Forklift Hydraulic Control Valves

Forklift Hydraulic Control Valve - The job of directional control valves is to be able to route the fluid to the desired actuator. Usually, these control valves include a spool located within a housing created either of cast iron or steel. The spool slides to different locations in the housing. Intersecting grooves and channels direct the fluid based on the spool's location.

The spool is centrally situated, help in place by springs. In this particular location, 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. If the spool is moved 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 position.

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

Tolerances are maintained very tightly, in order to handle the higher pressures and in order to prevent leaking. The spools will normally 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 would be mounted to the machine' frame with a 3-point pattern.

The location of the spool could be actuated by hydraulic pilot pressure, mechanical levers, or solenoids that push the spool right or left. A seal enables a portion of the spool to stick out the housing where it is accessible to the actuator.

The main valve block controls the stack of directional control valves by flow performance and capacity. Several of these valves are designed to be proportional, like a proportional flow rate to the valve position, whereas other valves are designed to be on-off. The control valve is one of the most pricey and sensitive parts of a hydraulic circuit.