Hydraulic Control Valves 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 include a spool located within a housing created either of steel or cast iron. The spool slides to different positions inside the housing. Intersecting channels and grooves direct the fluid based on the spool's location.

The spool is centrally positioned, help in place by springs. In this particular position, the supply fluid can be blocked and returned to the tank. If the spool is slid to a side, the hydraulic fluid is routed to an actuator and provides a return path from the actuator to tank. If the spool is moved to the opposite side, the return and supply paths are switched. As soon as the spool is enabled to return to the neutral or center location, the actuator fluid paths become blocked, locking it into place.

Typically, directional control valves are made in order to be stackable. They usually have a valve for each hydraulic cylinder and a fluid input which supplies all the valves inside the stack.

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

A hydraulic pilot pressure, mechanical levers, or solenoids could actuate or push the spool left or right. 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 flow performance and capacity. Several of these valves are designed to be proportional, like a proportional flow rate to the valve position, whereas some valves are designed to be on-off. The control valve is one of the most expensive and sensitive parts of a hydraulic circuit.