Forklift Hydraulic Control Valve

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

The spool is centrally located, help in place with springs. In this particular position, the supply fluid could be blocked and returned to the tank. When the spool is slid to a side, 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 supply and return paths are switched. Once the spool is allowed to return to the center or neutral location, the actuator fluid paths become blocked, locking it into position.

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

Tolerances are maintained really tightly, to be able to tackle the higher pressures and to be able to prevent leaking. The spools will often have a clearance inside the housing no less than 25 Ã‚Âµm or a thousandth of an inch. To be able to prevent jamming the valve's extremely sensitive parts and distorting the valve, the valve block will be mounted to the machine' frame with a 3-point pattern.

The position 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 part of the spool to protrude outside the housing where it is easy to get to to the actuator.

The main valve block controls the stack of directional control valves by flow performance and capacity. Some of these valves are designed to be proportional, like a proportional flow rate to the valve position, while other valves are designed to be on-off. The control valve is among the most costly and sensitive components of a hydraulic circuit.