

BALANCING VALVES



BALANCING VALVE - PN 25 - DUCTILE IRON

A grooved end, ductile iron balancing valve that delivers accurate hydronic performance in an impressive range of applications. STAG is ideal for use mainly on the secondary side in heating and cooling systems.



HANDWHEEL

Equipped with a digital read-out, the handwheel ensures accurate and straightforward balancing.



SELF-SEALING MEASURING POINTS

For simple, accurate balancing.



POSITIVE SHUT-OFF FUNCTION

For easy maintenance.

TECHNICAL DESCRIPTION

Applications:

Heating and cooling systems

Functions:

Balancing
Pre-setting
Measuring
Shut-off (The balancing cone is pressure released).

Dimensions:

DN 65-300

Pressure class:

PN 25

Temperature:

Max. working temperature: 120°C
For higher temperatures (max. 150°C), please contact the nearest sales office.
Min. working temperature: -20°C

Material:

Body: Ductile iron EN-GJS-400-15.
DN 65-150: Bonnet, restriction cone and spindle of AMETAL®.
DN 200-300: Bonnet of ductile iron, cone of Bronze and spindle of AMETAL®.
Seat seal: Cone with EPDM ring.
Bonnet bolts: Chromed steel.
Handwheel: DN 65-150 polyamide, DN 200-300 aluminium.

AMETAL® is the dezincification resistant alloy of TA.

Surface treatment:

DN 65-200: Epoxy painting.
DN 250-300: Duasolid painting.

Marking:

Body: TA, Class 150, inch size, flow direction arrow, material and casting date (year, month, day).
CE-marking according to table:

Marking	STAG
CE	DN 65-125
CE 0409*	DN 150-300

*) Notified body.

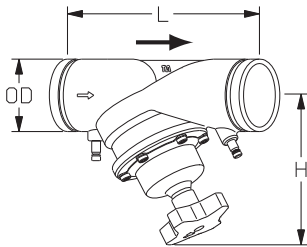
Face to face length:

ISO 5752 series 1, BS 2080 and EN 558-1 series 1.



Bolted bonnet

Measuring points on body



PN 25, ISO 4200

TA No	DN	D	L	H	Kvs	Kg
52 183-073	65-2	73.0	290	205	85	6.4
52 183-076	65-2	76.1	290	205	85	6.4
52 183-089	80	88.9	310	220	120	9.1
52 183-114	100	114.3	350	240	190	14
52 183-140	125	139.7	400	275	300	22.7
52 183-141	125	141.3	400	275	300	22.7
52 183-165 ¹⁾	150	165.1	480	285	420	31.3
52 183-168	150	168.3	480	285	420	31.3
52 183-219	200	219.1	600	430	765	63.5
52 183-273	250	273	730	420	1185	92
52 183-324	300	323.9	850	480	1450	127

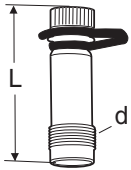
1) Not conforming to ISO 4200.

→ = Flow direction

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

ACCESSORIES

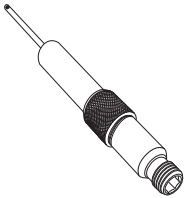
Measuring points



TA No	d	L
DN 65 -		
52 179-008	3/8	47
52 179-608	3/8	103

Measuring point

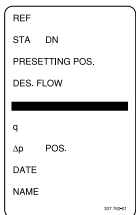
Extensions 60 mm (not for 52 179-000/-601).
Can be installed without draining of the system.



TA No
52 179-006

Identification tag

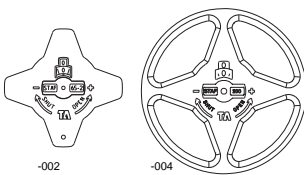
Incl 1 pc per valve



TA No
52 161-990

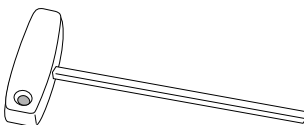
Handwheel

Complete



TA No	DN
52 186-002	65 - 150
52 186-004	200 -

Allen key



TA No		For DN
52 187-105	5 mm	65 - 150
-	8 mm	200 -

MEASURING POINTS

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

SETTING

It is possible to read the set value on the handwheel.

The number of turns between the fully open and closed positions is:

- 8 turns for DN 65-150,
- 12 turns for DN 200-250 and
- 16 turns for DN 300.

Initial 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 to 2.3 turns (Fig. 2).
3. Using an Allen key, turn the inner spindle clockwise until the stop position.
4. The valve is now set.

To check the setting of a valve, first close the valve, then open it to the stop position; the indicator then shows the presetting number, in this case 2.3 (Fig. 2).

Example DN 65

Fig. 1 Valve closed

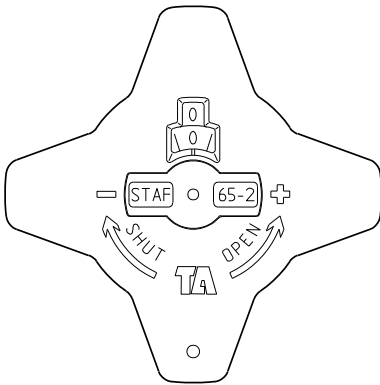
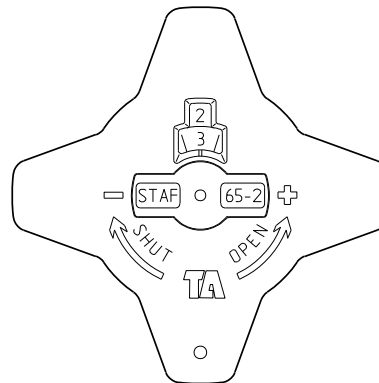


Fig. 2 The valve is set at 2.3



Example DN 200

Fig. 1 Valve closed

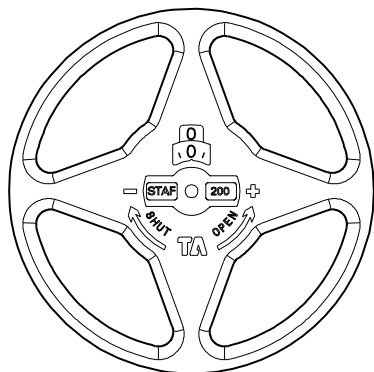
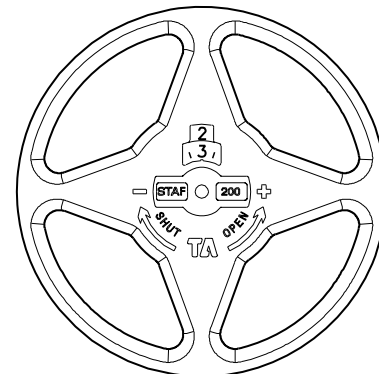


Fig. 2 The valve is set at 2.3



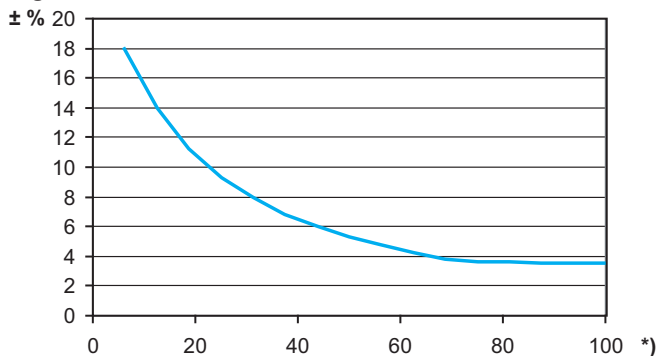
MEASURING ACCURACY

The handwheel zero position is calibrated and must not be changed.

Deviation of flow at different settings

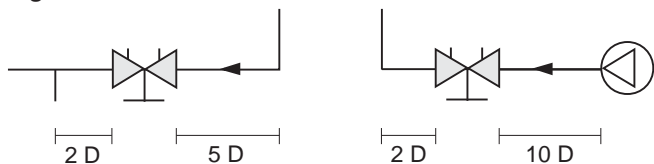
The curve (Fig. 3) holds for valves with the correct flow direction, straight pipe distances (Fig. 4) and normal pipe fittings.

Fig. 3



*) Setting (%) of fully open valve.

Fig. 4



CORRECTION FACTORS

The flow calculations are valid for water (+20°C). For other liquids with approximately the same viscosity as water (≤ 20 cSt = $3^\circ\text{E}=100\text{S.U.}$), 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 directly 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 65-2	DN 80	DN 100	DN 125	DN 150	DN 200	DN 250	DN 300
0.5	1,8	2	2,5	5,5	6,5	-	-	-
1	3,4	4	6	10,5	12	-	-	-
1.5	4,9	6	9	15,5	22	-	-	-
2	6,5	8	11,5	21,5	40	40	90	-
2.5	9,3	11	16	27	65	50	110	-
3	16,3	14	26	36	100	65	140	150
3.5	25,6	19,5	44	55	135	90	195	230
4	35,3	29	63	83	169	120	255	300
4.5	44,5	41	80	114	207	165	320	370
5	52	55	98	141	242	225	385	450
5.5	60,5	68	115	167	279	285	445	535
6	68	80	132	197	312	340	500	620
6.5	73	92	145	220	340	400	545	690
7	77	103	159	249	367	435	590	750
7.5	80,5	113	175	276	391	470	660	815
8	85	120	190	300	420	515	725	890
9	-	-	-	-	-	595	820	970
10	-	-	-	-	-	650	940	1040
11	-	-	-	-	-	710	1050	1120
12	-	-	-	-	-	765	1185	1200
13	-	-	-	-	-	-	-	1320
14	-	-	-	-	-	-	-	1370
15	-	-	-	-	-	-	-	1400
16	-	-	-	-	-	-	-	1450

DIAGRAM EXAMPLE

Wanted:

Presetting for DN 65 at a desired flow rate of 26 m³/h and a pressure drop of 25 kPa.

Solution:

Draw a straight line joining 26 m³/h and 25 kPa. This gives Kv=52.

Now draw a horizontal line from Kv=52.

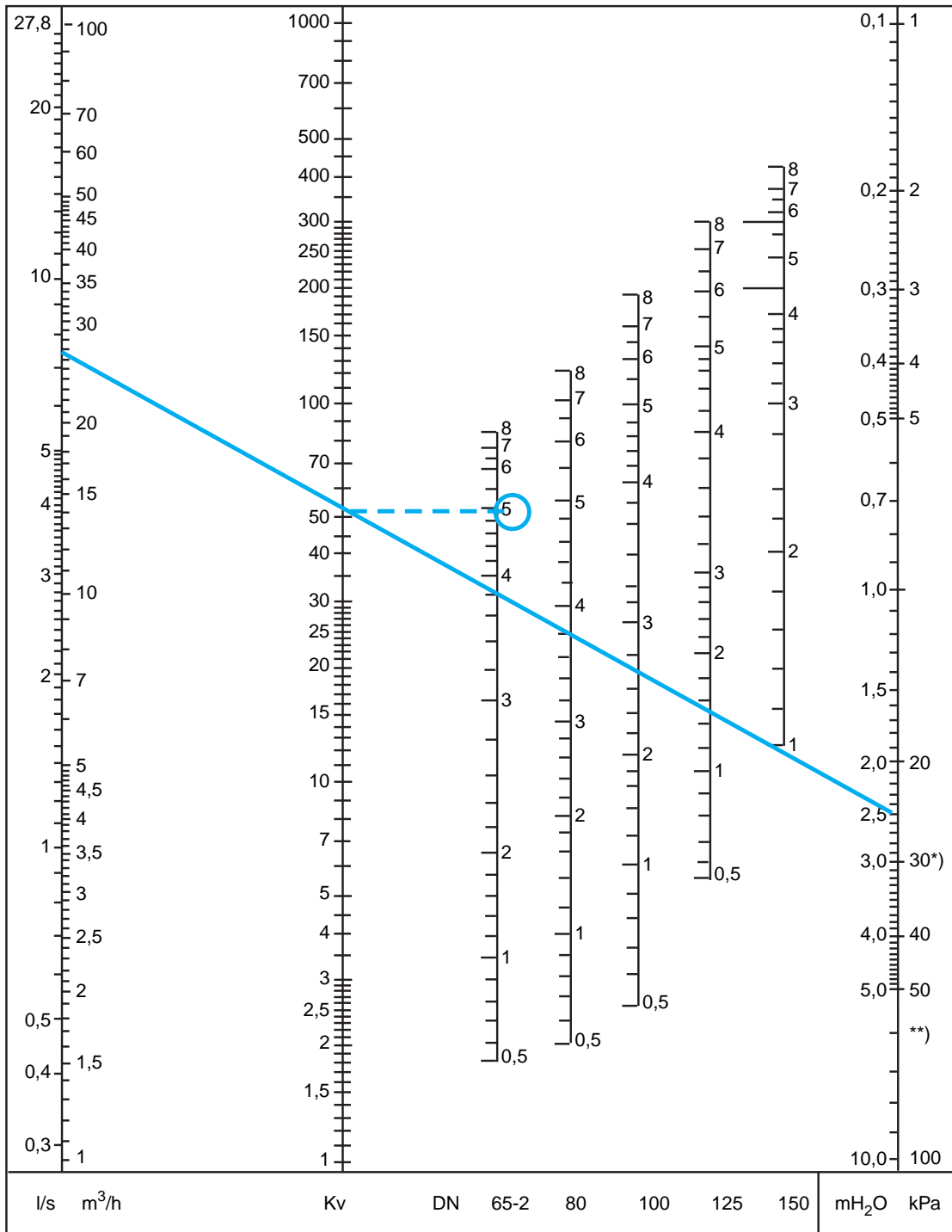
This intersects the bar for DN 65 at the desired presetting of 5 turns.

NOTE:

If the flow rate falls outside the scale in the diagram, the reading can be made as follows:

Starting with the example above, we get 25 kPa, Kv = 52 and flowrate 26 m³/h. At 25 kPa and Kv = 5.2 we get the flow-rate 2,6 m³/h, and at Kv = 520, we get 260 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 DN 65-150

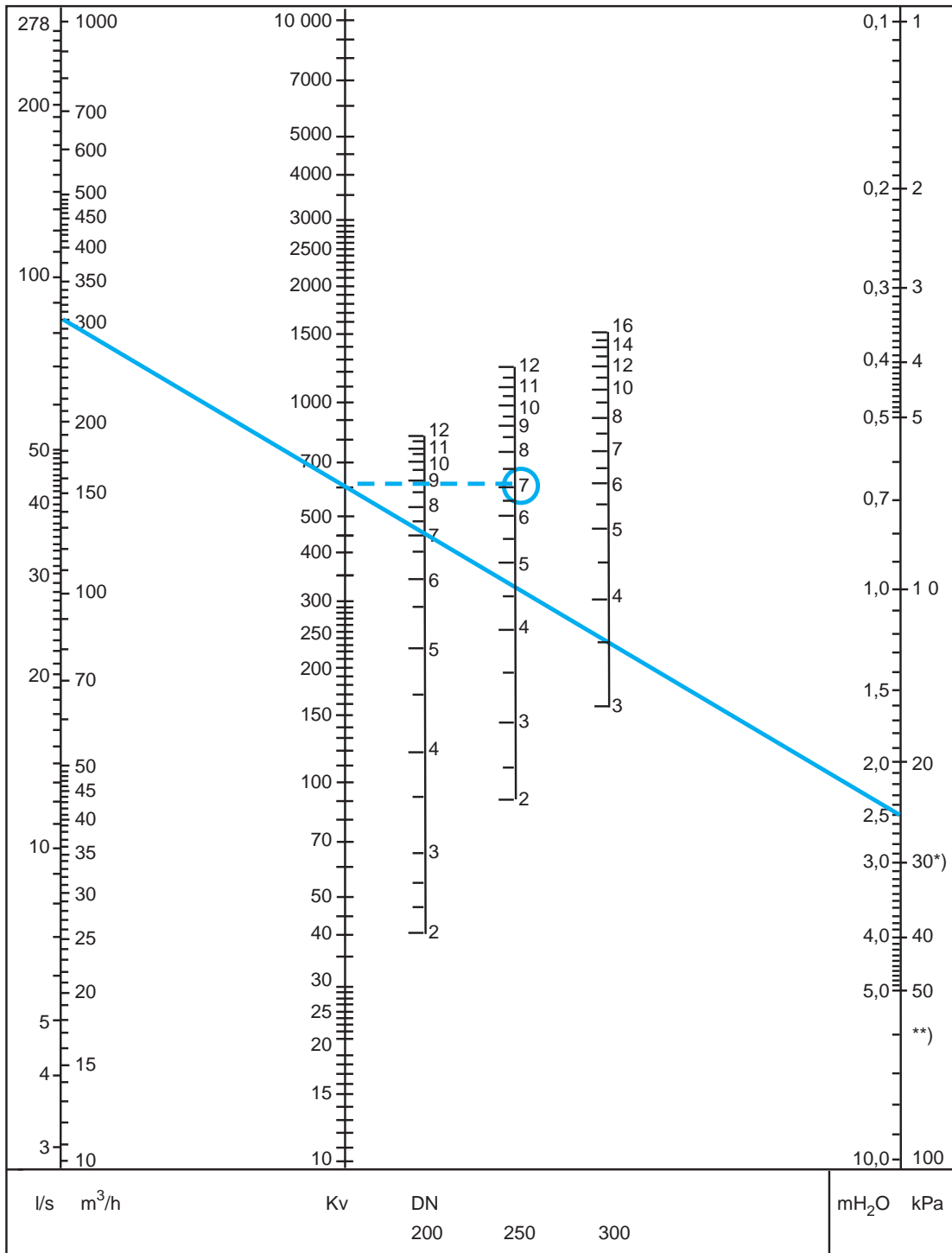


*) 25 db (A)

**) 35 db (A)

Recommended area: See Fig. 3 under "Measuring accuracy".

DIAGRAM DN 200-300



*) 25 db (A)
 **) 35 db (A)

Recommended area: See Fig. 3 under "Measuring accuracy".

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