Hydraulic Control Valve 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 consist of a spool located inside of a housing created either of cast iron or steel. The spool slides to different locations inside the housing. Intersecting channels and grooves route the fluid based on the spool's location.

The spool has a central or neutral location which is maintained by springs. In this position, the supply fluid is returned to the tank or blocked. When 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. If the spool is moved to the opposite direction, the return and supply paths are switched. As soon as 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 usually made to be stackable. They generally have a valve for every hydraulic cylinder and a fluid input which supplies all the valves in the stack.

Tolerances are maintained very tightly, in order to deal with the higher pressures and in order to avoid leaking. The spools will usually have a clearance inside the housing no less than 25 Ã?â??Ã?Âµm or a thousandth of an inch. In order to avoid jamming the valve's extremely sensitive parts and distorting the valve, the valve block would be mounted to the machine' frame with a 3-point pattern.

A hydraulic pilot pressure, mechanical levers, or solenoids can actuate or push the spool left or right. A seal enables a part 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 capacity and flow performance. Various valves are designed to be on-off, while 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.