Forklift Hydraulic Control Valves

Hydraulic Control Valves for Forklift - The function of directional control valves is to be able to direct the fluid to the desired actuator. Normally, these control valves include a spool located in a housing made either of steel or cast iron. The spool slides to various places inside the housing. Intersecting channels and grooves direct 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 could be blocked and 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 other side, the supply and return paths are switched. As soon as the spool is enabled to return to the center or neutral position, the actuator fluid paths become blocked, locking it into place.

The directional control is normally intended to be stackable. They generally have a valve per hydraulic cylinder and one fluid input that supplies all the valves within the stack.

To be able to prevent leaking and handle the high pressure, tolerances are maintained really 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 jamming the valve's extremely sensitive components and distorting the valve, the valve block would be mounted to the machine' frame with a 3-point pattern.

The position of the spool can be actuated by mechanical levers, hydraulic pilot pressure, or solenoids that push the spool right or left. 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, while some valves are designed to be on-off. The control valve is among the most costly and sensitive components of a hydraulic circuit.