Hydraulic Control Valve for Forklift

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

The spool is centrally located, help in place with springs. In this particular location, the supply fluid could be blocked and returned to the tank. When the spool is slid to a direction, 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 enabled to return to the center or neutral place, the actuator fluid paths become blocked, locking it into position.

Usually, directional control valves are designed to be able to be stackable. They generally have a valve for each and every hydraulic cylinder and a fluid input that supplies all the valves within the stack.

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

The position of the spool may be actuated by mechanical levers, hydraulic pilot pressure, or solenoids that push the spool left or right. 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 costly parts of a hydraulic circuit.