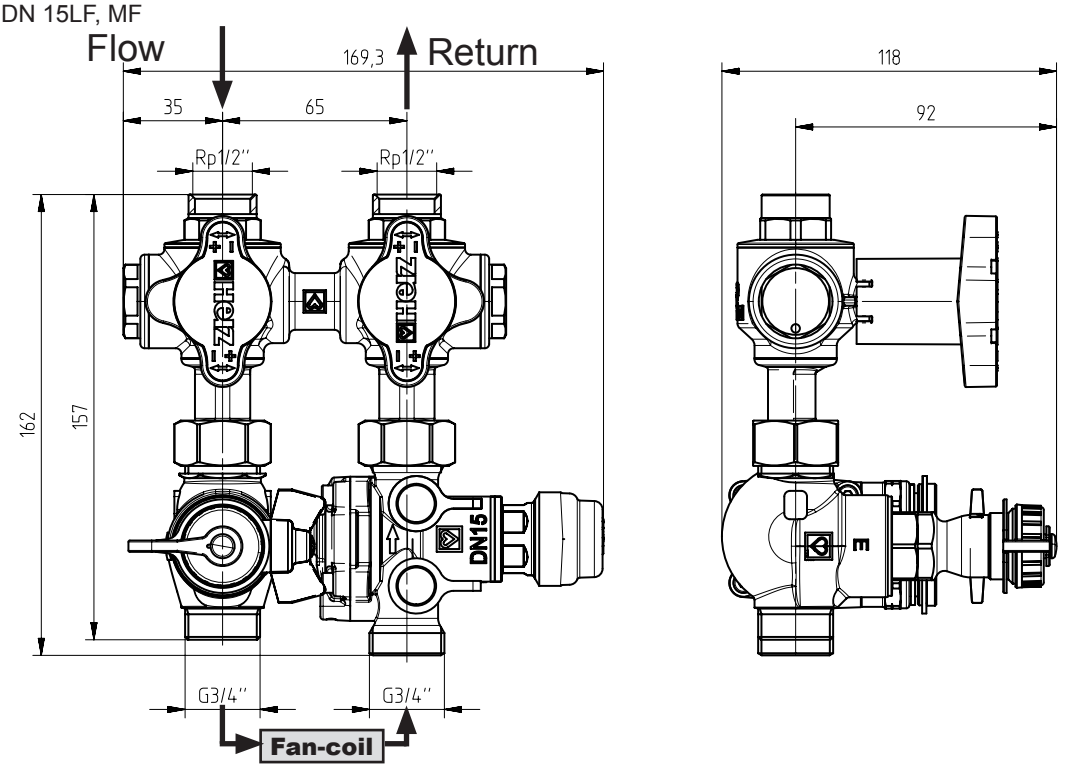
HerzCON. Fan-coils and terminal units connection

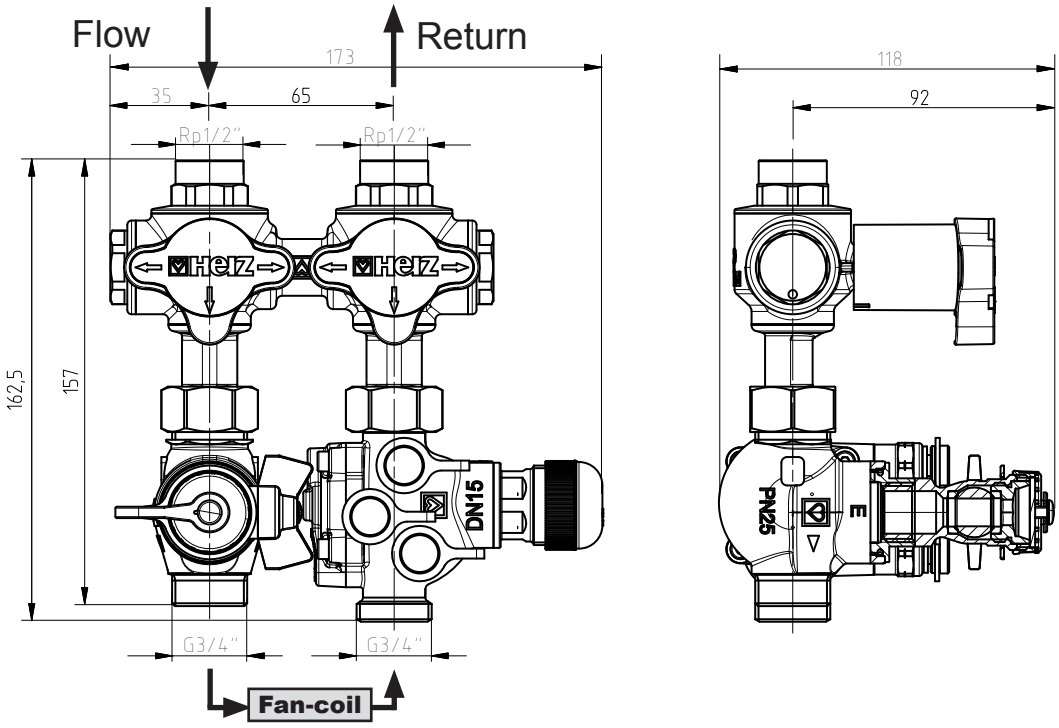
Data sheet **HerzCON,** Issue 0425

Dimensions in mm

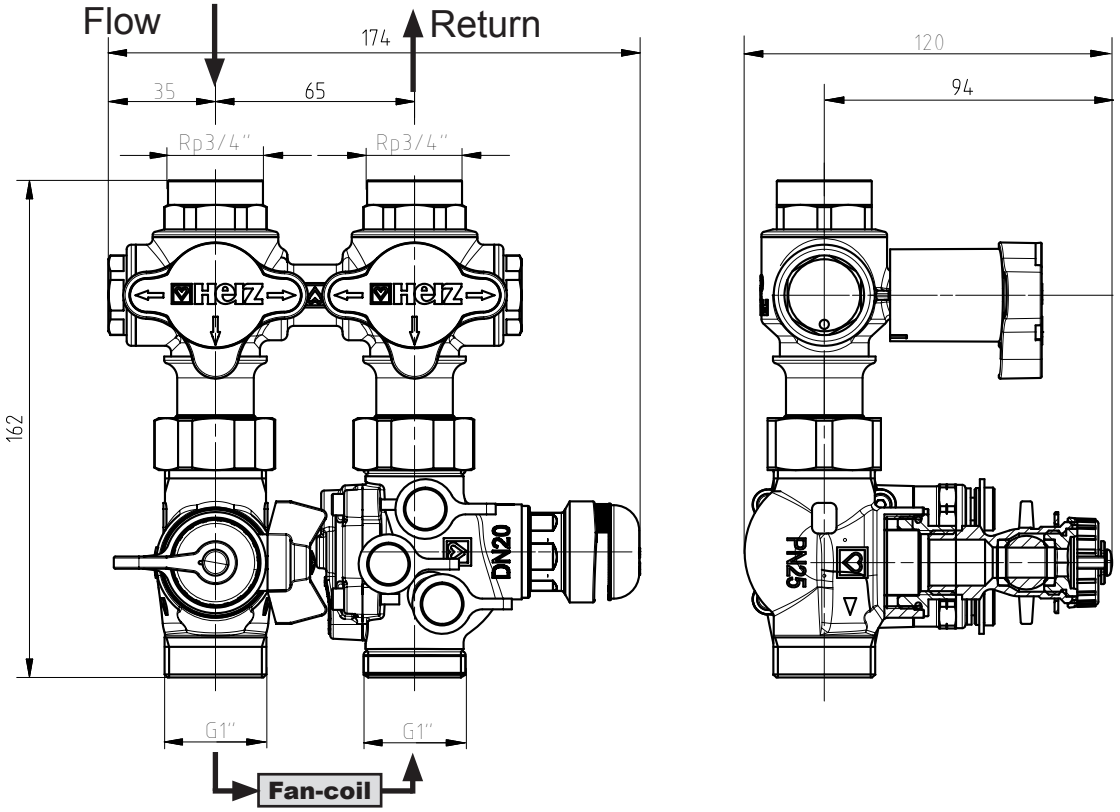
- DN 15LF, MF



- DN 15SF, HF

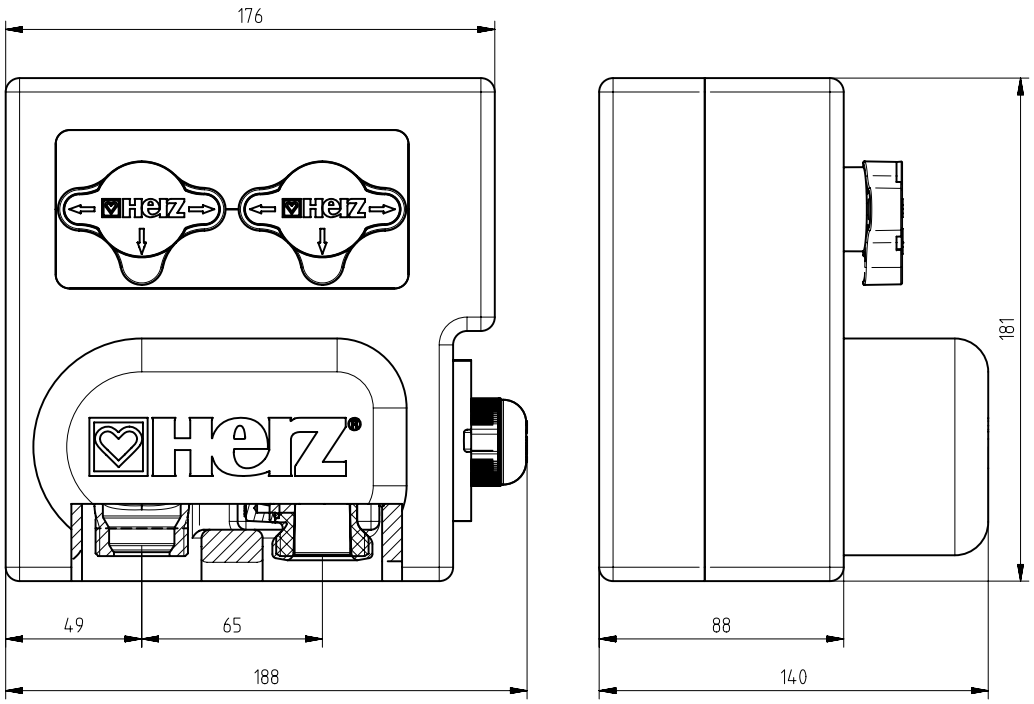


- DN 20SF, HF

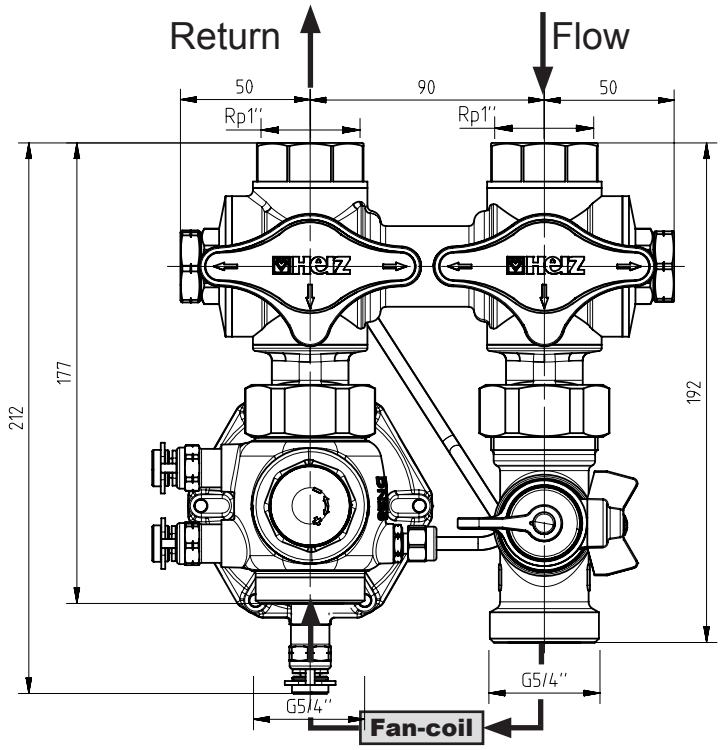


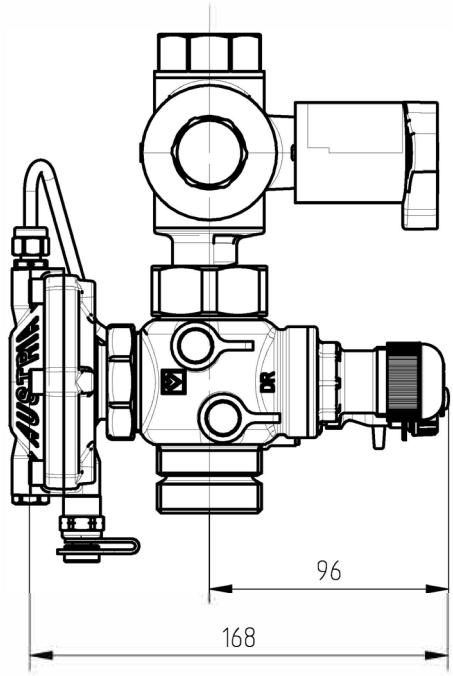
Dimensions in mm of the insulation box

- DN15 - DN20

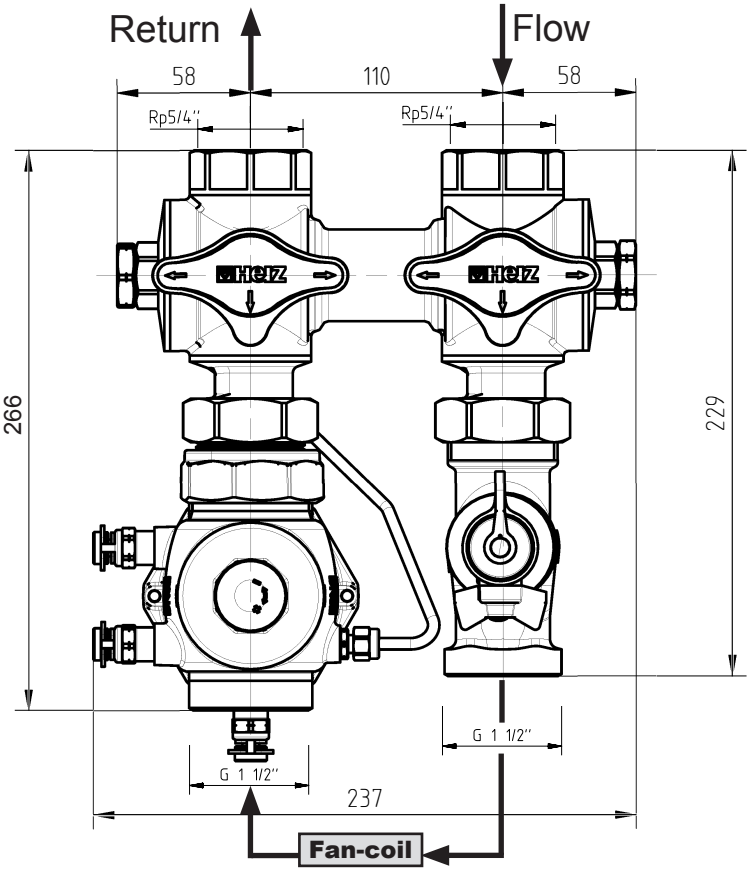


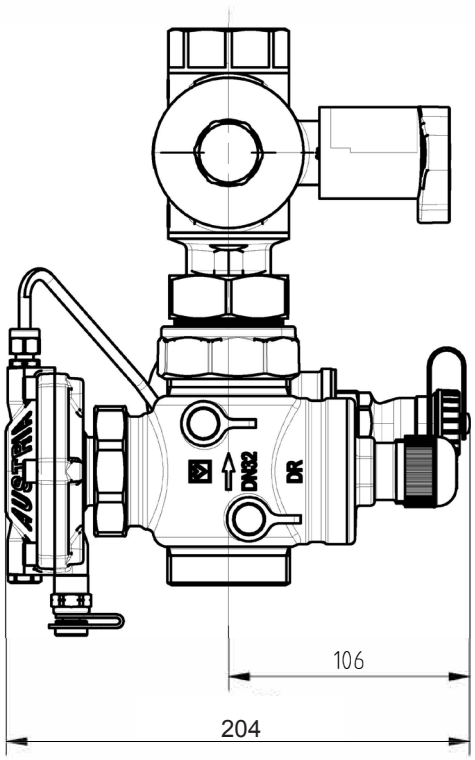
- DN 25





- DN 32





- DN 25, DN32

  Supplied without insulation box

Order numbers

	With standard insulation box	With FR[1] insulation box	Only standard insulation box	Only FR[1] box	Without insulation
DN15 LF	1 **4600** 50	1 **4700** 60	1 **4700** 96	1 **4700** 91	1 **4600** 90
DN15 MF	1 **4600** 59	1 **4700** 69	1 **4700** 96	1 **4700** 91	1 **4600** 99
DN15 SF	1 **4600** 76	-	1 **4700** 96	1 **4700** 91	-
DN15 HF	1 **4600** 56	-	1 **4700** 96	1 **4700** 91	-
DN20 SF	1 **4600** 77	-	1 **4700** 96	1 **4700** 91	-
DN20 HF	1 **4600** 57	-	1 **4700** 96	1 **4700** 91	-
DN25	-	-	-	-	1 **4600** 78
DN32	-	-	-	-	1 **4600** 79

[1] - "FR" stands for higher degree of fire resistance, compared to standard insulation box.

Technical data

Max. operating pressure	25 bar
Min. operating temperature	- 20 °C
Max. operating temperature	130 °C
Stroke	DN15-DN20: 4 mm DN25-DN32: 6 mm

The integrated control unit together with the actuating drive is responsible for modular control. Various actuating drives might be used (see also chapter: Accessories and spare parts).
Water purity in accordance with the ÖNORM H 5195 and VDI 2035 standards
Ethylene and propylene glycol can be mixed to a ratio of 25 - 50 vol. [%].
EPDM gaskets can be affected by mineral oils lubricants and thus lead to failure of the EPDM seals. Please refer to manufacturers documentation when using ethylene glycol products for frost and corrosion protection.

Materials

Body:	dezincification resistant brass
Membranes and O-rings:	EPDM

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.

kvs values and max. differential pressure

	Normal Function [m³/h]	Bypass Function [m³/h]	Flow rate [l/h] @100% presetting	Flow rate [l/s] @100% presetting	min. Δp, bar	max. Δp, bar
DN 15 LF	0.20	4.8	120	0.033	0.18	4
DN 15 MF	0.34	4.8	190	0.053	0.20	4
DN 15 SF	1.65	4.8	800	0.222	0.20	6
DN 15 HF	2.54	4.8	1200	0.333	0.20	6
DN 20 SF	2.54	5.4	1200	0.333	0.20	6
DN 20 HF	3.33	5.4	2000	0.556	0.20-0.30	6
DN 25	5.29	10	3300	0.917	0.35	6
DN 32	9.53	14.2	6000	1.667	0.35	6

Application

HerzCON has been designed to give a simple connection to fan-coils, or other terminal units, and utilises the HERZ 4006 SMART Pressure Independent Balancing Control Valve with HERZ multifunctional ball valve and a HERZ strainer with HERZ drain valve 2512. On/off or modulating 0 – 10 V DC actuators can be fitted and integrated to a BMS if required.
The unit allows pressure independent control ensuring full stroke regardless of pressure fluctuations, while guaranteeing a constant flow rate to the terminal unit maximising energy efficiency for the system. The HerzCON unit also permits flushing and isolating operations to be undertaken.
This means there is no product differentiation between heating and chilling, one unit does both applications. The drain cock fitted to the strainer allows flushing without the need to remove the strainer basket and also allows the strainer basket to be cleaned in-situ.

Components

4006 HERZ-Pressure Independent Balancing Control Valve (PIBCV)
HERZ- Multifunctionalball valve
HERZ-Strainer
2512 HERZ-Blow down Drain Valve

Accessories and spare parts

1 **4006** .. HERZ-Pressure Independent Balancing Control Valve (PIBCV)
1 **0284** .. test point for HERZ-Valves
1 **7708** .. HERZ actuating drive for two-point
1 **7711** .. HERZ actuating drive for two-point or pulse control
1 **7990** .. HERZ actuating drive for continuous control
1 **0273** 09 screw plug 1/4
1 **4111** 21 Strainer DN15
1 **4111** 22 Strainer DN20
1 **4111** 23 Strainer DN25
1 **4111** 24 Strainer DN32
1 **0284** 30 HERZ-Test point, 1 piece, red cap, for pressure transducer, with the adapter FT ¼“ x FT G ¾“, the test point can be mounted on the drain ball valve using the cap G ¾” x G ¼“, and the pressure loss can be measured through the fan coil

Note

The HerzCON must be installed for the correct application using clean fittings. A HERZ strainer is fitted to prevent impurities.

Presetting

The valve setting is clearly shown in percent. The preset value can be easily adjusted. The preset PIBCV can be isolated at any time or adjusted to the required flow rate.

Fire Behavior (insulation box)

Type of insulation / Method	Standard [Class]	FR[1] [Class]
DIN EN ISO 11925-2	E	B, C, D
DIN 4102-1	B2	B1
FMVSS 302	Fulfilled	Fulfilled
UL 94	HBF	HF1

[1] - “FR” stands for higher degree of fire resistance, compared to standard insulation box.

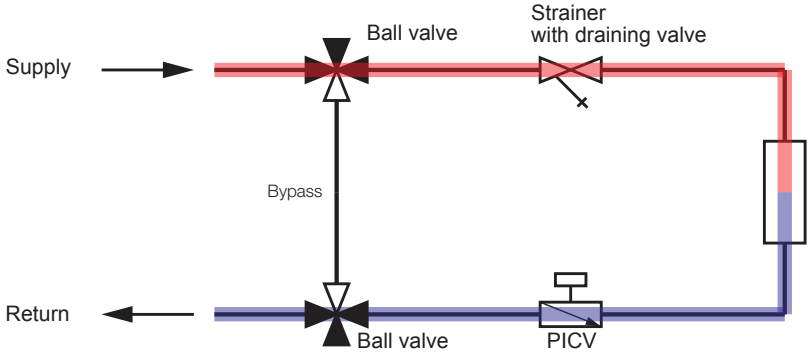
Disposal instruction

The disposal of HerzCON must not endanger the health or the enviroment. National legal regulations for proper disposal of the HerzCON have to be followed.

Operations

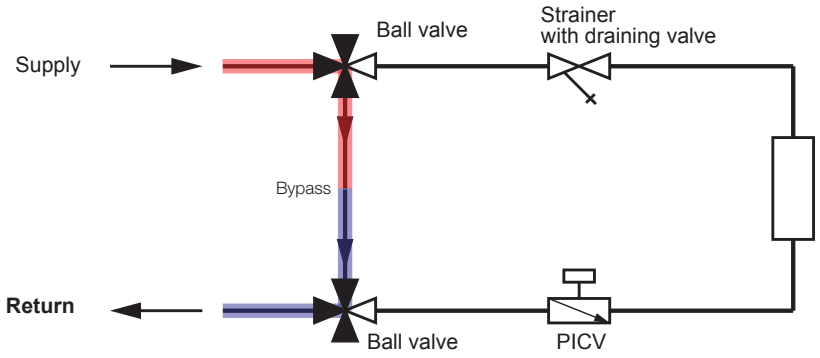
Normal Operation

For normal operation the Bypass is closed, Strainer Drain Valve is closed, Ball valves are in the position as showed in the scheme, PIBCV preset to flow rate.



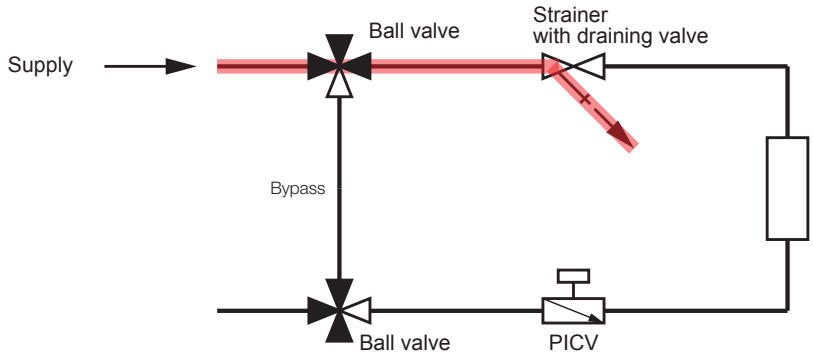
Bypass Operation

For the normal flushing method the Bypass is open, PIBCV is closed, Strainer Drain Valve closed, Ball valves are in the position as showed in the scheme.



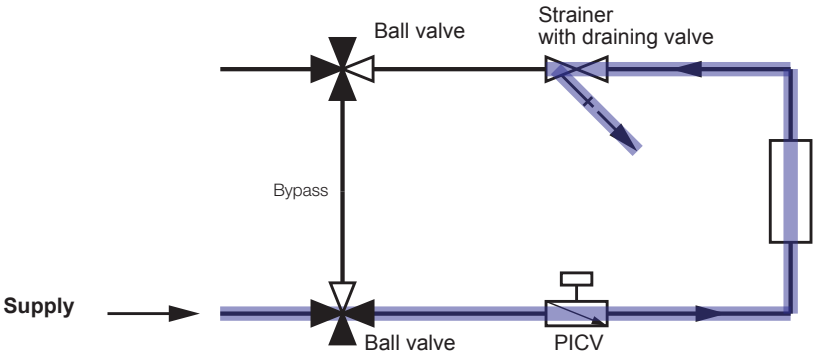
Forward flush Operation

For forward flushing operation the Bypass is closed, Ball valve in the supply is open, Strainer Drain Valve is open, Ball valves are in the position as showed in the scheme and flushing through the strainer to atmosphere.



Backflush Operation

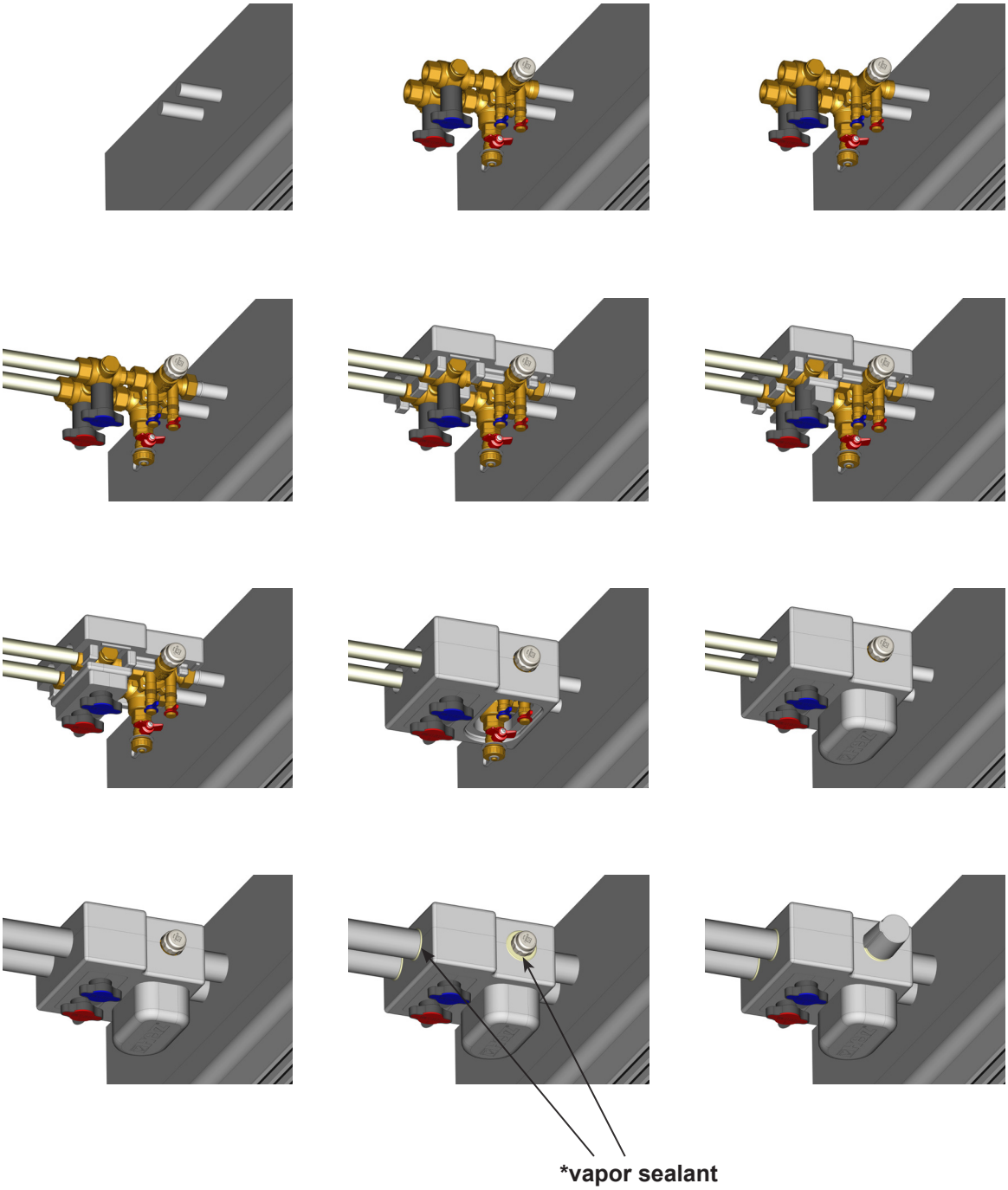
For Backflush operation the Bypass is closed, Strainer Drain Valve is open, Ball valves are in the position as showed in the scheme and PIBCV is open. Flushing through Ball valve, PIBCV, FCU and strainer to atmosphere.



Installation

For the supply and return connections of the heating/cooling system, we recommend using a conical external thread, sealed with Teflon sealing thread and with a tightening torque of 15-25 Nm.

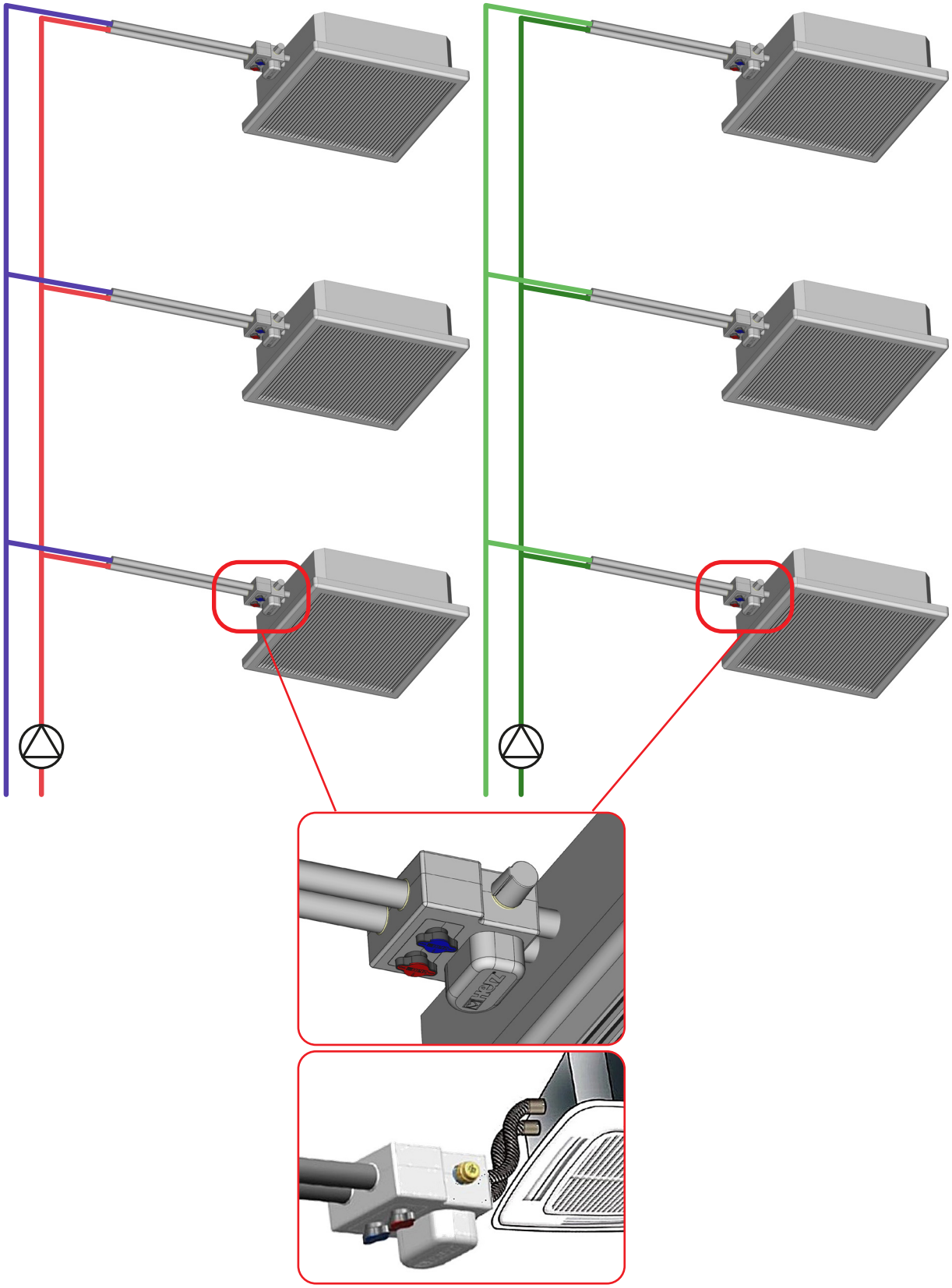
The unit is supplied in an insulated box, totally vapour sealed for chilled water circuits.
Install the Insulation box, as shown in the following figures.



Note !

The unit is supplied in an insulated box, vapor sealed for chilled water circuits. Although it is necessary to ensure an additional vapor sealant for pipes and actuator connections, as shown at the picture above. *

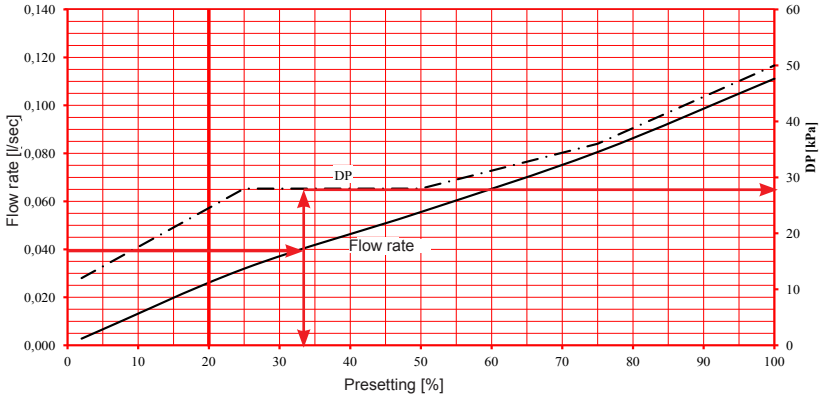
Example for installation



Application example for heating and cooling

Presetting example

To select the correct setting and the required minimum differential pressure at the desired flow rate, follow the steps shown in the diagram. The setting % for a specified flowrate shown on the left of the chart can be read from the solid line and the minimum DP for that particular setting can be read from the dotted line and the corresponding DP on the right side of the chart.



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

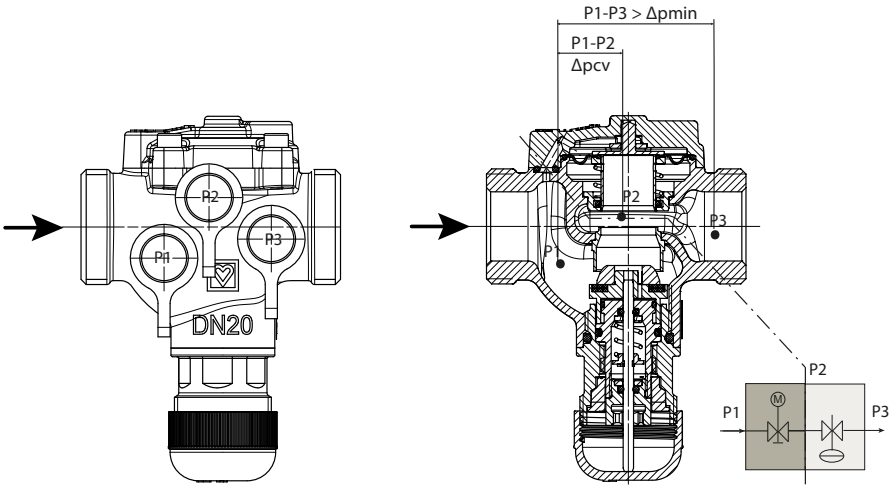
Every PICV has at least 2 test points to enable the setting of the valve and the minimum differential pressure to be checked. The valve requires a minimum differential pressure in order to operate correctly.

The dimensions DN15SF, DN15HF, DN20SF and DN20HF have an additional test point P2, in total 3 test points P1, P2 and P3.

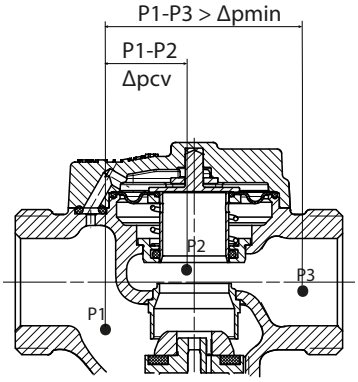
Measuring across P1-P3 will determine the minimum differential pressure that the valve requires to operate correctly.

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.

The differential pressure can be checked with the HERZ measuring computer 1 **8900** 05.



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



Presetting	DN 15 SF	DN 15 HF	DN 20 SF	DN 20 HF
[%]	[m³/h]	[m³/h]	[m³/h]	[m³/h]
20	0.352	0.530	0.548	0.983
21	0.370	0.557	0.579	1.040
22	0.389	0.585	0.611	1.097
23	0.407	0.613	0.643	1.154
24	0.425	0.641	0.674	1.211
25	0.443	0.669	0.706	1.268
26	0.462	0.697	0.738	1.325
27	0.480	0.724	0.769	1.382
28	0.498	0.752	0.801	1.439
29	0.517	0.780	0.832	1.496
30	0.535	0.808	0.864	1.553
31	0.554	0.837	0.898	1.616
32	0.573	0.867	0.932	1.679
33	0.592	0.896	0.965	1.742
34	0.610	0.926	0.999	1.805
35	0.629	0.955	1.033	1.867
36	0.648	0.985	1.067	1.930
37	0.667	1.014	1.100	1.993
38	0.686	1.044	1.134	2.056
39	0.705	1.073	1.168	2.119
40	0.724	1.103	1.202	2.182
41	0.742	1.142	1.238	2.246
42	0.760	1.181	1.274	2.311
43	0.778	1.220	1.310	2.376
44	0.796	1.260	1.347	2.441
45	0.814	1.299	1.383	2.506
46	0.833	1.338	1.419	2.571
47	0.851	1.377	1.455	2.636
48	0.869	1.417	1.492	2.700
49	0.887	1.456	1.528	2.765
50	0.905	1.495	1.564	2.830
51	0.924	1.531	1.598	2.893
52	0.942	1.566	1.632	2.957
53	0.961	1.602	1.665	3.020
54	0.979	1.637	1.699	3.083

55	0.998	1.672	1.733	3.146
56	1.016	1.708	1.767	3.210
57	1.035	1.743	1.800	3.273
58	1.053	1.779	1.834	3.336
59	1.072	1.814	1.868	3.399
60	1.090	1.850	1.902	3.463
61	1.112	1.883	1.937	3.536
62	1.134	1.915	1.972	3.609
63	1.156	1.948	2.007	3.683
64	1.178	1.980	2.042	3.756
65	1.199	2.013	2.077	3.829
66	1.221	2.046	2.113	3.903
67	1.243	2.078	2.148	3.976
68	1.265	2.111	2.183	4.050
69	1.286	2.144	2.218	4.123
70	1.308	2.176	2.253	4.196
71	1.332	2.212	2.292	4.271
72	1.355	2.248	2.331	4.346
73	1.379	2.284	2.369	4.421
74	1.402	2.320	2.408	4.496
75	1.425	2.356	2.447	4.571
76	1.449	2.392	2.485	4.646
77	1.472	2.428	2.524	4.721
78	1.496	2.464	2.562	4.796
79	1.519	2.500	2.601	4.871
80	1.543	2.536	2.640	4.946
81	1.568	2.574	2.683	4.990
82	1.594	2.612	2.726	5.035
83	1.620	2.651	2.769	5.080
84	1.646	2.689	2.812	5.125
85	1.672	2.728	2.855	5.169
86	1.698	2.766	2.898	5.214
87	1.723	2.804	2.941	5.259
88	1.749	2.843	2.985	5.304
89	1.775	2.881	3.028	5.348
90	1.801	2.919	3.071	5.393
91	1.824	2.963	3.106	5.538
92	1.847	3.007	3.142	5.682
93	1.871	3.050	3.177	5.827
94	1.894	3.094	3.213	5.971
95	1.917	3.138	3.248	6.116
96	1.940	3.181	3.284	6.261
97	1.963	3.225	3.319	6.405
98	1.987	3.269	3.355	6.550
99	2.010	3.312	3.390	6.694
100	2.033	3.356	3.426	6.839

Functional principle of a PICV combination valve 4406

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.

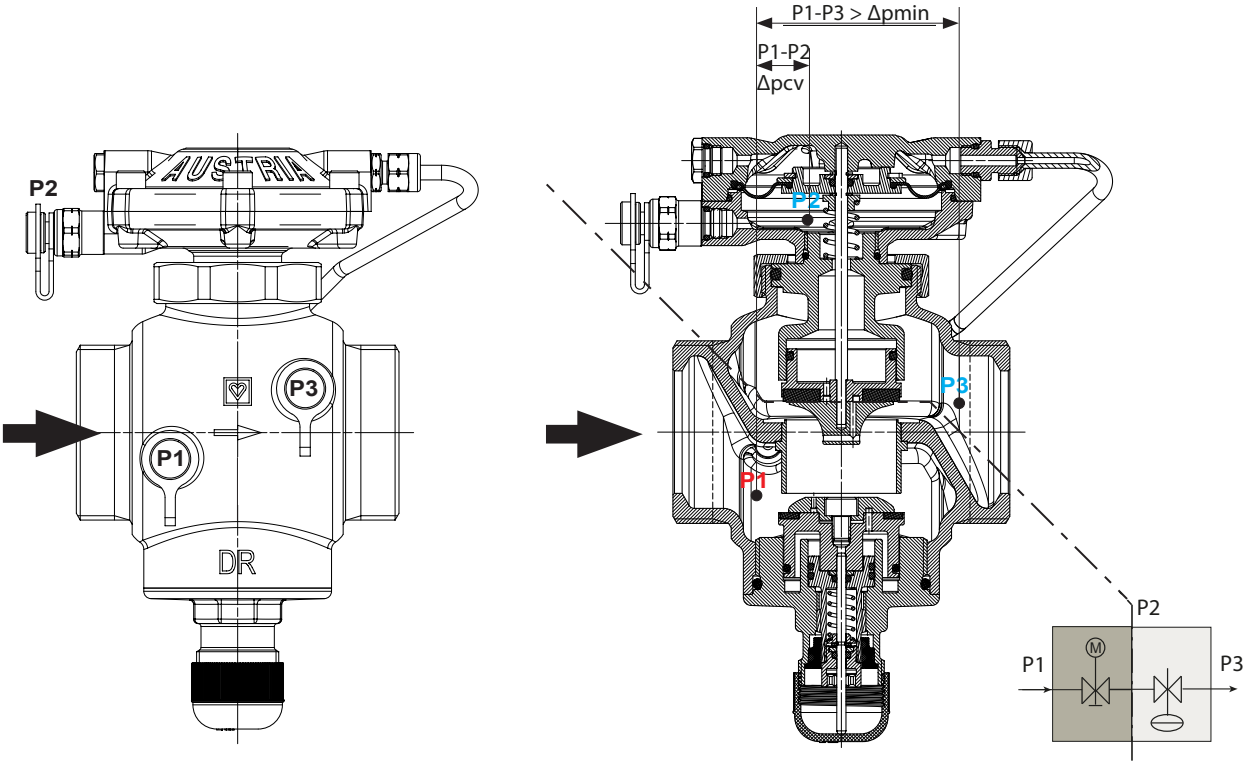
Test points

The 1 **4406** 3X has 3 test points P1, P2 and P3. The valve requires a minimum differential pressure in order to operate correctly.

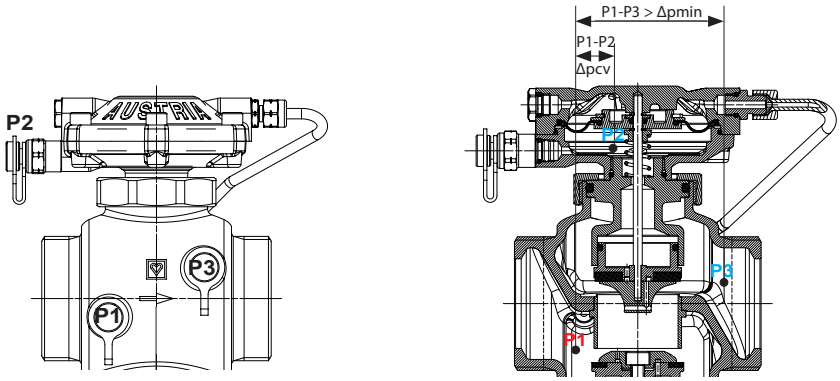
Measuring across P1-P3 will determine the minimum differential pressure that the valve requires to operate correctly.

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.

The differential pressure can be checked with the HERZ measuring computer 1 **8900** 05.



k_v - values of the control valve in the PIBCV (test points P1 - P2)

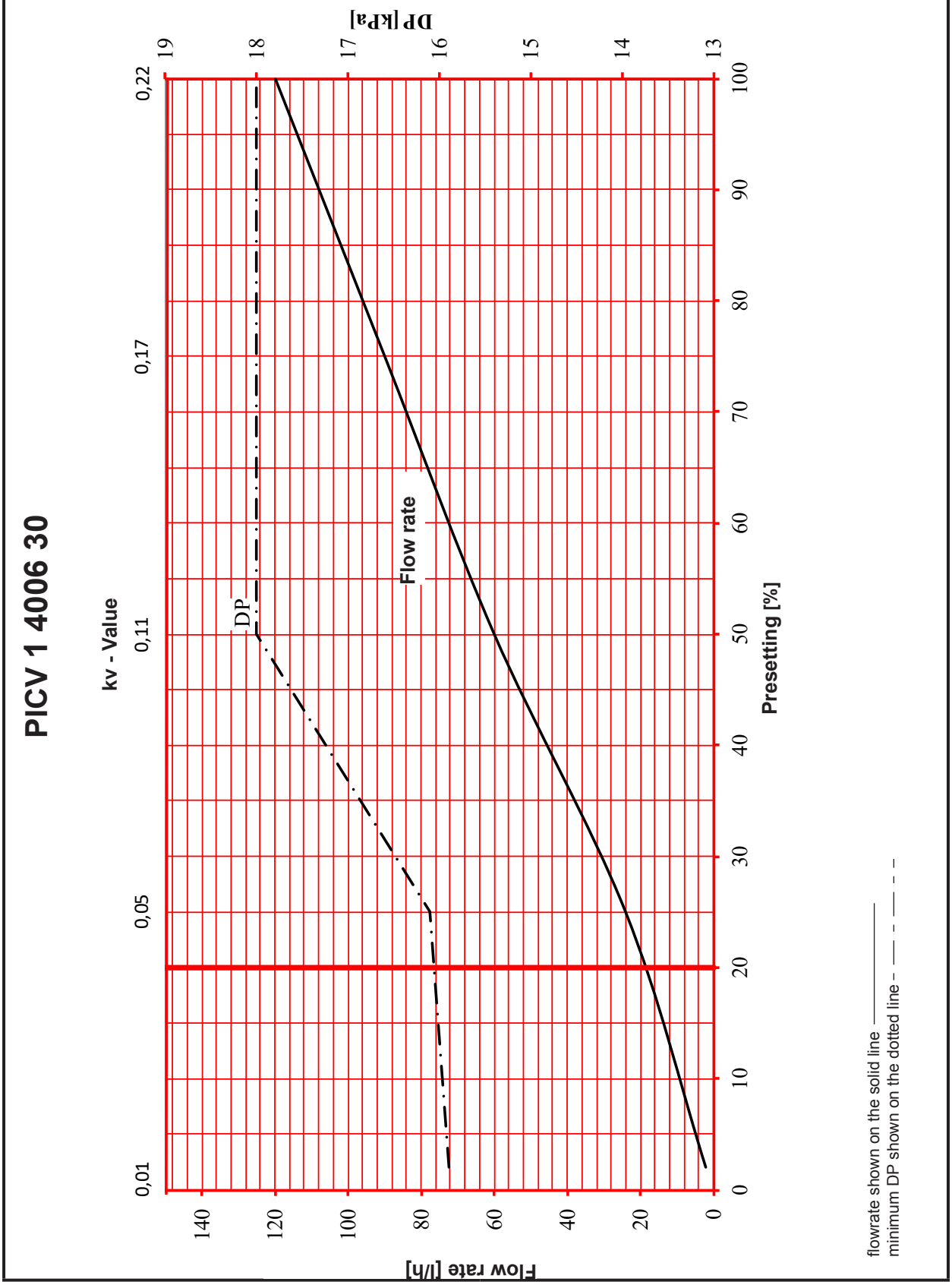


Presetting	DN 25	DN32
[%]	[m³/h]	[m³/h]
10	0.558	1.014
11	0.614	1.119
12	0.669	1.223
13	0.725	1.327
14	0.781	1.432
15	0.837	1.536
16	0.892	1.640
17	0.948	1.745
18	1.004	1.849
19	1.060	1.954
20	1.116	2.058
21	1.171	2.161
22	1.227	2.264
23	1.283	2.367
24	1.339	2.470
25	1.395	2.572
26	1.450	2.675
27	1.506	2.778
28	1.562	2.881
29	1.618	2.984
30	1.673	3.087
31	1.729	3.190
32	1.785	3.293
33	1.841	3.396
34	1.897	3.499
35	1.952	3.601
36	2.008	3.704
37	2.064	3.807
38	2.120	3.910
39	2.175	4.013
40	2.231	4.116
41	2.287	4.227
42	2.343	4.337
43	2.399	4.448
44	2.454	4.559
45	2.510	4.669
46	2.566	4.780
47	2.622	4.890
48	2.677	5.001

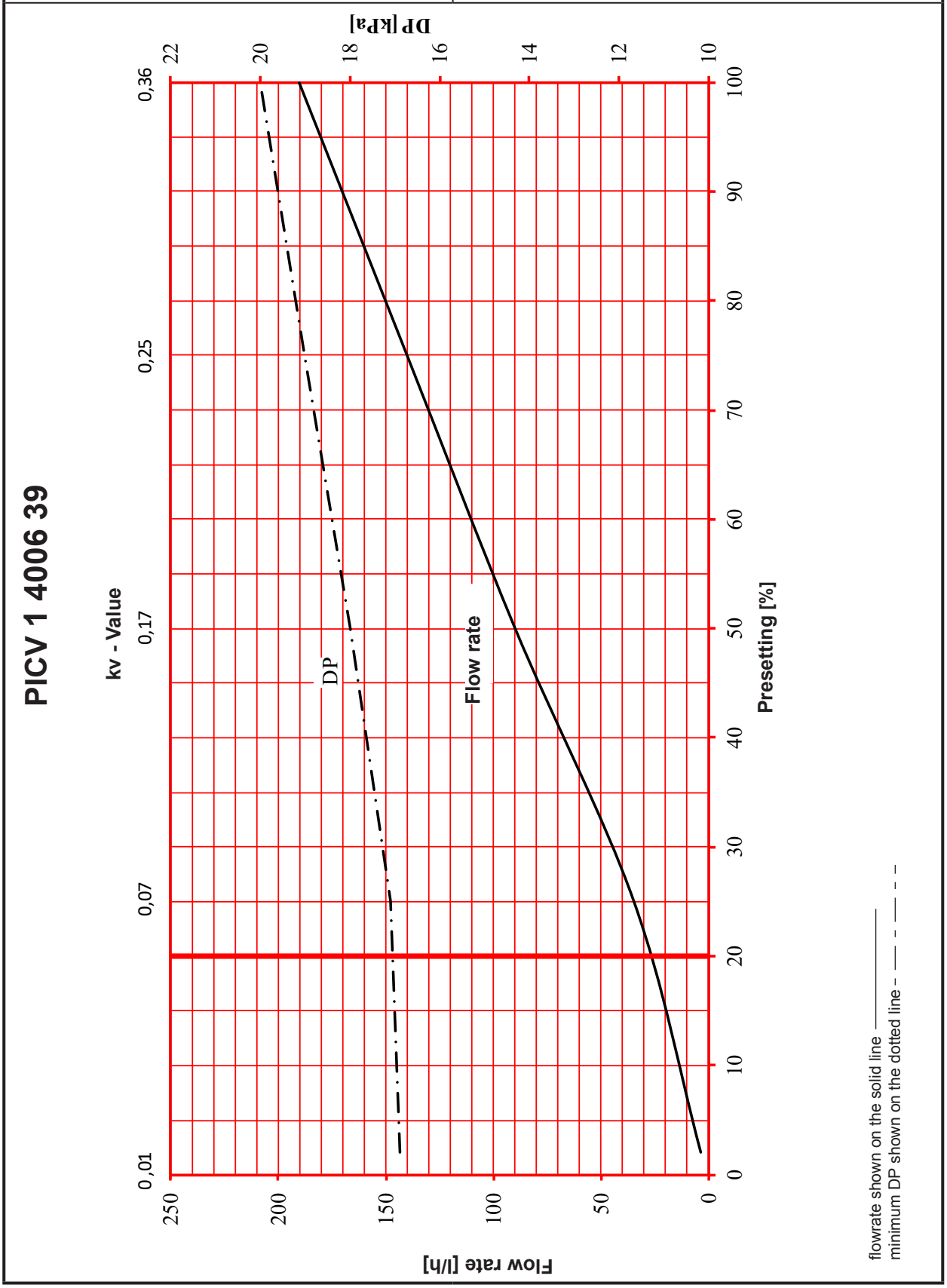
49	2.733	5.112
50	2.789	5.222
51	2.845	5.327
52	2.901	5.431
53	2.956	5.536
54	3.012	5.640
55	3.068	5.745
56	3.124	5.849
57	3.179	5.953
58	3.235	6.058
59	3.291	6.162
60	3.347	6.267
61	3.403	6.371
62	3.458	6.476
63	3.514	6.580
64	3.570	6.685
65	3.626	6.789
66	3.681	6.893
67	3.737	6.998
68	3.793	7.102
69	3.849	7.207
70	3.905	7.311
71	3.960	7.429
72	4.016	7.546
73	4.072	7.663
74	4.128	7.781
75	4.184	7.898
76	4.239	8.016
77	4.295	8.133
78	4.351	8.250
79	4.407	8.368
80	4.462	8.485
81	4.518	8.607
82	4.574	8.728
83	4.630	8.849
84	4.686	8.971
85	4.741	9.092
86	4.797	9.213
87	4.853	9.335
88	4.909	9.456
89	4.964	9.577
90	5.020	9.699
91	5.076	9.806
92	5.132	9.914
93	5.188	10.022
94	5.243	10.130
95	5.299	10.238
96	5.355	10.345
97	5.411	10.453
98	5.466	10.561
99	5.522	10.669
100	5.578	10.776

Please note: all diagrams are indicative in nature and do not claim to be complete.
All specifications and statements within this document 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 it 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.

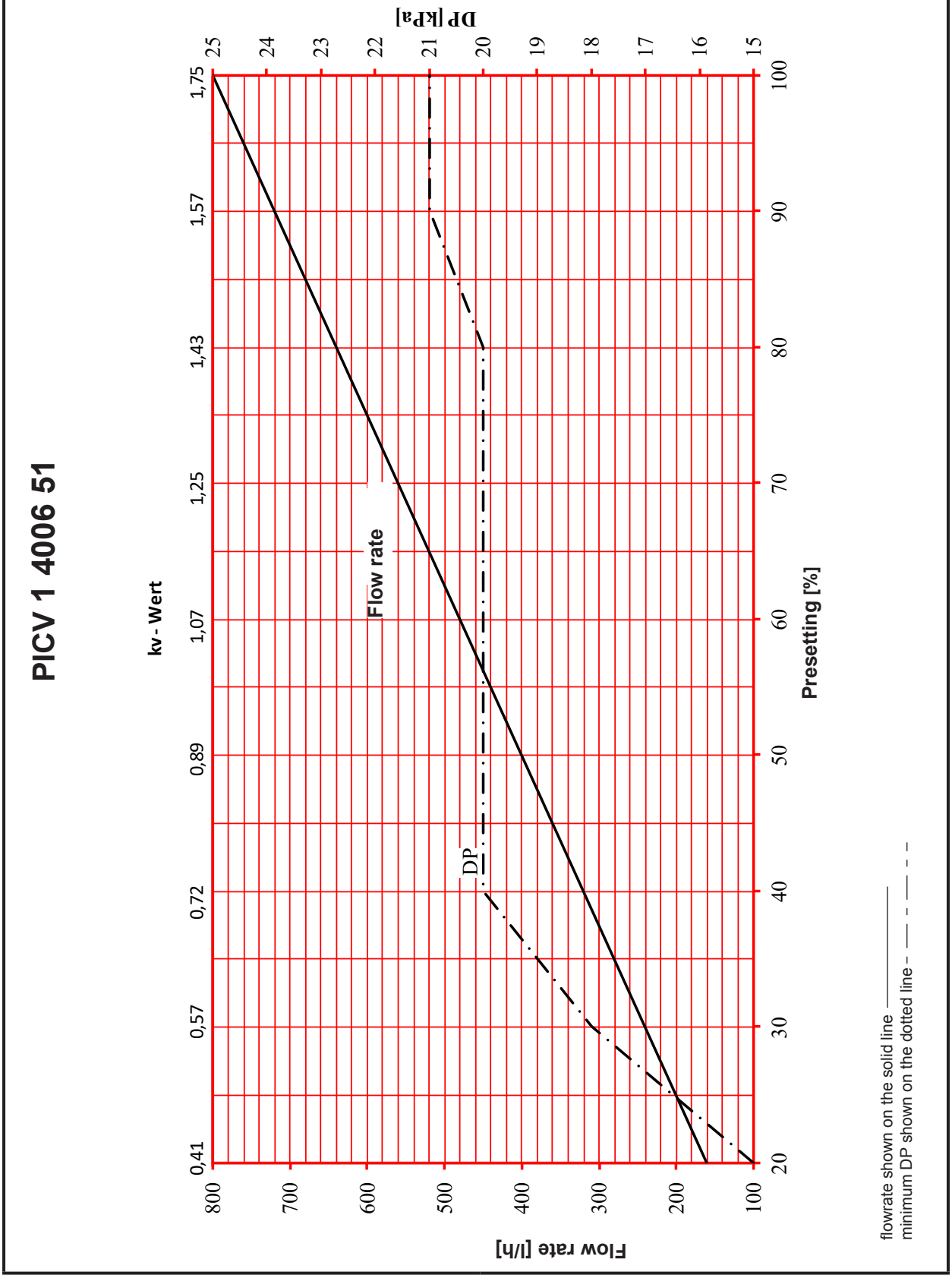
HERZ standard diagram	HerzCON (PICV)
1 **4600** 50, 1 **4700** 60, 1 **4600** 90	DN 15LF



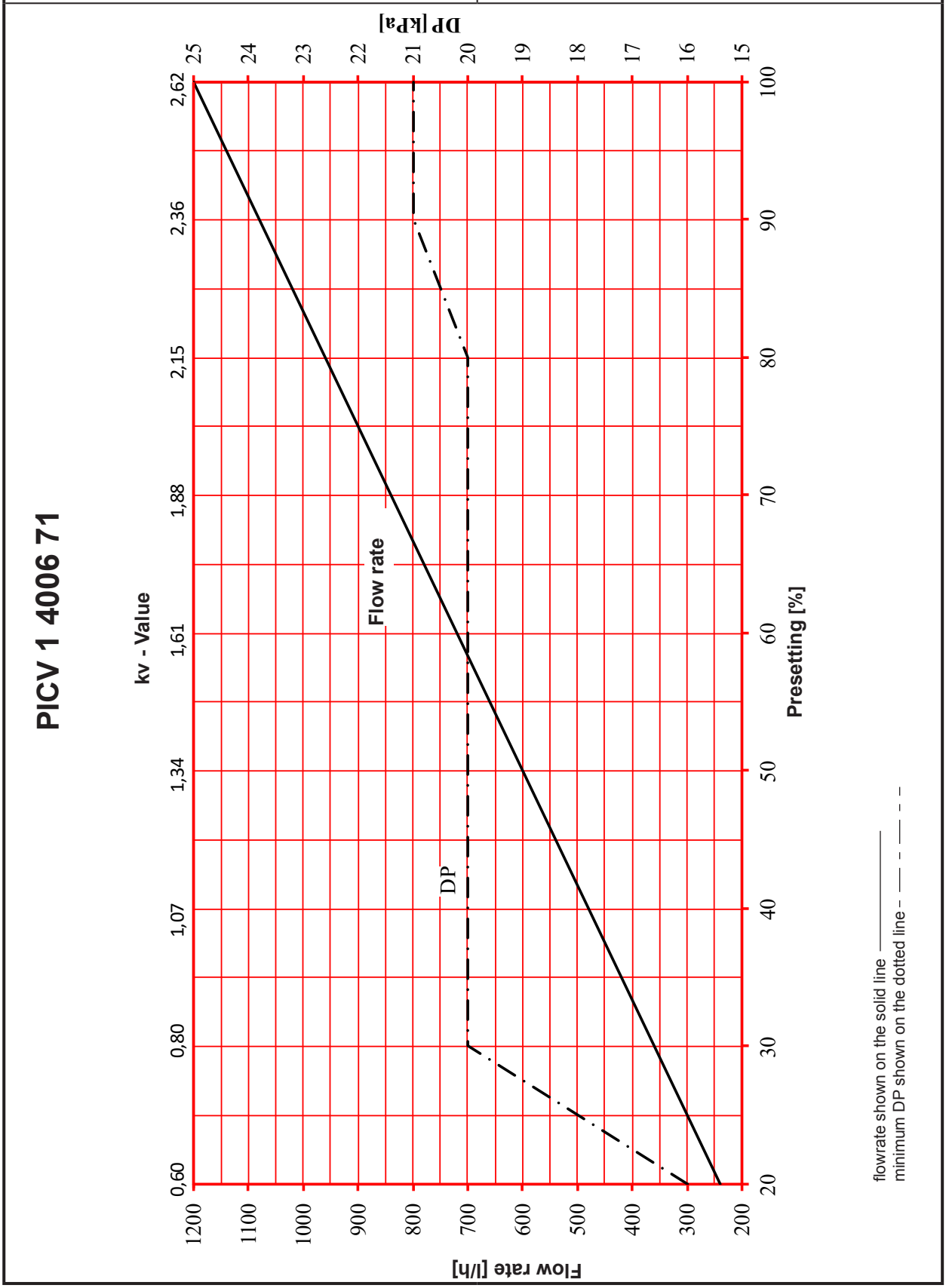
HERZ standard diagram	HerzCON (PICV)
1 **4600** 59, 1 **4700** 69, 1 **4600** 99	DN 15MF



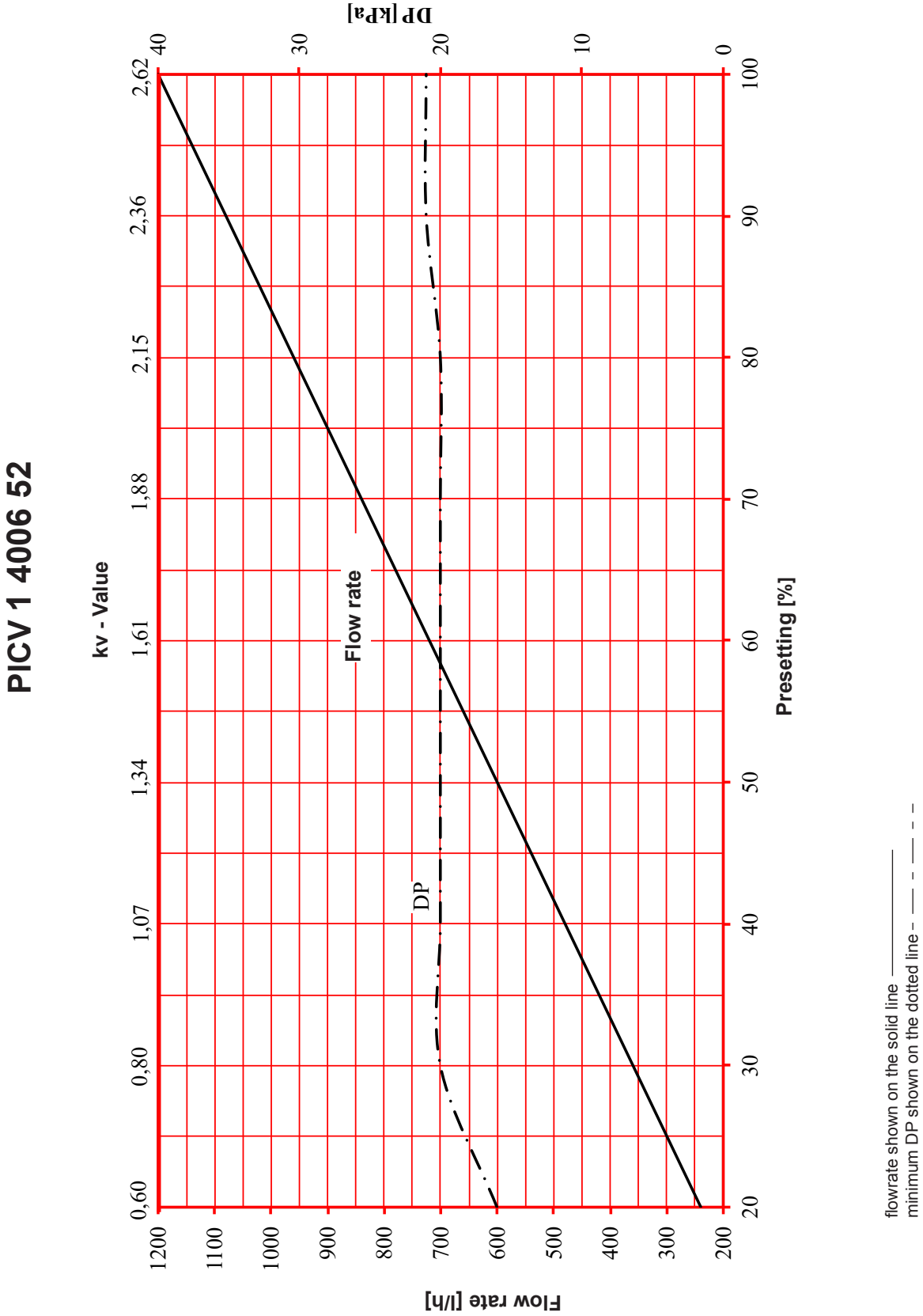
HERZ standard diagram	HerzCON (PICV)
1 **4600** 76	DN 15SF



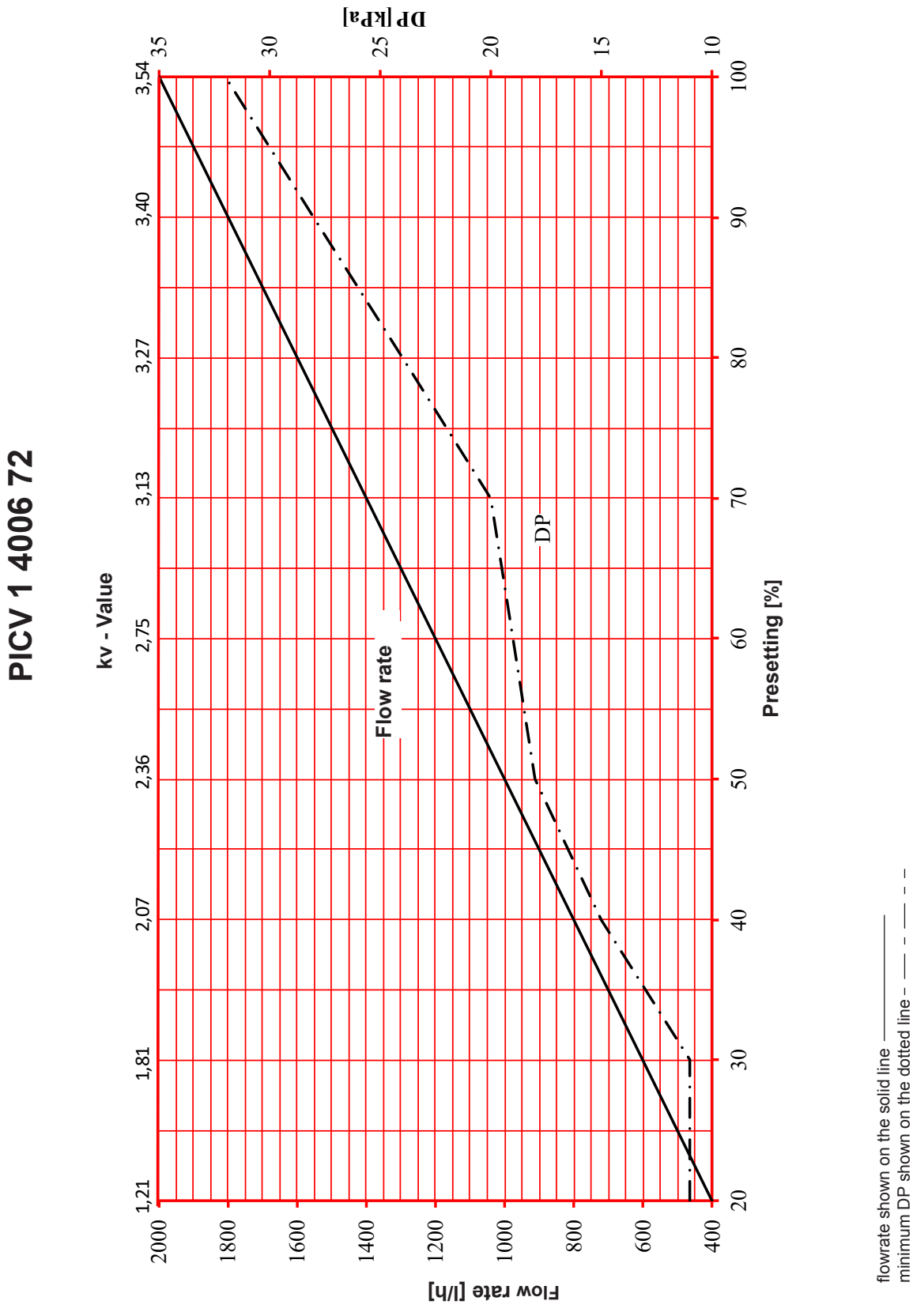
HERZ standard diagram	HerzCON (PICV)
1 **4600** 56	DN 15HF



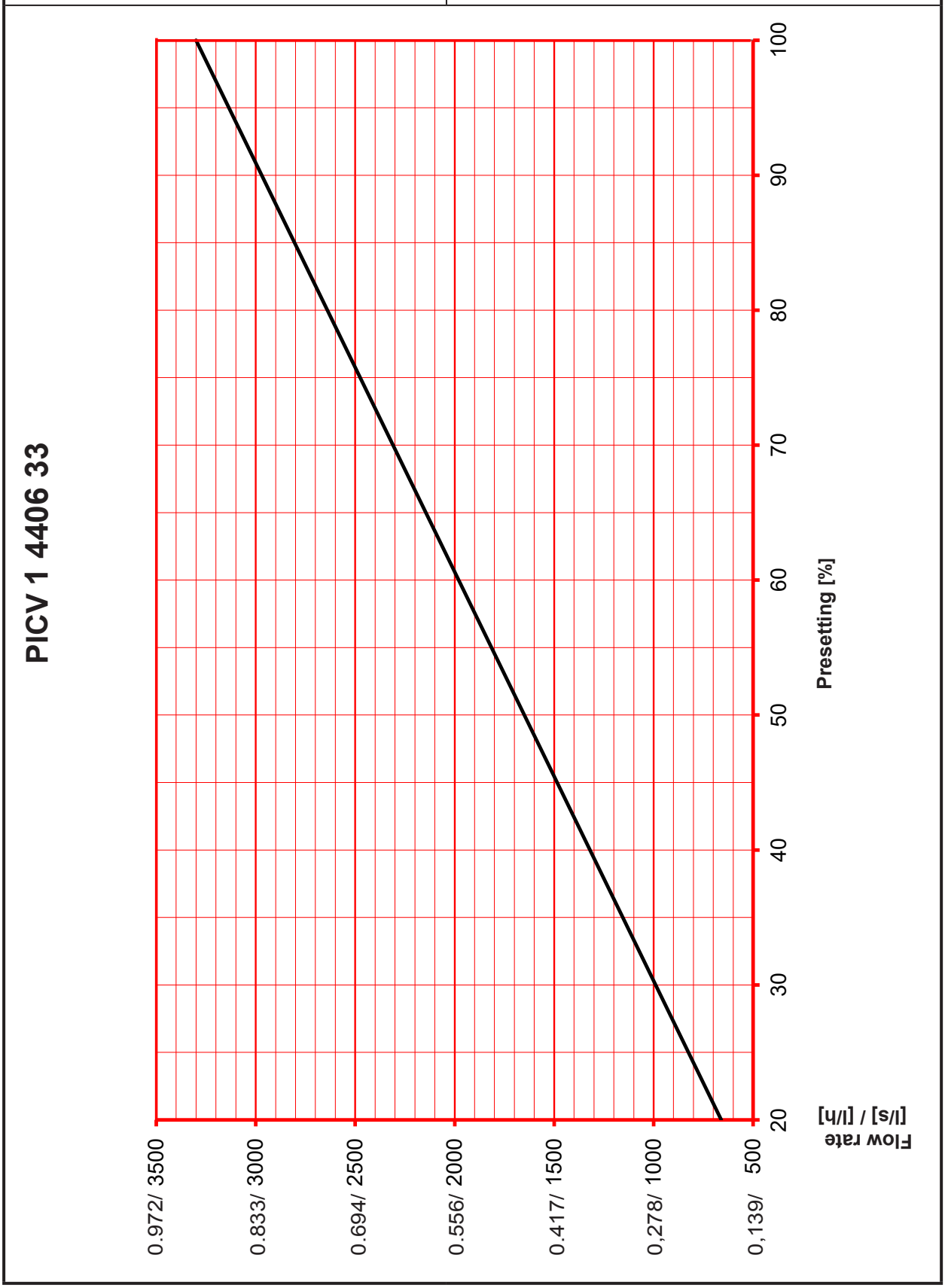
HERZ standard diagram	HerzCON (PICV)
1 **4600** 77	DN 20 SF



HERZ standard diagram	HerzCON (PICV)
1 **4600** 57	DN 20HF



HERZ standard diagram	HerzCON (PICV)
1 **4600** 78	DN 25



HERZ standard diagram	HerzCON (PICV)
1 **4600** 79	DN 32

