Forklift Hydraulic Control Valve

Hydraulic Control Valves for Forklift - The job of directional control valves is to direct the fluid to the desired actuator. Generally, these control valves include a spool located within a housing made either of steel or cast iron. The spool slides to various places within the housing. Intersecting channels and grooves direct the fluid based on the spool's location.

The spool has a neutral or central location which is maintained by springs. In this location, the supply fluid is returned to the tank or blocked. If the spool is slid to a side, the hydraulic fluid is directed to an actuator and provides a return path from the actuator to tank. When the spool is transferred to the opposite side, the supply and return paths are switched. As soon as the spool is allowed to return to the center or neutral location, 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 per hydraulic cylinder and one fluid input that supplies all the valves in the stack.

Tolerances are maintained very tightly, so as to tackle the higher pressures and to prevent leaking. The spools will normally have a clearance inside the housing no less than 25 Ã‚Âµm or a thousandth of an inch. To be able to prevent distorting the valve block and jamming the valve's extremely sensitive components, the valve block will 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 left or right. A seal allows a part of the spool to stick out the housing where it is accessible to the actuator.

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