Forklift Hydraulic Control Valves

Hydraulic Control Valves for Forklift - The job of directional control valves is to be able to route the fluid to the desired actuator. Normally, these control valves consist of a spool positioned within a housing made either of steel or cast iron. The spool slides to various locations in the housing. Intersecting channels and grooves direct the fluid based on the spool's location.

The spool is centrally located, help in place with springs. In this particular position, the supply fluid can be blocked and returned to the tank. When the spool is slid to one direction, 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 other side, the supply and return 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 place.

Normally, directional control valves are made so as to be stackable. They generally have one valve for each hydraulic cylinder and a fluid input that supplies all the valves in the stack.

In order to avoid leaking and handle 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 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.

Solenoids, a hydraulic pilot pressure or mechanical levers might actuate or push the spool left or right. A seal enables 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. Several valves are designed to be on-off, while others are designed to be proportional, like in valve position to flow rate proportional. The control valve is one of the most sensitive and costly components of a hydraulic circuit.