

- a Low Pressure Pilot Valve
- b High Pressure Pilot Valve
- c Ball Valves
- d In-line Finger Filter
- e Pressure Gauge
- f Needle Valve

### Description

Armaş "SA" model surge anticipating control valve is the safety control valve designed to protect system in relatively longer water supply network elevating line by damping energy waves formed by energy interruptions in pumping systems and by releasing water-hammers which are caused from sudden changes in water flow rate to atmosphere automatically and quickly. Valve is opened quickly by sensing diminished pressure wave previously by means of pressure signal tube it owned. When line pressure reached normal level, it is closed slowly and automatically as wholly sealed.

### Valve Sizing

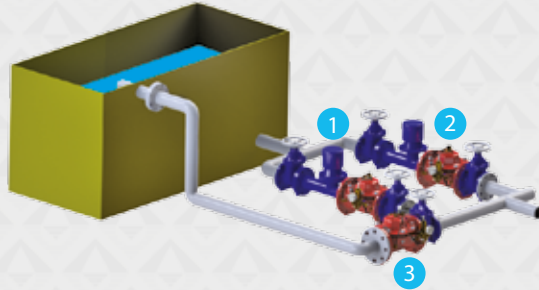
- Surge Anticipating valve is mounted on network in TE configuration.
- Since valve's function is to release pressure, valve diameter may be selected as equal to or in closest smaller size than main pipe diameter. Valve diameter should be selected as smaller than main pipe diameter. Following empirical formula may be used in determining diameter of quick pressure relief control valve. Where;

$$D = \sqrt{\frac{250 \times Q}{\sqrt{Hm}}}$$

- D = Diameter of surge anticipating valve in (mm)
- Q = System Flow Rate (m<sup>3</sup>/h)
- Hm = System Operating Pressure (meter → 1 bar ≈ 10 meter)

- Valve closing time is proportional with pipe length. As system pipe length increases, valve closing time should be increased.

## Typical Application



- 1 Pump
- 2 Pump Control Valve
- 3 Surge Anticipating Valve

## Installation

- Mount valve in "TE" configuration.
- Mount valve signal tube on main line.
- Mount valve in direction of arrow indicated on it.
- While connecting valve on line, place gasket between valve flange and pipe flange to ensure sealing and tighten the bolts as crosswise.
- It is recommended that isolation valves (butterfly or gate valves etc.), air relief valve and strainer valves will be used in mounting valve on line (See the sample montage picture).

## Pilot Valve Pressure Adjustment Range

Standard Pressure Range	5 - 160 m	7,5 - 240 psi
Medium Pressure Range	10 - 100 m	15 - 150 psi
High Pressure Range	5 - 240 m	7,5 - 360 psi



## Adjustment

### Adjusting High Pressure Pilot Valve

- Loosen adjusting bolt (a1) of low pressure pilot valve indicated with "a" and tighten adjusting bolt (b1) of high pressure pilot valve indicated with "b". Start pump by closing ball valves indicated with c2 and c3.
- When system pressure reached to operating pressure, open the valve indicated with "c3" and loosen "b1" adjusting bolt until water will drop from ball valve. After dropping water, turn the adjusting bolt as one turn in opposite direction and tighten the contra nut below it. In general, adjusting point of high pressure pilot valve is adjusted 1 bar above system pressure.
- Open "c2" ball valve and adjust low pressure pilot valve indicated with "a".

### Adjusting Low Pressure Pilot Valve

- Close ball valve indicated with "c4".
- Open needle valve indicated with "f" slowly.
- Check the pressure by means of "e" pressure gauge. Pressure will decrease.
- While decreasing pressure, water will drop from "c2" spherical valve.
- After dropping water, close needle valve indicated with "f" and open "c4" ball valve.
- If opening pressure of low pressure pilot valve indicated with "a" is not in desired value, adjust it to desired value by means of "a1" adjusting bolt. If low pressure wave (valve opening pressure) is too high, loosen "a1" adjusting screw as 1/2 turn. If low pressure wave is too low, tighten "a1" adjusting bolt as 1/2 turn. While adjusting each low pressure pilot valve, follow instructions given above.

## Troubleshooting

Failure	Causes	Correcting/Repair
Valve not opening	<ul style="list-style-type: none"> <li>• "c" ball valves on valve may be closed.</li> <li>• Low pressure pilot valve in not in the setting point.</li> <li>• Movable parts of pilot valves may be clogged due to calcification.</li> <li>• Needle valve of high pressure pilot valve may be closed.</li> </ul>	<ul style="list-style-type: none"> <li>• Check ball valves and open if they are closed.</li> <li>• Set low pressure pilot valve in accordance with adjusting instructions.</li> <li>• Replace with the new one.</li> <li>• Open needle valve between 1 - 1/2 turn according to your system setting.</li> </ul>
Valve not closing	<ul style="list-style-type: none"> <li>• Diaphragm may be punctured.</li> <li>• Foreign substances may exist in diaphragm seat.</li> <li>• Connections of pilot valves may be clogged because of foreign substances</li> <li>• Finger filter may be clogged.</li> </ul>	<ul style="list-style-type: none"> <li>• Check diaphragm and replace with the new one if it is punctured.</li> <li>• Check diaphragm seat and remove foreign substances if any.</li> <li>• Check connections and clean.</li> <li>• Clean if it is clogged.</li> </ul>
Valve opens but does not close	<ul style="list-style-type: none"> <li>• Low pressure pilot valve is not in desired setting.</li> </ul>	<ul style="list-style-type: none"> <li>• Readjust it in accordance with the instructions.</li> </ul>

## Order Information

Please submit following information to our sales department while ordering.

Maximum flow rate \_\_\_\_\_ m<sup>3</sup>/h  
 Maximum network/line pressure \_\_\_\_\_ bar  
 Main line size \_\_\_\_\_ mm  
 Valve connection type \_\_\_\_\_  
 Maximum pump pressure \_\_\_\_\_ bar  
 Length of main pipe line \_\_\_\_\_ m

## Sample order form

Model	Connection	Size	Control Feature	Additional Features	Options
67-67D	F: Flanged (ISO-ANSI)	2"-16"	Surge Anticipating Control	EL: Electric Control	Position Indicator
66-66D-64	TH: Threaded (BSPT-NPT)	1½"-3"			
63-63D	VIC: Grooved End	2"-4"			
<b>67</b>	<b>F</b>	<b>6"</b>	<b>SA</b>	<b>EL</b>	<b>PIR</b>