



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

Double regulating and commissioning valves

- "Hydrocontrol F" cast iron, PN 16
- "Hydrocontrol FR" bronze, PN 16
- "Hydrocontrol FS" nodular cast iron, PN 25

Application:

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

The bronze double regulating and commissioning valves "Hydrocontrol FR" may also be used for cold salt water (30°C max.) and domestic water.

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 level 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 means of 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 DN 20 - DN 300:

Set 1 = 1 fill and drain ball valve	106 01 91
Measuring adapter	106 02 98
Extension for accessories sets (80 mm)	106 02 95
Extension for accessories sets (40 mm)	168 82 95
Stem extension (DN 20 to DN 50, 35 mm)	168 82 96
Stem extension (DN 65 to DN 150, 35 mm)	168 82 97



Double regulating and commissioning valve "Hydrocontrol F" (illustr. DN 65)



Double regulating and commissioning valve "Hydrocontrol FR" (illustr. DN 65)

**Double regulating and commissioning valves
DN 20 – DN 50
Measuring technic “classic”**

Tender specification:

Overtrop double regulating and commissioning valves with secured infinitely adjustable presetting controllable at any time by means 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	“Hydrocontrol F” Item no.	“Hydrocontrol FR” Item no.
DN 20	106 26 46	
DN 25	106 26 47	
DN 32	106 26 48	
DN 40	106 26 49	
DN 50	106 26 50	106 23 50

“Hydrocontrol F”

PN 16, -10°C to +150°C, PN 20 for cold water
Round flanges according to DIN EN 1092-2, PN 16
(corresponds to ISO 7005-2, PN 16)

Valve body made of cast iron (GG 25 EN-GJL-250 DIN EN 1561), bronze bonnet, stem and disc made of dezincification resistant brass. Disc with PTFE seal. Maintenance-free stem seal due to double EPDM O-ring.

With type approval certificate for shipbuilding.

“Hydrocontrol FR”

PN 16, -20°C to +150°C, PN 20 for cold water
Round flanges according to DIN EN 1092-2, PN 16
(corresponds to ISO 7005-2, PN 16)

Valve body, bonnet and disc made of bronze, stainless steel stem, disc with PTFE seal. Maintenance-free stem seal due to double EPDM O-ring.

With type approval certificate for shipbuilding.

Presetting DN 20 – DN 50:

- The value of presetting of the valve is adjusted by turning the handwheel.
 - 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.
 - 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.
- 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.

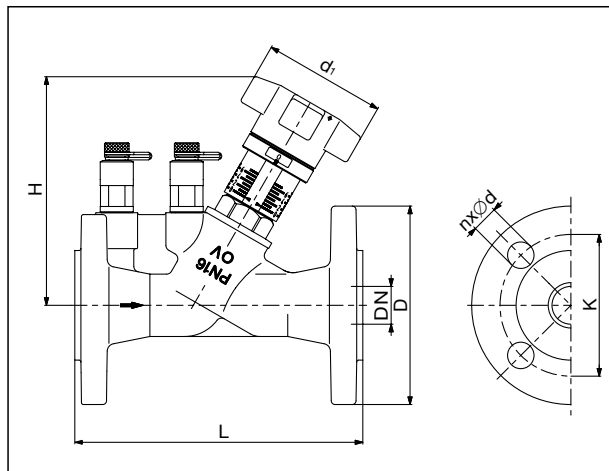
Protecting the presetting:

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

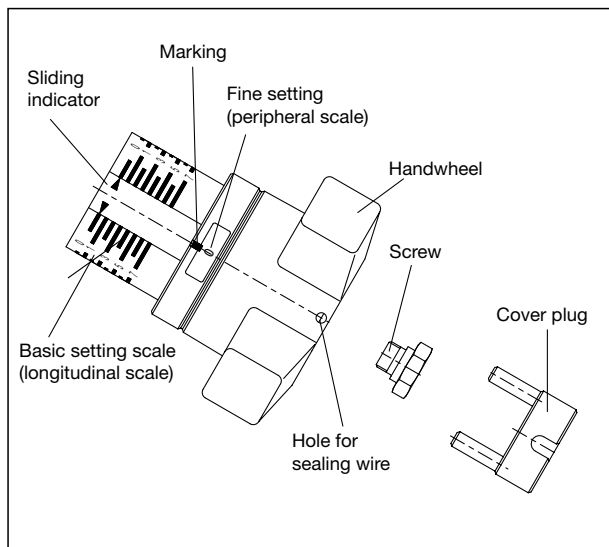
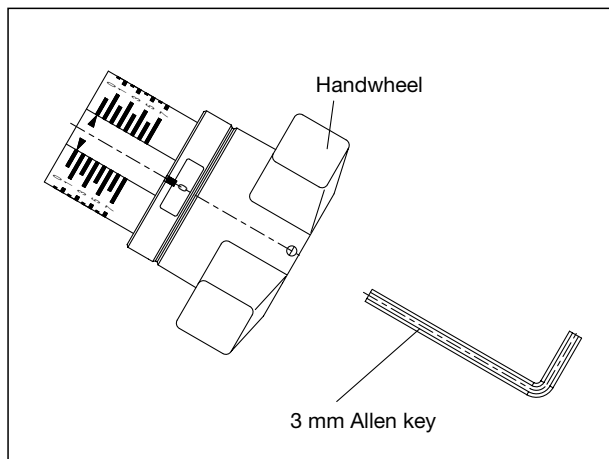
Locking the handwheel:

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.

Dimensions:



DN	L	D	Hmax.	di	K	n x Ød
20	150	105	118	70	75	4 x 14
25	160	115	118	70	85	4 x 14
32	180	140	136	70	100	4 x 19
40	200	150	136	70	110	4 x 19
50	230	165	145	70	125	4 x 19



Double regulating and commissioning valves

DN 65 – DN 150

Measuring technic “classic”

Tender specification:

Oventrop double regulating and commissioning valves with secured, infinitely adjustable presetting controllable at any time by means 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” “Hydrocontrol FR” “Hydrocontrol FS”

Size	Item no.	Item no.	Item no.
DN 65	106 26 51	106 23 51	106 24 51
DN 80	106 26 52	106 23 52	106 24 52
DN 100	106 26 53	106 23 53	106 24 53
DN 125	106 26 54	106 23 54	106 24 54
DN 150	106 26 55	106 23 55	106 24 55

“Hydrocontrol F”

PN 16, -10°C to +150°C, PN 20 for cold water

Round flanges according to DIN EN 1092-2, PN 16 (corresponds to ISO 7005-2, PN 16)

Valve body made of cast iron (GG 25 EN-GJL-250 DIN EN 1561), bronze bonnet and disc, stem made of dezincification resistant brass. Disc with PTFE seal. Maintenance-free stem seal due to double EPDM O-ring.

“Hydrocontrol FR”

PN 16, -20°C to +150°C, PN 20 for cold water

Round flanges according to DIN EN 1092-2, PN 16 (corresponds to ISO 7005-2, PN 16)

Valve body, bonnet and disc made of bronze, stainless steel stem, disc with PTFE seal. Maintenance-free stem seal due to double EPDM O-ring.

“Hydrocontrol FS”

PN 25, -20°C to +150°C

Round flanges according to DIN EN 1092-2, PN 25 (corresponds to ISO 7005-2, PN 25)

Valve body made of nodular cast iron (GGG 50/EN-GJS-500-7 DIN EN 1563), bronze bonnet and disc, stem made of dezincification resistant brass. Disc with PTFE seal. Maintenance-free stem seal due to double EPDM O-ring.

Presetting DN 65 – DN 150:

- The value of presetting of the valve is adjusted by turning the handwheel.
 - 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.
 - 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.
- Remove cover plug by introducing a screwdriver in the slot and gently prising it off.
- Undo screw by means of an 8 mm Allen key.
- 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.
- Replace and tighten screw by means of an 8 mm Allen key.
- Refit the cover plug.

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.

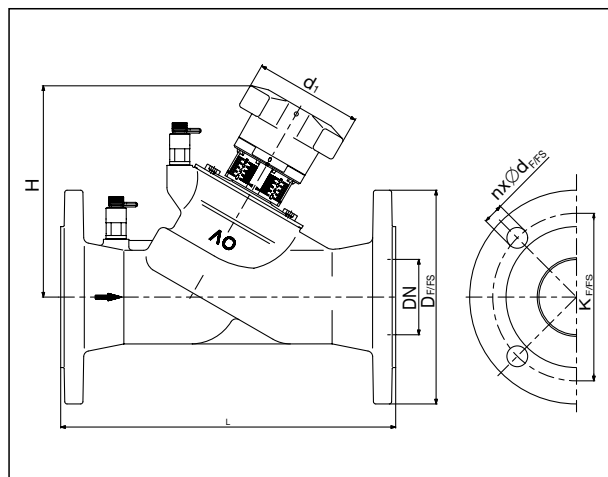
Protecting the setting:

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

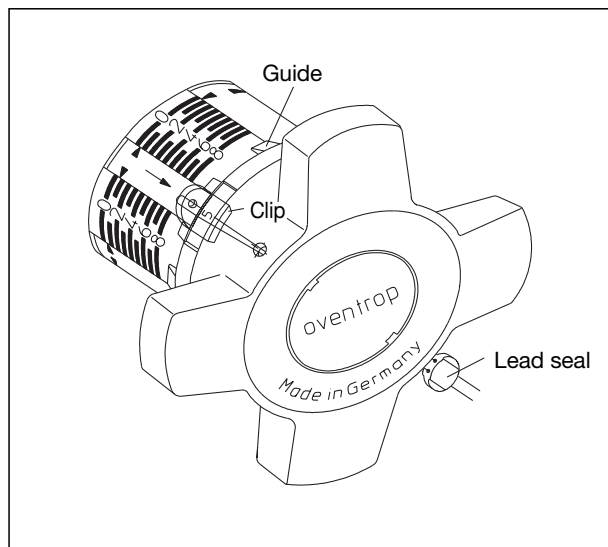
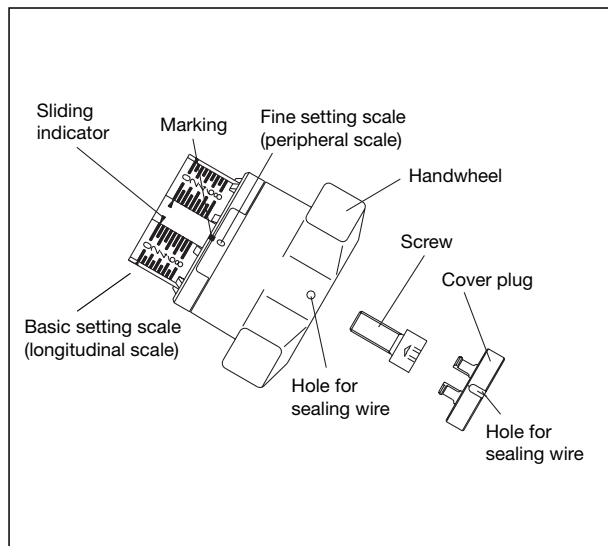
Locking the handwheel:

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:



DN	L	D _F	D _{FS}	H _{max.}	d ₁	K _F	K _{FS}	n x Ø d _F	n x Ø d _{FS}
65	290	185	185	188	110	145	145	4 x 19	8 x 19
80	310	200	200	203	110	160	160	8 x 19	8 x 19
100	350	220	235	240	160	180	190	8 x 19	8 x 23
125	400	250	270	283	160	210	220	8 x 19	8 x 28
150	480	285	300	285	160	240	250	8 x 23	8 x 28



**Double regulating and commissioning valves
DN 200 – DN 300
Measuring technic “classic”**

Tender specification:

Oventrop double regulating and commissioning valves with secured, infinitely adjustable presetting controllable at any time by means 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” “Hydrocontrol FR” “Hydrocontrol FS”

Size	Item no.	Item no.	Item no.
DN 200	106 26 56	106 23 56	106 24 56
DN 250	106 26 57		106 24 57
DN 300	106 26 58		106 24 58

“Hydrocontrol F”

PN 16, -10°C to +150°C, PN 20 for cold water
Round flanges according to DIN EN 1092-2, PN 16
(corresponds to ISO 7005-2, PN 16)

Valve body made of cast iron (GG 25 EN-GJL-250 DIN EN 1561), bonnet made of nodular cast iron (GGG 40 EN-GJS-400 15 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.

“Hydrocontrol FR”

PN 16, -20°C to +150°C, PN 20 for cold water
Round flanges according to DIN EN 1092-2, PN 16
(corresponds to ISO 7005-2, PN 16)

Valve body, bonnet and disc made of bronze, stainless steel stem. Disc with PTFE seal. Maintenance-free stem seal due to double EPDM O-ring.

“Hydrocontrol FS”

PN 25, -20°C to +150°C
Round flanges according to DIN EN 1092-2, PN 25
(corresponds to ISO 7005-2, PN 25)

Valve body made of nodular cast iron (GGG 50/EN-GJS-500-7 DIN EN 1563), bonnet made of nodular cast iron (GGG40/EN-GJS-400-15 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 DN 200 – DN 300:

- The value of presetting of the valve is adjusted by turning the handwheel.
 - The complete 12 turns of the handwheel are shown by the outer display.
 - 1/10th of a turn of the handwheel is shown by the outer display.
- Remove cover plug by introducing a screwdriver in the slot and gently prising it off.
- 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.
- Refit the cover plug.

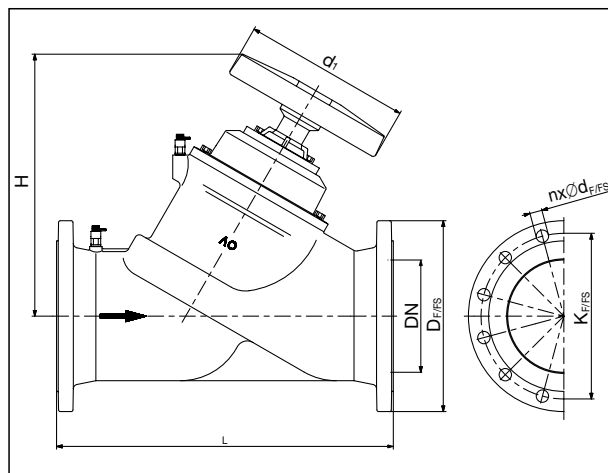
Protecting the setting:

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

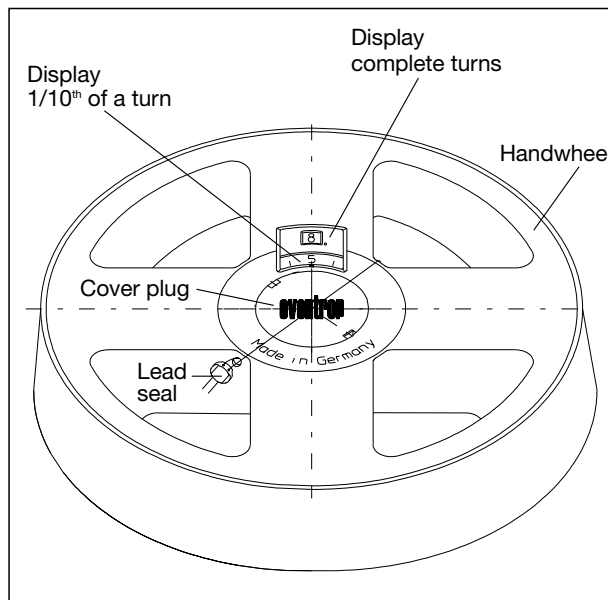
Locking the handwheel:

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.

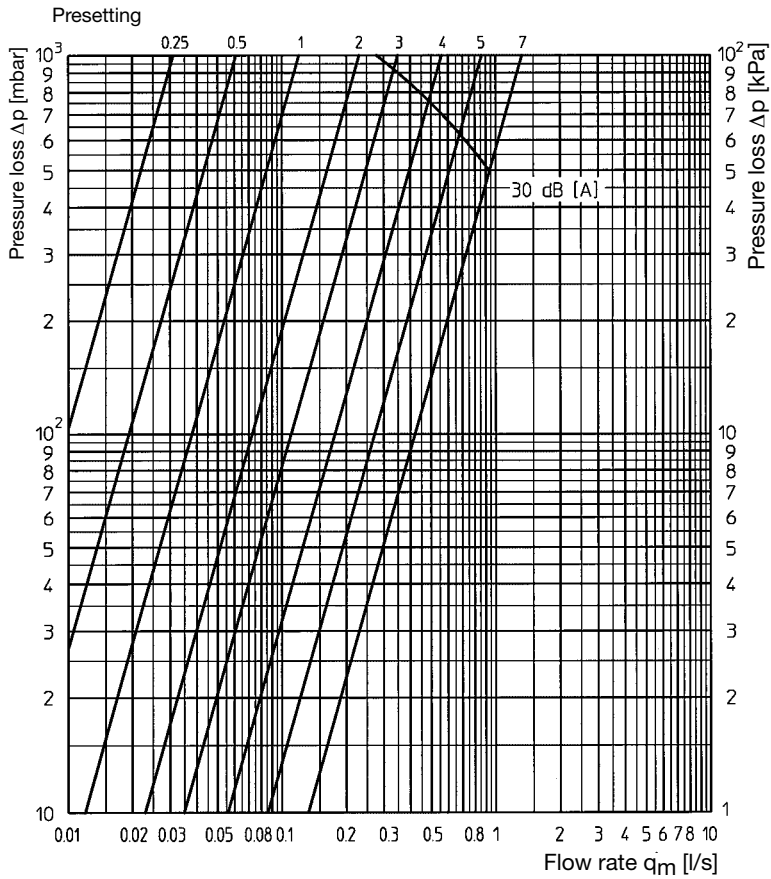
Dimensions:



DN	L	D _F	D _{FS}	H _{max.}	d ₁	K _F	K _{FS}	n x Ø d _F	n x Ø d _{FS}
200	600	340	360	467	300	295	310	12 x 23	12 x 28
250	730	405	425	480	300	355	370	12 x 28	12 x 31
300	850	460	485	515	300	410	430	12 x 28	16 x 31



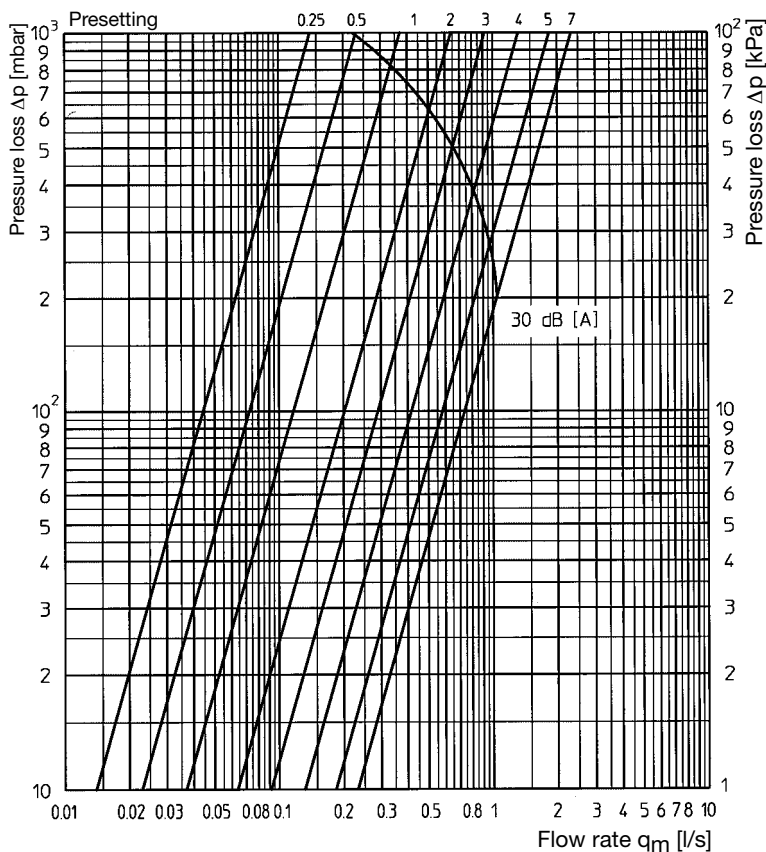
DN 20



Pre-setting	k_V -values	Zeta-values	Pre-setting	k_V -values	Zeta-values
0.25	0.11	25698			
0.5	0.22	6424			
0.75	0.33	2855			
1.	0.42	1763	5.	3.09	33
1.1	0.48	1350	5.1	3.19	31
1.2	0.52	1150	5.2	3.30	29
1.3	0.55	1028	5.3	3.41	27
1.4	0.59	893	5.4	3.52	25
1.5	0.63	783	5.5	3.63	24
1.6	0.67	693	5.6	3.74	22
1.7	0.70	635	5.7	3.84	21
1.8	0.75	553	5.8	3.95	20
1.9	0.79	498	5.9	4.06	19
2.	0.83	451	6.	4.17	18
2.1	0.87	411	6.1	4.27	17
2.2	0.91	375	6.2	4.35	16
2.3	0.95	345	6.3	4.43	16
2.4	0.99	317	6.4	4.50	15
2.5	1.04	287	6.5	4.56	15
2.6	1.08	267	6.6	4.61	15
2.7	1.12	248	6.7	4.66	14
2.8	1.16	231	6.8	4.70	14
2.9	1.20	216	6.9	4.74	14
3.	1.25	199	7.	4.77	14
3.1	1.30	184			
3.2	1.35	171			
3.3	1.41	156			
3.4	1.47	144			
3.5	1.54	131			
3.6	1.61	120			
3.7	1.70	108			
3.8	1.79	97			
3.9	1.89	87			
4.	2.00	78			
4.1	2.11	70			
4.2	2.22	63			
4.3	2.33	57			
4.4	2.43	53			
4.5	2.54	48			
4.6	2.65	44			
4.7	2.76	41			
4.8	2.87	38			
4.9	2.98	35			

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

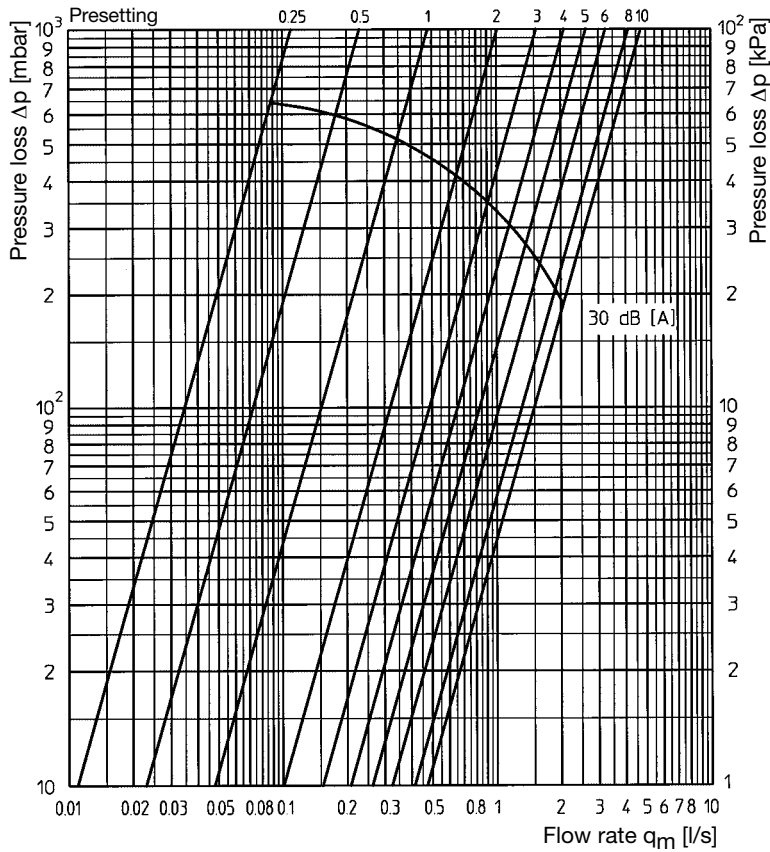
DN 25



Pre-setting	k_V -values	Zeta-values	Pre-setting	k_V -values	Zeta-values
0.25	0.51	2325			
0.5	0.83	878			
0.75	1.08	519			
1.	1.33	342	5.	6.64	14
1.1	1.43	296	5.1	6.85	13
1.2	1.53	258	5.2	7.03	12
1.3	1.63	228	5.3	7.18	12
1.4	1.73	202	5.4	7.32	11
1.5	1.83	181	5.5	7.44	11
1.6	1.94	161	5.6	7.55	11
1.7	2.04	145	5.7	7.65	10
1.8	2.14	132	5.8	7.74	10
1.9	2.24	121	5.9	7.82	10
2.	2.34	110	6.	7.90	9.9
2.1	2.44	102	6.1	7.97	9.5
2.2	2.53	94	6.2	8.03	9.4
2.3	2.63	87	6.3	8.09	9.2
2.4	2.73	81	6.4	8.15	9.1
2.5	2.83	76	6.5	8.20	9.0
2.6	2.93	70	6.6	8.24	8.9
2.7	3.03	66	6.7	8.28	8.8
2.8	3.12	62	6.8	8.32	8.7
2.9	3.22	58	6.9	8.35	8.7
3.	3.32	55	7.	8.38	8.6
3.1	3.45	51			
3.2	3.58	47			
3.3	3.70	44			
3.4	3.84	41			
3.5	3.98	38			
3.6	4.13	35			
3.7	4.27	33			
3.8	4.42	31			
3.9	4.58	29			
4.	4.74	27			
4.1	4.90	25			
4.2	5.07	24			
4.3	5.24	22			
4.4	5.42	21			
4.5	5.60	19			
4.6	5.80	18			
4.7	6.00	17			
4.8	6.20	16			
4.9	6.42	15			

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

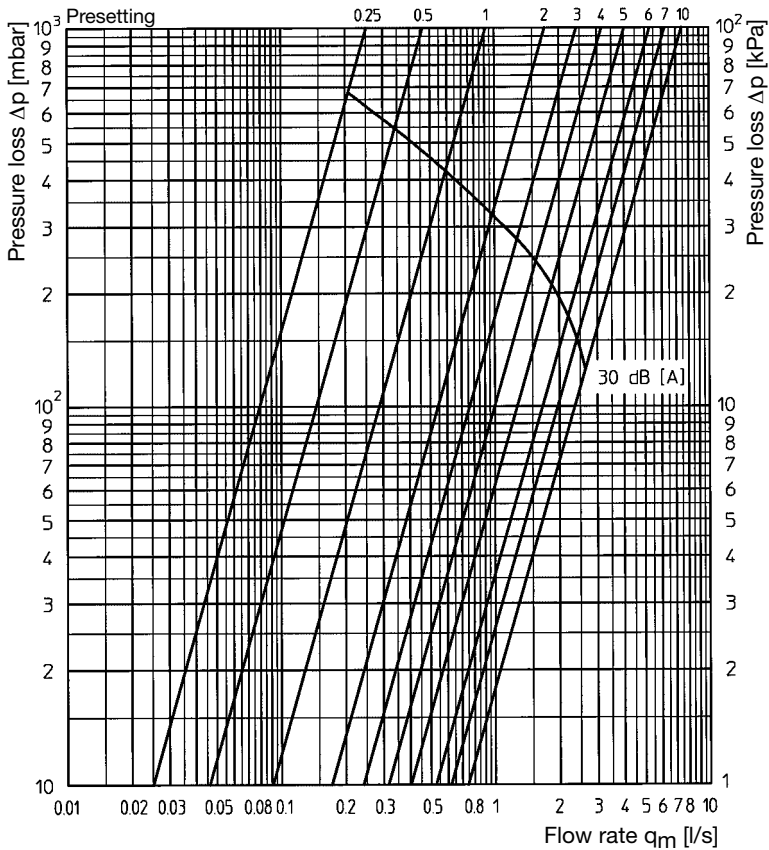
DN 32



Pre-setting	k_V -values	Zeta-values	Pre-setting	k_V -values	Zeta-values
			5.	9.45	21
			5.1	9.68	20
			5.2	9.92	19
			5.3	10.15	18
			5.4	10.35	17
			5.5	10.60	16
			5.6	10.83	16
			5.7	11.05	15
			5.8	11.27	15
			5.9	11.48	14
0.25	0.40	11566	6.	11.70	14
0.5	0.83	2686	6.1	11.96	13
0.75	1.25	1184	6.2	12.20	12
1.	1.73	618	6.3	12.41	12
1.1	1.92	502	6.4	12.62	12
1.2	2.11	416	6.5	12.81	11
1.3	2.30	350	6.6	13.00	11
1.4	2.49	298	6.7	13.17	11
1.5	2.68	258	6.8	13.33	10
1.6	2.87	225	6.9	13.49	10
1.7	3.06	198	7.	13.65	9.9
1.8	3.25	175	7.1	13.78	9.7
1.9	3.44	156	7.2	13.92	9.6
2.	3.63	140	7.3	14.06	9.4
2.1	3.82	127	7.4	14.18	9.2
2.2	4.01	115	7.5	14.30	9.0
2.3	4.20	105	7.6	14.42	8.9
2.4	4.39	96	7.7	14.54	8.8
2.5	4.58	88	7.8	14.65	8.6
2.6	4.77	81	7.9	14.76	8.5
2.7	4.96	75	8.	14.86	8.4
2.8	5.15	70	8.1	14.97	8.3
2.9	5.34	65	8.2	15.10	8.1
3.	5.53	61	8.3	15.20	8.0
3.1	5.73	56	8.4	15.31	7.9
3.2	5.92	53	8.5	15.42	7.8
3.3	6.12	49	8.6	15.53	7.7
3.4	6.31	46	8.7	15.64	7.6
3.5	6.51	44	8.8	15.75	7.5
3.6	6.71	41	8.9	15.86	7.4
3.7	6.90	39	9.	15.97	7.3
3.8	7.10	37	9.1	16.08	7.2
3.9	7.30	35	9.2	16.20	7.1
4.	7.46	33	9.3	16.30	7.0
4.1	7.69	31	9.4	16.41	6.9
4.2	7.88	30	9.5	16.51	6.8
4.3	8.08	28	9.6	16.62	6.7
4.4	8.27	27	9.7	16.75	6.6
4.5	8.47	26	9.8	16.86	6.5
4.6	8.67	25	9.9	16.97	6.4
4.7	8.86	24	10.	17.08	6.3
4.8	9.06	23			
4.9	9.25	22			

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

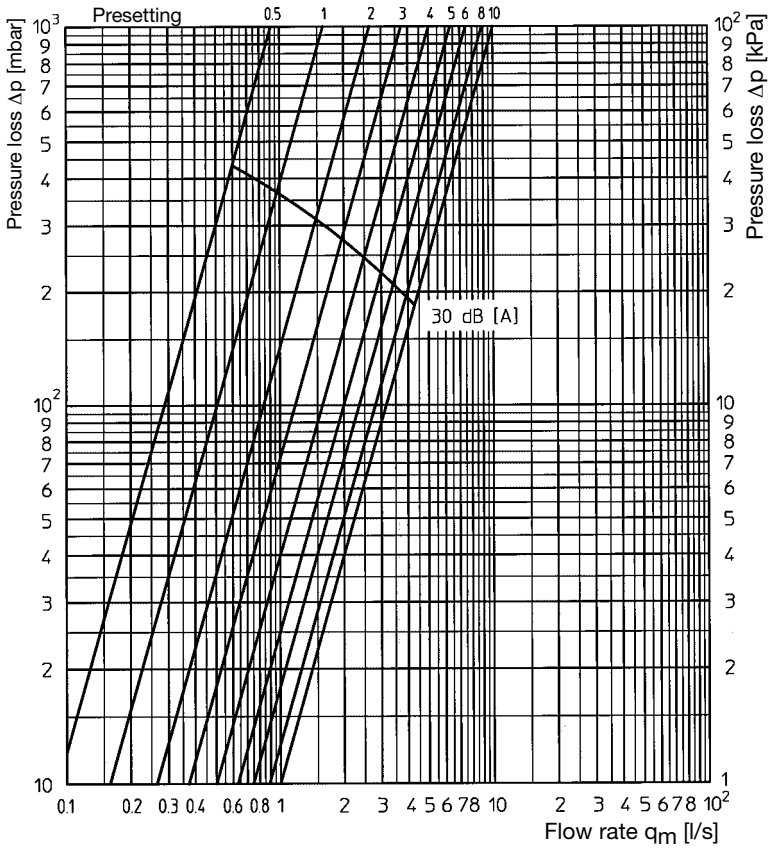
DN 40



Pre-setting	k_V -values	Zeta-values	Pre-setting	k_V -values	Zeta-values
			5.	14.51	23
			5.1	14.91	22
			5.2	15.32	21
			5.3	15.75	20
			5.4	16.14	19
			5.5	16.62	19
			5.6	17.10	17
			5.7	17.58	16
			5.8	18.07	15
			5.9	18.59	14
0.25	0.89	6162	6.	19.13	13
0.5	1.67	1750	6.1	19.53	13
0.75	2.49	787	6.2	19.90	12
1.	3.27	456	6.3	20.25	12
1.1	3.58	381	6.4	20.59	12
1.2	3.85	329	6.5	20.90	11
1.3	4.18	279	6.6	21.21	11
1.4	4.48	243	6.7	21.50	11
1.5	4.77	215	6.8	21.74	10
1.6	5.06	191	6.9	22.04	10
1.7	5.35	171	7.	22.30	9.8
1.8	5.64	153	7.1	22.55	9.6
1.9	5.92	139	7.2	22.79	9.4
2.	6.20	127	7.3	23.03	9.2
2.1	6.43	118	7.4	23.26	9.0
2.2	6.67	110	7.5	23.47	8.9
2.3	6.90	103	7.6	23.70	8.7
2.4	7.15	95	7.7	23.91	8.5
2.5	7.39	89	7.8	24.11	8.4
2.6	7.64	84	7.9	24.31	8.3
2.7	7.89	78	8.	24.51	8.1
2.8	8.14	74	8.1	24.64	8.0
2.9	8.39	69	8.2	24.78	7.9
3.	8.69	65	8.3	24.90	7.9
3.1	8.91	61	8.4	25.03	7.8
3.2	9.17	58	8.5	25.16	7.7
3.3	9.43	55	8.6	25.29	7.6
3.4	9.69	52	8.7	25.41	7.6
3.5	9.97	49	8.8	25.53	7.5
3.6	10.25	46	8.9	25.65	7.4
3.7	10.52	44	9.	25.77	7.3
3.8	10.80	42	9.1	25.89	7.3
3.9	11.09	40	9.2	26.00	7.2
4.	11.38	38	9.3	26.12	7.2
4.1	11.67	36	9.4	26.23	7.1
4.2	11.97	34	9.5	26.34	7.0
4.3	12.27	32	9.6	26.45	7.0
4.4	12.58	31	9.7	26.56	6.9
4.5	12.89	29	9.8	26.67	6.9
4.6	13.20	28	9.9	26.77	6.8
4.7	13.52	27	10.	26.88	6.8
4.8	13.84	25			
4.9	14.17	24			

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

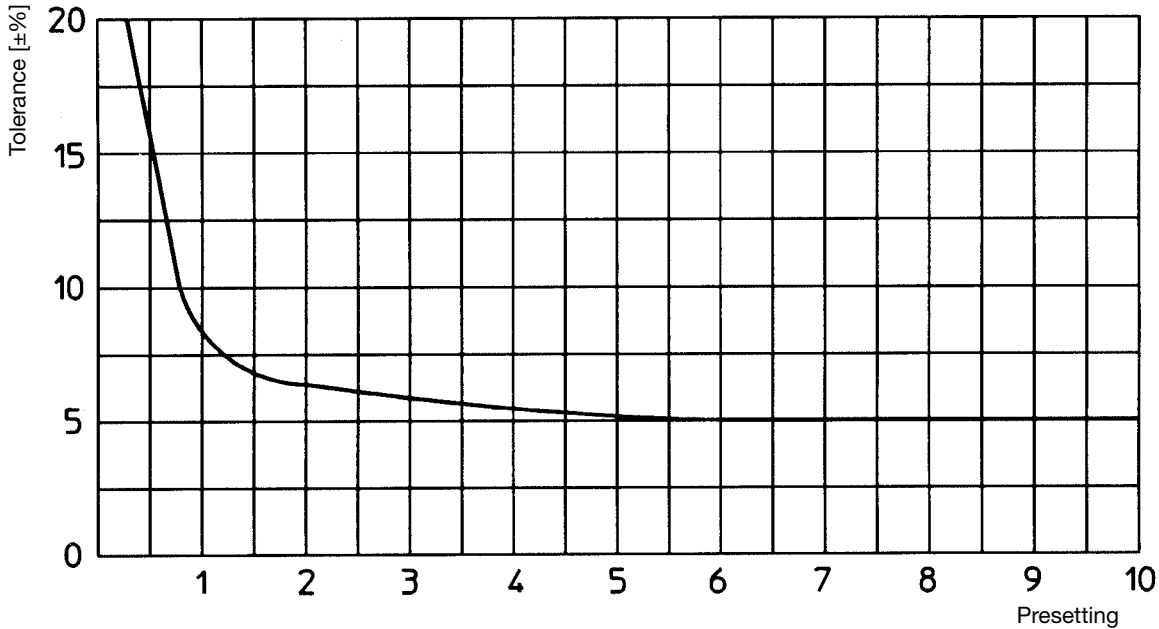
DN 50



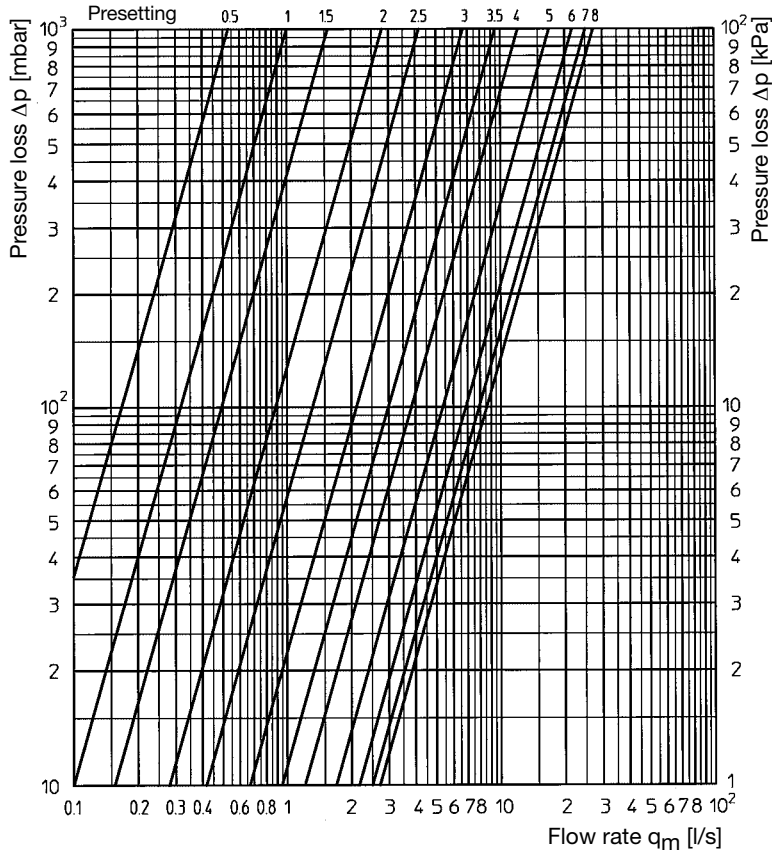
Pre-setting	k_V -values	Zeta-values	Pre-setting	k_V -values	Zeta-values
			5	22.70	24
			5.1	23.12	24
			5.2	23.54	23
			5.3	23.95	22
			5.4	24.37	21
			5.5	24.80	21
			5.6	25.21	20
			5.7	25.63	19
			5.8	26.04	19
			5.9	26.46	18
			6	26.88	17
			6.1	27.18	17
			6.2	27.48	17
			6.3	27.75	16
			6.4	28.06	16
			6.5	28.31	16
			6.6	28.61	16
			6.7	28.88	15
			6.8	29.15	15
			6.9	29.41	15
			7	29.68	14
			7.1	29.91	14
			7.2	30.15	14
			7.3	30.40	14
			7.4	30.64	13
			7.5	30.88	13
			7.6	31.11	13
			7.7	31.33	13
			7.8	31.57	13
			7.9	31.79	12
			8	32.00	12
			8.1	32.22	12
			8.2	32.44	12
			8.3	32.65	12
			8.4	32.86	12
			8.5	33.06	12
			8.6	33.27	11
			8.7	33.47	11
			8.8	33.67	11
			8.9	33.87	11
			9	34.06	11
			9.1	34.25	11
			9.2	34.44	11
			9.3	34.69	10
			9.4	34.82	10
			9.5	35.00	10
			9.6	35.20	10
			9.7	35.40	10
			9.8	35.60	10
			9.9	35.80	10
			10	36.00	9.7

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

Flow tolerances depending on the presetting for DN 20 – DN 50



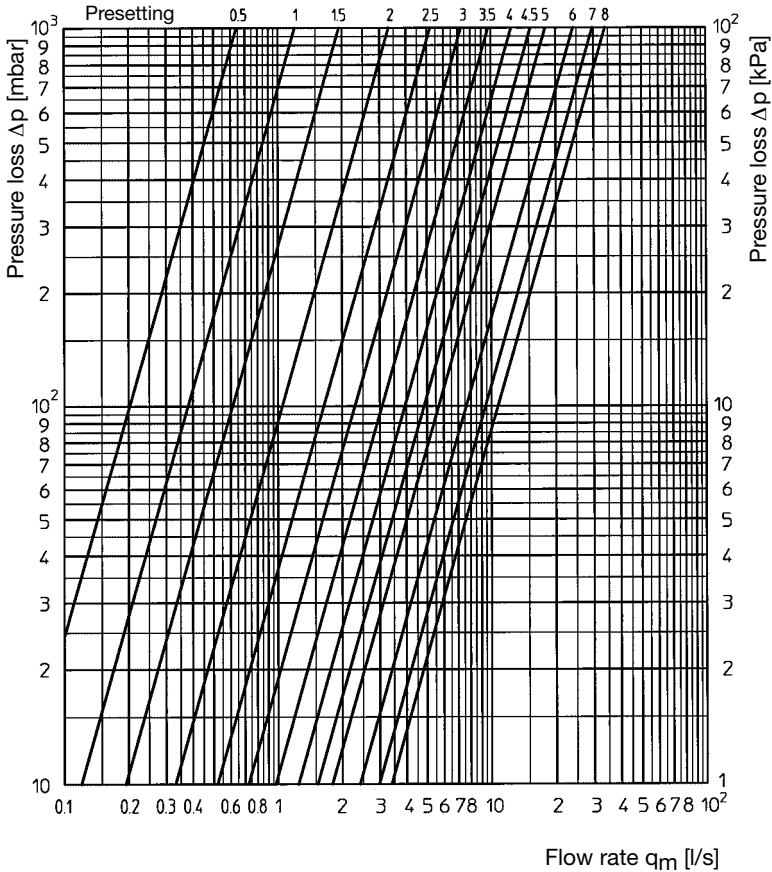
DN 65



Pre-setting	k_V -values	Zeta-values	Pre-setting	k_V -values	Zeta-values
0.5	1.90	10817			
1.	3.60	3013	5.	61.00	10.5
1.1	4.12	2300	5.1	63.21	9.8
1.2	4.49	1937	5.2	64.93	9.3
1.3	4.86	1653	5.3	66.63	8.8
1.4	5.23	1428	5.4	68.32	8.4
1.5	5.60	1245	5.5	70.00	8.0
1.6	6.43	945	5.6	71.69	7.6
1.7	7.29	735	5.7	73.33	7.3
1.8	8.17	585	5.8	74.93	7.0
1.9	9.07	475	5.9	76.48	6.7
2.	10.00	391	6.	78.00	6.4
2.1	10.95	326	6.1	79.48	6.2
2.2	11.91	275	6.2	80.91	6.0
2.3	12.92	234	6.3	82.31	5.8
2.4	13.94	201	6.4	83.67	5.6
2.5	15.00	174	6.5	85.00	5.4
2.6	16.66	141	6.6	86.12	5.3
2.7	18.38	116	6.7	87.20	5.1
2.8	20.14	96	6.8	88.23	5.0
2.9	21.95	81	6.9	89.23	4.9
3.	24.00	68	7.	90.00	4.8
3.1	25.73	59	7.1	91.13	4.7
3.2	27.70	51	7.2	92.02	4.6
3.3	29.74	44	7.3	92.89	4.5
3.4	31.84	39	7.4	93.71	4.4
3.5	34.00	34	7.5	94.50	4.3
3.6	35.93	30	7.6	95.27	4.3
3.7	37.84	27	7.7	96.00	4.2
3.8	39.74	25	7.8	96.70	4.2
3.9	41.63	23	7.9	97.36	4.1
4.	43.50	21	8.	98.00	4.0
4.1	45.36	19			
4.2	47.20	18			
4.3	49.03	16			
4.4	50.85	15			
4.5	52.00	14			
4.6	54.45	13			
4.7	56.23	12			
4.8	58.00	11.6			
4.9	59.74	10.9			

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

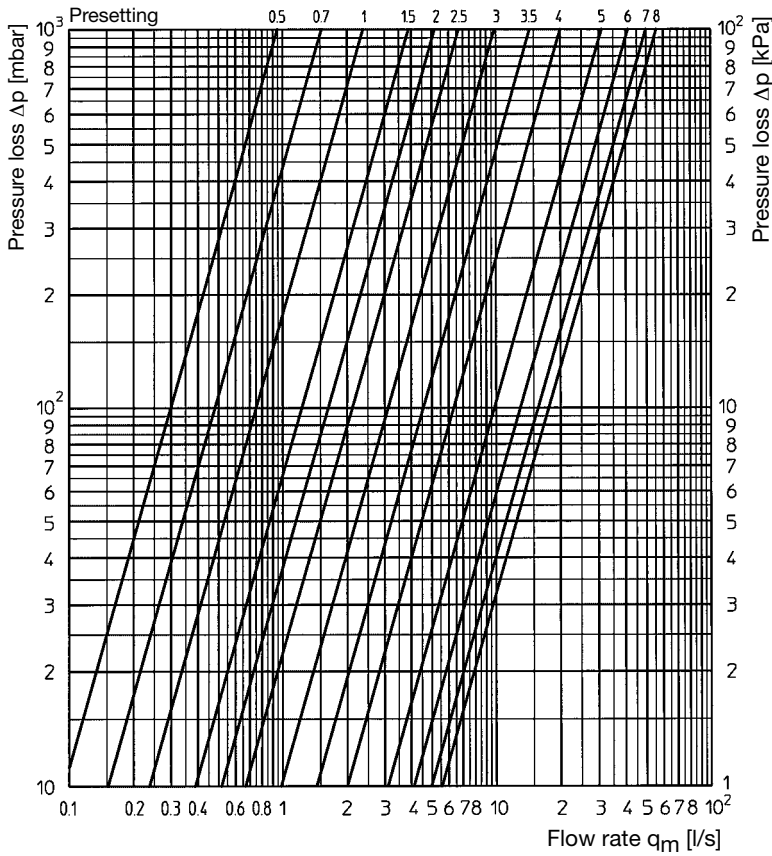
DN 80



Pre-setting	k_V -values	Zeta-values	Pre-setting	k_V -values	Zeta-values
0.5	2.30	14001			
1.	4.40	3826	5.	64.60	18.0
1.1	4.74	3297	5.1	66.98	16.5
1.2	5.17	2771	5.2	69.32	15.4
1.3	5.67	2304	5.3	71.63	14.4
1.4	6.28	1878	5.4	73.90	13.5
1.5	7.00	1512	5.5	75.45	13.0
1.6	7.89	1190	5.6	78.37	12.1
1.7	8.82	952	5.7	80.56	11.4
1.8	9.78	774	5.8	82.72	10.8
1.9	10.79	636	5.9	84.85	10.3
2.	11.85	527	6.	87.00	9.8
2.1	12.95	442	6.1	89.04	9.3
2.2	14.11	372	6.2	91.00	8.9
2.3	15.33	315	6.3	93.13	8.5
2.4	16.61	268	6.4	95.14	8.2
2.5	18.65	213	6.5	97.55	7.8
2.6	19.39	197	6.6	99.10	7.5
2.7	20.90	170	6.7	101.04	7.3
2.8	22.51	146	6.8	102.96	7.0
2.9	24.24	126	6.9	104.87	6.7
3.	26.10	109	7.	106.75	6.5
3.1	27.85	95	7.1	108.39	6.3
3.2	29.61	84	7.2	110.00	6.1
3.3	31.39	75	7.3	111.60	5.9
3.4	33.19	67	7.4	113.00	5.8
3.5	35.00	60	7.5	114.50	5.6
3.6	36.83	55	7.6	116.13	5.5
3.7	38.68	50	7.7	117.78	5.3
3.8	40.55	45	7.8	119.27	5.2
3.9	42.43	41	7.9	120.74	5.1
4.	44.75	37	8.	122.20	5.0
4.1	46.27	35			
4.2	48.21	32			
4.3	50.19	29			
4.4	52.18	27			
4.5	55.20	24			
4.6	56.22	23			
4.7	58.28	22			
4.8	60.36	20			
4.9	62.47	19			

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

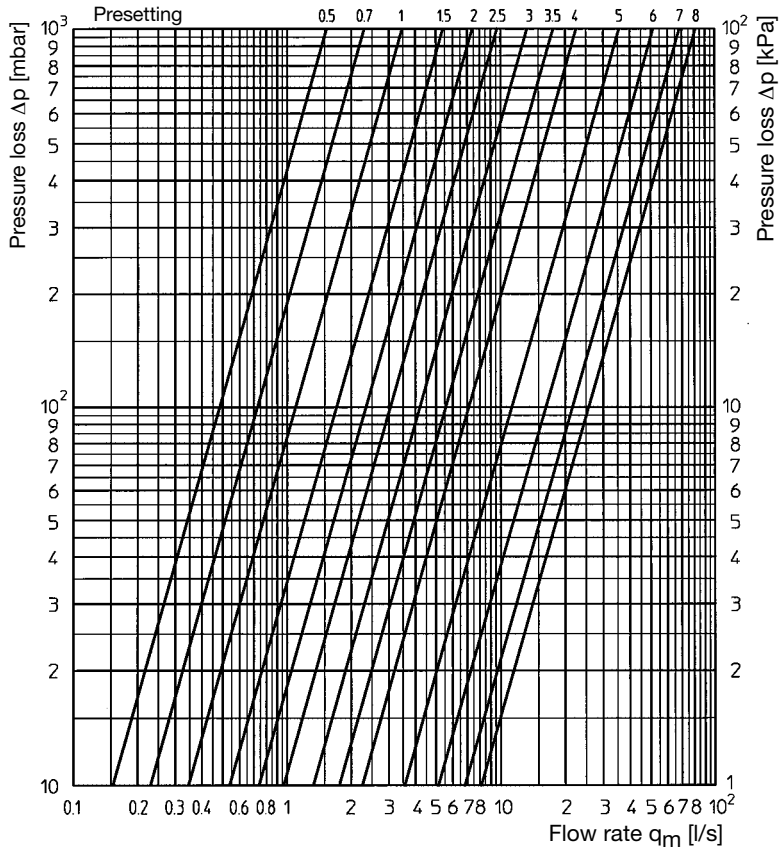
DN 100



Pre-setting	k_V -values	Zeta-values	Pre-setting	k_V -values	Zeta-values
0.5	3.40	14279			
0.7	5.46	5537			
1.	8.55	2258	5.	112.00	13
1.1	9.58	1799	5.1	117.46	12
1.2	10.61	1466	5.2	121.17	11
1.3	11.64	1218	5.3	124.79	10.6
1.4	12.67	1028	5.4	127.52	10.2
1.5	14.00	842	5.5	132.00	9.5
1.6	14.73	761	5.6	135.16	9.0
1.7	15.76	665	5.7	138.47	8.6
1.8	16.79	586	5.8	141.71	8.2
1.9	17.82	520	5.9	144.89	7.9
2.	18.50	482	6.	148.00	7.5
2.1	19.88	418	6.1	151.94	7.1
2.2	20.91	378	6.2	155.63	6.8
2.3	21.94	343	6.3	159.10	6.5
2.4	22.97	313	6.4	162.38	6.3
2.5	24.00	287	6.5	164.03	6.1
2.6	26.00	244	6.6	168.44	5.8
2.7	28.13	209	6.7	171.26	5.6
2.8	30.40	179	6.8	173.95	5.5
2.9	32.81	153	6.9	176.53	5.3
3.	35.40	132	7.	179.01	5.2
3.1	38.18	113	7.1	181.37	5.0
3.2	41.17	97	7.2	183.65	4.9
3.3	44.44	84	7.3	185.85	4.8
3.4	48.02	72	7.4	187.96	4.7
3.5	52.00	61	7.5	190.04	4.6
3.6	55.93	53	7.6	192.37	4.5
3.7	59.89	46	7.7	194.66	4.4
3.8	63.89	40	7.8	196.85	4.3
3.9	67.92	36	7.9	198.96	4.2
4.	72.00	32	8.	201.00	4.1
4.1	76.11	29			
4.2	80.27	26			
4.3	84.47	23			
4.4	88.71	21			
4.5	93.00	19			
4.6	97.37	17			
4.7	101.62	16			
4.8	105.74	15			
4.9	109.75	14			

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

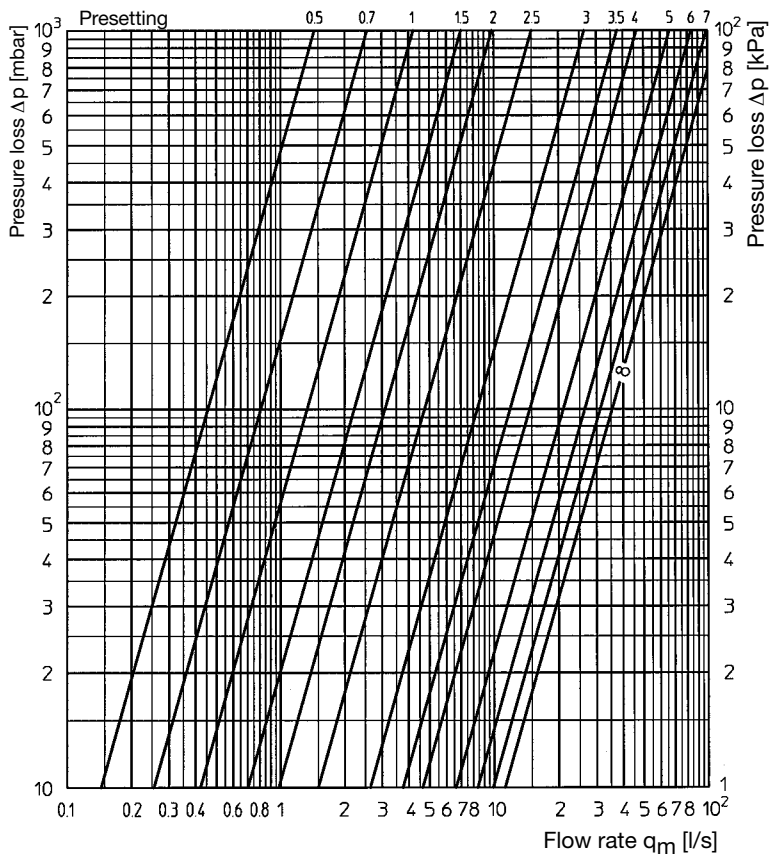
DN 125



Pre-setting	k_V -values	Zeta-values	Pre-setting	k_V -values	Zeta-values
0.5	5.50	12904			
0.7	8.28	5694			
1.	12.45	2518	5.	128.25	24
1.1	13.84	2038	5.1	133.77	22
1.2	15.23	1683	5.2	139.54	20
1.3	16.62	1413	5.3	145.60	18
1.4	18.01	1203	5.4	151.96	17
1.5	19.40	1037	5.5	158.70	15
1.6	20.94	890	5.6	164.10	14
1.7	22.47	773	5.7	169.60	13.5
1.8	24.01	677	5.8	175.21	12.7
1.9	25.54	598	5.9	180.94	11.9
2.	26.60	552	6.	185.30	11.4
2.1	28.61	477	6.1	192.75	10.5
2.2	30.15	429	6.2	198.85	9.9
2.3	31.68	389	6.3	205.10	9.3
2.4	33.22	354	6.4	211.50	8.7
2.5	34.75	323	6.5	218.05	8.2
2.6	37.18	282	6.6	223.37	7.8
2.7	39.69	248	6.7	228.64	7.5
2.8	42.29	218	6.8	233.89	7.1
2.9	44.97	193	6.9	239.03	6.8
3.	47.75	171	7.	244.15	6.5
3.1	50.63	152	7.1	249.23	6.3
3.2	53.62	136	7.2	254.26	6.0
3.3	56.73	121	7.3	259.25	5.8
3.4	60.00	108	7.4	264.19	5.6
3.5	63.35	97	7.5	268.15	5.4
3.6	66.62	88	7.6	273.95	5.2
3.7	70.00	80	7.7	278.77	5.0
3.8	73.53	72	7.8	283.55	4.9
3.9	77.21	65	7.9	287.96	4.7
4.	81.05	59	8.	293.00	4.5
4.1	85.07	54			
4.2	89.30	49			
4.3	93.77	44			
4.4	98.50	40			
4.5	103.55	36			
4.6	108.16	33			
4.7	112.92	31			
4.8	117.84	28			
4.9	122.95	26			

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

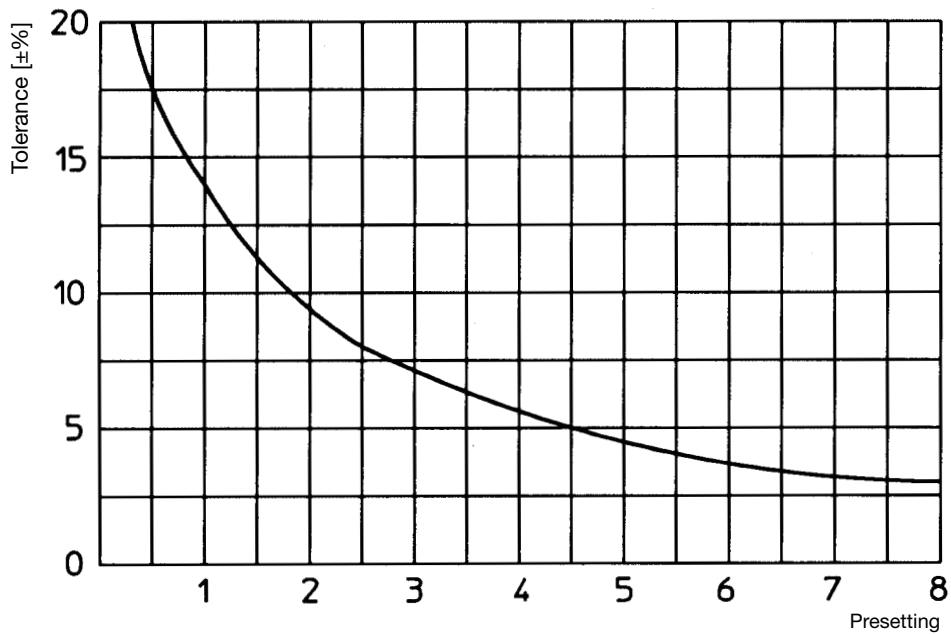
DN 150



Pre-setting	k _v -values	Zeta-values	Pre-setting	k _v -values	Zeta-values
0.5	5.20	29934			
0.7	9.21	9542			
1.	15.22	3494	5.	238.91	14.0
1.1	17.22	2730	5.1	244.72	13.5
1.2	19.23	2189	5.2	251.20	12.8
1.3	21.23	1796	5.3	257.60	12.2
1.4	23.24	1499	5.4	263.90	11.6
1.5	25.26	1269	5.5	272.40	10.9
1.6	27.24	1091	5.6	276.24	10.6
1.7	29.50	930	5.7	282.30	10.2
1.8	31.25	829	5.8	288.27	9.7
1.9	33.26	732	5.9	294.17	9.4
2.	35.26	651	6.	300.40	9.0
2.1	37.13	587	6.1	305.76	8.8
2.2	39.41	521	6.2	311.45	8.4
2.3	42.30	452	6.3	317.08	8.1
2.4	46.25	378	6.4	322.07	7.8
2.5	53.92	278	6.5	326.70	7.6
2.6	61.00	218	6.6	333.58	7.3
2.7	68.55	172	6.7	338.34	7.1
2.8	76.64	138	6.8	344.29	6.8
2.9	85.40	111	6.9	349.56	6.6
3.	95.02	90	7.	355.60	6.4
3.1	105.51	73	7.1	360.00	6.2
3.2	114.45	62	7.2	365.06	6.1
3.3	122.36	54	7.3	370.13	5.9
3.4	129.52	48	7.4	375.15	5.8
3.5	135.45	44	7.5	382.00	5.6
3.6	142.21	40	7.6	385.04	5.5
3.7	147.41	37	7.7	389.33	5.3
3.8	153.33	34	7.8	394.20	5.2
3.9	160.00	32	7.9	399.54	5.1
4.	167.12	29	8.	404.30	5.0
4.1	174.48	27			
4.2	181.76	25			
4.3	189.05	23			
4.4	196.34	21			
4.5	203.65	20			
4.6	210.78	18			
4.7	217.79	17			
4.8	224.14	16			
4.9	231.46	15			

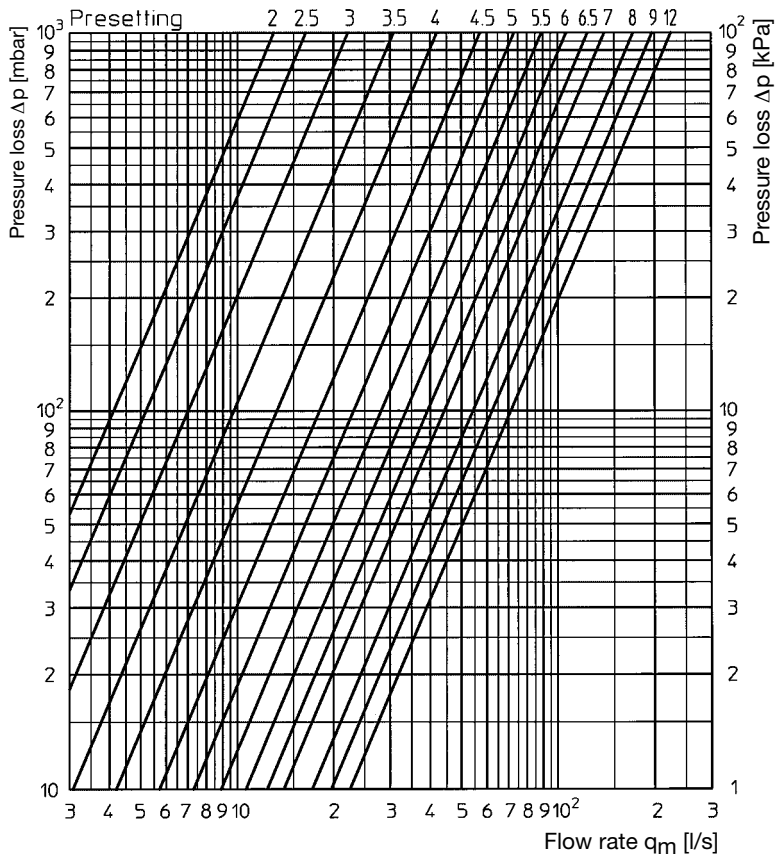
Zeta values related to the inner pipe diameter according to DIN 2448 (150 mm)

Flow tolerances depending on the presetting for DN 65-DN 150



(In case of reversed direction of flow, the flow tolerance is about 3 % higher).

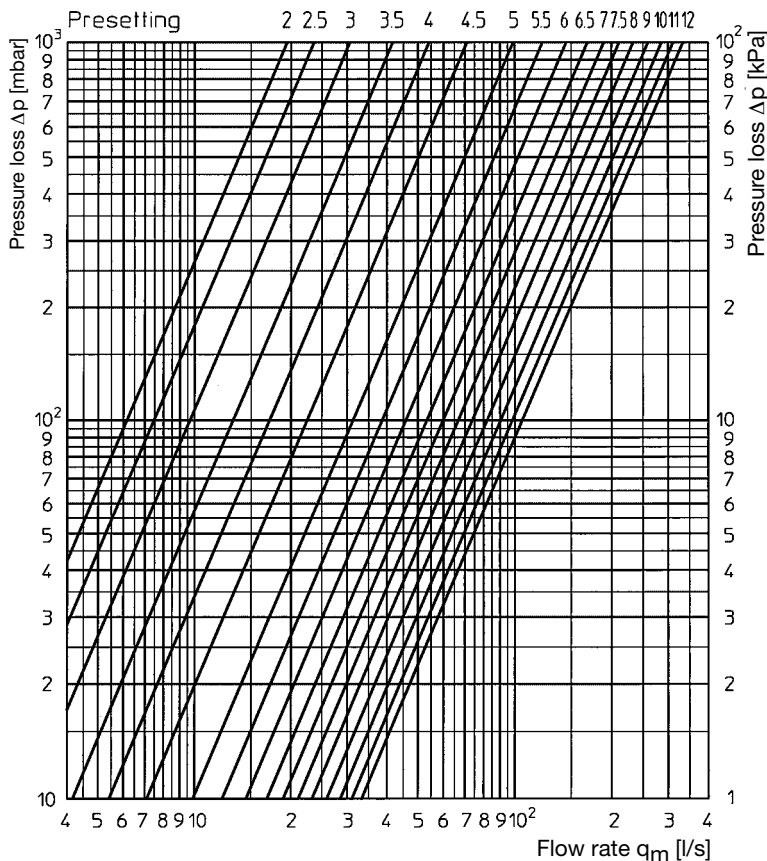
DN 200



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

Pre-setting	k_V -values	Zeta-values	Pre-setting	k_V -values	Zeta-values
2.0	48.9	1191	7.0	509.5	11
2.1	51.6	1070	7.1	519.4	11
2.2	54.2	969	7.2	529.3	10
2.3	56.8	883	7.3	539.2	10
2.4	59.4	807	7.4	549.1	9
2.5	62.0	741	7.5	559.0	9
2.6	64.6	684	7.6	571.0	9
2.7	70.8	588	7.7	582.5	8
2.8	75.2	504	7.8	594.2	8
2.9	79.6	449	7.9	606.0	8
3.0	84.0	404	8.0	618.0	7
3.1	90.0	352	8.1	626.8	7
3.2	96.0	309	8.2	634.8	7
3.3	102.0	274	8.3	634.2	7
3.4	108.0	244	8.4	651.6	7
3.5	114.0	219	8.5	660.0	7
3.6	121.0	195	8.6	672.8	6
3.7	128.8	172	8.7	685.2	6
3.8	136.2	154	8.8	698.7	6
3.9	143.6	138	8.9	711.6	6
4.0	151.0	125	9.0	724.5	6
4.1	162.0	109	9.1	731.4	5
4.2	173.0	95	9.2	738.2	5
4.3	184.0	84	9.3	744.9	5
4.4	195.0	75	9.4	751.7	5
4.5	206.0	67	9.5	758.5	5
4.6	216.8	61	9.6	760.6	5
4.7	227.6	55	9.7	762.7	5
4.8	238.4	50	9.8	764.8	5
4.9	249.2	46	9.9	766.9	5
5.0	260.3	41	10.0	769.0	5
5.1	271.9	38	10.1	771.2	5
5.2	283.8	35	10.2	773.4	5
5.3	295.6	33	10.3	775.6	5
5.4	307.5	30	10.4	778.0	5
5.5	320.0	28	10.5	780.5	5
5.6	332.0	26	10.6	782.0	5
5.7	344.8	24	10.7	784.5	5
5.8	357.6	22	10.8	786.0	5
5.9	370.3	21	10.9	788.5	5
6.0	383.0	19	11.0	790.0	5
6.1	396.0	18	11.1	792.2	5
6.2	409.0	17	11.2	794.5	5
6.3	422.0	16	11.3	796.8	5
6.4	435.0	15	11.4	799.1	4
6.5	447.8	14	11.5	801.4	4
6.6	460.0	13	11.6	804.0	4
6.7	472.5	13	11.7	806.6	4
6.8	484.8	12	11.8	809.2	4
6.9	497.2	12	11.9	812.0	4
			12.0	814.5	4

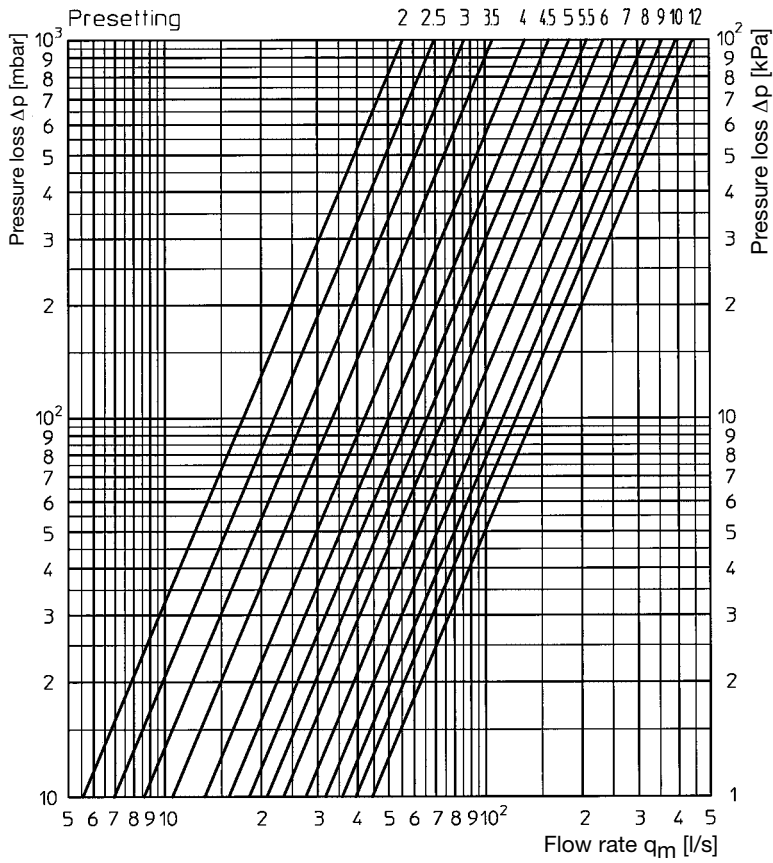
DN 250



Pre-setting	k_V -values	Zeta-values	Pre-setting	k_V -values	Zeta-values
2.0	70.0	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
			12.0	1200.0	4

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

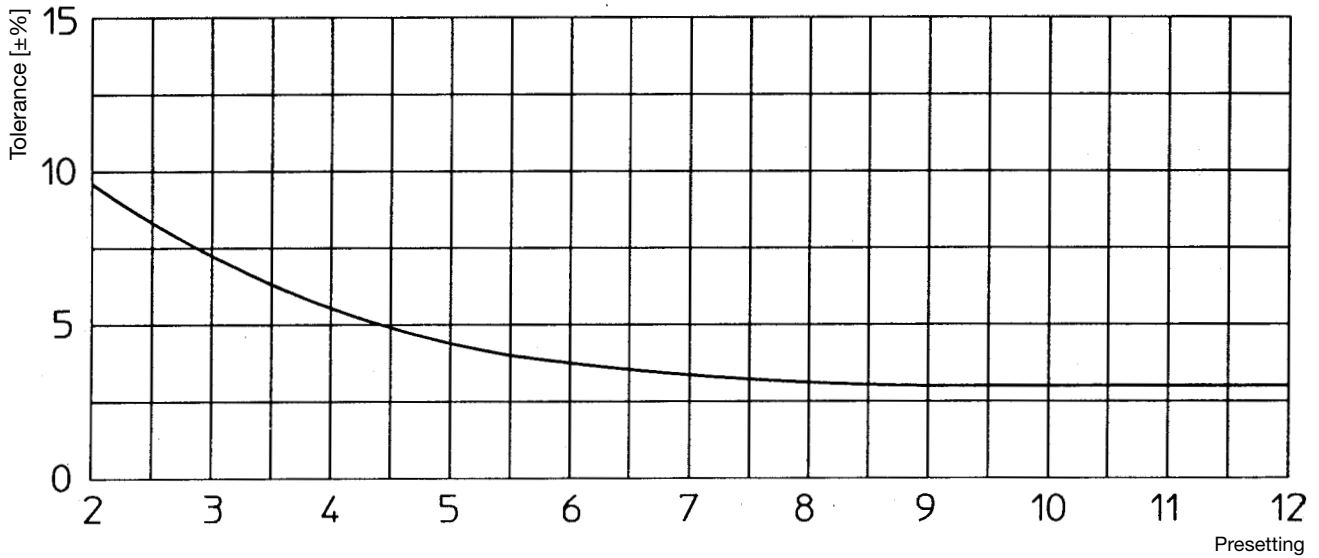
DN 300



Pre-setting	kv-values	Zeta-values	Pre-setting	kv-values	Zeta-values
2.0	200.0	325	7.0	990.0	13
2.1	210.0	295	7.1	1005.0	13
2.2	220.0	269	7.2	1020.0	12
2.3	230.0	246	7.3	1036.0	12
2.4	240.0	226	7.4	1053.0	12
2.5	250.0	208	7.5	1070.0	11
2.6	261.0	191	7.6	1084.0	11
2.7	273.0	174	7.7	1098.0	11
2.8	285.0	160	7.8	1112.0	11
2.9	297.0	147	7.9	1126.0	10
3.0	310.0	135	8.0	1140.0	10
3.1	323.0	125	8.1	1154.0	10
3.2	336.0	115	8.2	1168.0	10
3.3	350.0	106	8.3	1182.0	9
3.4	365.0	98	8.4	1196.0	9
3.5	380.0	90	8.5	1210.0	9
3.6	401.0	81	8.6	1228.0	9
3.7	421.0	73	8.7	1245.0	8
3.8	441.0	67	8.8	1261.0	8
3.9	461.0	61	8.9	1276.0	8
4.0	480.0	56	9.0	1290.0	8
4.1	499.0	52	9.1	1303.0	8
4.2	517.0	49	9.2	1316.0	8
4.3	535.0	45	9.3	1328.0	7
4.4	553.0	43	9.4	1339.0	7
4.5	570.0	40	9.5	1350.0	7
4.6	588.0	38	9.6	1365.0	7
4.7	606.0	35	9.7	1379.0	7
4.8	624.0	33	9.8	1393.0	7
4.9	642.0	32	9.9	1407.0	7
5.0	660.0	30	10.0	1420.0	6
5.1	678.0	28	10.1	1433.0	6
5.2	696.0	27	10.2	1446.0	6
5.3	714.0	26	10.3	1457.0	6
5.4	732.0	24	10.4	1468.0	6
5.5	750.0	23	10.5	1480.0	6
5.6	771.0	22	10.6	1490.0	6
5.7	791.0	21	10.7	1500.0	6
5.8	810.0	20	10.8	1510.0	6
5.9	828.0	19	10.9	1520.0	6
6.0	845.0	18	11.0	1530.0	6
6.1	861.0	18	11.1	1539.0	5
6.2	877.0	17	11.2	1547.0	5
6.3	892.0	16	11.3	1555.0	5
6.4	906.0	16	11.4	1563.0	5
6.5	920.0	15	11.5	1570.0	5
6.6	933.0	15	11.6	1577.0	5
6.7	947.0	14	11.7	1583.0	5
6.8	961.0	14	11.8	1589.0	5
6.9	975.0	14	11.9	1595.0	5
			12.0	1600.0	5

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

Flow tolerance depending on the presetting for DN 200-DN 300



Insulation shells DN 20 – DN 200

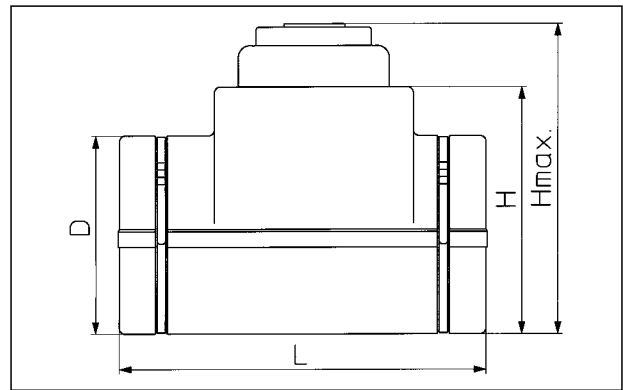
Tender specification:

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.

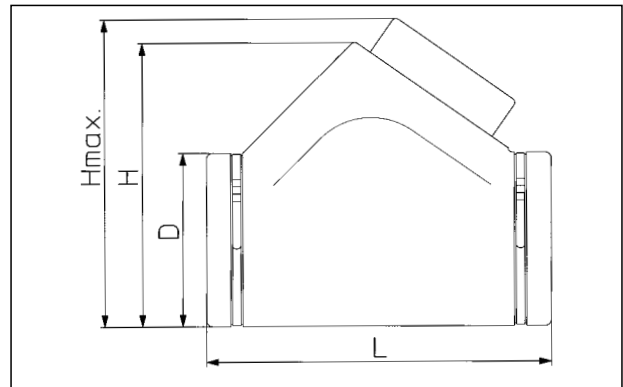
Size	Item no.
DN 20	106 25 81
DN 25	106 25 82
DN 32	106 25 83
DN 40	106 25 84
DN 50	106 25 85
DN 65	106 25 86
DN 80	106 25 87
DN 100*	106 25 88
DN 125*	106 25 89
DN 150*	106 25 90
DN 200*	106 25 91

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

DN 20 – DN 150



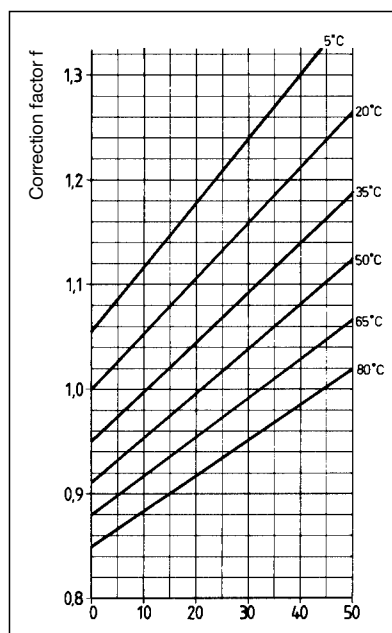
DN 200



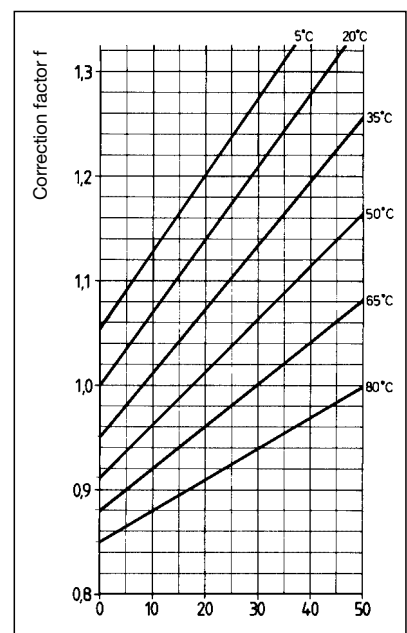
DN	L	D	H max.	H	Item no.
20	270	145	280	190	106 25 81
25	270	155	280	190	106 25 82
32	310	180	310	220	106 25 83
40	330	200	340	230	106 25 84
50	400	220	370	270	106 25 85
65	505	260	410	290	106 25 86
80	530	280	415	315	106 25 87
100	580	320	520	380	106 25 88
125	620	360	560	420	106 25 89
150	730	400	600	460	106 25 90
200	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

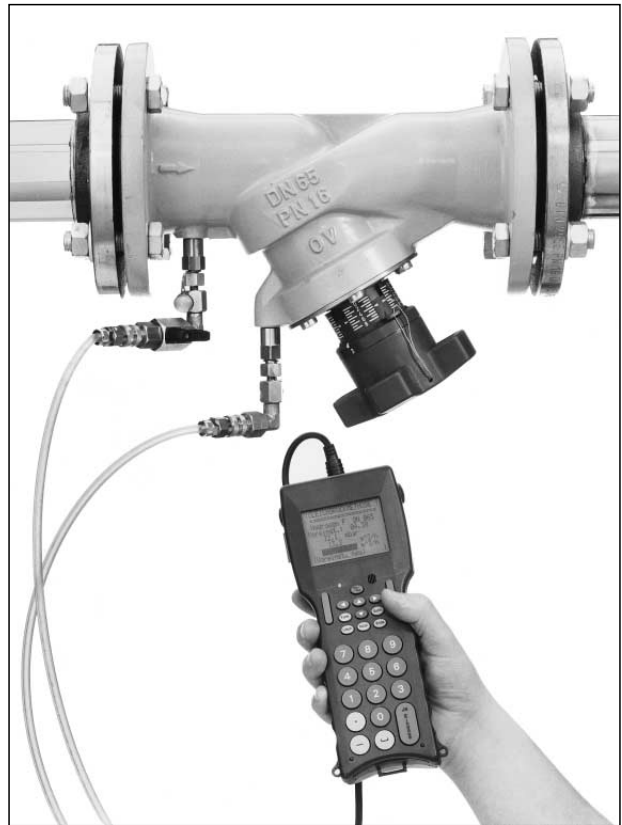
featuring numerous functions and a wide range of applications:

- flow rate indication (in l/s, m³/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 DN 10 – DN 300 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.

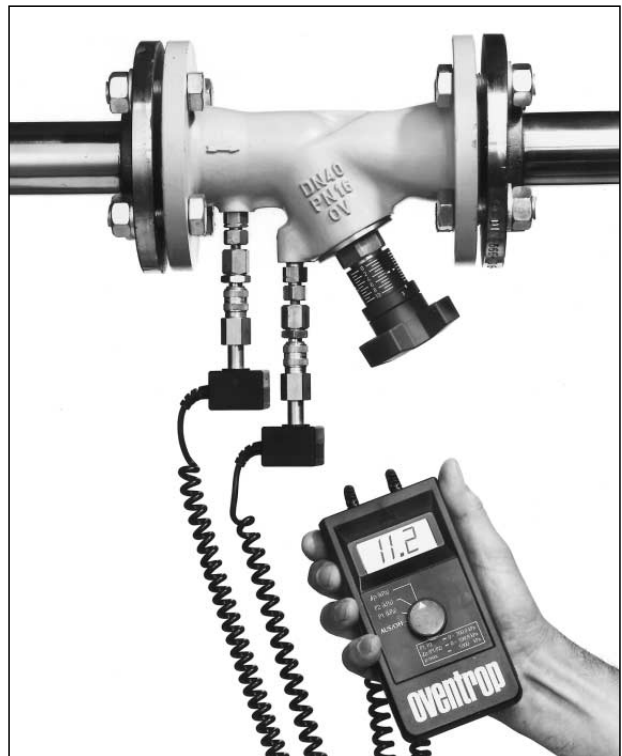


Flow-meter "OV-DMC 2", item no. 106 91 77
with "Hydrocontrol F/FR/FS"

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/FR/FS"

Subject to technical modification without notice.

Product range 3
ti 83-1/10/8.2005/MW

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