

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)

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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 upgraded 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**
- **Available 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**

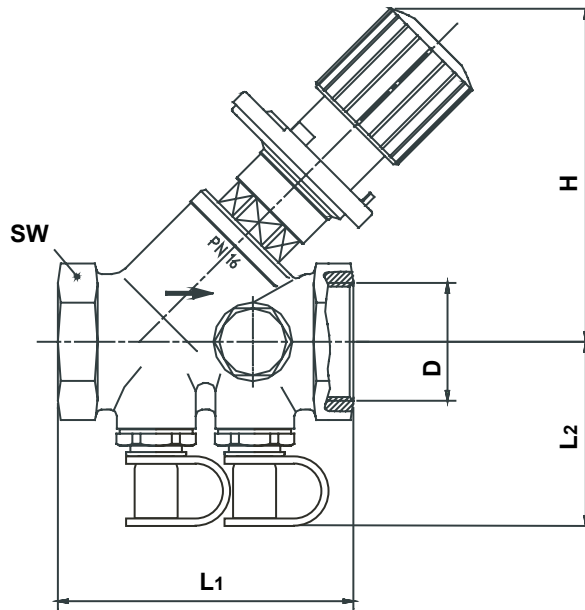
Specifications

| | |
|--|---|
| 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) | Rp1/2" | 85 | 65 | 45 | 27 |
| V5032Y0020A | 20 | 5.8 (6.7) | Rp3/4" | 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 |

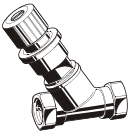
NOTE: For product information and diagrams see product data sheet 'V5012C Kombi-DP'.
 The V5032A Kombi-2-plus valve must be pre-set to 1.5 (for DN15...25) or 1.0 (DN32...40) when used with the Kombi-Diaphragm Unit.
 Pump pressure: max. 2 bar (29 psi)

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)

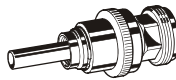
NOTE: Further technical details see page 12

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 |

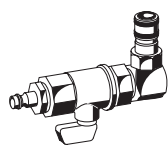
NOTE: For product information see product data sheet 'VA2510C Insulation Shells'.

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™ pressure test cocks please order measuring adapter VA3600C001 separately.

Spare Parts

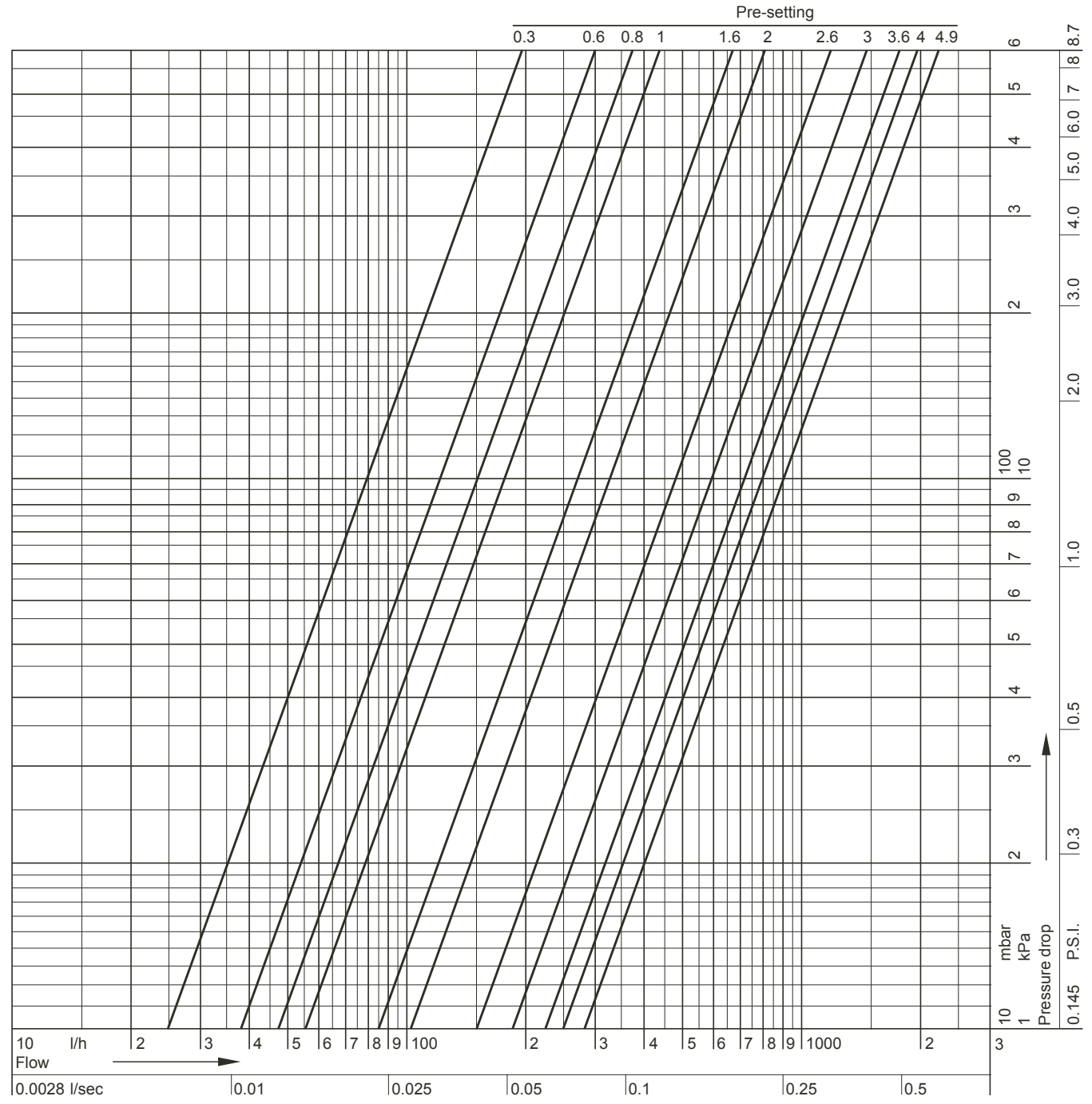
Replacement insert

| | | |
|---|-----------------|------------|
|  | 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 |

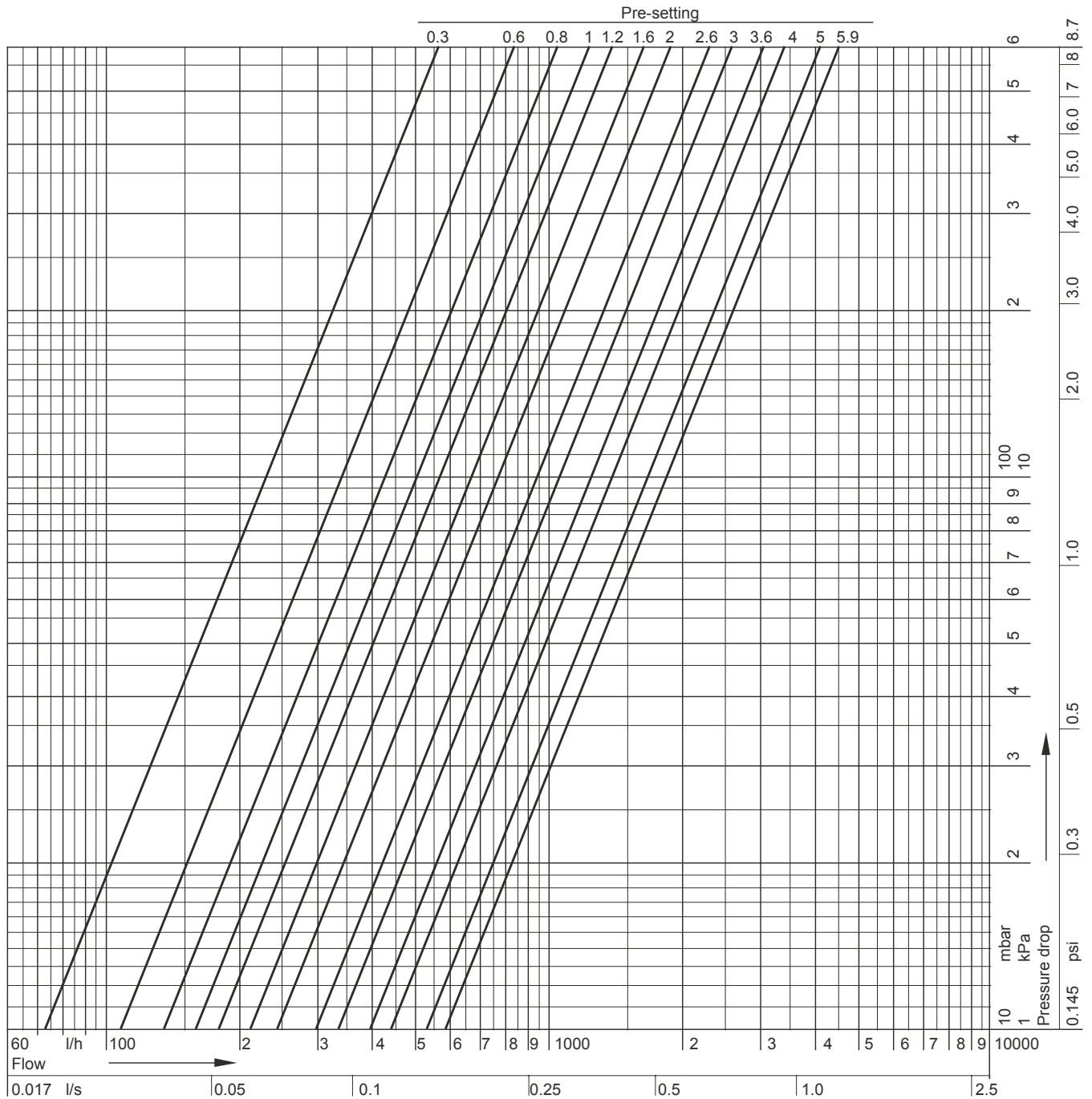
Measuring values

| | | | | | | | | | | | | | | | | | | |
|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 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 |

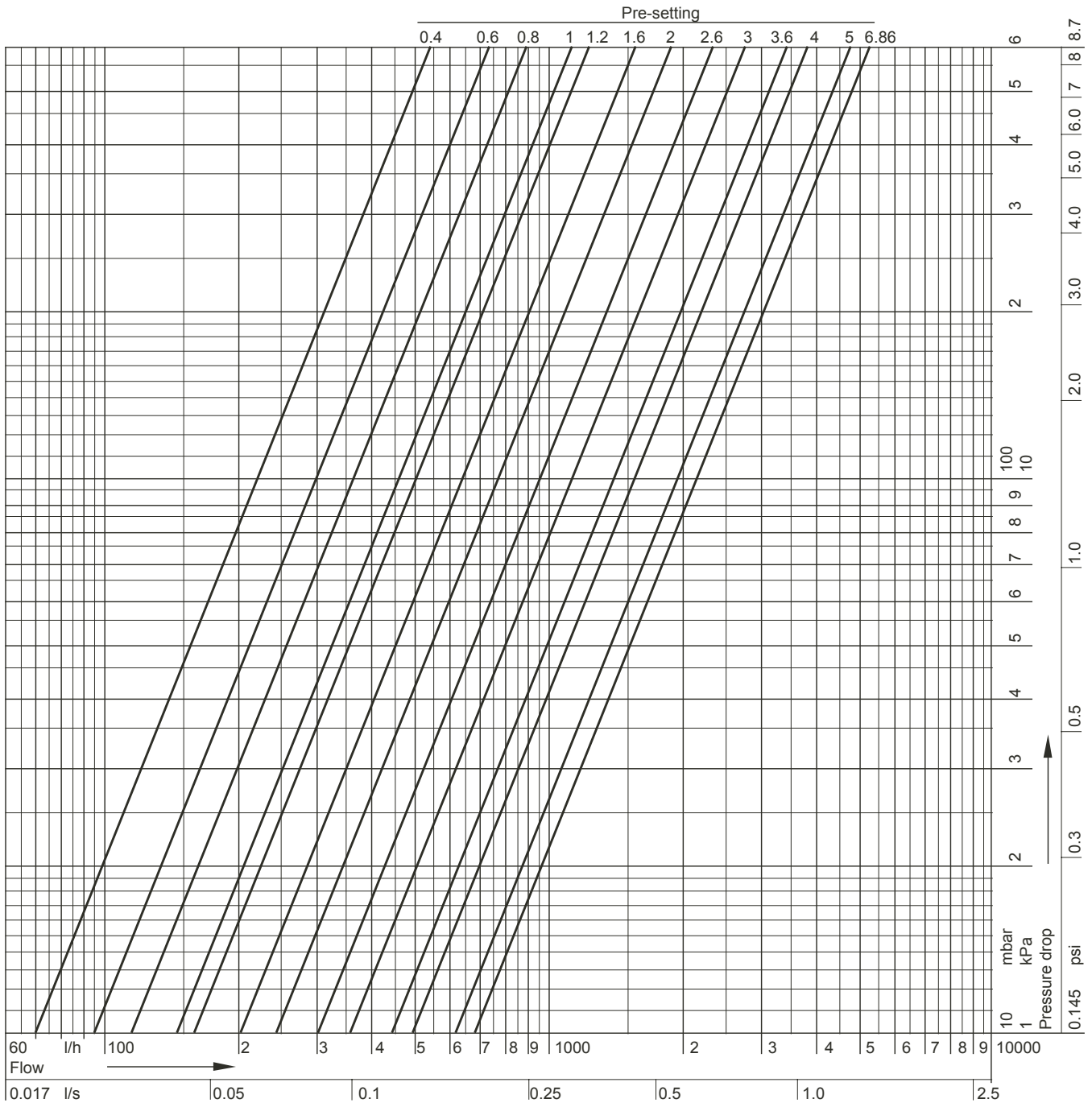
Measuring values

| | | | | | | | | | | | | | | | | | | |
|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 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 |

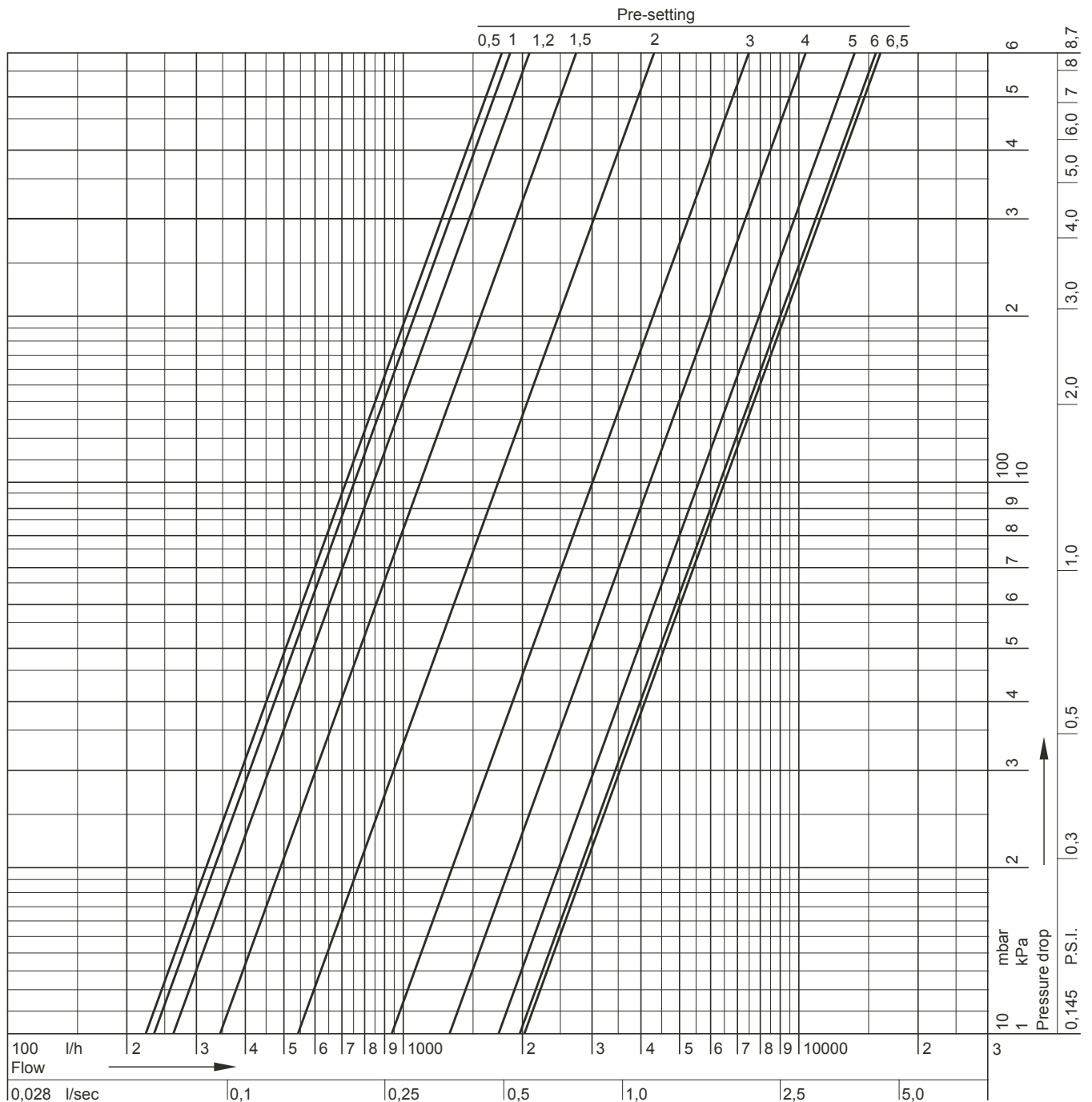
Measuring values

| | | | | | | | | | | | | | | | | | | |
|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 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 |

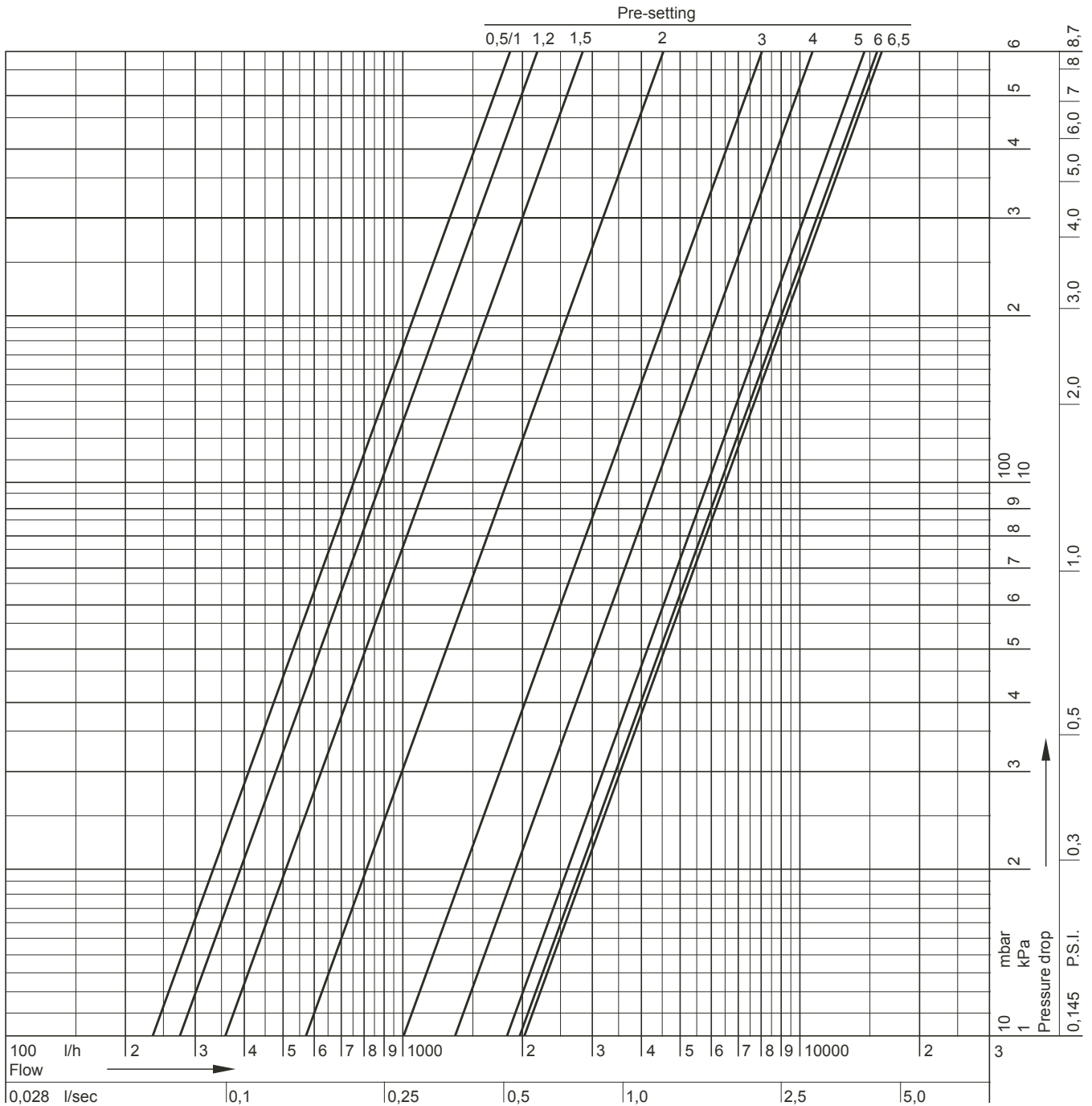
Measuring values

| | | | | | | | | | | | | | | | | |
|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|
| 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 |

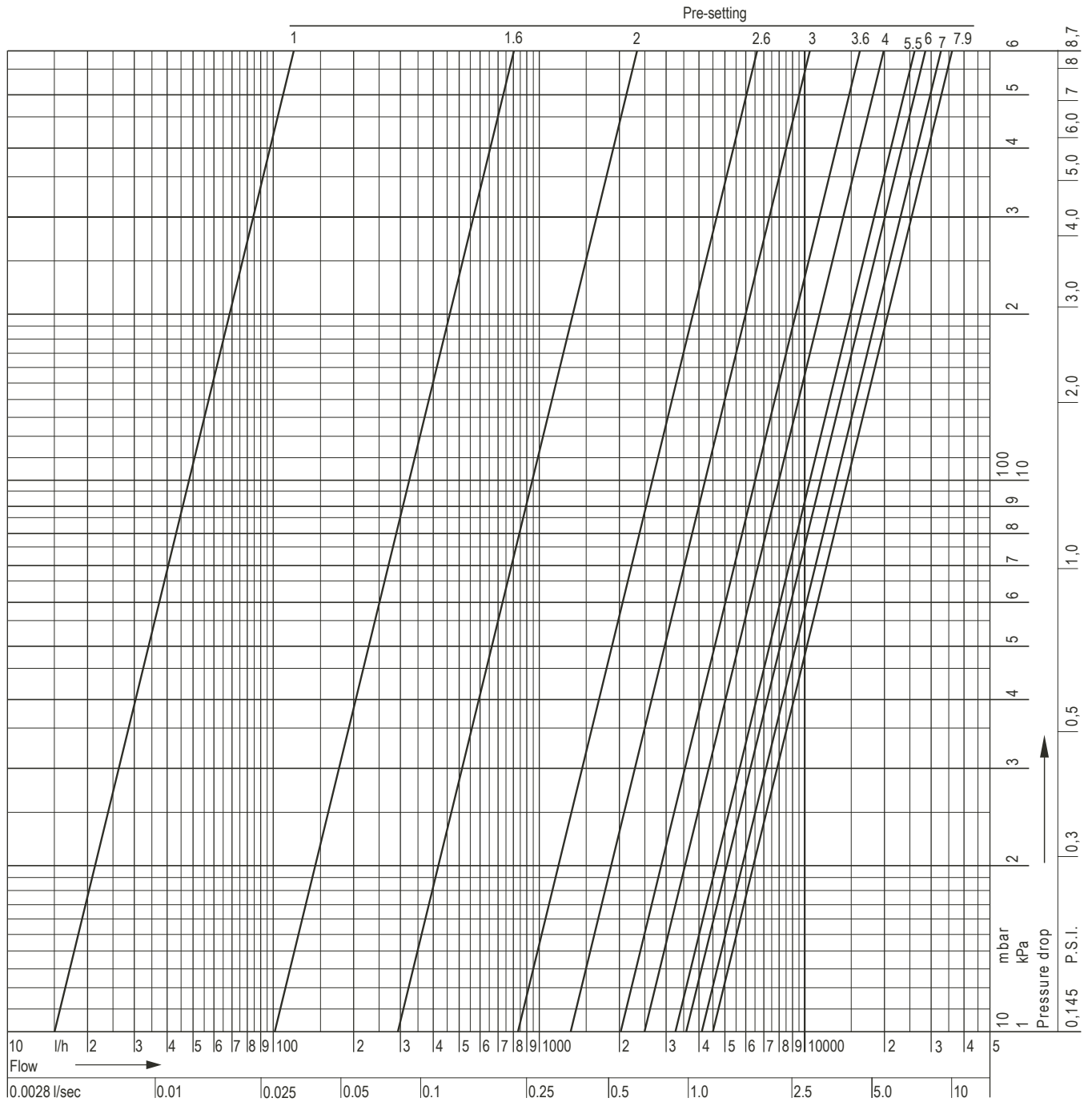
Measuring values

| | | | | | | | | | | | | | | | | |
|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| 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 |

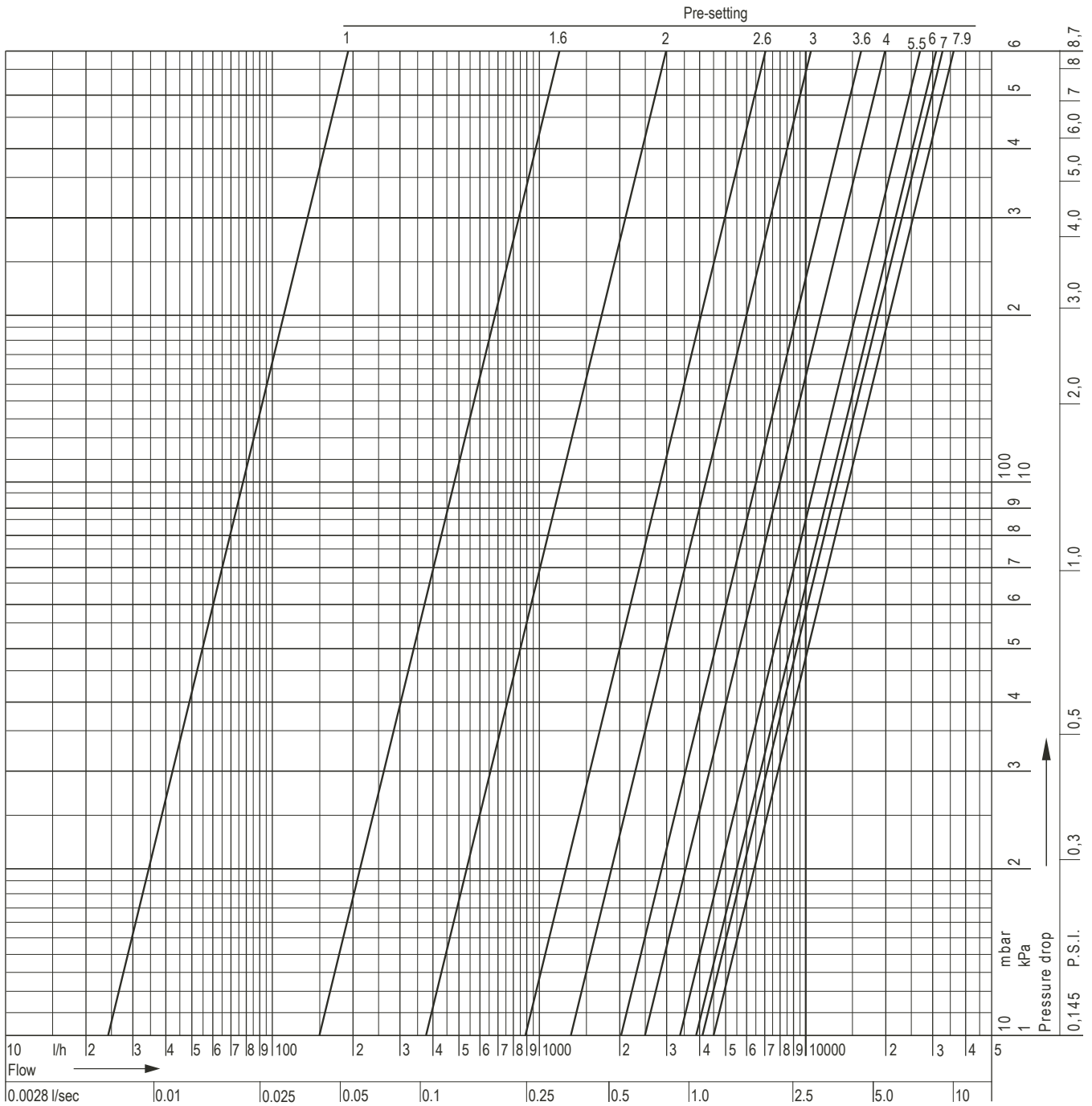
| | | | | | | | | | | | | | | | | | |
|----------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------------------------|
| Setting | 4.6 | 4.8 | 5.0 | 5.2 | 5.4 | 5.6 | 5.8 | 6.0 | 6.2 | 6.4 | 6.6 | 6.8 | 7.0 | 7.2 | 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 |

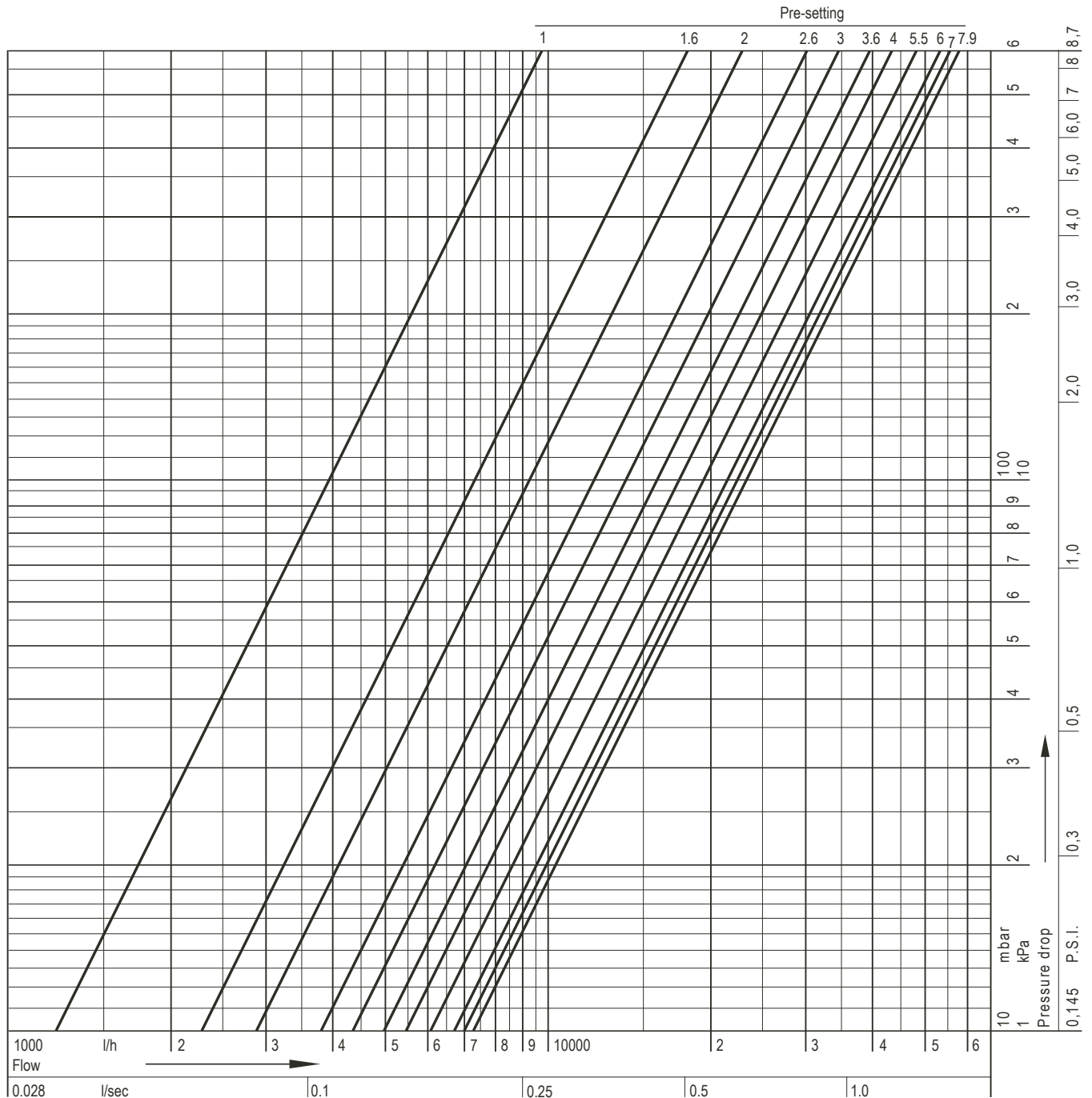
| | | | | | | | | | | | | | | | | | |
|----------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------------------------|
| Setting | 4.6 | 4.8 | 5.0 | 5.2 | 5.4 | 5.6 | 5.8 | 6.0 | 6.2 | 6.4 | 6.6 | 6.8 | 7.0 | 7.2 | 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 $\sigma_0 = 1000 \text{ kg/m}^3$. 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 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 |

| DN | Pre-setting of Balancing Valve | | | | | | |
|----|--------------------------------|------|------|------|------|------|------|
| | 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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