Forklift Hydraulic Control Valve

Forklift Hydraulic Control Valve - The control valve is actually a device that directs the fluid to the actuator. This tool will consist of cast iron or steel spool which is located inside of housing. The spool slides to various locations within the housing. Intersecting grooves and channels direct the fluid based on the spool's position.

The spool is centrally situated, 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 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. As soon as the spool is allowed to return to the center or neutral place, the actuator fluid paths become blocked, locking it into position.

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

Tolerances are maintained really tightly, so as to handle the higher pressures and to avoid leaking. The spools would usually have a clearance within the housing no less than 25 Âµm or a thousandth of an inch. So as 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.

A hydraulic pilot pressure, mechanical levers, or solenoids could actuate or push the spool right or left. 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, while some valves are designed to be on-off. The control valve is among the most sensitive and costly components of a hydraulic circuit.