

Forklift Hydraulic Control Valve

Hydraulic Control Valves for Forklift - The control valve is actually a device which directs the fluid to the actuator. This device will comprise cast iron or steel spool that is situated within a housing. The spool slides to different positions within the housing. Intersecting channels and grooves direct the fluid based on the spool's position.

The spool has a central or neutral location which is maintained with springs. In this particular position, the supply fluid is blocked or returned to the tank. When the spool is slid to one direction, the hydraulic fluid is routed to an actuator and provides a return path from the actuator to tank. If the spool is transferred to the other direction, the supply and return paths are switched. When the spool is allowed to return to the center or neutral location, the actuator fluid paths become blocked, locking it into place.

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

So as to avoid leaking and handle the high pressure, tolerances are maintained extremely tight. Normally, the spools have a clearance with the housing of less than a thousandth of an inch or 25 μm . In order to avoid jamming the valve's extremely sensitive components and distorting the valve, the valve block would be mounted to the machine's frame by a 3-point pattern.

A hydraulic pilot pressure, mechanical levers, or solenoids can actuate or 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 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, like a valve position to the proportional flow rate, while some valves are designed to be on-off. The control valve is among the most sensitive and pricey components of a hydraulic circuit.