Hydraulic Control Valve for Forklift

Forklift Hydraulic Control Valve - The job of directional control valves is to direct the fluid to the desired actuator. Normally, these control valves comprise a spool located in a housing created either from steel or cast iron. The spool slides to different places within the housing. Intersecting grooves and channels direct the fluid based on the spool's position.

The spool is centrally located, help in place with springs. In this particular position, 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. If the spool is moved to the other side, the supply and return paths are switched. As soon as the spool is allowed to return to the center or neutral location, the actuator fluid paths become blocked, locking it into position.

The directional control is normally designed to be stackable. They generally have one valve for each and every hydraulic cylinder and one fluid input that supplies all the valves in the stack.

So as to prevent 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 Âµm. To be able to prevent jamming the valve's extremely sensitive parts and distorting the valve, the valve block would be mounted to the machine' frame by a 3-point pattern.

Solenoids, a hydraulic pilot pressure or mechanical levers could actuate or push the spool right or left. A seal enables a part 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. Several of these valves are designed to be proportional, as a valve position to the proportional flow rate, while other valves are designed to be on-off. The control valve is among the most sensitive and pricey parts of a hydraulic circuit.