

# PressTec

MONOLITHIC TECHNOLOGY

**GRIP**  
FUNCTION

- *Full metallic surface*
- *Monolithic construction*
- *37 mm thickness*
- *GRIP effect*

The innovative magnetic system  
for quick and uniform mold clamping

  
**TECNOMAGNETE®**  
Safety through power

WORLDWIDE  
PATENTS



## Next generation magnetic clamping

The permanent-electro PressTec system allows to work with greater ease, flexibility and maximum safety on all types of injection molding machines.

PressTec guarantees dramatic increases in productivity and efficiency in JIT and SMED processes.

### Highest quality

The GRIP effect generates an additional magnetic attraction to the machine bed without affecting the magnetic force to the side of the mold, giving full uniform clamping of the mold without bending and deformation during molding operations.

### Monolithic technology

Made from a block of steel, without any fixing elements

### Permanent-electro safety

The mold remains clamped even without power supply

### Bi-directional circuit

Concentrated force and no magnetic leaks

### Neutral frame

Ejector, injectors and proximity sensors are not influenced by the magnetic field

### Grip function

A single block consisting of machine bed+magnet+mold

### Thickness 37mm

Saves machine daylight

### Uniformity and quality of molded parts

Uniform clamping throughout the mold surface

### Quick and easy mold change

A single operator can safely complete the operation in a few minutes

### Tailor made solutions

Our know-how can meet any special need

### Advanced electronics

Operative safety to control the magnetic force



### Extended warranty

*Thanks to its highly reliable construction characteristics, the warranty on PressTec GRIP magnetic modules can be extended up to 5 years.*



## Monolithic technology

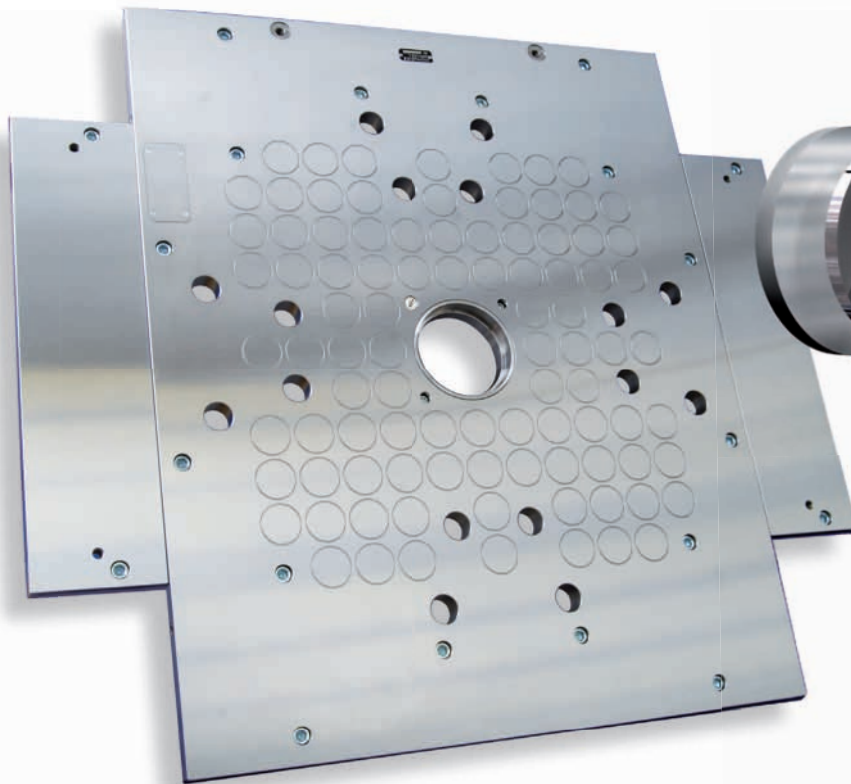
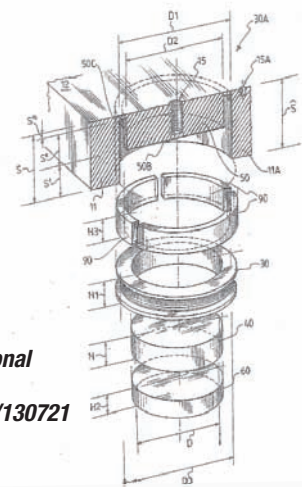


The MONOLITE patent has created a new generation of magnetic tools, without any part assembled, featuring exceptional durability and reliability.

The homogeneous metallic surface (100% steel), insensitive to thermal expansion and swelling, ensures a constant flatness of the surface in contact with the mold.

The magnetic poles are integral and active parts of the frame, creating a seamless, homogeneous, and impenetrable steel surface.

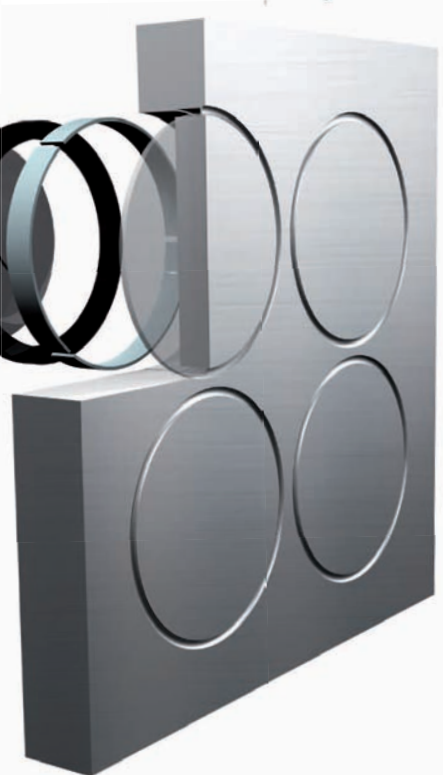
**International  
patent  
WO 2009/130721**



The total absence of parts in contact with the mold subject to wear such as resin, gaskets, or brass inserts makes the surface of PressTec a full proof mechanical shield, permanently protecting the electric circuit and the permanent magnets inside.

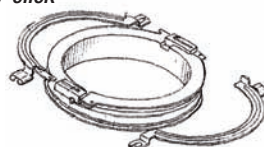
The "honeycomb" monolithic mechanical structure " provides rigidity and stability even under severe operating conditions, maintaining constant coefficients of mechanical resistance.

The absence of moving parts prevents wear and makes the system maintenance-free, for total reliability over time.



• Honeycomb structure – machine side

**The new "easy-click"  
solenoids**



## Safety is inherent to a permanent-electro system

A one-second electric pulse activates the system (**MAG** cycle).

The mold remains clamped indefinitely by the intrinsic and constant force generated by the high-energy permanent magnets, without any power supply.

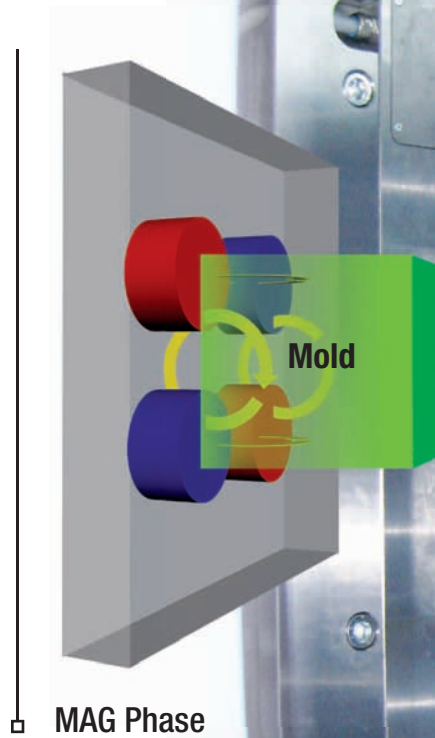
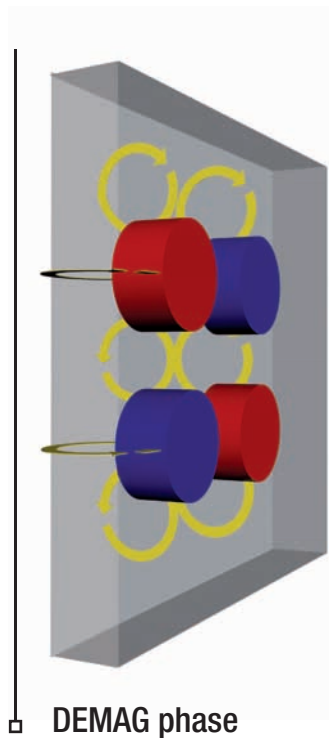
The system can be deactivated (**DEMAG** cycle) with an additional electric pulse.

### Our Technology

Developed and patented by Tecnomagnete, it includes the checkerboard arrangement of equal size magnetic poles.

The round pole, machined from solid material and part of the frame, is its latest evolution.

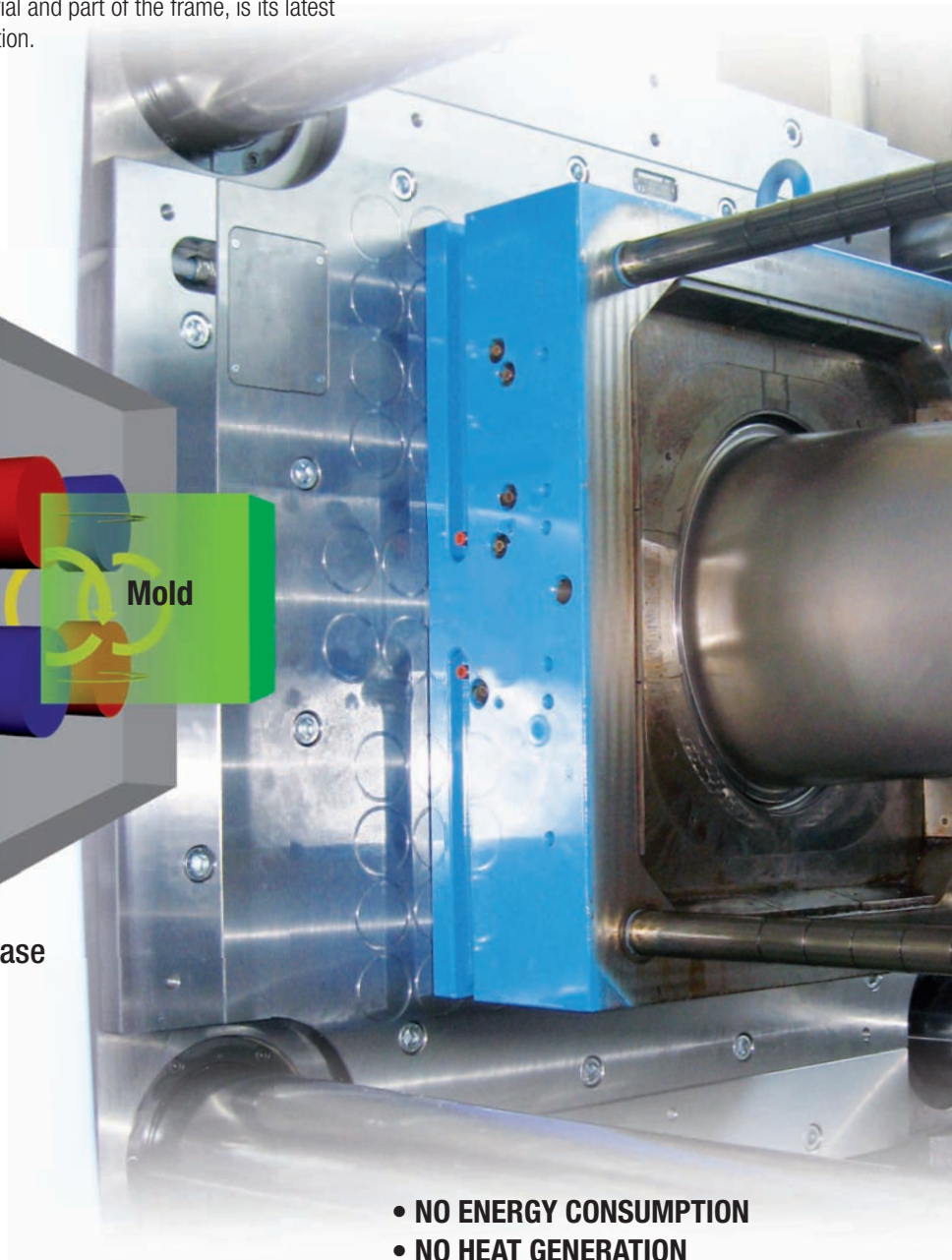
PressTec is capable of generating the maximum level of magnetic force ( $16 \text{ kg/cm}^2$ ) **only where it is needed: on the mold.**



Magnetic flux



Magnetic poles



- NO ENERGY CONSUMPTION
- NO HEAT GENERATION
- NO MAGNETIC LEAK



## The advantages of bidirectional circuit

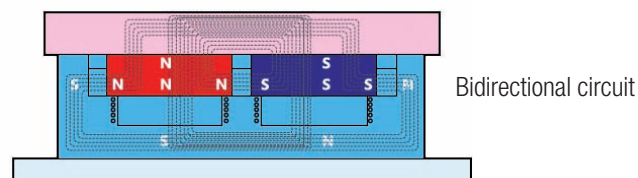
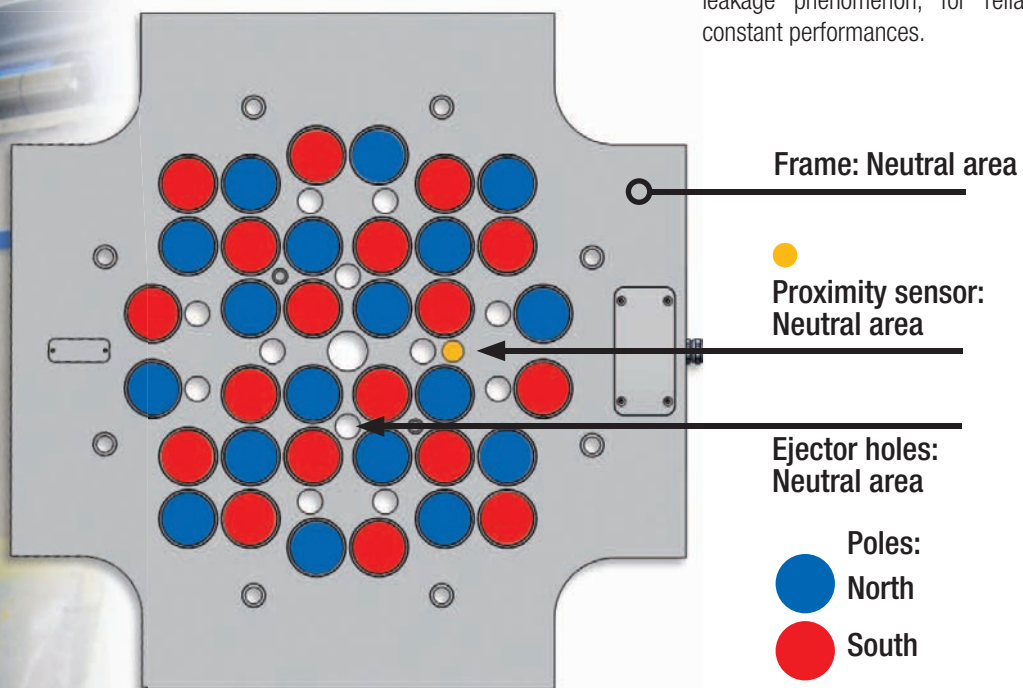
### Neutral crown bidirectional circuit

PressTec is a bidirectional type of system. The Bidirectional magnetic circuit, with all N/S poles activated by a double magnet system (Alnico + Neodymium), is able to generate the highest level of magnetic induction in the steel (20,000 Gauss equal to 16 daN/cm<sup>2</sup>), in addition to ensuring

a high magneto-motive force (MMF) coefficient to operate safely even in the presence of operating air gaps.

PressTec is a neutral crown system: the checkerboard arrangement of Quadsystem allows a flat and horizontal circuiting of the flux, totally concentrated in the polar area, i.e. on the mold to be clamped.

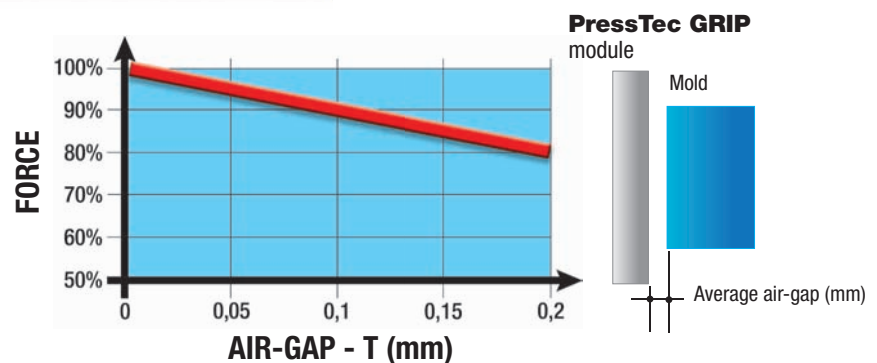
The same-size N/S poles ensure a perfect balancing of the circuit, avoiding any flux leakage phenomenon, for reliable and constant performances.



### Force/Air-gap curve

The force/air- gap curve shows the PressTec force related to the quality of contact between the mold and the magnetic surface changes.

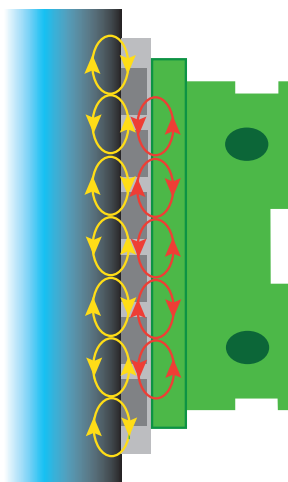
Thanks to the bidirectional circuit, performance is constant and predictable.



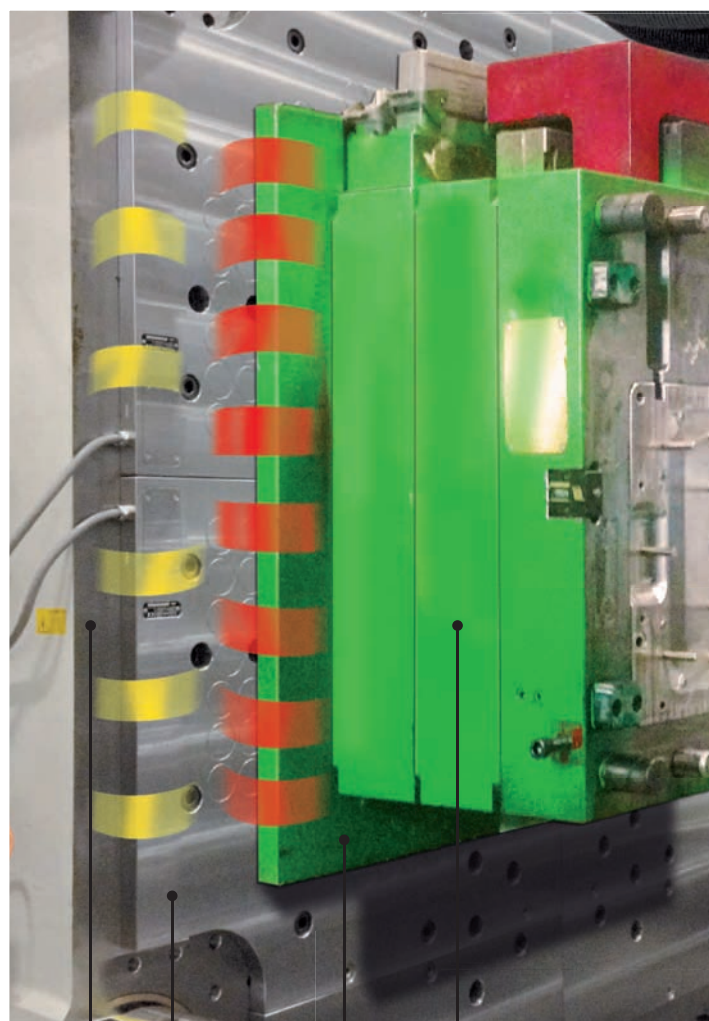
## GRIP effect: exclusive benefits

PressTec GRIP generates an auto-clamping magnetic flux to the machine bed, keeping the force holding the mold unchanged. GRIP makes the machine / magnetic module / mold as a single block, insensitive to vibration and flexing.

### The advantage of the GRIP function



GRIP is the only technology that allows to create modules with extremely low thickness and high structural rigidity.

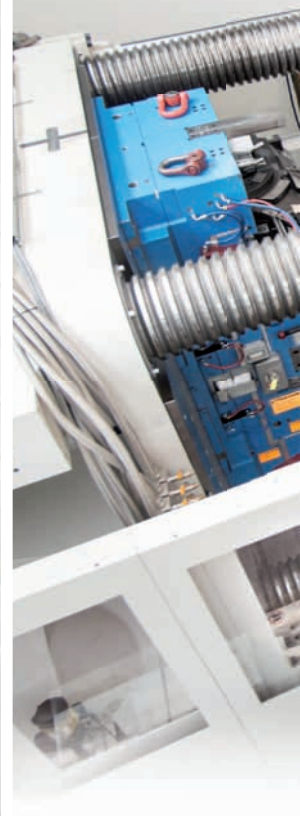


Machine  
platen

PressTec GRIP  
magnetic  
module

Mold  
base  
plate

Mold

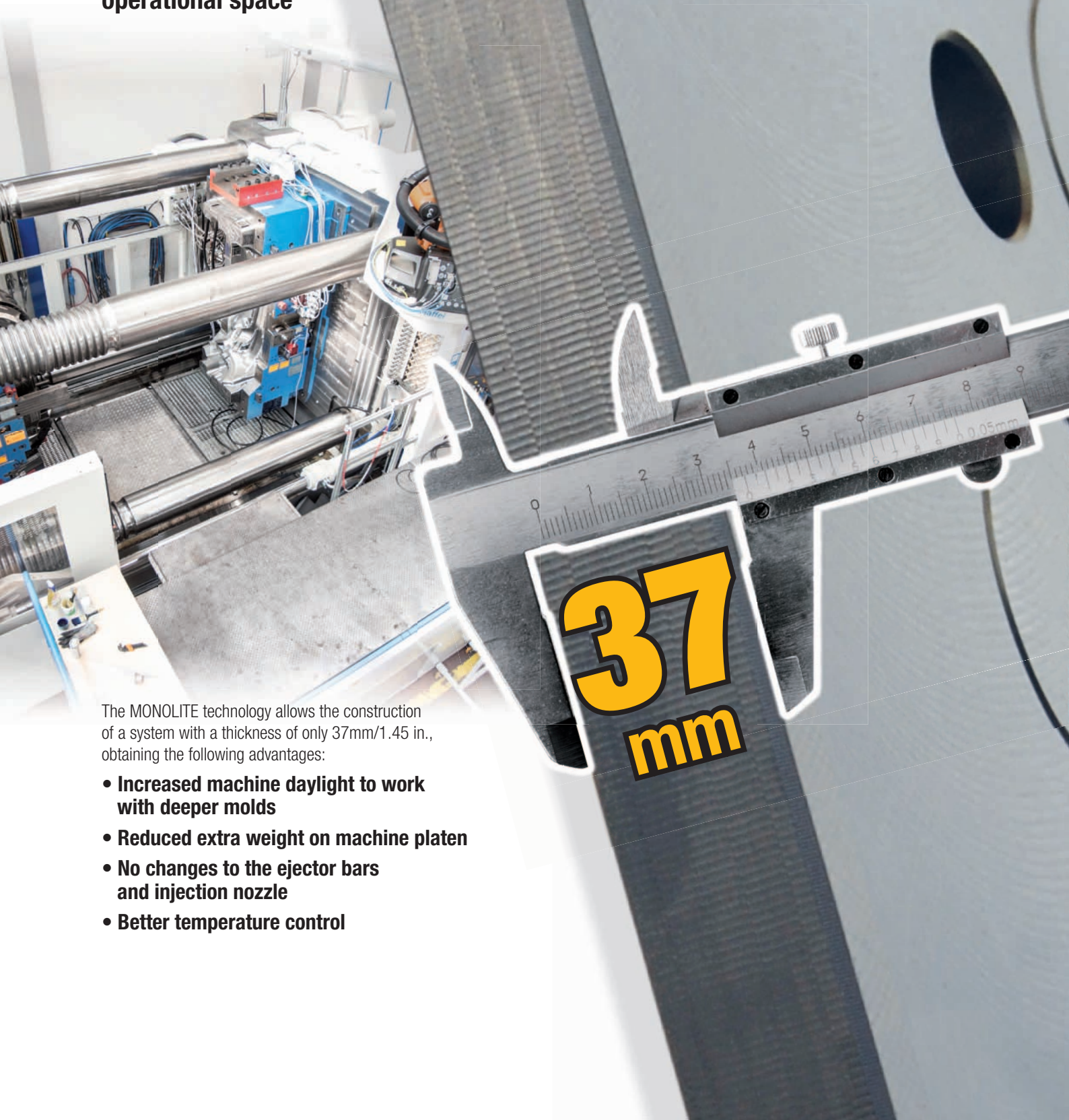




Thickness 37mm



**PressTec GRIP:  
minimum thickness  
for greater  
operational space**



**37  
mm**

The MONOLITE technology allows the construction of a system with a thickness of only 37mm/1.45 in., obtaining the following advantages:

- **Increased machine daylight to work with deeper molds**
- **Reduced extra weight on machine platen**
- **No changes to the ejector bars and injection nozzle**
- **Better temperature control**

PressTec GRIP ensures **uniform clamping of the mold**, which is firmly coupled throughout the contact surface.

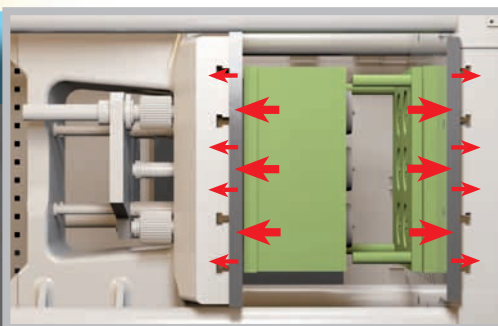
The two halves of the mold are perfectly aligned: friction is minimized, the closing and opening forces can be reduced thus preserving the molds and machine columns from wear and tear.

### Significant reduction of molds and machine maintenance costs.

The exclusive GRIP function emphasizes the concept of uniformity, also generating a perfect coupling between the magnet and the machine, to form a single body with the mold.

**High quality of molded parts**  
**Absolute uniformity**

With PressTec GRIP System



Fingerprint tests on film



With Traditional System



Fingerprint tests on film



### Consistent clamping of the mold is crucial to:

- obtain good quality parts from the first shot
- maintain the constant molding process
- Reduce cycle times

Traditional mechanical clamping systems fasten the mold only along its perimeter, leaving the central area free to flex, compromising the quality and efficiency of the shot.

The set-up times are longer.



Quick and easy mold change



## PressTec GRIP allows you to operate easily with great flexibility

### Speed and Flexibility

PressTec is suitable for molds of any shape / size and, unlike other quick-change technologies, does not require any mold modifications.

PressTec dramatically optimizes JIT (Just in Time) and SMED (Single Minute Exchange Die) procedures, reducing mold change times (by up to 90%) compared to a conventional way.

The downtime is predictable and reproducible in time.

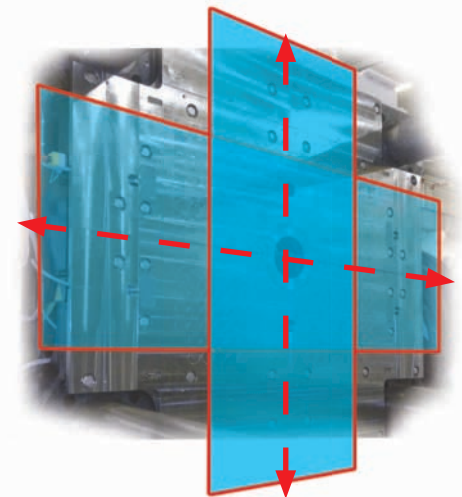
### Convenience and ergonomics

One operator, with no particular experience, can complete the mold change outside of the machine, in total safety, away from the mold in motion.

The mold change procedure is replicable over time with no risk of unexpected events.

### Affordability

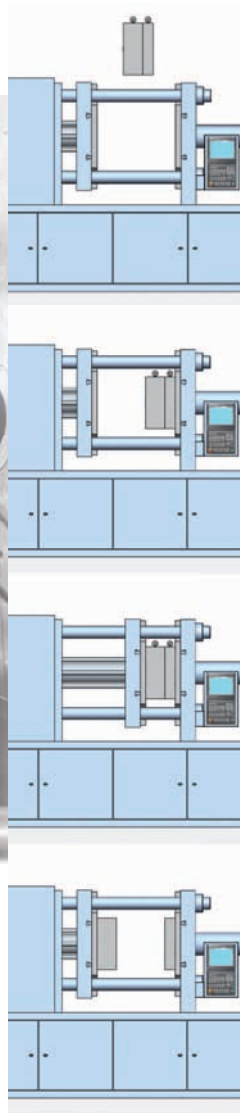
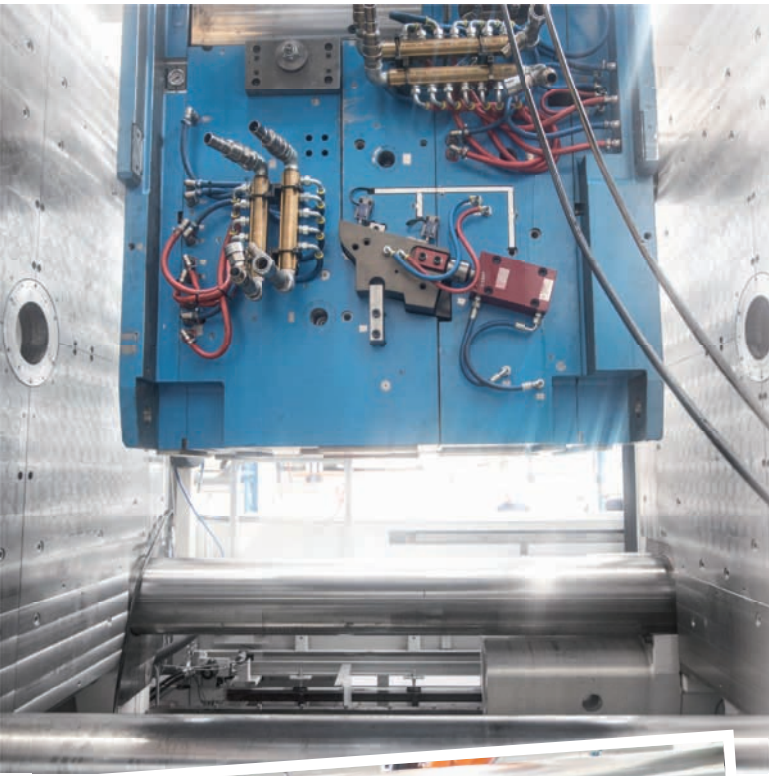
Working without clamps means avoiding management and maintenance costs for consumables, hardware, re-threading, dedicated tools, hydraulic systems, oil disposal.



### 360° Accessibility

Operating without clamps or traditional clamping systems means:

- Complete use of the machine platens surface and the possibility of working with mold sizes even larger than the press size.
- Total freedom and ease in positioning the mold.
- Easy access to all electrical, hydraulic and pneumatic devices.

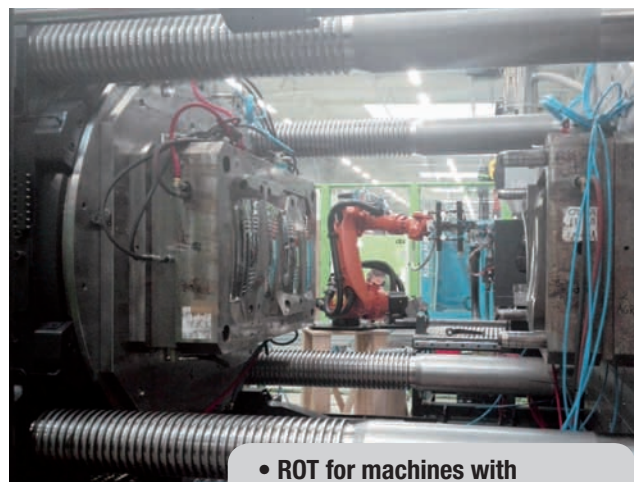
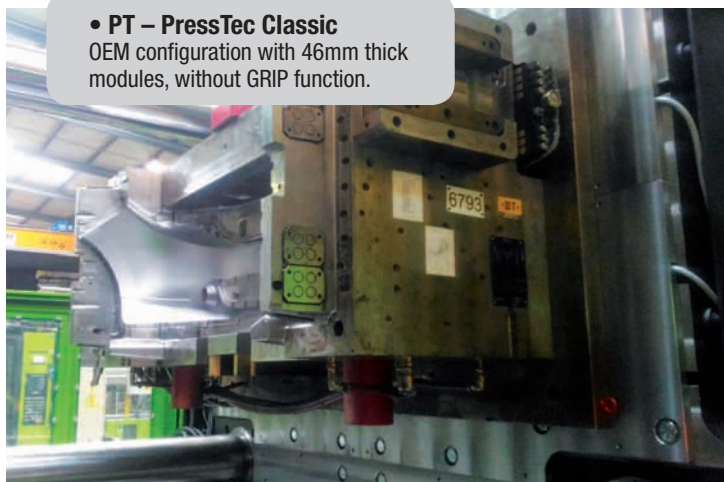


## Special configurations for any need

PressTec has solutions for all complex molding operations, in the presence of multi-cavity molds, bi-color rotating table, in-mold labeling or in-mold inserts.

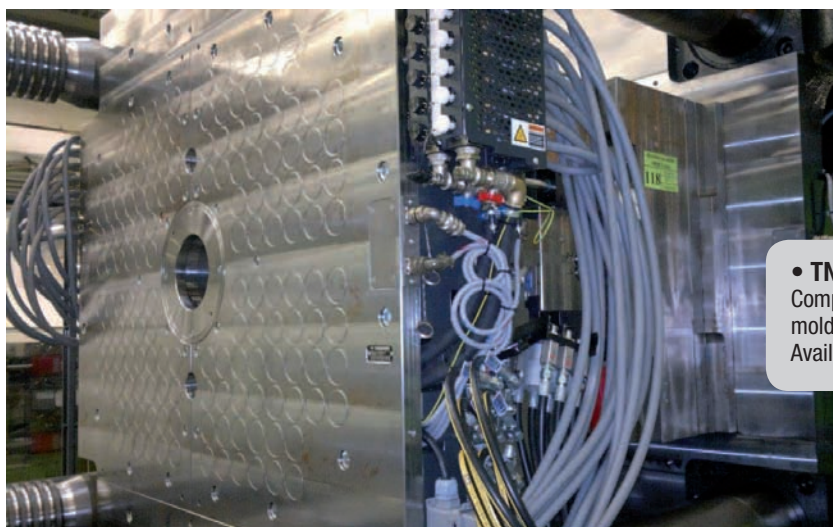
The following versions are available alongside PressTec GRIP (PTG):

- **PT – PressTec Classic**  
OEM configuration with 46mm thick modules, without GRIP function.



- **ROT for machines with rotary table**

Designed for multi-injection presses, it is made in PT configuration with 46mm (1.81") thick fixed platen and 51mm (2") thick moving platen with quick connector.



- **TND for tandem machines**

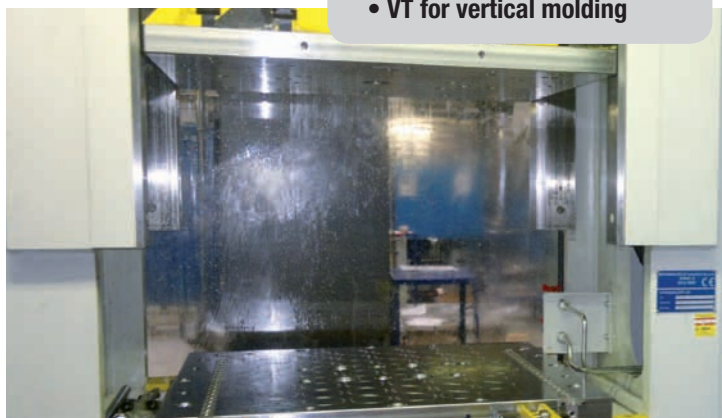
Composed of 4 magnetic modules for multiple molding.  
Available in PTG or standard PT configuration.

- **VMA with mold alignment system**

Provides a vertical slot for mechanical mold alignment; on request, also available with integrated reference pins.



- **VT for vertical molding**





# PressTec **INSIDE**

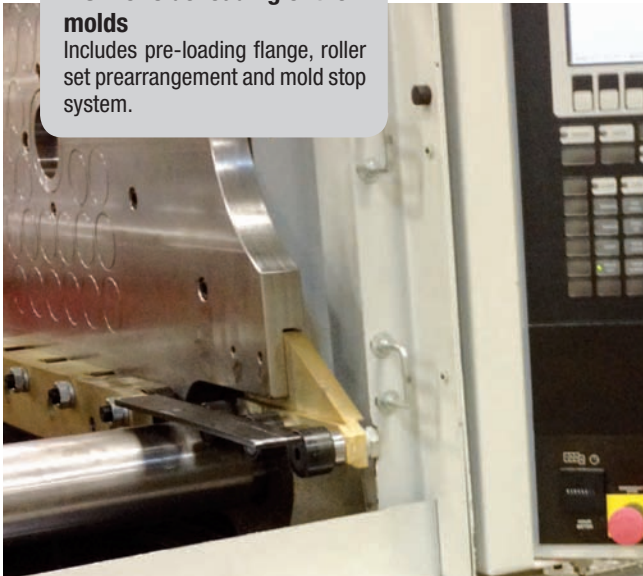
MONOLITHIC TECHNOLOGY

## • PTI – PressTec INSIDE

This innovative solution consists of special shaped modules, to be integrated directly into the machine platens during the construction phase , with unique advantages:

### • SL for side loading of the molds

Includes pre-loading flange, roller set prearrangement and mold stop system.



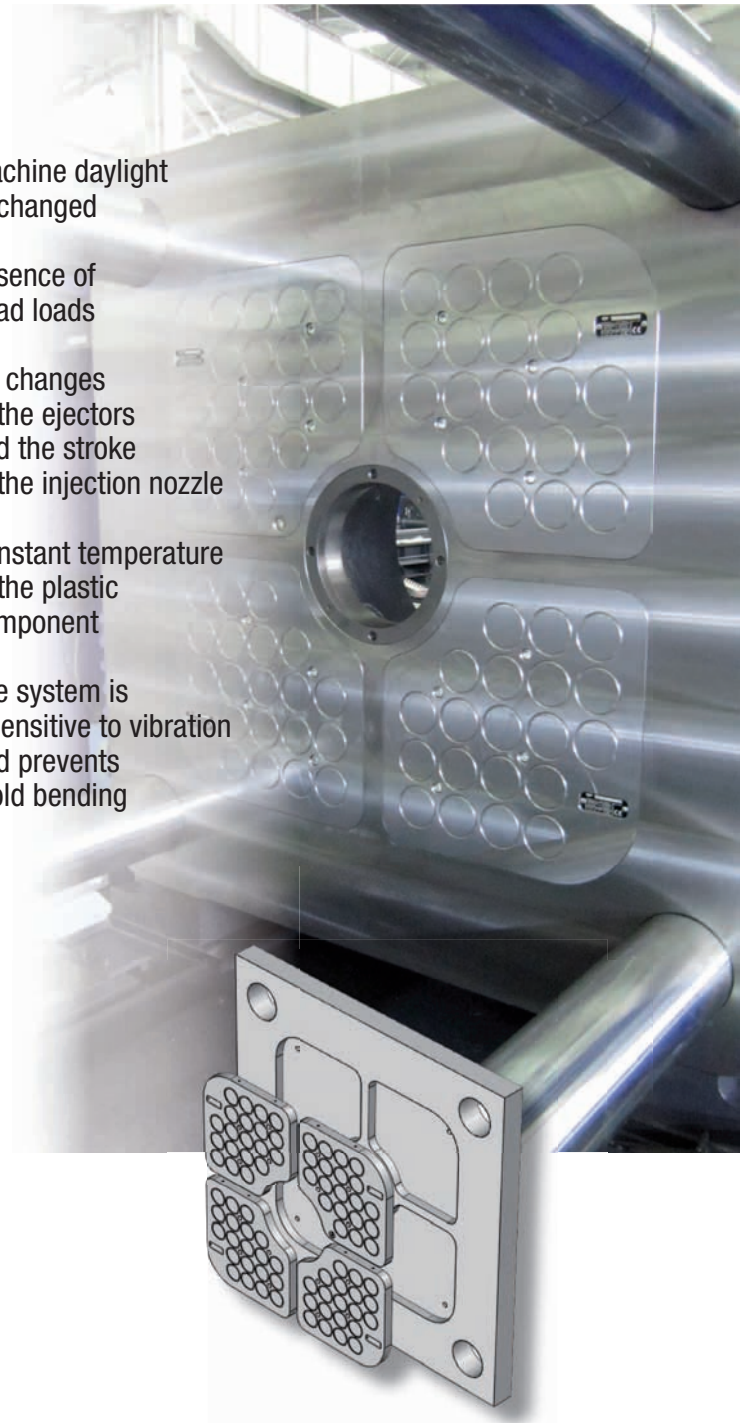
### • Machine daylight unchanged

### • Absence of dead loads

### • No changes to the ejectors and the stroke of the injection nozzle

### • Constant temperature of the plastic component

### • The system is insensitive to vibration and prevents mold bending



### • QP/HT for high temperature

Made with special quadrangular poles, isolated by a stainless steel grid. Constant performance up to temperatures of 180 °C (356 °F) in contact with the mold.



## Advanced electronics and safety at your fingertips

Experience and innovation come together in a reliable and safe electronic control unit compliant with Euromap / SPI / JIS regulations and the EMC (Electro Magnetic Compatibility Directive). The keypad has a rational layout of the controls for easy use. It allows to perform magnetization and demagnetization functions and provides an immediate system status display. Operating safety is ensured by a set of devices integrated in the control unit and in the magnetic module, which monitor the correct mold changing sequence and proper system operation.

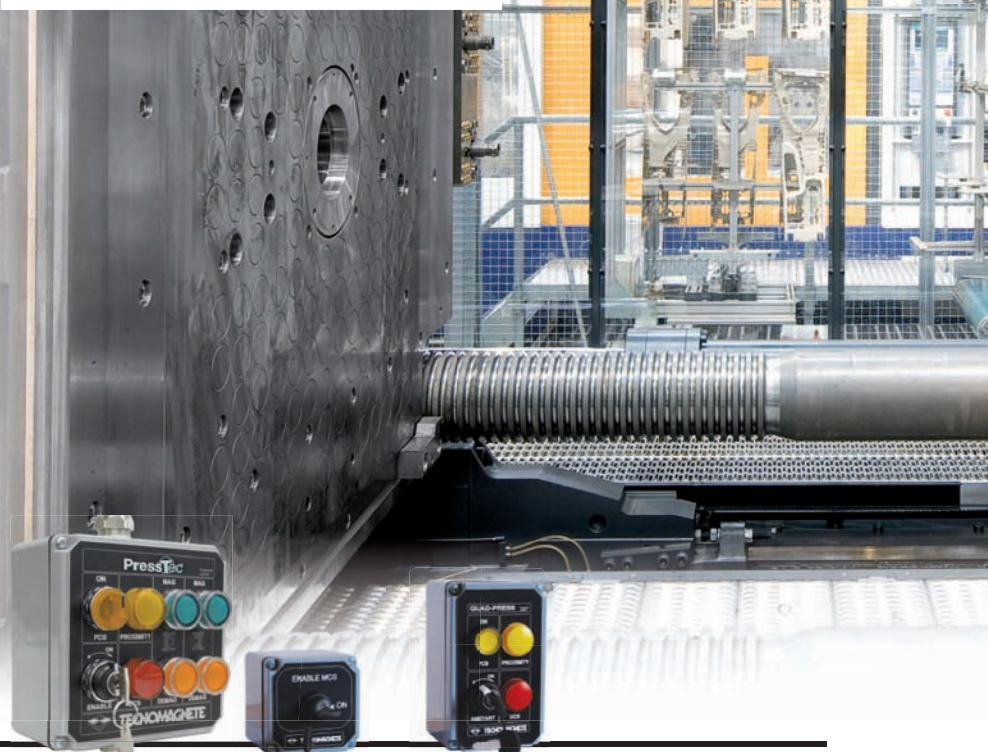


**PROXIMITY:** mold presence sensors inhibit magnetization in the absence of the mold and generate an alarm signal in case of unexpected movement during the work cycle.

**UCS:** electronic circuit that checks whether the electric current circulation in the module is sufficient for the proper magnetization of the system.

**FCS:** magnetic flux control system. It checks the magnetic permeability of the mold and the reaching of optimal saturation thresholds.

**SAFETY KEY:** removable key that enables the operator to perform the MCS (mold change mode) procedure and the Mag and Demag cycles.



### Machine interfacing options for easy installation on any type of press

**STANDARD:** Version for existing machines without EUROMAP interface, with independent keypad and additional key to simulate the MCS (Mold Change Mode) procedure.

#### EUROMAP 70.0 :

Version for EUROMAP-ready machines. Independent keypad and interface to the machine via Harting connector for all functions.

**EUROMAP 70.1:** Version for EUROMAP-ready machines for a total integration with the machine PLC. Auxiliary push-button panel and machine interfacing via Harting connector for all functions. On request: JAPANMAP 70.0 and 70.1 versions.

#### EUROMAP 72:

The system is available with CAN-OPEN interface or –on request- with CANBUS - RS485 communication protocol.



## Magnetic force under control

Thanks to the unique characteristics of the Tecnomagnete bidirectional circuit, the IPC interactive system is able to automatically detect the actual clamping force as a function of the size of the mold, the quality of its contact with the magnetic plate and the mold base plate material.



### Advanced features

- Different access profiles: Machine Operator / Supervisor / Maintenance
- History of all operations carried out by operator.
- Data are exportable in .csv format to a USB port.
- Magnetic surface temperature control .
- Graphic display of run times / mold use / operator activities.
- Step-by-step help pages with detailed explanation of each operation.
- Multilingual interface
- Upgradeable via USB or Ethernet port.
- On request, available with remote support module.

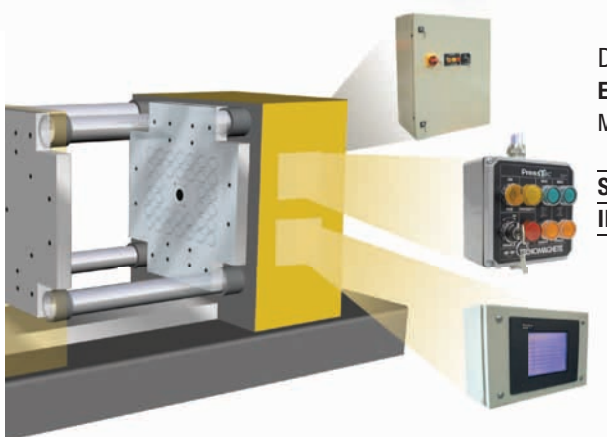
### Automatic detection

The operator does not have to enter any data relating to the mold, avoiding typing or evaluation errors.

### Safe guidance

The new 7" capacitive touchscreen guides the operator step-by-step through the mold change procedure. In case of positioning errors, insufficient magnetic force levels or other malfunction, an alarm is generated and machine operation is inhibited.

IPC allows you to check and store the force level developed on a specific mold and use it as a reference for subsequent operations.



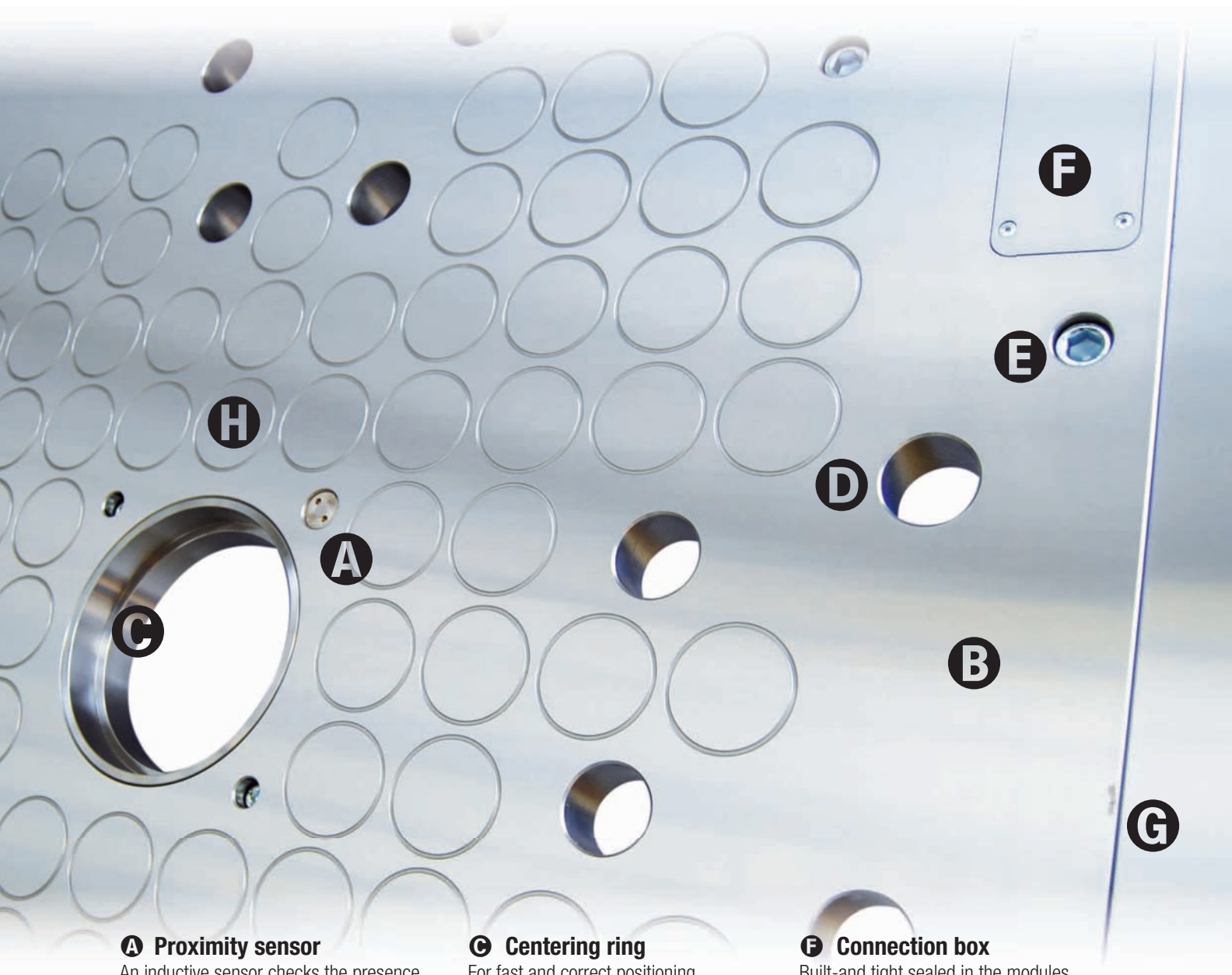
#### Dimensions

L H P

#### Electrical cabinet version ST400

Machine Tons: up to 1600 t	mm/in.	600/23.6	600/23.6	210/8.2
over 1600 t	mm/in.	1200/47.2	600/23.6	300/11.8
<b>Standard keypad</b>	mm/in.	140/5.5	140/5.5	80/3.1
<b>IPC - touchscreen</b>	mm/in.	202/7.9	148/5.8	46/1.8

## A state-of-the-art concept



### **A Proximity sensor**

An inductive sensor checks the presence of the mold for the activation of the magnetization cycle (MAG). The 0,2 mm reading range allows to stop the machine operation immediately in case of mold detachment.

### **B Neutral frame**

The magnetic field does not affect ejectors, injectors or proximity sensors.

### **C Centering ring**

For fast and correct positioning of the mold.

### **D Ejector holes**

The magnetic module on the moving side is provided with ejector holes based on EUROMAP / SPI / JIS standards

### **E Installation holes**

According to EUROMAP / SPI / JIS standards (on request)

### **F Connection box**

Built-and tight sealed in the modules steel frame

### **G Filler plates**

Rectangular steel spacers to widen the mold support area

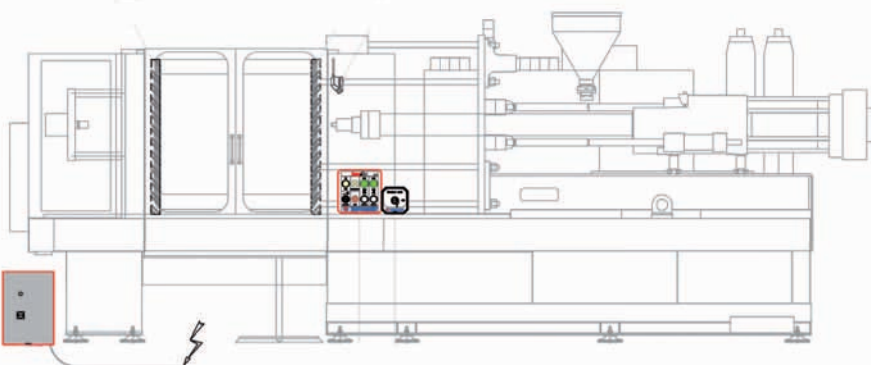
### **H FCS sensor**

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





PressTec is easily installable on machines of all types and sizes, as it is designed according to the guidelines of EUROMAP / SPI / JIS international standards



## PTG - Technical characteristics

Magnetic force on the polar area	up to 16 kg / cm <sup>2</sup>
Magnetic force on the mold contact area	up to 90 Ton / m <sup>2</sup>
Module thickness	37 mm / 1.45 in.
Max working Temp in contact	120 °C / 248 °F
Magnetic flux depth	20 mm / 0.78 in.
Proximity sensors activation range	0.2 mm / 0.0078 in.
Standard voltages	200 - 480VAC, 50/60 Hz
Fastening and ejector holes	EUROMAP / SPI / JIS standard to be specified
Center ring, fixed side	Standard supply
Center ring, mobile side	On request
Control unit ST 400	Standard supply
Standard keypad	Standard supply
IPC system	On request
Proximity sensors on each side	Standard supply
UCS system	Standard supply
FCS System	Standard supply

### PressTEC is also available in special configurations, without GRIP function:

- **PT** Classic - 46mm (1.81 in.) thick modules
- **QP/HT** - for temperatures up to 180 °C (356 °F) in contact with mold. Thickness 54mm (2.12 in.)
- **VS** - Prearranged for mold side loading. Thickness 46mm (1.81 in.)
- **ROT** - for multi-injection machine with rotary table. Thickness 51mm (2.00 in.)

## Standard supply

Permanent-electro solid steel magnetic modules for the stationary and moving side

- Centering ring on stationary module.
- Set of mounting and ejector holes according to EUROMAP / SPI / JIS standards
- Electronic power control with mono-phase feeding in IP54 cabinet, complete with machine interface, UCS, safety system and FCS magnetic flux control system.
- Control keypad complete with indicator lights and interlock key.
- Control unit and PressTec module connection cables; for interface and power supply cables.
- Proximity sensors to detect mold presence, installed on board the modules (1 on each side)
- Parking plate for handling and installation.
- Fixing bolts and nuts.
- Instruction book in the desired language (CD-Rom) and TUV/CE certificate

## On request:

### IPC

Interactive power control system with touch screen monitor

### PRX

Additional proximity sensor

### THB

Temperature sensor embedded in the stationary side module; complete with UTC temperature measurement system

### FP

Enlarged version for full coverage of machine platens

### MPC

Center ring on movable side module

### SL

Prearranged for mold side-loading system

### VMA

Vertical slot for mold alignment

### CT

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

### VS

Vertical stand for ST400 control unit



**TECNOMAGNETE®**

all the magnetism of the leader

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**Subsidiaries:**

**China**

TECNOMAGNETE R.O.

**France**

TECNOMAGNETE S.A.R.L.

**Germany**

TECNOMAGNETE GmbH

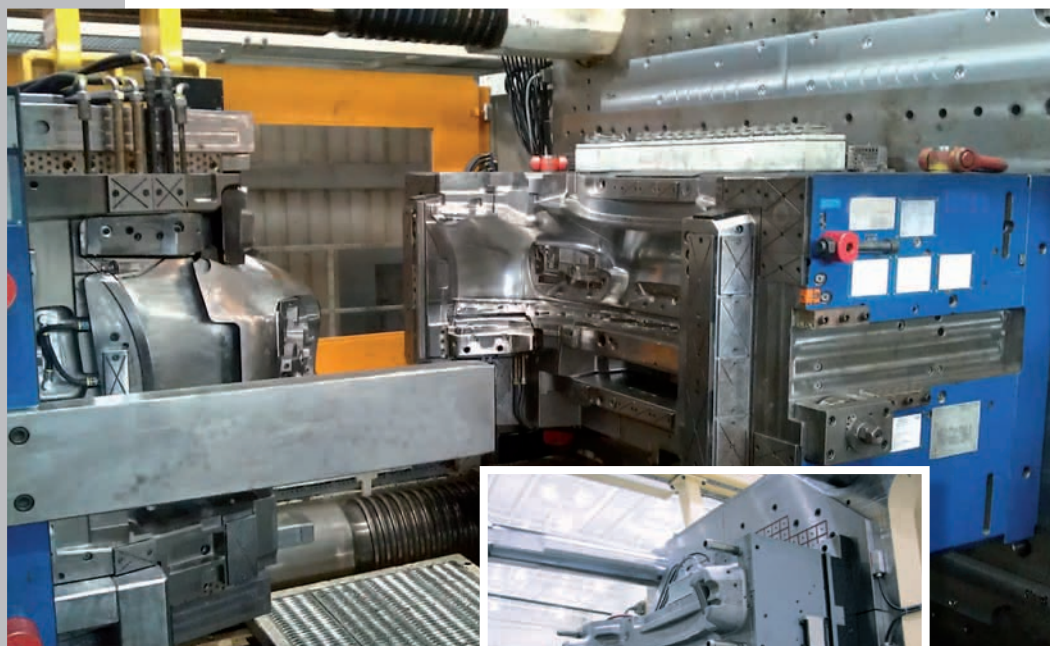
**Japan**

TECNOMAGNETE Ltd.

**USA**

TECNOMAGNETE Inc.

**Distributor:**



INJECTION MOLDING



HEAVY LIFTING



LIGHT LIFTING



METAL STAMPING



TURNING



MILLING

## From QuadPress to PressTec Continuous innovation

Tecnomagnete revolutionized the world of clamping with the invention of the electro-permanent circuit and Quadsystem technology through the 70's and 80's.

In the early 90s, it was the world's first company to offer this technology to clamp molds in of plastic injection molding industry. Thanks to the know-how gained and the collaboration with leading manufacturers of plastic injection machines, we are now the only company in the industry to boast tens of thousands installations at the most important world manufacturers of components for the automotive, electronics, packaging, medical, household supplies and other sectors.

The next generation of this technology, a result of our great experience, is another step forward in terms of efficiency, safety and reliability, key aspects that have always distinguished our entire product range: clamping systems for injection molding, metal stamping, machine tools and for the handling of ferrous loads.

Our widespread presence around the world through subsidiaries, technical and commercial centers and distributors, as well as our active cooperation with leading global OEMS make Tecnomagnete a reliable partner with long experience, able to provide advice on specific needs or technical support.