



VVG549.20-4K



VVG549.25-6.3K



## Two-port valves, PN25, male threaded

## VVG549...

- Bronze Rg5
- DN15 ... 25 mm ( 3/4" ... 1 1/4" )
- $k_{vs}$  0.25 ... 6.3 m<sup>3</sup>/h
- Stroke 5.5 mm
- Suitable for SQS359... actuators
- Screwed fittings supplied separately

### Use

**For use as a control, safety or isolating valve to DIN 32730** in district heating systems and systems with media temperatures up to + 130 °C and for a short time even up to + 150 °C.

**For closed hydraulic circuits.**

### Media

Standard version for:

**Chilled water**

**Low temperature hot water**

**High temperature hot water**

**Water with glycol**

**Water with oxygen-binding additives**

**Water with additives** as specified in VDI 2035

+ 2 ... + 130 °C  
(for short time until + 150 °C)

## Type summary

### Standard version

Type	DN		k <sub>VS</sub> [m <sup>3</sup> /h]	S <sub>V</sub>	Δp <sub>Vmax</sub> [kPa]	Δp <sub>S</sub> [kPa]
	[mm]	[Inches]				
VVG549.15-0.25	15	¾"	0.25	> 50	1200	2500
VVG549.15-0.4	15	¾"	0.4	> 50	1200	2500
VVG549.15-0.63	15	¾"	0.63	> 50	1200	2500
VVG549.15-1	15	¾"	1.0	> 50	1200	1500
VVG549.15-1.6	15	¾"	1.6	> 100	1200	1500
VVG549.15-2.5	15	¾"	2.5	> 100	1200	1500
VVG549.20-4K	20	1"	4.0	> 100	1200	1600
VVG549.25-6.3K	25	1¼"	6.3	> 100	1200	1600

DN Nominal diameter

k<sub>VS</sub> Nominal flow rate to VDI / VDE 2173

S<sub>V</sub> Rangeability to VDI / VDE 2173

Δp<sub>Vmax</sub> Max. admissible differential pressure across the full positioning range of the valve actuator unit.

Δp<sub>S</sub> Max. admissible differential pressure (closing pressure), at which the valve actuator unit closes reliably against the pressure.

### Accessories

The VVG549... valves are installed in the pipe work by means of either screwed fittings (type ALG...) or welded fittings (type ALS...).

Type	for valves	Valve thread	for pipes
<i>Screwed versions:</i>			
ALG12	VVG549.15-...	G¾B	G¾"
ALG15	VVG549.20-4K	G1B	G½"
ALG20	VVG549.25-6.3K	G1¼B	G¾"
<i>Weldable versions:</i>			
ALS15	VVG549.15-...	G¾B	DN15
ALS20	VVG549.20-4K	G1B	DN20
ALS25	VVG549.25-6.3K	G1¼B	DN25

### Ordering

Please specify the type, for example: **VVG549.20-4K**

The fittings must be ordered separately.

### Delivery

The valves, actuators and fittings are packed and delivered separately.

The valves will be delivered in multi packs:

- DN15 20 valves per pack
- DN20 15 valves per pack
- DN25 10 valves per pack

## Equipment combinations

**Important:**

A positioning force of **300 N** is required to operate these valves.

The D-series motorized actuators, types SQS35... and SQS65..., are the only suitable actuators for this purpose.

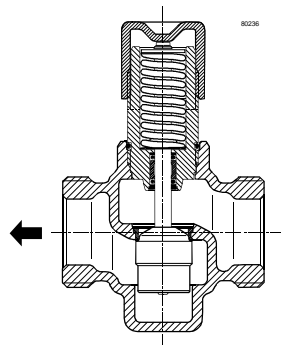
Valves	Actuators <sup>1)</sup> (with a positioning force of 300 N)					Fittings	
	SQS35...	SQS35.5...	SQS65...	SQS65.5	SQS65.2		
VVG549.15-0.25	✓	✓	✓	✓	✓	ALG12	ALS15
VVG549.15-0.4	✓	✓	✓	✓	✓	ALG12	ALS15
VVG549.15-0.63	✓	✓	✓	✓	✓	ALG12	ALS15
VVG549.15-1	✓	✓	✓	✓	✓	ALG12	ALS15
VVG549.15-1.6	✓	✓	✓	✓	✓	ALG12	ALS15
VVG549.15-2.5	✓	✓	✓	✓	✓	ALG12	ALS15
VVG549.20-4K	✓	✓	✓	✓	✓	ALG15	ALS20
VVG549.25-6.3K	✓	✓	✓	✓	✓	ALG20	ALS25
Data sheet	4573 / 4579	4573	4573	4573	4573		

- <sup>1)</sup> Available actuators:
- AC 24 V with a proportional DC 0 ...10 V control signal, with or without spring return.
  - AC 24 V with a proportional DC 2 ...10 V control signal, non-spring return, with manual adjuster and position indicator.
  - AC 230 V with 3-position control signal, with or without spring-return and with or without auxiliary switches.

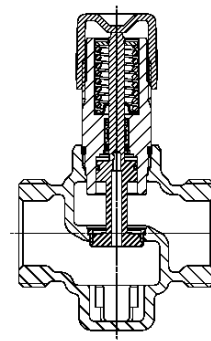
**Note:** If VVG549... valves are controlled by SQS65... valve actuators, the valve characteristic jumper in the actuator must be set to «linear».

## Mechanical design

### Valve cross-section



VVG549...



VVG549...K (pressure compensated)

- Valve housing and valve neck for fitting actuator (screwed connection, G<sup>3</sup>/<sub>4</sub>B).
- Sealing gland with double O-rings and dirt protection strip.
- The valves are supplied in a series with a manual adjuster.
- No special tools or adjustments are required to mount the actuator on the valve.

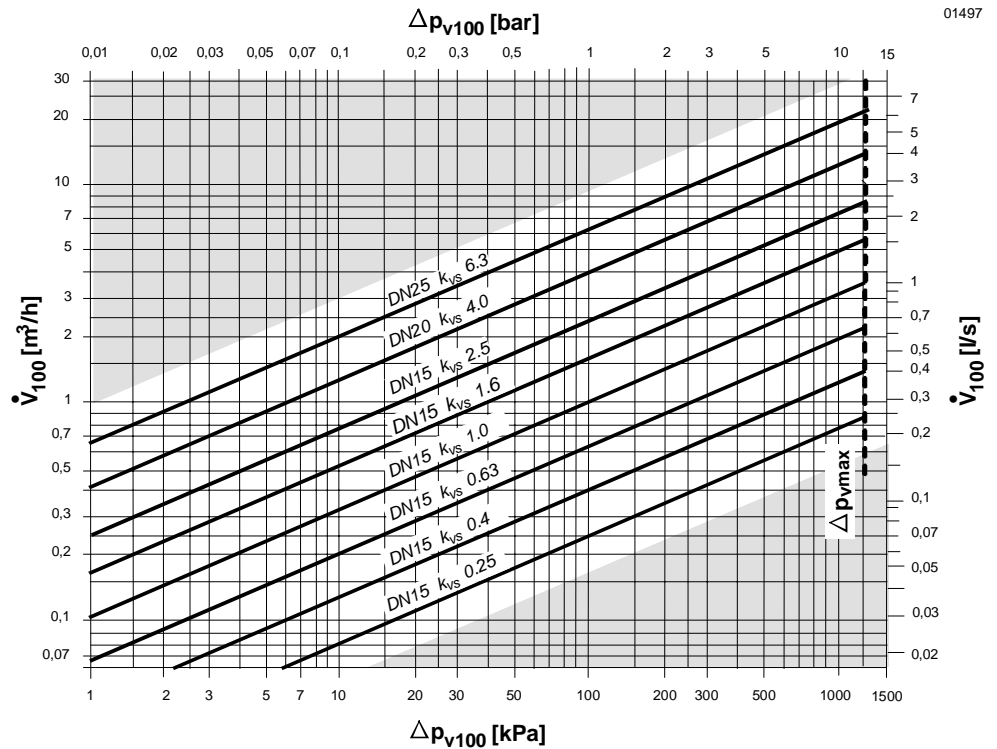
### Manual adjustment

The valve can be adjusted manually from 0...100 % by use of the plastic manual adjuster (which also acts as a protective cover during transport).

- Clockwise rotation of manual adjuster, causing the spindle to retract:  
→ *Increasing flow*
- Anti-clockwise rotation of manual adjuster, causing the spindle to extend:  
→ *Decreasing flow*

Flow diagram

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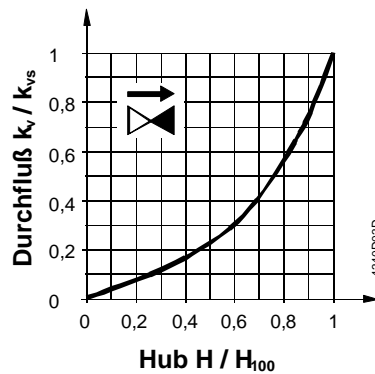
$\Delta p_{Vmax}$  Max. admissible differential pressure across the valve control path A → AB, in relation to the full stroke  $H_{100}$

$\Delta p_{V100}$  Differential pressure (kPa or bar) across the fully opened valve across control path A → AB at  $\dot{V}_{100}$ .

$\dot{V}_{100}$  Flow rate in m³/h or l/s.

Conversion: 1 bar  $\equiv$  10 m WG  
1 m³/h = 0.278 l/s

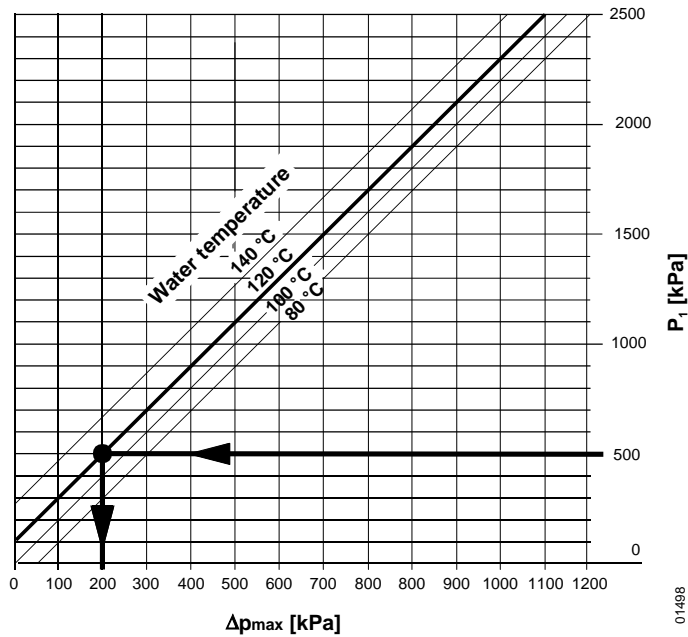
Valve characteristic



0 % ... 30 % → linear  
30 % ... 100 % →  $n_{gl} = 3$  nach VDI / VDE 2173

## Cavitations

Cavitations increases wear of valve plug and seat and additionally causes noise. You can avoid cavitations by not exceeding the pressure difference values indicated in the below diagram and by adhering to the listed, static pressure.

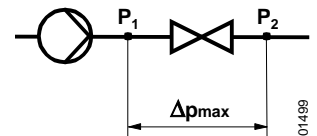


100 kPa 1 bar  $\cong$  10 m WG

$\Delta p_{\max}$  Pressure difference for nearly closed valve at which cavitation can largely be prevented

$P_1$  Pressure  $P_1$  upstream of the valve =  $P_2 + \Delta p_{\max}$

$P_2$  System pressure + existing steam pressure



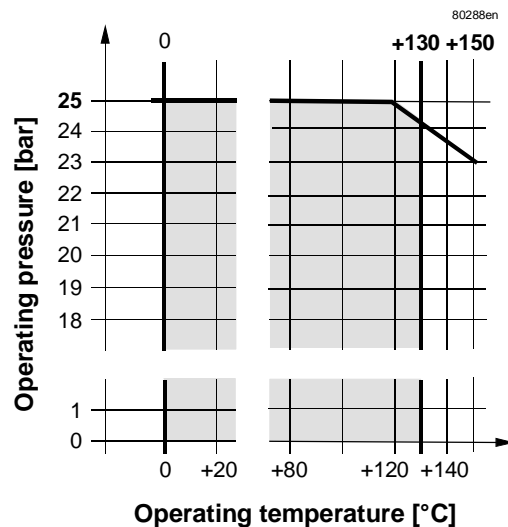
*Example:*

Pressure  $P_1$  upstream of the valve: 500 kPa (5 bar)

Water temperature: 120 °C

The above diagram (example) shows that a maximum pressure difference of 200 kPa (2 Bar) is permissible with a nearly closed valve

## Operating pressure and Operating temperature



Operating pressure to ISO 7268 and EN 1333 at operating temperatures of + 2 ... + 130 °C (+ 150 °C) to DIN 4747 and DIN 3158

**Notes**

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**Engineering**

The valves should preferably be installed in the return water, since in heating applications, this is where the lower temperatures prevail. This will help extend the life of the spindle seal.

**Water quality specifications in accordance with VDI 2035.**

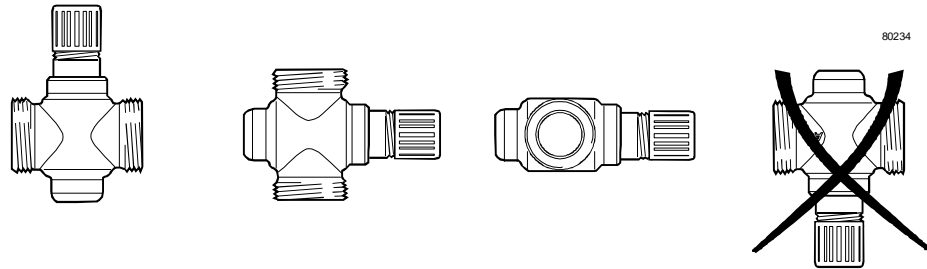
To ensure reliable functioning of the valve, we recommend the installation of a **strainer** on the inlet side of the valve.

**Mounting**

The valve and actuator can be assembled directly on site. No special tools or adjustments are required for this purpose.

Mounting instructions are enclosed with the multi packs.

**Orientation**



**Direction of flow**

Before installation, check the **flow indication** « → » on the valve.

**Commissioning**



**The valve can be commissioned with the actuator fitted in accordance with instructions, or by fitting the manual adjuster.**

Spindle retracted: Increasing flow

Spindle extended: Decreasing flow

**Maintenance**



**When servicing the valve/actuator:**

**Switch off the pump, and isolate it. Isolate the actuator and pipe-work. Allow the pipe-work to cool down and de-pressurise the system.**

**The valve can be re-commissioned with the actuator fitted in accordance with instructions, or by fitting the manual adjuster.**

**Disposal**



Owing to the variety of materials used, the valve components must be dismantled and sorted prior to disposal.

**Warranty**

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The technical data relating to specific applications is valid only in conjunction with the actuators listed in this data sheet under «Equipment combinations».

**The use of type VVG549... valves in conjunction with third-party actuators invalidates all claims under the Siemens Building Technologies / HVAC Products warranty.**

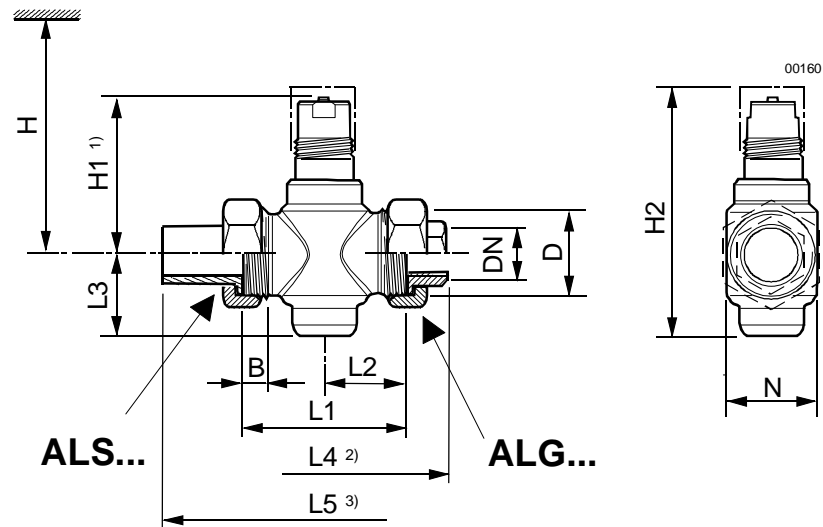
## Technical data

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Operating data	Valve characteristic	
	0 ... 30 %	Linear
	30 ... 100 %	$n_{gl} = 3$ to VDI/VDE 2173
	Leakage rate	0 ... 0.02 % of $k_{vs}$ value to VDI / VDE 2174
	Admissible pressure	2500 kPa (25 bar), ISO 7268 / EN 1333 ANSI class 250 psi
	Operating pressure	DIN 4747 / DIN 3158 in the range + 2 ... + 130 °C (for short time until + 150 °C)
	Nominal pressure	PN25
	Nominal stroke	5.5 mm
	Screwed connection	
	Valve	G...B according to ISO 228/1
	Screwed fittings	Rp... according to ISO 7/1
	Manual adjustment	Using manual adjuster, without actuator: 0 ... 100 %
	Materials	Valve body
Seat, plug, spindle and spring		Stainless Steel
Gland		Brass
O-rings		Sealing materials EPDM
Fittings ALG...		Malleable black cast iron
Dimensions / Weights	Fittings ALS...	Weldable steel
	Dimensions	see «Dimensions» (table)
	Weights	see «Dimensions» (table)

## Dimensions

All dimensions in mm



DN	D	Valve type	H	H1	H2	L1	L2	L3	L4	L5	N	B	G
15	G $\frac{3}{4}$ B	VVG549.15-0.25	212	58	97	65	32.5	31.5	111	137	33	11.5	0.48
15	G $\frac{3}{4}$ B	VVG549.15-0.4	212	58	97	65	32.5	31.5	111	137	33	11.5	0.48
15	G $\frac{3}{4}$ B	VVG549.15-0.63	212	58	97	65	32.5	31.5	111	137	33	11.5	0.48
15	G $\frac{3}{4}$ B	VVG549.15-1	212	58	97	65	32.5	31.5	111	137	33	11.5	0.48
15	G $\frac{3}{4}$ B	VVG549.15-1.6	212	58	97	65	32.5	31.5	111	137	33	11.5	0.48
15	G $\frac{3}{4}$ B	VVG549.15-2.5	212	58	97	65	32.5	31.5	111	137	33	11.5	0.48
20	G1B	VVG549.20-4K	230	78	120	70	35	37.5	117	153	37	12	0.63
25	G1 $\frac{1}{4}$ B	VVG549.25-6.3K	230	78	120	75	37.5	37.5	123	158	42	12	0.72

## Fittings



Valve type	Screwed fittings					Soldered fittings				
	Type	D	ø P	N1	G *	Type	D	ø E	N2	G *
VVG549.15-0.25	ALS15	G $\frac{3}{4}$ B	21.3	32	0.08	ALG12	G $\frac{3}{4}$ B	Rp $\frac{3}{8}$	32	0.08
VVG549.15-0.4	ALS15	G $\frac{3}{4}$ B	21.3	32	0.08	ALG12	G $\frac{3}{4}$ B	Rp $\frac{3}{8}$	32	0.08
VVG549.15-0.63	ALS15	G $\frac{3}{4}$ B	21.3	32	0.08	ALG12	G $\frac{3}{4}$ B	Rp $\frac{3}{8}$	32	0.08
VVG549.15-1	ALS15	G $\frac{3}{4}$ B	21.3	32	0.08	ALG12	G $\frac{3}{4}$ B	Rp $\frac{3}{8}$	32	0.08
VVG549.15-1.6	ALS15	G $\frac{3}{4}$ B	21.3	32	0.08	ALG12	G $\frac{3}{4}$ B	Rp $\frac{3}{8}$	32	0.08
VVG549.15-2.5	ALS15	G $\frac{3}{4}$ B	21.3	32	0.08	ALG12	G $\frac{3}{4}$ B	Rp $\frac{3}{8}$	32	0.08
VVG549.20-4K	ALS20	G1B	26.8	41	0.10	ALG15	G1B	Rp $\frac{1}{2}$	41	0.10
VVG549.25-6.3K	ALS25	G1 $\frac{1}{4}$ B	33.7	50	0.16	ALG20	G1 $\frac{1}{4}$ B	Rp $\frac{3}{4}$	50	0.16

H = Total height of valve and actuator including minimum clearance from wall or ceiling for mounting, connection, operation, maintenance etc.

H1<sup>1)</sup> = Reference surface for actuator

L4<sup>2)</sup> = Length of valve including two soldered fittings ALG...

L5<sup>3)</sup> = Length of valve including two screwed fittings ALS...

G = Weight of valve in kg, excluding screwed fittings and packaging

G \* = Weight in kg, excluding packaging

ø E = Diameter of threaded pipe Rp... to ISO 7/1

ø P = External diameter of pipe [mm]