Hydraulic Control Valves for Forklift

Forklift Hydraulic Control Valve - The job of directional control valves is to be able to route the fluid to the desired actuator. Generally, these control valves include a spool located in a housing created either from cast iron or steel. The spool slides to various positions within the housing. Intersecting channels and grooves route 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 blocked or returned to the tank. When the spool is slid to one side, the hydraulic fluid is routed to an actuator and provides a return path from the actuator to tank. If the spool is moved to the opposite direction, the supply and return paths are switched. When the spool is enabled to return to the neutral or center place, the actuator fluid paths become blocked, locking it into place.

The directional control is usually designed to be stackable. They normally have one valve for each and every hydraulic cylinder and a fluid input that supplies all the valves in the stack.

In order to prevent leaking and handle the high pressure, tolerances are maintained very tight. Normally, the spools have a clearance with the housing of less than a thousandth of an inch or 25 Âµm. To be able to prevent jamming the valve's extremely sensitive components 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 might actuate or push the spool left or right. A seal allows a part of the spool to stick out the housing where it is easy to get to to the actuator.

The main valve block controls the stack of directional control valves by capacity and flow performance. Some of these valves are designed to be proportional, as a valve position to the proportional flow rate, whereas other valves are designed to be on-off. The control valve is amongst the most sensitive and expensive components of a hydraulic circuit.