Forklift Hydraulic Control Valve

Forklift Hydraulic Control Valve - The control valve is a device that directs the fluid to the actuator. This tool would include steel or cast iron spool that is positioned in a housing. The spool slides to various positions within the housing. Intersecting grooves and channels direct the fluid based on the spool's position.

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

The directional control is normally made to be stackable. They normally have one valve per hydraulic cylinder and one fluid input that supplies all the valves in the stack.

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

Mechanical levers, solenoids or a hydraulic pilot pressure can actuate or push the spool right or left. A seal enables a portion of the spool to stick out the housing where it is accessible to the actuator.

The main valve block is usually 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 expensive and sensitive parts of a hydraulic circuit.