Hydraulic Control Valves for Forklift

Forklift Hydraulic Control Valves - The job of directional control valves is to direct the fluid to the desired actuator. Usually, these control valves include a spool located inside of a housing made either of steel or cast iron. The spool slides to various places within the housing. Intersecting grooves and channels direct the fluid based on the spool's position.

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 transferred to the other direction, the supply and return paths are switched. As soon as the spool is allowed to return to the neutral or center location, the actuator fluid paths become blocked, locking it into position.

The directional control is typically intended to be stackable. They normally have a valve for every hydraulic cylinder and a fluid input which supplies all the valves in the stack.

So as to avoid leaking and deal with 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. To be able to avoid 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.

The position of the spool could 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 stick out the housing where it is easy to get to to the actuator.

The main valve block is normally a stack of off the shelf directional control valves chosen by capacity and flow performance. Various valves are designed to be on-off, while others are designed to be proportional, like in flow rate proportional to valve position. The control valve is among the most costly and sensitive components of a hydraulic circuit.