New PRF Full Metallic Series

The full metallic surface has no screws nor screws, greatly high-accuracy machining with a precise separation on a well-painted insulation to the internal areas even electrical connections and circuits are located. All the Radial-Pole chucks are newly manufactured with this technology.

Permanent-Electro Technology

TECNOMAGNETE patented permanent electro magnetic chuck relies on a microscopic pole for the quick activation and desactivation phases. During the clamping phase the power is generated only by the high energy permanent magnet built inside.

An Impenetrable Surface

This unit is an all-metallic surface but no inserts, welding seam or any finishing samplad.

If therefore acts as an impenetrable mechanical shield offering permanent protection for the internal electric circuit and the magnets fitted inside from the back side of the module.

No Magnetic Stray Flux

The full COIL is automatically driven by 330 MA magnets, ensuring a complete removal of any possible residual magnetization on the piece.

Simplicity and Reliability

A RADIAL-POLE system is extremely low-moving parts that can generate high accuracy. No energy consumption, no heat generation, no maintenance required. Performances will be always predictable and granted in the long run.

COLD CONTACT SURFACE

No heat is generated by the magnetic chuck, due to the fact that the current is flowing through resistors instead of the magnetic system.

BiDIRECTIONAL MAGNETIC CIRCUIT

The clamping force is given by DIRECT POLES only, to concentrate the magnetic flux where it is needed.

Neutral Crown

The neutral crown configuration enables the magnetic flux to be fully directed through the active surface, ensuring optimum efficiency and total insulation of the module.

Easy Workpiece Centering

When the chuck is magnetized in one phase, it is possible to position the workpiece using the magnetic grid to see if the part is in the correct position: low evaluation of the machine tool at low speed are enough to orient the part.

Safety First

No power failure will affect the magnetic performance. The system is extremely safe to be installed.

Electronic Control

The state of the art of the technology RADIAL-POLE chucks are equipped with dedicated control units, incorporating the latest control technology to detect during the MAG/DEMAG cycles to guarantee the correct execution of the operations. Controller enable and machine safety contacts are available in the electronic configuration of the controllers. "PR/F" models are equipped with Schmitt trigger units with built-in demagnetization circuit (Safety System), to fully remove the magnetic field from the workpiece during the DEMAG cycle. Double Latching Push Button (inside from the back side of the module) are always required to avoid accidental cycles.

Other Units available:

• Instruction book
• Wiring chuck-controller (5m PVC cable)
• Remote push-button for MAG/DEMAG cycles with power adjustment
• Electronic control unit ST200RB / ST500 with UCS current detecting system, Nuflux system, machine safety and controller enable and integrated anti-rotation contact ("CR" version)
• Permanent-electro magnetic chuck (PR/F) and central "T" slot for fixing the pole extensions

ST200RB control unit and the standard controller supplied with small-medium chucks, with 8 level power adjustment and digital remote pendant.

ST500 control unit with IP54 cabinet in the standard controller supplied with larger chucks (external dimension - 800mm with 3 button control) Intersegmental power levels can be operated through separate button, for faster and more intuitive magnetization procedures. This unit is available as an option for small modules.

Standard Supply Specification

• Permanent-electro magnetic chuck (PR/F) and control "CR" slot for fixing the pole extensions
• Electronic control unit ST200RB / ST500 with UCS current detecting system, Safety system, machine safety and controller enable and integrated anti-rotation contact ("CR" version)
• Remote push-button for MAG/DEMAG cycles with power adjustment
• Wiring chuck-controller (5m PVC cable)
• Instruction book

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THE PERFECT SOLUTION

for machining slewing and bearing rings and round flanges:

- Power stations and wind generators
- Earth moving machines
- Radar and communication equipments
- Off shore cranes, power cranes
- Machine tools and gearboxes
- Marine engines and transmissions

POLE EXTENSIONS

Dedicated pole extensions are used to raise the workpiece from the chuck surface. Both internal and external clamps are accessible for all machining operations in a single set-up.

FLUX CONCENTRATION

Axle extensions are used to concentrate the magnetic flux, increasing the clamping force. The magnetic field will come out quickly and is automatically, even without accessing the working area.

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AVAILAABLE CONFIGURATIONS

RS type: modular modules, equipped with embedded "T" slots to fix the pole extensions.

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- Power stations and wind generators
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- Machining tolerances, tool life, stock removal and vibrations with tremendous advantages in terms of eliminating all problems related to machining.
- The uniform clamping along the contact surface compensates any peculiarity of the workpiece, mechanical deformations and automatically eliminates any obstacle.
- The RADIAL-POLE system completely avoids distortions.
- Internal / external workholding generates radial distortions, while face plate clamping causes axial distortions. Conventional mechanical clamping always cause some distortions.
- As well as limiting access to the workpiece, traditional mechanical clamping always cause unpredictable and independent from the operator.
- The magnetic clamping surface is given by the magnetic system surface. The external and internal machining cycle can be exploited due to the concentration of flux, increasing the clamping strength.
- Dedicated pole extensions are used to raise the workpiece from the chuck surface; both internal and external diameters are accessible for all machining operations in a single set-up.

UNIQUE CLAMPING
Steady without distortions. As well as limiting access to the workpiece, conventional mechanical clamping always cause some distortions. Internal / external workholding generates radial warping, while face plate clamping causes axial distortions.

The RADIAL-POLE system completely avoids mechanical deformations and automatically compensate any irregularity of the workpiece surface.

The magnetic clamping along the contact surface eliminates all problems related to machining. With continuous movement, any type of machining becomes easy, quick and easy with always predictable power. Detaching operations are quick and easy to carry out; the result in terms of clamping power is always predictable and independent from the operator.

No special tool is needed, no special experience or skill is required to clamp the part. Any machine can be fitted with RADIAL-POLE system.

FREE ACCESS TO THE WORKPIECE
The magnetic clamping surface is given by the external workholding, the part clamping will locate the full access of the basic machine tool machining a single set-up. With the use of pole extensions the workpiece can be loaded from the chuck surface. The external and internal machining cycle can be exploited due to the absence of any obstacle.

The RST modules equipped with embedded "T" slots to fix the pole extensions.

AVAILAIBLE CONFIGURATIONS
- RST: "FLAT" monoblock modules, equipped with embedded "T" slots to fix the pole extensions.
- SR: "FLAT" monoblock modules, equipped with embedded "T" slots to fix the pole extensions.

POLE EXTENSIONS
Dedicated pole extensions are used to raise the workpiece from the chuck surface. Both internal and external diameters are accessible for all machining operations in a single set-up.

FLUX CONCENTRATION
The magnetic system surface concentrates the magnetic flux, increasing the clamping strength.

UNIQUE CLAMPING
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FULL USE OF THE MACHINE TABLE AREA
Any radial and or vertical monoblock-POLE system having the same or slightly higher diameter of the machine base, will be able to fully use the magnetic system surface holding any portion of surface for all possible machining cycle with finishing ends.

The RST modules equipped with embedded "T" slots to fix the pole extensions and additional bigger "T" slots for mechanical fixtures or additional tools.

AUTOMATIC SHIMMING
Steady without distortions. The system automatically, even without accessing the working area, adapts the magnetic surface to the workpiece surface. Stress release operations can be carried out quickly and automatically, even without accessing the working area.

FLUX CONCENTRATION
The magnetic system surface concentrates the magnetic flux, increasing the clamping strength.

AVAILABLE CONFIGURATIONS
- RST: "FLAT" monoblock modules, equipped with embedded "T" slots to fix the pole extensions.
- SR: "FLAT" monoblock modules, equipped with embedded "T" slots to fix the pole extensions.

POLE EXTENSIONS
Dedicated pole extensions are used to raise the workpiece from the chuck surface. Both internal and external diameters are accessible for all machining operations in a single set-up.

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- SR: "FLAT" monoblock modules, equipped with embedded "T" slots to fix the pole extensions.

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The RST modules equipped with embedded "T" slots to fix the pole extensions and additional bigger "T" slots for mechanical fixtures or additional tools.

AUTOMATIC SHIMMING
Steady without distortions. The system automatically, even without accessing the working area, adapts the magnetic surface to the workpiece surface. Stress release operations can be carried out quickly and automatically, even without accessing the working area.
The Perfect Solution for Machining Slewing and Bearing Rings and Round Flanges:

- Power stations and wind generators
- Earth moving machines
- Radiator and communication equipments
- Offshore cranes, power cranes
- Machine tools and gearboxes
- Marine engines and transmissions

The uniform clamping along the contact surface compensates any peculiarity of the workpiece and automatically, even without accessing the working area.

The magnetic clamping surface is given by the reference contact area of the part. Flexibility will be the hallmark of the entire system since machining is a single set-up. With the use of pole extensions the workspace can be chosen from the magnetic system surface. The external and internal machining paths can be avoided due to the absence of any obstacle.

Movable pole extensions used to raise the workpiece from the chuck surface. Both internal and external clamping plates are accessible for all machining operations in a single set-up; the result is a considerable reduction in cost and time.

POLE EXTENSIONS

The magnetic pole extensions are used to raise the workpiece from the chuck surface, thus improving accessibility and usability of the machine table. They are available with or without backplate, in "FLAT" or with polar extensions.

PRF monoblock modules, equipped with embedded "T" slots to fix the pole extensions.

Practical and economic solutions for quick and easy shimming operations are no more necessary.

UNIQUE CLAMPING

Steady without distortions

As well as being decisive for the whole of conventional mechanical clamping always causes some drawbacks. The RADIAL-POLE system completely avoids distortions.

No special tool is needed, no special experience or skill is required to change the part. The magnetic surface is given by the reference contact area of the part. Flexibility will be the hallmark of the entire system since machining is a single set-up. With the use of pole extensions the workspace can be chosen from the magnetic system surface. The external and internal machining paths can be avoided due to the absence of any obstacle.

FULL USE OF THE MACHINE TABLE AREA

Any radial position of the chuck on the RADIAL-POLE system having the same or slightly larger diameter of the reference surface, is allowed in order to use the machine capacity without losing any portion of the machine table, thus allowing to fully use the magnetic clamping surface.

FREE ACCESS TO THE WORKPIECE

When using a grinding machine, the magnetic surface is given by the reference contact area of the workpiece. Flexibility will be the hallmark of the entire system since machining is a single set-up. With the use of pole extensions the workspace can be chosen from the magnetic system surface. The external and internal machining paths can be avoided due to the absence of any obstacles.

AVAILABLE CONFIGURATIONS

The PR modules are equipped with embedded "T" slots to fix the pole extensions and additional larger "T" slots for mechanical fixtures or additional tools.

POLE EXTENSIONS

Dedicated pole extensions are used to raise the workpiece from the chuck surface, thus improving accessibility and usability of the machine table. They are available with or without backplate, in "FLAT" or with polar extensions.

FLUX CONCENTRATION

Bigger pole extensions to concentrate the magnetic flux, increasing the clamping force. One contact with the workpiece.

FLOW SYSTEM

Quick and easy with always predictable power

Clamping operations are quick and easy. The magnetic clamping surface reaches the workpiece thickness without any need of manual shimming operations and without the risk of altering the part. Clamping forces are predictable and independent from the operator. Time consuming manual shimming operations are no more necessary.

Quick and easy with always predictable power

Clamping operations are quick and easy to carry out; the result in terms of clamping power is always predictable and independent from the operator.

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NEW PRF FULL METALLIC SERIES

The full metallic surface on the sides and across, grants high resistance to any form of physical separation as well as a perfect insulation to the internal area where electrical connections and coils are located. All the Radial Pole chucks are now manufactured with this technology.

PERMANENT-ELECTRO TECHNOLOGY

TECNOMAGNETE patented permanent-electro magnetic chuck, leaves electrical power away from the quick cycling and deactivation phases. During the deactivation phase the power is generated only by the high energy permanent magnets built inside.

AN IMPENETRABLE SURFACE

This is an all-metallic metallic surface free from inserts, welding seam or any fitting seam. If therefore acts as an impermeant mechanical shield offering permanent magnetic protection for the electric circuit and the magnets located inside from the back side of the module.

NO MAGNETIC STRAY FLUX

The full-COIL system is automatically shielded every DEMAG phase, ensuring a complete removal of any possible residual magnetic flux where it is needed.

SIMPLICITY AND RELIABILITY

A RADIAL-POLE system has no internal moving parts that can wear or damage. No energy consumption, no heat generation, no maintenance required. Performances will be always predictable over a very long time.

RECTANGULAR SHAPE POLES

The rectangular shape guarantees constant and predictable clamping power, independently from the position along the pole.

SAFETY FIRST

No power failure will affect the magnetic performance. The system is intrinsically safe to be installed.

COLD CONTACT SURFACE

No heat is generated by the magnetic chuck, due to the fact that the current is flowing for extremely limited time during the MAG/DEMAG cycles only. The contact surface between the workpiece and the chuck remains cold, granting high accuracy in machining due to the absence of thermal distortions.

BIDIRECTIONAL MAGNETIC CIRCUIT

The clamping force is given by DIRECT POLES only. To guarantee the magnetic flux where it is needed.

NEUTRAL CROWN

The neutral crown configuration enables the magnetic flux to be fully directed through the active surface, ensuring optimum efficiency and total isolation of the module.

EASY WORKPIECE CENTERING

When the chuck is magnetised at low levels, it is possible to position the workpiece using the active surface, ensuring optimum efficiency and total isolation of the module.

FULL METALLIC SYSTEM

The full metallic surface, with no resin and screws, grants high accuracy in machining due to the absence of thermal distortions.

The contact surface between the workpiece and the chuck remains cold, granting high accuracy in machining due to the absence of thermal distortions.

Clamping power control

The clamping power can be calibrated at different levels, to avoid distortions of the piece or to make easy the positioning and centering of the workpieces on the chuck at lower power levels, before clamping them with full power.

NO ELECTRICAL DISTORTION OR DEFORMATION

Uniform clamping, minimized vibrations.

SAFETY FIRST

Total safety.

Full integration with machine tool

All RADIAL-POLE control units can be driven by the machine tool PLC, through the full interface option available.

ST500 is a control unit with standard controller supplied with small-medium chucks, with 9 level power adjustment and digital remote pendant.

ST500 control unit with IP54 cabinet is the standard controller supplied with larger chucks (external dimension 200m with 3 level power control).

Intermediate power levels can be operated through separate button, for faster and more intuitive magnetisation procedures. This unit is available as an option for small modules.

STANDAR SUPPLY SPECIFICATION

• Permanent-electro magnetic chuck (RF and/or “stir” slot for fixing the pole extension).
• Electronic control and ST200RB, ST500 with UCS-low demagnetising current (Nuflux system, machine safety, and coordinate reachable and equipped with rotation control (C1/C2 version).
• Remote push-button for MAG/DEMAG cycles with power adjustment.
• Wiring chuck-controller (5m PVC cable).
• Instruction book.

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• Distributor selected in the USA Technomagnete GmbH Germany Tecnomagnete GmbH

The perfect solution for machining swilings, bearing rings and round flanges

• Modular technology.
• Full metallic surface.
• High power.
• Total safety.

New International Patents.
NEW PRF FULL METALLIC SERIES

The full metallic surface, with no screws, glue, high-visibility linear magnetization zones and a precise separation on one side with a perfect insulation to the thermal cores areas electrical connections, and controls are located.

All the RADIAL Pole chucks are new manufactured with this technology.

PERMANENT-ELECTRO TECHNOLOGY

TECNOMAGNETE patented permanent-electro magnetic chuck technology is designed for use in the quick activation and deactivation phases. During the deactivation phase, the power is generated only by the high-voltage permanent magnets built inside.

AN IMPENETRABLE SURFACE

This unique all-metal metallic surface has no inserts, sealing resin or any filling compound.

If the surface acts as an impregnable mechanical shield, offering permanent protection for the tool or the machine due to the total absence of stray flux.

NO MAGNETIC STRAY FLUX

The full-coil system is automatically shielded every DEMAG phase, ensuring a complete removal of any possible residual flux.

SIMPLICITY AND RELIABILITY

A RADIAL POLE system has no interior moving parts that can get stuck or break due to wear. Its no energy consumption, no heat generation, no maintenance required. Performances will be always predictable even generated in the most rugged environments.

RECTORANGULAR SHAPE POLES

The rectangular shape guarantees constant and predictable clamping power, independently from the position along the pole.

SAFETY FIRST

No power failure will affect the magnetic performance.

The system is intrinsically safe to be isolated.

COLD CONTACT SURFACE

No heat is generated by the magnetic chuck, due to the fact that the current is flowing the external wiring instead of the NUFLUX system by using the magnetic flux where it is needed.

The contact surface between the workpiece and the chuck remains cold, granting high accuracy in machining due to the absence of thermal deformations.

BIODIRECTIONAL MAGNETIC CIRCUIT

The clamping force is given by DIRECT FLOWING CIRCUIT. To ensure the magnetic flux is not wasted, the current is only flowing for extremely limited time during the MAG/DEMAG cycles only.

No heat is generated by the magnetic chuck, due to the fact that the current is flowing the external wiring instead of the NUFLUX system by using the magnetic flux where it is needed.

The mean crown configuration enables the magnetic flux to be fully directed through the active surface, ensuring optimum efficiency and total insulation of the module.

EASY WORKPIECE CENTERING

When the chuck is magnetised at low levels, it is possible to position the workpieces using the magnetic guiding below the insert in the correct location. The clamping power can be calibrated at different levels, independently from the position along the pole.

Clamping power control

The clamping power can be calibrated at different levels, to avoid deformations of thin pieces or to make easy the positioning and centering of the workpieces on the chuck at lower power levels, before clamping them with full power.

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ELECTRONIC CONTROL UNITS

The state of the art of the technology RADIAL-POLE chucks are equipped with dedicated control units, incorporating the NEC/DEC system which can be activated during the MAG/DEMAG cycles to guarantee the correct execution of the operations. Correction modules and machine safety contacts are available in the electronic configuration of the controllers. "PR/F" models are equipped with control units with built-in de-magnetization circuit (Nuflux system). to fully remove the magnetic field from the machine during the DEMAG cycle. Double safety and control contacts (one for clamping, one for de-clamping) are always required to avoid accidentally activated cycles.

MONODIRECTIONAL CIRCUIT

RADIAL-POLE control units are driven by the machine tool PLC through the full interface option available.

STANDARD SUPPLY SPECIFICATION

Permanent-electro magnetic chucks (RR, FF) and control "C" stop for fixing the pole extensions.

Electro-control unit and 320/220V, 175W with I/Os (plus de-magnetizing circuit "Nuflux system", machine safety, and control module and optional anti-rotation contact "CR" version)

Remote push-button for MAG/DEMAG cycles with power adjustment

Wiring chuck-controller (5m PVC cable)

Clamping power control

The clamping power can be calibrated at different levels, to avoid deformations of thin pieces or to make easy the positioning and centering of the workpieces on the chuck at lower power levels, before clamping them with full power.

NO FUSION OR DEFORMATION

No fusion or deformation will occur during the operation.

UNIFORM CLAMPING: MINIMIZED VIBRATIONS

Clamping power control

The clamping power can be calibrated at different levels, to avoid deformations of thin pieces or to make easy the positioning and centering of the workpieces on the chuck at lower power levels, before clamping them with full power.

The full metallic surface, with no screws, glue, high-visibility linear magnetization zones and a precise separation on one side with a perfect insulation to the thermal cores areas electrical connections, and controls are located.

All the RADIAL Pole chucks are new manufactured with this technology.

PERMANENT-ELECTRO TECHNOLOGY

TECNOMAGNETE patented permanent-electro magnetic chuck technology is designed for use in the quick activation and deactivation phases. During the deactivation phase, the power is generated only by the high-voltage permanent magnets built inside.

AN IMPENETRABLE SURFACE

This unique all-metal metallic surface has no inserts, sealing resin or any filling compound.

If the surface acts as an impregnable mechanical shield, offering permanent protection for the tool or the machine due to the total absence of stray flux.

NO MAGNETIC STRAY FLUX

The full-coil system is automatically shielded every DEMAG phase, ensuring a complete removal of any possible residual flux.

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UNIFORM CLAMPING: MINIMIZED VIBRATIONS

Flexibility and efficiency on high accuracy machining

The perfect solution for machining swelings, bearing rings and round flanges

- Monolithic technology
- Full metallic surface
- High power
- Total safety