Forklift Hydraulic Control Valves

Forklift Hydraulic Control Valve - The control valve is a device which routes the fluid to the actuator. This device will comprise steel or cast iron spool which is positioned inside of housing. The spool slides to different places inside the housing. Intersecting channels and grooves route the fluid based on the spool's location.

The spool is centrally positioned, help in place by springs. In this particular location, the supply fluid can be blocked and returned to the tank. When 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 moved to the other direction, the return and supply paths are switched. When the spool is enabled to return to the neutral or center place, the actuator fluid paths become blocked, locking it into position.

The directional control is usually made to be stackable. They generally have one valve per hydraulic cylinder and one fluid input which supplies all the valves in the stack.

Tolerances are maintained extremely tightly, in order to handle the higher pressures and in order to prevent leaking. The spools will normally have a clearance inside the housing no less than 25 Âµm or a thousandth of an inch. In order to prevent jamming the valve's extremely sensitive components and distorting the valve, the valve block will be mounted to the machine' frame with a 3-point pattern.

The location of the spool could be actuated by hydraulic pilot pressure, mechanical levers, or solenoids that push the spool left or right. A seal allows a part 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. Several of these valves are designed to be proportional, like a proportional flow rate to the valve position, whereas some valves are designed to be on-off. The control valve is one of the most sensitive and costly components of a hydraulic circuit.