Forklift Hydraulic Control Valves

Hydraulic Control Valves for Forklift - The control valve is a device that routes the fluid to the actuator. This device will include steel or cast iron spool that is positioned inside of housing. The spool slides to various locations within the housing. Intersecting channels and grooves route the fluid based on the spool's position.

The spool is centrally situated, 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 routed to an actuator and provides a return path from the actuator to tank. If the spool is transferred to the other side, the supply and return paths are switched. As soon as the spool is enabled to return to the neutral or center position, the actuator fluid paths become blocked, locking it into position.

Typically, directional control valves are made to be able to be stackable. They usually have a valve per hydraulic cylinder and one fluid input which supplies all the valves in the stack.

In order to prevent leaking and handle the high pressure, tolerances are maintained very tight. Typically, the spools have a clearance with the housing of less than a thousandth of an inch or 25 Ã‚Âµm. So as 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.

The position of the spool may be actuated by hydraulic pilot pressure, mechanical levers, or solenoids which push the spool left or right. A seal allows a portion 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 capacity and flow performance. Several valves are designed to be on-off, while some are designed to be proportional, like in flow rate proportional to valve position. The control valve is one of the most sensitive and pricey components of a hydraulic circuit.