Hydraulic Control Valve for Forklift

Forklift Hydraulic Control Valve - The control valve is actually a device that routes the fluid to the actuator. This device will comprise steel or cast iron spool that is situated inside of housing. The spool slides to different places within the housing. Intersecting channels and grooves direct the fluid based on the spool's location.

The spool is centrally situated, help in place with springs. In this particular position, the supply fluid could be blocked and returned to the tank. When the spool is slid to one side, the hydraulic fluid is directed to an actuator and provides a return path from the actuator to tank. If the spool is transferred to the other direction, the supply and return paths are switched. As soon as the spool is enabled to return to the center or neutral position, the actuator fluid paths become blocked, locking it into place.

Typically, directional control valves are built so as to be stackable. They normally have a valve per hydraulic cylinder and one fluid input that supplies all the valves in the stack.

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

The location of the spool can be actuated by mechanical levers, hydraulic pilot pressure, or solenoids which push the spool right or left. A seal enables a part of the spool to protrude outside the housing where it is easy to get to to the actuator.

The main valve block is usually a stack of off the shelf directional control valves chosen by capacity and flow performance. Various valves are designed to be on-off, whereas others are designed to be proportional, like in flow rate proportional to valve position. The control valve is among the most sensitive and expensive parts of a hydraulic circuit.