

## VUP: Pressure-relieved 2-way flanged valve, PN 25 (pn.)

### How energy efficiency is improved

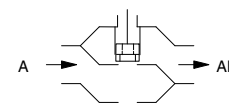
Efficiency means precise and reliable control

### Features

- Continuous control of cold and hot water in closed circuits, and of steam
- Assembly with AVP 242 to 244 actuators as control unit.
- Water quality as per VDI 2035
- Not suitable for drinking water or potentially explosive atmospheres
- Valve with flange connection as per EN 1092-2, seal form B
- Regulating valve, free of silicone grease, with pressure compensation, galvanised and painted black
- The valve is closed when the spindle is moved in
- Valve body of ductile cast iron
- Valve seat, plug and spindle are made of stainless steel
- Closing only against the pressure
- Maintenance-free stuffing box in brass with spring-loaded PTFE-FKM-PTFE washer



VUP100F304



### Technical data

#### Parameters

Nominal pressure	PN 25
Connection	Flange as per EN 1092-2, form B
Valve characteristic	Equal-percentage
Control ratio	> 100:1
Leakage rate at max. $\Delta p_S$	< 0.05% of $k_{VS}$ value

#### Admissible ambient conditions

Operating temperature <sup>1)</sup>	-20...200 °C
Operating pressure	Up to 120 °C, 25 bar up to 200 °C, 20 bar -20...-10 °C, 18 bar

#### Overview of types

Type	Nominal diameter	$k_{VS}$ value	Valve stroke	Weight
VUP040F304	DN 40	25 m³/h	14 mm	10 kg
VUP050F304	DN 50	40 m³/h	25 mm	14 kg
VUP065F304	DN 65	63 m³/h	25 mm	18 kg
VUP080F304	DN 80	100 m³/h	25 mm	25.5 kg
VUP100F304	DN 100	160 m³/h	40 mm	36.5 kg
VUP125F304	DN 125	250 m³/h	40 mm	56.5 kg
VUP150F304	DN 150	350 m³/h	40 mm	84.5 kg

#### Accessories

Type	Description
0372336180	Adaptor (required when temperature of the medium is 130...180 °C)
0372336240	Adaptor (required when temperature of the medium is 180...200 °C)
0378284100	Stuffing box heater 230V~, 15 W for medium below 0 °C
0378284102	Stuffing box heater 24V~, 15 W for medium below 0 °C
0378356001	Replacement pack for stuffing box DN 40...80
0378357001	Replacement pack for stuffing box DN 100...150

<sup>1)</sup> Use stuffing box heater at temperatures below 0 °C; use the relevant adaptor (accessory) at temperatures above 130 °C or 180 °C



### Combination of VUP with pneumatic actuator

- i** *Warranty: The technical data and pressure differences indicated here are applicable only in combination with SAUTER valve actuators. The warranty does not apply if used with valve actuators from other manufacturers.*
- i** **Definition of  $\Delta p_s$ :** *Maximum admissible pressure drop in the event of a malfunction (pipe break after the valve) at which the actuator reliably closes the valve by means of a return spring.*
- i** **Definition of  $\Delta p_{max}$ :** *Maximum admissible pressure drop in control mode at which the actuator reliably opens and closes the valve.*
- i** *The running time is based on the centair air flow rate (400 l<sub>r</sub>/h) and on a supply line with a length of 20 m and a diameter of 4 mm.*
- i** *VUP with AVP is possible only in combination with XSP31.*

### Pressure differences

Actuator	AVP242F021	AVP243F031	AVP244F031
Running time	8 s	24 s	40 s

#### $\Delta p$ [bar]

Closes against the pressure	$\Delta p_{max}$	$\Delta p_{max}$	$\Delta p_{max}$
VUP040F304	22.2	–	–
VUP050F304 VUP065F304	15.1	–	–
VUP080F304	9.8	–	–
VUP100F304	–	18.5	25.0
VUP125F304 VUP150F304	–	10.7	25.0

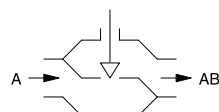
Cannot be used to close with the pressure

 At temperatures above 130 °C, accessories are required

### Description of operation

The valve can be moved to any intermediate position with a pneumatic actuator. When the spindle is pressed in, the valve is closed. Observe the direction of flow shown on the valve. Closing with pressure is not permitted with pneumatic actuators, because this would cause pressure surges. The flow parameters correspond to EN 60534.

### Closes against the operating pressure



These valves are used for great differential pressures, and thanks to the pressure compensation standard actuators can be used. The valve spindle is automatically and firmly connected to the actuator spindle. The plug has a piston form. Depending on the nominal diameter, the upstream pressure is directed to the rear side of the plug via two or more holes in the plug. The forces acting on the plug are relieved up to the area of the spindle surface. The pressure-relieved plug is also sealed against the outlet. This design means there is very little flow in the pressure relief area. This minimises the risk that pressure relief is impaired by dirt.

The stuffing box is maintenance-free. Two slightly tapered flat seals are inserted between an FKM seal and a spring. The spring ensures permanent tension on the seals, thus guaranteeing that they are leaktight against the spindle. In addition, a glycerine grease reserve ensures that the spindle is constantly lubricated. The glycerine grease reserve also stops particles that are present in the medium from penetrating to the PTFE seal.

### Intended use

This product is only suitable for the purpose intended by the manufacturer, as described in the "Description of operation" section.

All related product documents must also be adhered to. Changing or converting the product is not admissible.

## Engineering and fitting notes

The actuator is mounted directly on the valve and fastened with screws. The actuator is connected with the valve spindle automatically. The closing point must be adjusted as described in the fitting instructions (MV 506012 for AVP 242 or MV 506013 for AVP 243/244).

## Additional technical data

SAUTER slide rule for valve sizing	P100013496
Technical manual on control units	7 000477 001
Parameters, fitting notes, control, general information	Applicable EN, DIN, AD, TRD and UVV regulations
CE conformity as per pressure equipment directive (fluid group II)	97/23/EC
VUP 040: CE-0035 label	Article 3.3
From VUP 050: CE-0035 label	Category I or II
<b>Fitting instructions:</b>	
VUP	MV 505963
AVP 242	MV 506012
AVP 243/244	MV 506013
Declaration on materials and the environment	MD 76.122

## Fitting position

The control unit can be fitted in any position, but the hanging position is not recommended. Condensate, drops of water, etc. must be prevented from entering the actuator. With horizontal installation and no structural support for the actuator, the maximum admissible weight on the valve is 25 kg.

### Up to 130 °C:

- In any position except suspended.

### Over 130 °C:

- At temperatures of over 130 °C or over 180 °C, a horizontal fitting position is recommended, and the appropriate adaptor for the temperature must be used. The adaptor can also be used as an extension to come out of the pipe insulation with the actuator. To protect the actuator from excessive heat, the piping must be insulated.

When the actuator is mounted on the valve, make sure the plug is not twisted on the seat (this can damage the sealing surface). When insulating the valve, it may only be insulated up to the connecting clip of the actuator.

## Using with steam

The valves can be used for steam applications up to 200 °C with the same  $\Delta p_{\max}$  values as listed in the combination tables. When using the valve, make sure that it does not operate mainly on the lower third of its stroke range. This position leads to an extremely high flow speed, which greatly reduces the serviceable life of the valve.

## Using with water

So that impurities are retained in the water (welding beads, rust particles, etc.) and the spindle seal is not damaged, we recommend installing collecting filters, for example one for each floor or pipe run. Water requirements according to VDI 2035.

When using an additive in the water, the compatibility of the valve materials must be checked with the manufacturer of the medium. The materials table shown below may be used. When using glycol we recommend a concentration between 20% and 55%.

## Other information regarding hydraulics and noise in systems

The valves can be used in a low-noise environment. To prevent noise, the pressure differences  $\Delta p$  listed below should not be exceeded. These are listed as recommended values in the table of pressure losses.

The pressure difference  $\Delta p_v$  is the maximum pressure that may act on the valve regardless of the stroke position, in order that the risk of cavitation and erosion is limited. These values are irrespective of the actuator force. Cavitation accelerates wear and causes noises. To prevent cavitation, which mainly occurs in applications with water or steam, the differential pressure  $\Delta p_{\max}$  should not exceed the  $\Delta p_{\text{krit}}$  value:

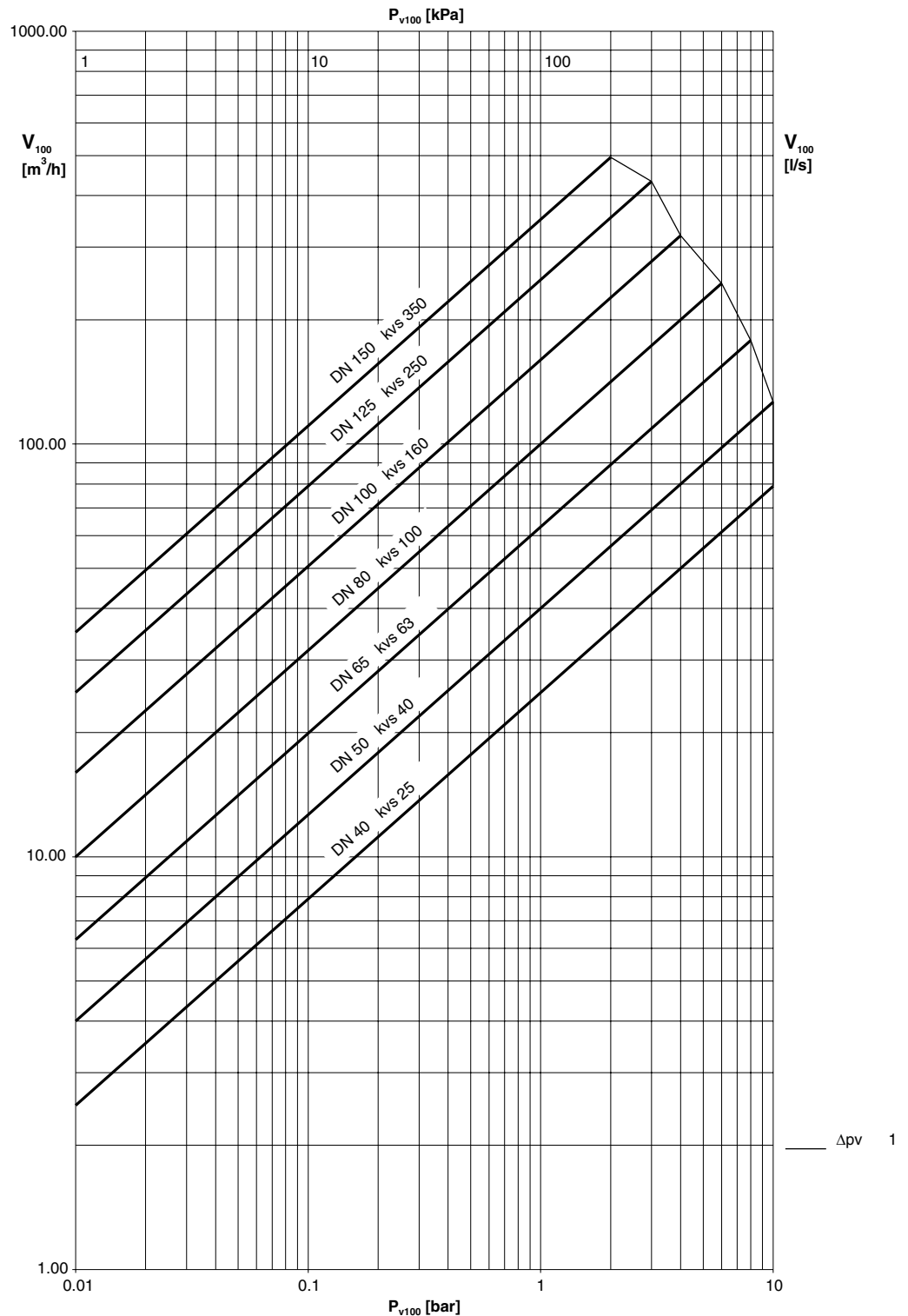
$$\Delta p_{\text{krit}} = (p_1 - p_v) \times 0.5$$

$p_1$  = upstream pressure in front of the valve (bar)      $p_v$  = steam pressure

It is calculated using absolute pressure.

For the spring return, the stated  $\Delta p_s$  values are also the permissible differential pressure up to which the actuator can guarantee that the valve is closed in the event of an incident. Because this is a safety function with a fast stroke movement (using a spring), this value can exceed  $\Delta p_{max}$ .

**VUP flow-rate chart**



**Additional version information**

Valve body made of ductile cast iron as per EN 1563, code EN-GJL-400-18-LT, material number EN-JS 1025 with smooth drilled flanges as per EN 1092-2, seal form B. Valve body RAL 9005 jet black. Recommended for the welding flange as per EN 1092-1. Valve fitting length as per EN 558-1, basic series 1. Flat seal on valve body made of asbestos-free material. Brass stuffing box with PTFE/FKM/PTFE spring-loaded packing.

**Material numbers as per DIN**

	DIN material no.	DIN designation
Valve body	EN-JS1025	EN-GJS-400-18-LT (GGG40.3)
Valve seat	1.4305	X 8 Cr Ni S 18-9
Spindle	1.4305	X 8 Cr Ni S 18-9
Plug	1.4305	X 8 Cr Ni S 18-9
Stuffing box	CW614N	Cu Zn 39 Pb 3 F36
Attachment/valve body seal		FKM
Groove ring		PTFE

**Additional details on the definitions of pressure difference** **$\Delta p_v$ :**

Maximum admissible pressure difference over the valve in each stroke position, limited by noise level and erosion.

This parameter characterises the valve as a flow element with specific hydraulic behaviour. Monitoring the cavitation and erosion along with the associated noise increases the service life and the operational capacity.

 **$\Delta p_{max}$ :**

Maximum admissible pressure difference over the valve at which the actuator can reliably open and close the valve.

This takes account of static pressure and flow effects. This value ensures trouble-free stroke movement and closing of the valve. The value  $\Delta p_v$  of the valve is never exceeded.

 **$\Delta p_s$ :**

Maximum admissible pressure difference over the valve in the event of a malfunction (e.g. power failure, excessive temperature or pressure, pipe break) at which the actuator can close the valve tightly and, if necessary, maintain the entire operating pressure against atmospheric pressure. Because this is a safety function with a rapid stroke movement,  $\Delta p_s$  can be greater than  $\Delta p_{max}$  or  $\Delta p_v$ . The disruptive flow effects that arise here are quickly passed through and are of minor importance in this mode. For 3-way valves, the values only apply to the control passage.

 **$\Delta p_{stat}$ :**

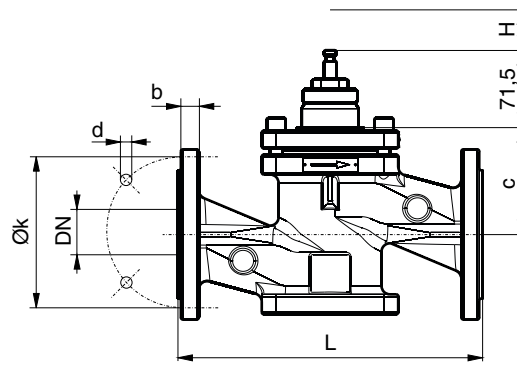
Line pressure behind the valve. This essentially corresponds to the idle pressure when the pump is switched off, caused for example by the fluid level in the system, increased pressure due to pressure tanks, steam pressure, etc.

**Disposal**

When disposing of the product, observe the currently applicable local laws.

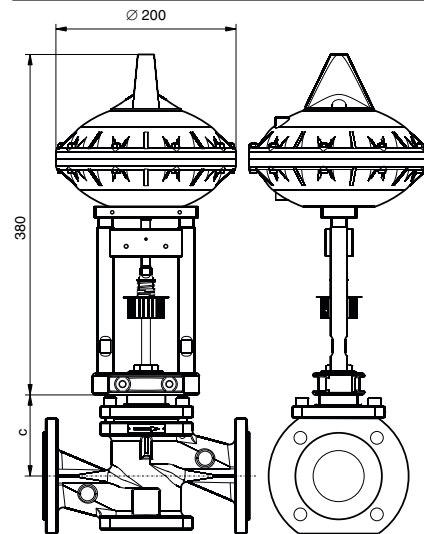
More information on materials can be found in the Declaration on materials and the environment for this product.

Dimension drawings

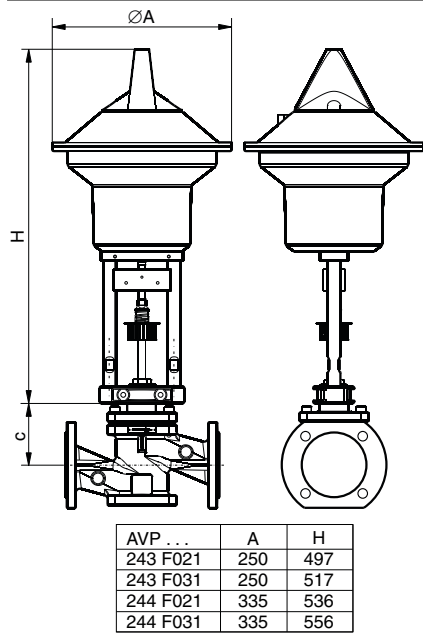


VUP	DN	c	L	H	k	d	b
040	40	88,5	200	14	110	19 x 4	19
050	50	103,0	230	25	125	19 x 4	19
065	65	104,0	290	25	145	19 x 8	19
080	80	110,0	310	25	160	19 x 8	19
100	100	183,0	350	40	190	23 x 8	19
125	125	202,0	400	40	220	28 x 8	19
150	150	222,0	480	40	250	28 x 8	20

AVP 242 F021

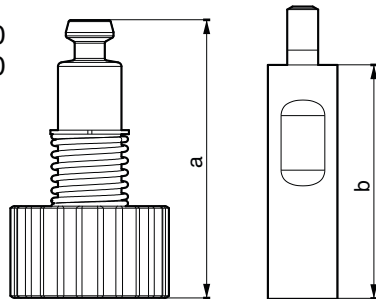


AVP 243/244



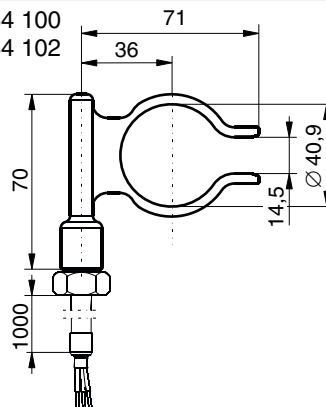
Accessories

0372336 180  
0372336 240

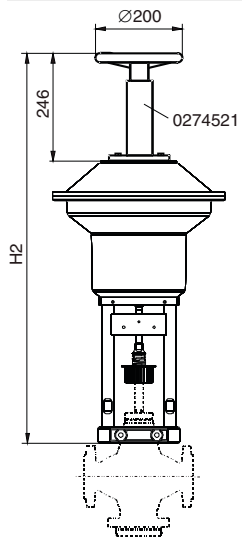


0372336	T (°C)	a (mm)	b (mm)
180	180	69,4	60
240	240	109,4	100

0378284 100  
0378284 102



AVP 243/244



AVP ...	H2
243 F021	656
243 F031	676
244 F021	695
244 F031	715

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