Double regulating and commissioning valves ”Hydrocontrol F” cast iron, PN 16

Technical information

The Oventrop Quality Management System is certified to DIN-EN-ISO 9001

Application:

Oventrop double regulating and commissioning valves "Hydrocontrol F” are installed in the pipework of hot water central heating systems and cooling systems and serve to achieve a hydronic balance between the various circuits of the system.

The double regulating and commissioning valves may be installed in either the supply or the return pipe.

When installing the valves, it is to be observed that the direction of flow conforms with the arrow on the valve body and that the valve is installed with a minimum of 3 D (3 x nominal pipe diameter) of straight pipe at the valve inlet and of 2 D (2 x nominal pipe diameter) of straight pipe at the valve outlet.

Advantages:

– the location of the functioning components on one side allows a simple assembly and easy operation
– only one valve for 5 functions:
  presetting
  measuring
  isolating
  filling
  draining
– low pressure loss (oblique pattern)
– infinitely adjustable presetting which can be read off in any position due to the moveable display, exact measurement of pressure loss and flow by using the pressure test points
– fill and drain ball valve with internal stop and pressure test point with O-ring seal between valve body and test point (no additional seals required)
– patented measuring channel led around the stem assembly to the test points ensures the best possible accuracy between the differential pressure measured at the pressure test point and the actual differential pressure of the valve

Function:

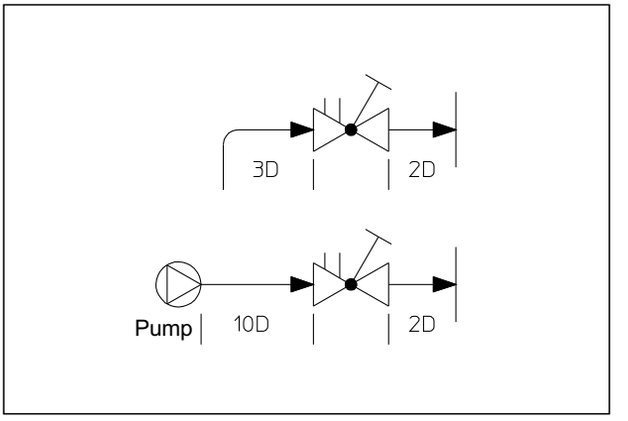
The balance is achieved by a presetting with memory position. The calculated flow rate or pressure loss for each individual pipe can be preset centrally and be regulated precisely. The required values of presetting can be obtained from the flow charts. All intermediate values are infinitely adjustable. The selected presetting can be read off two scales (basic setting longitudinal scale and fine setting peripheral scale, see illustration presetting). The presetting is reproducible by opening the valve until stop. The flow charts are valid for the installation of the double regulating and commissioning valve in the supply or the return pipe provided the direction of flow conforms with the arrow on the valve body. The Oventrop double regulating and commissioning valves have two threaded ports which are equipped with the pressure test points for measuring the differential pressure.

Accessories sets 3/4” - 14”:

Set 1 = 1 fill and drain ball valve	106 01 91
Measuring adapter	106 02 98
Extension for accessories sets (3.15”)	106 02 95
Extension for accessories sets (1.57”)	168 82 95
Stem extension (3/4” to 2”, 1.38”)	168 82 96
Stem extension (2 1/2” to 6”, 1.38”)	168 82 97

Double regulating and commissioning valve ”Hydrocontrol F” (illustr. 2 1/2”)

Double regulating and commissioning valve ”Hydrocontrol FR” (illustr. 2 1/2”)



Installation notes

Double regulating and commissioning valves
3/4" – 2"
Measuring technic "classic"

Tender specification:

Oventrop double regulating and commissioning valves with secured infinitely adjustable presetting controllable at any time with the help of the flow limiting device.

Lengths according to DIN EN 558-1 basic series 1 (corresponds to ISO 5752 series 1)
All functioning components on one level, pressure test point and fill and drain ball valve interchangeable.

	PN 16
Size	Item no.
3/4"	106 26 46
1"	106 26 47
1 1/4"	106 26 48
1 1/2"	106 26 49
2"	106 26 50

"Hydrocontrol F"
PN 16, 14°F to 302°F, PN 20 for cold water

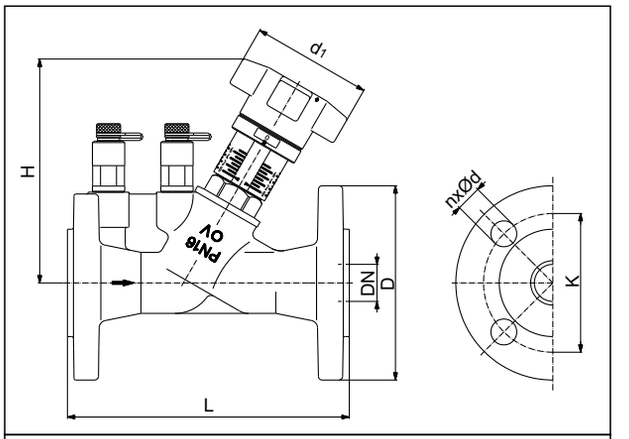
Round flanges according to DIN EN 1092-2, PN 16 (corresponds to ISO 7005-2, PN 16) PN 6, 14°F to 302°F

Round flanges according to DIN EN 1092-2, PN 6 (corresponds to ISO 7005-2, PN 6)

ANSI 150, 14°F to 302°F

Hole circle of the flanged connection according to ANSI 150
Valve body made of cast iron (GG 25 EN-GJL-250 DIN EN 1561), bonnet, stem and disc made of bronze/dezincification resistant brass. Disc with PTFE seal. Maintenance-free stem seal due to double EPDM O-ring. With type approval certificate for shipbuilding (PN 16 and ANSI 150).

Dimensions:



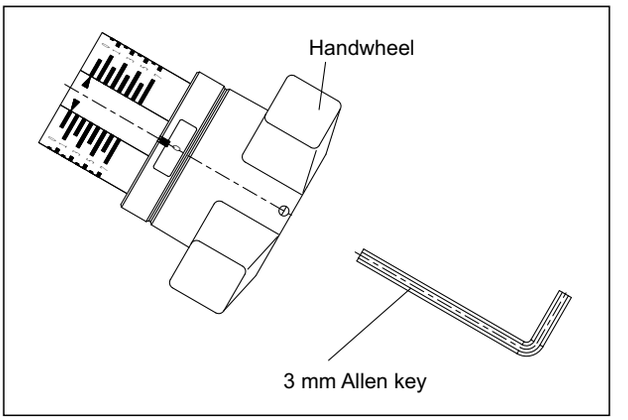
"Hydrocontrol F"

PN 16

Size	L	H max.	d_1	D	K	n x Ød
3/4"	5.91	4.65	2.76	4.13	2.95	0.16x0.55
1"	6.30	4.65	2.76	4.53	3.35	0.16x0.55
1 1/4"	7.09	5.35	2.76	5.51	3.94	0.16x0.75
1 1/2"	7.87	5.35	2.76	5.91	4.33	0.16x0.75
2"	9.06	5.71	2.76	6.50	4.92	0.16x0.75

Presetting 3/4" – 2":

1. The value of presetting of the valve is adjusted by turning the handwheel.
   a. The display of the basic setting is shown by the longitudinal scale together with the sliding indictor. Each turn of the handwheel is represented by a line on the longitudinal scale.
   b. The display of the fine setting is shown by the peripheral scale on the handwheel together with the marking. The subdivisions of the peripheral scale correspond to 1/10th of a turn of the handwheel.
2. The set value of presetting can be limited by turning the inner adjustment stem clockwise until it seats. This can be done by using the long end of a 3 mm Allen key.



Visibility/readability of the setting scales:

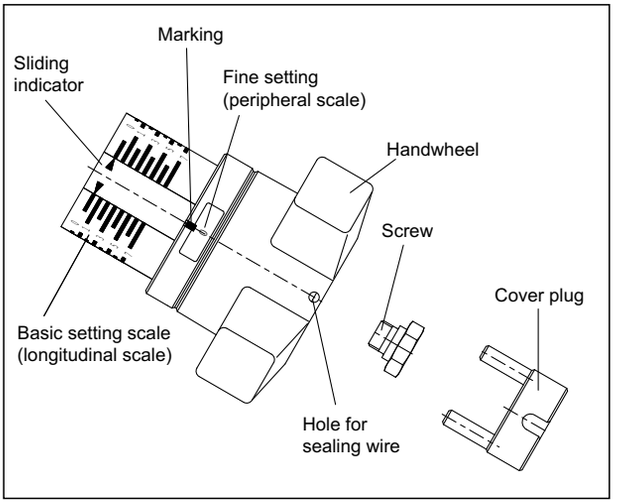
Depending on the installation position of the double regulating and commissioning valve, an improvement of the visibility/readability of the setting scales is obtained by twisting the scales. With the valve fully closed and the two setting scales on "0", remove cover plug, undo screw and with a light tug pull the handwheel from the valve stem. Next, without altering the presetting (still indicating "0"), adjust the position of the handwheel so that the indicator window is clearly visible. Finally refit the handwheel to the valve stem, tighten the screw and replace the cover plug.

Protecting the presetting:

The sealing wire, item no. 108 90 91, which is to be ordered separately, may be fitted through the hole in the handwheel and a lead seal may be fitted.

Locking the handwheel:

The handwheel can be locked in any position (1/10th of a turn). To do so, the existing cover plug is replaced by the locking set, item no. 106 01 80, which is to be ordered separately. In addition, the locked handwheel can be secured by use of the sealing wire.



Double regulating and commissioning valves
2 1/2" – 6"
Measuring technic "classic"

Tender specification:

Oventrop double regulating and commissioning valves with secured, infinitely adjustable presetting controllable at any time with the help of the flow limiting device. Lengths according to DIN EN 558-1 basic series 1 (corresponds to ISO 5752 series 1). All functioning components on one level, pressure test point and fill and drain ball valve interchangeable.

"Hydrocontrol F"

Size	PN 16 Item no.
2 1/2"	106 26 51
3"	106 26 52
4"	106 26 53
5"	106 26 54
6"	106 26 55

PN 16, 14°F to 302°F, PN 20 for cold water
Round flanges according to DIN EN 1092-2, PN 16 (corresponds to ISO 7005-2, PN 16) PN 6, 14°F to 302°F Round flanges according to DIN EN 1092-2, PN 6 (corresponds to ISO 7005-2, PN 6) ANSI 150, 14°F to 302°F Hole circle of the flanged connection according to ANSI 150 Valve body made of cast iron (GG 25 EN-GJL-250 DIN EN 1561), bonnet, disc and stem made of bronze/dezincification resistant brass. Disc with PTFE seal. Maintenance-free stem seal due to double EPDM O-ring.

Presetting 2 1/2" – 6":

1. The value of presetting of the valve is adjusted by turning the handwheel.
   a. The display of the basic setting is shown by the longitudinal scale together with the sliding indicator.

Each turn of the handwheel is represented by a line on the longitudinal scale.

   b. The display of the fine setting is shown by the peripheral scale on the handwheel together with the marking. The subdivisions of the peripheral scale correspond to 1/10th of a turn of the handwheel.

2. The set value of presetting can be limited by turning the inner adjustment stem clockwise until it seats. This can be done by using the long end of a 4 mm Allen key.

Visibility/readability of the setting scales:

Depending on the installation position of the double regulating and commissioning valve, an improvement of the visibility/readability of the setting scales is obtained by twisting the scales. With the valve fully closed and the two setting scales on "0", remove cover plug, undo screw and with a light tug pull the handwheel from the valve stem. Next, without altering the presetting (still indicating "0"), adjust the position of the handwheel so that the indicator window is clearly visible. Finally refit the handwheel to the valve stem, tighten the screw and replace the cover plug.

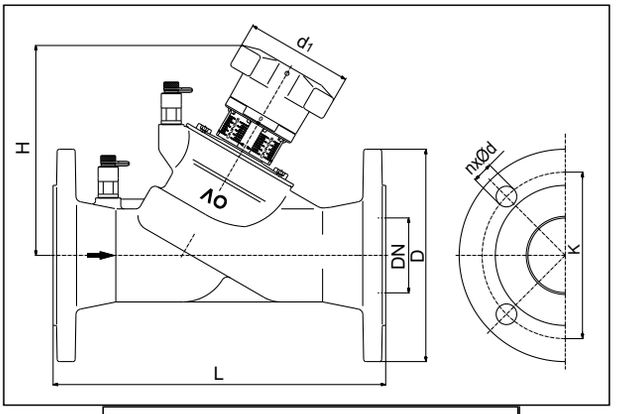
Protecting the setting:

A sealing wire may be fitted through the hole in the handwheel and a lead seal may be fitted.

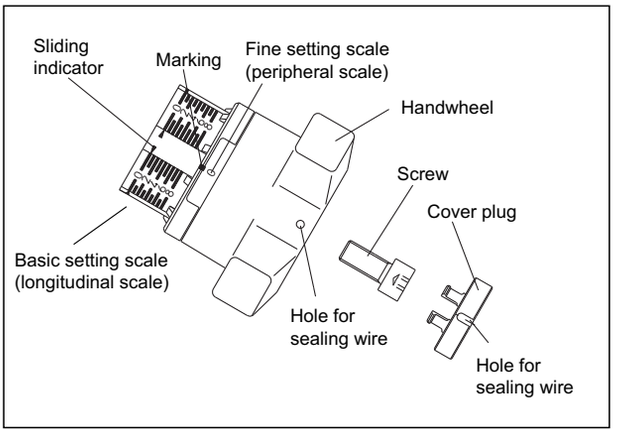
Locking the handwheel:

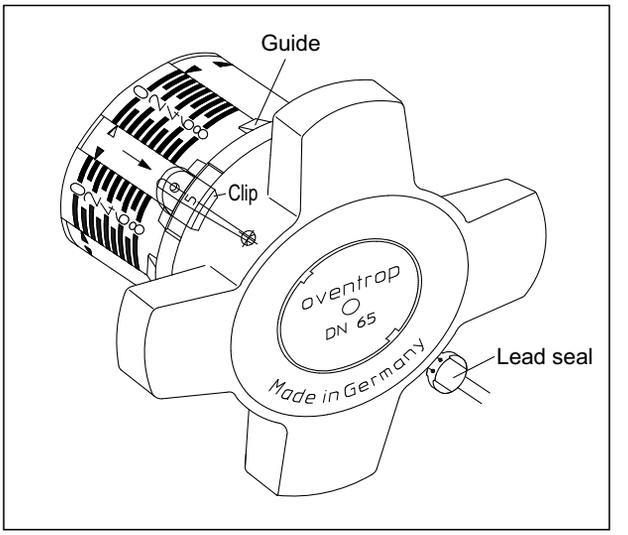
The handwheel can be locked in any position (1/10th of a turn). Fit the enclosed clip in the cut-out in the handwheel below the holes between the guides, making sure it locates into the sliding indicator (see sketch). The clip can now be sealed as illustrated. It is essential that the sealing wire is fitted tightly.

Dimensions:



"Hydrocontrol F" PN 16						
Size	L	$H_{max.}$	d_1	D	K	n x Ød
2 1/2"	11.4	7.4	4.33	7.28	5.71	0.16x0.75
3"	12.2	8.00	4.33	7.83	6.3	0.31x0.75
4"	13.8	9.45	6.3	8.66	7.09	0.31x0.75
5"	15.8	11.1	6.3	9.84	8.27	0.31x0.75
6"	18.9	11.2	6.3	11.2	9.45	0.31x0.91





Double regulating and commissioning valves
8” – 14”
Measuring technic “classic”

Tender specification:

Oventrop double regulating and commissioning valves with secured, infinitely adjustable presetting controllable at any time with the help of the flow limiting device.

Lengths according to DIN EN 558-1 basic series 1 (corresponds to ISO 5752 series 1)
All functioning components on one level, pressure test point and fill and drain ball valve interchangeable.

Size	PN 16 Item no.
8”	106 26 56
10”	106 26 57
12”	106 26 58
14”	106 26 59

“Hydrocontrol F”
PN 16, 14°F to 302°F, PN 20 for cold water
Round flanges according to DIN EN 1092-2, PN 16 (corresponds to ISO 7005-2, PN 16)
PN 6, 14°F to 302°F
Round flanges according to DIN EN 1092-2, PN 6 (corresponds to ISO 7005-2, PN 6)
ANSI 150, 14°F to 302°F
Hole circle of the flanged connection according to ANSI 150
Valve body (DN 200 – DN 300 made of cast iron GG 25, EN-GJL-250 DIN EN 1561; DN 350 made of nodular cast iron GGG50, EN-GJS-500-7 according to DIN EN 1563), bonnet (DN 200 – DN 300 made of nodular cast iron GGG 40, EN-GJS-400-15 according to DIN EN 1563; DN 350 made of nodular cast iron GGG50, EN-GJS-500-7 according to DIN EN 1563), bronze disc, stem made of dezincification resistant brass. Disc with PTFE seal. Maintenance-free stem seal due to double EPDM O-ring.

Presetting 8” – 14”:

1. The value of presetting of the valve is adjusted by turning the handwheel.
   a. The complete 12 turns of the handwheel are shown by the outer display.
   b. 1/10th of a turn of the handwheel is shown by the outer display.
2. Remover cover plug by introducing a screwdriver in the slot and gently prising it off.
3. The set value of presetting can be limited by turning the inner adjustment stem clockwise until it seats. This can be done by using a 10 mm screwdriver.
4. Refit the cover plug.

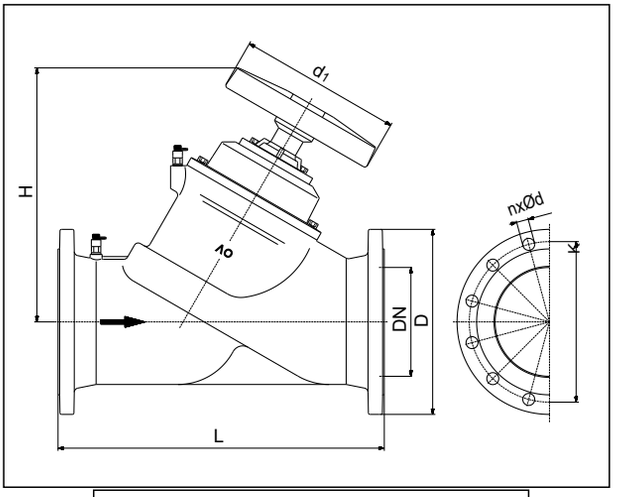
Protecting the setting:

A sealing wire may be fitted through the hole in the handwheel and a lead seal may be fitted.

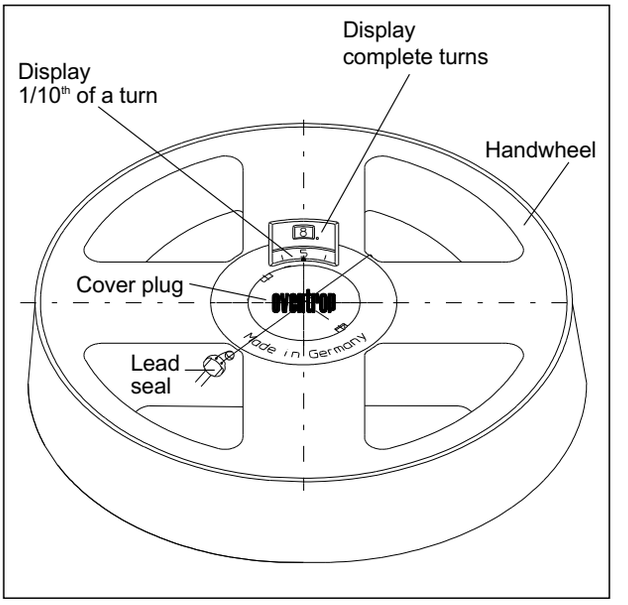
Locking the handwheel:

The handwheel can be locked in any position (1/10th of a turn) by removing the existing cover plug and replacing it with a special one. The sealing wire is then fitted through the hole in the handwheel and a lead seal is fitted.

Dimensions:

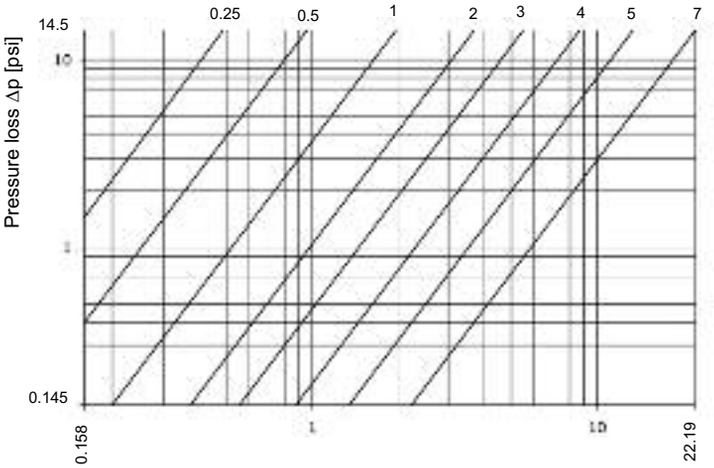


“Hydrocontrol F” PN 16						
Size	L	$H_{max.}$	d_1	D	K	n x Ød
8”	23.6	18.4	11.8	13.4	11.6	0.47x0.91
10”	28.7	18.9	11.8	15.9	14.0	0.47x1.1
12”	33.5	20.3	11.8	18.1	16.1	0.47x1.1
14”	38.6	22.1	11.8	20.5	18.5	0.47x1.1



3/4”

Presetting



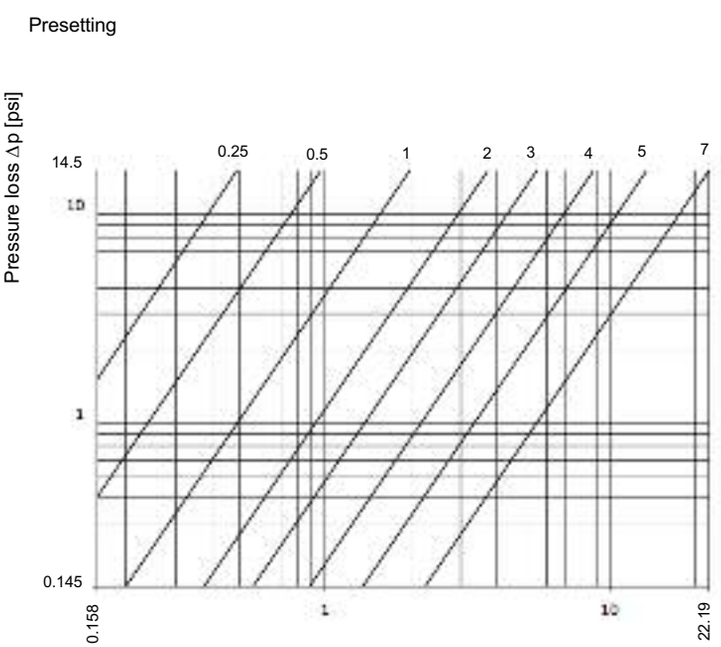
Flow rate q_m [gpm]

Pre-setting	C_V-values	Zeta-values	Pre-setting	C_V-values	Zeta-values
0.25	0.13	25698			
0.50	0.26	6424			
0.75	0.38	2855			
1.0	0.49	1763	5.0	3.59	33
1.1	0.56	1350	5.1	3.71	31
1.2	0.60	1150	5.2	3.84	29
1.3	0.64	1028	5.3	3.97	27
1.4	0.69	893	5.4	4.09	25
1.5	0.73	783	5.5	4.22	24
1.6	0.78	693	5.6	4.35	22
1.7	0.81	635	5.7	4.47	21
1.8	0.87	553	5.8	4.59	20
1.9	0.92	498	5.9	4.72	19
2.0	0.97	451	6.0	4.85	18
2.1	1.01	411	6.1	4.97	17
2.2	1.06	375	6.2	5.06	16
2.3	1.10	345	6.3	5.15	16
2.4	1.15	317	6.4	5.23	15
2.5	1.21	287	6.5	5.30	15
2.6	1.26	267	6.6	5.36	15
2.7	1.30	248	6.7	5.42	14
2.8	1.35	231	6.8	5.47	14
2.9	1.40	216	6.9	5.51	14
3.0	1.45	199	7.0	5.55	14
3.1	1.51	184			
3.2	1.57	171			
3.3	1.64	156			
3.4	1.71	144			
3.5	1.79	131			
3.6	1.87	120			
3.7	1.98	108			
3.8	2.08	97			
3.9	2.20	87			
4.0	2.33	78			
4.1	2.45	70			
4.2	2.58	63			
4.3	2.71	57			
4.4	2.83	53			
4.5	2.95	48			
4.6	3.08	44			
4.7	3.21	41			
4.8	3.34	38			
4.9	3.47	35			

Zeta values related to the inner pipe diameter according to DIN 2448 (21 mm)

1”

Presetting

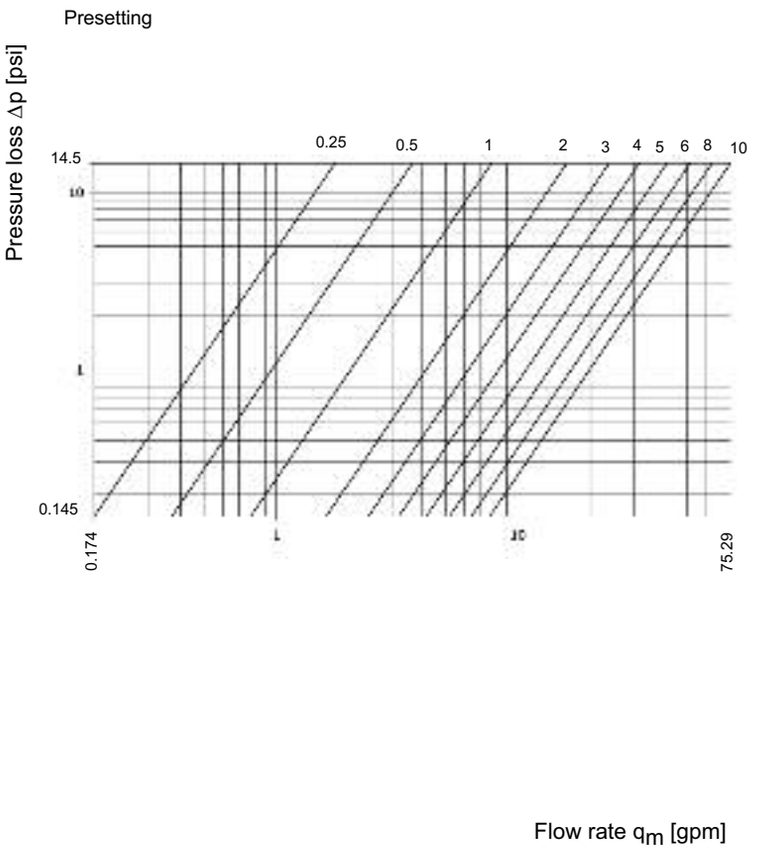


Flow rate q_m [gpm]

Pre-setting	C_V-values	Zeta-values	Pre-setting	C_V-values	Zeta-values
0.25	0.59	2325			
0.50	0.97	878			
0.75	1.26	519			
1.0	1.55	342	5.0	7.72	14
1.1	1.66	296	5.1	7.97	13
1.2	1.78	258	5.2	8.17	12
1.3	1.90	228	5.3	8.35	12
1.4	2.01	202	5.4	8.51	11
1.5	2.13	181	5.5	8.65	11
1.6	2.26	161	5.6	8.78	11
1.7	2.37	145	5.7	8.90	10
1.8	2.49	132	5.8	9.00	10
1.9	2.60	121	5.9	9.09	10
2.0	2.72	110	6.0	9.19	9.9
2.1	2.84	102	6.1	9.27	9.5
2.2	2.94	94	6.2	9.34	9.4
2.3	3.06	87	6.3	9.41	9.2
2.4	3.17	81	6.4	9.48	9.1
2.5	3.29	76	6.5	9.53	9.0
2.6	3.41	70	6.6	9.58	8.9
2.7	3.52	66	6.7	9.63	8.8
2.8	3.63	62	6.8	9.67	8.7
2.9	3.74	58	6.9	9.71	8.7
3.0	3.86	55	7.0	9.74	8.6
3.1	4.01	51			
3.2	4.16	47			
3.3	4.30	44			
3.4	4.47	41			
3.5	4.63	38			
3.6	4.80	35			
3.7	4.97	33			
3.8	5.14	31			
3.9	5.33	29			
4.0	5.51	27			
4.1	5.70	25			
4.2	5.90	24			
4.3	6.09	22			
4.4	6.30	21			
4.5	6.51	19			
4.6	6.74	18			
4.7	6.98	17			
4.8	7.21	16			
4.9	7.47	15			

Zeta values related to the inner pipe diameter according to DIN 2448 (24.8 mm)

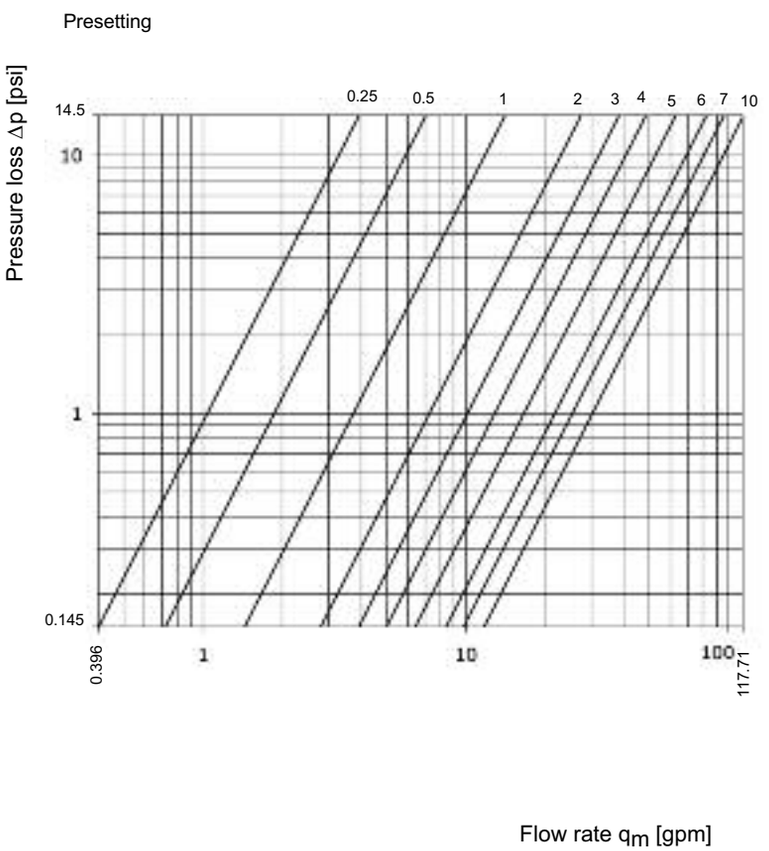
1 1/4”



Pre-setting	C_V-values	Zeta-values	Pre-setting	C_V-values	Zeta-values
			5.0	10.99	21
			5.1	11.26	20
			5.2	11.53	19
			5.3	11.80	18
			5.4	12.03	17
			5.5	12.33	16
			5.6	12.59	16
0.25	0.47	11566	5.7	12.85	15
0.50	0.97	2686	5.8	13.10	15
0.75	1.45	1184	5.9	13.35	14
1.0	2.01	618	6.0	13.60	14
1.1	2.23	502	6.1	13.91	13
1.2	2.45	416	6.2	14.19	12
1.3	2.67	350	6.3	14.43	12
1.4	2.90	298	6.4	14.67	12
1.5	3.12	258	6.5	14.90	11
1.6	3.34	225	6.6	15.12	11
1.7	3.56	198	6.7	15.31	11
1.8	3.78	175	6.8	15.50	10
1.9	4.00	156	6.9	15.69	10
2.0	4.22	140	7.0	15.87	9.9
2.1	4.44	127	7.1	16.02	9.7
2.2	4.66	115	7.2	16.19	9.6
2.3	4.88	105	7.3	16.35	9.4
2.4	5.10	96	7.4	16.49	9.2
2.5	5.33	88	7.5	16.63	9.0
2.6	5.55	81	7.6	16.77	8.9
2.7	5.77	75	7.7	16.91	8.8
2.8	5.99	70	7.8	17.03	8.6
2.9	6.21	65	7.9	17.16	8.5
3.0	6.43	61	8.0	17.28	8.4
3.1	6.66	56	8.1	17.41	8.3
3.2	6.88	53	8.2	17.56	8.1
3.3	7.12	49	8.3	17.67	8.0
3.4	7.34	46	8.4	17.80	7.9
3.5	7.57	44	8.5	17.93	7.8
3.6	7.80	41	8.6	18.06	7.7
3.7	8.02	39	8.7	18.19	7.6
3.8	8.26	37	8.8	18.31	7.5
3.9	8.49	35	8.9	18.44	7.4
4.0	8.67	33	9.0	18.57	7.3
4.1	8.94	31	9.1	18.70	7.2
4.2	9.16	30	9.2	18.84	7.1
4.3	9.40	28	9.3	18.95	7.0
4.4	9.62	27	9.4	19.08	6.9
4.5	9.85	26	9.5	19.22	6.8
4.6	10.08	25	9.6	19.35	6.7
4.7	10.30	24	9.7	19.48	6.6
4.8	10.53	23	9.8	19.60	6.5
4.9	10.76	22	9.9	19.73	6.4
			10.0	19.86	6.3

Zeta values related to the inner pipe diameter according to DIN 2448 (32.8 mm)

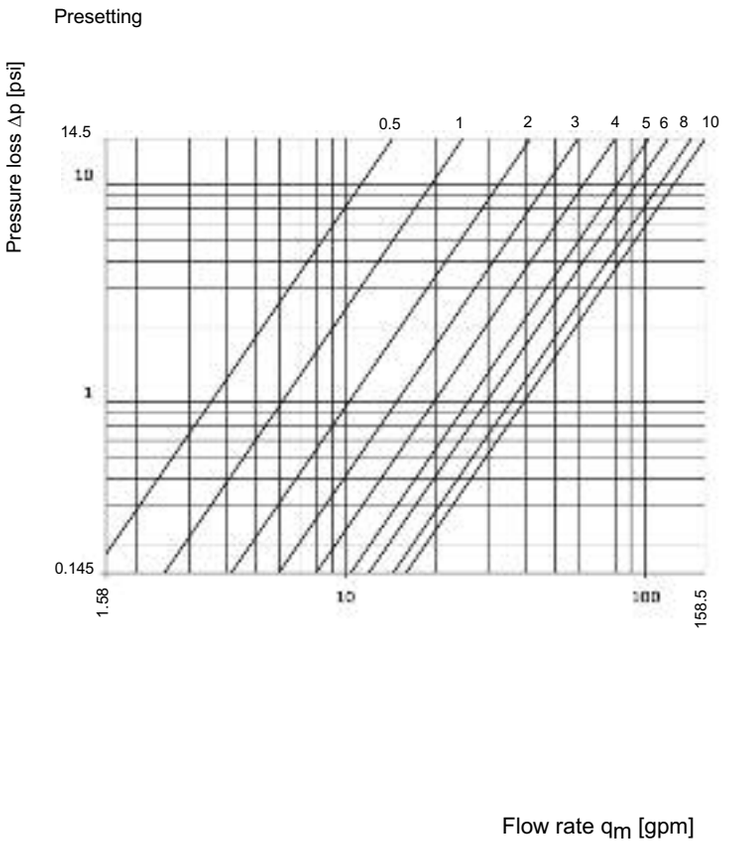
1 1/2”



Pre-setting	C_V-values	Zeta-values	Pre-setting	C_V-values	Zeta-values
			5.0	16.87	23
			5.1	17.34	22
			5.2	17.81	21
			5.3	18.31	20
			5.4	18.77	19
			5.5	19.33	18
			5.6	19.88	17
0.25	1.03	6162	5.7	20.44	16
0.50	1.94	1750	5.8	21.01	15
0.75	2.90	787	5.9	21.62	14
1.0	3.80	456	6.0	22.24	13
1.1	4.16	381	6.1	22.71	13
1.2	4.48	329	6.2	23.14	12
1.3	4.86	279	6.3	23.55	12
1.4	5.21	243	6.4	23.94	12
1.5	5.55	215	6.5	24.30	11
1.6	5.88	191	6.6	24.66	11
1.7	6.22	171	6.7	25.00	11
1.8	6.57	153	6.8	25.28	10
1.9	6.88	139	6.9	25.63	10
2.0	7.21	127	7.0	25.93	9.8
2.1	7.48	118	7.1	26.22	9.6
2.2	7.76	110	7.2	26.50	9.4
2.3	8.02	103	7.3	26.78	9.2
2.4	8.31	95	7.4	27.05	9.0
2.5	8.59	89	7.5	27.29	8.9
2.6	8.88	84	7.6	27.56	8.7
2.7	9.17	78	7.7	27.80	8.5
2.8	9.47	74	7.8	28.03	8.4
2.9	9.76	69	7.9	28.27	8.3
3.0	10.10	65	8.0	28.50	8.1
3.1	10.36	61	8.1	28.65	8.0
3.2	10.66	58	8.2	28.81	7.9
3.3	10.97	55	8.3	28.95	7.9
3.4	11.27	52	8.4	29.10	7.8
3.5	11.59	49	8.5	29.26	7.7
3.6	11.92	46	8.6	29.41	7.6
3.7	12.23	44	8.7	29.55	7.6
3.8	12.56	42	8.8	29.69	7.5
3.9	12.90	40	8.9	29.83	7.4
4.0	13.23	38	9.0	29.97	7.3
4.1	13.57	36	9.1	30.10	7.3
4.2	13.92	34	9.2	30.23	7.2
4.3	14.27	32	9.3	30.37	7.2
4.4	14.63	31	9.4	30.50	7.1
4.5	14.99	29	9.5	30.63	7.0
4.6	15.35	28	9.6	30.76	7.0
4.7	15.72	27	9.7	30.88	6.9
4.8	16.09	25	9.8	31.01	6.9
4.9	16.48	24	9.9	31.13	6.8
			10.0	31.26	6.8

Zeta values related to the inner pipe diameter according to DIN 2448 (41.8 mm)

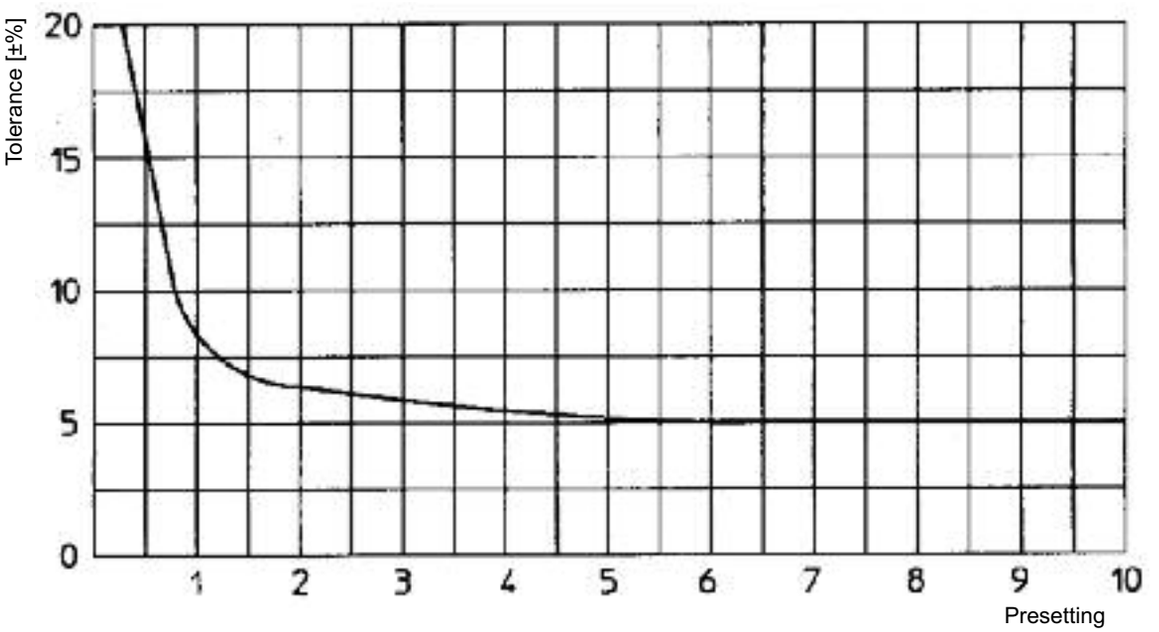
2”



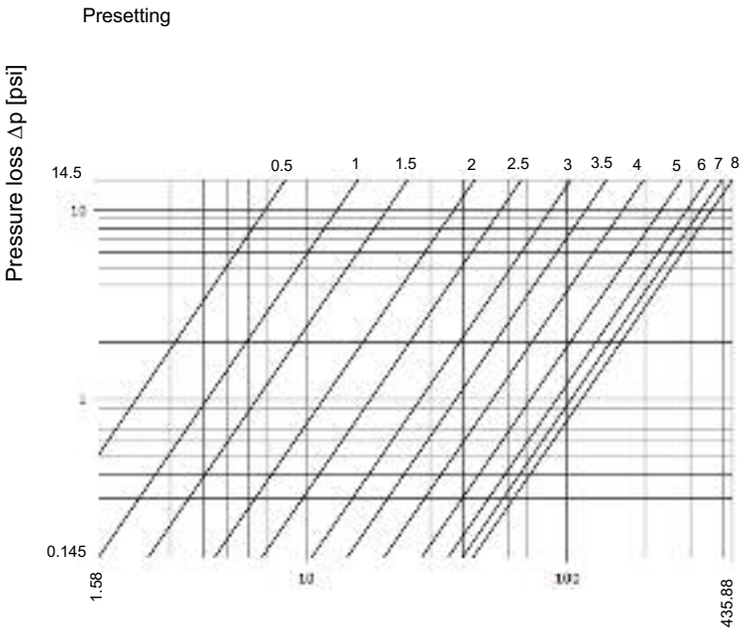
Pre-setting	C_V-values	Zeta-values	Pre-setting	C_V-values	Zeta-values
			5.0	26.40	24
			5.1	26.88	24
			5.2	27.37	23
			5.3	27.85	22
			5.4	28.34	21
			5.5	28.84	21
			5.6	29.31	20
			5.7	29.80	19
0.5	3.83	1166	5.8	30.28	19
0.75	5.53	557	5.9	30.77	18
1.0	6.70	380	6.0	31.26	17
1.1	7.09	339	6.1	31.60	17
1.2	7.45	307	6.2	31.95	17
1.3	7.79	281	6.3	32.27	16
1.4	8.12	259	6.4	32.63	16
1.5	8.42	241	6.5	32.92	16
1.6	8.91	215	6.6	33.27	16
1.7	9.53	188	6.7	33.58	15
1.8	10.07	168	6.8	33.90	15
1.9	10.58	152	6.9	34.20	15
2.0	11.10	138	7.0	34.51	14
2.1	11.58	127	7.1	34.78	14
2.2	12.07	117	7.2	35.06	14
2.3	12.53	109	7.3	35.35	14
2.4	13.00	101	7.4	35.63	13
2.5	13.45	94	7.5	35.91	13
2.6	13.90	88	7.6	36.17	13
2.7	14.34	83	7.7	36.43	13
2.8	14.76	78	7.8	36.71	13
2.9	15.19	74	7.9	36.97	12
3.0	15.59	70	8.0	37.21	12
3.1	16.13	66	8.1	37.47	12
3.2	16.65	62	8.2	37.72	12
3.3	17.19	58	8.3	37.97	12
3.4	17.73	54	8.4	38.21	12
3.5	18.09	52	8.5	38.44	12
3.6	18.84	48	8.6	38.69	11
3.7	19.38	45	8.7	38.92	11
3.8	19.93	43	8.8	39.15	11
3.9	20.47	41	8.9	39.38	11
4.0	21.33	39	9.0	39.60	11
4.1	21.53	37	9.1	39.83	11
4.2	22.10	35	9.2	40.05	11
4.3	22.65	33	9.3	40.34	10
4.4	23.20	32	9.4	40.49	10
4.5	23.90	30	9.5	40.70	10
4.6	24.29	29	9.6	40.93	10
4.7	24.84	28	9.7	41.16	10
4.8	25.38	27	9.8	41.40	10
4.9	25.93	25	9.9	41.63	10
			10.0	41.86	9.7

Zeta values related to the inner pipe diameter according to DIN 2448 (53 mm)

Flow tolerances depending on the presetting for 3/4” – 2”



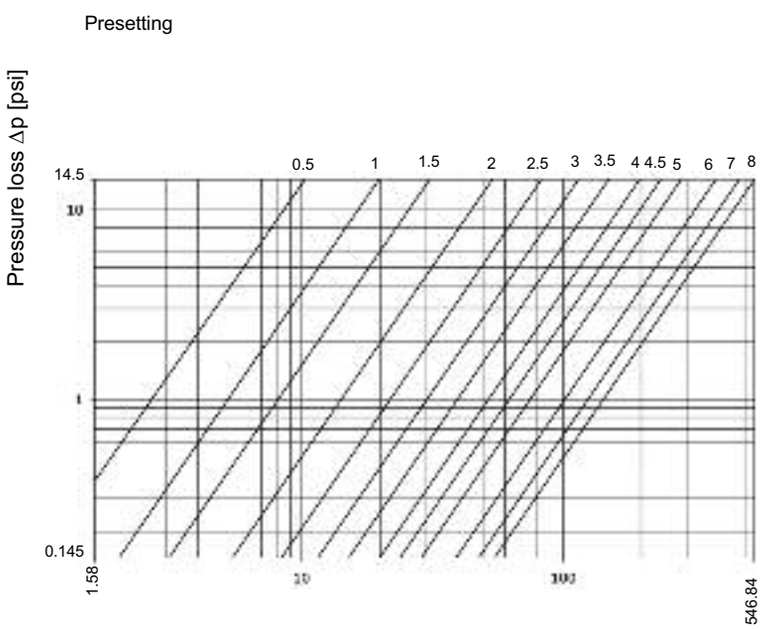
2 1/2”



Pre-setting	C_V-values	Zeta-values	Pre-setting	C_V-values	Zeta-values
0.50	2.21	10817			
1.0	4.19	3013	5.0	70.93	10.5
1.1	4.79	2300	5.1	73.50	9.8
1.2	5.22	1937	5.2	75.50	9.3
1.3	5.65	1653	5.3	77.48	8.8
1.4	6.08	1428	5.4	79.44	8.4
1.5	6.51	1245	5.5	81.408	8.0
1.6	7.48	945	5.6	3.36	7.6
1.7	8.48	735	5.7	85.27	7.3
1.8	9.50	585	5.8	87.13	7.0
1.9	10.55	475	5.9	88.93	6.7
2.0	11.63	391	6.0	90.70	6.4
2.1	12.73	326	6.1	92.42	6.2
2.2	13.85	275	6.2	94.08	6.0
2.3	15.02	234	6.3	95.71	5.8
2.4	16.21	201	6.4	97.29	5.6
2.5	17.44	174	6.5	98.84	5.4
2.6	19.37	141	6.6	100.14	5.3
2.7	21.37	116	6.7	101.40	5.1
2.8	23.42	96	6.8	102.59	5.0
2.9	25.52	81	6.9	103.76	4.9
3.0	27.91	68	7.0	104.65	4.8
3.1	29.92	59	7.1	105.97	4.7
3.2	32.21	51	7.2	107.00	4.6
3.3	34.58	44	7.3	108.01	4.5
3.4	37.02	39	7.4	108.97	4.4
3.5	39.53	34	7.5	109.88	4.3
3.6	41.78	30	7.6	110.78	4.3
3.7	44.00	27	7.7	111.63	4.2
3.8	46.21	25	7.8	112.44	4.2
3.9	48.41	23	7.9	113.21	4.1
4.0	50.58	21	8.0	113.95	4.0
4.1	52.74	19			
4.2	54.88	18			
4.3	57.01	16			
4.4	59.13	15			
4.5	60.47	14			
4.6	63.316	13			
4.7	5.38	12			
4.8	67.44	11.6			
4.9	69.47	10.9			

Zeta values related to the inner pipe diameter according to DIN 2448 (70.3 mm)

3”

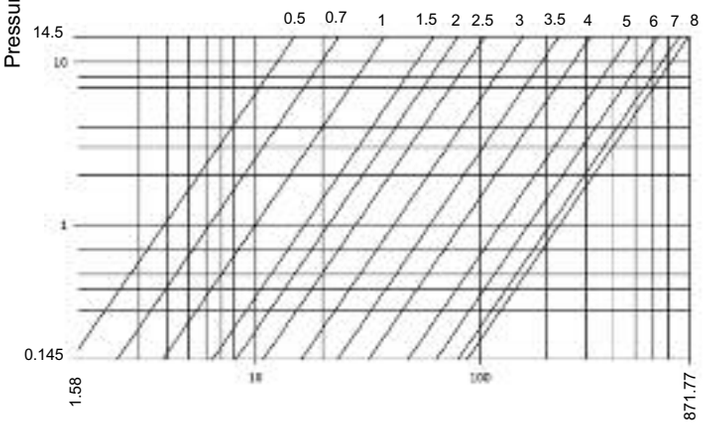


Pre-setting	C_V-values	Zeta-values	Pre-setting	C_V-values	Zeta-values
0.50	2.67	14001			
1.0	5.12	3826	5.0	75.12	18.0
1.1	5.51	3297	5.1	77.88	16.5
1.2	6.01	2771	5.2	80.60	15.4
1.3	6.59	2304	5.3	83.29	14.4
1.4	7.30	1878	5.4	85.93	13.5
1.5	8.14	15121	5.5	87.73	13.0
1.6	9.17	190	5.6	91.13	12.1
1.7	10.26	952	5.7	93.67	11.4
1.8	11.37	774	5.8	96.19	10.8
1.9	12.55	636	5.9	98.66	10.3
2.0	13.78	527	6.0	101.16	9.8
2.1	15.06	442	6.1	103.53	9.3
2.2	16.41	372	6.2	105.81	8.9
2.3	17.83	315	6.3	108.29	8.5
2.4	19.31	268	6.4	110.63	8.2
2.5	21.69	213	6.5	113.43	7.8
2.6	22.55	197	6.6	115.23	7.5
2.7	24.30	170	6.7	117.49	7.3
2.8	26.17	146	6.8	119.72	7.0
2.9	28.19	126	6.9	121.94	6.7
3.0	30.35	109	7.0	124.13	6.5
3.1	32.38	95	7.1	126.03	6.3
3.2	34.43	84	7.2	127.91	6.1
3.3	36.50	75	7.3	129.77	5.9
3.4	38.59	67	7.4	131.40	5.8
3.5	40.70	60	7.5	133.14	5.6
3.6	42.83	55	7.6	135.03	5.5
3.7	42.65	50	7.7	136.95	5.3
3.8	47.15	45	7.8	138.69	5.2
3.9	49.34	41	7.9	140.40	5.1
4.0	52.03	37	8.0	142.09	5.0
4.1	53.80	35			
4.2	56.06	32			
4.3	58.36	29			
4.4	60.67	27			
4.5	64.19	24			
4.6	65.37	23			
4.7	67.77	22			
4.8	70.19	20			
4.9	72.64	19			

Zeta values related to the inner pipe diameter according to DIN 2448 (82.5 mm)

4”

Presetting

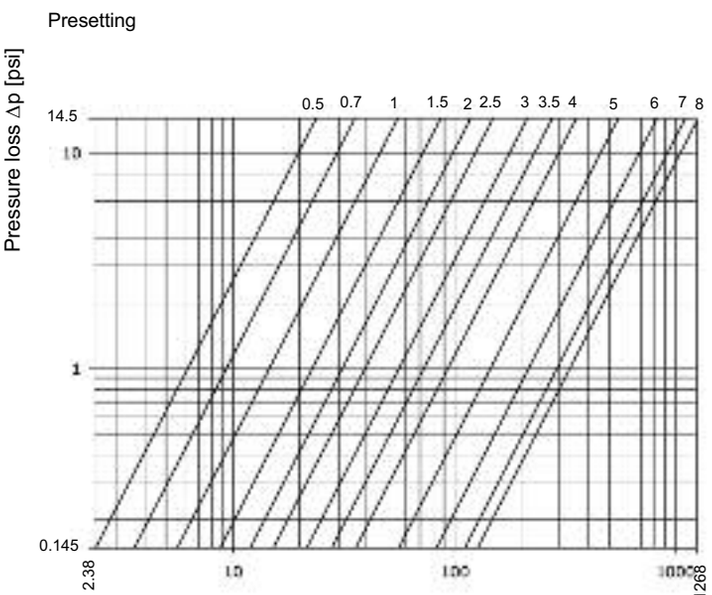


Pre-setting	C_V-values	Zeta-values	Pre-setting	C_V-values	Zeta-values
0.5	3.956.	14279			
0.7	35	5537			
1.0	9.94	2258	5.0	130.23	13
1.1	11.14	1799	5.1	136.58	12
1.2	12.34	1466	5.2	140.90	11
1.3	13.53	1218	5.3	145.10	10.6
1.4	14.73	1028	5.4	148.28	10.2
1.5	16.28	842	5.5	153.29	9.5
1.6	17.13	761	5.6	157.16	9.0
1.7	18.33	665	5.7	161.01	8.6
1.8	19.52	586	5.8	164.50	8.2
1.9	20.72	520	5.9	168.48	7.9
2.0	21.51	482	6.0	172.09	7.5
2.1	23.12	418	6.1	176.67	7.1
2.2	24.31	378	6.2	180.97	6.8
2.3	25.51	343	6.3	185.00	6.5
2.4	26.71	313	6.4	188.81	6.3
2.5	27.91	287	6.5	190.73	6.1
2.6	30.23	244	6.6	195.86	5.8
2.7	32.71	209	6.7	199.14	5.6
2.8	35.35	179	6.8	202.27	5.5
2.9	38.15	153	6.9	205.27	5.3
3.0	41.16	132	7.0	208.15	5.2
3.1	44.40	113	7.1	210.90	5.0
3.2	47.87	97	7.2	213.55	4.9
3.3	51.67	84	7.3	216.10	4.8
3.4	55.84	72	7.4	218.56	4.7
3.5	60.47	61	7.5	220.98	4.6
3.6	65.03	53	7.6	223.69	4.5
3.7	69.64	46	7.7	226.35	4.4
3.8	74.29	40	7.8	228.90	4.3
3.9	78.98	36	7.9	231.35	4.2
4.0	83.72	32	8.0	233.72	4.1
4.1	88.50	29			
4.2	93.34	26			
4.3	98.22	23			
4.4	103.15	21			
4.5	108.14	19			
4.6	113.22	17			
4.7	118.16	16			
4.8	122.95	15			
4.9	127.62	14			

Zeta values related to the inner pipe diameter according to DIN 2448 (100.8 mm)

5”

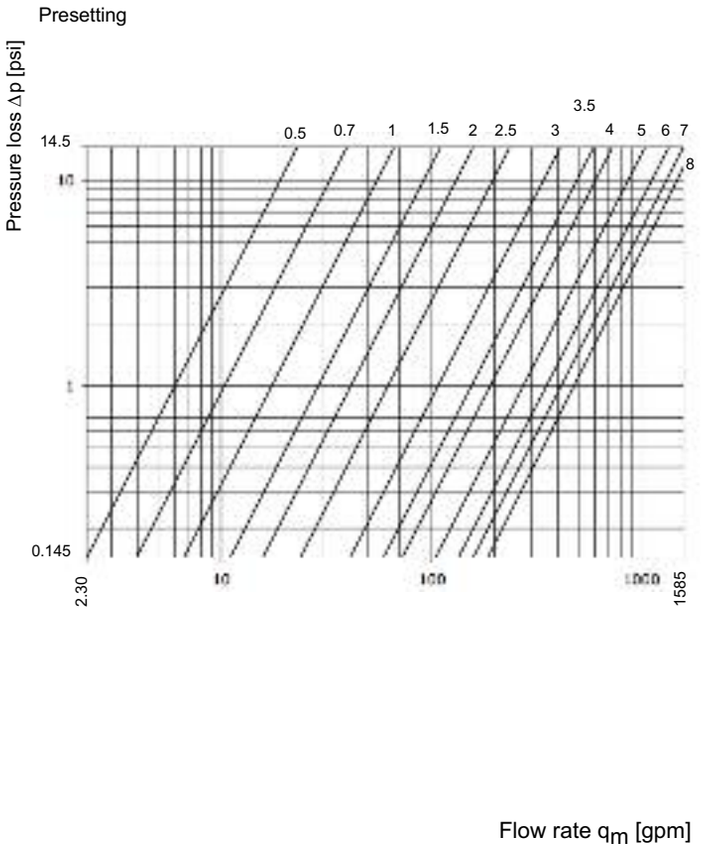
Presetting



Pre-setting	k_V-values	Zeta-values	Pre-setting	k_V-values	Zeta-values
0.5	6.40	12904			
0.7	9.63	5694			
1.0	14.48	2518	5.0	149.13	24
1.1	16.09	2038	5.1	155.55	22
1.2	17.71	1683	5.2	162.26	20
1.3	19.33	1413	5.3	169.30	18
1.4	20.94	1203	5.4	176.70	17
1.5	22.56	1037	5.5	184.53	15
1.6	24.35	890	5.6	190.81	14
1.7	26.13	773	5.7	197.21	13.5
1.8	27.92	677	5.8	203.73	12.7
1.9	29.70	598	5.9	210.40	11.9
2.0	30.93	552	6.0	215.47	11.4
2.1	33.27	477	6.1	224.13	10.5
2.2	35.06	429	6.2	231.22	9.9
2.3	36.84	389	6.3	238.49	9.3
2.4	38.63	354	6.4	245.93	8.7
2.5	40.41	323	6.5	253.55	8.2
2.6	43.23	282	6.6	259.73	7.8
2.7	46.15	248	6.7	265.86	7.5
2.8	49.17	218	6.8	271.97	7.1
2.9	52.29	193	6.9	277.94	6.8
3.0	55.52	171	7.0	283.90	6.5
3.1	58.87	152	7.1	289.80	6.3
3.2	62.35	136	7.2	295.65	6.0
3.3	65.97	121	7.3	301.45	5.8
3.4	69.77	108	7.4	307.20	5.6
3.5	73.66	97	7.5	311.80	5.4
3.6	77.47	88	7.6	318.55	5.2
3.7	81.40	80	7.7	324.15	5.0
3.8	85.50	72	7.8	329.71	4.9
3.9	89.78	65	7.9	334.84	4.7
4.0	94.24	59	8.0	340.70	4.5
4.1	98.92	54			
4.2	103.84	49			
4.3	109.03	44			
4.4	114.53	40			
4.5	120.41	36			
4.6	125.77	33			
4.7	131.30	31			
4.8	137.02	28			
4.9	142.97	26			

Zeta values related to the inner pipe diameter according to DIN 2448 (125 mm)

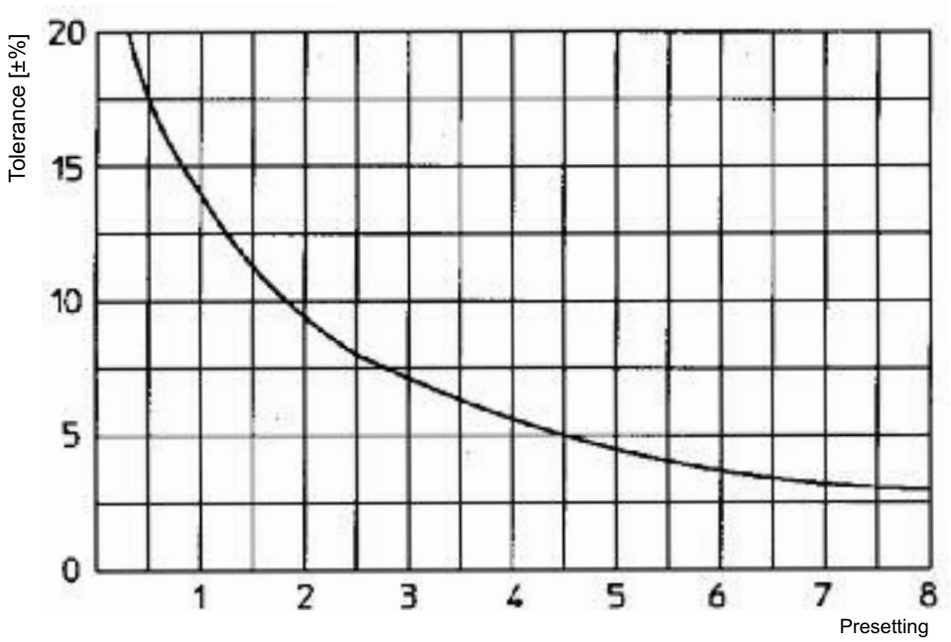
6”



Pre-setting	C_V-values	Zeta-values	Pre-setting	C_V-values	Zeta-values
0.5	6.05	29934			
0.7	10.71	9542			
1.0	17.70	3494	5.0	277.80	14.0
1.1	20.02	2730	5.1	284.56	13.5
1.2	22.36	2189	5.2	292.09	12.8
1.3	24.69	1796	5.3	299.53	12.2
1.4	27.02	1499	5.4	306.86	11.6
1.5	29.37	1269	5.5	316.74	10.9
1.6	31.67	1091	5.6	321.21	10.6
1.7	34.30	930	5.7	328.26	10.2
1.8	36.34	829	5.8	335.20	9.7
1.9	38.67	732	5.9	342.06	9.4
2.0	41.00	651	6.0	349.30	9.0
2.1	43.17	587	6.1	355.53	8.8
2.2	45.83	521	6.2	362.15	8.4
2.3	49.19	452	6.3	368.70	8.1
2.4	53.78	378	6.4	374.50	7.8
2.5	62.70	278	6.5	379.88	7.6
2.6	70.93	218	6.6	387.88	7.3
2.7	79.71	172	6.7	393.42	7.1
2.8	89.12	138	6.8	400.34	6.8
2.9	99.30	111	6.9	406.47	6.6
3.0	110.49	90	7.0	413.49	6.4
3.1	122.69	73	7.1	418.60	6.2
3.2	133.08	62	7.2	424.49	6.1
3.3	142.28	54	7.3	430.38	5.9
3.4	150.60	48	7.4	436.22	5.8
3.5	157.50	44	7.5	444.19	5.6
3.6	165.36	40	7.6	447.72	5.5
3.7	171.41	37	7.7	452.71	5.3
3.8	178.29	34	7.8	458.37	5.2
3.9	186.05	32	7.9	464.58	5.1
4.0	194.33	29	8.0	470.12	5.0
4.1	202.88	27			
4.2	221.35	25			
4.3	219.83	23			
4.4	228.30	21			
4.5	236.80	20			
4.6	245.09	18			
4.7	253.24	17			
4.8	260.63	16			
4.9	269.14	15			

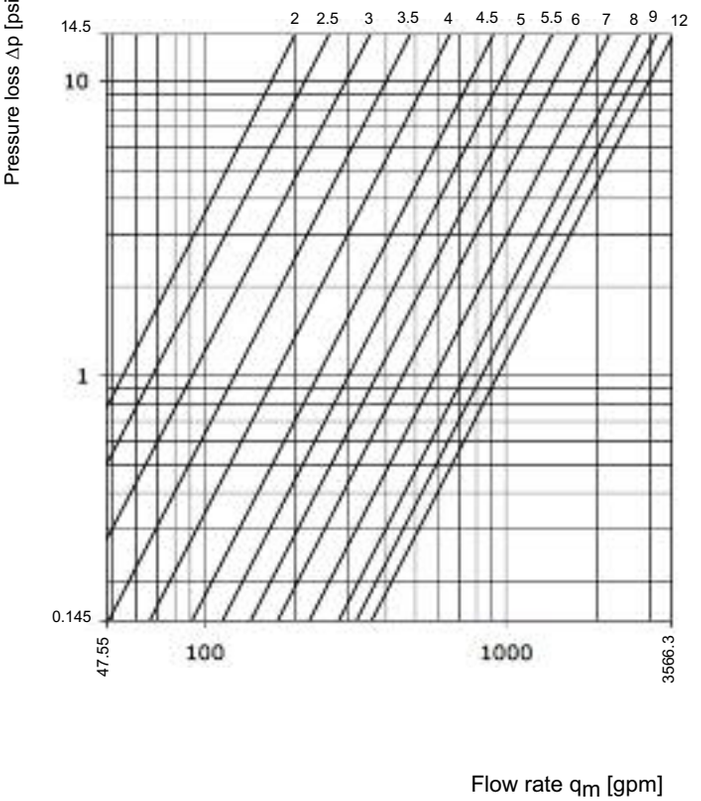
Zeta values related to the inner pipe diameter according to DIN 2448 (150 mm)

Flow tolerances depending on the presetting for 2 1/2”- 6”



8”

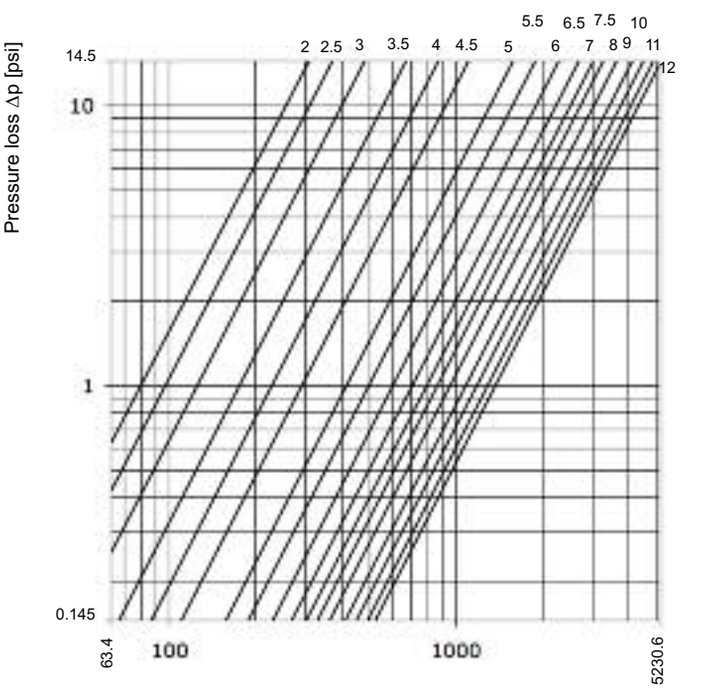
Presetting



Pre-setting	k_V-values	Zeta-values	Pre-setting	k_V-values	Zeta-values
2.0	56.86	1191	7.0	592.44	11
2.1	60.00	1070	7.1	603.95	11
2.2	63.02	969	7.2	615.47	10
2.3	66.05	883	7.3	626.98	10
2.4	69.07	807	7.4	638.49	9
2.5	72.09	741	7.5	650.00	9
2.6	77.21	646	7.6	663.95	9
2.7	82.33	568	7.7	677.33	8
2.8	87.44	504	7.8	690.93	8
2.9	92.56	449	7.9	704.65	8
3.0	97.67	404	8.0	718.60	7
3.1	104.65	352	8.1	728.84	7
3.2	111.63	309	8.2	738.14	7
3.3	118.60	274	8.3	737.44	7
3.4	125.58	244	8.4	757.67	7
3.5	132.56	219	8.5	767.44	7
3.6	140.70	195	8.6	782.33	6
3.7	149.77	172	8.7	796.74	6
3.8	158.37	154	8.8	812.44	6
3.9	166.98	138	8.9	827.44	6
4.0	175.58	125	9.0	842.44	6
4.1	188.37	109	9.1	850.47	5
4.2	201.16	95	9.2	858.37	5
4.3	213.95	84	9.3	866.16	5
4.4	226.74	75	9.4	874.07	5
4.5	239.53	67	9.5	881.98	5
4.6	252.09	61	9.6	884.42	5
4.7	264.65	55	9.7	886.86	5
4.8	277.21	50	9.8	889.30	5
4.9	289.77	46	9.9	891.74	5
5.0	302.67	41	10.0	894.19	5
5.1	316.16	38	10.1	896.74	5
5.2	330.00	35	10.2	899.30	5
5.3	343.72	33	10.3	901.86	5
5.4	357.56	30	10.4	904.65	5
5.5	372.09	28	10.5	906.98	5
5.6	386.05	26	10.6	909.30	5
5.7	400.93	24	10.7	91163	5
5.8	415.81	22	10.8	913.95	5
5.9	430.58	21	10.9	916.28	5
6.0	445.35	19	11.0	918.60	5
6.1	460.47	18	11.1	921.16	5
6.2	475.58	17	11.2	923.84	5
6.3	490.70	16	11.3	926.51	5
6.4	505.81	15	11.4	929.19	4
6.5	555.58	14	11.5	931.86	4
6.6	534.88	13	11.6	934.88	4
6.7	549.42	13	11.7	937.91	4
6.8	563.72	12	11.8	940.93	4
6.9	578.14	12	11.9	944.19	4
			12.0	947.09	4

Zeta values related to the inner pipe diameter according to DIN 2448 (207.3mm)

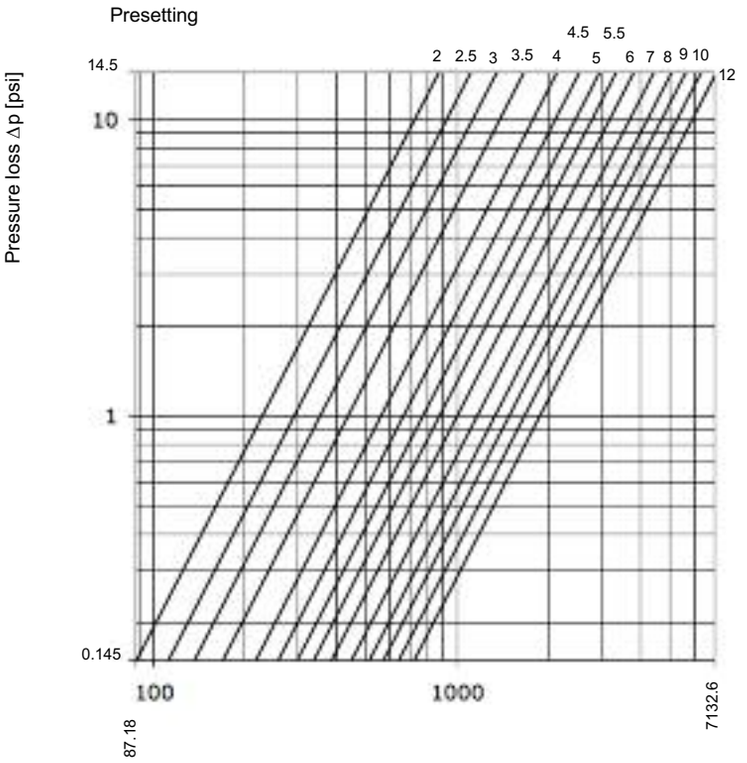
10”



Pre-setting	kv-values	Zeta-values	Pre-setting	kv-values	Zeta-values
2.0	8.400	1318	7.0	682.0	14
2.1	72.5	1229	7.1	698.0	13
2.2	75.5	1133	7.2	714.0	13
2.3	79.0	1035	7.3	729.0	12
2.4	82.0	961	7.4	745.0	12
2.5	85.0	894	7.5	760.0	11
2.6	89.5	806	7.6	778.0	11
2.7	94.0	731	7.7	795.0	10
2.8	99.0	659	7.8	811.0	10
2.9	104.5	592	7.9	826.0	10
3.0	110.0	534	8.0	840.0	9
3.1	117.0	472	8.1	850.0	9
3.2	123.5	424	8.2	860.0	9
3.3	130.5	379	8.3	870.0	8
3.4	139.0	334	8.4	880.0	8
3.5	150.0	287	8.5	890.0	8
3.6	155.0	269	8.6	899.0	8
3.7	164.0	240	8.7	907.0	8
3.8	174.0	213	8.8	916.0	8
3.9	184.0	191	8.9	925.0	8
4.0	195.0	170	9.0	933.0	7
4.1	208.0	149	9.1	942.0	7
4.2	221.0	132	9.2	952.0	7
4.3	236.0	116	9.3	961.0	7
4.4	252.0	102	9.4	970.0	7
4.5	270.0	89	9.5	980.0	7
4.6	287.0	78	9.6	989.0	7
4.7	304.0	70	9.7	998.0	6
4.8	321.0	63	9.8	1008.0	6
4.9	338.0	57	9.9	1018.0	6
5.0	356.0	51	10.0	1028.0	6
5.1	373.0	46	10.1	1038.0	6
5.2	390.0	42	10.2	1048.0	6
5.3	407.0	39	10.3	1059.0	6
5.4	423.0	36	10.4	1071.0	6
5.5	440.0	33	10.5	1080.0	6
5.6	457.0	31	10.6	1088.0	5
5.7	473.0	29	10.7	1096.0	5
5.8	490.0	27	10.8	1104.0	5
5.9	506.0	25	10.9	1112.0	5
6.0	522.0	24	11.0	1120.0	5
6.1	539.0	22	11.1	1128.0	5
6.2	555.0	21	11.2	1136.0	5
6.3	571.0	20	11.3	1144.0	5
6.4	587.0	19	11.4	1152.0	5
6.5	607.0	18	11.5	1160.0	5
6.6	619.0	17	11.6	1168.0	5
6.7	635.0	16	11.7	1176.0	5
6.8	651.0	15	11.8	1184.0	5
6.9	666.0	15	11.9	1192.0	4

Zeta values related to the inner pipe diameter according to DIN 2448 (254.4 mm)

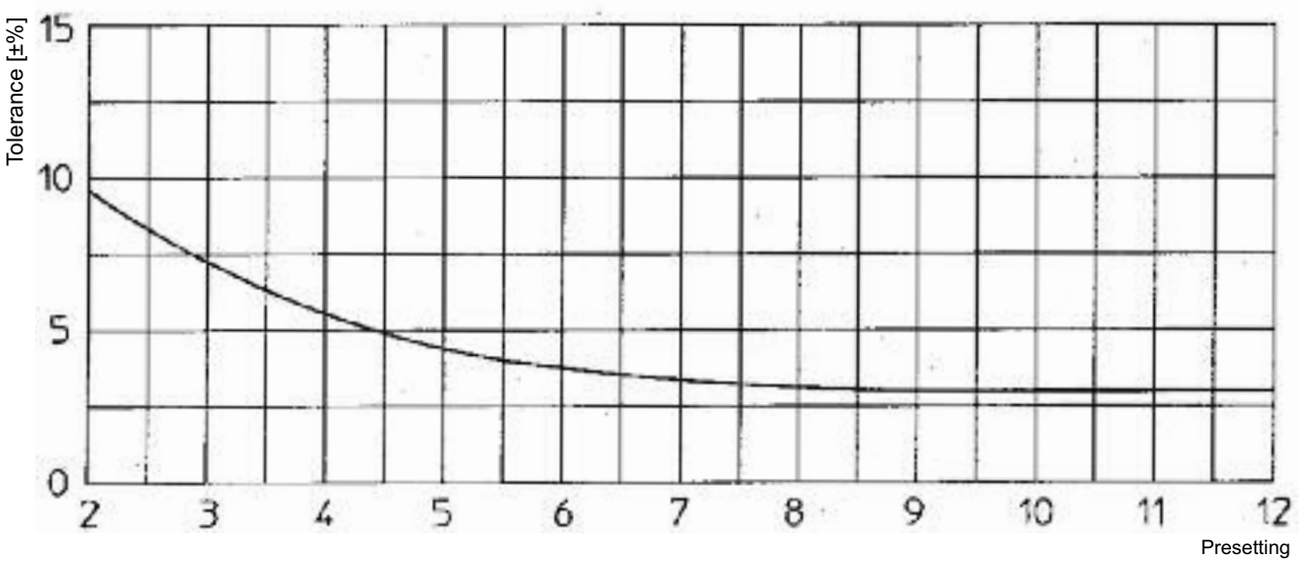
12”



Pre-setting	Cv-values	Zeta-values		Pre-setting	Cv-values	Zeta-values
2.0	232.56	325		7.0	1151.16	13
2.1	244.19	295		7.1	1168.60	13
2.2	255.81	269		7.2	1186.05	12
2.3	267.44	246		7.3	1204.65	12
2.4	279.07	226		7.4	1224.19	12
2.5	290.70	208		7.5	1244.19	11
2.6	303.49	191		7.6	1260.47	11
2.7	317.44	174		7.7	1276.74	11
2.8	331.40	160		7.8	1293.02	11
2.9	345.35	147		7.9	1309.30	10
3.0	360.47	135		8.0	1325.58	10
3.1	375.58	125		8.1	1341.86	10
3.2	390.70	115		8.2	1358.14	10
3.3	406.98	106		8.3	1374.42	9
3.4	424.42	98		8.4	1390.70	9
3.5	441.86	90		8.5	1406.98	9
3.6	466.28	81		8.6	1427.91	9
3.7	489.53	73		8.7	1447.67	8
3.8	512.79	67		8.8	1466.28	8
3.9	536.05	61		8.9	1483.72	8
4.0	558.14	56		9.0	1500.00	8
4.1	580.23	52		9.1	1515.12	8
4.2	601.16	49		9.2	1530.23	8
4.3	622.09	45		9.3	1544.19	7
4.4	643.02	43		9.4	1556.98	7
4.5	662.79	40		9.5	1569.77	7
4.6	683.72	38		9.6	1587.21	7
4.7	704.65	35		9.7	1603.49	7
4.8	725.58	33		9.8	1619.77	7
4.9	746.51	32		9.9	1636.05	7
5.0	767.44	30		10.0	1651.16	6
5.1	788.37	28		10.1	1666.28	6
5.2	809.30	27		10.2	1681.40	6
5.3	830.23	26		10.3	1694.19	6
5.4	851.16	24		10.4	1706.98	6
5.5	872.09	23		10.5	1720.93	6
5.6	896.51	22		10.6	1732.56	6
5.7	919.77	21		10.7	1744.19	6
5.8	941.86	20		10.8	1755.81	6
5.9	962.79	19		10.9	1767.44	6
6.0	982.56	18		11.0	1779.07	6
6.1	1001.16	18		11.1	1789.53	5
6.2	1019.77	17		11.2	1798.84	5
6.3	1037.21	16		11.3	1808.14	5
6.4	1053.49	16		11.4	1817.44	5
6.5	1069.77	15		11.5	1825.58	5
6.6	1084.88	15		11.6	1833.72	5
6.7	1101.16	14		11.7	1840.70	5
6.8	1117.44	14		11.8	1847.67	5
6.9	1133.72	14		11.9	1854.65	5
				12.0	1860.47	5

Zeta values related to the inner pipe diameter according to DIN 2448 (300 mm)

Flow tolerance depending on the presetting for 8”-12”



Insulation shells 3/4” – 8”

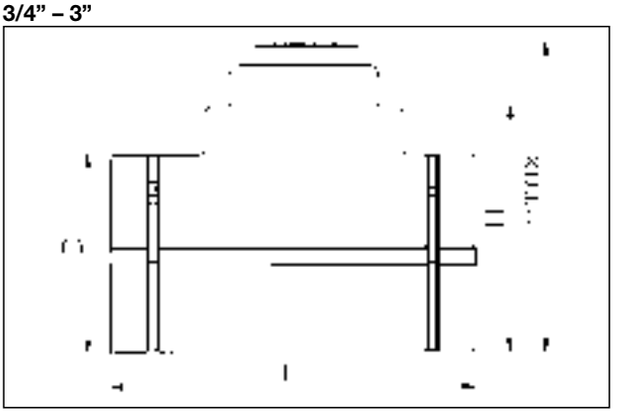
Tender specification:

The insulation shells have a CFC-free inner core made of polyurethane foam with a 1.5 mm plastic coat.
It consists of two double shells which are tightened by two metal straps.

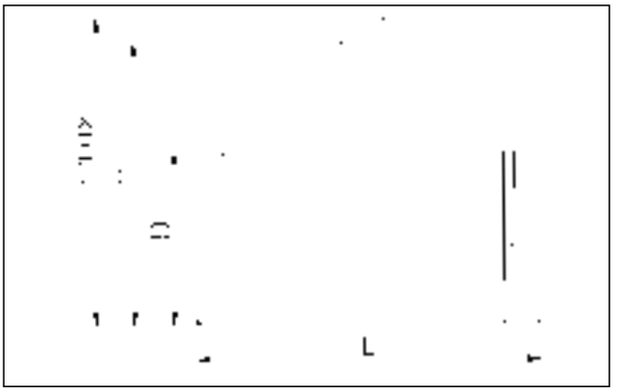
Size	Item no.
3/4”	106 25 81
1”	106 25 82
1 1/4”	106 25 83
1 1/2”	106 25 84
2”	106 25 85
2 1/2”	106 25 86
3”	106 25 87
4”*	106 25 88
5”*	106 25 89
6”*	106 25 90
8”*	106 25 91

* Not suitable for the double regulating and commissioning valves “Hydrocontrol FS”.

3/4” – 3”



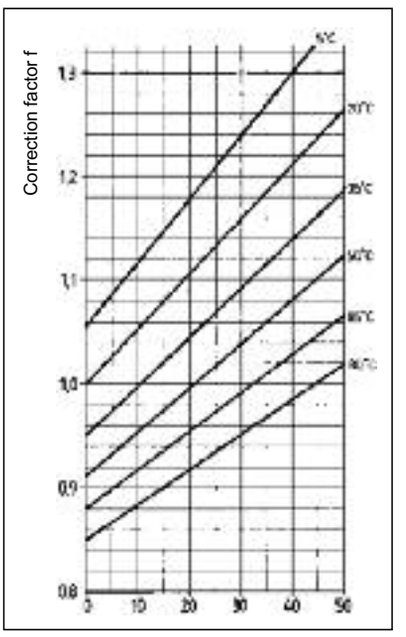
DN 100 – DN 200



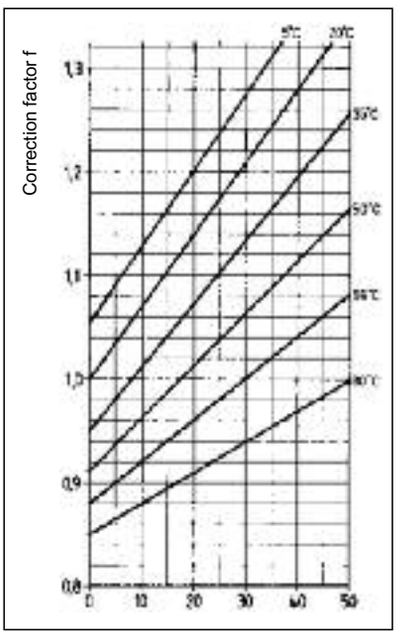
DN	L	D	H max.	H	Item no.
3/4”	270	145	280	190	106 25 81
1”	270	155	280	190	106 25 82
1 1/4”	310	180	310	220	106 25 83
1 1/2”	330	200	340	230	106 25 84
2”	400	220	370	270	106 25 85
2 1/2”	505	260	410	290	106 25 86
3”	530	280	415	315	106 25 87
4”	580	320	520	380	106 25 88
5”	620	360	560	420	106 25 89
6”	730	400	600	460	106 25 90
8”	800	450	760	650	106 25 91

Correction factor for mixtures of water and glycol:

When antifreeze liquids are added to the heating water, the pressure loss given in the chart must be multiplied by the correction factor f.



Weight proportion of ethylene glycol [%]



Weight proportion of propylene glycol [%]

Measurement and regulation

Flow-meter "OV-DMC 2"
with memory and microprocessor
featuring numerous functions and a wide range of applications:
– flow rate indication (in l/s, m^3/h and gal/min)
– differential pressure measurement (indication in mbar, Pa or kPa)
– temperature measurement (indication °C or °F)
– presetting Arriving at the value of presetting based on the measured differential pressure, the given flow rate and the valve size.

The characteristic lines of all Oventrop double regulating and commissioning valves 3/8" – 12" are memorised in the "OV-DMC 2".

With the use of a respective kv value, it is possible to carry out all measurements on valves of other manufacturers.

For practical use of the "OV-DMC 2", special operating instructions are available.

Flow-meter "OV-DMC 2", item no. 106 91 77
with "Hydrocontrol F/FR/FS"

Electronic differential pressure gauge

Pocket size differential pressure gauge for practical use on site for checking Δp in conjunction with Oventrop double regulating and commissioning valves.

To measure static pressure, connection of one only sensor is necessary. Digital indication in kPa units.

Electronic differential pressure gauge, item no. 106 91 52
with "Hydrocontrol F"

Subject to technical modification without notice.

Product group 3
ti 83-1/10/MW
Edition 2007

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