Hydraulic Control Valves for Forklift

Forklift Hydraulic Control Valve - The job of directional control valves is to direct the fluid to the desired actuator. Usually, these control valves comprise a spool positioned in a housing made either from steel or cast iron. The spool slides to different places inside the housing. Intersecting grooves and channels route 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 can be blocked and returned to the tank. When the spool is slid to a side, the hydraulic fluid is routed to an actuator and provides a return path from the actuator to tank. When the spool is moved to the other side, the supply and return paths are switched. When the spool is allowed to return to the center or neutral position, the actuator fluid paths become blocked, locking it into position.

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

So as to prevent leaking and deal with the high pressure, tolerances are maintained extremely tight. Usually, the spools have a clearance with the housing of less than a thousandth of an inch or 25 Ã‚Âµm. In order to avoid distorting the valve block and jamming the valve's extremely sensitive components, the valve block would be mounted to the machine' frame by a 3-point pattern.

A hydraulic pilot pressure, mechanical levers, or solenoids could actuate or 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 flow performance and capacity. Various valves are designed to be on-off, whereas some are designed to be proportional, like in flow rate proportional to valve position. The control valve is amongst the most sensitive and pricey parts of a hydraulic circuit.