Climate
Control

IMI Pneumatex

STAD – NPT threads

Balancing valves
DN 10-50, PN 25

Breakthrough
engineering for
a better world

STAD – NPT threads

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.

Key features

High accuracy for all settings
Ensure accurate balancing and flow reading.

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®
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 (depending on valve type)

Dimensions:
DN 15-50

Pressure class:
PN 25

Temperature:
Max. working temperature: 120°C (intermittent 150°C)
Min. working temperature: -20°C

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

Material:
Valve body and bonnet: AMETAL®
Sealing (body/bonnet): EPDM O-ring
Valve plug: AMETAL®
Seat seal: EPDM O-ring
Spindle: AMETAL®
Slip washer: PTFE
Spindle seal: EPDM O-ring
Spring: Stainless steel
Handwheel: Polyamide and TPE

Measuring points: AMETAL®
Sealings: EPDM
Caps: Polyamide and TPE

Draining: AMETAL®
Sealing: EPDM
Gaskets: Fiber-based aramid

AMETAL® is the dezincification resistant alloy of IMI.

Marking:
Body: IMI, TA, PN 25/400 WWP, DN and inch size. DN 50 also CE.
Handwheel: TA, STAD* and DN.

Connection:
Internal thread NPT according to ANSI/ASME B1.20.1-1983.

Measuring points

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

Draining

Valves with draining for UNS 1 1/16” x 11.5 hose connection.

Sizing

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

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

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

Kv values

Turns	DN 15	DN 20	DN 25	DN 32	DN 40	DN 50
0.5	0.136	0.533	0.599	1.19	1.89	2.62
1	0.226	0.781	1.03	2.09	3.40	4.10
1.5	0.347	1.22	2.13	3.36	4.74	6.76
2	0.618	1.95	3.64	5.22	6.25	11.4
2.5	0.931	2.71	5.26	7.77	9.16	15.8
3	1.46	3.71	6.65	9.82	12.8	21.5
3.5	2.07	4.51	7.79	11.9	16.2	27.0
4	2.56	5.39	8.59	14.2	19.3	32.3

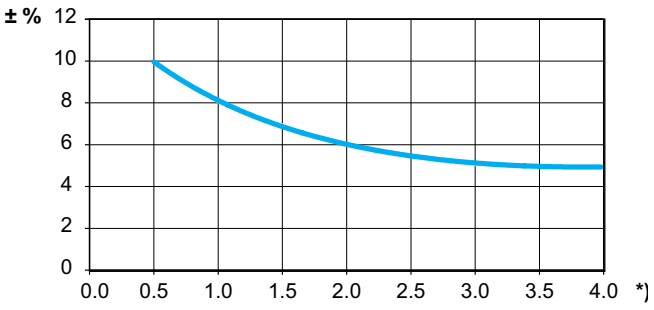
NOTE: In softwares (HySelect, HyTools) and balancing instrument (TA-SCOPE) the STAD, PN 25 version, is named STAD*.

Measuring accuracy

The zero position is calibrated and must not be changed.

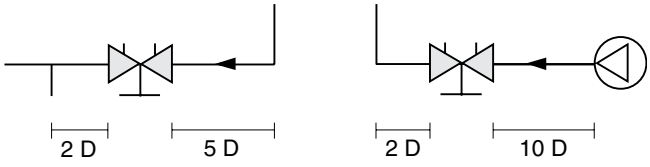
Deviation of flow at different settings
The curve (Fig. 1) is valid for valves with normal pipe fittings (Fig. 2). Try also to avoid mounting taps and pumps, immediately before the valve.
The valve can be installed with the opposite flow direction. The specified flow details are also valid for this direction although tolerances can be greater (maximum 5% more).

Fig. 1



*) Setting, No. of turns.

Fig. 2



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

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

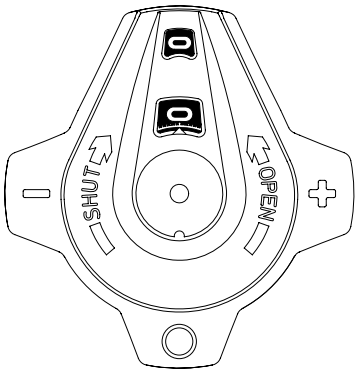


Fig. 2
The valve is set at 2.3

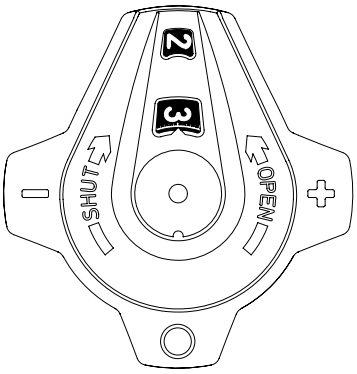


Fig. 3
Fully open valve

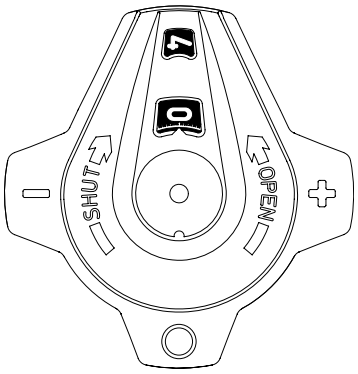


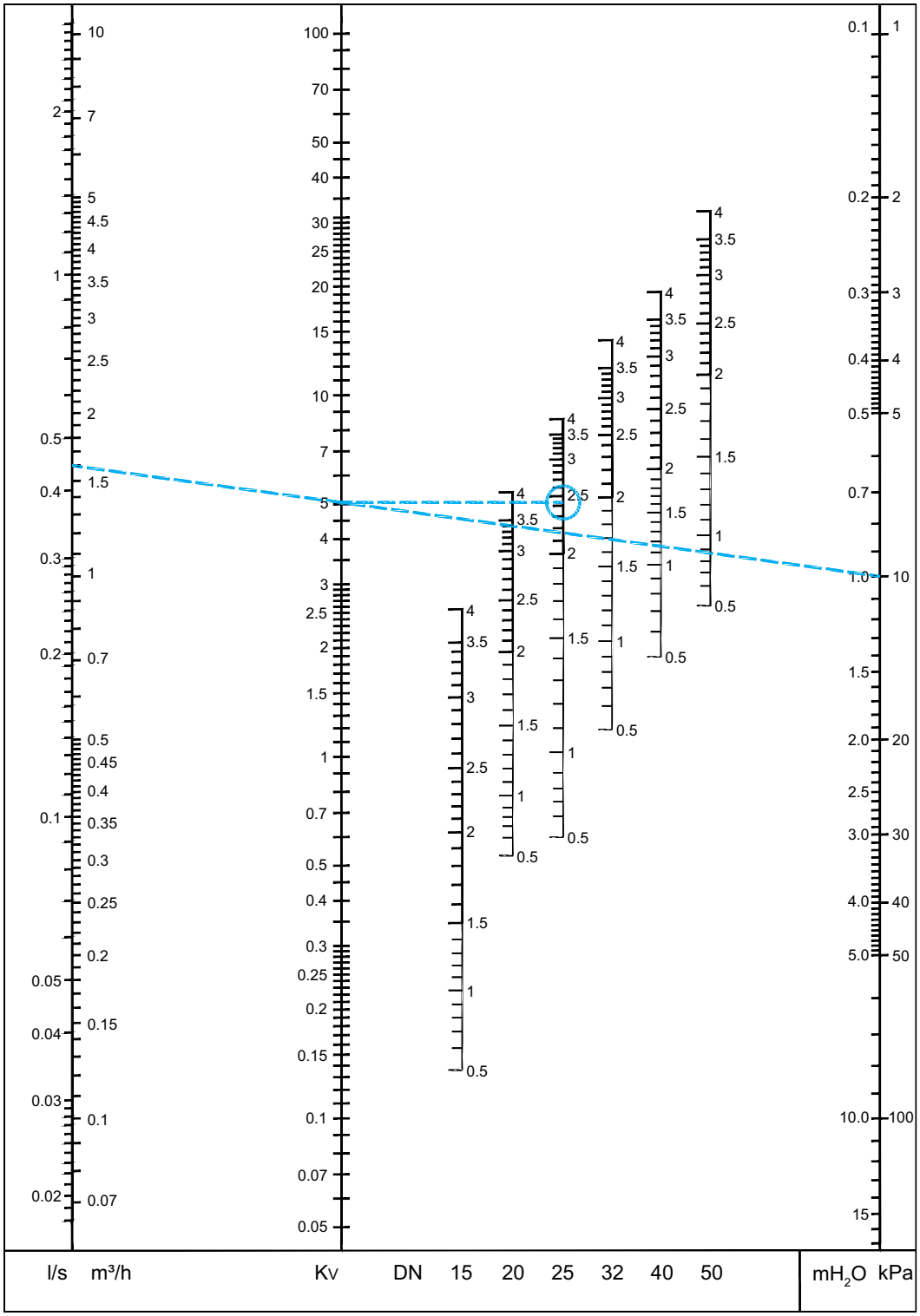
Diagram example

Wanted:
Presetting for DN 25 at a desired flow rate of 1,6 m^3/h and a pressure drop of 10 kPa.

Solution:
Draw a straight line joining 1,6 m^3/h and 10 kPa. This gives Kv=5,06. Now draw a horizontal line from Kv=5,06.
This intersects the bar for DN 25 which gives 2,35 turns.

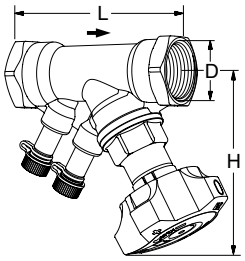
NOTE:
If the flow rate is out of the scale in the diagram, the reading can be made as follows:
Starting with the example above, we get 10 kPa, Kv=5.06 and flow-rate 1.6 m^3/h.
At 10 kPa and Kv=0.506 we get the flow-rate 0.16 m^3/h, and at Kv=50.6, we get 16 m^3/h. That is, for a given pressure drop, it is possible to read 10 times or 0.1 times the flow and Kv-values.

Diagram



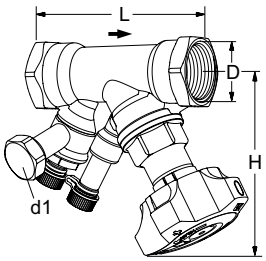
NOTE: In softwares (HySelect, HyTools) and balancing instrument (TA-SCOPE) the STAD, PN 25 version, is named STAD*.

Articles



Without drain
Internal threads NPT.
Thread according to ANSI/ASME B1.20.1-1983.

DN	(size)	D	L	H	Kvs	EAN	Article No
15	1/2”	1/2 NPT	84	100	2.56	5902276835483	52 851-515
20	3/4”	3/4 NPT	94	100	5.39	5902276835490	52 851-520
25	1”	1 NPT	105	105	8.59	5902276835506	52 851-525
32	1 1/4”	1 1/4 NPT	121	110	14.2	5902276835513	52 851-532
40	1 1/2”	1 1/2 NPT	126	120	19.3	5902276835520	52 851-540
50	2”	2 NPT	155	120	32.3	5902276835537	52 851-550



With drain
Internal threads NPT.
Thread according to ANSI/ASME B1.20.1-1983.

DN	(size)	D	L	H	Kvs	Kg	EAN	Article No
d1 = UNS 1 1/16” x 11.5								
15*	1/2”	1/2 NPT	84	100	2.56	0,56	5902276835544	52 851-715
20*	3/4”	3/4 NPT	94	100	5.39	0,64	5902276835551	52 851-720
25	1”	1 NPT	105	105	8.59	0,77	5902276835568	52 851-725
32	1 1/4”	1 1/4 NPT	121	110	14.2	1,1	5902276835575	52 851-732
40	1 1/2”	1 1/2 NPT	126	120	19.3	1,5	5902276835582	52 851-740
50	2”	2 NPT	155	120	32.3	2,1	5902276835599	52 851-750

→ = Flow direction

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

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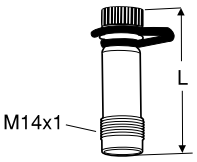
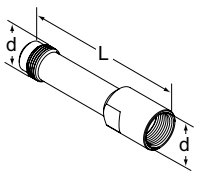
Accessories



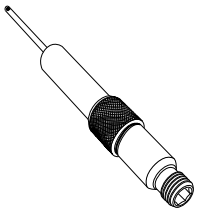
Measuring point
Max 120°C (intermittent 150°C)
AMETAL®/EPDM

L	EAN	Article No
44	7318792813207	52 179-014
103	7318793858108	52 179-015



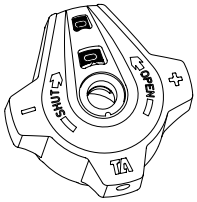
Extension for measuring point M14x1
Suitable when insulation is used.
AMETAL®

d	L	EAN	Article No
M14x1	71	7318793969507	52 179-016



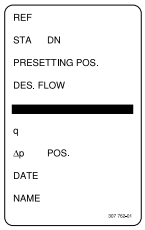
Measuring point, extension 60 mm
Can be installed without draining of the system.
AMETAL®/Stainless steel/EPDM

L	EAN	Article No
60	7318792812804	52 179-006



Handwheel
Complete

EAN	Article No
7318794043503	52 186-007

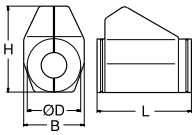


Identification tag

EAN	Article No
7318792779206	52 161-990

Allen key

[mm]		EAN	Article No
3	Pre-setting	7318792836008	52 187-103
5	Draining	7318792836107	52 187-105



Insulation
For heating/cooling
Material: EPP
Fire class: B2 (DIN 4102)
Max working temperature: 120°C (intermittent 140°C)
Min working temperature: 12°C, -8°C at sealed joints.

For DN	L	H	D	B	EAN	Article No
10-20	155	135	90	103	7318792839108	52 189-615
25	175	142	94	103	7318792839306	52 189-625
32	195	156	106	103	7318792839504	52 189-632
40	214	169	108	113	7318792839702	52 189-640
50	245	178	108	114	7318792839900	52 189-650