Forklift Hydraulic Control Valve

Hydraulic Control Valves for Forklift - 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 inside of a housing made either of cast iron or steel. The spool slides to different positions in the housing. Intersecting channels and grooves route the fluid based on the spool's position.

The spool has a neutral or central location that is maintained by springs. In this particular location, the supply fluid is returned to the tank or blocked. When 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 other side, the return and supply paths are switched. When the spool is enabled to return to the center or neutral position, the actuator fluid paths become blocked, locking it into position.

The directional control is usually made to be stackable. They usually have one valve per hydraulic cylinder and a fluid input which supplies all the valves in the stack.

To be able to prevent leaking and tackle the high pressure, tolerances are maintained really tight. Usually, the spools have a clearance with the housing of less than a thousandth of an inch or 25 Ã?â??Ã?Âµm. So as to avoid jamming the valve's extremely sensitive components and distorting the valve, the valve block would be mounted to the machine' frame with a 3-point pattern.

A hydraulic pilot pressure, mechanical levers, or solenoids could actuate or push the spool left or right. A seal allows 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 flow performance and capacity. Some 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 costly and sensitive parts of a hydraulic circuit.