

## VUE: 2-way flanged valve, PN 16/10 (el.)

### How energy efficiency is improved

Efficient use in continuous control systems

### Features

- Continuous control of cold/hot water and low-pressure steam up to 115 °C in closed circuits
- Water quality as per VDI 2035
- In combination with valve actuators AVM 105(S), AVM 115(S), AVM 321(S) and AVF 124 and AVF 125(S) as a control unit
- Not suitable for drinking water
- Valve with flange connection as per EN 1092-2, seal form B, for PN 16 and PN 10
- Regulating valve, free of silicone grease, painted black
- Characteristic can be set with SUT (SAUTER Universal Technology) valve actuators to linear, equal-percentage or quadratic
- The valve is closed when the spindle is moved out
- Closing procedure against the pressure or with the pressure
- Valve body and seat made of grey cast iron
- Stainless-steel spindle
- Plug made of brass with glass-fibre reinforced PTFE sealing ring
- Stuffing box made of brass with wiper ring and double O-ring seal made of EPDM

### Technical data

#### Parameters

Nominal pressure	PN 16/10
Connection	Flange as per EN 1092-2, form B
Valve characteristic, control passage F200	Linear
Valve characteristic, control passage F300	Equal-percentage
Control ratio of valve	> 50:1
Stuffing box	2 EPDM O-rings
Leakage rate	< 0.05% of $K_{VS}$ value
Valve stroke	8 mm

#### Ambient conditions<sup>1)</sup>

Operating temperature <sup>2)</sup>	-10...150 °C
Operating pressure	PN 16: Up to 120 °C, 16 bar At 150 °C, 14.4 bar PN 10: Up to 120 °C, 10 bar At 150 °C, 9 bar Between 120 °C and 150 °C, a linear interpolation can be performed

#### Standards, directives

Pressure and temperature data	EN 764, EN 1333
Flow parameters	EN 60534 (page 3)
Pressure Equipment Directive	97/23/EC (fluid group II) No CE label Article 3.3

#### Overview of types

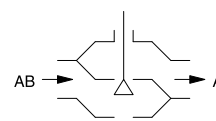
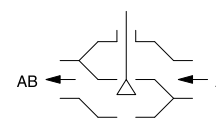
Type	Nominal diameter	$K_{VS}$ value	Weight
VUE015F350	DN 15	0.4 m <sup>3</sup> /h	3.2 kg
VUE015F340	DN 15	0.63 m <sup>3</sup> /h	3.2 kg
VUE015F330	DN 15	1 m <sup>3</sup> /h	3.2 kg
VUE015F320	DN 15	1.6 m <sup>3</sup> /h	3.2 kg

<sup>1)</sup> Humidity must not exceed 75%.

<sup>2)</sup> At temperatures below 0 °C, use a stuffing box heater. Use adapter (accessory) at temperatures above 100 °C



VUE032F300



ValveDim app



Type	Nominal diameter	K <sub>vs</sub> value	Weight
VUE015F310	DN 15	2.5 m³/h	3.2 kg
VUE015F300	DN 15	4 m³/h	3.2 kg
VUE020F300	DN 20	6.3 m³/h	4.1 kg
VUE025F300	DN 25	10 m³/h	4.7 kg
VUE032F300	DN 32	16 m³/h	7.3 kg
VUE040F300	DN 40	22 m³/h	8.6 kg
VUE050F300	DN 50	28 m³/h	11.2 kg
VUE050F200	DN 50	40 m³/h	11.2 kg

#### Accessories

Type	Description
0372240001	Manual adjustment for valves with 8 mm stroke
0372249001	Adapter required when temperature of the medium is 100...130 °C (recommended for temperatures <10 °C)
0372249002	Adapter required when temperature of the medium is 130...150 °C
0378284100	Stuffing box heater 230 V~, 15 W for medium below 0 °C
0378284102	Stuffing box heater 24 V~, 15 W for medium below 0 °C
0378368001	Complete replacement stuffing box for DN 15...50

#### Combination of VUE with electric actuators

- 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.

#### Combination of VUE with electric actuator, actuating power 250 N, 500 N

Actuator	AVM105F100	AVM105F120 AVM105F122	AVM105SF132	AVM115F120 AVM115F122	AVM115SF132
Actuating power	250 N	250 N	250 N	500 N	500 N
Control signal	2-/3-point	2-/3-point	2-/3-point, 0...10 V	2-/3-point	2-/3-point, 0...10 V
Running time	30 s	120 s	35/60/120 s	120 s	60/120 s

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

Closes against the pressure	$\Delta p_{max}$	$\Delta p_{max}$	$\Delta p_{max}$	$\Delta p_{max}$	$\Delta p_{max}$
VUE015F350	4.0	4.0	4.0	6.0	6.0
VUE015F340					
VUE015F330					
VUE015F320					
VUE015F310					
VUE015F300					
VUE020F300	2.8	2.8	2.8	6.0	6.0
VUE025F300					
VUE032F300					
VUE040F300	1.4	1.4	1.4	3.3	3.3
VUE050F300	0.9	0.9	0.9	2.0	2.0
VUE050F200					

Cannot be used to close with the pressure

## Combination of VUE with electric actuator with spring return, actuating power 500 N

Actuator	AVF124F130 AVF124F230	AVF125SF132 AVF125SF232
Actuating power	500 N	500 N
Control signal	3-point	2-/3-pt., 0...10 V, 4...20 mA
Running time	60/120 s	60/120 s

 $\Delta p$  [bar]

Closes against the pressure	$\Delta p$ [bar]		$\Delta p$ [bar]	
	$\Delta p_{max}$	$\Delta p_s$	$\Delta p_{max}$	$\Delta p_s$
VUE015F350 VUE015F340 VUE015F330 VUE015F320 VUE015F310 VUE015F300	6.0	16.0	6.0	16.0
VUE020F300	6.0	11.0	6.0	11.0
VUE025F300	6.0	6.8	6.0	6.8
VUE032F300	5.2	5.2	5.2	5.2
VUE040F300	3.3	3.3	3.3	3.3
VUE050F300 VUE050F200	2.0	2.0	2.0	2.0

Closes with the pressure	$\Delta p$ [bar]		$\Delta p$ [bar]	
	$\Delta p_{max}$	$\Delta p_s$	$\Delta p_{max}$	$\Delta p_s$
VUE015F350 VUE015F340 VUE015F330 VUE015F320 VUE015F310 VUE015F300 VUE020F300	6.0	16.0	6.0	16.0
VUE025F300	5.0	16.0	5.0	16.0
VUE032F300	4.0	16.0	4.0	16.0
VUE040F300	2.5	16.0	2.5	16.0
VUE050F300 VUE050F200	1.5	16.0	1.5	16.0

 At temperatures above 100 °C, accessories are required

## Combination of VUE with electric actuator, actuating power 1000 N

Actuator	AVM321F110 AVM321F112	AVM321SF132
Actuating power	1000 N	1000 N
Control signal	2-/3-point	2-/3-pt., 0...10 V, 4...20 mA
Running time	48/96 s	32/96 s

 $\Delta p$  [bar]

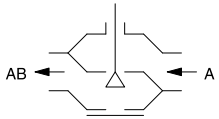
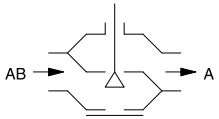
Closes against the pressure	$\Delta p$ [bar]	
	$\Delta p_{max}$	$\Delta p_{max}$
VUE015F350 VUE015F340 VUE015F330 VUE015F320 VUE015F310 VUE015F300 VUE020F300 VUE025F300 VUE032F300	10.0	10.0
VUE040F300	6.0	6.0
VUE050F300 VUE050F200	4.0	4.0

Actuator	AVM321F110 AVM321F112	AVM321SF132
Closes with the pressure	$\Delta p_{max}$	$\Delta p_{max}$
VUE015F350 VUE015F340 VUE015F330 VUE015F320 VUE015F310 VUE015F300 VUE020F300	6.0	6.0
VUE025F300	5.0	6.0
VUE032F300	4.0	6.0
VUE040F300	2.5	2.5
VUE050F300 VUE050F200	1.5	1.5

⚡ At temperatures above 100 °C, accessories are required

### Description of operation

The valve can be moved to any intermediate position with an electric actuator. When the spindle is moved out, the control passage of the valve is closed. The valves with nominal diameters DN 15 to DN 50 may be used in the “against the pressure” and “with the pressure” closing procedures. The flow direction marked on the valve must be observed, or must be pasted over for the “with the pressure” application. The flow parameters correspond to EN 60534.

Closing procedure against the pressure	Closing procedure with the pressure
	

These control valves are characterised by their reliability and precision and make an important contribution towards environmentally friendly regulation. They meet difficult challenges such as the quick-closing function, overcoming differential pressures, controlling media temperatures and performing the shut-off function, all with a low noise level.

The valve spindle is automatically and firmly connected to the actuator spindle. The brass plug controls the equal-percentage flow rate in the control passage. The tightness of the valve is ensured by the seat incorporated in the body.

The stuffing box is maintenance-free. This consists of a brass body, 2 O-rings, a wiper ring and a grease reserve. This is free of silicone grease, and silicone oil may not be used for the spindle.

### 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 regulations must also be adhered to. Changing or converting the product is not admissible.

### Engineering and fitting notes

The valves are combined with valve actuators without or with a spring return. The actuator is mounted directly on the valve and fastened with either a nut or screws. The actuator is connected with the valve spindle automatically. When the system is commissioned, the actuator moves out and the connector closes automatically when it reaches the lower valve seat. The stroke of the valve is also detected by the actuator, and no further adjustments are required. Therefore the force on the seat is always the same and the smallest amount of leakage is ensured. With the SUT actuators, the characteristic can be set to linear or quadratic as required. The combination of AVM 105S and DN50F200 cannot be set to equal-percentage.

To increase the functional reliability of the valves, the system should conform to DIN EN 14336 (heating systems in buildings). DIN EN 14336 states, amongst other things, that the system has to be flushed through before being put into service.

### Using with steam

The valves can be used for low-pressure steam up to 115 °C with the same  $\Delta p_{\max}$  values. When used as a regulating valve, make sure that the valve does not operate mainly on the lower third of its stroke range. This leads to an extremely high flow speed, which greatly reduces the serviceable life of the valve.

### Using with water

To ensure that impurities are retained in the water (weld 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 materials must be checked with the manufacturer of the medium. The materials table shown below may be used. When glycol is used, we recommend using a concentration of 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  $\Delta p_{\max}$  listed below should not be exceeded.

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. The cavitation accelerates wear on the plug and seat in the valve and causes noises. To prevent cavitation, the differential pressure should not exceed the  $\Delta p_{\text{crit}}$  value:

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

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

$p_v$  = steam pressure at operating temperature (bar)

It is calculated using absolute pressure.

Note that when the pressure difference  $\Delta p_{\max}$  is exceeded, the valve can be damaged by cavitation and erosion. 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 an emergency function with a fast stroke movement (using a spring), this value can exceed  $\Delta p_{\max}$ .

### 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. When installed horizontally, without any structural support for the actuator, the maximum admissible weight on the valve is 25 kg.

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

### Slide rule and supplementary technical documents

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 accident prevention regulations
<b>Fitting instructions:</b>	
DN 15...50	MV 506008
AVM 105,115,105S,115S	MV 506065
AVM 125S	MV 506066
AVF 124,124S	MV 505851
AVF 125S	MV 506067
AVM 321S	P 100011900
Declaration on materials and the environment	MD 56.115



### Valve design

SAUTER provides various tools for valve design and engineering:

- ValveDim smartphone app
- ValveDim PC program
- ValveDim slide rule

You can find the tools under the link [www.sauter-controls.com/en/performance/valve-calculation/](http://www.sauter-controls.com/en/performance/valve-calculation/) or scan the QR code

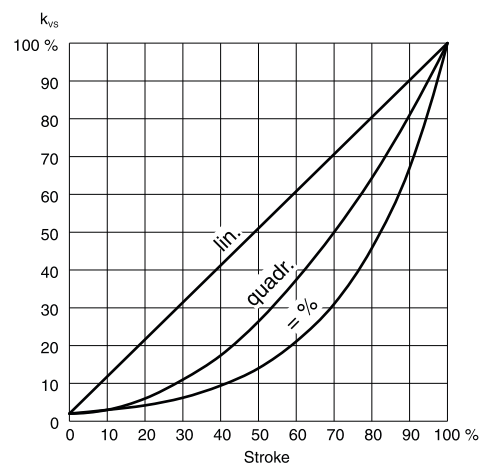


### Characteristic for actuators with positioner

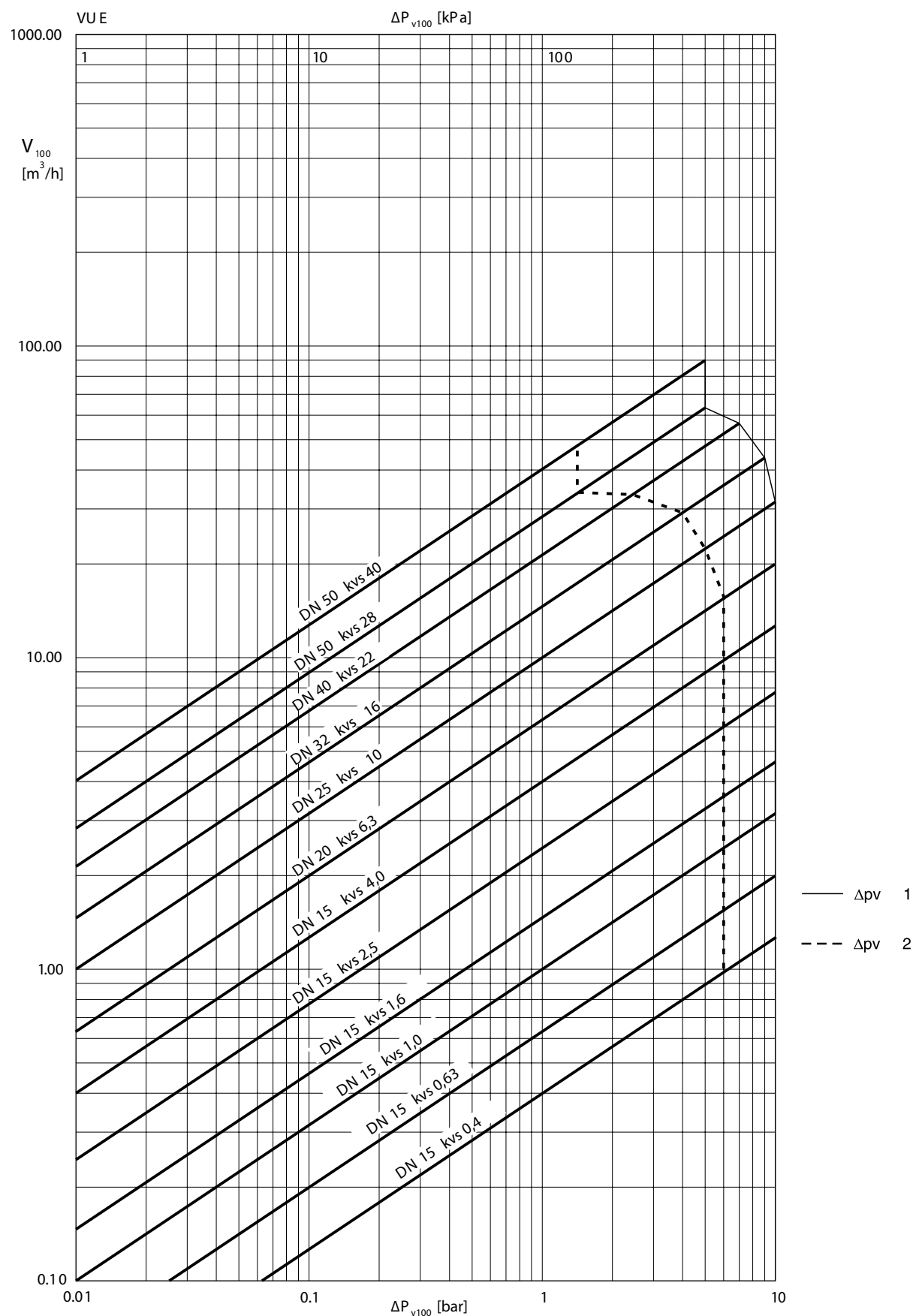
On actuator AVM 105S, AVM 115S or AVM 321S

Equal-percentage/linear

Can be set using coding switch



Flow-rate chart



1: Against the pressure  
 2: With the pressure

Type	$\Delta p_v$	
	Against the pressure	With the pressure
VUE015	10	6
VUE020	10	6
VUE025	10	5
VUE032	9	4
VUE040	7	2.5
VUE050	5	1.5

### Design and materials

Valve body made of grey cast iron as per EN 1561, code EN-GJL-250, material number EN-JL 1040 with smooth drilled flanges as per EN 1092-2, seal form B. Valve body protected by matt paint 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.

### Material numbers as per DIN

	DIN material no.	DIN designation
Valve body	EN-JL 1040	EN-GJL-250 (GG25)
Valve seat	EN-JL 1040	EN-GJL-250
Spindle	1.4305	X8CrNiS18-9
Plug	CW617W	CuZn40Pb2
Plug seal	PTFE	
Stuffing box	CW617W	CuZn40Pb2

### Definition of pressure differences

- $\Delta p_v$ :** Maximum admissible pressure difference over the valve at every stroke position, limited by noise level and erosion. With this parameter, the valve is characterised as a flow element with specific hydraulic behaviour. Monitoring the cavitation and erosion along with the associated noise increases both 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. The following are considered: Static pressure and flow effects. This value ensures trouble-free stroke movement and tightness. 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 flow disturbing effects that arise here are quickly passed through. They are of secondary importance with this method of operation. 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 or steam pressure. For valves that close with pressure, the static pressure plus the pump pressure are used.

### Disposal

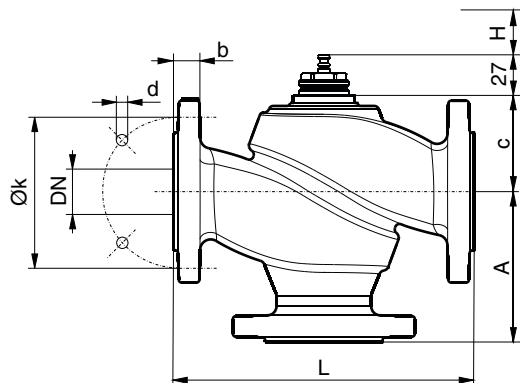
When disposing of the product, observe the currently applicable local laws.

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



Dimension drawings

DN15...50

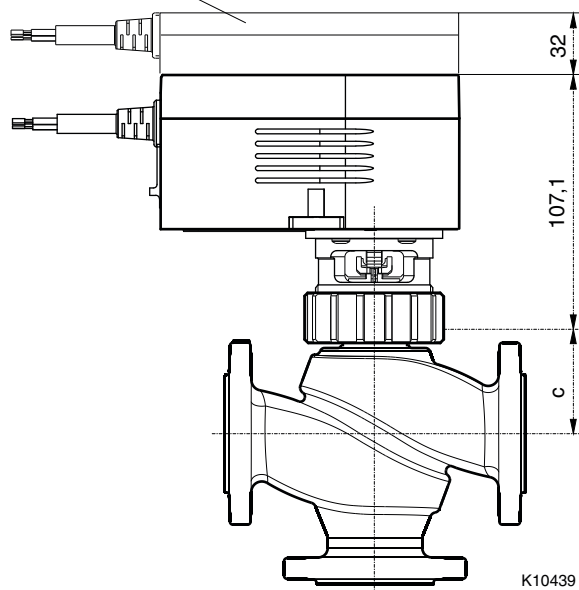


VUE, BUE	DN	A	c	L	H	k	d	b
015	15	70	41,5	130	8	65	14 x 4	14
020	20	75	48	150	8	75	14 x 4	16
025	25	80	54,5	160	8	85	14 x 4	16
032	32	95	60,5	180	8	100	19 x 4	18
040	40	100	70,5	200	8	110	19 x 4	18
050	50	115	71	230	8	125	19 x 4	20

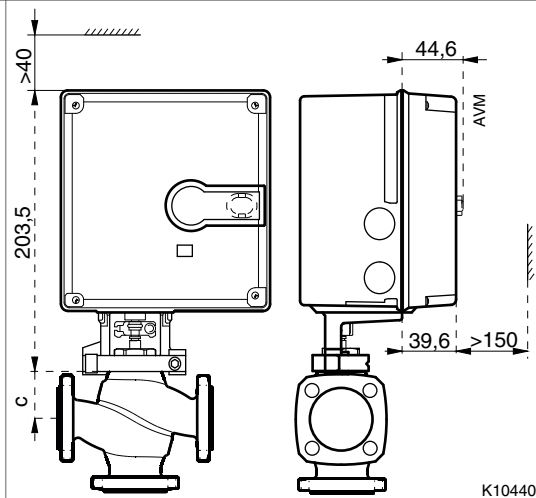
Combinations

AVM 104 / 105 / 114 / 115 / S

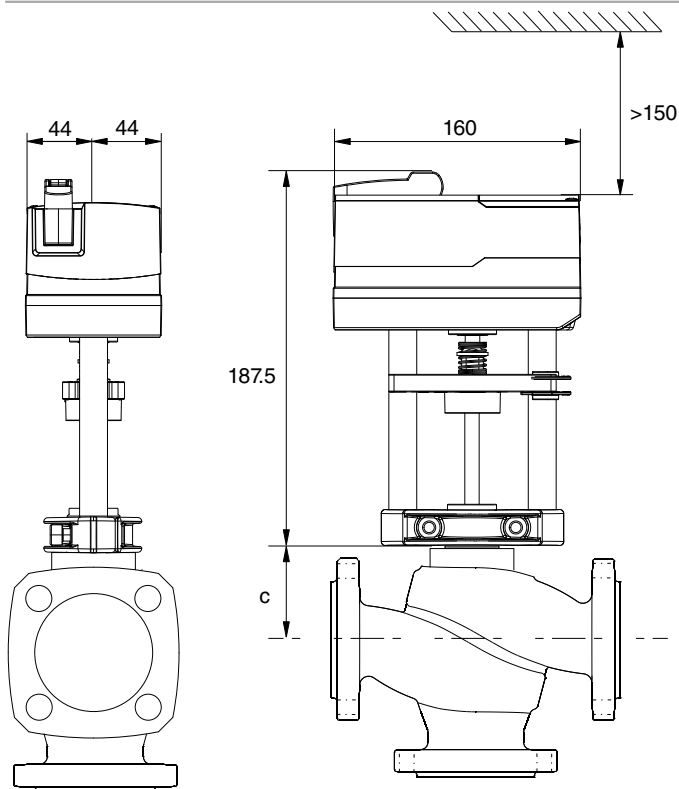
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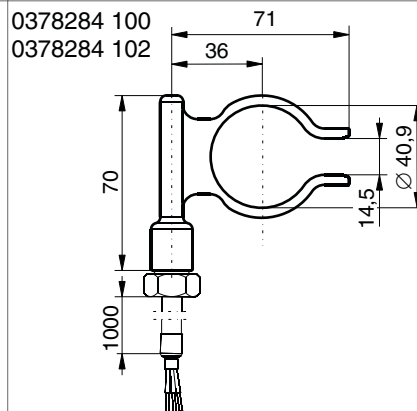
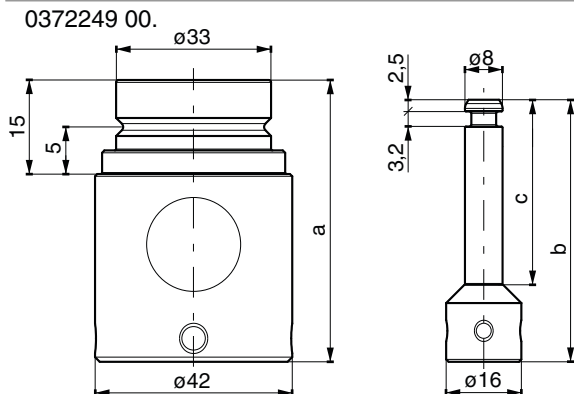
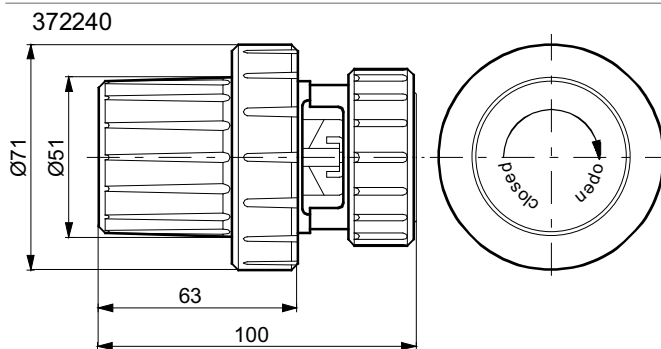
AVF 124 / 125 / S



**AVM 321/S**



**Accessories**



	a [mm]	b [mm]	c [mm]
0372249 001	60	55,8	40
0372249 002	80	75,8	60