

Hydraulic Control Valve for Forklift

Hydraulic Control Valves for Forklift - The control valve is a tool which routes the fluid to the actuator. This device will consist of steel or cast iron spool which is positioned inside of housing. The spool slides to various places in the housing. Intersecting grooves and channels direct the fluid based on the spool's location.

The spool is centrally positioned, held in place with 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 routed to an actuator and provides a return path from the actuator to tank. When the spool is transferred to the other direction, the return and supply paths are switched. Once the spool is allowed to return to the neutral or center location, the actuator fluid paths become blocked, locking it into place.

The directional control is usually intended to be stackable. They generally have one valve for every hydraulic cylinder and a fluid input which supplies all the valves within the stack.

To be able to prevent 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 $25\text{ }\mu\text{m}$. So as to prevent 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.

A hydraulic pilot pressure, mechanical levers, or solenoids can actuate or push the spool right or left. 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, as a proportional flow rate to the valve position, whereas other valves are designed to be on-off. The control valve is among the most sensitive and costly parts of a hydraulic circuit.