

Data sheet

Pressure balanced valves VM 2, VB 2

Description / Application



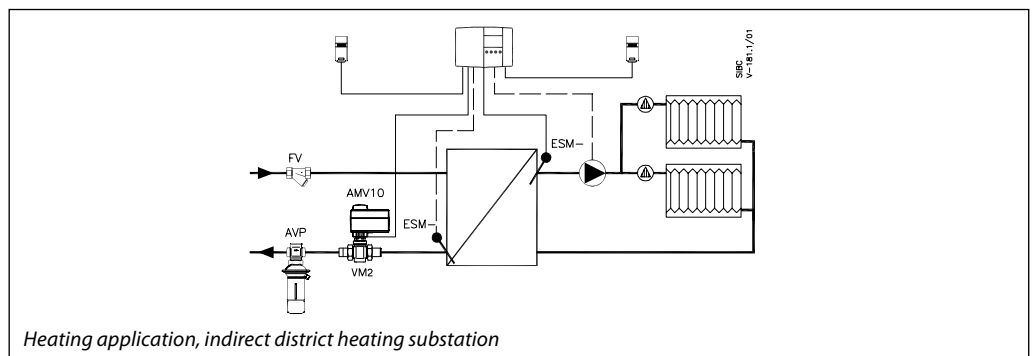
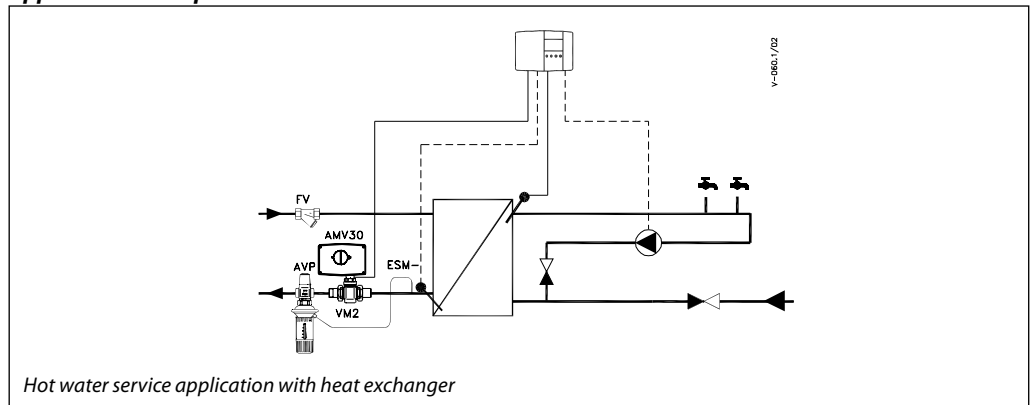
The valves with split characteristic VM 2 and VB 2 are designed to be used with Danfoss actuators AMV(E) 10, AMV(E) 20 and AMV(E) 30 or with Danfoss actuators with spring return function AMV(E) 13 AMV(E) 23 and AMV(E) 33, for long and unproblematic performance in response to the most demanding conditions in systems such as:

- district heating,
- heating,
- hot water service with heat exchanger or storage tank.

Main data:

- SPLIT characteristic
- Ext. thread PN 25 (VM 2) or flanges PN 25 (VB 2)
- Suitable for water temperatures from 2 to 150 °C.
- Suitable for use with AMV(E) 10/20/30 and AMV(E) 13/23/33 actuators.

Application examples



Ordering
VM 2 (ext. thread)

DN	Ext. thread ISO 228/1	k_{VS} m ³ /h	Stroke mm	Code No.
15	G ¾ A	0.25	5	065B2010
		0.4	5	065B2011
		0.63	5	065B2012
		1.0	5	065B2013
		1.6	5	065B2014
		2.5	5	065B2015
		4.0	5	065B2026
20	G 1 A	4.0	5	065B2016
		6.3	7	065B2027
25	G 1¼ A	6.3	5	065B2017
		8.0	7	065B2028
32	G 1½ A	10	7	065B2018
40	G 2 A	16	10	065B2019
50	G 2½ A	25	10	065B2020

VB 2 (flange)

DN	$k_{VS}^{1)}$ m ³ /h	Stroke mm	Code No.
15	0.25	5	065B2050
	0.4	5	065B2051
	0.63	5	065B2052
	1.0	5	065B2053
	1.6	5	065B2054
	2.5	5	065B2055
	4.0	5	065B2056
20	6.3	5	065B2057
25	10	7	065B2058
32	16	10	065B2059
40	25	10	065B2060
50	40	10	065B2061

¹⁾ k_{VS} according to VDI/VDE 2173

Spare parts VM 2

Valve insert	Valve size	Code No.
	VM 2 DN 15/1.0	065B2033
	VM 2 DN 15/2.5	065B2035
	VM 2 DN 15/4.0	065B2036
	VM 2 DN 20/4.0	065B2036
	VM 2 DN 20/6.3	065B2037
	VM 2 DN 25/6.3	065B2037
	VM 2 DN 25/8.0	065B2041
	VM 2 DN 32/10	065B2038
	VM 2 DN 40/16	065B2039
	VM 2 DN 50/25	065B2040

Accessories for VM 2

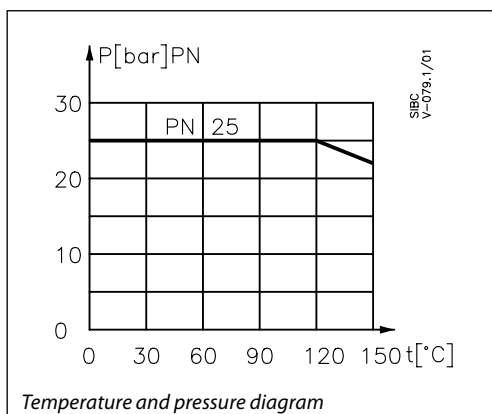
DN	Weld-on tailpieces	Tailpieces with ext. threads
	Code No.	Code No.
15	003H6908	003H6902
20	003H6909	003H6903
25	003H6910	003H6904
32	003H6914	003H6906
40	065F6081	065F6061
50	065F6082	065F6062

Spare parts VB 2

Stuffing box	Valve size	Code No.
	VB 2 DN 15 - 50	065B2070

Technical data

Pressure stage	PN 25
Medium temperature	2 ... 150 °C
Cavitation factor	≥ 0.5
Control characteristic	split characteristic
Leakage acc. to standard IEC 534	max. 0.05% of kvs
Control range	> 50:1
Media	Circulation water / Glycolic water up to 30 %
Flange standard	ISO 7005 - 2
Thread standard	ISO 228 - 1


 Δp closing pressure VM 2

Type	DN	$k_{VS}/m^3/h$	AMV(E) 10/13	AMV(E) 20/23, 30/33
VM 2	15	0.25 - 4.0	16	16
	20	4.0	25	25
	20	6.3	-	25
	25	6.3	16	25
	25	8.0	-	25
	32	10	-	25
	40	16	-	16
	50	25	-	16

 Δp closing pressure VB 2

Type	DN	$k_{VS}/m^3/h$	AMV(E) 10/13	AMV(E) 20/23, 30/33
VB 2	15 - 20	0.25 - 6.3	16	16
	25 - 50	10 - 40	-	16

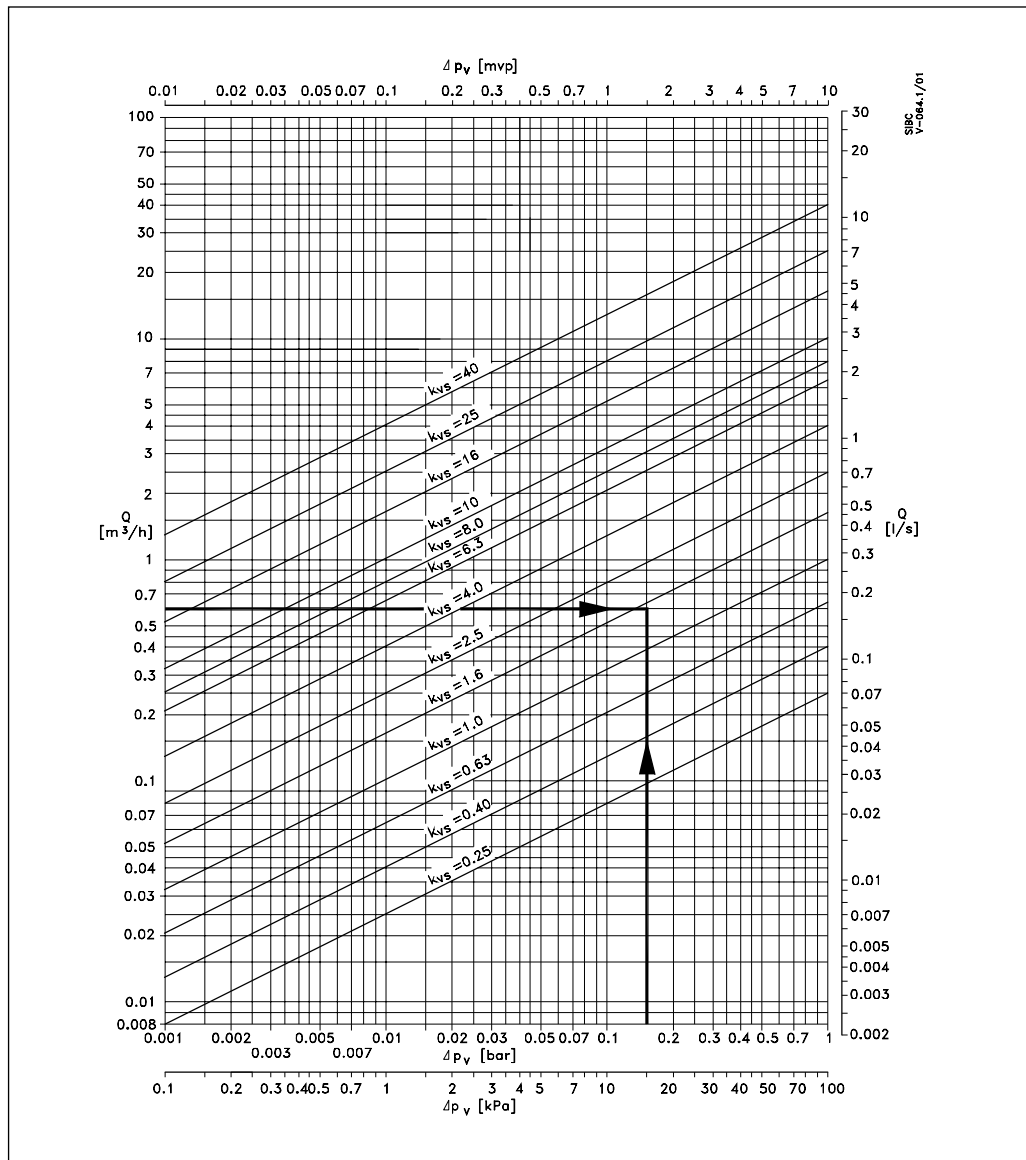
Materials
VM 2

Body	Red bronze (Rg 5)
Cone, seat and spindle	Stainless steel
Gasket	EPDM O-rings

VB 2

Body and cover	Ductile iron EN-GJS-400-18-LT (GGG 40.3)
Cone, seat and spindle	Stainless steel
Gasket	EPDM O-rings

Sizing



Example:

Given:

$P = 14 \text{ kW}$ $P = \text{heating power (kW)}$
 $\Delta t = 20 \text{ K}$ $\Delta t = \text{temperature difference (K)}$
 $\Delta P_v = 0.15 \text{ bar}$ $\Delta P_v = \text{differential pressure across the valve (bar)}$

Current flow Q (m^3/h) through the valve is calculated according to formula:

$$Q = \frac{P \times 0.86}{\Delta t} = (\text{m}^3 / \text{h})$$

$$Q = \frac{14 \times 0.86}{20} = 0.6 \text{ m}^3 / \text{h}$$

k_{VS} value - flow (m^3/h) in fully opened valve is calculated according to formula:

$$k_{VS} = \frac{Q}{\sqrt{\Delta p_v}} = (\text{m}^3 / \text{h})$$

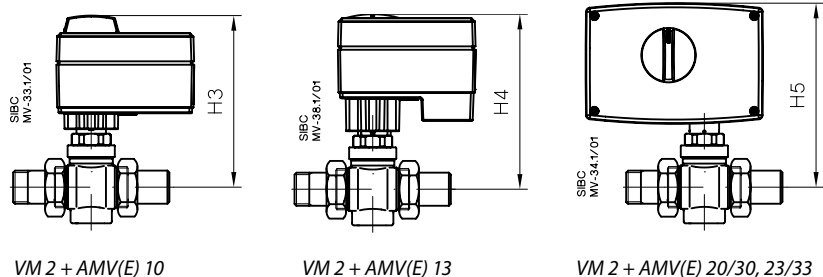
$$k_{VS} = \frac{0.6}{\sqrt{0.15}} = 1.5 \rightarrow 1.6 \text{ m}^3 / \text{h}$$

or read from sizing diagram by taking a line through Q scale ($0.6 \text{ m}^3/\text{h}$) and Δp scale (0.15 bar) to intersect k_{VS} axis at 1.6.

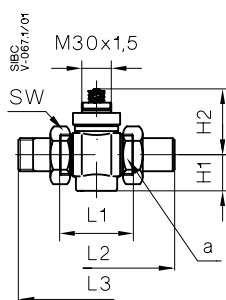
Solution:

- 1) flange valve VB 2 DN 15/1.6 or
- 2) ext. thread valve VM 2 DN 15/1.6

Dimensions

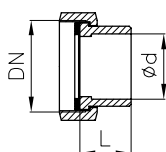


Type	Stroke (mm)	H1 (mm)	H2 (mm)	H3 (mm)	H4 (mm)	H5 (mm)	L1 (mm)	L2 (mm)	L3 (mm)	a ISO 228/1	SW (mm)	Weight (kg)
VM 2 15	5	33	70	163	166	176	65	139	120	G ¾A	30	0.80
VM 2 20/4.0	5	33	70	163	166	176	70	154	129	G 1A	37	0.83
VM 2 20/6.3	7	33	70	-	-	176	70	154	129	G 1A	37	0.83
VM 2 25/6.3	5	38	70	163	166	176	75	159	144	G 1¼A	46	0.98
VM 2 25/8.0	7	38	70	-	-	176	75	159	144	G 1¼A	46	0.98
VM 2 32	7	38	70	-	-	176	100	184	172	G 1½A	54	1.22
VM 2 40	10	38	88	-	-	194	110	244	195	G 2A	64	2.34
VM 2 50	10	44	88	-	-	194	130	298	252	G 2½A	81	3.25

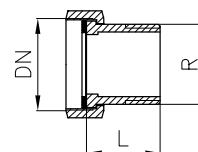


Type	DN	k _{vs} (m³/h)	AMV(E) 10/13	AMV(E) 20/23; AMV(E) 30/33
VM 2	15	0.25 - 4.0	•	•
	20	4.0	•	•
	20	6.3	-	•
	25	6.3	•	•
	25	8.0	-	•
	32	10	-	•
	40	16	-	•
	50	25	-	•

Weld-on tailpieces



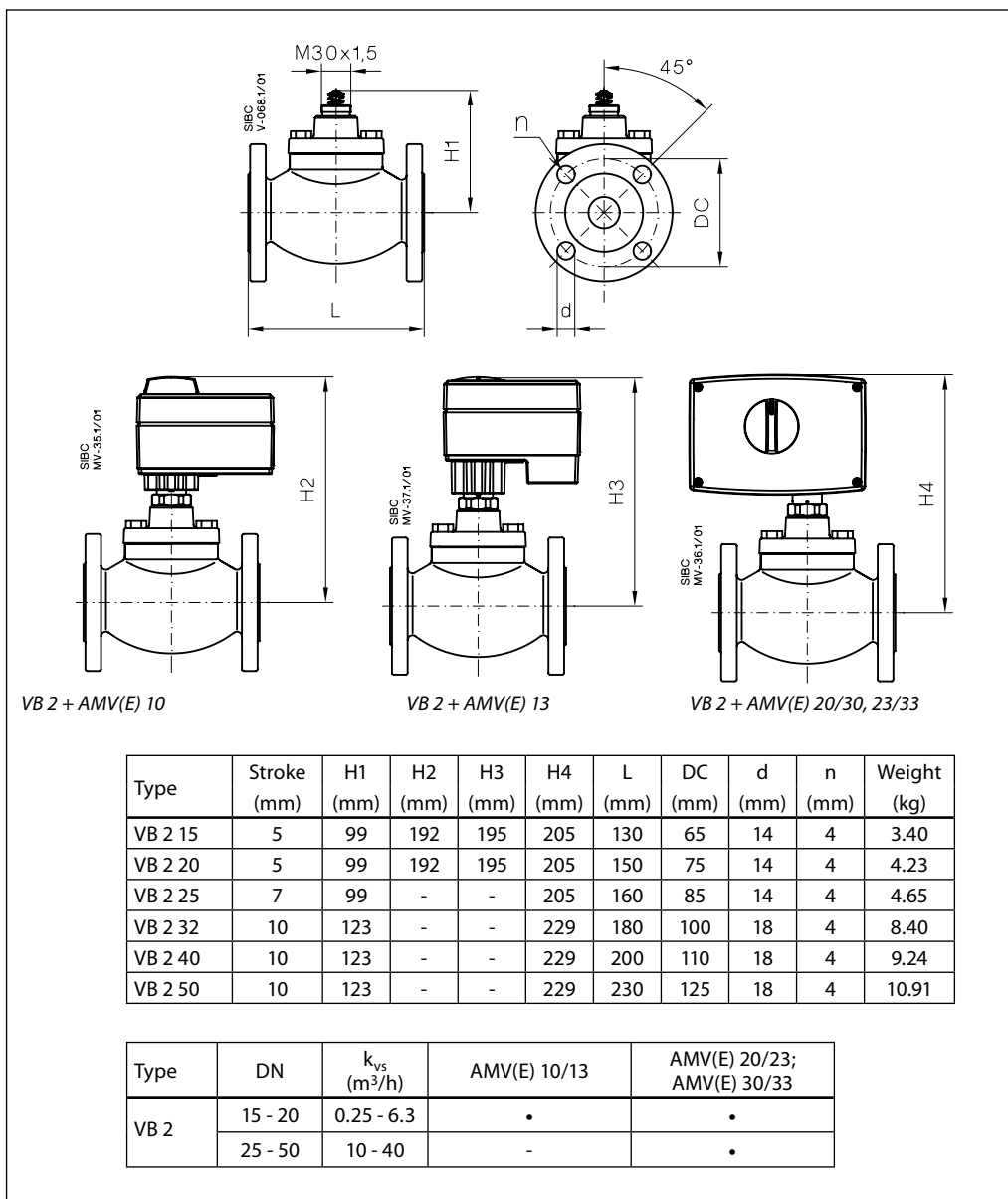
Tailpieces with external threads



G (mm)	Ød (mm)	L (mm)	Weight (kg)
15	15	35	0.18
20	20	40	0.26
25	27	40	0.38
32	35	40	0.48
40	40	65	0.90
50	50	82	1.70

G (")	R (")	L (mm)	Weight (kg)
¾	½	25.5	0.17
1	¾	27.5	0.27
1 ¼	1	32.5	0.45
1 ½	1 ¼	34.0	0.62
2	1 ½	40.5	0.83
2 ½	2	59.0	1.65

Dimensions (continuous)



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