

Hydraulic Control Valve for Forklift

Forklift Hydraulic Control Valves - The control valve is a tool that directs the fluid to the actuator. This device would include steel or cast iron spool which is situated in a housing. The spool slides to different locations within the housing. Intersecting grooves and channels route the fluid based on the spool's position.

The spool is centrally located, held in place with springs. In this particular position, the supply fluid could be blocked and returned to the tank. If the spool is slid to a side, the hydraulic fluid is routed to an actuator and provides a return path from the actuator to tank. If the spool is transferred to the opposite direction, the return and supply paths are switched. Once the spool is allowed to return to the neutral or center location, the actuator fluid paths become blocked, locking it into place.

The directional control is normally designed to be stackable. They normally have one valve per hydraulic cylinder and a fluid input that supplies all the valves in the stack.

So as to prevent leaking and tackle the high pressure, tolerances are maintained very tight. Usually, the spools have a clearance with the housing of less than a thousandth of an inch or $25\text{ }\mu\text{m}$. So as to prevent jamming the valve's extremely sensitive components and distorting the valve, the valve block will be mounted to the machine's frame with a 3-point pattern.

A hydraulic pilot pressure, mechanical levers, or solenoids can actuate or push the spool right or left. A seal allows a portion of the spool to stick out the housing where it is easy to get to the actuator.

The main valve block controls the stack of directional control valves by capacity and flow performance. Some of these valves are designed to be proportional, as a valve position to the proportional flow rate, whereas other valves are designed to be on-off. The control valve is among the most sensitive and costly components of a hydraulic circuit.