

## Hydraulic Control Valve for Forklift

Forklift Hydraulic Control Valves - The function of directional control valves is to route the fluid to the desired actuator. Usually, these control valves comprise a spool situated inside of a housing created either from cast iron or steel. The spool slides to different places inside the housing. Intersecting grooves and channels route the fluid based on the spool's position.

The spool has a neutral or central position which is maintained by springs. In this particular location, 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 other side, the return and supply paths are switched. Once the spool is enabled to return to the neutral or center position, the actuator fluid paths become blocked, locking it into position.

Usually, directional control valves are built so as to be stackable. They usually have a valve for every hydraulic cylinder and one fluid input which supplies all the valves within the stack.

So as to prevent leaking and tackle 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  $25\text{ }\mu\text{m}$ . To be able to prevent jamming the valve's extremely sensitive parts and distorting the valve, the valve block will be mounted to the machine's frame by a 3-point pattern.

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

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