Forklift Hydraulic Control Valves

Forklift Hydraulic Control Valve - The function of directional control valves is to direct the fluid to the desired actuator. Generally, these control valves consist of a spool positioned inside of a housing created either from cast iron or steel. The spool slides to various locations within the housing. Intersecting channels and grooves direct the fluid based on the spool's position.

The spool has a neutral or central location which is maintained by springs. In this location, the supply fluid is blocked or returned to the tank. When 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 direction, the return and supply 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 place.

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

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

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