

## 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 sections: the injection unit and the clamping unit. The driving system of the machine can be either hydraulic, electrical, or a combination of both (hybrid).

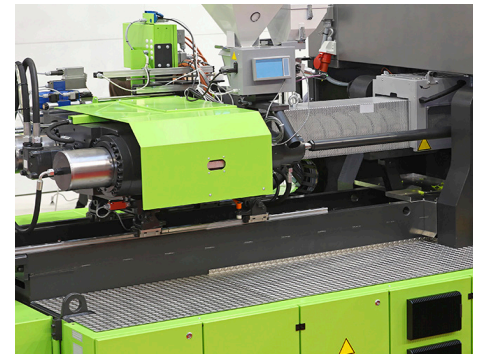
*SSRs are preferred over their electromechanical counterparts because of their extended lifetime, resistance to shock and vibration, and fast switching.*

### Solution

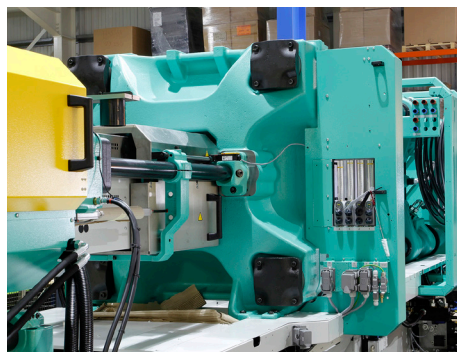
Sensata | Crydom Solid State Relays are ideal for use in plastic injection molding machines. They are preferred over their electromechanical counterparts because of their extended lifetime, resistance to shock and vibration, and fast switching.

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. The SSR's high I<sup>2</sup>t allows use of 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 required accuracy and 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.






*Heating Control*



*Motorized Clamping Tool*

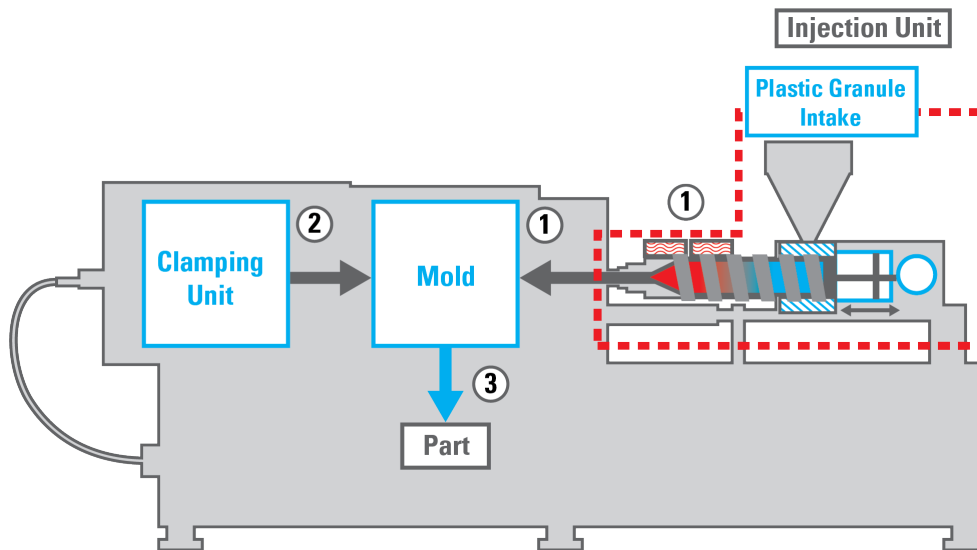


## RELATED PRODUCTS

| Reference on Diagram | Product   | Features   | Function              |
|----------------------|---|--|-----------------------|
| 1                    | <br>DR22C Series | <ul style="list-style-type: none"> <li>• Low depth DIN Rail Mount solid state relay</li> <li>• 27 to 32 Amp ratings</li> <li>• High I<sup>2</sup>t version available</li> <li>• Built-in overvoltage protection</li> </ul>   | Barrel & Mold Heaters |
| 2                    | <br>DRC Series   | <ul style="list-style-type: none"> <li>• Solid State Reversing Contactor</li> <li>• For 3-phase motors up to 5 HP (3.7 kW)</li> <li>• Available with auxiliary contacts</li> <li>• Ultra-efficient thermal design</li> </ul> | Clamping Unit         |
| 3                    | <br>SeriesOne DR | <ul style="list-style-type: none"> <li>• DIN Rail Mount solid state relay</li> <li>• 3 to 12 Amp ratings</li> <li>• Compact size (11 or 18 mm)</li> <li>• Class I Div 2 rated</li> </ul>                                     | Ejection System       |



## INJECTION MOLDING MACHINE DIAGRAM



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