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 would include steel or cast iron spool that is located within a housing. The spool slides to various places within the housing. Intersecting channels and grooves direct the fluid based on the spool's location.

The spool is centrally positioned, help in place by springs. In this particular position, the supply fluid could be blocked and returned to the tank. When the spool is slid to one direction, 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 opposite side, the return and supply paths are switched. Once the spool is enabled to return to the neutral or center position, the actuator fluid paths become blocked, locking it into place.

Normally, directional control valves are built to be able to be stackable. They normally have a valve per hydraulic cylinder and a fluid input which supplies all the valves within the stack.

To be able to avoid leaking and tackle the high pressure, tolerances are maintained really tight. Usually, the spools have a clearance with the housing of less than a thousandth of an inch or 25 Âµm. So as to prevent jamming the valve's extremely sensitive components and distorting the valve, the valve block would be mounted to the machine' frame by a 3-point pattern.

A hydraulic pilot pressure, mechanical levers, or solenoids could actuate or push the spool left or right. A seal enables a part 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, like a proportional flow rate to the valve position, 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.