Hydraulic Control Valves for Forklift

Forklift Hydraulic Control Valve - The control valve is actually a tool which directs the fluid to the actuator. This device would comprise cast iron or steel spool that is situated within a housing. The spool slides to different places inside the housing. Intersecting grooves and channels route the fluid based on the spool's position.

The spool is centrally located, 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 one 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 side, 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 place.

Normally, directional control valves are built so as to be stackable. They usually have a valve for each and every hydraulic cylinder and one fluid input that supplies all the valves within the stack.

So as to prevent leaking and tackle the high pressure, tolerances are maintained really tight. Typically, the spools have a clearance with the housing of less than a thousandth of an inch or 25 Âµm. So as to prevent jamming the valve's extremely sensitive parts and distorting the valve, the valve block will 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 right or left. A seal allows a part of the spool to protrude outside the housing where it is accessible to the actuator.

The main valve block is normally a stack of off the shelf directional control valves chosen by flow performance and capacity. Various valves are designed to be on-off, while some are designed to be proportional, like in valve position to flow rate proportional. The control valve is one of the most expensive and sensitive parts of a hydraulic circuit.