Forklift Hydraulic Control Valves

Forklift Hydraulic Control Valve - The control valve is a tool that routes the fluid to the actuator. This tool would comprise steel or cast iron spool that is located in a housing. The spool slides to various locations inside the housing. Intersecting channels and grooves route the fluid based on the spool's position.

The spool has a central or neutral position which is maintained by springs. In this particular position, the supply fluid is blocked or returned to the tank. 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 direction, the return and supply paths are switched. Once the spool is allowed to return to the neutral or center position, the actuator fluid paths become blocked, locking it into position.

The directional control is normally designed to be stackable. They normally have a valve for every hydraulic cylinder and one fluid input that supplies all the valves within the stack.

Tolerances are maintained really tightly, in order to tackle the higher pressures and in order to prevent leaking. The spools will normally have a clearance within the housing no less than 25 Âµm or a thousandth of an inch. In order 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 mechanical levers, hydraulic pilot pressure, or solenoids that push the spool right or left. A seal allows a portion of the spool to stick out the housing where it is accessible 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, as a valve position to the proportional flow rate, while some valves are designed to be on-off. The control valve is amongst the most sensitive and pricey parts of a hydraulic circuit.