

BALANCING VALVES



BALANCING VALVE

The STAD balancing valve delivers accurate hydronic performance in an impressive range of applications. Ideally suited for use on the secondary side in heating and cooling systems, and tap water systems.



HANDWHEEL

Equipped with a digital read-out, the handwheel ensures accurate and straightforward balancing. Positive shut-off function for easy maintenance.



SELF-SEALING MEASURING POINTS

For simple, accurate balancing.



AMETAL® CONSTRUCTION

Dezincification resistant alloy that guarantees a longer valve lifetime, and lowers the risk of leakage.

TECHNICAL DESCRIPTION

Application:

Heating and cooling systems
Tap water systems

Functions:

Balancing
Pre-setting
Measuring
Shut-off
Draining (optional)

Dimensions:

DN 10-50

Pressure class:

PN 20

Temperature:

Max. working temperature: 120°C.
For higher temperatures max. 150°C, please contact closest sales office.
NOTE! DN 25-50 with smooth ends max working temperature 120°C.
Min. working temperature: -20°C

Material:

The valves are made of AMETAL®
Seat seal: Stem with EPDM O-ring
Spindle seal: EPDM O-ring
Handwheel: Polyamide
Smooth ends:
Nipple: AMETAL®
Sealing (DN 25-50): EPDM O-ring

AMETAL® is the dezincification resistant alloy of TA.

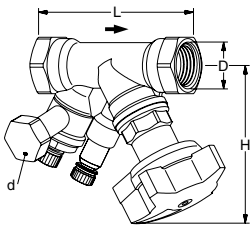
Marking:

Body: TA, PN 20/150, DN and inch size.
Handwheel: Valve type and DN.



Female threads

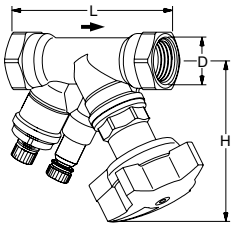
Thread length according to ISO7/1
With draining



| TA No | TA No | DN | D | L | H | Kvs | Kg |
|-----------------|-------------|-----------------|--------|-----|-----|------|------|
| d = G1/2 | | d = G3/4 | | | | | |
| 52 151-209* | 52 151-609* | 10/09 | G3/8 | 83 | 100 | 1,47 | 0,65 |
| 52 151-214* | 52 151-614* | 15/14 | G1/2 | 90 | 100 | 2,52 | 0,68 |
| 52 151-220* | 52 151-620* | 20 | G3/4 | 97 | 100 | 5,70 | 0,77 |
| 52 151-225 | 52 151-625 | 25 | G1 | 110 | 105 | 8,70 | 0,93 |
| 52 151-232 | 52 151-632 | 32 | G1 1/4 | 124 | 110 | 14,2 | 1,3 |
| 52 151-240 | 52 151-640 | 40 | G1 1/2 | 130 | 120 | 19,2 | 1,6 |
| 52 151-250 | 52 151-650 | 50 | G2 | 155 | 120 | 33,0 | 2,4 |

Female threads

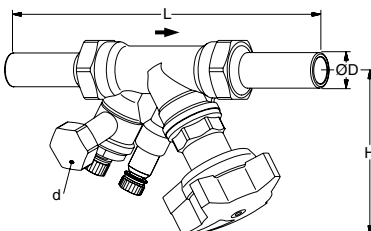
Thread length according to ISO7/1
Excl. draining (can be installed during operation)



| TA No | DN | D | L | H | Kvs | Kg |
|-------------|-------|--------|-----|-----|------|------|
| 52 151-009* | 10/09 | G3/8 | 83 | 100 | 1,47 | 0,58 |
| 52 151-014* | 15/14 | G1/2 | 90 | 100 | 2,52 | 0,62 |
| 52 151-020* | 20 | G3/4 | 97 | 100 | 5,70 | 0,72 |
| 52 151-025 | 25 | G1 | 110 | 105 | 8,70 | 0,88 |
| 52 151-032 | 32 | G1 1/4 | 124 | 110 | 14,2 | 1,2 |
| 52 151-040 | 40 | G1 1/2 | 130 | 120 | 19,2 | 1,4 |
| 52 151-050 | 50 | G2 | 155 | 120 | 33,0 | 2,3 |

Smooth ends

With draining



| TA No | TA No | DN | D | L | H | Kvs | Kg |
|-----------------|------------|-----------------|----|-----|-----|------|------|
| d = G1/2 | | d = G3/4 | | | | | |
| 52 451-209 | 52 451-609 | 10/09 | 12 | 141 | 100 | 1,47 | 0,71 |
| 52 451-214 | 52 451-614 | 15/14 | 15 | 154 | 100 | 2,52 | 0,78 |
| 52 451-220 | 52 451-620 | 20 | 22 | 179 | 100 | 5,70 | 0,93 |
| 52 451-225 | 52 451-625 | 25 | 28 | 208 | 105 | 8,70 | 1,2 |
| 52 451-232 | 52 451-632 | 32 | 35 | 233 | 110 | 14,2 | 1,7 |
| 52 451-240 | 52 451-640 | 40 | 42 | 260 | 120 | 19,2 | 2,1 |
| 52 451-250 | 52 451-650 | 50 | 54 | 305 | 120 | 33,0 | 3,2 |

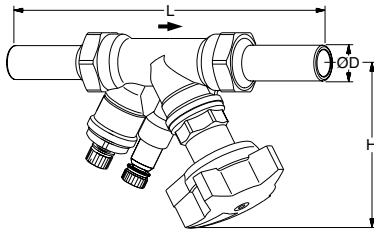
→ = Flow direction

Kvs = m³/h at a pressure drop of 1 bar and fully open valve.

*) Can be connected to smooth pipes by KOMBI compression coupling. See catalogue leaflet KOMBI.

Smooth ends

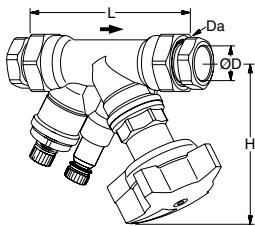
Excl. draining (can be installed during operation)



| TA No | DN | D | L | H | Kvs | Kg |
|------------|-------|----|-----|-----|------|------|
| 52 451-009 | 10/09 | 12 | 141 | 100 | 1,47 | 0,64 |
| 52 451-014 | 15/14 | 15 | 154 | 100 | 2,52 | 0,72 |
| 52 451-020 | 20 | 22 | 179 | 100 | 5,70 | 0,88 |
| 52 451-025 | 25 | 28 | 208 | 105 | 8,70 | 1,1 |
| 52 451-032 | 32 | 35 | 233 | 110 | 14,2 | 1,6 |
| 52 451-040 | 40 | 42 | 260 | 120 | 19,2 | 1,9 |
| 52 451-050 | 50 | 54 | 305 | 120 | 33,0 | 3,1 |

With KOMBI compression couplings (not mounted)

Excl. draining (can be installed during operation)

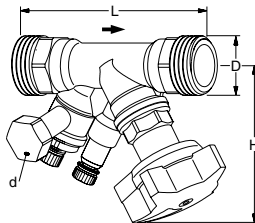


| TA No | DN | Da | D | L | H | Kvs | Kg |
|------------|-------|------|--------------------------|----|-----|------|------|
| 52 151-314 | 15/14 | G1/2 | 12 mm x 2 / 15 mm x 2 | 90 | 100 | 2,52 | 0,76 |
| 52 151-320 | 20 | G3/4 | 18 mm x 2 / 22 mm x 2 | 97 | 100 | 5,70 | 0,96 |

Male threads (STADA)

Thread length according to DIN 3546

With draining

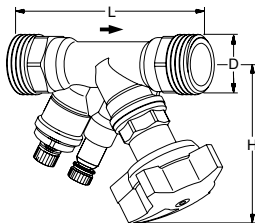


| TA No | TA No | DN | D | L | H | Kvs | Kg |
|-----------------|------------|-----------------|--------|-----|-----|------|------|
| d = G1/2 | | d = G3/4 | | | | | |
| 52 152-209 | 52 152-609 | 10/09 | G1/2 | 105 | 100 | 1,47 | 0,70 |
| 52 152-214 | 52 152-614 | 15/14 | G3/4 | 114 | 100 | 2,52 | 0,73 |
| 52 152-220 | 52 152-620 | 20 | G1 | 125 | 100 | 5,70 | 0,88 |
| 52 152-225 | 52 152-625 | 25 | G1 1/4 | 142 | 105 | 8,70 | 1,2 |
| 52 152-232 | 52 152-632 | 32 | G1 1/2 | 160 | 110 | 14,2 | 1,6 |
| 52 152-240 | 52 152-640 | 40 | G2 | 170 | 120 | 19,2 | 2,2 |
| 52 152-250 | 52 152-650 | 50 | G2 1/2 | 200 | 120 | 33,0 | 3,3 |

Male threads (STADA)

Thread length according to DIN 3546

Excl. draining (can be installed during operation)



| TA No | DN | D | L | H | Kvs | Kg |
|------------|-------|--------|-----|-----|------|------|
| 52 152-009 | 10/09 | G1/2 | 105 | 100 | 1,47 | 0,61 |
| 52 152-014 | 15/14 | G3/4 | 114 | 100 | 2,52 | 0,66 |
| 52 152-020 | 20 | G1 | 125 | 100 | 5,70 | 0,81 |
| 52 152-025 | 25 | G1 1/4 | 142 | 105 | 8,70 | 1,1 |
| 52 152-032 | 32 | G1 1/2 | 160 | 110 | 14,2 | 1,5 |
| 52 152-040 | 40 | G2 | 170 | 120 | 19,2 | 2,1 |
| 52 152-050 | 50 | G2 1/2 | 200 | 120 | 33,0 | 3,2 |

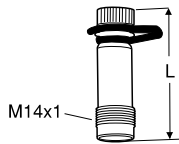
→ = Flow direction

Kvs = m³/h at a pressure drop of 1 bar and fully open valve.

ACCESSORIES

Measuring points

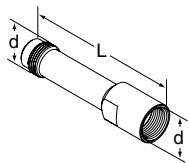
Max 120°C (intermittent 150°C)



| TA No | L |
|------------|-----|
| 52 179-014 | 44 |
| 52 179-015 | 103 |

Extension for measuring point M14x1

Suitable when insulation is used.

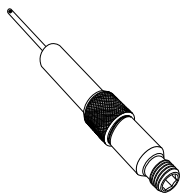


| TA No | d | L |
|------------|-------|----|
| 52 179-016 | M14x1 | 71 |

Measuring point

Extensions 60 mm (not for 52 179-000/-601)

Can be installed without draining of the system.

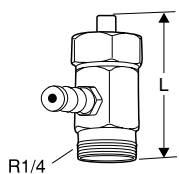


| TA No |
|------------|
| 52 179-006 |

Measuring point

For older STAD and STAF

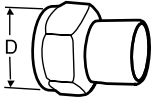
Max 180°C



| TA No | L |
|------------|----|
| 52 179-000 | 30 |
| 52 179-601 | 90 |

Welding connection

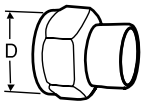
Max 120°C



| TA No | Valve DN | D | Pipe DN |
|------------|----------|--------|---------|
| 52 009-010 | 10 | G1/2 | 10 |
| 52 009-015 | 15 | G3/4 | 15 |
| 52 009-020 | 20 | G1 | 20 |
| 52 009-025 | 25 | G1 1/4 | 25 |
| 52 009-032 | 32 | G1 1/2 | 32 |
| 52 009-040 | 40 | G2 | 40 |
| 52 009-050 | 50 | G2 1/2 | 50 |

Soldering connection

Max 120°C

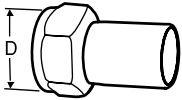


| TA No | Valve DN | D | Pipe Ø |
|------------|----------|--------|--------|
| 52 009-510 | 10 | G1/2 | 10 |
| 52 009-512 | 10 | G1/2 | 12 |
| 52 009-515 | 15 | G3/4 | 15 |
| 52 009-516 | 15 | G3/4 | 16 |
| 52 009-518 | 20 | G1 | 18 |
| 52 009-522 | 20 | G1 | 22 |
| 52 009-528 | 25 | G1 1/4 | 28 |
| 52 009-535 | 32 | G1 1/2 | 35 |
| 52 009-542 | 40 | G2 | 42 |
| 52 009-554 | 50 | G2 1/2 | 54 |

Connection with smooth end

For connection with press coupling

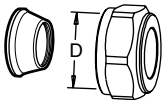
Max 120°C



| TA No | Valve DN | D | Pipe DN |
|------------|----------|--------|---------|
| 52 009-312 | 10 | G1/2 | 12 |
| 52 009-315 | 15 | G3/4 | 15 |
| 52 009-318 | 20 | G1 | 18 |
| 52 009-322 | 20 | G1 | 22 |
| 52 009-328 | 25 | G1 1/4 | 28 |
| 52 009-335 | 32 | G1 1/2 | 35 |
| 52 009-342 | 40 | G2 | 42 |
| 52 009-354 | 50 | G2 1/2 | 54 |

Compression connection

Max 100°C

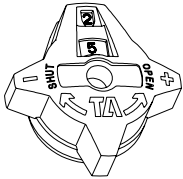


| TA No | Valve DN | D | Pipe Ø |
|------------|----------|------|--------|
| 53 319-208 | 10 | G1/2 | 8 |
| 53 319-210 | 10 | G1/2 | 10 |
| 53 319-212 | 10 | G1/2 | 12 |
| 53 319-215 | 10 | G1/2 | 15 |
| 53 319-216 | 10 | G1/2 | 16 |
| 53 319-615 | 15 | G3/4 | 15 |
| 53 319-618 | 15 | G3/4 | 18 |
| 53 319-622 | 15 | G3/4 | 22 |
| 53 319-922 | 20 | G1 | 22 |
| 53 319-928 | 20 | G1 | 28 |

Support bushes shall be used, for more information see catalogue leaflet FPL.

Handwheel

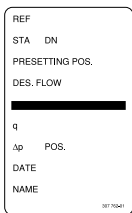
Complete



| TA No |
|------------|
| 52 186-003 |

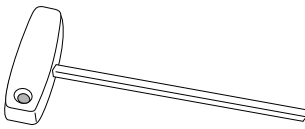
Identification tag

Incl 1 pc per valve



| TA No |
|------------|
| 52 161-990 |

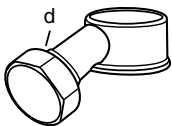
Allen key



| TA No | | |
|------------|------|-------------|
| 52 187-103 | 3 mm | Pre-setting |
| 52 187-105 | 5 mm | Draining |

Draining kit

Can be installed during operation

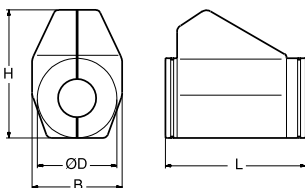


| TA No | d |
|------------|------|
| 52 179-990 | G1/2 |
| 52 179-996 | G3/4 |

Insulation

For heating/cooling

See catalogue leaflet Prefab insulations for complete details.



| TA No | For DN | L | H | D | B |
|------------|------------|-----|-----|-----|-----|
| 52 189-615 | 10, 15, 20 | 155 | 135 | 90 | 103 |
| 52 189-625 | 25 | 175 | 142 | 94 | 103 |
| 52 189-632 | 32 | 195 | 156 | 106 | 103 |
| 52 189-640 | 40 | 214 | 169 | 108 | 113 |
| 52 189-650 | 50 | 245 | 178 | 108 | 114 |

MEASURING POINTS

Measuring points are self-sealed. Remove the cap and insert the probe through the seal.

DRAINING

Valves with draining for G $\frac{1}{2}$ or G $\frac{3}{4}$ hose connection.

Valves without draining have a sleeve. This sleeve can temporarily be removed and a draining kit is fitted, which is available as an accessory.

SETTING

Setting of a valve for a particular pressure drop, e.g. corresponding to 2.3 turns on the graph, is carried out as follows:

1. Close the valve fully (Fig. 1).
2. Open the valve 2.3 turns (Fig. 2).
3. Using a 3 mm Allen key, turn the inner spindle clockwise until stop.
4. The valve is now set.

To check the setting: Close the valve, the indicator shows 0.0. Open it to the stop position. The indicator then shows the set value, in this case 2.3 (Fig. 2).

Diagrams showing the pressure drop for each valve size at different settings and flow rates are available to help determine the correct valve size and pre-setting (pressure drop).

Four turns corresponds to fully opened valve (Fig. 3). Opening it further will not increase the capacity.

Fig. 1

Valve closed



Fig. 2

The valve is set at 2.3



Fig. 3

Fully open valve



MEASURING ACCURACY

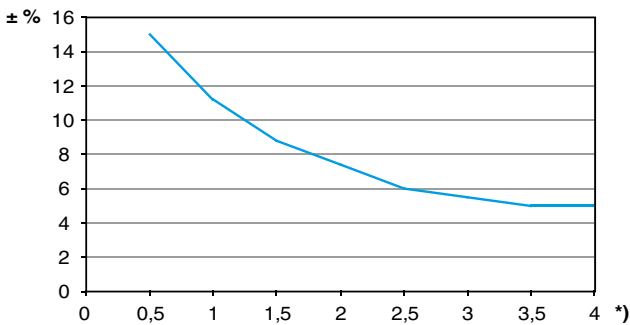
The zero position is calibrated and must not be changed.

Deviation of flow at different settings

The curve (Fig. 4) is valid for valves with normal pipe fittings (Fig. 5). Try also to avoid mounting taps and pumps, immediately before the valve.

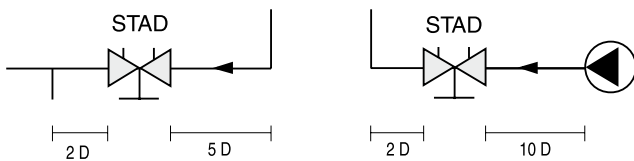
The valve can be installed with the opposite flow direction. The specified flow details also are valid for this direction although tolerances can be greater (maximum 5% more).

Fig. 4



*) Setting, No. of turns.

Fig. 5



CORRECTION FACTORS

The flow calculations are valid for water (+20°C). For other liquids with approx. the same viscosity as water ($\leq 20 \text{ cSt} = 3 \cdot 10^{-3} \text{ Pa}\cdot\text{s}$), it is only necessary to compensate for the specific density. However, at low temperatures, the viscosity increases and laminar flow may occur in the valves. This causes a flow deviation that increases with small valves, low settings and low differential pressures. Correction for this deviation can be made with the software TA Select or direct in TA-CBI.

SIZING

When Δp and the design flow are known, use the formula to calculate the Kv-value or use the diagram.

$$K_v = 0,01 \frac{q}{\sqrt{\Delta p}} \quad q \text{ l/h, } \Delta p \text{ kPa}$$

$$K_v = 36 \frac{q}{\sqrt{\Delta p}} \quad q \text{ l/s, } \Delta p \text{ kPa}$$

KV VALUES

| Turns | DN 10/09 | DN 15/14 | DN 20 | DN 25 | DN 32 | DN 40 | DN 50 |
|-------|----------|----------|-------|-------|-------|-------|-------|
| 0.5 | - | 0.127 | 0.511 | 0.60 | 1.14 | 1.75 | 2.56 |
| 1 | 0.090 | 0.212 | 0.757 | 1.03 | 1.90 | 3.30 | 4.20 |
| 1.5 | 0.137 | 0.314 | 1.19 | 2.10 | 3.10 | 4.60 | 7.20 |
| 2 | 0.260 | 0.571 | 1.90 | 3.62 | 4.66 | 6.10 | 11.7 |
| 2.5 | 0.480 | 0.877 | 2.80 | 5.30 | 7.10 | 8.80 | 16.2 |
| 3 | 0.826 | 1.38 | 3.87 | 6.90 | 9.50 | 12.6 | 21.5 |
| 3.5 | 1.26 | 1.98 | 4.75 | 8.00 | 11.8 | 16.0 | 26.5 |
| 4 | 1.47 | 2.52 | 5.70 | 8.70 | 14.2 | 19.2 | 33.0 |

DIAGRAM EXAMPLE

Wanted:

Presetting for DN 25 at a desired flow rate of 1,6 m³/h and a pressure drop of 10 kPa.

Solution:

Draw a straight line joining 1,6 m³/h and 10 kPa. This gives Kv=5. Now draw a horizontal line from Kv=5. This intersects the bar for DN 25 which gives 2,35 turns.

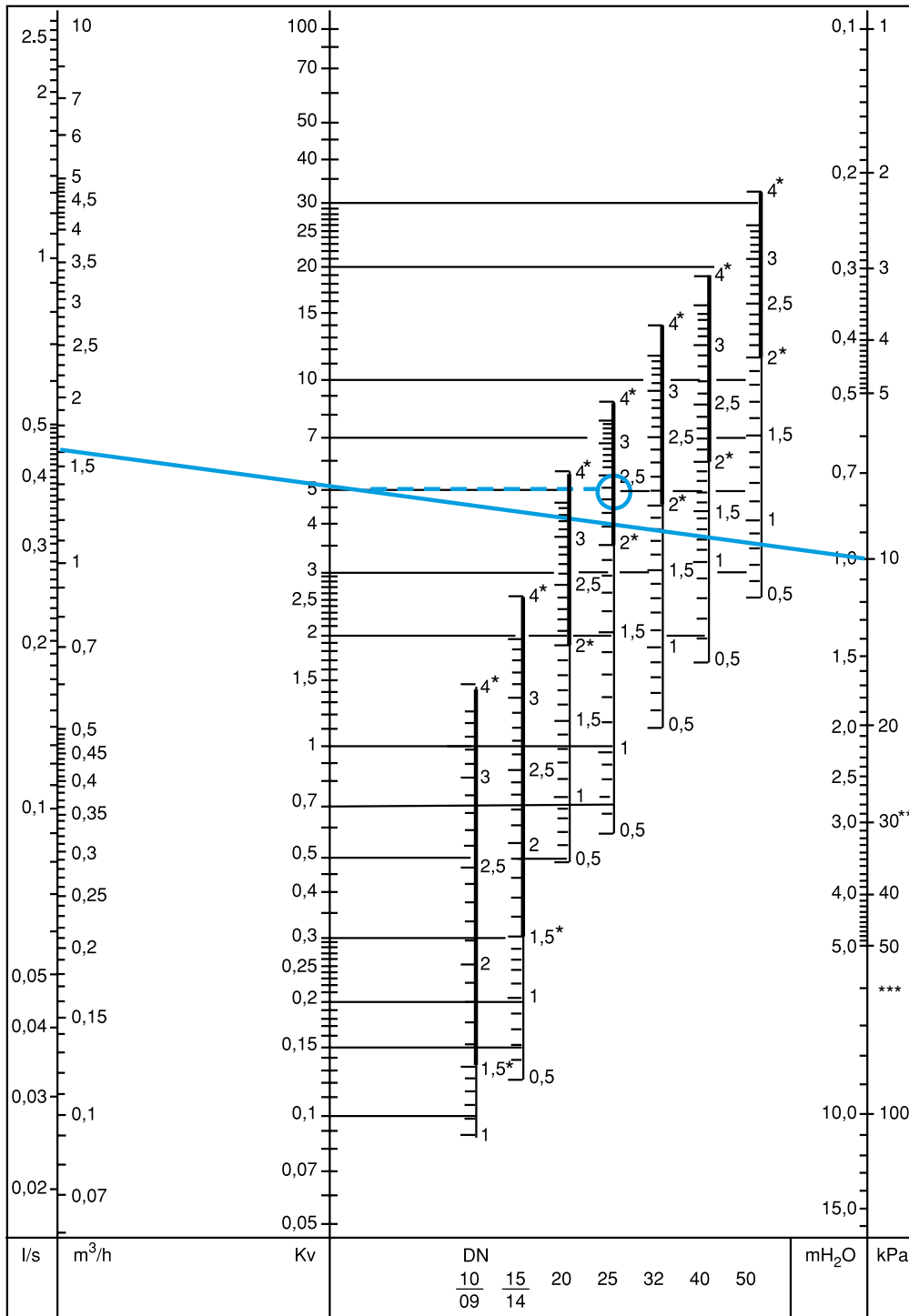
NOTE:

If the flow rate is out of the scale in the diagram, the reading can be made as follows:

Starting with the example above, we get 10 kPa, Kv=5 and flow-rate 1.6 m³/h.

At 10 kPa and Kv=0,5 we get the flow-rate 0,16 m³/h, and at Kv=50, we get 16 m³/h. That is, for a given pressure drop, it is possible to read 10 times or 0.1 times the flow and Kv-values.

DIAGRAM



*) Recommended area

**) 25 db (A)

***) 35 db (A)

Tour & Andersson retains the right to make changes to its products and specifications without prior notice.

5-5-10 STAD 2008.04

