APPLICATION NOTE

Sensata Technologies

PRESSURE SENSORS 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 (≥10X for FS ≤400 bar) parts such as bottles, cases, automotive parts, etc. An injection molding machine usually has 2 main sections, the injection units and the clamping unit.

The injection unit is responsible for heating the material in a reciprocating screw barrel and reliably dispensing it into the mold cavity. The injection mold material typically flows at high pressures and if the injection pressure not correct, it could lead to defective molded parts, damage to the mold and machine downtime.

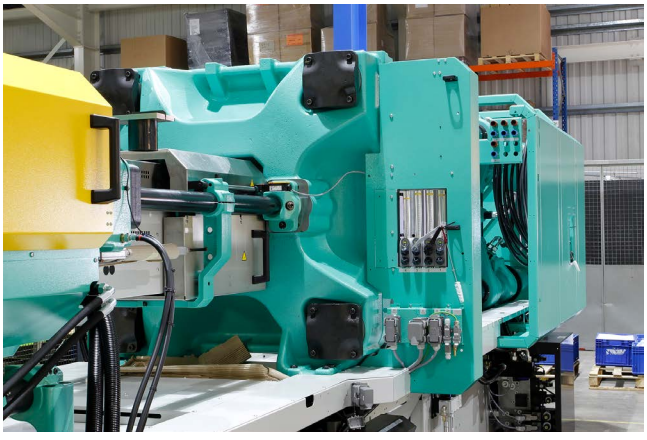
Using a high-quality pressure sensor can help minimize poor injection molded part quality and prolong tool life.

The clamping unit is responsible for actuating the mold and for keeping the mold closed during injection of the mold material. During this process clamping forces are needed to be controlled because too high of a clamping force can result in damage to the mold, costly downtime and mold repair, while too low pressure will result in defective molded parts or excessive flash.

Solution

Applying pressure sensors that can withstand high pressures are accurate, and repeatable with a long life cycle are utilized to help control and provide feedback to the cylinder and clamping unit controls. Using a high-quality pressure sensor can help minimize poor injection molded part quality and prolong tool life.

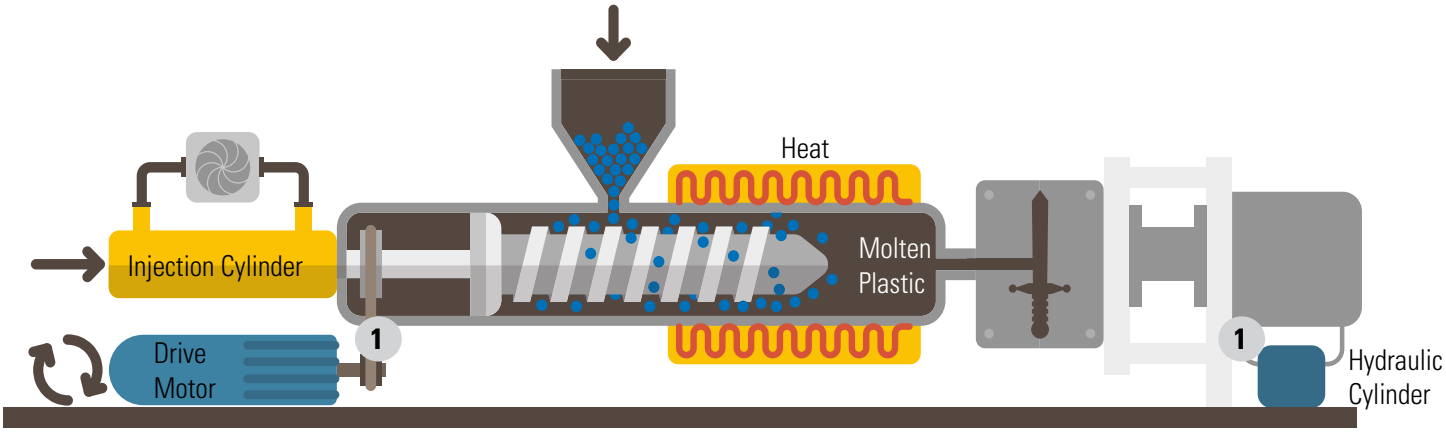
Sensata Technologies, a world leader in pressure sensors, has developed the PTE7100 for use in hydraulic applications including injection mold equipment. The PTE7100 features a hermetic pressure port design with multiple connectors and process port options, ±0.25% BFSL accuracy and operating media temperatures of -40°C to 125°C. The PTE7100 also features a snubber option to help dampen extreme pressure spikes and has a guaranteed cycle life of ≥10M cycles with positive testing of the technology to a half billion cycles.



RECOMMENDED PRODUCTS

Reference on Diagram	Product	Features	Function	Brand
1	 PTE7100	• Operating pressure range: 0-50 bar to 0-600 bar (0-725psi to 0-8700 psi) • ±0.25% BFSL accuracy • High shock (500g) and vibration (30g) • Multiple connector and port options • High burst pressures (≥10X for full scale pressure ≤400 bar)	Monitor clamping unit and injection unit pressures	Sensata Technologies

INJECTION MOLDING MACHINE



Mailing Address: Sensata Technologies, Inc., 529 Pleasant Street, Attleboro, MA 02703, USA.

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CONTACT US

Americas
+1 (800) 350 2727
sensors@sensata.com
switches@sensata.com
Europe, Middle East & Africa
+359 (2) 809 1826
pressure-info.eu@sensata.com
Asia Pacific
sales.isasia@list.sensata.com
China +86 (21) 2306 1500
Japan +81 (45) 277 7117
Korea +82 (31) 601 2004
India +91 (80) 67920890
Rest of Asia +886 (2) 27602006 ext 2808