Hydraulic Control Valves for Forklift

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

The spool has a central or neutral location which is maintained with springs. In this particular location, the supply fluid is returned to the tank or blocked. When 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 opposite direction, the supply and return paths are switched. Once the spool is allowed to return to the neutral or center place, the actuator fluid paths become blocked, locking it into place.

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

Tolerances are maintained extremely tightly, to be able to handle the higher pressures and in order to prevent leaking. The spools would usually have a clearance inside the housing no less than 25 Âµm or a thousandth of an inch. In order to avoid 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.

Mechanical levers, solenoids or a hydraulic pilot pressure can actuate or push the spool right or left. A seal enables a portion of the spool to protrude outside the housing where it is easy to get to to the actuator.

The main valve block controls the stack of directional control valves by flow performance and capacity. Several of these valves are designed to be proportional, like a valve position to the proportional flow rate, whereas other valves are designed to be on-off. The control valve is amongst the most sensitive and costly parts of a hydraulic circuit.