Forklift Hydraulic Control Valve

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

The spool has a neutral or central location that is maintained by springs. In this particular position, the supply fluid is blocked or returned to the tank. If 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. When the spool is transferred to the opposite direction, the return and supply paths are switched. As soon as the spool is allowed to return to the center or neutral location, the actuator fluid paths become blocked, locking it into place.

The directional control is normally made to be stackable. They normally have one valve for each and every hydraulic cylinder and one fluid input that supplies all the valves inside the stack.

In order to avoid leaking and handle 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. In order to prevent 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.

A hydraulic pilot pressure, mechanical levers, or solenoids could actuate or push the spool left or right. 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 generally a stack of off the shelf directional control valves chosen by flow performance and capacity. Some 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 expensive and sensitive components of a hydraulic circuit.