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HILMA ▪ STARK

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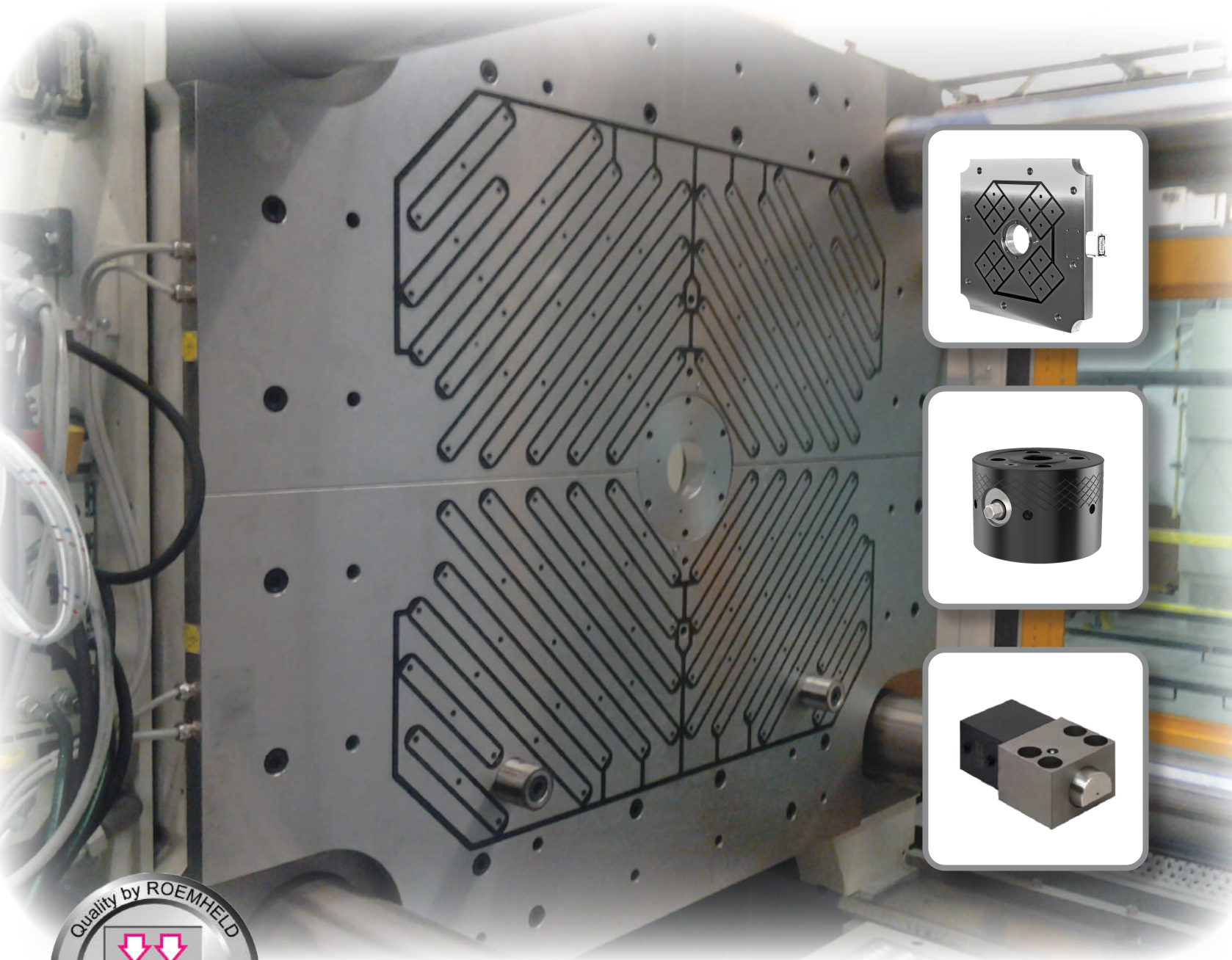

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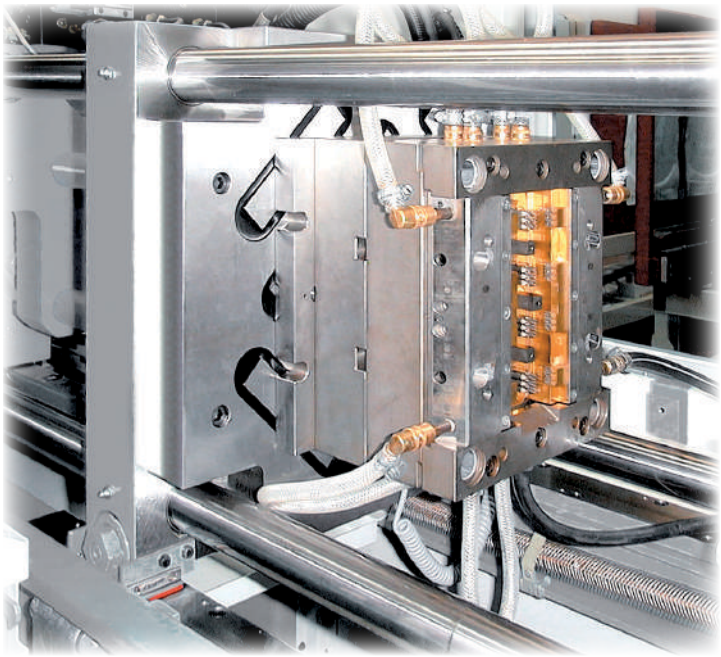
Products for the Plastic Industry

Products for productivity



WHAT IS QUICK MOLD CHANGE?

A quick mold change means that the material for the next part is in place, automation is set-up and the mold is located and clamped in position. With Quick-Mold change system, the mold is clamped in the same place, the same way, every time. Because of this, mold changes are accomplished in the shortest time possible.

Why use Hilma Quick Mold Systems?

Smaller lot sizes demand frequent tool changes. Hilma Quick Mold Clamping Systems have distinct advantages that separate if from competition. Hilma systems are the industry leaders in holding force, safety and reliability. The entire handling and logic of the system is very flexible and user friendly. The Hilma products are manufactured by RIVI Magnetics in Italy, which has over 30 year of success in Quick Mold Clamping Systems.

How to Speed Up Your Plastic Injection Molding

To stay competitive, molders must reduce costs with, smaller lot sizes, less inventory and shorter productions runs, which demands more mold changes. More mold changes mean more downtime. Downtime can be minimized with an effective quick mold change program. The user can expect :

- Improved Lead Times, due to quick change overs.
- More Competitive, through just-in-time deliveriers.
- Reduced Inventories, possible with shorter production runs.
- Increased Machine Capacity, by slashing down times.
- Improved Quality of parts, due to uniform and repeatable clamping forces.
- Reduced Labor Costs, mold changes can be done in minutes vs hours
- Improved Safety, integrated controls ensure that the mold is clamped properly

How can Hilma Systems help you?

Roemheld can help minimize that downtime with variety of solutions to implement a quick mold change program in your plant.

This includes M-TECS magnetic clamping by Roemheld-Rivi or Hilma hydraulic clamp systems. With either solution, the latest magnetic or hydraulic technology will be customized to your press to provide quick, safe and reliable system optimized for your application. Roemheld can offer the complete quick mold change solution, which may include clamping systems, mold roller bars, and mold carts.

With mold change times slashed, a quick return on investment will convince plastic molding manufacturers that Roemheld offers the solutions for today's market demand.

HOW TO GET STARTED WITH QUICK MOLD CHANGE

Step 1
Create a Quick Mold Change Team

Select a team and appoint a team leader
- Upper Management
- Injection Molding Operator
- Manufacturing Engineer
- Set-Up Personnel
- Tooling Engineer
- Maintenance Supervisor
- Production Supervisor
- Accountant

Step 2
Select and Analyze a Quick Mold Change Machine and Its Molds

Each QMC application is different. There is no single method that is best for all applications. The most appropriate method to be used for each machine is determined by carefully examining all production requirements and related data. The following is some of the information that needs to be reviewed before selecting a QMC machine:

- What are the present and long range production requirements?
- What is the goal for mold change time?
- How is the plant layout?
- Which machines are involved?
- How many molds are used in the machine?
- Minimum and maximum sizes and weights of molds.
- Present clamping method; the quantity and size of the bolts used.
- Clamping points: locations, shape, clamping heights, depth of ledge.

Step 3
Analyze the Present Mold Change Process

First, carefully review your present method of mold changeover. You must know where you are now to decide what steps are needed to achieve your goals.

- Analyze every step and the sequence required to make a mold change.
- Break down each step in the mold process to help determine how it can be reduced or eliminated.
- How much time is required for each step? To get accurate times, casually observe a set-up team on several occasions. Obviously an authority figure standing near the machine with a watch or a video camera will produce figures less than the actual times occuring day to day.
- Who is involved in the mold change process?
- What is required? What tools? What materials?

Step 4
Research and Implement the New Mold Change Process and Standards

After the present mold change process has been analyzed, look for ways to improve the process. The objective is to minimize the steps required and not to duplicate your work. Develop ways that will make changing a molds easier and faster.

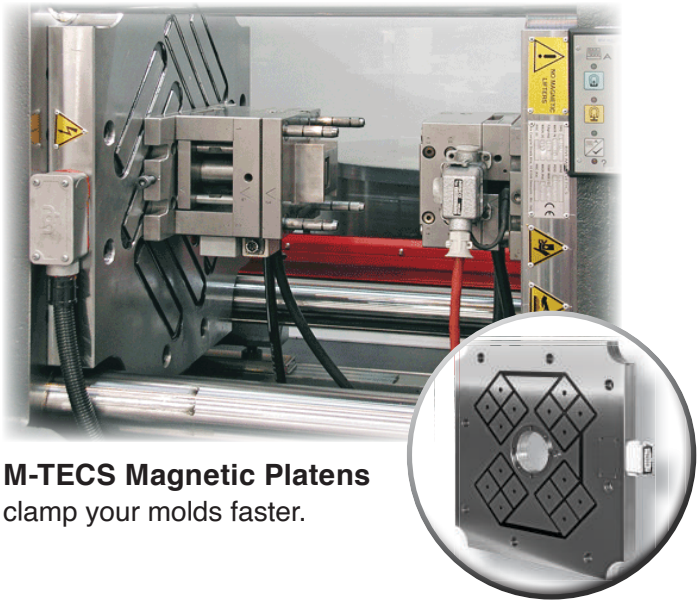
Start with things that are simple and low cost:
- Have new mold(s) prepared and staged in advance near the machines.
- Will mold change be overhead or side loaded? .
- If hydraulic clamping is used, the clamps are fixed mounted, so molds must have common clamp points, usually accomplished with standarzied back plates.
- If magnetic clamping platens are used, standarization is not needed. But the press must be able to accomadate the added thickness of the two platens.

Standardization must be evaluated to achieve your Quick Mold Change goals. The variety and sizes of molds that have been accumulating in plants everywhere make changeovers time consuming and tedious, since standardization was not a consideration when the molds were designed and built.

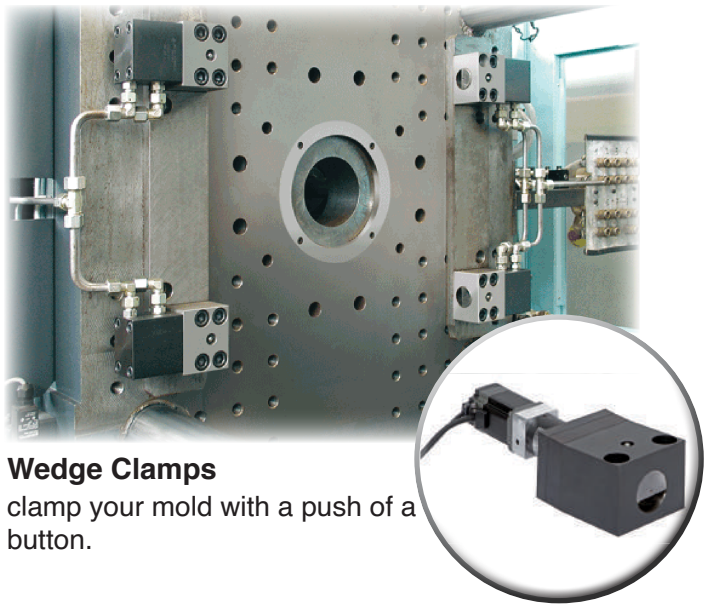
Step 5
Evaluate the New Process

Step 6
Follow-Up and Repeat the Process

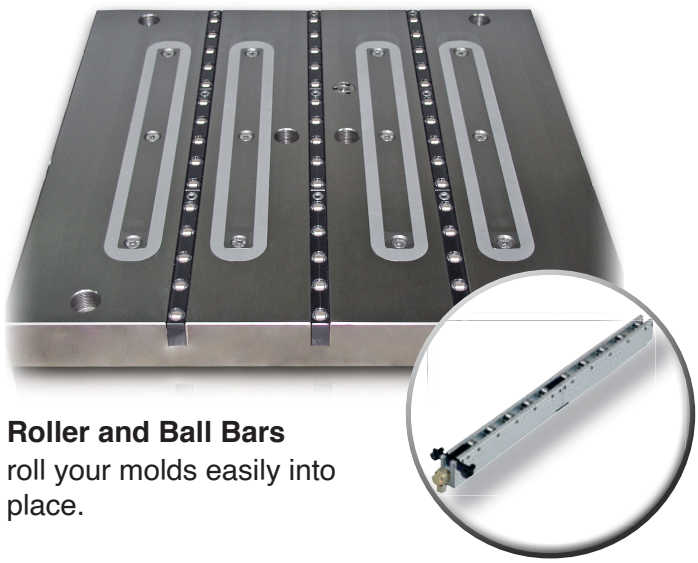
ROEMHELD SOLUTIONS



M-TECS Magnetic Platens
clamp your molds faster.

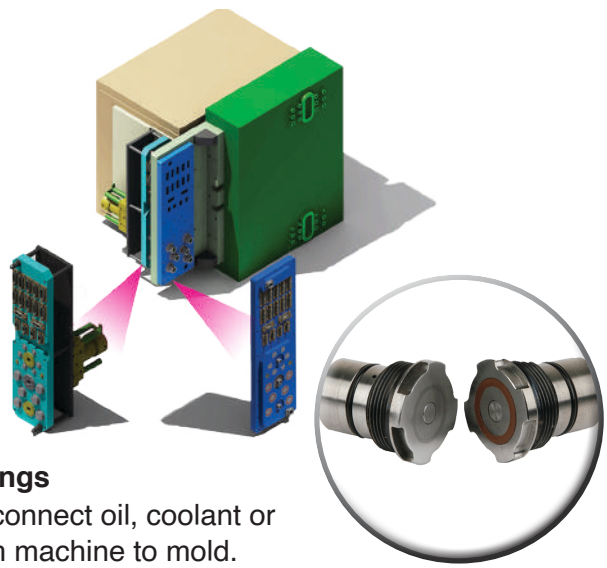


Wedge Clamps
clamp your mold with a push of a button.

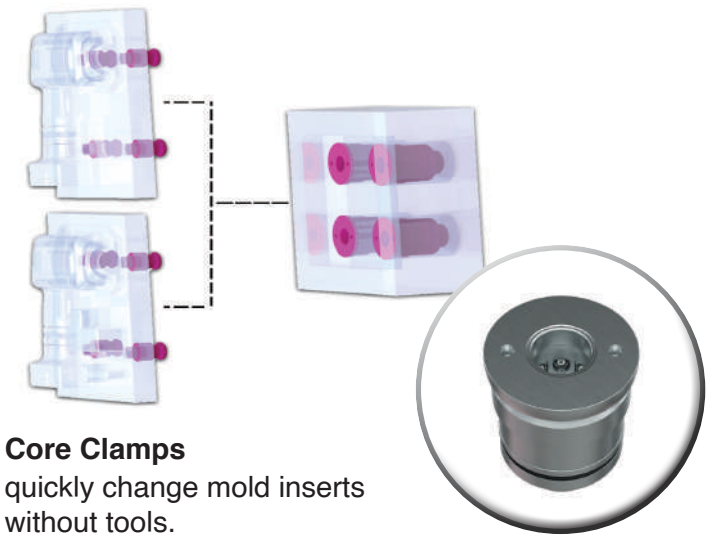


Roller and Ball Bars
roll your molds easily into place.

Mold Cart
transport molds easily without waiting for the forklift.

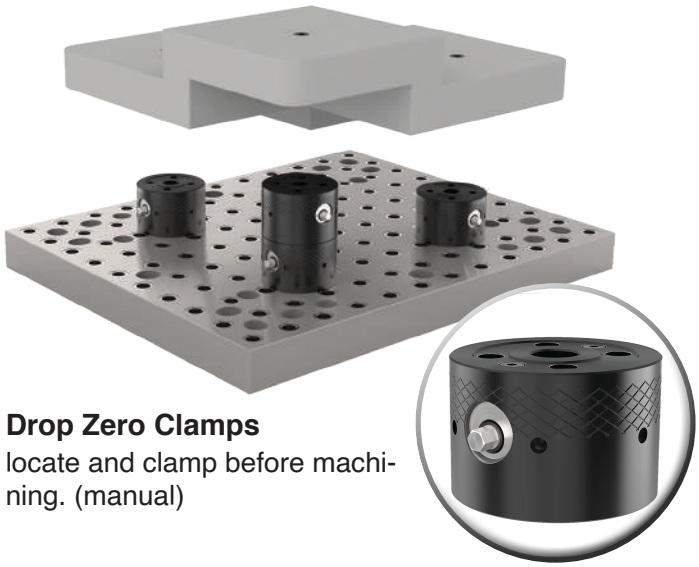


Couplings
easily connect oil, coolant or air from machine to mold.



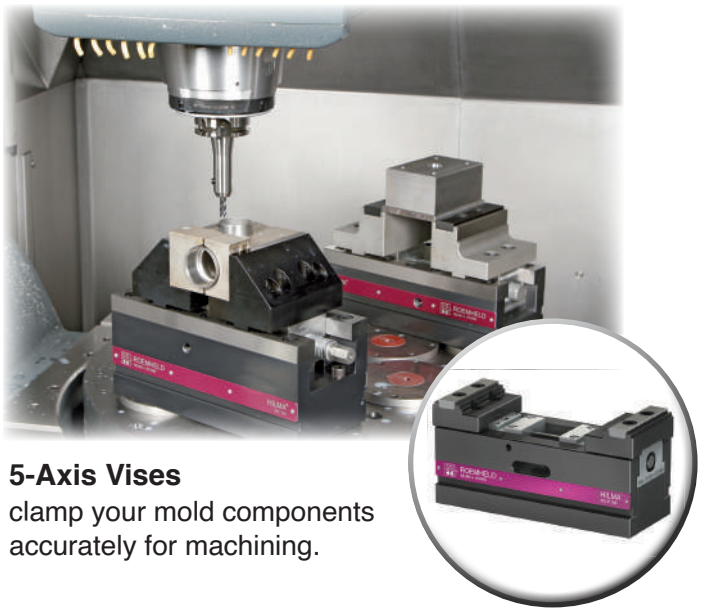
Core Clamps
quickly change mold inserts without tools.

ROEMHELD SOLUTIONS

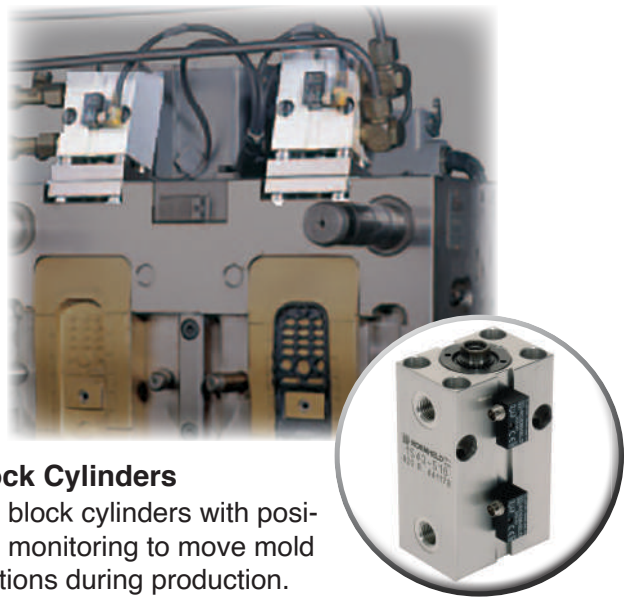


Drop Zero Clamps
locate and clamp before machining. (manual)

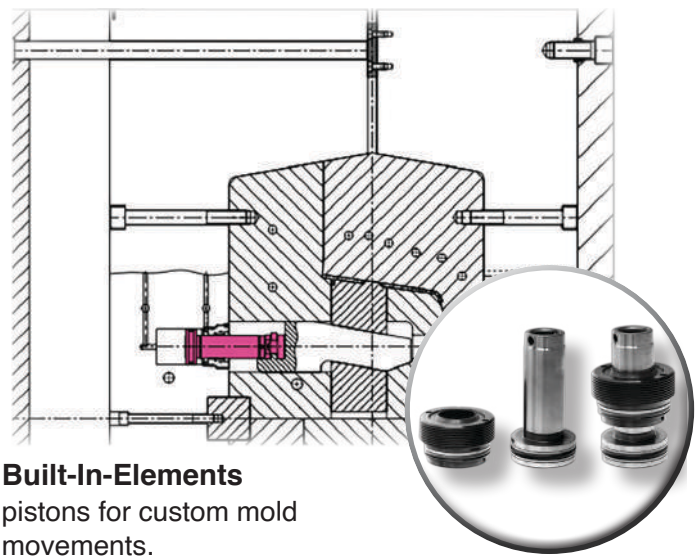
STARK Pallet Clamp
locate and clamp your mold for machining. (hydrailic or pneumatic)



5-Axis Vises
clamp your mold components accurately for machining.



Block Cylinders
use block cylinders with position monitoring to move mold sections during production.



Built-In-Elements
pistons for custom mold movements.

Lifting Modules
locate your mold parts ergonomically for assembling.

WHY USE MAGNETICS?

M-TECS Permanent magnetic clamping system securely holds your mold in place even in the case of power failure.

Why use Hilma Magnetic Systems?

M-TECS systems are the industry leaders in holding force, safety and reliability. Permanent magnets in the M-TECS system generate the required magnetic clamping force independentof any power source, which holds your mold in place, even the case of a power failure. Electrical power is only required for 1-2 seconds to initially magnetize or demagnetize the mold.

The M-TECS integrated electronic controls constantly monitor the platen's magnetic force and its temperature to protect the clamping system.This status of the magnetic system is indicated on the control pendant, the LED diagnostic panel and interfaced with the machine controls.

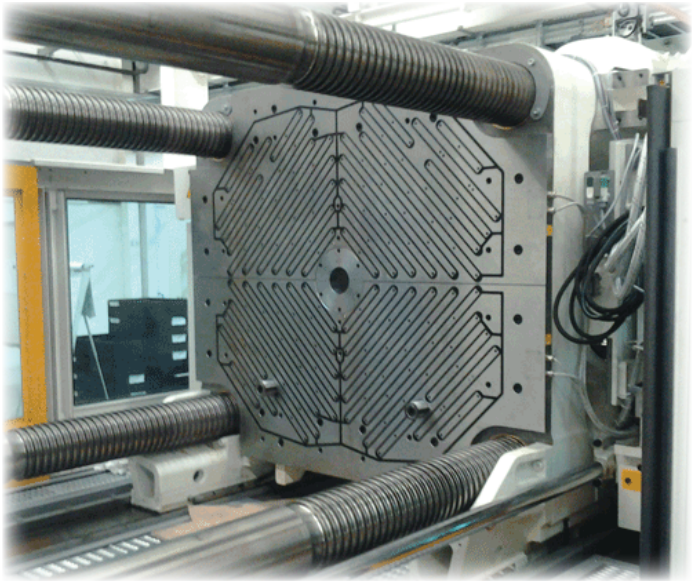
A fault will signal the press, protecting the operator and the equipment.

M-TECS Safety Features

- Mag/Demag Current Monitor
- Detaching Sensor Circuit
- Platen Mounted Limit Switch
- Thermal Protection
- Software Scan Circuit
- Over Cycle Circuit Protection
- QMC Selector Switch
- Clamp/Unclamp Safety Process

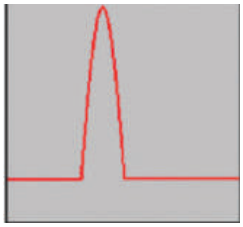
Mag/Demag Current Monitor -

This circuit monitors the current to magnetize and demagnetize. If the current is not within speci cation, the displays will signal a fault.



Detaching Sensor Circuit

This circuit detects small movement of the mold by monitoring the coils of the magnetic platen. Mold movement will cause a voltage spike in the detaching circuit, sending a signal to the press controls.



Platen Mounted Limit Switch

This switch is designed to detect the presence of a mold in the injection molding machine. When the mold is in position, the limit switch will be depressed and allow the mold to be clamped. When clamped, the M-TECS controller provides a permissive signal to the machine for press operation.

On M-TECS 120 systems, limit switches are standard features. Both fixed and moveable magnetic platens will have a limit switch located near the center of each platen. The location of the switch de nes the minimum mold size.

On M-TECS 230 systems, limit switches may be included. Dual redundant limit switches and radiused buttons are also available per the demands of the application.

Thermal Protection

The platen is protected with a thermal sensor. Without this safety feature, the magnetic clamping force can be reduced and the internal coils and magnets can be permanently damaged if the temperature increases above a safe level. This sensor monitors the temperature of the magnetic platens, and is designed to stop all operation when the temperature is exceeded. It is automatically reset.

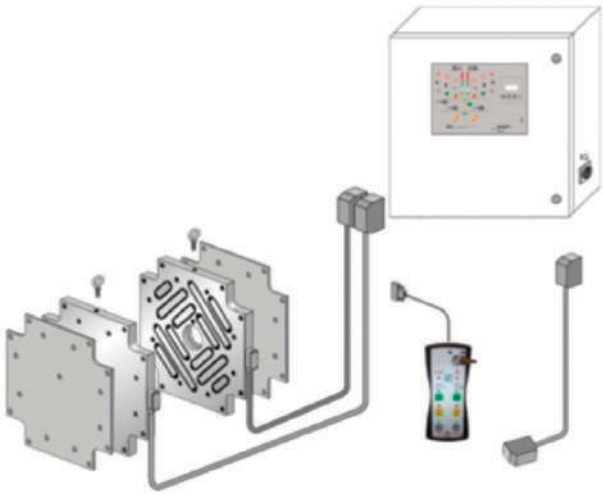
Software Scan Circut

The platen is protected with a thermal sensor. Without this safety feature, the magnetic clamping force can be reduced and the internal coils and magnets can be permanently damaged if the temperature increases above a safe level. This sensor monitors the temperature of the magnetic platens, and is designed to stop all operation when the temperature is exceeded. It is automatically reset.

To demagnetize, the M-TECS system has four steps that are required:

1. A signal that the press is in set up mode is required from the IMM.
2. A signal is given with the MTEC key switch that should be turned on after the IMM is in the set up mode.
3. The operator must press two buttons on the remote pendant at the same time.
4. These two buttons must be held for at least one second.

To magnetize, the platen mounted limit switch must be depressed, then the four
steps listed above must also be executed.



M-Tecs 120 system for a horizontal IMM

M-TECS Magnetic Clamping System to Machine Interface

The following components are part of the standard M-TECS system to be assembled at time of installation:

- Moving platen
- Interface box CD1 (per SPI & Euromap)
- Stationary platen
- Keyswitch
- M1C or M2C controller
- Remote control
- LED diagnostic panel
- All required cables
- Thermal isolation pads are also supplied when ordered with integrated heated platens.

Run Mode The machine receives a permissive signal to run by the M-TECS system by means of a contact closure (dry contact). This occurs when the plates have been magnetized, the platen mounted limit switch is closed, and the temperature is within the de ned tolerance range.

Set-Up Mode for Mold Change – To magnetize or demagnetize the mold, the machine should be in the set-up mode and in a defined position or state, where a safe mold change can occur, the machine controls can then release the M-TECS system to clamp or unclamp. Changes to the machine software are normally not required. Voltage supply for the controls: 208, 400 or 480 VAC (Single phase) Control Voltage 24VDC.

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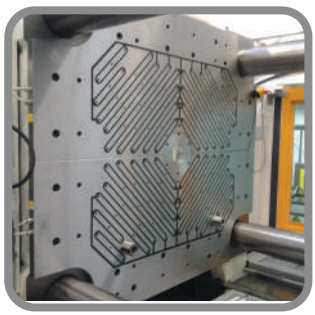
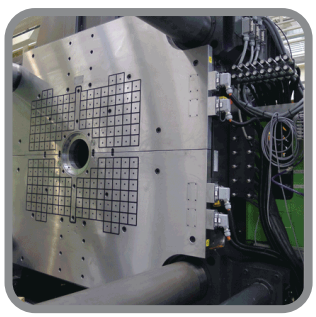
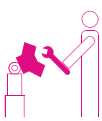




ABOUT US

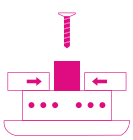
Roemheld has been safely clamping dies for more than 50 years. The full mold change line includes a variety of hydraulic clamp and magnetic clamping systems. Both systems enable just-in-time production with greatly reduced mold change times and reduced labor costs. Our systems are the industry leaders in holding force, safety and reliability. They are produced in conjunction with RIVI Magnetics in Italy, which have over 30 year of success in Quick Mold Clamping Systems.

Plastics Brochure 06-16-20 Subject to modifications


Assembly Products

Quick Mold Change

Quick Die Change


Machine Vises


Power Workholding


Zero-Point Clamping

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Products for productivity