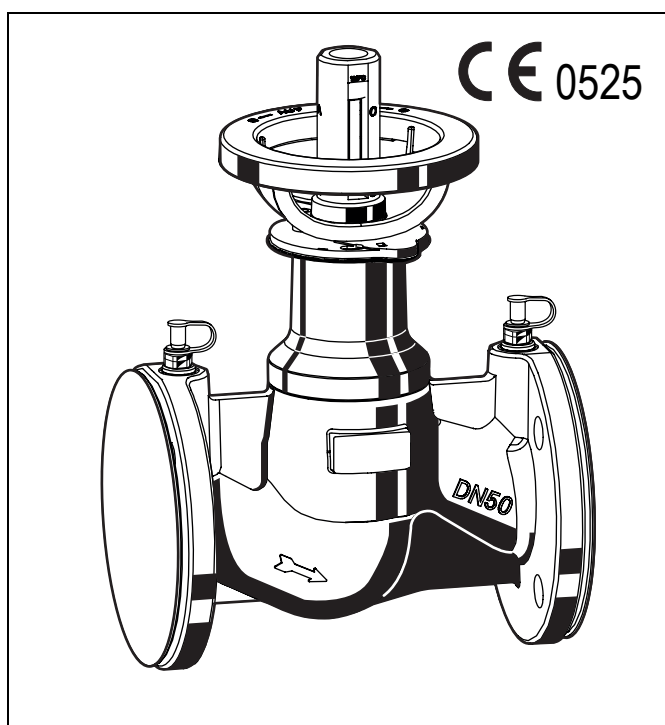


V6000A

Kombi-F-II, Kombi-F

FLANGED BALANCING AND SHUTOFF VALVE WITH SAFECON™ MEASURING CONNECTIONS



Design

- Valve body with flanges PN16 drilled to DIN EN 1092-2
- Valve insert with handwheel and pre-setting display
- 2 SafeCon™ measuring connections on DN25...DN400
- Without measuring connections on DN15 and DN20

Materials

- Valve housing made of cast iron GG25 BL1040 / BS1049, painted blue
- Valve insert made of stainless steel with seat sealing made of PTFE
- Pressure test cocks made of brass
- Handwheel made of PA6 DN65
- Fairing made of plastic PA6, black

Contents

Design.....	1
Materials	1
Application	1
Features.....	1
Specifications	2
Dimensions and Ordering Information	2
Accessories	3
Measuring Equipment	3
Spare Parts	3
Installation Example	3
Flow Data Kombi-F-II (DN15...DN200)	4 to 15
Flow Data Kombi-F (DN250...DN400)	16 to 19
Influence of Coolants on Flow Values	20
Correction Factor f	20

Application

The hydronic balance is a significant requirement for the efficient operation of a hydronic heating or cooling installation. In an unbalanced system under or over provision of hot water to individual radiators or circuits can occur. Apart from the correct selection of radiator valves, regulation of individual circuits is also necessary and in some cases, such as in DIN 18 380, VOB part C, required by national standards.

This requirement is met with Kombi-F-II and Kombi-F shutoff and balancing valves.

Kombi-F-II and Kombi-F have functions shut-off, pre-setting and measuring.

Features

- **Balancing through stroke limitation with digital pre-setting and visible pre-setting indicator**
- **Equipped with 2 pressure test cocks for differential pressure measurement (DN25...DN400)**
- **Non rising spindle with EDD (double sealing system)**
- **Pre-setting isn't altered when handwheel is turned**
- **PTFE-seat sealing**
- **Spindle made of stainless steel**
- **Valve body made of corrosion resistant cast iron**
- **Available in dimensions up to DN400**

Specifications

Medium	Water, water-glycol mixture
Operating temperature	-10...120°C (14...248°F) short run 130°C (266°F)
Operating pressure	max. 16 bar (232 psi)
k_{vs} (C_{vs})-value	see table below and flow diagrams

NOTE: The valves are designed for application not influenced by weather.
For application outside or in adverse environments like corrosion-promoting conditions (sea water, chemical vapours, etc.) special constructions or protective measures are recommended.

Please Note:

- To avoid stone deposit and corrosion the composition of the medium should conform with VDI-Guideline 2035
- Additives have to be suitable for EPDM sealings
- System has to be flushed thoroughly before initial operation with all valves fully open
- Any complaints or costs resulting from non-compliance with above rules will not be accepted by Honeywell
- Please contact us if you should have any special requirements or needs

Dimensions and Ordering Information

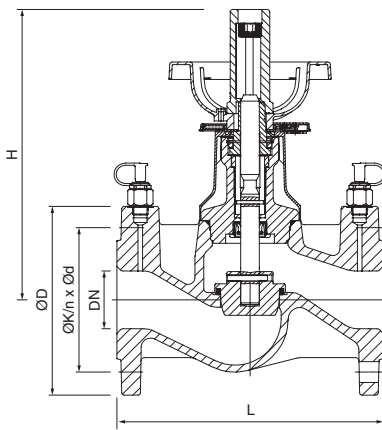


Fig. 1. Dimensions DN 15* - DN 80

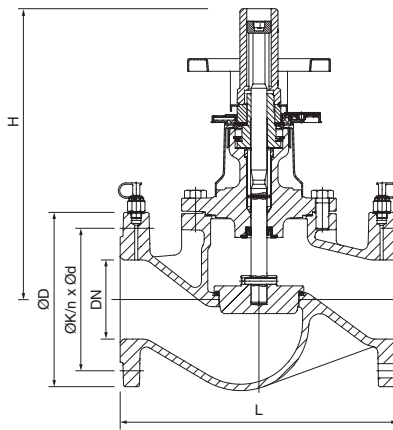


Fig. 2. Dimensions DN 100 - DN 200

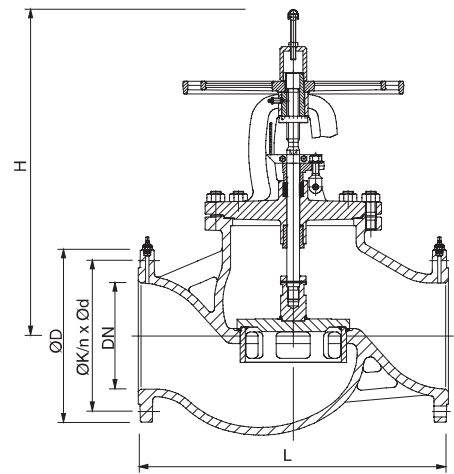


Fig. 3. Dimensions DN 250 - DN 400

Table 1. Dimensions Kombi-F-II

DN	(R)	$k_{vs}(C_{vs})$ -value	L	H	Ø D	Ø K	n x Ø d	Gewicht	OS-No.
15*	1/2"	4.50 (5.27)	130	215	95	65	4 x 14	3.5 kg	V6000D0015A
20*	3/4"	6.60 (7.72)	150	215	105	75	4 x 14	4.1 kg	V6000D0020A
25	1"	9.80 (11.5)	160	215	115	85	4 x 14	4.8 kg	V6000D0025A
32	1 1/4"	15.1 (17.7)	180	215	140	100	4 x 18	6.6 kg	V6000D0032A
40	1 1/2"	24.9 (29.1)	200	255	150	110	4 x 18	9.0 kg	V6000D0040A
50	2"	48.5 (56.7)	230	255	165	125	4 x 18	11.5 kg	V6000D0050A
65	2 1/2"	74.4 (87.0)	290	315	185	145	4 x 18	18.5 kg	V6000D0065A
80	3"	111 (130)	310	335	200	160	8 x 18	24.5 kg	V6000D0080A
100	4"	165 (193)	350	370	220	180	8 x 18	40.0 kg	V6000D0100A
125	5"	242 (283)	400	400	250	210	8 x 18	79.0 kg	V6000D0125A
150	6"	372 (435)	480	450	285	240	8 x 22	91.0 kg	V6000D0150A
200	8"	704 (824)	600	540	340	295	12 x 22	170 kg	V6000D0200A

NOTE: All dimensions in mm unless stated otherwise.

*DN15 and DN20 without pressure test cocks

Table 2. Dimensions Kombi-F

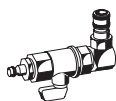
DN	(R)	$k_{vs}(C_{vs})$ -value	L	H	Ø D	Ø K	n x Ø d	Weight	OS-No.
250	10"	812 (950)	730	785	405	355	12 x 26	265 kg	V6000D0250A
300	12"	1.380 (1.615)	850	890	460	410	12 x 26	360 kg	V6000D0300A
350	14"	1.651 (1.932)	980	1035	520	470	16 x 26	535 kg	V6000D0350A
400	16"	2.383 (2.771)	1.100	1050	580	525	16 x 30	765 kg	V6000D0400A

NOTE: All dimensions in mm unless stated otherwise.

Accessories

Measuring Equipment

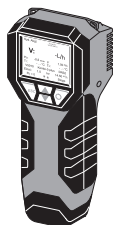
Measuring adapter (2pcs.)



for measuring computer
VM241

VA3600C001

VM242A BasicMes-2 handheld measuring computer



For all sizes. Computer is
supplied with case and
accessories

VM242A0101

NOTE: To connect the VM241 BasicMes to SafeCon™
pressure test cocks please order measuring adapter
VA3600C001 separately.

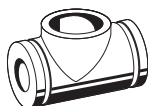
Extension piece for pressure test cocks, length 45 mm, for insulated valves



for all dimensions

VA2601A008

Insulation shells



for valves DN65

101065

for valves DN80

101080

for valves DN100

101100

for valves DN125

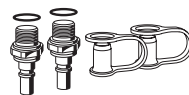
101125

for valves DN150

101150

Spare Parts

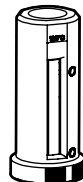
Spare set of 2 pressure test cocks G1/4"



for DN25...DN400

VS2600C001

Red stroke indicator



DN15...DN50

VS4600A015

DN65...DN125

VS4600A065

DN150...DN200

VS4600A200

Installation Example

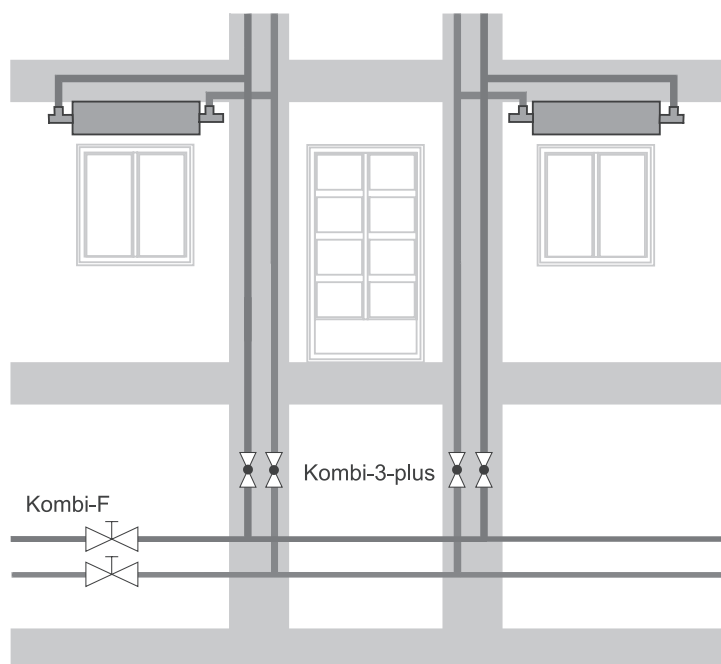
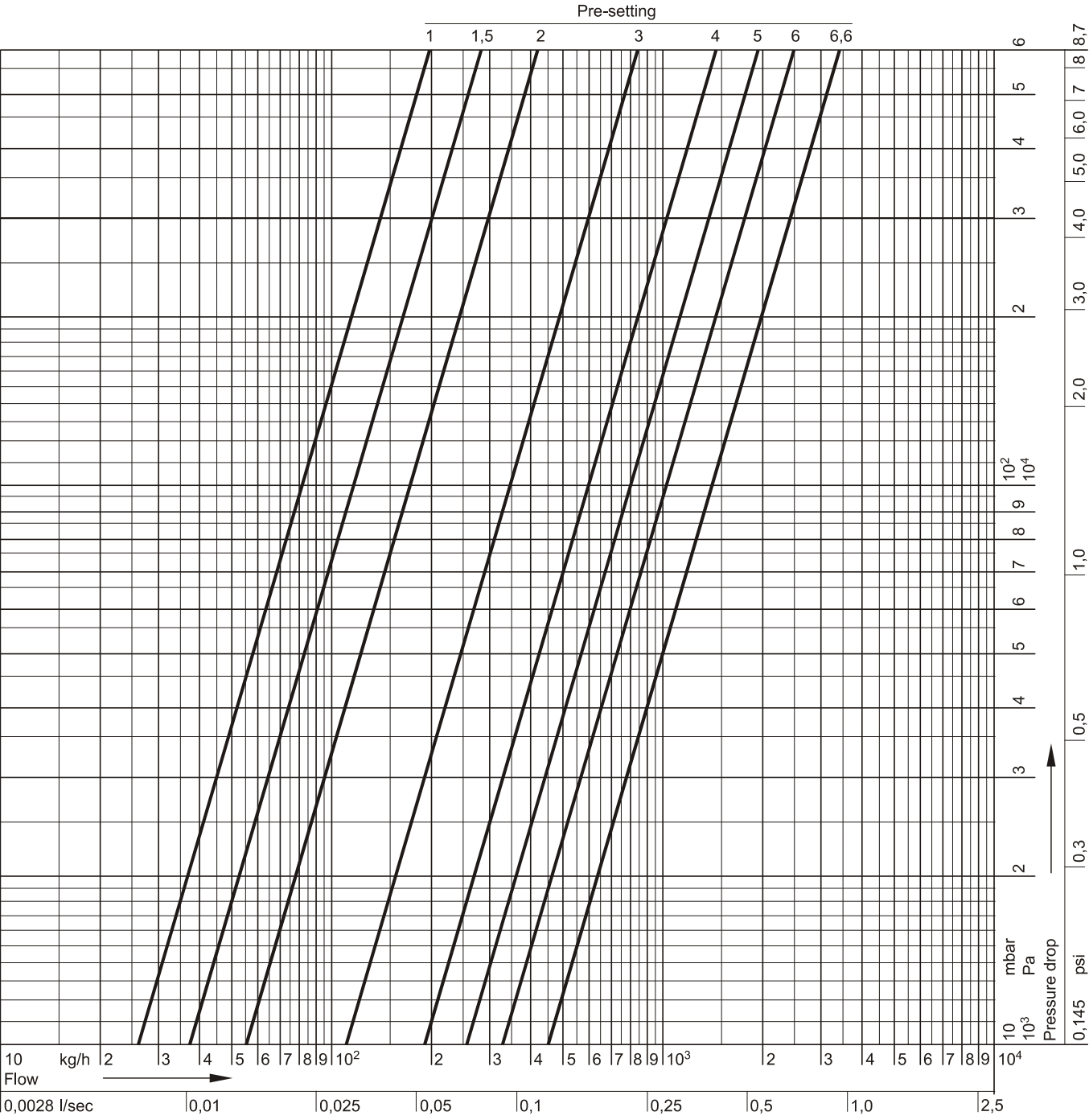


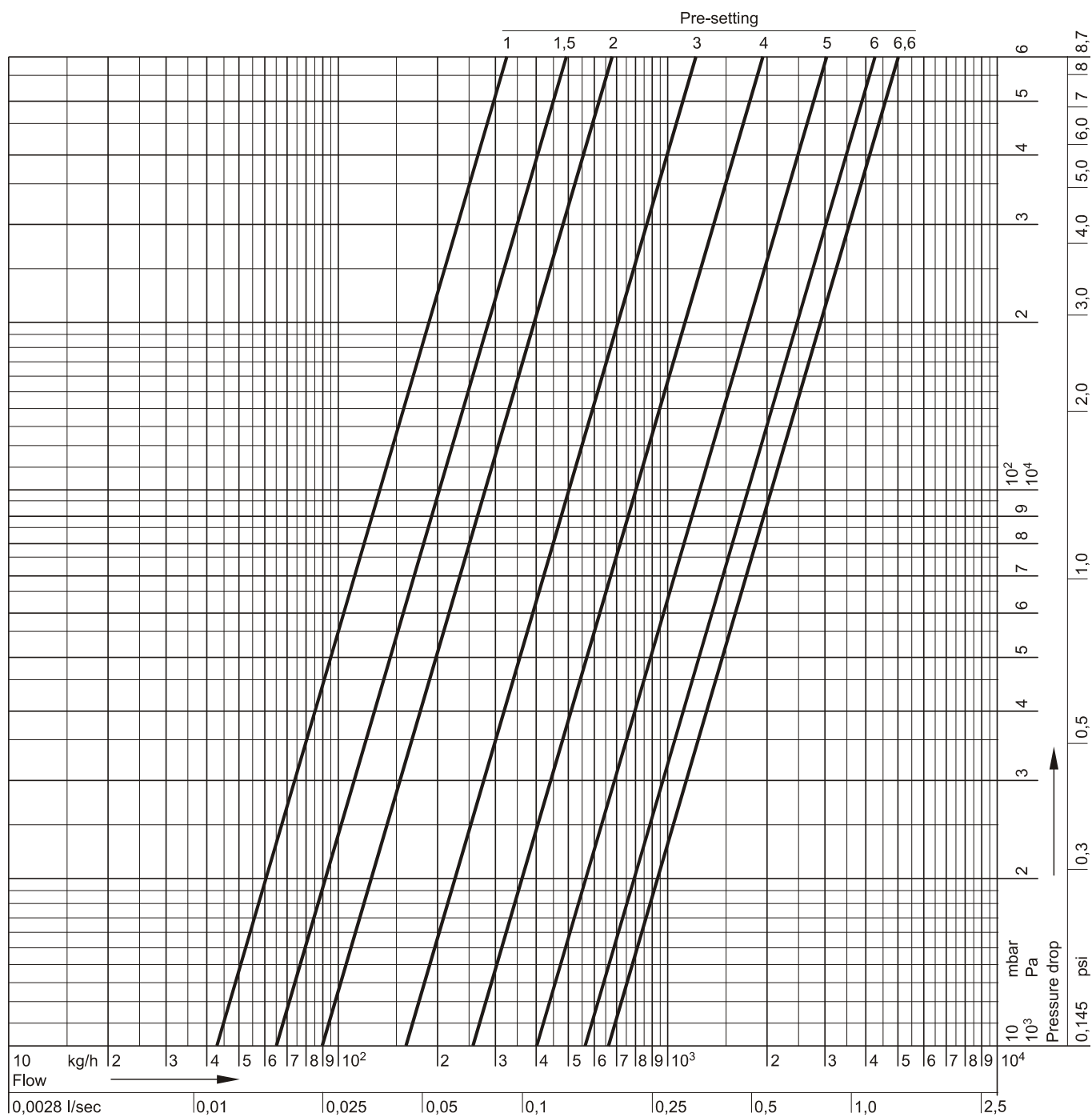
Fig. 4. Kombi-F in a cooling system

Flow Data Kombi-F-II, DN15



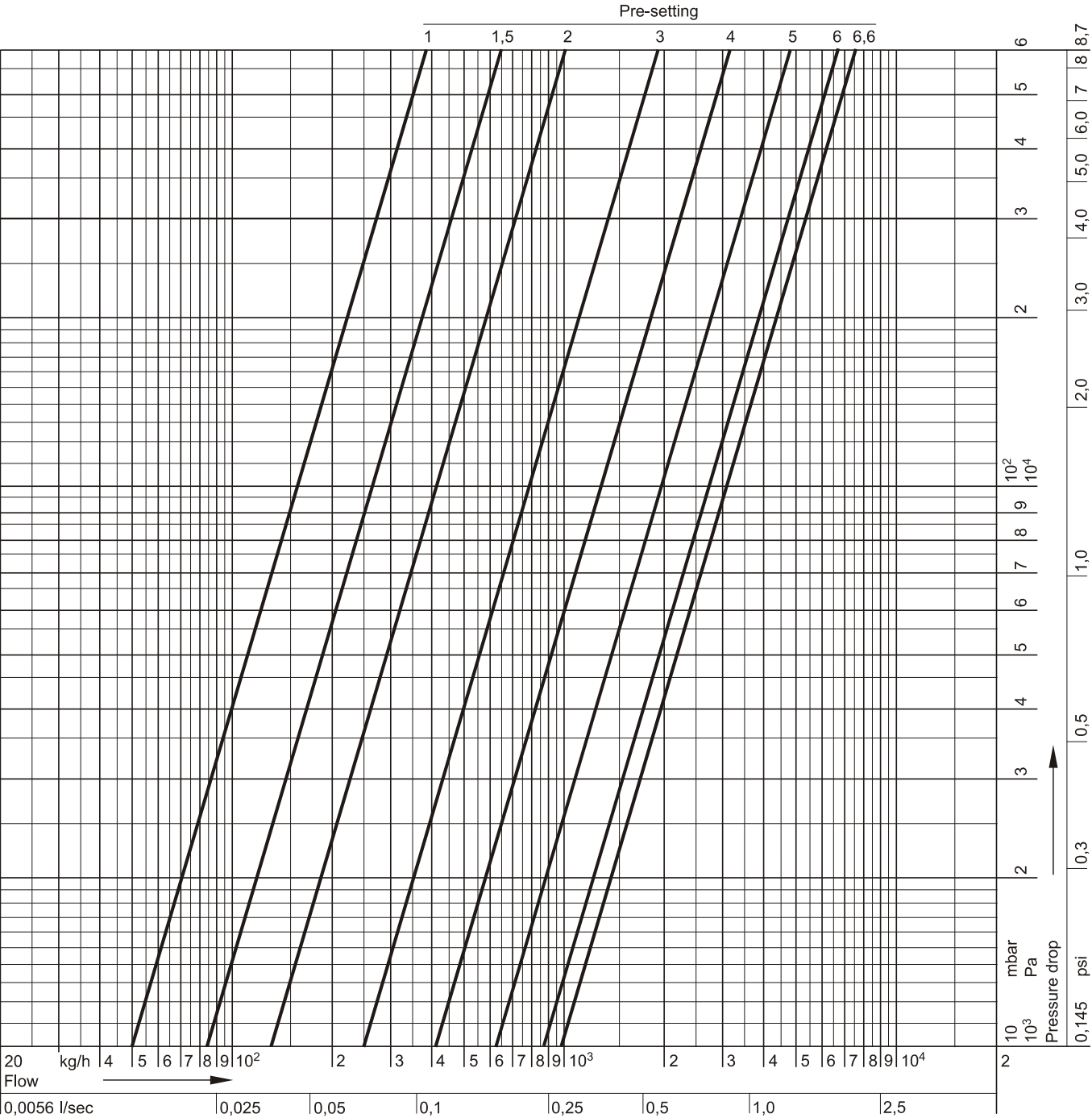
Pre-setting	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	6.6 = open
k _v -value	0.13	0.26	0.37	0.55	0.80	1.10	1.50	1.90	2.30	2.60	2.90	3.30	4.20	k _{vs} = 4.50
c _v -value	0.15	0.30	0.43	0.64	0.94	1.29	1.76	2.22	2.69	3.04	3.39	3.86	4.91	5.27

Flow Data Kombi-F-II, DN20



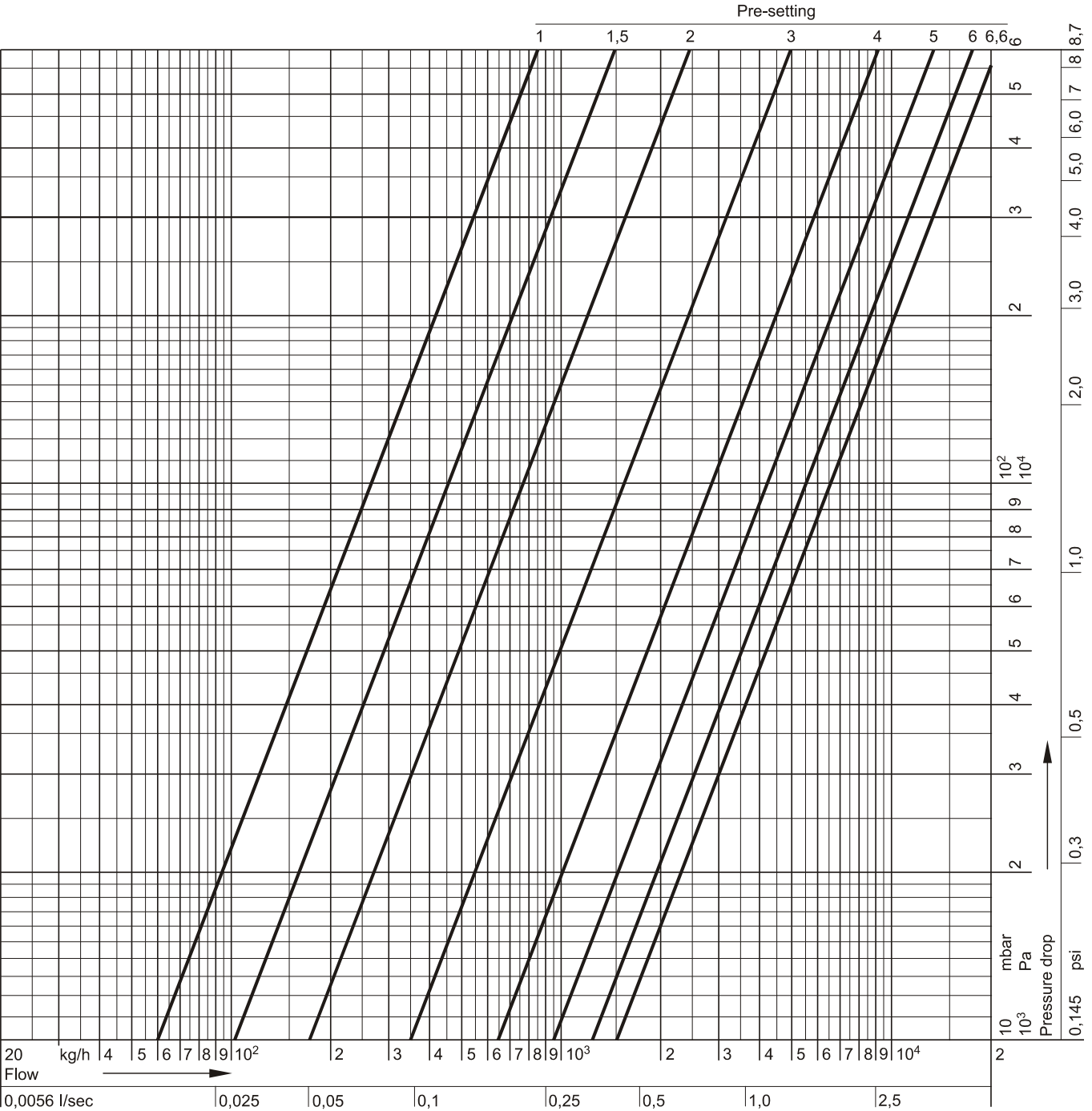
Pre-setting	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	6.6 = open
k _v -value	0.22	0.43	0.65	0.90	1.15	1.60	2.06	2.60	3.26	4.00	4.79	5.60	6.43	k _{vs} = 6.60
cv-value	0.26	0.50	0.76	1.05	1.35	1.87	2.41	3.04	3.81	4.68	5.60	6.55	7.52	7.72

Flow Data Kombi-F-II, DN25



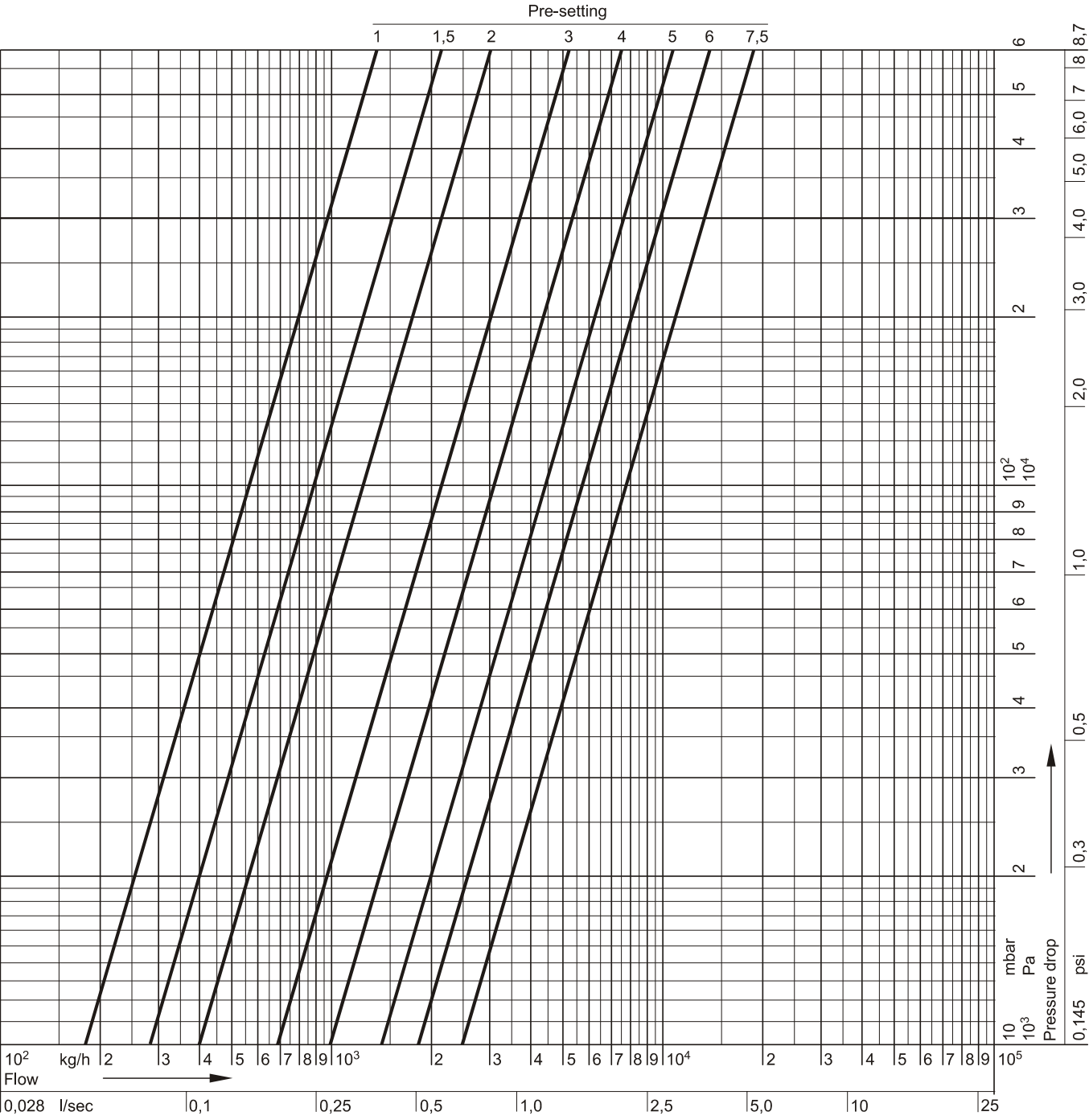
Pre-setting	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	6.6 = open
kv-value	0.22	0.49	0.84	1.30	1.85	2.50	3.25	4.10	5.07	6.20	7.50	8.70	9.63	kvs = 9.80
cv-value	0.26	0.57	0.98	1.52	2.16	2.93	3.80	4.80	5.93	7.25	8.78	10.2	11.3	11.5

Flow Data Kombi-F-II, DN32



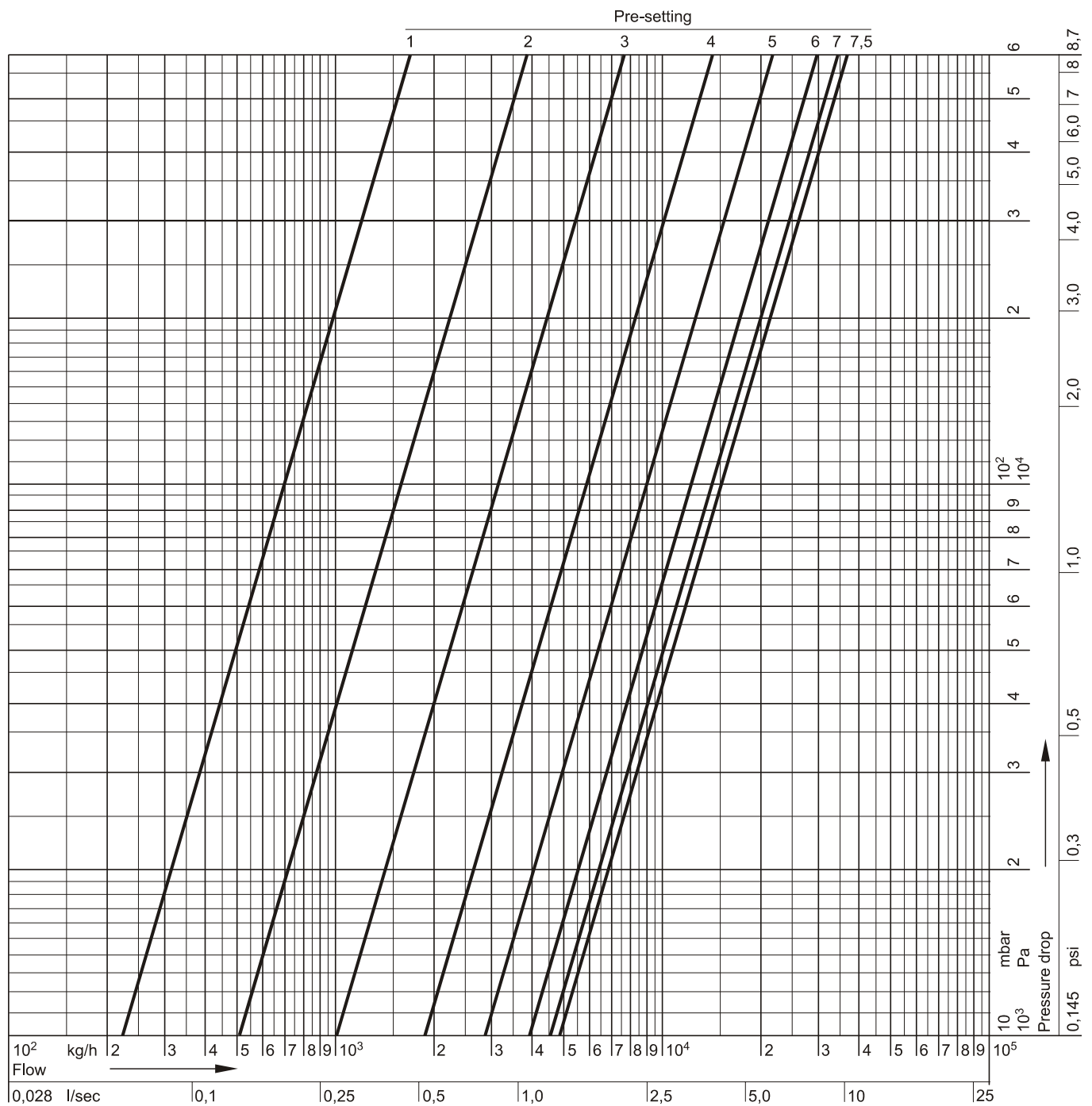
Pre-setting	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	6.6 = open
k _v -value	0.28	0.60	1.06	1.68	2.48	3.54	4.91	6.46	7.97	9.47	11.0	12.8	14.7	k _{VS} = 15.1
cv-value	0.33	0.70	1.24	1.97	2.90	4.14	5.74	7.56	9.32	11.1	12.9	15.0	17.2	17.7

Flow Data Kombi-F-II, DN40



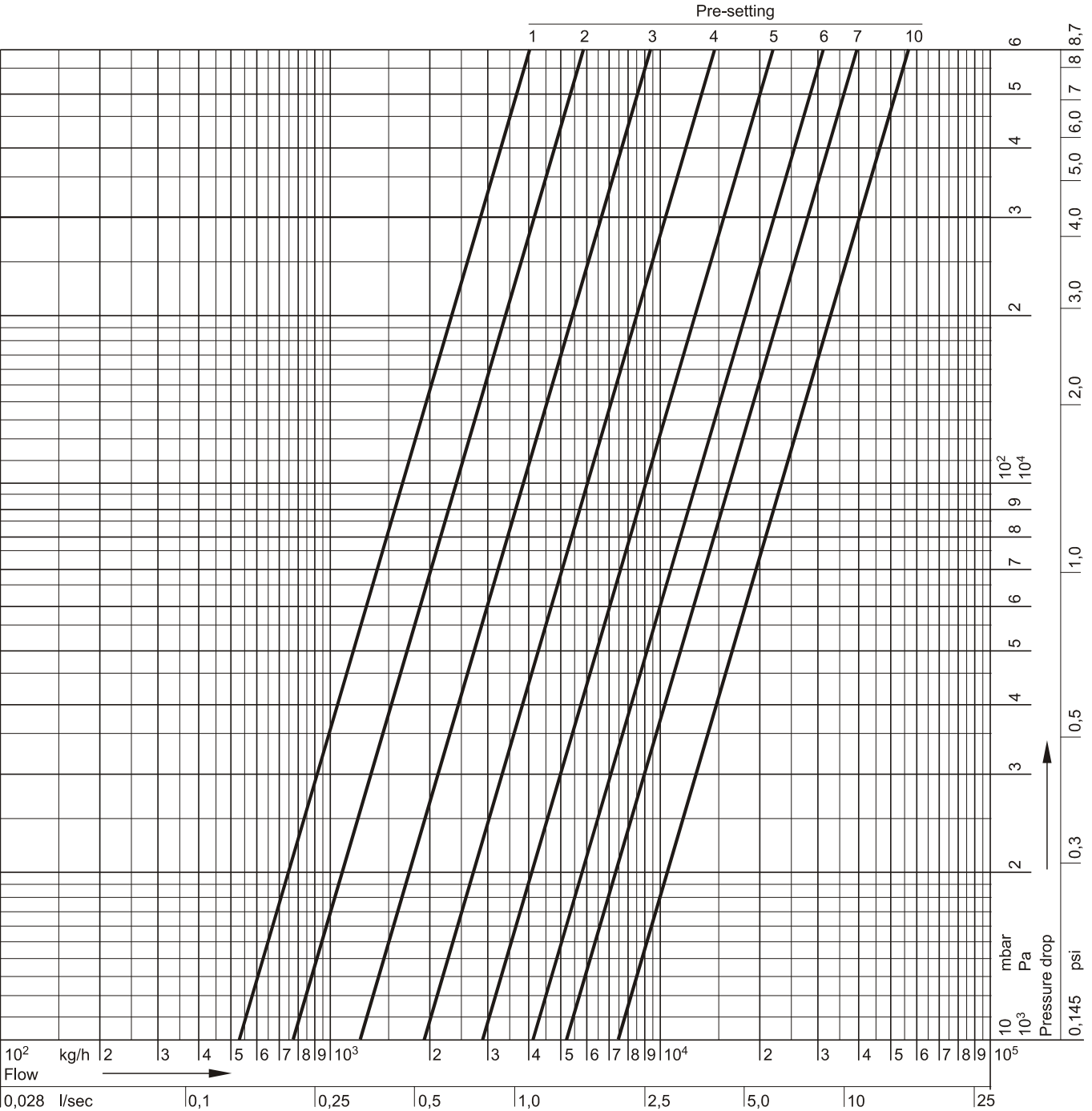
Pre-setting	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5 = open
k _v -value	0.88	1.80	2.80	4.00	5.42	6.90	8.31	9.90	11.9	14.3	16.8	18.8	20.4	22.2	k _{vs} = 24.9
cv-value	1.03	2.11	3.28	4.68	6.34	8.07	9.72	11.6	13.9	16.7	19.7	22.0	23.9	26.0	29.1

Flow Data Kombi-F-II, DN50



Pre-setting	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5 = open
k _v -value	1.07	2.20	3.46	5.10	7.36	10.3	13.9	18.05	22.7	28.0	34.1	39.3	42.8	45.6	k _{vs} = 48.5
cv-value	1.25	2.57	4.05	5.97	8.61	12.1	16.3	20.99	26.6	32.8	39.9	46.0	50.1	53.4	56.7

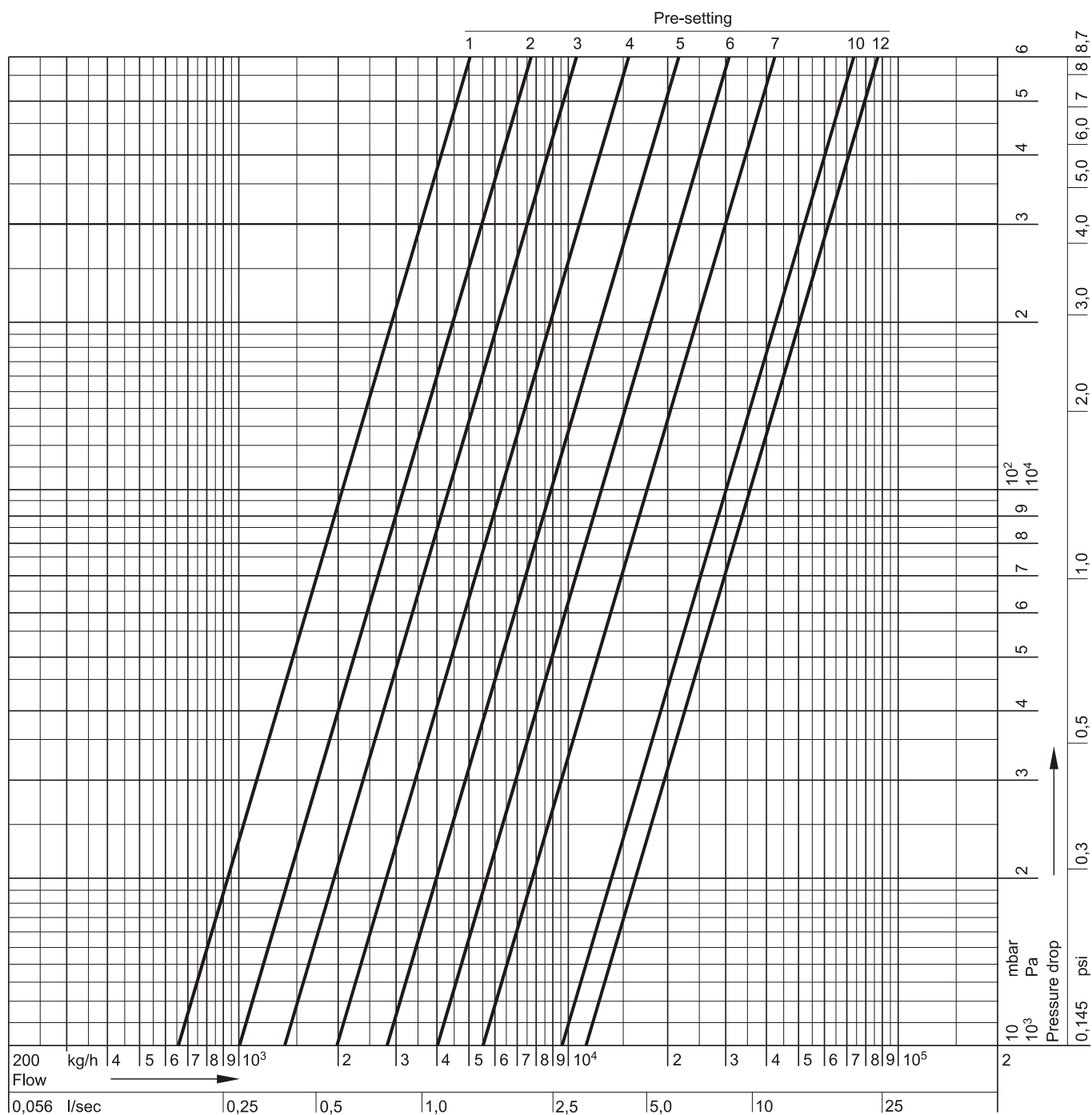
Flow Data Kombi-F-II, DN65



Pre-setting	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5
k _v -value	2.98	5.30	6.64	7.80	9.60	12.1	15.2	19.0	23.6	29.1	35.2	41.3	47.0	52.1	56.6
cv-value	3.49	6.20	7.77	9.13	11.2	14.2	17.8	22.2	27.6	34.0	41.2	48.3	55.0	61.0	65,81

Pre-setting	8.0	8.5	9.0	9.5	10.0 = open
k _v -value	60.7	64.4	67.9	71.2	k _{VS} = 74.4
cv-value	71.0	74,88	79.4	82,79	87.0

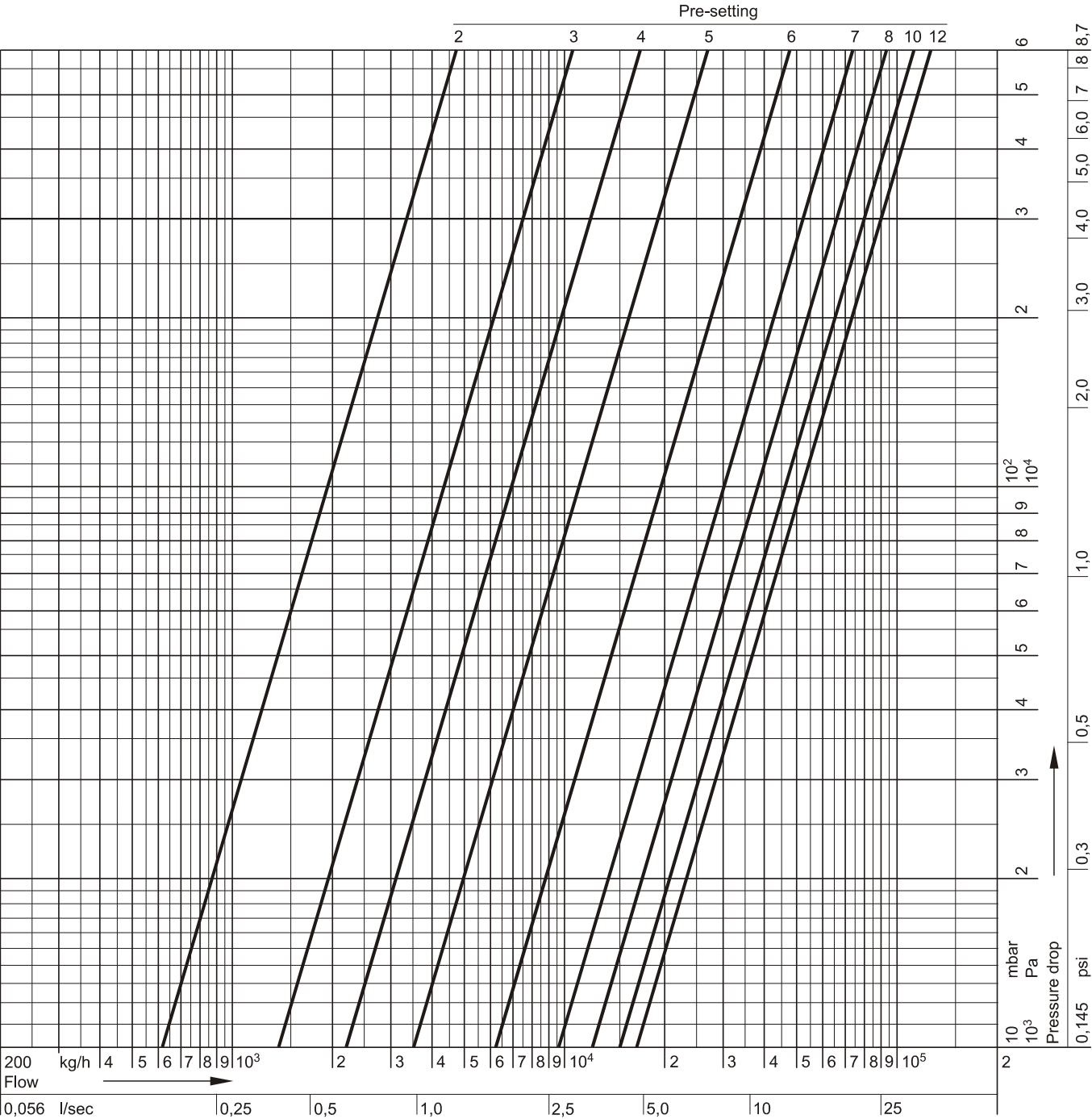
Flow Data Kombi-F-II, DN80



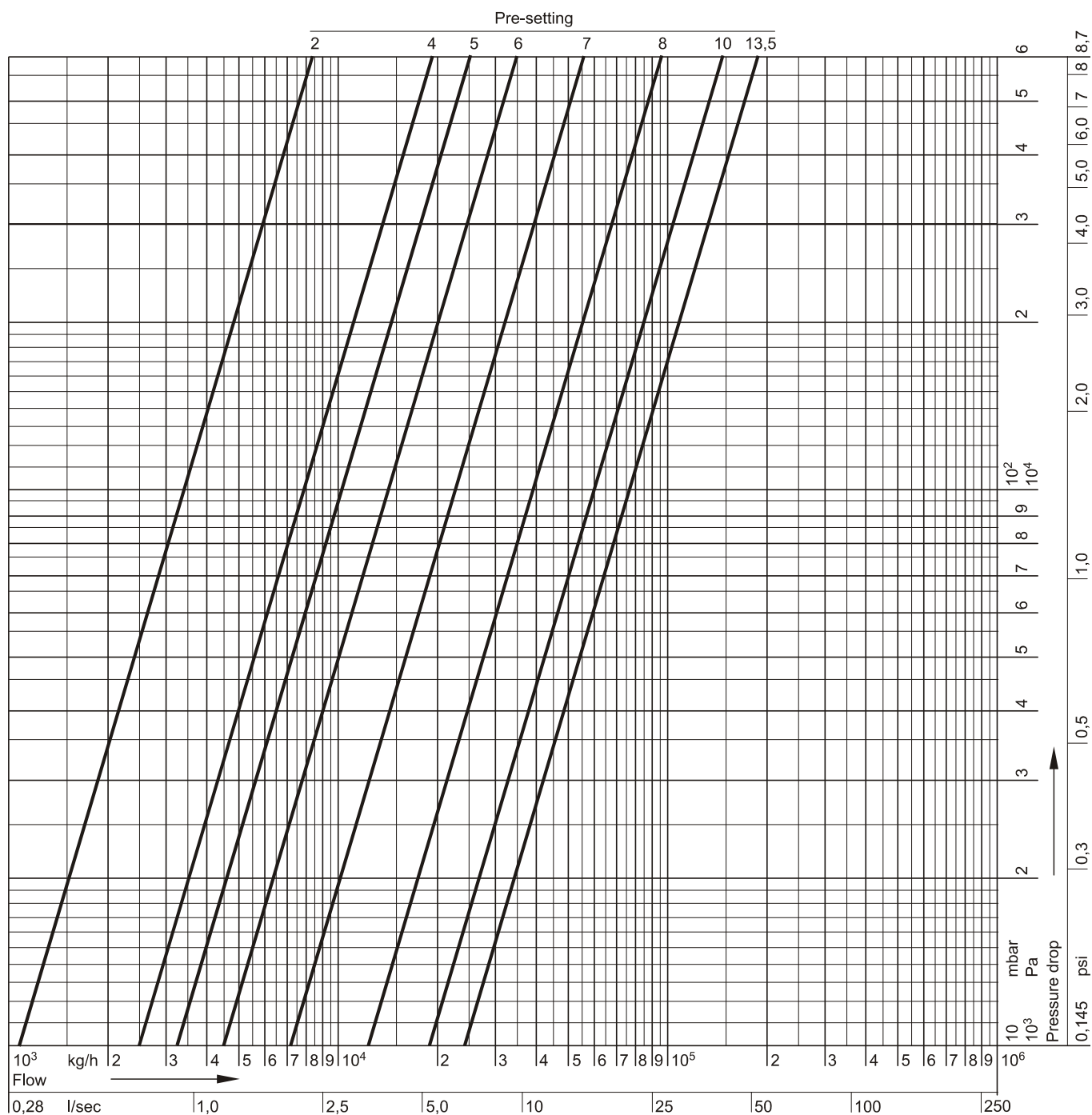
Pre-setting	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5
k _v -value	3.65	6.60	8.52	10.0	11.7	13.7	16.1	19.2	23.2	28.1	33.9	40.4	47.7	55.4	63.2	70.9	78.1
cv-value	4.27	7.72	9.97	11.7	13.7	16.0	18.8	22.5	27.1	32.9	39.42	47.3	55.47	64.8	73.49	83.0	90.81

Pre-setting	9.0	9.5	10.0	10.5	11.0	12.0 = open
k _v -value	84.8	90.8	96.1	100.5	104.3	k _{vs} = 111
cv-value	99.2	105.6	112	116.9	121.3	130

Flow Data Kombi-F-II, DN100



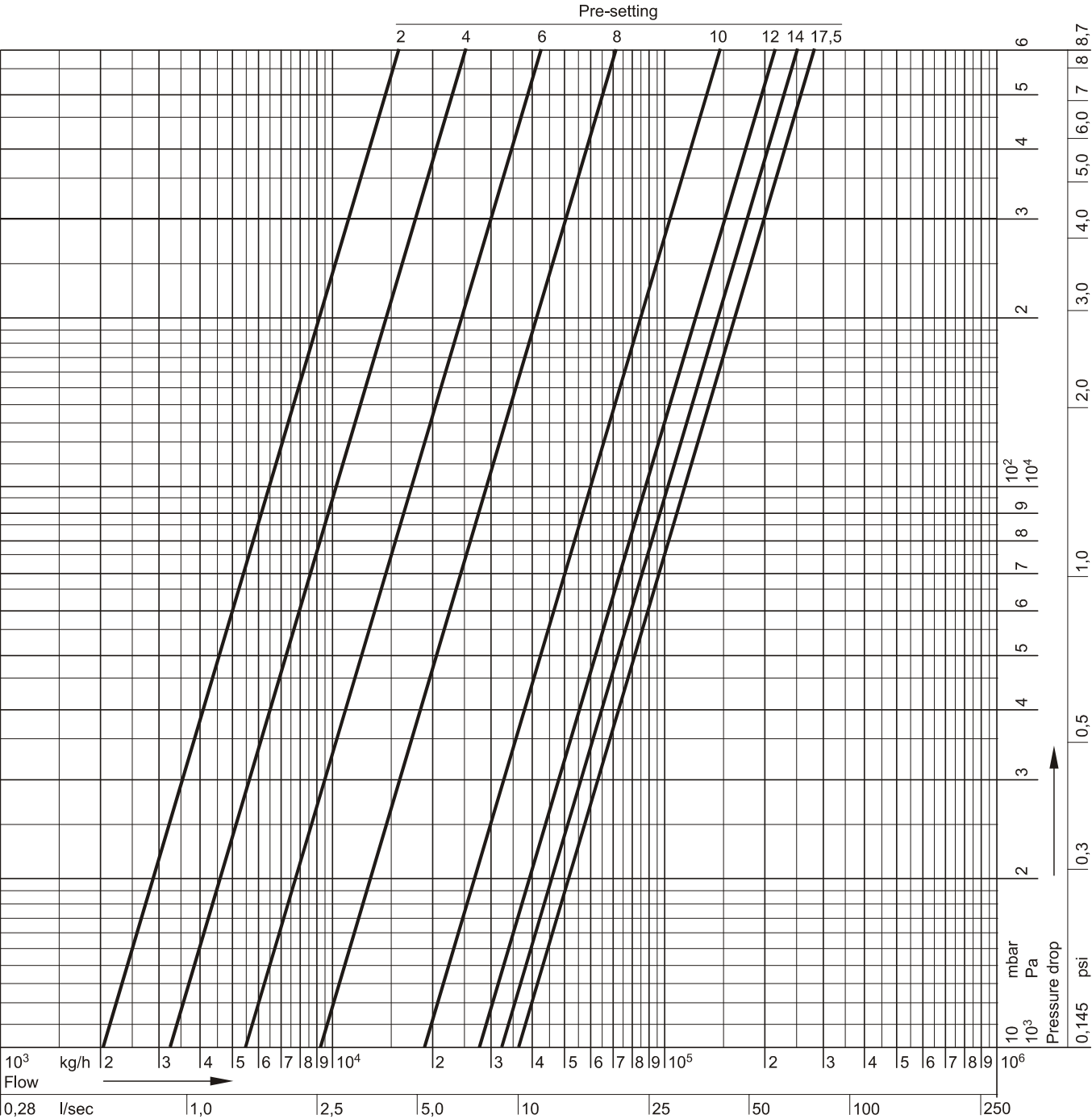
Flow Data Kombi-F-II, DN125



Pre-setting	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5
k_v -value	8.30	11.3	14.4	17.7	21.1	24.6	28.2	32.3	37.4	44.9	56.1	72.5	93.2	119.6	142
cv-value	9.71	13.2	16.8	20.7	24.7	28.8	33.0	37.8	43.8	52.5	65.6	84.8	109	139	165

Pre-setting	9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5 = open
k_v -value	162	179	192	202	211	218	225	231	236	$k_{vs} = 242$
cv-value	190	208	225	235	247	253	263	269	276	281

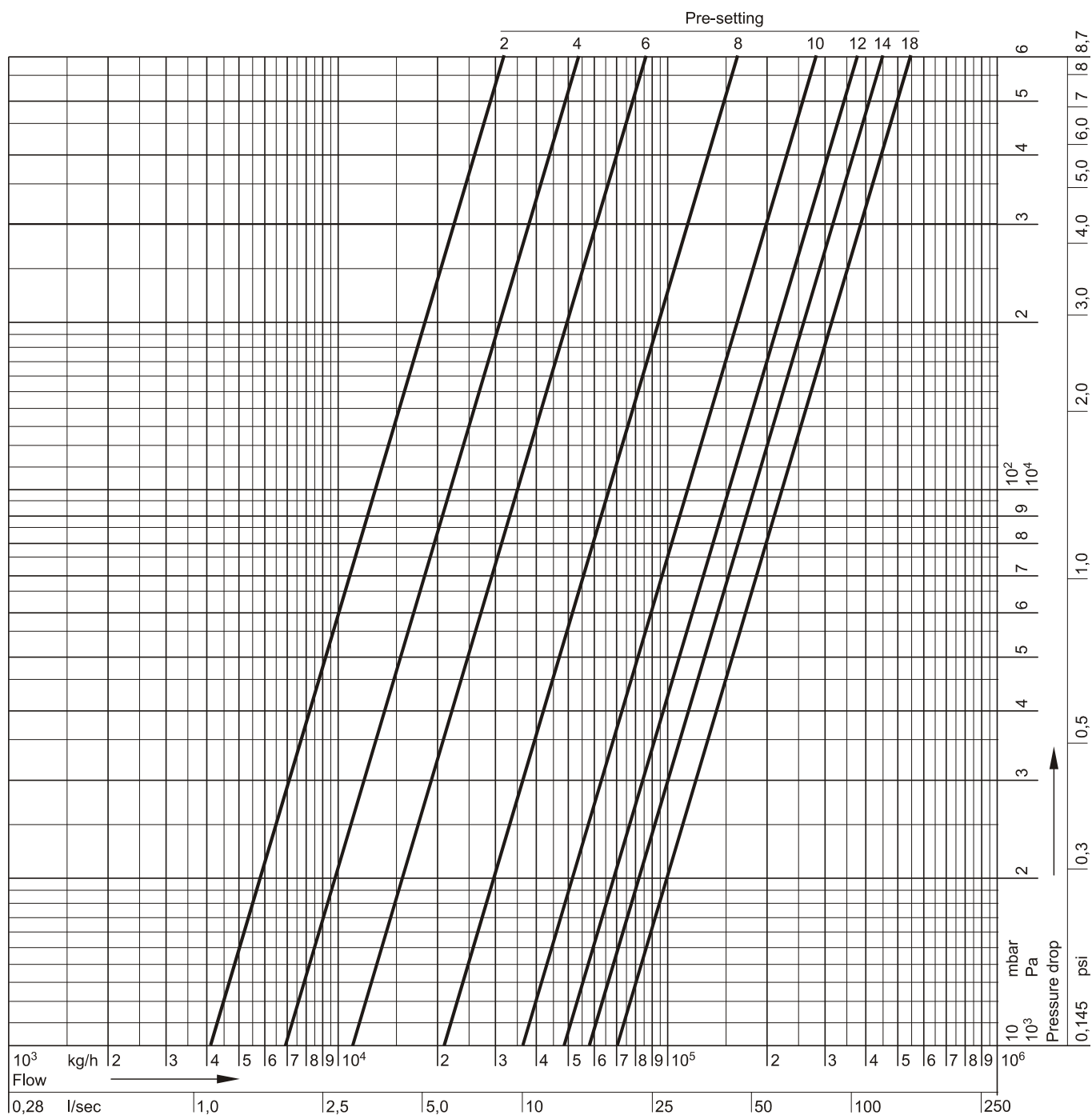
Flow Data Kombi-F-II, DN150



Pre-setting	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5
k _v -value	16.2	20.4	23.8	26.7	29.5	33.0	37.6	42.3	48.0	54.5	61.5	69.6	80.0	92.9	111	136	164
cv-value	19.0	23.9	27.8	31.2	34.5	38.6	44.0	49.5	56.2	63.8	72.0	81.4	93.6	109	129	159	191

Pre-setting	10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5 = open
k _v -value	193	218	240	258	274	288	300	310	320	329	337	345	352	359	365	k _{vs} = 372
cv-value	226	253	281	300	321	335	351	360	374	383	394	401	412	417	427	435

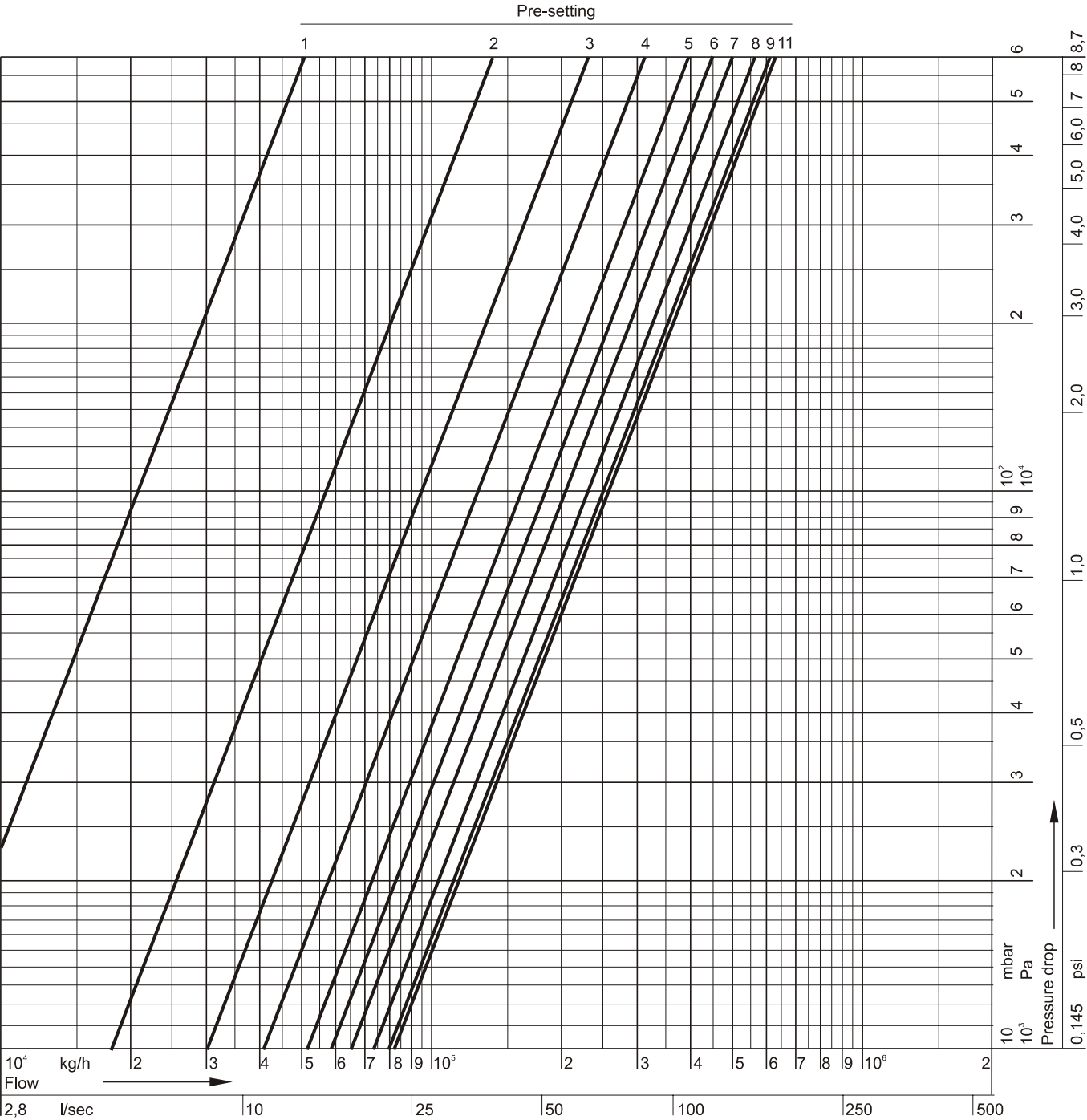
Flow Data Kombi-F-II, DN200



Pre-setting	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0
k _v -value	32.5	41.3	48.9	55.5	62.1	69.0	77.8	88.1	101	115	133	154	179	208	244	284	325	364
cv-value	38.0	48.3	57.2	64.9	72.7	80.2	91.0	103	118	135	156	180	209	243	284	332	378	426

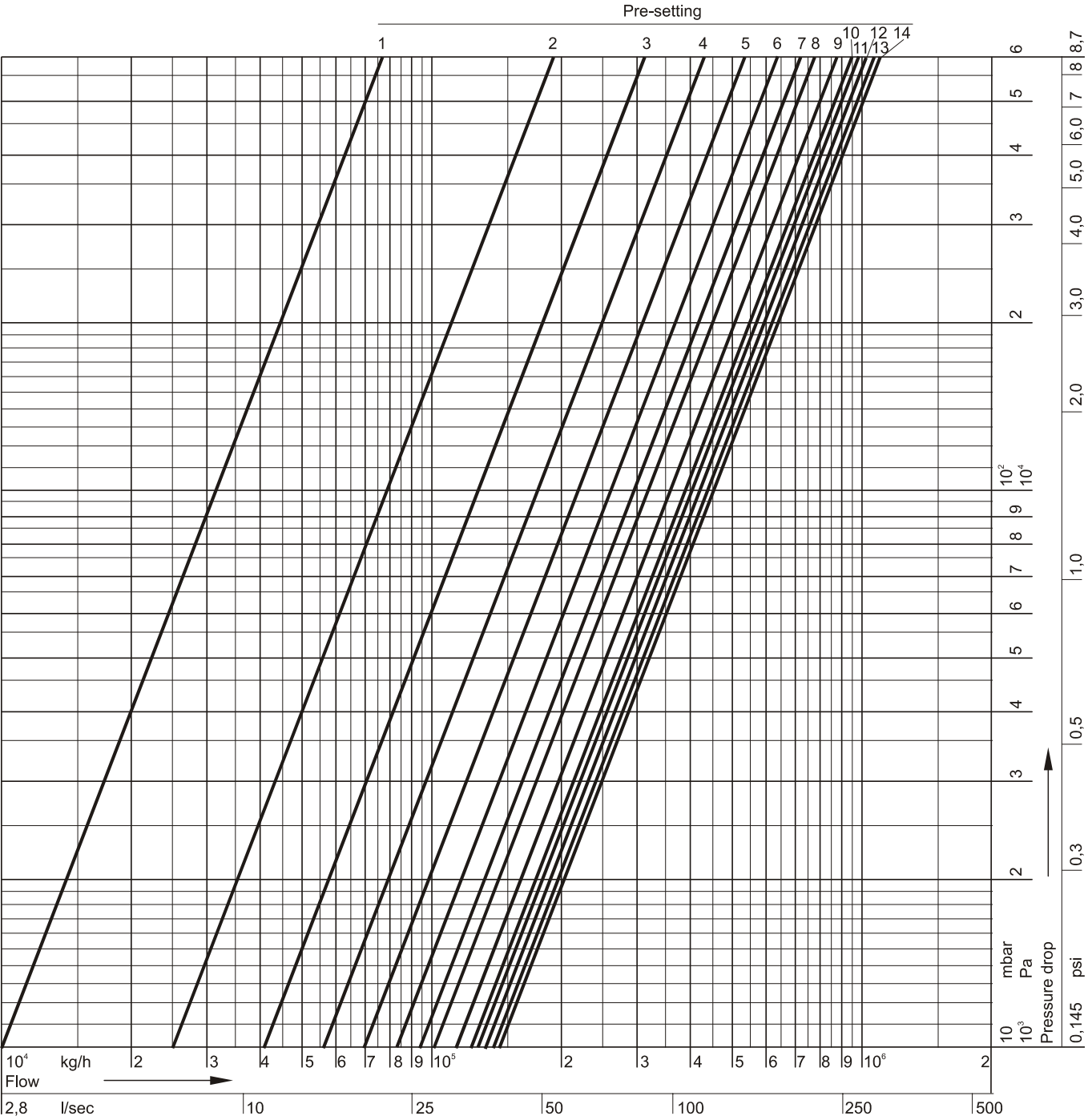
Pre-setting	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5	18.0 = open		
k _v -value	402	435	464	489	515	537	558	575	595	613	630	646	661	677	692	k _{VS} = 704		
cv-value	467	509	540	572	599	628	649	673	692	717	733	756	769	792	805	824		

Flow Data Kombi-F, DN250



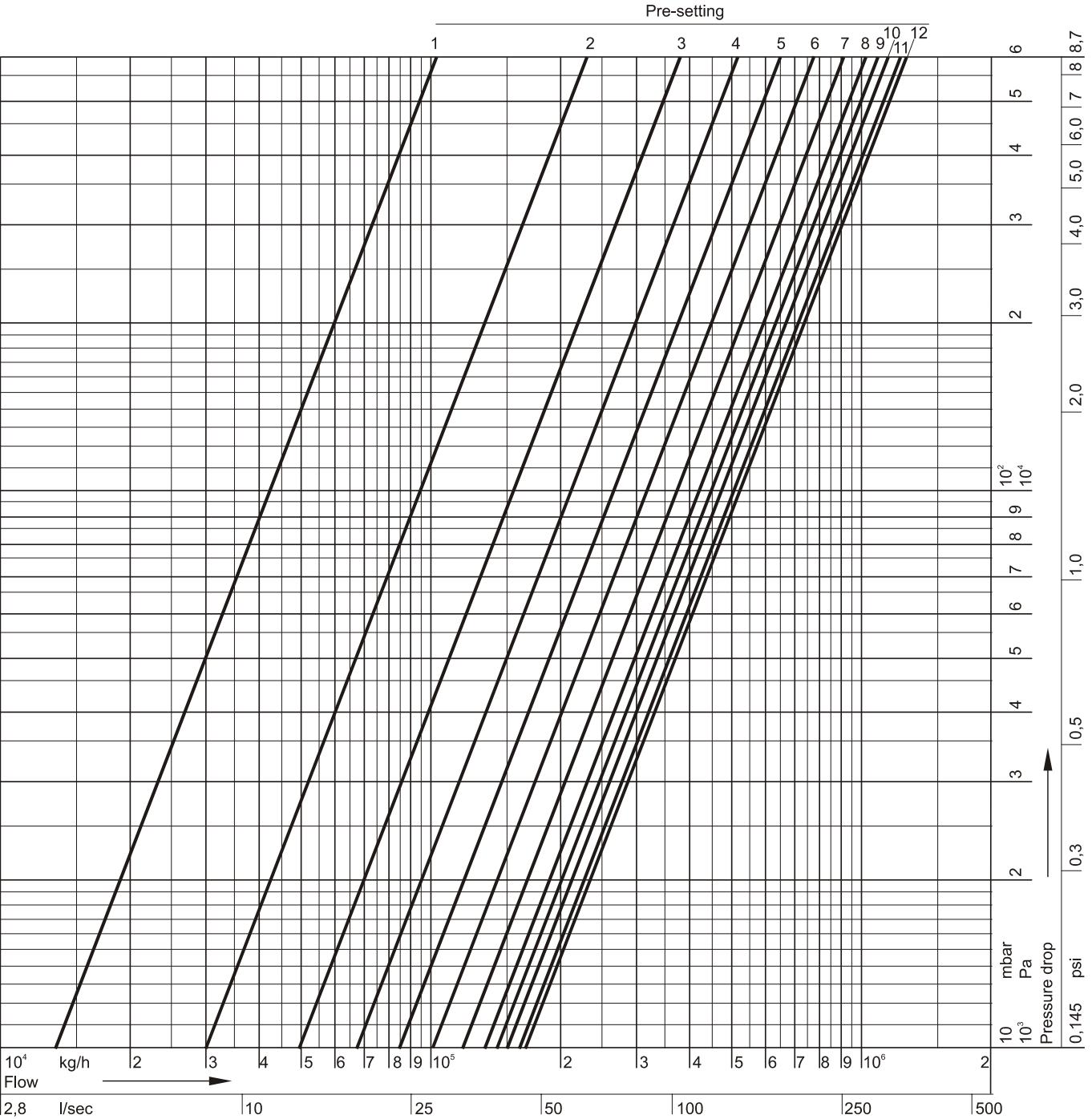
Pre-setting	1	2	3	4	5	6	7	8	9	11.0 = open
kv-value	66	179	297	410	514	587	662	731	775	kvs = 812
cv-value	77	208	347	480	601	687	770	855	901	950

Flow Data Kombi-F, DN300



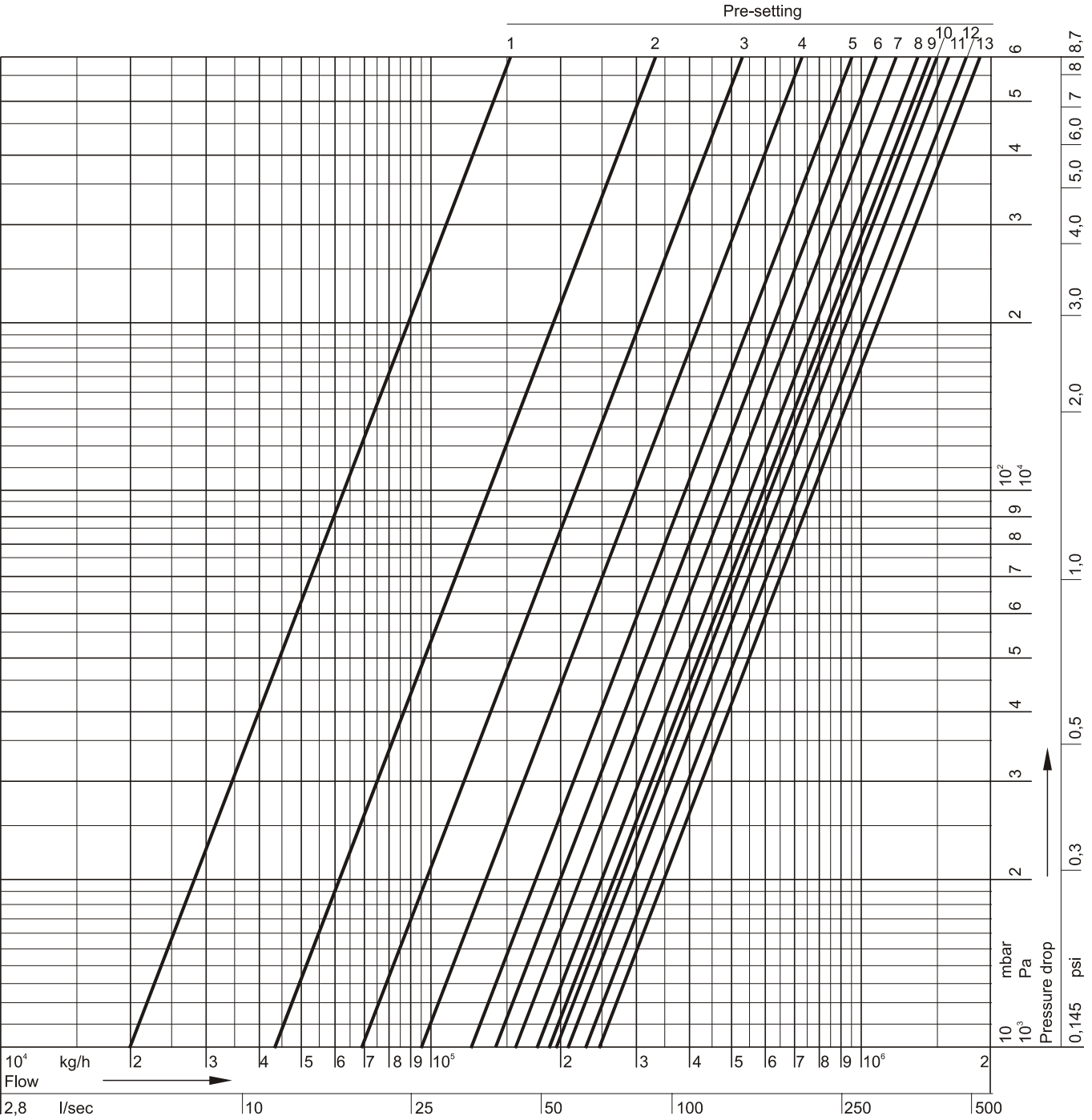
Pre-setting	1	2	3	4	5	6	7	8	9	10	11	12	13	14.0 = open
k _v -value	n.a.	n.a.	411	560	696	825	940	1044	1142	1226	1287	1328	1357	k _{vs} = 1380
cv-value	n.a.	n.a.	481	655	814	965	1093	1221	1329	1434	1497	1544	1578	1615

Flow Data Kombi-F, DN350



Pre-setting	1	2	3	4	5	6	7	8	9	10	11	12.0 = open
k _v -value	n.a.	n.a.	495	675	851	1019	1153	1272	1399	1513	1593	k _{vs} = 1651
c _v -value	n.a.	n.a.	579	785	996	1192	1341	1488	1627	1770	1856	1932

Flow Data Kombi-F, DN400



Pre-setting	1	2	3	4	5	6	7	8	9	10	11	12	13.0 = open
k _v -value	n.a.	n.a.	690	938	1182	1409	1598	1752	1876	1991	2114	2246	k _{vs} = 2383
cv-value	n.a.	n.a.	807	1091	1383	1649	1858	2050	2181	2329	2458	2612	2771

Influence of Coolants on Flow Values

The flow through a valve is defined by the k_v -value. The k_v -value is the flow m through a valve in [m³/h] at a differential pressure of 1 bar (14.5 psi) and is only valid for fluids with a density of $\sigma_0 = 1000 \text{ kg/m}^3$. This condition is met by water at a temperature of 20°C (68°F). For fluids with another density the following formula can be applied:

$$k_{v_{Medium}} = \frac{m}{\sqrt{\Delta p}} \times \frac{\sqrt{\rho_{Medium}}}{\sqrt{\rho_0}}$$

Correction Factor f

When the density σ is expressed in t/m³ instead of kg/m³ the correction factor f is the result. The correction factor f can be used to re-calculate k_v -value, pressure drop and flow:

$$k_{v_{Medium}} = k_{v_0} \times \frac{1}{\sqrt{f}} \quad \Delta p_{Medium} = \Delta p_0 \times f \quad m_{Medium} = m_0 \times \frac{1}{\sqrt{f}}$$

Table 3. Values for correction factor f

Medium	water part	Correction factor f					
		5°C (41°F)	20°C (68°F)	35°C (95°F)	50°C (122°F)	65°C (149°F)	80°C (176°F)
Normal water	100%	1.000	0.998	0.994	0.988	0.981	0.972
Ethylen glycol e.g. Antifrogen N	70%	1.052	1.047	1.041	1.033	1.024	1.015
	50%	1.086	1.079	1.070	1.061	1.052	1.042
Propylen glycol e.g. Antifrogen L	70%	1.035	1.029	1.021	1.012	1.002	0.991
	50%	1.053	1.044	1.035	1.025	1.014	1.002

Environmental and Combustion Controls

Honeywell GmbH

Hardhofweg

74821 MOSBACH

GERMANY

Phone: +49 (6261) 810

Fax: +49 (6261) 81393

<http://ecc.emea.honeywell.com>

 **Tasisat.com**

Honeywell

EN0H-2317GE25 R0713

July 2013

© 2013 Honeywell International Inc.

Subject to change without notice

Manufactured for and on behalf of the Environmental and Combustion Controls Division of Honeywell Technologies Sàrl, Z.A. La Pièce 16, 1180 Rolle, Switzerland or its Authorized Representative.