Forklift Hydraulic Control Valve

Hydraulic Control Valves for Forklift - The job of directional control valves is to be able to route 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 various positions inside the housing. Intersecting grooves and channels route the fluid based on the spool's location.

The spool has a central or neutral location that is maintained with springs. In this position, the supply fluid is blocked or returned to the tank. When the spool is slid to a direction, the hydraulic fluid is directed to an actuator and provides a return path from the actuator to tank. When the spool is moved to the other direction, the return and supply paths are switched. As soon as the spool is enabled to return to the center or neutral location, the actuator fluid paths become blocked, locking it into position.

The directional control is typically designed to be stackable. They normally have one valve per hydraulic cylinder and a fluid input that supplies all the valves inside the stack.

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

A hydraulic pilot pressure, mechanical levers, or solenoids could actuate or push the spool right or left. A seal enables a portion 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. Various valves are designed to be on-off, while some are designed to be proportional, as in flow rate proportional to valve position. The control valve is among the most pricey and sensitive parts of a hydraulic circuit.