight up to 5 bar
Connection via spring terminals - quick and safe



Informative

The optionally available switching status display informs the user about the switching status of the clamping plate even when the cable is disconnected, thus increasing safety for the user; ideal for palletizing.



Chuck magnetized

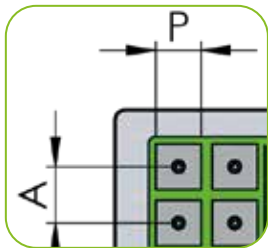


Chuck demagnetized

FXL-50 Electro-Permanent Magnetic chucks

FXL magnetic chucks with pole type 50 are used to securely clamp workpieces from approx. 100x100mm with low material thickness.

Poles of size 50x50mm generate a magnetic field that penetrates approx. 12mm into the workpiece, which is why they are particularly suitable for thinner and smaller workpieces. Another advantage is that more pole transitions are used, especially for smaller workpieces, which ensures more even clamping. The nominal holding force is a super strong $160 \text{ N/cm}^2 = 4 \text{ kN}$ per pole.



Model	Art.-Nr.	Dimensions (mm)					Number Poles° N	Weight (kg)
		L	W	H	A	P		
FXL 203/50	2950 0203	320	198	66	64,2	50	8	30
FXL 204/50	2950 0204	440	198	66	64,2	50	12	42
FXL 206/50	2950 0206	650	198	66	64,2	50	18	62
FXL 303/50	2950 0303	320	320	66	64,2	50	16	48
FXL 304/50	2950 0304	430	320	66	64,2	50	24	60
FXL 305/50	2950 0305	500	320	66	64,2	50	24	75
FXL 306/50	2950 0306	630	320	66	64,2	50	32	96
FXL 308/50	2950 0308	800	320	66	64,2	50	40	121
FXL 404/50	2950 0404	392	392	66	64,2	50	25	73
FXL 406/50	2950 0406	620	392	66	64,2	50	40	115
FXL 408/50	2950 0408	810	392	66	64,2	50	50	150
FXL 410/50	2950 0410	1120	392	66	64,2	50	70	210
FXL 505/50	2950 0505	500	460	66	64,2	50	36	110
FXL 506/50	2950 0506	650	460	66	64,2	50	48	150
FXL 508/50	2950 0508	810	460	66	64,2	50	60	176
FXL 510/50	2950 0510	1120	460	66	64,2	50	84	250
FXL 606/50	2950 0606	650	580	66	64,2	50	64	175
FXL 608/50	2950 0608	800	580	66	64,2	50	80	220
FXL 610/50	2950 0610	998	580	66	64,2	50	96	270
FXL 611/50	2950 0611	1120	580	66	64,2	50	112	310
FXL 612/50	2950 0612	1258	580	66	64,2	50	128	350

Suitable Controllers from page 18

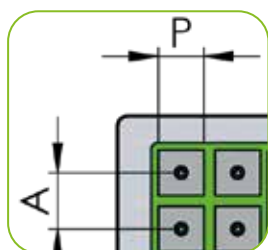
FXL-70 Electro-Permanent Magnetic chucks

FXL magnetic chucks with pole type 70 are used to securely clamp workpieces from approx. 150x150mm with material thicknesses from approx. 15mm.

Poles of size 70x70mm generate a magnetic field that penetrates approx. 18mm into the workpiece, which is why they are particularly suitable for larger workpieces.

Very good air gap behavior also allows uneven workpieces to be clamped securely. In addition, pole extensions with a larger stroke can be used on 70 poles for height compensation.

The nominal holding force is a super-strong $160 \text{ N/cm}^2 = 7.8 \text{ kN}$ per pole.



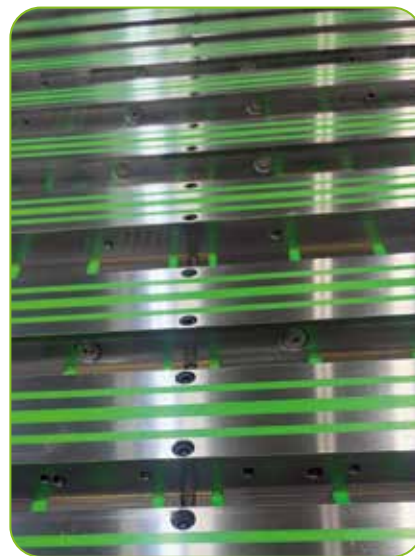
Model	Art.-Nr.	Dimensions (mm)					Number Poles° N	Weight (kg)
		L	W	H	A	P		
FXL 306/70	2971 0306	610	310	66	82,2	70	18	90
FXL 308/70	2971 0308	800	310	66	82,2	70	24	120
FXL 310/70	2971 0310	1000	310	66	82,2	70	30	100
FXL 404/70	2971 0404	470	390	66	82,2	70	20	40
FXL 406/70	2971 0406	610	390	66	82,2	70	24	110
FXL 408/70	2971 0408	800	390	66	82,2	70	32	150
FXL 410/70	2971 0410	1000	390	66	82,2	70	40	185
FXL 506/70	2971 0506	610	480	66	82,2	70	30	140
FXL 508/70	2971 0508	800	480	66	82,2	70	40	185
FXL 510/70	2971 0510	1000	480	66	82,2	70	50	230
FXL 512/70	2971 0512	1200	480	66	82,2	70	60	275
FXL 606/70	2971 0606	610	580	66	82,2	70	36	170
FXL 608/70	2971 0608	800	580	66	82,2	70	48	222
FXL 610/70	2971 0610	1000	580	66	82,2	70	60	275
FXL 612/70	2971 0612	1200	580	66	82,2	70	72	335
FXL 808/70	2971 0808	820	770	66	82,2	70	64	305

Suitable Controllers from page 18

FXL-LP Electro-Permanent Magnetic chucks

FXL-LP electro-permanent magnetic chucks with fine pole pitch combine the advantages of permanent and electro magnetic chucks.

The clamping plate does not heat up during long clamping times, has a very controlled magnetic field and offers the possibility of holding force regulation and demagnetization. FXL-LP magnetic chucks are designed for high-precision grinding and eroding work - even on small workpieces. They impress with their uniform holding force over the entire clamping range.



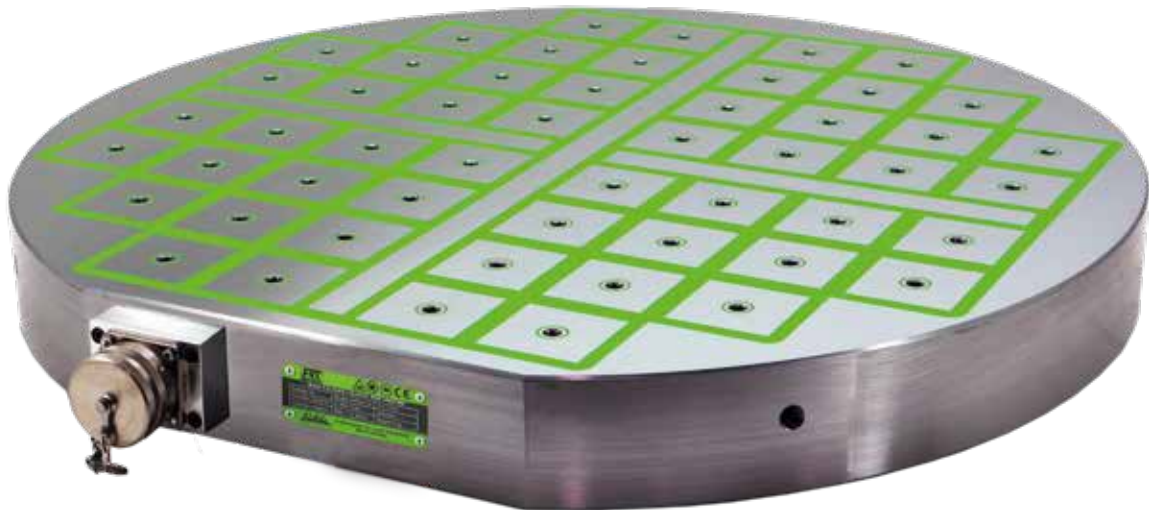
Model	Art.-Nr.	Dimensions (mm)			pole pitch	holding force (N/cm ²)	Weight (kg)
		L	W	H			
FXL-LP 305	2710 0305	500	300	66	15+5	100	69
FXL-LP 306	2710 0306	600	300	66	15+5	100	83
FXL-LP 308	2710 0308	800	300	66	15+5	100	111
FXL-LP 406	2710 0406	600	400	66	15+5	100	111
FXL-LP 408	2710 0408	800	400	66	15+5	100	148
FXL-LP 410	2710 0410	1000	400	66	15+5	100	185
FXL-LP 508	2710 0508	800	500	66	15+5	100	185
FXL-LP 510	2710 0510	1000	500	66	15+5	100	231
FXL-LP 512	2710 0512	1200	500	66	15+5	100	277
FXL-LP 608	2710 0608	800	600	66	15+5	100	222
FXL-LP 610	2710 0610	1000	600	66	15+5	100	277
FXL-LP 612	2710 0612	1200	600	66	15+5	100	333

Suitable Controllers from page 18

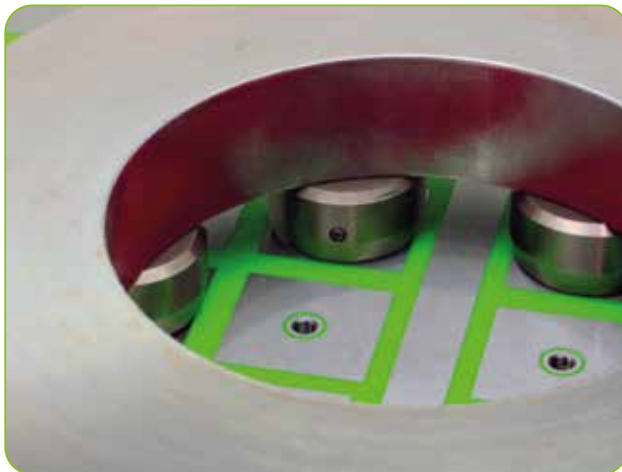
FXL-R Electro-Permanent Magnetic chucks

FXL-R round magnetic chucks in square pole technology are particularly suitable for use on lathes and on rotary tables of machining centers. The frame construction of the FXL plate can be equipped with centering elements both at the front on the clamping side and at the rear.

The connection to the FXL-C control unit can be plugged in on the outside or via a sliding contact with shaft bushing on the rear.



The rear side can be drilled 25 mm deep at all points. FXL-R are often adapted precisely to the machine rotary table in a customer-specific design and can also be fitted with zero-point clamping systems if required.



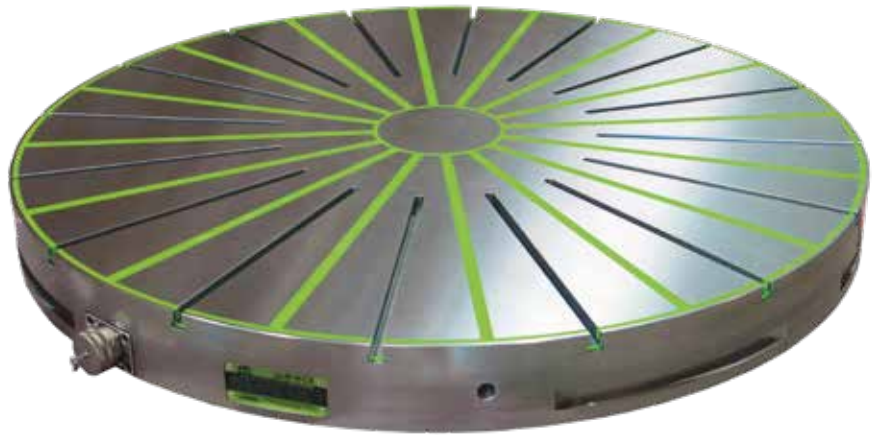
Model	Art.-Nr.	Dimensions (mm)		Number Poles °N	Weight (kg)
		ØD	H		
FXL-R 420/50	2915 0420	420	66	24	65
FXL-R 600/50	2915 0600	600	66	52	135
FXL-R 750/50	2915 0750	750	66	68	210
FXL-R 900/50	2915 0900	900	66	108	300
FXL-R 1000/70	2917 1000	1000	66	72	390
FXL-R 1250/70	2917 1250	1250	80	120	550

Suitable Controllers from page 18

FXL-RR Electro-Permanent Magnetic chucks

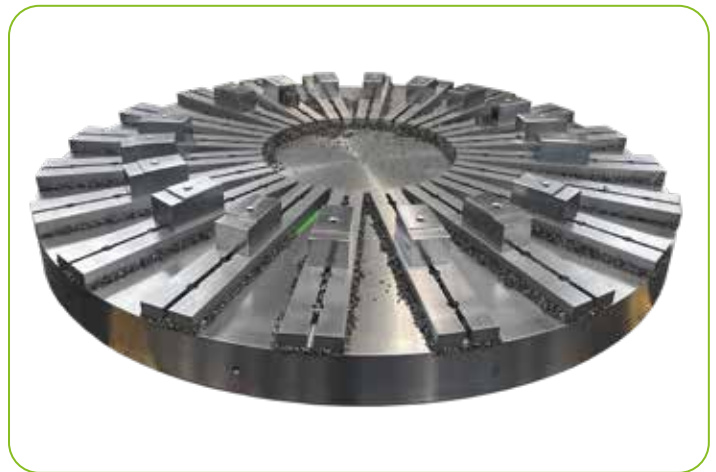
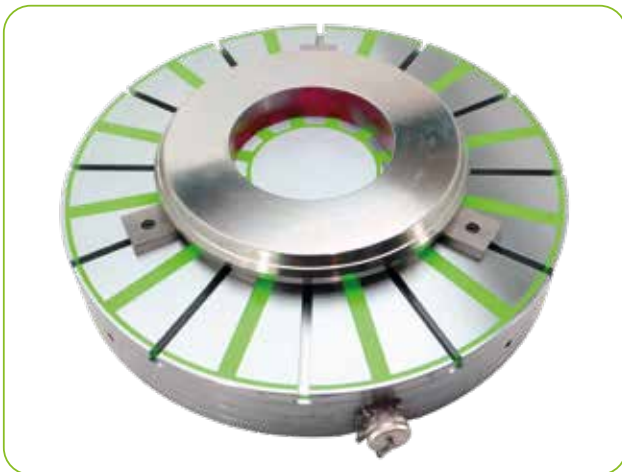
FXL-RR magnetic chucks are especially suitable for the rotationally symmetrical machining of rings, sleeves and flanges. The radial pole pitch ensures uniform clamping over the entire contact surface and additional mechanical positioning and clamping aids can be inserted into the T-slots in the poles. The T-slots also offer the option of using mobile or fixed pole extensions to free the workpiece or to clamp it without pull-down.

The connection to the FXL-C control unit is pluggable on the outside or via a rear sliding contact with shaft bushing.



FXL RR magnetic chucks are available in two versions

- FXL RR with max. 160 N magnetic force per cm² active surface and release impulse for turning operations with maximum holding force
- FXL RR-Z with max. 120 N magnetic clamping force per cm² active surface and optimized demagnetization for fine machining on high-alloy and tempered workpieces



Model	Art.-Nr.	Dimensions (mm)		Number Poles °N	Weight (kg)
		ØD	H		
FXL-RR 600*	2925 0600	600	90	12	190
FXL-RR 750*	2925 0750	750	90	12	250
FXL-RR 1000*	2925 1000	1000	90	20	490
FXL-RR 1250*	2925 1250	1250	90	20	780
Suitable Controllers from page 18					
Other sizes on request • *All models also available as Z model					

FXL-Block Electro-Permanent Magnetic clamping blocks

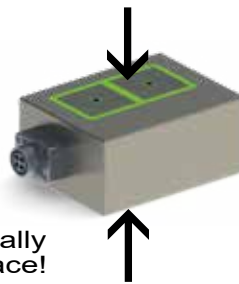
We offer FXL magnetic clamping blocks in many sizes and designs. They can be manufactured with one or more clamping surfaces and different pole sizes. As with the FXL magnetic chucks, they are controlled via an FXL-C control unit; either with just one channel or with several channels to control the individual clamping surfaces of a block separately.



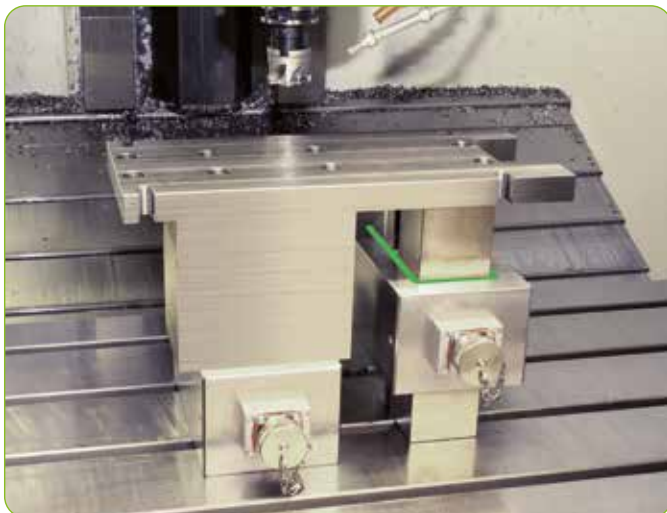
Options



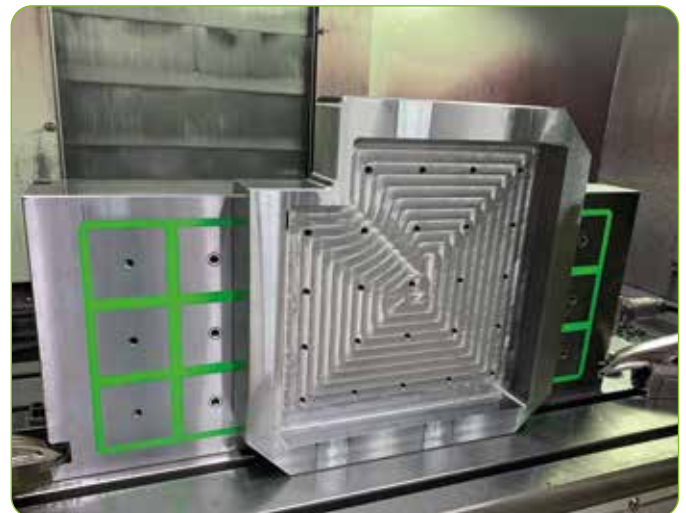
2 magnetically active surface!



One magnetically active surface!



Height-flexible, clamping support blocks



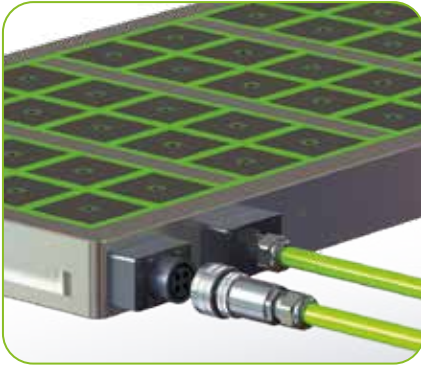
Vertical clamping surface on 3-axis machines

Model	Art.-Nr.	Dimensions (mm)			clamping surfaces	Number Poles "N"	pole type	Weight (kg)
		L	W	H				
FXL-B 1x8/50	2952 0108	310	230	95	1	8	50	48
FXL-B 1x2/70	2972 0102	200	100	66	1	2	70	9
FXL-B 2x2/70	2972 0202	200	100	130	2	2x2	70	18
FXL-B 1x12/70	2972 0112	420	298	115	1	12	70	98
FXL-B 1x24/70	2972 0124	750	298	115	1	24	70	170

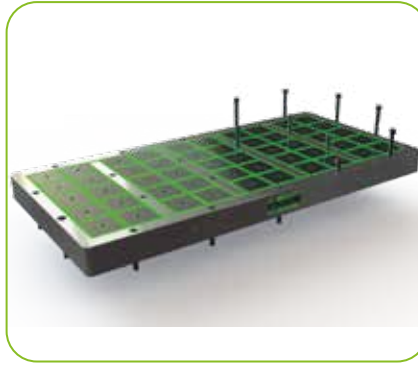
Many other sizes on request

FXL electro-permanent magnetic chucks are perfectly tailored to your individual application

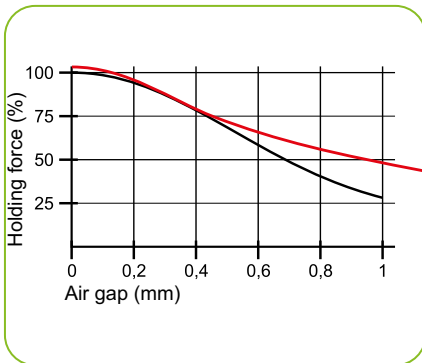
Plug-in or fixed connection sockets can be installed at almost any position on the clamping plate



Fixing holes can be drilled as through holes or threaded holes from the rear



Inserts for NPS systems possible anywhere on the reverse side



Reinforced magnet system for poor surfaces or poorly magnetizable materials can be designed according to your requirements



T-slots and bores, adapted clamping surface geometry combined with mechanical clamping and positioning and positioning options, we design for you



All-metal surfaces, also corrosion-resistant, for maximum wear resistance, heat dissipation or machinability



FXL Supplies

Mobile and fixed pole extensions on the square pole clamping system enable the clamping of wavy and distorted metal parts. They adapt to your workpiece and hold it securely. The individual contact points between the magnetic clamping plate and the workpiece can be defined individually.

It is also possible to drill through and machine the inside edges of magnetically clamped workpieces. Additional pole extensions can be set up and attached or interfering pole extensions removed in next to no time - so every workpiece has its own individual clamping device in no time at all.

For five-sided machining, the workpiece can be exposed with pole extensions. Pole plates can be used to incorporate complex structures of workpieces that are difficult to clamp into the magnetically active surface.

Our pole extensions are made of high-quality special steel and have the best magnetic flux properties - technically perfect and durable.



- Low-vibration machining and clamping of workpieces
- Protection of the magnetic chuck
- Flexibility in the clamping height
- Interference-free / drilling and milling possible
- No vacuum adhesion between magnetic chuck and workpiece
- Problem-free releasing of the workpiece even with high-alloy/hardened materials



Tilt-free three-point support with 3 fixed pole extensions and mobile pole extensions for automatic adjustment to the workpiece.

Lightning fast Parallel

Roughing the 1st surface



Turning and roughing the 2nd surface



Turning and finishing the 1st surface



Standard pole extensions

Fixed pole extensions are used to provide the three-point support when used in conjunction with mobile pole extensions or to elevate inherently rigid, flat materials.

By using a full complement of fixed pole extensions, the magnetic chuck is protected against wear and faults. The pole extensions can always be milled over in the event of wear.



Single-pole, round

Model	Art.-Nr.	Dimensions (mm)	
		Ø	H
PVR 50 H15	2410 15031-15	50	15 ±0,01
PVR 50 H32	2410 15031	50	32 ±0,01
PVR 70 H20	2410 17021	70	20 ±0,01
PVR 70 H45	2410 17043	70	45 ±0,01



Single-pole, square

Model	Art.-Nr.	Dimensions (mm)	
		L x W	H
PVQ 50 H15	2410 15032-15	50 x 50	15 ±0,01
PVQ 50 H32	2410 15032-1	50 x 50	32 ±0,01
PVQ 50 H54	2410 15032-54	50 x 50	54 ±0,01
PVQ 70 H20	2410 17020-1	70 x 70	20 ±0,01
PVQ 70 H45	2410 17045-1	70 x 70	45 ±0,01
PVQ 70 H70	2410 17020-2	70 x 70	70 ±0,01

MP Mobile standard pole extensions

Mobile pole extensions MP are screwed onto the magnetic poles using an Allen key. The surface of the MP pole extension is blasted and electrolytically nickel-plated. Mobile pole extensions are used to clamp workpieces over their entire surface without distortion. The upper part of the pole extension moves to the level of the workpiece via the inclined plane and stiffens it without pulling it down.



MP 50 H32 / MP 70 H45

Upper part secured by guide plate.
Advantageous for vertical clamping!



MP 50 H54



MP 70 H70

Top section free-floating, enables maximum height compensation and easy cleaning!

Model	Art.-Nr.	Suitable for Pole size	Dimensions (mm)			Suitable for fixed pole extensions	Weight (kg)
			L	W	H		
MP 50 H32	2410 35032-1	50 mm	50	50	29 - 35	H = 32mm	0,5
MP 50 H54	2410 35054	50 mm	50	50	44 - 59	H = 54mm	1
MP 70 H45	2410 37045	70/75mm	70	70	40,5 - 50,5	H = 45mm	1,5
MP 70 H70	2410 37070	70/75mm	70	70	60 - 75	H = 70mm	2,5

With M8 fixing screws

RMP Mobile pole extensions

Mobile pole extensions of type RMP are simply screwed onto the magnetic plate by hand using the screwed-on threaded pin (M8 x 10 mm). The surface of the RMP pole extension is completely machined and chemically nickel-plated. The magnetic performance is improved compared to the 20% higher than the standard square pole extension and the closed design largely prevents the ingress of dirt and swarf. The round design generates a purely vertical stroke. The clamping surface is sandblasted to increase friction.



RMP 57 / RMP 78

Model	Art.-Nr.	Suitable for pole size	Dimensions (mm)		Suitable for fixed pole extensions	Weight (kg)
			Ø	H		
RMP 57	2420 057	50 mm	57	29,5 - 34,5	H = 32mm	0,5
RMP 78	2420 078	70/75mm	78	40 - 47,5	H = 45mm	1,2

Pole plates Steel/brass

SMS 50 and SMS 70 all-metal pole plates can be mounted on FXL magnetic chucks. The pole plates are manufactured using the shrink-fit process and are extremely rigid.

Grooves, stops, contours and similar features can be incorporated into the magnetically active, mechanically machinable surface for fixtures for series production.

For automated applications, compressed air outlets can be incorporated into the pole plate for cleaning the pole plates and for safe release of the workpieces.

The size of the pole plates is determined on a customer-specific basis depending on the requirements and area of application. Heights between 22mm and 52mm can be realized.

The use of magnetic clamping plate + SMS pole plate has proven itself for welding 3D sheet metal parts!

Dimensions are available for all FXL magnetic chucks or customized.

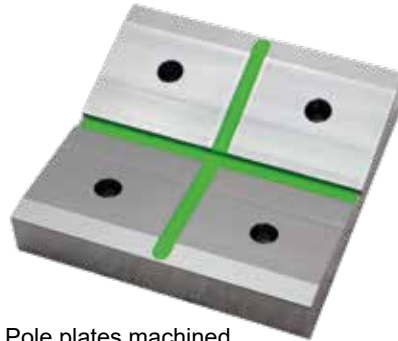


Pole plates Steel/Epoxy

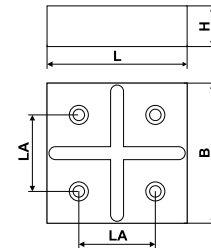
Multiple pole plates make it possible to create large areas of magnetically active surfaces with incorporation options. For example, contours and workpiece shapes can be incorporated into the pole surface with maximum rigidity. Complex, difficult to clamp workpieces made of cast iron or steel can thus be easily inserted into your mold. A vertical, active clamping edge can also be created in order to position or additionally stabilize workpieces. Pole plates and multiple poles are “soft jaws” for your clamping system.



Pole plates unmachined



Pole plates machined

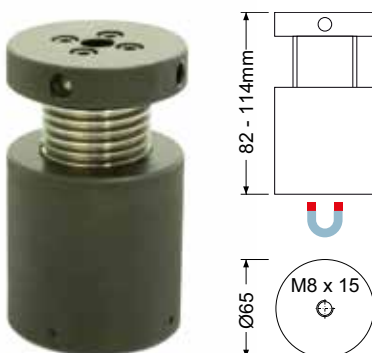


MBR Magnetic block

MBR magnetic blocks serve as an additional support to reduce vibrations if the workpiece protrudes beyond the magnetic clamping plate or if 2 magnetic clamping plates are mounted at a large distance. MBR magnetic clamping blocks can also form the 3-point support for the workpiece outside the magnetic clamping plate.

The MBR is equipped with a powerful permanent magnetic base on one side. The other side is brought to the desired height via the solid, self-locking trapezoidal spindle. The MBR allows all heights required for our magnetic clamping systems to be set - from 82 mm to 114 mm.

The height (H) can be extended as required using additional adapter disks, which are simply screwed onto the system.



Model	Art.-Nr.	Dimensions (mm)		holding force (N)	Weight (kg)
		Ø	H		
MBR 65	2410 0065	65	82 - 114	280	1,8

Control technology for Electro-Permanent magnetic systems

Pole reversal control units from the FXL-C family not only reliably control our FXL magnetic chucks, but almost all electro-permanent magnetic systems on the market.

Input voltages of 100-500 VAC / 50-60Hz and matching modulated, pulsed output voltages and pulse powers of up to 24 kVA are unique key data that are only required under extreme conditions, but ensure maximum stability in normal use.

FXL-C is available from simple, handy table-top units to control cabinet versions for large-scale applications; self-contained from manually operated, partially integrated with feedback to the machine to fully integrated into the machine control system for automated applications.



FXL-CT Table-top units

We build FXL-CT table-top units for a maximum of 2 channels without preselection. They can be used to control magnetic chucks up to a total area of approx. 1.2m² can be controlled.

FXL-CT is designed as a table-top device or for attaching to the machine wall using the magnetic feet on the rear. It is operated directly on the machine.

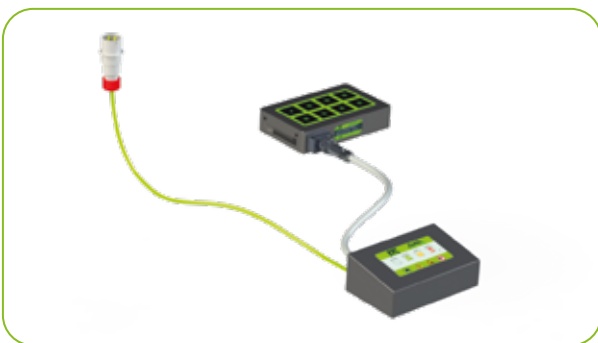


Functions

- Magnetization in 4 holding force levels
- Pulse release cycle
- Feedback via double LED signals
- Machine query clamped via NO contact possible

Technical data

- Input voltage 100-500V AC (Standard 360-440 VAC / 50-60Hz)
- Output voltage 100-500V DC
- Mains cable 3m/4mm²
- Mains plug CEE 32A
- Protection class I
- Protection category IP65
- Fuse C 16 - C 32 A (depending on the power of the connected magnet system)
- Output cable 6m 4mm² 4 PIN FEME 28mm



Model	Art.-Nr.
FXL-CT 401 1-Channel	9050 1612-1
FXL-CT 402 2-Channel	9050 1612-2
Also available with 230V supply voltage or as -S version for single magnet application with full demagnetization	

FXL-C Control cabinet version

FXL-C control units in the control cabinet version control magnetic clamping systems from very small to very large. They are controlled via an FXL-HB manual control unit or automated/integrated via the machine control system/PLC.

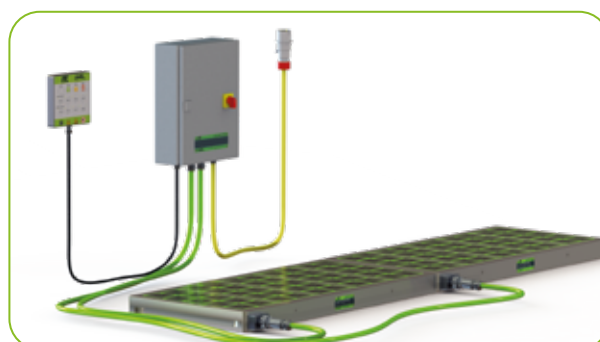


Functions

- Group formation/preselection
- Magnetization in 4 holding force levels
- Pulse release cycle
- Feedback via double LED signals
- Machine query clamped via NO contact possible
- Connection via machine PLC possible

Technical Data

- Input voltage 100-500V AC (Standard 360-440 VAC / 50-60Hz)
- Output voltage 100-500V DC
- Mains access and load output via terminal blocks (Also with cable and plug depending on integration)
- Protection class I
- Protection category IP54
- Fuse C 16 - C 32 A (depending on the power of the connected magnet system)

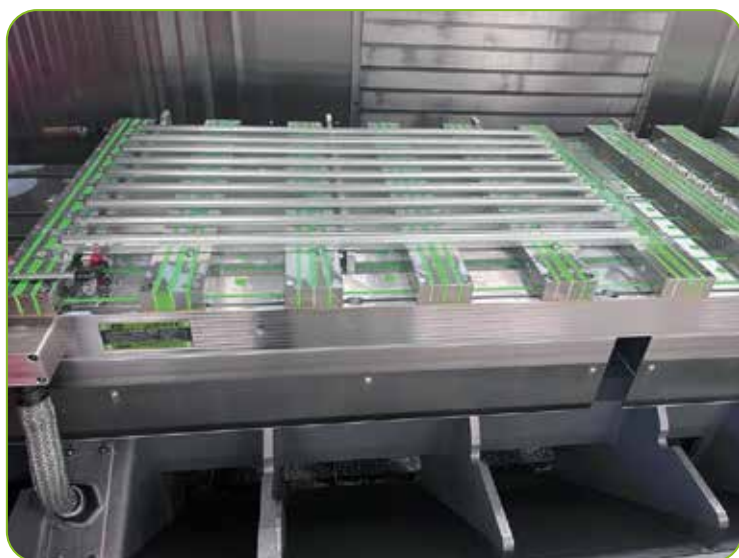


Model	Art.-Nr.
FXL-C 401 1-Channel	9050 1622-1
FXL-C 402 2-Channel	9050 1622-2
FXL-C 404 4-Channel	9050 1622-4
FXL-C 408 8-Channel	9050 1622-8
Also available with 230V supply voltage or as -S version for single magnet application with full demagnetization	

Model	Art.-Nr.
FXL-HB Hand control 1-Channel	9050 1690-1
FXL-HB Hand control 4-Channel	9050 1690-4
FXL-HB Hand control 8-Channel	9050 1690-8
FXL-Interface	9050 1328

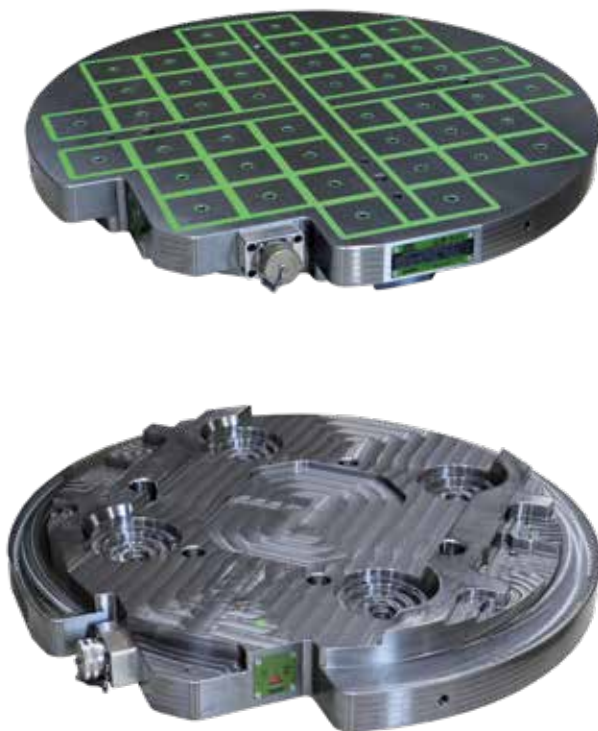
Magnetic Clamping

Special solutions

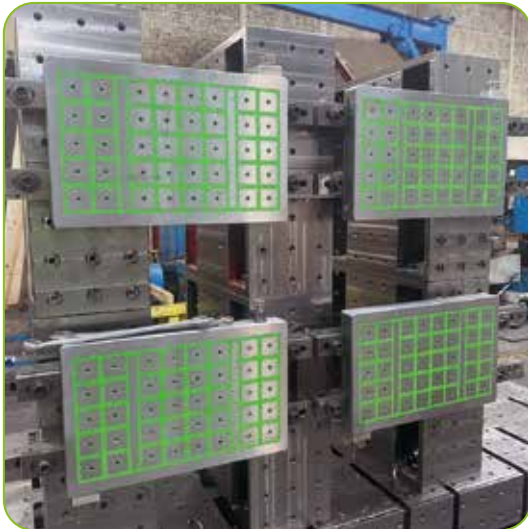


Magnetic Clamping

Special solutions



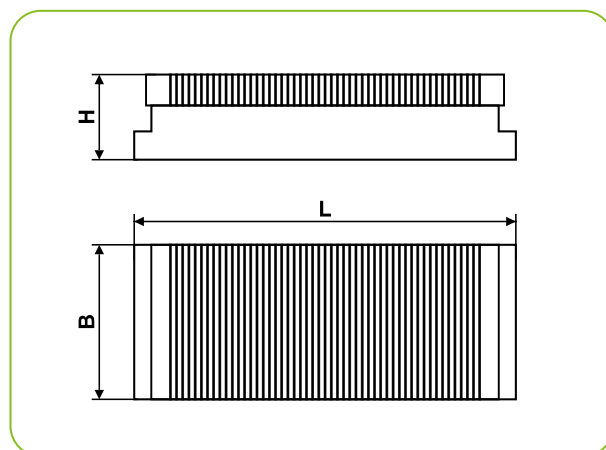
Special solutions



EFS Electro Magnetic clamping chucks

EFS electric magnetic chucks are available in small to medium sizes. They have a particularly fine pole pitch. Their use is particularly recommended for clamping small, thin parts from approx. 7 x 5 x 2 mm on surface grinding machines.

By using modern pole reversal control devices, the holding force can be regulated and the workpiece demagnetized after machining. EFS magnetic chucks impress with their uniform holding force over the entire clamping range, very high rigidity thanks to their monoblock design and minimal heating - even with long switch-on times.



Model	Art.-Nr.	Dimensions (mm)			Power (Watt)	Weight (kg)
		L	W	H		
EFS 2515	2201 02515	250	150	75	71	17
EFS 3015	2201 03015	300	150	75	78	20
EFS 3515	2201 03515	350	150	75	73	23
EFS 4015	2201 04015	400	150	75	96	27
EFS 4515	2201 04515	450	150	75	91	30
EFS 4020	2201 04020	400	200	75	113	35
EFS 4520	2201 04520	450	200	75	108	38
EFS 5020	2201 05020	500	200	75	166	43
EFS 6020	2201 06020	600	200	75	143	53
EFS 6025	2201 06025	600	250	75	190	67
EFS 6030	2201 06030	600	300	75	280	80
EFS 8030	2201 08030	800	300	75	304	107
EFS 10030	2201 10030	1000	300	75	380	133
EFS 6040	2201 06040	600	400	75	304	107
EFS 8040	2201 08040	800	400	75	405	142
EFS 10050	2201 10040	1000	400	75	506	178
EFS 8050	2201 08050	800	500	75	506	178
EFS 10050	2201 10050	1000	500	75	633	223

Other dimensions on request

USG-TG Pole reversal control units

Electric magnetic chucks are operated on pole reversal control units. These devices make it possible to regulate the holding force and demagnetize workpieces. Pole reversal control units can be supplied as switch cabinet or table-top units. Attention must be paid to the voltage and power of the magnet.

USG pole reversal control units are ideal for retrofitting electromagnetic chucks with minimal installation effort. The device is simply plugged into a 230V mains supply, mains cable with safety plug and manual control unit are included in the scope of delivery.



USG-TG 125-440 W



USG 750-1650 W

Model	Art.-Nr.	Power (Watt)	Dimensions (mm)			Input	Output	Weight (kg)
			L	W	H			
USG-TG 125	9040 0126	125	330	180	140	230V/50Hz	110 V DC	6
USG-TG 220	9040 0220	220	330	180	140	230V/50Hz	110 V DC	8
USG-TG 440	9040 0440	440	330	180	140	230V/50Hz	110 V DC	10
USG-770	9040 0770	770	300	300	120	230V/50Hz	110 V DC	12
USG-1650	9040 1650	1650	300	300	120	230V/50Hz	110 V DC	12

USG pole reversal control units are mostly used for magnetic chucks on surface grinding machines, but can also be used in automation technology to control lifting magnets or gripper plates.

PMNM Permanent Magnetic chucks

PMNM permanent magnetic chucks are high-precision chucks for clamping small and thin parts for precision grinding and eroding. The low magnetic field height prevents magnetization of the machining tools. The clamping plate is activated via a removable hexagonal switching lever.



Structure:

Neodymium magnet system, steel base body
 Cross pole pitch 1.4 + 0.5mm
 Nominal holding force approx. 100 N/cm²
 Magnetic field height approx. 5mm
 Wearability of the pole plate 6mm



PMNM-W

High-precision plate with horizontal and vertical clamping surface for grinding and eroding work

Model	Art.-Nr.	Dimensions (mm)			Weight (kg)
		L	W	H	
PMNM 1007	2004 1007	100	70	48	3
PMNM 1710	2004 1710	175	100	48	7
PMNM 2010	2004 2010	200	100	48	8
PMNM 2513	2004 2513	255	130	48	13
PMNM 1510	2004 1510	150	100	48	6
PMNM 1515*	2004 1515	150	150	51	9
PMNM 2515	2004 2515	250	150	51	16
PMNM 3015	2004 3015	300	150	51	19
PMNM 3515	2004 3515	350	150	51	22
PMNM 4015	2004 4015	400	150	51	25
PMNM 4020	2004 4020	400	200	51	33
PMNM 5020	2004 5020	500	200	51	41
PMNM 5025	2004 5025	500	250	51	61
PMNM 6020	2004 6020	600	200	51	49
PMNM 3525	2004 3525	350	250	51	36
PMNM 4030	2004 4030	400	300	51	49
PMNM 5030	2004 5030	500	300	56	67
PMNM 6030	2004 6030	600	300	56	81
PMNM 6040	2004 6040	600	400	56	81

Other dimensions on request

With all PMNM magnetic chucks, a flushing hole can also be drilled in the pole plate *Magnetic chucks especially suitable for palletizing systems

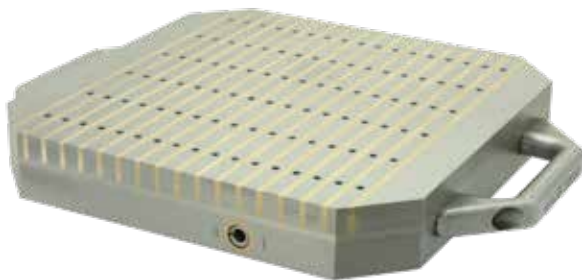
Model	Art.-Nr.	Dimensions (mm)			Weight (kg)
		L	W	H	
PMNM-W 2515	2024 2515	255	65	161	23

PMNEO-X Permanent Magnetic chucks

PMNEO-X permanent magnetic chucks are super-strong, compact chucks for heavy-duty machining. Parts from approx. 30x15x6mm can be clamped with maximum achievable holding forces. Good holding forces are achieved even on rough surfaces. The clamping plate is activated via a removable hexagonal lever.

Structure:

- Double neodymium magnet system
- Steel base body
- Cross pole pitch 11 + 4mm
- Nominal holding force approx. 150 N/cm²
- Magnetic field height approx. 10mm
- Wearability of pole plate 6mm



Option Threaded bushes



Option Threaded bushes + Pole strips

Model	Art.-Nr.	Dimensions (mm)			Weight (kg)
		L	W	H	
PMNEO-X 2515	2007 2515-01	250	150	56	17
PMNEO-X 3015	2007 3015-01	300	150	56	18
PMNEO-X 3515	2007 3515-01	350	150	56	24
PMNEO-X 4515	2007 4515-01	450	150	56	31
PMNEO-X 3020	2007 3020-01	300	200	56	26
PMNEO-X 4020	2007 4020-01	400	200	56	35
PMNEO-X 5020	2007 5020-01	500	200	56	44
PMNEO-X 6020	2007 6020-01	600	200	56	52
PMNEO-X 2424	2007 2424-01	240	240	48	21
PMNEO-X 4025	2007 4025-01	400	250	56	38
PMNEO-X 5025	2007 5025-01	500	250	56	65
PMNEO-X 6025	2007 6025-01	600	250	56	64
PMNEO-X 2828	2007 2828-01	280	280	48	28
PMNEO-X 5030	2007 5030-01	500	300	56	56
PMNEO-X 6030	2007 6030-01	600	300	56	78
PMNEO-X 3232	2007 3233-01	320	320	48	35
Other dimensions on request					

PMNM Permanent Magnetic pallets

PMNM permanent magnetic pallets are high-precision plates for clamping small and thin parts for precision grinding and eroding. The low magnetic field height prevents magnetization of the machining tools. The clamping plate is activated via a removable hexagonal switching lever.



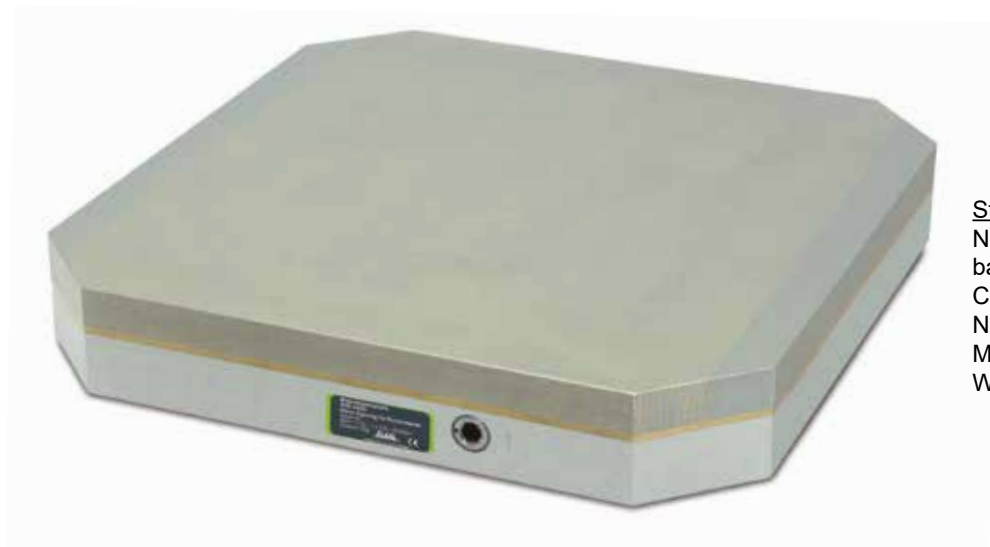
Structure:

Neodymium magnet system, steel base body
Cross pole pitch 1.4 + 0.5mm
Nominal holding force approx. 100 N/cm²
Magnetic field height approx. 5mm
Wearability of the pole plate 6mm

Model	Art.-Nr.	Dimensions (mm)			chamfer (mm)	Weight (kg)
		L	W	H		
PMNM 1515	2004 1515	150	150	51	-	9
PMNM 2424-40	2019 2424	240	240	40	10 x 45°	18
PMNM 2828-40	2019 2828	280	280	40	10 x 45°	25
PMNM 3232-40	2019 3233	320	320	40	40 x 45°	29
PMNM 4040	2004 4040	400	400	51	40 x 45°	60
Other dimensions on request						

PMNM-AL Permanent Magnetic pallets

Super lightweight with aluminum base body for direct installation of the clamping elements



Structure:

Neodymium magnet system, aluminum base body
Cross pole pitch 1.4 + 0.5mm
Nominal holding force approx. 100 N/cm²
Magnetic field height approx. 5mm
Wearability of the pole plate 6mm

Model	Art.-Nr.	Dimensions (mm)			chamfer (mm)	Weight (kg)
		L	W	H		
PMNM-AL 2424-48	2008 2424	240	240	48	10 x 45°	18
PMNM-AL 2828-48	2008 2828	280	280	48	10 x 45°	24
PMNM-AL 3232-48	2008 3233	320	320	48	40 x 45°	26
Other dimensions on request						

PMNEO Permanent Magnetic pallets

PMNEO permanent magnetic chucks are super-strong, compact chucks for heavy-duty machining. Parts from approx. 30x15x6mm can be clamped with maximum achievable holding forces. Good holding forces are achieved even on rough surfaces. As an option, clamping bars can be mounted on the PMNEO.

This allows the workpiece to be raised so that all sides are freely accessible, holes can be drilled through on the magnetic chuck and there is more space around the component for chips. This means that even long-running HSC milled parts never sink into the resulting chips, and the clamping plate is activated via a removable hexagonal switching lever. The PMNEO magnetic clamping plate with an overall height of 48 mm is prepared to integrate reference elements directly into the magnetic plate so that no additional pallet is required under the magnet.

Structure:

Double neodymium magnet system

Steel base body

Cross pole pitch 11+4mm

Nominal holding force
approx. 160 N/cm²

Magnetic field height approx. 10mm

Wearability of the pole plate 6mm



Model	Art.-Nr.	Dimensions (mm)			chamfer (mm)	Weight (kg)
		L	W	H		
PMNEO 2424	2007 2424	240	240	48	10 x 45°	19
PMNEO 2828	2007 2828	280	280	48	10 x 45°	28
PMNEO 3232	2007 3234-1	320	320	48	40 x 45°	35
PMNEO 4040	2007 4040-1	400	400	48	40 x 45°	50
Other dimensions on request						

PMNM/PMNEO-X/UPC Permanent Magnetic pallets

The PMNM/PMNEO-X UPC pallet is supplied ready for the Erowa UPC clamping system fitted with original Erowa elements, optionally with handles and/or Gripper Link.

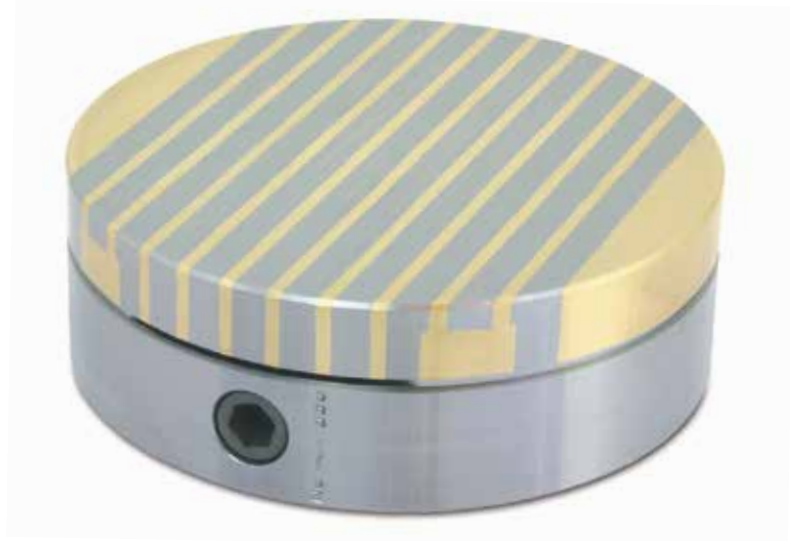


Model	Art.-Nr.	Dimensions (mm)			chamfer (mm)	Weight (kg)
		L	W	H		
PMNM-AL 3232-48 UPC	82008 3233	320	320	48	40	27
PMNEO 3232-48 UPC	82007 3234	320	320	48	40	36
Gripper Link	8000 8011	-	-	-	-	-
Handles	8000 8010	-	-	-	-	-
Other dimensions on request						

Magnetic Clamping

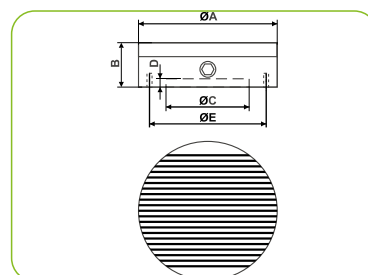
RN Permanent Magnetic circular chucks

Permanent magnetic circular chucks type RN, with neodymium magnet system and low overall height, are used for clamping small workpieces with sufficient material thickness, especially for grinding and assembly work. All steel poles can be drilled to a depth of 15 mm. A max. 22x5 mm centering hole or an M8x12 mm thread can be drilled.



Structure:

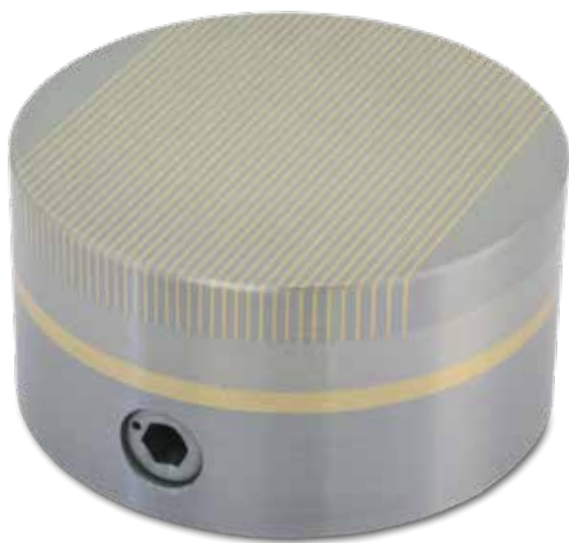
Neodymium magnet system, steel base body
Pole pitch 8+3mm
Nominal holding force approx. 80 N/cm²
Magnetic field height approx. 6mm
Wearability of the pole plate 8mm
Switching travel MAG - ENT-MAG 180°



Model	Art.-Nr.	Dimensions (mm)					Drillings	pole pitch	Weight (kg)	V-Max. (U/min.)
		A	B	C	D	E				
RN 10	2104 10	100	50	65	2,5	86	3xM6	11+3	3	1500
RN 13	2104 13	130	50	90	2,5	120	4xM6	11+3	5	1200
RN 15	2104 15	150	50	120	2,5	120	4xM8	11+3	8	1000
RN 20	2104 20	200	50	150	2,5	182	4xM8	11+3	12	800

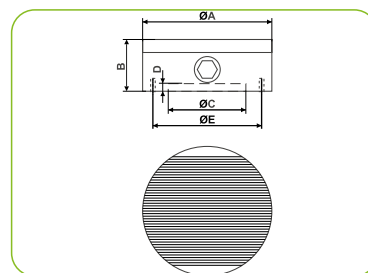
RNF Permanent Magnetic circular chucks

Type RNF permanent magnetic circular chucks with neodymium magnet system and low overall height are used for clamping small and thin workpieces.



Structure:

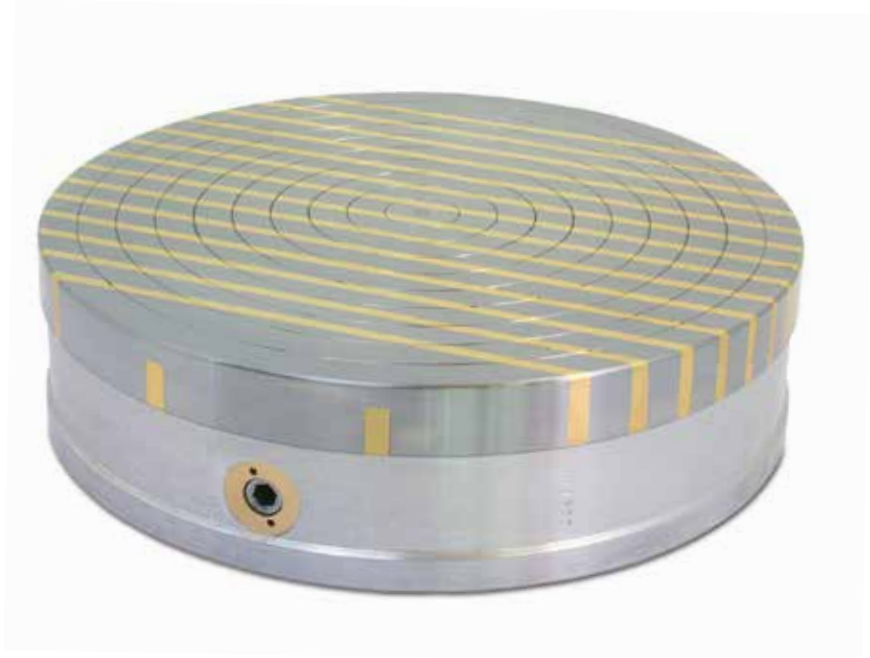
Neodymium magnet system, steel base body
Pole pitch 1.5+0.5mm
Nominal holding force approx. 80 N/cm²
Magnetic field height approx. 4mm
Wearability of the pole plate 4mm
Switching travel MAG - ENT-MAG 135°



Modell	Art.-Nr.	Dimensions (mm)					Drillings	pole pitch	Weight (kg)	V-Max. (U/min.)
		A	B	C	D	E				
RNF 8	2106 08	80	50	50	3	70	3xM5	1,5+0,5	1,8	1500
RNF 10	2106 10	100	50	60	4	85	4xM8	1,5+0,5	3	1500
RNF 13	2106 13	130	50	90	4	115	4xM8	1,5+0,5	5	1200
RNF 16	2106 16	160	50	120	4	140	4xM10	1,5+0,5	9	1000
RNF 20	2106 20	200	52	160	4	180	4xM10	1,5+0,5	12	800
RNF 25	2106 25	250	52	200	4	230	4xM10	1,5+0,5	19	700

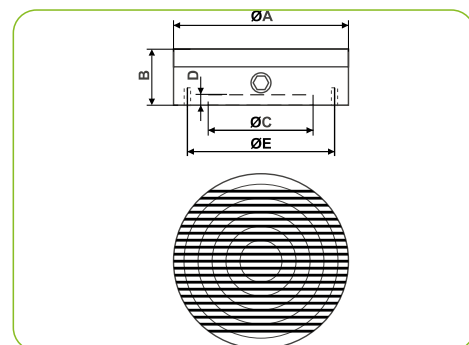
RM Permanent Magnetic circular chucks

RM permanent magnetic circular chucks with a reinforced ceramic magnet system are used for clamping bulky and heavy workpieces. The magnetic force is infinitely variable and centering grooves incorporated into the surface make it easier to align the workpiece. A centering hole can be drilled into the clamping surface.



Structure:

Ceramic magnet system, aluminum body,
Max pole pitch 5+8mm
Nominal holding force approx. 140 N/cm²
Magnetic field height approx. 8mm
Wearability of the pole plate 8mm
Switching travel MAG - ENT-MAG 500°

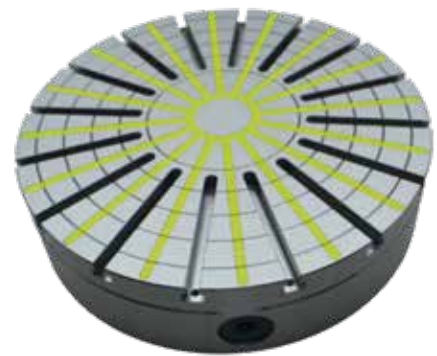


Model	Art.-Nr.	Dimensions (mm)					Drillings	pole pitch	Weight (kg)	V-Max. (U/min.)
		A	B	C	D	E				
RM 20	2101 20	200	80	150	4.5	182	4 x M8	8+5	13	800
RM 25	2101 25	250	80	200	4.5	232	4 x M8	8+5	20	700
RM 30	2101 30	300	85	250	4.5	285	4 x M8	8+5	27	700
RM 35	2101 35	350	85	300	4.4	334	4 x M8	8+5	37	600
RM 40	2101 40	400	100	300	5	350	6 x M10	8+5	56	500
RM 45	2101 45	450	100	350	5	400	6 x M10	8+5	70	450
RM 50	2101 50	500	100	400	5	450	6 x M10	8+5	90	400

RS Permanent Magnetic circular chucks

Permanent magnetic chucks type RS, with neodymium magnet system and radial pole pitch, are used for clamping rings and disks that are difficult to hold. The radial or star pole pitch is characterized by greater rigidity and stability, especially with large diameters.

RS circular chucks are specially designed for hard turning and can be operated at high speeds. The magnetic force is infinitely variable. Centering grooves make it easier to align the workpiece. A through-hole with a diameter of C can be drilled in the center.



optionally with T-slots



Structure:

Neodymium magnet system, steel base body

Radial pole pitch

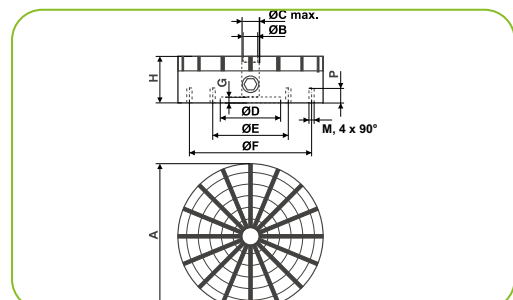
Nominal holding force approx. 140 N/cm²

Magnetic field height approx. 10mm

Wearability of the pole plate

RS 13, 3mm, RS 15 - 80, 7mm

Switching travel MAG - ENT-MAG 180°



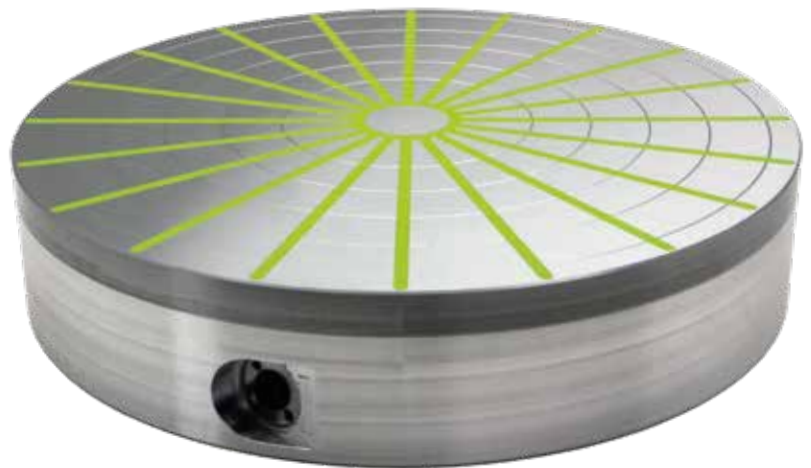
Model	Art.-Nr.	Dimensions (mm)							Drillings	Poles	Weight (kg)	V-Max. (U/min.)
		A	H	C	D	E	F	G				
RS 13	2103 13	130	57	15	50	--	100	5	M6	10	6	1000
RS 15	2103 15	150	57	23	50	80	120	5	M6	10	8	1000
RS 20	2103 20	200	57	25	60	110	180	5	M6	12	13	800
RS 25	2103 25	250	70	30	80	140	220	5	M6	16	24	700
RS 30	2103 30	300	73	38	150	180	260	6	M8	16	36	700
RS 35	2103 35	350	73	40	170	220	300	6	M8	20	48	600
RS 40	2103 40	400	75	40	200	260	340	8	M8	20	64	500
RS 50	2103 50	500	88	50	200	300	400	8	M8	24	106	400
RS 60	2103 60	600	88	90	250	350	450	8	M10	30	150	400
RS 70	2103 70	700	88	90	250	350	450	8	M10	30	234	300
RS 80	2103 80	800	110	100	350	400	700	8	M10	30	300	300

You will find suitable support plates on page 37

RSA Permanent Magnetic circular chucks

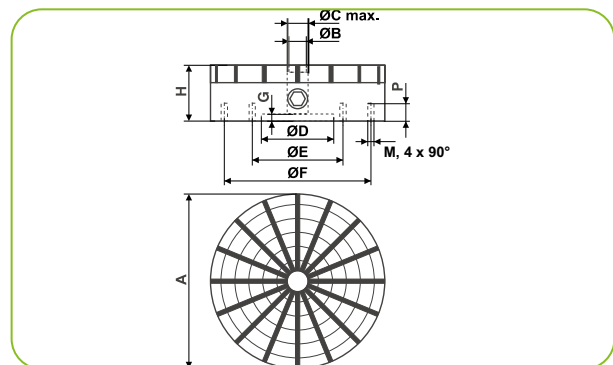
RSA magnetic circular chucks with an aluminum body and radial pole pitch impress with their lightweight design and maximum holding force. The double neodymium magnet system is adjusted via a self-locking spindle drive and can be perfectly adjusted to the desired holding force. The RSA is a further development of our RS magnetic chuck, which has been very successful for many years. The uniform radial pole pitch offers clear advantages over magnetic chucks with parallel pole pitch, especially when machining rings, washers and sleeves.

The weight of the weight-critical dimensions D250-400mm has been reduced by 25% compared to the proven RS round chuck, while the sizes 500+600 mm have been equipped with a reinforced pole plate and improved mechanics.



Structure:

- Neodymium magnet system, aluminum base body
- Radial pole pitch
- Nominal holding force approx. 140 N/cm²
- Magnetic field height approx. 10mm
- Wearability of the pole plate 7mm
- Switching travel MAG - ENTMAG 500°



Model	Art.-Nr.	Dimensions (mm)								Drillings	Poles	V-Max. (U/min.)	Weight (kg)
		A	C	D	E	F	G	H	T				
RSA 20	2105 20	200	25	60	110	180	5	79	20	M6	16	800	12
RSA 25	2105 25	250	30	80	166	220	5	79	20	M6	16	700	18
RSA 30	2105 30	300	38	150	180	260	6	82	20	M8	16	700	27
RSA 35	2105 35	350	40	170	220	300	6	84	20	M8	20	600	36
RSA 40	2105 40	400	40	200	260	340	8	84	20	M8	20	500	47
RSA 50	2105 50	500	50	200	330	400	8	109	29,5	M8	24	400	98
RSA 60	2105 60	600	90	250	350	450	8	109	29,5	M10	30	400	142

You will find suitable support plates on page 37

Sine tables

Sine tables are used to precisely machine angled surfaces on a wide variety of workpieces. Using gauge blocks, any angle can be set according to the sine principle. Sine tables are mainly used in tool and fixture construction, where an angular precision of 5 seconds is often required.



We offer you a wide range of standard devices and are also happy to manufacture to your specifications, with a precision of 5 seconds, with permanent or electro-permanent magnetic chucks, for grinding, milling, eroding and wire cutting.

NMS Sine tables

NMS precision sine tables with built-in PMNM clamping plate impress with their excellent workmanship and precision. The sine table body is hardened to 60 HRC, burnished and precision ground. The angle is set according to the sine principle using end weights. Our NMS sine tables are used for eroding, grinding and measuring with the highest precision.

Technical details:

Precision sine table with mounted fine pole clamping plate

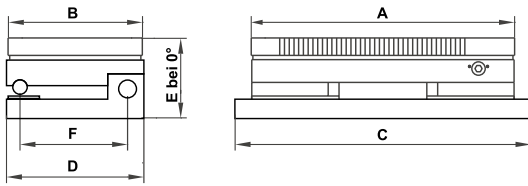
Nominal holding force approx. 100 N/cm²

Magnetic field height approx. 5 mm

Pole plate usability 5 mm Plane parallelism 0.005/100mm

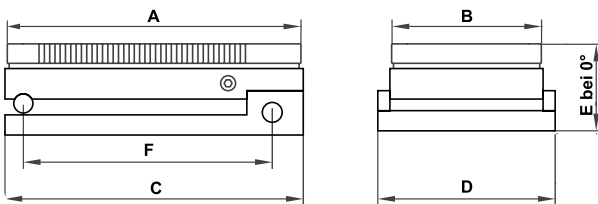
Angle accuracy $\pm 0.0013^\circ / \pm 5$ sec.

NMSI Sine tables



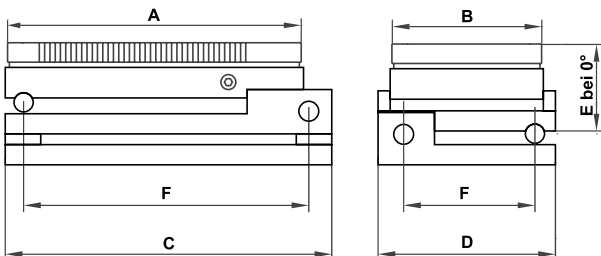
Model	Art.Nr.	Dimensions (mm)						Weight (kg)
		A	B	C	D	E	F	
NMSI 1710	2011 1710	175	100	215	115	76	85	10
NMSI 2513	2011 2513	255	130	295	145	76	115	20
NMSI 2515	2011 2515	250	150	290	165	79	135	21,5
NMSI 3015	2011 3015	300	150	340	165	79	135	27
NMSI 3515	2011 3515	350	150	390	165	87	135	34,5
NMSI 4515	2011 4515	450	150	490	165	87	135	44
NMSI 3020	2011 3020	300	200	340	215	81	185	35
NMSI 4020	2011 4020	400	200	440	215	88	185	52
NMSI 6020	2011 6020	600	200	640	215	83	185	78
NMSI 6030	2011 6030	600	300	660	320	88	285	121

NMSIL Sine tables



Model	Art.-Nr.	Dimensions (mm)						Weight (kg)
		A	B	C	D	E	F	
NMSIL 1710	2014 1710	175	100	190	140	76	160	10
NMSIL 2513	2014 2513	255	130	270	170	76	240	21
NMSIL 3015	2014 3015	300	150	315	190	76	285	27
NMSIL 4515	2014 4515	450	150	465	190	88	435	46
NMSIL 4020	2014 4020	400	200	415	240	88	385	53,5
NMSIL 5020	2014 5020	500	200	515	240	88	485	99
NMSIL 6020	2014 6020	600	200	615	240	88	585	108
NMSIL 6030	2014 6030	600	300	615	340	88	585	125

NMSID Sine tables



Model	Art.-Nr.	Dimensions (mm)						Weight (kg)
		A	B	C	D	E	F	
NMSID 1710	2012 1710	175	100	210	140	104	165/110	15
NMSID 2513	2012 2513	255	130	290	170	120	245/140	32
NMSID 3015	2012 3015	300	150	335	190	123	290/160	43,5
NMSID 3515	2012 3515	350	150	385	190	123	340/160	49,5
NMSID 4515	2012 4515	450	150	485	190	124	440/160	52
NMSID 4020	2012 4020	400	200	435	240	124	390/210	73
NMSID 5020	2012 5020	500	200	535	240	126	490/210	84
NMSID 6020	2012 6020	600	200	635	240	126	590/210	102
NMSID 6030	2012 6030	600	300	635	340	128	590/310	148

Lamella support plates

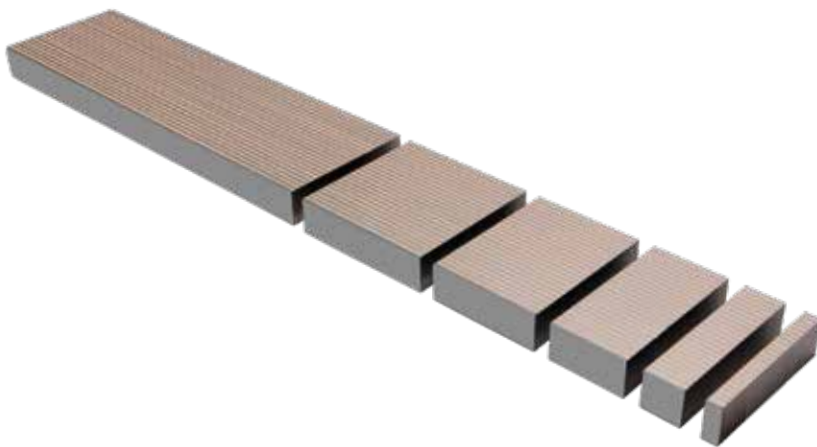
Lamella support plates and beams are used together with magnetic chucks; they are not magnetically active but pass on the magnetic field of the clamping plate.

If parts can only be clamped with great difficulty or not at all on a magnetic clamping plate due to very low material thickness, three-dimensional structure or poor magnetic properties, lamella support plates offer various additional options.

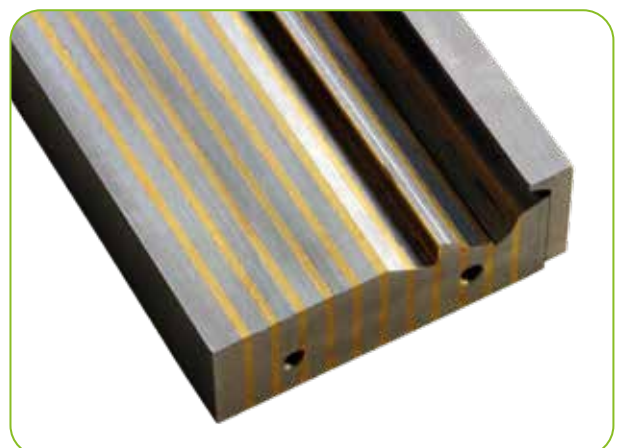
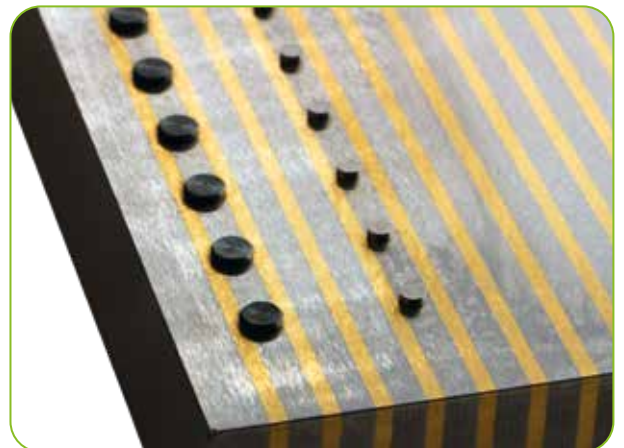
Pins can be inserted into laminar plates and contours can be worked into them, or they can be used as support surfaces for T-shaped parts, for example.

Flap plates are simply placed or screwed onto the magnetic chuck and are mostly used for surface or pole grinding.

Our pole plates, manufactured using the special thermo-brazing process, are extremely mechanically stable and can be individually cut and machined as required!



Art.-Nr.	Width (mm)	Length (mm)	Height (mm)	Weight (kg)
2304 075 050	75	50	25	1
2304 075 075	75	75	25	1
2304 075 320	75	320	25	5
2304 100 050	100	50	25	1
2304 100 100	100	100	25	2
2304 100 320	100	320	25	6
2304 200 100	200	100	25	4
2304 200 200	200	200	25	8
2304 200 320	200	320	25	13
2304 300 100	300	100	25	6
2304 300 150	300	150	25	9
2304 300 320	300	320	25	19
2304 400 100	400	100	25	8
2304 400 200	400	200	25	16
2304 400 320	400	320	25	25



Lamella blocks

Support blocks in pole pitch 1.5 + 3, screwed, cannot be shortened.



Art.-Nr.	Dimensions (mm)		
	L	W	H
2304 101	60	80	30
2304 102	80	100	40
2304 103	100	140	50

Round lamella plates

Round lamella support plates, silver hard-soldered.



Art.-Nr.	Dimensions (mm)	
	L	W
2305 100	100	25
2305 130	130	25
2305 150	150	25
2305 200	200	25
2305 250	250	25
2305 300	300	25
Other dimensions on request		

Lamella plates round radial

Round support plates for radial pole chucks



Art.-Nr.	Dimensions (mm)		Number of poles
	L	W	
2306 130-1	130	20	10
2306 150-1	150	20	10
2306 200-1	200	20	12
2306 250-1	250	20	16
2306 300-1	300	20	16
2306 350-1	350	20	20
2306 400-1	400	20	20
2306 500-1	500	20	24
2306 600-1	600	20	30
Other dimensions on request			

Angle blocks and prisms on request

SPML Permanent Magnetic clamping blocks

SPML permanent magnetic clamping blocks are equipped with two opposing, independently switchable clamping surfaces. the neodymium magnet system with fine pole pitch 1.5+0.5 has a depth of approx. 5mm and is ideal for clamping small and medium-sized workpieces. The switching shaft can be actuated from two sides so that the magnetic clamping block can also be used upright, and there are two M5 threads on each side of the head to which stops or positioning aids can be attached. SPML clamping blocks are waterproof and especially suitable for grinding, wire and die-sinking EDM. SPML magnetic clamping blocks are available individually or ground in pairs.



Model	Art.-Nr.	Dimensions (mm)			pole pitch (mm)	Holding force (N/cm ²)	Weight (kg)
		L	W	H			
SPML 12 Pair / ground together	2302 01-1	125	52	50	1,5 + 0,5	80	2x2,5
SPML 18 Pair / ground together	2302 02-1	180	52	50	1,5 + 0,5	80	2x3,6
SPML 25 Pair / ground together	2302 03-1	250	52	50	1,5 + 0,5	80	2x5

Structure:

Neodymium magnet system, steel with best magnetic flux properties
2 separately switchable clamping surfaces
Cross pole pitch 1.5+0.5
Nominal holding force approx. 80 N/cm²
Magnetic field height approx. 5mm
Wearability of the pole plates approx. 3mm

For use in aggressive media, we recommend the INOX version

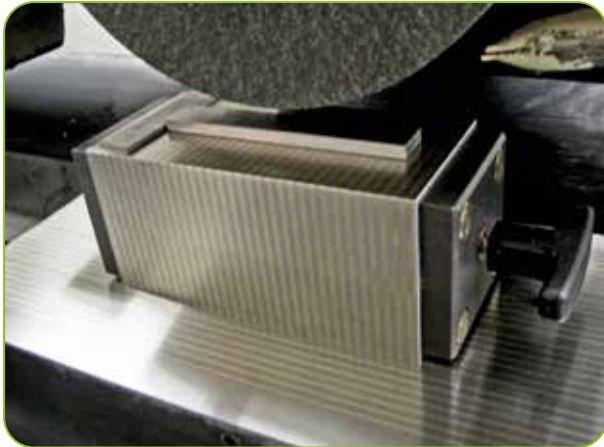
Model	Art.-Nr.	Dimensions (mm)			pole pitch (mm)	Holding force (N/cm ²)	Weight (kg)
		L	W	H			
SPML 12 INOX Pair / ground together	2302 06-1	125	52	50	1,5 + 0,5	60	2x2,5
SPML 18 INOX Pair / ground together	2302 07-1	180	52	50	1,5 + 0,5	60	2x3,6
SPML 25 INOX Pair / ground together	2302 08-1	250	52	50	1,5 + 0,5	60	2x5

Structure:

Neodymium magnet system, steel stainless
2 separately switchable clamping surfaces
Cross pole pitch 1.5+0.5
Nominal holding force approx. 60 N/cm²
Magnetic field height approx. 5mm
Wearability of the pole plates approx. 3mm

SPM Permanent Magnetic clamping blocks

SPM magnetic clamping blocks have 4 clamping sides and can be switched via the rotary knob on the front. They can be used universally for surface grinding, angle grinding, jig grinding, eroding, measuring, etc. Thanks to the fine 2+2 mm pole pitch, the thinnest parts (from 0.5 mm) can be securely clamped. There are four M5 threads on the back for attaching stops. Due to the low magnetic field height of only 2 mm and the completely hermetic seal, SPM clamping blocks are particularly recommended for use in wire and die-sinking EDM. SPM clamping blocks are also available in stainless chrome steel.



Model	Art.-Nr.	Dimensions (mm)			clamping surfaces 4 pc. (mm)	pole pitch (mm)	Holding force (N/cm²)	Weight (kg)
		L	W	H				
SPM	2301 01	175	64	64	115 x 64	2 + 2	80	3,2
SPM-L	2301 02	195	64	64	135 x 64	2 + 2	80	3,8
SPM-X	2301 03	175	64	64	115 x 64	2 + 2	50	3,2
SPML-X	2301 04	195	64	64	135 x 64	2 + 2	50	3,8

-X = Stainless version made of chrome steel • Caution when grinding, holding force lower

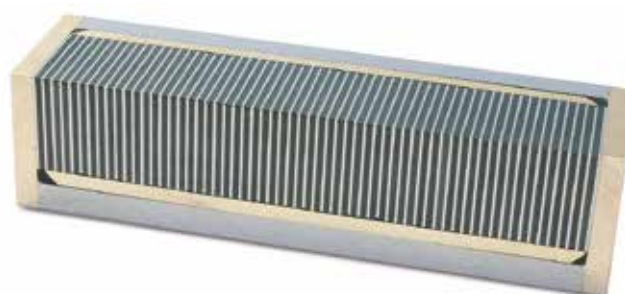
MH Permanent Magnetic clamping blocks

MH permanent magnetic clamping blocks have 2 or 3 magnetic clamping surfaces that cannot be switched. They are used for clamping very fine parts or materials that are difficult to magnetize, such as high-alloy chrome steels or carbide. After machining, the block with the clamped workpiece can be completely removed from the machine for testing purposes. MH clamping blocks are available in standard and reinforced versions (with SE magnets) and are mainly used for grinding, measuring and wire cutting.

Model	Art.-Nr.	Dimensions (mm)			pole pitch (mm)	Adhesive surfaces	Weight (kg)
		L	W	H			
MH 1	2306 01	100	100	50	4	3	3,2
MH 2	2306 02	100	50	50	4	3	1,6
MH 3	2306 03	100	25	25	4	2	0,4
MH 4*	2306 04	100	25	25	1,3	2	0,4

* Particularly suitable for very thin parts

Model	Art.-Nr.	Dimensions (mm)			pole pitch (mm)	Adhesive surfaces	Weight (kg)
		L	W	H			
MHS 1	2306 11	100	100	50	4	3	3,2
MHS 2	2306 12	100	50	50	4	3	1,6
MHS 3	2306 13	100	25	25	4	2	0,4
MHS 4	2306 14	100	80	20	5,5	1	1,3

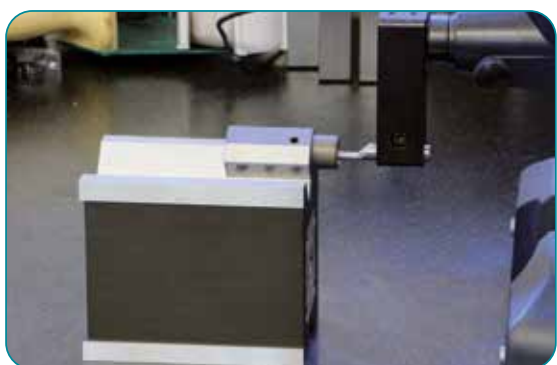


MPX Magnetic prisms made of tool steel / hardened

MPX magnetic prisms work with a super-strong neodymium magnet system. MPX have 3 clamping surfaces, both the back and both prisms are magnetically active. This allows workpieces to be positioned horizontally or vertically and the prism to be clamped to a metallic base surface at the same time. They are activated using the 8 mm Allen key included in the scope of delivery and can be turned by just 90°. Magnetic prisms can also be used directly on the magnetic clamping plate of the grinding machine without losing magnetic force when measuring, grinding, eroding and mounting.



Available individually or as a pair



Precise measurement of workpieces

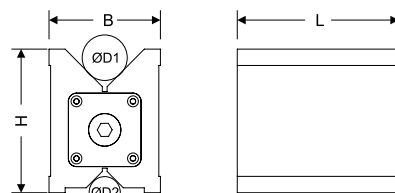
MPX magnetic prisms are manufactured with high precision from tool steel
Phosphated, gas-nitrided and waterproof
Angularity and parallelism $\pm 0.01/100$
Hardness 570 HV / 53 HRC
Holding force - reinforced
Also available in stainless steel!
MPX magnetic prisms are available in 3 different sizes

Model	Art.-Nr.	Dimensions (mm)			clampable Ø D1(mm)	clampable Ø D2(mm)	Weight (kg)
		L	W	H			
MPX 75	230 751	75	69	88	4-65	4-28	2,9
MPX 75 Pair / ground together	230 751-1	75	69	88	4-65	4-28	2x2,9
MPX 100	230 752	100	69	88	4-65	4-28	3,9
MPX 100 Pair / ground together	230 752-1	100	69	88	4-65	4-28	2x3,9
MPX 125	230 753	125	69	88	4-65	4-28	4,8
MPX 125 Pair / ground together	230 753-1	125	69	88	4-65	4-28	2x4,8

Switching key included in delivery

Model	Art.-Nr.	Dimensions (mm)			clampable Ø D1(mm)	clampable Ø D2(mm)	Weight (kg)
		L	W	H			
MPX 75 INOX	230 754	75	69	88	4-65	4-28	2,9
MPX 75 INOX Pair / ground together	230 754-1	75	69	88	4-65	4-28	2x2,9
MPX 100 INOX	230 755	100	69	88	4-65	4-28	3,9
MPX 100 INOX Pair / ground together	230 755-1	100	69	88	4-65	4-28	2x3,9
MPX 125 INOX	230 756	125	69	88	4-65	4-28	4,8
MPX 125 INOX Pair / ground together	230 756-1	125	69	88	4-65	4-28	2x4,8

Switching key included in delivery

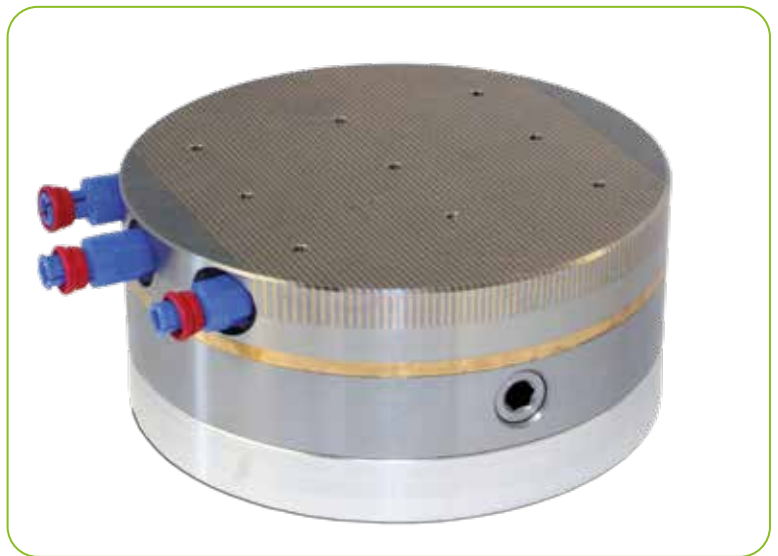


Magnetic clamping technology in special design

The normal standard is often not sufficient for countless different applications. But our professionals also have the necessary experience and know-how for this. Tell us your specific application and together we will find the right magnet solution for you!



Magnetic Clamping





FX Permanent Lifting Magnets



FX-HV Vertical systems



FXE Electro-Permanent Lifting Magnets



Electro collection magnets



Magnetic trusses



MBX Magnetic clamping blocks



Crane scales, Lifting force limiter



Pneumatic Magnetic systems



Magnetic holding rods and round magnets



Magnetic clamping balls



Sheet metal spreading and protective magnets



Demagnetizers, measuring devices



Permanent flat and bar gripper



Permanent raw magnets



Magnetic welding and assembly aids



MAGNETIC CLAMPING

FAST • PRODUCTIVE • SAFE



Valid from September 2024