

## Hydraulic Control Valve for Forklift

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

The spool is centrally positioned, held in place by springs. In this particular position, the supply fluid can be blocked and returned to the tank. If the spool is slid to a direction, the hydraulic fluid is directed to an actuator and provides a return path from the actuator to tank. If 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 location, the actuator fluid paths become blocked, locking it into position.

Normally, directional control valves are built in order to be stackable. They usually have one valve for each and every hydraulic cylinder and a fluid input which supplies all the valves inside the stack.

To be able to prevent leaking and deal with the high pressure, tolerances are maintained really tight. Typically, 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 will be mounted to the machine's frame by a 3-point pattern.

The location of the spool could be actuated by mechanical levers, hydraulic pilot pressure, or solenoids which push the spool left or right. A seal enables a part of the spool to protrude outside the housing where it is accessible to the actuator.

The main valve block is usually a stack of off the shelf directional control valves chosen by flow performance and capacity. Some valves are designed to be on-off, whereas some are designed to be proportional, like in valve position to flow rate proportional. The control valve is among the most costly and sensitive parts of a hydraulic circuit.