

Forklift Hydraulic Control Valves

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 located in a housing. The spool slides to different locations within the housing. Intersecting grooves and channels direct the fluid based on the spool's location.

The spool has a central or neutral location which is maintained with springs. In this position, the supply fluid is returned to the tank or blocked. If the spool is slid to a side, 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 direction, the supply and return paths are switched. When the spool is enabled to return to the center or neutral place, the actuator fluid paths become blocked, locking it into place.

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

In order to avoid leaking and handle the high pressure, tolerances are maintained really tight. Usually, the spools have a clearance with the housing of less than a thousandth of an inch or 25 μm . To be able to prevent distorting the valve block and jamming the valve's extremely sensitive parts, the valve block will be mounted to the machine's frame by a 3-point pattern.

Solenoids, a hydraulic pilot pressure or mechanical levers might actuate or push the spool left or right. A seal enables a part 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 flow performance and capacity. Several of these valves are designed to be proportional, as a valve position to the proportional flow rate, while other valves are designed to be on-off. The control valve is amongst the most costly and sensitive parts of a hydraulic circuit.