

SOLID STATE RELAYS IN INJECTION MOLDING MACHINES

Background

Injection molding is a very common process used for producing plastic, glass or metal parts. This process consists of passing the desired material through a heating and mixing process and injecting it into a mold. Injection molding is used for producing a great variety of plastic parts such as bottles, cases, automotive parts, etc.

A plastic injection molding machine usually has 2 main sections, the Injection unit and the Clamping unit, and the driving system of the machine can be either hydraulic, electrical, or a combination of both (hybrid).

Solution

Solid State Relays are ideal for use in plastic injection molding machines. They are preferred over their electromechanical counterparts

because of their extended lifetime, resistance to shock and vibration, and fast switching.

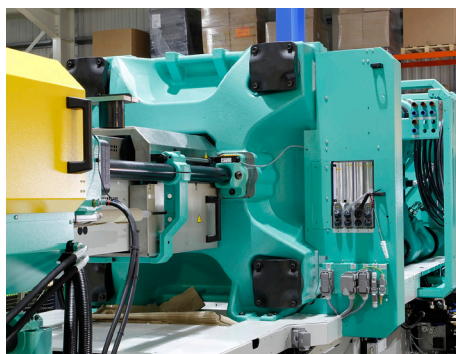
Due to these superior features, SSRs can be used to:

- Switch the barrel and mold heaters, allowing for precise temperature control, thanks to the SSRs ability to switch fast and often. A single SSR can drive several heater zones. The SSR's high I²t allows to use low cost circuit breakers to protect the relay.
- Adjust the position of the tool and get the mold accurately clamped. A solid state reversing contactor provides the required accuracy in addition to a higher life expectancy than an electromechanical contactor.
- Actuate the pins that eject the molded part. A compact DIN Rail mount SSR saves cabinet space and provides extended reliability.

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Heating Control



Motorized Clamping Tool

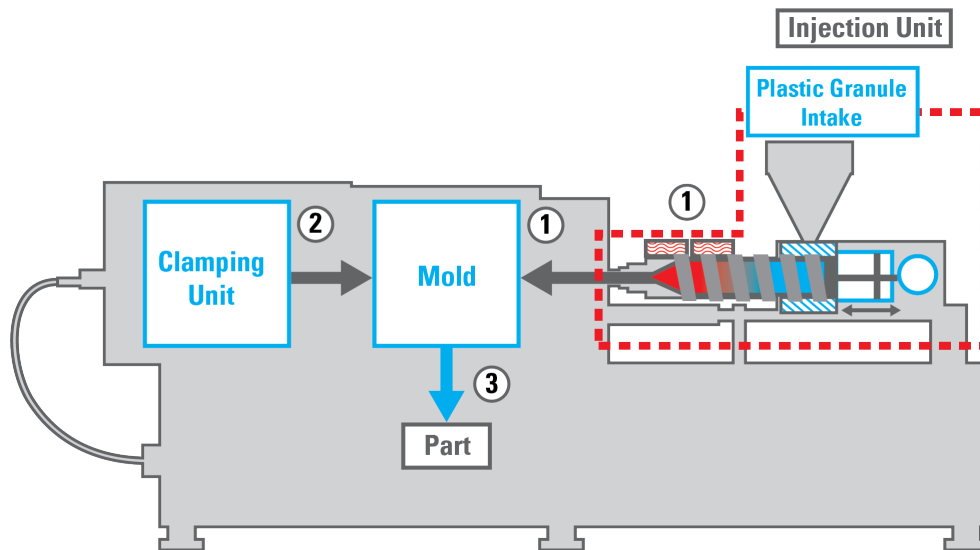


RELATED PRODUCTS

| Reference on Diagram | Product | Features | Function | Brand |
|----------------------|--|---|-----------------------|--------|
| 1 |  NOVA22 DR45 Series | <ul style="list-style-type: none"> • 60 Amp rated solid state relay • High I²t • Cage clamp terminals accept up to 3 AWG wire size • Built-in overvoltage protection | Barrel & Mold Heaters | Crydom |
| 2 |  SOLICON DRC Series | <ul style="list-style-type: none"> • 7.6 Amp solid state reversing contactor • Built-in overvoltage protection • Ultra-efficient thermal design | Clamping Unit | Crydom |
| 3 |  SeriesOne DR | <ul style="list-style-type: none"> • Ready-to-use solid state relay • Compact size (11 or 18mm) • HP rated | Ejection System | Crydom |



INJECTION MOLDING MACHINE DIAGRAM



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