Forklift Hydraulic Control Valves

Forklift Hydraulic Control Valve - The control valve is actually a tool that routes the fluid to the actuator. This tool would consist of steel or cast iron spool which is located inside of housing. The spool slides to various places within the housing. Intersecting grooves and channels direct the fluid based on the spool's position.

The spool has a central or neutral location that 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. If the spool is moved to the opposite direction, the supply and return paths are switched. As soon as the spool is enabled to return to the neutral or center location, the actuator fluid paths become blocked, locking it into position.

Normally, directional control valves are built to be able 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.

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

Solenoids, a hydraulic pilot pressure or mechanical levers can actuate or push the spool right or left. A seal enables a part of the spool to stick out 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. Some valves are designed to be on-off, while others are designed to be proportional, as in flow rate proportional to valve position. The control valve is amongst the most sensitive and pricey components of a hydraulic circuit.