

Which of the following valves are used for **Direction control**? **Flow control**? **Pressure control**?

Needle valve

Pressure-reducing valve

Check valve

Sequence valve

Shuttle valve

Unloading valve

Relief valve

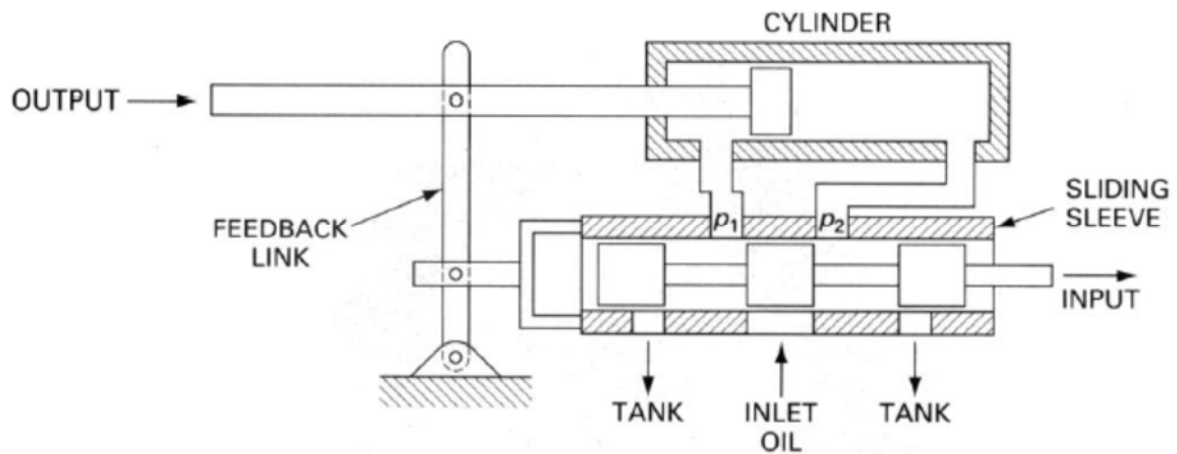
Four-way, two position valve

Counterbalance Valves (CBV)

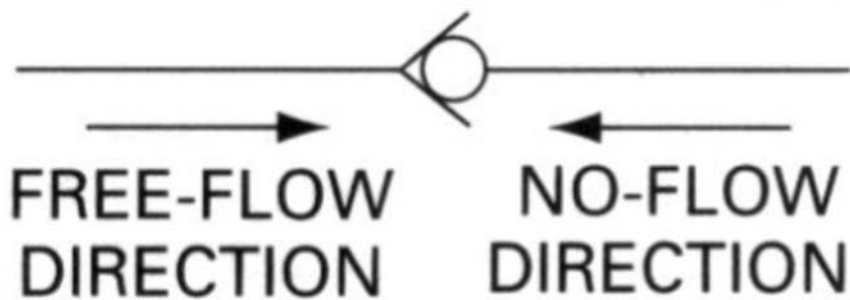
Non-Pressure-Compensated Valves

Pressure-Compensated Valves

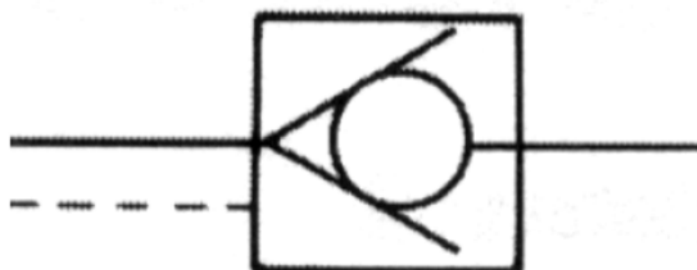
Discuss the operation of Servo valve using neat sketches.



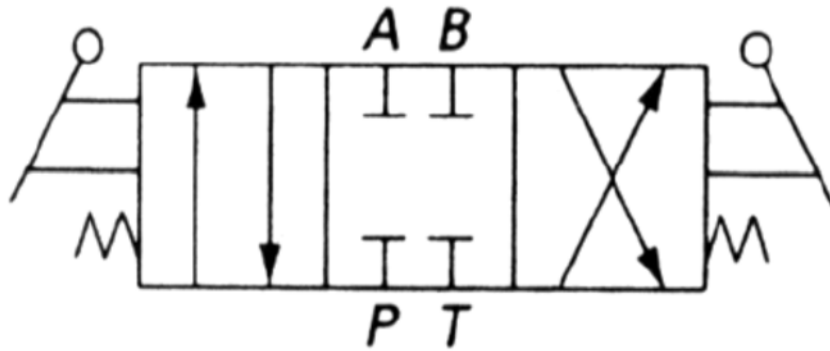
Draw the symbol of these valves:



Check Valve



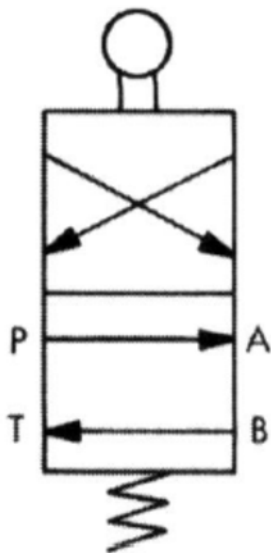
Pilot-Operated Check Valve



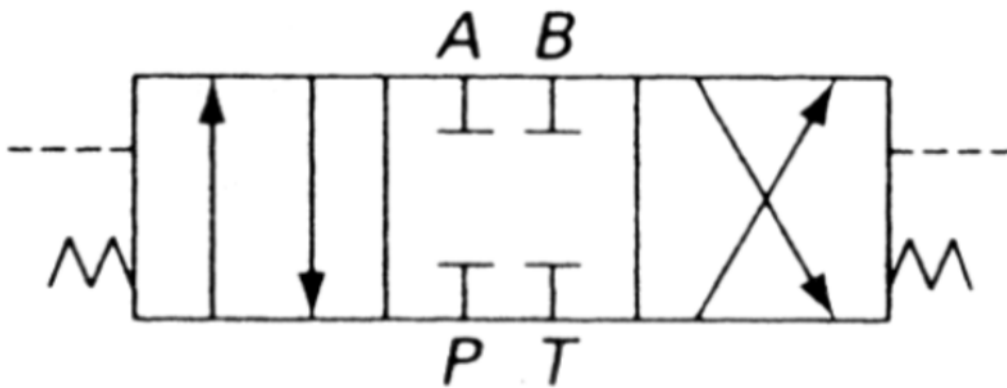
Manually Actuated Spring-Centered, Three-Position, Four-Way Valve



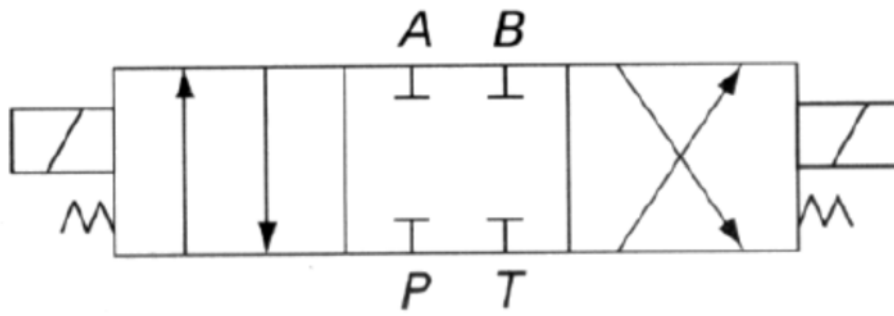
Manually Actuated Two-Position, Spring-offset, Four-Way Valve



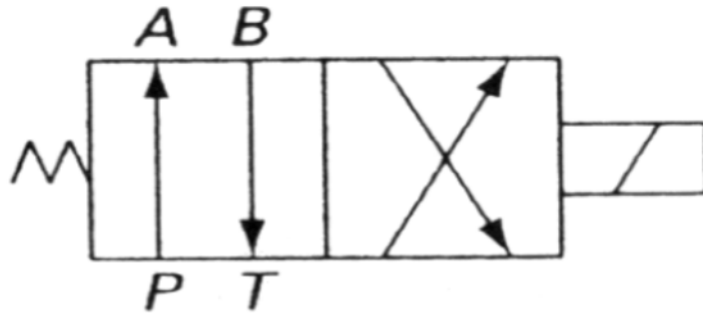
Mechanically Actuated Spring-offset, Two-Position, Four-Way



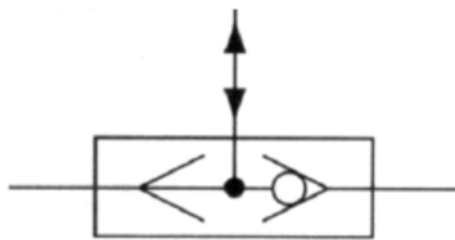
Air Pilot-Actuated Three-Position, Spring-Centered, Four-Way Valve (DCV)



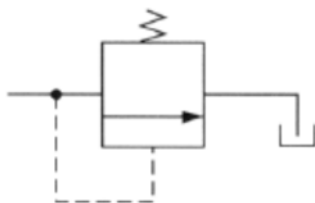
Solenoid-Actuated, Three-Position, Spring-Centered, Four-Way, Directional Control Valve.



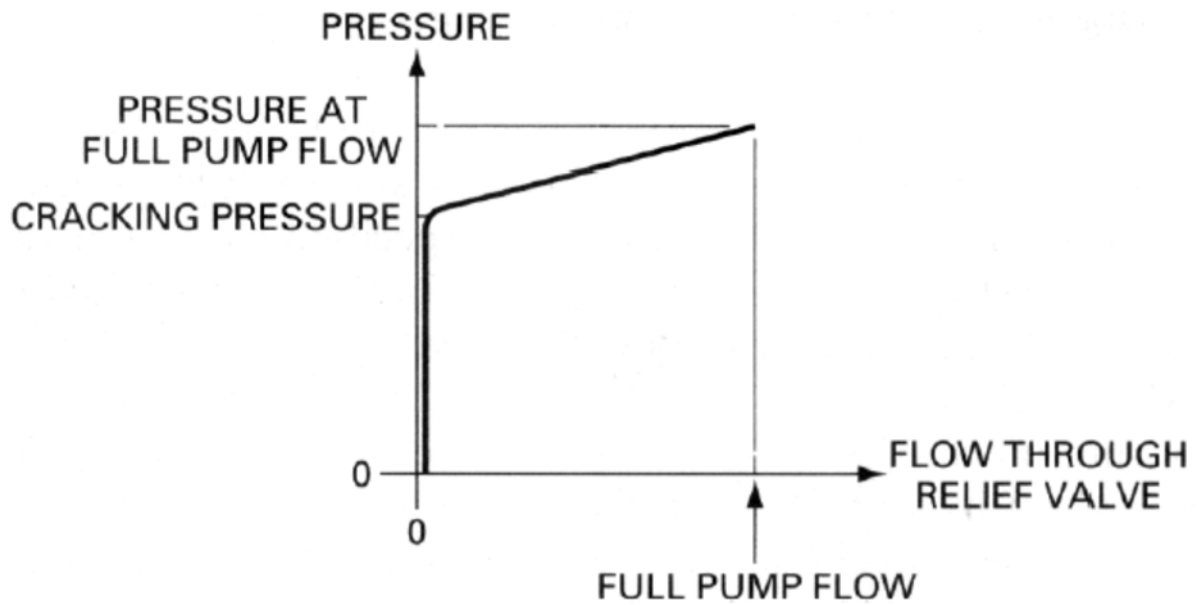
A single solenoid-actuated four-way, two-position, spring-offset, directional control valve



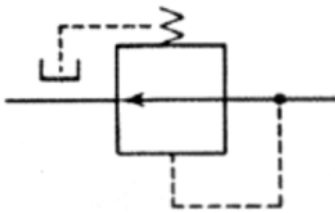
Shuttle Valves



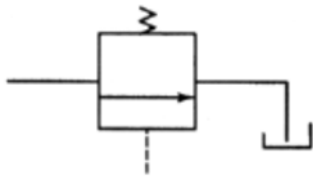
relief valve



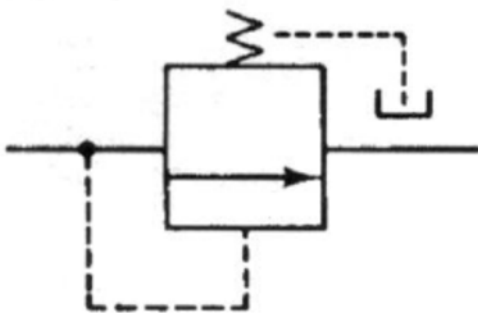
Pressure is plotted versus flow through the relief valve in figure.



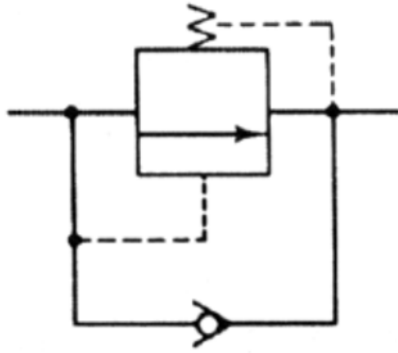
Pressure-Reducing Valves



Unloading Valves



Sequence Valves



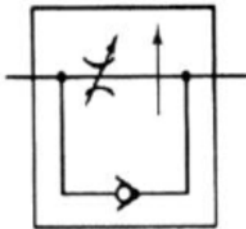
Counterbalance Valves (CBV)



Needle Valves



Non-Pressure-Compensated Valves



Pressure-Compensated Valves

What is the function of:-

Check Valve

It permits free flow in one direction and prevent any flow in the opposite direction.

Pilot-Operated Check Valve

It permits free flow in one direction but permits flow in the normally blocked opposite direction only if pilot pressure is applied at the pilot pressure port of the valve.

Shuttle Valve

It permits a system to operate from either of two fluid power sources.

Relief valve

It permits flow through the outlet to the tank as long as this high pressure level is maintained.

Unloading Valve

It permits a pump to build pressure to an adjustable pressure setting and then allows it to discharge oil to the tank at essentially zero pressure as long, as pilot pressure is maintained on the valve from a remote source.

Counterbalance Valve (CBV)

The purpose of a counterbalance valve is to maintain control of a vertical hydraulic cylinder to prevent it from descending due to the weight of its external load.

Needle Valve

It regulates the speed of hydraulic cylinders and motors by controlling the flow-rate to these actuators.

Non-Pressure-Compensated Valve

It is used where system pressures are relatively constant and motoring speeds are not too critical.