Forklift Hydraulic Control Valve

Forklift Hydraulic Control Valves - The function of directional control valves is to route the fluid to the desired actuator. Generally, these control valves consist of a spool positioned within a housing created either of steel or cast iron. The spool slides to different places in the housing. Intersecting channels and grooves route the fluid based on the spool's position.

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 one direction, the hydraulic fluid is routed to an actuator and provides a return path from the actuator to tank. If the spool is transferred to the opposite side, the return and supply paths are switched. As soon as the spool is allowed to return to the center or neutral place, the actuator fluid paths become blocked, locking it into place.

The directional control is normally made to be stackable. They usually have one valve for every hydraulic cylinder and a fluid input which supplies all the valves within the stack.

To be able to avoid leaking and handle the high pressure, tolerances are maintained very tight. Typically, the spools have a clearance with the housing of less than a thousandth of an inch or 25 Ã‚Âµm. To be able to prevent jamming the valve's extremely sensitive components and distorting the valve, the valve block will be mounted to the machine' frame by a 3-point pattern.

Solenoids, a hydraulic pilot pressure or mechanical levers may actuate or push the spool left or right. A seal enables a part of the spool to stick out the housing where it is accessible to the actuator.

The main valve block controls the stack of directional control valves by flow performance and capacity. Some of these valves are designed to be proportional, as a valve position to the proportional flow rate, whereas some valves are designed to be on-off. The control valve is amongst the most expensive and sensitive parts of a hydraulic circuit.