MAG AUTOBLOK

TECNOMAGNETE

Permanent-electro magnetic systems

EN

TECNOCLAMP line - Work-holding for machine tool

MAG AUTOBLOK

TECNOMAGNETE

MAG AUTOBLOK TECNOMAGNETE Spa leader in the production of permanent-electro magnetic equipments believes in achieving high levels of business efficiency and effectiveness through a path of continuous improvement and evolution of both technologies and related production processes.
Over the years we have implemented a certified Quality System which is constantly updated with the UNI EN ISO 9001 standard

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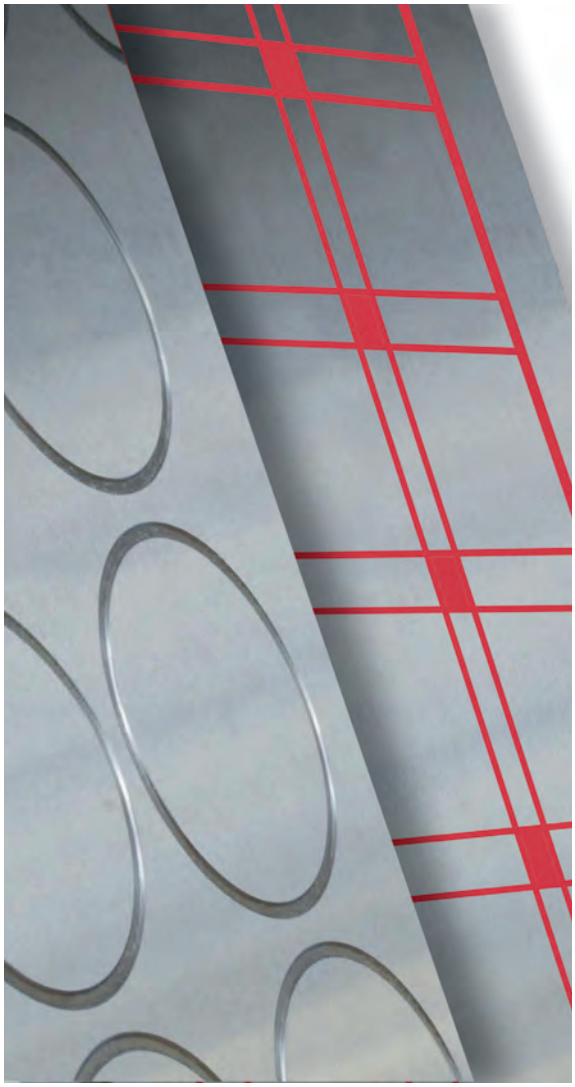
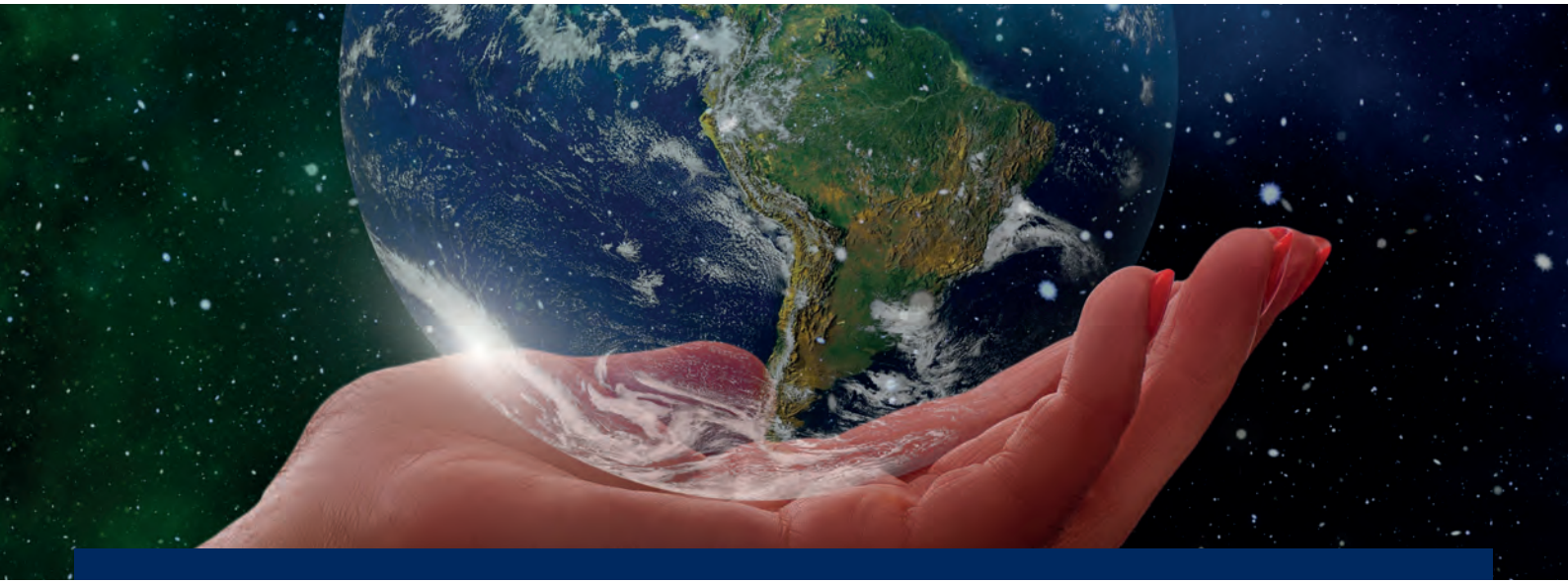




Magnetism is a permanent phenomenon of nature that surrounds our life

MAG AUTOBLOK TECNOMAGNETE permanent-electro magnetic systems use this friendly, safe and unlimited force to clamp the pieces to be machined on machine tools.

MAG AUTOBLOK TECNOMAGNETE products are conceived with an innovative construction design and high energy efficiency magnetic circuits in total respect of environmental sustainability and energy saving.

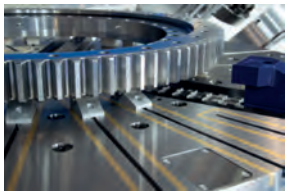
MAG AUTOBLOK TECNOMAGNETE

is the evolution of the well known Italian company established in the early 70's with the target to research and implement innovative magnetic solutions for the manufacturing industry.

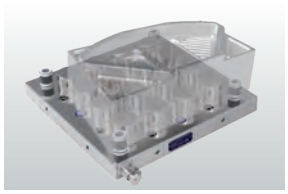
In 50 years of activity our permanent-electro magnetic technology has been applied with success to different industrial sectors for the work-holding and lifting processes of steel products providing undisputed advantages in terms of productivity, quality, flexibility and ease of use.

The combination of different technologies and products of AUTOBLOK Group has given rise to innovative solutions and hybrid work-holding systems such as:

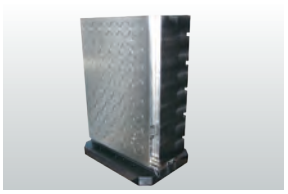
RADIAL TEC
with self-centering **Autoblok**



MILLTEC
Zero Point **OML**



MILLTEC CUBE
with **OML cube and tombstone**



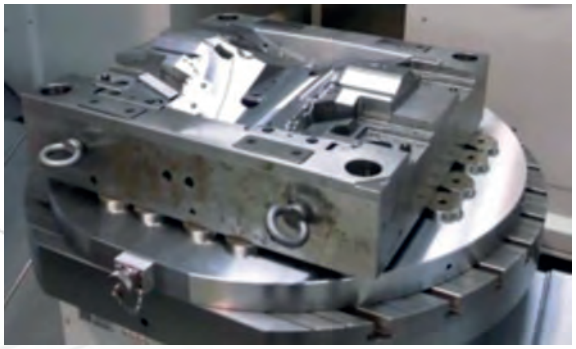
The advantages of magnetic work-holding for machine tool

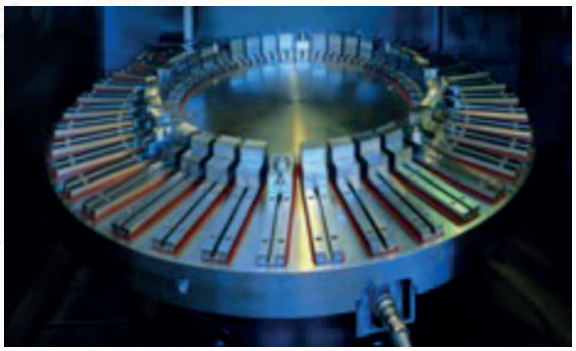
" Modern machine tools, sophisticated machining centers and technological tools are designed to produce a greater number of high quality parts in the shortest possible time.

The safe, uniform and deformation-free clamping of the workpiece, its fast set up and free access of the tool on all faces are key aspects to enhance the performance of the entire process and speed up the return on investment "

The main advantages of the permanent-electro magnetic system MAG AUTOBLOK TECNOMAGNETE

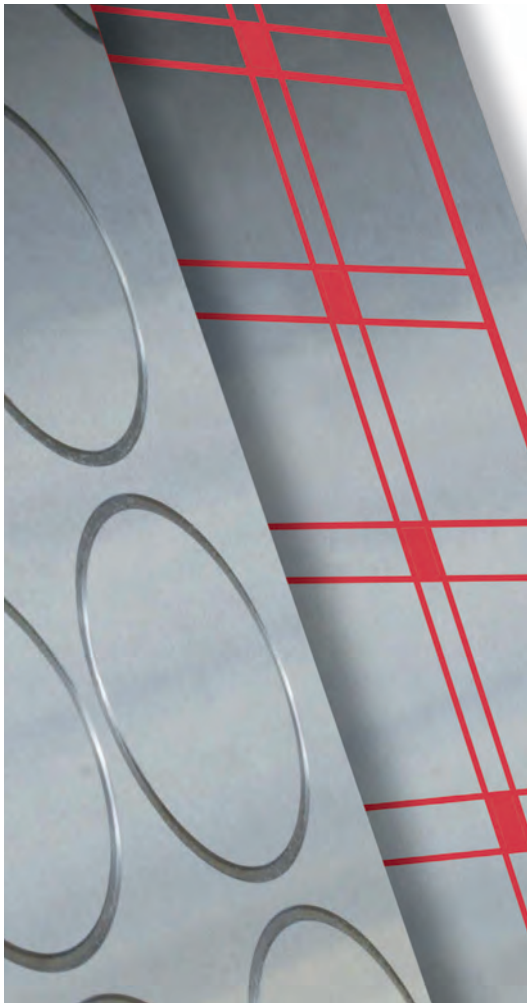
- Uniformity of work-holding over the entire contact surface
- Free access of the tool on the 5 machining faces
- Workpiece positioning and clamping speed
- Absence of vibrations during processing
- Better cutting quality and longer tool / insert life
- Respect of the condition of the piece without tension or deformation
- Flexibility in clamping pieces of any size or shape
- Reliability of piece clamping always the same over time
- Permanent, constant and predictable magnetic safety
- Simple and fast MAG / DEMAG cycles at the touch of one button
- Electronic control unit with MAG / DEMAG display
- Can be integrated into the production process through PLC interlocking
- Remotely controllable and diagnosable - Industry 4.0 Ready
- High energy saving compared to electromagnets: only 1” of electrical current needed
- No special maintenance required





Evolution of the permanent-electro magnetic plate for milling.

Electro-permanent magnetic technology for clamping work-pieces on machine tools is now of common use thanks to obvious application advantages.
However, not all products available on the market are the same because over the years some fundamental evolutionary stages have determined important technological and construction differences, especially for the magnetic chucks used on machining centers and milling machines.



QUADSYSTEM.
Technological innovation:
from the old permanent-electro magnetic plate with mono-directional parallel polarity we moved back in 1985 (Tecnomagnete patent) to the **Quadsystem** with a new concept of bi-directional square magnetic pole where the north-south polarities alternate in orthogonal direction to obtain a better opposition to the thrust generated by the tool when cutting in all directions.

QUAD EXTRA.
Construction evolution:
the next step was to overcome the limits of the square magnetic pole originally inserted one at a time in the frame, screwed from the bottom side through a single central bolt and sealed by an excessive amount of epoxy resin of different colors red, blue, black or yellow. In 2008 (Tecnomagnete patent) **QUAD EXTRA** takes over with a magnetic work surface consisting of a single mono-block polar plate for total protection of the magnetic / electrical circuit. This allows the use of precision pins and mechanical stops without the risk of creating micro-cracks in the resin with consequent penetration into the coolant. In other words increased product reliability over time and better processing precision.

MILL-TEC.
Innovative construction
adds to this evolution another fundamental step forward in 2012 (Tecnomagnete patent) by inserting the magnetic and electric circuit from the bottom side of the frame to obtain a full metal, mono-block, seamless surface. The frame is machined "from solid" like a mold with high precision details to house the permanent magnets and electric coils that become an integral part of the system in a single piece.

MILL-TEC GRIP.
Innovative construction
allows a remarkable reduction of thickness and weight of the magnetic chuck with the ability to uniformly anchor to the machine table. In addition to the traditional installation screws the magnetic GRIP effect acts on the entire contact surface between machine and magnetic plate neutralizing any vibration.
The product is ideal for large magnetic tables, 5-axis machines and for palletized machining centers.

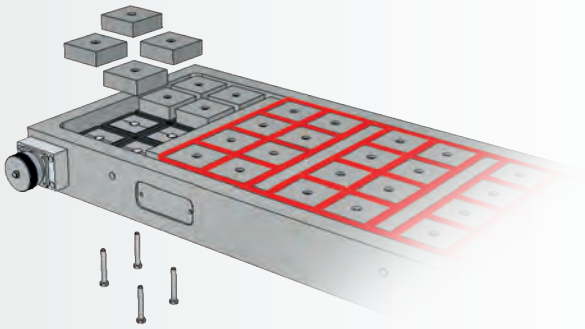
TECNOMAGNETE

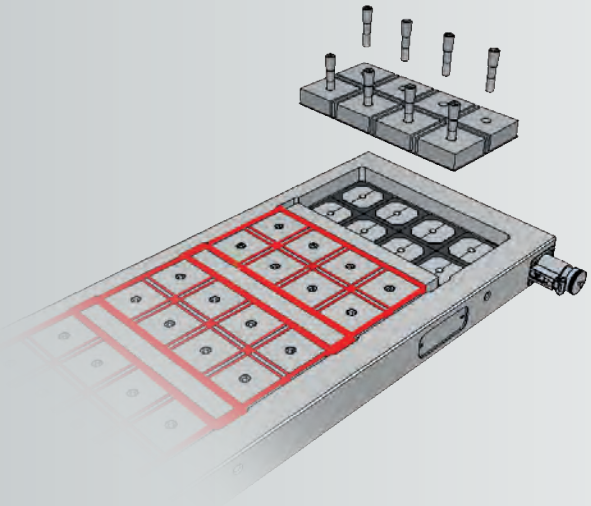
1974

Tecnomagnete patents the permanent-electro double magnet technology.

1985

Technological innovation: magnetic square pole bi-directional **QUADSYSTEM** (Tecnomagnete patent).
Current technological state of competition.



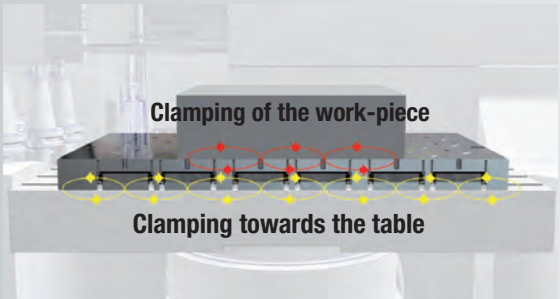


2008

Construction evolution: QUAD-EXTRA
(Tecnomagnete patent) the entire work surface consists of a single mono-block polar plate – Limited use of epoxy resin.

Construction Innovation: MILL-TEC
(Tecnomagnete patent) the frame is machined "from solid", the permanent magnets and the electric coils become an integral part of the system in a single piece.

2012



2013

Construction innovation MILL-TEC GRIP
The magnetic GRIP effect acts on the entire contact surface to neutralize any vibration between the magnetic plate and the .machine table .

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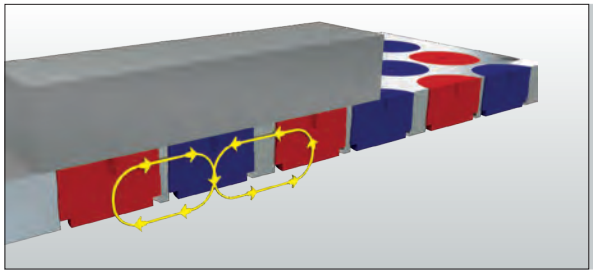
QUAD EXTRA

Operation of the permanent-electro magnetic circuit

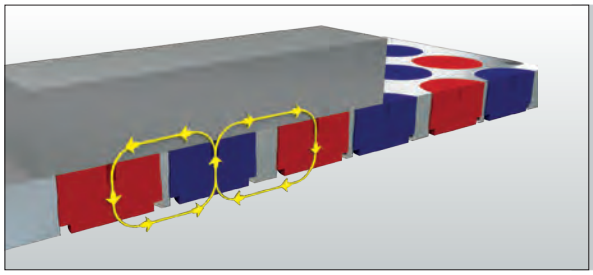


Static phase DEMAG (surface demagnetized)

The polarization of the reversible magnet Al.Ni.Co and that of the static magnet Neodymium create a “magnetic short circuit” with a flattened circulation of the flux only within the system.
No electric current is used during this phase.

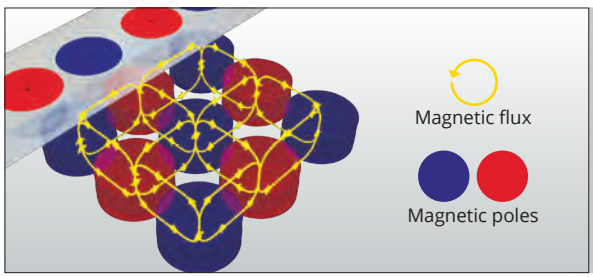
Magnetization cycle (or Demagnetization)

An electrical impulse lasting a few fractions of a second changes the polarization of the reversible magnet Al.Ni.Co therefore remaining its status indefinitely.



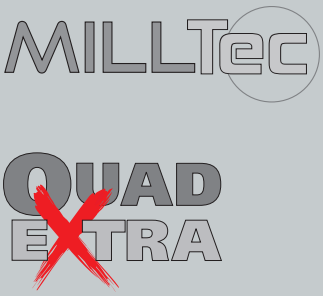
Static phase MAG (surface magnetized)

The polarization of the reversible magnet Al.Ni.Co and that of the static magnet Neodymium join forces with a powerful magnetic flux that reaches the work surface and the piece to be clamped.
No electric current is used during this phase.



Uniform magnetic grid

A series of permanent magnetic seams alternate between the north and south poles in an orthogonal direction, guaranteeing strength uniform and safe clamping between the magnetic chuck and the workpiece.



Magnetic work-holding force

The magnetic clamping force of a workpiece is proportional to the contact surface and to the square of its magnetic flux density.

Consequently, to ensure a better clamping force, it is recommended to cover the largest number of North and South magnetic poles and above all to improve the quality of contact with the piece as much as possible through the use of suitable pole extensions and the choice of the correct magnetic generator.

Factors Affecting Density of magnetic flux	Indicative values of performance reduction and application considerations
Roughness of the piece	▪ 100% = rectified ▪ 90 ÷ 80% = fine milled ▪ 80 ÷ 70% = milled ▪ 70 ÷ 60% = raw
Type of material	▪ 100% mild steel ▪ 70% ÷ 80% alloy steel ▪ 40% cast iron ▪ 0% non-magnetic stainless steel, brass, aluminum
Thickness of work-piece	The clamping of pieces with a thickness less than the minimum recommendation reduces the level of magnetic performance
Correct set up of the work-piece on the magnetic surface	It is preferable to place the piece partially covering more magnetic poles rather than a smaller number of magnetic poles with full coverage

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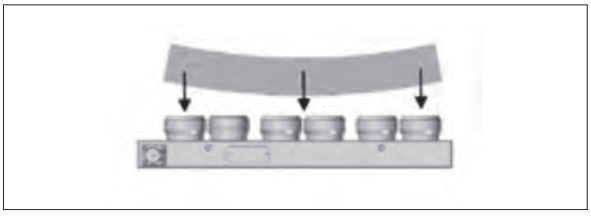
QUAD EXTRA

Polar extensions and automatic shimming

The use of polar extensions suitable for the application reduces the operating air gaps and improves the magnetic flux density. They can be used to elevate the piece and machine the 5 faces in a single placement, for contouring, chamfering, through drilling operations or to create mechanical, magnetic stops and dedicated jigs.
It is possible to carry out the automatic shimming of deformed pieces through the use of mobile extensions that avoid the tensioning of the piece during the work phase.



Phase 1

Place the workpiece on 3 fixed extensions placed at the end to determine the work surface with the support of all the other mobile extensions.

Phase 2

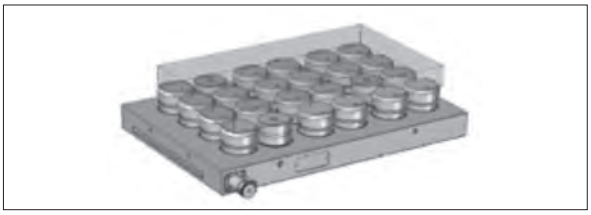
By starting a magnetization cycle on the permanent-electro magnetic chuck, you will notice that the mobile pole extensions will adapt to the profile of the workpiece. At this point, start the first machining on the upper surface.

Phase 3

Once the first machining is finished, start a Demagnetization cycle.

Phase 4

Turn the workpiece upside down with the machined face on the bed of pole extensions. Start the magnetization cycle for the second machining operation.



Phase 5

At the end of the second machining it is possible to proceed with a demagnetization cycle, then remove the perfectly planar machined piece with the two parallel faces.

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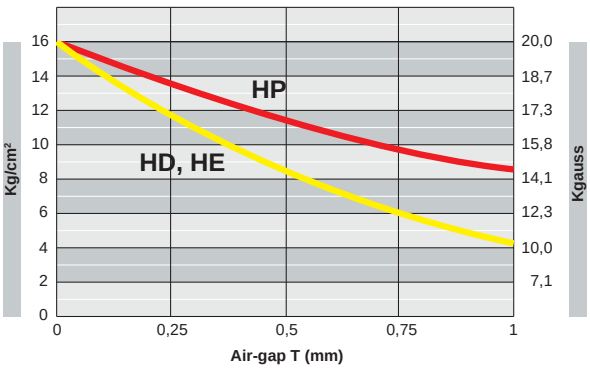
Choice of the correct magnetic generator

with different magnetic polarity and magneto motive force

Model	Description of the polar magnetic geometry
MillTEC	Round pole Ø 70 mm high density - full metallic surface for work-pieces having size from 160 x 160 mm and thickness from 18* mm.
MillTEC HDN	Round pole Ø 70 mm. high density - full metallic surface for work-pieces having size from 160 x 160 mm and thickness from 12* mm. Excellent for clamping standardized plates for molds & dies or pre-machined alloy steel products
QUAD-EXTRA HE50	Square pole 50 x 50 mm high efficiency for pieces having size from 120 x 120 mm and minimum thickness from 12* mm.
QUAD-EXTRA HD50	Square pole 50 x 50 mm high density for pieces having size from 110 x 110 mm and minimum thickness from 12* mm.
QUAD-EXTRA HP50	Square pole 50 x 50 mm high power for pieces having size from 120 x 120 mm and minimum thickness from 12* mm. Excellent for raw pieces or cast iron
QUAD-EXTRA HD70	Square pole 70 x 70 mm high density for pieces having size from 150 x 150 mm and minimum thickness from 18* mm
QUAD-EXTRA HP70	Square pole 70 x 70 mm high power for pieces having size from 160 x 160 mm and minimum thckness from 18* mm. Excellent for raw pieces or cast iron

Pull / Air-gap curve



* It is possible to process lower thicknesses by using special polar extension or by the power regulator of the controller.

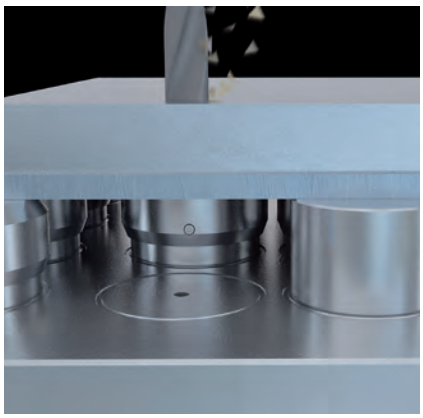
MILLTec

QUAD EXTRA

Examples of machining

Machining examples with plates MILLTec

Face milling			
Dc	Tool diameter	mm	125
Zn	Cutting edge	n.	8
n	Cutting spedd	rpm	860
ap	Cutting depth	mm	1.5
ae	Cutting width	mm	80
Vf	Feed of the table	mm/min	4000
Q	Stock removal rate	cm³/min	480



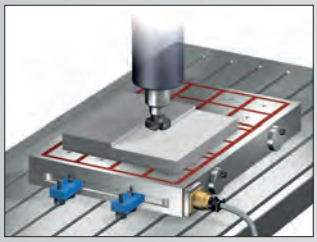
Slot execution			
Dc	Tool diameter	mm	50
Zn	Cutting edge	n.	5
n	Cutting spedd	rpm	1800
ap	Cutting depth	mm	2
ae	Cutting width	mm	50
Vf	Feed of the table	mm/min	5000
Q	Stock removal rate	cm³/min	500

Edge milling			
Dc	Tool diameter	mm	50
Zn	Cutting edge	n.	5
n	Cutting spedd	rpm	1800
ap	Cutting depth	mm	5
ae	Cutting width	mm	5
Vf	Feed of the table	mm/min	4000
Q	Stock removal rate	cm³/min	100

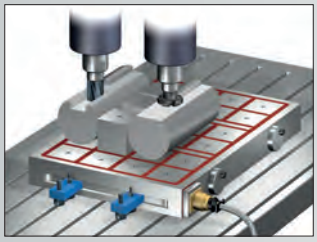
Machining samples data achieved with:
Piece dimensions: 410 x 260 x 50 mm, positioned on 3 fixed extensions PFR 70/45 and 9 mobile RMP 70/45. **Material:** FE 275 JR. Machine: VMC 1600-27kW. **Magnetic chuck:** MillTec Grip 304 HD (320 x 425 x 42 mm).
Side stops can be used to increase stock removal data.

Machining examples with plates

QUAD EXTRA

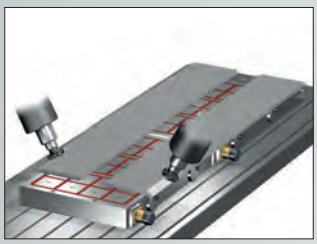


Face milling on vertical spindle machine

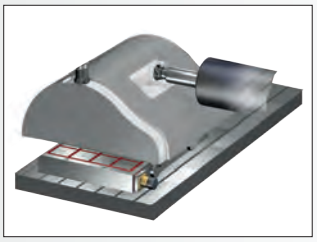


Machining of steel rounds with side mechanical / magnetic stop

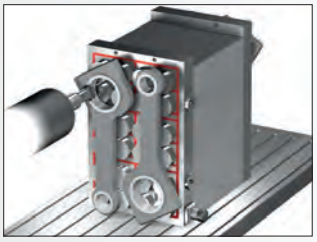
Face milling, edge milling, drilling on horizontal spindle machine



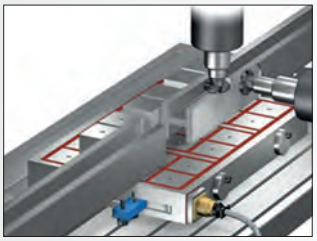
Crimping, chamfering, contouring



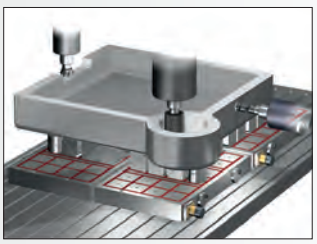
Contouring on 5 axis machining center



Complex pieces on magnetic cube or tombstone



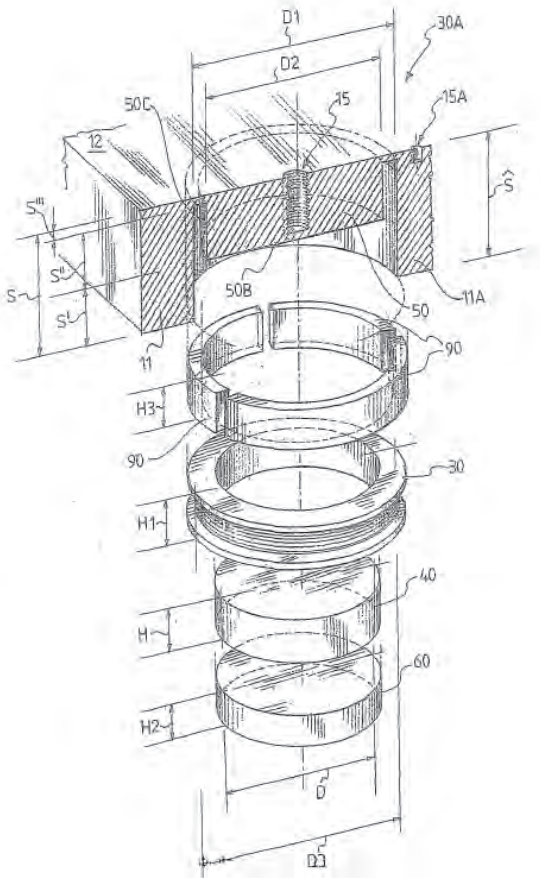
Machining of profiles with magnetic stop on horizontal / vertical spindle machine



Face milling, edging, through drilling on machining center

MILLTec

Milling series



International patent WO 2009/130721

MillTEC is a MAG AUTOBLOK TECNOMAGNETE patent and represents the state of the art in the technological and constructive evolution of electro-permanent magnetic chucks for machining centers and milling machines.
The frame is designed as a monolithic honeycomb structure and manufactured "from solid" with the same technology used for precision molds. The entire surface can be machined for the insertion of precision bushings, dowel pins or mechanical and magnetic stops to be used as a reference or to enhance the clamping force.

All of the magnetic and electrical components are inserted inside the frame in a special housing becoming an integral and solid part of the system.

The magnetic poles are the result of a series of coring machining carried out from the lower side of the mono-block steel frame and highlighted on the upper working side by light circular engravings. The working surface is totally metallic without any presence of epoxy resin, brass or aluminum inserts.

1. **Mono-block steel frame**
The coring machining and the assembly of the magnetic and electric circuit from the lower create an impenetrable shield from any external agent.

2. **Light circular engravings**
To highlight the position of the magnetic polarity while maintaining a totally solid and metal surface without resin, brass or aluminum inserts.

3. **M8 threaded holes**
For the use of fixed / mobile extensions or special accessories tailored to the application.

4. **Quick fit connector**
Precise, safe and watertight for quick connection with the control unit.

5. **M10 threaded holes**
To use with mechanical stops for reference.

6. **Performance plate with technical data**
Data on voltage, current absorption, serial number.

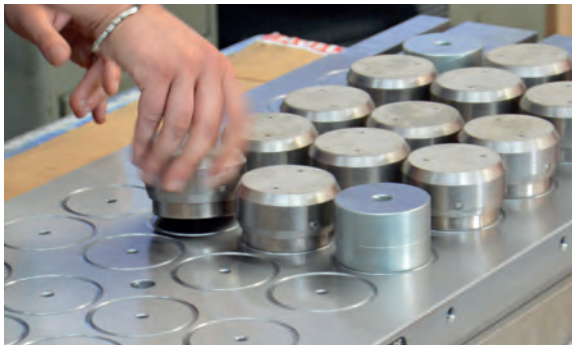
7. **Reversible permanent magnet AlNiCo**

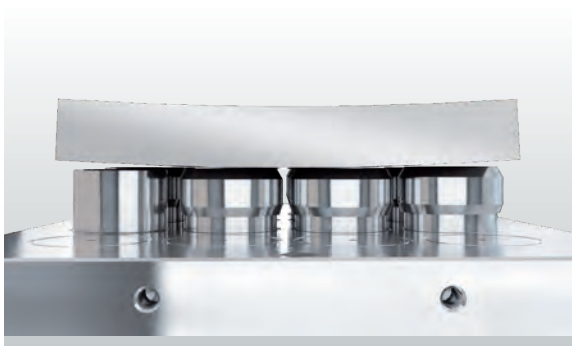
8. **Static permanent magnet Neodymium**

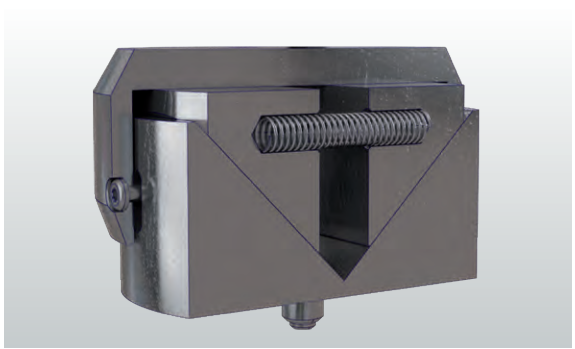
9. **Encapsulated electric coil**

10. **Hermetic closing cap**

Milling series



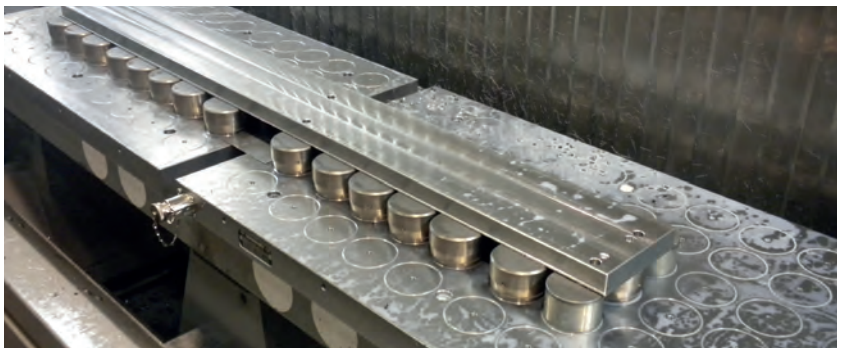




MILLTEC monolithic structure together with the RMP pole extensions create an extremely powerful clamping system for pieces on different heights or uneven surfaces, avoiding internal tensions in a simple and quick way.

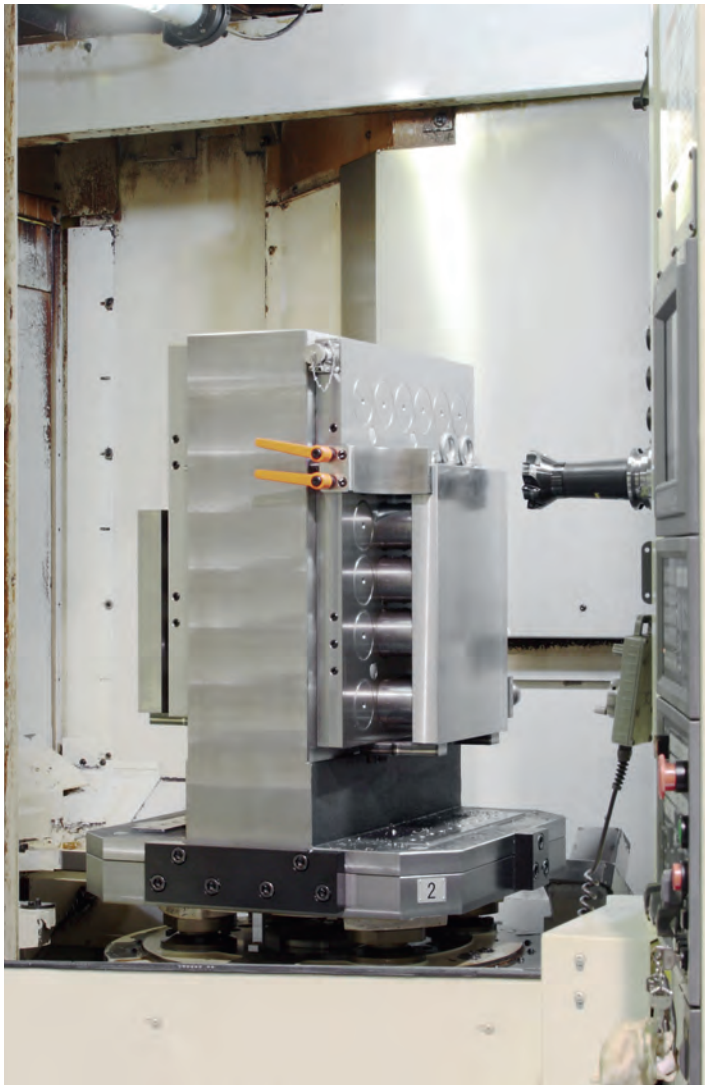
It is possible to obtain the same precise flatness of the machine table on the machined piece even on large surfaces in a single set up.
RMP mobile extensions (MAG AUTOBLOK TECNOMAGNETE patent) are more efficient and easier to use.

- The internal mechanism with inclined “double surface” has a magnetic efficiency 20% higher than traditional extensions with a single inclined surface.
- The protective cover prevents chips and impurities from penetrating inside the mechanism.
- Performance remains constant without laborious maintenance for cleaning.
- The “double action” technology allows the free positioning of the extensions on the magnetic surface without the need to orient them according to the direction of the adjacent mobile extensions.
- The RMP extension, equipped with an integrated threaded pin, can be positioned quickly and easily without the possibility of error, without using tools.



MILLTec CUBE

Milling series



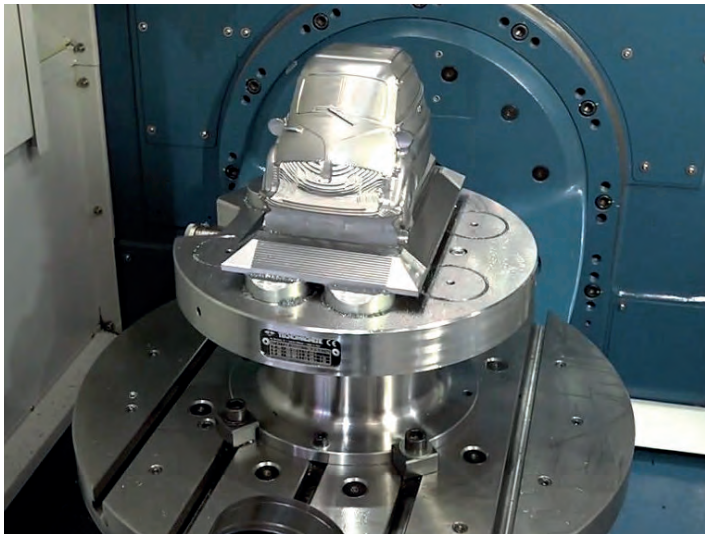
MillTec GRIP can be easily installed on a tombstone to give life to MillTEC CUBE.

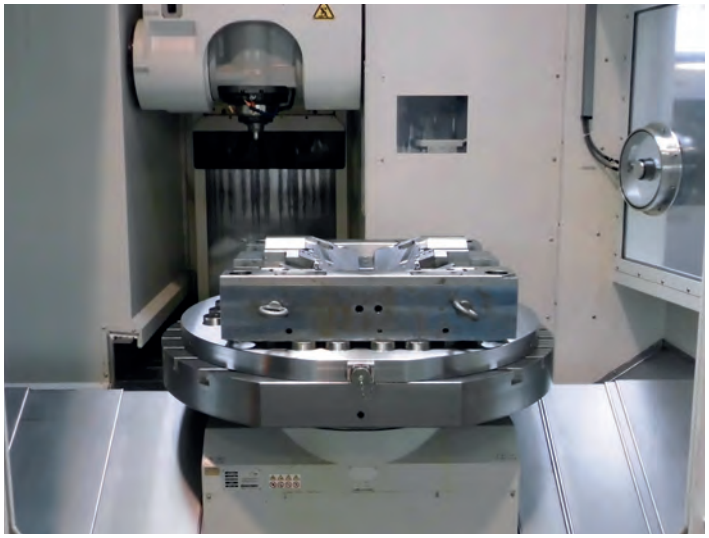
The work-holding uniformity is guaranteed by the GRIP function which allows the creation of magnetic tombstones with unique characteristics of stability, rigidity and strength.

The reduced thickness of the magnetic plate lowers the total weight and increases the productivity of the machine. Mechanical wear and stress are diminished by maximizing the machines load capacity and travel times.

MILLTec ROUND

Milling series





MillTec ROUND is the circular version optimized to be installed on 5-axis machines.

The reduced thickness and low weight facilitate the machine's performance while preserving the light and useful capacity of the machine.

Equipped with a set of pole extensions, it allows you to lift the piece from the working surface and perform:

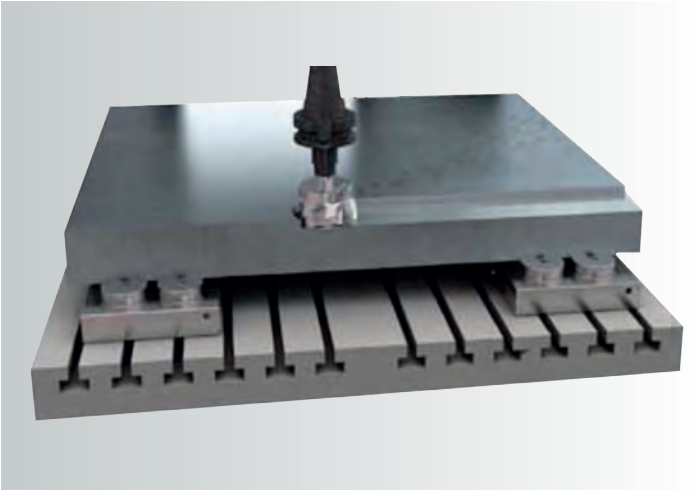
- Complete profiling
- Undercut machining
- Through holes and pockets

MillTec ROUND is available in MillTec Duo configuration, i.e. in combination with a solid support that raises the magnetic chuck and work-piece from the machine table for better tool access.

MILLTEC BLOCK - MILLTEC HDN

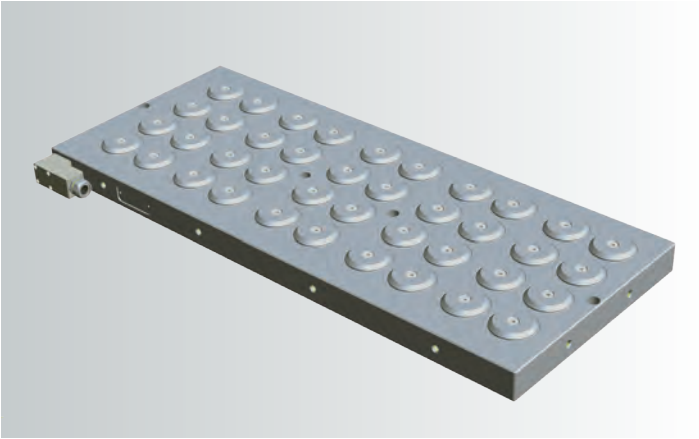
MILLTEC BLOCK

It is for work-holding applications of complex designs utilizing large, thick pieces.
The system is composed of a combination of 2/4/6/8 modular elements with 4 poles, independent from each other and freely positionable on the machine table.
Each module is supplied with 4 fixed pole extensions which can be machined to better adapt to the geometry of the piece and the machining needs.
The system is modular and expandable according to application needs: it is possible to couple several MillTec Block systems together to form “magnetic grid” of different density.
MillTec Block is installed directly with screws on the machine table by using the through holes present on each module or coupled “back-to-back” for self-anchoring applications.



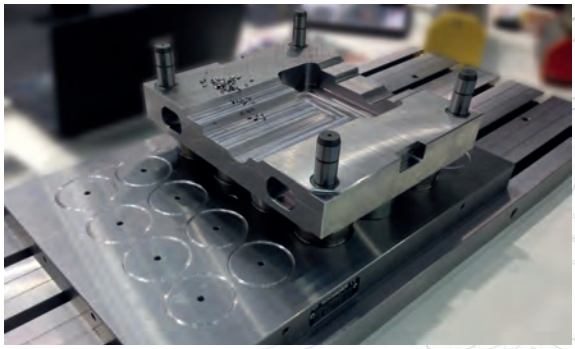
MILLTEC HDN

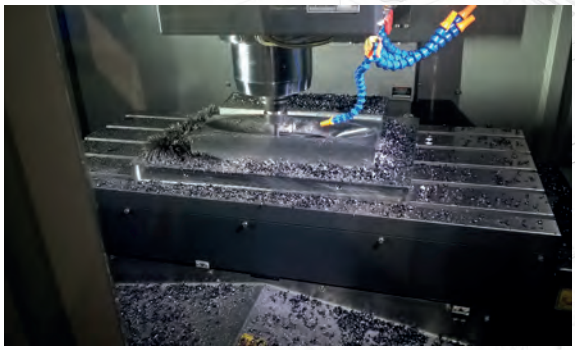
The machining of alloy steel parts with magnetic plates can lead to the persistence of a magnetic halo after the demagnetization cycle due to the chemical composition of the material.
MillTec HDN solves these problems through an innovative NUFLUX demagnetization circuit that completely removes the magnetic residue from the piece.
It comes complete with special conical pole extensions that concentrate the magnetic flux on the piece to be clamped for maximum performance.
The ST200 / R series control unit allows you to choose between 8 magnetization levels, thus adapting the clamping force to the characteristics of the piece itself.

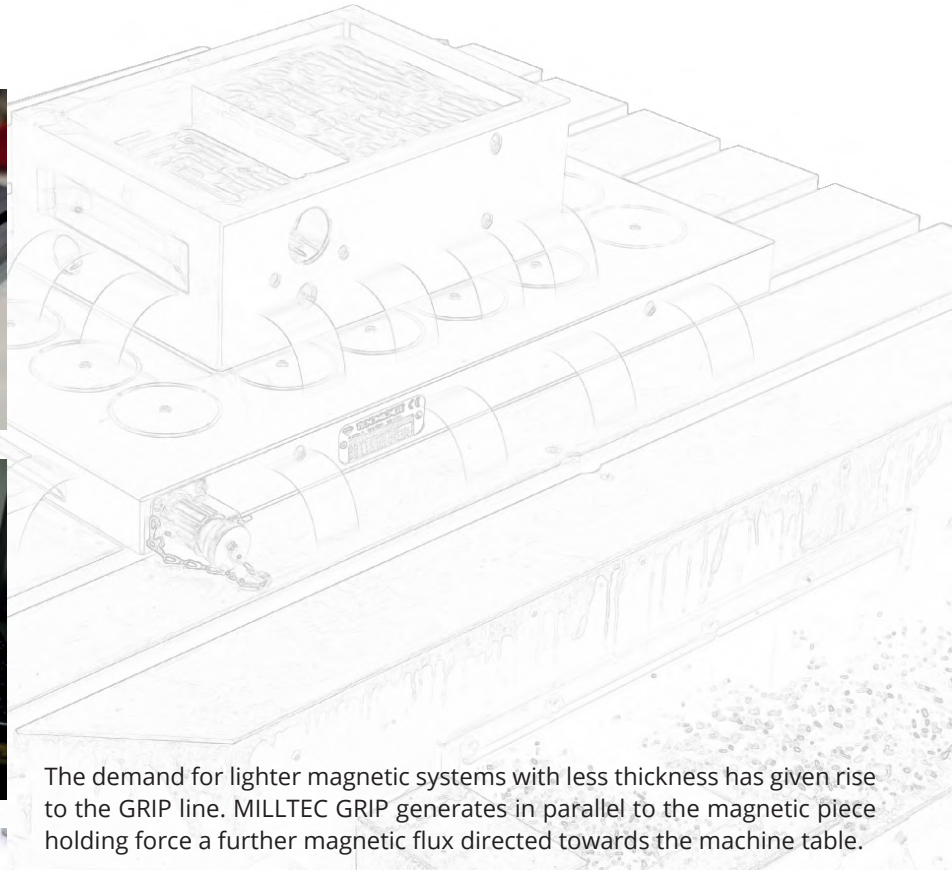


MILLTec

GRIP function



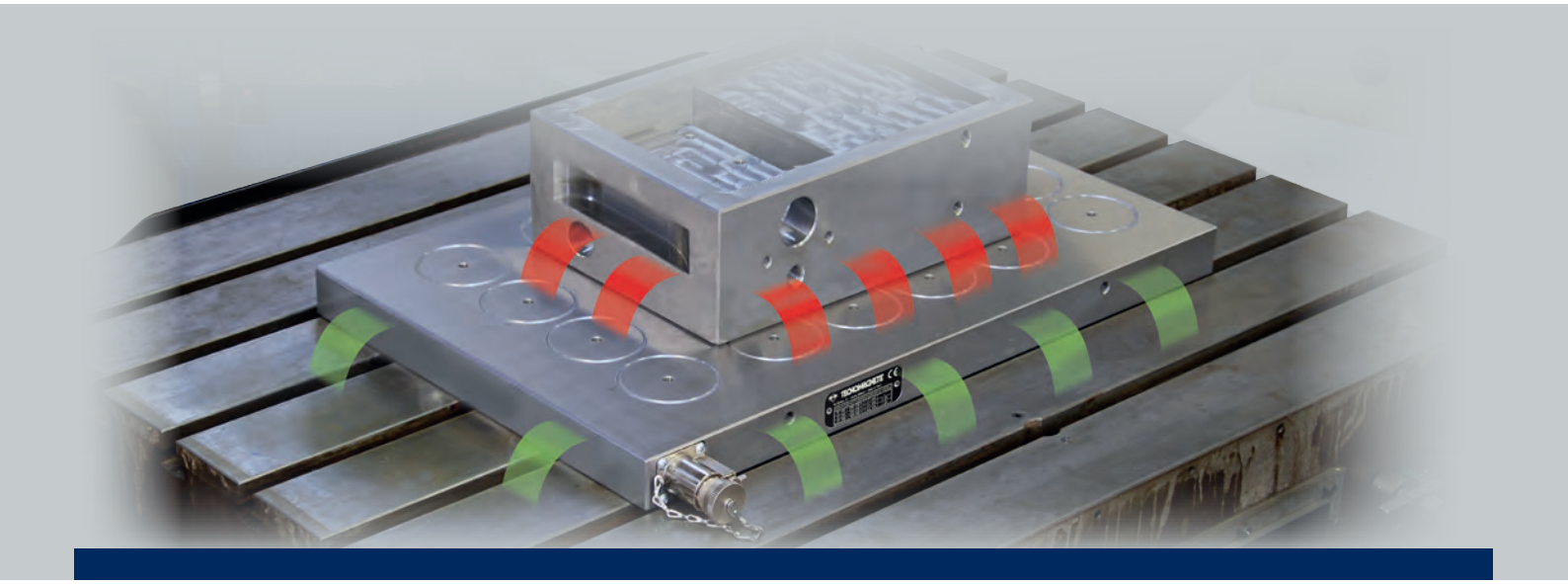


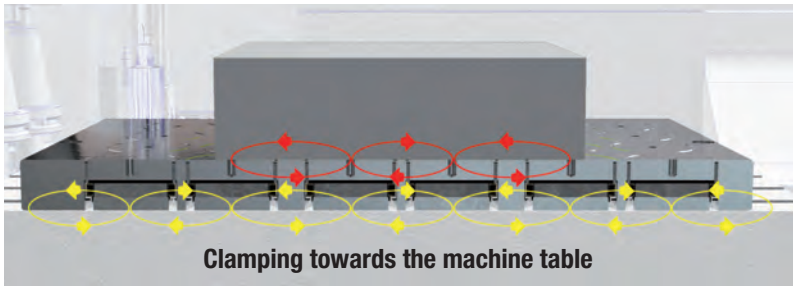


The demand for lighter magnetic systems with less thickness has given rise to the GRIP line. MILLTEC GRIP generates in parallel to the magnetic piece holding force a further magnetic flux directed towards the machine table.

The GRIP effect does not reduce the magnetic clamping force of the workpiece but is added to it to make the whole **workpiece / magnetic plate/ machine table** monolithic. This determines a perfect stability, structural uniformity, eliminating vibrations and resonances during processing.

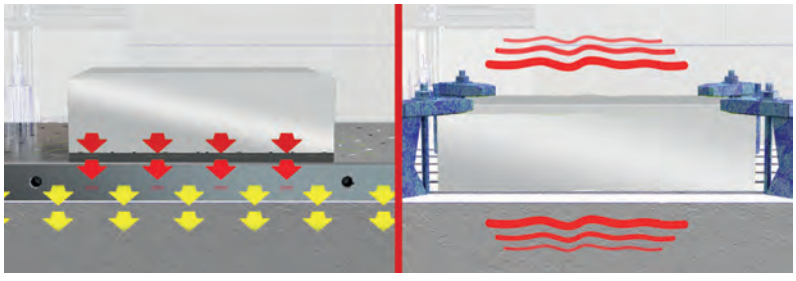
MillTEC GRIP is suitable for all machine tools and mechanical processing, it can be easily installed by using the through holes supplied as standard and one GRIP cycle to be carried out only at the time of first installation using the appropriate ST200SK controller.





Clamping towards the machine table

GRIP generates a magnetic self-clamping force towards the machine table, keeping the force that holds the piece unchanged.
The uniform clamping force towards the machine table eliminates the possibility of bending or deformations, that are typical of traditional mechanical elements of brackets.



Clamping with magnetic GRIP **Traditional mechanical clamping**

Uniformity and Quality

The elimination of machining vibrations enhances the locking uniformity characteristics of the magnetic systems: better finish quality, higher machining accuracy, faster speeds and reduced tool consumption.

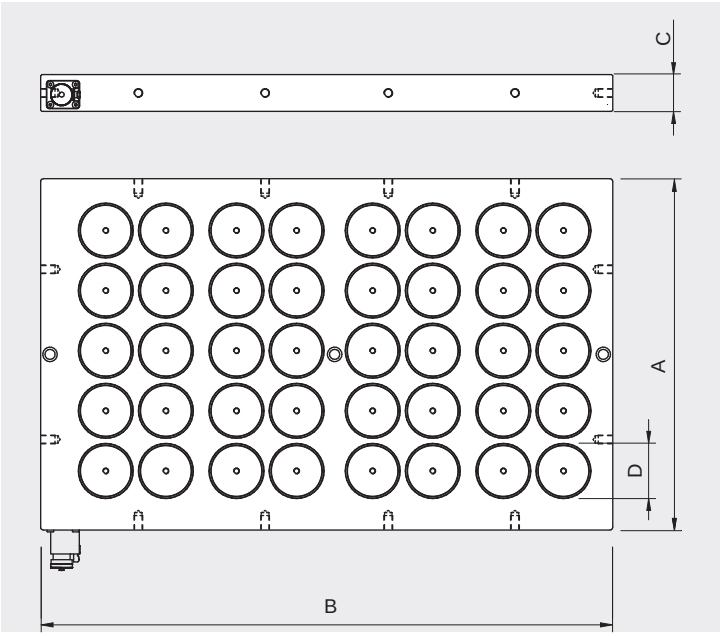
Thanks to the GRIP technology the magnetic modules can be made with extremely low thickness while maintaining high structural rigidity.

The reduced thickness and weight of MillTec GRIP increases the performance and load capacity of the machine with faster working cycles and less stress.

MillTec GRIP offers great operational advantages for a marked increase in productivity and quality.

MILLTEC BASIC MTB

Permanent-electro magnetic plates with round polarity



Standard supply

- Permanent-electro magnetic plate with mono-block frame full metallic surface and quick waterproof connector ERGON 5 pin
- Drawing of machinable areas to drill through holes for installation based on the size of the magnetic plate
- CE declaration of conformity
- Instruction manual on digital support

Recommended accessories

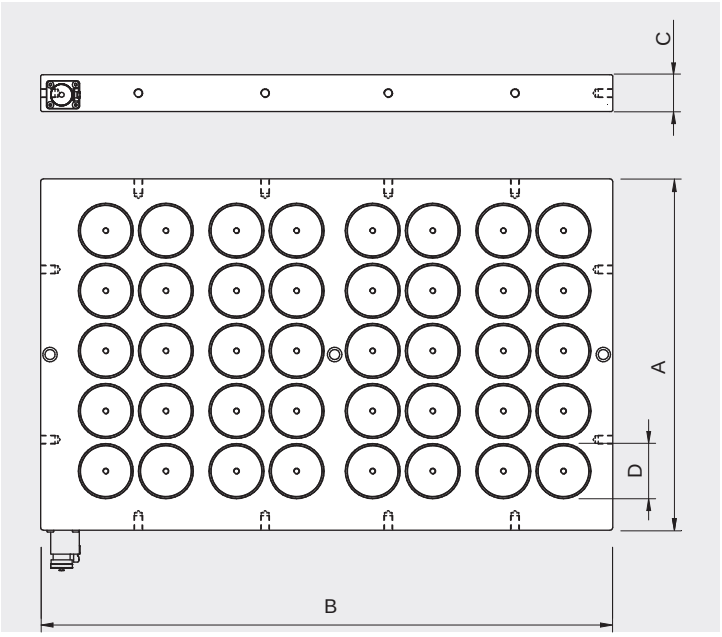
- Fix extension **Cod. PFR70/20** (pag. 42)
- Moving extension **Cod. PFR70/45** (pag. 42)
- Moving extension **Cod. RMP70/45** (pag. 42)

Model	Size				Poles	Clamping force	Weight
	A	B	C *	D			
	mm	mm	mm	ø mm	n.	kN	Kg
MTB 304 HD	320	420	51	70	12	77	55
MTB 306 HD	320	600	51	70	18	115	75
MTB 308 HD	320	790	51	70	24	154	95
MTB 310 HD	320	975	51	70	30	193	120
MTB 404 HD	405	420	51	70	16	103	65
MTB 405 HD	405	500	51	70	20	128	80
MTB 406 HD	405	600	51	70	24	154	95
MTB 408 HD	405	790	51	70	32	205	120
MTB 410 HD	405	975	51	70	40	257	150
MTB 506 HD	485	600	51	70	30	193	110
MTB 508 HD	485	790	51	70	40	257	145
MTB 510 HD	485	975	51	70	50	321	180
MTB 606 HD	570	600	51	70	36	231	130
MTB 608 HD	570	790	51	70	48	308	170
MTB 610 HD	570	975	51	70	60	385	210

***** ± 0,5 mm
Minimum size of work-piece: 160 x 160 mm
Minimum thickness of work-piece: 18 mm
Suitable control unit **Cod. ST200FA** (pag. 45)

MILLTEC GRIP MTG

Permanent-electro magnetic plates GRIP auto clamp with round polarity



Standard supply

- Permanent-electro magnetic plate with mono-block frame full metallic surface and quick waterproof connector ERGON 5 pin
- GRIP auto clamp feature
- Drawing of machinable areas to drill through holes for
- installation based on the size of the magnetic plate
- CE declaration of conformity
- Instruction manual on digital support

Recommended accessories

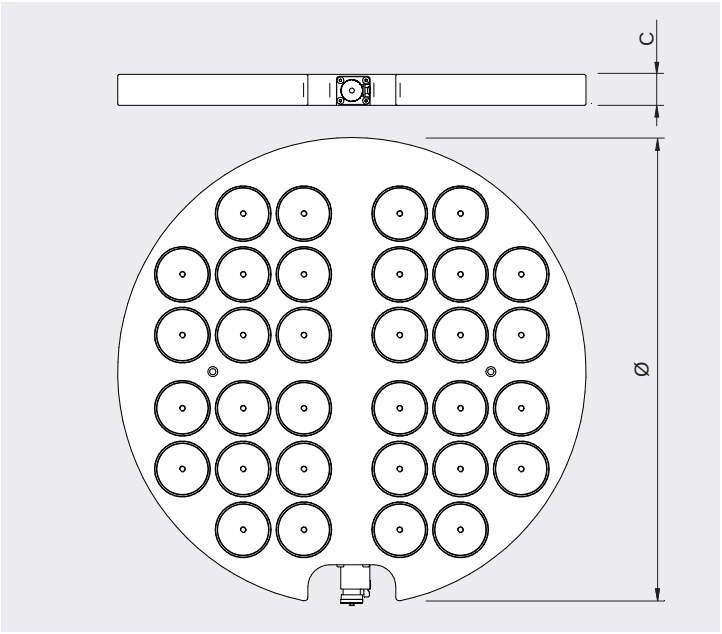
- Fix extension **Cod. PFR70/20** (pag. 42)
- Moving extension **Cod. PFR70/45** (pag. 42)
- Moving extension **Cod. RMP70/45** (pag. 42)

Model	Size				Poles	Clamping force	Weight
	A	B	C *	D			
	mm	mm	mm	ø mm	n.	kN	Kg
MTG 304 HD	320	420	42	70	12	77	40
MTG 306 HD	320	600	42	70	18	115	60
MTG 308 HD	320	790	42	70	24	154	75
MTG 310 HD	320	975	42	70	30	193	95
MTG 404 HD	405	420	42	70	16	103	50
MTG 405 HD	405	500	42	70	20	128	65
MTG 406 HD	405	600	42	70	24	154	75
MTG 408 HD	405	790	42	70	32	205	95
MTG 410 HD	405	975	42	70	40	257	120
MTG 506 HD	485	600	42	70	30	193	90
MTG 508 HD	485	790	42	70	40	257	115
MTG 510 HD	485	975	42	70	50	321	140
MTG 606 HD	570	600	42	70	36	231	105
MTG 608 HD	570	790	42	70	48	308	135
MTG 610 HD	570	975	42	70	60	385	165

***** ± 0,5 mm
Minimum size of work-piece: 160 x 160 mm
Minimum thickness of work-piece: 18 mm
Suitable control unit **Cod. ST200SK** (pag. 45)

MILLTEC GRIP ROUND MTG/R

Permanent-electro magnetic plates GRIP auto clamp with round polarity



Standard supply

- Permanent-electro magnetic plate with mono-block frame full metallic surface and quick waterproof connector ERGON 5 pin
- GRIP auto clamp feature
- Drawing of machinable areas to drill through holes for
- installation based on the size of the magnetic plate
- CE declaration of conformity
- Instruction manual on digital support

Recommended accessories

- Fix extension **Cod. PFR70/20** (pag. 42)
- Moving extension **Cod. PFR70/45** (pag. 42)
- Moving extension **Cod. RMP70/45** (pag. 42)

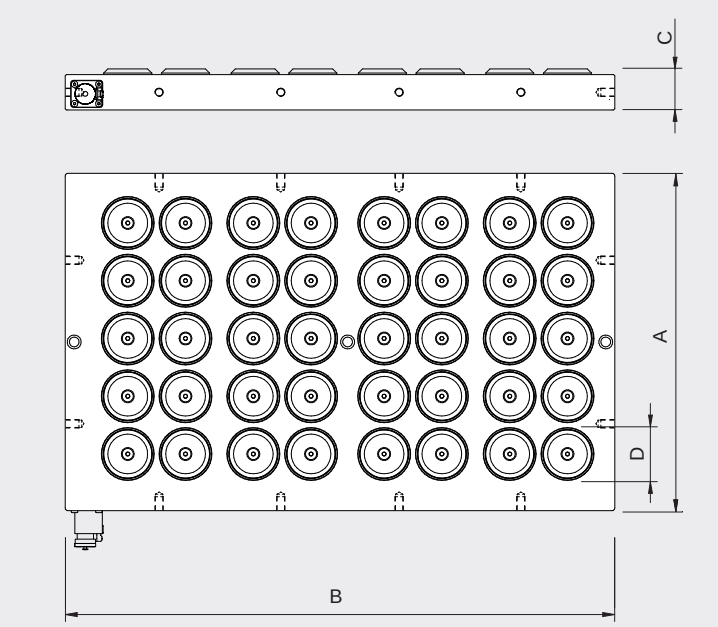
Model	Size		Poles	Clamping force	Weight
	Ø diameter	C *			
	mm	mm	n.	kN	Kg
MTG /R 400	400	42	12	77	50
MTG /R 500	500	42	16	103	65
MTG /R 600	640	42	32	205	105
MTG /R 700	740	42	44	282	135
MTG /R 800	800	42	52	324	160
MTG /R 900	900	42	68	437	195
MTG /R 1000	1000	55	80	514	310

***** ± 0,5 mm
Minimum size of work-piece: 160 x 160 mm
Minimum thickness of work-piece: 18 mm
Suitable control unit Cod. ST200FA (pag. 45)

Available also version **MILLTEC BASIC ROUND MTG/R**
with control unit **Cod. ST200SK** (pag. 45)

MILLTEC HDN

Permanent-electro magnetic plates with round polarity for pre-machined alloy steel products.



Standard supply

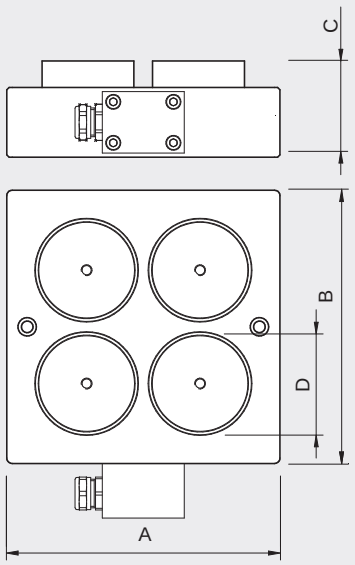
- Permanent-electro magnetic plate with mono-block frame full metallic surface and quick waterproof connector ERGON 5 pin
- Drawing of machinable areas to drill through holes for
- installation based on the size of the magnetic plate
- CE declaration of conformity
- Instruction manual on digital support

Model	Size				Poles	Clamping force	Weight
	A	B	C *	D			
	mm	mm	mm	ø mm	n.	kN	Kg
MTB 304 HDN	320	420	59	70	12	21	55
MTB 306 HDN	320	600	59	70	18	32	75
MTB 308 HDN	320	790	59	70	24	43	95
MTB 310 HDN	320	975	59	70	30	53	120
MTB 404 HDN	405	420	59	70	16	28	65
MTB 405 HDN	405	500	59	70	20	36	80
MTB 406 HDN	405	600	59	70	24	43	95
MTB 408 HDN	405	790	59	70	32	57	120
MTB 410 HDN	405	975	59	70	40	71	150
MTB 506 HDN	485	600	59	70	30	53	110
MTB 508 HDN	485	790	59	70	40	71	145
MTB 510 HDN	485	975	59	70	50	89	180
MTB 606 HDN	570	600	59	70	36	64	130
MTB 608 HDN	570	790	59	70	48	85	170
MTB 610 HDN	570	975	59	70	60	107	210

***** ± 0,5 mm
Minimum size of work-piece: 160 x 160 mm
Minimum thickness of work-piece: 12 mm
Suitable control unit **Cod. ST200R** (pag. 45)

MILLTEC BLOCK

Permanent-electro magnetic plates with round polarity



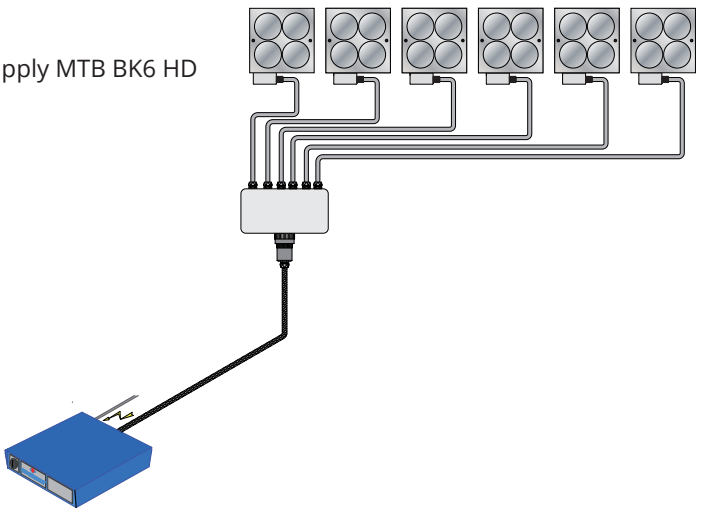
Standard supply

- Permanent-electro magnetic plate with mono-block frame full metallic surface, waterproof hard-wired with 5 m cable
- Installation holes (n.2) on each module
- n.4 fix extensions type PFR 70/20 on each module
- n.1 junction box with quick connector
- CE declaration of conformity
- Instruction manual on digital support

Model	Size			Modules	Poles/module	Clamping force	Weight
	A	B	C *				
	mm	mm	mm	n	n.	kN	Kg
MTB BK2 HD	200	200	71	2	4	51	30
MTB BK4 HD	200	200	71	4	4	103	60
MTB BK6 HD	200	200	71	6	4	154	90
MTB BK8 HD	200	200	71	8	4	205	120

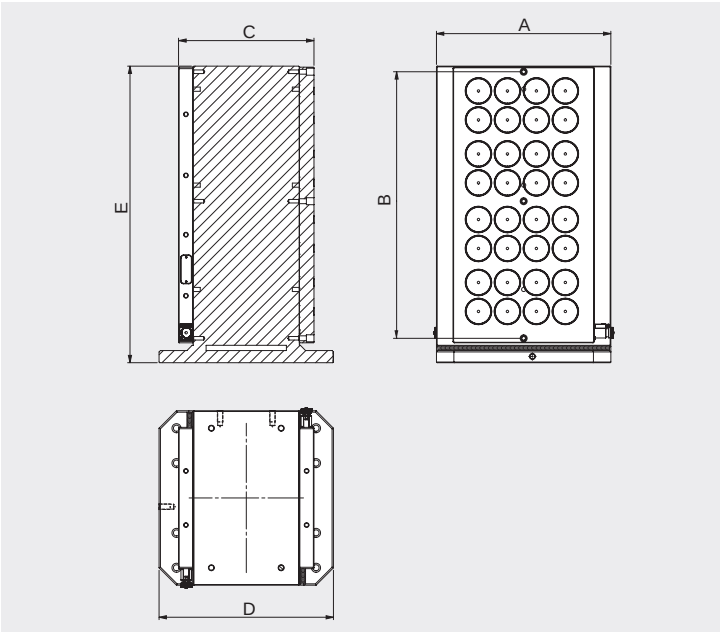
***** ± 0,5 mm
Minimum size of work-piece: 160 x 160 mm
Minimum thickness of work-piece: 18 mm
Suitable control unit **Cod. ST200FA** (pag. 45)

Example of supply MTB BK6 HD



MILLTEC CUBE

Permanent-electro magnetic tombstones with round polarity



Standard supply

- Cubo (tombstone) with 2 or 4 faces in cast iron, electro-welded or in aluminum
- Permanent-electro magnetic plate with mono-block frame full metallic surface and quick waterproof connector ERGON 5 pin
- Drawing of machinable areas to drill through holes for installation based on the size of the magnetic plate
- CE declaration of conformity
- Instruction manual on digital support

Recommended accessories

- Fix extension **Cod. PFR70/20** (pag. 42)
- Moving extension **Cod. PFR70/45** (pag. 42)
- Moving extension **Cod. RMP70/45** (pag. 42)

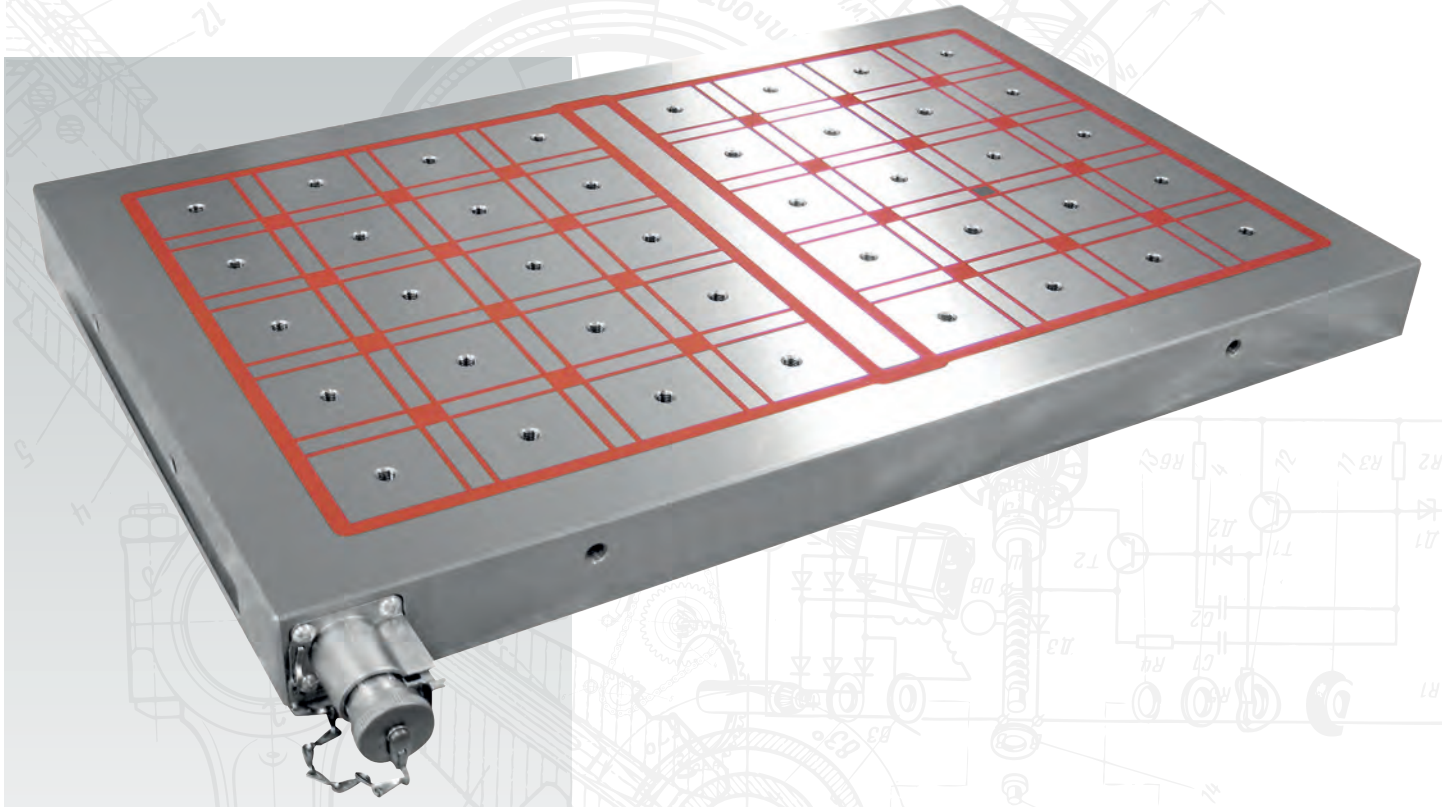
Model	Size			Magnetic faces	Poles per face	Clamping force per face	Weight
	A	B	C - D - E				
	mm	mm	mm	n	n.	kN	Kg
MTB 404 HD CUBE	405	420	on design	1, 2 or 4	16	103	on design
MTB 405 HD CUBE	405	500	on design	1, 2 or 4	20	128	on design
MTB 406 HD CUBE	405	600	on design	1, 2 or 4	24	154	on design
MTB 408 HD CUBE	405	790	on design	1, 2 or 4	32	205	on design
MTB 506 HD CUBE	485	600	on design	1, 2 or 4	30	193	on design
MTB 508 HD CUBE	485	790	on design	1, 2 or 4	40	257	on design
MTB 606 HD CUBE	570	600	on design	1, 2 or 4	36	231	on design
MTB 608 HD CUBE	570	790	on design	1, 2 or 4	48	308	on design

***** ± 0,5 mm
Minimum size of work-piece: 160 x 160 mm
Minimum thickness of work-piece: 18 mm
Suitable control unit **Cod. ST200FA** (pag. 45)

Available special size on demand also in configuration **QUADEXTRA HD, HE, HP, HDN**

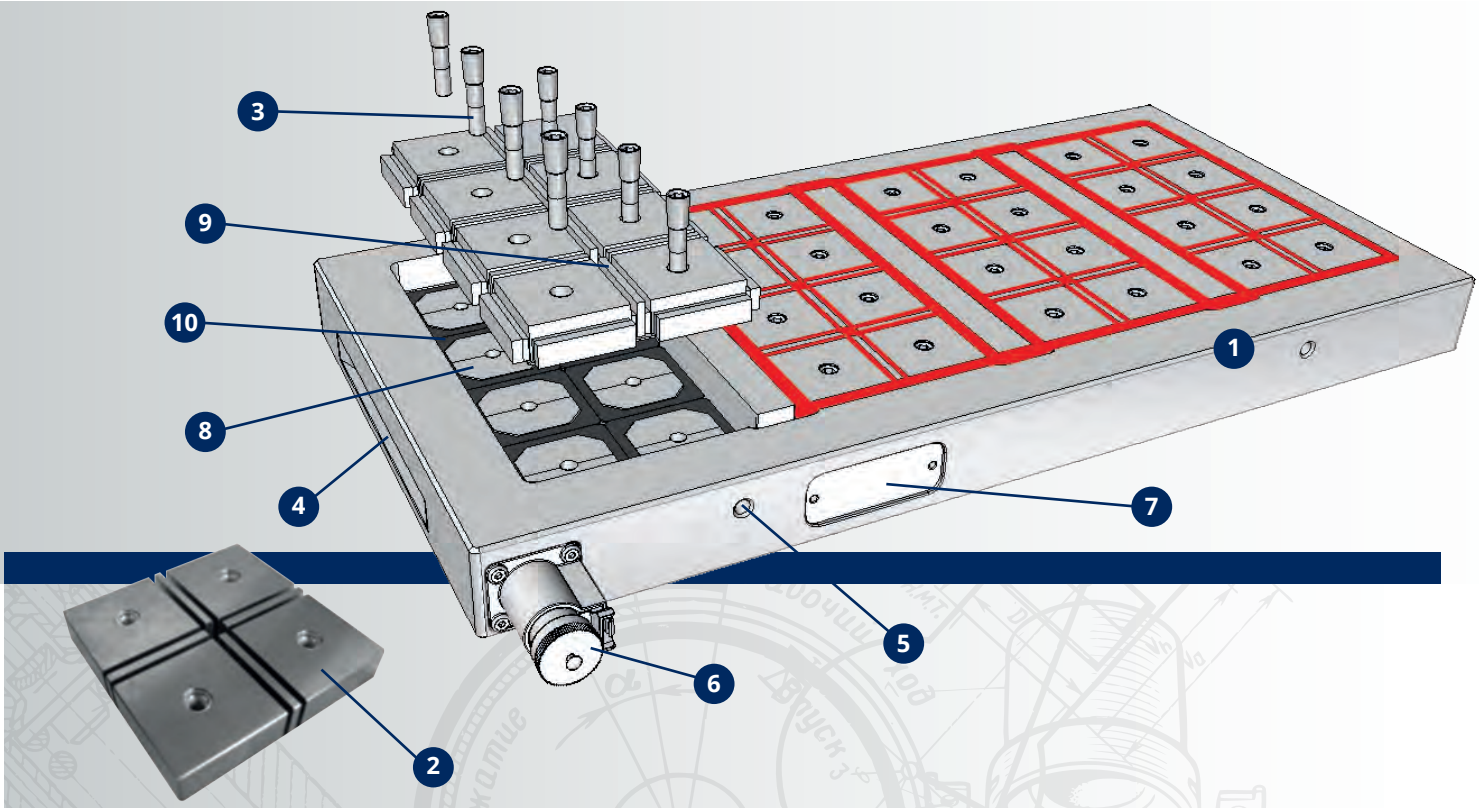
QUAD EXTRA

Milling series



QUAD EXTRA is based on an exclusive patent that allows the creation of a magnetic area consisting of a modular solid polar plate coupled to the mono-block structure by means of special high-strength conical screws.
The total absence of further joining elements ensures perfect structural stability and reliability over time.

The clamping surface consists of a one-piece steel plate and a limited quantity of epoxy resin which increases the degree of protection against possible infiltration of the coolant due to vibrations and overheating generated during the processing phases .



1 **Monolithic steel frame**
Excellent stability to ensure high clamping force and reliability over time.

2 **One-piece solid polar plate**
The polar surface consists of a single metal plate for greater uniformity and working stability. The steel space between the square poles is an integral part of the plate and can be used for inserting precision pins.

3 **Double action hard steel conical screws**
For the stable and uniform holding of the polar plate to the frame and for the use of fixed and mobile pole extensions or for the special accessories tailored to the application (M8).

4 **Lateral slot**
On the short side of the magnetic chuck for quick and easy installation on the machine tool table.

5 **M10 threaded holes**
To use mechanical stops for reference.

6 **Quick fit connector**
Precise, safe and watertight for quick connection with the control unit.

7 **Performance plate with technical data**
Data on voltage, current absorption, serial number

8 **Reversible permanent magnet AlNiCo**

9 **Static permanent magnet Neodymium**

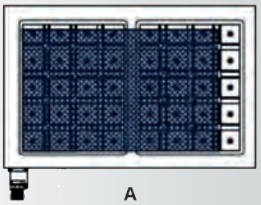
10 **Electric coil**

QUAD EXTRA

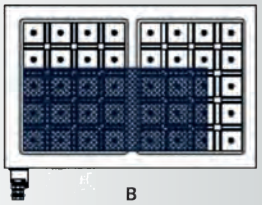
Milling series

Example of machining with magnetic plate QX 406 HE50.

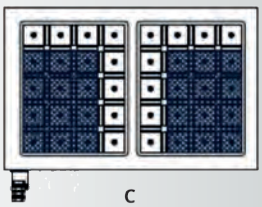
High Efficiency (size 400 x 620 x 51 mm).
Workpiece in FE 275 JR, average air-gap 0.2 mm, positioned on mobile and fixed polar extensions.
Cutting speed: 340 m/min..



A



B



C

	Size piece	Max stock removal (cm^3/mm)	
	(mm)	face milling	contouring
A	400x300x50	720	144
B	450x200x50	400	80
C	250x180x50	300	60

With workpiece in cast iron or alloyed steel, the Max stock removal values could be reduced respectively up to 20% and 50%.
Side stops are recommended whenever cutting parameters must be increased.

QUAD EXTRA polar geometry with “double grid” square pole to obtain a greater number of magnetic “stitiches” and less epoxy resin than the previous **QUADSYSTEM** version.

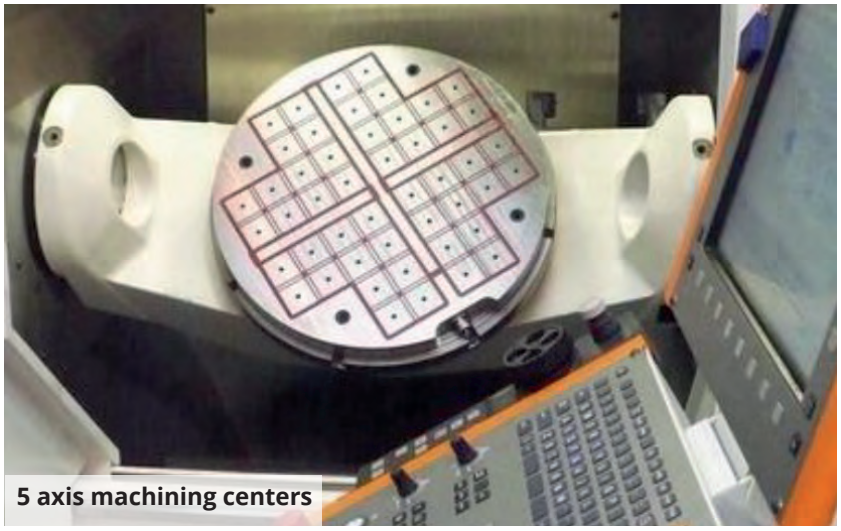
Version HE
Magnetic configuration High Efficiency

Version HD
Magnetic configuration High Density

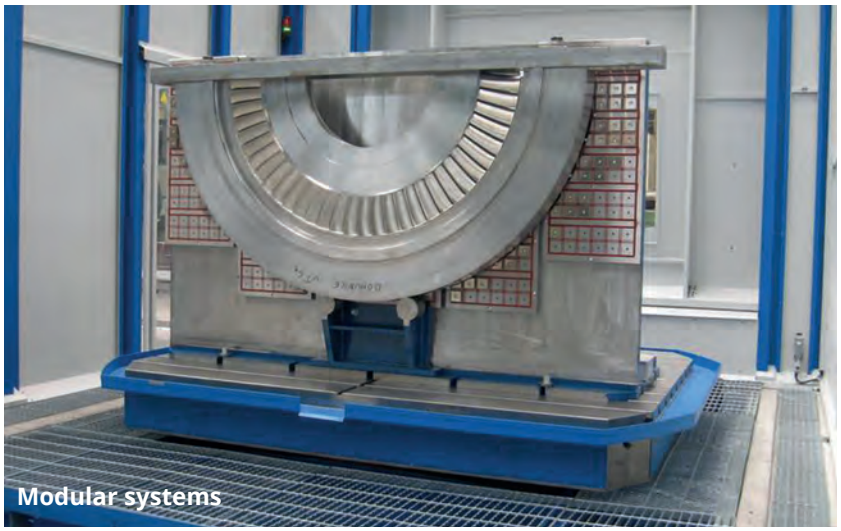
Version HP
Magnetic configuration High Power

QUAD EXTRA

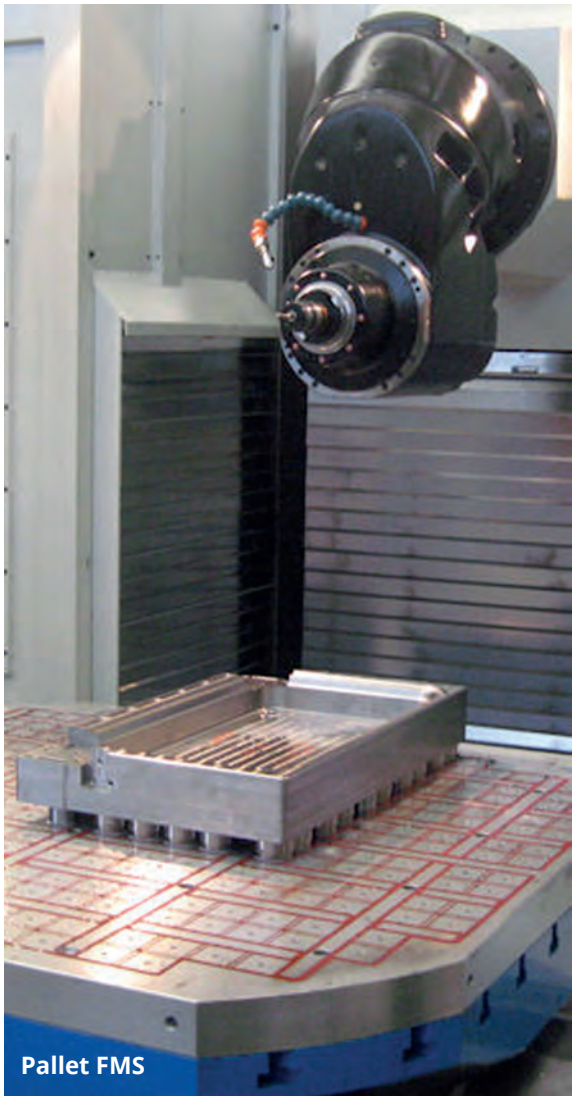
Application examples



5 axis machining centers



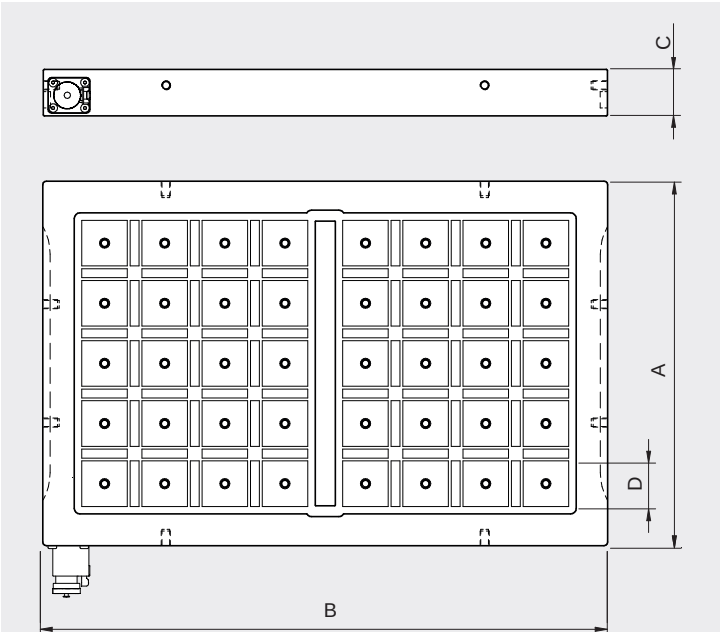
Modular systems



Pallet FMS

QUAD-EXTRA HE50 T51

Permanent-electro magnetic plates High Efficiency Thickness 51 mm



Standard supply

- Permanent-electro magnetic chuck with mono-block polar plate and quick waterproof connector ERGON 5 pin
- n. 2 side slots for easy installation on machine table
- Drawing of machinable areas to drill through holes for installation based on the size of the magnetic plate
- CE declaration of conformity
- Instruction manual on digital support

Recommended accessories

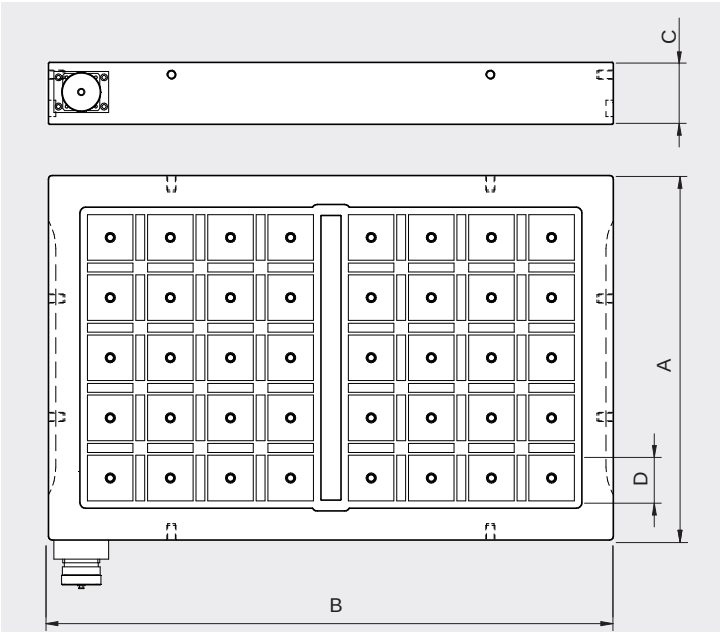
- Fix extension **Cod. PFR50/32** (pag. 42)
- Moving extension **Cod. PMQ50/32** (pag. 42)

Model	Size				Poles	Clamping force	Weight
	A	B	C *	D			
	mm	mm	mm	□ mm	n.	kN	Kg
QX 204 HE50 T51	200	400	51	50	10	39	30
QX 205 HE50 T51	200	490	51	50	12	47	35
QX 206 HE50 T51	200	620	51	50	16	63	45
QX 208 HE50 T51	200	780	51	50	20	78	60
QX 209 HE50 T51	200	910	51	50	24	94	65
QX 210 HE50 T51	200	1040	51	50	28	110	75
QX 305 HE50 T51	270	490	51	50	18	71	50
QX 306 HE50 T51	270	620	51	50	24	94	60
QX 308 HE50 T51	270	780	51	50	30	118	75
QX 309 HE50 T51	270	910	51	50	36	141	90
QX 310 HE50 T51	270	1040	51	50	42	165	100
QX 403 HE50 T51	400	330	51	50	20	78	50
QX 405 HE50 T51	400	490	51	50	30	118	70
QX 406 HE50 T51	400	620	51	50	40	157	90
QX 408 HE50 T51	400	780	51	50	50	196	110
QX 409 HE50 T51	400	910	51	50	60	235	130
QX 410 HE50 T51	400	1040	51	50	70	274	145
QX 505 HE50 T51	470	490	51	50	36	141	85
QX 506 HE50 T51	470	620	51	50	48	188	105
QX 508 HE50 T51	470	780	51	50	60	235	130
QX 509 HE50 T51	470	910	51	50	72	282	150
QX 510 HE50 T51	470	1040	51	50	84	329	170
QX 605 HE50 T51	600	490	51	50	48	188	105
QX 606 HE50 T51	600	620	51	50	64	251	130
QX 608 HE50 T51	600	780	51	50	80	314	165
QX 609 HE50 T51	600	910	51	50	96	376	190
QX 610 HE50 T51	600	1040	51	50	112	439	220

***** ± 0,5 mm
Minimum size of work-piece: 120 x 120 mm
Minimum thickness of work-piece: 12 mm
Suitable control unit **Cod. ST200FA** (pag. 45)

QUAD-EXTRA HE50 T68

Permanent-electro magnetic plates High Efficiency Thickness 68 mm



Standard supply

- Permanent-electro magnetic chuck with mono-block polar plate and quick waterproof connector FEME 4 pin
- n. 2 side slots for easy installation on machine table
- Drawing of machinable areas to drill through holes for installation based on the size of the magnetic plate
- CE declaration of conformity

Recommended accessories

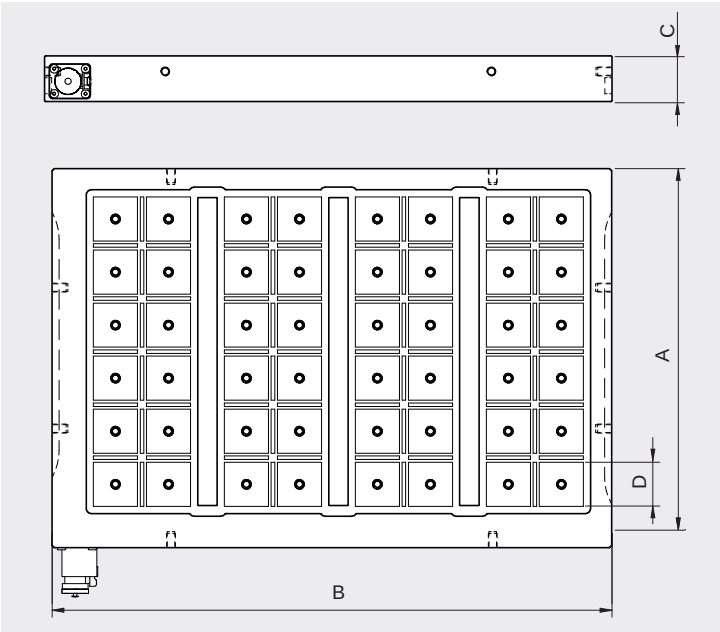
- Fix extension **Cod. PFR50/32** (pag. 42)
- Moving extension **Cod. PMQ50/32** (pag. 42)

Model	Size				Poles	Clamping force	Weight
	A	B	C *	D			
	mm	mm	mm	□ mm	n.	kN	Kg
QX 204 HE50 T68	200	400	68	50	10	37	40
QX 205 HE50 T68	200	490	68	50	12	47	50
QX 206 HE50 T68	200	620	68	50	16	63	60
QX 208 HE50 T68	200	780	68	50	20	78	80
QX 209 HE50 T68	200	910	68	50	24	94	90
QX 210 HE50 T68	200	1040	68	50	28	110	105
QX 305 HE50 T68	270	490	68	50	18	71	65
QX 306 HE50 T68	270	620	68	50	24	94	80
QX 308 HE50 T68	270	780	68	50	30	118	105
QX 309 HE50 T68	270	910	68	50	36	141	125
QX 310 HE50 T68	270	1040	68	50	42	165	135
QX 403 HE50 T68	400	330	68	50	20	78	70
QX 405 HE50 T68	400	490	68	50	30	118	95
QX 406 HE50 T68	400	620	68	50	40	157	120
QX 408 HE50 T68	400	780	68	50	50	196	150
QX 409 HE50 T68	400	910	68	50	60	235	180
QX 410 HE50 T68	400	1040	68	50	70	274	200
QX 505 HE50 T68	470	490	68	50	36	141	115
QX 506 HE50 T68	470	620	68	50	48	188	145
QX 508 HE50 T68	470	780	68	50	60	235	180
QX 509 HE50 T68	470	910	68	50	72	282	205
QX 510 HE50 T68	470	1040	68	50	84	329	235
QX 605 HE50 T68	600	490	68	50	48	188	145
QX 606 HE50 T68	600	620	68	50	64	251	180
QX 608 HE50 T68	600	780	68	50	80	314	225
QX 609 HE50 T68	600	910	68	50	96	376	260
QX 610 HE50 T68	600	1040	68	50	112	439	300

***** ± 0,5 mm
Minimum size of work-piece: 120 x 120 mm
Minimum thickness of work-piece: 12 mm
Suitable control unit **Cod. ST200FA** (pag. 45)

QUAD-EXTRA HD50 T51

Permanent-electro magnetic plates High Density Thickness 51 mm



Standard supply

- Permanent-electro magnetic chuck with mono-block polar plate and quick waterproof connector ERGON 5 pin
- n. 2 side slots for easy installation on machine table
- Drawing of machinable areas to drill through holes for installation based on the size of the magnetic plate
- CE declaration of conformity
- Instruction manual on digital support

Recommended accessories

- Fix extension **Cod. PFR50/32** (pag. 42)
- Moving extension **Cod. PMQ50/32** (pag. 42)

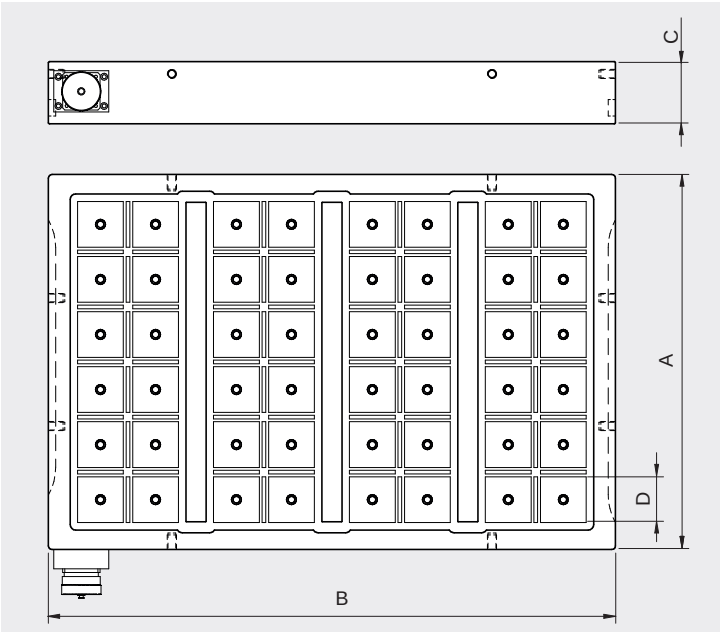
Model	Size				Poles	Clamping force	Weight
	A	B	C *	D			
	mm	mm	mm	□ mm	n.	kN	Kg
QX 203 HD50 T51	250	340	51	50	12	47	35
QX 205 HD50 T51	250	490	51	50	18	71	45
QX 206 HD50 T51	250	635	51	50	24	94	60
QX 208 HD50 T51	250	785	51	50	30	118	75
QX 209 HD50 T51	250	935	51	50	36	141	85
QX 210 HD50 T51	250	1085	51	50	42	165	100
QX 303 HD50 T51	310	340	51	50	16	63	40
QX 305 HD50 T51	310	490	51	50	24	94	55
QX 306 HD50 T51	310	635	51	50	32	125	75
QX 308 HD50 T51	310	785	51	50	40	157	90
QX 309 HD50 T51	310	935	51	50	48	188	105
QX 310 HD50 T51	310	1085	51	50	56	220	125
QX 403 HD50 T51	430	340	51	50	24	94	55
QX 405 HD50 T51	430	490	51	50	36	141	80
QX 406 HD50 T51	430	635	51	50	48	188	100
QX 408 HD50 T51	430	785	51	50	60	235	125
QX 409 HD50 T51	430	935	51	50	72	282	145
QX 410 HD50 T51	430	1085	51	50	84	329	170
QX 503 HD50 T51	490	340	51	50	28	110	60
QX 505 HD50 T51	490	490	51	50	42	165	90
QX 506 HD50 T51	490	635	51	50	56	220	115
QX 508 HD50 T51	490	785	51	50	70	274	140
QX 509 HD50 T51	490	935	51	50	84	329	165
QX 510 HD50 T51	490	1085	51	50	98	384	190
QX 603 HD50 T51	610	340	51	50	36	141	75
QX 605 HD50 T51	610	490	51	50	54	212	105
QX 606 HD50 T51	610	635	51	50	72	282	140
QX 608 HD50 T51	610	785	51	50	90	353	170
QX 609 HD50 T51	610	935	51	50	108	423	205

***** ± 0,5 mm
Minimum size of work-piece: 110 x 110 mm

Minimum thickness of work-piece: 12 mm
Suitable control unit **Cod. ST200FA** (pag. 45)

QUAD-EXTRA HD50 T68

Permanent-electro magnetic plates High Density Thickness 68 mm



Standard supply

- Permanent-electro magnetic chuck with mono-block polar plate and quick waterproof connector FEME 4pin
- n. 2 side slots for easy installation on machine table
- Drawing of machinable areas to drill through holes for installation based on the size of the magnetic plate
- CE declaration of conformity
- Instruction manual on digital support

Recommended accessories

- Fix extension **Cod. PFR50/32** (pag. 42)
- Moving extension **Cod. PMQ50/32** (pag. 42)

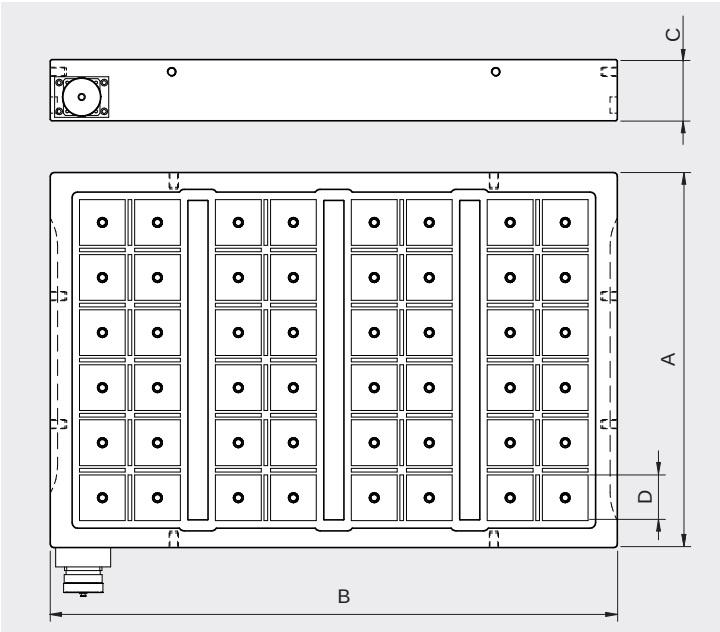
Model	Size				Poles	Clamping force	Weight
	A	B	C *	D			
	mm	mm	mm	□ mm	n.	kN	Kg
QX 203 HD50 T68	230	320	68	50	12	47	45
QX 205 HD50 T68	230	480	68	50	18	71	60
QX 206 HD50 T68	230	620	68	50	24	94	80
QX 208 HD50 T68	230	770	68	50	30	118	100
QX 209 HD50 T68	230	920	68	50	36	141	115
QX 210 HD50 T68	230	1060	68	50	42	165	135
QX 303 HD50 T68	300	320	68	50	16	63	55
QX 305 HD50 T68	300	480	68	50	24	94	75
QX 306 HD50 T68	300	620	68	50	32	125	100
QX 308 HD50 T68	300	770	68	50	40	157	125
QX 309 HD50 T68	300	920	68	50	48	188	145
QX 310 HD50 T68	300	1060	68	50	56	220	170
QX 403 HD50 T68	410	320	68	50	24	94	75
QX 405 HD50 T68	410	480	68	50	36	141	110
QX 406 HD50 T68	410	620	68	50	48	188	135
QX 408 HD50 T68	410	770	68	50	60	235	170
QX 409 HD50 T68	410	920	68	50	72	282	200
QX 410 HD50 T68	410	1060	68	50	84	329	230
QX 503 HD50 T68	490	320	68	50	28	110	85
QX 505 HD50 T68	490	480	68	50	42	165	120
QX 506 HD50 T68	490	620	68	50	56	220	155
QX 508 HD50 T68	490	770	68	50	70	274	190
QX 509 HD50 T68	490	920	68	50	84	329	225
QX 510 HD50 T68	490	1060	68	50	98	384	260
QX 603 HD50 T68	600	320	68	50	36	141	105
QX 605 HD50 T68	600	480	68	50	54	212	145
QX 606 HD50 T68	600	620	68	50	72	282	190
QX 608 HD50 T68	600	770	68	50	90	353	235
QX 609 HD50 T68	600	920	68	50	108	423	280
QX 610 HD50 T68	600	1060	68	50	126	494	325

***** ± 0,5 mm
Minimum size of work-piece: 110 x 110

Minimum thickness of work-piece: 12 mm
Suitable control unit **Cod. ST200FA** (pag. 45)

QUAD-EXTRA HP50 T70

Permanent-electro magnetic plates High Power Thickness 70 mm for raw pieces or cast iron



Standard supply

- Permanent-electro magnetic chuck with mono-block polar plate and quick waterproof connector FEME 4pin
- n. 2 side slots for easy installation on machine table
- Drawing of machinable areas to drill through holes for installation based on the size of the magnetic plate
- CE declaration of conformity
- Instruction manual on digital support

Recommended accessories

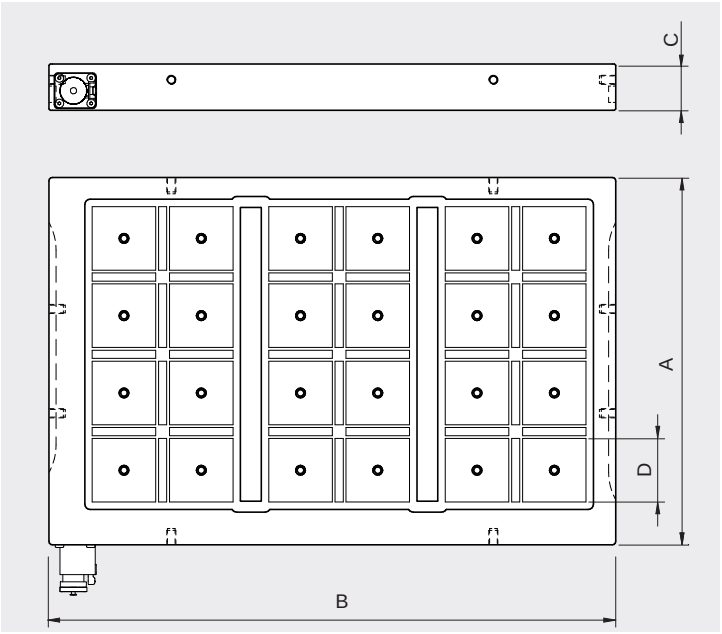
- Fix extension **Cod. PFR50/32** (pag. 42)
- Moving extension **Cod. PMQ50/32** (pag. 42)

Model	Size				Poles	Clamping force	Weight
	A	B	C *	D			
	mm	mm	mm	□ mm	n.	kN	Kg
QX 204 HP50 T70	200	400	70	50	10	37	40
QX 205 HP50 T70	200	490	70	50	12	47	50
QX 206 HP50 T70	200	620	70	50	16	63	60
QX 208 HP50 T70	200	780	70	50	20	78	80
QX 209 HP50 T70	200	910	70	50	24	94	90
QX 210 HP50 T70	200	1040	70	50	28	110	105
QX 305 HP50 T70	270	490	70	50	18	71	65
QX 306 HP50 T70	270	620	70	50	24	94	80
QX 308 HP50 T70	270	780	70	50	30	118	105
QX 309 HP50 T70	270	910	70	50	36	141	125
QX 310 HP50 T70	270	1040	70	50	42	165	135
QX 403 HP50 T70	400	330	70	50	20	78	70
QX 405 HP50 T70	400	490	70	50	30	118	95
QX 406 HP50 T70	400	620	70	50	40	157	120
QX 408 HP50 T70	400	780	70	50	50	196	150
QX 409 HP50 T70	400	910	70	50	60	235	180
QX 410 HP50 T70	400	1040	70	50	70	274	200
QX 505 HP50 T70	470	490	70	50	36	141	115
QX 506 HP50 T70	470	620	70	50	48	188	145
QX 508 HP50 T70	470	780	70	50	60	235	180
QX 509 HP50 T70	470	910	70	50	72	282	205
QX 510 HP50 T70	470	1040	70	50	84	329	235
QX 605 HP50 T70	600	490	70	50	48	188	145
QX 606 HP50 T70	600	620	70	50	64	251	180
QX 608 HP50 T70	600	780	70	50	80	314	225
QX 609 HP50 T70	600	910	70	50	96	376	260
QX 610 HP50 T70	600	1040	70	50	112	439	300

***** ± 0,5 mm
Minimum size of work-piece: 120 x 120 mm
Minimum thickness of work-piece: 12 mm
Suitable control unit **Cod. ST200FA** (pag. 45)

QUAD-EXTRA HD70 T51

Permanent-electro magnetic plates High Density Thickness 51 mm



Standard supply

- Permanent-electro magnetic chuck with mono-block polar plate and quick waterproof connector ERGON 5 pin
- n. 2 side slots for easy installation on machine table
- Drawing of machinable areas to drill through holes for installation based on the size of the magnetic plate
- CE declaration of conformity
- Instruction manual on digital support

Recommended accessories

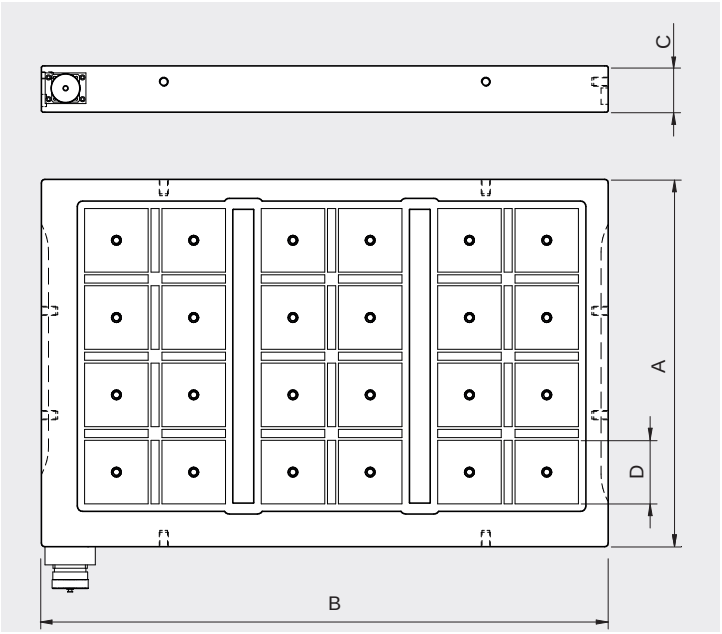
- Fix extension **Cod. PFR70/45** (pag. 42)
- Moving extension **Cod. RMP70/45** (pag. 42)

Model	Size				Poles	Clamping force	Weight
	A	B	C *	D			
	mm	mm	mm	□ mm	n.	kN	Kg
QX 204 HD70 T51	235	430	51	70	8	91	40
QX 206 HD70 T51	235	625	51	70	12	92	55
QX 208 HD70 T51	235	820	51	70	16	122	75
QX 210 HD70 T51	235	1015	51	70	20	153	90
QX 304 HD70 T51	320	430	51	70	12	92	55
QX 306 HD70 T51	320	625	51	70	18	138	75
QX 308 HD70 T51	320	820	51	70	24	184	100
QX 310 HD70 T51	320	1015	51	70	30	230	125
QX 402 HD70 T51	405	235	51	70	8	61	40
QX 404 HD70 T51	405	430	51	70	16	122	65
QX 406 HD70 T51	405	625	51	70	24	184	95
QX 408 HD70 T51	405	820	51	70	32	245	125
QX 410 HD70 T51	405	1015	51	70	40	306	155
QX 502 HD70 T51	490	235	51	70	10	76	45
QX 504 HD70 T51	490	430	51	70	20	153	80
QX 506 HD70 T51	490	625	51	70	30	230	115
QX 508 HD70 T51	490	820	51	70	40	306	150
QX 510 HD70 T51	490	1015	51	70	50	383	185
QX 602 HD70 T51	580	235	51	70	12	92	55
QX 604 HD70 T51	580	430	51	70	24	184	95
QX 606 HD70 T51	580	625	51	70	36	275	135
QX 608 HD70 T51	580	820	51	70	48	367	180
QX 610 HD70 T51	580	1015	51	70	60	495	220

***** ± 0,5 mm
Minimum size of work-piece: 150 x 150 mm
Minimum thickness of work-piece: 18 mm
Suitable control unit **Cod. ST200FA** (pag. 45)

QUAD-EXTRA HD70 T68

Permanent-electro magnetic plates High Density Thickness 68 mm



Standard supply

- Permanent-electro magnetic chuck with mono-block polar plate and quick waterproof connector FEME 4 pin
- n. 2 side slots for easy installation on machine table
- Drawing of machinable areas to drill through holes for installation based on the size of the magnetic plate
- CE declaration of conformity
- Instruction manual on digital support

Recommended accessories

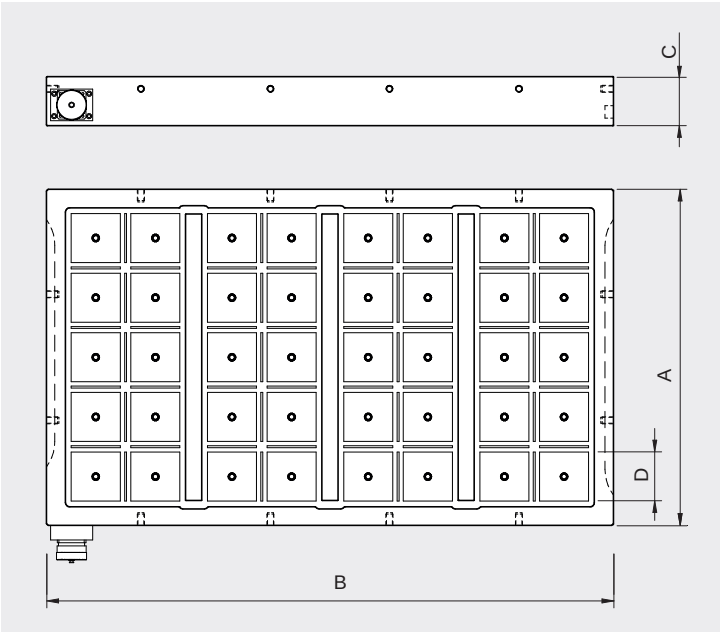
- Fix extension **Cod. PFR70/45** (pag. 42)
- Moving extension **Cod. RMP70/45** (pag. 42)

Model	Size				Poles	Clamping force	Weight
	A	B	C	D			
	mm	mm	mm	□ mm	n.	kN	Kg
QX 204 HD70 T68	235	420	68	70	8	61	55
QX 206 HD70 T68	235	610	68	70	12	92	75
QX 208 HD70 T68	235	810	68	70	16	122	100
QX 210 HD70 T68	235	1000	68	70	20	153	120
QX 304 HD70 T68	300	420	68	70	12	92	75
QX 306 HD70 T68	300	610	68	70	18	138	100
QX 308 HD70 T68	300	810	68	70	24	184	135
QX 310 HD70 T68	300	1000	68	70	30	230	170
QX 402 HD70 T68	390	230	68	70	8	61	55
QX 404 HD70 T68	390	420	68	70	16	122	90
QX 406 HD70 T68	390	610	68	70	24	184	130
QX 408 HD70 T68	390	810	68	70	32	245	170
QX 410 HD70 T68	390	1000	68	70	40	306	210
QX 502 HD70 T68	480	230	68	70	10	76	60
QX 504 HD70 T68	480	420	68	70	20	153	110
QX 506 HD70 T68	480	610	68	70	30	230	155
QX 508 HD70 T68	480	810	68	70	40	306	205
QX 510 HD70 T68	480	1000	68	70	50	383	250
QX 602 HD70 T68	580	230	68	70	12	92	75
QX 604 HD70 T68	580	420	68	70	24	184	130
QX 606 HD70 T68	580	610	68	70	36	275	185
QX 608 HD70 T68	580	810	68	70	48	367	245
QX 610 HD70 T68	580	1000	68	70	60	459	300

***** ± 0,5 mm
Minimum size of work-piece: 150 x 150 mm
Minimum thickness of work-piece: 18 mm
Suitable control unit **Cod. ST200FA** (pag. 45)

QUAD-EXTRA HP70 T70

Permanent-electro magnetic plates High Power Thickness 70 mm for raw pieces or cast iron



Standard supply

- Permanent-electro magnetic chuck with mono-block polar plate and quick waterproof connector FEME 4 pin
- n. 2 side slots for easy installation on machine table
- Drawing of machinable areas to drill through holes for installation based on the size of the magnetic plate
- CE declaration of conformity
- Instruction manual on digital support

Recommended accessories

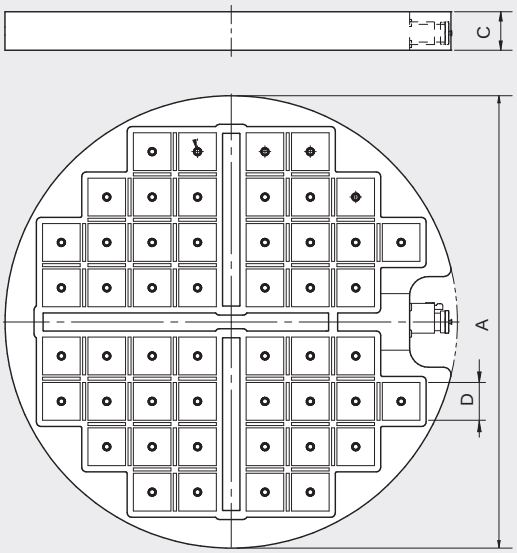
- Fix extension **Cod. PFR70/45** (pag. 42)
- Moving extension **Cod. RMP70/45** (pag. 42)

Model	Size				Poles	Clamping force	Weight
	A	B	C	D			
	mm	mm	mm	□ mm	n.	kN	Kg
QX 204 HP70 T70	220	420	70	70	8	61	95
QX 206 HP70 T70	220	610	70	70	12	92	120
QX 208 HP70 T70	220	810	70	70	16	122	135
QX 210 HP70 T70	220	1000	70	70	20	153	165
QX 304 HP70 T70	300	420	70	70	12	92	105
QX 306 HP70 T70	300	610	70	70	18	138	150
QX 308 HP70 T70	300	810	70	70	24	187	175
QX 310 HP70 T70	300	1000	70	70	30	230	205
QX 402 HP70 T70	390	220	70	70	8	61	95
QX 404 HP70 T70	390	420	70	70	16	122	135
QX 406 HP70 T70	390	610	70	70	24	184	175
QX 408 HP70 T70	390	810	70	70	32	245	205
QX 410 HP70 T70	390	1000	70	70	40	306	245
QX 502 HP70 T70	480	220	70	70	10	76	105
QX 504 HP70 T70	480	420	70	70	20	153	150
QX 506 HP70 T70	480	610	70	70	30	230	190
QX 508 HP70 T70	480	810	70	70	40	306	245
QX 510 HP70 T70	480	1000	70	70	50	383	290
QX 602 HP70 T70	580	220	70	70	12	92	105
QX 604 HP70 T70	580	420	70	70	24	184	165
QX 606 HP70 T70	580	610	70	70	36	275	220
QX 608 HP70 T70	580	810	70	70	48	307	275
QX 610 HP70 T70	580	1000	70	70	60	459	345

***** ± 0,5 mm
Minimum size of work-piece: 160 x 160 mm
Minimum thickness of work-piece: 18 mm
Suitable control unit **Cod. ST200FA** (pag. 45)

QUAD-EXTRA ROUND HD50 RQ

Permanent-electro magnetic plates High Density Thickness 51 mm



Standard supply

- Permanent-electro magnetic chuck with mono-block polar plate and quick waterproof connector ERGON 5 pin
- Drawing of machinable areas to drill through holes for installation based on the size of the magnetic plate
- CE declaration of conformity
- Instruction manual on digital support

Recommended accessories

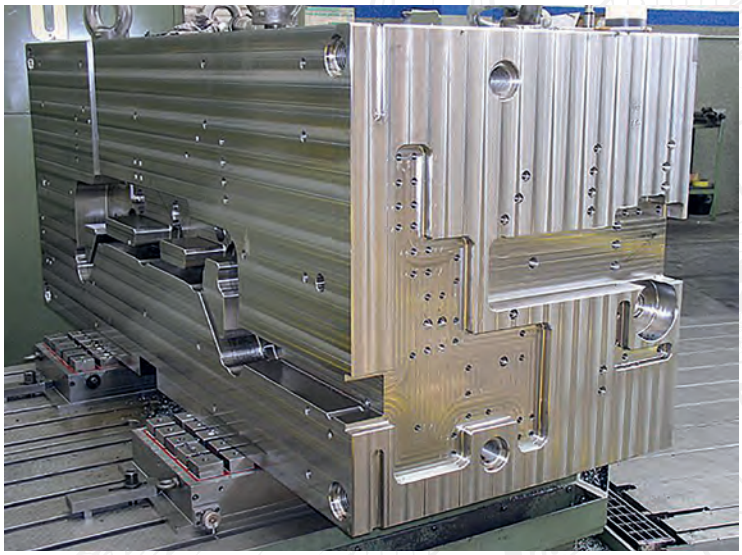
- Fix extension **PFR50/32** (pag. 42)
- Moving extension **Cod. PMQ50/32** (pag. 42)

Model	Size			Poles	Clamping Force	Weight
	A	C *	D			
	Ø mm	mm	□ mm	n.	kN	Kg
RQ 400 HD50	410	51	50	16	63	55
RQ 500 HD50	500	51	50	32	125	80
RQ 600 HD50	600	51	50	48	188	115
RQ 700 HD50	700	51	50	68	268	150
RQ 800 HD50	800	51	50	80	314	200
RQ 900 HD50	900	51	50	96	376	250
RQ 1000 HD50	1000	51	50	112	439	280

***** ± 0,5 mm
Minimum size of work-piece: 110 x 110 mm
Minimum thickness of work-piece: 12 mm
Suitable control unit **Cod. ST200FA** (pag. 45)

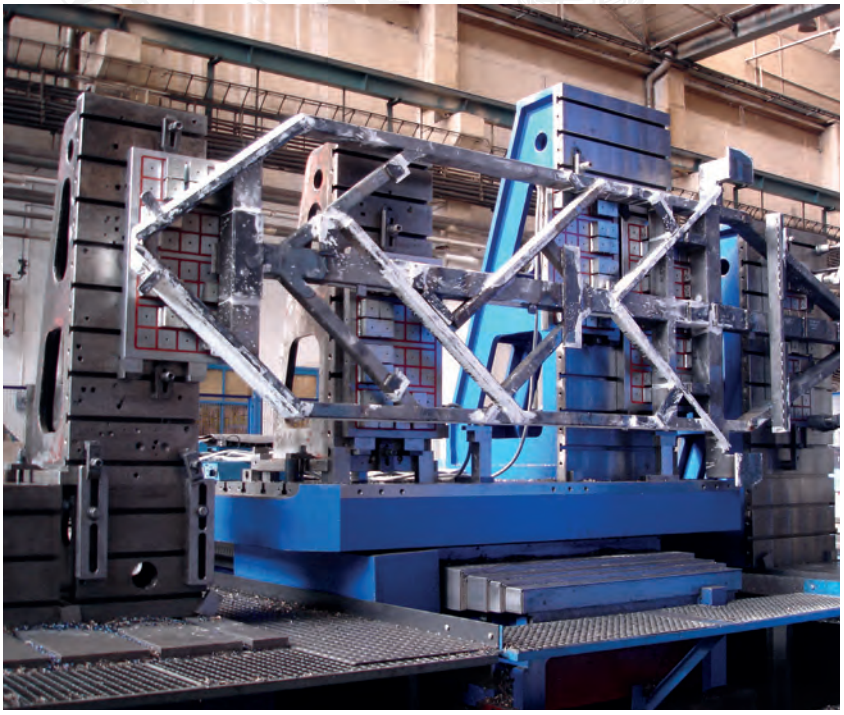
QUAD EXTRA

Application examples



QUAD EXTRA

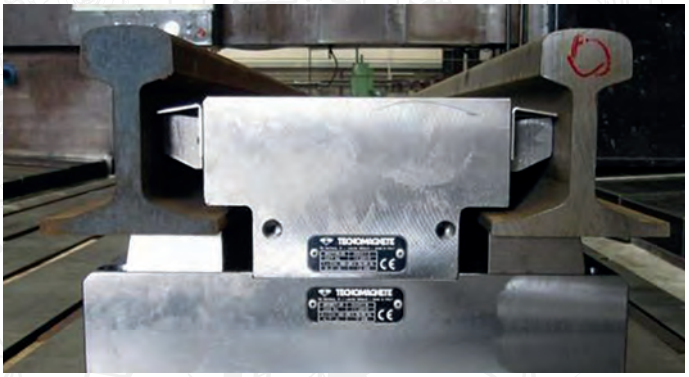
Application examples



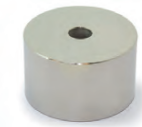
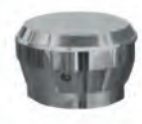
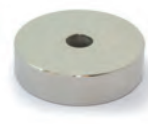
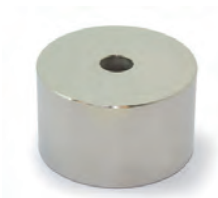
QUADRAIL

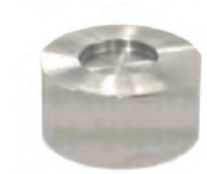
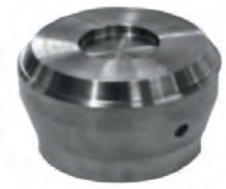
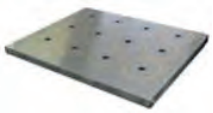
Permanent-electro magnetic work-holding system
for machining rail switches and crossing turnouts.

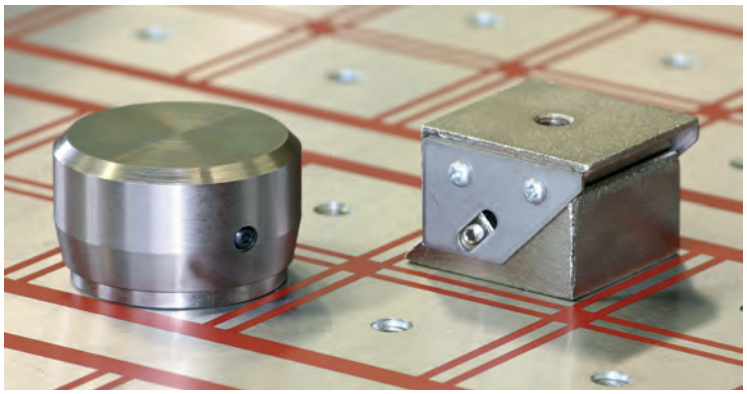
Application examples



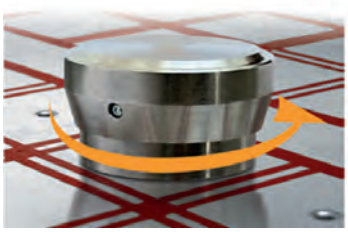
ACCESSORIES - Polar extensions

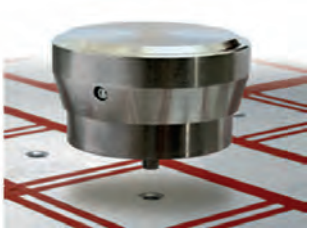
	Code	Description	Use	Magnetic chuck
	**PFQ 50/32**	Fix extension square 50 x 50 x 32 mm Weight 0,6 Counter bore for M8	To clamp work-pieces of different heights. To use with PMQ 50/32 or RMP 50/32	QXHE50 QXHD50 QXHP50
	**PFR 50/32**	Fix extension round Ø 50 x 32 mm Weight 0,5 Kg Counter bore for M8	To clamp work-pieces of different heights. To use with PMQ 50/32 or RMP 50/32	QXHE50 QXHD50 QXHP50
	**PMQ 50/32**	Mobile extension square 50 x 50 x 31,5 mm Weight 0,6 Counter bore for M8	For automatic shimming of uneven pieces. To use with PFR 50/32 or PFQ 50/32	QXHE50 QXHD50 QXHP50
	**RMP 50/32**	Mobile extension round Ø 50 x 31,5 mm Weight 0,6 Counter bore for M8	For automatic shimming of uneven pieces. To use with PFR 50/32 or PFQ 50/32	QXHE50 QXHD50 QXHP50
	**PFR 70/20**	Fix extension round Ø 70 x 20 mm Weight 0,5 Kg Counter bore for M8	To protect the magnetic surface, allow contouring, beveling and through drilling	MTB MTG QXHE70 QXHE70 QXHP70
	**PFR SC 70/20**	Fix extension round Ø 70 x 20 mm Weight 0,5 Kg Counter bore for M8	To reduce the magnetic depth into the work-piece	MTB MTG QXHE70 QXHE70 QXHP70
	**PFR 70/45**	Fix extension round Ø 70 x 45 mm Weight 1,3 Kg Counter bore for M8	To clamp the work-pieces on different heights. To use with PMP 70/45	MTB MTG QXHE70 QXHE70 QXHP70
	**RMP 70/45**	Mobile extension round Ø 76 x 45 Weight 1,2 Kg Counter bore for M8	For automatic shimming of uneven pieces. To use with PFR 70/45	MTB MTG QXHE70 QXHE70 QXHP70

	Code	Description	Use	Magnetic chuck
	**PFR SC 70/45**	Fix extension round with slot Ø 70 x 45 mm Weight 1,3 Kg Counter bore for M8	To reduce the magnetic depth into the work-piece . To use with RMP SC 70/45	MTB MTG QXHE70 QXHE70 QXHP70
	**RMP SC 70/45**	Mobile extension round with slot Ø 76 x 45,5 Weight 1,2 Kg Counter bore for M8	For automatic shimming of uneven pieces with reduced thickness. To use with PFR SC 70/45	MTB MTG QXHE70 QXHE70 QXHP70
	**DPPQX50HE2/32** **DPPQX50HE4/32** **DPPQX50HE6/32** **DPPQX50HE8/32** **DPPQX50HD2/32** **DPPQX50HD4/32** **DPPQX50HD6/32** **DPPQX50HD8/32** **DPPQX70HD2/45** **DPPQX70HD4/45** **DPPQX70HD6/45** **DPPQX70HD8/45**	As per project	Dedicated Polar Plates to make top tooling and machinable jigs for QUAD-EXTRA milling series	QXHE50, QXHP50 QXHE50, QXHP50 QXHE50, QXHP50 QXHE50, QXHP50 QXHD50 QXHD50 QXHD50 QXHD50 QXHD70 QXHD70 QXHD70 QXHD70
	**DPPMT70HD2/45** **DPPMT70HD4/45** **DPPMT70HD6/45** **DPPMT70HD8/45** **DPPMT70HD12/45**	As per project	Dedicated Polar Plates to make top tooling and machinable jigs for MILLTEC milling series	MTB, MTG MTB, MTG MTB, MTG MTB, MTG MTB, MTG



MOBILE EXTENSION - RPM





MOBILE EXTENSION - PMQ

ELECTRONIC CONTROL UNIT ST200

for permanent-electro magnetic chucks TECNOCLAMP series
clamping of pieces on machine tool

The ST200 series electronic control unit
For all magnetic plates TECNOCLAMP work-holding on machine tools for milling, turning, grinding and spark-erosion.

ST200 in standard configuration
with 1, 2, 3 or 4 channels to be connected directly to small, medium or large magnetic chucks.

Modular design expandable without limits
Able to control large magnetic tables composed of dozens of permanent-electro magnetic plates by the first unit (Master) serialized with others (Slave) through DB9 connectors

Push-button TC**
To manually operate all the magnetization, demagnetization cycles, module selection and force control functions.

SAFE button
To avoid accidental magnetization or demagnetization cycles

Display MAG/DEMAG /SAFE
For a clear indication of the status of the controller

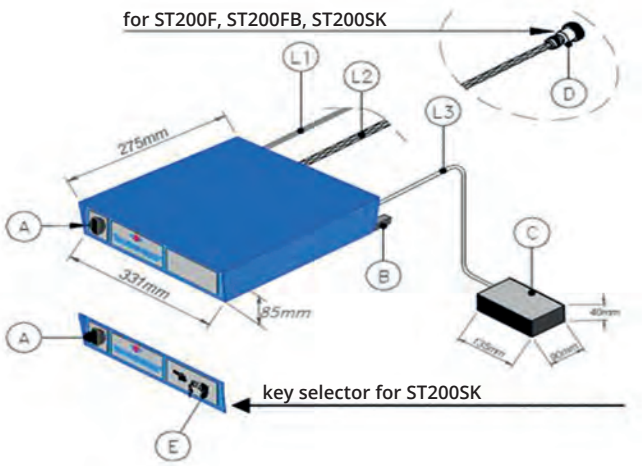
PCR Interface
To automatically manage all functions directly from the machine PLC

UCS Technology
Control of the electric current circulation inside the magnetic plate to ensure 100% magnetic force

Control Unit	Code	Description	Magnetic plates
	**ST200FA1CH**	1 channel control unit for permanent-electro magnetic plate milling series	MTB, QX
	ST200FA2CH	2 channels control unit for permanent-electro magnetic plate milling series and for multiple plates installations in configuration ECP (pag 48)	MTB, QX
	ST200FA4CH	4 channels control unit for permanent-electro magnetic plate milling series and for multiple plates installations in configuration ECP (pag 48)	MTB, QX
	**ST200FB1CH**	1 channel control unit with TCF1 push-button for permanent-electro magnetic plate milling series	MTB, QX
	ST200FB2CH	2 channels control unit with TCF1 push-button for permanent-electro magnetic plate milling series and for multiple plates installations in configuration ECP (pag 48)	MTB, QX
	ST200FB4CH	4 channels control unit with TCF1 push-button for permanent-electro magnetic plate milling series and for multiple plates installations in configuration ECP (pag 48)	MTB, QX
	**ST200SK1CH**	1 channel control unit with TCF1 push-button for permanent-electro magnetic plate MILLTEC GRIP – MTG milling series	MTG
	ST200SK2CH	2 channels control unit with TCF1 push-button for permanent-electro magnetic plate MILLTEC GRIP – MTG milling series and for multiple plates installations in configuration ECP (pag 48)	MTG
	ST200SK4CH	4 channels control unit with TCF1 push-button for permanent-electro magnetic plate MILLTEC GRIP – MTG milling series and for multiple plates installations in configuration ECP (pag 48)	MTG
	**ST200RB1CH**	1 channel control unit with TCR8 push-button and 8 power levels for permanent-electro magnetic plate grinding and turning series	PRF, GT, MDS
	ST200RB2CH	2 channel control unit with TCR8 push-button and 8 power levels for permanent-electro magnetic plate grinding and turning series and for multiple installations in configuration ECP (pag 48)	PRF, GT, MDS
	ST200RB4CH	4 channel control unit with TCR8 push-button and 8 power levels for permanent-electro magnetic plate grinding and turning series and for multiple plates installations in configuration ECP (pag 48)	PRF, GT, MDS
	**ST200QE1CH**	1 channel control unit for permanent-electro magnetic plate to be integrated inside the machine control cabinet. For machine tool manufacturers (OEM)	MTB, MTG, QX, GT
	ST200QE2CH	2 channels control unit for permanent-electro magnetic plate to be integrated inside the machine control cabinet. For machine tool manufacturers (OEM)	MTB, MTG, QX, GT
	ST200QE4CH	4 channels control unit for permanent-electro magnetic plate to be integrated inside the machine control cabinet. For machine tool manufacturers (OEM)	MTB, MTG, QX, GT
	**ST500**	Dedicated control unit for special and large magnetic systems. For RADIALTEC PRF outer Ø ≥ 1250 mm or for big magnetic tables made by several magnetic plates milling or grinding series	MTB, MTG, QX, PRF, GT

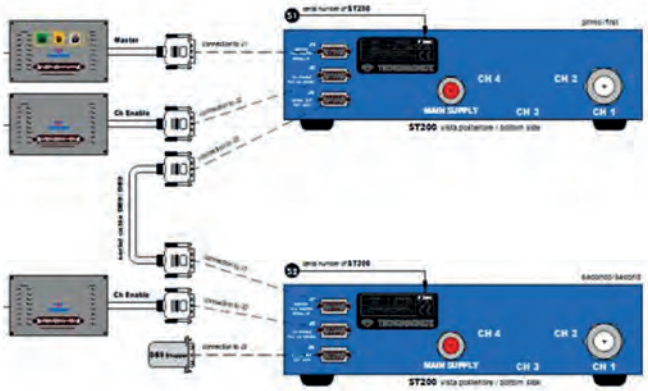
Push-button panel	Code	Size	Description
	**TCF1**	135 x 90 x 40 mm	Push-button panel with functions MAG/DEMAG/ SAFE milling series, 5 m cable. Mounted as standard on ST200FA controller face panel
	**TCR3**	135 x 90 x 40 mm	Push-button panel with functions MAG/DEMAG/ SAFE and 3 power levels milling series 5 m cable
	**TCR8**	135 x 90 x 40 mm	Push-button panel for controller ST200RB with functions MAG/ DEMAG/ SAFE and 8 power levels grinding and turning series 5 m cable
	**TCF4**	210 x 200 x 50 mm	Push-button panel with functions MAG/DEMAG/ SAFE and selector up to 4 channels For ST200 4CH controller milling and grinding series 5 m cable
	**TCF8**	270 x 200 x 50 mm	Push-button panel with functions MAG/DEMAG/ SAFE and selector up to 8 channels For more ST200 4CH controller milling or grinding series serialized together 5 m cable
	**PCR1**	135 x 90 x 40 mm	Interface for machine PLC with connector DB37, led INPUT/ OUTPUT and push-button panel MAG/DEMAG/SAFE, levels ± power selection (Master)
	**PCR2**	135 x 90 x 40 mm	Interface for machine PLC to be connected to PCR1 with connector DB37, led INPUT/OUTPUT. Function: add channel selections to PCR system (Slave)

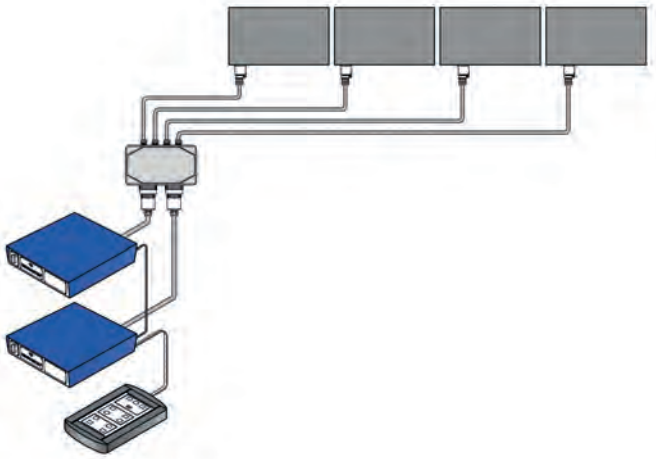
Example A - Installation of n. 1 controller ST200 and n. 1 permanent-electro magnetic plate



Description	Functions and type
A - Main switch	ON - OFF
B - Safety Interlock	Connector DB9
C - Push-button panel	MAG - SAFE - DEMAG
D - Connector	Example: ERGON 5 pins, FEME 4 pins
E - Key selector	GRIP/WORK (only for MILLTEC GRIP Series)
L1 - Power cable	PVC
L2 - Discharge cable	PVC Armored (for ST200F, ST200FB, ST200K) PVC (for ST200RB)
L3 - Push-button cable	PVC shielded 5 coaxial x 22AWG Ø 9mm

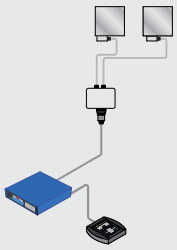
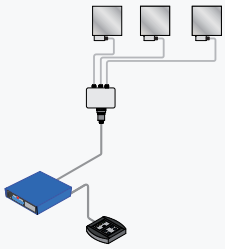
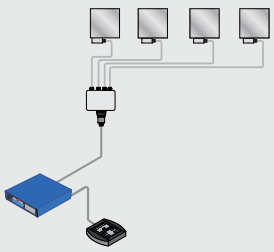
Example B - Multiple installation n. 2 controller ST200 and n. 4 permanent-electro magnetic plates





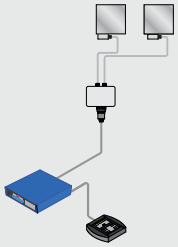
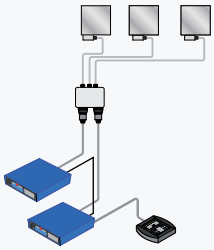
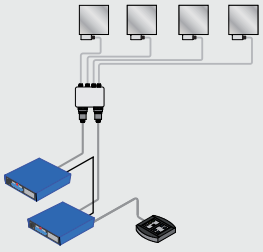
Multiple plates Installations

Example of configurations ECP

Indicative Layout	SUPPLY COMPOSITIONS	Milling series connector on magnetic plate	Milling series hard wired magnetic plate	Grinding series hard wired on magnetic plate
	• n. 1 Control unit Series ST200 2CH, 2 discharges • n. 1 Junction box with 2 cables L. 5m • n. 1 Push-button panel TCF4 for MAG/DEMAG cycles and channels selection (1-2). Cable L. 3 m	ECPM2/V3 ECPM2/V4	ECPF2/V3 ECPF2/V4	ECPR2/V3 ECPR2/V4
	• n. 1 Control unit Series ST200 2CH, 3 discharges • n. 1 Junction box with 3 cables L. 5m • n. 1 Push-button panel TCF4 for MAG/DEMAG cycles and channels selection (1-4). Cable L. 3 m	ECPM3/V3 ECPM3/V4	ECPF3/V3 ECPF3/V4	ECPR3/V3 ECPR3/V4
	• n. 1 Control unit Series ST200 2CH, 4 discharges • n. 1 Junction box with 4 cables L. 5m • n. 1 Push-button panel TCF4 for MAG/DEMAG cycles and channels selection (1-4). Cable L. 3 m	ECPM4/V3 ECPM4/V4	ECPF4/V3 ECPF4/V4	ECPR4/V3 ECPR4/V4

V3 = 400/415 V
V4 = 440/460/480 V

ECP/SK
for GRIP Series

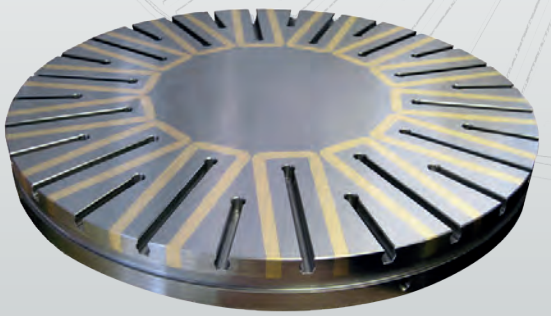
Indicative Layout	SUPPLY COMPOSITIONS	Milling series connector on magnetic plate	Milling series hard wired magnetic plate	Grinding series hard wired on magnetic plate
	• n. 1 Control unit Series ST200 2CH, 2 discharges • n. 1 Junction box with 2 cables L. 5m • n. 1 Push-button panel TCF4 for MAG/DEMAG cycles and channels selection (1-2). Cable L. 3 m	ECPM2/V1 ECPM2/V2	ECPF2/V1 ECPF2/V2	ECPR2/V1 ECPR2/V2
	• n. 2 Control unit Series ST200 2CH, 3 discharges • n. 1 Junction box with 3 cables L. 5m • n. 1 Push-button panel TCF4 for MAG/DEMAG cycles and channels selection (1-4). Cable L. 3 m	ECPM3/V1 ECPM3/V2	ECPF3/V1 ECPF3/V2	ECPR3/V1 ECPR3/V2
	• n. 1 Control unit Series ST200 2CH, 4 discharges • n. 1 Junction box with 4 cables L. 5m • n. 1 Push-button panel TCF4 for MAG/DEMAG cycles and channels selection (1-4). Cable L. 3 m	ECPM4/V1 ECPM4/V2	ECPF4/V1 ECPF4/V2	ECPR4/V1 ECPR4/V2

V1 = 200 V
V2 = 230 V

ECP/SK
for GRIP Series

RADIALTec

Hard turning and Grinding Series



INNOVATIVE BIDIRECTIONAL MAGNETIC CIRCUIT

The clamping force is generated only by the DIRECT POLES (N/S) to concentrate the magnetic flux where it is needed evenly and constantly.

NEUTRAL CROWN

The frame of the system remains neutral and totally isolated in order to avoid dispersion of magnetic flux in the machine or towards the tool.

MONOLITHIC STRUCTURE “FULL METAL”

RADIALTEC frames are machined from solid to increase their rigidity, precision, structural stability and reliability over time. The working surface is totally metallic and therefore free of epoxy resin or any joining element that could compromise its performance or allow infiltration of the coolant due to vibrations and overheating generated during the processing phases.

1 Steel mono-block frame
The machining and assembly of the magnetic and electrical circuit from the lower part provide an impenetrable shield from any external agent.

2 Slots
Integrated in the magnetic poles for using polar extensions and additional T-slots for fixing mechanical clamping and / or reference elements.

3 Threaded holes
For the handling of the product during installation.

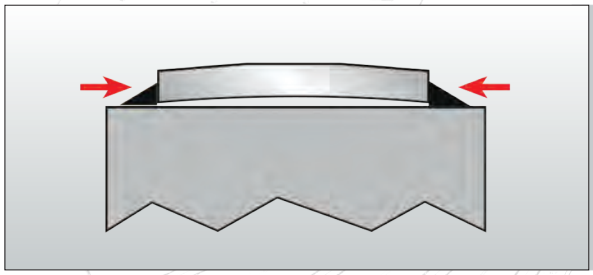
4 Performance plate with technical data
Data on voltage, electrical absorption, serial number.

Quick connector (CR version)
Precise watertight for connection with the control unit.

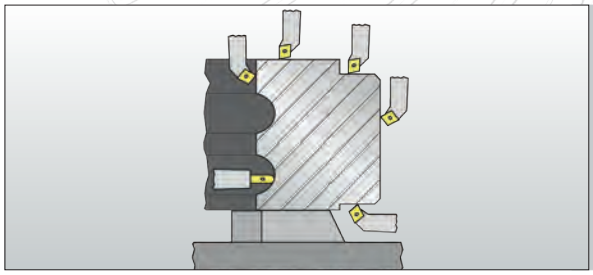
Central cable output (SC version)
Cable output (L. 3 m) from the central lower part of the magnetic plate for stable connection with the control unit via rotating contacts (accessory).

RADIALTec

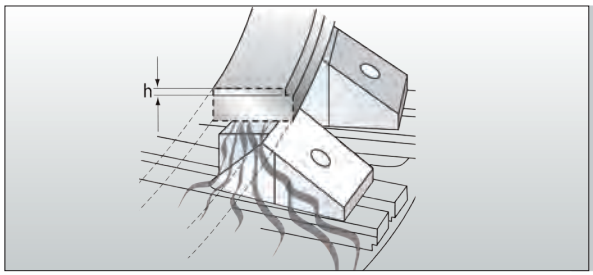
Advantages of magnetic work-holding



The RADIALTEC system allows for a safe clamping of the ring avoiding any radial deformation.



The use of polar extensions allows you to distance the piece from the surface of the plate freeing the 3 faces of the ring for processing.



The use of mobile extensions allows for a strong clamping of the piece without any axial deformation.
Work-piece “stress-release” can be performed with cycles DEMAG/MAG/DEMAG even without touching it.

PERMANENT-ELECTRO

The permanent-electro magnetic circuit requires power supply only during the quick phases of activation and deactivation of the plate.
During the clamping phase, the force is generated only by the high-energy permanent magnets installed inside the plate.

EASY AND RELIABE

A RADIAL TEC system has no moving internal parts that can wear out or become damaged with use. No power consumption, no heat generation, no maintenance needed.
Total mechanical separation and perfect insulation between the work-holding area and the internal area of the equipment where the electrical and magnetic circuit is placed.
The performance is always constant and guaranteed over the period time.

CONSTANT WIDTH OF POLES

Rectangular shape of magnetic poles provide constant performance throughout the working range contrary to traditional trapezoidal poles. In addition, a constant depth of the magnetic flux in the work-piece and the absence of magnetic residue is guaranteed.

COLD CONTACT SURFACE

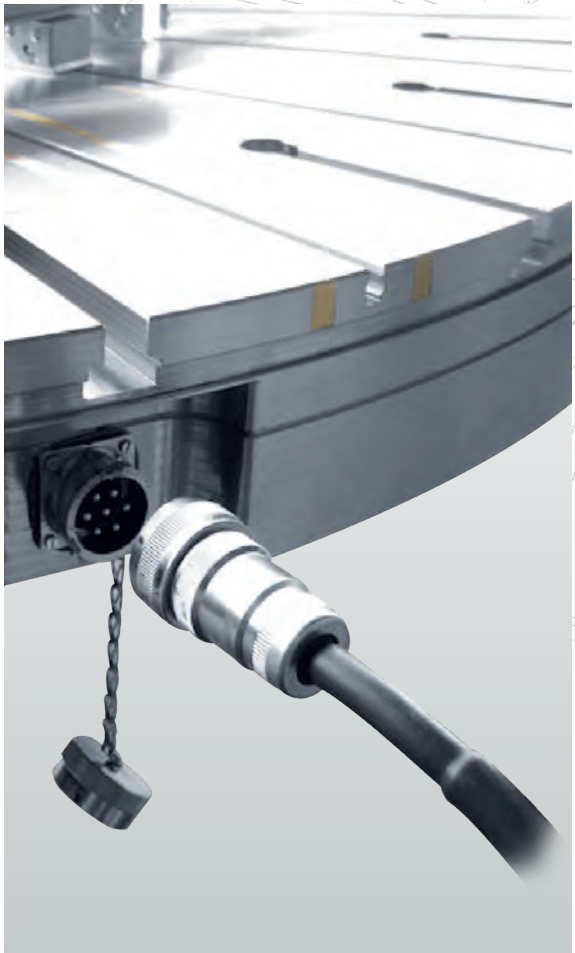
The magnetic plate does not generate heat due to the fact that the electric current circulates for an extremely limited time, only during the MAG/DEMAG cycles. The contact surface between the work-piece and the plate remains cold, ensuring high machining accuracy. So no deformation due to thermal oscillations.

NUFLUX CIRCUIT

To obtain a perfect demagnetization of alloy steel parts even after thermal treatment

RADIALTec

Electronic control unit



ELECTRONIC CONTROL UNITS

Radial TEC system are equipped with ST200 control unit with 8 levels of power regulation and digital push-button panel for small and medium-sized plates (up to 1250 mm external diameter).
The ST500 controller in IP54 cabinet with 8 levels of power regulation is supplied for large plates (external diameter > 1250mm). Both with UCS sensor to monitor the current circulation during MAG/DEMAG cycles in order to ensure the correct magnetic performance.

COMPLETE INTEGRATION WITH THE MACHINE

All radial TEC plate control units can be managed with push-button panel or through interface with the machine's PLC and related enabling and safe machine contacts.

WORK-HOLDING FORCE CONTROL

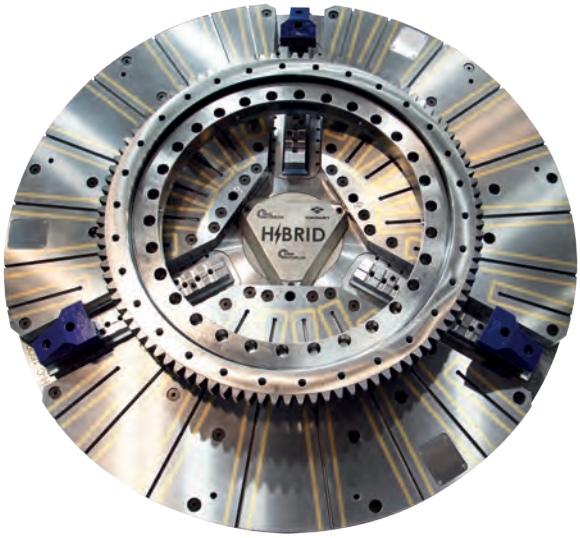
The clamping force can be calibrated on different levels to avoid deformation of the thin pieces or to facilitate their centering before the final magnetization with maximum power.

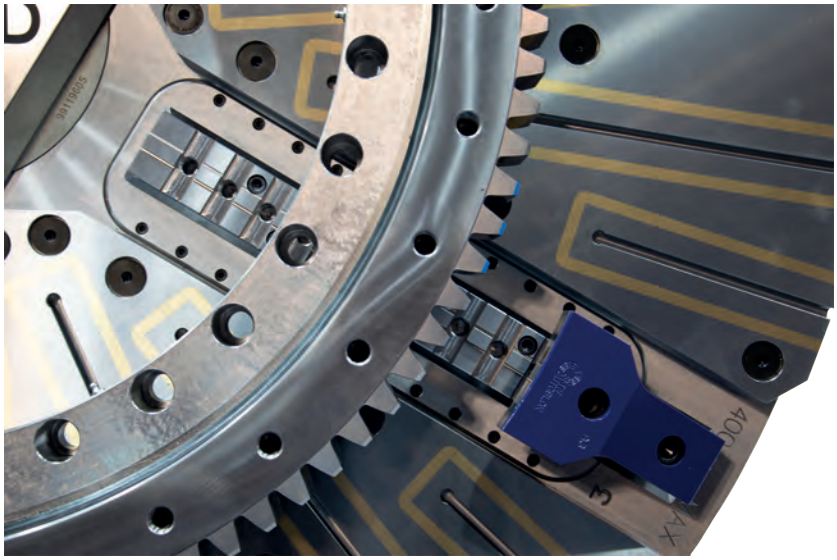
NUFLUX CYCLE

The NUFLUX demagnetization cycle acts through a rapid series of pulses of decreasing intensity in order to ensure optimal demagnetization even of alloy steel parts or after heat treatment.

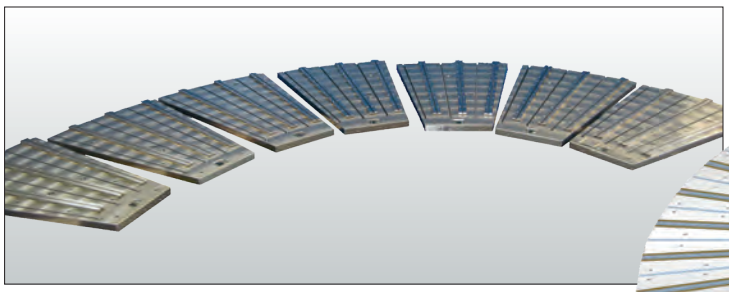
ANTI-ROTATION CONNECTION

It is an off-machine contact where the connector (for the version RADIAL TEC CR) must be inserted to enable the rotation of the table.

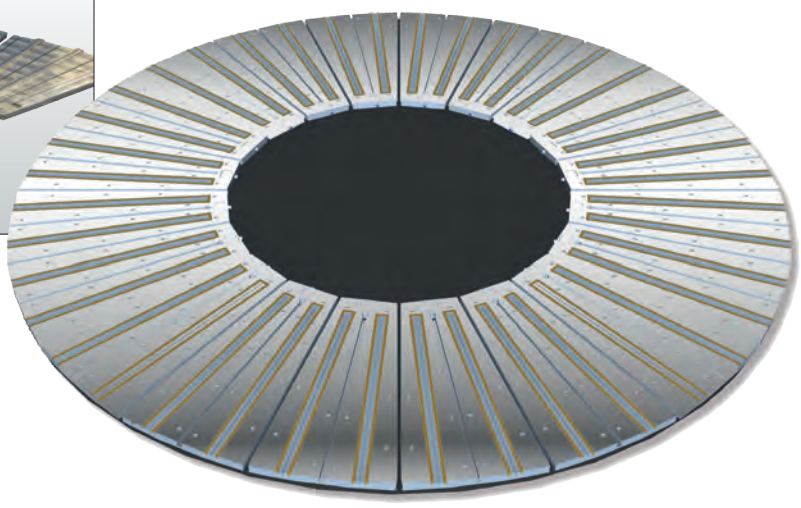




Hybrid magnetic solutions with mechanical self-centering system SMW AUTOBLOK

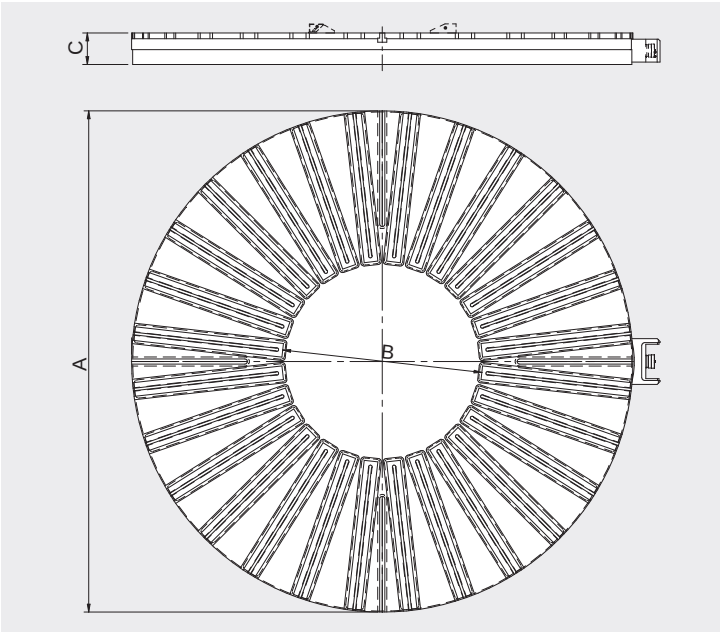


Modular version for large size turning tables



RADIAL TEC - PRF CR

Permanent-electro magnetic plates for vertical lathes and grinding machines with connector



Standard supply

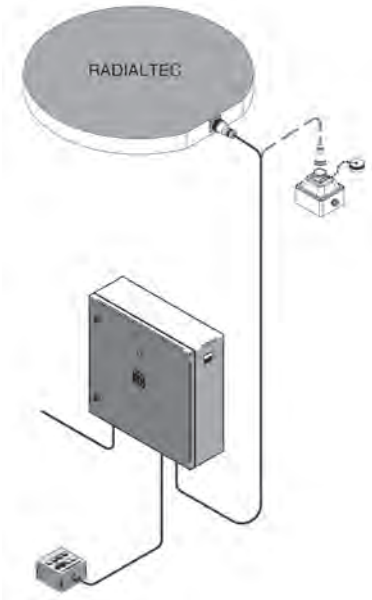
- Permanent-electro magnetic plate with integrated poles and central slot for using polar extensions. Max magnetic force up to 160 N/cm2
- Set of slots T-slots for fixing mechanical clamping and / or reference elements.
- Set of through holes for installation
- Quick connector (for CR version) precise watertight
- Electronic control unit ST200RB (ST500) with UCS current sensor
- Push-button panel TCR8 for MAG/DEMAG cycles with 8 levels power regulation and cable (6m PVC)
- Demagnetization system Nuflux for alloyed steel
- Machine-safety interlock contacts and anti-rotation contact (ARD for SC version)
- Discharge cable (5m PVC)
- CE declaration of conformity
- Instruction manual on digital support

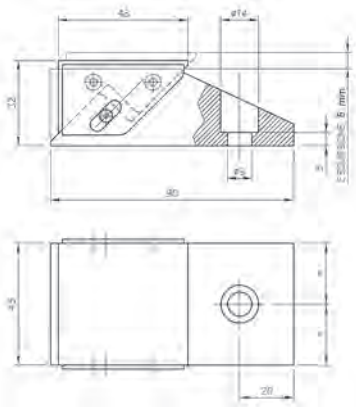
Recommended accessories

- Fix extension **Cod. PFS110/55**
- Mobile extension **Cod. PFM110/55**

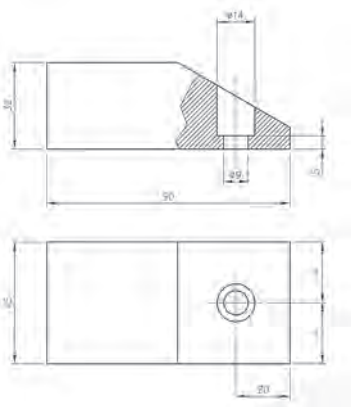
Model	Size			Poles	Weight
	A	B	C *		
	Ø mm	Ø mm	mm	n.	Kg
PRF CR 060030	600	300	110	12	270
PRF CR 080030	800	300	110	12	430
PRF CR 100030	1000	300	110	20+10	670
PRF CR 100050	1000	500	110	20	720
PRF CR 125030	1250	300	110	20+10	1030
PRF CR 125050	1250	500	110	20	1030
PRF CR 150050	1500	500	110	20	1480
PRF CR 150100	1500	1000	110	32	1480
PRF CR 175050	1750	500	110	32+16	2010
PRF CR 175070	1750	700	110	28	2010
PRF CR 200100	2000	1000	110	32	2370
PRF CR 230050	2300	500	125	36+18	4030

***** ± 0,5 mm





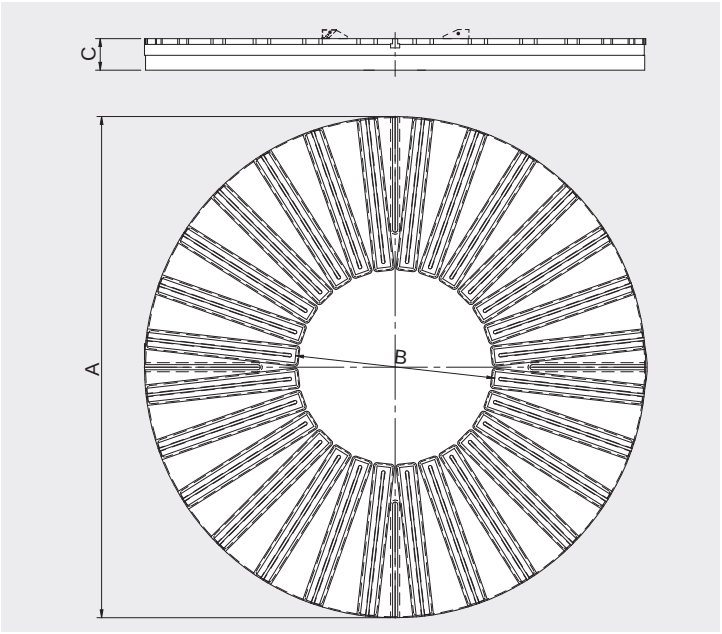
Mobile extension PFM 110/55



Fix extension PFS 110/55

RADIAL TEC - PRF SC

Permanent-electro magnetic plates for vertical lathes and grinding machines. Cable outlet in the center-bottom side



Standard supply

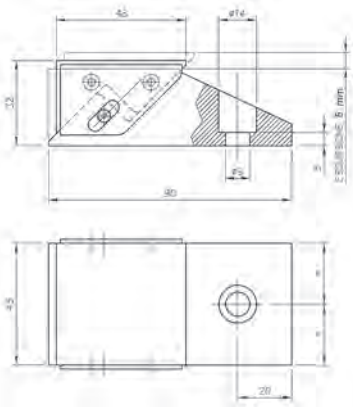
- Permanent-electro magnetic plate with integrated poles and central slot for using polar extensions. Max magnetic force up to 160 N/cm2
- Set of slots T-slots for fixing mechanical clamping and / or reference elements.
- Set of through holes for installation
- Cable outlet in the center-bottom side
- Electronic control unit ST200RB (ST500) with UCS current sensor
- Push-button panel TCR8 for MAG/DEMAG cycles with 8 levels power regulation and cable (6m PVC)
- Demagnetization system Nuflux for alloyed steel
- Machine-safety interlock contacts and anti-rotation contact (ARD for SC version)
- Discharge cable (5m PVC)
- CE declaration of conformity
- Instruction manual on digital support

Recommended accessories

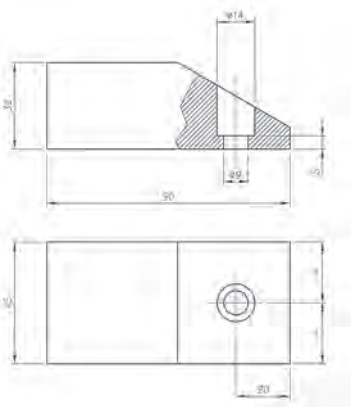
- Fix extension **Cod. PFS110/55**
- Mobile extension **Cod. PFM110/55**
- ARD Revolving contacts

Model	Size			Poles	Weight
	A	B	C *		
	Ø mm	Ø mm	mm	n.	Kg
PRF SC 060030	600	300	110	12	270
PRF SC 080030	800	300	110	12	430
PRF SC 100030	1000	300	110	20+10	670
PRF SC 100050	1000	500	110	20	720
PRF SC 125030	1250	300	110	20+10	1030
PRF SC 125050	1250	500	110	20	1030
PRF SC 150050	1500	500	110	20	1480
PRF SC 150100	1500	1000	110	32	1480
PRF SC 175050	1750	500	110	32+16	2010
PRF SC 175070	1750	700	110	28	2010
PRF SC 200100	2000	1000	110	32	2370
PRF SC 230050	2300	500	125	36+18	4030

***** ± 0,5 mm



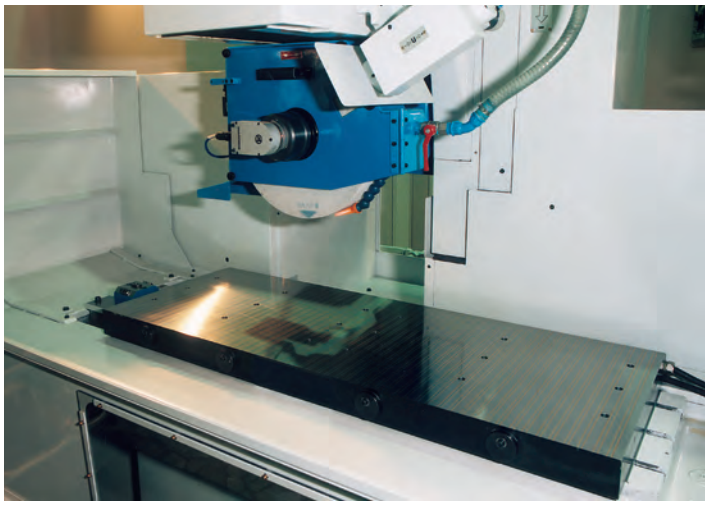
Mobile extension PFM 110/55

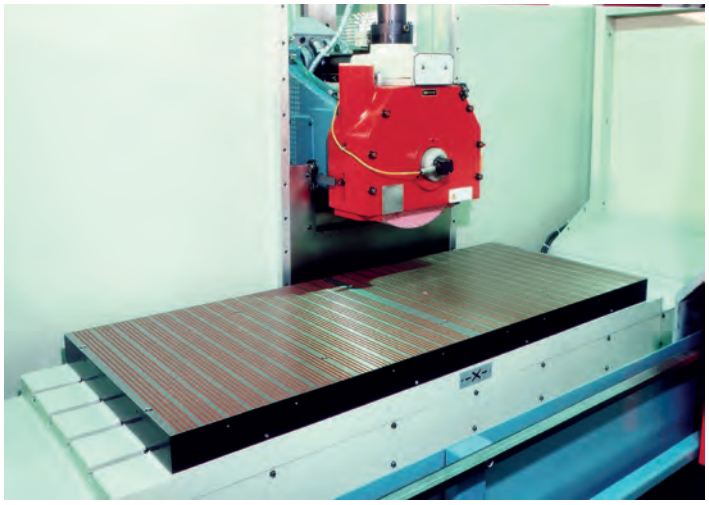


Fix extension PFS 110/55

GRINDTEC

Grinding Series





MONOBLOC STRUCTURE

All permanent-electro magnetic plates GRINDTEC grinding series have a mono-block frame of reduced thickness in order to lighten the load on the machine to improve performance and reduce wear.
The total rigidity of the system and the absence of deformations over time are the main characteristics associated with magnetic configurations of different polar pitch for different applications and machines' features.
Throughout the processing phase the power supply is excluded without any electric current circulating inside it.
The resulting advantages are immediate:

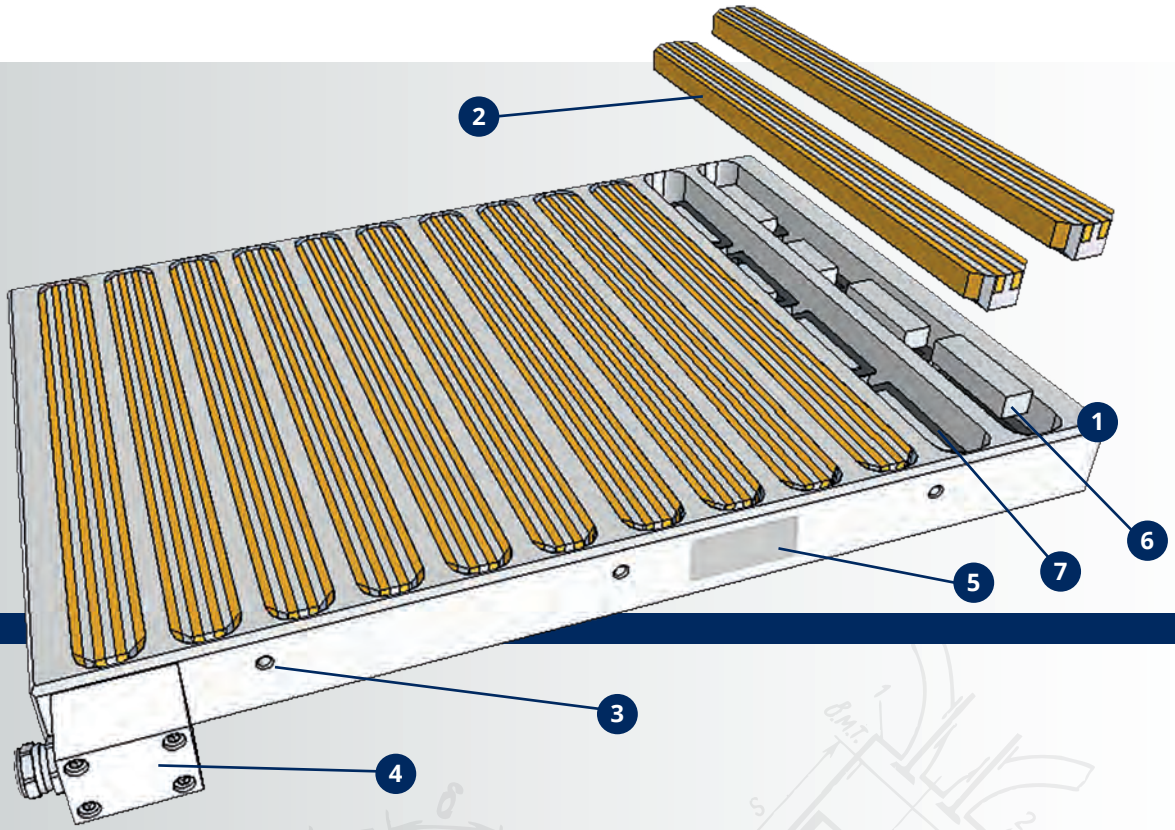
- highest level of safety
- energy saving
- no overheating
- no deformation

UNIFORM WORK-HOLDING

A series of through holes based on the size and position of T-slots allow easy installation. Multiple modules can be placed side by side to form magnetic tables of various sizes.

EXCLUSIVE NUFLUX SYSTEM

The control units are equipped as standard with the patented demagnetization system, "NUFLUX" which allows to completely eliminate any possible magnetic residue from the surface of the piece even of alloyed material or after heat treatment.



1 Monolithic steel frame
Excellent stability to ensure perfect flatness. Work surface that can be rectified over time. Through holes for installation according to the position of the T-slots of the machine.

2 Lamellar poles
Highly accurate surface steel/brass (TFP1, TPF) or steel/epoxy resin TFP0) for precise magnetic flux transmission.

3 Threaded holes M10
To use reference mechanical stops.

4 Junction box
Compact and watertight.

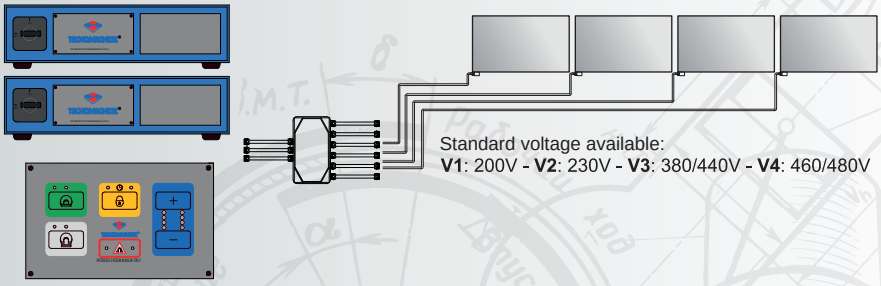
5 Performance plate with technical data
Data on voltage, current absorption, serial number.

6 Reversible permanent magnet AlNiCo

7 Electric coils
For polar inversion of the permanent magnet AlNiCo and for NUFLUX function.

GRINDTec

Typical installation



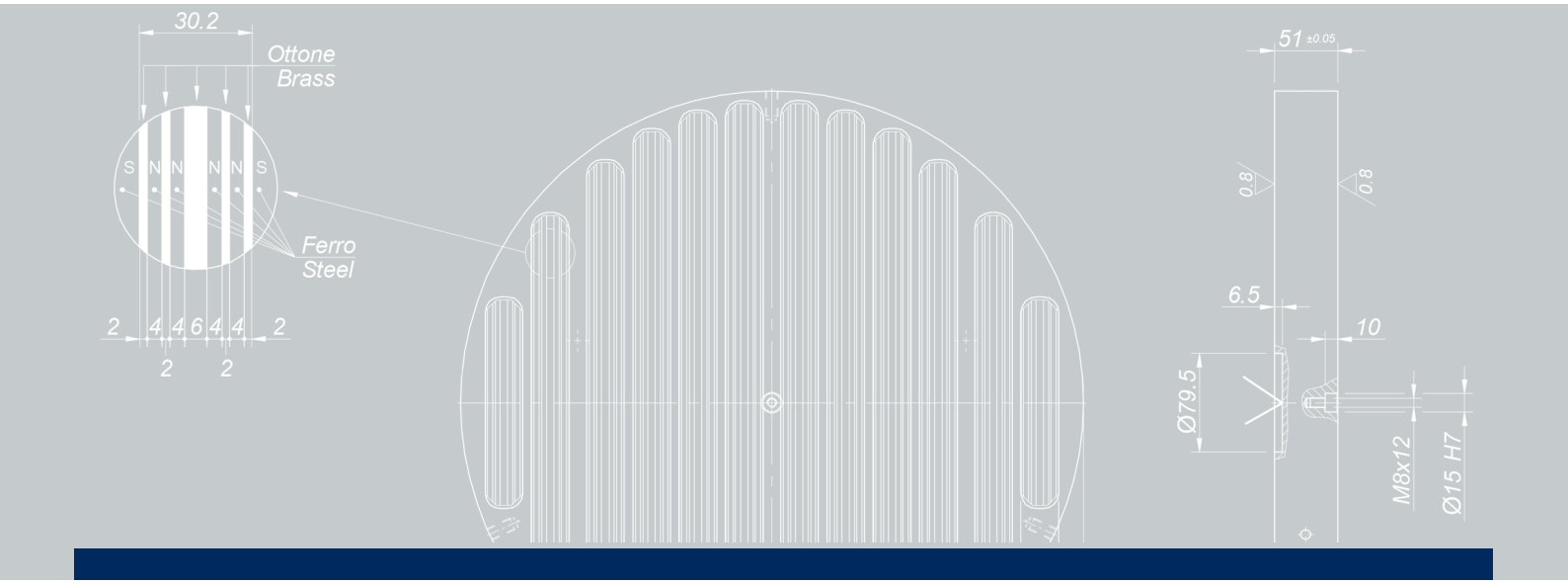
The permanent-electro magnetic circuit allows you to activate and deactivate the magnetic clamping force in a fraction of second with the simple press of a button or from the PLC of the machine.

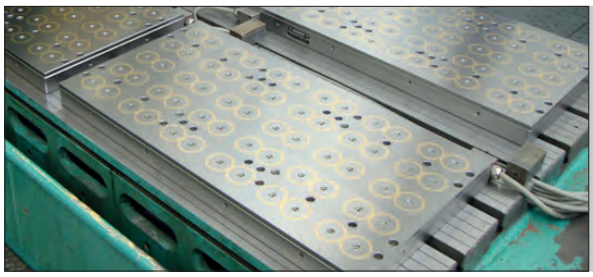
MODULAR CONTROL UNIT

The ST200 control units can be serialized for the activation of multiple plates.

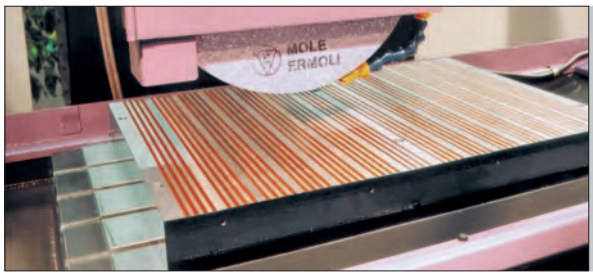
Main technical features:

- NUFLUX system for perfect demagnetization
- UCS Saturation Control Unit
- Safety connector for machine interface
- TC remote control for MAG/DEMAG cycles
- Power adjustment on 8 levels
- Hard wired watertight cable connection

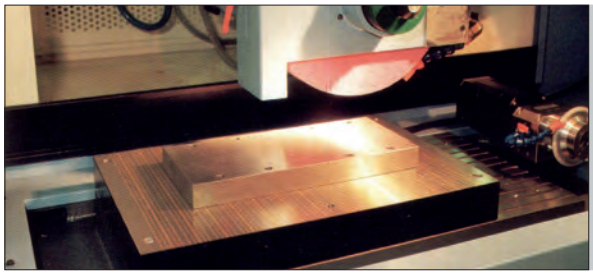




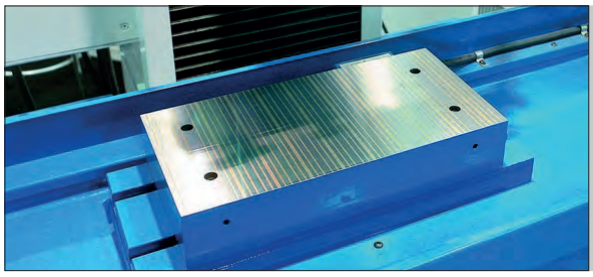
GRINDTEC GT circular polarity. *The solution for medium/large pieces.*
The innovative TEC monolithic construction technique makes the "Full Metal" magnetic working surface totally independent from the lower part of the frame housing the permanent reversible magnets AX, the electric coils and all electrical connections. It behaves as a mechanical shield.
GrindTec GT is therefore impenetrable from coolants and processing residues ensuring high reliability over time without specific maintenance.



TFP0 transversal polarity. *The most convenient solution.*
Permanent-electro plates of the new TFP0 series are characterized by a steel/resin surface. They are a "universal" plate since they adapt perfectly to the needs of most applications. They guarantee the perfect clamping of various types of pieces with maximum versatility.



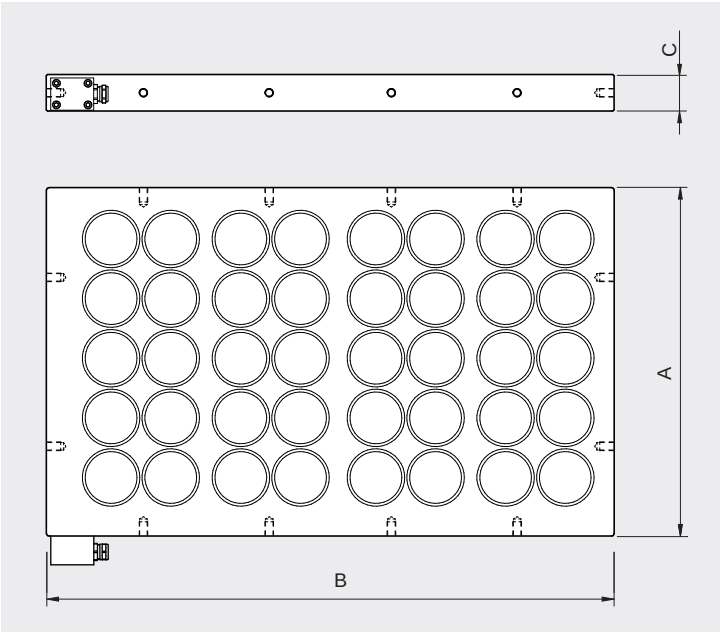
TFP1 transversal polarity. *The solution "Full Metal" steel and brass.*
The particular arrangement of the poles creates a dense mesh of magnetic seams, with a reduced section of short-circuiting flow (5 mm). The dense polar pitch, transversal to the working axis, allows you to securely clamp even small pieces of limited thickness. Its particular construction characteristics guarantee high wear resistance.



TPF ultra fine transversal polarity. *The ultra-fine "Full Metal" solution steel and brass.*
Ultra fine polar pitch suitable for pieces of limited size and very small thicknesses.
A series of multiple close-up "magnetic seams" with short-circuit section of the magnetic flux within 2 mm thickness.

GRINDTEC GT HD

Permenent-electro magnetic plates with round polarity for grinding medium/big size pieces



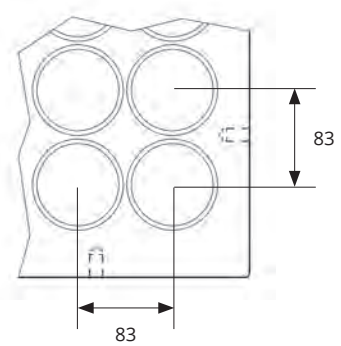
Standard supply
- Permanent-electro magnetic plates mono-block frame
- Nuflux circuit
- Hard wired water tight junction box
- Discharge cable PVC fire-retardant (6m)
- CE declaration of conformity
- Instruction manual on digital support

Recommended accessories
- Set of through holes according to the machine T-slots

Model	Size			Poles	Clamping force	Weight
	A	B	C *			
	mm	mm	mm	n.	kN	Kg
GT 406 HD	405	600	51	24	35	95
GT 408 HD	405	790	51	32	47	120
GT 410 HD	405	975	51	40	59	150
GT 506 HD	485	600	51	30	44	110
GT 508 HD	485	790	51	40	59	145
GT 510 HD	485	975	51	50	74	180
GT 606 HD	570	600	51	36	53	130
GT 608 HD	570	790	51	48	71	170
GT 610 HD	570	975	51	60	88	210

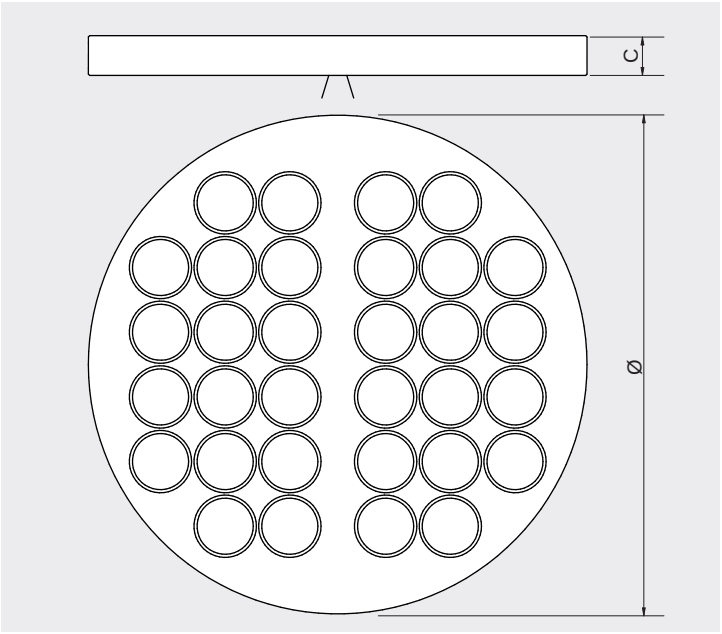
***** ± 0,5 mm

Suitable control unit **Cod. ST200RB** (pag. 45)



GRINDTEC GT R

Permenent-electro magnetic plates with round polarity for grinding medium/big size pieces



Standard supply
- Permanent-electro magnetic plates mono-block frame
- Nuflux circuit
- Cable outlet in the center-bottom side PVC fire-retardant (6m)
- CE declaration of conformity
- Instruction manual on digital support

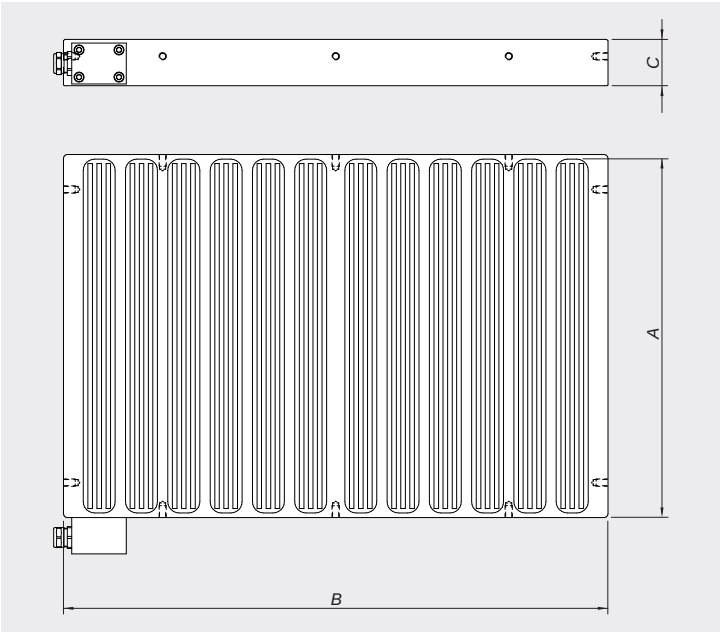
Recommended accessories
- Set of through holes according to the machine T-slots

Model	Size		Poles	Clamping force	Weight
	Ø	C *			
	mm	mm	n.	kN	Kg
GT/R 0400	400	51	12	18	60
GT/R 0500	500	51	16	24	90
GT/R 0600	640	51	32	47	130
GT/R 0700	740	51	36	53	180
GT/R 0800	800	51	52	76	230
GT/R 0900	900	51	64	94	300
GT/R 1000	1020	51	70	103	370

***** ± 0,5 mm
Suitable control unit **Cod. ST200RB** (pag. 45)

GRINDTEC TFP0

Permanent-electro magnetic plates with steel/resin surface for grinding machines



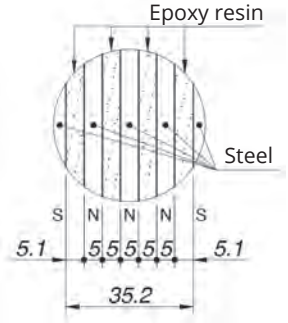
Standard supply
- Permanent-electro magnetic plates mono-block frame
- Max magnetic force up to 75 N/cm2
- Nuflux circuit
- Hard wired water tight junction box
- Discharge cable PVC fire-retardant (6m)
- CE declaration of conformity
- Instruction manual on digital support

Recommended accessories
- Set of through holes according to the machine T-slots

Model	Size			Weight
	A	B	C *	
	mm	mm	mm	Kg
TFP0 305	300	500	51	50
TFP0 306	300	600	51	60
TFP0 307	300	700	51	70
TFP0 309	300	900	51	90
TFP0 310	300	1000	51	115
TFP0 312	300	1200	51	125
TFP0 405	400	500	51	65
TFP0 406	400	600	51	80
TFP0 407	400	700	51	120
TFP0 408	400	800	51	110
TFP0 410	400	1000	51	130
TFP0 505	500	500	51	110
TFP0 506	500	600	51	130
TFP0 507	500	700	51	150
TFP0 508	500	800	51	175
TFP0 510	500	1000	51	205
TFP0 605	600	500	51	130
TFP0 606	600	600	51	150
TFP0 607	600	700	51	170
TFP0 608	600	800	51	205
TFP0 610	600	1000	51	245

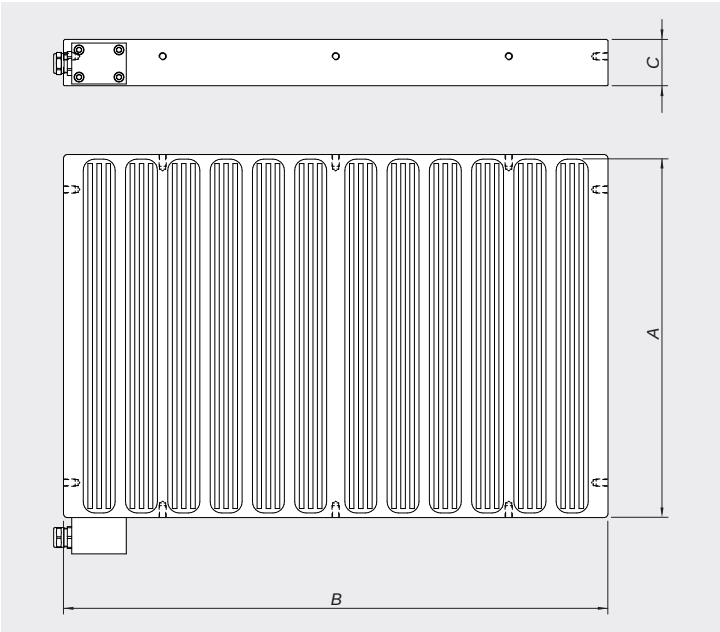
***** ± 0,5 mm

Suitable control unit **Cod. ST200RB** (pag. 45)



GRINDTEC TFP1

Permanent-electro magnetic plates with steel/brass surface for grinding machines



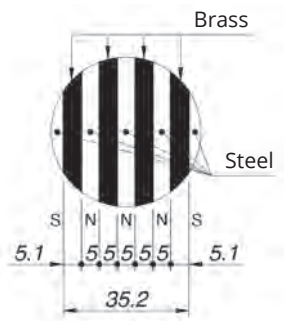
Standard supply
- Permanent-electro magnetic plates mono-block frame
- Max magnetic force up to 75 N/cm2
- Nuflux circuit
- Hard wired water tight junction box
- Discharge cable PVC fire-retardant (6m)
- CE declaration of conformity
- Instruction manual on digital support

Recommended accessories
- Set of through holes according to the machine T-slots

Model	Size			Weight
	A	B	C *	
	mm	mm	mm	Kg
TFP1 305	300	500	51	80
TFP1 306	300	600	51	90
TFP1 307	300	700	51	100
TFP1 309	300	900	51	120
TFP1 310	300	1000	51	130
TFP1 312	300	1200	51	150
TFP1 405	400	500	51	100
TFP1 406	400	600	51	110
TFP1 407	400	700	51	120
TFP1 408	400	800	51	140
TFP1 410	400	1000	51	175
TFP1 505	500	500	51	110
TFP1 506	500	600	51	130
TFP1 507	500	700	51	150
TFP1 508	500	800	51	175
TFP1 510	500	1000	51	205
TFP1 605	600	500	51	130
TFP1 606	600	600	51	150
TFP1 607	600	700	51	170
TFP1 608	600	800	51	205
TFP1 610	600	1000	51	245

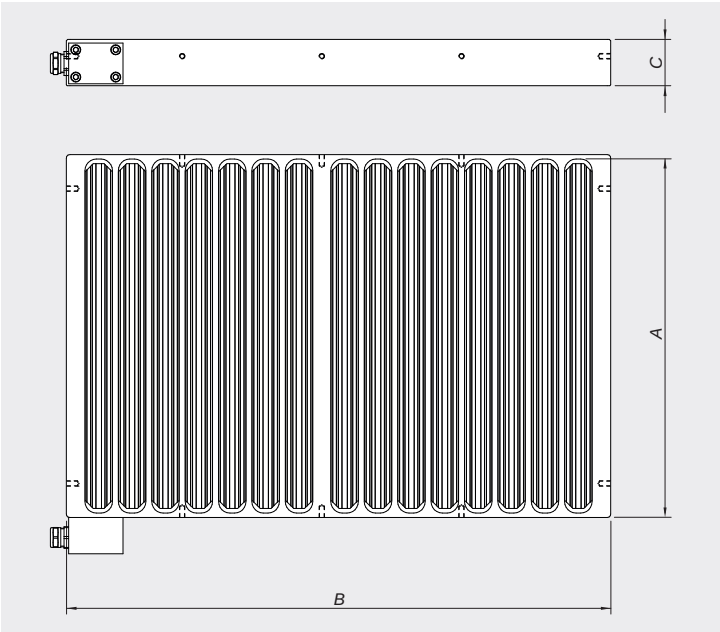
***** ± 0,5 mm

Suitable control unit **Cod. ST200RB** (pag. 45)



GRINDTEC TPF

Permanent-electro magnetic plates “Full Metal Ultra Fine” with steel/brass surface for grinding machines
Minimum thickness pieces 2 mm

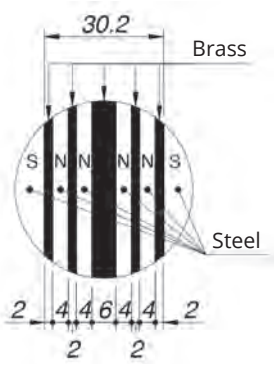


Standard supply
- Permanent-electro magnetic plates mono-block frame
- Max magnetic force up to 75 N/cm2
- Nuflux circuit
- Hard wired water tight junction box
- Discharge cable PVC fire-retardant (6m)
- CE declaration of conformity
- Instruction manual on digital support

Recommended accessories
- Set of through holes according to the machine T-slots

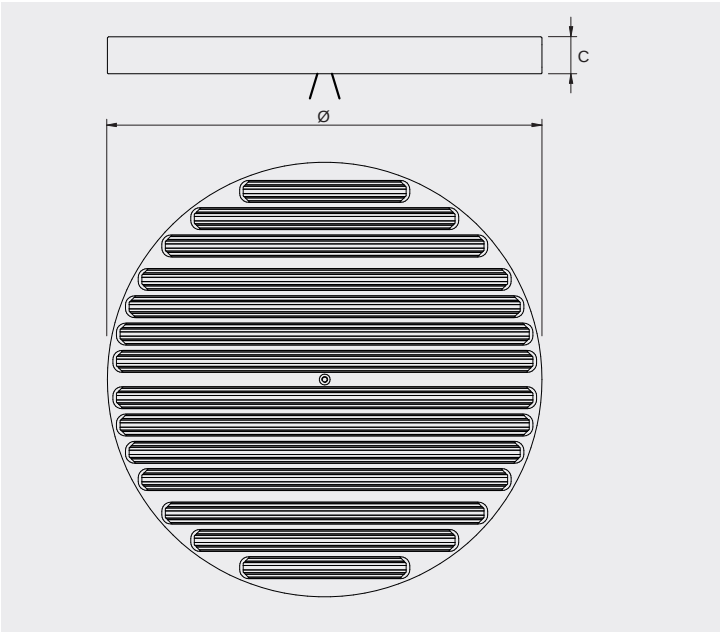
Model	Size			Weight
	A	B	C *	
	mm	mm	mm	Kg
TPF 1545	150	450	51	50
TPF 2040	200	400	51	50
TPF 2045	200	450	51	60
TPF 2050	200	500	51	60
TPF 2060	200	600	51	70
TPF 2075	200	750	51	80
TPF 2550	250	500	51	70
TPF 2560	250	600	51	80
TPF 3050	300	500	51	80
TPF 3060	300	600	51	90
TPF 3080	300	800	51	110
TPF 3010	300	1000	51	130
TPF 4060	400	600	51	110
TPF 4080	400	800	51	140
TPF 4010	400	1000	51	170

***** ± 0,5 mm
Suitable control unit **Cod. ST200RB** (pag. 45)



GRINDTEC TPF

Permanent-electro magnetic plates “Full Metal Ultra Fine” with steel/brass surface for grinding machines
Minimum thickness pieces 2 mm

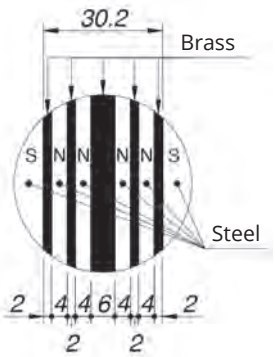


Standard supply
- Permanent-electro magnetic plates mono-block frame
- Max magnetic force up to 75 N/cm2
- Nuflux circuit
- Hard wired water tight junction box
- Discharge cable PVC fire-retardant (6m)
- CE declaration of conformity
- Instruction manual on digital support

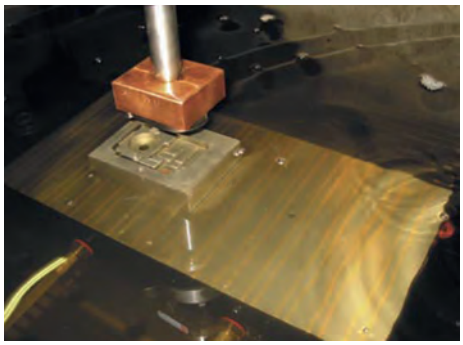
Recommended accessories
- Set of through holes according to the machine T-slots

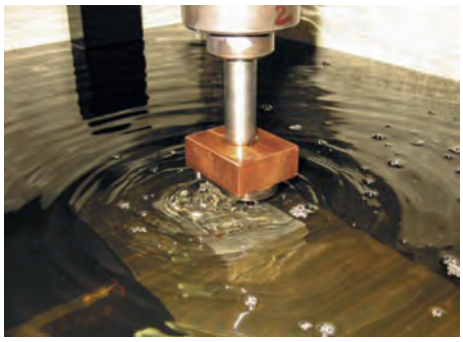
Model	Size		Weight
	Ø	C *	
	mm	mm	Kg
TPF /C 0300	300	51	35
TPF /C 0400	400	51	45
TPF /C 0500	500	51	70
TPF /C 0600	600	51	100
TPF /C 0750	750	51	155
TPF /C 1000	1000	51	280

***** ± 0,5 mm
Suitable control unit **Cod. ST200RB** (pag. 45)



Spark Erosion Series





INNOVATIVE TECHNOLOGY

The EDMTEC permanent-electro system does not fear power interruptions since the electricity is only used to activate and deactivate the system. During the processing phases, the high-energy permanent magnets guarantee a constant anchoring force without time limits and without additional power supply.

GREAT ADVANTAGES

- Uniform work-holding
- Great stability and rigidity
- Total water-tightness
- Remotely activated at the touch of a button
- Energy saving
- Easy installation

WASHING CHANNELS

The EDM TEC plates are equipped as standard with a special washing circuit made by a set of channels inside the poles such as to allow 2 or 3 outlet washing holes on the magnetic surface depending on the size of the plate.
Constant washing flow prevents material depositing for better erosion quality,

NUFLUX SYSTEM

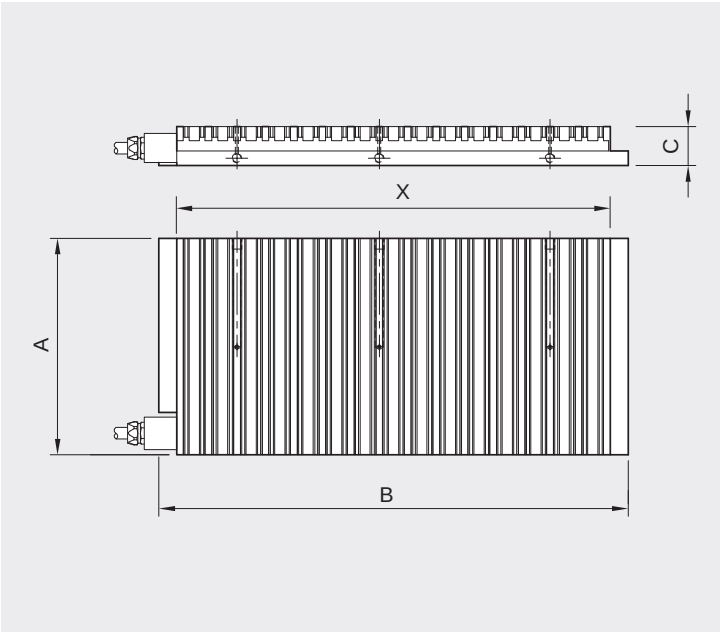
The control units are equipped as standard with the patented “NUFLUX” demagnetization system that allows you to completely eliminate any magnetic residue from the surface of the piece even with alloy material.

TOTAL WATERTIGHTNESS

The electrical circuit inside the plate and the relative external electrical connections are perfectly protected in order to ensure a perfect watertight seal in immersion use of dielectric liquid.

EDM MDS T

Permanent-electro magnetic plates “Full Metal” with steel/brass surface for spark erosion machines



Standard supply
- Permanent-electro magnetic plates mono-block frame
- Max magnetic force up to 75 N/cm2
- Nuflux circuit
- Hard wired water tight junction box
- Discharge cable PVC fire-retardant (6m)
- CE declaration of conformity
- Instruction manual on digital support

Recommended accessories
- Set of through holes according to the machine T-slots

Model	Size				Weight
	A	B	X	C *	
	mm	mm	mm	mm	Kg
MDS 153 /T	150	350	300	54	50
MDS 154 /T	150	450	400	54	60
MDS 203 /T	200	350	300	54	60
MDS 204 /T	200	450	400	54	70
MDS 205 /T	200	550	500	54	80
MDS 304 /T	300	450	400	54	90
MDS 305 /T	300	550	500	54	110
MDS 306 /T	300	650	600	54	130
MDS 406 /T	400	650	600	54	160

***** ± 0,5 mm

Suitable control unit **Cod. ST200RB** (pag. 45)

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Technical characteristics and dimensions are not obliged.
MAG AUTOBLOK TECNOMAGNETE Spa may give in every time some modifications

MV Design

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Release December 2021