Hydraulic Control Valve for Forklift

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

The spool is centrally positioned, help in place by springs. In this particular position, the supply fluid can be blocked and returned to the tank. If the spool is slid to a direction, the hydraulic fluid is directed to an actuator and provides a return path from the actuator to tank. When the spool is moved to the other side, the supply and return paths are switched. When the spool is allowed to return to the center or neutral place, the actuator fluid paths become blocked, locking it into place.

The directional control is usually made to be stackable. They generally have one valve per hydraulic cylinder and a fluid input which supplies all the valves inside the stack.

In order to avoid leaking and tackle the high pressure, tolerances are maintained extremely tight. Normally, the spools have a clearance with the housing of less than a thousandth of an inch or 25 Âµm. To be able to prevent distorting the valve block and jamming the valve's extremely sensitive parts, the valve block would be mounted to the machine' frame by a 3-point pattern.

Mechanical levers, solenoids or a hydraulic pilot pressure could 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 is usually a stack of off the shelf directional control valves chosen by capacity and flow performance. Some valves are designed to be on-off, whereas others are designed to be proportional, as in valve position to flow rate proportional. The control valve is one of the most expensive and sensitive parts of a hydraulic circuit.