Hydraulic Control Valve for Forklift

Forklift Hydraulic Control Valve - The control valve is actually a device which routes the fluid to the actuator. This device will consist of steel or cast iron spool which is positioned within a housing. The spool slides to different positions within the housing. Intersecting grooves and channels direct the fluid based on the spool's position.

The spool is centrally situated, help in place by springs. In this particular location, the supply fluid could 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 side, the return and supply paths are switched. Once the spool is enabled to return to the neutral or center location, the actuator fluid paths become blocked, locking it into place.

Usually, directional control valves are built to be able to be stackable. They generally have one valve per hydraulic cylinder and a fluid input which supplies all the valves inside the stack.

To be able to prevent leaking and tackle the high pressure, tolerances are maintained very tight. Usually, the spools have a clearance with the housing of less than a thousandth of an inch or 25 Âµm. To be able to avoid distorting the valve block and jamming the valve's extremely sensitive components, the valve block will be mounted to the machine' frame by a 3-point pattern.

Mechanical levers, solenoids or a hydraulic pilot pressure could actuate or push the spool right or left. A seal allows a portion of the spool to protrude outside the housing where it is accessible 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, as a proportional flow rate to the valve position, while other valves are designed to be on-off. The control valve is amongst the most pricey and sensitive components of a hydraulic circuit.