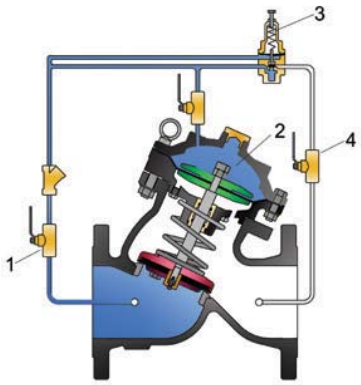
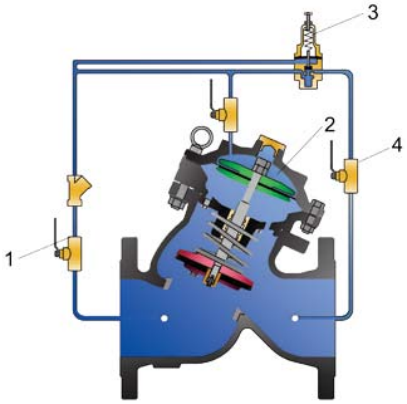
Pressure Relief & Sustaining Valve

SK730X

SK730X1





1.Statement

SK730X Pressure Relief & Sustaining Valve is a diaphragm type of hydraulic control valve driven by the hydraulic pressure within the piping system. One prominent feature of the valve is, it can serve as pressure relief valve and sustaining valve at the same time. As pressure relief valve, it releases the high pressure before the valve out of the piping system for protection of the pipes and the equipments when the pressure exceeds its pre-set value; As pressure sustaining valve, it maintains the water pressure above certain set value for guarantee of water supply to upstream area

2.Operational principle

SK730X Pressure Relief & Sustaining Valve is controlled by pressure relief/sustaining pilot valve and equipped with pressure relief/sustaining pilot valve, needle valve, mini strainer and ball valve, etc.

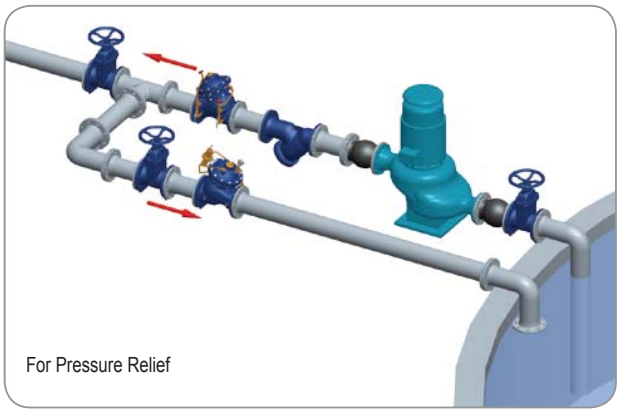
As Pressure relief valve, the valve is connected with branch pipe and directed to lower pressure area or drainage ditch. In normal working conditions, water flow enters the upper cavity room (2) through needle valve (1). When the pressure before the pilot valve (3) is lower than its pre-set value A, the pilot valve will remain closed and the water that enters the upper cavity room drives the membrane down and closes the disc and the basic valve. The pilot valve opens when the pressure before the valve exceeds its pre-set value and the pressure accumulated in the upper cavity room gets released. Under the pressure from the inlet opening, the disc of the basic valve opens. In this way the pressure within the piping system will be maintained under the pre-set value A.

As pressure sustaining valve, the valve is connected in series with the main pipe and serves to maintain the pressure before valve above the set value B. Under normal conditions, water flow comes continuously from the inlet opening to the upper cavity room (2) of the basic valve through the needle valve (1); When the pressure before the pilot valve (3) is lower than its pre-set value, the pilot valve will remain closed and the water that enters the upper cavity room drives the membrane down and closes the disc and the basic valve for accumulation of pressure till equals to the set value B. The pilot valve opens when the pressure before the valve exceeds its pre-set value and the pressure accumulated in the upper cavity room gets released. Under the pressure from the inlet opening, the disc of the basic valve opens to allow water flow. In this way the pressure within the piping system will be maintained under the pre-set value B.

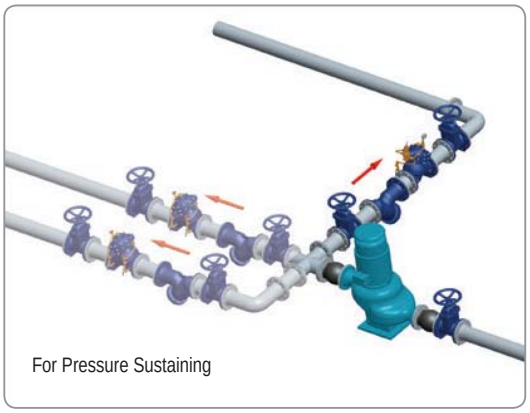
3.Property and advantages

- Driven by pressure of pipe system, work automatically with energy of pipe system to achieve energy conservation and environment protection.
- Controlled by pilot valve, lower energy consumption, achieve accurate pressure relief and pressure holding results, reliable and safe.
- Dual cavity design, with functions of fully opening and fully closing. Slow shut causes no pressure fluctuation, and the diaphragm with support is well protected.
- Have internal orifice, connect bottom cavity and outlet of the basic valve, make sure stability of reaction to keep stability of pressure after the valve, avoid any vibration and noise.
- Channel with straight-flow, slight friction loss, no eddy flow and turbulent flow, cut down the damage of cavitation.
- Long pitch orientation design for stem move, stable and no gap resistance.
- Balanced automatically, big gap design on connection of disc and stem, disc is free on the vertical flat against stem, it can balance the tolerance from machining and sealing surface. Good connection without leakage.
- Ductile iron castings with nodularity higher than 90%, foundry in house with advanced melting technology and strict quality control system, testing reports and testing bars can be supplied with order. Records and testing bars maintained for one year in the factory.
- Good corrosion resistance, with stainless steel, copper alloy, rubber made from DuPont and other rust-resisting material, fusion bonded epoxy coating both for interior and exterior surface of the basic valve. All the characteristics in accordance with ANSI/AWWA C550 and other international specifications like WRAS, NSF61.

4.Typical installation illustration



For Pressure Relief



For Pressure Sustaining

5.Basic Parameters

Pressure	Symbol	Unit	Working Pressure		
			175PSI	250PSI	300PSI
Set Pressure	Ps	MPa	≤0.83	≤1.33	≤1.7
Set Pressure Difference			Ps＜0.5: ±0.014 MPa; Ps≥0.5: ±3%Ps		
Open/Close Pressure Difference	ΔPb		Ps＜0.3: 0.06MPa; Ps≥0.3: 20%Ps		
Discharge pressure	Pd		≤1.2Ps		

6.Notes for installation and debugging

All the Pressure Relief & Sustaining Valves have been finished initial debugging tests before delivery and the set-pressure is 0.6MPa. Further debugging test is also suggested during using according to different working conditions.

After the pipe system becomes stable, please loose the lock nut under adjusting screw, open the ball valve or needle valve (1) slightly, when pressurize, adjust the adjust screw on pressure relief pilot valve and fasten the lock nut when it achieves pressure required. Pay attention that when adjust pressure relief pilot valve, clockwise is for increasing pressure and anti-clockwise is for reducing pressure.

7.Common problems and proposed solutions

Common Problems	Proposed Solutions
The pressure of pipe system is lower than set-pressure, the valve dose not close.	a.Check if any sundries on the sealing surface of basic valve or pilot valve. b.Check if any damage on the sealing surface of basic valve or pilot valve. c.Check if any damage or fatigue on spring of basic valve or pilot valve. d.Check if any damage or fatigue on diaphragm of basic valve or pilot valve.
The pressure of pipe system is higher than set-pressure, the valve dose not open.	a.Check if ball valve (4) is closed, if yes, please open it. b.Check if any blocks in basic valve or on stem of pilot valve, if yes, please remove the block or change new stem. c.Check if lock nut and adjust screw were adjusted wrongly, please try to repeat all the actions.