Forklift Hydraulic Control Valve

Forklift Hydraulic Control Valve - The function of directional control valves is to be able to route the fluid to the desired actuator. Generally, these control valves include a spool situated in a housing created either of steel or cast iron. The spool slides to various locations within the housing. Intersecting channels and grooves direct 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. If 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 side, the return and supply paths are switched. Once the spool is allowed to return to the neutral or center place, the actuator fluid paths become blocked, locking it into place.

Normally, directional control valves are made in order to be stackable. They normally have one valve for each hydraulic cylinder and one fluid input that supplies all the valves in the stack.

Tolerances are maintained really tightly, in order to deal with the higher pressures and in order to avoid leaking. The spools would usually have a clearance within the housing no less than 25 Âµm or a thousandth of an inch. To be able to avoid distorting the valve block and jamming the valve's extremely sensitive components, the valve block would be mounted to the machine' frame with a 3-point pattern.

The position of the spool can be actuated by mechanical levers, hydraulic pilot pressure, or solenoids which 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 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, as in flow rate proportional to valve position. The control valve is one of the most sensitive and pricey components of a hydraulic circuit.