Hydraulic valves

Hydraulic valve is an automatic element operated with pressure oil, which is controlled by the pressure oil of the pressure distribution valve, and is usually used in combination with the electromagnetic pressure distribution valve, which can be used to remotely control the on/off of the oil, gas and water pipeline system of the hydropower station. Hydraulic valves are widely used in construction machinery, mining machinery, hydraulic lifts, packaging machines, coking plants, coal mines, injection molding machines, bending and stamping equipment, foundries, balers, steel mills, CNC machine tools, agricultural machinery and other fields.

Hydraulic valves are usually composed of a valve body, a valve core and a control device, and its valve body contains channels and holes, which control the movement of the valve core to change the opening and closing states of the channels and holes, so as to control the flow of liquid. The working principle of a hydraulic valve can be simply described as follows: the liquid enters the valve body from the hydraulic system and flows through the channels and orifices, the position of the spool determines the opening and closing state of the channels and orifices, and the control device controls the flow of the liquid by changing the position of the spool.

According to the control method, the hydraulic valve can be divided into manual, electronically controlled, hydraulic control and other types, and according to the function, it can be divided into flow valve (such as throttle valve, speed regulating valve, diversion and collector valve), pressure valve (such as relief valve, pressure reducing valve, sequential valve, relief valve), directional valve (such as electromagnetic reversing valve, manual reversing valve, one-way valve, hydraulic one-way valve) and so on. A check valve is a type of hydraulic valve that allows the fluid to flow only along the inlet and the outlet medium to flow back. The reversing valve is a directional control valve with more than two flow forms and more than two oil ports, which realizes the communication, cut-off and reversal of hydraulic oil flow, as well as pressure unloading and sequential action control.

Hydraulic valves play a very important role in the hydraulic system, and its main role is to control the direction, pressure and flow of oil in the hydraulic system. Let's take a look at the role of hydraulic valves:

1. Control direction: directional control valves, such as check valves and reversing valves, can determine the flow direction of oil in the system, so that hydraulic actuators (such as hydraulic cylinders or hydraulic motors) can move according to the predetermined action requirements.

2. Adjust the pressure: The pressure control valve, such as the relief valve, the pressure reducing valve, etc., can regulate and control the pressure in the hydraulic system, ensure that the system works within a safe and stable pressure range, and at the same time prevent the equipment from being damaged or working abnormally due to too high or too low pressure.

3. Adjust the flow rate: flow control valves, such as throttle valves, speed control valves, etc., can control the flow rate in the hydraulic system, so as to control the movement speed of the actuator.

Hydraulic valves allow hydraulic systems to achieve complex motion control, precise positioning, and stable operation. The performance and quality of hydraulic valves have a critical impact on the overall performance and stability of the hydraulic system. Therefore, it is necessary to choose the right hydraulic valve according to the actual situation.

types of hydraulic valves

What is a hydraulic valve