

Magnetic Clamping Systems M-TECS R for temperatures up to 230 °C



Advantages

- Standardization of moulds no longer required
- High safety by process monitoring
- Clamping of the moulds within a few seconds
- Ergonomic handling with ease
- Mould clamping also in the heated condition
- Minimum wear of the moulds
- Motion detection of the mould
- Mould clamping on the complete surface with minimum deformation

Application

Magnetic clamping systems M-TECS R are primarily used for automatic clamping of different moulds on rubber presses.

Description

With magnetic clamping systems, the moulds are magnetically clamped or unclamped at the touch of a button within a few seconds.

Since permanent magnets generate the force of the magnetic clamping plates, electric clamping is only required to magnetize the plates.

The magnetic clamping plates are de-energized in clamped condition and thus absolutely safe in case of power failure.

The complete clamping cycle is monitored by different sensors, thus guaranteeing reliable mould clamping.

All M-TECS magnetic clamping systems carry the CE mark.

Scope of system and delivery

Magnetic clamping systems M-TECS R are delivered as complete clamping systems with all required system components. The essential components of a system are:

- two magnetic clamping plates
- electric control in a splash-proof control box
- a manual remote control
- required electrical connection cables

Electric control

see catalogue sheet WZ 9.5660

Customized versions

All M-TECS magnetic clamping systems are customized and manufactured to meet specific requirements.

For example, the size and pole arrangement of the magnetic clamping plates are selected according to the application and the machine. Please contact us.

Safeties

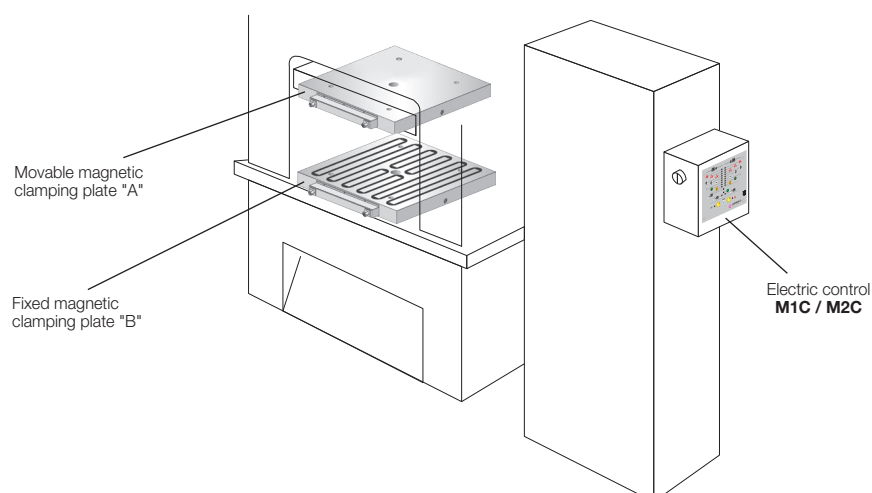
- The inductive limit switch checks the form-fit contact of the mould and guarantees a clamping without force loss.
- Sensors inside the coils register the slightest mould movements due to changes in the magnetic flow between the magnetic clamping plate and the mould.
- A temperature sensor in the magnetic clamping plate prevents overheating and thus damage to the system.

Technical basic data

Size of the magnetic clamping plates		customized
Pole technology		long pole
Max. temperature	[°C]	230 (on request up to 240)
Specific magnetic force*	[kg/cm ²]	18
Effective magnetic force	[kg/cm ²]	5–12
Magnetic penetration depth	[mm]	20
Plate thickness	[mm]	min. 55

* force directly on the magnet

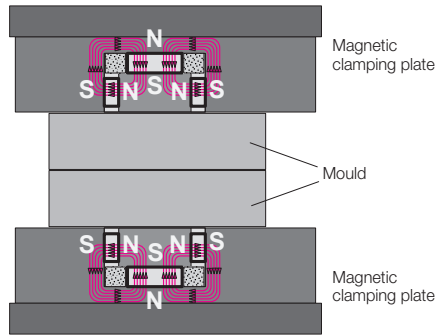
Installation on a rubber press



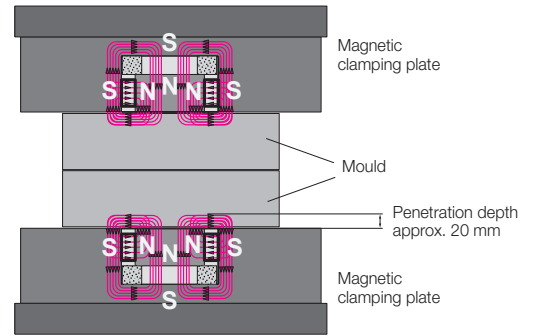
Functioning of the magnetic clamping plates

The electro-permanent magnetic clamping system is firmly kept in place even in the case of a power failure. Power is only required for approx. 1 to 2 seconds to magnetize the system. Then, the clamping system works independently of any power supply. The magnetic clamping force is exclusively generated by the permanent magnets. Only for unclamping the mould, electrical energy is required again (for 1 to 2 seconds) to demagnetize the clamping plate. An existing AlNiCo magnet in the core is reversed in polarity by a current pulse. This magnet affects the magnetic field and relocates it to the interior of the magnetic clamping plate (demagnetized) or approx. 20 mm outside the plate (magnetized).

demagnetized

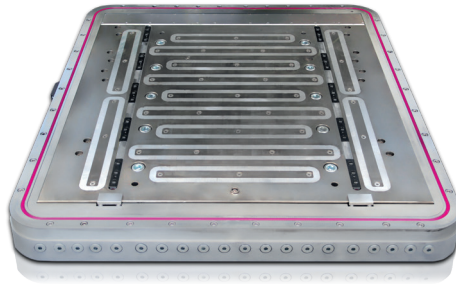


magnetized



Structure of the magnetic clamping plates

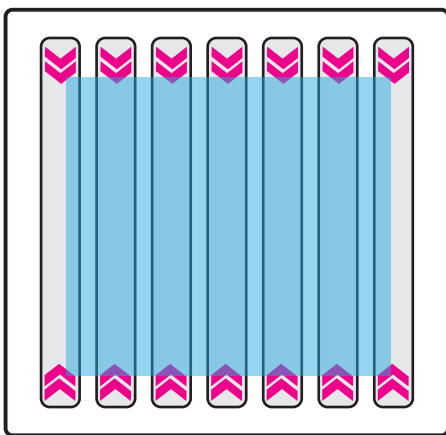
1. The fixing grid is designed as far as possible according to existing drill holes.
2. The mechanical limit switch checks the perfect contact of the mould and then releases the magnetization.
3. Optional slots for roller or ball bars (also part of the ROEMHELD Group product range) can be inserted in the lower magnetic clamping plate to simplify mould change.



Further safety equipment in the plate:

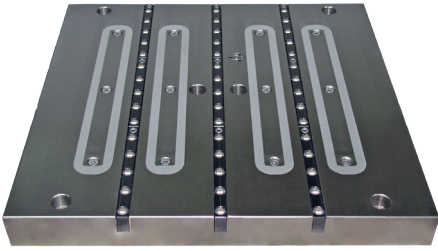
- Sensors inside the coils respond to induction and report the slightest mould movements.
- A temperature sensor in the magnetic clamping plate prevents overheating and thus damage to the system.

Power concentration of long pole technology



The magnetic field lines of the partially covered poles act in addition to the completely covered poles on the mould and enable a safe clamping of the smallest moulds.

Accessories



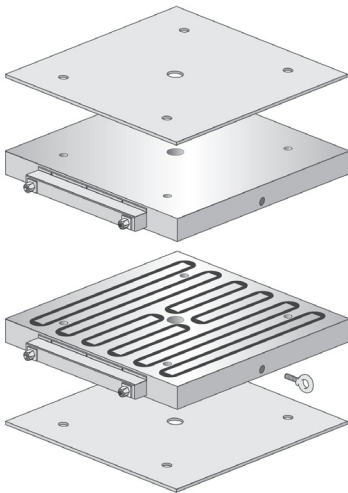
Roller or ball bars

Roller and ball bars in the lower magnetic clamping plate allow easy and trouble-free mould change and prevent damages to the surface.



Heating elements

Integrated heating elements combine heating and clamping in a single process. Changing and clamping moulds in the heated condition are simplified, and the risk of injury is reduced.



Insulation plates

The insulation plates are mounted between the machine bed and the magnetic clamping plates. They enable uniform heat distribution and avoid that the heat passes from the mould to the machine.



Vacuum version

The special sealing of the coils and cable exits is designed for vacuum application in productions with the highest quality requirements.