Climate
Control

IMI TA

STAD ZERO – NPT threads

Balancing valves

Size 1/2" - 2", made of lead-free brass
(less than 0.1% lead)

Breakthrough
engineering for
a better world

STAD ZERO – NPT threads

The STAD ZERO 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 potable water systems. The STAD ZERO is a lead-free product (<0.1% lead content) specially designed to address local environmental demands and is certified to NSF/ANSI 61 and NSF/ANSI 372 for domestic hot water systems.

Key features

ZERO lead
Product made of lead-free brass (<0.1% lead content).

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.

Technical description

Application:
Heating (not steam) and cooling systems.
Potable water systems.

Functions:
Balancing
Pre-setting
Measuring
Shut-off
Draining (accessory)

Dimensions:
1/2” - 2”

Pressure class:
PN 25 (400 WWP)

Temperature:
Max. working temperature: 248°F (intermittent 302°F)
Min. working temperature: -4°F

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

Material:
Valve body and bonnet: Brass CC768S
Sealing (body/bonnet): EPDM O-ring
Valve plug: Brass CW724R (CuZn21Si3P)
Seat seal: EPDM O-ring
Spindle: Brass CW724R (CuZn21Si3P)
Slip washer: PTFE
Spindle seal: EPDM O-ring
Spring: Stainless steel 1.4310
Handwheel: Polyamide and TPE

Measuring points: Brass CW724R (CuZn21Si3P)
Sealings: EPDM
Caps: Polyamide and TPE

Draining (accessory):
Body: Brass CC768S
Sealing: EPDM
Gaskets: Fiber-based aramid

Marking:
Body: IMI, TA, PN 25/400 WWP, DN and inch size. Size 2” also CE.
Red/grey handwheel: TA, STAD* ZERO and size. White id-tag.

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

Approvals:
Approved by IAPMO R&T
NSF/ANSI 61 certified
NSF/ANSI 372 certified

Measuring points

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

Draining

Delivered without draining. The valves have a sleeve which can temporarily be removed and a draining kit for 3/4” NPS hose connection is fitted, which is available as an accessory.

Sizing

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

$$Cv = 1.52 \frac{q}{\sqrt{\Delta p}}$$ q in GPM, Δp in ft WG

$$Cv = \frac{q}{\sqrt{\Delta p}}$$ q in GPM, Δp in psi

Cv values

The Kv ranges are valid for stated accuracy. For lower or intermediate values, please use softwares (HySelect, HyTools) or balancing instrument (TA-SCOPE).

No of turns	1/2”	3/4”	1”	1 1/4”	1 1/2”	2”
0.5	0.157	0.616	0.693	1.38	2.19	3.03
1	0.261	0.903	1.19	2.42	3.93	4.74
1.5	0.401	1.41	2.46	3.88	5.48	7.82
2	0.714	2.25	4.21	6.03	7.23	13.2
2.5	1.08	3.13	6.08	8.98	10.6	18.3
3	1.69	4.29	7.69	11.4	14.8	24.9
3.5	2.39	5.21	9.01	13.8	18.7	31.2
4	2.96	6.23	9.93	16.4	22.3	37.3

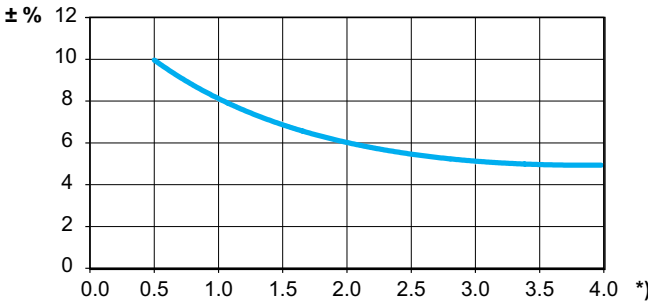
NOTE: In apps and balancing instrument the STAD ZERO is named STAD*.

Measuring accuracy

The zero position is calibrated and must not be changed.

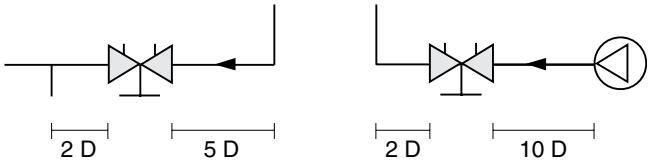
Deviation of flow at different settings
The curve (Fig. 1) is valid for valves with normal pipe fittings (Fig. 2). Try also to avoid mounting taps and pumps, immediately before or after the valve.
The valve can be installed with the opposite flow direction. The specified flow details are also valid for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

Fig. 1



*) Setting, No. of turns.

Fig. 2

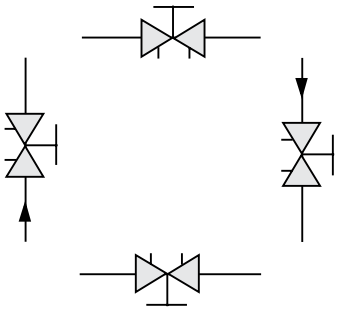


D = Valve size

Correction factors

The flow calculations are valid for water (68°F). 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.

Installation



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 open valve (Fig. 3). Opening it further will not increase the capacity.

Fig. 1
Valve closed

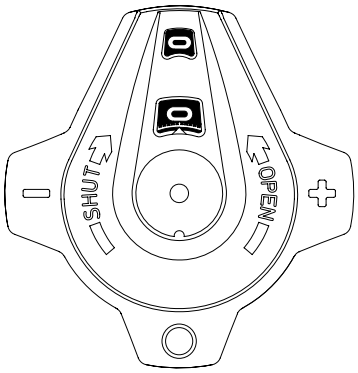


Fig. 2
The valve is set at 2.3

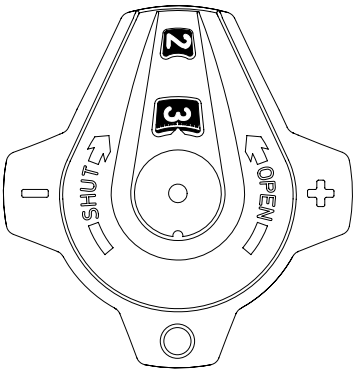


Fig. 3
Fully open valve

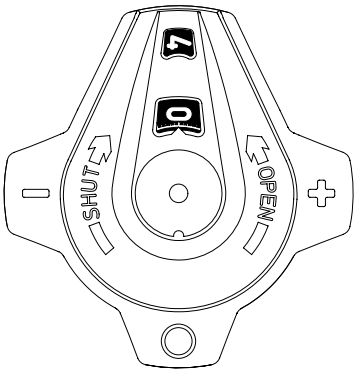


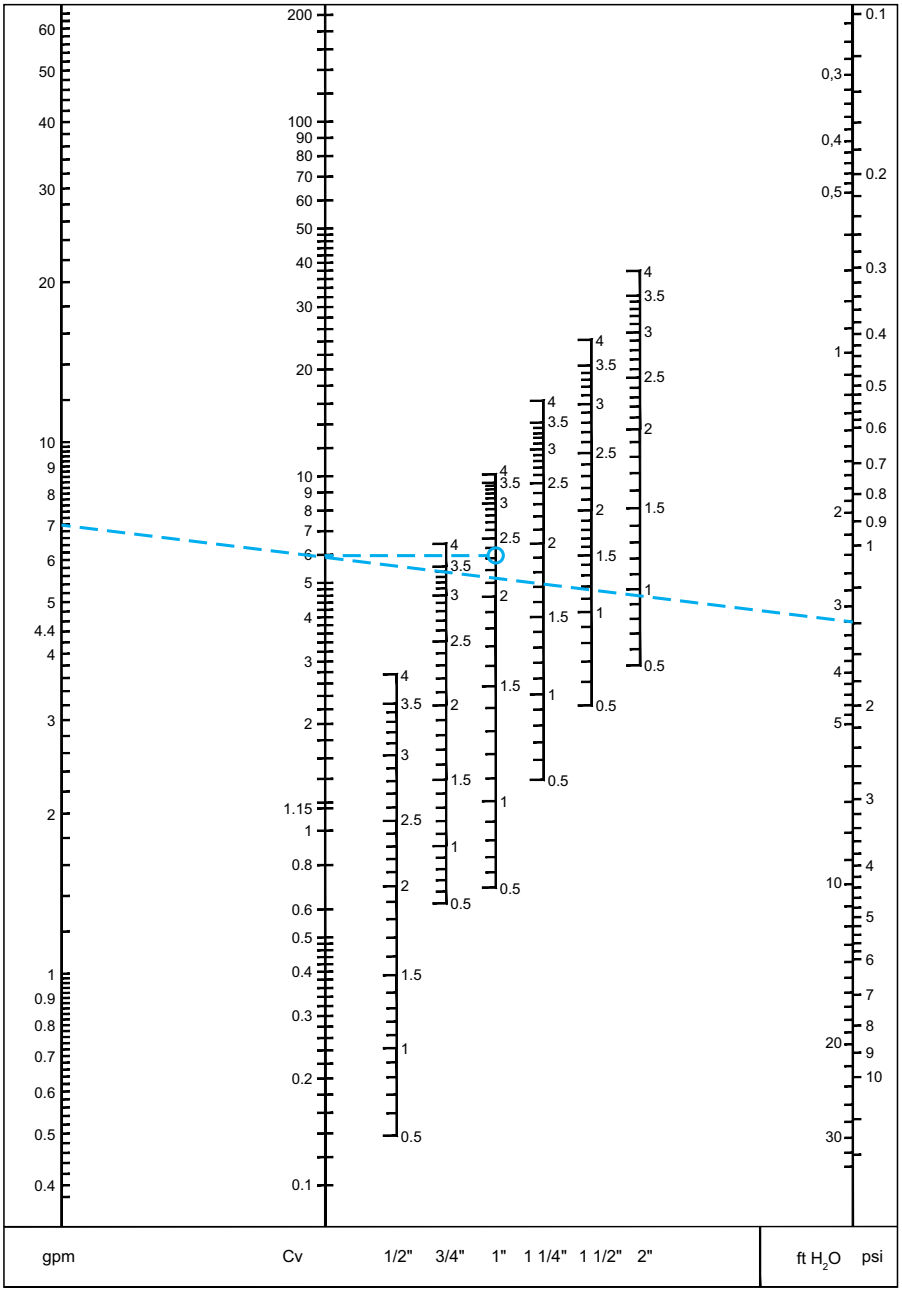
Diagram example

Wanted:
Presetting for size 1” at a desired flow rate of 7 gpm and a pressure drop of 3.2 ft.

Solution:
Draw a straight line joining 7 gpm and 3.2 ft. This gives Cv=5.84. Now draw a horizontal line from Cv=5.84.
This intersects the bar for size 1” which gives 2.44 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 3.2 ft., Cv=5.84 and flow-rate 7 gpm.
At 3.2 ft. and Cv=0.584 we get the flow-rate 0.7 gpm, and at Cv=58.4, we get 70 gpm. That is, for a given pressure drop, it is possible to read 0.1 times or 10 times the flow and Cv-values.

Diagram



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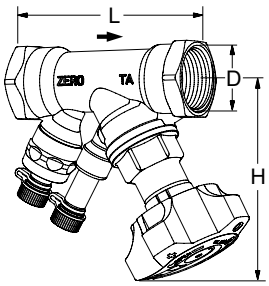
Articles



Without drain
Drain can be installed during operation.
Internal NPT threads. Threads according to ANSI/ASME B1.20.1-1983.

Size	D	L [in]	H [in]	Cvs	Weight [lb]	Article No ** North America	Article No International
1/2”	1/2 NPT	3.31	3.94	2.96	1.0	52 863-615	-
3/4”	3/4 NPT	3.70	3.94	6.23	1.2	52 863-620	-
1”	1 NPT	4.13	4.13	9.93	1.5	52 863-625	-
1 1/4”	1 1/4 NPT	4.76	4.13	16.4	2.2	52 863-632	-
1 1/2”	1 1/2 NPT	4.96	4.72	22.3	3.1	52 863-640	-
2”	2 NPT	6.10	4.72	37.3	4.4	52 863-650	-

**) Distributed by Victaulic.

→ = Flow direction

Cvs = gpm at a pressure drop of 1 psi and fully open valve.

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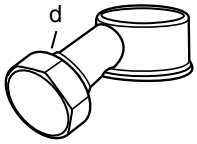
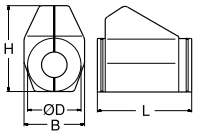
Accessories



Draining kit STAD
Can be installed during operation.
For valves with a sleeve, in metal or plastic, on measuring point.

d	Article No ** North America	Article No International
UNS 1 1/16” x 11.5	52 167-997	52 179-997

**) Distributed by Victaulic.



Insulation
For heating/cooling
Material: EPP
Fire class: B2 (DIN 4102)
Max working temperature: 248°F (intermittent 284°F)
Min working temperature: 54°F, 18°F at sealed joints.

For size	L [in]	H [in]	D [in]	B [in]	Article No
3/8”, 1/2”, 3/4”	6.10	5.31	3.54	4.06	52 189-615
1”	6.89	5.59	3.70	4.06	52 189-625
1 1/4”	7.68	6.14	4.17	4.06	52 189-632
1 1/2”	8.43	6.65	4.25	4.45	52 189-640
2”	9.65	7.01	4.25	4.49	52 189-650