Data sheet

Seated valves
VF 2, VL 2, VFS 2 - 2-way;
VRB 3, VRG 3, VF 3, VL 3 - 3-way

Description / Application

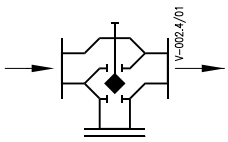
VF 2 / VF 3

VFS 2

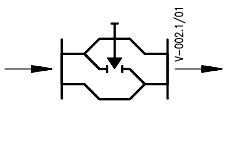
VRB 3 / VRG 3

The valves with logarithmic characteristic provide a quality, cost effective solution for most water and chilled, water and steam (VFS 2 only) applications. These valves may be used with glycol concentrations of up to 50% . At temperatures from 0 °C till -10 °C use stem heater.

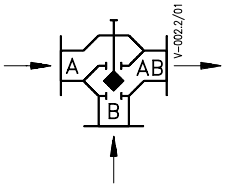
Main data:
- 2- or 3- way valves
- Int. thread PN 16 (VRB)
- Ext. thread PN 16 (VRB, VRG)
- Flanges PN 6 (VL), PN 16 (VF) or PN 25 (VFS)
- Compliance with PED directive 97/23/EC



VF 2 / VL 2



VFS 2



VRB 3, VRG 3, VF 3, VL 3

2-way valves VF 2 / VL 2 DN 65 - 100 do not become 3-way valves by removing the blank flange.

Ordering

2 - way valves

Dimensions DN	k_{vs}* m³/h	Code No. Flange VL 2 (PN 6)	VF 2 (PN 16)	VFS 2 (PN 25)
15	0.4			**065B1510**
	0.63	**065Z3414**	**065B1711**	**065B1511**
	1.0	**065Z3415**	**065B1712**	**065B1512**
	1.6	**065Z3416**	**065B1713**	**065B1513**
	2.5	**065Z3417**	**065B1714**	**065B1514**
	4.0	**065Z3418**	**065B1715**	**065B1515**
20	6.3	**065Z3419**	**065B1720**	**065B1520**
25	10	**065Z3420**	**065B1725**	**065B1525**
32	16	**065Z3421**	**065B1732**	**065B1532**
40	25	**065Z3422**	**065B1740**	**065B1540**
50	40	**065Z3423**	**065B1750**	**065B1550**
65	63	**065Z3424**	**065B3170**	**065B3365**
80	100	**065Z3425**	**065B3185**	**065B3380**
100	145	**065Z3426**	**065B3205**	**065B3400**
125	220		**065B3230**	
150	320		**065B3255**	

* k_{vs} acc. to VDI/VDE 2173

Ordering *(continued)*

3 - way valves

Dimensions		Code No.				
DN	k_{vs} * m³/h	Int. thread VRB 3**	Ext. thread VRB 3**	Ext. thread VRG 3**	Flange VF 3	Flange VL 3
		PN 16				PN 6
15	0.63	**065B1411**	**065B1311**	**065B1211**	**065B1611**	**065Z3401**
	1.0	**065B1412**	**065B1312**	**065B1212**	**065B1612**	**065Z3402**
	1.6	**065B1413**	**065B1313**	**065B1213**	**065B1613**	**065Z3403**
	2.5	**065B1414**	**065B1314**	**065B1214**	**065B1614**	**065Z3404**
	4.0	**065B1415**	**065B1315**	**065B1215**	**065B1615**	**065Z3405**
20	6.3	**065B1420**	**065B1320**	**065B1220**	**065B1620**	**065Z3406**
25	10	**065B1425**	**065B1325**	**065B1225**	**065B1625**	**065Z3407**
32	16	**065B1432**	**065B1332**	**065B1232**	**065B1632**	**065Z3408**
40	25	**065B1440**	**065B1340**	**065B1240**	**065B1640**	**065Z3409**
50	40	**065B1450**	**065B1350**	**065B1250**	**065B1650**	**065Z3410**
65	63				**065B1665**	**065Z3411**
80	100				**065B1680**	**065Z3412**
100	145				**065B1685**	**065Z3413**
125	220				**065B3125**	
150	320				**065B3150**	

* k_{vs} acc. to VDI/VDE 2173

** *The 3-way valve can be used as a 2-way valve by using the:*
- closing plug (int. thread) or
- closing nut (ext. thread)
(see accessories below)

Accessories - closing plug with gasket for VRB/VRG int. thread (GG 25)

Type	Code No.
Closing plug with gasket DN 15	**065Z7025**
Closing plug with gasket DN 20	**065Z7026**
Closing plug with gasket DN 25	**065Z7027**
Closing plug with gasket DN 32	**065Z7028**
Closing plug with gasket DN 40	**065Z7029**
Closing plug with gasket DN 50	**065Z7030**

Accessories - closing nut with gasket for VRB / VRG ext. thread (GGG 50)

Type	Code No.
Closing nut with gasket DN 15	**065Z7001**
Closing nut with gasket DN 20	**065Z7002**
Closing nut with gasket DN 25	**065Z7003**
Closing nut with gasket DN 32	**065Z7004**
Closing nut with gasket DN 40	**065Z7005**
Closing nut with gasket DN 50	**065Z7006**

Accessories - 3 tailpieces internal thread for VRB / VRG ext. thread (GGG 50)

R	DN	Code No.
½	15	**065B4107**
¾	20	**065B4108**
1	25	**065B4109**
1 ¼	32	**065B4110**
1 ½	40	**065B4111**
2	50	**065B4112**

Accessories - stem heater for AMV / AME

Type	Code No.
Stem heater 24 V (AMV/AME 15, 16, 25, 35 and valves DN 15 - 50)	**065B2171**
Stem heater 24 V (AMV/AME 55, 56 and valves DN 65 - 100)	**065Z7020**
Stem heater 24V (AMV/AME 85, 86 and valves DN 125, 150)	**065Z7021**

Spare parts - stuffing box

Dimensions	Valve			
DN	Code No.			
	VRB / VRG	**VL 2 / VL 3**	**VF 2 / VF 3**	**VFS 2**
15	**065B0008** [1]	**065B0008** [1]	**065B008** [1]	**065B0001** [3]
20				
25				
32				
40				
50				
65	-		**065B1360** [1]	**065B0006** [2]
80		**065B1360** [1]		
100				
125		-	**065B0007** [2]	-
150				

Note:

[1] Stuffing box
Gland ring
Instructions

[2] Three PFTE rings
Gland ring
Instructions

[3] Four PTFE rings
Seal for valve cover
Gland ring
Washer
Instructions

Technical data

Max. closing pressure and recommended Δp (VF / VFS / VL)

Valve		Actuator type													
DN	Stroke mm	AMV(E) 15 500 N			AMV(E) 16 300 N			AMV(E) 25 - 1000 N AMV(E) 25 SU/SD - 450 N			AMV(E) 35, AMV 323 600 N			AMV 423, 523 1200 N		
		VL	VF	VFS	VL	VF	VFS	VL	VF	VFS	VL	VF	VFS	VL	VF	VFS
		max. closing pressure (bar)														
15	15	6	16	25 [1]	6	9	9	6 [6]	16 [16]	25 [22 [3]]	6	16	25 [2]	6	16	25
20	15	6	11	11	4	4	4	6 [6]	16 [10]	25 [10]	6	13	13	6	16	25
25	15	6	6	6	2	2	2	6 [5]	16 [5]	16 [5]	6	8	8	6	16	20
32	15	3	3	3	1	1	1	6 [2.5]	9 [2.5]	9 [2.5]	5	5	5	6	10	11
40	15	2	2	2	-	-	-	6 [2]	6 [2]	6 [2]	3	3	3	6	7	7
50	15	1	1	1	-	-	-	3 [0.5]	3 [0.5]	3 [0.5]	2	2	2	4	4	4

[1] 17 bar for valve VFS 2, DN 15, k_{vs} = 4.0
[2] 20 bar for valve VFS 2, DN 15, k_{vs} = 4.0
[3] 16 bar for valve VFS 2, DN 15, k_{vs} = 4.0

Max. closing pressure and recommended Δp (VF / VFS / VL)

Valve				Actuator type										
DN	Stroke mm			AMV(E) 85, 86 5000 N		AMV(E) 55 2000 N			AMV(E) 56 1500 N			AMV 423, 523 1200 N		
	VL	VF	VFS	VF	VFS	VL	VF	VFS	VL	VF	VFS	VL	VF	VFS
	mm	mm	mm	max. closing pressure (bar)										
65	20	20	40	-	13	4.5	4.5	4.5	3	3	3	2	2	2
80	30	30	40	-	8	3	3	3	2	2	2	1	1	1
100	30	30	40	-	5	1.5	1.5	1.5	1	1	1	0.5	0.5	0.5
125	-	40	-	3	-	-	1	-	-	0.5	-	-	-	-
150	-	40	-	1.5	-	-	0.5	-	-	0.2	-	-	-	-

Max. closing pressure and recommended Δp (VRB / VRG)

Valve				Actuator type				
DN	Int. thread ISO 7/1	Ext. thread ISO 228/1	Stroke mm	AMV(E) 15 500 N	AMV(E) 16 300 N	AMV(E) 25 - 1000 N AMV(E) 25 SU/SD - 450 N	AMV(E) 35, AMV 323 600 N	AMV 423, 523 1200 N
				max. closing pressure (bar)				
15	R_p 1/2	G 1	10	16	9	16 [16]	16	16
20	R_p 3/4	G 1 1/4	15	11	4	16 [10]	13	16
25	R_p 1	G 1 1/2	15	6	2	16 [5]	8	16
32	R_p 1 1/4	G 2	15	3	1	9.0 [2.5]	5	12
40	R_p 1 1/2	G 2 1/4	15	2	-	6.0 [2]	3	8
50	R_p 2	G 2 3/4	15	1	-	3.0 [0.5]	2	5

NOTE:
Max. Δp is the physical limit of differential pressure the valve will close against.

The recommended Δp is based on the generation of noise, plug erosion etc.
Max. recommended Δp is 4 bar. If max. closing pressure is smaller than 4 bar than the recommended Δp is the same as closing Δp.

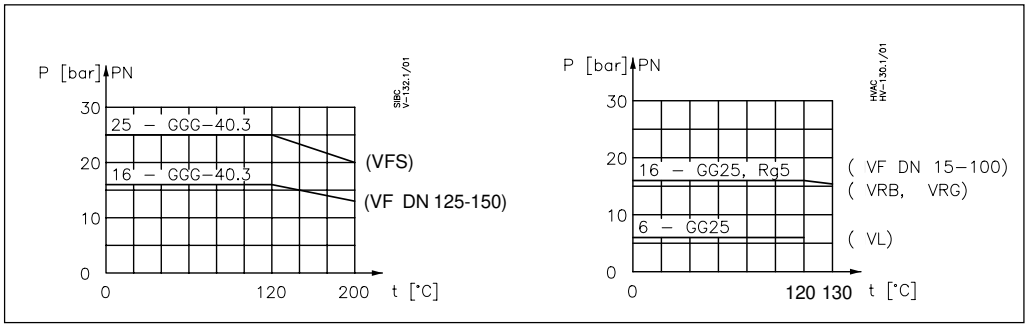
Values in parantheses [ ] are based on the force of the actuator AMV(E) 25 SU/SD only.

Technical data
(continued)

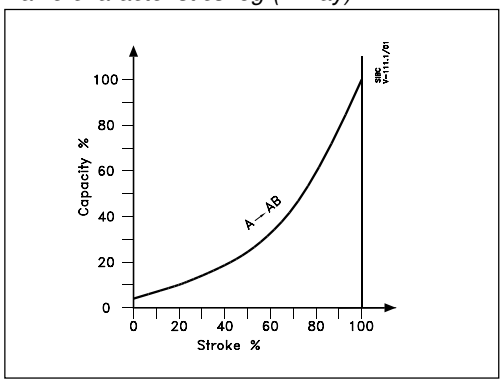
Type	DN	Connection	Pressure stage [1]	Temp. range [3]	Valve charac.	Control ratio
VRB 3	15 - 50	int. thread	16 bar at 120 °C	1 - 120 °C	log/lin	**min. 30:1** (k_{vs} 0.4 - 0.63)
VRB 3	15 - 50	ext. thread				
VRG 3						
VF 2 [2]	15 - 100	flange		1 - 130 °C	log	
	125 - 150		13 bar at 200 °C	1 - 200 °C		
VF 3 [2]	15 - 100		16 bar at 120 °C	1 - 130 °C	log/lin	**min. 50:1** (k_{vs} 1.0 - 4.0)
	125 - 150		13 bar at 200 °C	1 - 200 °C		
VFS 2 [4]	15 - 100		25 bar at 120 °C		log	**min. 100:1** (DN 20 and up)
			20 bar at 200 °C			
VL 2 [2]			6 bar at 120 °C	1 - 120 °C		
VL 3 [2]					log/lin	

1) according to DIN 4747 and 2401;
2) DN 15 (k_{vs} 0.63 - 2.5) valve characteristic lin/lin;
3) At temp. from 0°C till -10°C use stem heater. At temp. from 150 °C and up use adapter (Code No. 065Z7548)
4) Max. Δp for VFS 2 valves in low pressure steam application variance from 0.5 bar to max. 6 bar.

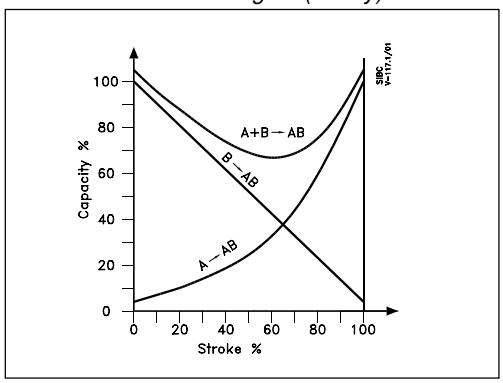
Pressure temperature diagram



Valve characteristics log (2-way)



Valve characteristics log/lin (3-way)



VF 2 / VF 3 / VL 2 / VL 3 (DN 15 - 100)

Body	Grey cast iron EN-GJL-250 (GG-25)
Spindle	Stainless steel
Cone	- Brass (DN 15 - 65) - Red bronze 2.1096.1 (Rg5) (DN 80 - 100)
Gasket	EPDM

VF 2 / VF 3 (DN 125 - 150)

Body and cover	Ductile iron EN-GJS-400-18-LT (GGG 40.3)
Cone	GGG 40
Seat and spindle	Stainless steel
Gland seal	Replaceable PTFE rings

VFS 2

Body and cover	Ductile iron EN-GJS-400-18-LT (GGG 40.3)
Cone, seat and spindle	Stainless steel
Gland seal	Replaceable PTFE rings

VRB 3 / VRG 3

Body	- VRG - Grey cast iron EN-GJL-250 (GG-25) - VRB - Red bronze 2.1096.1 (Rg 5)
Spindle	Stainless steel
Cone	Brass
Gasket	EPDM

1) At temp. from 0 °C till -10 °C use stem heater. At temperature from 150 °C and up use adapter (Code No. 065Z7548).

* Leakage at valves VF/VL DN 15 (kvs 0.63 - 2.5) is 0.1%

Density and pressure-testing, according to VDI/VDE 2174

Media

Water	pH 7 - 10
Low pressure steam	Max.6 bar, 200°C - VFS
Glycolic water (50%)	Down to 2 °C [1]

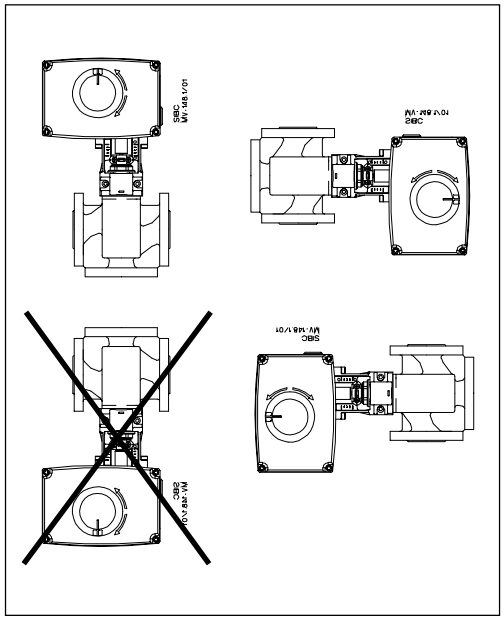
Leakage loss at closed valve

2 - way valves	(A-AB)*	Max. 0.05% of k_{vs} *
3 - way valves	(A-AB)*	Max. 0.05% of k_{vs}*
	(B-AB)	Max. 1% of k_{vs}

Installation

Hydraulic connections
Mount according to flow direction as indicated on valve body, AB is *always* the outlet port; inlets are A (two port) or A and B (three port).

Valve mounting
Before mounting the valve be sure that the pipes are clean and free from swarf. It is essential that the pipes are lined up squarely with the valve at each connection and that they are free from vibrations. Install the motorized control valves with the actuator in a vertical or horizontal position but not upside down.
Leave sufficient clearance to facilitate the dismantling of the actuator from the valve body for maintenance purposes.
The valve must not be installed in an explosive atmosphere or at an ambient temperature higher than 50 °C or lower than 0 °C. It must not be subject to steam jets, water jets or dripping liquid.



Note *that the actuator may be rotated up to 360° with respect to the valve body by loosening the retaining fixture. After this operation retighten.*

Hydraulic diagrams for applications of 3-way mixing valves
Note the valve must only be used as a mixing valve, and is not suitable for diverting (with one inlet and two outlet ports). Where this function is required, the valve should be mounted in the return line, as Fig. 2.

Note that if the pump is installed before the A port of the below valve arrangement, then excessive valve hammering will occur thus causing an overload of the actuator.

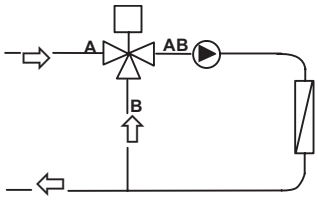


Fig 1 Mixing valve used in mixing application.

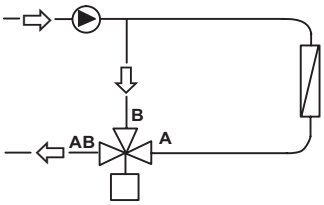
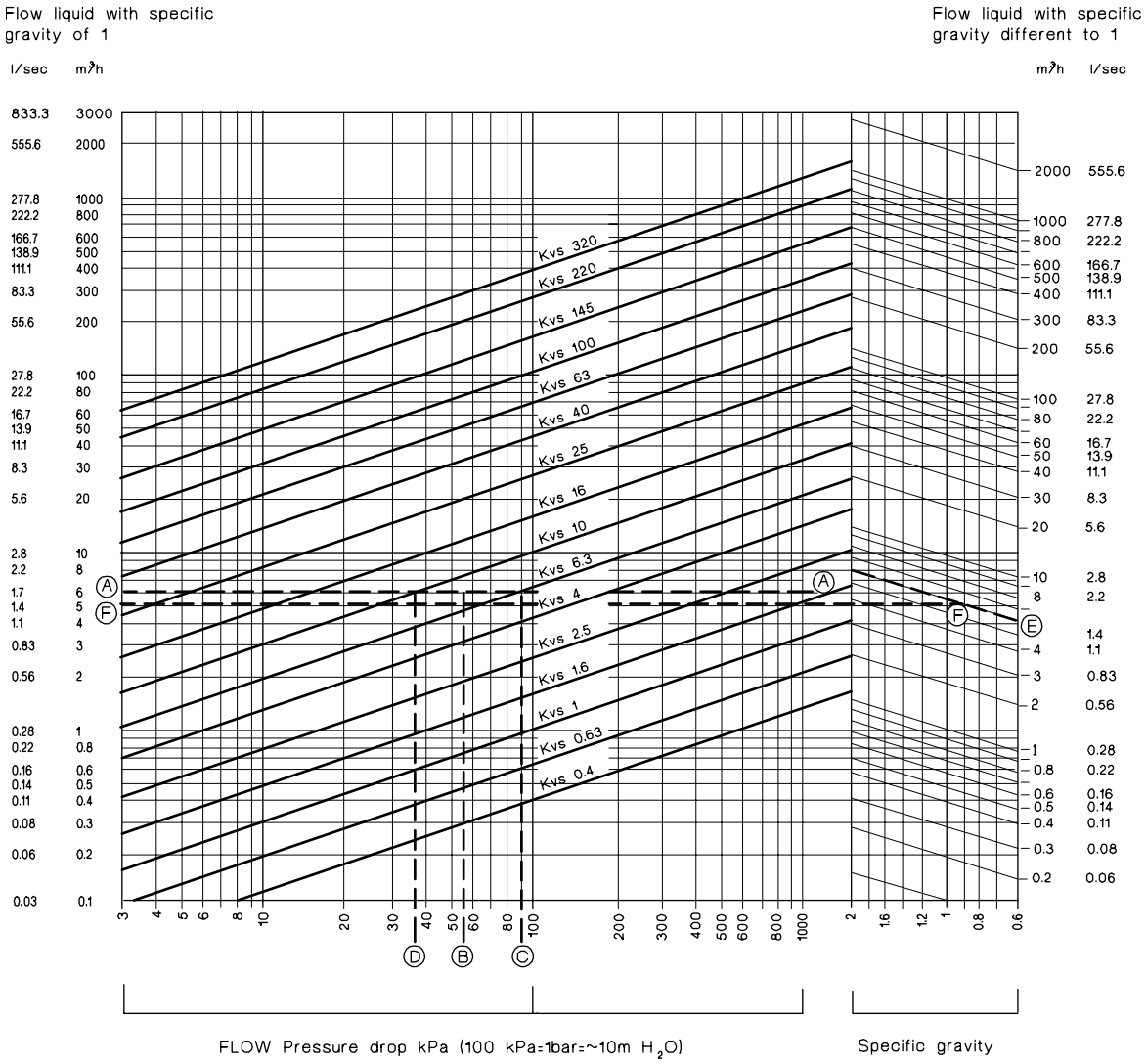


Fig 2 Mixing valve used in diverting application.

Disposal

The valve must be dismantled and the elements sorted into various material groups before disposal.

Control valve sizing diagram for fluids



Control valve sizing diagram for fluids
(continued)

Examples

1 For fluids with specific gravity of 1 (e.g. water)

Design data:
Flow rate: 6 m³/h
System pressure drop: 55 kPa

Locate the horizontal line representing a flow rate of 6 m³/h (line A-A). The valve authority is given by the equation:

$$\text{Valve authority, } N = \frac{P1}{P1+P2}$$

Where:

P1= pressure drop across the fully open valve
P2= pressure drop across the rest of the circuit with a full open valve

The ideal valve would give a pressure drop equal to the system pressure drop (i.e. an authority of 0.5):

If P1 = P2,
N = P1/2P1 = 0.5

In this example an authority of 0.5 would be given by a valve having a pressure drop of 55 kPa at that flow rate (point B). The intersection of line A–A with a vertical line drawn from B lies *between* two diagonal lines; this means that no ideally-sized valve is available. The intersection of line A–A with the diagonal lines gives the pressure drops stated by real, rather than ideal, valves. In this case, a valve with kvs 6.3 would give a pressure drop of 90.7 kPa (point C):

$$\text{hence valve authority} = \frac{90.7}{90.7+55} = 0.62$$

The second largest valve, with kvs 10, would give a pressure drop of 36 kPa (point D):

$$\text{hence valve authority} = \frac{36}{36+55} = 0.395$$

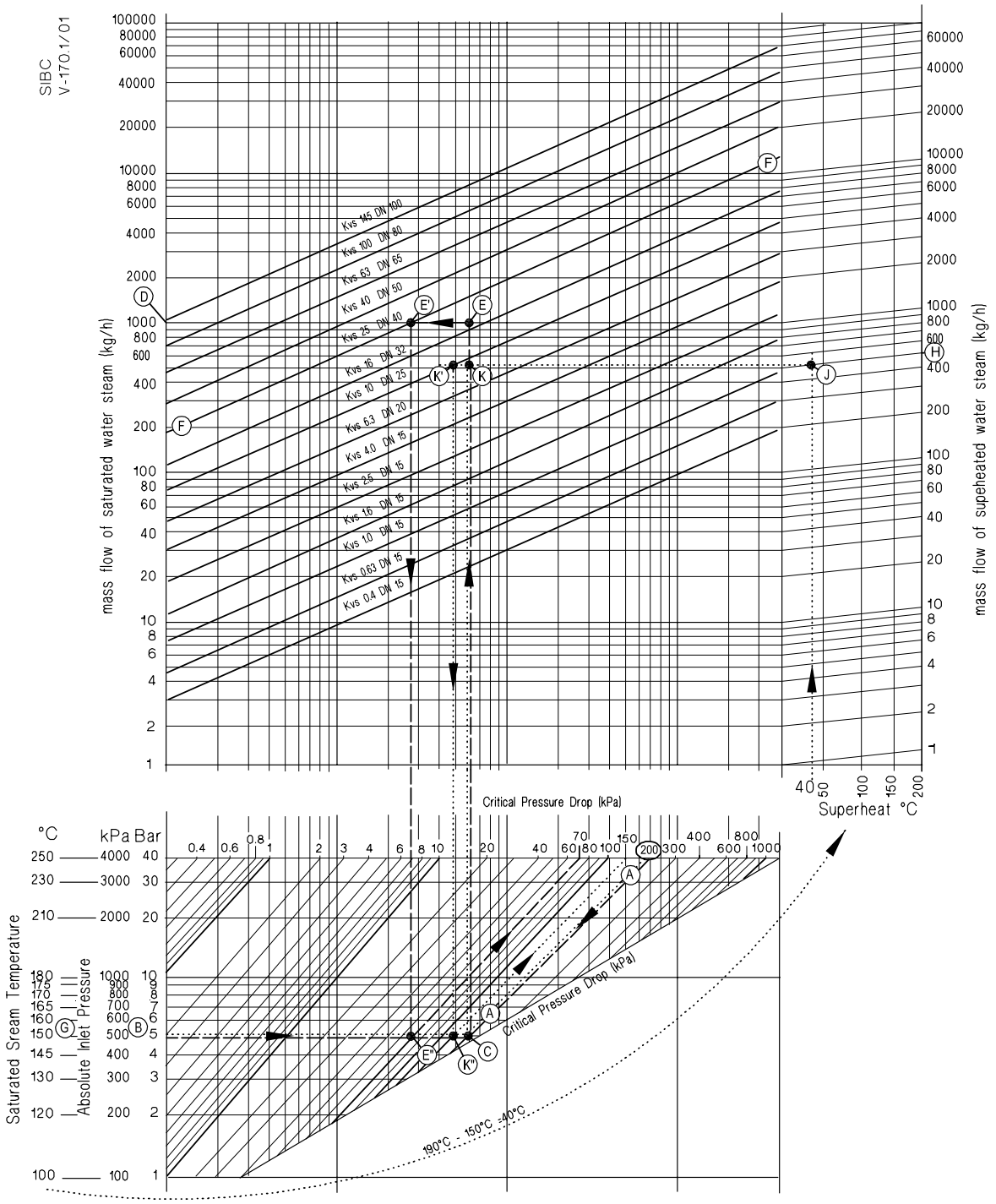
Generally, for a 3 port application, the smaller valve would be selected (resulting in a valve authority higher than 0.5 and therefore improved controlability). However, this will increase the total pressure and should be checked by the system designer for compatibility with available pump heads, etc. The ideal authority is 0.5 with a preferred range of between 0.4 and 0.7.

2 For fluids with specific gravity different from 1

Design data:
Flow rate: 6 m³/h of fluid, S.G. 0.9
System pressure drop: 10 kPa

For this example, the left hand axis of the diagram must be ignored. Starting from the RH axis, the flow rate of 6 m³/h is located (point E). The intersection of the diagonal line from point E with a vertical line from S.G. = 0.9 gives the starting point for the effective flow rate line F-F. The process then continues as for Example 1, so 10 kPa intersects F-F nearest to the kvs 16 diagonal. The intersection of F-F with kvs 16 gives a valve pressure drop of 12.7 kPa (point G).

Control valve sizing diagram for steam (VFS 2 only)
Max. Δp in low pressure steam application variance from 0.5 bar to 6 bar (see page 3)



Steam valve sizing is based on 40 % of the absolute steam pressure (immediately upstream of the valve), being dropped across the valve when fully open. At this condition the steam is travelling at or close to its critical velocity (approx. 300 m/s) and throttling will occur over the full valve stroke. If the steam is travelling slower than this then the first part of the valve stroke will merely increase the velocity of the steam without reducing the volumetric flow.

Control valve sizing diagram for steam
(continued)

1 For saturated steam

Design data:
Flow rate: 700 kg/h
Absolute inlet pressure: 5 bar (500 kPa)

- follow dashed line -

The absolute inlet pressure is 500 kPa. 40% of this is 200 kPa.

Locate the diagonal line corresponding to the pressure drop of 200 kPa (line A-A).

Read the absolute inlet pressure on the lower left hand scale (point B), and draw a horizontal line across until it meets the pressure drop diagonal (A-A) at point C.

From this point extend a vertical line upwards until it meets the horizontal line representing the steam flow of 700 kg/h from point D. The intersection of this is point E.

The nearest diagonal kvs line above this is line F-F with a kvs of 25 (point E'). If the ideal valve size is not available the next largest size should be selected to ensure design flow.

The pressure drop through valve at the flow rate is found by the intersection of the 700 kg/h line with F-F (point E') and dropping a vertical; this actually hits the horizontal line for
500 kPa (point E'') inlet pressure at a pressure drop diagonal of 90 kPa. This is only 18% of the inlet pressure and the control quality will not be good until the valve has partially closed. As with all steam valves this compromise is necessary since the next smaller valve would not pass the required flow (maximum flow would have been about 600 kg/h).

The maximum flow for same inlet pressure is found by extending the vertical line (C-E) through point E until it crosses the kvs 25 line F-F and reading off the flow (900 kg/h).

2 For superheated steam

Design data:
Flow rate: 500 kg/h
Absolute inlet pressure: 5 bar (500 kPa)
Steam temperature: 190 °C

The procedure for superheated steam is much the same as for saturated steam, but uses a different flow scale which slightly elevates the readings according to the degree of superheat.

- follow dotted line -

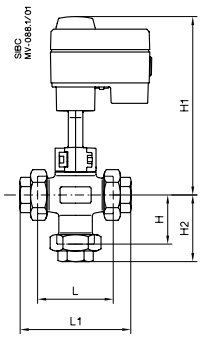
As before, the diagonal pressure drop line A-A is located as before for 40 % of 500 (200 kg/h). The horizontal inlet pressure line through point B is now extended to the left to read off the corresponding saturated steam temperature at point G (150 °C). The difference between the saturated steam temperature and the superheated steam temperature is 190 °C - 150 °C = 40 °C.

The superheated steam flow is found on the upper right hand scale, point H, and the diagonal line is followed down from here until it meets a vertical line from the steam temperature elevation (40 °C) at point J.

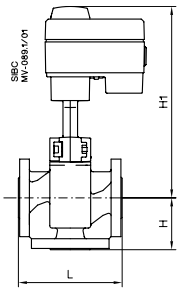
As before, the horizontal line through point B is drawn to cut line A-A at point C and the point where the vertical line from this point meets the horizontal line from point J is the operating point (point K). This horizontal line, J-K, is the corrected flow line. The nearest diagonal line above this is for kvs 10 (point K'). A vertical line dropped from the intersection of J-K with the 10 kvs line intersects the
500 kPa inlet pressure line (point K'') at a pressure drop diagonal of about 150 kPa. This is about 30% of the inlet pressure which will give reasonable control quality (compared to recommended ratio of 40%).

Dimensions

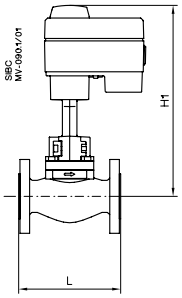
VF / VFS / VL / VRB / VRG + AMV(E) 15, 16, 25, 35



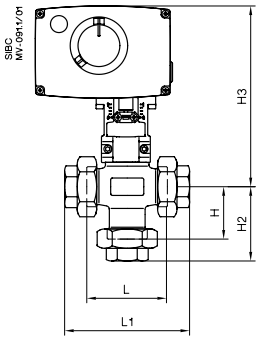
AMV(E) 15, 16 + VRB 3 / VRG 3



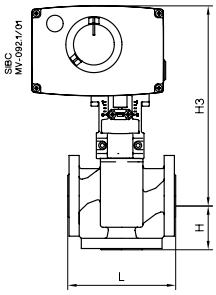
AMV(E) 15, 16 + VF 2-3 / VL 2-3



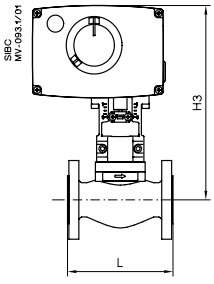
AMV(E) 15, 16 + VFS 2



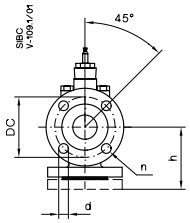
AMV(E) 25, 35 + VRB 3 / VRG 3



AMV(E) 25, 35 + VF 2-3 / VL 2-3



AMV(E) 25, 35 + VFS 2

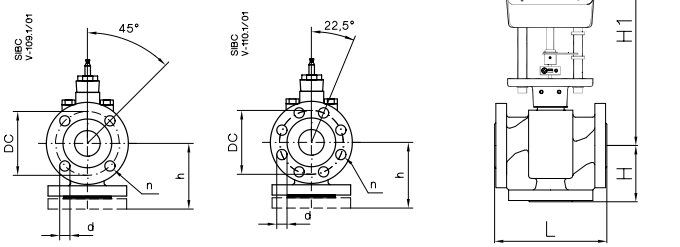


Type	Connection	L mm	L_1 mm	H* mm	h** mm	H_1 mm	H_2 mm	H_3 mm	DC mm	d mm	n number	Weight kg
VRB 15	int. R_p 1/2	80	-	47	-	214	-	202	-	-	-	0.7
VRB 20	int. R_p 3/4	80	-	55	-	215	-	203	-	-	-	1.1
VRB 25	int. R_p 1	95	-	60	-	215	-	203	-	-	-	1.4
VRB 32	int. R_p 1 1/4	112	-	66	-	222	-	210	-	-	-	2.0
VRB 40	int. R_p 1 1/2	132	-	75	-	226	-	214	-	-	-	2.9
VRB 50	int. R_p 2	160	-	85	-	232	-	220	-	-	-	4.3
VRB / VRG 15	ext. G 1	80	128	40	-	214	64	202	-	-	-	1.0
VRB / VRG 20	ext. G 1 1/4	80	128	55	-	215	79	203	-	-	-	1.2
VRB / VRG 25	ext. G 1 1/2	95	151	60	-	215	88	203	-	-	-	1.4
VRB / VRG 32	ext. G 2	112	178	66	-	222	99	210	-	-	-	1.8
VRB / VRG 40	ext. G 2 1/4	132	201	75	-	226	110	214	-	-	-	2.5
VRB / VRG 50	ext. G 2 3/4	160	234	85	-	232	122	220	-	-	-	3.7
VFS 2 15	flange	130	-	-	-	249	-	237	65	14	4	3.6
VFS 2 20	flange	150	-	-	-	249	-	237	75	14	4	4.3
VFS 2 25	flange	160	-	-	-	249	-	237	85	14	4	5.0
VFS 2 32	flange	180	-	-	-	271	-	259	100	18	4	8.7
VFS 2 40	flange	200	-	-	-	271	-	259	110	18	4	9.5
VFS 2 50	flange	230	-	-	-	271	-	259	125	18	4	11.7
VF 2 / VF 3 15	flange	130	-	65	72	231	-	219	65	14	4	3.5 / 3.4
VF 2 / VF 3 20	flange	150	-	70	77	231	-	219	75	14	4	4.4 / 4.3
VF 2 / VF 3 25	flange	160	-	75	82	231	-	219	85	14	4	5.4 / 5.2
VF 2 / VF 3 32	flange	180	-	80	88	231	-	219	100	18	4	7.9 / 7.2
VF 2 / VF 3 40	flange	200	-	90	100	242	-	229	110	18	4	10.2 / 9.7
VF 2 / VF 3 50	flange	230	-	100	110	242	-	229	125	18	4	13.3 / 12.8
VL 2 / VL 3 15	flange	130	-	65	72	231	-	219	55	11	4	2.6 / 2.5
VL 2 / VL 3 20	flange	150	-	70	77	231	-	219	65	11	4	3.3 / 3.2
VL 2 / VL 3 25	flange	160	-	75	82	231	-	219	75	11	4	4.0 / 3.8
VL 2 / VL 3 32	flange	180	-	80	88	231	-	219	90	14	4	6.3 / 5.6
VL 2 / VL 3 40	flange	200	-	90	100	242	-	229	100	14	4	9.2 / 8.8
VL 2 / VL 3 50	flange	230	-	100	110	242	-	229	110	14	4	12.2 / 11.5

H* only 3 - way valves **h**** only for valves with blind flange

Dimensions

VF / VFS / VL + AMV(E) 55, 56



AMV(E) 55, AMV(E) 56 + VF 2-3 / VL 2-3

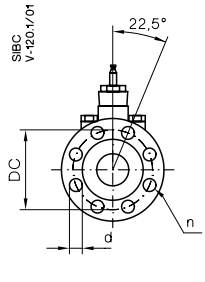
AMV(E) 55, AMV(E) 56 + VFS 2

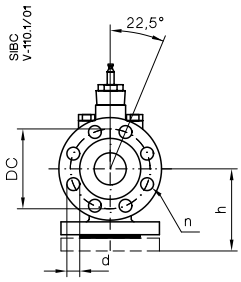
Type	Connection	L mm	H* mm	h** mm	H_1 mm	DC mm	d mm	n number	Weight kg
VFS 2 65	flange	290	-	-	586	145	18	8	23.0
VFS 2 80	flange	310	-	-	587	160	18	8	28.1
VFS 2 100	flange	350	-	-	614	190	22	8	40.7
VF 2 / VF 3 65	flange	290	120	130	291	145	18	4	19.0 / 18.2
VF 2 / VF 3 80	flange	310	155	176	317	160	18	8	34.5 / 29.2
VF 2 / VF 3 100	flange	350	175	196	317	180	18	8	42.8 / 36.4
VF 2 / VF 3 125	flange	400	250	160	555	210	18	8	65.3 / 54.0
VF 2 / VF 3 150	flange	480	300	200	560	240	22	8	92.0 / 79.0
VL 2 / VL 3 65	flange	290	120	130	291	130	14	4	18.0 / 17.2
VL 2 / VL 3 80	flange	310	155	176	317	150	18	4	29.0 / 25.0
VL 2 / VL 3 100	flange	350	175	196	317	170	18	4	39.0 / 34.0

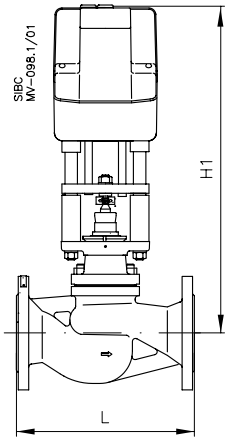
H* only 3 - way valves
h** only for valves with blind flange

Dimensions

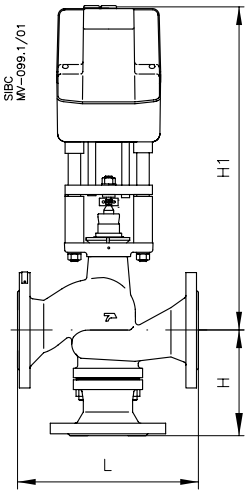
VF 2 / VF 3 / VFS 2 + AMV(E) 85, 86







AMV(E) 85, AMV(E) 86 + VFS 2



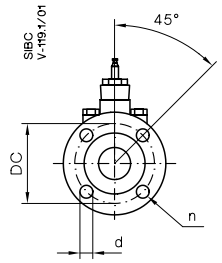
AMV(E) 85, AMV(E) 86 + VF 2 / VF 3

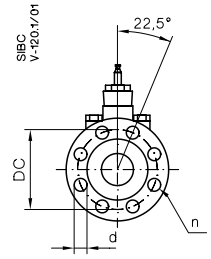
Type	Connection	L mm	H* mm	h** mm	H_1 mm	DC mm	d mm	n number	Weight kg
VFS 2 65	flange	290	-	-	568	145	18	8	23.0
VFS 2 80	flange	310	-	-	587	160	18	8	28.1
VFS 2 100	flange	350	-	-	614	190	22	8	40.7
VF 2 / VF 3 125	flange	400	250	160	629	210	18	8	65.3 / 54.0
VF 2 / VF 3 150	flange	480	300	200	682	240	22	8	92.0 / 79.0

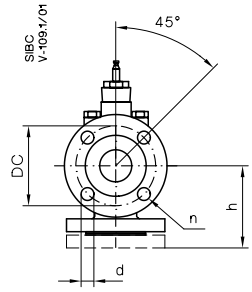
H* only 3 - way valves **h**** only for valves with blind flange

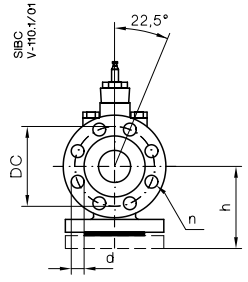
Dimensions

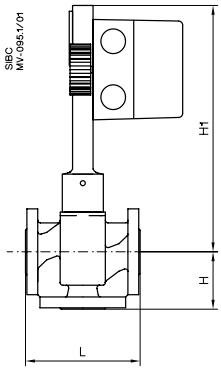
VF /VFS / VRB / VRG / VL + AMV 323/423/523

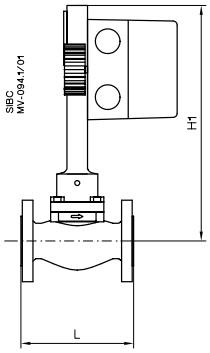


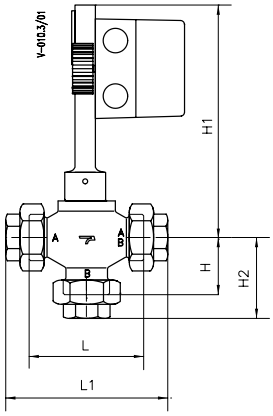












Type	Connect.	L mm	L_1 mm	H* mm	h** mm	H_1 mm	H_2 mm	DC mm	d mm	n no.	Weight kg
VRB 15	int. R_p 1/2	80	-	47	-	266	-	-	-	-	0.7
VRB 20	int. R_p 3/4	80	-	55	-	266	-	-	-	-	1.1
VRB 25	int. R_p 1	95	-	60	-	266	-	-	-	-	1.4
VRB 32	int. R_p 1 1/4	112	-	66	-	272	-	-	-	-	2.0
VRB 40	int. R_p 1 1/2	132	-	75	-	276	-	-	-	-	2.9
VRB 50	int. R_p 2	160	-	85	-	282	-	-	-	-	4.3
VRB/VRG 15	ext. G 1	80	128	40	-	266	64	-	-	-	1.0
VRB/VRG 20	ext. G 1 1/4	80	128	55	-	266	79	-	-	-	1.2
VRB/VRG 25	ext. G 1 1/2	95	151	60	-	266	88	-	-	-	1.4
VRB/VRG 32	ext. G 2	112	178	66	-	272	99	-	-	-	1.8
VRB/VRG 40	ext. G 2 1/4	132	201	75	-	276	110	-	-	-	2.5
VRB/VRG 50	ext. G 2 3/4	160	234	85	-	282	122	-	-	-	3.7
VFS 2 15	flange	130	-	-	-	301	-	65	14	4	3.6
VFS 2 20	flange	150	-	-	-	301	-	75	14	4	4.3
VFS 2 25	flange	160	-	-	-	301	-	85	14	4	5.0
VFS 2 32	flange	180	-	-	-	323	-	100	18	4	8.7
VFS 2 40	flange	200	-	-	-	323	-	110	18	4	9.5
VFS 2 50	flange	230	-	-	-	323	-	125	18	4	11.7
VFS 2 65	flange	290	-	-	-	405	-	145	18	4	23.0
VFS 2 80	flange	310	-	-	-	424	-	160	18	8	28.1
VFS 2 100	flange	350	-	-	-	451	-	190	22	8	40.7
VF2 / VF3 15	flange	130	-	65	72	280	-	65	14	4	3.5/3.4
VF2 / VF3 20	flange	150	-	70	77	280	-	75	14	4	4.4/4.3
VF2 / VF3 25	flange	160	-	75	82	280	-	85	14	4	5.4/5.2
VF2 / VF3 32	flange	180	-	80	88	280	-	100	18	4	7.9/7.2
VF2 / VF3 40	flange	200	-	90	100	290	-	110	18	4	10.2/9.7
VF2 / VF3 50	flange	230	-	100	110	290	-	125	18	4	13.3/12.8
VF2 / VF3 65	flange	290	-	120	130	291	-	145	18	4	19.0/18.2
VF2 / VF3 80	flange	310	-	155	176	317	-	160	18	8	34.5/29.2
VF2 / VF3 100	flange	350	-	175	196	317	-	180	18	8	42.8/36.4
VL2 / VL3 15	flange	130	-	65	72	280	-	55	14	4	2.6/2.5
VL2 / VL3 20	flange	150	-	70	77	280	-	65	14	4	3.3/3.2
VL2 / VL3 25	flange	160	-	75	82	280	-	75	14	4	4.0/3.8
VL2 / VL3 32	flange	180	-	80	88	280	-	90	14	4	6.3/5.6
VL2 / VL3 40	flange	200	-	90	100	290	-	100	14	4	9.2/8.8
VL2 / VL3 50	flange	230	-	100	110	290	-	110	14	4	12.2/11.5
VL2 / VL3 65	flange	290	-	120	130	291	-	130	14	4	18.0/17.2
VL2 / VL3 80	flange	310	-	155	176	317	-	150	18	4	29.0/25.0
VL2 / VL3 100	flange	350	-	175	196	317	-	170	18	4	39.0/34.0

H* only 3 - way valves

h** only for valves with blind flange