## Hydraulic Control Valves for Forklift

Forklift Hydraulic Control Valve - The job of directional control valves is to route the fluid to the desired actuator. Generally, these control valves comprise a spool positioned in a housing made either from steel or cast iron. The spool slides to different places within the housing. Intersecting grooves and channels direct the fluid based on the spool's position.

The spool has a neutral or central location which is maintained with springs. In this location, the supply fluid is blocked or returned to the tank. When the spool is slid to one side, the hydraulic fluid is directed 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. As soon as the spool is allowed to return to the neutral or center position, the actuator fluid paths become blocked, locking it into place.

Usually, directional control valves are made to be able to be stackable. They usually have a valve per hydraulic cylinder and one fluid input that supplies all the valves in the stack.

So as to prevent 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 Âµm. So as to avoid distorting the valve block and jamming the valve's extremely sensitive parts, the valve block would be mounted to the machine' frame by a 3-point pattern.

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

The main valve block controls the stack of directional control valves by capacity and flow performance. Several 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 among the most costly and sensitive components of a hydraulic circuit.