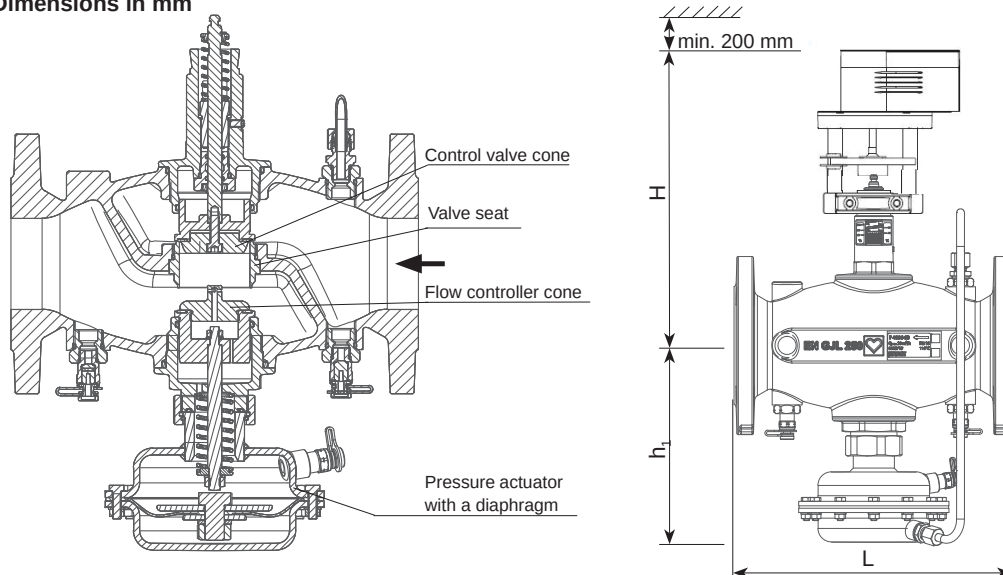


# HERZ - Pressure-independent control valve in flanged design

Data sheet F 4006 6X, 5X, 4X, Issue 1221

## ☑ Dimensions in mm



| Order Nr.<br>PN 16 | DN      | Stroke<br>[mm] | min.<br>Flowrate<br>@ 25% [m³/h] | max.<br>Flowrate<br>@ 100% [m³/h] | min. dp<br>[kPa] | kvs<br>combi<br>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           | 6 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.

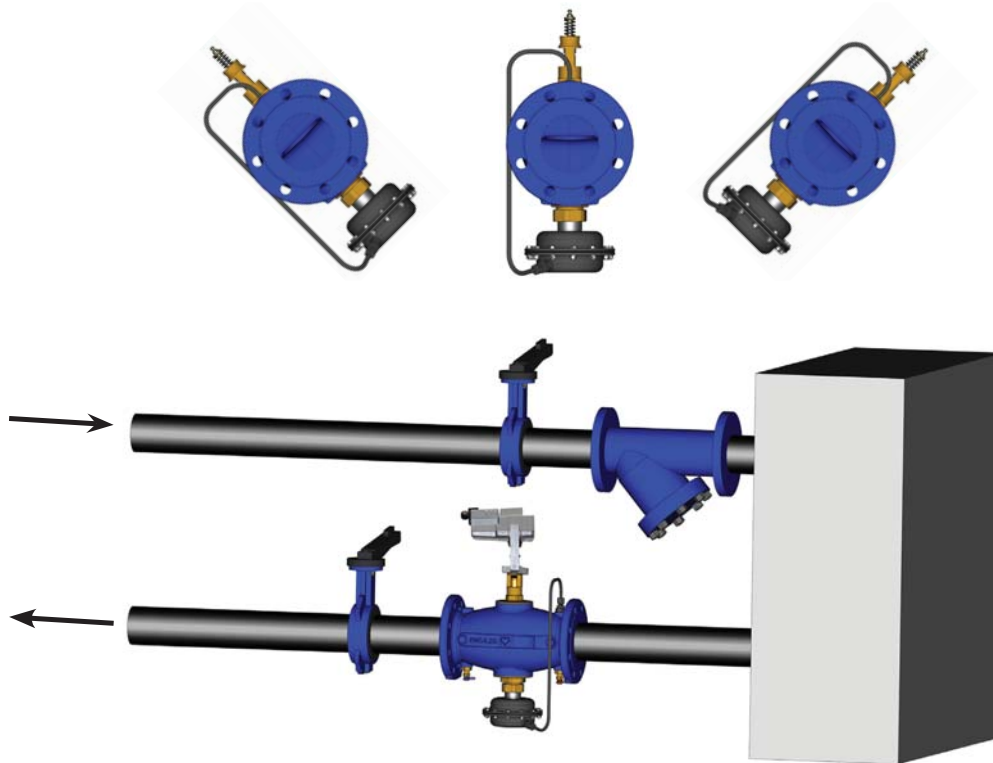
#### **Installation**

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

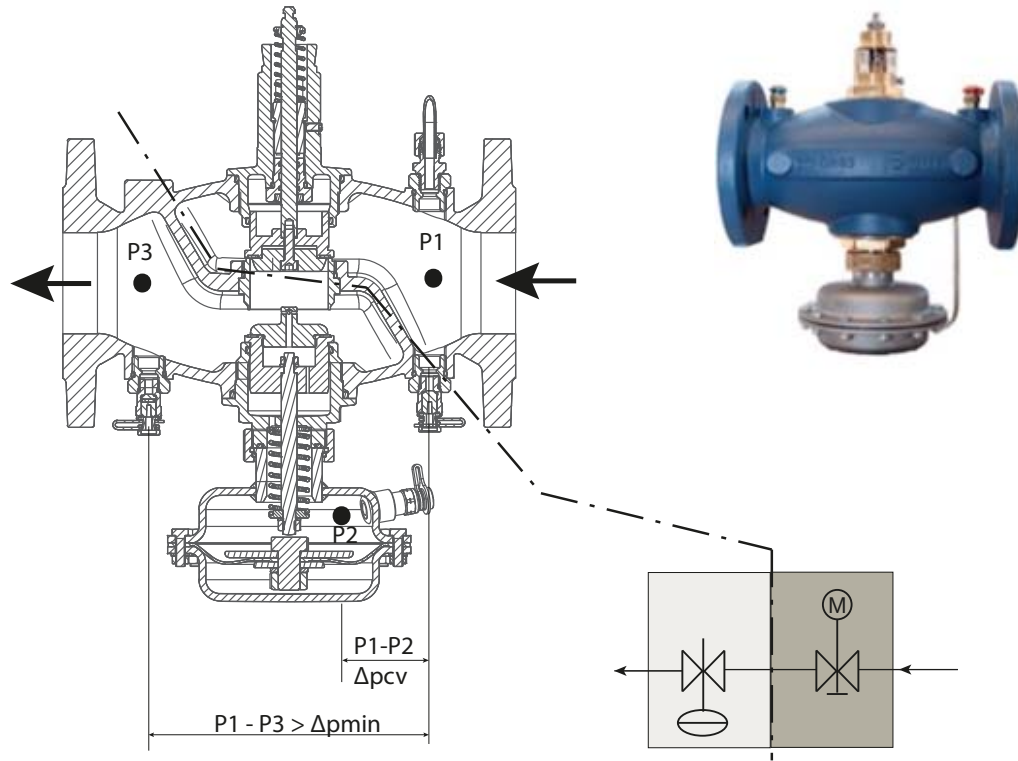
A Pressure Independent Balancing and Control Valve (PIBCV or PICV) combines a regulating and control valve with a differential pressure controller.

##### **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.



### 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.

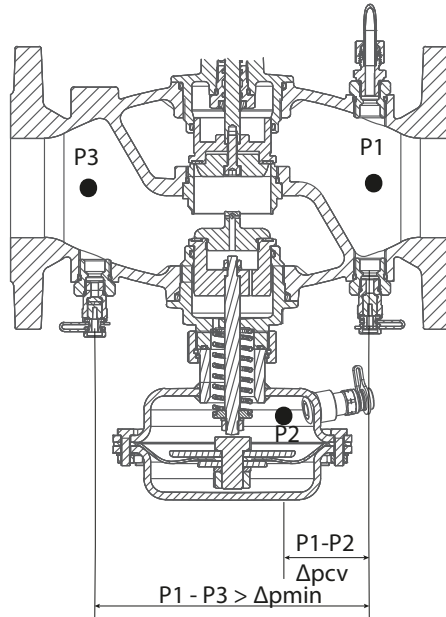
For the valves from DN 125 to DN 250 the stainless steel nut is used where adjustment is made according to upper surface of the nut.

### 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.

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



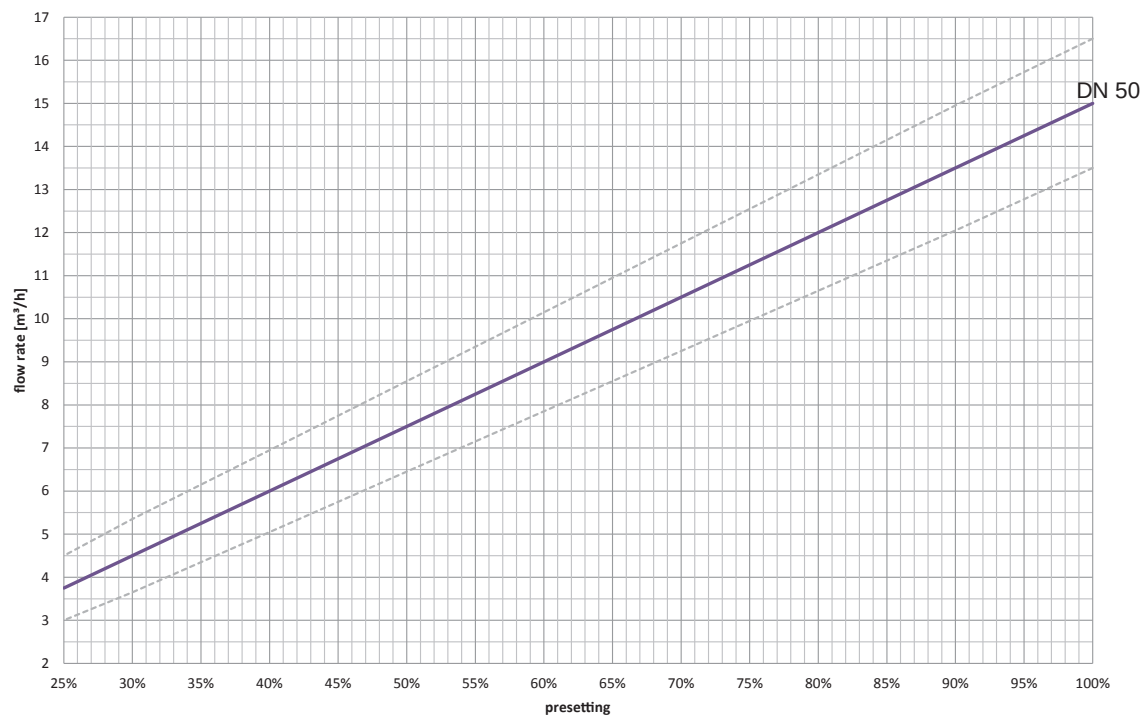
| Presetting | DN 50  | DN 65  | DN 80  | DN 100 | DN 250SF |
|------------|--------|--------|--------|--------|----------|
| [%]        | [m³/h] | [m³/h] | [m³/h] | [m³/h] | [m³/h]   |
| 25         | 13,0   | 13,3   | 12,7   | 19,9   | 108      |
| 30         | 14,7   | 15,3   | 14     | 23,2   | 137      |
| 35         | 16,3   | 17,3   | 15,8   | 27,6   | 165      |
| 40         | 17,8   | 19,3   | 17,6   | 32,0   | 193      |
| 45         | 19,7   | 21,5   | 19,7   | 37,65  | 216      |
| 50         | 21,5   | 23,7   | 21,8   | 43,3   | 239      |
| 55         | 23,6   | 26,7   | 24,85  | 47,9   | 263,5    |
| 60         | 25,6   | 29,7   | 27,9   | 52,5   | 288      |
| 65         | 28,0   | 33,2   | 33     | 56,0   | 316      |
| 70         | 30,3   | 36,7   | 38,1   | 59,5   | 344      |
| 75         | 32,7   | 40,3   | 43,1   | 62,25  | 369      |
| 80         | 35,1   | 43,9   | 48     | 65,0   | 394      |
| 85         | 37,3   | 47,9   | 53,1   | 67,25  | 417      |
| 90         | 39,5   | 51,8   | 58,2   | 69,5   | 440      |
| 95         | 39     | 54,4   | 62     | 71,3   | 474      |
| 100        | 38,5   | 57,0   | 65,8   | 73,1   | 508      |

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

| F 4006 62 | DN50    | min dp | 40kPa | F 4006 63 | DN65    | min dp | 40kPa | F 4006 64 | DN80    | min dp | 40kPa |
|-----------|---------|--------|-------|-----------|---------|--------|-------|-----------|---------|--------|-------|
| l/h       | m³/h    | kv     | VE    | l/h       | m³/h    | kv     | VE    | l/h       | m³/h    | kv     | VE    |
| 15000     | 15      | 23,7   | 100%  | 20000     | 20      | 31,6   | 100%  | 36000     | 36      | 56,9   | 100%  |
| 13500     | 13,5    | 21,3   | 90%   | 18000     | 18      | 28,5   | 90%   | 32400     | 32,4    | 51,2   | 90%   |
| 12000     | 12      | 19,0   | 80%   | 16000     | 16      | 25,3   | 80%   | 28800     | 28,8    | 45,5   | 80%   |
| 10500     | 10,5    | 16,6   | 70%   | 14000     | 14      | 22,1   | 70%   | 25200     | 25,2    | 39,8   | 70%   |
| 9000      | 9       | 14,2   | 60%   | 12000     | 12      | 19,0   | 60%   | 21600     | 21,6    | 34,2   | 60%   |
| 7500      | 7,5     | 11,9   | 50%   | 10000     | 10      | 15,8   | 50%   | 18000     | 18      | 28,5   | 50%   |
| 6000      | 6       | 9,5    | 40%   | 8000      | 8       | 12,6   | 40%   | 14400     | 14,4    | 22,8   | 40%   |
| 4500      | 4,5     | 7,1    | 30%   | 6000      | 6       | 9,5    | 30%   | 10800     | 10,8    | 17,1   | 30%   |
| 3750      | 3,75    | 5,9    | 25%   | 5000      | 5       | 7,9    | 25%   | 9000      | 9       | 14,2   | 25%   |
| F 4006 65 | DN100   | min dp | 40kPa | F 4006 66 | DN125   | min dp | 40kPa | F 4006 56 | DN125HF | min dp | 70kPa |
| l/h       | m³/h    | kv     | VE    | l/h       | m³/h    | kv     | VE    | l/h       | m³/h    | kv     | VE    |
| 43000     | 43,0    | 68,0   | 100%  | 100000    | 100     | 158,1  | 100%  | 150000    | 150     | 179,3  | 100%  |
| 38700     | 38,7    | 61,2   | 90%   | 90000     | 90      | 142,3  | 90%   | 135000    | 135     | 161,4  | 90%   |
| 34400     | 34,4    | 54,4   | 80%   | 80000     | 80      | 126,5  | 80%   | 120000    | 120     | 143,4  | 80%   |
| 30100     | 30,1    | 47,6   | 70%   | 70000     | 70      | 110,7  | 70%   | 105000    | 105     | 125,5  | 70%   |
| 25800     | 25,8    | 40,8   | 60%   | 60000     | 60      | 94,9   | 60%   | 90000     | 90      | 107,6  | 60%   |
| 21500     | 21,5    | 34     | 50%   | 50000     | 50      | 79,1   | 50%   | 75000     | 75      | 89,6   | 50%   |
| 17200     | 17,2    | 27,2   | 40%   | 40000     | 40      | 63,2   | 40%   | 60000     | 60      | 71,7   | 40%   |
| 12900     | 12,9    | 20,4   | 30%   | 30000     | 30      | 47,4   | 30%   | 45000     | 45      | 53,8   | 30%   |
| 10750     | 10,75   | 17,0   | 25%   | 25000     | 25      | 39,5   | 25%   | 37500     | 37,5    | 44,8   | 25%   |
| F 4006 67 | DN150   | min dp | 40kPa | F 4006 57 | DN150HF | min dp | 70kPa | F 4006 68 | DN200   | min dp | 40kPa |
| l/h       | m³/h    | kv     | VE    | l/h       | m³/h    | kv     | VE    | l/h       | m³/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 | min dp | 70kPa | F 4006 48 | 200UHF  | min dp | 85kPa | F 4006 59 | 250HF   | min dp | 70kPa |
| l/h       | m³/h    | kv     | VE    | l/h       | m³/h    | kv     | VE    | l/h       | m³/h    | kv     | VE    |
| 300000    | 300     | 358,6  | 100%  | 350000    | 350     | 379,6  | 100%  | 410000    | 410     | 490    | 100%  |
| 270000    | 270     | 322,7  | 90%   | 315000    | 315     | 341,7  | 90%   | 369000    | 369     | 441    | 90%   |
| 240000    | 240     | 286,9  | 80%   | 280000    | 280     | 303,7  | 80%   | 328000    | 328     | 392    | 80%   |
| 210000    | 210     | 251,0  | 70%   | 245000    | 245     | 265,7  | 70%   | 287000    | 287     | 343    | 70%   |
| 180000    | 180     | 215,1  | 60%   | 210000    | 210     | 227,8  | 60%   | 246000    | 246     | 294    | 60%   |
| 150000    | 150     | 179,3  | 50%   | 175000    | 175     | 189,8  | 50%   | 205000    | 205     | 245    | 50%   |
| 120000    | 120     | 143,4  | 40%   | 140000    | 140     | 151,9  | 40%   | 164000    | 164     | 196    | 40%   |
| 90000     | 90      | 107,6  | 30%   | 105000    | 105     | 113,9  | 30%   | 123000    | 123     | 147    | 30%   |
| 75000     | 75      | 89,6   | 25%   | 87500     | 87,5    | 94,9   | 25%   | 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%   |           |         |        |       |           |         |        |       |

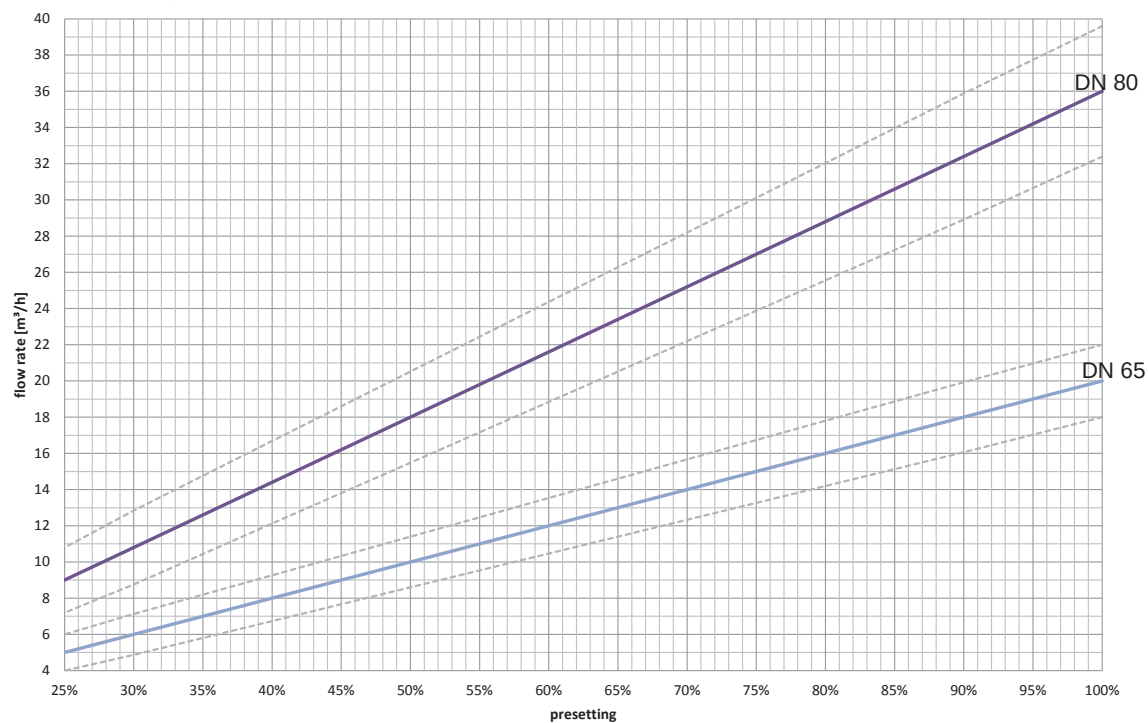
HERZ standard diagram  
Order no.: F 4006 62

F 4006 6x  
DN50



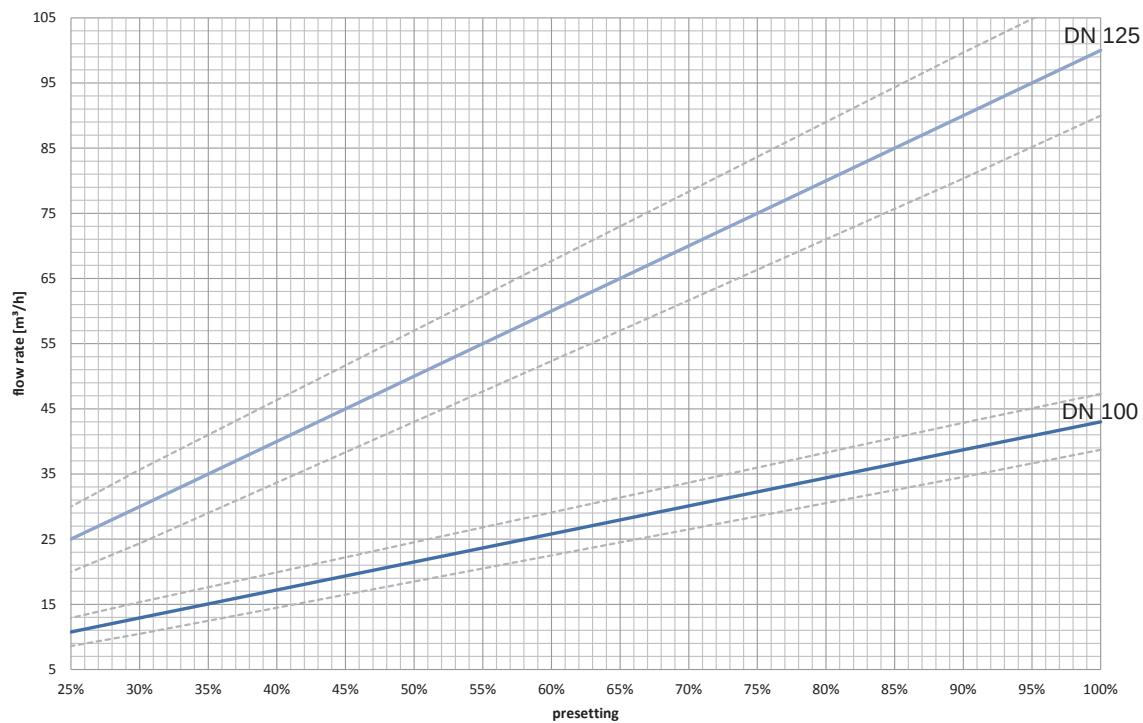
HERZ standard diagram  
Order no.: F 4006 63, 64

F 4006 6x  
DN65 and DN80



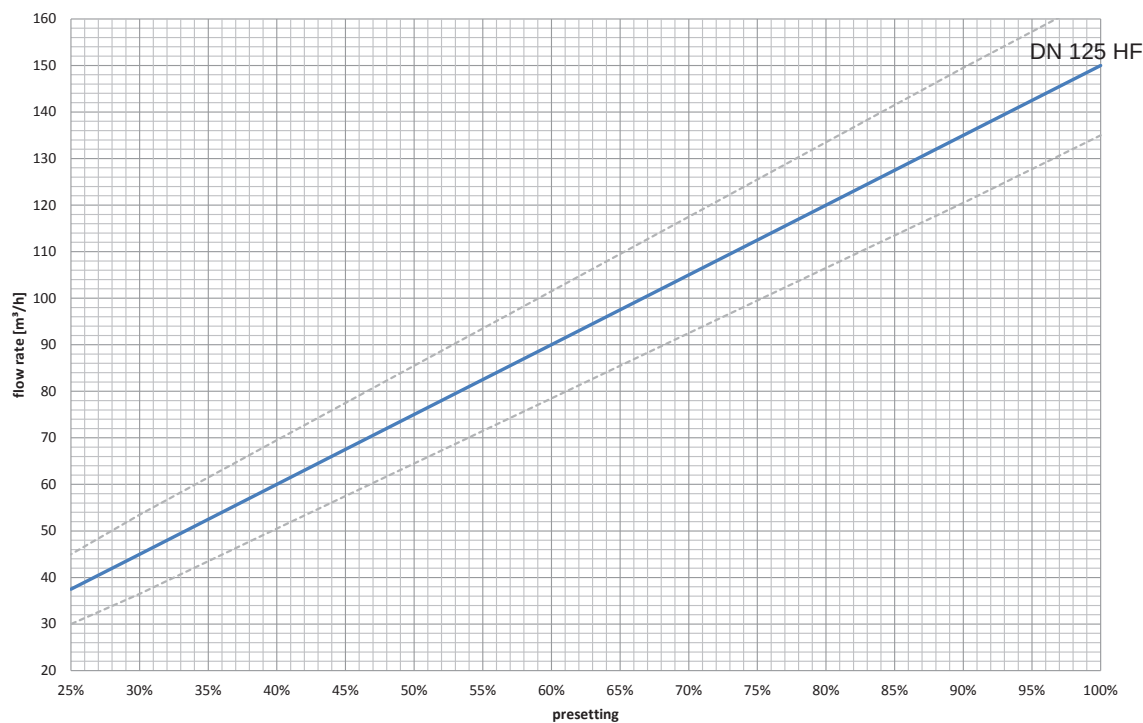
HERZ standard diagram  
Order no.: F 4006 65, 66

F 4006 6x  
DN100 and DN125



HERZ standard diagram  
Order no.: F 4006 56

DN125 HF

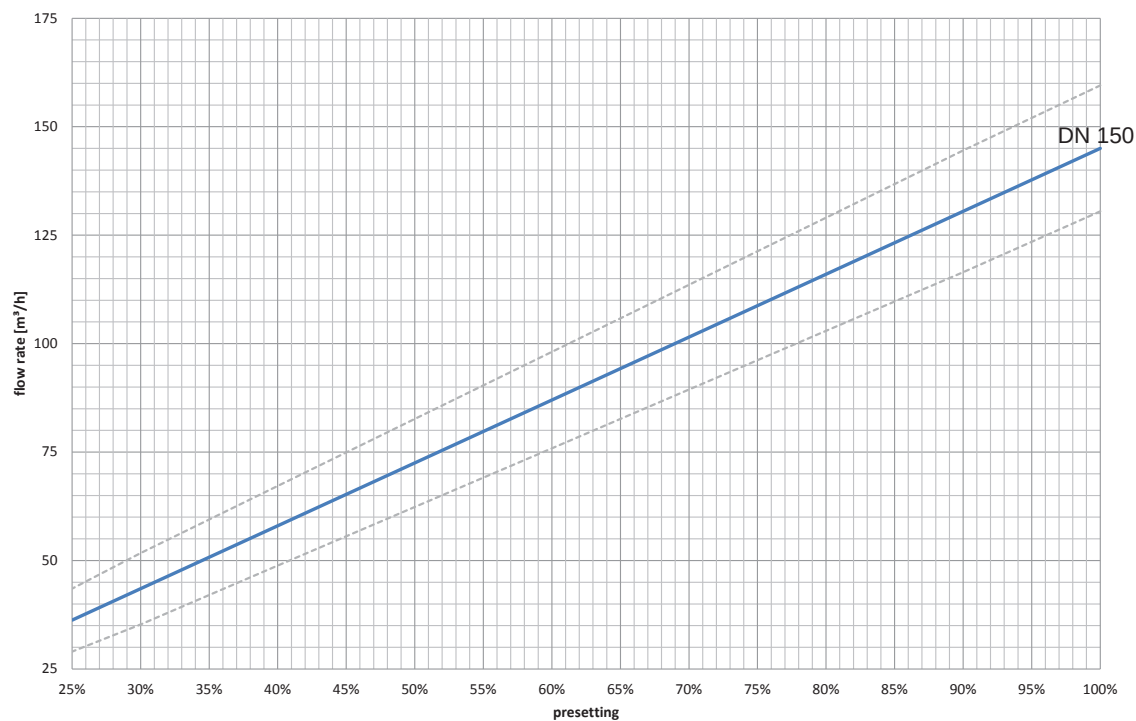


HERZ standard diagram

Order no.: F 4006 67

F 4006 6x

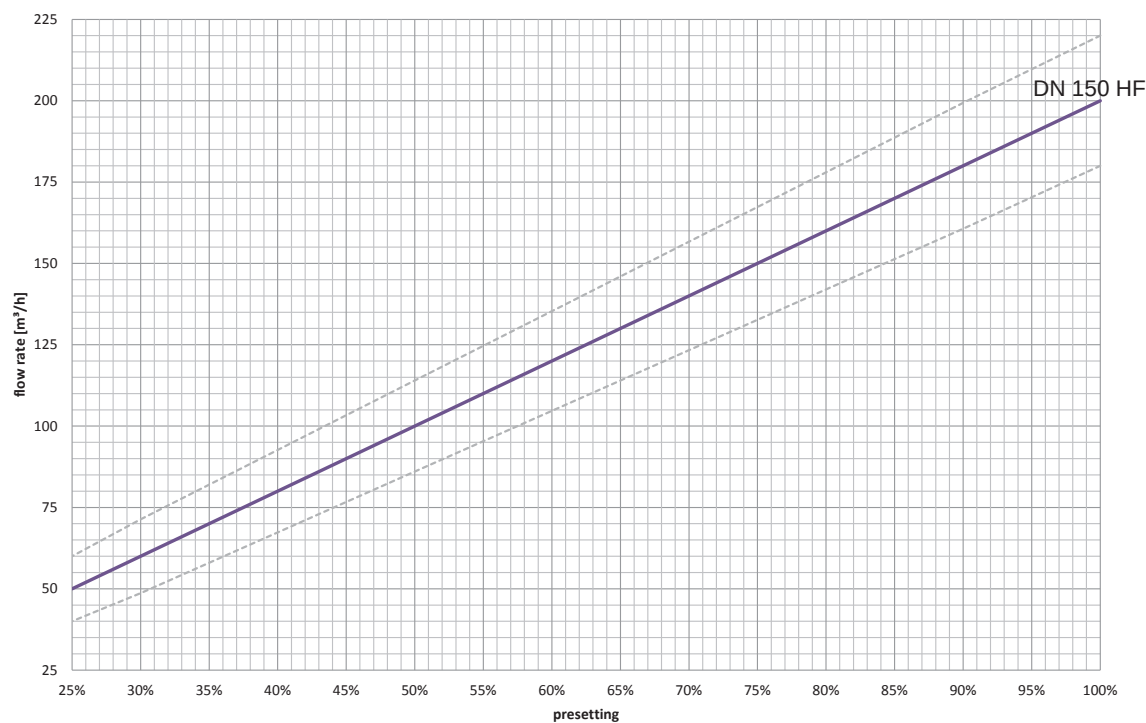
DN150



HERZ standard diagram

Order no.: F 4006 57

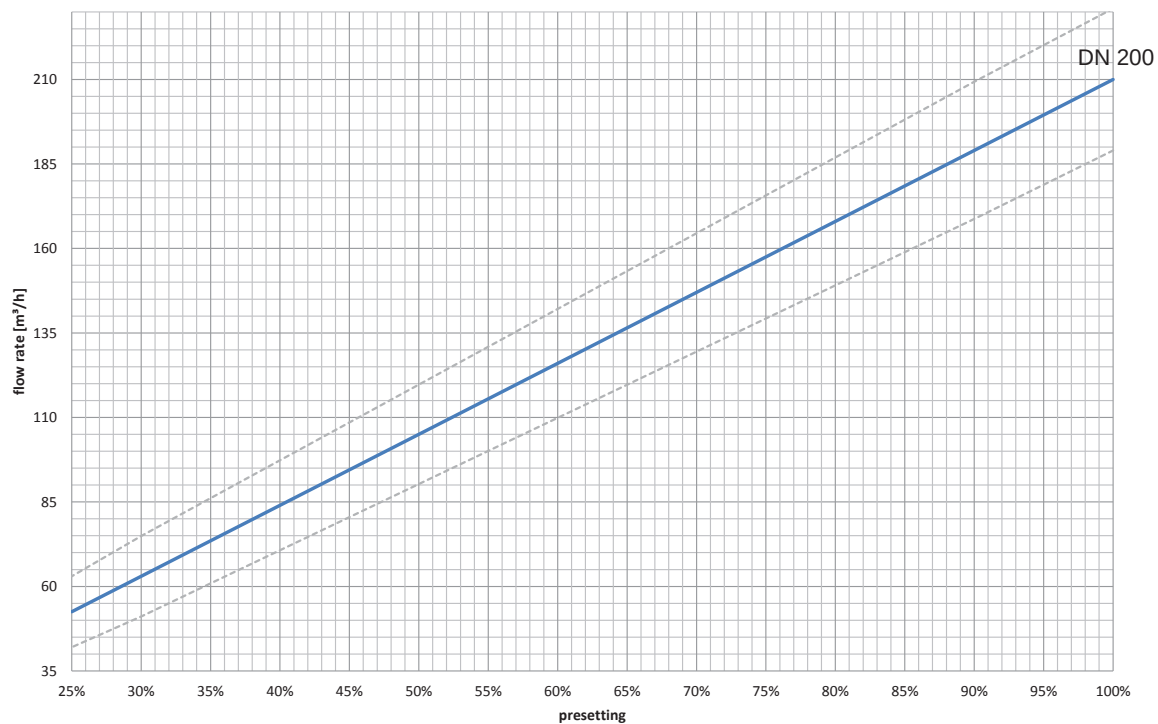
DN150 HF





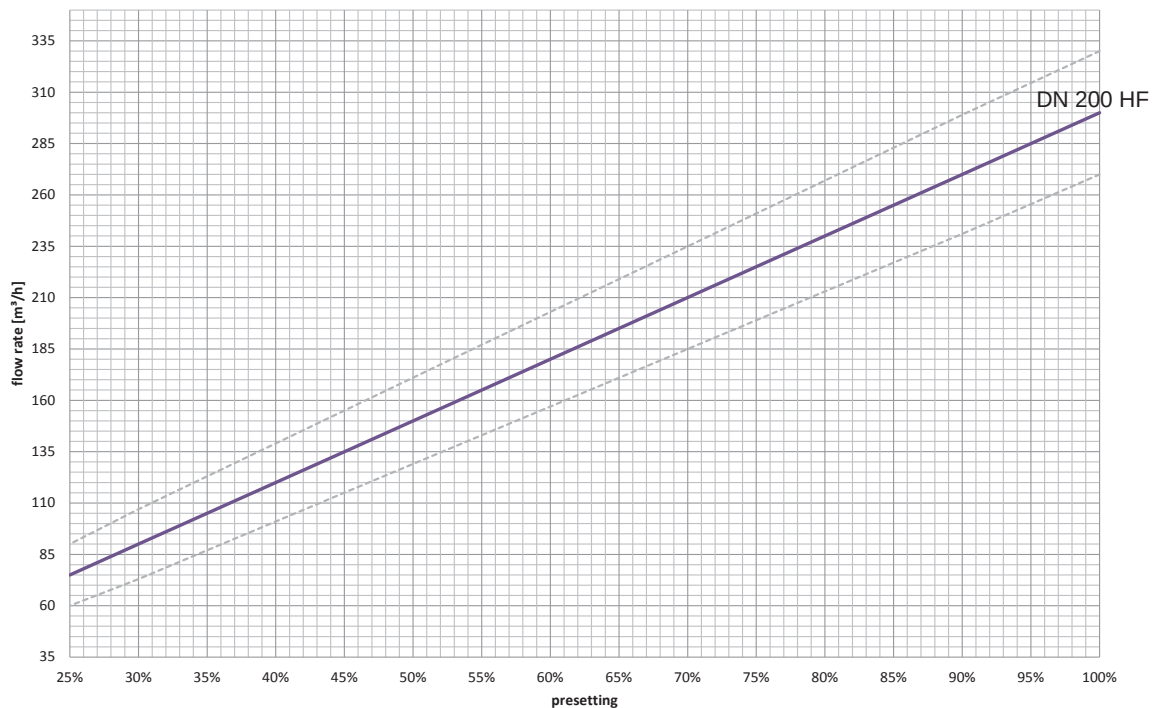
HERZ standard diagram  
Order no.: F 4006 68

F 4006 6x  
DN200



HERZ standard diagram  
Order no.: F 4006 58

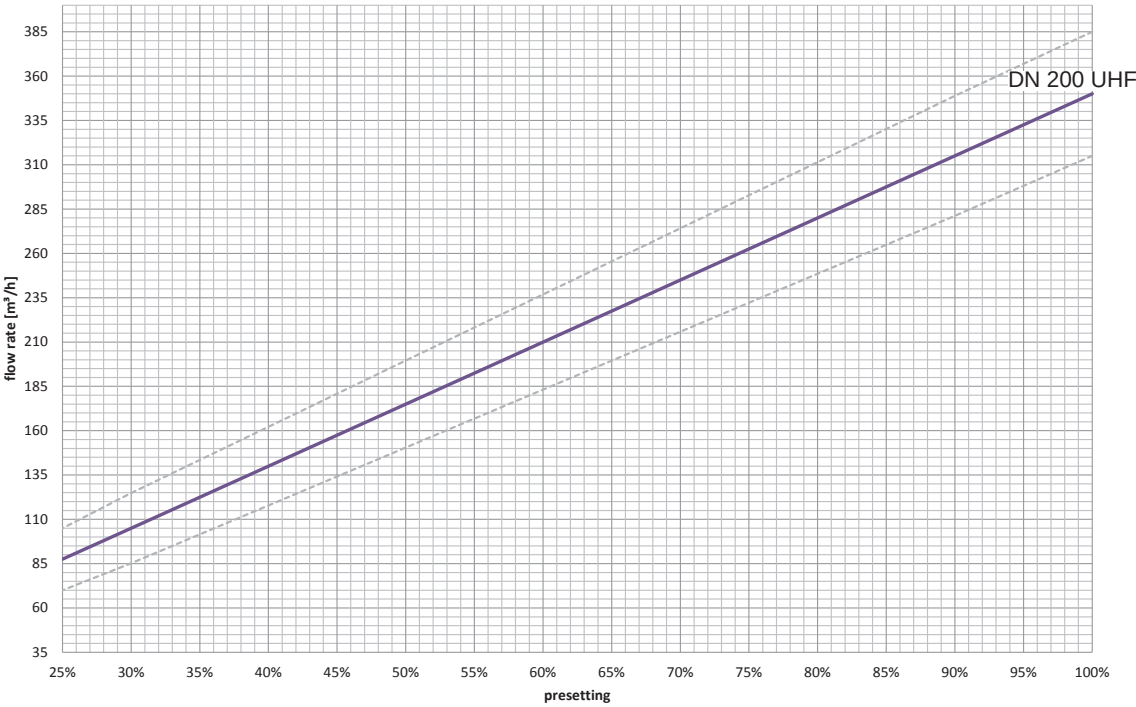
DN200 HF



HERZ standard diagram

Order no.: F 4006 48

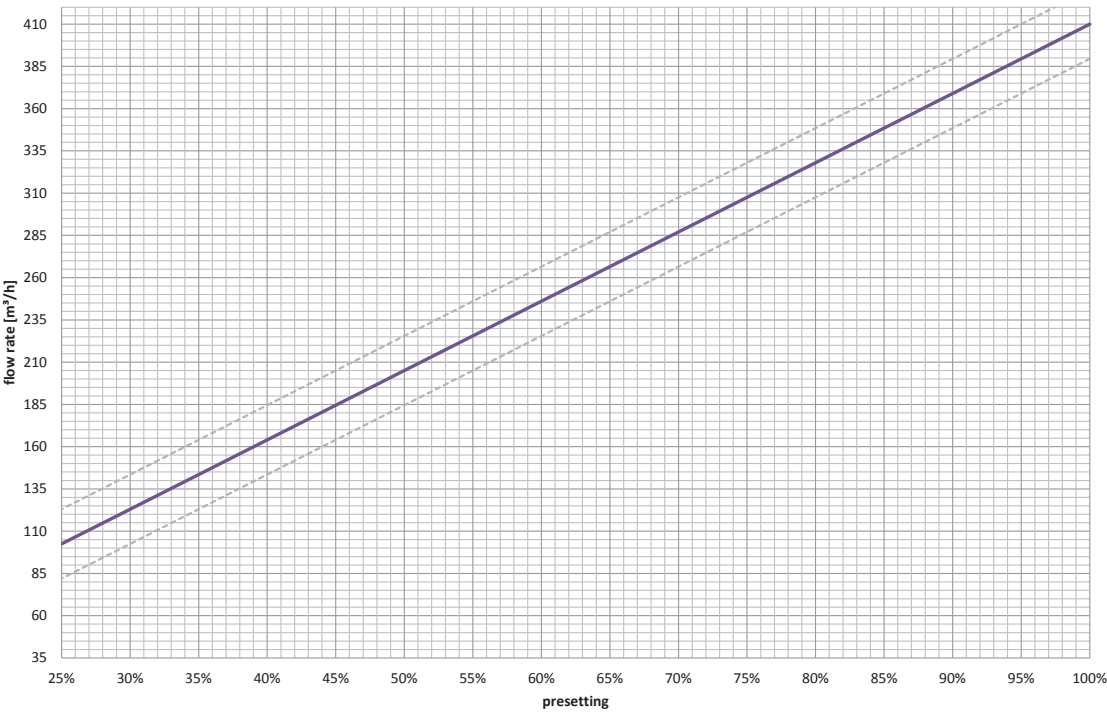
DN 200 UHF



HERZ standard diagram

Order no.: F 4006 59

DN 250 HF



HERZ standard diagram

Order no.: F 4006 69

DN 250 SF

