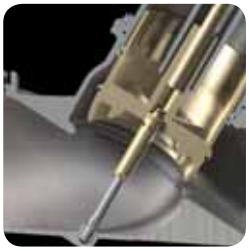
BALANCING VALVES

BALANCING VALVE – PN 16 (DN 65-150) – CAST IRON
A flanged, cast iron balancing valve that delivers accurate hydronic performance in an impressive range of applications. STAF 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 65-150

Pressure class:
PN 16

Temperature:
Max. working temperature: 120°C
For higher temperatures (max. 150°C), please contact the nearest sales office.
Min. working temperature: -10°C

Material:
Body: Cast iron EN-GJL-250 (GG 25).
Bonnet, restriction cone and spindle: AMETAL®.
Seat seal: Cone with EPDM ring.
Bonnet bolts: Chromed steel.
Handwheel: Polyamide.

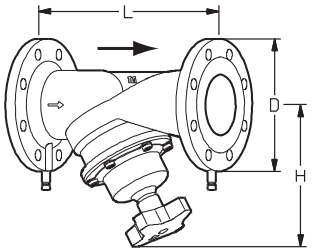
AMETAL® is the dezincification resistant alloy of TA.

Surface treatment:
Epoxy painting.

Marking:
Body: TA, PN, DN, CE, flow direction arrow, material and casting date (year, month, day).

Face to face length:
ISO 5752 series 1, BS 2080 and EN 558-1 series 1.

Bolted bonnet



PN 16, ISO 7005-2, EN 1092-2

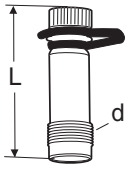
TA No	DN	Number of bolt holes	D	L	H	Kvs	Kg
52 181-065	65-2	4	185	290	205	85	12.4
52 181-080	80	8	200	310	220	120	15.9
52 181-090	100	8	220	350	240	190	22
52 181-091	125	8	250	400	275	300	32.7
52 181-092	150	8	285	480	285	420	42.4

→ = Flow direction

Kvs = m^3/h at a pressure drop of 1 bar and fully open valve.

ACCESSORIES

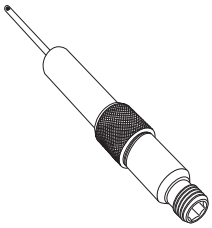
Measuring points



TA No	d	L
DN 65 -		
52 179-008	3/8	39
52 179-608	3/8	103

Measuring point

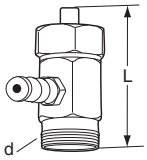
Extensions 60 mm (not for 52 179-000/-601).
Can be installed without draining of the system.



TA No
52 179-006

Measuring point

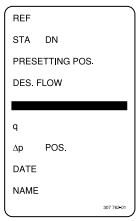
max 150°C
+ older STAD and STAF



TA No	d	L
DN 65 -		
52 179-007	R3/8	30
52 179-607	R3/8	90

Identification tag

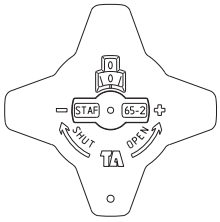
Incl 1 pc per valve



TA No
52 161-990

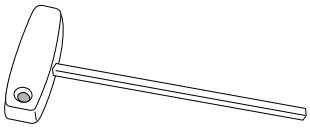
Handwheel

Complete



TA No	DN
52 186-002	65 - 150

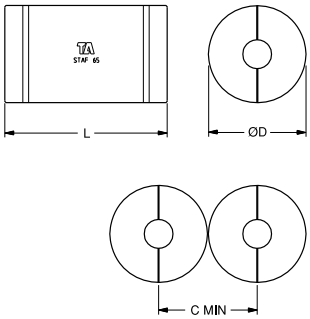
Allen key



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

Insulation

For heating/cooling
See catalogue leaflet Prefab insulations for complete details.



TA No	For DN	L	D	C
52 189-865	65	450	270	272
52 189-880	80	480	290	292
52 189-890	100	520	320	322
52 189-891	125	570	350	352
52 189-892	150	660	380	382

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.

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 a Allen key, turn the inner spindle clockwise until stop.
4. The valve is 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).

Fig. 1 Valve closed

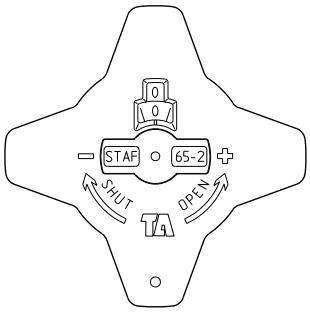
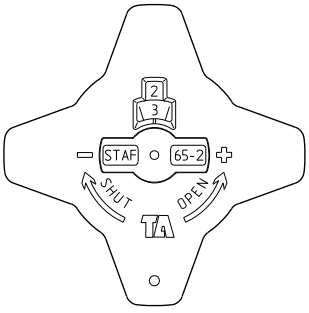


Fig. 2 The valve is set at 2.3



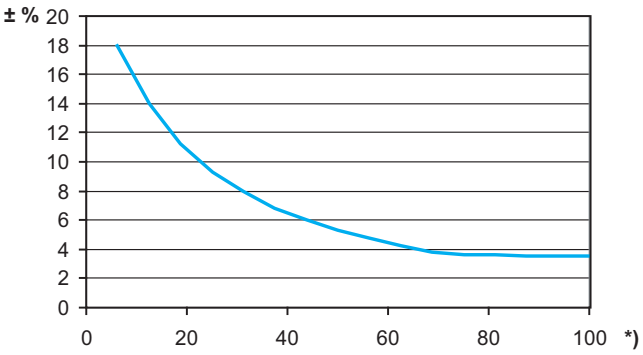
MEASURING ACCURACY

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

Deviation of flow at different settings

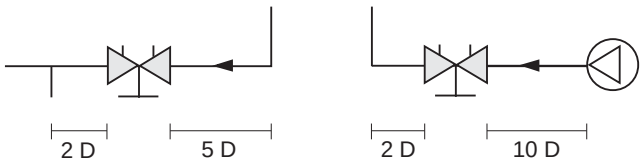
The curve (Fig. 3) holds for valves with the correct flow direction, straight pipe distances (Fig. 4) and normal pipe fittings.

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°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 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.

$$Kv = 0.01 \frac{q}{\sqrt{\Delta p}} \qquad q\ \text{l/h},\ \Delta p\ \text{kPa}$$

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

KV VALUES

Turns	DN 65-2	DN 80	DN 100	DN 125	DN 150
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
2.5	9,3	11	16	27	65
3	16,3	14	26	36	100
3.5	25,6	19,5	44	55	135
4	35,3	29	63	83	169
4.5	44,5	41	80	114	207
5	52	55	98	141	242
5.5	60,5	68	115	167	279
6	68	80	132	197	312
6.5	73	92	145	220	340
7	77	103	159	249	367
7.5	80,5	113	175	276	391
8	85	120	190	300	420

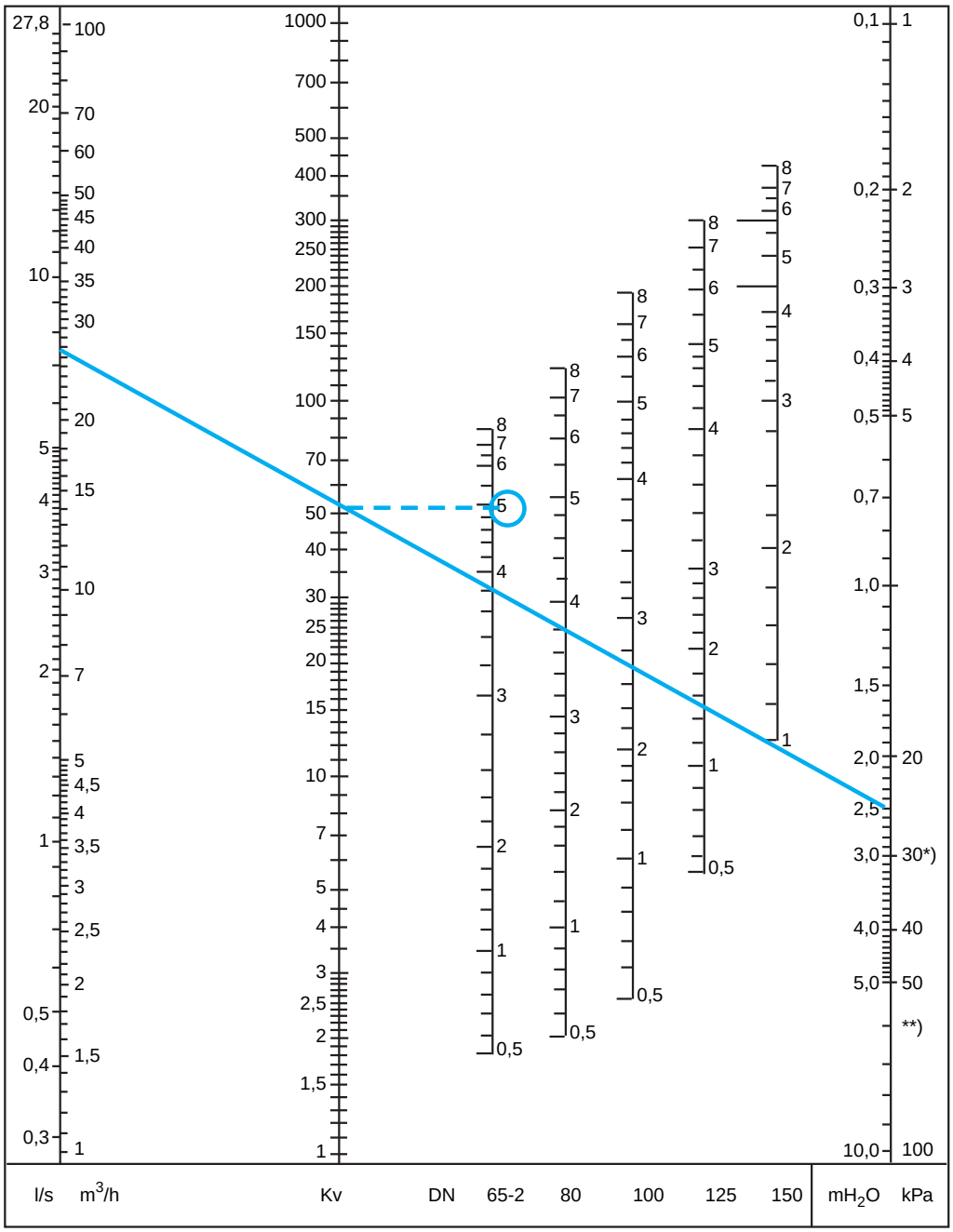
DIAGRAM EXAMPLE

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



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

Recommended area: See Fig. 3 under “Measuring accuracy”.

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