Forklift Hydraulic Control Valve

Forklift Hydraulic Control Valve - The control valve is a device which routes the fluid to the actuator. This device will include cast iron or steel spool which is positioned inside of housing. The spool slides to various locations within the housing. Intersecting channels and grooves direct the fluid based on the spool's position.

The spool has a central or neutral location that is maintained with springs. In this location, the supply fluid is returned to the tank or blocked. If 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. 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 neutral or center place, the actuator fluid paths become blocked, locking it into position.

The directional control is typically designed to be stackable. They generally have a valve for each and every hydraulic cylinder and a fluid input which supplies all the valves in the stack.

Tolerances are maintained extremely tightly, to be able to tackle the higher pressures and so as to avoid leaking. The spools would normally have a clearance inside the housing no less than 25 Âµm or a thousandth of an inch. To be able to prevent jamming the valve's extremely sensitive components and distorting the valve, the valve block will be mounted to the machine' frame with a 3-point pattern.

Solenoids, a hydraulic pilot pressure or mechanical levers might actuate or 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 is usually a stack of off the shelf directional control valves chosen by flow performance and capacity. Some valves are designed to be on-off, while some are designed to be proportional, as in valve position to flow rate proportional. The control valve is among the most sensitive and expensive components of a hydraulic circuit.