Hydraulic Control Valves for Forklift

Hydraulic Control Valve for Forklift - The control valve is a tool which routes the fluid to the actuator. This device would consist of cast iron or steel spool which is situated inside of housing. The spool slides to various locations within the housing. Intersecting grooves and channels route the fluid based on the spool's location.

The spool is centrally situated, help in place by springs. In this particular position, the supply fluid could be blocked and returned to the tank. If the spool is slid to a direction, the hydraulic fluid is routed to an actuator and provides a return path from the actuator to tank. If the spool is transferred to the other side, the supply and return 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.

Usually, directional control valves are designed in order to be stackable. They normally have one valve per hydraulic cylinder and one fluid input which supplies all the valves inside the stack.

So as to avoid leaking and deal with 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 Ã?â??Ã?Âµm. So as to prevent distorting the valve block and jamming the valve's extremely sensitive parts, the valve block would be mounted to the machine' frame with a 3-point pattern.

Mechanical levers, solenoids or a hydraulic pilot pressure might 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 normally a stack of off the shelf directional control valves chosen by flow performance and capacity. Various valves are designed to be on-off, while some are designed to be proportional, like in valve position to flow rate proportional. The control valve is one of the most costly and sensitive parts of a hydraulic circuit.