



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

Application:

Oventrop double regulating and commissioning valves "Hydrocontrol F/FR/FS" 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 bronze double regulating and commissioning valves "Hydrocontrol FR" may also be used for cold salt water (38°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 to 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 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 to 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 350:

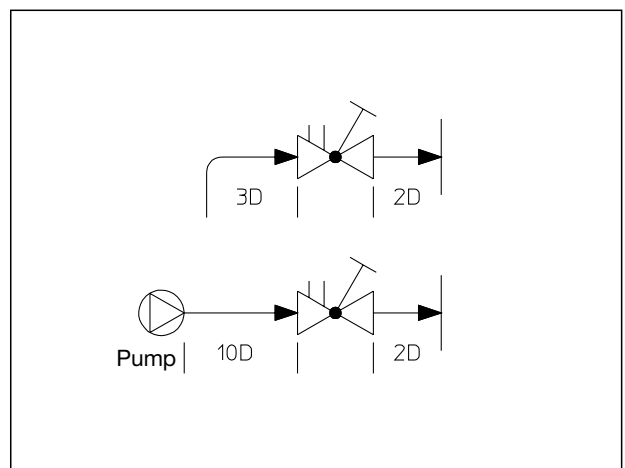
Set 1 = 1 fill and drain ball valve	106 01 91
Measuring adapter	106 02 98
Extension for accessories sets (80 mm)	106 02 95
Extension for accessories sets (40 mm)	168 82 95
Stem extension (DN 20 to DN 50, 35 mm)	168 82 96
Stem extension (DN 65 to DN 150, 35 mm)	168 82 97
Lead sealing set (10-fold) (DN 20-DN 50)	108 90 91
Locking set (1-fold) (DN 20-DN 50)	106 01 80



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



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



Installation notes

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 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	"Hydrocontrol F"		"Hydrocontrol FR"	
	PN 16	PN 6	ANSI 150	PN 16
DN 20	106 26 46	106 26 76	106 29 46	
DN 25	106 26 47	106 26 77	106 29 47	
DN 32	106 26 48	106 26 78	106 29 48	
DN 40	106 26 49	106 26 79	106 29 49	
DN 50	106 26 50	106 26 80	106 29 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)

PN 6, -10°C to +150°C

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

ANSI 150, -10°C to +150°C

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).

"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.

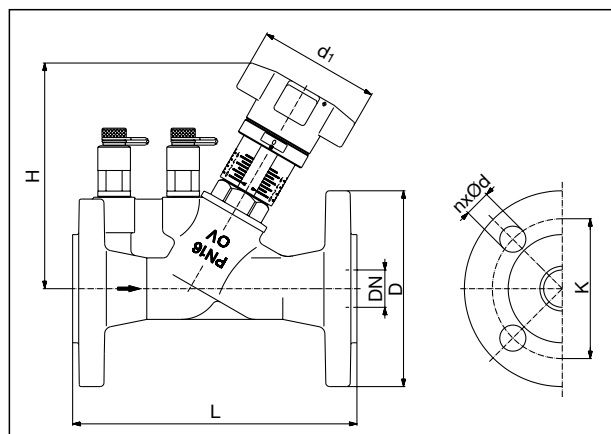
Protecting the presetting:

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

Locking the handwheel:

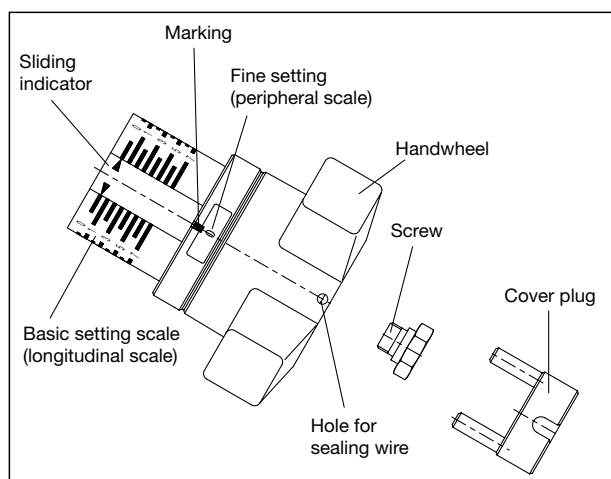
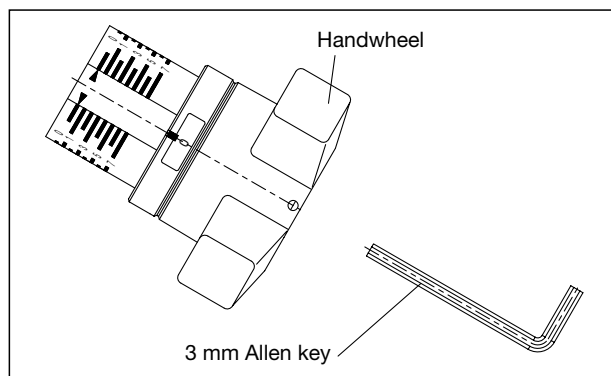
The handwheel can be locked in any position (1/10th of a turn). To do so, the existing cover plug is replaced by the cover plug of the locking set (accessory). In addition, the locked handwheel can be secured by use of the sealing wire.

Dimensions:



"Hydrocontrol F/FR"						
				PN 16		
DN	L	Hmax.	d ₁	D	K	n x Ød
20	150	118	70	105	75	4 x 14
25	160	118	70	115	85	4 x 14
32	180	136	70	140	100	4 x 19
40	200	136	70	150	110	4 x 19
50	230	145	70	165	125	4 x 19

DN	"Hydrocontrol F"			"Hydrocontrol F"		
	PN 6			ANSI 150		
DN	D	K	n x Ød	D	K	n x Ød
20	90	65	4 x 11	99	70	4 x 16
25	100	75	4 x 11	108	79	4 x 16
32	120	90	4 x 14	118	89	4 x 16
40	130	100	4 x 14	127	98	4 x 16
50	140	110	4 x 14	153	121	4 x 19



**Double regulating and commissioning valves "Hydrocontrol F" cast iron, PN 16
"Hydrocontrol FR" bronze, PN 16, "Hydrocontrol FS" nodular cast iron, PN 25**

**Double regulating and commissioning valves
DN 65 – DN 150**

Measuring technic "classic"

Tender specification:

Overtrop 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	"Hydrocontrol F"			"Hydro-control FR"	"Hydro-control FS"
	PN 16 Item no.	PN 6 Item no.	ANSI 150 Item no.	PN 16 Item no.	PN 25 Item no.
DN 65	106 26 51	106 26 81	106 29 51	106 23 51	106 24 51
DN 80	106 26 52	106 26 82	106 29 52	106 23 52	106 24 52
DN 100	106 26 53	106 26 83	106 29 53	106 23 53	106 24 53
DN 125	106 26 54	106 26 84	106 29 54	106 23 54	106 24 54
DN 150	106 26 55	106 26 88	106 29 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)

PN 6, -10°C to +150°C
Round flanges according to DIN EN 1092-2, PN 6 (corresponds to ISO 7005-2, PN 6)

ANSI 150, -10°C to +150°C
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.

"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.
- 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.

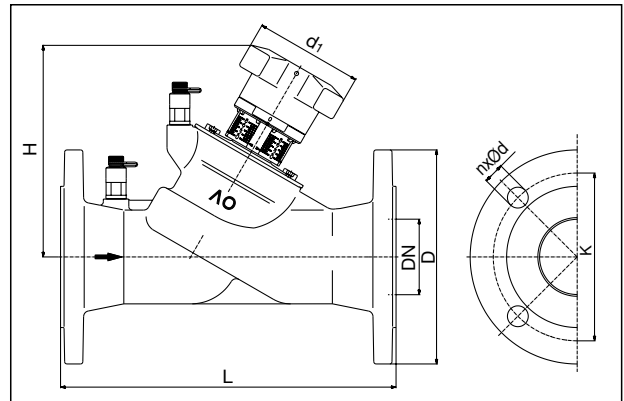
Protecting the setting:

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

Locking the handwheel:

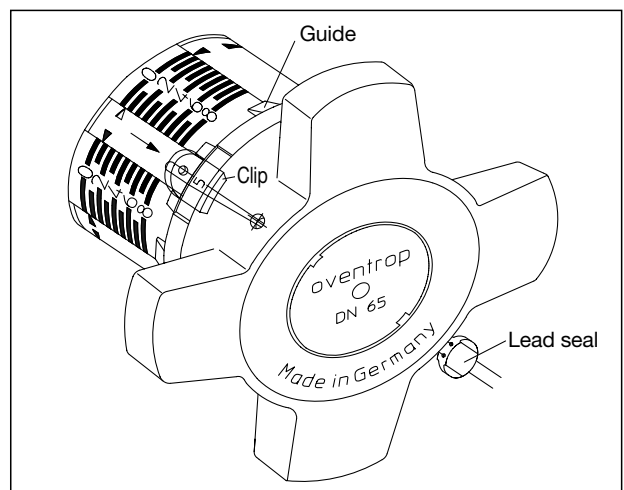
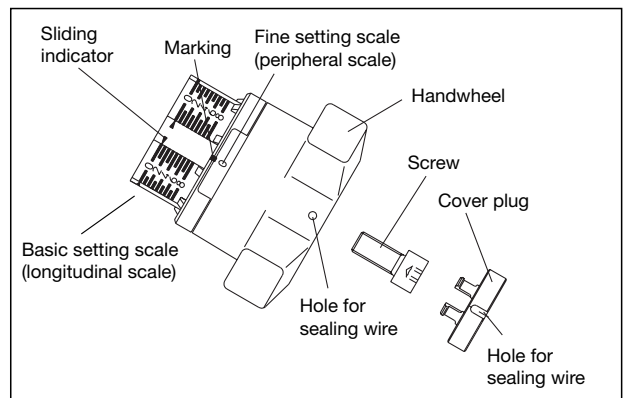
The handwheel can be locked in any position (1/10th of a turn). Fit the enclosed clip in the cut-out in the handwheel below the holes between the guides, making sure it locates into the sliding indicator (see sketch). The clip can now be sealed as illustrated. It is essential that the sealing wire is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

Dimensions:



DN	"Hydrocontrol F/FR/FS"			"Hydrocontrol F" PN 16			"Hydrocontrol F" PN 6		
	L	Hmax.	d1	D	K	n x Ød	D	K	n x Ød
65	290	188	110	185	145	4 x 19	160	130	4 x 14
80	310	203	110	200	160	8 x 19	190	150	4 x 19
100	350	240	160	220	180	8 x 19	210	170	4 x 19
125	400	283	160	250	210	8 x 19	240	200	8 x 19
150	480	285	160	285	240	8 x 23	265	225	8 x 19

DN	"Hydrocontrol F" ANSI 150			"Hydrocontrol FR" PN 16			"Hydrocontrol FS" PN 25		
	D	K	n x Ød	D	K	n x Ød	D	K	n x Ød
65	185	140	4 x 19	185	145	4 x 19	185	145	8 x 19
80	200	152	4 x 19	200	160	8 x 19	200	160	8 x 19
100	220	191	8 x 19	220	180	8 x 19	235	190	8 x 23
125	250	216	8 x 22	250	210	8 x 19	270	220	8 x 28
150	285	241	8 x 22	285	240	8 x 23	300	250	8 x 28



**Double regulating and commissioning valves "Hydrocontrol F" cast iron, PN 16
"Hydrocontrol FR" bronze, PN 16, "Hydrocontrol FS" nodular cast iron, PN 25**

**Double regulating and commissioning valves
DN 200 – DN 350
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	"Hydrocontrol F"			"Hydro-control FR"	"Hydro-control FS"
	PN 16 Item no.	PN 6 Item no.	ANSI 150 Item no.	PN 16 Item no.	PN 25 Item no.
DN 200	106 26 56	106 26 86	106 29 56	106 23 56	106 24 56
DN 250	106 26 57		106 29 57		106 24 57
DN 300	106 26 58		106 29 58		106 24 58
DN 350	106 26 59				

"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)

PN 6, -10°C to +150°C

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

ANSI 150, -10°C to +150°C

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.

"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.

"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 350:

- 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.

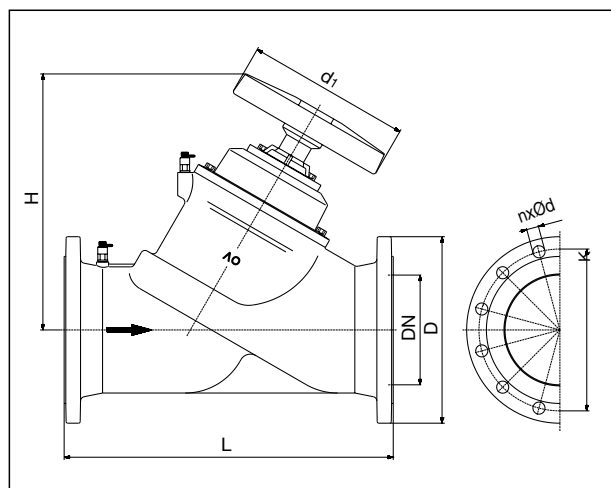
Protecting the setting:

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

Locking the handwheel:

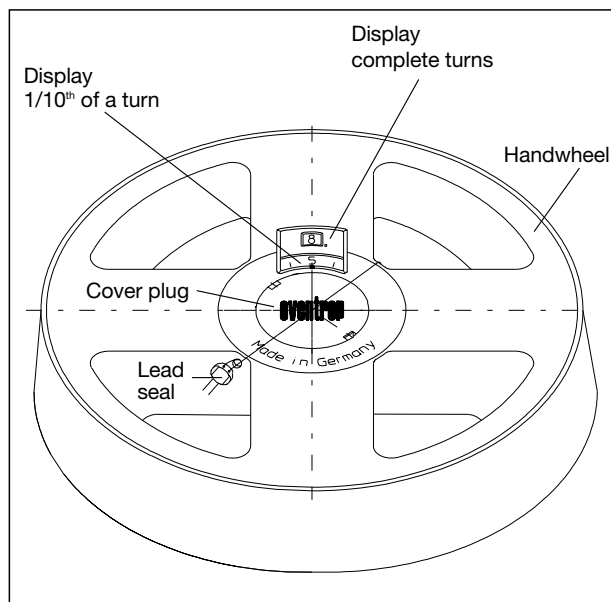
The handwheel can be locked in any position (1/10th of a turn) by removing the existing cover plug and replacing it with a special one. The sealing wire is then fitted through the hole in the handwheel and a lead seal is fitted.

Dimensions:



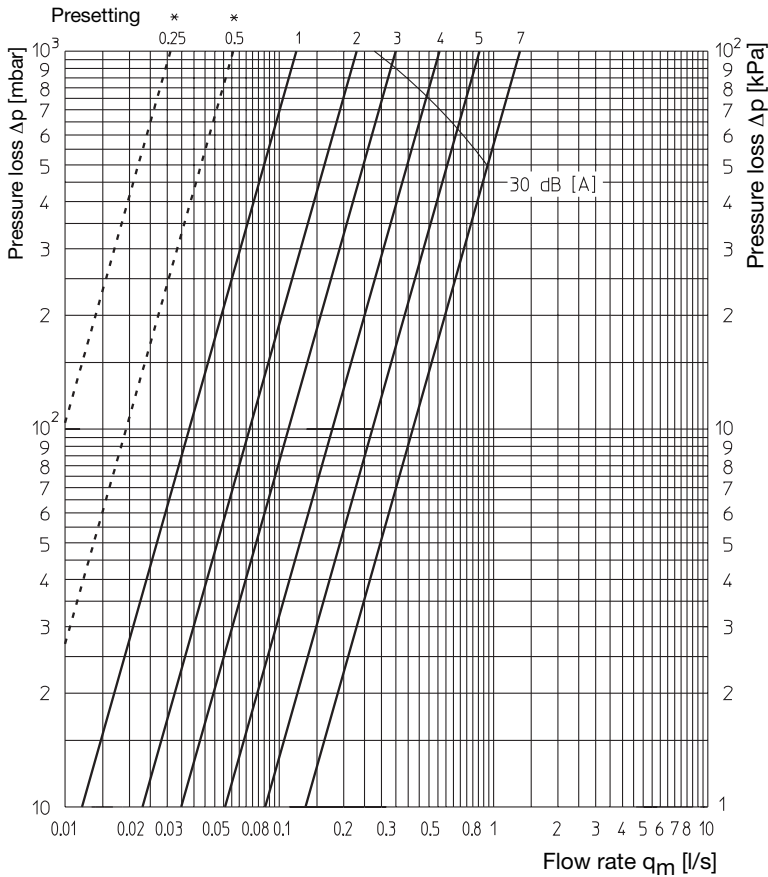
"Hydrocontrol F/FR/FS"			"Hydrocontrol F"			"Hydrocontrol F"			
			PN 16			PN 6			
DN	L	H _{max.}	d ₁	D	K	n x Ød	D	K	n x Ød
200	600	467	300	340	295	12 x 23	320	280	8 x 19
250	730	480	300	405	355	12 x 28			
300	850	515	300	460	410	12 x 28			
350	980	560	300	520	470	16 x 28			

"Hydrocontrol F"			"Hydrocontrol FR"			"Hydrocontrol FS"			
ANSI 150			PN 16			PN 25			
DN	D	K	n x Ød	D	K	n x Ød	D	K	n x Ød
200	340	298	8 x 22	340	295	12 x 23	360	310	12 x 28
250	405	362	12 x 25				425	370	12 x 31
300	485	432	12 x 25				485	430	16 x 31



Double regulating and commissioning valves "Hydrocontrol F" cast iron, PN 16
 "Hydrocontrol FR" bronze, PN 16, "Hydrocontrol FS" nodular cast iron, PN 25

DN 20

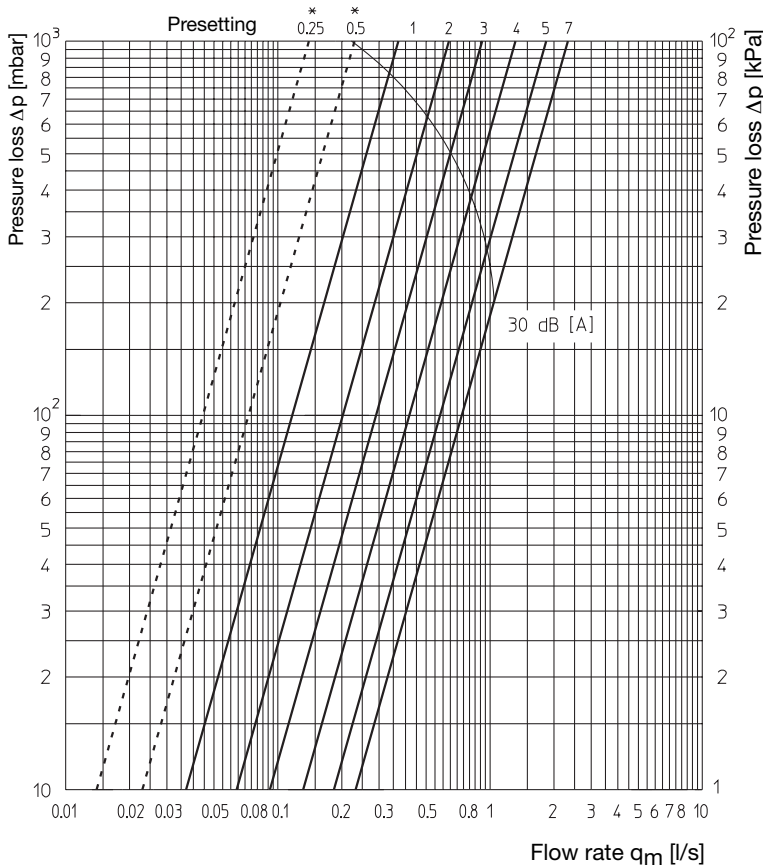


Pre-setting	k_V -values	Zeta-values	Pre-setting	k_V -values	Zeta-values
0.25	0.11	25698			
0.5	0.22	6424			
0.75	0.33	2855			
1.	0.42	1763	5.	3.09	33
1.1	0.48	1350	5.1	3.19	31
1.2	0.52	1150	5.2	3.30	29
1.3	0.55	1028	5.3	3.41	27
1.4	0.59	893	5.4	3.52	25
1.5	0.63	783	5.5	3.63	24
1.6	0.67	693	5.6	3.74	22
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			

* Avoid presetting < 1, see tolerance curve page 7.

Zeta values related to the inner pipe diameter according to DIN EN 10220 (21 mm)

DN 25



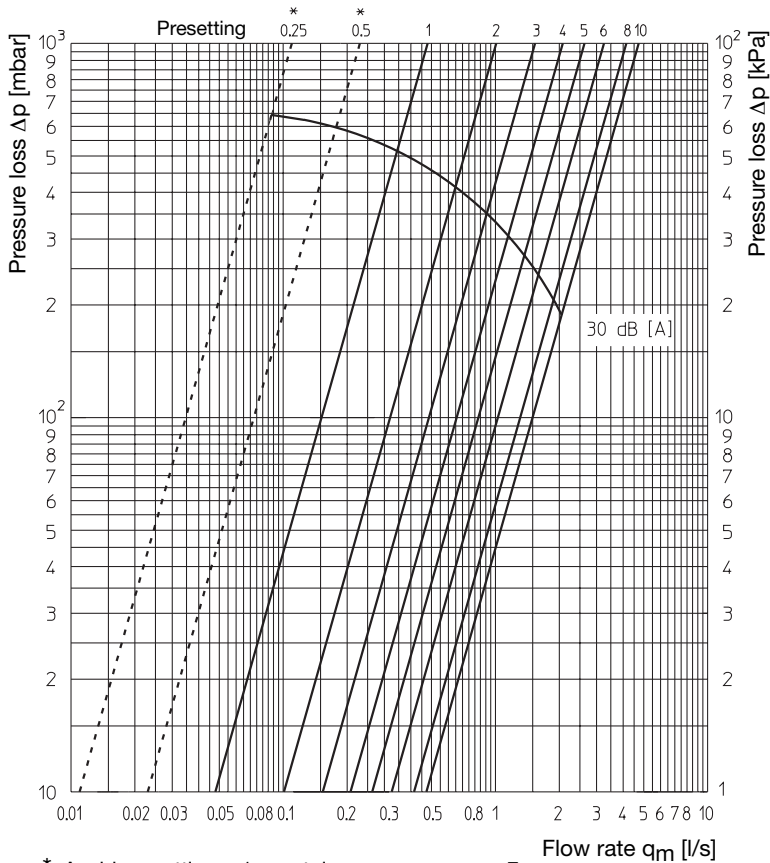
Pre-setting	k_V -values	Zeta-values	Pre-setting	k_V -values	Zeta-values
0.25	0.51	2325			
0.5	0.83	878			
0.75	1.08	519			
1.	1.33	342	5.	6.64	14
1.1	1.43	296	5.1	6.85	13
1.2	1.53	258	5.2	7.03	12
1.3	1.63	228	5.3	7.18	12
1.4	1.73	202	5.4	7.32	11
1.5	1.83	181	5.5	7.44	11
1.6	1.94	161	5.6	7.55	11
1.7	2.04	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			

* Avoid presetting < 1, see tolerance curve page 7.

Zeta values related to the inner pipe diameter according to DIN EN 10220 (24.8 mm)

Double regulating and commissioning valves "Hydrocontrol F" cast iron, PN 16
 "Hydrocontrol FR" bronze, PN 16, "Hydrocontrol FS" nodular cast iron, PN 25

DN 32

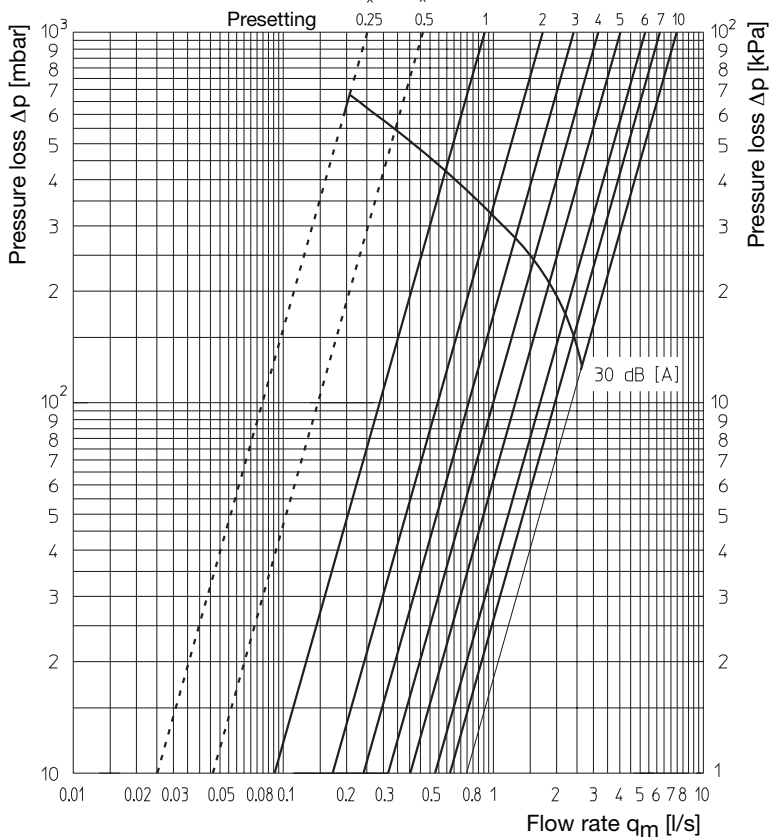


* Avoid presetting < 1, see tolerance curve page 7.

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	11
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	16.53	6.8
4.3	8.08	28	9.6	16.64	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 EN 10220 (32.8 mm)

DN 40



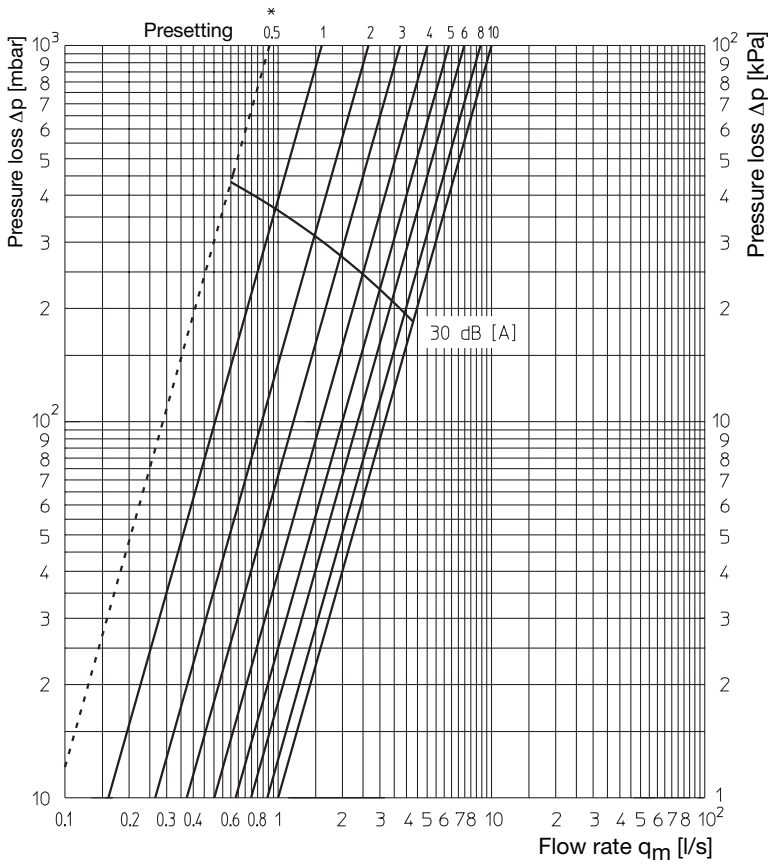
* Avoid presetting < 1, see tolerance curve page 7.

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	18
			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 EN 10220 (41.8 mm)

Double regulating and commissioning valves "Hydrocontrol F" cast iron, PN 16
 "Hydrocontrol FR" bronze, PN 16, "Hydrocontrol FS" nodular cast iron, PN 25

DN 50

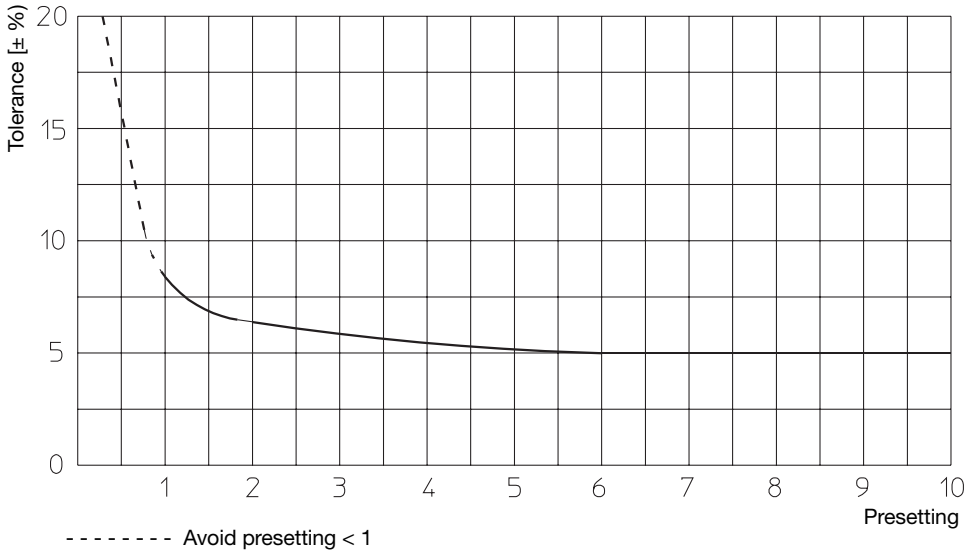


Pre-setting	k_V -values	Zeta-values	Pre-setting	k_V -values	Zeta-values
			5.	22.70	24
			5.1	23.12	24
			5.2	23.54	23
			5.3	23.95	22
			5.4	24.37	21
			5.5	24.80	21
			5.6	25.21	20
			5.7	25.63	19
			5.8	26.04	19
			5.9	26.46	18
0.5	3.29	1166	6.	26.88	17
0.75	4.76	557	6.1	27.18	17
1.	5.76	380	6.2	27.48	17
1.1	6.10	339	6.3	27.75	16
1.2	6.41	307	6.4	28.06	16
1.3	6.70	281	6.5	28.31	16
1.4	6.98	259	6.6	28.61	16
1.5	7.24	241	6.7	28.88	15
1.6	7.66	215	6.8	29.15	15
1.7	8.20	188	6.9	29.41	15
1.8	8.66	168	7.	29.68	14
1.9	9.10	152	7.1	29.91	14
2.	9.55	138	7.2	30.15	14
2.1	9.96	127	7.3	30.40	14
2.2	10.38	117	7.4	30.64	13
2.3	10.78	109	7.5	30.88	13
2.4	11.18	101	7.6	31.11	13
2.5	11.57	94	7.7	31.33	13
2.6	11.95	88	7.8	31.57	13
2.7	12.33	83	7.9	31.79	12
2.8	12.69	78	8.	32.00	12
2.9	13.06	74	8.1	32.22	12
3.	13.41	70	8.2	32.44	12
3.1	13.87	66	8.3	32.65	12
3.2	14.32	62	8.4	32.86	12
3.3	14.78	58	8.5	33.06	12
3.4	15.25	54	8.6	33.27	11
3.5	15.56	52	8.7	33.47	11
3.6	16.20	48	8.8	33.67	11
3.7	16.67	45	8.9	33.87	11
3.8	17.14	43	9.	34.06	11
3.9	17.60	41	9.1	34.25	11
4.	18.34	39	9.2	34.44	11
4.1	18.52	37	9.3	34.69	10
4.2	19.01	35	9.4	34.82	10
4.3	19.48	33	9.5	35.00	10
4.4	19.95	32	9.6	35.20	10
4.5	20.55	30	9.7	35.40	10
4.6	20.89	29	9.8	35.60	10
4.7	21.36	28	9.9	35.80	10
4.8	21.83	27	10.	36.00	9.7
4.9	22.30	25			

* Avoid presetting < 1, see tolerance curve page 7.

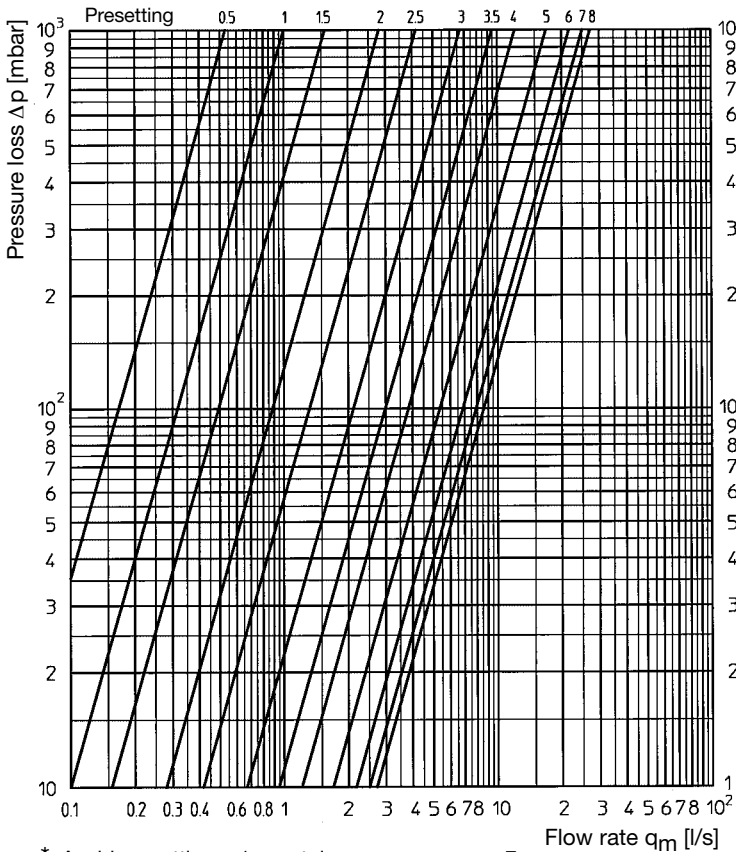
Zeta values related to the inner pipe diameter according to DIN EN 10220 (53 mm)

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



Double regulating and commissioning valves "Hydrocontrol F" cast iron, PN 16
 "Hydrocontrol FR" bronze, PN 16, "Hydrocontrol FS" nodular cast iron, PN 25

DN 65

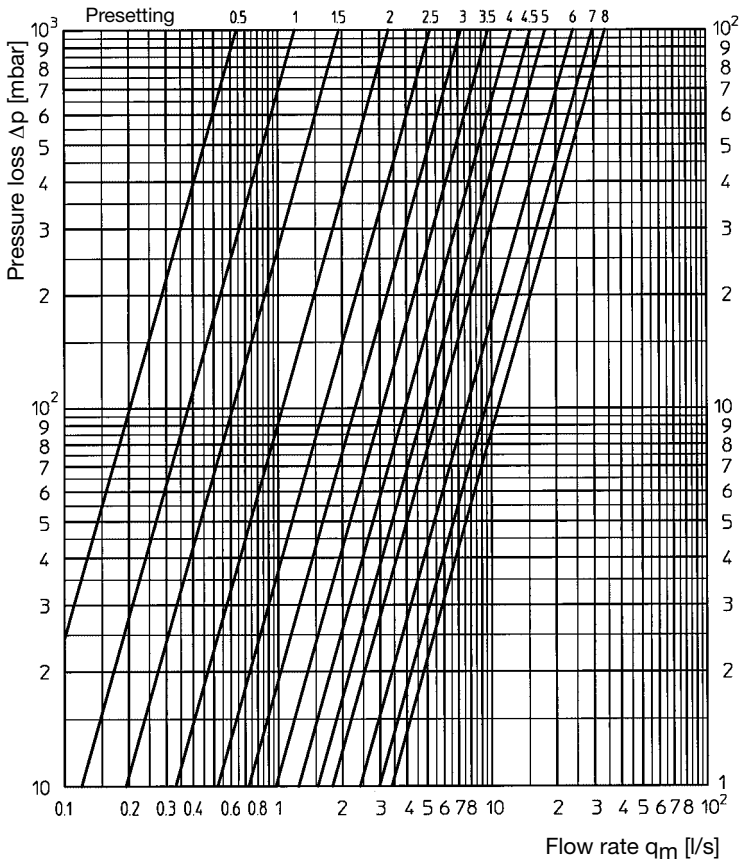


* Avoid presetting < 1, see tolerance curve page 7.

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 EN 10220 (70.3 mm)

DN 80



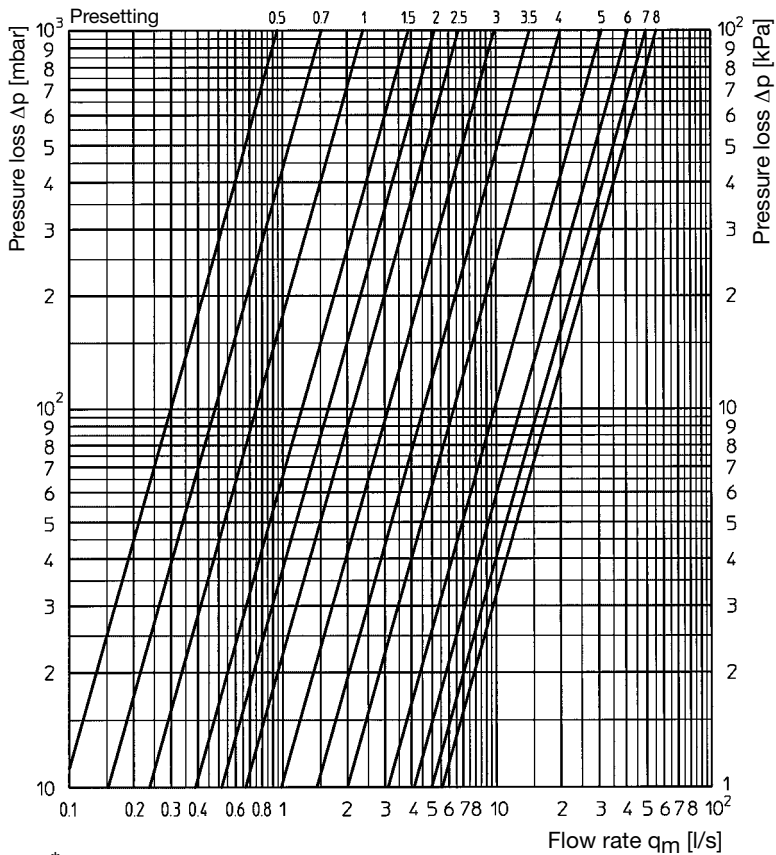
* Avoid presetting < 1, see tolerance curve page 7.

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 EN 10220 (82.5 mm)

**Double regulating and commissioning valves "Hydrocontrol F" cast iron, PN 16
"Hydrocontrol FR" bronze, PN 16, "Hydrocontrol FS" nodular cast iron, PN 25**

DN 100

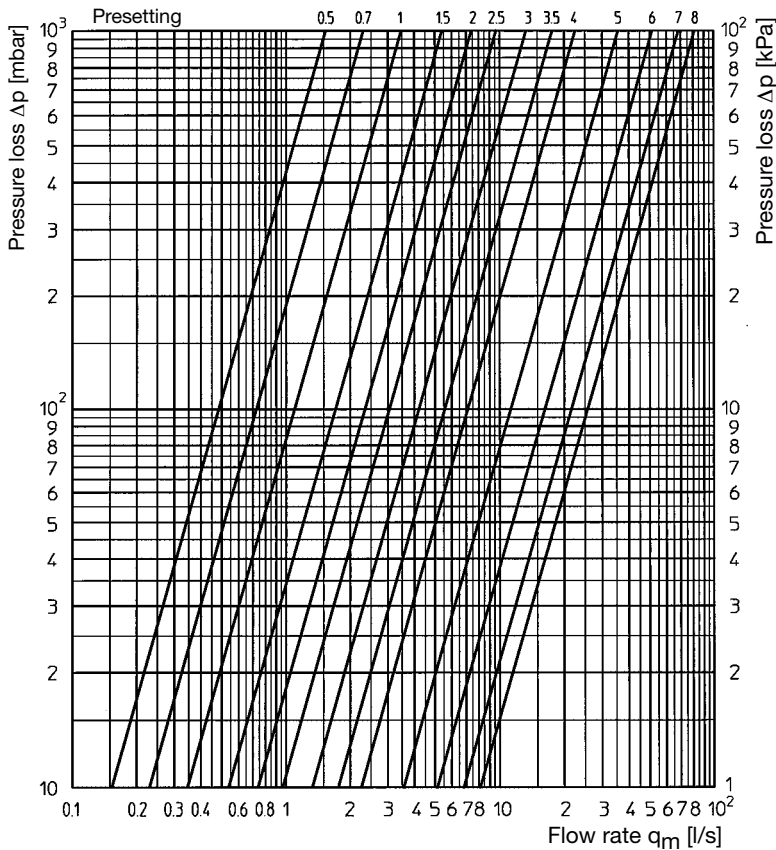


* Avoid presetting < 1, see tolerance curve page 7.

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 EN 10220 (100.8 mm)

DN 125



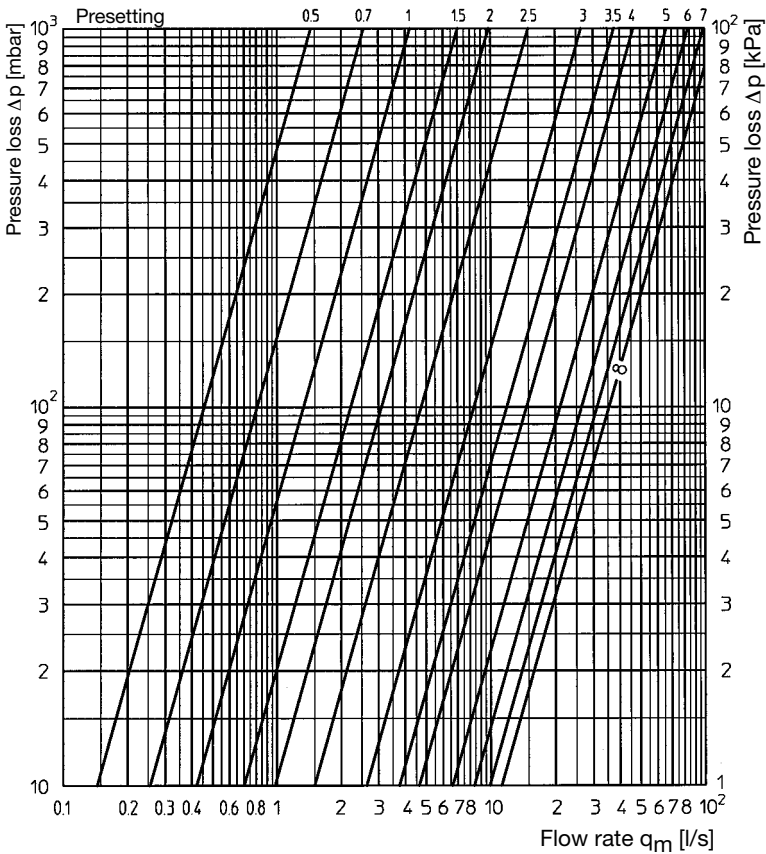
* Avoid presetting < 1, see tolerance curve page 7.

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 EN 10220 (125 mm)

Double regulating and commissioning valves "Hydrocontrol F" cast iron, PN 16
 "Hydrocontrol FR" bronze, PN 16, "Hydrocontrol FS" nodular cast iron, PN 25

DN 150

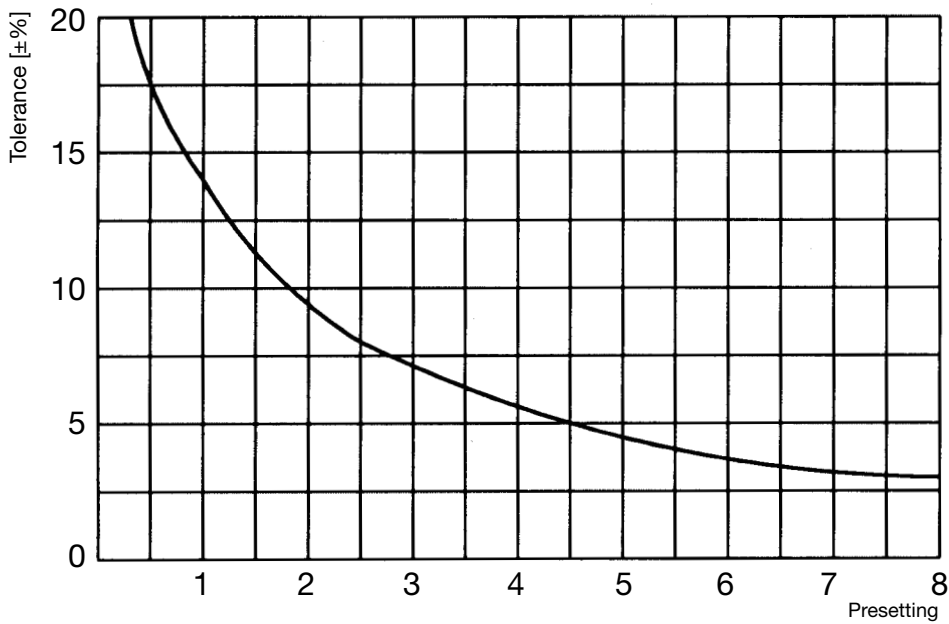


Pre-setting	ky-values	Zeta-values	Pre-setting	ky-values	Zeta-values
0.5	5.20	29934			
0.7	9.21	9542			
1.	15.22	3494	5.	238.91	14.0
1.1	17.22	2730	5.1	244.72	13.5
1.2	19.23	2189	5.2	251.20	12.8
1.3	21.23	1796	5.3	257.60	12.2
1.4	23.24	1499	5.4	263.90	11.6
1.5	25.26	1269	5.5	272.40	10.9
1.6	27.24	1091	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			

* Avoid presetting < 1, see tolerance curve page 7.

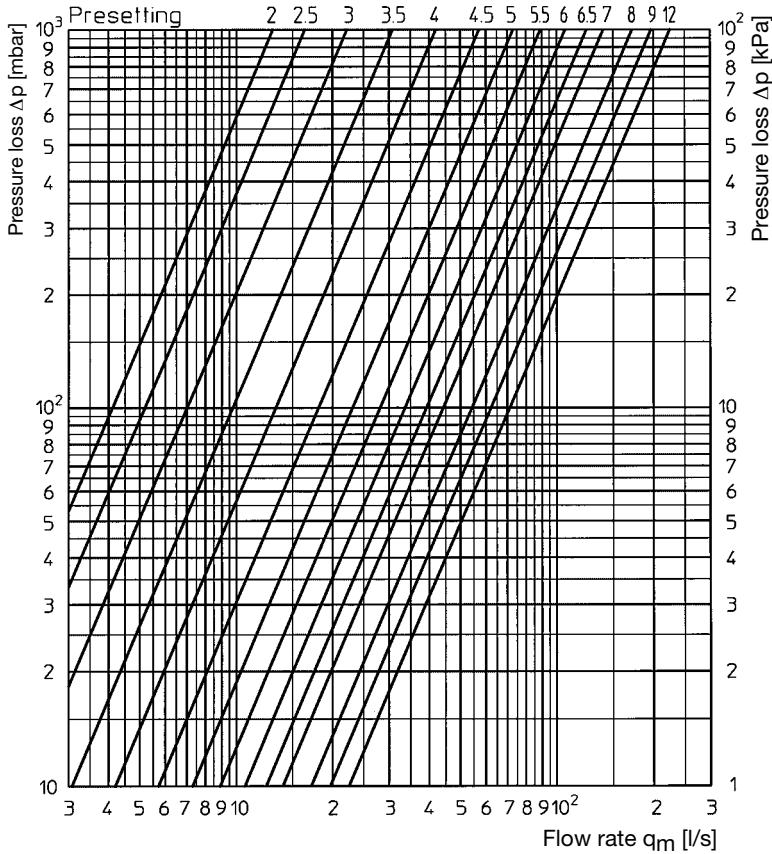
Zeta values related to the inner pipe diameter according to DIN EN 10220 (150 mm)

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



**Double regulating and commissioning valves "Hydrocontrol F" cast iron, PN 16
"Hydrocontrol FR" bronze, PN 16, "Hydrocontrol FS" nodular cast iron, PN 25**

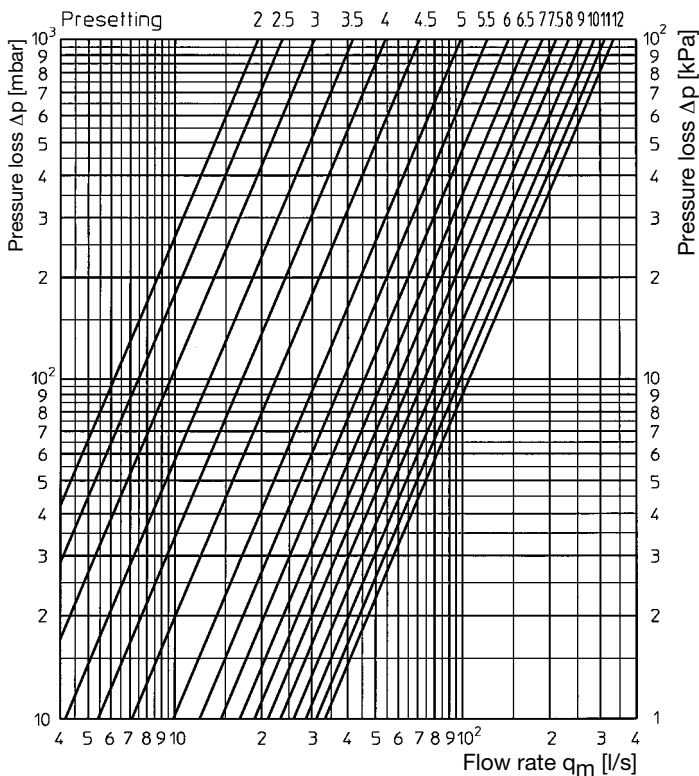
DN 200



Zeta values related to the inner pipe diameter according to DIN EN 10220 (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	686	7.6	571.0	9
2.7	67.2	641	7.7	582.5	8
2.8	70.0	604	7.8	594.2	8
2.9	72.8	574	7.9	606.0	8
3.0	75.7	549	8.0	618.0	7
3.1	78.6	525	8.1	626.8	7
3.2	81.6	502	8.2	634.8	7
3.3	84.6	480	8.3	634.2	7
3.4	87.6	459	8.4	651.6	7
3.5	90.6	440	8.5	660.0	7
3.6	93.6	422	8.6	672.8	6
3.7	96.6	406	8.7	685.2	6
3.8	99.6	391	8.8	698.7	6
3.9	102.6	378	8.9	711.6	6
4.0	105.6	366	9.0	724.5	6
4.1	108.6	355	9.1	731.4	5
4.2	111.6	345	9.2	738.2	5
4.3	114.6	336	9.3	744.9	5
4.4	117.6	328	9.4	751.7	5
4.5	120.6	321	9.5	758.5	5
4.6	123.6	315	9.6	766.0	5
4.7	126.6	309	9.7	762.7	5
4.8	129.6	304	9.8	764.8	5
4.9	132.6	299	9.9	766.9	5
5.0	135.6	295	10.0	769.0	5
5.1	138.6	291	10.1	771.2	5
5.2	141.6	287	10.2	773.4	5
5.3	144.6	284	10.3	775.6	5
5.4	147.6	281	10.4	778.0	5
5.5	150.6	278	10.5	780.0	5
5.6	153.6	276	10.6	782.0	5
5.7	156.6	274	10.7	784.0	5
5.8	159.6	272	10.8	786.0	5
5.9	162.6	270	10.9	788.0	5
6.0	165.6	269	11.0	790.0	5
6.1	168.6	268	11.1	792.2	5
6.2	171.6	267	11.2	794.5	5
6.3	174.6	266	11.3	796.8	5
6.4	177.6	265	11.4	799.1	4
6.5	180.6	264	11.5	801.4	4
6.6	183.6	263	11.6	804.0	4
6.7	186.6	262	11.7	806.6	4
6.8	189.6	261	11.8	809.2	4
6.9	192.6	260	11.9	812.0	4
			12.0	814.5	4

DN 250

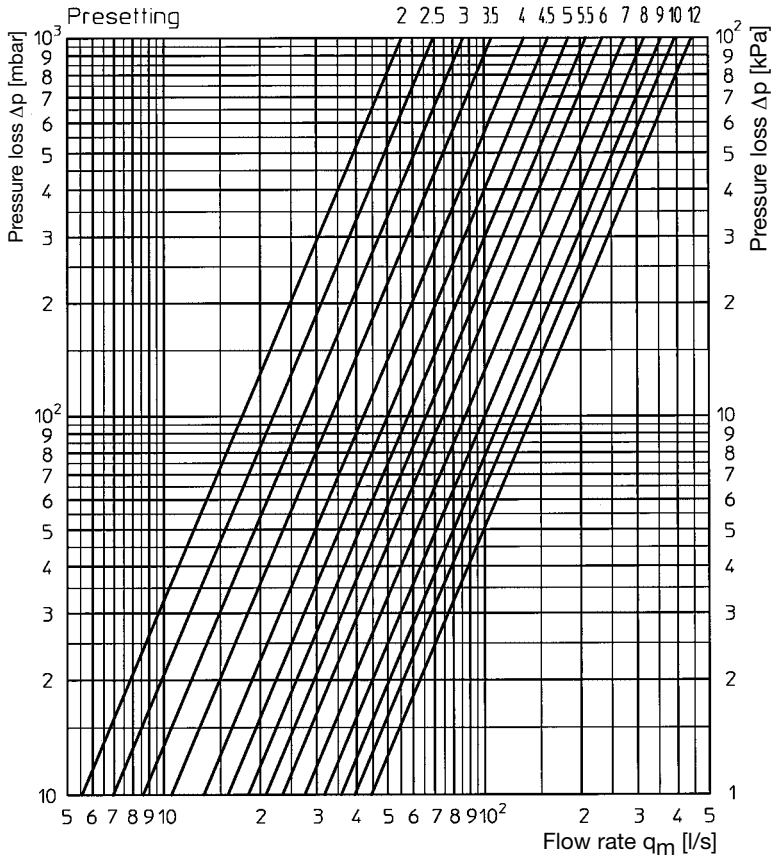


Zeta values related to the inner pipe diameter according to DIN EN 10220 (254.4 mm)

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	75.0	1133	7.2	714.0	13
2.3	77.5	1035	7.3	729.0	12
2.4	80.0	961	7.4	745.0	12
2.5	82.5	894	7.5	760.0	11
2.6	85.0	836	7.6	778.0	11
2.7	87.5	784	7.7	795.0	10
2.8	90.0	737	7.8	811.0	10
2.9	92.5	694	7.9	826.0	10
3.0	95.0	655	8.0	840.0	9
3.1	97.5	619	8.1	850.0	9
3.2	100.0	586	8.2	860.0	9
3.3	102.5	556	8.3	870.0	8
3.4	105.0	528	8.4	880.0	8
3.5	107.5	502	8.5	890.0	8
3.6	110.0	478	8.6	899.0	8
3.7	112.5	456	8.7	907.0	8
3.8	115.0	436	8.8	916.0	8
3.9	117.5	417	8.9	925.0	8
4.0	120.0	399	9.0	933.0	7
4.1	122.5	383	9.1	942.0	7
4.2	125.0	368	9.2	952.0	7
4.3	127.5	354	9.3	961.0	7
4.4	130.0	341	9.4	970.0	7
4.5	132.5	329	9.5	979.0	7
4.6	135.0	318	9.6	989.0	7
4.7	137.5	308	9.7	998.0	6
4.8	140.0	300	9.8	1008.0	6
4.9	142.5	292	9.9	1018.0	6
5.0	145.0	285	10.0	1028.0	6
5.1	147.5	279	10.1	1038.0	6
5.2	150.0	274	10.2	1048.0	6
5.3	152.5	269	10.3	1059.0	6
5.4	155.0	265	10.4	1071.0	6
5.5	157.5	261	10.5	1080.0	6
5.6	160.0	258	10.6	1088.0	5
5.7	162.5	255	10.7	1096.0	5
5.8	165.0	252	10.8	1104.0	5
5.9	167.5	250	10.9	1112.0	5
6.0	170.0	248	11.0	1120.0	5
6.1	172.5	246	11.1	1128.0	5
6.2	175.0	244	11.2	1136.0	5
6.3	177.5	242	11.3	1144.0	5
6.4	180.0	241	11.4	1152.0	5
6.5	182.5	240	11.5	1160.0	5
6.6	185.0	239	11.6	1168.0	5
6.7	187.5	238	11.7	1176.0	5
6.8	190.0	237	11.8	1184.0	5
6.9	192.5	236	11.9	1192.0	4
			12.0	1200.0	4

Double regulating and commissioning valves "Hydrocontrol F" cast iron, PN 16
 "Hydrocontrol FR" bronze, PN 16, "Hydrocontrol FS" nodular cast iron, PN 25

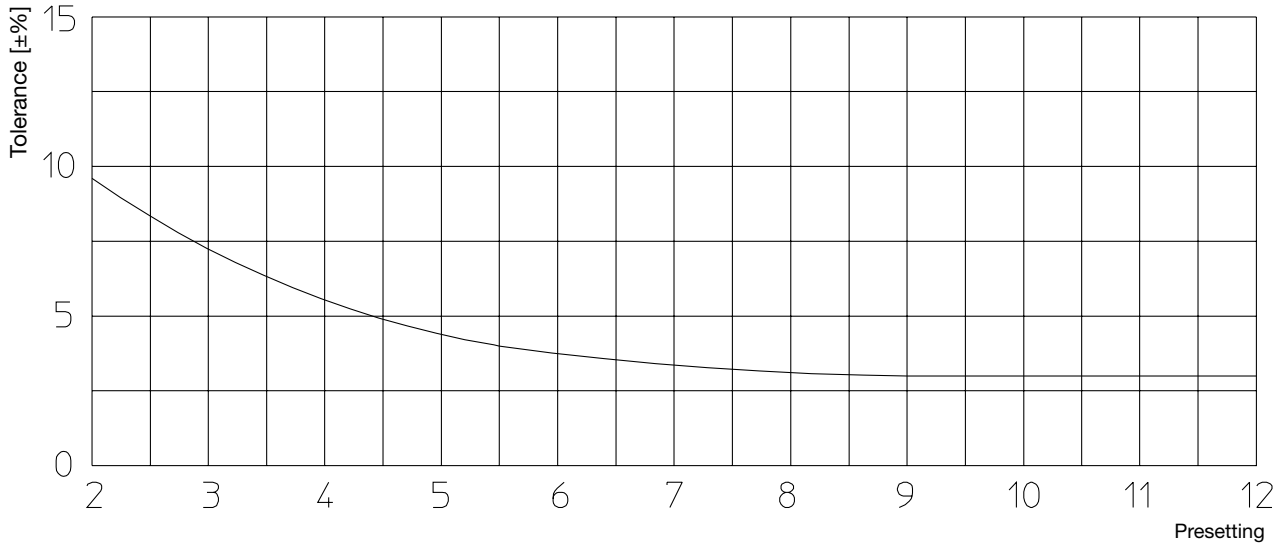
DN 300



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

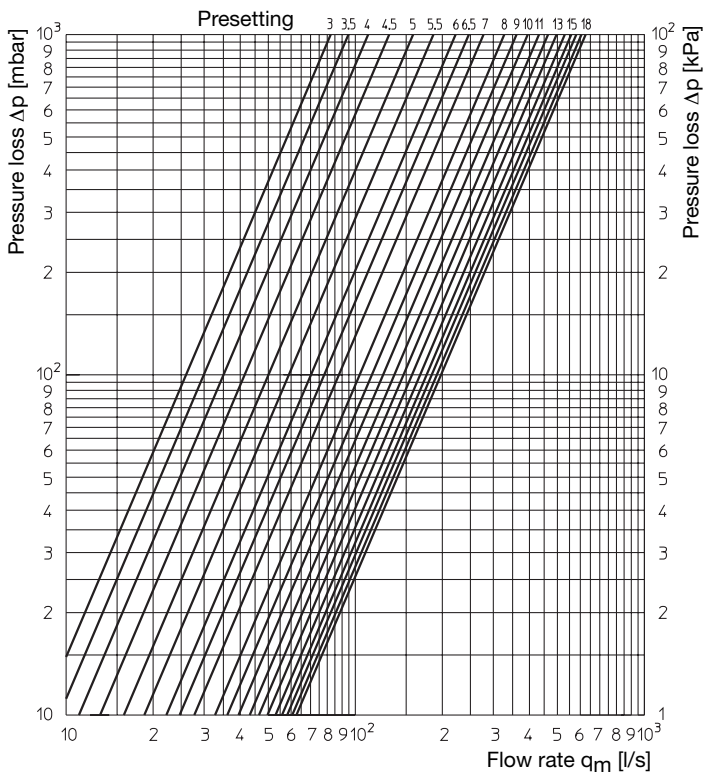
Zeta values related to the inner pipe diameter according to DIN EN 10220 (300 mm)

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



**Double regulating and commissioning valves "Hydrocontrol F" cast iron, PN 16
"Hydrocontrol FR" bronze, PN 16, "Hydrocontrol FS" nodular cast iron, PN 25**

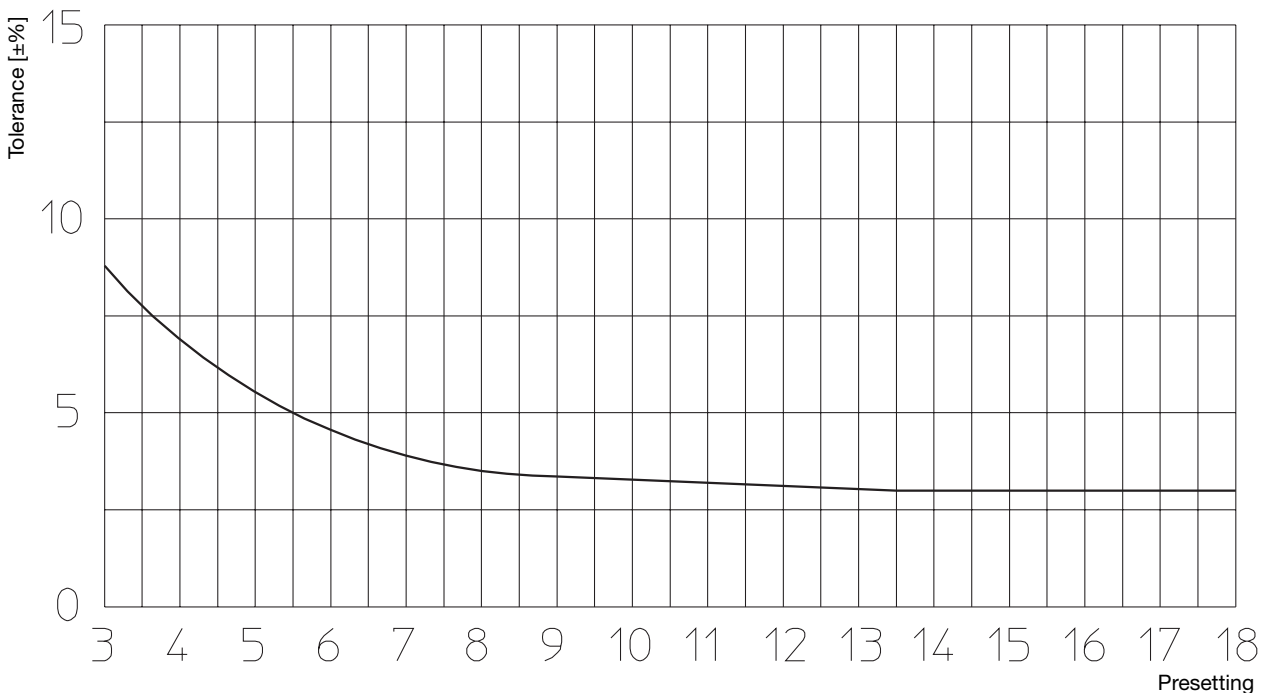
DN 350



Pre-setting	kv-values	Zeta-values	Pre-setting	kv-values	Zeta-values
3,0	290	275	11,1	1571	9
3,1	299	259	11,2	1582	9
3,2	308	244	11,3	1593	9
3,3	318	229	11,4	1604	9
3,4	328	215	11,5	1615	9
3,5	340	200	11,6	1626	9
3,6	350	189	11,7	1637	9
3,7	361	178	11,8	1648	9
3,8	374	165	11,9	1659	8
3,9	387	155	12,0	1670	8
4,0	400	145	12,1	1682	8
4,1	414	135	12,2	1694	8
4,2	429	126	12,3	1706	8
4,3	445	117	12,4	1718	8
4,4	462	108	12,5	1730	8
4,5	480	100	12,6	1742	8
4,6	499	93	12,7	1754	8
4,7	518	86	12,8	1766	7
4,8	537	80	12,9	1778	7
4,9	556	75	13,0	1790	7
5,0	575	70	13,1	1802	7
5,1	588	67	13,2	1814	7
5,2	615	61	13,3	1826	7
5,3	635	57	13,4	1838	7
5,4	655	54	13,5	1850	7
5,5	675	51	13,6	1862	7
5,6	696	48	13,7	1874	7
5,7	716	45	13,8	1886	7
5,8	737	43	13,9	1898	6
5,9	758	40	14,0	1910	6
6,0	800	36	14,1	1920	6
6,1	818	35	14,2	1930	6
6,2	836	33	14,3	1940	6
6,3	854	33	14,4	1950	6
6,4	872	30	14,5	1960	6
6,5	890	29	14,6	1970	6
6,6	912	28	14,7	1980	6
6,7	934	27	14,8	1990	6
6,8	956	25	14,9	2000	6
6,9	978	24	15,0	2010	6
7,0	1000	23	15,1	2019	6
7,1	1018	22	15,2	2028	6
7,2	1036	22	15,3	2037	6
7,3	1054	21	15,4	2046	6
7,4	1072	20	15,5	2055	5
7,5	1090	19	15,6	2064	5
7,6	1108	19	15,7	2073	5
7,7	1126	18	15,8	2082	5
7,8	1144	18	15,9	2091	5
7,9	1162	17	16,0	2100	5
8,0	1180	17	16,1	2108	5
8,1	1192	16	16,2	2116	5
8,2	1204	16	16,3	2124	5
8,3	1216	16	16,4	2132	5
8,4	1228	15	16,5	2140	5
8,5	1240	15	16,6	2148	5
8,6	1252	15	16,7	2156	5
8,7	1264	14	16,8	2164	5
8,8	1276	14	16,9	2172	5
8,9	1288	14	17,0	2180	5
9,0	1300	14	17,1	2187	5
9,1	1312	13	17,2	2194	5
9,2	1324	13	17,3	2201	5
9,3	1336	13	17,4	2208	5
9,4	1348	13	17,5	2215	5
9,5	1360	13	17,6	2222	5
9,6	1372	12	17,7	2229	5
9,7	1384	12	17,8	2236	5
9,8	1396	12	17,9	2243	5
9,9	1408	12	18,0	2250	5
10,0	1420	11			
10,1	1434	11			
10,2	1448	11			
10,3	1462	11			
10,4	1476	11			
10,5	1490	10			
10,6	1504	10			
10,7	1518	10			
10,8	1532	10			
10,9	1546	10			
11,0	1560	10			

Zeta values related to the inner pipe diameter according to DIN EN 10220 (350 mm)

Flow tolerances depending on the presetting for DN 350



**Double regulating and commissioning valves "Hydrocontrol F" cast iron, PN 16
"Hydrocontrol FR" bronze, PN 16, "Hydrocontrol FS" nodular cast iron, PN 25**

Insulation shells DN 20 – DN 200

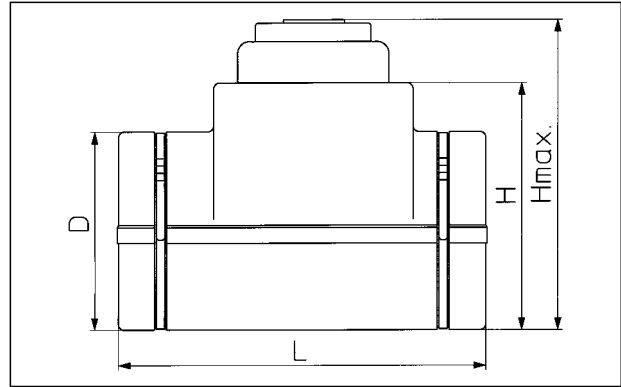
Tender specification:

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.

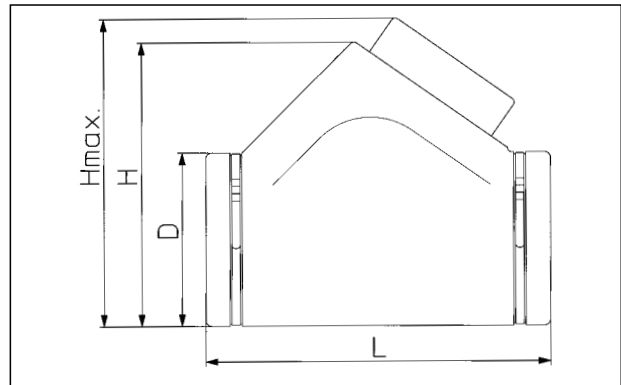
Size	Item no.
DN 20	106 25 81
DN 25	106 25 82
DN 32	106 25 83
DN 40	106 25 84
DN 50	106 25 85
DN 65	106 25 86
DN 80	106 25 87
DN 100*	106 25 88
DN 125*	106 25 89
DN 150*	106 25 90
DN 200*	106 25 91

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

DN 20 – DN 80



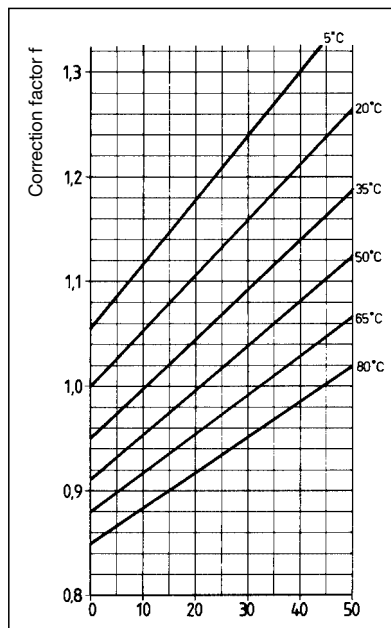
DN 100 – DN 200



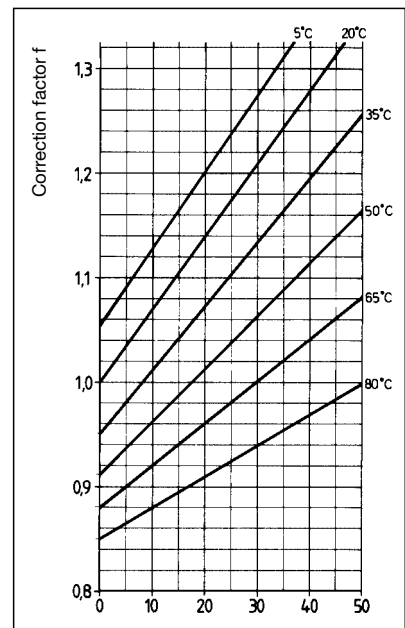
DN	L	D	H max.	H	Item no.
20	270	145	280	190	106 25 81
25	270	155	280	190	106 25 82
32	310	180	310	220	106 25 83
40	330	200	340	230	106 25 84
50	400	220	370	270	106 25 85
65	505	260	410	290	106 25 86
80	530	280	415	315	106 25 87
100	580	320	520	380	106 25 88
125	620	360	560	420	106 25 89
150	730	400	600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

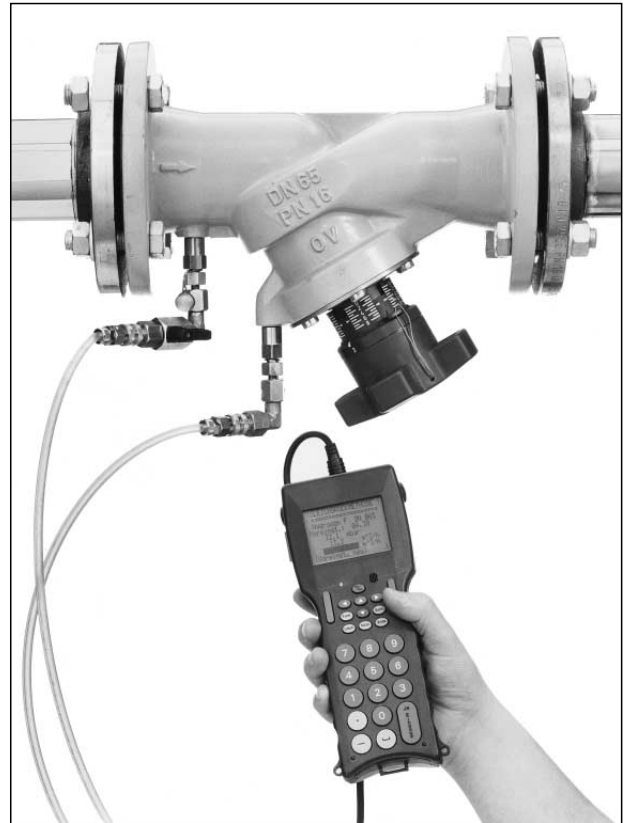
featuring numerous functions and a wide range of applications:

- 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 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"

Subject to technical modification without notice.

Product group 3
ti 83-0/10/MW
Edition 2008

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