

Hydraulic Control Valve for Forklift

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

The spool is centrally positioned, held in place with springs. In this particular position, the supply fluid could 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. If the spool is transferred to the opposite side, the supply and return paths are switched. Once the spool is enabled to return to the center or neutral position, the actuator fluid paths become blocked, locking it into position.

The directional control is usually designed to be stackable. They usually have one valve for each and every hydraulic cylinder and a fluid input which supplies all the valves in the stack.

Tolerances are maintained really tightly, to be able to tackle the higher pressures and so as to avoid leaking. The spools will often have a clearance in the housing no less than 25 μm or a thousandth of an inch. To be able to prevent jamming the valve's extremely sensitive parts and distorting the valve, the valve block will be mounted to the machine's frame by a 3-point pattern.

The position of the spool can be actuated by mechanical levers, hydraulic pilot pressure, or solenoids which push the spool right or left. A seal enables a portion of the spool to stick out the housing where it is easy to get to the actuator.

The main valve block is normally a stack of off the shelf directional control valves chosen by flow performance and capacity. Several 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 costly and sensitive parts of a hydraulic circuit.