



Fig.1 · Type 2398

### **1. Design and principle of operation**

The Type 2398 Excess Pressure Valve consists of a closing valve and an attached diaphragm actuator. The excess pressure valve is typically used to control inert gases and to constantly maintain the upstream pressure at

a set point value within the range of 5 to 50 mbar.

When the upstream pressure increases the valve opens, whereas a decreasing upstream pressure causes the valve to close.

The process medium flows through the valve between the seat (2) and plug (3) in the direction indicated by the arrow. The position of the valve plug determines the flow, and hence the pressure ratio at the valve. The balancing bellows (5) is used to compensate the forces resulting from the changes in differential pressure, so that they do not have any influence on the valve position.

The upstream pressure to be controlled is transmitted to the operating diaphragm via the control line (10) and converted into a positioning force. This positioning force is used to move the plug stem, depending on the force of the adjustment springs (7). The set point can be adjusted at the set point adjuster (8) by changing the load of the springs.

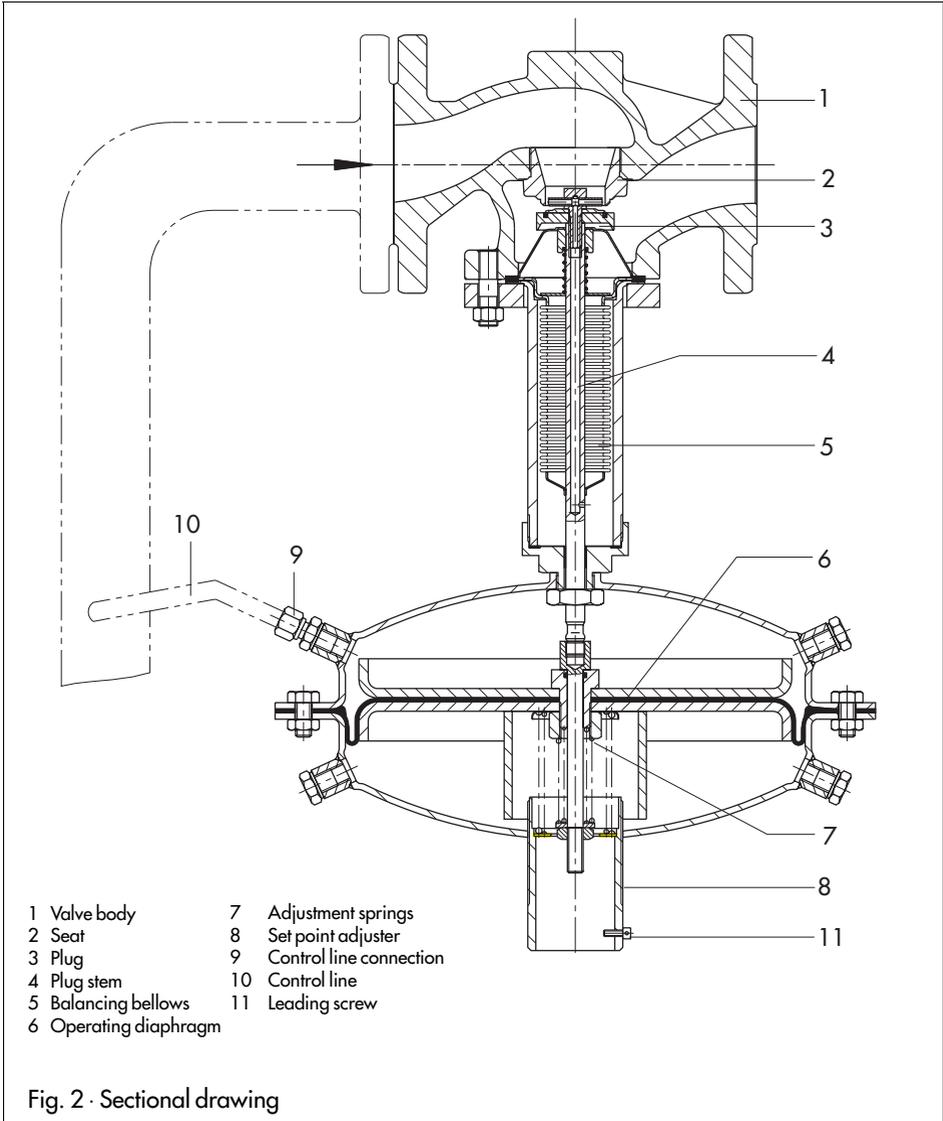


Fig. 2 · Sectional drawing

## 2. Installation

The excess pressure valve is to be installed in horizontal pipelines with the actuator being suspended downwards. The process medium must flow in the direction indicated by the arrow.

When choosing the place of installation, make sure the valve can still be easily accessed after the completion of the plant.

The valve must be installed free of stress, if needed, support the pipeline near the connecting flanges. **Do not mount any supports on the valve or on the actuator!**

Flush the pipeline thoroughly prior to installing the valve, since sealing particles, globules and other impurities carried along by the process medium could impair the proper functioning, and especially the tight shut-off. A strainer (Samson Type 2) must be installed upstream of the excess pressure valve (see section 2.2).

## 2.1 Control line

The control line (copper or stainless steel  $\varnothing$  8 mm) must be adapted and mounted on site.

It must be connected to the pipeline upstream of the valve at a distance of approx. 10 x nominal size DN.

If the process medium is damp, e.g. because it has been mixed with a liquid, condensation may occur in the control line towards the actuator. To prevent the build-up of condensate in the actuator, the control line should be laid with an upward slope of approx. 10 % from its connection point at the pipeline (Fig. 2).

## 2.2 Strainer

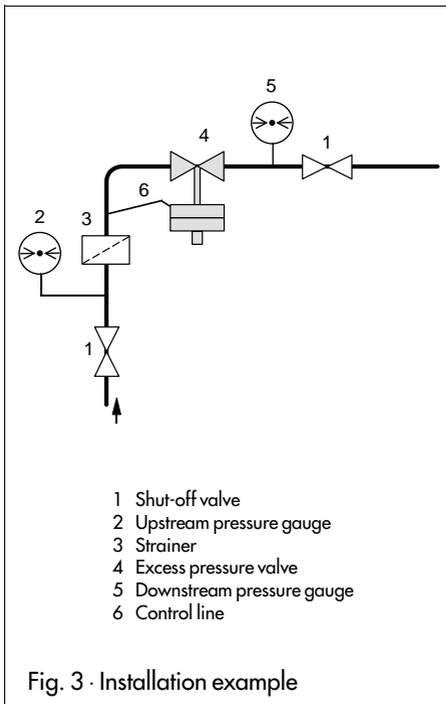
The strainer must be installed upstream of the excess pressure valve and the pressure sensing point. The process medium must flow in the direction indicated by the arrow. The filter element is to be suspended downwards. Make sure you leave enough space for disassembling the filter element.

## 2.3 Shut-off valves

Ideally, hand-operated shut-off valves should be installed upstream of the strainer and downstream of the excess pressure valve. This allows the plant to be shut down for cleaning and maintenance procedures, and when the plant is not used for an extended period of time.

## 2.4 Pressure gauges

For monitoring the pressures prevailing throughout the plant, pressure gauges should be installed both upstream and downstream of the excess pressure valve.



### 3. Operation

#### 3.1 Start-up

Put the excess pressure valve into operation by slowly opening the shut-off valves.

**Important:** The maximum permissible pressure at the operating diaphragm of the actuator must not exceed 2 bar. Especially, when the valve is put into operation or when the plant is started up, take care larger pressure surges are prevented.

#### 3.2 Set point adjustment

The desired excess pressure (upstream pressure) is simply adjusted by turning the set point adjuster (8).

Turning clockwise increases the excess pressure, whereas turning anti-clockwise decreases it.

The adjusted set point can be controlled by reading the pressure gauge installed in the upstream pressure line.

#### 3.3 Troubleshooting

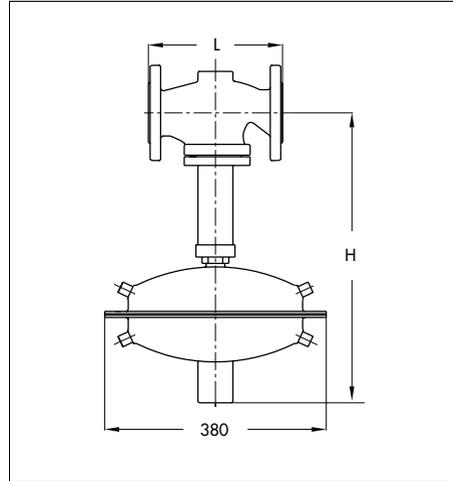
If the excess pressure (upstream pressure gauge) considerably differs from the adjusted set point, first check the control line for blockages.

If the problem is due to other causes such as a damaged seat or plug or leaks in the operating diaphragm, you should contact the customer service or send the valve to the manufacturer for repair.

To put back into operation, proceed as described in section 3.1.

### 4. Dimensions in mm and weights

Nominal size	DN	15	20	25	32	40	50
Overall length	L	130	150	160	180	200	230
Overall height	H	405			460		
Weight	ap. kg	20	21	22	26	28	30



### 5. Customer Inquiries

Should you have any inquiries, please submit the following details:

1. Type and nominal size of the excess pressure valve
2. Order and product number (written on the nameplate)
3. Upstream and downstream pressure
4. Flow rate in  $\text{m}^3/\text{h}$
5. Has a strainer been installed?
6. Installation drawing



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