Forklift Hydraulic Control Valve

Forklift Hydraulic Control Valve - The control valve is actually a device that routes the fluid to the actuator. This tool will include steel or cast iron spool which is situated within a housing. The spool slides to different locations within the housing. Intersecting grooves and channels route the fluid based on the spool's position.

The spool is centrally situated, help in place by springs. In this particular position, the supply fluid could be blocked and returned to the tank. If the spool is slid to one side, the hydraulic fluid is directed to an actuator and provides a return path from the actuator to tank. If the spool is transferred to the other side, the return and supply paths are switched. As soon as the spool is allowed to return to the center or neutral location, the actuator fluid paths become blocked, locking it into place.

Typically, directional control valves are built in order to be stackable. They generally have a valve per hydraulic cylinder and a fluid input that supplies all the valves inside the stack.

So as to avoid leaking and tackle the high pressure, tolerances are maintained really tight. Typically, the spools have a clearance with the housing of less than a thousandth of an inch or 25 Âµm. So as to avoid distorting the valve block and jamming the valve's extremely sensitive parts, the valve block will be mounted to the machine' frame with a 3-point pattern.

The position of the spool may be actuated by hydraulic pilot pressure, mechanical levers, or solenoids that push the spool right or left. 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. Various valves are designed to be on-off, whereas some are designed to be proportional, like in flow rate proportional to valve position. The control valve is amongst the most sensitive and costly parts of a hydraulic circuit.