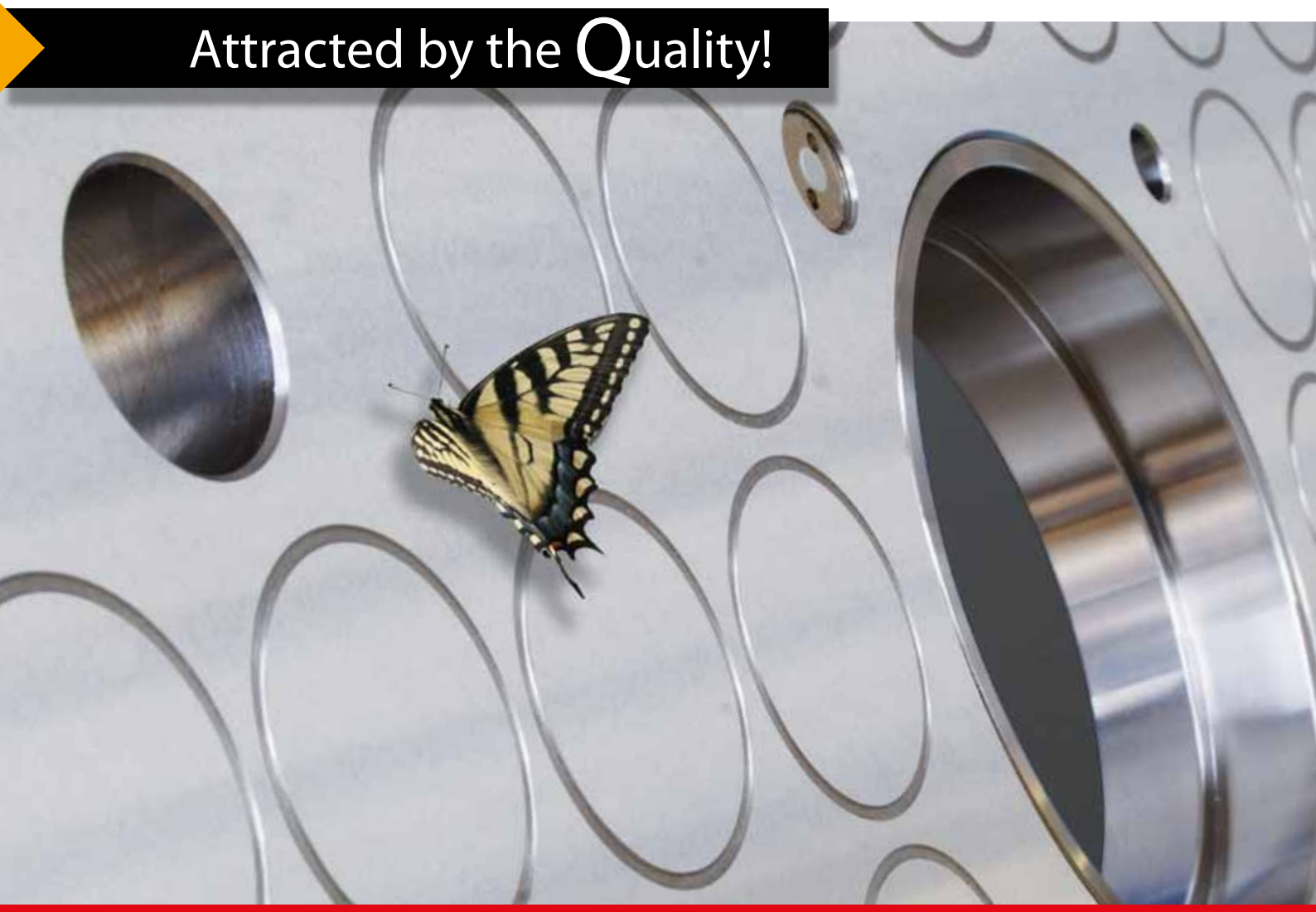
PressTec®

MONOLITHIC TECHNOLOGY

Attracted by the Quality!



The innovative magnetic system for quick mold clamping

- Monolithic construction
- Solid steel surface
- Reduced thickness
- Higher rigidity
- Longer life

NEW INTERNATIONAL PATENT

TECNOMAGNETE®

Safety through power

TECNOMAGNETE®

PressTec®

MONOLITHIC TECHNOLOGY

The future of the innovation

The “original” technology

Pioneer of permanent-electro technology developed in the early 70’s, Tecnomagnete has revolutionized the world of heavy duty magnetic applications with the Quadsystem technology, patented in the 80’s, becoming the world leader in the production of clamping systems for machine tools, for plastic injection machines, for metal stamping and for handling ferrous loads.
Strength, safety, reliability and constant performances, no residual magnetism and no strays flux are the strong points of this technology.

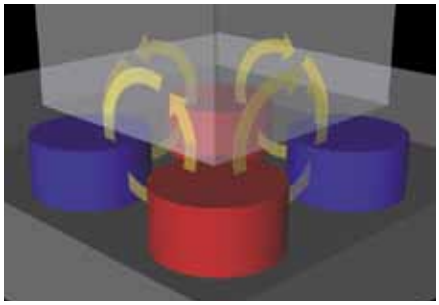
Total Safety

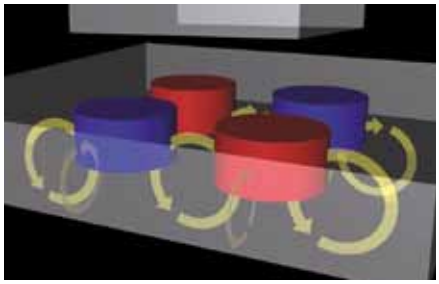
A permanent-electro magnetic circuit is intrinsically safe.
In fact an electrical pulse of few seconds activates the system and afterward the mold remain firmly clamped for indefinite period of time without any electricity supply, just attracted by the strength of high-energy permanent magnets.
Through a subsequent electrical pulse the system can be deactivated.

The bi-directional circuit

The bi-directional magnetic circuit with all poles N/S activated by a double magnet (Alnico+ Neodymium) is able to generate the highest level of magnetic induction in the steel (20.000 Gauss, equivalent to 16 daN/cm^2) as well as ensuring a high coefficient of Magneto-Motive Force (MMF) to operate safely even in the presence of operative air gaps.

MAG





DEMAG

International patent WO 2009/130721

The Neutral Yoke

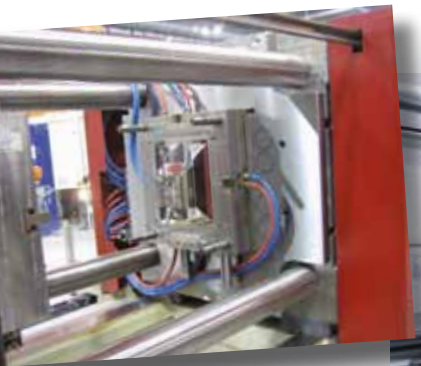
The chess board morphology of Quadsystem allows the circuit to ensure a flat and horizontal travelling of the magnetic flux, totally concentrated in the polar area, i.e. on the workpiece to be clamped.
The N/S poles perfectly equal in size grant a perfect balancing of the circuit, avoiding any possible leakage of magnetic flux with the total absence of any interference and any power loss.

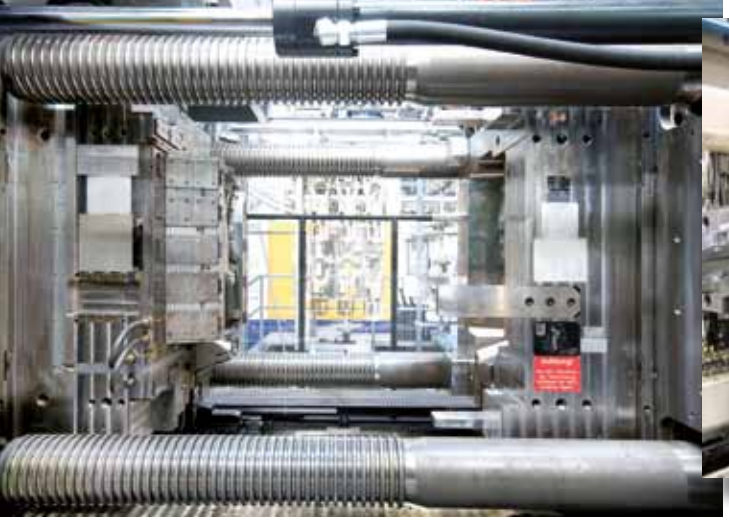
An incomparable experience

The know-how gained by Tecnomagnete in several sectors has been used as an indispensable element for the further development of Quadsystem technology in the new patent called Quadsystem *MONOLITE*.
This new technology allows the introduction of a new generation of magnetic equipments, characterized by the monolithic construction with no mechanical parts assembled, capable of providing exceptional robustness and compactness.
The circular polar areas come integral with the structure and the working surface becomes full metallic.
The original polar geometry allows to leave free solid areas evenly distributed to carry out the necessary machining for the fixing holes, for the ejectors holes or for dedicated mechanical elements.

An impenetrable shield

The integral steel surface totally uniform, with no resin, no brass insert, no sealing, becomes an impenetrable mechanical shield “full proof” making impossible any kind of infiltration and ensuring a final protection of the electrical circuit and the permanent magnets built inside.
The contact surface with the mold will always remain planar over time.





PressTec®

The ultimate system for quick mould clamping

The QUADSYSTEM *MONOLITE* technology applied to the new generation of magnetic systems PressTec for clamping molds on plastic injection machines, can provide total safety, great flexibility and practical use, with enhanced competitive advantage over the traditional systems.
PressTec systems are the ideal solution for any type of machine, from the smallest to the largest, both horizontal and vertical, for a dramatic increase in productivity in several sectors, as automotive, electronics, packaging, medical, house appliances and many others.

A substantial added value

A machine equipped with PressTec becomes immediately more productive and maintains this value over time.
PressTec protects the machine avoiding wear and damage of the platens and prevents the mold being under operative stress, deflection or deformation thus reducing the need for periodic maintenance.

The Practicality

The uniform and smooth surface in contact with the mold is easy to keep clean and efficient. Besides the circular footprint of the polar area prevents vacuum effect.

The reliability

The monolithic honeycomb structure of PressTec provides great rigidity and sturdiness even under hard working conditions, keeping constant coefficients of thermal and mechanical resistance.
The absence of any insert and moving parts eliminates possible wear and ensures longer life with more reliable, predictable and predetermined performances, without any specific maintenance program.

A recognized standard

PressTec is available with a full range of standardized solutions according to the guidelines of international standards EUROMAP / SPI / JIS, relevant to the mechanical and electrical interface with the machine.
PressTec modules are easy to install on machines of any types and sizes using the existing slots and holes on the fixed and moving platens. They are standard equipped with the fixing holes, the passageways for the ejectors rods and the removable centering ring.

No interference

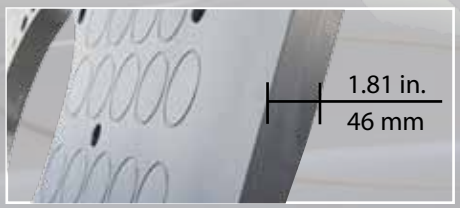
PressTec avoids any form of magnetic flux strays, avoiding unwanted “attractions” and interference with the machines apparatus.
The ejectors and the injection nozzle always travel in a neutral areas free of magnetic field.

The extreme compactness

The 46 mm thickness only exploit the best characteristics of the machine daylight and the reduced weight keep down all the dynamic stress.

The respect for the environment

The absence of energy consumption, heat generation, electrical interference and any kind of pollution together with the 95% recycling make PressTec the best expression of the concept of “respecting the environment”.



All under control

An advanced electronic control unit, designed according to the international standard Euromap / SPI / JIS and the EMC (Electro Magnetic Compatibility) norms, is available in different configurations, allowing the interface with any type of machine.

The standard version includes a robust remote keypad to manage the operational functions of MAG / DEMAG (activation and deactivation) - SAFE (to prevent accidental activation) and light signals to communicate the status of the system to the operator.
The unit also manages the specific functions related to PROXIMITY (mold presence sensors)
- UCS (unit control system)
- FCS (flux control system).

A safety key allows the enabling of the MCS procedure (mold change mode) permitting the relevant Mag and Demag cycles.

Electrical interface

STANDARD: Version for existing machines without EUROMAP interface with independent push button, with machine, proximity and MCS enable.

EUROMAP 70.0: Version for OEMs with independent push button to be interfaced with the machine enable and MCS procedure. Harting plug with 15 m cable included.

EUROMAP 70.1: Version for OEMs to be fully integrated with the machine PLC including MAG / DEMAG functions, proximity and MCS included and with all signals managed by the machine. Auxiliary buttons with Harting plug and 15m cable included.

IPC To interact with the force

Thanks to the unique characteristics of the bi-directional QUADSYSTEM circuit, the interactive IPC system is capable of automatically detect the actual clamping force depending on the size of the mold, the quality of the contact, the thickness and material of the mold base plate.
No need for the operator to enter any data in relation to the mold.

A Safe driving

Through a color touch-screen the IPC provides all the information to the operator, leading step by step the correct procedure for the mold installation and the machine start up.
Any errors are reported and the machine cannot be started in case the magnetic force is not reaching the threshold value assigned.
Mold data can be logged and the value of force can be recorded for the specific mold to be used as a reference for subsequent operations.

• Temperature chart

• Clamping force on the mold

• Mold data log selection, mould details

• Updatable by USB

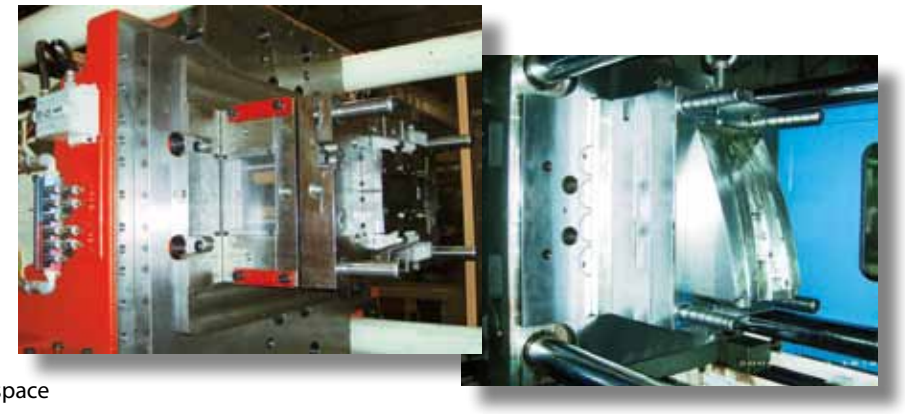
A real and true “Tutor”

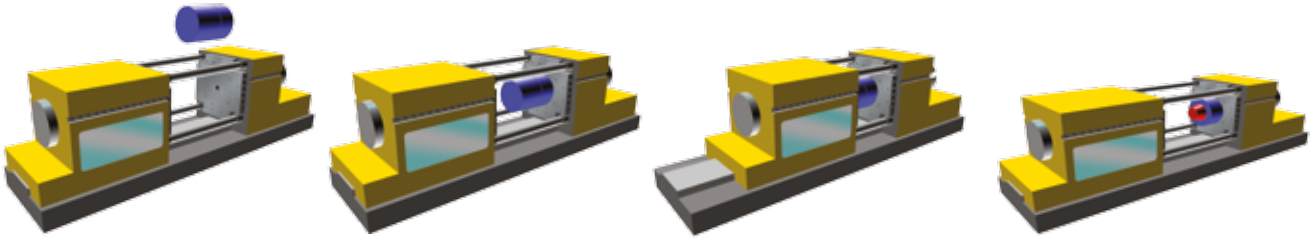
- Different access profiles: technician / supervisor / operator
- History of all transactions carried out by ‘operator, with the possibility to export data.
- Controlling the temperature of the magnetic surface
- Graphic display of operating time / mold use / operator activity
- Step-by-step help pages with graphic illustration and explanation.
- Multi language interface
- Mold data log

PressTec®
MONOLITHIC TECHNOLOGY

Great advantages for higher productivity

- Flexibility: molds of any shapes and sizes clamped with simplicity
- Rapidity: quick mould change with super fast clamping
- Quality: perfect and constant molding without flaws
- Repeatability: always reliable, controllable and predetermined operations
- Convenience: reduction of all costs and better use of the space





All around accessibility

The absence of any obstacle, allows an optimal use of machine platens, making possible clamping molds of various sizes, even bigger than the normal size in use on the press machine.

By giving up the mechanical clamps provides a total freedom for a quick and easy positioning of the mold.

It also means an easier access to all electrical, hydraulic and pneumatic peripherals.

Fast and Flexible

All JIT (Just in Time) and SMED (Single Minute Exchange Die) procedures can be optimized with a mold changing time reduced up to 90% compared to a conventional clamping system.

Molds can be conveniently loaded from top or with a side loading device, perfectly matched and placed on the magnetic surface, without any further adjustment.

PressTec is suitable for all the molds with steel back plate, even with a small size, with no modification.

High quality through total uniformity

With conventional systems, the mold get clamped on its perimeter, thus generating tensions and deformation resulting in deflections during production, due to the opening effort and to the weight of the mold.

A magnetic system provides an uniform clamping all over the contact surface.

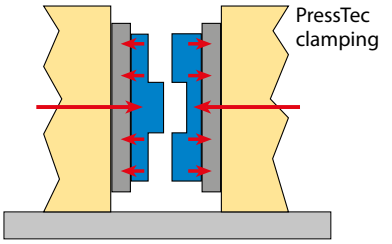
No movement of the mold translates immediately in better quality and repeatability of the molded parts and it prevents also the over-packing phenomena.

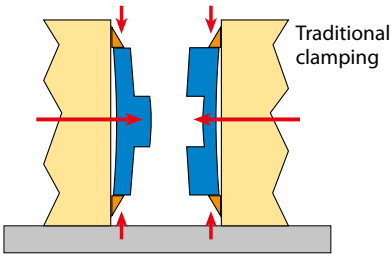
Advanced Molding

The precise coupling of the entire mold and its stability make PressTec the ideal solution for high accuracy operations like with multi-cavity molding or with bi-color rotary table and with placement of films (in-mold labeling) or inserts (in-mold insert).

Easiness and ergonomics

A single operator, with no particular specialization, can perform the task of the mould change without working inside the machine and remaining always at a safe distance from the mold.





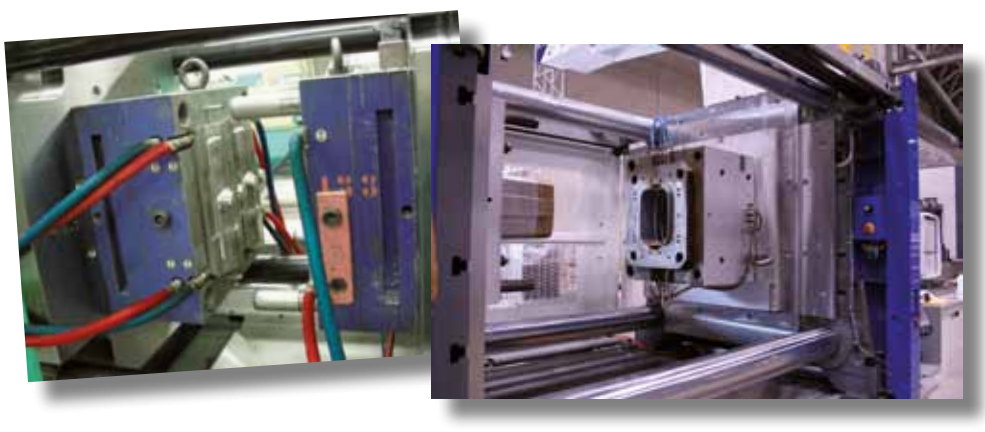
Reducing costs

The complete management process of inventory can be optimized. The space available will be better utilized. Not anymore need to manage clamps, bolts, consumables hardware, dedicated tooling

No more oil disposal and maintenance responsibility for the hydraulic circuits. No hidden costs.

Quick pay back

The limited investment and the great operative convenience can grant a quick pay back, that in some cases it may be just a few months. The PressTec value will remain high even the end of the machine life.



PressTec®
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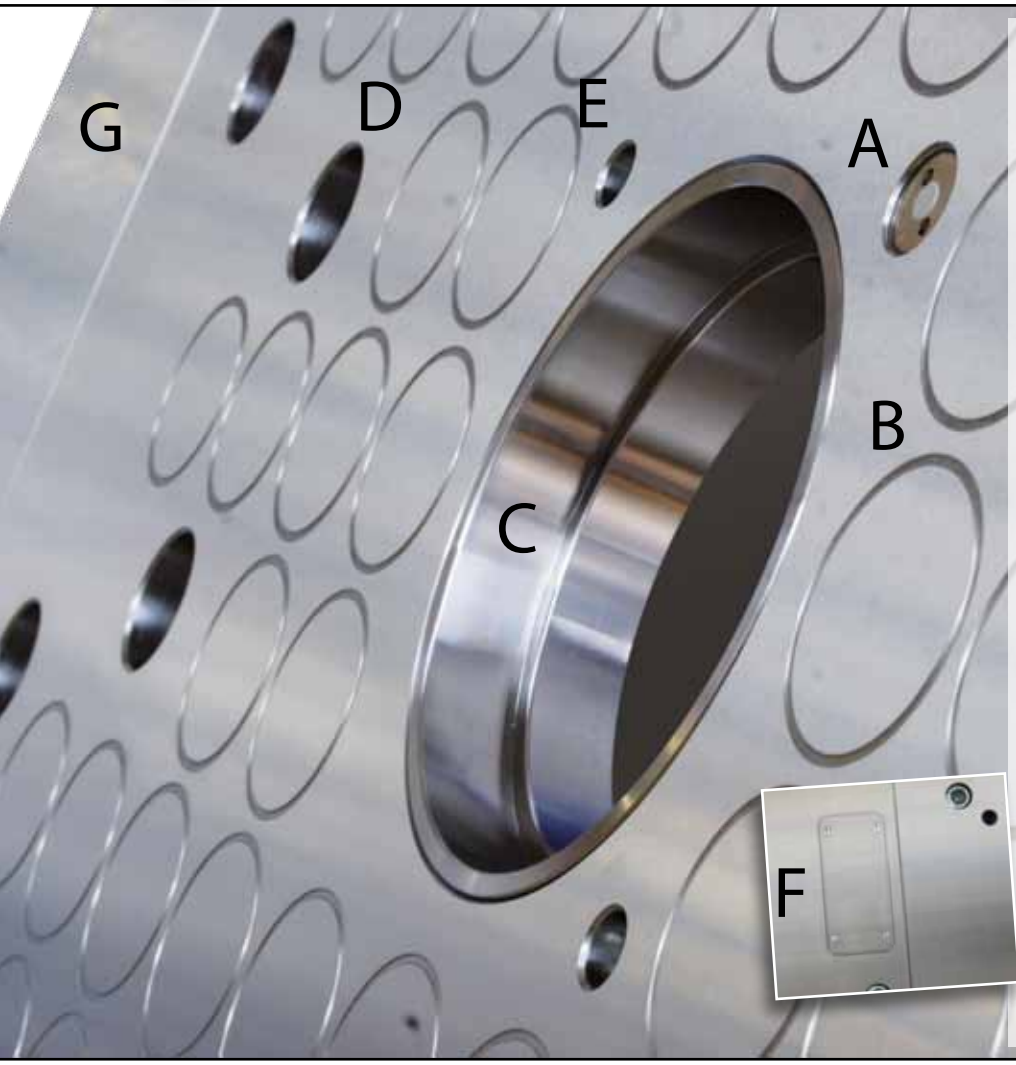
A design concept at the state of the art



A - Proximity sensors
An inductive sensor checks the presence of the mold for the activation of the magnetization cycle (MAG).
The range of reading to 0.2 mm allows to stop immediately the machine operation in case of mold detachment.

B - Air grid
Circular recesses prevent the mold from sticking and stabilize the temperature.

C - Centering ring
It allows a fast and correct positioning of the mold.

D - Ejectors holes
The magnetic module on the moving side is provided with through holes for the ejectors.

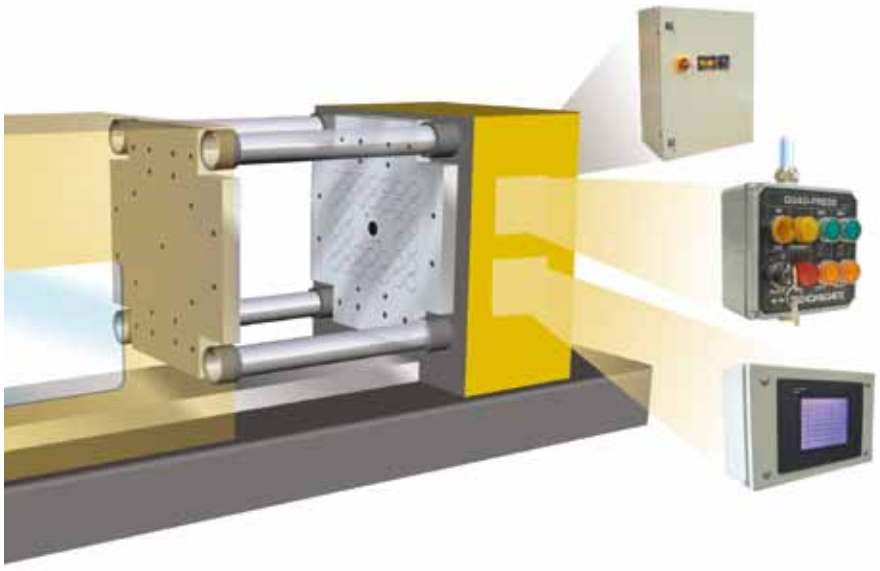
E - Fixing holes
According to the required standard EUROMAP / SPI / JIS

F - Connection box
Integral with the steel frame of modules

G - Spacers
Rectangular steel spacers to widen the support area of the mold (AS OPTION)

The FCS flux sensor system
detects the value of magnetic saturation before enabling machine cycle.

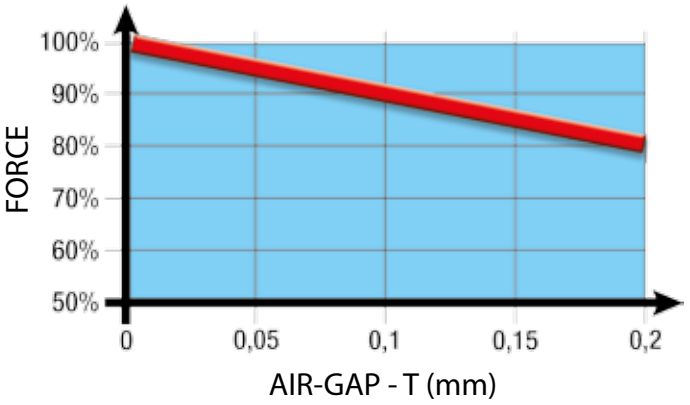
Installation layout and Control unit dimensions

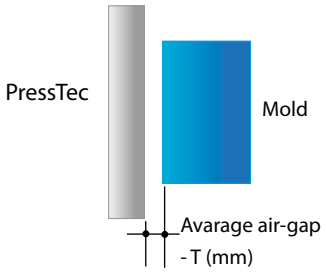


Dimensions		L	H	P
Electrical cabinet ST400				
Machine tonnage				
Up to 1600 t	mm	600	600	200
	in	23.62	23.62	7.87
over to 1600 t	mm	1200	600	300
	in	47.24	23.62	11.81
Standard push-buttons				
	mm	140	140	80
	in	5.51	5,51	3.15
Touch screen IPC				
	mm	211	159	65
	in	8.30	6.25	2.55
Box touch screen IPC				
	mm	270	248	95
	in	10.62	9.76	3.74

Air Gap Curve

The curve F / T shows the behavior of the magnetic field when varying the quality of contact between the mold and magnetic surface.
PressTec guarantees performance in total safety, even with operative air gap related to the surface of the mold base plate, not perfectly flat or little rusted.





Technical characteristics

Magnetic force on the polar area	Up to 16 kg / cm^2
Magnetic force on the mould contact area	Up to 90 Ton /m^2
Module thickness	46mm (*1.81 in.*)
Max working Temp in contact	120 °C (*248 °F*)
Magnetic flux depth	20mm (*0.78 in.*)
Activation range proximity sensors	0,2mm (*0.0078 in.*)
Standard voltages	200 - 480VAC, 50/60 Hz
Holes for fixing	Standard
Holes for ejectors	Standard
Centering ring fixed side	Standard
Centering Ring mobile side	On request
Control unit ST 400	Standard
Standard push buttons	Standard
Proximity sensors	Standard on each side
UCS system	Standard
FCS System	Standard

EUROMAP / SPI / JIS standard to be specified

Standard supply

Permanent electro magnetic modules in solid steel, for the fixed and moving side, with centering ring.

- Set of mounting holes and ejectors holes according to EUROMAP / SPI / JIS standards
- Electronic power control with bi-phase feeding in IP54 cabinet, complete with PLC machine interface, UCS , FCS control systems.
- Push button remote control, complete with indicator lights and key interlock.
- Set of cables to connect the control unit and magnetic modules, for the interface and power supply.
- Proximity sensors to detect mould presence installed on-board of the modules (1 each side)
- Fixing bolts and nuts.
- Instructions book in language and TUV/CE certificate.

ON REQUEST:

IPC

Interactive power control system with touch screen monitor

FCP

Electronic control system for real time monitoring of any change in the magnetic flux

CT

Set of connectors on the electrical cabinet for machine interface / keyboard (Harting) and PressTec modules (Feme)

THB

Temperature sensor embedded in the module fixed side.

UTC

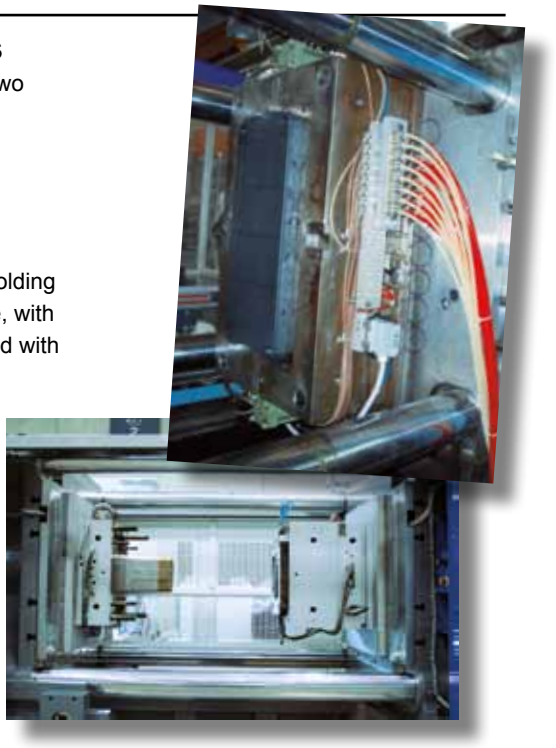
System for detecting the temperature over the whole area area with signal of the magnetic state and warning alarm.

Standard configurations

PressTec is available on request in two standard configurations:
• HD high polar density
• ST Simplified polar density

Special configurations

Configurable versions for vertical molding machines, multi-injection rotary table, with pre-arrangement for side loading, and with dedicated special execution are available on request.



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TECNOMAGNETE®
leading the way in magnetism

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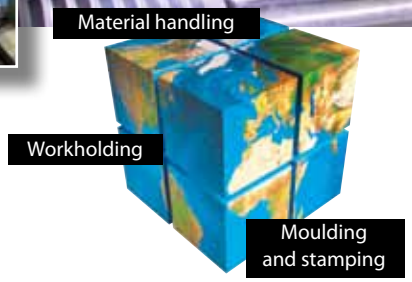

From QuadPress to PressTec
The evolution of a success

Tecnomagnete has not only revolutionized the world of magnetism for industrial applications with the invention of permanent-electro technology and later on with the QuadSystem patent, but it has been also the first company to start applying magnetic systems for quick clamping and change of molds in the plastics injection molding machines, in the late ‘80s.
Many thousands of installations of the Quad Press line have been put in operation all over the world by the most prestigious molding companies active in different fields.

Now the technological evolution of the new PressTec line, is to create another “attraction” in terms of convenience, safety and reliability, key aspects that always have distinguished the entire range of Tecnomagnete products including clamping systems for injection moulding, for metal stamping, machine tools and for ferrous loads handling.

With a wide spread presence all over the world, consisting of a network of subsidiaries, regional offices, technical sales and service centers and the active collaboration with the leading global OEMs, Tecnomagnete is proposed as a reliable partner committed to always offer the best services to all customers thus giving a strong edge over the competition.

We reserve the right to make changes connected with engineering progress.