Hydraulic Control Valve for Forklift

Hydraulic Control Valve for Forklift - The control valve is actually a tool that directs the fluid to the actuator. This tool will consist of cast iron or steel spool that is situated inside of housing. The spool slides to various positions in the housing. Intersecting grooves and channels direct the fluid based on the spool's position.

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

Typically, directional control valves are built so as to be stackable. They usually have a valve for every hydraulic cylinder and one fluid input which supplies all the valves within the stack.

Tolerances are maintained really tightly, so as to deal with the higher pressures and in order to prevent leaking. The spools will normally have a clearance in the housing no less than 25 Ã?â??Ã?Âµm or a thousandth of an inch. So as to avoid 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.

The position of the spool may be actuated by mechanical levers, hydraulic pilot pressure, or solenoids which push the spool left or right. A seal enables a part of the spool to protrude outside the housing where it is easy to get to 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, whereas some are designed to be proportional, like in valve position to flow rate proportional. The control valve is among the most costly and sensitive components of a hydraulic circuit.