Hydraulic Control Valves for Forklift

Forklift Hydraulic Control Valves - The control valve is actually a tool which directs the fluid to the actuator. This tool would include cast iron or steel spool which is positioned inside of housing. 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 position which is maintained by springs. In this location, the supply fluid is returned to the tank or blocked. When the spool is slid to a side, the hydraulic fluid is directed to an actuator and provides a return path from the actuator to tank. When the spool is transferred to the other direction, the return and supply paths are switched. As soon as the spool is allowed to return to the center or neutral location, the actuator fluid paths become blocked, locking it into position.

The directional control is typically intended to be stackable. They normally have one valve for each hydraulic cylinder and one fluid input which supplies all the valves within the stack.

Tolerances are maintained very tightly, in order to tackle the higher pressures and to avoid leaking. The spools will normally have a clearance within 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 components, the valve block would be mounted to the machine' frame with a 3-point pattern.

The position of the spool could be actuated by hydraulic pilot pressure, mechanical levers, or solenoids which push the spool right or left. A seal enables a portion of the spool to protrude outside the housing where it is easy to get to to the actuator.

The main valve block is normally a stack of off the shelf directional control valves chosen by flow performance and capacity. Several valves are designed to be on-off, while others are designed to be proportional, like in valve position to flow rate proportional. The control valve is among the most sensitive and pricey parts of a hydraulic circuit.