

Hydraulic Control Valve for Forklift

Forklift Hydraulic Control Valve - The job of directional control valves is to direct the fluid to the desired actuator. Normally, these control valves include a spool situated inside of a housing created either from steel or cast iron. The spool slides to various places in the housing. Intersecting grooves and channels route the fluid based on the spool's position.

The spool is centrally situated, held in place by springs. In this particular position, the supply fluid can be blocked and 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. When the spool is transferred to the opposite side, the supply and return paths are switched. As soon as the spool is enabled to return to the center or neutral location, the actuator fluid paths become blocked, locking it into place.

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

To be able to avoid leaking and tackle 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 μm . So as to avoid jamming the valve's extremely sensitive components and distorting the valve, the valve block will be mounted to the machine's frame with a 3-point pattern.

Mechanical levers, solenoids or a hydraulic pilot pressure can actuate or 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 is usually a stack of off the shelf directional control valves chosen by flow performance and capacity. Various valves are designed to be on-off, whereas others are designed to be proportional, like in flow rate proportional to valve position. The control valve is one of the most sensitive and pricey components of a hydraulic circuit.