

Data sheet

# Manual presetting valve MSV-F2, PN 16/25, DN 15 - 400

Description

MSV-F2 DN 15-150



MSV-F2 DN 200-400



MSV-F2 valves are manual presetting valves. They are used for balancing the flow in heating and cooling installations.

The valves have position indicator and stroke limiter as standard. Hood of spindle is integrated with stroke limiter.

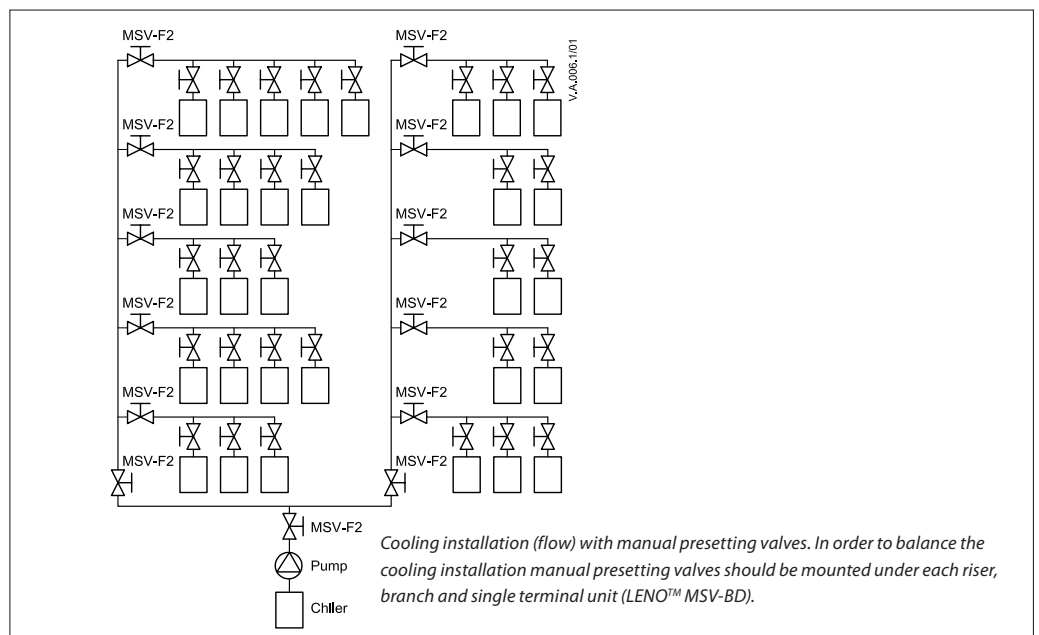
Setting can be locked. Valve characteristics are set up in measuring device PFM 5001/PFM 100. Valves are free of asbestos.

Shut-off function.

**Main data:**

- DN 15-400
- PN 16:
  - Flow temperature: -10 °C ... 130 °C
- PN 25:
  - Flow temperature: -10 °C ... 150 °C
- Valves are mounted on flow or return pipe.

Application



In constant flow installations MSV valves keeps constant pressure drop. Its value may be set on several levels depending on presetting.

Ordering

MSV-F2 valves - PN 16

Picture	DN <sup>1)</sup> (mm)	k <sub>vs</sub> (m <sup>3</sup> /h)	T <sub>max.</sub> (°C)	PN (bar)	Code No. (with needle test plugs)
	15	3,1	130	16	<b>003Z1085</b>
	20	6,3			<b>003Z1086</b>
	25	9,0			<b>003Z1087</b>
	32	15,5			<b>003Z1088</b>
	40	32,3			<b>003Z1089</b>
	50	53,8			<b>003Z1061</b>
	65	93,4			<b>003Z1062</b>
	80	122,3			<b>003Z1063</b>
	100	200,0			<b>003Z1064</b>
	125	304,4			<b>003Z1065</b>
	150	400,8			<b>003Z1066</b>
	200	685,6			<b>003Z1067</b>
	250	952,3			<b>003Z1068</b>
	300	1.380,2			<b>003Z1069</b>
	350	2.046,1			<b>003Z1090</b>
	400	2.584,6			<b>003Z1091</b>

MSV-F2 valves - PN 25

Picture	DN <sup>1)</sup> (mm)	k <sub>vs</sub> (m <sup>3</sup> /h)	T <sub>max.</sub> (°C)	PN (bar)	Code No. (with needle test plugs)
	15	3,1	150	25	<b>003Z1092</b>
	20	6,3			<b>003Z1093</b>
	25	9,0			<b>003Z1094</b>
	32	15,5			<b>003Z1095</b>
	40	32,3			<b>003Z1096</b>
	50	53,8			<b>003Z1070</b>
	65	93,4			<b>003Z1071</b>
	80	122,3			<b>003Z1072</b>
	100	200,0			<b>003Z1073</b>
	125	304,4			<b>003Z1074</b>
	150	400,8			<b>003Z1075</b>
	200	685,6			<b>003Z1076</b>
	250	952,3			<b>003Z1077</b>
	300	1.380,2			<b>003Z1078</b>
	350	2.046,1			<b>003Z1097</b>
	400	2.584,6			<b>003Z1098</b>

<sup>1)</sup> Flange valves dimension DN 15-40, 350 and 400 available on request.

Accessories

Type	Code No.
Rectus test plugs, 2 pcs.	<b>003Z0108</b>
Standard test plugs with O-ring, 2 pcs.	<b>003Z0104</b>
Extension piece for test plugs 45 mm, 2 pcs.	<b>003Z0103</b>
Extended test plugs mounted under pressure, 2 pcs.	<b>003Z3946</b>
Flow measuring instrument PFM5001 (10 bar)	<b>003L8343</b>
Flow measuring instrument PFM5001 (20 bar)	<b>003L8344</b>
Flow measuring instrument PFM100 (10 bar)	<b>003L8260</b>

Type	Code No.	
Hand-wheel	DN 15-50	<b>003Z0179</b>
	DN 65-150	<b>003Z0180</b>
	DN 200	<b>003Z0181</b>
	DN 250-300	<b>003Z0182</b>
	DN 350-400	<b>003Z0183</b>

Technical data

MSV-F2 valves - PN 16

Nominal diameter	DN	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400	
$k_{vs}$	m <sup>3</sup> /h	3,1	6,3	9,0	15,5	32,3	53,8	93,4	122,3	200,0	304,4	400,8	685,6	952,3	1380,2	2046,1	2584,6	
Nominal pressure	bar	16																
Max. pressure drop		1,5																
Leakage rate	Grade A; According to ISO5208, Table 5 (No visible leakage)																	
Flow medium	Water and water mixtures with secondary coolants (like glycols <sup>1)</sup> ) for closed heating and cooling systems																	
Max. flow temperature	°C	130																
Connections	Flanges according to EN 1092-2																	
Weight	kg	2,3	2,9	3,8	5,6	7,2	9,4	17	21	32	44	56,5	231	354	497	747	890	
<b>Material</b>																		
Body	Cast iron EN-GJL 250 (GG 25)																	
Seat sealing	EPDM																	
Cone	CW602N						Stainless steel			Stainless steel/ CW602N			Casted stainless steel					

<sup>1)</sup> Please verify compability between materials and secondary coolants with supplier.

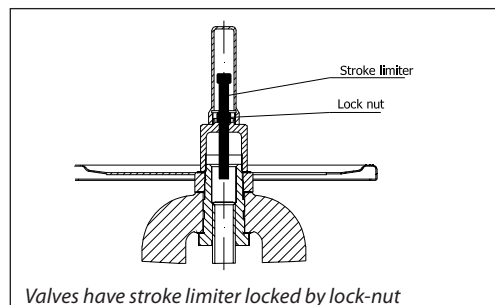
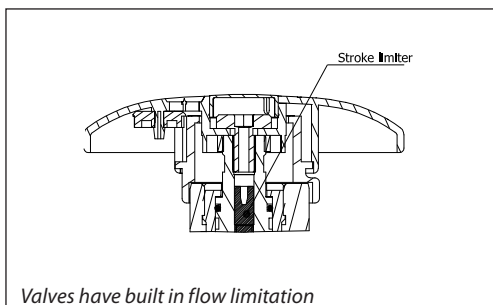
MSV-F2 valves - PN 25

Nominal diameter	DN	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400	
$k_{vs}$	m <sup>3</sup> /h	3,1	6,3	9,0	15,5	32,3	53,8	93,4	122,3	200,0	304,4	400,8	685,6	952,3	1380,2	2046,1	2584,6	
Nominal pressure	bar	25																
Max. pressure drop		2,0																
Leakage rate	Grade A; According to ISO5208, Table 5 (No visible leakage)																	
Flow medium	Water and water mixtures with secondary coolants (like glycols <sup>1)</sup> ) for closed heating and cooling systems																	
Max. flow temperature	°C	150																
Connections	Flanges according to EN 1092-2																	
Weight	kg	2,3	3,0	3,8	5,8	7,2	9,4	17	21	33	44	56,5	228	345	488	748	900	
<b>Material, we ha</b>																		
Body	Ductile iron EN-GJS 400-15 (GGG-40)																	
Seat sealing	EPDM																	
Cone	CW602N						Stainless steel			Stainless steel/ CW602N			Casted stainless steel					

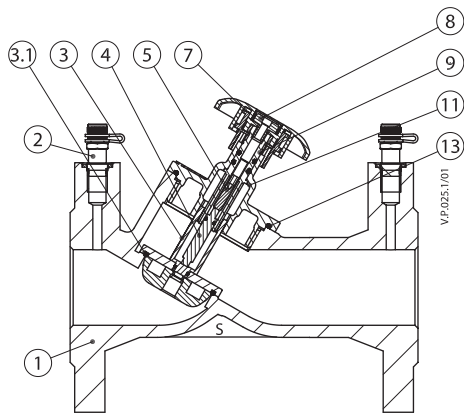
<sup>1)</sup> Please verify compability between materials and secondary coolants with supplier.

Pressure-temperature classification (flanges according to EN 1092-2)

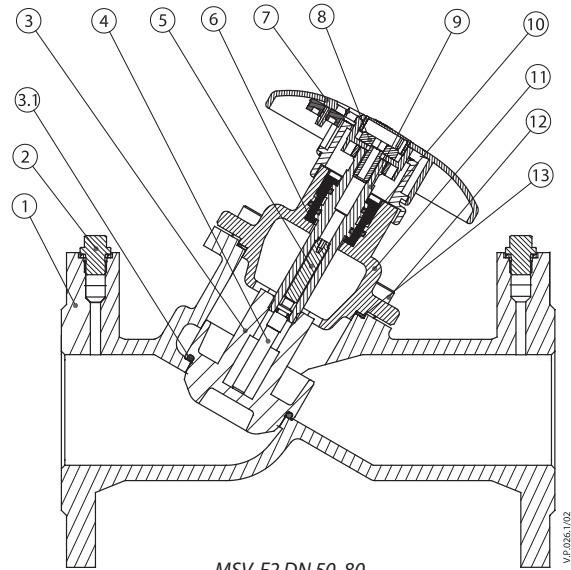
Material	PN		Temperature			
			-10 °C	120 °C	130 °C	150 °C
EN-GJL 250 (MSV-F2 DN 15-150)	16	bar	16	16	15,5	-
EN-GJL 250 (MSV-F2 DN 200-400)	16		16	16	15,5	-
EN-GJS 400-15 (MSV-F2 DN 15-150)	25		25	25	-	24,3
EN-GJS 400-15 (MSV-F2 DN 200-400)	25		25	25	-	24,3



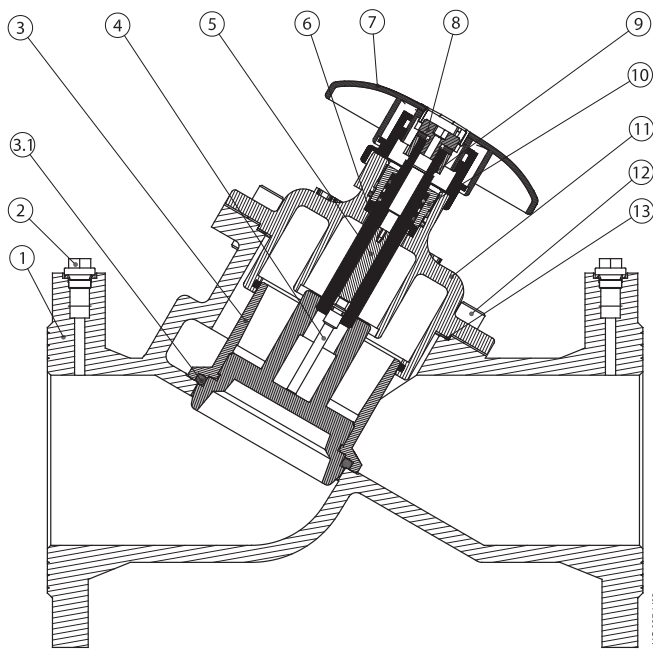
Design



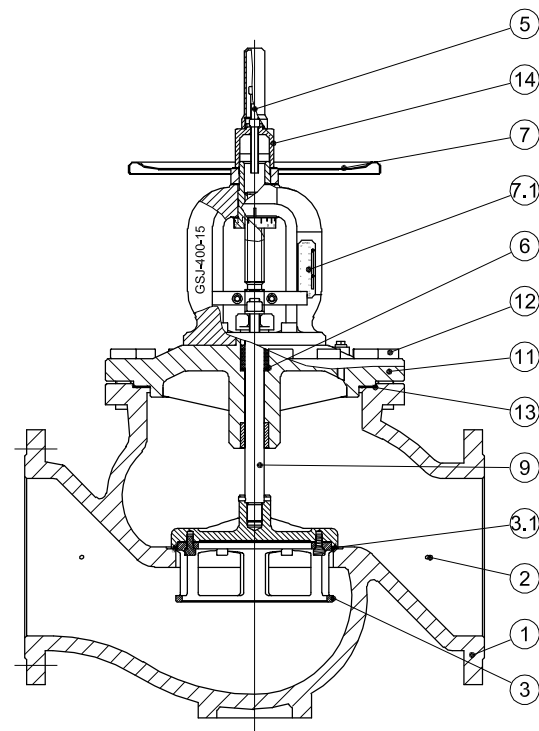
MSV-F2 DN 15-40



MSV-F2 DN 50-80



MSV-F2 DN 100-150



MSV-F2 DN 200-400

- 1 Body EN-GJL250
- 2 Plug
- 3 Valve cone
- 3,1 Seat soft sealing
- 4 Rod
- 5 Stroke limiter/Allen screw
- 6 Gasket
- 7 Handwheel with digital display
  - DN 15-150 plastic
  - DN 200-400 metal

- 7,1 Display
- 8 Fixed screw
- 9 Spindle
- 10 Stuffing box
- 11 Bonnet
- 12 Allen screw /Hexagon screw
- 13 Flat gasket
- 14 Hood with stroke

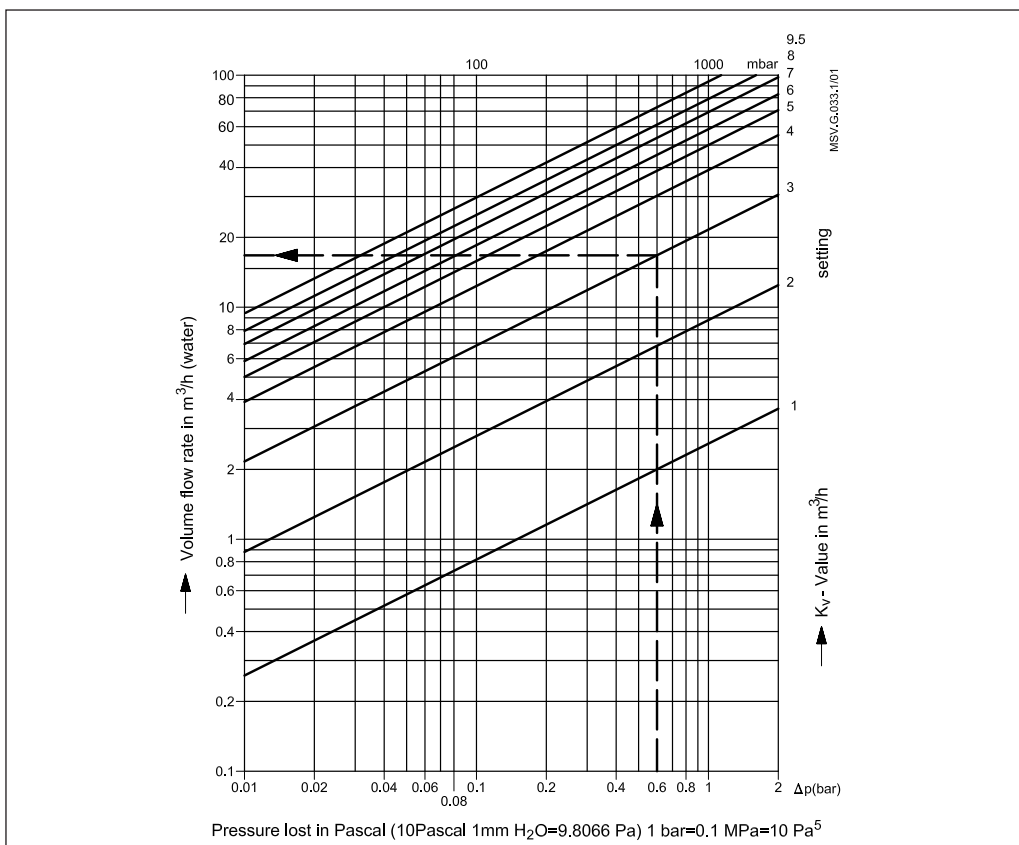
Setting

Ethylenglycol correction factor

Formula:  $C_2H_6O_2$   
 Density at 20 °C:  $\rho_{water} = 1 \text{ kg/dm}^3$   
 $\rho_{glycol} = 1,338 \text{ kg/dm}^3$

$$Q_{corr.} = \frac{Q_{water}}{\sqrt{\text{Share of water} \times \rho_{water} + \text{Share of glycol} \times \rho_{glycol}}}$$

Ethylenglycol part xg (%)	0	10	20	30	40	50	60	70	80	90	100
Correction factor	1,0	0,983	0,968	0,953	0,939	0,925	0,912	0,899	0,887	0,876	0,864

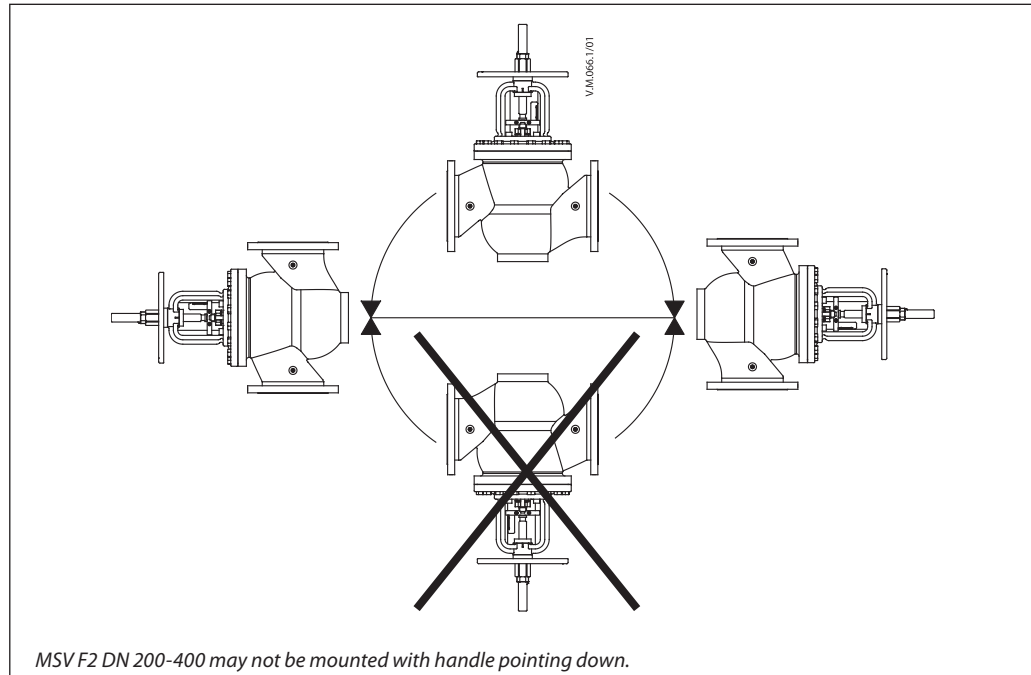
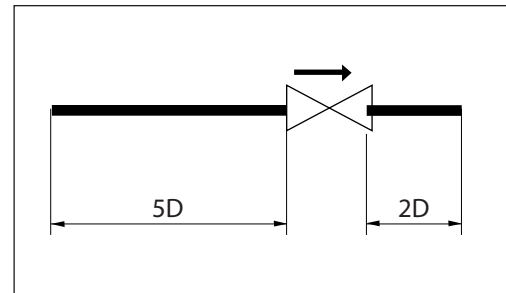


MSV-F2 DN 65  
 $\Delta p = 0,6 \text{ bar}$   
 Hand wheel setting: 3,0  
 Flow:  $16,8 \text{ m}^3/\text{h}$   
 30 % glycol  
 $Q_{corr.} = 16,8 \text{ m}^3/\text{h} \times 0,953 = 16,0 \text{ m}^3/\text{h}$   
 It refers to all types of valves.

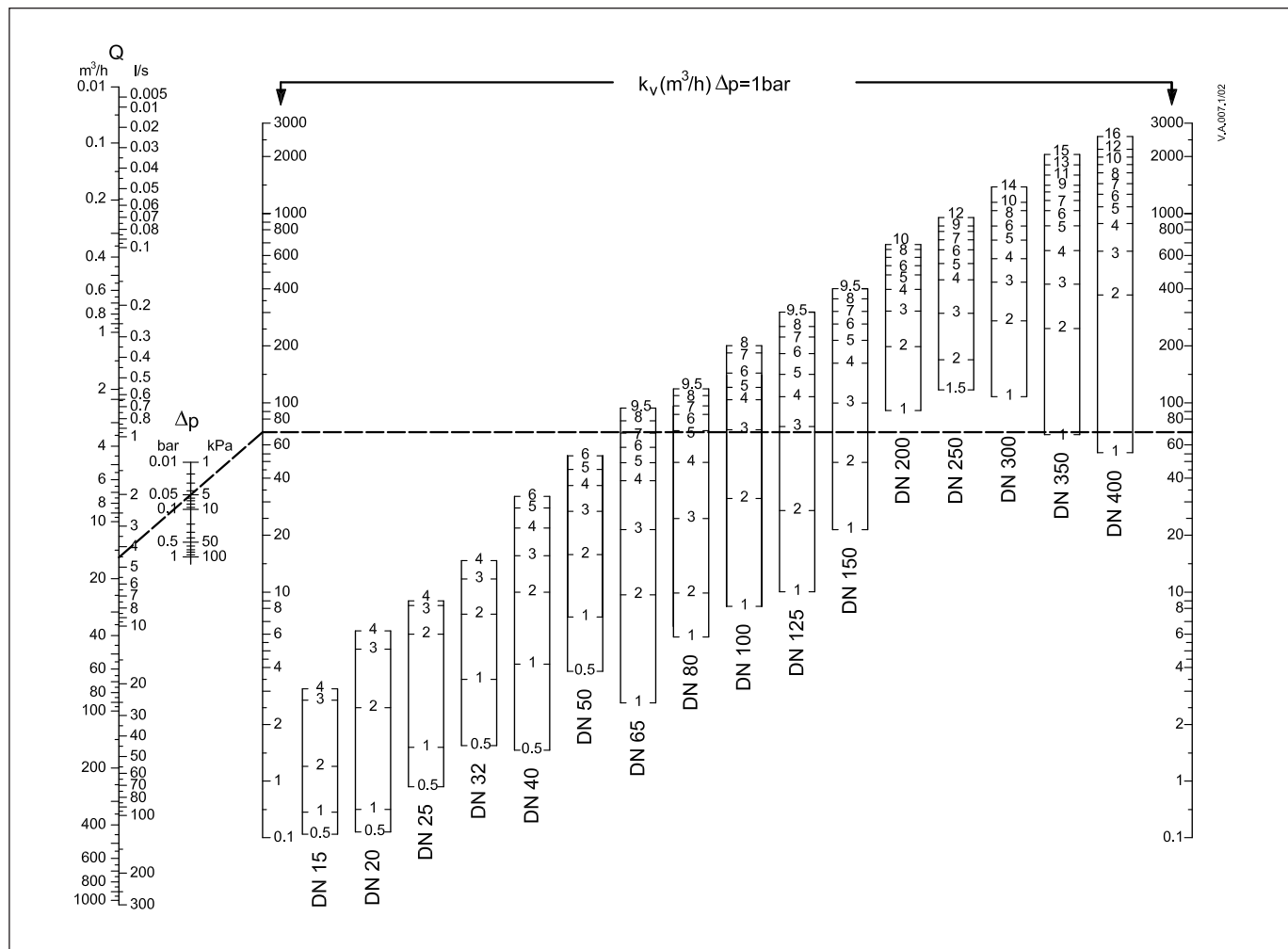
Installation

Always install the valve with the arrow on the body in the same direction as the flow. In order to avoid turbulence, which will affect the measuring accuracy, it is recommended to have a straight length of pipe up and down stream from the valve as shown (D - diameter of pipe).

The influence of turbulence, if our recommendations are not adhered to, can influence the flow up to 20 %.



Sizing



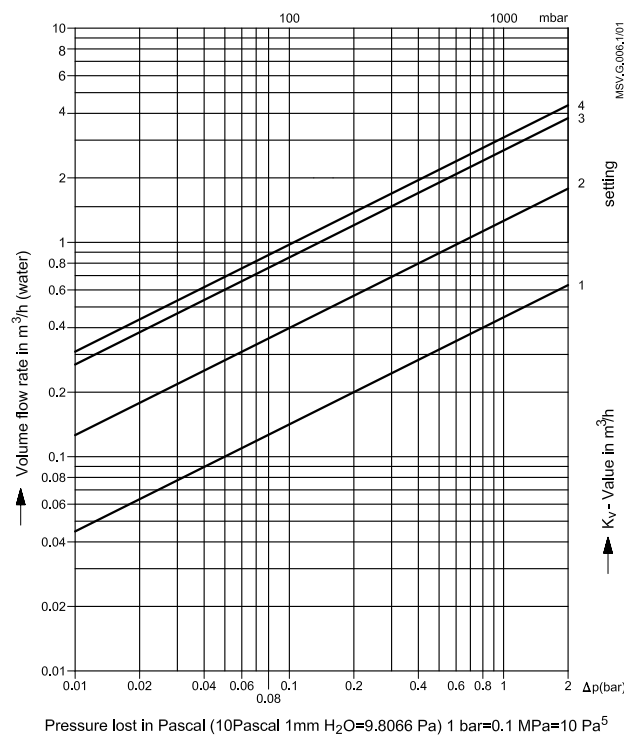
*Example:*  
 MSV-F2 DN 65  
 Q = 16 m³/h  
 Δp = 5 kPa

Calculation of setting for valve:  
 In the diagram a straight line connecting the bars for flow 16 m³/h, differential pressure 5 kPa and  $k_v$  value shows the relationship between these three variables.

A horizontal line from intersection with the  $k_v$  bar shows the presetting value for each valve size.

*Result:*  
 presetting 7,0

Flow diagrams



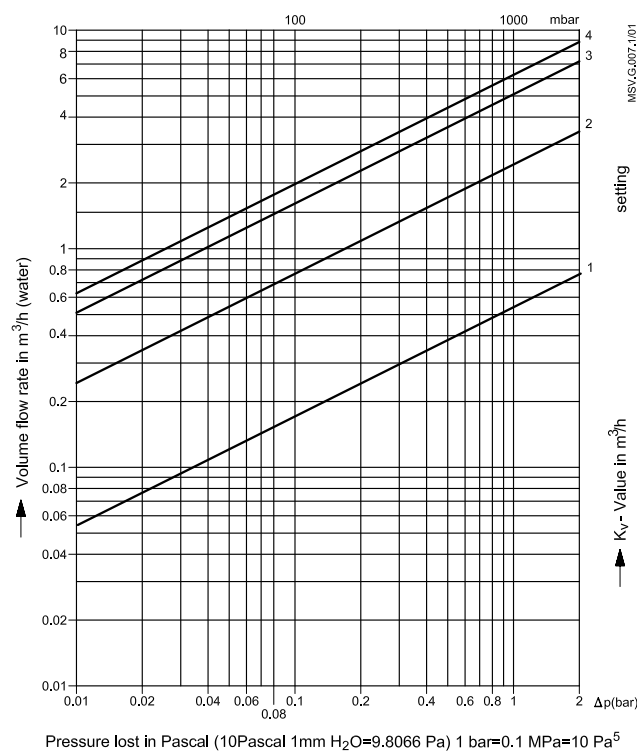
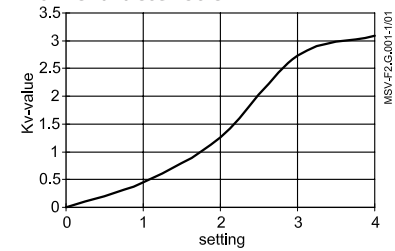
DN 15 / PN 16 / PN 25

Setting	k <sub>v</sub> -value
1	0,45
2	1,26
3	2,73
4	3,09

Max. permissible differential pressure in throttling function 1,5/2,0 bar.  
 Max. permissible flow speed: ≤ 4 m/s  
 Condition:

- The flow must be free of cavitation.

Flow characteristic



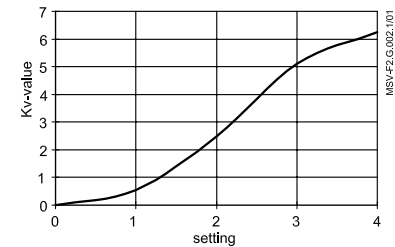
DN 20 / PN 16 / PN 25

Setting	k <sub>v</sub> -value
1	0,54
2	2,48
3	5,11
4	6,26

Max. permissible differential pressure in throttling function 1,5/2,0 bar.  
 Max. permissible flow speed: ≤ 4 m/s  
 Condition:

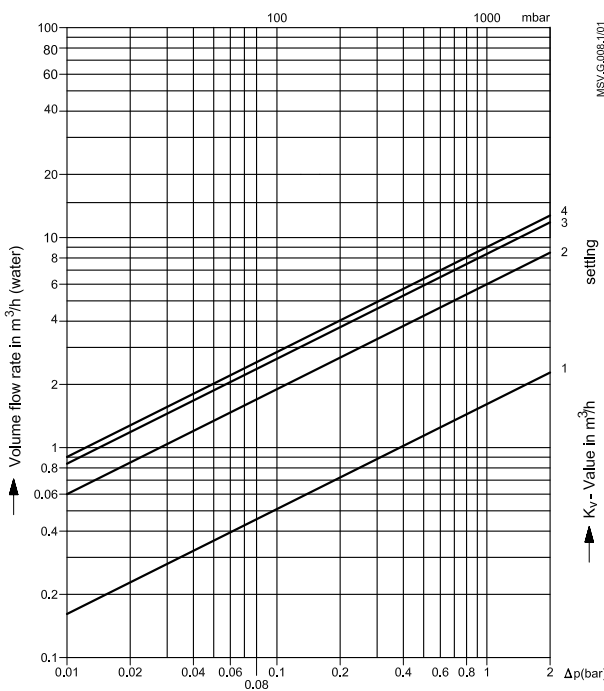
- The flow must be free of cavitation.

Flow characteristic





Flow diagrams (continued)



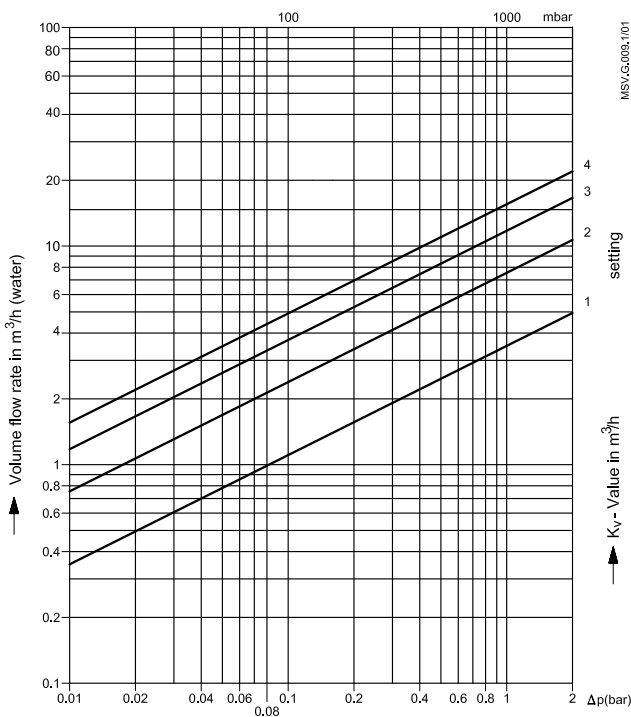
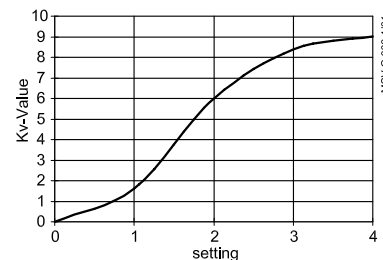
DN 25 / PN 16 / PN 25

Setting	k <sub>v</sub> -value
1	1,61
2	6,0
3	8,38
4	9,01

Max. permissible differential pressure in throttling function 1,5/2,0 bar.  
 Max. permissible flow speed: ≤ 4 m/s  
 Condition:

- The flow must be free of cavitation.

Flow characteristic



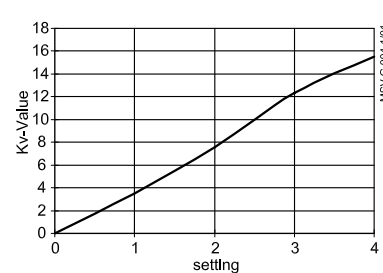
DN 32 / PN 16 / PN 25

Setting	k <sub>v</sub> -value
1	3,53
2	7,56
3	12,32
4	15,54

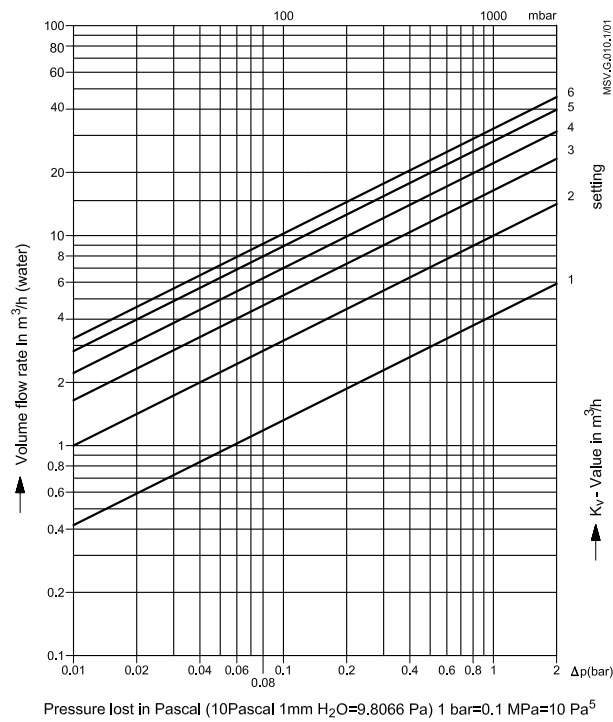
Max. permissible differential pressure in throttling function 1,5/2,0 bar.  
 Max. permissible flow speed: ≤ 4 m/s  
 Condition:

- The flow must be free of cavitation.

Flow characteristic



Flow diagrams (continued)



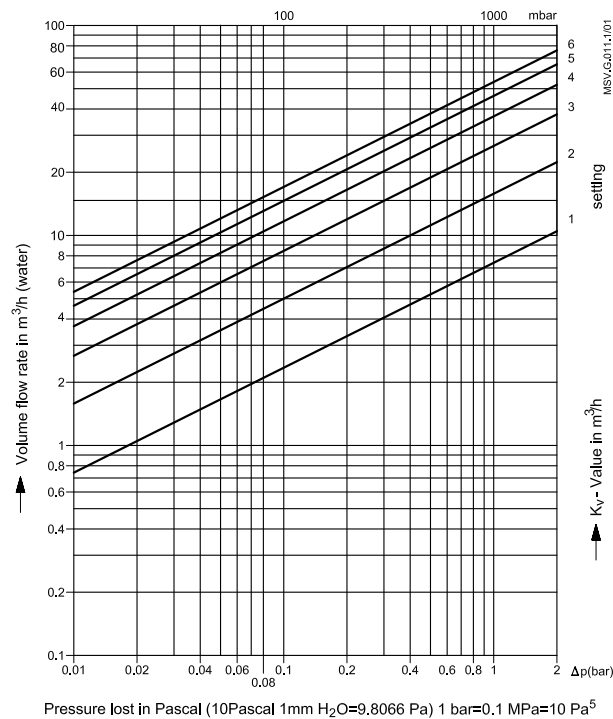
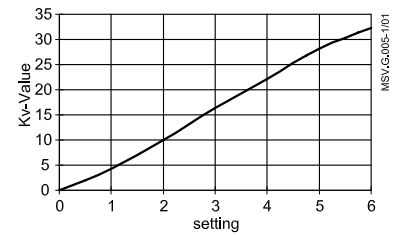
DN 40 / PN 16 / PN 25

Setting	k <sub>v</sub> -value
1	4,19
2	9,98
3	16,42
4	22,13
5	28,14
6	32,31

Max. permissible differential pressure in throttling function 1,5/2,0 bar.  
 Max. permissible flow speed: ≤ 4 m/s  
 Condition:

- The flow must be free of cavitation.

Flow characteristic



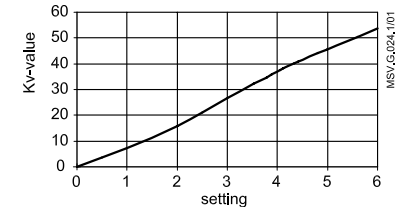
DN 50 / PN 16 / PN 25

Setting	k <sub>v</sub> -value
1	7,4
2	15,8
3	26,7
4	36,9
5	46,2
6	53,8

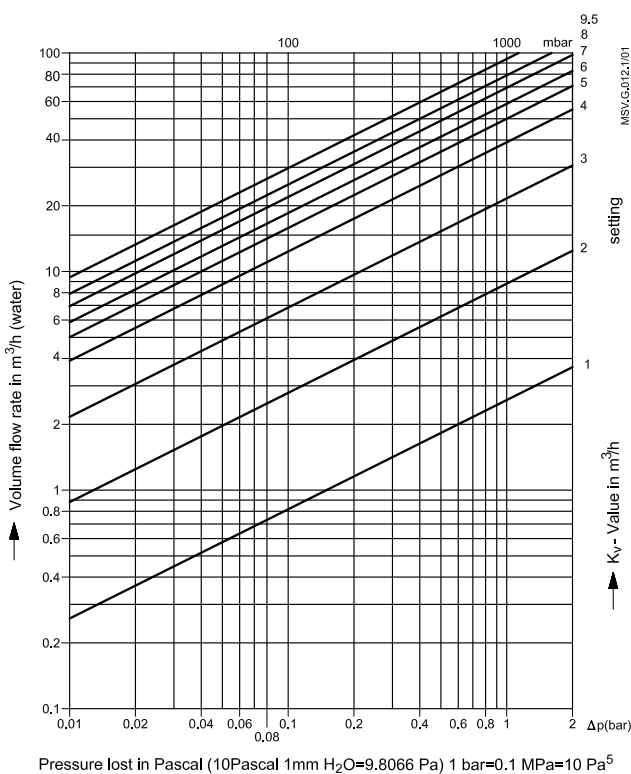
Max. permissible differential pressure in throttling function 1,5/2,0 bar.  
 Max. permissible flow speed: ≤ 4 m/s  
 Condition:

- The flow must be free of cavitation.

Flow characteristic



Flow diagrams (continued)



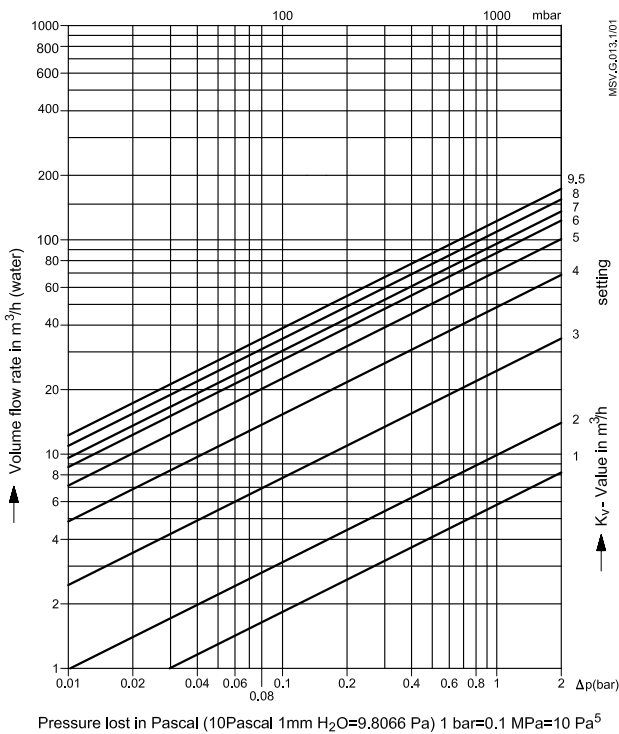
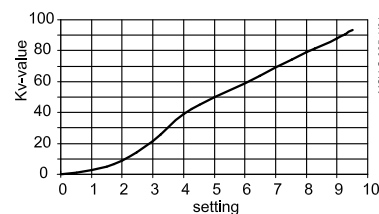
DN 65 / PN 16 / PN 25

Setting	k <sub>v</sub> -value
1	2,6
2	8,8
3	21,6
4	39,0
5	49,8
6	58,5
7	69,3
8	79,0
9	87,8
9,5	93,4

Max. permissible differential pressure in throttling function 1,5/2,0 bar.  
 Max. permissible flow speed: ≤ 4 m/s  
 Condition:

- The flow must be free of cavitation.

Flow characteristic



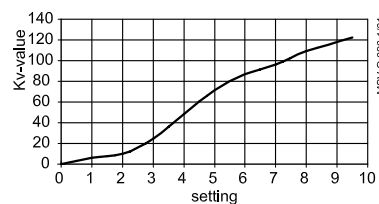
DN 80 / PN 16 / PN 25

Setting	k <sub>v</sub> -value
1	5,8
2	9,9
3	24,5
4	48,5
5	71,3
6	87,0
7	96,4
8	109,3
9,5	122,3

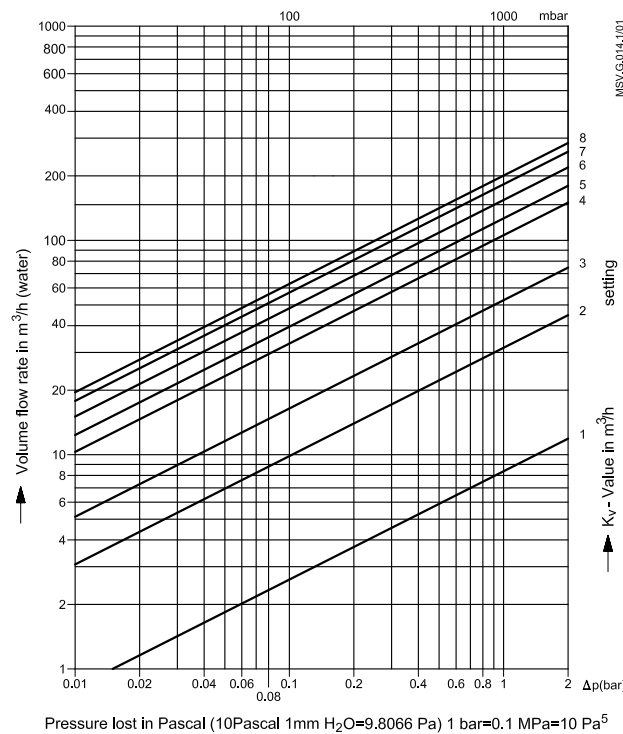
Max. permissible differential pressure in throttling function 1,5/2,0 bar.  
 Max. permissible flow speed: ≤ 4 m/s  
 Condition:

- The flow must be free of cavitation.

Flow characteristic



Flow diagrams (continued)



DN 100 / PN 16 / PN 25

Setting	k <sub>v</sub> -value
1	8,3
2	32,4
3	72,9
4	107,2
5	128,2
6	152,8
7	180,0
8	200,0

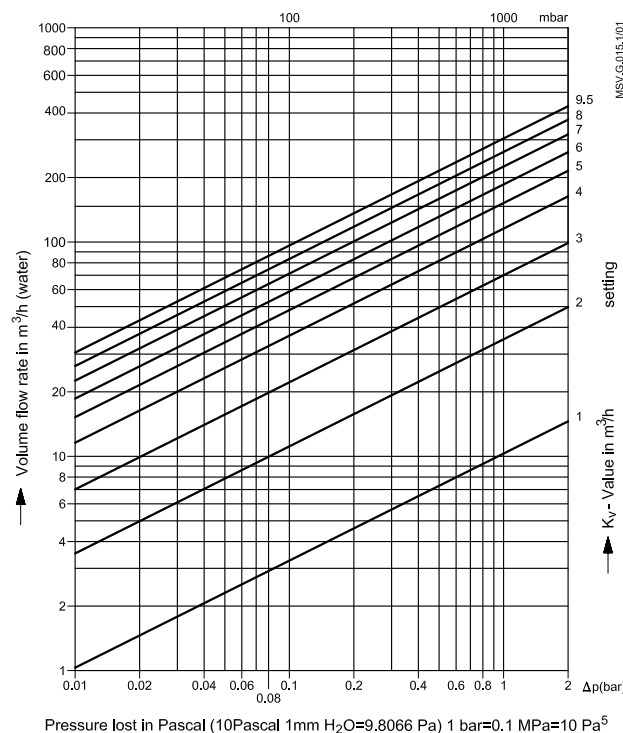
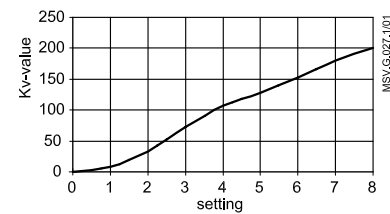
Max. permissible differential pressure in throttling function 1,5/2,0 bar.

Max. permissible flow speed: ≤ 4 m/s

Condition:

- The flow must be free of cavitation.

Flow characteristic



DN 125 / PN 16 / PN 25

Setting	k <sub>v</sub> -value
1	10,3
2	35,4
3	73,0
4	114,9
5	150,5
6	185,2
7	225,1
8	261,1
9	294,2
9,5	304,4

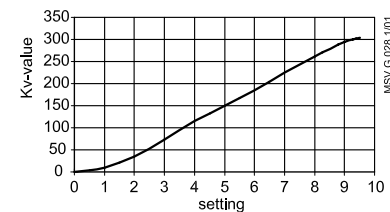
Max. permissible differential pressure in throttling function 1,5/2,0 bar.

Max. permissible flow speed: ≤ 4 m/s

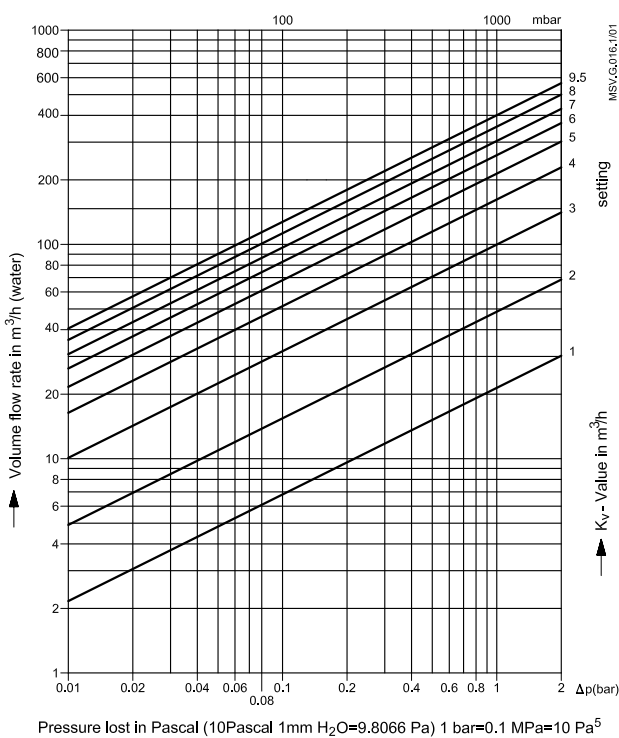
Condition:

- The flow must be free of cavitation.

Flow characteristic



Flow diagrams (continued)



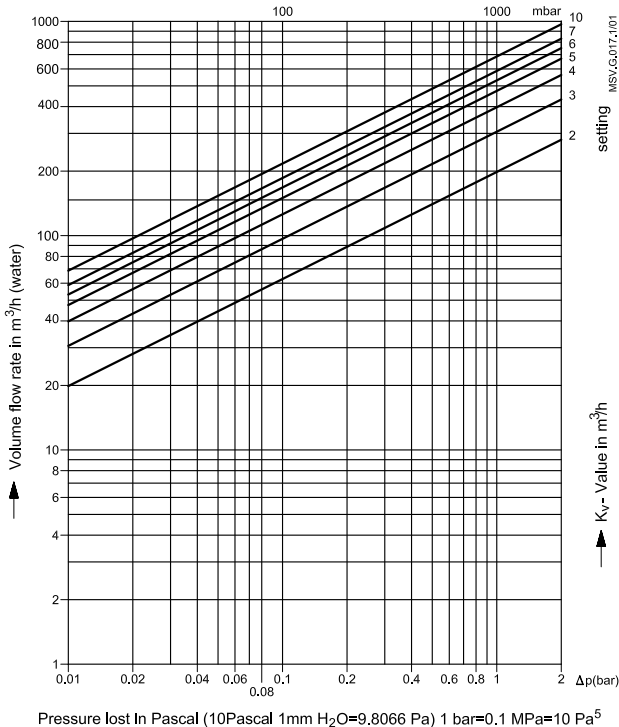
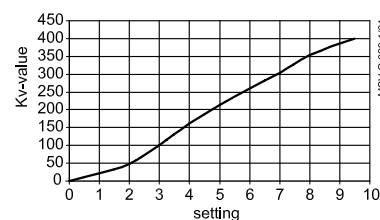
DN 150 / PN 16 / PN 25

Setting	k <sub>v</sub> -value
1	21,4
2	48,5
3	99,8
4	162,0
5	214,0
6	260,9
7	304,1
8	354,6
9,5	400,8

Max. permissible differential pressure in throttling function 1,5/2,0 bar.  
 Max. permissible flow speed: ≤ 4 m/s  
 Condition:

- The flow must be free of cavitation.

Flow characteristic



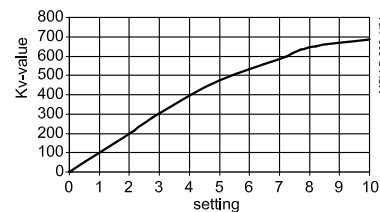
DN 200 / PN 16 / PN 25

Setting	k <sub>v</sub> -value
2	198,2
3	305,3
4	397,5
5	474,0
6	530,4
7	586,8
8	645,9
10	685,6

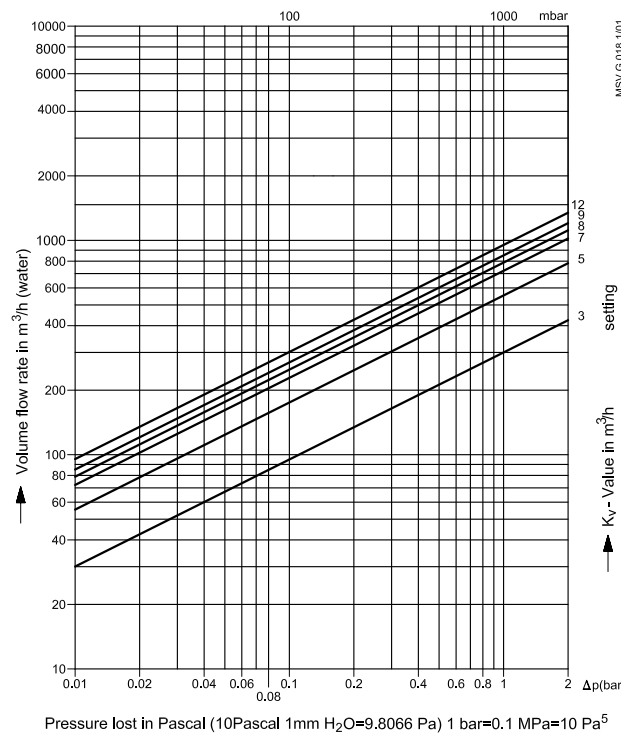
Max. permissible differential pressure in throttling function 1,5/2,0 bar.  
 Max. permissible flow speed: ≤ 4 m/s  
 Condition:

- The flow must be free of cavitation.

Flow characteristic



Flow diagrams (continued)



DN 250 / PN 16 / PN 25

Setting	k <sub>v</sub> -value
3	299,4
5	553,1
7	721,2
8	788,1
9	851,1
10	926,1
12	952,3

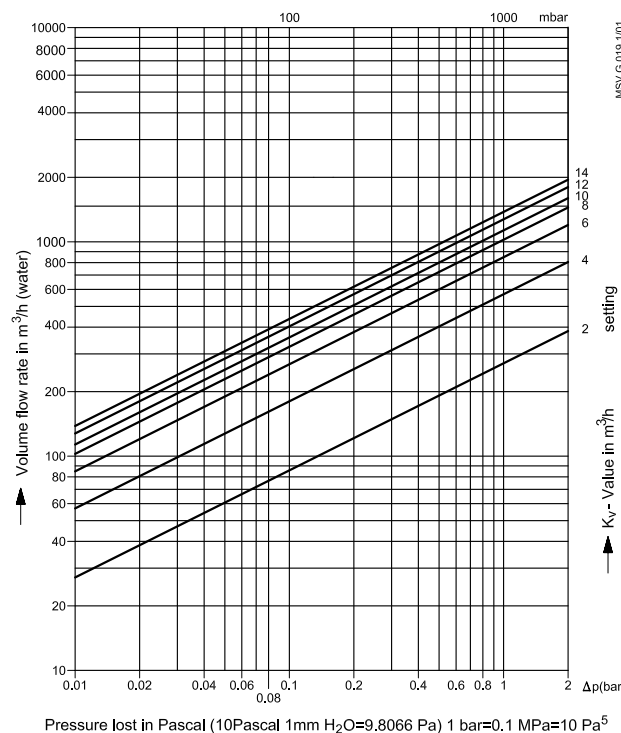
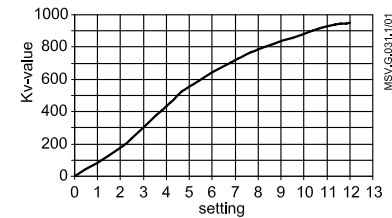
Max. permissible differential pressure in throttling function 1,5/2,0 bar.

Max. permissible flow speed: ≤ 4 m/s

Condition:

- The flow must be free of cavitation.

Flow characteristic



DN 300 / PN 16 / PN 25

Setting	k <sub>v</sub> -value
2	270,9
4	575,8
6	856,0
8	1035,9
10	1142,8
12	1273,7
14	1380,2

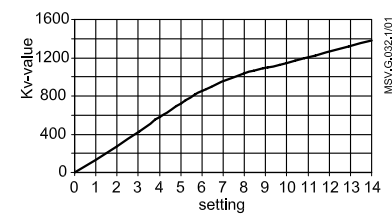
Max. permissible differential pressure in throttling function 1,5/2,0 bar.

Max. permissible flow speed: ≤ 4 m/s

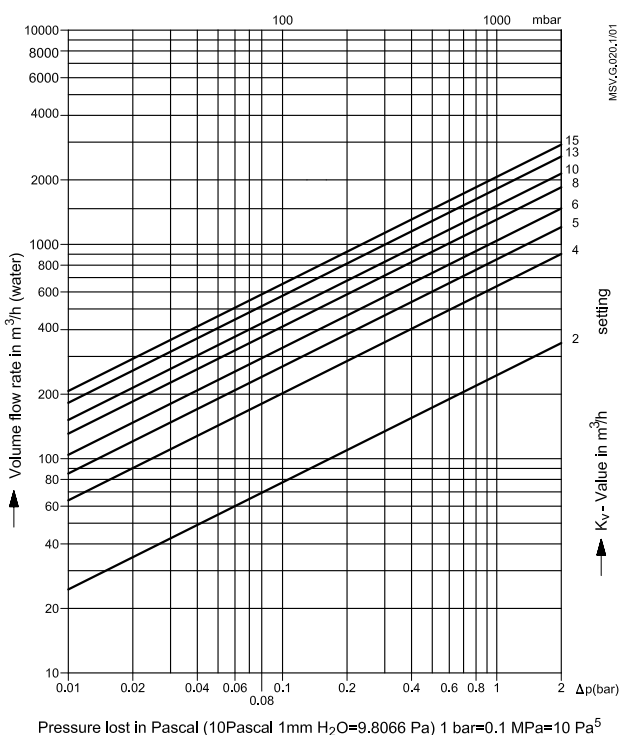
Condition:

- The flow must be free of cavitation.

Flow characteristic



Flow diagrams (continued)



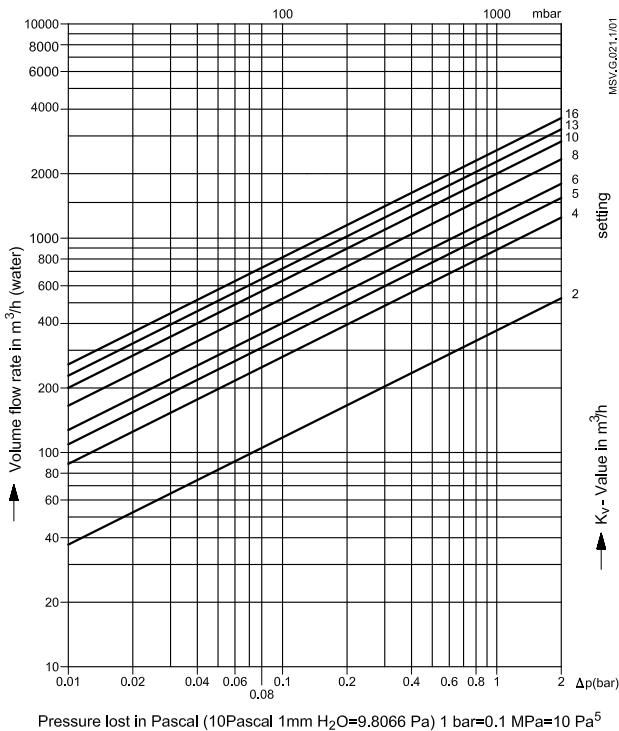
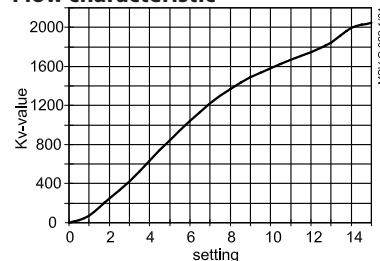
DN 350 / PN 16 / PN 25

Setting	k <sub>v</sub> -value
2	249,06
4	634,4
5	844,72
6	1041,93
8	1369,45
10	1580,67
13	1844,74
15	2046,14

Max. permissible differential pressure in throttling function 1,5/2,0 bar.  
 Max. permissible flow speed: ≤ 4 m/s  
 Condition:

- The flow must be free of cavitation.

Flow characteristic



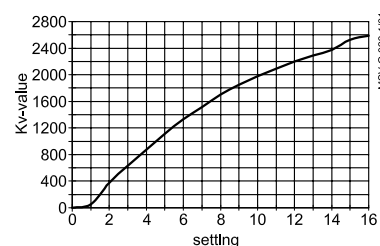
DN 400 / PN 16 / PN 25

Setting	k <sub>v</sub> -value
2	371,75
4	875,26
5	1109,31
6	1328,86
8	1705,24
10	1980,56
13	2287,81
16	2584,95

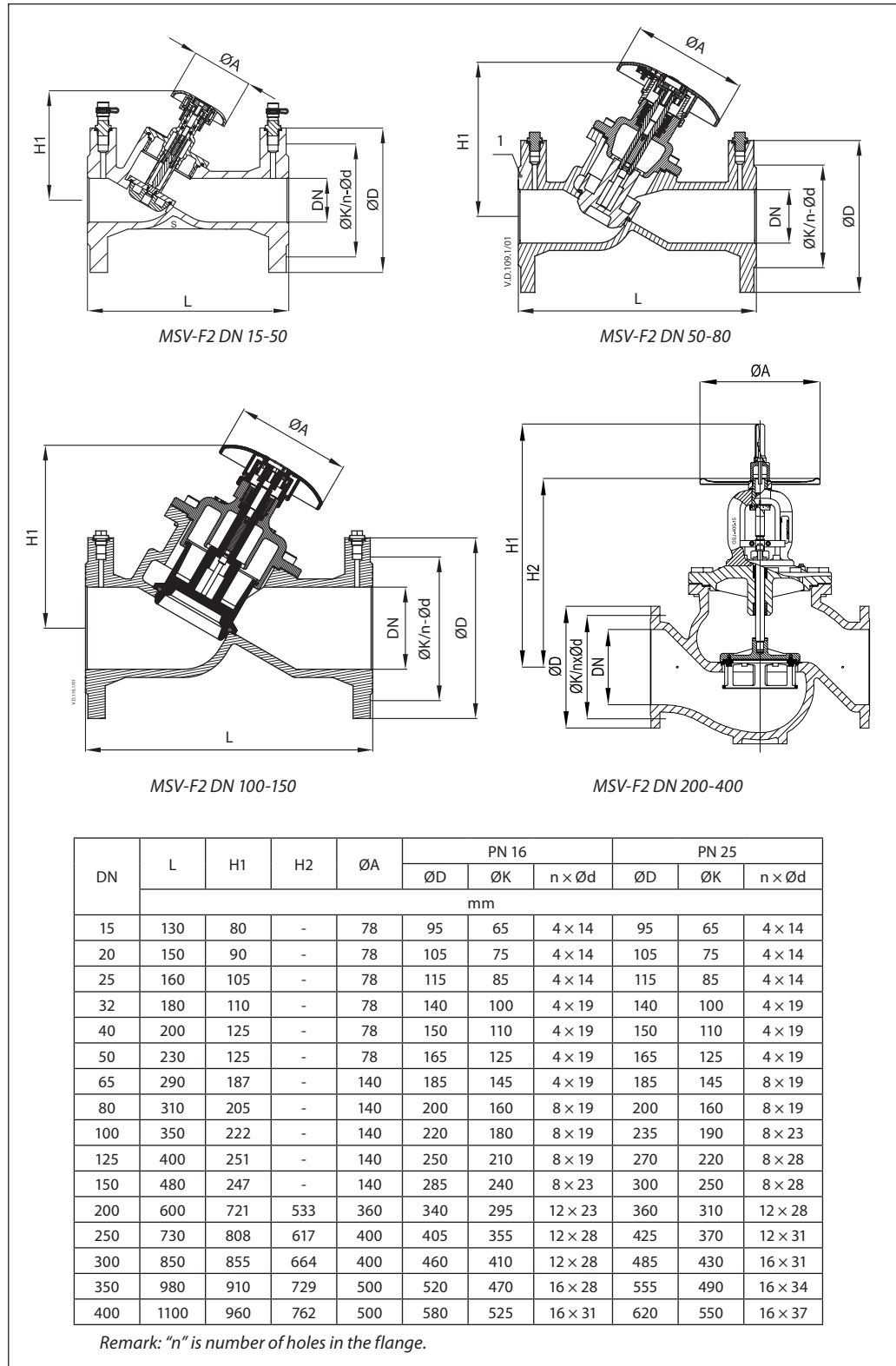
Max. permissible differential pressure in throttling function 1,5/2,0 bar.  
 Max. permissible flow speed: ≤ 4 m/s  
 Condition:

- The flow must be free of cavitation.

Flow characteristic



Dimensions



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