

## Forklift Hydraulic Control Valves

Forklift Hydraulic Control Valve - The control valve is a tool that routes the fluid to the actuator. This device would comprise steel or cast iron spool which is situated inside of housing. The spool slides to various locations within the housing. Intersecting channels and grooves route the fluid based on the spool's position.

The spool is centrally located, held in place with springs. In this particular location, the supply fluid could be blocked and returned to the tank. When 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. When the spool is moved to the other side, the return and supply paths are switched. When the spool is enabled to return to the center or neutral place, the actuator fluid paths become blocked, locking it into place.

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

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

The position of the spool can be actuated by hydraulic pilot pressure, mechanical levers, or solenoids that push the spool right or left. A seal enables a portion of the spool to protrude outside the housing where it is easy to get to the actuator.

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