

PRESSURE SENSORS IN HYDRAULIC PRESSES

Background

Hydraulic presses use a hydraulic cylinder to generate large mechanical forces. Utilizing Pascal's law, in which pressure applied to a confined fluid occurs throughout the fluid, hydraulic presses apply a moderate mechanical force to a small cross-sectional area, which is transferred to a larger cross-sectional area in the hydraulic cylinder. This allows for the hydraulic cylinder to generate a greater pressure to the application than what was applied.

Hydraulic presses are used in many manufacturing operations and take up less space than mechanical presses.

Commonly they are used in blanking, punching, forging and deep drawing applications.

In these applications, precise movement of the cylinder is important with pressure, typically exceeding 200 bar (3000 psi). Too little pressure will create defective parts and too much pressure could also lead to defective parts along with tool wear and increased machine downtime.

Utilizing high quality sensors can help to minimize poor part quality and prolong tool life.


Solution

To best control the cylinder position, typically one pressure sensor is used on either side of the hydraulic cylinder. These sensors should be equipped to handle high pressures and pressure spikes, along with being accurate and repeatable with long cycle life. Utilizing high quality sensors can help to minimize poor part quality and prolong tool life.

Sensata Technologies, a world leader in pressure sensors, has developed the PTE7100 offering for use in hydraulic applications, including hydraulic presses. The PTE7100 features a hermetic pressure port design with multiple connectors and process port options, $\pm 0.25\%$ 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 $\geq 10\text{M}$ cycles with positive testing of the technology to a half billion cycles.

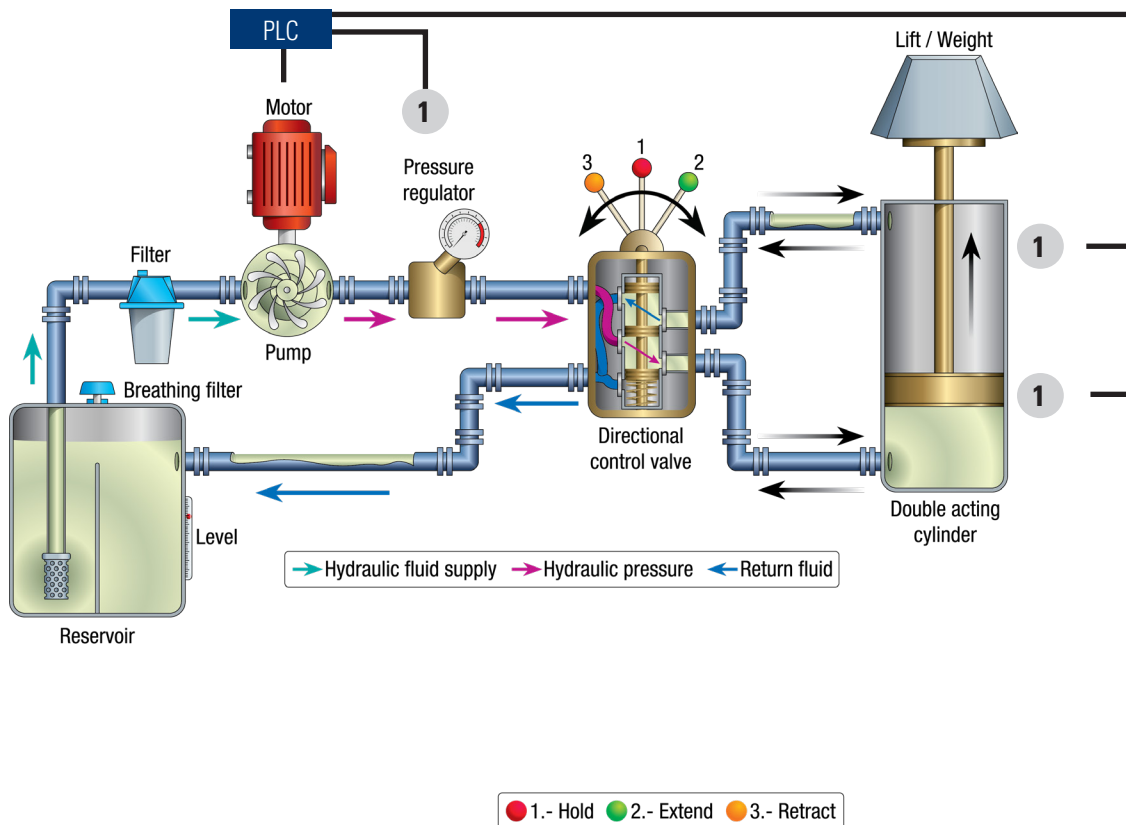


RECOMMENDED PRODUCTS

Reference on Diagram	Product	Features	Function	Brand
1	 PTE7100	<ul style="list-style-type: none">Operating pressure range: 0-50 bar to 0-600 bar (0-725psi to 0-8700 psi)±0.25% BFSL accuracyHigh shock (500g) and vibration (30g)Multiple connector and port optionsHigh burst pressures ($\geq 10X$ for full scale pressure ≤ 400 bar)	Monitor hydraulic cylinder pressure	Sensata Technologies



FLUID POWER SYSTEM



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