Forklift Hydraulic Control Valve

Hydraulic Control Valves for Forklift - The job of directional control valves is to be able to direct the fluid to the desired actuator. Usually, these control valves consist of a spool located inside of a housing created either of cast iron or steel. The spool slides to various positions inside the housing. Intersecting grooves and channels direct the fluid based on the spool's position.

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

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

Tolerances are maintained very tightly, to be able to deal with the higher pressures and in order to prevent leaking. The spools will usually have a clearance within 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 will be mounted to the machine' frame with a 3-point pattern.

A hydraulic pilot pressure, mechanical levers, or solenoids can 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. Some of these valves are designed to be proportional, as a proportional flow rate to the valve position, whereas other valves are designed to be on-off. The control valve is amongst the most expensive and sensitive components of a hydraulic circuit.