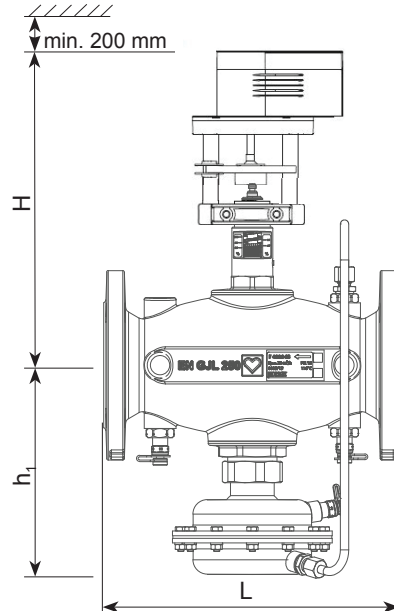
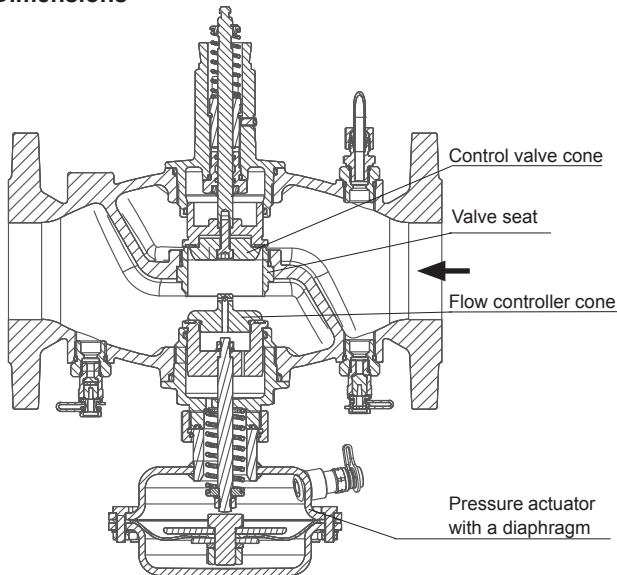


HERZ - Pressure-independent control valve in flanged design

Data sheet F 4006 6X, 5X, 4X, Issue 0126

Dimensions



Order Nr. PN 16	DN	Stroke	min. Flowrate @ 25%	max. Flowrate @ 100%	min. dp $\Delta p_{1-3, \min}$	kvs1-3 combi valve	H	h1	L
		[mm]	[m ³ /h]	[m ³ /h]	[kPa]	[m ³ /h]	[mm]	[mm]	[mm]
F 4006 62	50	13.5	4.00	15	30	29.2	310	210	230
F 4006 63	65	13.5	5.80	23	30	42.0	310	210	290
F 4006 64	80	20	9.00	36	30	65.7	395	230	310
F 4006 65	100	20	10.80	43	30	78.5	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

Nominal diameter	DN	50	65	80	100	125	125HF	150	150HF	200	200HF	200UHF	250SF	250HF	
Max. operating pres.	bar	16													
Max. differential press.	bar	8	8	8	8	6	6	6	6	6	6	6	6	6	
Max. differential press.	bar	0.3	0.3	0.3	0.6	0.4	0.7	0.4	0.7	0.4	0.7	0.85	0.5	0.7	
Valve characteristic		Linear													
Max. operating temp.	°C	110 (liquid, not steam)													
Min. operating temp.	°C	- 20 (frost protection)													
Min. operating temp.	°C	2 (pure water)													
Type of connection		Flanged (EN 1092-2)													
Valve body material		EN-GJL-250													
Gasket material		EPDM													
Cones, stem, seat material		Brass, stainless steel, stainless steel													
Impulse tube		stainless steel													
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.

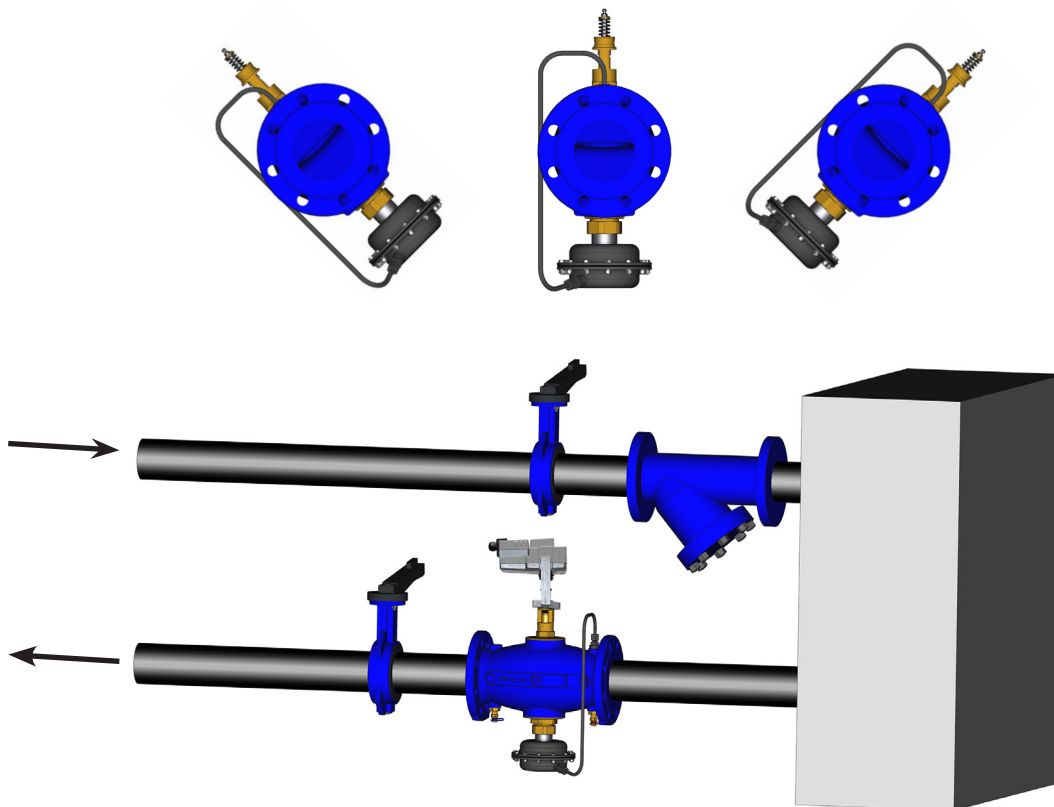
Installation

Recommended installation: Install the valve in the return flow pipe of the system. Electric actuator must be placed in upward position, at $\pm 45^\circ$ 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.

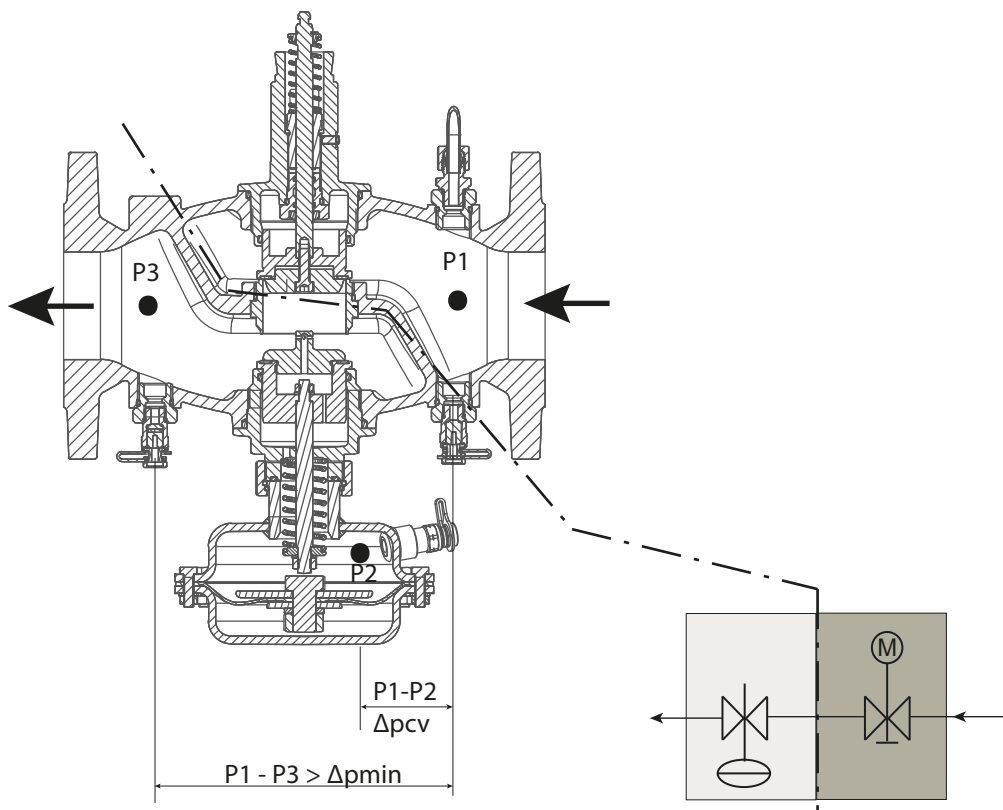
Balancing and control valve

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 PIBCV 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

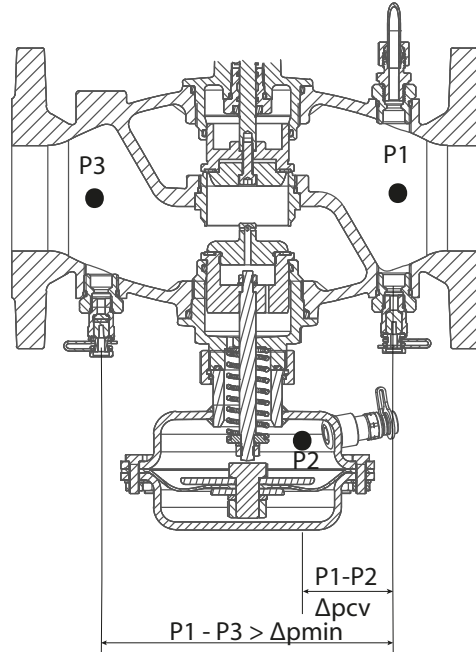
Prior to the assembly, maintenance and disassembly, the system must be depressurized, cooled down and emptied. Only authorized, trained and qualified personnel may perform activities of assembly, start-up, operation and disassembly of the equipment.

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	F 7712 95	F 7712 81	F 7712 91	F 7712 96	F 7712 82	F 7712 92	F 7712 98	1 7712 21	F 7712 84
F 4006 62	50	15	24 V, continuous, 500 N, 15 mm	24 V, 2/3-point, 500 N, 15 mm	230 V, 2/3-point, 500 N, 15 mm	24 V, continuous, 1.000 N, 20 mm	24 V, 2/3-point, 1.000 N, 20 mm	230 V, 2/3-point, 1.000 N, 20 mm	24 V, continuous, 2.500 N, 40 mm	24 V, 2/3-point, 2.500 N, 40 mm	24 V, continuous, 2/3-point 2.500 N, 40 mm	230 V, 2/3-point, 2.500 N, 40 mm
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
$\Delta p_{1-3, \min}$ [kPa] ¹⁾	30	30	30	30	40	70	40	70	40	70	85	50
[%]	kv [m ³ /h]											
25	13.3	13.6	14.4	23.8	68.0	56.0	93.0	68.0	82.0	94.0	96.0	108.0
30	14.7	15.9	17.7	26.6	83.0	70.0	107.0	81.0	98.0	112.0	114.0	137.0
35	15.8	17.8	20.7	29.8	94.0	81.0	119.0	96.0	113.0	130.0	133.0	165.0
40	17.0	19.6	23.1	33.2	104.0	91.0	129.0	109.0	133.0	149.0	152.0	193.0
45	18.3	21.5	25.4	36.9	112.0	99.0	139.0	122.0	149.0	167.0	172.0	216.0
50	19.7	23.5	27.7	41.0	120.0	106.0	149.0	134.0	167.0	186.0	190.0	239.0
55	21.4	25.8	30.7	45.5	129.0	115.0	161.0	150.0	179.0	203.0	208.0	263.5
60	23.3	28.3	34.5	50.3	130.0	119.0	183.0	164.0	196.0	222.0	227.0	288.0
65	25.3	31.2	39.1	55.4	140.0	126.0	205.0	190.0	211.0	240.0	245.0	316.0
70	27.4	34.2	44.3	60.4	147.5	133.0	221.0	200.0	229.0	260.0	262.0	344.0
75	29.5	37.3	49.0	65.2	158.0	144.0	247.0	211.0	246.0	281.0	285.0	369.0
80	31.6	40.4	53.9	69.6	180.0	169.0	268.0	230.0	272.0	304.0	308.0	394.0
85	33.6	43.3	59.1	73.8	213.0	188.0	285.0	251.0	288.0	323.0	328.0	417.0
90	35.4	45.6	65.3	77.6	242.0	219.0	302.0	269.0	316.0	343.0	347.0	440.0
95	37.0	47.2	73.6	81.3	284.0	-	317.0	292.0	336.0	362.0	371.0	474.0
100	38.6	47.6	85.5	85.3	294.0	-	-	312.0	358.0	378.0	391.0	508.0

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.

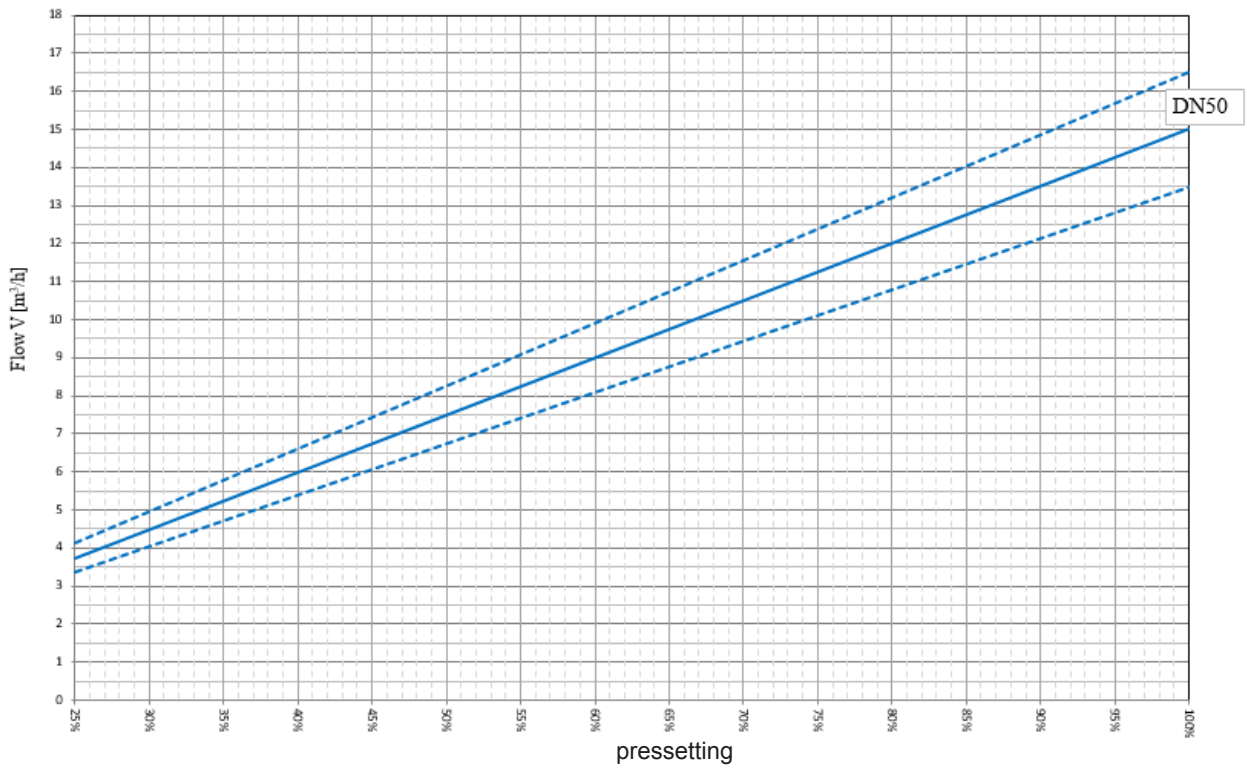
Please note: all diagrams are indicative in nature and do not claim to be complete.

All specifications and statements within this brochure are according to information available at the time of printing and meant for informational purpose only. Herz Armaturen reserves the right to modify and change products as well as its technical specifications and/or its functioning according to technological progress and requirements. It is understood that all images of Herz products are symbolic representations and therefore may visually differ from the actual product. Colours may differ due to printing technology used. In case of any further questions don't hesitate to contact your closest HERZ Branch-office.

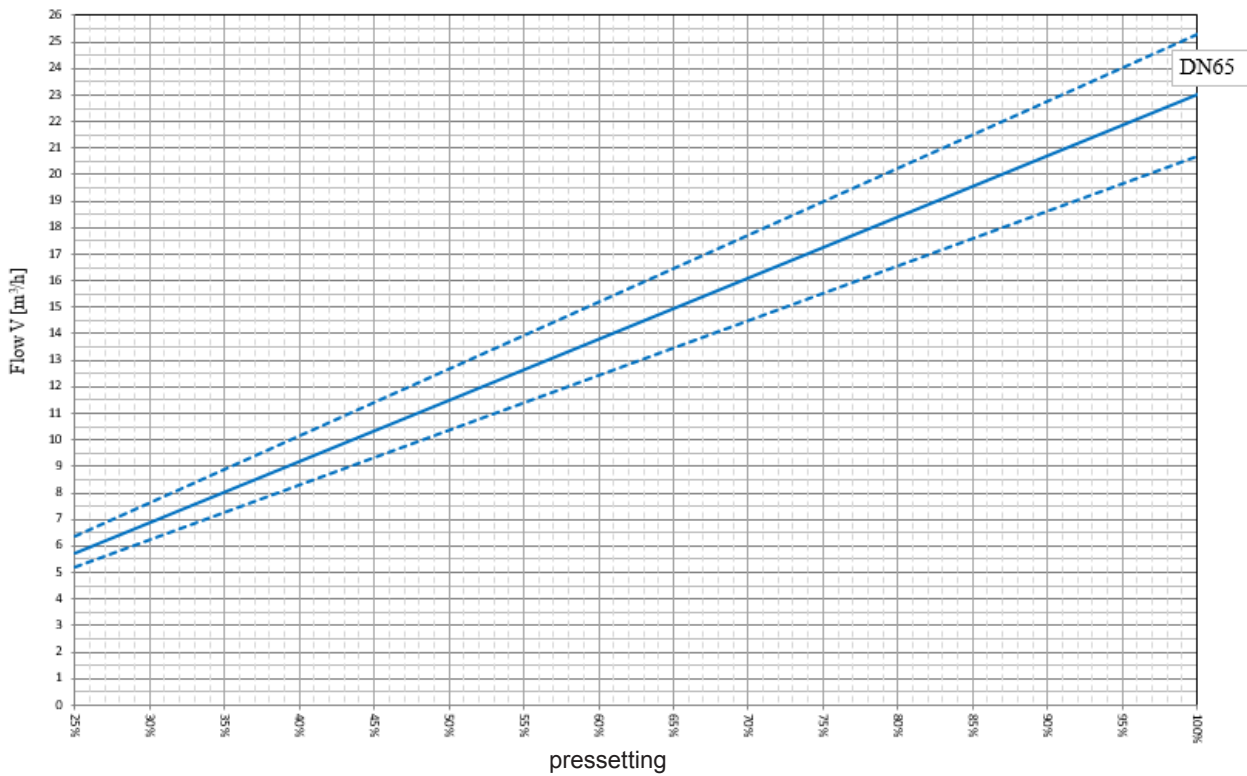
☑ Technical data - flow characteristic, test point P1-P3

F 4006 62 DN50 dp _{1-3, min} = 30 kPa				F 4006 63 DN65 dp _{1-3, min} = 30 kPa				F 4006 64 DN80 dp _{1-3, min} = 30 kPa			
l/h	m ³ /h	kv	VE	l/h	m ³ /h	kv	VE	l/h	m ³ /h	kv	VE
15000	15,0	27,4	100%	23000	23	42,0	100%	36000	36	65,7	100%
13500	13,5	24,6	90%	20700	20,7	37,8	90%	32400	32,4	59,2	90%
12000	12,0	21,9	80%	18400	18,4	33,6	80%	28800	28,8	52,6	80%
10500	10,5	19,2	70%	16100	16,1	29,4	70%	25200	25,2	46,0	70%
9000	9,0	16,4	60%	13800	13,8	25,2	60%	21600	21,6	39,4	60%
7500	7,5	13,7	50%	11500	11,5	21,0	50%	18000	18	32,9	50%
6000	6,0	11,0	40%	9200	9,2	16,8	40%	14400	14,4	26,3	40%
4500	4,5	8,2	30%	6900	6,9	12,6	30%	10800	10,8	19,7	30%
3750	3,75	6,8	25%	5750	5,75	10,5	25%	9000	9	16,4	25%
F 4006 65 DN100 dp _{1-3, min} = 30 kPa				F 4006 66 DN125 dp _{1-3, min} = 40 kPa				F 4006 56 DN125HF dp _{1-3, min} = 70 kPa			
l/h	m ³ /h	kv	VE	l/h	m ³ /h	kv	VE	l/h	m ³ /h	kv	VE
43000	43,0	78,5	100%	100000	100	158,1	100%	150000	150	179,3	100%
38700	38,7	70,7	90%	90000	90	142,3	90%	135000	135	161,4	90%
34400	34,4	62,8	80%	80000	80	126,5	80%	120000	120	143,4	80%
30100	30,1	55,0	70%	70000	70	110,7	70%	105000	105	125,5	70%
25800	25,8	47,1	60%	60000	60	94,9	60%	90000	90	107,6	60%
21500	21,5	39,3	50%	50000	50	79,1	50%	75000	75	89,6	50%
17200	17,2	31,4	40%	40000	40	63,2	40%	60000	60	71,7	40%
12900	12,9	23,6	30%	30000	30	47,4	30%	45000	45	53,8	30%
10750	10,75	19,6	25%	25000	25	39,5	25%	37500	37,5	44,8	25%
F 4006 67 DN150 dp _{1-3, min} = 40 kPa				F 4006 57 DN150HF dp _{1-3, min} = 70 kPa				F 4006 68 DN200 dp _{1-3, min} = 40 kPa			
l/h	m ³ /h	kv	VE	l/h	m ³ /h	kv	VE	l/h	m ³ /h	kv	VE
145000	145	229,3	100%	200000	200	239,0	100%	210000	210	332,0	100%
130500	130,5	206,3	90%	180000	180	215,1	90%	189000	189	298,8	90%
116000	116	183,4	80%	160000	160	191,2	80%	168000	168	265,6	80%
101500	101,5	160,5	70%	140000	140	167,3	70%	147000	147	232,4	70%
87000	87	137,6	60%	120000	120	143,4	60%	126000	126	199,2	60%
72500	72,5	114,6	50%	100000	100	119,5	50%	105000	105	166,0	50%
58000	58	91,7	40%	80000	80	95,6	40%	84000	84	132,8	40%
43500	43,5	68,8	30%	60000	60	71,7	30%	63000	63	99,6	30%
36250	36,25	57,3	25%	50000	50	59,8	25%	52500	52,5	83,0	25%
F 4006 58 DN200HF dp _{1-3, min} = 70 kPa				F 4006 48 200UHF dp _{1-3, min} = 85 kPa				F 4006 69 250SF dp _{1-3, min} = 50 kPa			
l/h	m ³ /h	kv	VE	l/h	m ³ /h	kv	VE	l/h	m ³ /h	kv	VE
300000	300	358,6	100%	350000	350	379,6	100%	350000	350	495	100%
270000	270	322,7	90%	315000	315	341,7	90%	315000	315	445,5	90%
240000	240	286,9	80%	280000	280	303,7	80%	280000	280	396	80%
210000	210	251,0	70%	245000	245	265,7	70%	245000	245	346,5	70%
180000	180	215,1	60%	210000	210	227,8	60%	210000	210	297	60%
150000	150	179,3	50%	175000	175	189,8	50%	175000	175	247,5	50%
120000	120	143,4	40%	140000	140	151,9	40%	140000	140	198	40%
90000	90	107,6	30%	105000	105	113,9	30%	105000	105	148,5	30%
75000	75	89,6	25%	87500	87,5	94,9	25%	87500	87,5	123,7	25%
				F 4006 59 250HF dp _{1-3, min} = 70 kPa							
				l/h	m ³ /h	kv	VE				
				410000	410,0	490,0	100%				
				369000	369,0	441,0	90%				
				328000	328,0	392,0	80%				
				287000	287,0	343,0	70%				
				246000	246,0	294,0	60%				
				205000	205,0	245,0	50%				
				164000	164,0	196,0	40%				
				123000	123,0	147,0	30%				
				102500	102,5	122,5	25%				

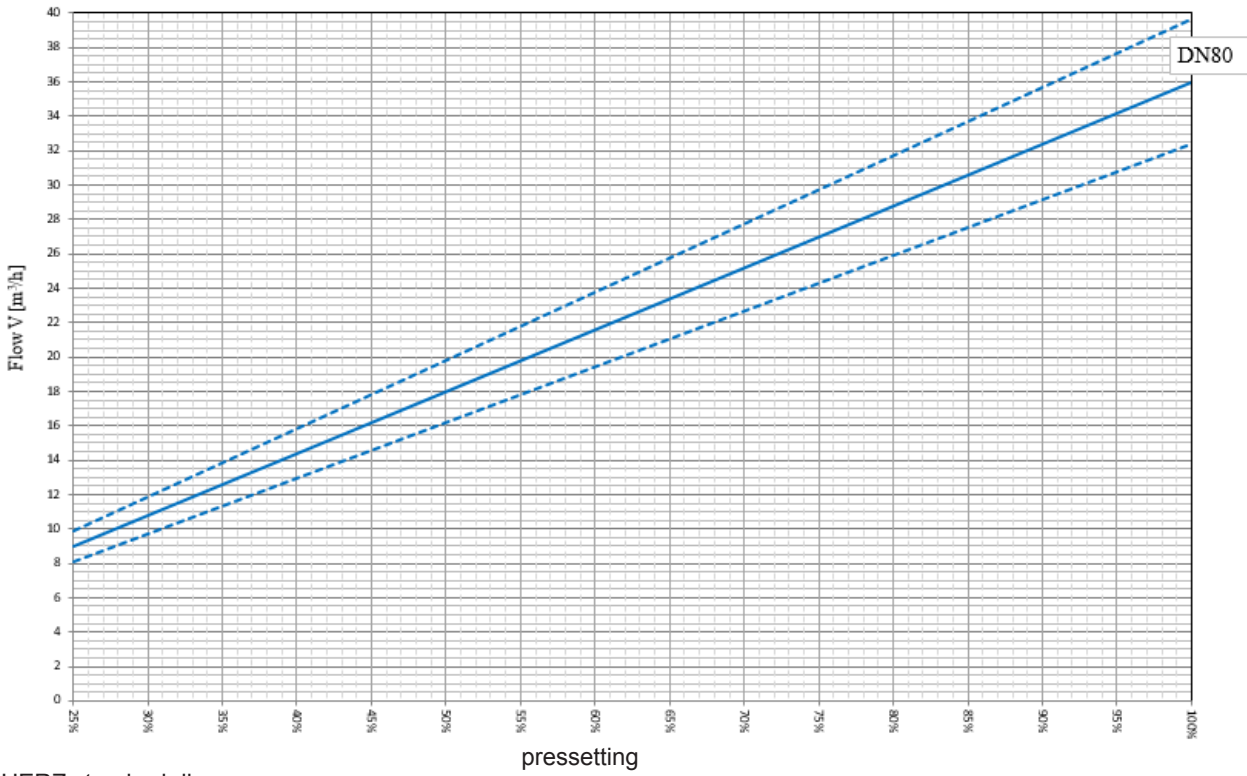
HERZ standard diagram
Order number: F 4006 62



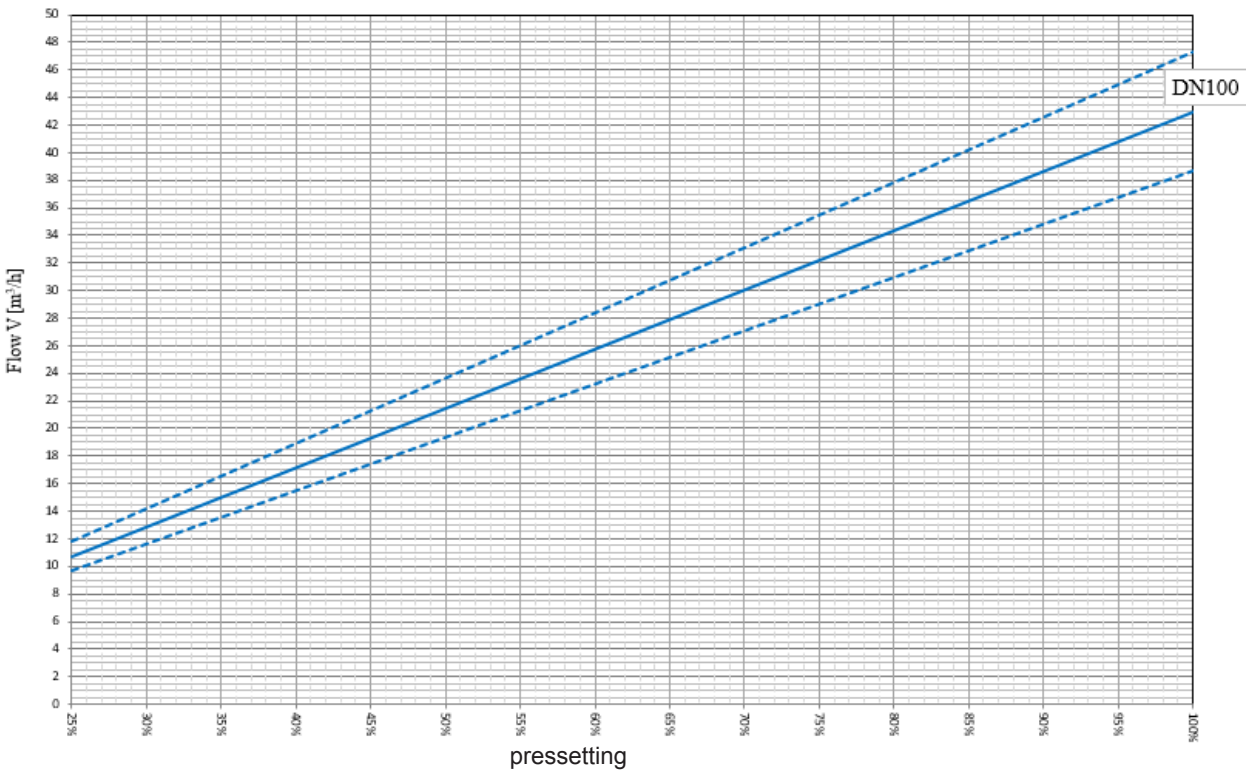
HERZ standard diagram
Order number: F 4006 63



HERZ standard diagram
Order number: F 4006 64

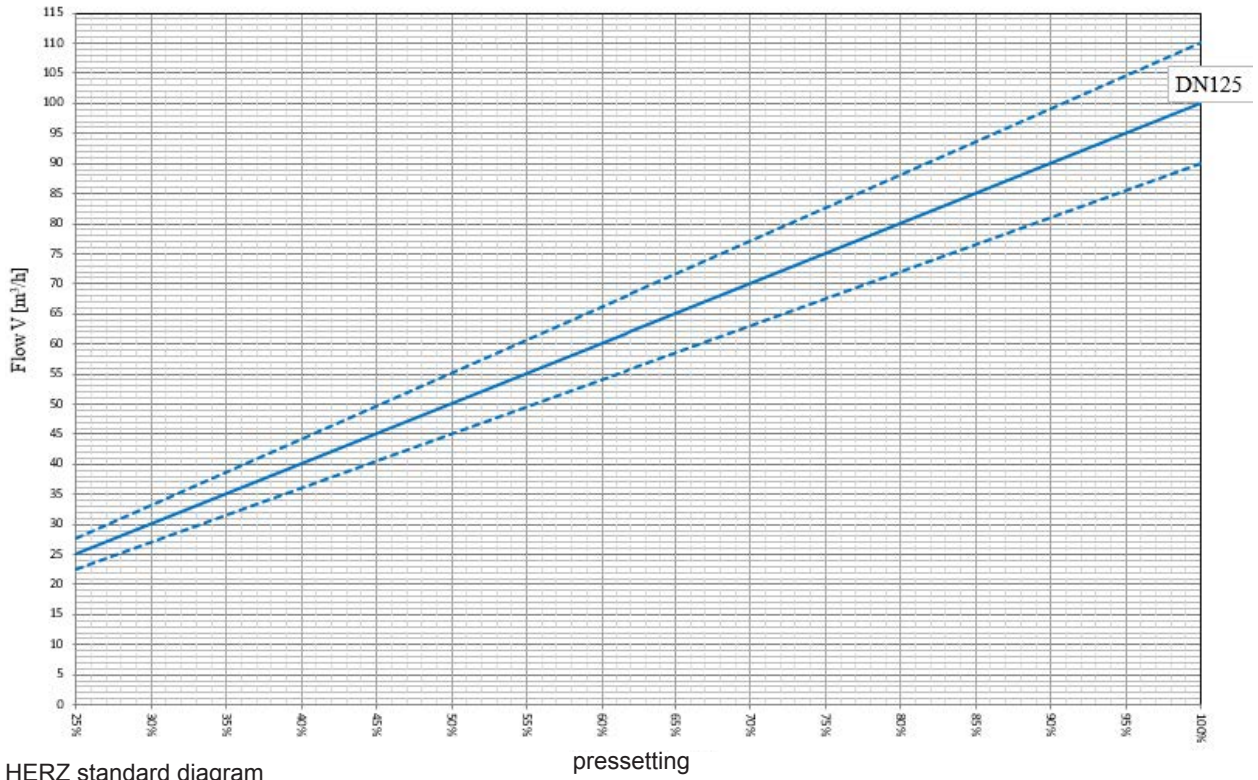


HERZ standard diagram
Order number: F 4006 65



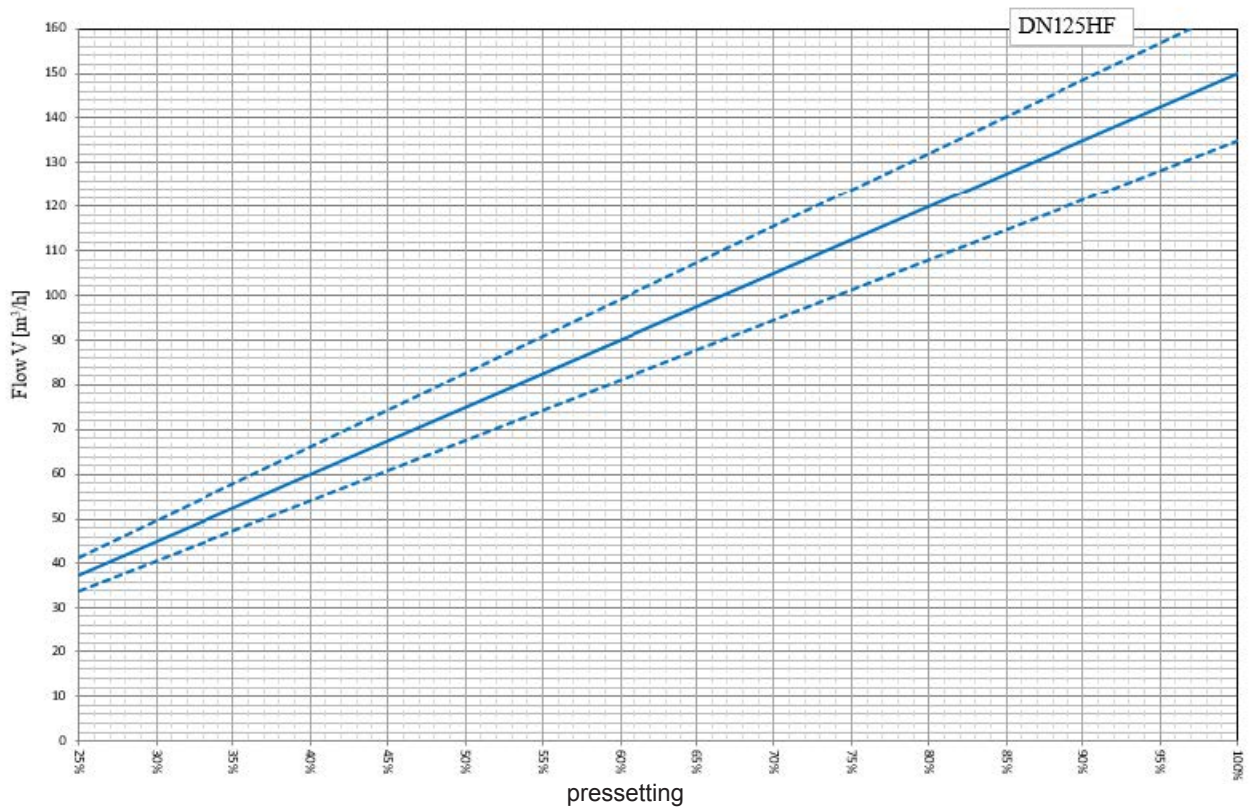
HERZ standard diagram

Order number: F 4006 66

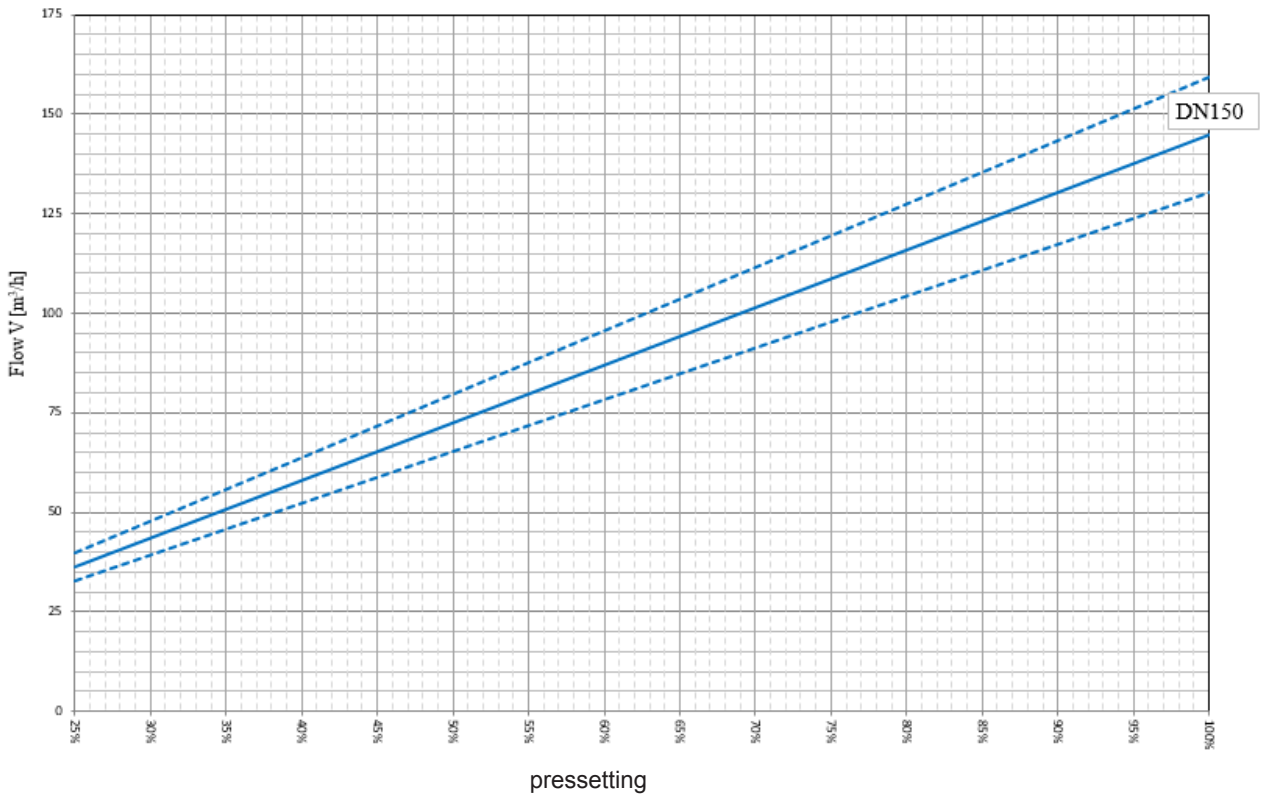


HERZ standard diagram

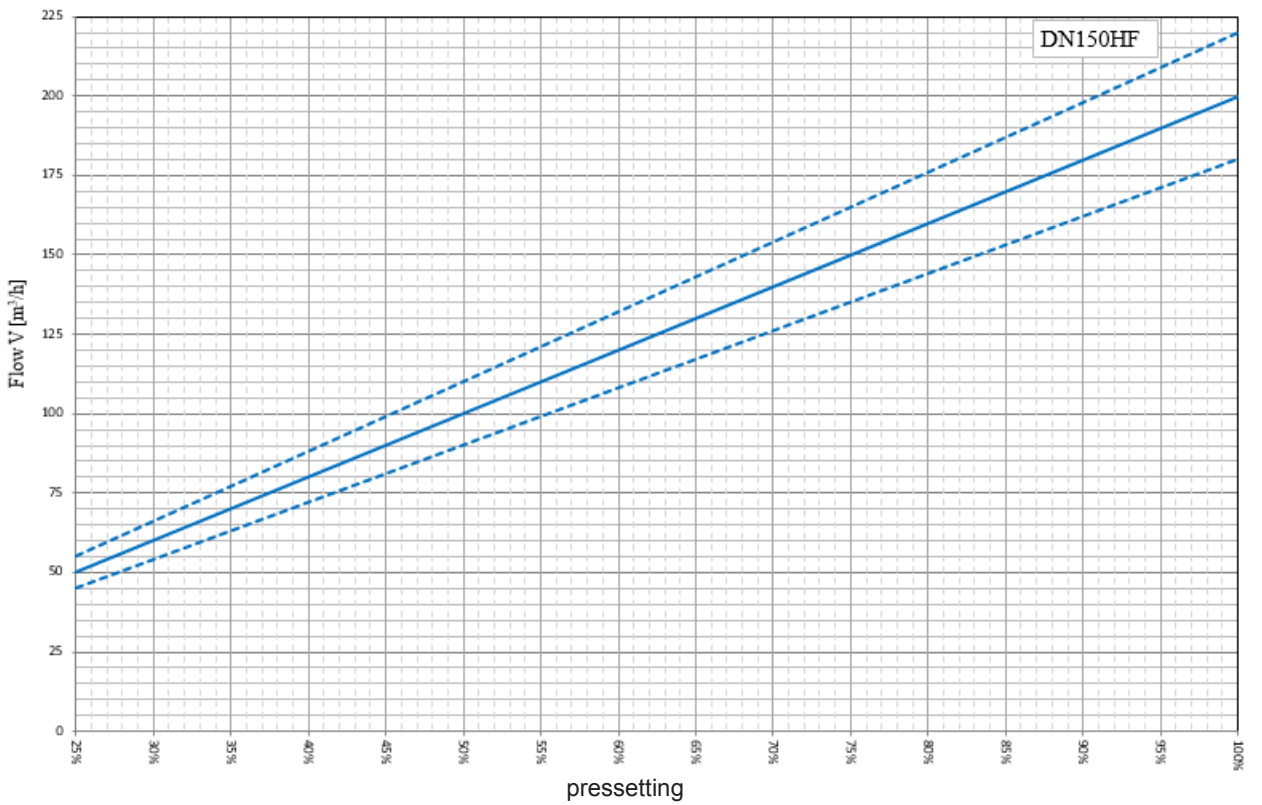
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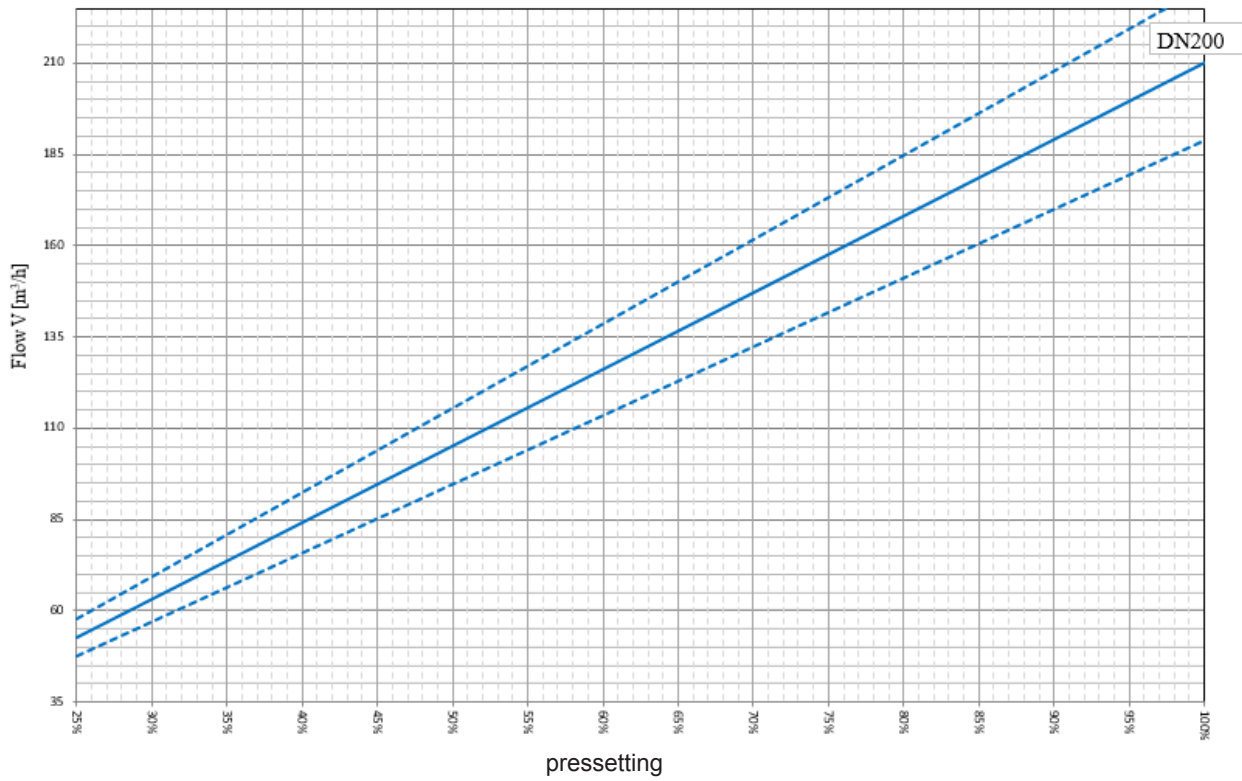
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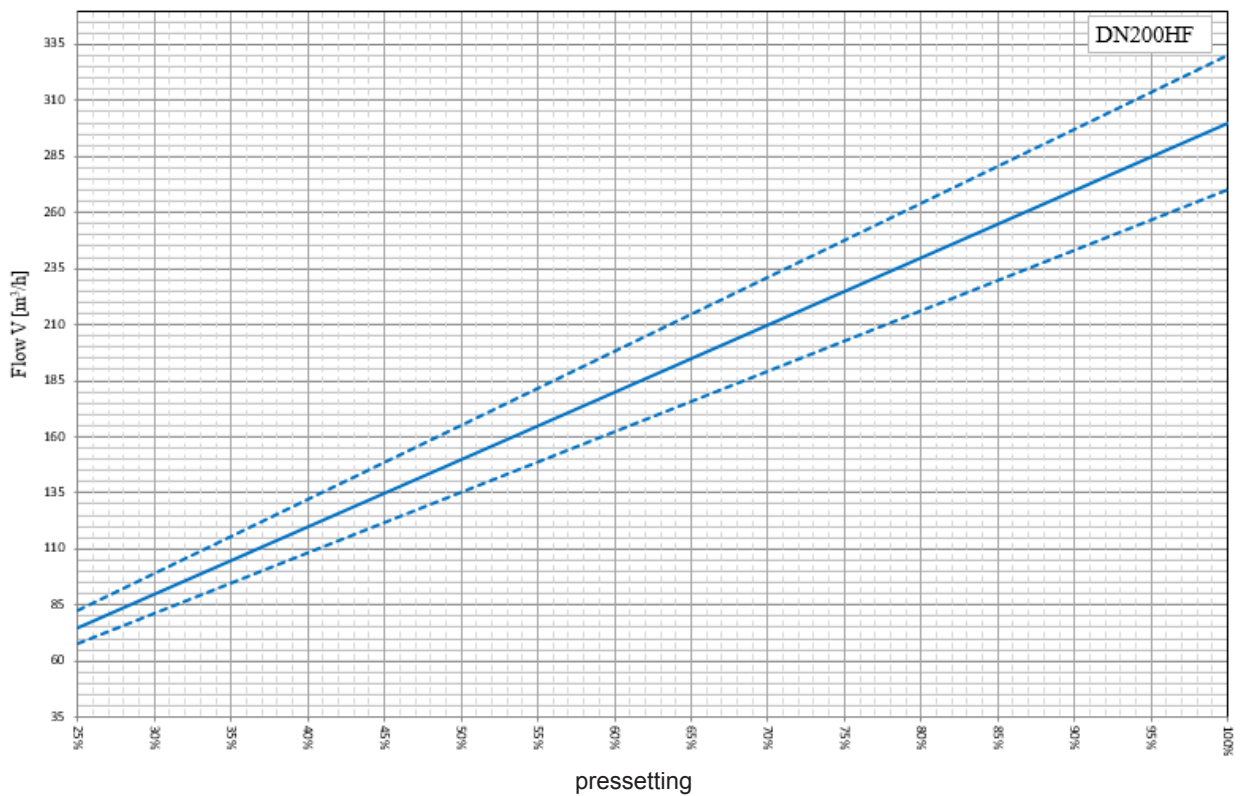
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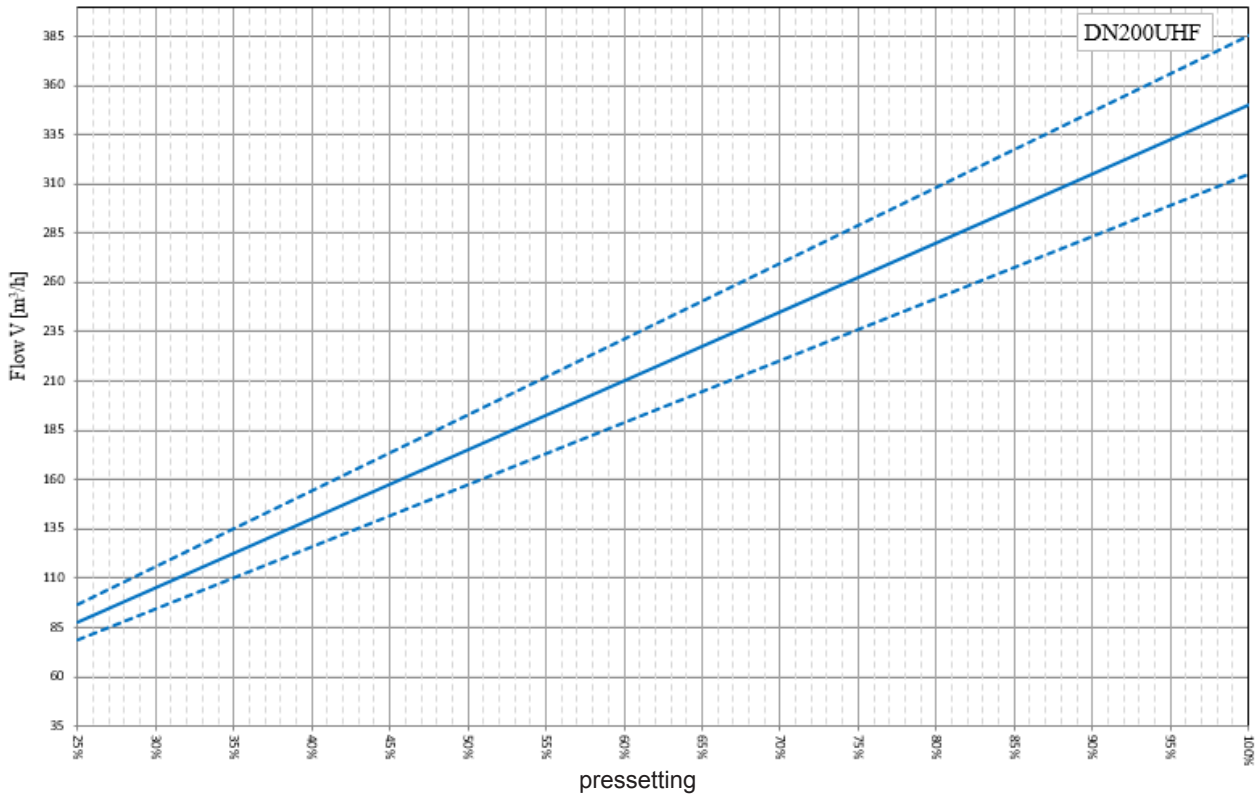
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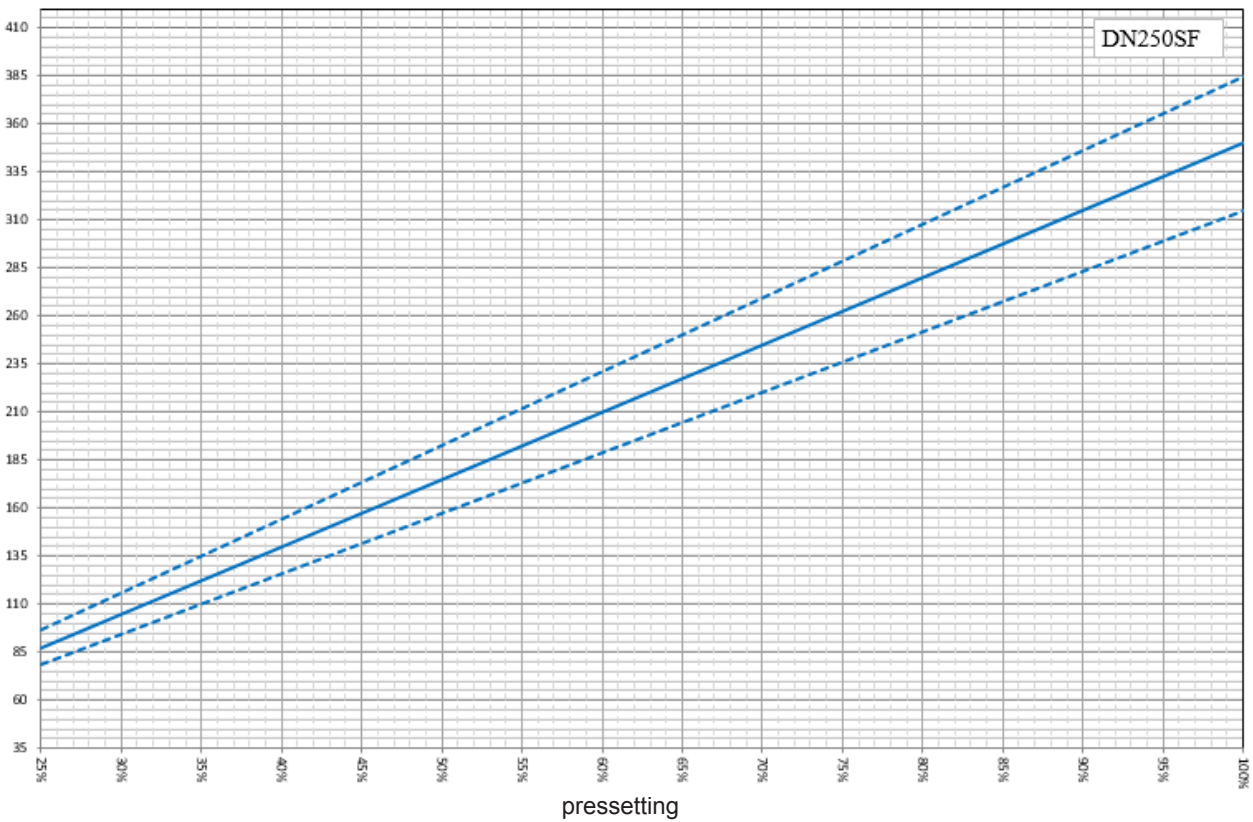
HERZ standard diagram
 Order number: F 4006 58



HERZ standard diagram
 Order number: F 4006 48



HERZ standard diagram
 Order number: F 4006 69



HERZ standard diagram
Order number: F 4006 59

