

## Hydraulic Control Valves for Forklift

Forklift Hydraulic Control Valves - The control valve is a device which directs the fluid to the actuator. This tool would comprise steel or cast iron spool which is positioned in a housing. The spool slides to various locations in the housing. Intersecting channels and grooves route the fluid based on the spool's location.

The spool has a neutral or central location that is maintained with springs. In this particular position, the supply fluid is blocked or returned to the tank. When the spool is slid to one 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 enabled to return to the center or neutral location, the actuator fluid paths become blocked, locking it into position.

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

So as to avoid leaking and deal with the high pressure, tolerances are maintained really tight. Normally, 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 jamming the valve's extremely sensitive components and distorting the valve, the valve block would be mounted to the machine's frame by a 3-point pattern.

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

The main valve block is normally a stack of off the shelf directional control valves chosen by capacity and flow performance. Several valves are designed to be on-off, while others are designed to be proportional, like in flow rate proportional to valve position. The control valve is among the most pricey and sensitive parts of a hydraulic circuit.