Forklift Hydraulic Control Valves

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

The spool has a neutral or central position which is maintained with springs. In this location, the supply fluid is blocked or returned to the tank. If the spool is slid to one side, the hydraulic fluid is directed 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. Once the spool is enabled to return to the neutral or center place, the actuator fluid paths become blocked, locking it into place.

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

So as to avoid leaking and tackle 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. So as to prevent 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 location of the spool can be actuated by mechanical levers, hydraulic pilot pressure, or solenoids which 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 is generally a stack of off the shelf directional control valves chosen by flow performance and capacity. Various valves are designed to be on-off, while others are designed to be proportional, as in valve position to flow rate proportional. The control valve is amongst the most sensitive and costly components of a hydraulic circuit.