

减压阀型号编制

Pressure Reducing Valves Figure Number System

种类Type	标准Standard	连接Connection	结构Style	材质Material
Y-减压阀	G-GB A-API J-JIS	2-内螺纹 3-法兰	1-压力平衡式 2-弹簧薄膜式 3-先导薄膜式 4-先导活塞式/蒸汽 5-先导活塞式/气体	T-铜 C-铸钢 S-不锈钢 Q-球墨铸铁

减压阀概述

Pressure Reducing Valves Overview

减压阀是通过调节，将进口压力减至某一需要的出口压力，并依靠介质本身的能量，使出口压力自动保持稳定的阀门。

从流体学的观点看，减压阀是一个局部阻力可以变化的节流原件，即通过改变节流面积，使流速及流体的动能不变，造成不同的压力损失，从而达到减压的目的。然后依靠控制与调节系统的调节，使阀后压力的波动与弹簧力相平衡，使阀后的压力在一定的误差范围内保持恒定。

管道上如果一次减压不够可采取二次减压；减压系统通常需采取一备一用，防止因现用减压阀故障而破坏系统或下游设备。

The pressure relief valve is regulated by reducing the inlet pressure to a required outlet pressure, and relying on the energy of the medium itself to automatically keep the outlet pressure stable.

From the point of view of hydrologic, the pressure relief valve is a throttle origin that can change the local resistance, that is, by changing the throttle area, the flow velocity and the kinetic energy of the fluid are changed, and the pressure loss is different, thus the purpose of reducing pressure is achieved. Then the adjustment of the control and adjustment system makes the fluctuation of the pressure after the valve balance with the spring force, so that the pressure after the valve is kept constant in a certain range of error.

Two times of decompression can be taken in a pipe if the pressure is not enough. The pressure reduction system usually requires a single use to prevent the failure of the system or downstream equipment because of the current pressure relief valve failure.

减压阀的性能要求Performance requirements of pressure reducing valves

1. 通常，减压阀的阀后压力P2与阀前压力P1之差必须 $\geq 0.2\text{MPa}$ 。

1. Usually, the difference between the pressure P2 of the pressure reducing valve and the pressure P1 of the valve must be more than 0.2MPa.

2. 出口流量变化时，直接作用的出口压力偏差值不大于20%；先导式不大于10%。

2. The outlet pressure deviation of the direct acting type is not greater than 20% when the export flow changes, and the pilot type is not greater than 10%.

3. 进出压力变化时，直接作用式的出口压力偏差值不大于10%；先导式不大于5%。

3. When the inlet and outlet pressure changes, the outlet pressure deviation of the direct acting type is not more than 10%, and the pilot type is not more than 5%.

4. 在给定的弹簧压力级范围内，使出口压力在最大值与最小值之间能连续调整，不得有卡阻和异常振动。
4. Within a given spring pressure level, the outlet pressure can be adjusted continuously between the maximum and the minimum, and there must be no jamming and abnormal vibration.

5. 软密封的减压阀，在规定时间内不得有渗漏；金属密封的减压阀，其渗漏量应不大于最大流量的5%。
5. For the soft-sealed relief valve, there must be no leakage within the prescribed time; for the metal-sealed relief valve, the leakage should not exceed 5% of the maximum flow rate.

减压阀的分类Classification of pressure reducing valves

– 直接作用式减压阀：采用薄膜或活塞作为敏感元件来带动阀瓣运动，达到减压、稳压的目的。由于没有活塞的摩擦力，薄膜式减压阀的敏感度较高。

– Directly acting pressure reducing valve: The film or piston is used as the sensing element to drive the valve disc movement to achieve the purpose of reducing pressure and stabilizing pressure. Because there is no friction force on the piston, the membrane type pressure reducing valve has a higher sensitivity.

– 先导活塞式减压阀：通过活塞来平衡压力，带动阀瓣运动，实现减压。

– Pilot piston pressure reducing valve: through the piston to balance pressure, drive the disc movement, decompression.

– 先导薄膜式减压阀：与直接作用式相同，只不过在薄膜上腔的压力不是由弹簧控制，而是由旁路调节阀控制。

– Guide film pressure relief valve: the same as the direct acting pressure relief valve, but the pressure in the film cavity is not controlled by the spring, but by the bypass control valve.

– 电控、气控减压阀：直接利用外部能源来驱动阀芯实现减压开度，从而控制出口压力的变化。

– Electronically and pneumatically controlled pressure relief valve: directly use external energy to drive the spool to achieve pressure relief opening, thereby controlling the change of outlet pressure.

– 组合式减压阀：由主阀、导阀、针型阀组成，具有薄膜式减压阀和活塞式减压阀的一切特点。

– Combination pressure reducing valve: It is composed of main valve, guide valve and needle valve, and has all the characteristics of membrane pressure reducing valve and piston pressure reducing valve.

– 杆杠式减压阀：通过杆杠上的重锤来平衡压力的减压阀。

– Rod type pressure reducing valve: the pressure reducing valve is balanced by the heavy hammer on the rod bar.

减压阀性能对比Performance comparison of pressure reducing valves