Forklift Hydraulic Control Valves

Hydraulic Control Valves for Forklift - The control valve is a device which routes the fluid to the actuator. This device would comprise cast iron or steel spool that is located within a housing. The spool slides to different places within 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. If 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 opposite direction, the return and supply paths are switched. As soon as the spool is enabled to return to the neutral or center location, the actuator fluid paths become blocked, locking it into place.

Usually, directional control valves are built in order to be stackable. They usually have a valve for each hydraulic cylinder and one fluid input that supplies all the valves in the stack.

In order to avoid leaking and deal with 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?â??Ã?Âµm. So as to avoid jamming the valve's extremely sensitive components and distorting the valve, the valve block would be mounted to the machine' frame with a 3-point pattern.

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

The main valve block is generally a stack of off the shelf directional control valves chosen by capacity and flow performance. Several valves are designed to be on-off, whereas others are designed to be proportional, like in flow rate proportional to valve position. The control valve is one of the most pricey and sensitive components of a hydraulic circuit.