Hydraulic Control Valve for Forklift

Forklift Hydraulic Control Valves - The function of directional control valves is to be able to route the fluid to the desired actuator. Generally, these control valves include a spool positioned inside of a housing created either from cast iron or steel. 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 could be blocked and returned to the tank. When 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. If 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 center or neutral place, the actuator fluid paths become blocked, locking it into position.

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

Tolerances are maintained extremely tightly, to be able to deal with the higher pressures and to avoid leaking. The spools will often have a clearance in the housing no less than 25 Ã?â??Ã?Âµm or a thousandth of an inch. So as to prevent jamming the valve's extremely sensitive components and distorting the valve, the valve block will be mounted to the machine' frame by a 3-point pattern.

The position of the spool can be actuated by mechanical levers, hydraulic pilot pressure, or solenoids which push the spool left or right. A seal allows a portion of the spool to stick out 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. Some valves are designed to be on-off, whereas others are designed to be proportional, as in flow rate proportional to valve position. The control valve is one of the most sensitive and pricey parts of a hydraulic circuit.