Hydraulic Control Valve for Forklift

Forklift Hydraulic Control Valve - The job of directional control valves is to be able to direct the fluid to the desired actuator. Usually, these control valves consist of a spool located in a housing made either from steel or cast iron. The spool slides to different locations inside the housing. Intersecting grooves and channels route the fluid based on the spool's location.

The spool is centrally located, help in place with springs. In this particular position, the supply fluid could be blocked and returned to the tank. When the spool is slid to one 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 opposite side, the return and supply paths are switched. When the spool is allowed to return to the center or neutral place, the actuator fluid paths become blocked, locking it into place.

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

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

The position of the spool may be actuated by mechanical levers, hydraulic pilot pressure, or solenoids that push the spool left or right. A seal allows 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 generally a stack of off the shelf directional control valves chosen by flow performance and capacity. Various valves are designed to be on-off, while others are designed to be proportional, as in valve position to flow rate proportional. The control valve is amongst the most sensitive and expensive parts of a hydraulic circuit.