Forklift Hydraulic Control Valve

Forklift Hydraulic Control Valve - The control valve is a tool that directs the fluid to the actuator. This tool would include steel or cast iron spool which is situated in a housing. The spool slides to different positions within the housing. Intersecting channels and grooves route the fluid based on the spool's position.

The spool is centrally located, help in place with springs. In this particular location, the supply fluid could be blocked and returned to the tank. When the spool is slid to a 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 supply and return 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 position.

Usually, directional control valves are built so as to be stackable. They generally have one valve for each hydraulic cylinder and one fluid input which supplies all the valves within the stack.

To be able to avoid leaking and deal with 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 Ã‚Âµm. To be able to prevent distorting the valve block and jamming the valve's extremely sensitive components, the valve block would be mounted to the machine' frame with a 3-point pattern.

A hydraulic pilot pressure, mechanical levers, or solenoids might 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 to the actuator.

The main valve block is generally a stack of off the shelf directional control valves chosen by flow performance and capacity. Several valves are designed to be on-off, whereas others are designed to be proportional, like in valve position to flow rate proportional. The control valve is among the most sensitive and pricey parts of a hydraulic circuit.