Forklift Hydraulic Control Valve

Forklift Hydraulic Control Valve - The control valve is actually a device that routes the fluid to the actuator. This device will comprise cast iron or steel spool that is located inside of 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 has a neutral or central location which is maintained with springs. In this position, the supply fluid is blocked or returned to the tank. 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 moved to the opposite direction, the supply and return paths are switched. When 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 typically intended to be stackable. They generally have one valve per hydraulic cylinder and one fluid input that supplies all the valves inside the stack.

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

Solenoids, a hydraulic pilot pressure or mechanical levers may actuate or push the spool right or left. A seal allows a portion of the spool to stick out the housing where it is easy to get to 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 one of the most costly and sensitive components of a hydraulic circuit.