

Forklift Hydraulic Control Valve

Hydraulic Control Valves for Forklift - The control valve is actually a device which directs the fluid to the actuator. This tool will include steel or cast iron spool that is located within a housing. The spool slides to various locations within the housing. Intersecting grooves and channels route the fluid based on the spool's position.

The spool is centrally situated, held in place with springs. In this particular location, the supply fluid could be blocked and returned to the tank. If 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 other side, the return and supply paths are switched. When the spool is allowed to return to the neutral or center place, the actuator fluid paths become blocked, locking it into position.

Normally, directional control valves are built so as to be stackable. They generally have a valve per hydraulic cylinder and a fluid input that supplies all the valves within the stack.

Tolerances are maintained really tightly, so as to handle the higher pressures and to avoid leaking. The spools would normally have a clearance within the housing no less than 25 μm or a thousandth of an inch. To be able to avoid distorting the valve block and jamming the valve's extremely sensitive parts, the valve block will be mounted to the machine's frame with a 3-point pattern.

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

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