Hydraulic Control Valves for Forklift

Forklift Hydraulic Control Valve - The control valve is actually a device that routes the fluid to the actuator. This device would consist of cast iron or steel spool which is located within a housing. The spool slides to different locations in the housing. Intersecting channels and grooves route the fluid based on the spool's location.

The spool has a neutral or central location that is maintained by springs. In this particular position, the supply fluid is blocked or returned to the tank. If the spool is slid to one direction, 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 side, 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.

The directional control is typically made to be stackable. They usually have a valve for every hydraulic cylinder and one fluid input that supplies all the valves inside the stack.

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

Solenoids, a hydraulic pilot pressure or mechanical levers might actuate or 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 controls the stack of directional control valves by capacity and flow performance. Some of these valves are designed to be proportional, like a valve position to the proportional flow rate, while some valves are designed to be on-off. The control valve is amongst the most costly and sensitive components of a hydraulic circuit.