Honeywell

Balancing Valves

V4 Kombi-F Series

FLANGED BALANCING AND SHUT-OFF VALVES

PRODUCT SPECIFICATION SHEET

CONTENTS

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 DIN 18 380, VOB part C, is required by national standards.
This requirement is met with V4 Kombi shutoff and balancing valves.
V4 Kombi have functions shut-off, pre-setting and measuring.

Design

- Valve body with flanges drilled to DIN
- Valve insert with handwheel and pre-setting display
- Pressure test cocks

Materials

- Valve housing made of cast iron GG25, painted blue
- Valve insert made of cast steel with seat sealing made of PTFE
- Pressure test cocks made of brass
- Handwheel made of ductile iron, fusion bonded epoxy coated
- Fairing made of plastic black

Features

- **Balancing through stroke limitation with digital pre-setting and visible pre-setting indicator**
- **Equipped with 2 pressure test cocks for differential pressure measurement**
- **Non rising spindle with EPDM and EPDM O-ring sealing**
- **Pre-setting isn't altered when handwheel is turned**
- **Regulation screw protected by protection cap**
- **PTFE seat sealing**
- **Valve cartridge and spindle made of cast steel**
- **Available in dimensions up to DN400**

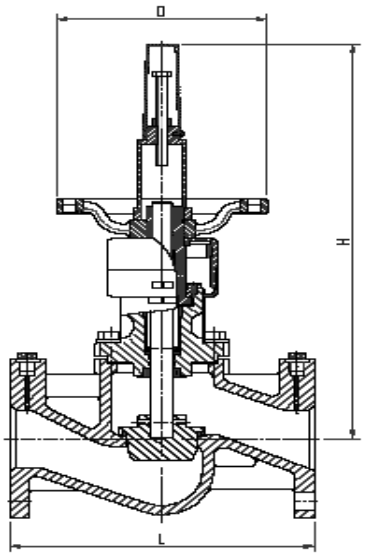
Environmental Controls
Honeywell Pte Ltd, Singapore. Tel: (65) 6355 2828, Fax: (65) 6445 3033

W099210704-016

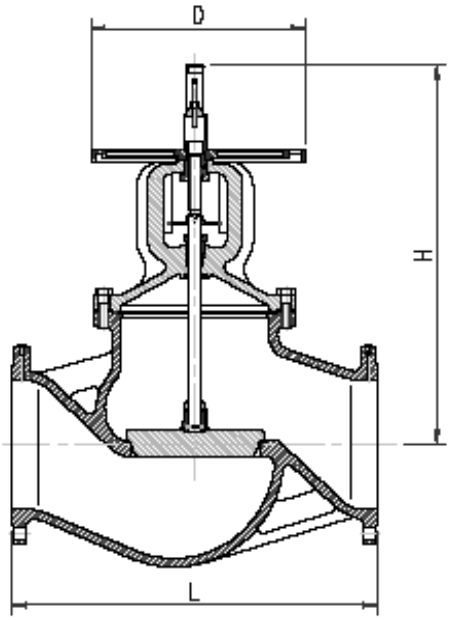
Specifications

Medium	Water, water-glycol mixture
Operating temperature	-10 to 130 °C (14 to 248 °F)
Operating pressure	max. 16 bar (232 p.s.i.)
k_{VS}-values	see table below and flow

Dimensions and ordering information



DN 65 to DN 200



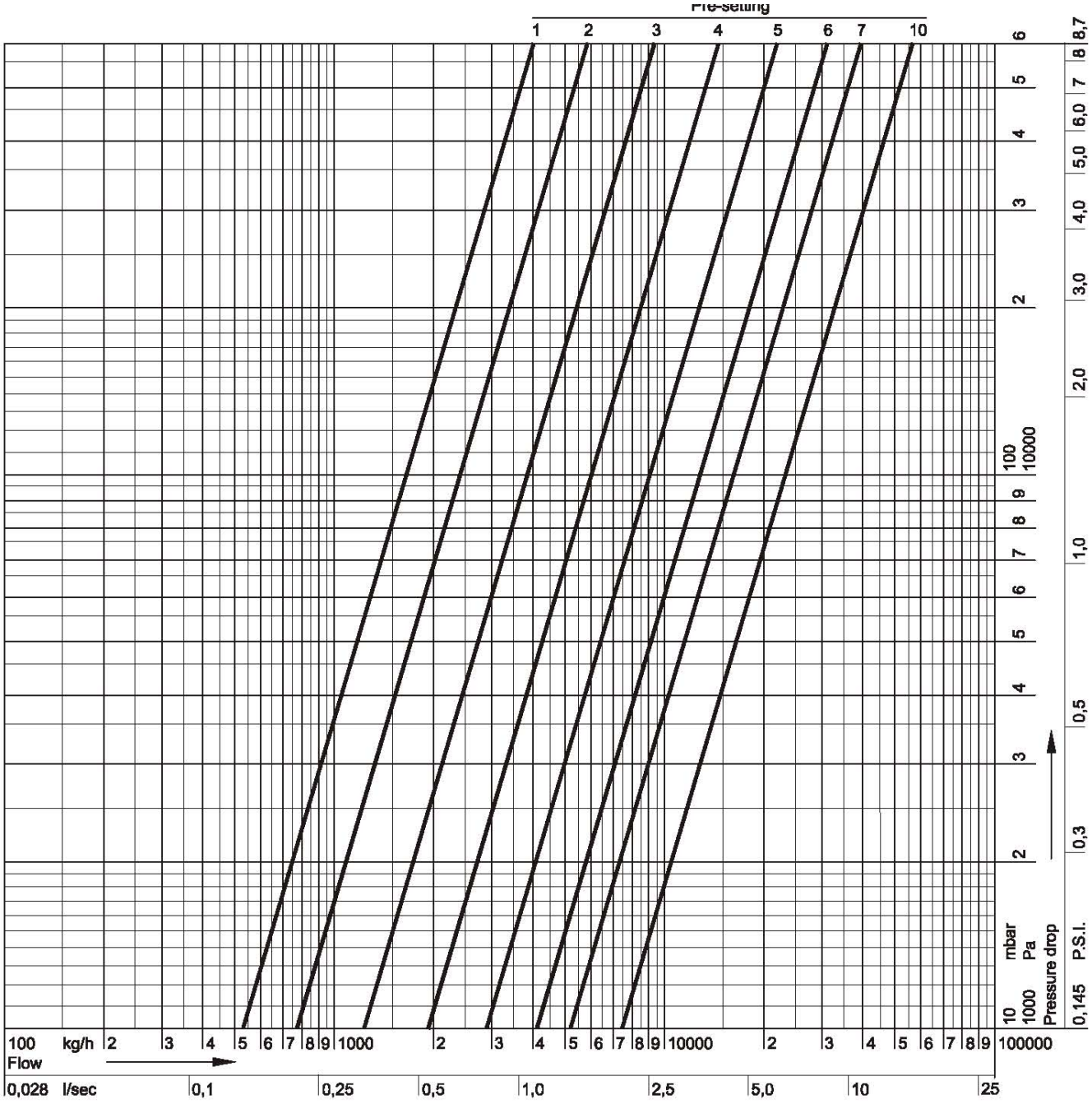
DN 250 to DN 300

DN	(R)	k_{VS}-value	L	H	Ø D	n x Ø d	OS-No.
65	2 1/2”	74,4	290	428	190	4 x 18	V4-BLC-GP16-G065
80	3”	111	310	430	190	8 x 18	V4-BLC-GP16-G080
100	4”	165	350	470	190	8 x 18	V4-BLC-GP16-G100
125	5”	242	400	515	305	8 x 18	V4-BLC-GP16-G125
150	6”	372	480	579	305	8 x 22	V4-BLC-GP16-G150
200	8”	704	600	665	305	8 x 22	V4-BLC-GP16-G200

DN	(R)	k_{VS}-value	L	H	Ø D	n x Ø d	OS-No.
250	10”	945	730	835	515	12 x 22	V4-BLC-GP16-G250
300	12”	1.635	850	883	515	12 x 26	V4-BLC-GP16-G300

NOTE: All dimensions in mm unless otherwise stated

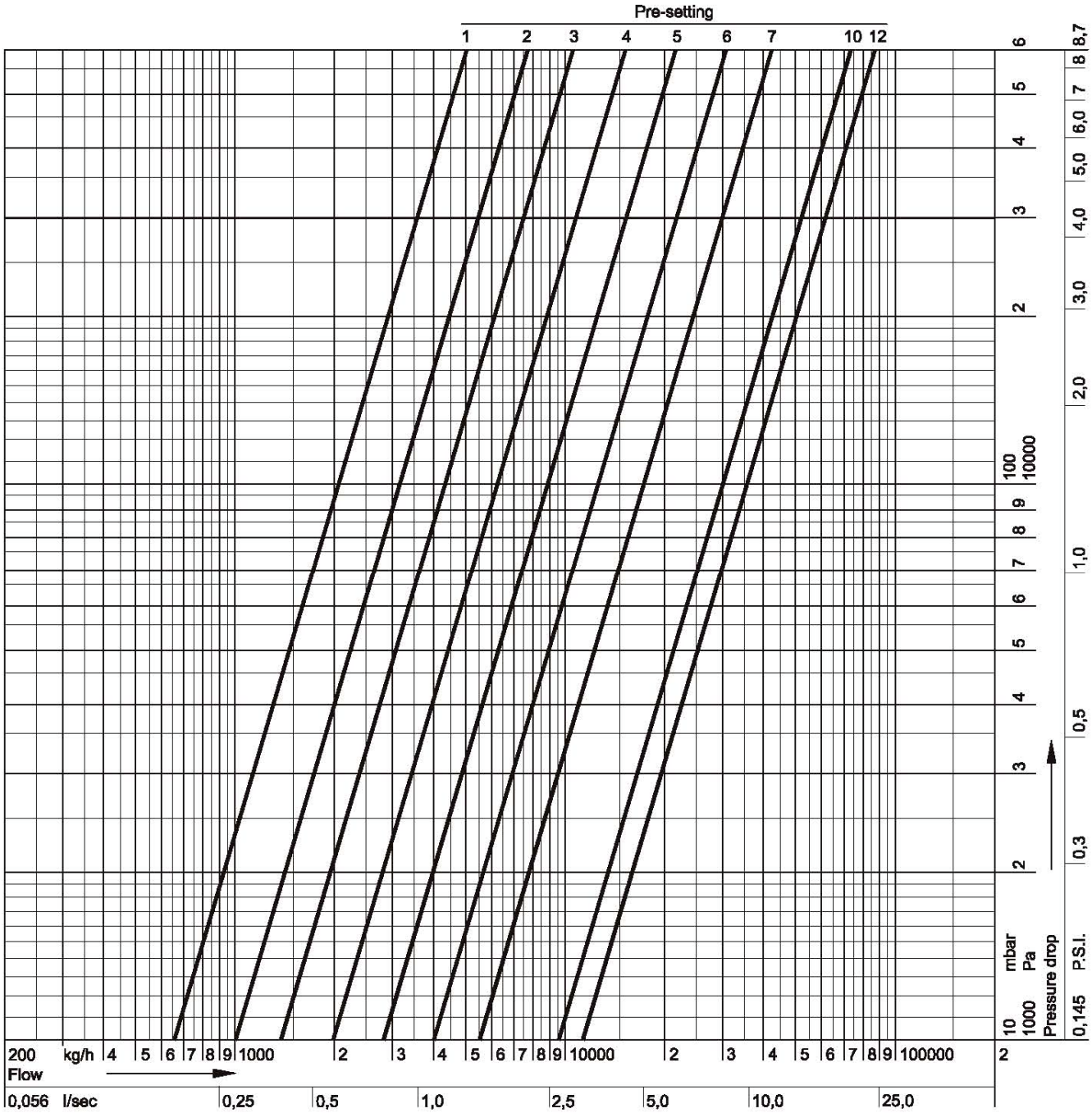
Flow diagram V4 Kombi-F, DN 65



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	8,0
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	60,7

Pre-setting	9,0	10,0 = open
k_v-value	67,9	k_{vs} = 74,4

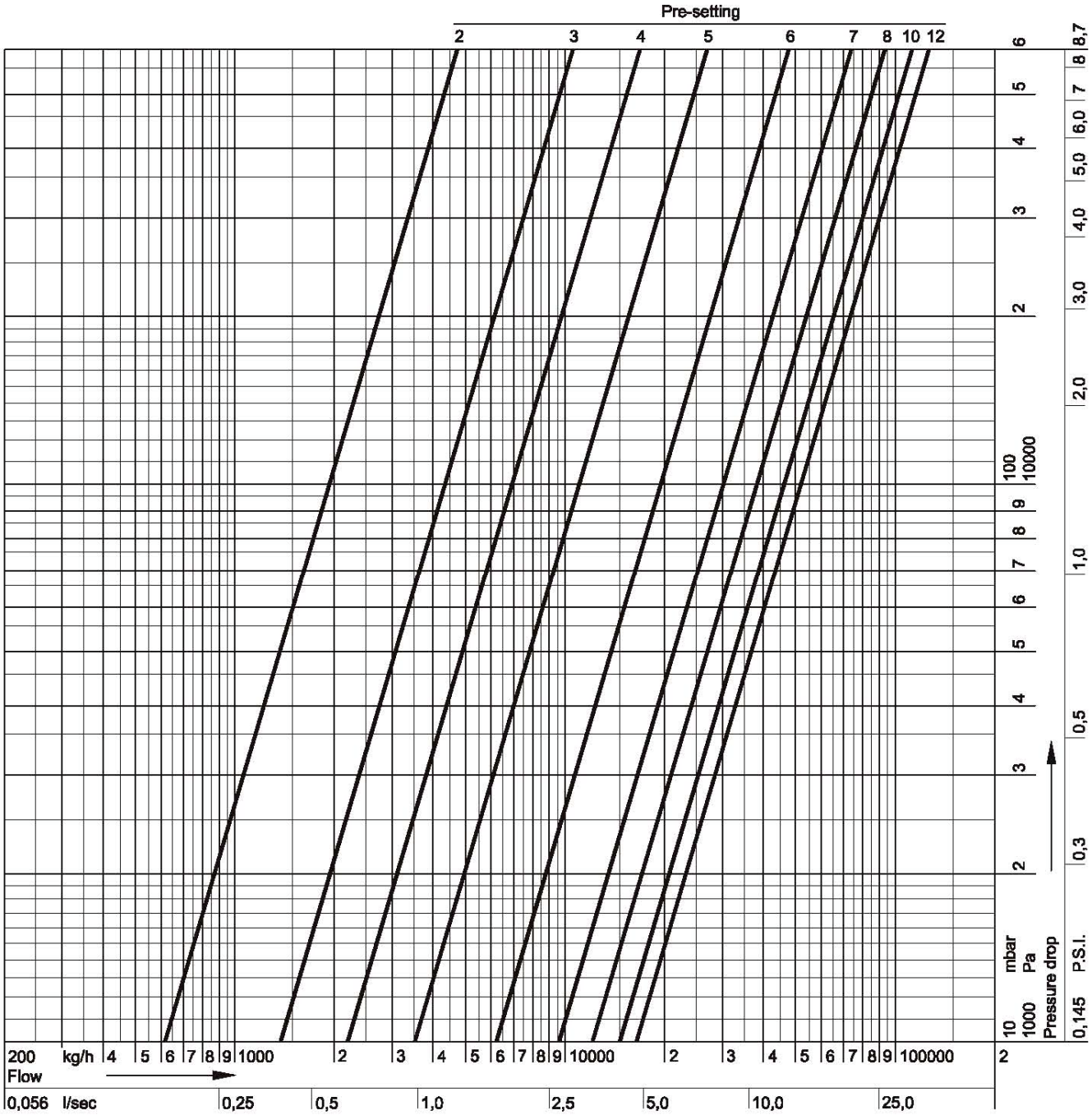
Flow diagram V4 Kombi-F, DN 80



Pre-setting	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	4,5	5,0	6,0	7,0	8,0	9,0	10,0
k_v-value	3,65	6,60	8,52	10,0	11,7	13,7	16,1	19,2	23,2	28,1	40,4	55,4	70,9	84,8	96,1

Pre-setting	11,0	12,0 = open
k_v-value	104	k_{VS} = 111

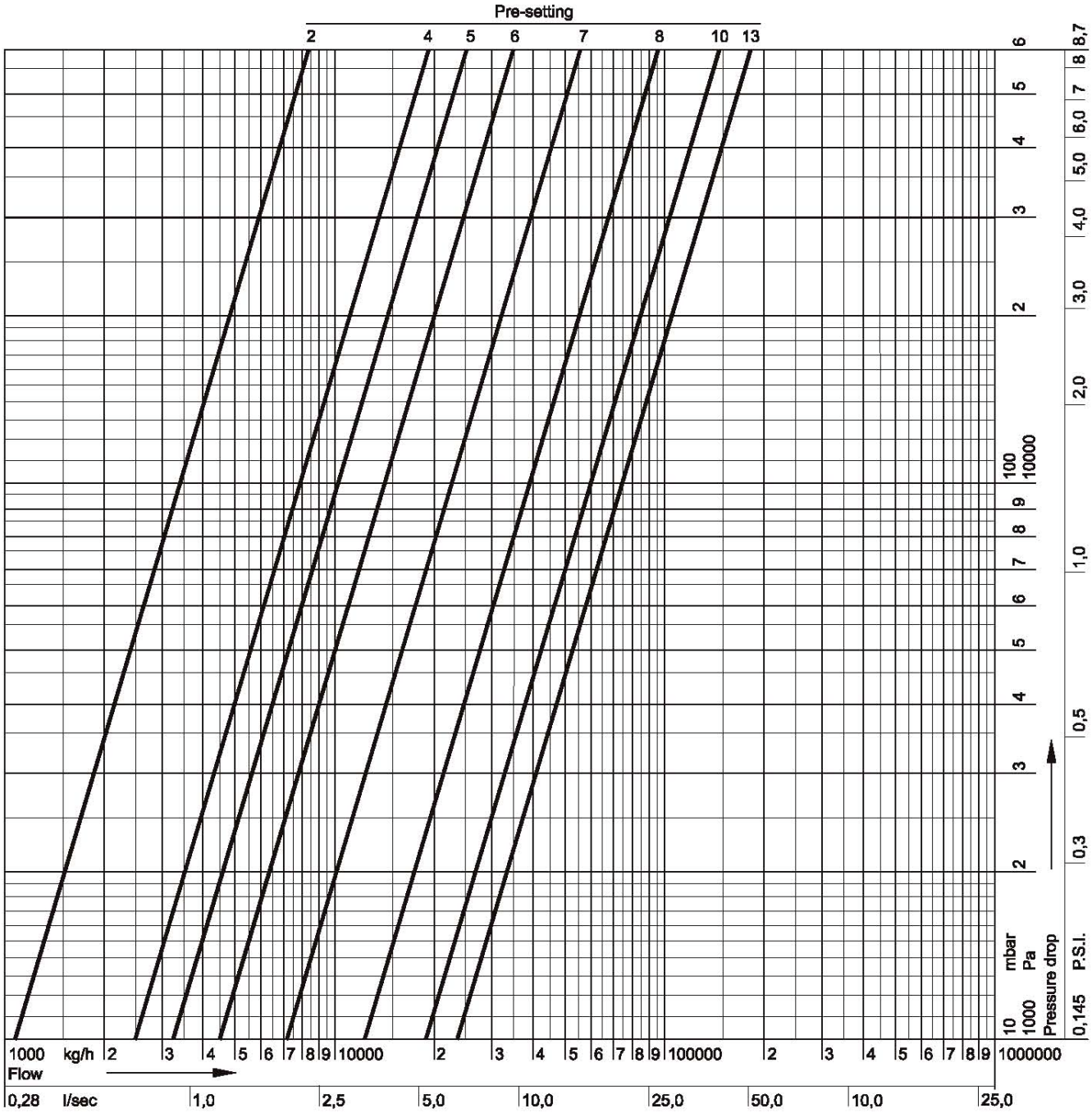
Flow diagram V4 Kombi-F, DN 100



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	9,0
k_v-value	3,80	6,20	9,60	13,4	17,3	21,8	27,6	35,7	47,2	62,4	79,3	96,6	110	121	137

Pre-setting	10,0	11,0	12,0 = open
k_v-value	148	157	k_{vs} = 165

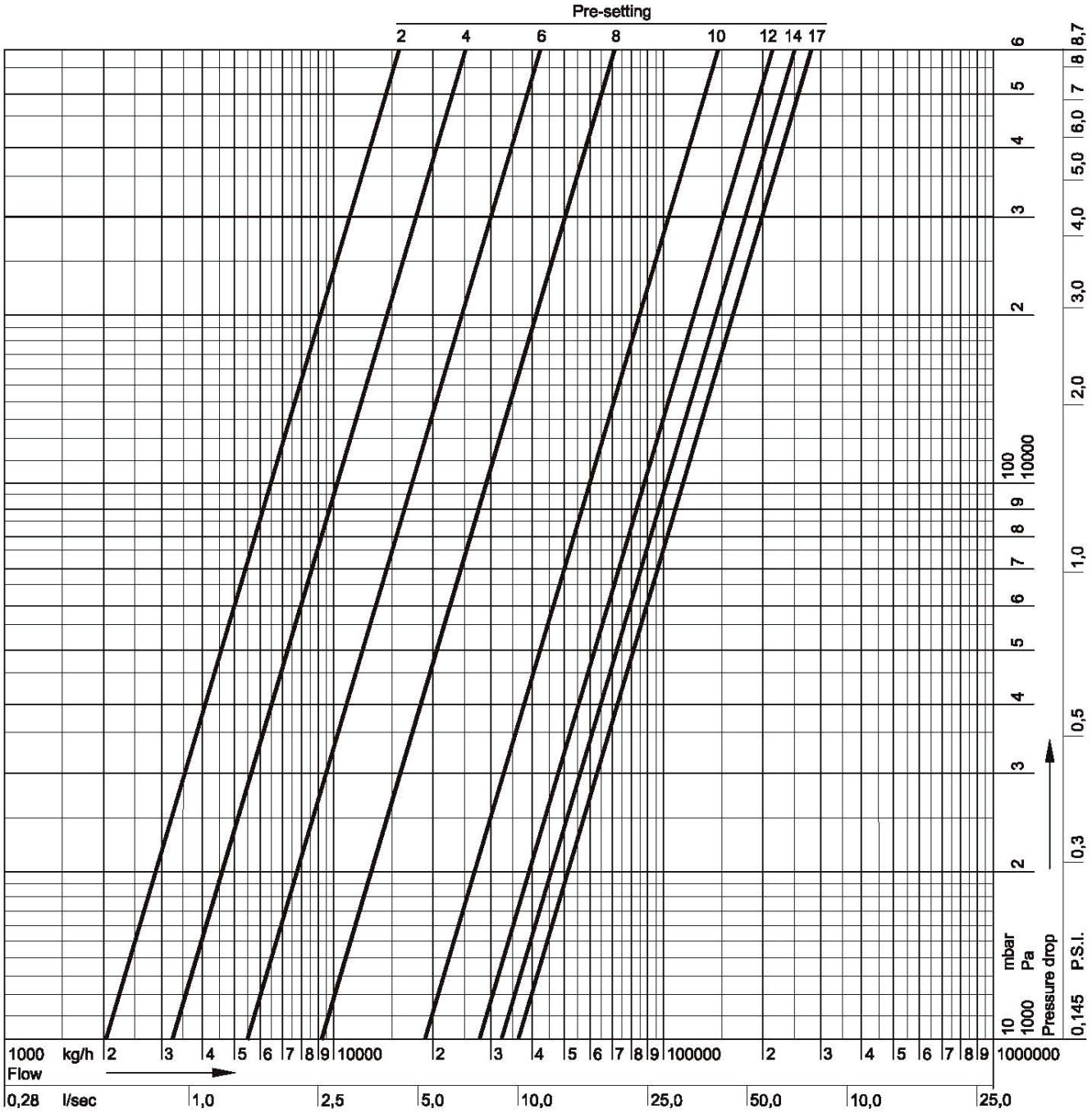
Flow diagram V4 Kombi-F, DN 125



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	9,0
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	120	162

Pre-setting	10,0	11,0	12,0	13,0 = open
k_v-value	192	211	225	k_{vs} = 236

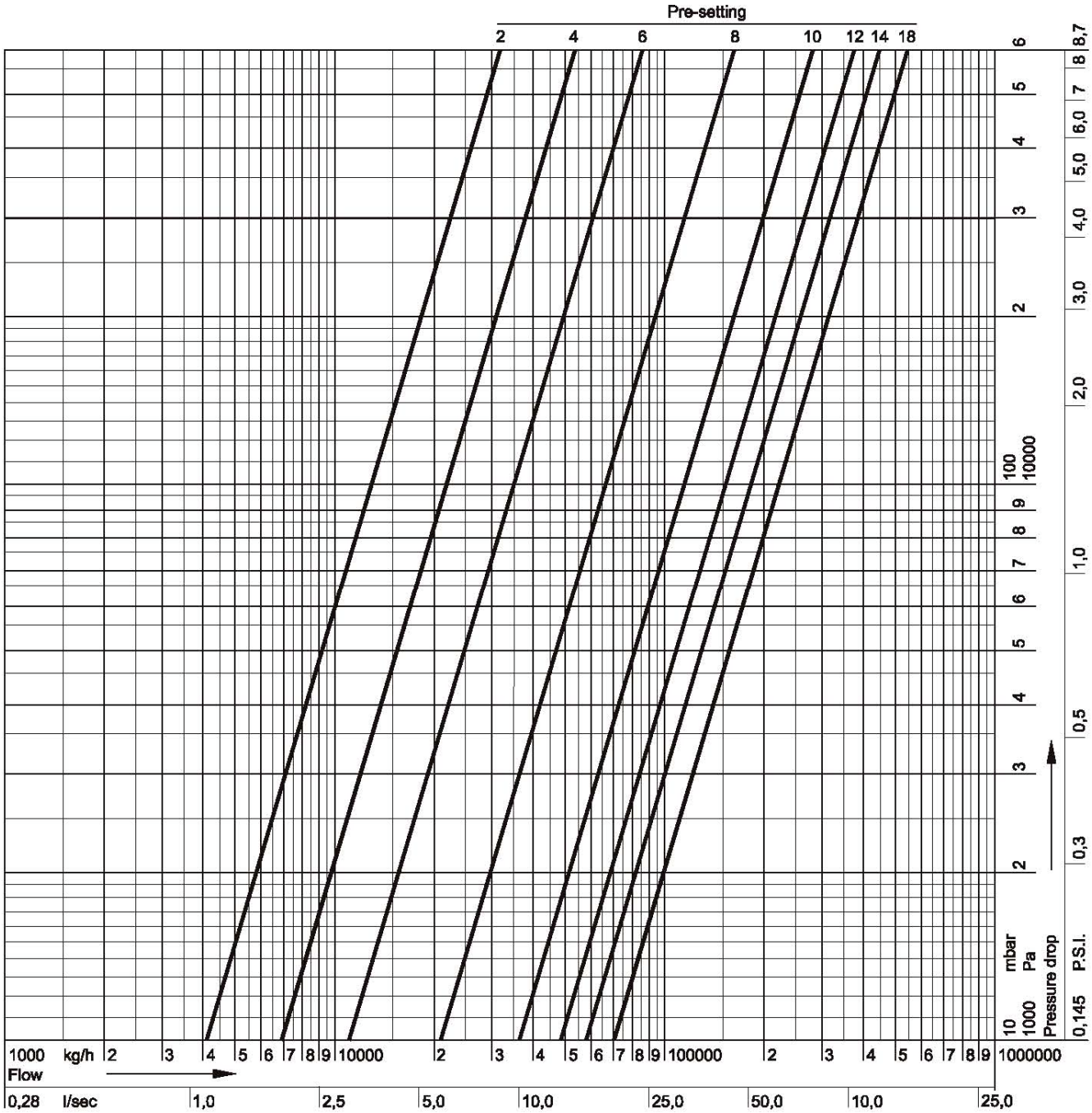
Flow diagram V4 Kombi-F, DN 150



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	9,0
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	136

Pre-setting	10,0	11,0	12,0	13,0	14,0	15,0	16,0	17,0 = open
k_v-value	193	240	274	300	320	337	352	k_{vs} = 365

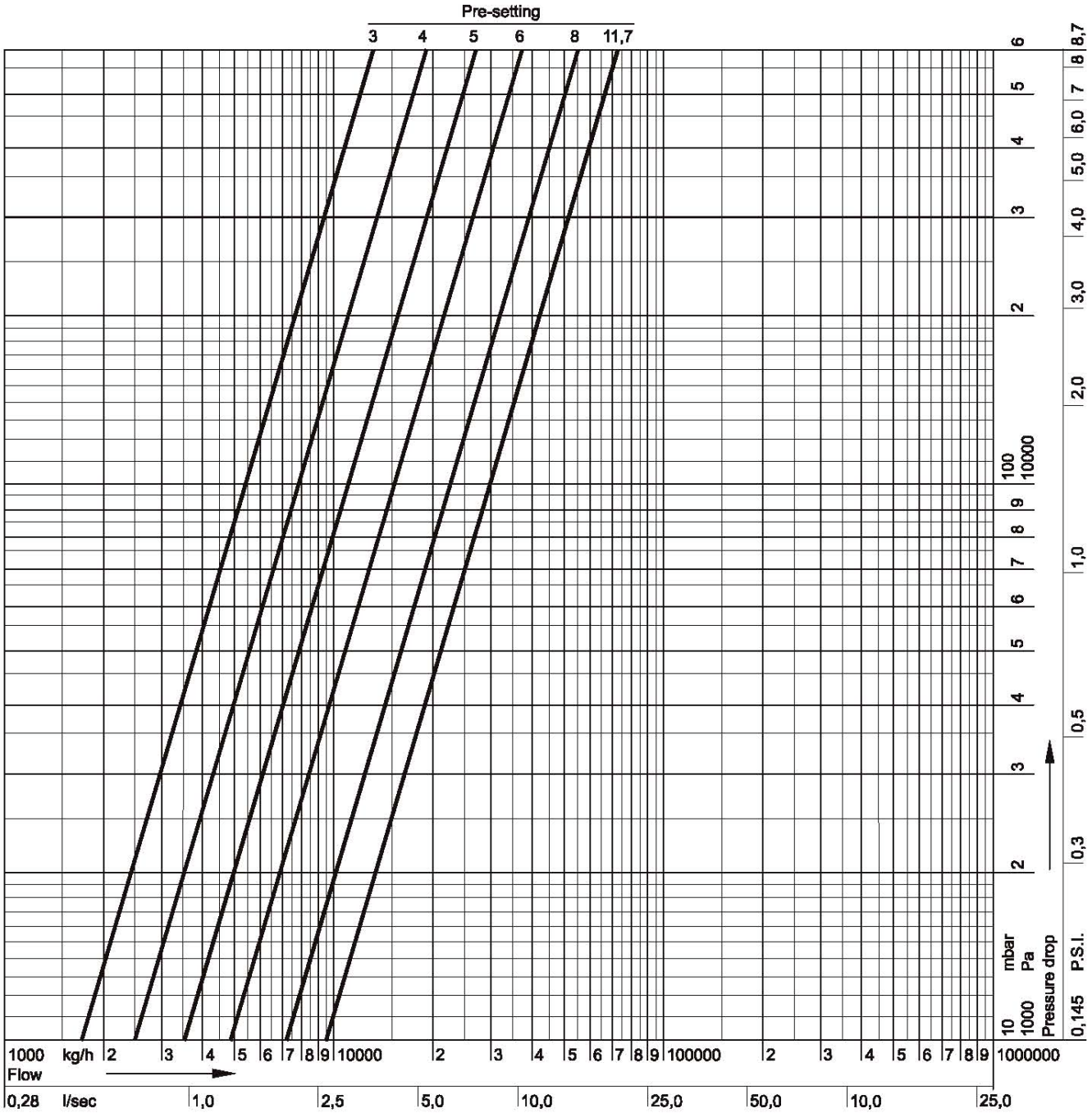
Flow diagram V4 Kombi-F, DN 200



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	9,0
k_v-value	32,5	41,3	48,9	55,5	62,1	69,3	77,8	88,1	101	115	133	154	179	208	284

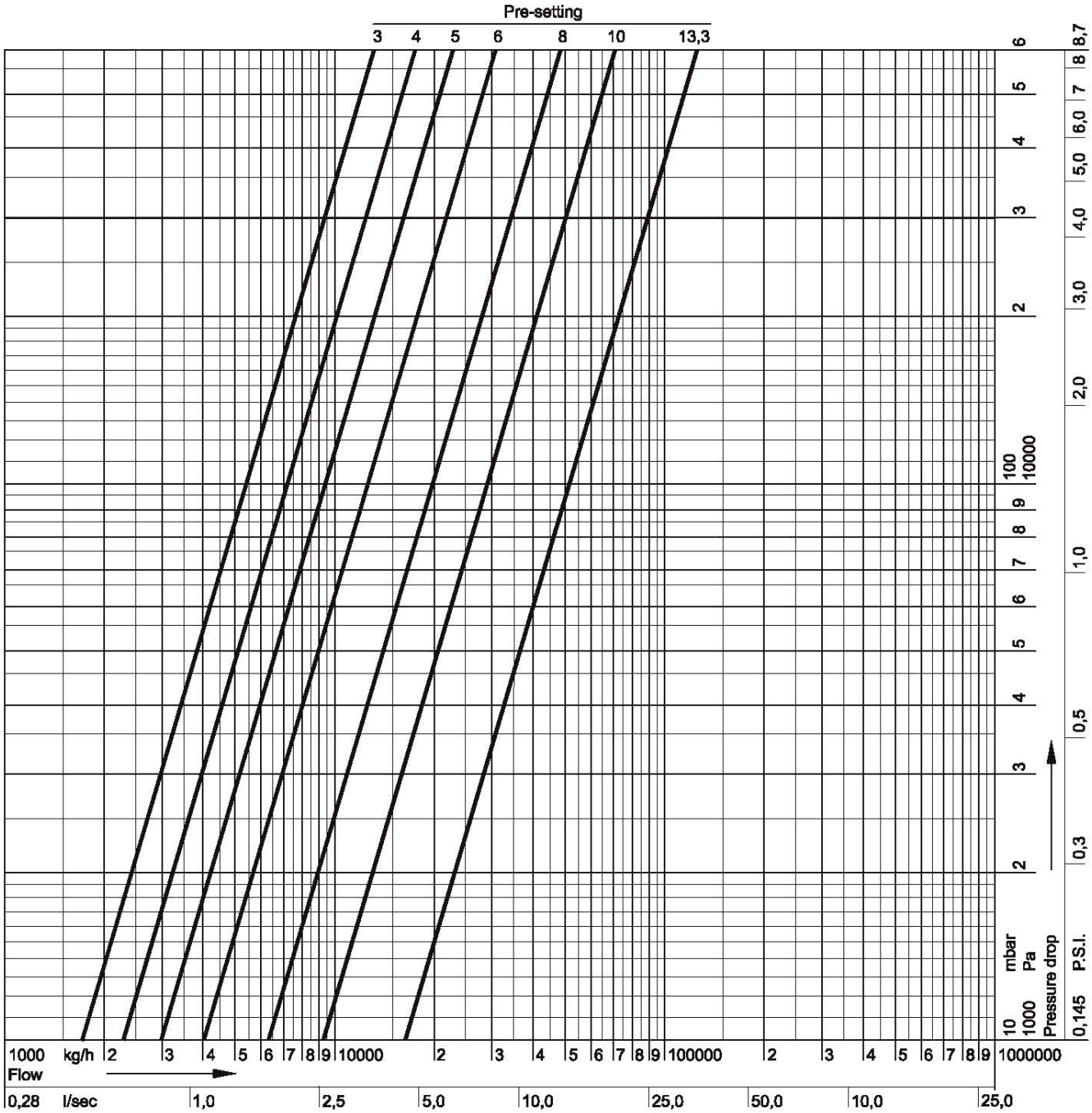
Pre-setting	10,0	11,0	12,0	13,0	14,0	15,0	16,0	17,0	18,0 = open
k_v-value	364	435	489	537	575	613	646	677	k_{vs} = 704

Flow diagram V4 Kombi-F, DN 250



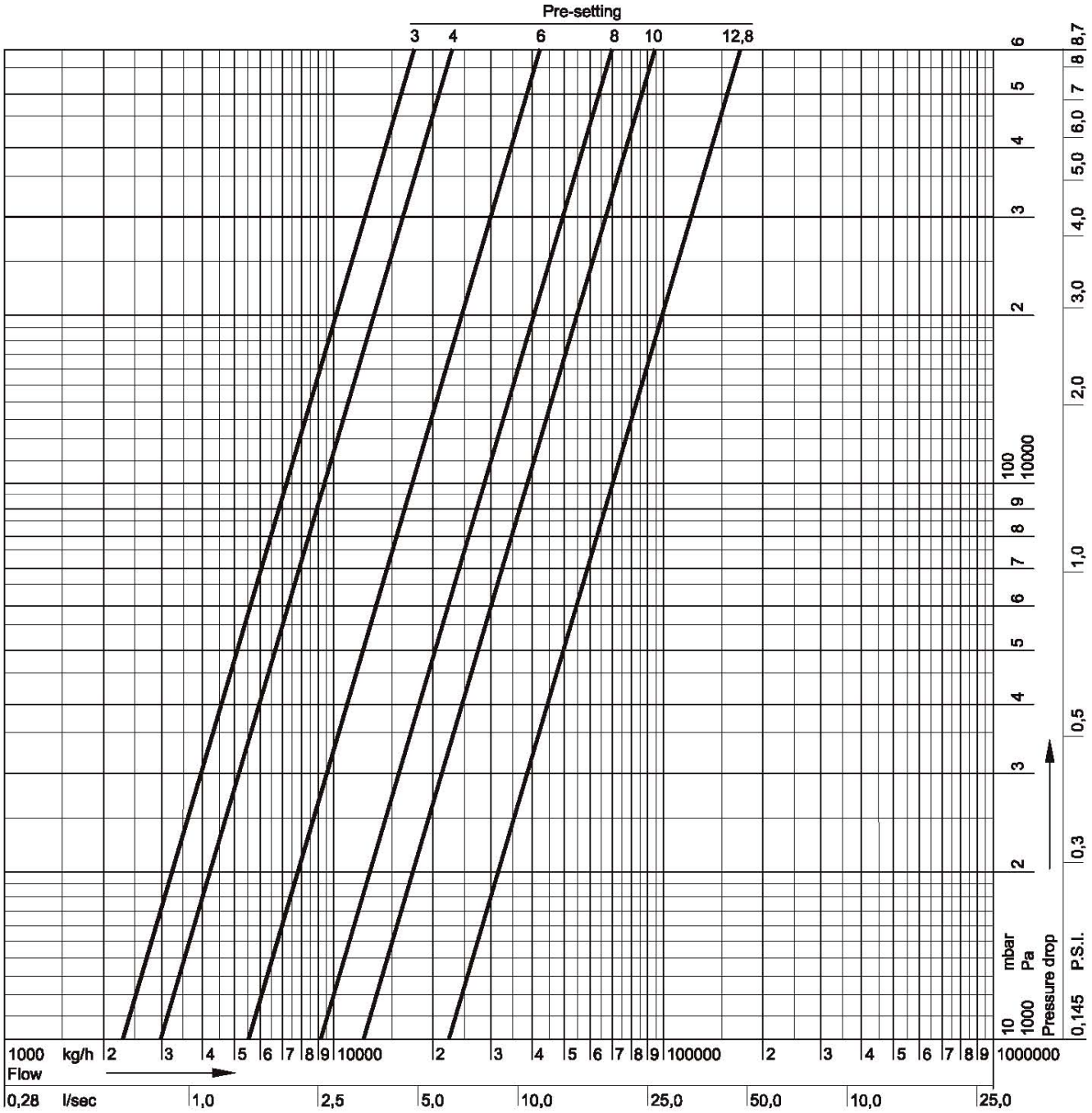
Pre-setting	3	4	5	6	8	11,7 = open
k_v-value	170	250	356	488	722	k_{vs} = 945

Flow diagram V4 Kombi-F, DN 300



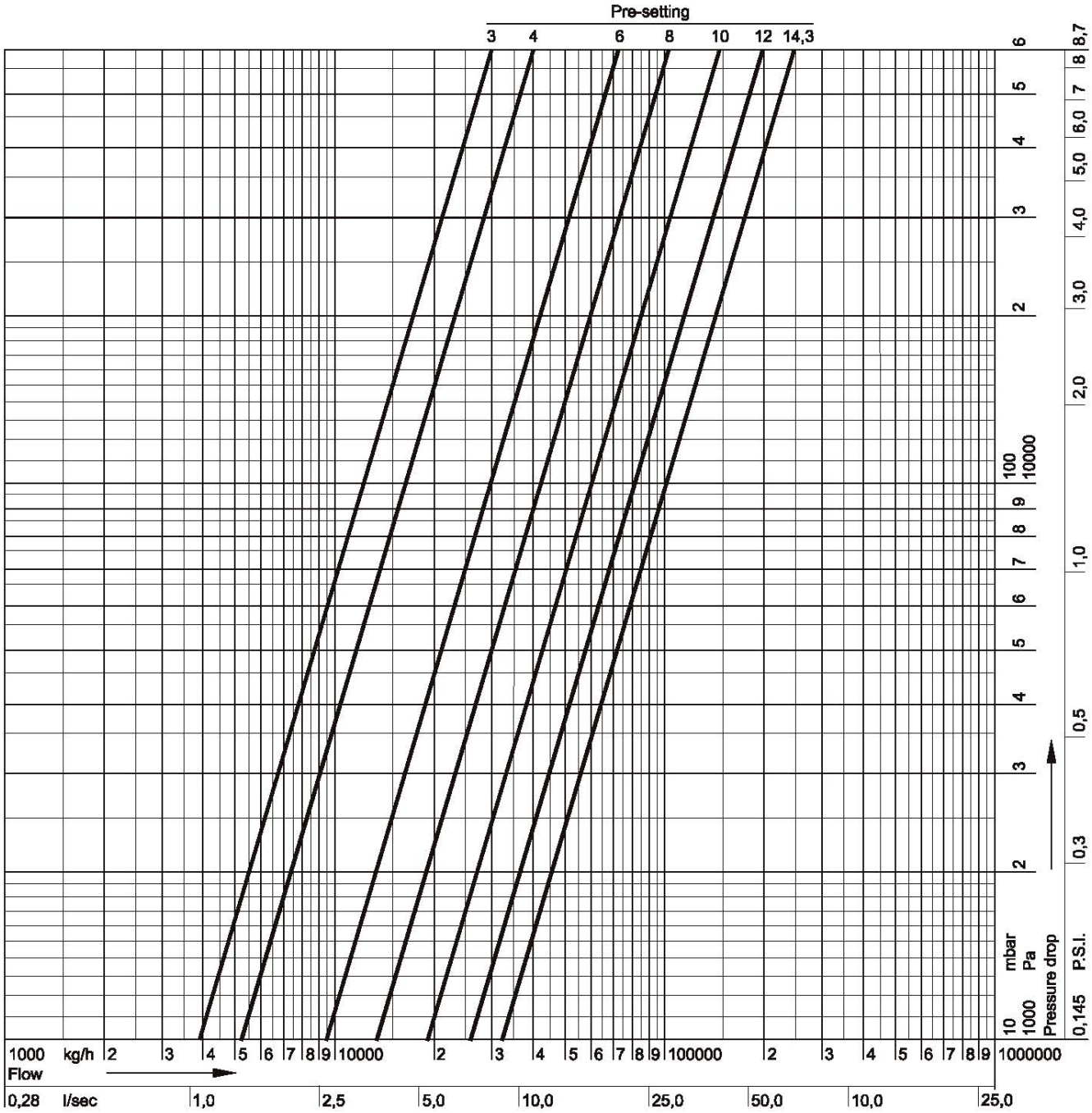
Pre-setting	3	4	5	6	8	10	13,3 = open
k_v-value	170	230	300	400	630	930	k_{vs} = 1.635

Flow diagram V4 Kombi-F, DN 350



Pre-setting	3	4	6	8	10	12,8 = open
k_v-value	220	300	550	810	1.320	k_{vs} = 2.220

Flow diagram V4 Kombi-F, DN 400



Pre-setting	3	4	6	8	10	12	14,3 = open
k_v-value	390	520	950	1.390	1.900	2.600	k_{vs} = 3.180

Influence of coolants on flow values

The flow through a valve is defined by the kv-value. The kv-value is the flow m through a valve in [m³/h] at a differential pressure of 1 bar (14,5 P.S.I.) and is only valid for fluids with a density of σ0 = 1000 kg/m³. 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:

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

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 kv-value, pressure drop and flow:

$$Kv_{Medium} = Kv_0 \times \frac{1}{\sqrt{f}} \qquad \Delta p_{Medium} = \Delta p_0 \times f \qquad m_{Medium} = m_0 \times \frac{1}{\sqrt{f}}$$

Table 1. 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	70%	1,052	1,047	1,041	1,033	10,24	1,015
e.g. Antifrogen N	50%	1,086	1,079	1,070	1,061	1,052	1,042
Propylen glycol	70%	1,035	1,029	1,021	1,012	1,002	0,991
e.g. Antifrogen L	50%	1,053	1,044	1,035	1,025	1,014	1,002