Forklift Hydraulic Control Valve

Forklift Hydraulic Control Valve - The control valve is actually a device which routes the fluid to the actuator. This tool would comprise cast iron or steel spool that is situated in a housing. The spool slides to various places within the housing. Intersecting channels and grooves direct the fluid based on the spool's location.

The spool is centrally positioned, help in place with springs. In this particular position, the supply fluid can be blocked and returned to the tank. When 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. When the spool is transferred to the other direction, the supply and return paths are switched. Once the spool is enabled to return to the neutral or center place, the actuator fluid paths become blocked, locking it into position.

Normally, directional control valves are designed in order to be stackable. They usually have one valve per hydraulic cylinder and a fluid input that supplies all the valves within the stack.

Tolerances are maintained really tightly, in order to deal with the higher pressures and to avoid leaking. The spools would normally have a clearance inside the housing no less than 25 Ã‚Âµm or a thousandth of an inch. To be able to avoid distorting the valve block and jamming the valve's extremely sensitive components, the valve block will 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 which push the spool right or left. A seal allows a part of the spool to protrude outside 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 flow performance and capacity. Various valves are designed to be on-off, while some are designed to be proportional, as in flow rate proportional to valve position. The control valve is one of the most costly and sensitive parts of a hydraulic circuit.