Forklift Hydraulic Control Valves

Forklift Hydraulic Control Valves - The control valve is a tool that directs the fluid to the actuator. This tool would consist of steel or cast iron spool that is positioned within a housing. The spool slides to different locations in the housing. Intersecting channels and grooves direct the fluid based on the spool's position.

The spool has a neutral or central position which is maintained with springs. In this particular position, the supply fluid is returned to the tank or blocked. When the spool is slid to a direction, the hydraulic fluid is directed to an actuator and provides a return path from the actuator to tank. If 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 place.

Normally, directional control valves are built to be able to be stackable. They usually have one valve per hydraulic cylinder and one fluid input which supplies all the valves inside the stack.

Tolerances are maintained really tightly, to be able to handle the higher pressures and so as to prevent leaking. The spools would normally have a clearance within the housing no less than 25 Ã‚Âµm or a thousandth of an inch. So as to prevent 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 may be actuated by mechanical levers, hydraulic pilot pressure, or solenoids that push the spool left or right. A seal allows a portion 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, like a proportional flow rate to the valve position, while other valves are designed to be on-off. The control valve is one of the most pricey and sensitive parts of a hydraulic circuit.