Hydraulic Control Valves for Forklift

Forklift Hydraulic Control Valves - The function of directional control valves is to route 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 inside the housing. Intersecting channels and grooves direct the fluid based on the spool's location.

The spool has a neutral or central position which is maintained with springs. In this particular location, the supply fluid is returned to the tank or blocked. If the spool is slid to a side, the hydraulic fluid is routed to an actuator and provides a return path from the actuator to tank. If the spool is transferred to the opposite side, the supply and return paths are switched. When the spool is allowed to return to the neutral or center location, the actuator fluid paths become blocked, locking it into place.

The directional control is typically intended to be stackable. They normally have a valve for each and every hydraulic cylinder and a fluid input that supplies all the valves in the stack.

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

Solenoids, a hydraulic pilot pressure or mechanical levers could actuate or push the spool left or right. A seal allows a part of the spool to stick out the housing where it is easy to get to to the actuator.

The main valve block is generally a stack of off the shelf directional control valves chosen by flow performance and capacity. Some valves are designed to be on-off, while others are designed to be proportional, as in flow rate proportional to valve position. The control valve is among the most costly and sensitive components of a hydraulic circuit.