Forklift Hydraulic Control Valves

Forklift Hydraulic Control Valve - The control valve is a tool that routes the fluid to the actuator. This device will comprise steel or cast iron spool which is positioned inside of housing. The spool slides to various positions in the housing. Intersecting grooves and channels route the fluid based on the spool's location.

The spool has a neutral or central location which is maintained with springs. In this location, the supply fluid is blocked or 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 enabled to return to the neutral or center position, the actuator fluid paths become blocked, locking it into position.

Usually, directional control valves are made so as to be stackable. They normally have one valve per hydraulic cylinder and a fluid input that supplies all the valves within the stack.

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

Solenoids, a hydraulic pilot pressure or mechanical levers may actuate or push the spool right or left. A seal allows a part of the spool to protrude outside the housing where it is accessible to the actuator.

The main valve block is generally a stack of off the shelf directional control valves chosen by capacity and flow performance. Various valves are designed to be on-off, while some are designed to be proportional, as in flow rate proportional to valve position. The control valve is among the most sensitive and expensive components of a hydraulic circuit.