

Forklift Hydraulic Control Valve

Hydraulic Control Valve for Forklift - The control valve is actually a tool which routes the fluid to the actuator. This tool will 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 route the fluid based on the spool's location.

The spool has a central or neutral position which is maintained by springs. In this particular location, the supply fluid is returned to the tank or blocked. If the spool is slid to a direction, the hydraulic fluid is routed to an actuator and provides a return path from the actuator to tank. If the spool is moved to the other side, the supply and return paths are switched. Once the spool is allowed to return to the neutral or center location, the actuator fluid paths become blocked, locking it into position.

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

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

The position of the spool could be actuated by hydraulic pilot pressure, mechanical levers, 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 accessible to the actuator.

The main valve block controls the stack of directional control valves by capacity and flow performance. Several of these valves are designed to be proportional, as a valve position to the proportional flow rate, whereas some valves are designed to be on-off. The control valve is among the most sensitive and expensive components of a hydraulic circuit.