Forklift Hydraulic Control Valve

Hydraulic Control Valves for Forklift - The function of directional control valves is to route the fluid to the desired actuator. Usually, these control valves comprise a spool located in a housing created either of cast iron or steel. The spool slides to various places within the housing. Intersecting channels and grooves direct the fluid based on the spool's location.

The spool has a neutral or central location that is maintained by springs. In this particular position, the supply fluid is blocked or returned to the tank. When the spool is slid to one direction, 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 opposite direction, the supply and return 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.

Typically, directional control valves are designed to be able to be stackable. They normally have a valve for each hydraulic cylinder and one fluid input which supplies all the valves inside the stack.

To be able to avoid leaking and deal with 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. In order to avoid distorting the valve block and jamming the valve's extremely sensitive parts, the valve block will be mounted to the machine' frame by a 3-point pattern.

A hydraulic pilot pressure, mechanical levers, or solenoids might actuate or push the spool right or left. A seal allows a part of the spool to protrude outside the housing where it is accessible to the actuator.

The main valve block is normally a stack of off the shelf directional control valves chosen by capacity and flow performance. Several valves are designed to be on-off, whereas some are designed to be proportional, as in flow rate proportional to valve position. The control valve is among the most pricey and sensitive parts of a hydraulic circuit.