Hydraulic Control Valve for Forklift

Forklift Hydraulic Control Valve - The control valve is actually a tool that directs the fluid to the actuator. This device would include cast iron or steel spool that is located in a 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 located, help in place with springs. In this particular position, the supply fluid can be blocked and returned to the tank. If the spool is slid to a side, the hydraulic fluid is routed to an actuator and provides a return path from the actuator to tank. If the spool is transferred to the other side, the return and supply paths are switched. As soon as the spool is allowed to return to the neutral or center position, the actuator fluid paths become blocked, locking it into position.

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

So as to avoid leaking and handle the high pressure, tolerances are maintained really tight. Usually, the spools have a clearance with the housing of less than a thousandth of an inch or 25 Âµm. To be able to avoid distorting the valve block and jamming the valve's extremely sensitive components, the valve block will be mounted to the machine' frame with a 3-point pattern.

Mechanical levers, solenoids or a hydraulic pilot pressure may actuate or push the spool right or left. A seal allows a portion of the spool to stick out the housing where it is easy to get to to the actuator.

The main valve block is generally a stack of off the shelf directional control valves chosen by flow performance and capacity. Several valves are designed to be on-off, while some are designed to be proportional, as in valve position to flow rate proportional. The control valve is among the most sensitive and costly components of a hydraulic circuit.