Forklift Hydraulic Control Valves

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

The spool is centrally positioned, help in place by springs. In this particular position, the supply fluid could be blocked and returned to the tank. If the spool is slid to one 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.

Usually, directional control valves are built in order to be stackable. They generally have one valve for each hydraulic cylinder and a fluid input which supplies all the valves in the stack.

So as to prevent leaking and tackle the high pressure, tolerances are maintained extremely tight. Typically, the spools have a clearance with the housing of less than a thousandth of an inch or 25 Âµm. To be able 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.

Solenoids, a hydraulic pilot pressure or mechanical levers can actuate or 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 flow performance and capacity. Some of these valves are designed to be proportional, as a proportional flow rate to the valve position, whereas some valves are designed to be on-off. The control valve is among the most costly and sensitive components of a hydraulic circuit.