Forklift Hydraulic Control Valves

Forklift Hydraulic Control Valve - The control valve is a device that routes the fluid to the actuator. This device will include cast iron or steel spool that is situated within a housing. The spool slides to different locations inside the housing. Intersecting channels and grooves route the fluid based on the spool's location.

The spool has a neutral or central position that is maintained by springs. In this position, the supply fluid is returned to the tank or blocked. When the spool is slid to one direction, the hydraulic fluid is routed to an actuator and provides a return path from the actuator to tank. When the spool is moved to the opposite direction, the return and supply paths are switched. When the spool is enabled to return to the neutral or center location, the actuator fluid paths become blocked, locking it into position.

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

To be able to avoid leaking and tackle the high pressure, tolerances are maintained really tight. Usually, the spools have a clearance with the housing of less than a thousandth of an inch or 25 Ã‚Âµm. In order to avoid jamming the valve's extremely sensitive parts and distorting the valve, the valve block would 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 right or left. A seal enables 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. Some 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 among the most sensitive and pricey parts of a hydraulic circuit.