Forklift Hydraulic Control Valves

Forklift Hydraulic Control Valve - The control valve is a tool which routes the fluid to the actuator. This device would comprise cast iron or steel spool which is located in a housing. The spool slides to different locations in the housing. Intersecting channels and grooves direct the fluid based on the spool's position.

The spool is centrally situated, help in place by springs. In this particular location, the supply fluid can be blocked and returned to the tank. If the spool is slid to one direction, the hydraulic fluid is directed 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. When the spool is allowed 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 normally have one valve per hydraulic cylinder and one fluid input that supplies all the valves in the stack.

Tolerances are maintained extremely tightly, in order to handle the higher pressures and in order to avoid leaking. The spools will normally have a clearance in the housing no less than 25 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.

The position of the spool may 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 accessible to the actuator.

The main valve block controls the stack of directional control valves by capacity and flow performance. 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 sensitive and costly components of a hydraulic circuit.