

Hydraulic Control Valve for Forklift

Forklift Hydraulic Control Valves - The control valve is actually a device which directs the fluid to the actuator. This tool would consist of steel or cast iron spool which is positioned in a housing. The spool slides to different places in the housing. Intersecting grooves and channels direct the fluid based on the spool's position.

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. 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. Once 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 designed to be able to be stackable. They normally have a valve per hydraulic cylinder and one fluid input that supplies all the valves in the stack.

Tolerances are maintained really tightly, so as to tackle the higher pressures and to be able to avoid leaking. The spools will usually have a clearance inside the housing no less than 25 μm or a thousandth of an inch. In order to avoid jamming the valve's extremely sensitive parts 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 may actuate or push the spool right or left. A seal enables a portion of the spool to stick out the housing where it is easy to get to the actuator.

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