Hydraulic Control Valves for Forklift

Hydraulic Control Valve for Forklift - The job of directional control valves is to be able to route the fluid to the desired actuator. Normally, these control valves comprise a spool located inside of a housing created either from cast iron or steel. The spool slides to different places within the housing. Intersecting grooves and channels route the fluid based on the spool's location.

The spool is centrally positioned, help in place with springs. In this particular position, the supply fluid could be blocked and returned to the tank. If the spool is slid to a side, the hydraulic fluid is directed to an actuator and provides a return path from the actuator to tank. When the spool is moved to the other side, the return and supply paths are switched. When the spool is allowed to return to the neutral or center location, the actuator fluid paths become blocked, locking it into place.

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

To be able to avoid leaking and handle the high pressure, tolerances are maintained very tight. Normally, 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 prevent distorting the valve block and jamming the valve's extremely sensitive parts, the valve block would be mounted to the machine' frame by a 3-point pattern.

The location of the spool could be actuated by hydraulic pilot pressure, mechanical levers, or solenoids which push the spool right or left. 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 proportional flow rate to the valve position, whereas other valves are designed to be on-off. The control valve is amongst the most costly and sensitive components of a hydraulic circuit.