

Data sheet

2 - way valve (NO), pressure relieved (PN 25)

VG - external thread

VGf - flange

Description



VG and VGf are pressure relieved 2-way normally open (NO) valves, designed to be combined with:

- AVT thermostatic actuators
- STM safety temperature monitors
- STL safety temperature limiters

In combination with AVT thermostatic actuators, valves can be used primarily:

- for domestic hot water (DHW) production
 - Hot water tanks
 - Storage charge systems
 - Instantaneous domestic hot water production
- and in mixing loops and room heating systems as well.

Main data:

- DN 15-50
- k_{vs} 0,4-25 m³/h
- PN 25
- Temperature:
 - Circ. water / glycolic water up to 30%: 2 ... 150 °C
- Connections:
 - Ext. thread (weld-on, thread and flange tailpieces)
 - Flange
- Flow and return mounting

Ordering

Example:
Valve DN 15; k_{vs} 1,6; PN 25;
 T_{max} 150 °C; ext. thread

- 1x VG DN 15 valve
Code No: **065B0772**

- Option:
- 1x Weld-on tailpieces
Code No: **003H6908**

VG, VGf valve

Picture	DN (mm)	k_{vs} (m ³ /h)	Connection		Code No.
	15	0,4	Cylindrical external thread acc. to ISO 228/1	G ¾ A	065B0770
		1,0			065B0771
		1,6			065B0772
		2,5			065B0773
		4,0			065B0774
	20	6,3		G 1 A	065B0775
	25	8,0		G 1¼ A	065B0776
	32	12,5		G 1¾ A	065B0777
	40	16		G 2 A	065B0778
	50	20		G 2½ A	065B0779
	15	4,0	Flanges PN 25, acc. to EN 1092-2	065B0780	
	20	6,3		065B0781	
	25	8,0		065B0782	
	32	12,5		065B0783	
	40	20		065B0784	
	50	25		065B0785	

Ordering (continuous)
Accessories

Picture	Type designation	DN	Connection	Code No.
	Weld-on tailpieces	15	-	003H6908
		20		003H6909
		25		003H6910
		32		003H6911
		40		065B2006
		50		065B2007
	External thread tailpieces	15	Conical ext. thread acc. to EN 10226-1	R 1/2 003H6902
		20		R 3/4 003H6903
		25		R 1 003H6904
		32		R 1 1/4 003H6905
		40		R 1 1/2 065B2004
		50		R 2 065B2005
				Flange tailpieces
20	003H6916			
25	003H6917			

Service kits

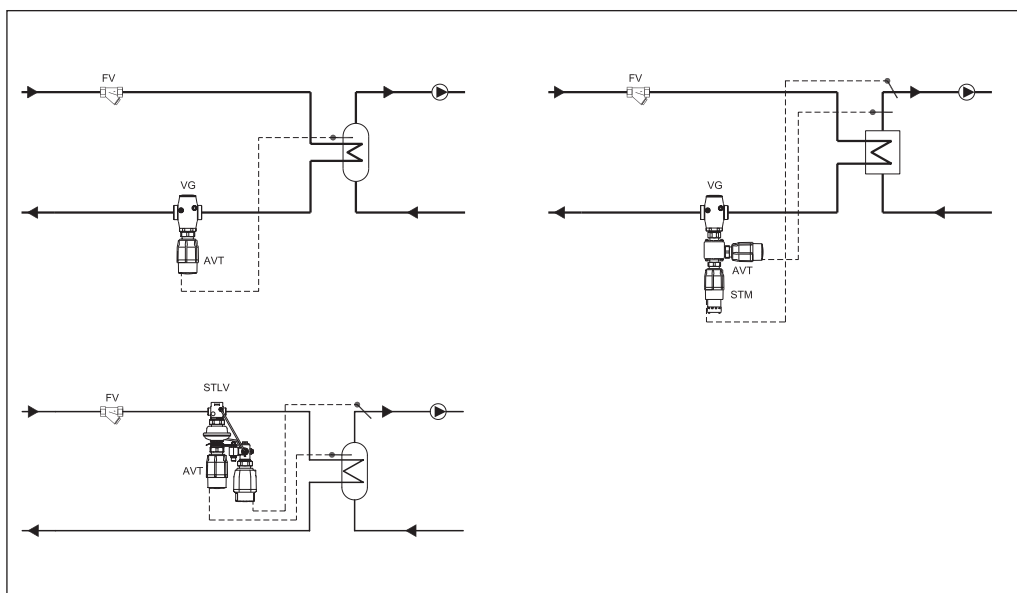
Picture	Type designation	DN (mm)	k _{vs} (m ³ /h)	Code No.
	Valve insert	15	0,4	003H6869
			1,0	003H6870
			1,6	003H6871
			2,5	003H6872
			4,0	003H6873
		20	6,3	003H6874
		25	8,0	003H6875
		32/40/50	125/16/20/25	003H6876

Technical data

Nominal diameter		DN	15				20	25	32	40	50	
k _{vs} value	m ³ /h	0,4	1,0	1,6	2,5	4,0	6,3	8	12,5	16/20 ¹⁾	20/25 ¹⁾	
Stroke		3		5				10				
Control ratio		> 1:50										
Control characteristic		linear										
Cavitation factor z		≥ 0,6						≥ 0,55		≥ 0,5		
Leakage acc. to standard IEC 534	% of k _{vs}	≤ 0,02								≤ 0,05		
Nominal pressure	PN	25										
Max. differential pressure	bar	20							16			
Medium		Circulation water / glycolic water up to 30 %										
Medium pH		Min. 7, max. 10										
Medium temperature	°C	2 ... 150										
Connections	valve	External thread										
	tailpieces	-					Flange					
		Weld-on and external thread										
		Flange					-					
Materials												
Valve body	thread	Red bronze CuSn5ZnPb (Rg5)							Ductile iron EN-GJS-400-18-LT (GGG 40,3)			
	flange	-					Ductile iron EN-GJS-400-18-LT (GGG 40,3)					
Valve seat		Stainless steel, mat. No. 1.4571										
Valve cone		Dezincing free brass CuZn36Pb2As										
Sealing		EPDM										
Pressure relieve system		Piston										

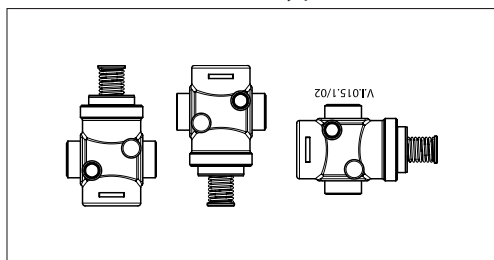
¹⁾ Flange valve body

Application principles



Installation positions

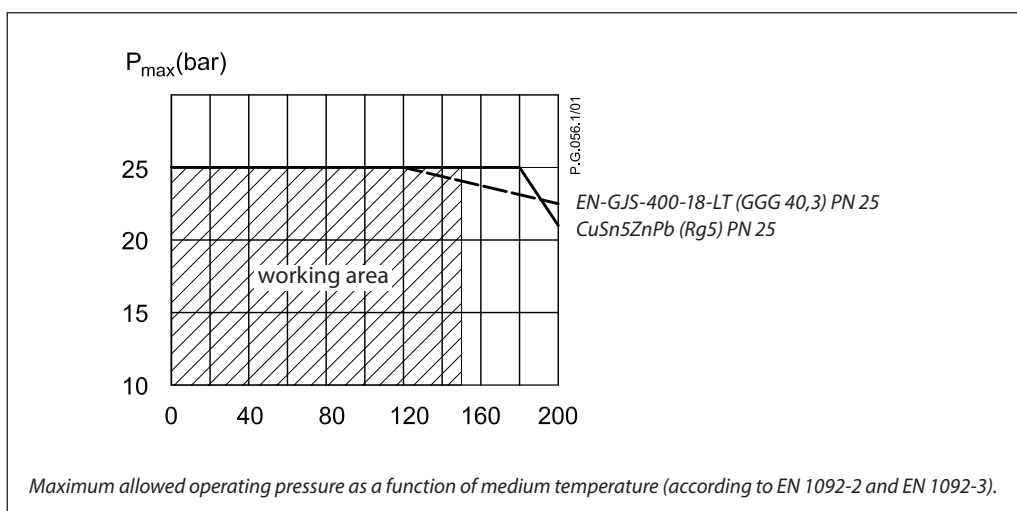
Valves can be installed in any position.



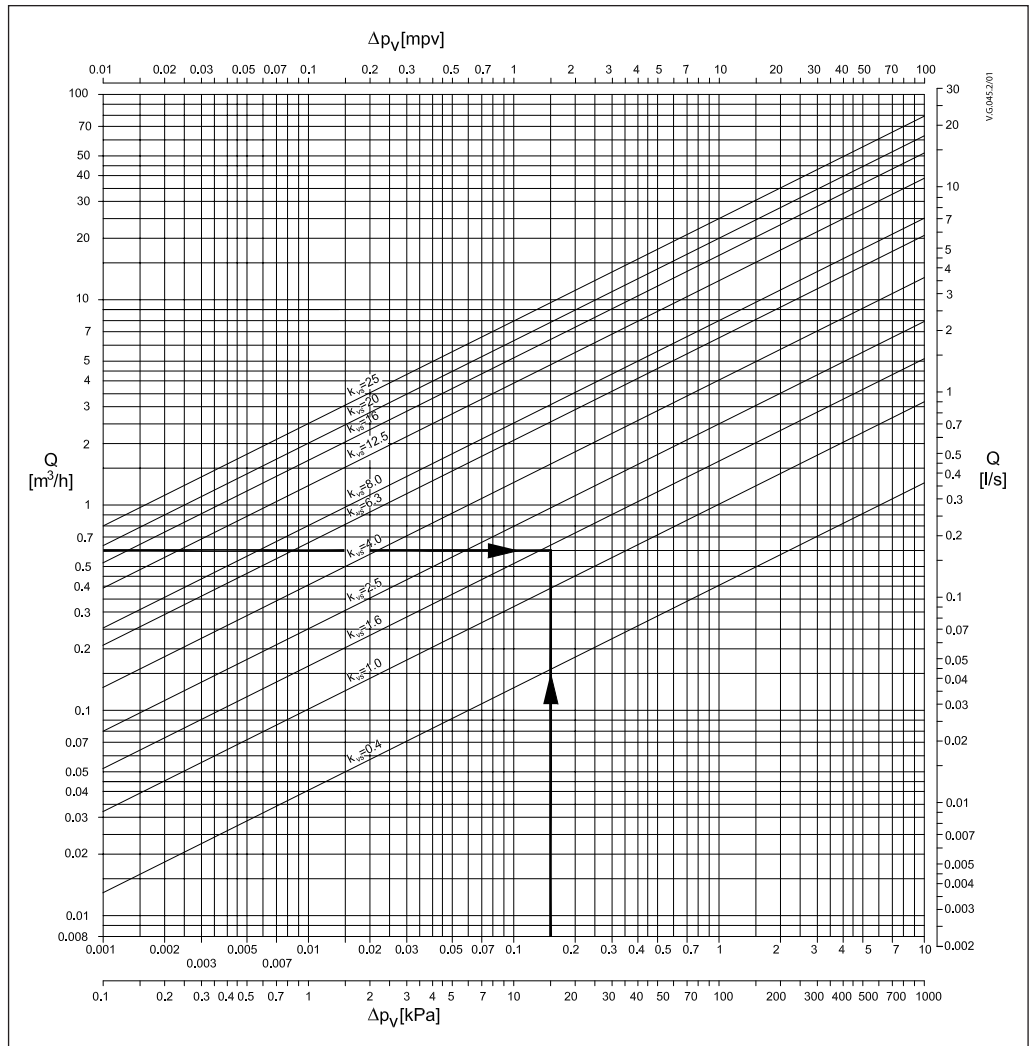
Note!

Installation positions for AVT thermostatic actuators, STM safety temperature monitors and STL safety temperature limiters have to be observed as well. Please see relevant Data Sheet.

Pressure temperature diagram



Sizing



Given data:

$$P_{max} = 14 \text{ kW}$$

$$\Delta t = 20 \text{ K}$$

$$\Delta p_v = 0,15 \text{ bar}$$

P_{max} - heating power (kW)

Δt - temperature difference (K)

Δp_v - differential pressure across the valve

Maximum flow Q_{max} (m³/h) through the valve is calculated according to formula:

$$Q_{max} = \frac{P_{max} \times 0,86}{\Delta t} = \frac{14 \times 0,86}{20}$$

$$Q_{max} = 0,6 \text{ m}^3/\text{h}$$

k_v value is calculated according to formula:

$$k_v = \frac{Q_{max}}{\sqrt{\Delta p_v}} = \frac{0,6}{\sqrt{0,15}}$$

$$k_v = 1,5 \text{ m}^3/\text{h}$$

Chosen $k_{VS} = 1,6 \text{ m}^3/\text{h}$

or read from the sizing diagram by taking a line through Q scale (0,6 m³/h) and Δp_v scale (0,15 bar) to intersect k_v -scale at 1,5 m³/h

Chosen $k_{VS} = 1,6 \text{ m}^3/\text{h}$

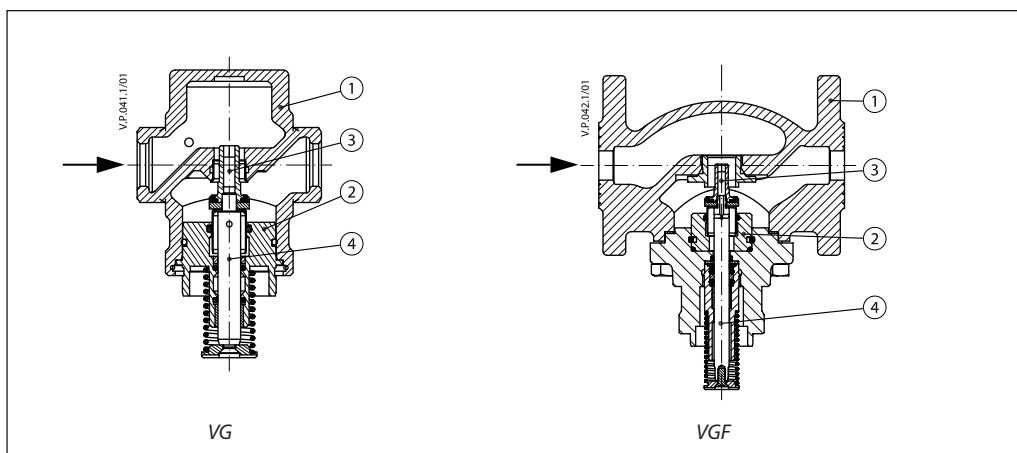
Solution:

The example selects

- 1) ext. thread valve VG DN 15, k_{VS} value 1,6 or
- 2) flange valve VGF DN 15, k_{VS} value 1,6

Design

1. Valve body
2. Valve insert
3. Pressure relieved valve cone
4. Valve stem



Dimensions

VG

DN	L	H	H1	H2	Weight (kg)
	mm				
15	65	80	34	46	0,7
20	70	80	34	46	0,8
25	75	83	37	46	0,9
32	100	151	63	88	3,0
40	110	151	63	88	3,1
50	130	151	63	88	3,8

VGF

DN	L	H	H1	H2	Weight (kg)
	mm				
15	130	144	48	96	3,3
20	150	149	53	96	4,1
25	160	154	58	96	4,7
32	180	158	70	88	7,5
40	200	163	75	88	9,0
50	230	171	83	88	11,1

Note: other flange dimensions - see table for tailpieces

DN	R ¹⁾	SW	d	L ₁ ²⁾	L ₂	L ₃	k	d ₂	n
15	½	32 (G ¾A)	21	130	131	139	65	14	4
20	¾	41 (G 1A)	26	150	144	154	75	14	4
25	1	50 (G 1¼A)	33	160	160	159	85	14	4
32	1¼	63 (G 1¾A)	42	-	177	184	100	18	4
40	1½	70 (G 2A)	47	-	195	204	110	18	4
50	2	82 (G 2½A)	60	-	252	234	125	18	4

¹⁾ Conical ext. thread acc. to EN 10226-1
²⁾ Flanges PN 25, acc. to EN 1092-2

