



## Magnetic Clamping Systems M-TECS M for temperatures up to 80°C



### Advantages

- Standardization of dies no longer required
- High safety by process monitoring
- Clamping of the dies within a few seconds
- Ergonomic handling with ease
- Die clamping also in the heated condition
- No further mounting holes required
- Minimum wear of the dies
- Motion detection of the die
- Die clamping on the complete surface with minimum deformation

### Application

Magnetic clamping systems M-TECS M are primarily used for automatic clamping of different dies on sheet metal forming presses and automatic punching machines.

### Description

With magnetic clamping systems M-TECS, the dies 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 die clamping.

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

### Scope of system and delivery

Magnetic clamping systems M-TECS M 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 technology of the magnetic clamping plates are selected according to the application and the machine. Please contact us.

### Safeties

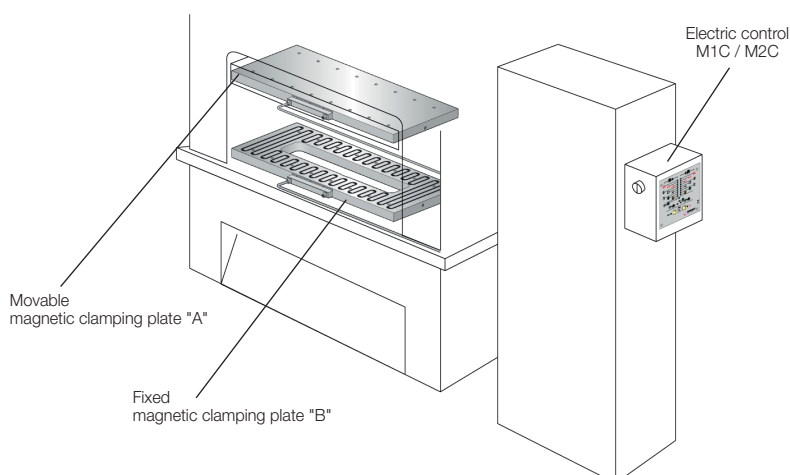
- The inductive limit switch checks the form-fit contact of the die and guarantees a clamping without force loss.
- Sensors inside the coils register the slightest die movements due to changes in the magnetic flow between the magnetic clamping plate and the die.
- A temperature sensor in the magnetic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

### Technical basic data

Size of the magnetic clamping plates		customized
Pole technology		square pole
Max. temperature	[°C]	80
Specific magnetic force*	[kg/cm <sup>2</sup> ]	18
Effective magnetic force	[kg/cm <sup>2</sup> ]	5–12
Magnetic penetration depth	[mm]	20
Plate thickness	[mm]	min. 47 (Standard 55)

\* force directly on the magnet

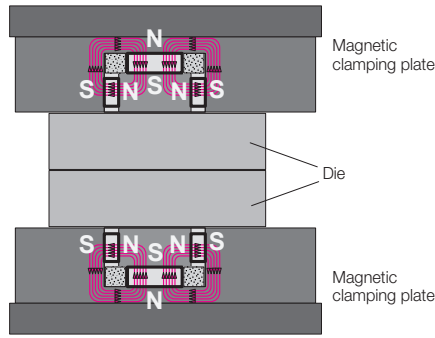
### Installation on a sheet metal forming press



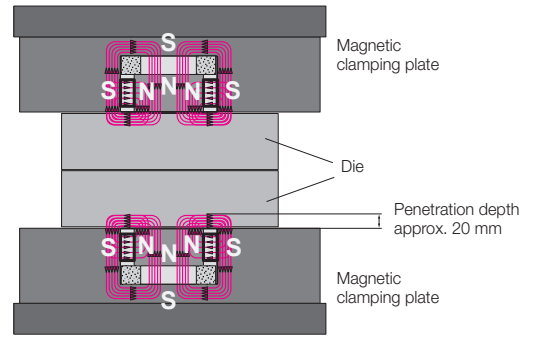
**Functioning of the magnetic clamping plates**

The electro-permanent magnetic clamping system is firmly kept in place even in case of 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 die, electrical energy is required again (for 1 to 2 seconds) to demagnetize the clamping plate. An existing AlNiCo magnet in the core is re-polarised 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**

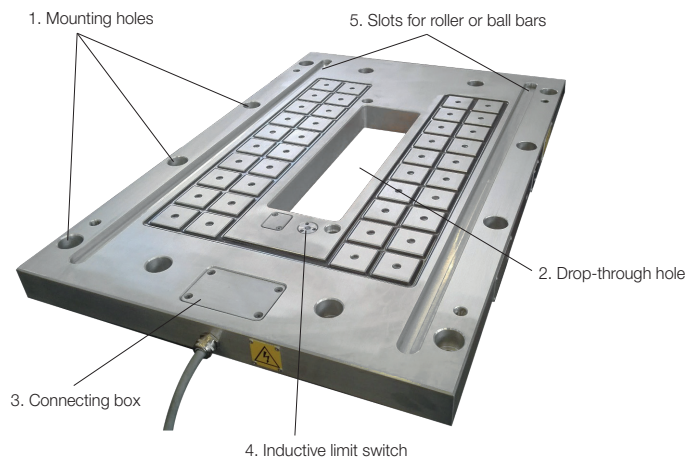


**magnetized**



**Structure of the magnetic clamping plates**

1. The mounting holes are designed according to the already existing mounting grid in the press bed.
2. An optional drop-through hole for punching waste is provided in the lower magnetic clamping plate as per customer's request.
3. The completely sealed connecting box guarantees permanent access to the wiring of the plate connection.
4. The inductive limit switch checks the perfect contact of the die and then releases the magnetization.
5. 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 die change.



**Further safety equipment in the plate:**

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

**Accessories**

**Force sensor "FES"**



Force sensor "FES" for measuring the air gap and continuous monitoring and display of the retention force.

**Reduction of the clamping force**

