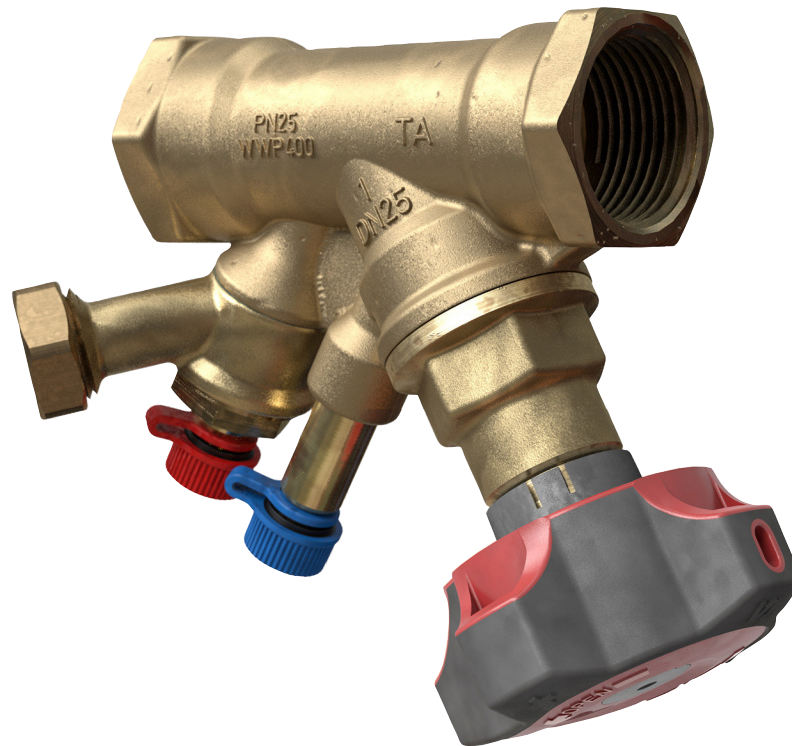


# STAD – NPT threads



**Balancing valves**  
Size 1/2" - 2"

# 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.

## Key features

- > **High accuracy for all settings**  
Ensure accurate balancing and flow reading.
- > **Self-sealing measuring points**  
For simple, accurate balancing.
- > **Handwheel**  
Equipped with a digital read-out, the handwheel ensures accurate and straightforward balancing. Positive shut-off function for easy maintenance.
- > **AMETAL®**  
Dezincification resistant alloy that guarantees a longer valve lifetime and lowers the risk of leakage.



## Technical description

### Application:

Heating (not steam) and cooling systems.

### Functions:

Balancing  
Pre-setting  
Measuring  
Shut-off  
Draining (depending on valve type)

### 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: 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 Hydronic Engineering.

### Marking:

Body: IMI, TA, PN 25/400 WWP, DN and inch size. Size 2" also CE.  
Handwheel: TA, valve type and size.

### Connection:

Female 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  $\Delta p$  and the design flow are known, use the formula to calculate the Cv value or use the diagram.

$$C_v = 1.52 \frac{q}{\sqrt{\Delta p}} \quad q \text{ in GPM, } \Delta p \text{ in ft WG}$$

$$C_v = \frac{q}{\sqrt{\Delta p}} \quad q \text{ in GPM, } \Delta p \text{ in psi}$$

## Cv values

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 softwares (HySelect, HyTools) and balancing instrument (TA-SCOPE) the STAD, PN 25/400 WWP version, is named STAD\*.

## Measuring accuracy

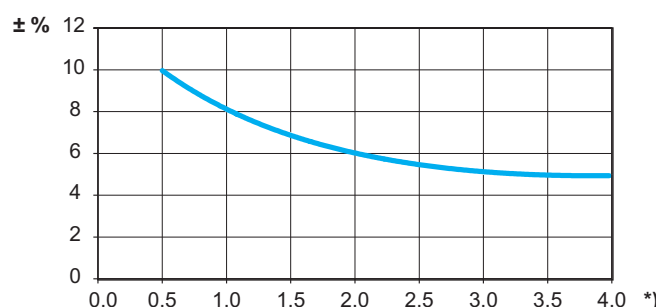
The zero position is calibrated and must not be changed.

### Deviation of flow at different settings

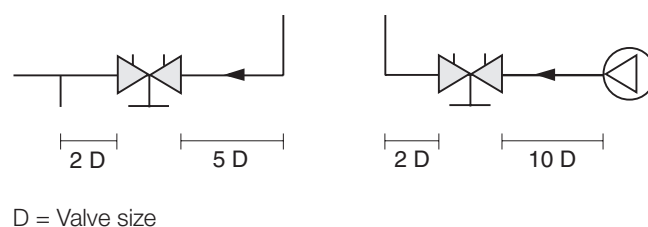
The curve (Fig. 1) is valid for valves with normal pipe fittings (Fig. 2). Try also to avoid mounting taps and pumps, immediately before or after the valve.

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**



**Fig. 2**

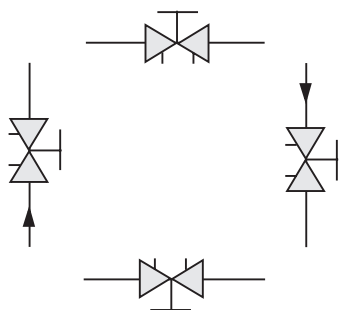


\*) Setting, No. of turns.

## Correction factors

The flow calculations are valid for water (68°F). For other liquids with approximately the same viscosity as water ( $\leq 20$  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 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.

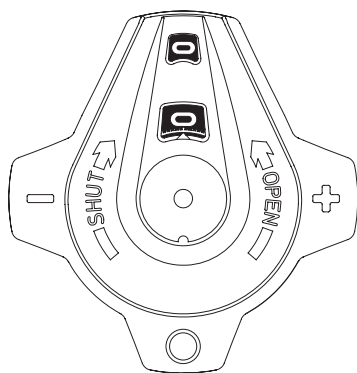
To check the setting: Close the valve, the indicator shows 0.0. Open it to the stop position. The indicator then shows the set value, in this case 2.3 (Fig. 2).

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.

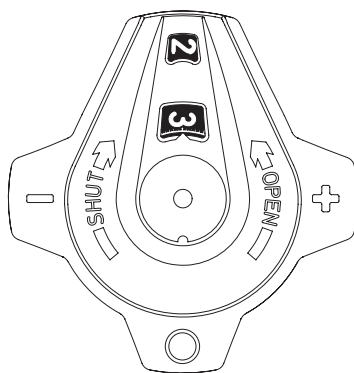
**Fig. 1**

Valve closed



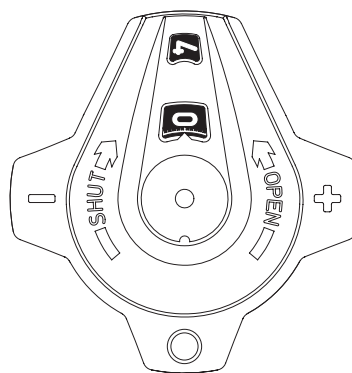
**Fig. 2**

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  $C_v=5.84$ . Now draw a horizontal line from  $C_v=5.84$ . This intersects the bar for size 1" which gives 2.44 turns.

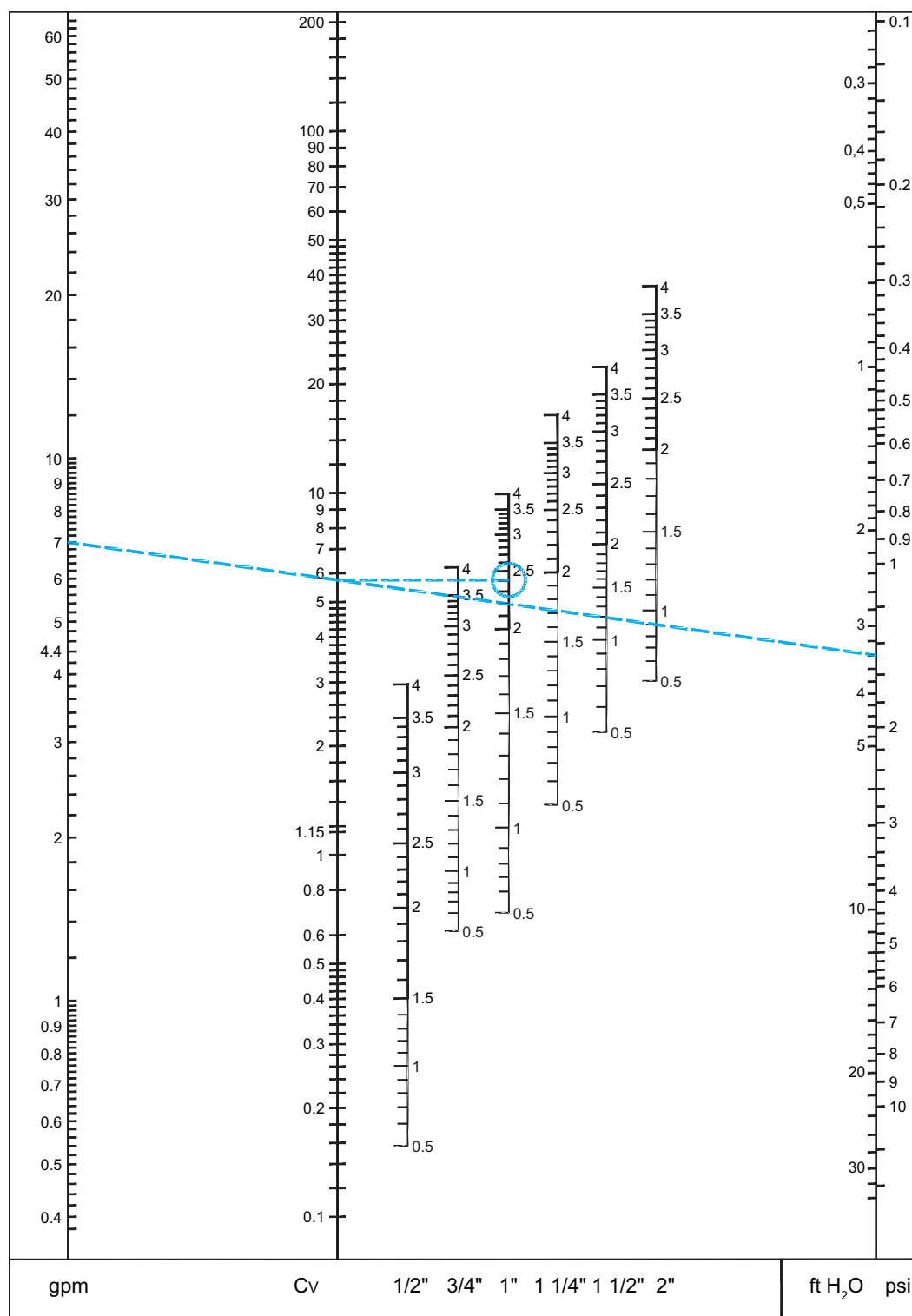
### NOTE:

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.,  $C_v=5.84$  and flow-rate 7 gpm.

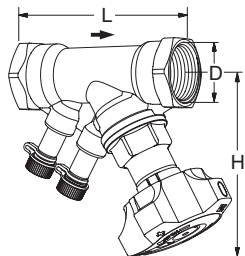
At 3.2 ft. and  $C_v=0.584$  we get the flow-rate 0.7 gpm, and at  $C_v=58.4$ , we get 70 gpm. That is, for a given pressure drop, it is possible to read 0.1 times or 10 times the flow and  $C_v$ -values.

## Diagram



**NOTE:** In softwares (HySelect, HyTools) and balancing instrument (TA-SCOPE) the STAD, PN 25/400 WWP version, is named STAD\*.

## Articles

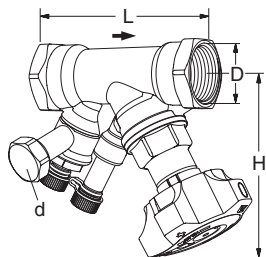


### STAD – Without drain

Female threads NPT.

Thread according to ANSI/ASME B1.20.1-1983.

Size	D	L [in]	H [in]	Cvs	Article No ** North America	Article No International
1/2"	1/2 NPT	3.31	3.94	2.96	52 867-515	52 851-515
3/4"	3/4 NPT	3.70	3.94	6.23	52 867-520	52 851-520
1"	1 NPT	4.13	4.13	9.93	52 867-525	52 851-525
1 1/4"	1 1/4 NPT	4.76	4.13	16.4	52 867-532	52 851-532
1 1/2"	1 1/2 NPT	4.96	4.72	22.3	52 867-540	52 851-540
2"	2 NPT	6.10	4.72	37.3	52 867-550	52 851-550



### STAD – With drain

Female threads NPT.

Thread according to ANSI/ASME B1.20.1-1983.

Size	D	L [in]	H [in]	Cvs	Article No ** North America	Article No International
<b>d = UNS 1 1/16" x 11.5</b>						
1/2"	1/2 NPT	3.31	3.94	2.96	52 867-715	52 851-715
3/4"	3/4 NPT	3.70	3.94	6.23	52 867-720	52 851-720
1"	1 NPT	4.13	4.13	9.93	52 867-725	52 851-725
1 1/4"	1 1/4 NPT	4.76	4.13	16.4	52 867-732	52 851-732
1 1/2"	1 1/2 NPT	4.96	4.72	22.3	52 867-740	52 851-740
2"	2 NPT	6.10	4.72	37.3	52 867-750	52 851-750

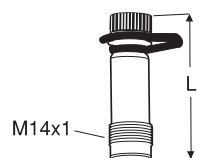
\*\*) Distributed by Victaulic.

→ = Flow direction

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

**NOTE:** In softwares (HySelect, HyTools) and balancing instrument (TA-SCOPE) the STAD, PN 25/400 WWP version, is named STAD\*.

## Accessories



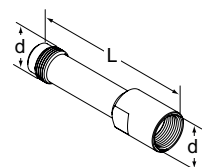
### Measuring point

Max 248°F (intermittent 302°F)  
AMETAL®/EPDM

#### L [in]

#### Article No

1.73	52 179-014
4.05	52 179-015



### Extension for measuring point M14x1

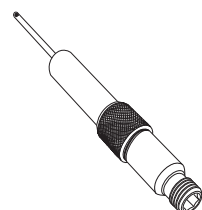
Suitable when insulation is used.  
AMETAL®

#### d

#### L [in]

#### Article No

M14x1	2.80	52 179-016
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### Measuring point, extension 2.36 in.

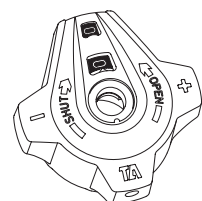
Can be installed without draining of the system.

AMETAL®/Stainless steel/EPDM

#### L [in]

#### Article No

2.36	52 179-006
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### Handwheel

Complete

#### Article No \*\* North America

#### Article No International

52 167-820	52 186-007
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\*\*) Distributed by Victaulic.

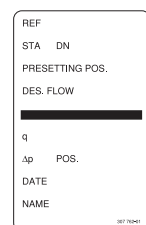


### Size plate, handwheel

#### Size

#### Article No

1/2N	310 308-01
3/4	310 308-02
1	310 308-03
1 1/4	310 308-04
1 1/2	310 308-05
2	310 308-06



### Identification tag

#### Article No

52 161-990
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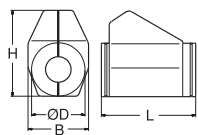


### Allen key

#### [mm]

#### Article No

3	Pre-setting	52 187-103
5	Draining	52 187-105



**Insulation**

For heating/cooling  
CFC-free polyurethane. Covered with grey  
PVC.  
See catalogue leaflet “Prefab insulations” for  
complete details.

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