Hydraulic Control Valves for Forklift

Hydraulic Control Valves for Forklift - 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 created either of steel or cast iron. The spool slides to various locations within the housing. Intersecting channels and grooves direct the fluid based on the spool's position.

The spool has a neutral or central location that is maintained with springs. In this location, the supply fluid is returned to the tank or blocked. 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 moved to the other direction, the supply and return paths are switched. Once the spool is allowed to return to the neutral or center location, the actuator fluid paths become blocked, locking it into position.

Normally, directional control valves are built to be able to be stackable. They normally have one valve for every hydraulic cylinder and one fluid input that supplies all the valves in the stack.

Tolerances are maintained extremely tightly, in order to tackle the higher pressures and so as to prevent leaking. The spools would usually have a clearance inside the housing no less than 25 Ã?â??Ã?Âµm or a thousandth of an inch. In order to prevent jamming the valve's extremely sensitive parts and distorting the valve, the valve block would be mounted to the machine' frame by a 3-point pattern.

The location of the spool may be actuated by hydraulic pilot pressure, mechanical levers, or solenoids which push the spool left or right. A seal enables a part of the spool to stick out the housing where it is easy to get to to the actuator.

The main valve block controls the stack of directional control valves by capacity and flow performance. Several of these valves are designed to be proportional, as 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 sensitive and costly parts of a hydraulic circuit.