STAG

Balancing valves
Balancing valve with grooved ends –
DN 65-300

STAG

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.

Key features

> **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:
Class 150

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

Media:
Water or neutral fluids, water-glycol mixtures (0-57%).

Material:
Body: Ductile iron EN-GJS-400-15.
DN 65-150: Bonnet, cone and spindle of AMETAL®.
DN 200-300: Bonnet and cone of ductile iron EN-GJS-400-15, spindle of AMETAL®.
Seals: EPDM.
Slip washer: PTFE.
Bonnet bolts: Surface treated steel.
Measuring points: AMETAL® and EPDM.
Handwheel: DN 65-150 polyamide, DN 200-300 aluminium.

AMETAL® is the dezincification resistant alloy of IMI Hydronic Engineering.

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:
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.

Measuring points

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

Sizing

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

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

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

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

Measuring accuracy

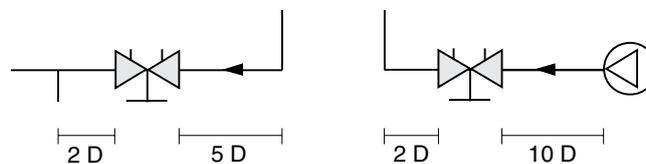The handwheel zero position is calibrated and must not be changed.

Deviation of flow at different settings
The curve holds for valves with the correct flow direction, straight pipe distances (Fig. 1) and normal pipe fittings.
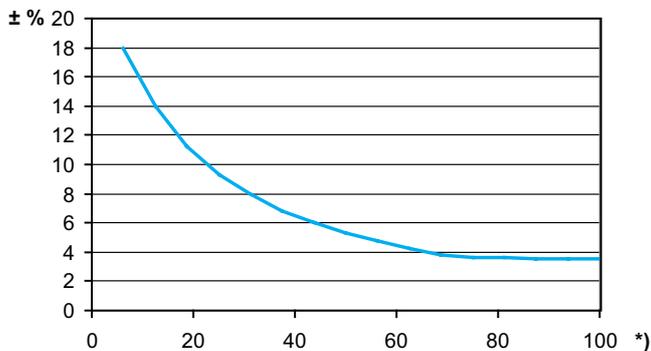
*) Setting (%) of fully open valve.

Fig. 1

D = Valve DN

Correction factors

The flow calculations are valid for water (+20°C). For other liquids with approximately the same viscosity as water (≤20 cSt = 3°E=100S.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 HySelect or directly in our balancing instruments.

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).
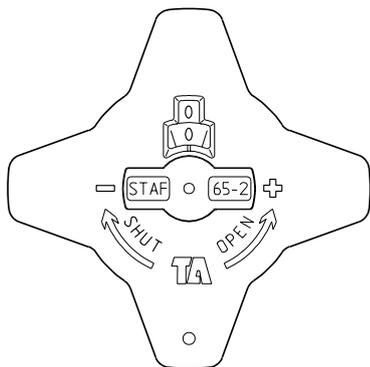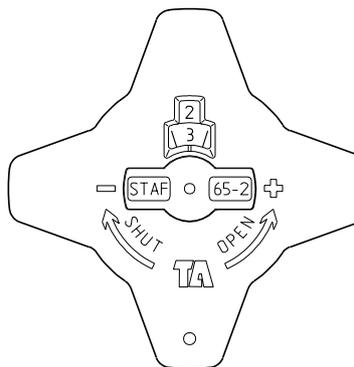
Example DN 65
Fig. 1 Valve closed

Fig. 2 The valve is set at 2.3

Example DN 200
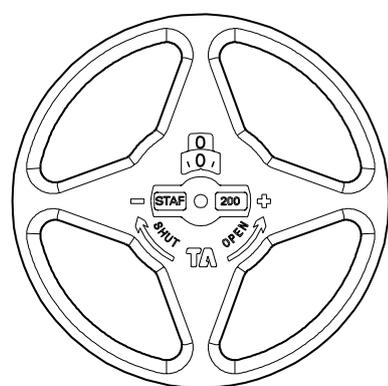**Fig. 1** Valve closed

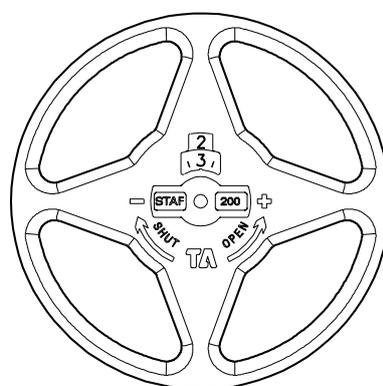**Fig. 2** The valve is set at 2.3

Diagram example

Wanted:
Presetting for DN 65 at a desired flow rate of 26 m^3/h and a pressure drop of 25 kPa.

Solution:
Draw a straight line joining 26 m^3/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 m^3/h. At 25 kPa and Kv = 5.2 we get the flow-rate 2,6 m^3/h, and at Kv = 520, we get 260 m^3/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
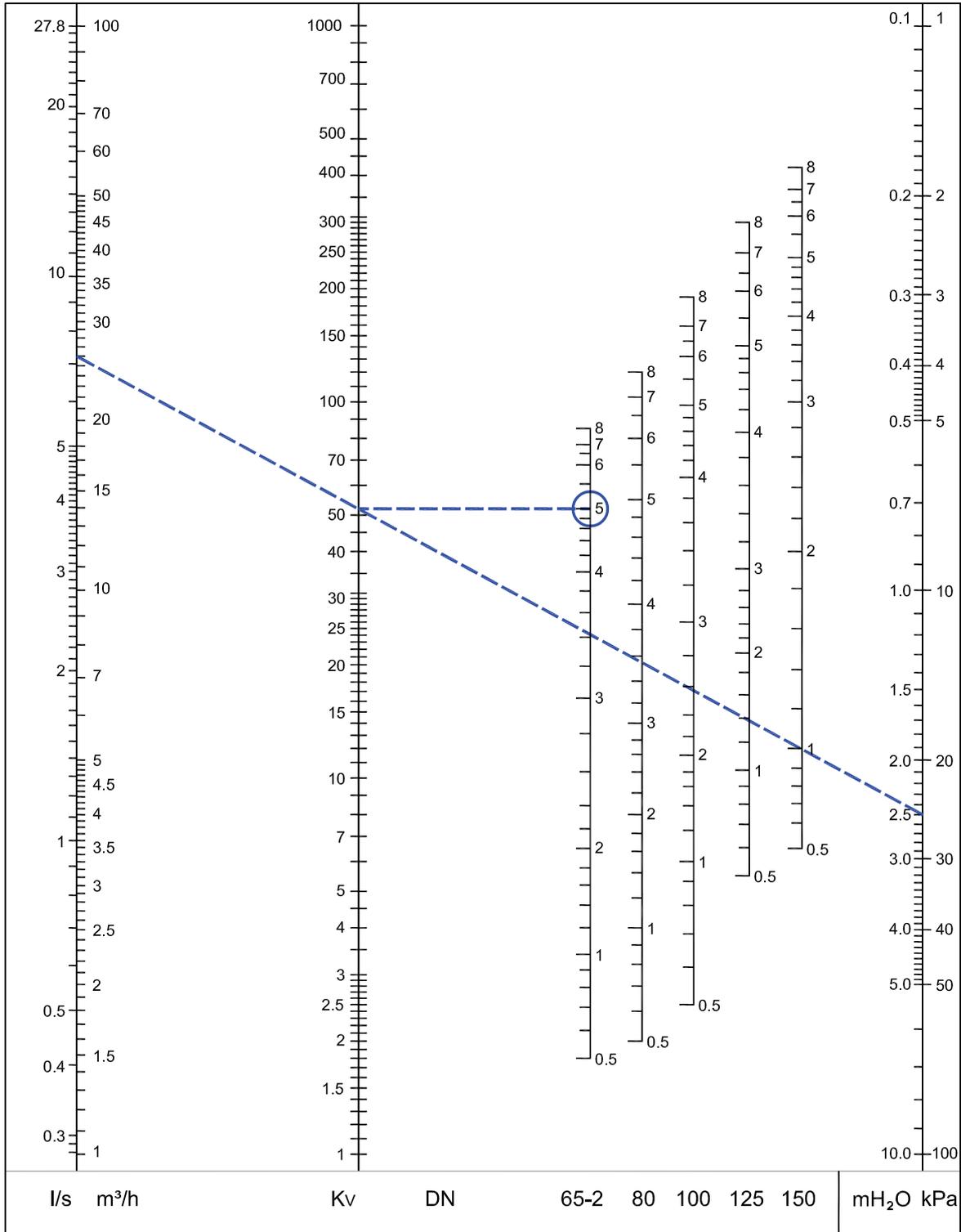
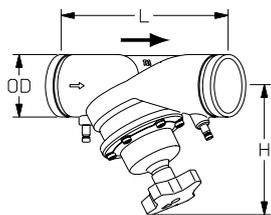

Recommended area: See Fig. 3 under "Measuring accuracy".

Diagram DN 200-300
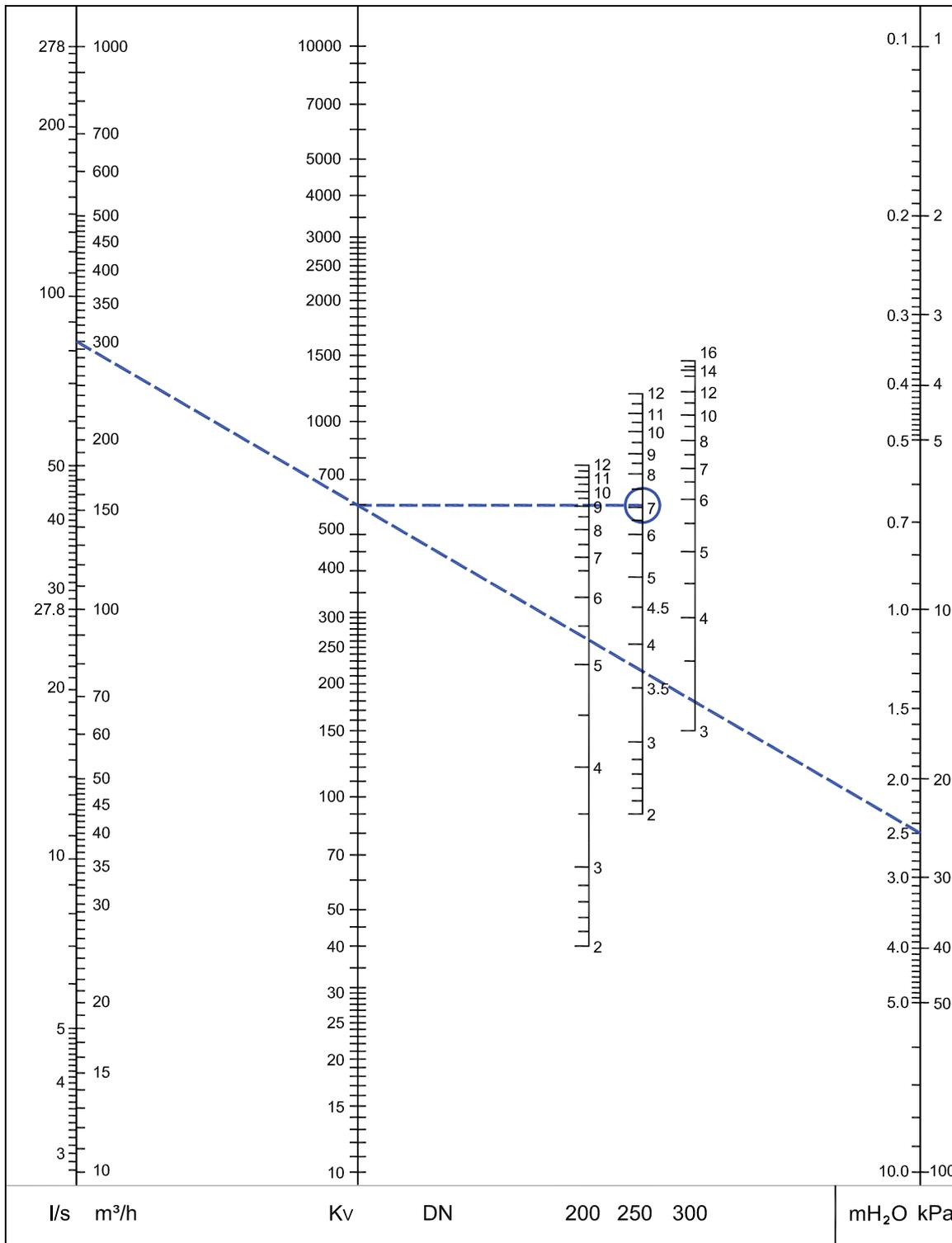
Recommended area: See Fig. 3 under "Measuring accuracy".

Articles

Bolted bonnet
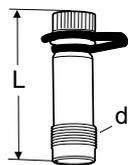Measuring points on body

Class 150, ISO 4200

DN	D	L	H	Kvs	Kg	EAN	Article No
65-2	73.0	290	205	85	6.4	7318792831904	52 183-073
65-2	76.1	290	205	85	6.4	7318792832000	52 183-076
80	88.9	310	220	120	9.1	7318792832109	52 183-089
100	114.3	350	240	190	14	7318792832208	52 183-114
125	139.7	400	275	300	22.7	7318792832307	52 183-140
125	141.3	400	275	300	22.7	7318792832406	52 183-141
150 [1]	165.1	480	285	420	31.3	7318792832505	52 183-165
150	168.3	480	285	420	31.3	7318792832604	52 183-168
200	219.1	600	430	765	63.5	7318792832703	52 183-219
250	273	730	420	1185	92	7318792832802	52 183-273
300	323.9	850	480	1450	127	7318792832901	52 183-324

1) Not conforming to ISO 4200.
→ = Flow direction

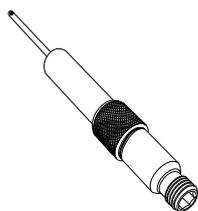Kvs = m³/h at a pressure drop of 1 bar and fully open valve.

Accessories

Measuring point
AMETAL®/EPDM

d	L	EAN	Article No
DN 65 – 300			
R3/8	45	7318792813009	52 179-008
R3/8	101	7318792814501	52 179-608

Measuring point, extension 60 mm
(not for 52 179-000/-601)
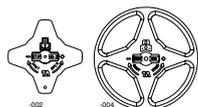Can be installed without draining of the system.
AMETAL®/Stainless steel/EPDM

L	EAN	Article No
60	7318792812804	52 179-006

Identification tag

	EAN	Article No
	7318792779206	52 161-990

Handwheel
Complete

DN	EAN	Article No
65 - 150	7318792834806	52 186-002
200 - 300	7318792835001	52 186-004

Allen key
For locking of setting.

[mm]	For DN	EAN	Article No
3	65 – 150	7318792836008	52 187-103
5	200 – 300	7318792836107	52 187-105