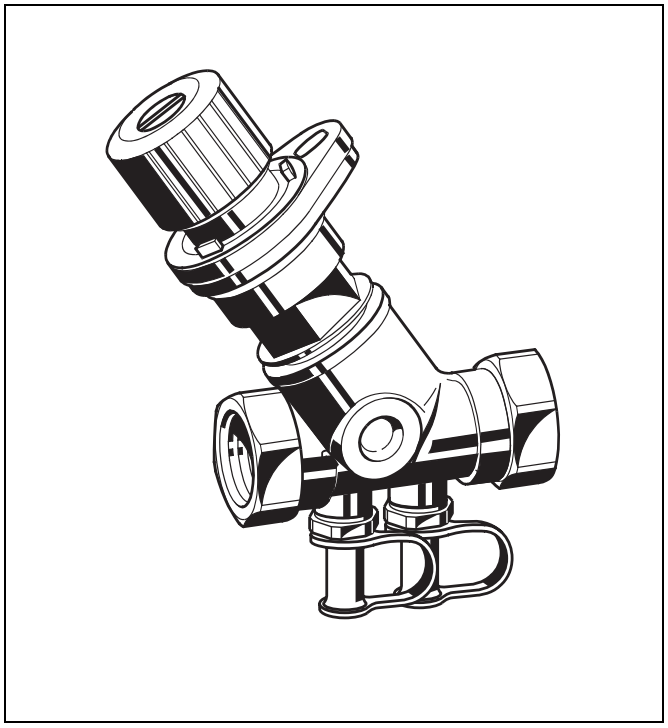
Honeywell

Kombi System

V5032A Kombi-2-plus

DOUBLE-REGULATING BALANCING VALVE WITH SAFECON™ MEASURING CONNECTIONS



CONTENTS

Design

The balancing valve consists of:

- Valve body DN15 to DN20 with internal threads to DIN2999 (ISO7) for threaded pipe or copper and precision steel pipe 10...20 mm (see Accessories)
- Valve body DN25...DN80 with pressure test cocks and internal threads to DIN2999 (ISO7) for threaded pipe
- Handwheel and pre-setting dial and display
- 2 SafeCon™ measuring connections

Materials

- Valve housing made of red bronze
- Valve insert made of brass with seat sealing made of PTFE
- O-rings and soft seals made of EPDM
- Handwheel, pre-setting dial and display made of plastic, blue and black (DN15...50)
- Handwheel made of steel (DN65...80)

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 V5032A Kombi-2-plus double-regulating balancing valves.

The V5032A Kombi-2-plus is a variable orifice double-regulating balancing valve for the return with additional functions shutoff, draining and filling.

Together with a V5012 Kombi-DP diaphragm unit the V5032A Kombi-2-Plus can be upgrated to an automatic balancing valve - even after the system has been taken into commission and under system pressure.

Features

- **Quick and easy measuring with SafeCon™ measuring connections**
- **Dimensions DN15 to DN40 can be retrofitted with a Kombi-Diaphragm Unit**
- **High accuracy of pre-setting because of individual adjustment**
- **Robust valve body made of corrosion resistant red bronze**
- **Availabe in sizes up to DN80**
- **Visible pre-setting dial with concealed pre-setting wheel**
- **Maintenance free spindle with double O-ring sealings**
- **PTFE-seat sealing**

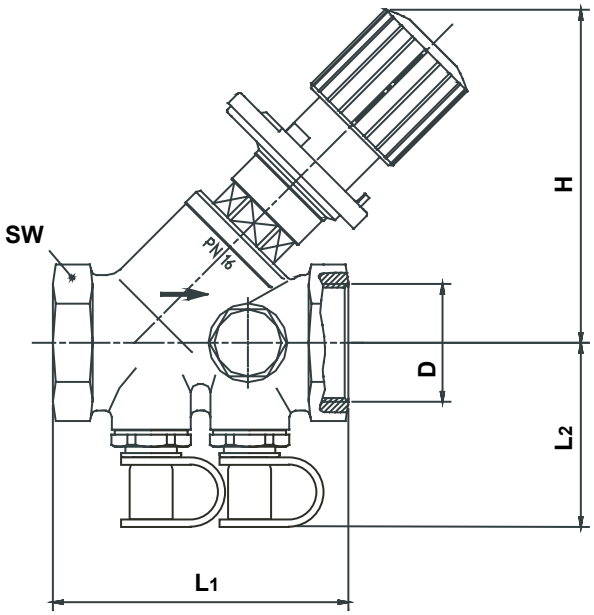
Specifications

Medium	Water or water-glycol mixture, quality to VDI 2035 (up to 50% Glycol)
Operating temperature	2...130°C (36...266°F)
Operating pressure	max. 16 bar (232 psi)
k_{VS} (c_{VS})-value	see table below

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



OS-No.:	DN	k_{VS}(c_{VS})-value	D	H	L1	L2	SW
V5032Y0015A	**15**	2.8 (3.3)	Rp$^1/_2$"	85	65	45	27
V5032Y0020A	**20**	5.8 (6.7)	Rp$^3/_4$"	100	75	45	32
V5032Y0025A	**25**	6.9 (8.0)	Rp1"	100	90	48	41
V5032Y0032A	**32**	20.1 (23.4)	Rp1$^1/_4$"	137	110	50	50
V5032Y0040A	**40**	20.2 (23.5)	Rp1$^1/_2$"	137	120	53	55
V5032Y0050A	**50**	45.3 (52.7)	Rp2"	158	150	58	70
V5032Y0065A	**65**	45.3 (52.6)	Rp2$^1/_2$"	195	180	68	85
V5032Y0080A	**80**	73.0 (84.9)	Rp3"	210	200	73	100

NOTE: All dimensions in mm unless stated otherwise.

NOTE: Dimension ‘H’ refers to fully open valve.

Accessories

Compression fitting for copper and soft steel pipe

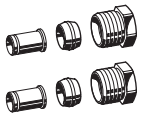
Consisting of compression nut and ring (olive); for ports with internal thread; 1 pc per pack

Valve Size	Pipe diameter	
1/2" (DN15)	10 mm	VA620A1510
1/2" (DN15)	12 mm	VA620A1512
1/2" (DN15)	14 mm	VA620A1514
1/2" (DN15)	15 mm	VA620A1515
1/2" (DN15)	16 mm	VA620A1516
3/4" (DN20)	18 mm	VA620A2018
3/4" (DN20)	22 mm	VA620A2022

NOTE: Support inserts have to be used for copper or soft steel pipe with 1.0 mm wall thickness

Compression fitting for copper and soft steel pipe

Consisting of compression nut, ring (olive) and support insert; for ports with internal thread; 2 pcs per pack



Valve Size	Pipe diameter	
1/2" (DN15)	12 mm	VA621A1512
1/2" (DN15)	15 mm	VA621A1515
1/2" (DN15)	16 mm	VA621A1516
3/4" (DN20)	18 mm	VA621A2018

NOTE: Support inserts have to be used for copper or soft steel pipe with 1.0 mm wall thickness

Accessories

Kombi-DP diaphragm unit

Setting range 0.1...0.3 bar (1.45...4.35 psi) differential pressure	V5012C0103
Setting range 0.3...0.6 bar (4.35...8.7 psi) differential pressure	V5012C0306

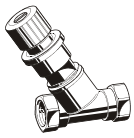
NOTE: For product information and diagrams see product data sheet 'V5012C Kombi-DP'.
The V5032A Kombi-2-plus valve must be pre-set to 1.5 (for DN15...25) or 1.0 (DN32...40) when used with the Kombi-Diaphragm Unit.
Pump pressure: max. 2 bar (29 psi)

Stop Valve-3 shutoff valve

3/8" (for DN10)	V5100Y0010
1/2" (for DN15)	V5100Y0015
3/4" (for DN20)	V5100Y0020
1" (for DN25)	V5100Y0025
1 1/4" (for DN32)	V5100Y0032
1 1/2" (for DN40)	V5100Y0040

NOTE: For product information and diagrams see product data sheet V5100 Stop Valve-3

Kombi-3-plus RED (V5000) measuring and shutoff valve for the supply



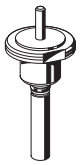
1/2" (for DN 15)	V5000Y0015
3/4" (for DN 20)	V5000Y0020
1" (for DN 25)	V5000Y0025
1 1/4" (for DN 32)	V5000Y0032
1 1/2" (for DN 40)	V5000Y0040
2" (for DN 50)	V5000Y0050
2 1/2" (for DN 65)	V5000Y0065
3" (for DN 80)	V5000Y0080

NOTE: For product information and diagrams see product data sheet 'V5000 Kombi-3-plus

Tamper-proof cap

for valves DN15...DN25	VA2501A010
for valves DN32...DN50	VA2501A032

Adapter for actuators with M 30 x 1.5 connection, 90N torque, nominal stroke 3mm, closing dimension 11.5mm



DN10 ... DN40 VA2500A001

NOTE: The V5032A Kombi-2-plus valve must be pre-set to 1.5 (for DN15...25) or 1.0 (DN32...40) when used with actuator.
Pump pressure: max. 2 bar (29 psi)

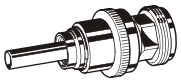
NOTE: Further technical details see page 12

Insulation shells

for valves DN15	VA2510C015
for valves DN20	VA2510C020
for valves DN25	VA2510C025
for valves DN32	VA2510C032
for valves DN40	VA2510C040
for valves DN50	VA2510C050

NOTE: For product information see product data sheet 'VA2510C Insulation Shells'.

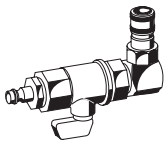
Draining adapter



for all types and sizes VA3400A001

Measuring Equipment

Measuring adapter (2pcs.)



for all dimensions VA3600C001

VM241 BasicMes handheld measuring computer

for all sizes, computer is supplied with case and accessories VM241A1002

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

Spare Parts

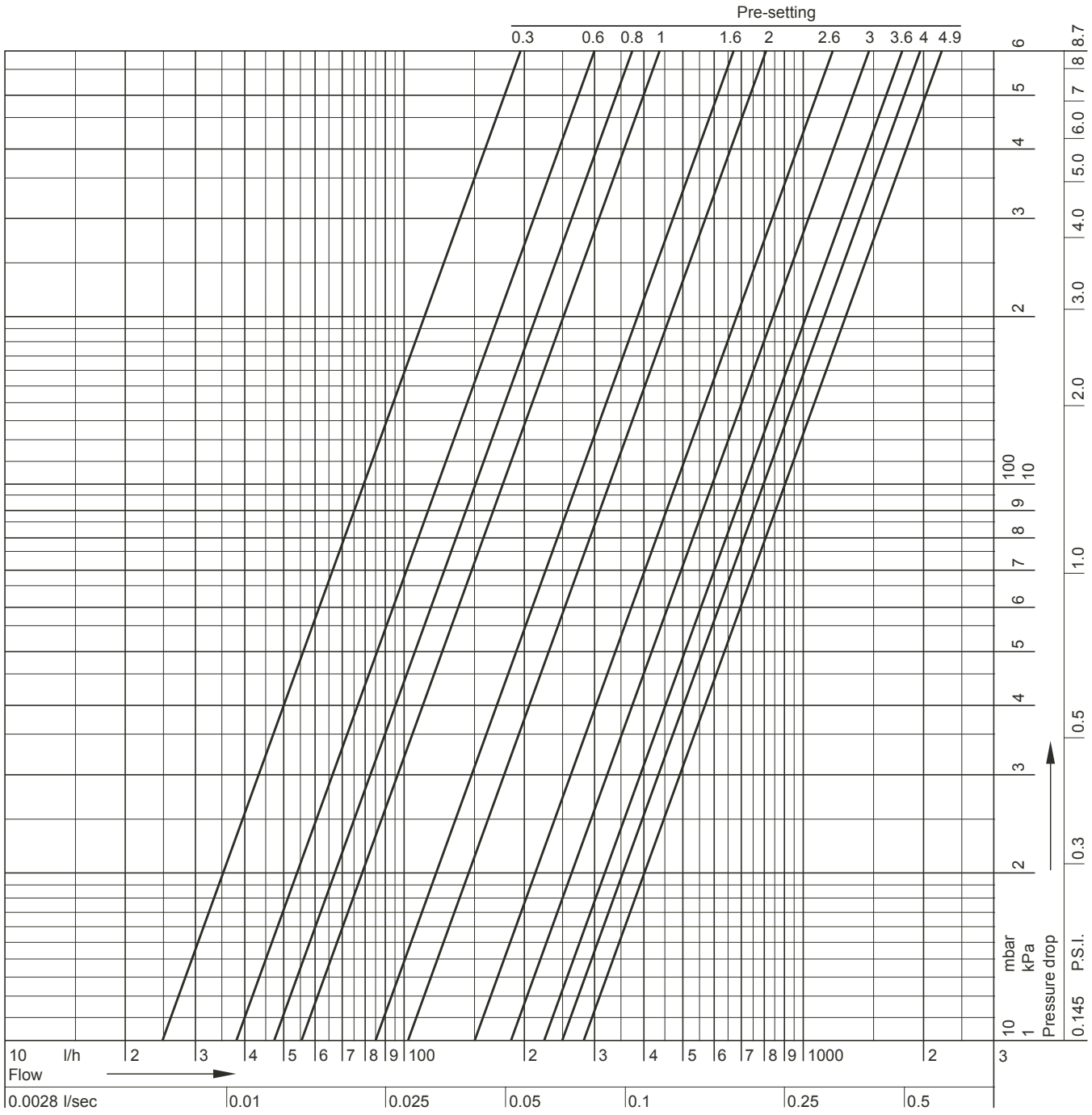
Replacement insert

for valves DN15	VS1501B015
for valves DN20	VS1501B020
for valves DN25	VS1501B025
for valves DN32	VS1501B032
for valves DN40	VS1501B040
for valves DN50	VS1501B050
for valves DN65	VS1501B065
for valves DN80	VS1501B080

Spare set of 2 pressure test cocks G1/4"

for all dimensions VS2600C001

Flow Data DN15



Pre-setting values

Setting	0.3	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6
k_v-value	0.3	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.4	1.5	1.7	1.8	2.0	2.1	2.3
cv-value	0.3	0.3	0.4	0.5	0.6	0.8	0.9	1.0	1.1	1.3	1.4	1.6	1.7	1.9	2.1	2.3	2.5	2.7

Setting	3.8	4.0	4.2	4.4	4.6	4.8	4.9 = open
k_v-value	2.4	2.5	2.6	2.7	2.7	2.8	k_{vs} = 2.8
cv-value	2.8	2.9	3.0	3.1	3.2	3.2	c_{vs} = 3.3

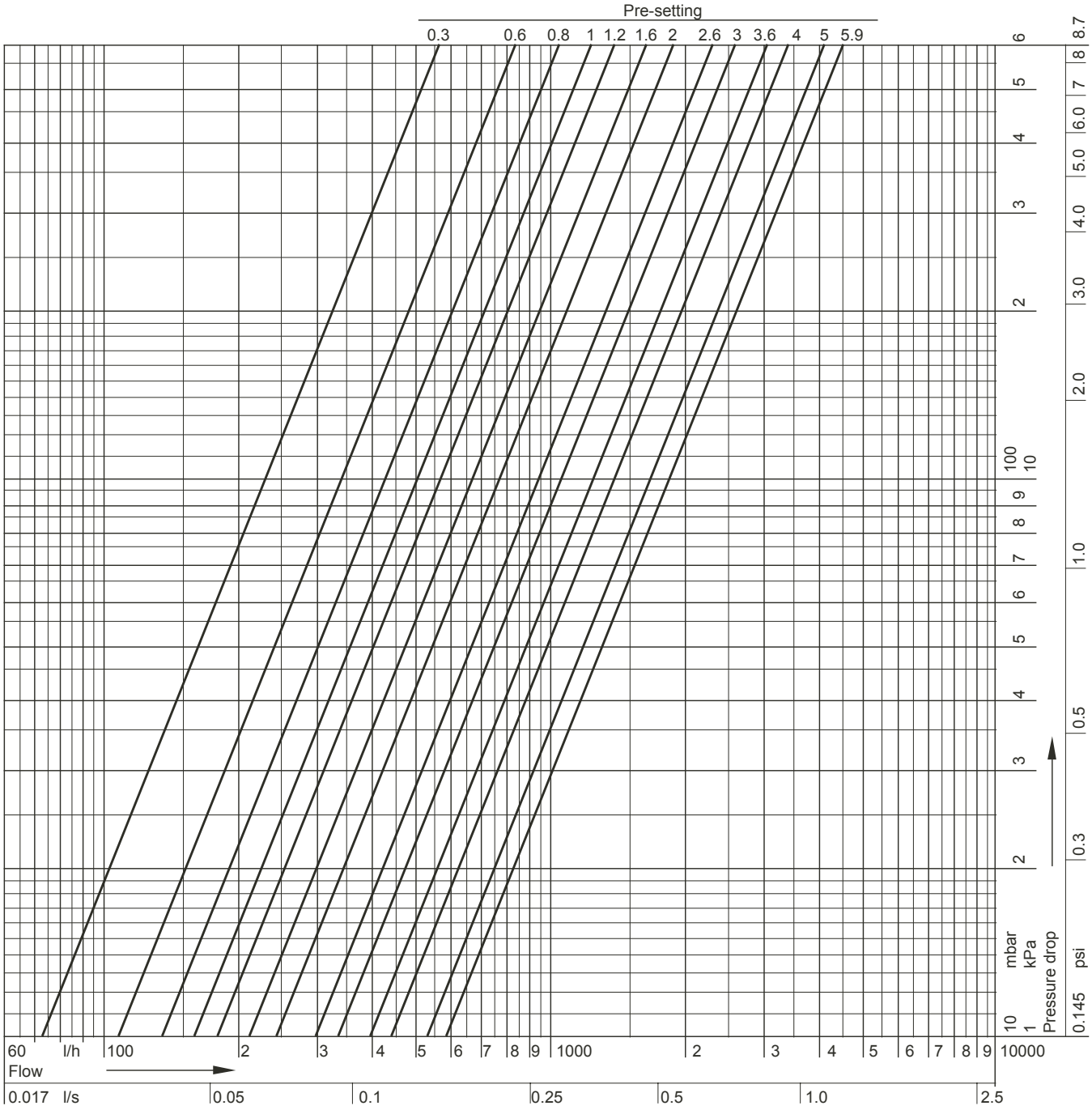
Measuring values

Setting	0.3	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6
k_v-value	0.3	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.4	1.5	1.7	1.8	2.0	2.1	2.3
cv-value	0.3	0.3	0.4	0.5	0.6	0.8	0.9	1.0	1.1	1.3	1.4	1.6	1.7	1.9	2.1	2.3	2.5	2.7

Setting	3.8	4.0	4.2	4.4	4.6	4.8	4.9 = open
k_v-value	2.4	2.5	2.6	2.7	2.7	2.8	k_{vs} = 2.8
cv-value	2.8	2.9	3.0	3.1	3.2	3.2	c_{vs} = 3.3

NOTE: Flow diagram is ONLY valid for valve WITHOUT installed actuator (-adapter) or Kombi-Diaphragm Unit.

Flow Data DN20



Pre-setting values

Setting	0.3	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6
k_V-value	0.7	0.9	1.1	1.4	1.6	1.8	2.0	2.1	2.3	2.4	2.6	2.8	3.0	3.2	3.3	3.6	3.8	4.0
cv-value	0.9	1.0	1.3	1.6	1.8	2.0	2.3	2.5	2.7	2.8	3.0	3.2	3.4	3.7	3.9	4.1	4.4	4.6

Setting	3.8	4.0	4.2	4.4	4.6	4.8	5.0	5.2	5.4	5.6	5.8	5.9 = open
k_V-value	4.2	4.4	4.6	4.8	5.0	5.2	5.3	5.4	5.6	5.7	5.8	k_{VS} = 5.8
cv-value	4.9	5.1	5.4	5.6	5.8	6.0	6.2	6.3	6.5	6.6	6.7	c_{VS} = 6.7

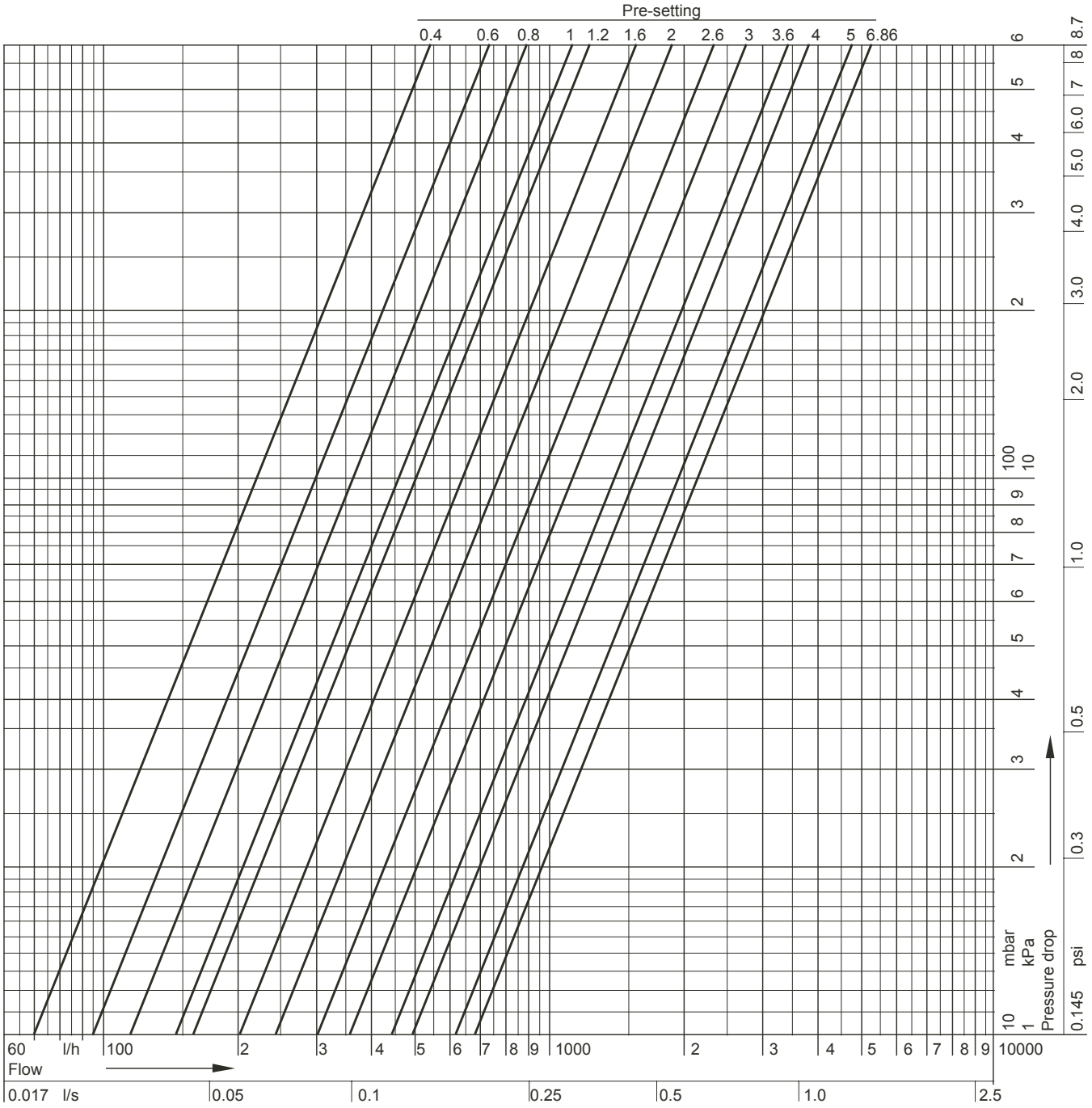
Measuring values

Setting	0.3	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6
k_V-value	0.7	0.9	1.1	1.4	1.6	1.8	2.0	2.2	2.4	2.5	2.7	2.9	3.1	3.3	3.6	3.8	4.0	4.3
cv-value	0.9	1.0	1.3	1.6	1.8	2.1	2.3	2.5	2.7	3.0	3.2	3.4	3.6	3.9	4.1	4.4	4.7	5.0

Setting	3.8	4.0	4.2	4.4	4.6	4.8	5.0	5.2	5.4	5.6	5.8	5.9 = open
k_V-value	4.5	4.8	5.0	5.3	5.5	5.8	6.0	6.2	6.4	6.6	6.7	k_{VS} = 6.7
cv-value	5.2	5.5	5.8	6.1	6.4	6.7	7.0	7.2	7.4	7.6	7.8	c_{VS} = 7.9

NOTE: Flow diagram is ONLY valid for valve WITHOUT installed actuator (-adapter) or Kombi-Diaphragm Unit.

Flow Data DN25



Pre-setting values

Setting	0.3	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6
k_v-value	0.6	0.7	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.9	3.1	3.3	3.6	3.9	4.1	4.4
cv-value	0.7	0.8	1.1	1.4	1.6	1.9	2.1	2.4	2.6	2.8	3.1	3.3	3.6	3.9	4.2	4.5	4.8	5.1

Setting	3.8	4.0	4.2	4.4	4.6	4.8	5.0	5.2	5.4	5.6	5.8	5.9 = open
k_v-value	4.7	5.0	5.3	5.5	5.8	6.0	6.2	6.4	6.5	6.7	6.8	k_{vs} = 6.9
cv-value	5.5	5.8	6.1	6.4	6.7	7.0	7.2	7.4	7.6	7.8	7.9	c_{vs} = 8.0

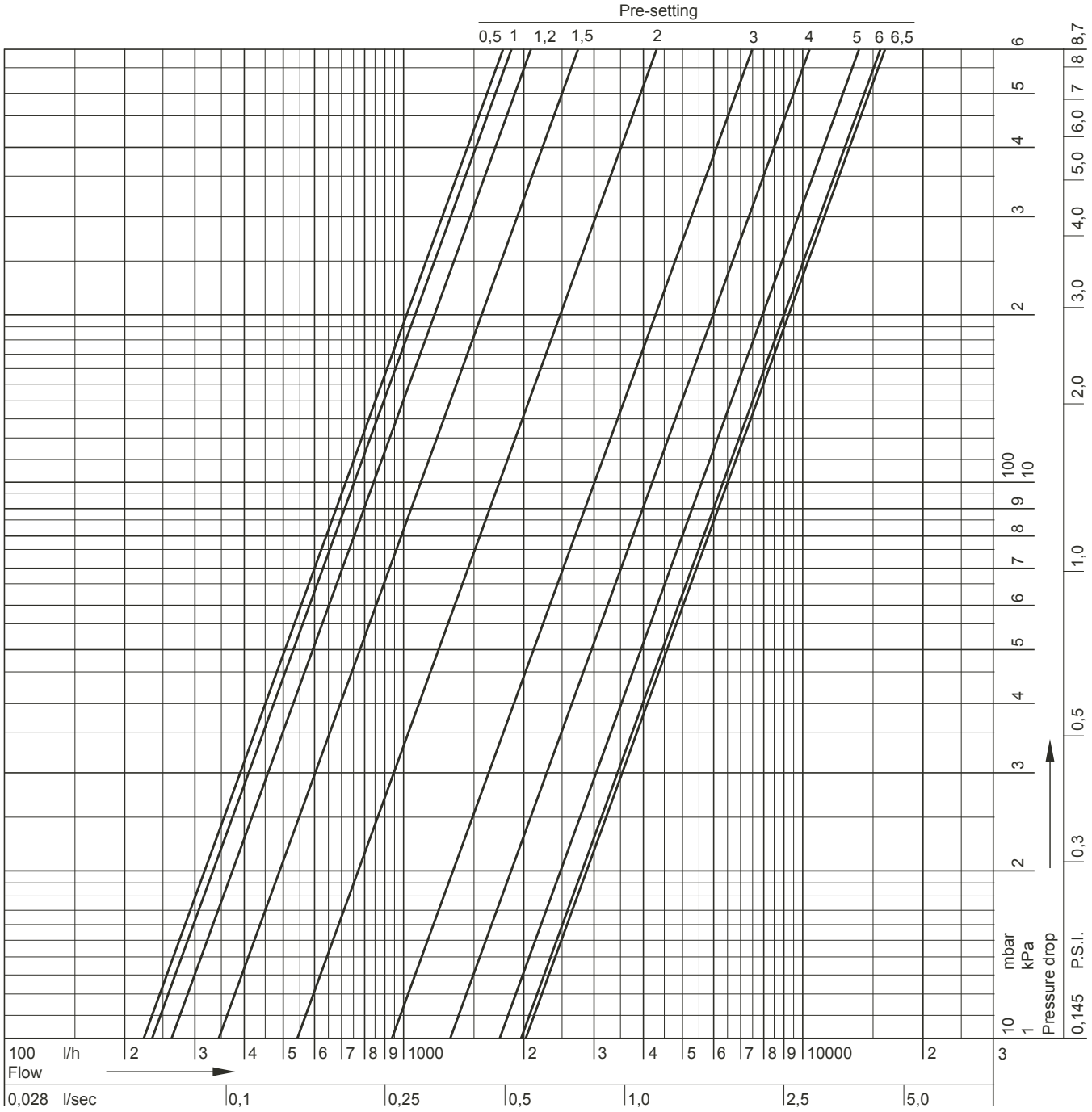
Measuring values

Setting	0.3	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6
k_v-value	0.6	0.7	0.9	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.5	3.7	4.0	4.2
cv-value	0.7	0.8	1.1	1.4	1.6	1.9	2.1	2.3	2.5	2.8	3.0	3.2	3.5	3.8	4.1	4.3	4.6	4.9

Setting	3.8	4.0	4.2	4.4	4.6	4.8	5.0	5.2	5.4	5.6	5.8	5.9 = open
k_v-value	4.5	4.7	5.0	5.2	5.4	5.6	5.8	5.9	6.1	6.2	6.3	k_{vs} = 6.4
cv-value	5.2	5.5	5.8	6.1	6.3	6.5	6.7	6.9	7.1	7.2	7.3	c_{vs} = 7.4

NOTE: Flow diagram is ONLY valid for valve WITHOUT installed actuator (-adapter) or Kombi-Diaphragm Unit.

Flow Data DN32



Pre-setting values

Setting	0.5	1.0	1.2	1.4	1.5	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6
k_V-value	2.2	2.2	2.6	3.2	3.5	3.9	4.6	5.5	6.3	7.1	7.9	8.6	9.3	10.0	10.7	11.3
cv-value	2.5	2.6	3.0	3.7	4.1	4.5	5.4	6.3	7.3	8.3	9.2	10.1	10.9	11.6	12.4	13.1

Setting	3.8	4.0	4.2	4.4	4.6	4.8	5.0	5.2	5.4	5.6	5.8	6.0	6.2	6.4	6.5 = open
k_V-value	12.0	12.8	13.6	14.5	15.5	16.4	17.3	18.1	18.7	19.2	19.5	19.8	20.0	20.1	k_{VS} = 20.1
cv-value	14.0	14.8	15.8	16.9	18.0	19.1	20.1	21.0	21.7	22.3	22.7	23.0	23.2	23.4	c_{VS} = 23.4

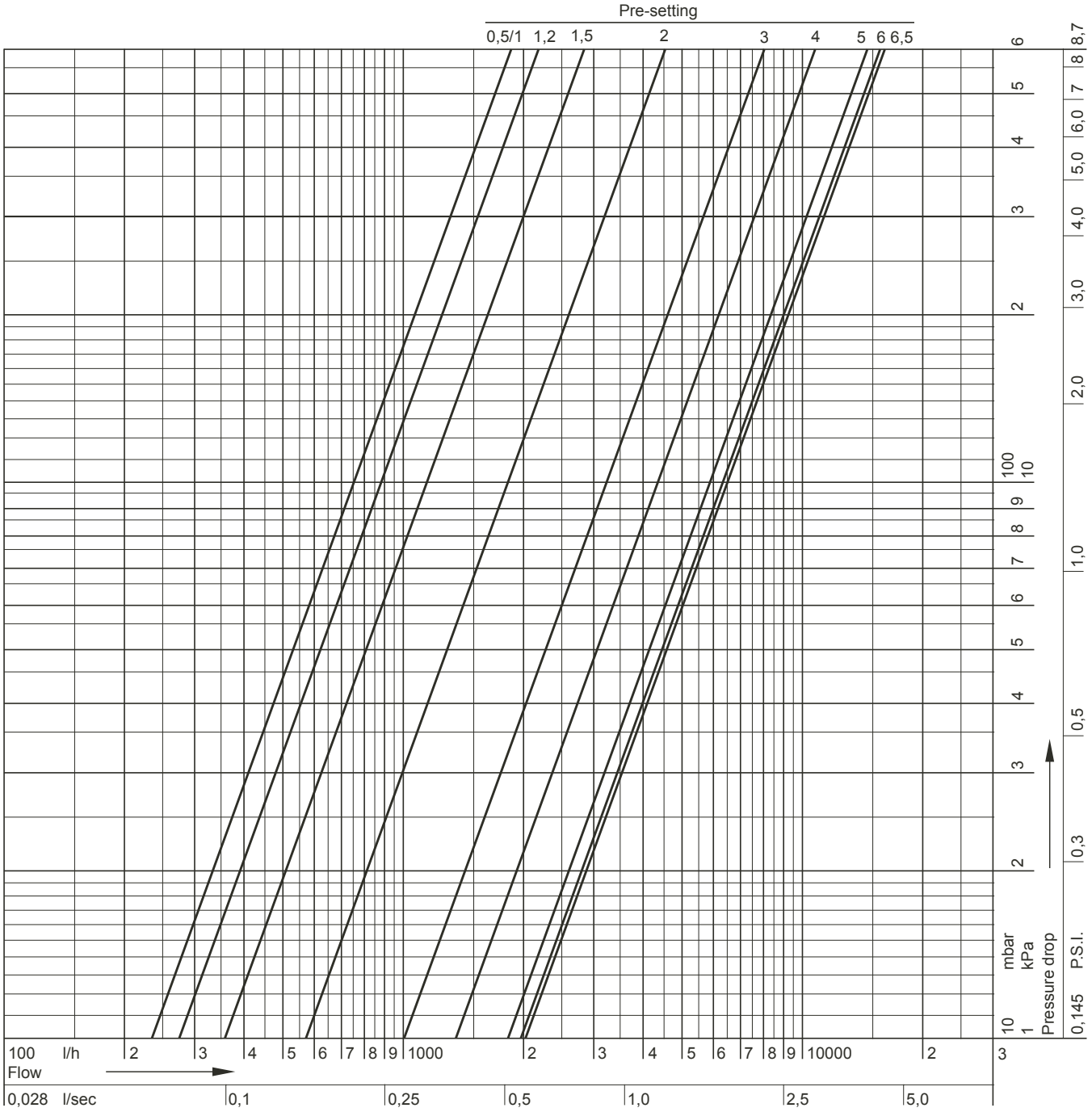
Measuring values

Setting	0.5	1.0	1.2	1.4	1.5	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6
k_V-value	2.2	2.4	2.5	2.6	2.7	2.8	3.2	3.6	4.6	5.8	8.0	8.8	9.3	9.7	10.0	10.3
cv-value	2.6	2.9	3.0	3.1	3.2	3.3	3.7	4.2	5.4	6.7	9.3	10.2	10.9	11.3	11.6	12.0

Setting	3.8	4.0	4.2	4.4	4.6	4.8	5.0	5.2	5.4	5.6	5.8	6.0	6.2	6.4	6.5 = open
k_V-value	11.0	12.2	13.9	15.6	16.8	17.5	17.9	18.0	18.1	18.1	18.2	18.2	18.2	18.2	k_{VS} = 18.2
cv-value	12.8	14.2	16.1	18.1	19.5	20.4	20.8	21.0	21.1	21.1	21.1	21.1	21.1	21.1	c_{VS} = 21.1

NOTE: Flow diagram is ONLY valid for valve WITHOUT installed actuator (-adapter) or Kombi-Diaphragm Unit.

Flow Data DN40



Pre-setting values

Setting	0.5	1.0	1.2	1.4	1.5	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6
k_v-value	2.3	2.3	2.7	3.3	3.6	4.0	4.8	5.7	6.7	7.6	8.4	9.3	10.0	10.8	11.5	12.2
cv-value	2.7	2.7	3.1	3.8	4.2	4.6	5.6	6.7	7.7	8.8	9.8	10.8	11.7	12.5	13.3	14.1

Setting	3.8	4.0	4.2	4.4	4.6	4.8	5.0	5.2	5.4	5.6	5.8	6.0	6.2	6.4	6.5 = open
k_v-value	12.9	13.7	14.5	15.4	16.4	17.2	18.0	18.7	19.2	19.5	19.8	20.0	20.0	20.2	k_{vs} = 20.2
cv-value	15.0	15.9	16.9	18.0	19.0	20.1	21.0	21.7	22.3	22.7	23.0	23.2	23.4	23.5	c_{vs} = 23.5

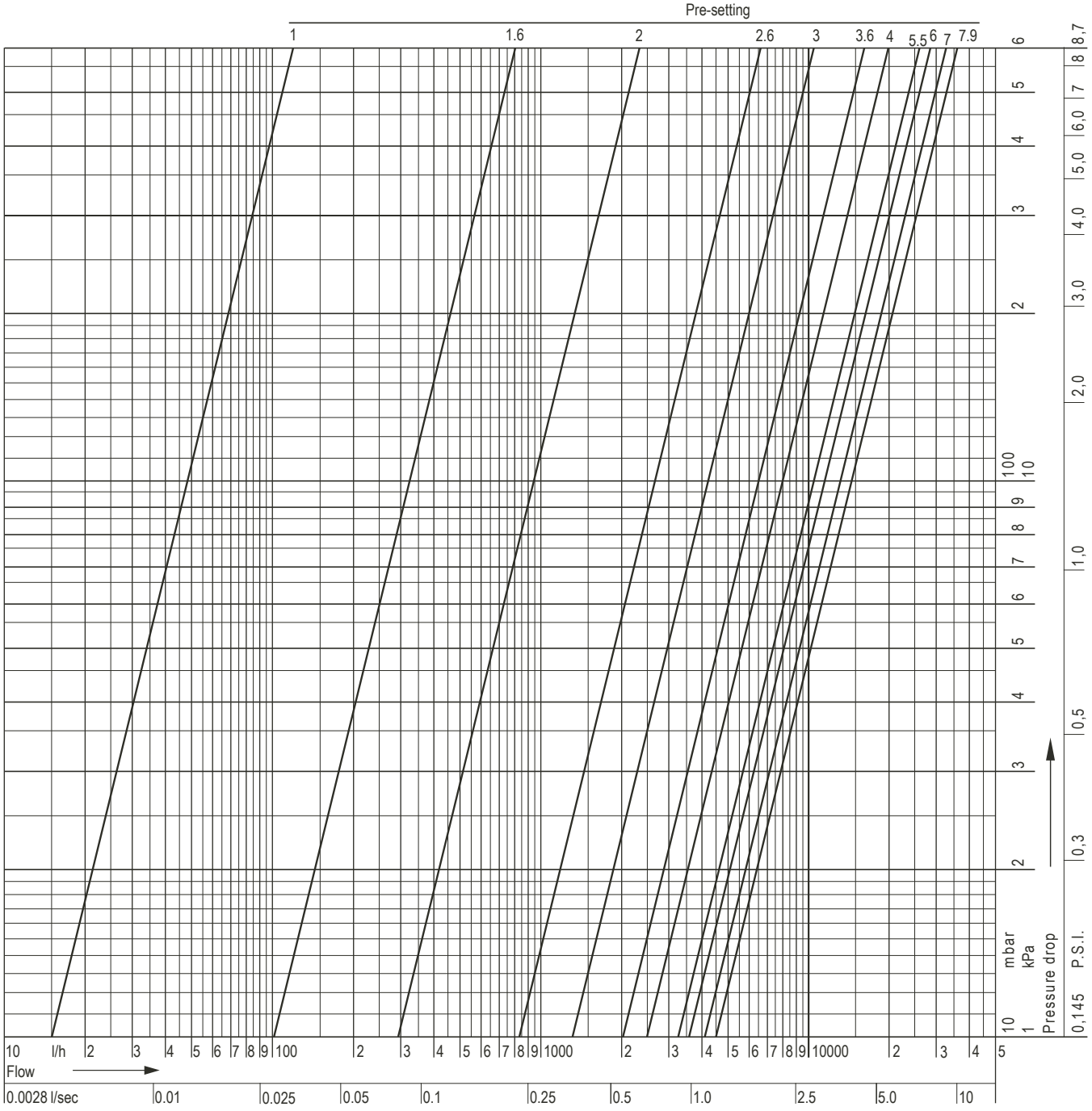
Measuring values

Setting	0.5	1.0	1.2	1.4	1.5	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6
k_v-value	2.2	2.5	2.6	3.0	3.3	3.7	4.8	6.0	7.1	8.1	9.0	9.6	10.0	10.4	10.8	11.5
cv-value	2.6	2.9	3.0	3.5	3.9	4.4	5.6	6.9	8.3	9.5	10.4	11.1	11.7	12.1	12.6	13.4

Setting	3.8	4.0	4.2	4.4	4.6	4.8	5.0	5.2	5.4	5.6	5.8	6.0	6.2	6.4	6.5 = open
k_v-value	12.6	14.1	15.7	16.9	17.7	18.1	18.3	18.4	18.5	18.5	18.5	18.5	18.5	18.5	k_{vs} = 18.5
cv-value	14.7	16.4	18.3	19.7	20.6	21.1	21.3	21.4	21.5	21.5	21.5	21.5	21.5	21.5	c_{vs} = 21.5

NOTE: Flow diagram is ONLY valid for valve WITHOUT installed actuator (-adapter) or Kombi-Diaphragm Unit.

Flow Data DN50



Pre-setting values

Setting	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0	4.2	4.4
k_V-value	0.2	0.3	0.6	1.1	1.8	3.0	4.4	6.3	8.4	10.7	13.2	15.8	18.3	20.8	23.1	25.2	27.1	28.8
cv-value	0.2	0.3	0.6	1.2	2.1	3.5	5.1	7.3	9.7	12.5	15.4	18.4	21.3	24.2	26.9	29.3	31.5	33.5

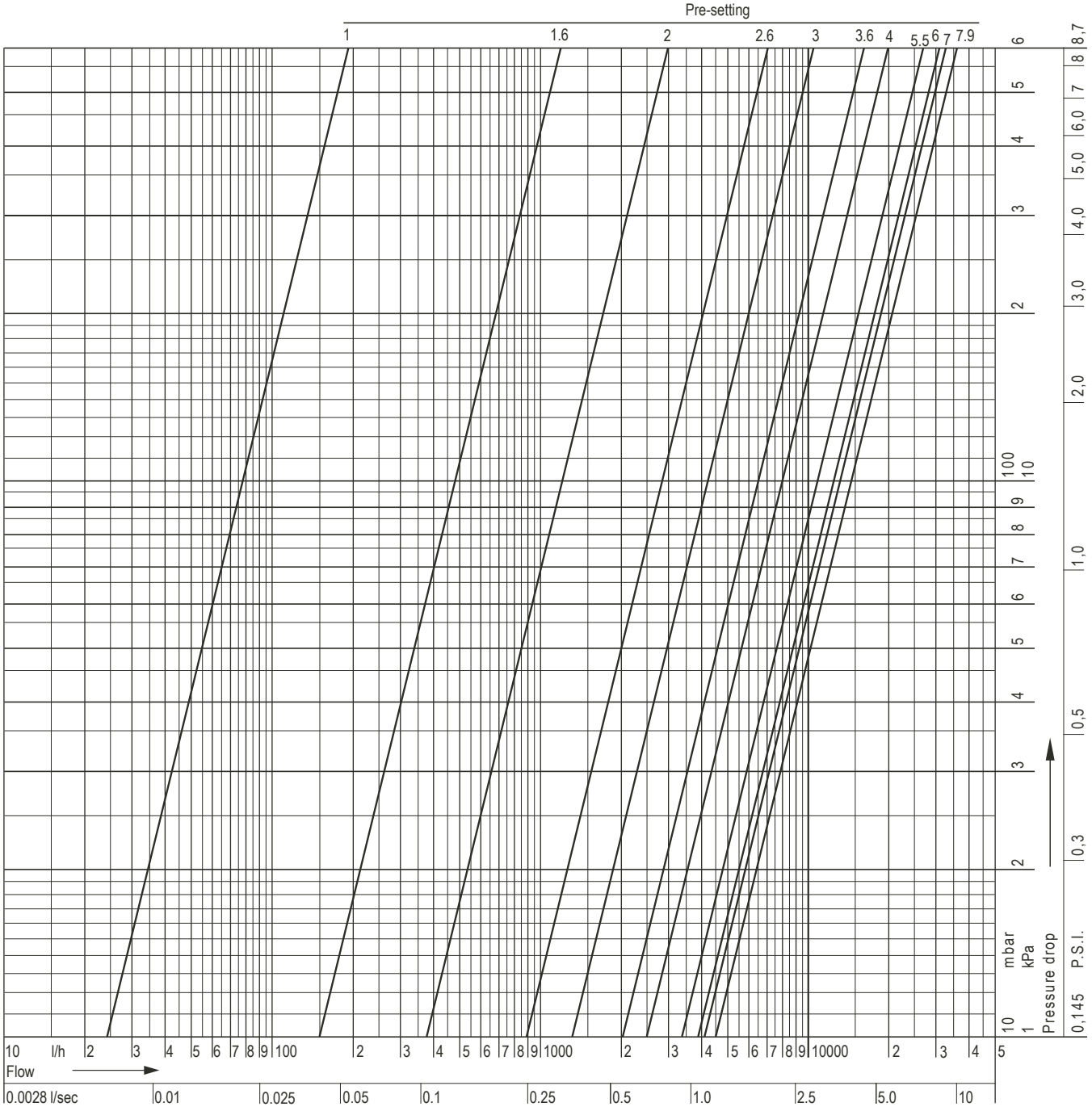
Setting	4.6	4.8	5.0	5.2	5.4	5.6	5.8	6.0	6.2	6.4	6.6	6.8	7.0	7.2	7.4	7.6	7.9 = open
k_V-value	30.2	31.5	32.6	33.6	34.5	35.4	36.2	37.0	37.8	38.7	39.6	40.5	41.5	42.5	43.4	44.3	k_{VS} = 45.3
cv-value	35.2	36.7	38.0	39.1	40.2	41.1	42.1	43.0	44.0	45.0	46.0	47.1	48.3	49.4	50.5	51.5	c_{VS} = 52.7

Measuring values

Setting	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0	4.2	4.4
k_V-value	0.1	0.3	0.7	1.1	1.8	2.9	4.4	6.2	8.3	10.7	13.3	16.0	18.7	21.3	23.8	26.0	28.1	30.0
cv-value	0.1	0.4	0.7	1.3	2.1	3.4	5.1	7.2	9.7	12.5	15.5	18.6	21.7	24.8	27.6	30.3	32.6	37.7

Setting	4.6	4.8	5.0	5.2	5.4	5.6	5.8	6.0	6.2	6.4	6.6	6.8	7.0	7.2	7.4	7.6	7.9 = open
k_V-value	36.6	38.3	39.7	41.1	42.3	43.5	44.6	45.7	46.9	48.0	49.2	50.3	51.4	52.4	53.3	54.0	k_{VS} = 54.9
cv-value	35.2	36.7	38.0	39.1	40.2	41.1	42.1	43.0	44.0	45.0	46.0	47.1	48.3	49.4	50.5	51.5	c_{VS} = 52.7

Flow Data DN65



Pre-setting values

Setting	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0	4.2	4.4
k_V-value	0.2	0.2	0.8	1.5	2.5	3.7	5.2	7.0	9.0	11.1	13.4	15.8	18.1	20.5	22.9	25.1	27.3	29.3
cv-value	0.3	0.2	0.9	1.8	2.9	4.4	6.1	8.1	10.4	12.9	15.6	18.3	21.1	23.9	26.6	29.2	31.7	34.1

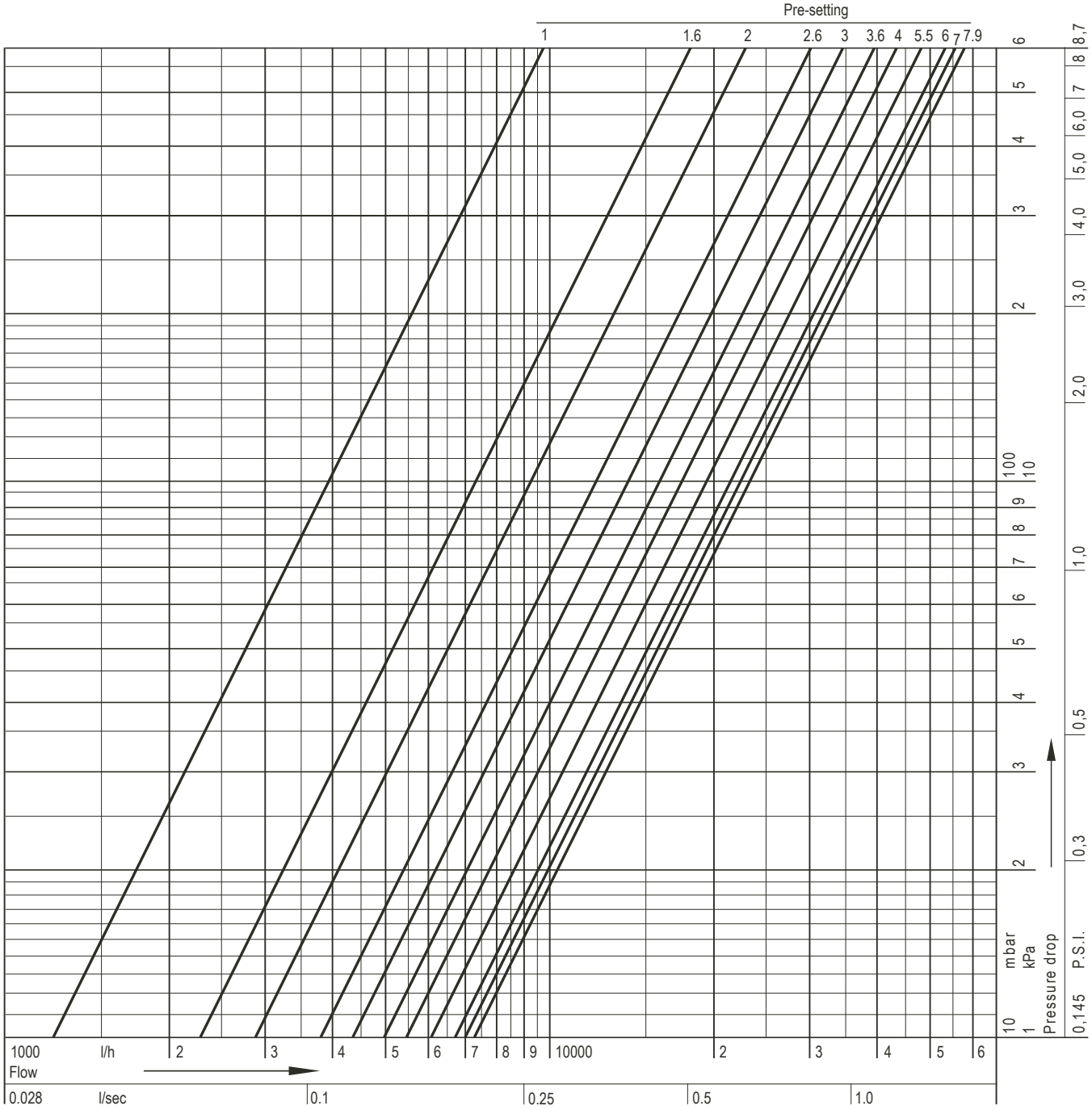
Setting	4.6	4.8	5.0	5.2	5.4	5.6	5.8	6.0	6.2	6.4	6.6	6.8	7.0	7.2	7.4	7.6	7.9 = open
k_V-value	31.3	33.1	34.8	36.4	37.9	39.2	40.4	41.4	42.3	43.0	43.6	44.0	44.4	44.7	44.9	45.1	k_{VS} = 45.3
cv-value	36.4	38.5	40.5	42.4	44.1	45.6	46.9	48.1	49.1	50.0	50.7	51.2	51.7	52.0	52.2	52.4	c_{VS} = 52.6

Measuring values

Setting	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0	4.2	4.4
k_V-value	0.3	0.5	1.1	1.6	2.4	3.5	4.9	6.6	8.7	11.0	13.4	15.8	18.2	20.5	22.6	24.7	26.7	28.8
cv-value	0.4	0.6	1.2	1.9	2.8	4.0	5.7	7.7	10.1	12.8	15.6	18.4	21.1	23.8	26.3	28.7	31.1	33.4

Setting	4.6	4.8	5.0	5.2	5.4	5.6	5.8	6.0	6.2	6.4	6.6	6.8	7.0	7.2	7.4	7.6	7.9 = open
k_V-value	30.8	33.0	35.2	37.5	39.7	41.7	43.3	44.6	45.5	46.2	46.6	46.9	47.1	47.2	47.3	47.3	k_{VS} = 47.4
cv-value	35.8	38.4	41.0	43.6	46.2	48.4	50.4	51.8	52.9	53.7	54.2	54.5	54.7	54.9	55.0	55.0	c_{VS} = 55.1

Flow Data DN 80



Pre-setting values

Setting	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0	4.2	4.4
k_V-value	13.9	16.9	20.0	23.1	26.2	29.3	32.3	35.3	38.1	40.8	43.4	45.9	48.2	50.4	52.4	54.3	56.0	57.6
cv-value	16.2	19.7	23.2	26.8	30.4	34.0	37.6	41.0	44.3	47.5	50.5	53.4	56.1	58.6	60.9	63.1	65.1	67.0

Setting	4.6	4.8	5.0	5.2	5.4	5.6	5.8	6.0	6.2	6.4	6.6	6.8	7.0	7.2	7.4	7.6	7.9 = open
k_V-value	59.1	60.5	61.8	62.9	64.0	65.0	65.9	66.8	67.6	68.3	69.0	69.7	70.3	71.0	71.6	72.1	k_{VS} = 73.0
cv-value	68.7	70.4	71.8	73.2	74.4	75.6	76.7	77.7	78.6	79.5	80.3	81.1	81.8	82.5	83.2	83.9	c_{VS} = 84.9

Measuring values

Setting	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.0	4.2	4.4
k_V-value	13.9	16.7	19.8	13.0	26.2	29.6	32.9	36.2	39.4	42.5	45.6	48.5	51.3	54.0	56.5	58.9	61.2	63.3
cv-value	16.2	19.5	23.0	26.7	30.5	34.4	38.2	42.1	45.8	49.4	53.0	56.4	59.7	62.8	65.7	68.5	71.2	73.6

Setting	4.6	4.8	5.0	5.2	5.4	5.6	5.8	6.0	6.2	6.4	6.6	6.8	7.0	7.2	7.4	7.6	7.9 = open
k_V-value	65.2	67.1	68.7	70.3	71.7	73.0	74.1	75.2	76.1	76.9	77.7	78.4	78.9	79.5	79.9	80.3	k_{VS} = 80.9
cv-value	75.9	78.0	79.9	81.7	83.3	84.8	86.2	87.4	88.5	89.5	90.3	91.1	91.8	92.4	92.9	93.4	c_{VS} = 91.0

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 σ_0 = 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 k_v-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	1.024	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

Control Characteristics of Kombi-2-Plus with Adapter VA2500A001

Table 2. k_{VS}-values and flow rates

DN		15	20	25	32	40
k_{VS}-value		1.50	3.50	3.50	5.50	5.50
cv-value		1.76	4.10	4.10	6.44	6.44
l/h	Q_{min}	20	40	40	80	80
	Q_{nom}	500	1.000	1.000	2.000	2.000
	Q_{max}	750	1.500	1.500	2.500	2.500

Pre-setting of Balancing Valve							
DN	**1.5**	**1.4**	**1.2**	**1.0**	**0.8**	**0.6**	**0.4**
15	1.50	1.45	1.35	1.25	1.15	0.95	0.70
20	3.50	3.40	3.30	3.10	2.80	2.45	1.80
25	3.50	3.40	3.30	3.10	2.80	2.45	1.80
32	—	—	—	5.50	5.20	4.45	—
40	—	—	—	5.50	5.20	4.45	—

NOTE: The V5032A Kombi-2-Plus balancing valve has to be pre-set to 1.5 (sizes DN15...DN25) or to 1.0 (sizes DN32...DN40) when used with the VA2500A adapter.

For more information on Honeywell Balancing and Pipeline Valves see www.honeywell-valvesizing.com.

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