Forklift Hydraulic Control Valve

Forklift Hydraulic Control Valve - The job of directional control valves is to be able to direct the fluid to the desired actuator. Generally, these control valves consist of a spool situated inside of 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 has a neutral or central position which is maintained with springs. In this particular location, the supply fluid is returned to the tank or blocked. 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 opposite direction, the return and supply paths are switched. When 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 generally have one valve for each and every hydraulic cylinder and one fluid input that supplies all the valves inside the stack.

Tolerances are maintained really tightly, in order to tackle the higher pressures and in order to prevent leaking. The spools will normally have a clearance within the housing no less than 25 Âµm or a thousandth of an inch. So as to prevent 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.

Solenoids, a hydraulic pilot pressure or mechanical levers may actuate or push the spool right or left. A seal enables a part of the spool to protrude outside the housing where it is accessible to the actuator.

The main valve block is usually a stack of off the shelf directional control valves chosen by capacity and flow performance. Several valves are designed to be on-off, whereas some are designed to be proportional, like in valve position to flow rate proportional. The control valve is among the most sensitive and pricey components of a hydraulic circuit.