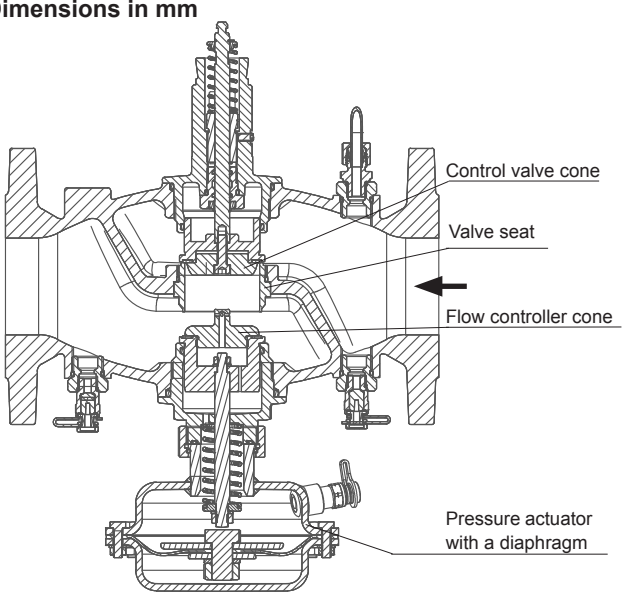
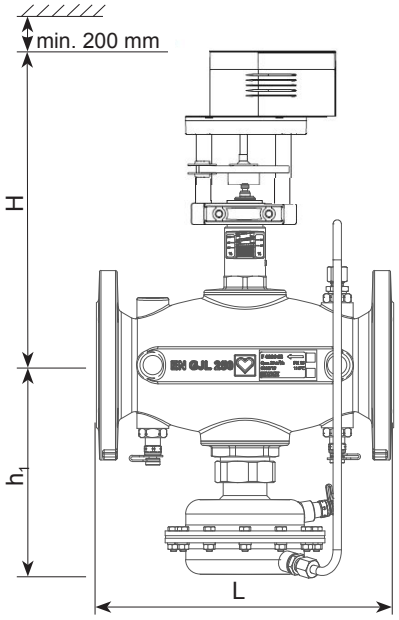
HERZ - Pressure-independent control valve in flanged design

Data sheet F 4006 6X, 5X, 4X, Issue 1124

Dimensions in mm





Order Nr. PN 16	DN	Stroke [mm]	min. Flowrate @ 25% [m³/h]	max. Flowrate @ 100% [m³/h]	min. dp [kPa]	kvs combi valve	H	h1	L
F **4006** 62	50	15	3.75	15	40	23.7	310	210	230
F **4006** 63	65	15	5.00	20	40	31.6	310	210	290
F **4006** 64	80	20	9.00	36	40	56.9	395	230	310
F **4006** 65	100	20	10.75	43	40	68.0	395	232	350
F **4006** 66	125	40	25.00	100	40	158.1	590	410	400
F **4006** 56	125 HF	40	37.50	150	70	179.3	590	410	400
F **4006** 67	150	40	36.25	145	40	229.3	595	425	480
F **4006** 57	150 HF	40	50.00	200	70	239.0	595	425	480
F **4006** 68	200	40	52.50	210	40	332.0	630	585	600
F **4006** 58	200 HF	40	75.00	300	70	358.6	630	585	600
F **4006** 48	200 UHF	40	87.50	350	85	379.6	630	585	600
F **4006** 69	250SF	40	87.50	350	50	495.0	665	620	730
F **4006** 59	250HF	40	102.50	410	70	490.0	665	620	730

Technical data

Max. operating pressure	16 bar
Max. differential pressure	4 bar
Diff. pressure across the restrictor	0,2 bar
Min. operating temperature	2 °C (pure water)
Min. operating temperature	- 20 °C (frost protection)
Max. operating temperature	110 °C (liquid, not steam)
Valve characteristic	linear
Type of connection	Flanged (EN 1092-2)
Valve body material	EN-GJL-250
Gasket material	EPDM
Cones, stem, seat material	CW617N-R320-S, WN1.4305, WN1.4305
Impulse tube	WN1.4301
Diaphragm material	EPDM

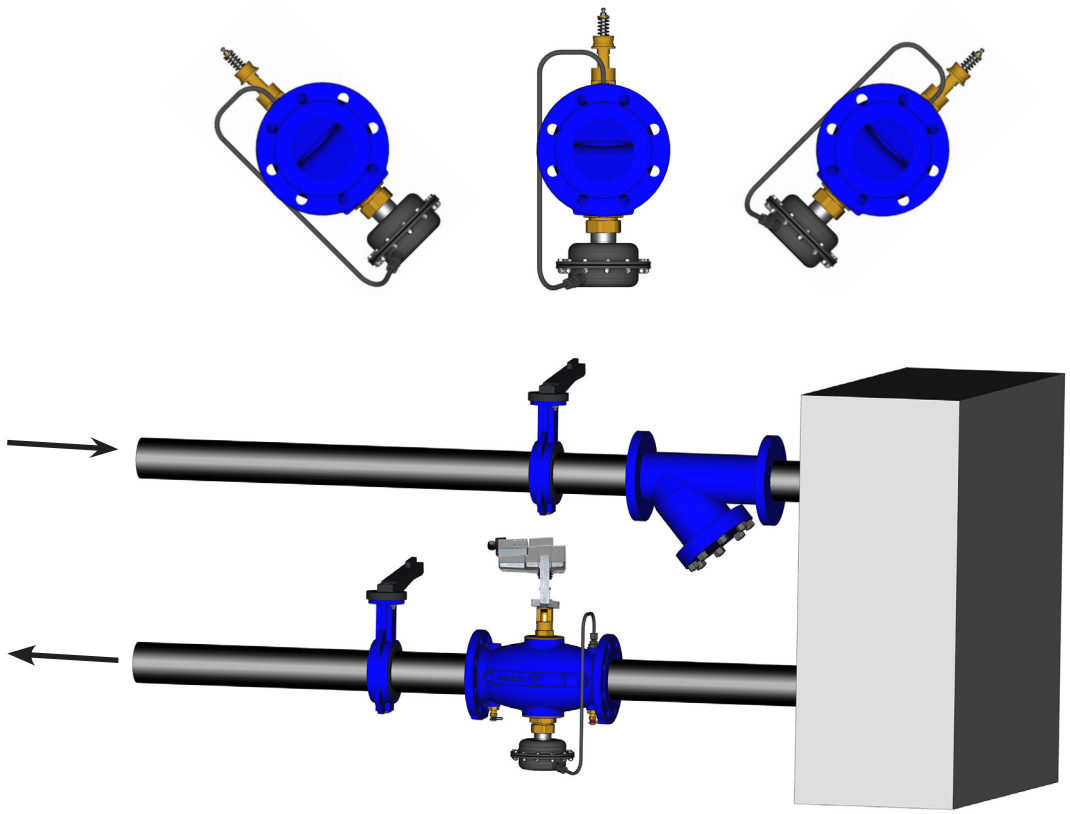
Water purity in accordance with the OENORM H 5195 and VDI 2035 standards.
Ethylene and propylene glycol can be mixed to a ratio of 25 - 50 vol.-%.
Pursuant to Article 33 of the REACH Regulation (EC No. 1907/2006), we are obliged to point out that the material lead is listed on the SVHC list and that all brass components manufactured in our products exceed 0.1% (w / w) lead (CAS: 7439-92-1 / EINECS: 231-100-4). Since lead is a component part of an alloy, actual exposure is not possible and therefore no additional information on safe use is necessary.

Installation

Recommended installation: Install the valve in the return flow pipe of the system. Electric actuator should be placed in upward position, at ± 45° angle to the vertical pipe axis.

Permissible installation: The valve should be installed in horizontal supply flow pipes of the system.

The valves must be installed for the correct application using clean fittings. A HERZ strainer (4111) should be fitted to prevent impurities.
For installation, the local and international rules and standards have to be followed.



Functional principle of a PICV combination valve

A Pressure Independent Balancing and Control Valve (PIBCV or PICV) combines a regulating and control valve with a differential pressure controller.

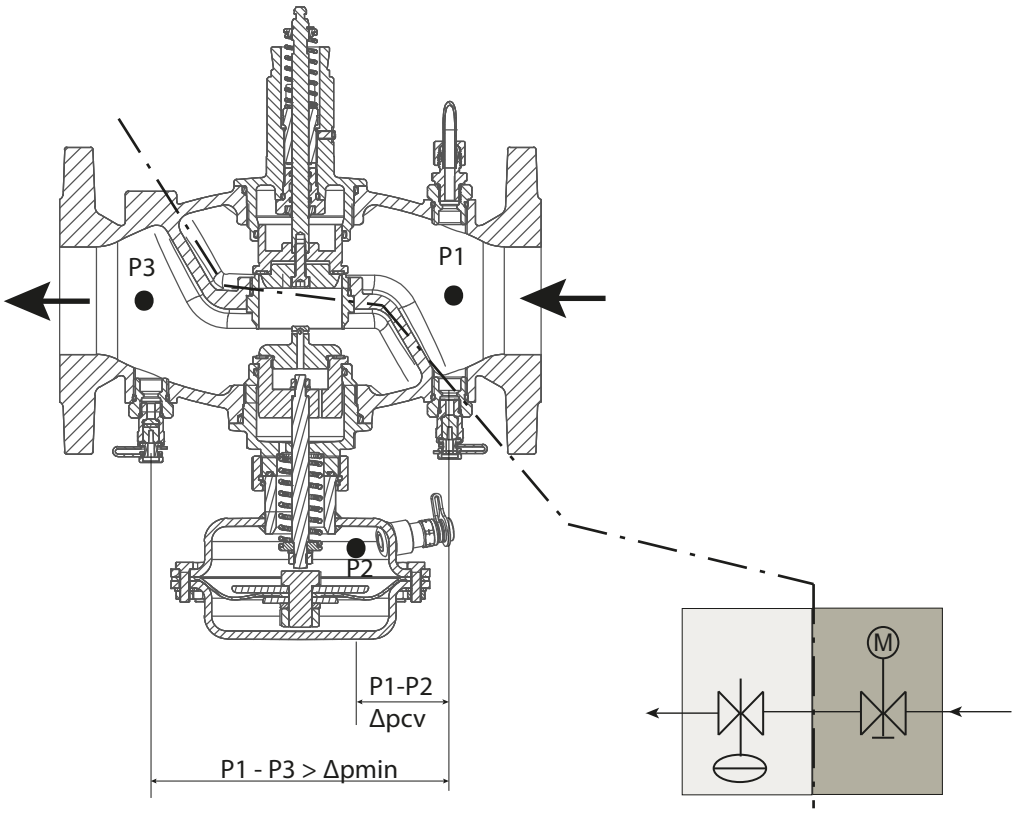
Balancing and control valve

The valve has a linear characteristic. The adjustment of the required flow volume is done at the valve spindle, where the maximum stroke is adjusted. Settings between 20 % and 80 % of the nominal flow are recommended. The adjustment of the maximum stroke allows actuators with stroke detection to utilise their full control bandwidth (e.g. 0-10 V).

Differential pressure controller

The differential pressure controller keeps the differential pressure constant across the balancing and control valve. As the valve is independent from the system differential pressure, the preset flow volume will remain constant at all times despite any change in the system conditions.

Actuator Selection



Test points
Every PICV has 3 test points.
Measuring across P1-P3 enables the setting of the valve and the minimum differential pressure to be checked. The valve requires a minimum differential pressure in order to operate correctly.
Measuring across P1-P2 determines the differential pressure required to calculate the valve flow volume from the kv values (shown in the table) for each % preset position.

Flow adjustment

The adjustment of the flow rate is carried out by limiting the valve stroke. The set point for the valve flow limitation can be adjusted by a flow meter or by using the flow charts.

The set point for the flow limitation can be adjusted by turning the adjustable nut.

For the valves from DN 50 to DN 100 the brass nut is used where adjustment is done along the middle line on the nut.

For the valves from DN 125 to DN 250 the stainless steel nut is used where adjustment is made according to upper surface of the nut.

Safety instructions and disposal

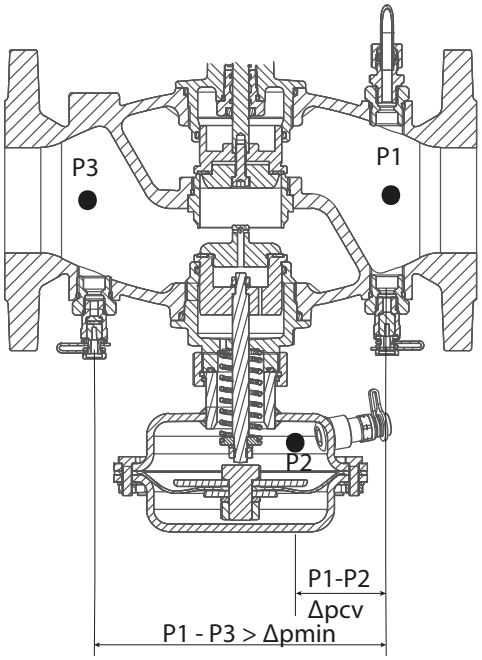
Prior to the assembly, maintenance and disassembly, the system must be depressurized, cooled down and emptied. Only authorized, trained and qualified personnel may perform activities of assembly, start-up, operation and disassembly of the equipment.

Before disposal the valve must be dismantled into groups of structural components and delivered to authorized waste recycling organizations in order to preserve the environment. Local legislations must be obeyed when disposing of the components.

☑ Actuator Selection

Order number	DN	Hub [mm]	F **7712** 90 24 V, continuous, 500 N, 15 mm	F **7712** 95 24 V, 2/3-point, 500 N, 15 mm	F **7712** 81 230 V, 2/3-point, 500 N, 15 mm	F **7712** 91 24 V, continuous, 1.000 N, 20 mm	F **7712** 96 24 V, 2/3-point, 1.000 N, 20 mm	F **7712** 82 230 V, 2/3-point, 1.000 N, 20 mm	F **7712** 92 24 V, continuous, 2.500 N, 40 mm	F **7712** 98 24 V, 2/3-point, 2.500 N, 40 mm	1 **7712** 21 24 V, continuous, 2/3-point 2.500 N, 40 mm	F **7712** 84 230 V, 2/3-point, 2.500 N, 40 mm
F **4006** 62	50	15	direct assembly	direct assembly	direct assembly							
F **4006** 63	65	15	direct assembly	direct assembly	direct assembly							
F **4006** 64	80	20				direct assembly	direct assembly	direct assembly				
F **4006** 65	100	20				direct assembly	direct assembly	direct assembly				
F **4006** 66	125	40							direct assembly	direct assembly	direct assembly	direct assembly
F **4006** 56	125 HF	40							direct assembly	direct assembly	direct assembly	direct assembly
F **4006** 67	150	40							direct assembly	direct assembly	direct assembly	direct assembly
F **4006** 57	150 HF	40							direct assembly	direct assembly	direct assembly	direct assembly
F **4006** 68	200 SF	40							direct assembly	direct assembly	direct assembly	direct assembly
F **4006** 58	200 HF	40							direct assembly	direct assembly	direct assembly	direct assembly
F **4006** 48	200 UHF	40							direct assembly	direct assembly	direct assembly	direct assembly
F **4006** 69	250 SF	40							direct assembly	direct assembly	direct assembly	direct assembly
F **4006** 59	250 HF	40							direct assembly	direct assembly	direct assembly	direct assembly

☑ k_V - values of the control valve in the flanged PIBCV **(quick test point P1 - P2)**



Pre-setting	DN 50	DN 65	DN 80	DN100	DN125	DN 125 HF	DN150	DN150 HF	DN200	DN200 HF	DN200 UHF	DN250 SF
[%]	[m³/h]	[m³/h]	[m³/h]	[m³/h]	[m³/h]	[m³/h]	[m³/h]	[m³/h]	[m³/h]	[m³/h]	[m³/h]	[m³/h]
25	13.0	13.3	12.7	19.9	68	56	93	68	82	94	96	108
30	14.7	15.3	14	23.2	83	70	107	81	98	112	114	137
35	16.3	17.3	15.8	27.6	94	81	119	96	113	130	133	165
40	17.8	19.3	17.6	32.0	104	91	129	109	133	149	152	193
45	19.7	21.5	19.7	37.65	112	99	139	122	149	167	172	216
50	21.5	23.7	21.8	43.3	120	106	149	134	167	186	190	239
55	23.6	26.7	24.85	47.9	129	115	161	150	179	203	208	263.5
60	25.6	29.7	27.9	52.5	130	119	183	164	196	222	227	288
65	28.0	33.2	33	56.0	140	126	205	190	211	240	245	316
70	30.3	36.7	38.1	59.5	147.5	133	221	200	229	260	263	344
75	32.7	40.3	43.1	62.25	158	144	247	211	246	281	285	369
80	35.1	43.9	48	65.0	180	169	268	230	272	304	308	394
85	37.3	47.9	53.1	67.25	213	188	285	251	288	323	328	417
90	39.5	51.8	58.2	69.5	242	219	302	269	316	343	347	440
95	39	54.4	62	71.3	284	-	317	292	336	362	371	474
100	38.5	57.0	65.8	73.1	294	-	-	312	358	378	391	508

☑ General information

Intended Use

This product is intended to be used as specified by the manufacturer, described in the „Functional Description“ section. Local product regulations must be taken into consideration. Changes are not permitted.

Please note: all diagrams are indicative in nature and do not claim to be complete.
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Technical data - flow characteristic, test point P1-P3

F **4006** 62	DN50	min dp	40kPa
l/h	m³/h	kv	VE
15000	15	23,7	100%
13500	13,5	21,3	90%
12000	12	19,0	80%
10500	10,5	16,6	70%
9000	9	14,2	60%
7500	7,5	11,9	50%
6000	6	9,5	40%
4500	4,5	7,1	30%
3750	3,75	5,9	25%

F **4006** 63	DN65	min dp	40kPa
l/h	m³/h	kv	VE
20000	20	31,6	100%
18000	18	28,5	90%
16000	16	25,3	80%
14000	14	22,1	70%
12000	12	19,0	60%
10000	10	15,8	50%
8000	8	12,6	40%
6000	6	9,5	30%
5000	5	7,9	25%

F **4006** 64	DN80	min dp	40kPa
l/h	m³/h	kv	VE
36000	36	56,9	100%
32400	32,4	51,2	90%
28800	28,8	45,5	80%
25200	25,2	39,8	70%
21600	21,6	34,2	60%
18000	18	28,5	50%
14400	14,4	22,8	40%
10800	10,8	17,1	30%
9000	9	14,2	25%

F **4006** 65	DN100	min dp	40kPa
l/h	m³/h	kv	VE
43000	43,0	68,0	100%
38700	38,7	61,2	90%
34400	34,4	54,4	80%
30100	30,1	47,6	70%
25800	25,8	40,8	60%
21500	21,5	34	50%
17200	17,2	27,2	40%
12900	12,9	20,4	30%
10750	10,75	17,0	25%

F **4006** 66	DN125	min dp	40kPa
l/h	m³/h	kv	VE
100000	100	158,1	100%
90000	90	142,3	90%
80000	80	126,5	80%
70000	70	110,7	70%
60000	60	94,9	60%
50000	50	79,1	50%
40000	40	63,2	40%
30000	30	47,4	30%
25000	25	39,5	25%

F **4006** 56	DN125HF	min dp	70kPa
l/h	m³/h	kv	VE
150000	150	179,3	100%
135000	135	161,4	90%
120000	120	143,4	80%
105000	105	125,5	70%
90000	90	107,6	60%
75000	75	89,6	50%
60000	60	71,7	40%
45000	45	53,8	30%
37500	37,5	44,8	25%

F **4006** 67	DN150	min dp	40kPa
l/h	m³/h	kv	VE
145000	145	229,3	100%
130500	130,5	206,3	90%
116000	116	183,4	80%
101500	101,5	160,5	70%
87000	87	137,6	60%
72500	72,5	114,6	50%
58000	58	91,7	40%
43500	43,5	68,8	30%
36250	36,25	57,3	25%

F **4006** 57	DN150HF	min dp	70kPa
l/h	m³/h	kv	VE
200000	200	239,0	100%
180000	180	215,1	90%
160000	160	191,2	80%
140000	140	167,3	70%
120000	120	143,4	60%
100000	100	119,5	50%
80000	80	95,6	40%
60000	60	71,7	30%
50000	50	59,8	25%

F **4006** 68	DN200	min dp	40kPa
l/h	m³/h	kv	VE
210000	210	332,0	100%
189000	189	298,8	90%
168000	168	265,6	80%
147000	147	232,4	70%
126000	126	199,2	60%
105000	105	166,0	50%
84000	84	132,8	40%
63000	63	99,6	30%
52500	52,5	83,0	25%

F **4006** 58	DN200HF	min dp	70kPa
l/h	m³/h	kv	VE
300000	300	358,6	100%
270000	270	322,7	90%
240000	240	286,9	80%
210000	210	251,0	70%
180000	180	215,1	60%
150000	150	179,3	50%
120000	120	143,4	40%
90000	90	107,6	30%
75000	75	89,6	25%

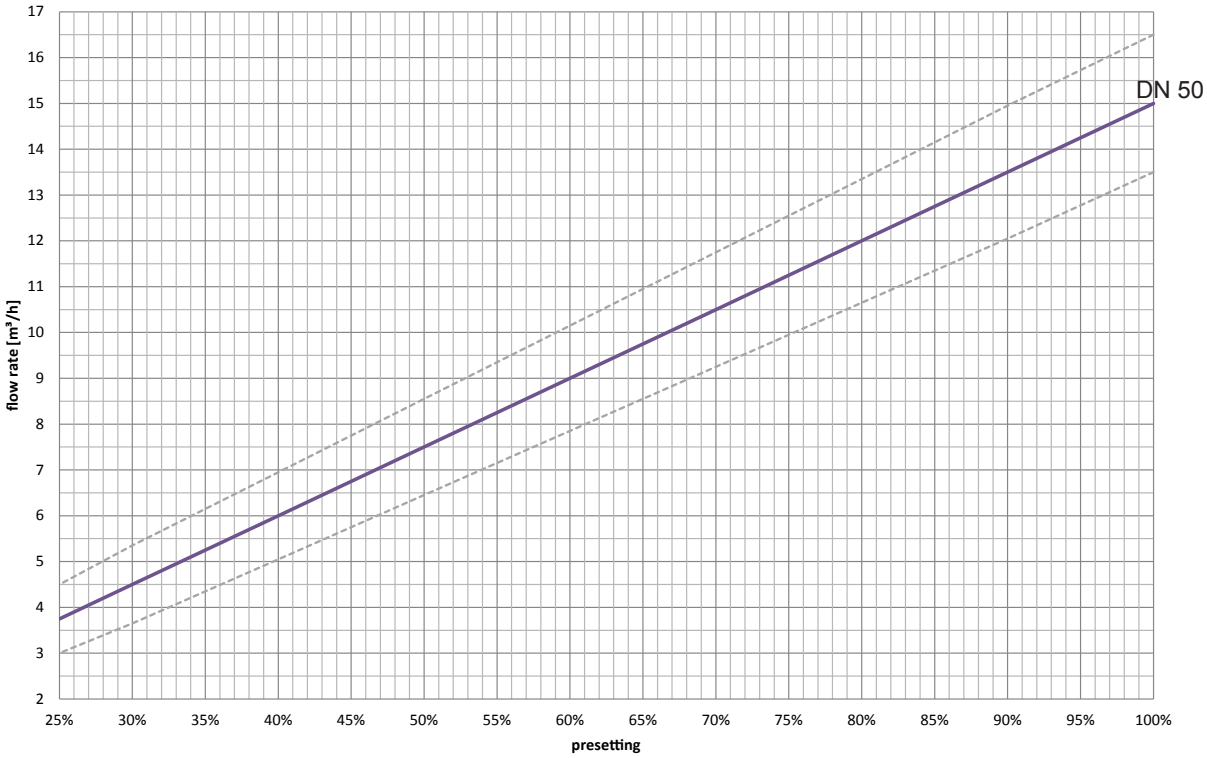
F **4006** 48	200UHF	min dp	85kPa
l/h	m³/h	kv	VE
350000	350	379,6	100%
315000	315	341,7	90%
280000	280	303,7	80%
245000	245	265,7	70%
210000	210	227,8	60%
175000	175	189,8	50%
140000	140	151,9	40%
105000	105	113,9	30%
87500	87,5	94,9	25%

F **4006** 59	250HF	min dp	70kPa
l/h	m³/h	kv	VE
410000	410	490	100%
369000	369	441	90%
328000	328	392	80%
287000	287	343	70%
246000	246	294	60%
205000	205	245	50%
164000	164	196	40%
123000	123	147	30%
102500	102,5	123	25%

F **4006** 69	250SF	min dp	50kPa
l/h	m³/h	kv	VE
350000	350	495	100%
315000	315	445,5	90%
280000	280	396	80%
245000	245	347	70%
210000	210	297	60%
175000	175	248	50%
140000	140	198	40%
105000	105	148,5	30%
87500	87,5	123,7	25%

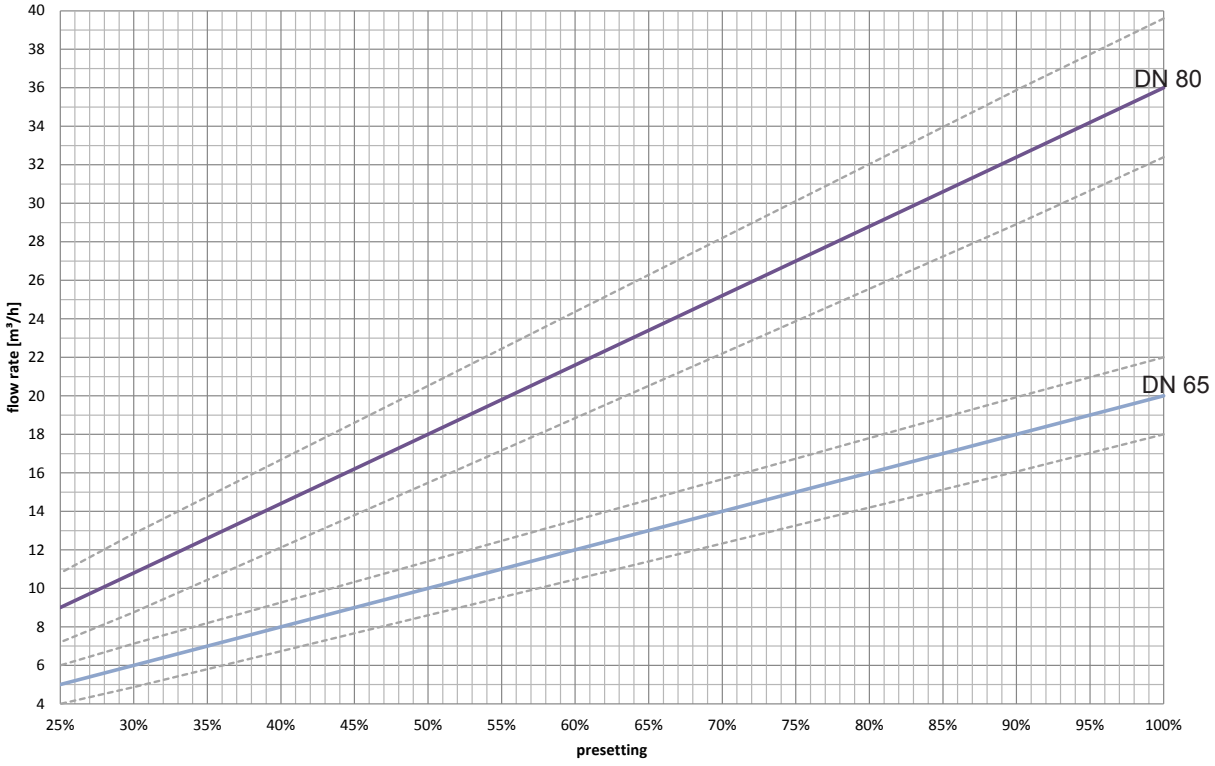
HERZ standard diagram
Order no.: F **4006** 62

F 4006 6x
DN50



HERZ standard diagram
Order no.: F **4006** 63, 64

F 4006 6x
DN65 and DN80

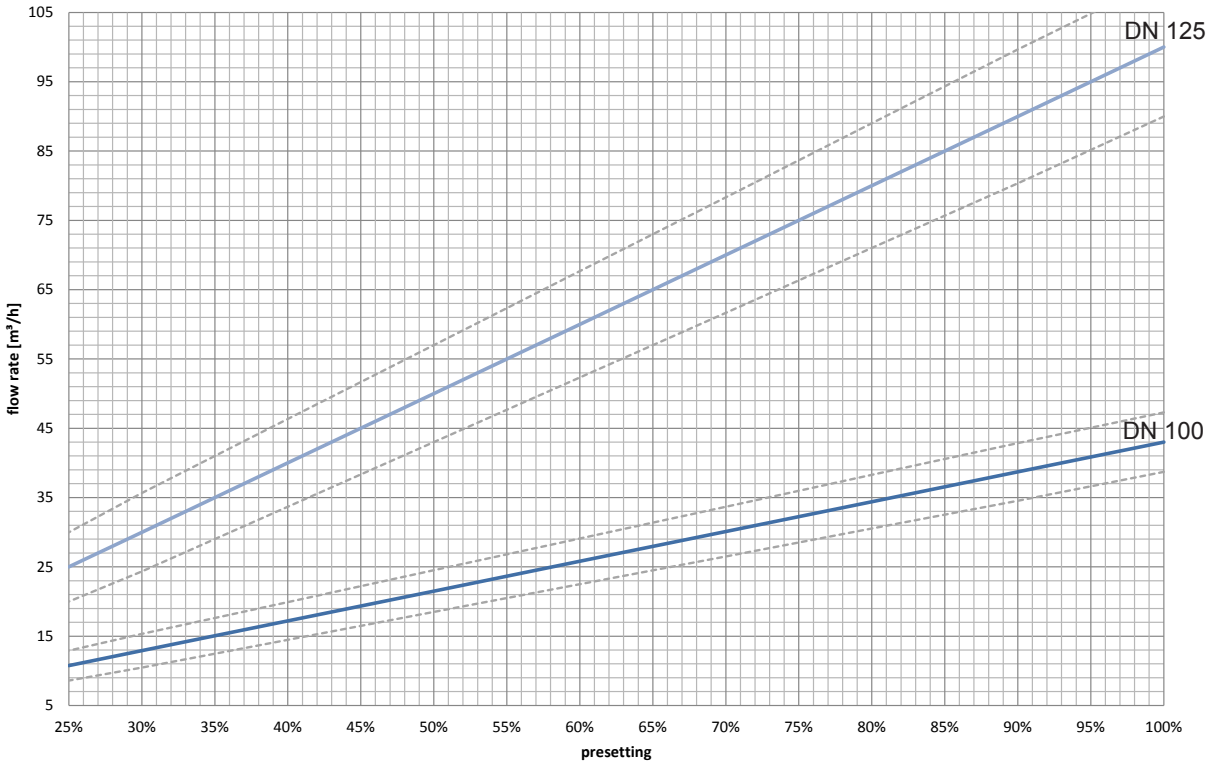


HERZ standard diagram

Order no.: F **4006** 65, 66

F 4006 6x

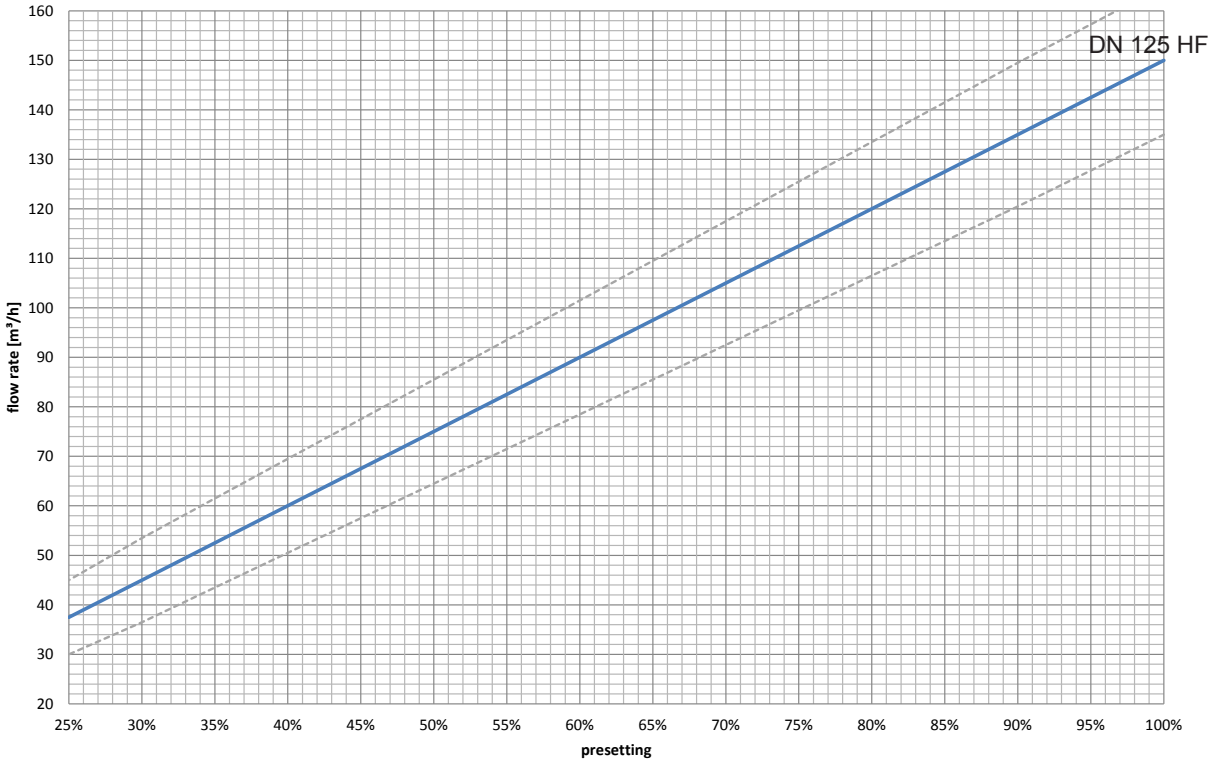
DN100 and DN125



HERZ standard diagram

Order no.: F **4006** 56

DN125 HF

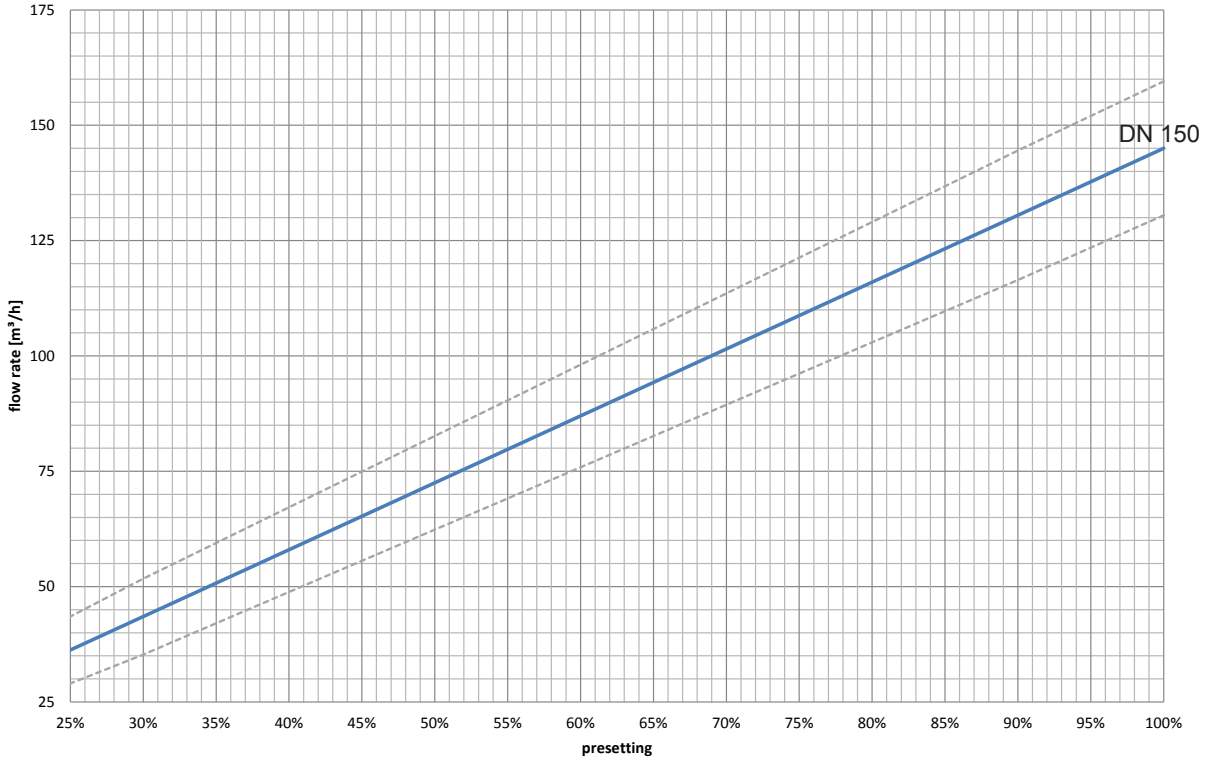


HERZ standard diagram

Order no.: F **4006** 67

F 4006 6x

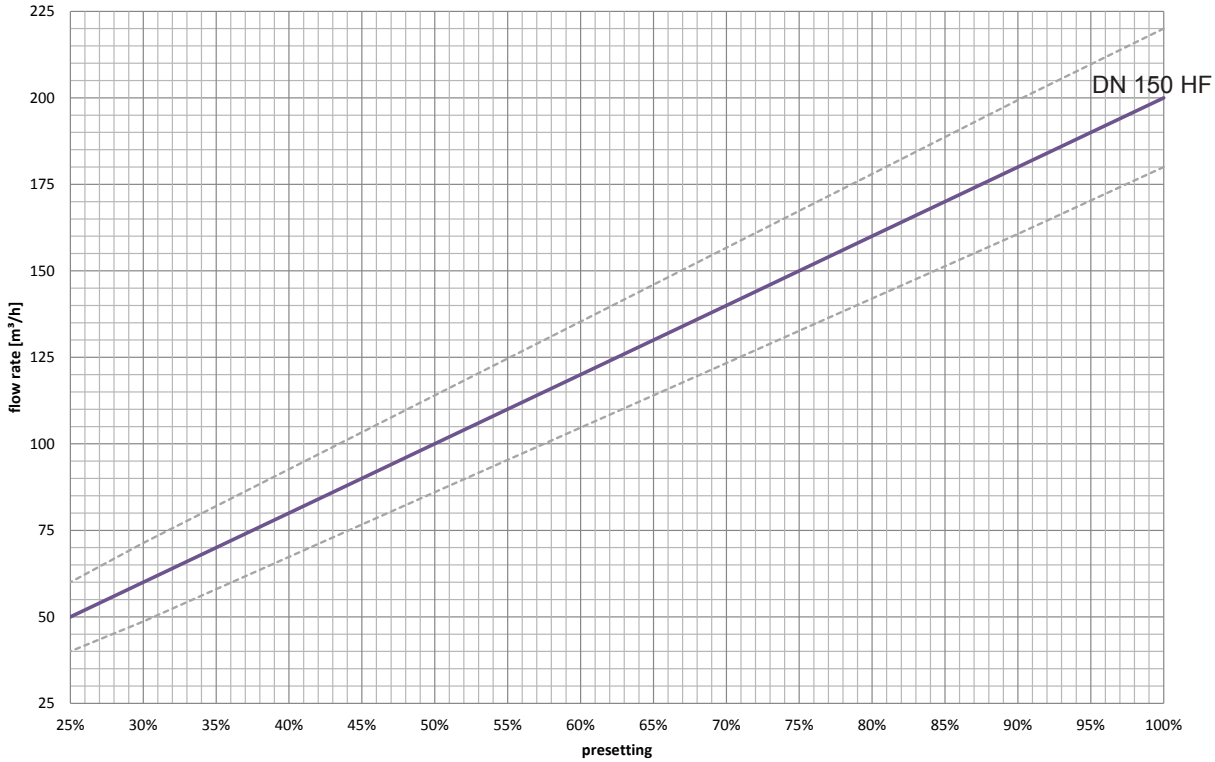
DN150



HERZ standard diagram

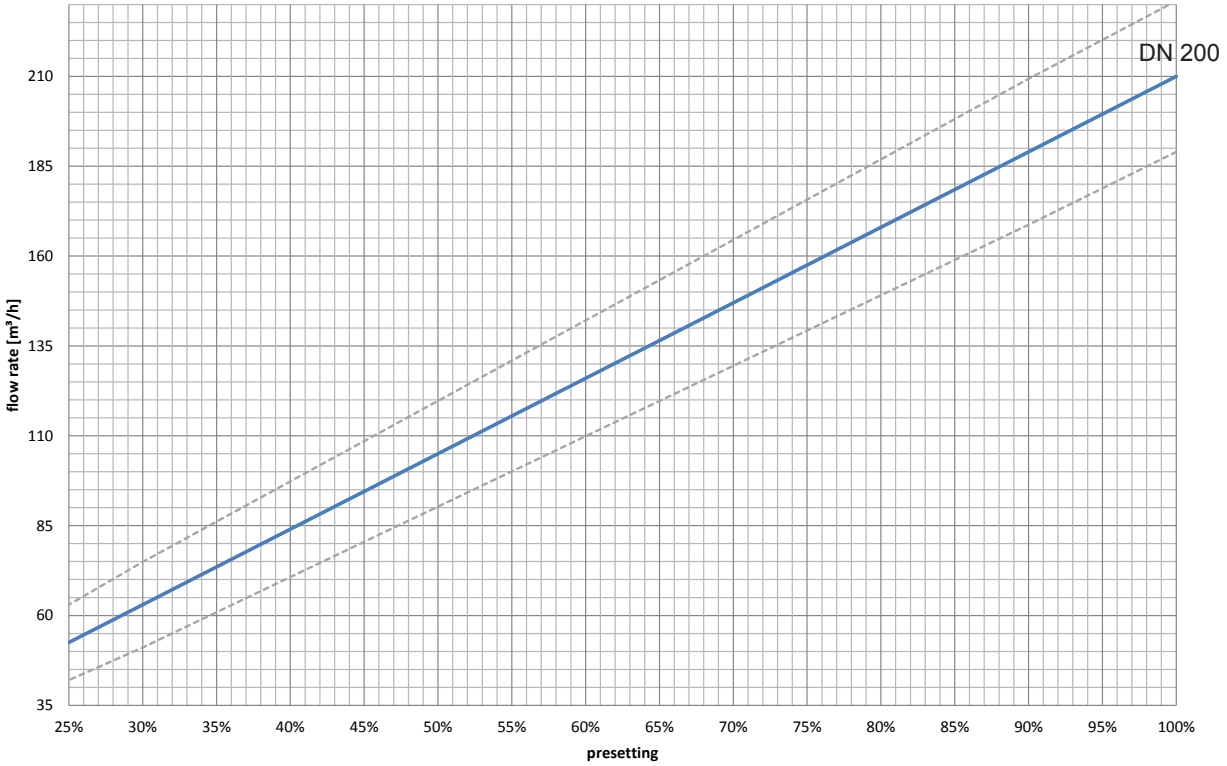
Order no.: F **4006** 57

DN150 HF



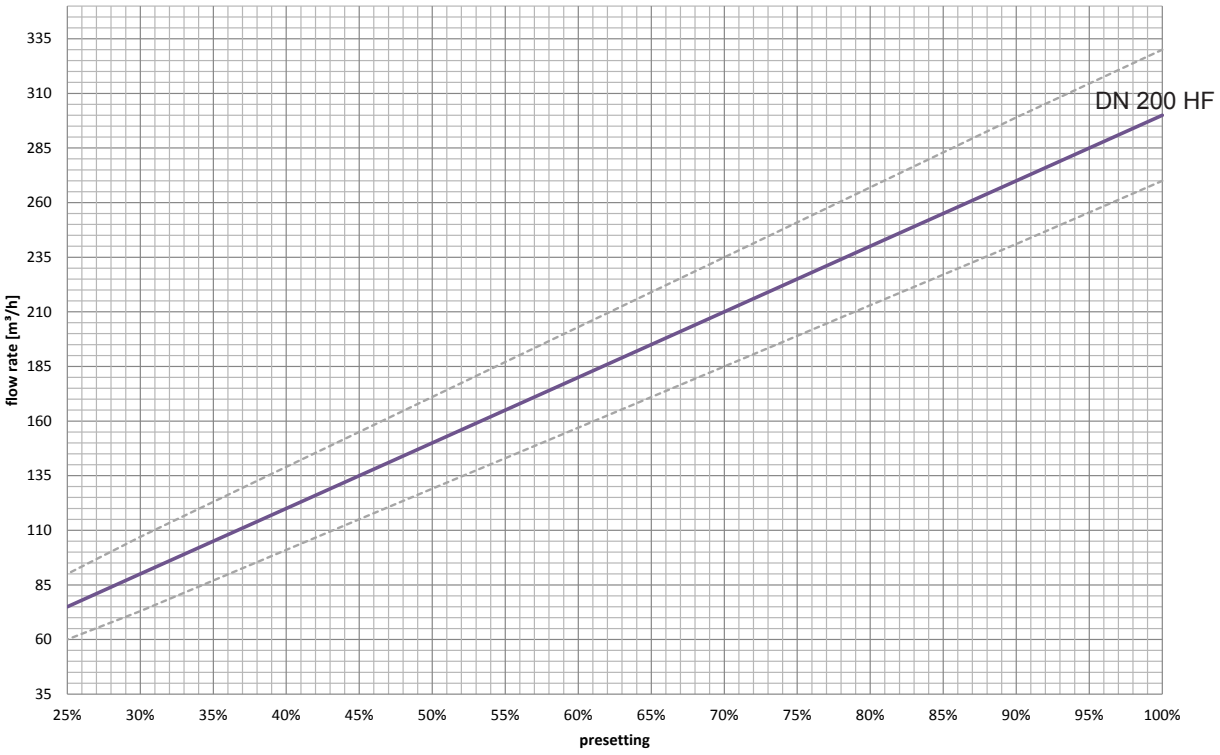
HERZ standard diagram
Order no.: F **4006** 68

F 4006 6x
DN200



HERZ standard diagram
Order no.: F **4006** 58

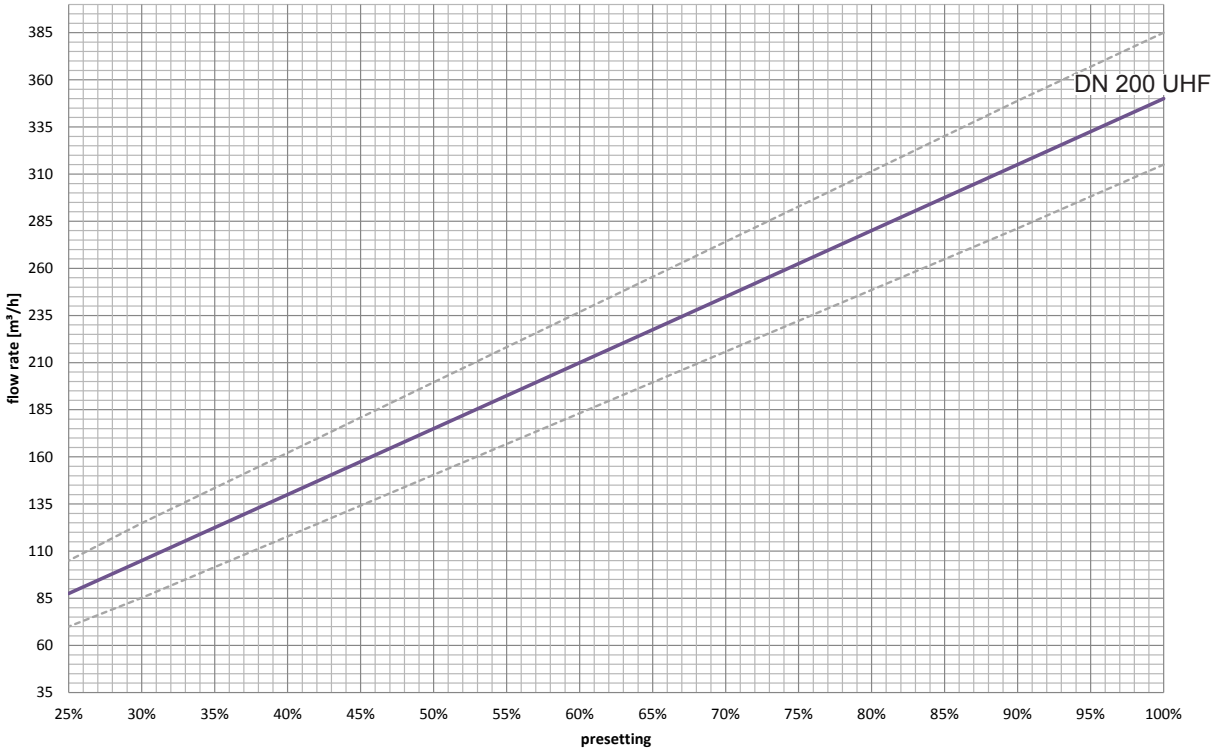
DN200 HF



HERZ standard diagram

Order no.: F **4006** 48

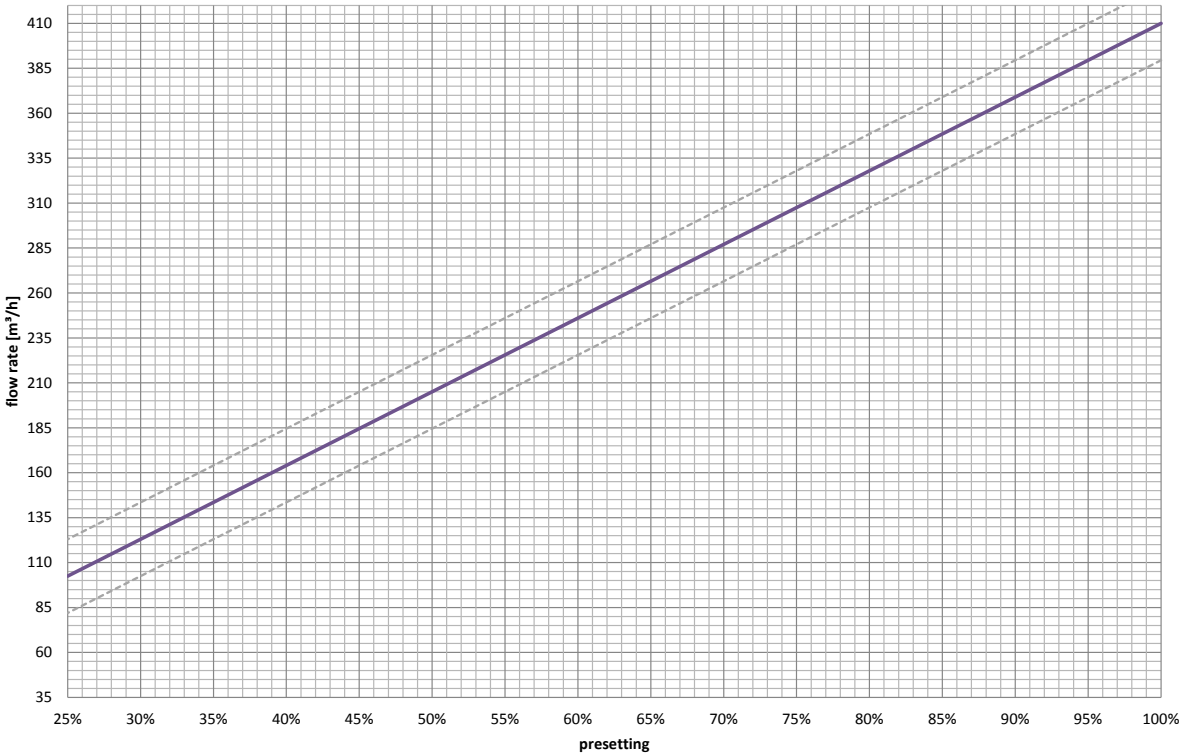
DN 200 UHF



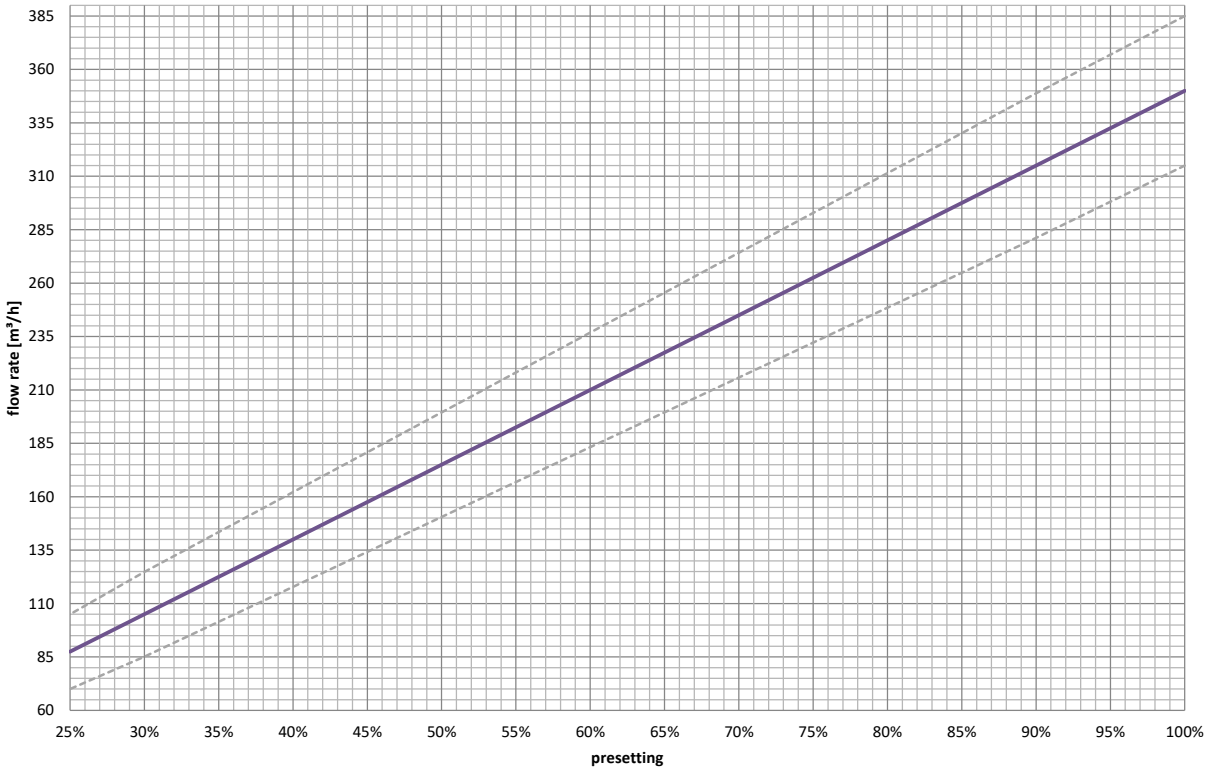
HERZ standard diagram

Order no.: F **4006** 59

DN 250 HF



HERZ standard diagram

Order no.: F **4006** 69

DN 250 SF