Hydraulic Control Valve for Forklift

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

The spool has a central or neutral location which is maintained by springs. In this particular position, the supply fluid is returned to the tank or blocked. If the spool is slid to one side, 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 opposite side, the supply and return paths are switched. When the spool is allowed to return to the center or neutral place, the actuator fluid paths become blocked, locking it into position.

Usually, directional control valves are designed so as to be stackable. They generally have a valve per hydraulic cylinder and a fluid input which supplies all the valves in the stack.

In order to avoid leaking and deal with the high pressure, tolerances are maintained very tight. Normally, 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 avoid jamming the valve's extremely sensitive components and distorting the valve, the valve block would be mounted to the machine' frame by a 3-point pattern.

The location of the spool could be actuated by hydraulic pilot pressure, mechanical levers, or solenoids that push the spool right or left. A seal allows a portion 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 capacity and flow performance. 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 expensive components of a hydraulic circuit.