STAD (NPT threads), STAS (soldering) 5-5-12

Balancing valves **2002.04**

General

Draining optional
Valves with draining for 3/4" NPS hose connection.
Valves without draining have a sleeve. This sleeve can temporarily be removed and a draining kit be fitted, which is available as an accessory.

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

Technical description

Application:
Heating- and cooling systems.
Tap water systems.

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

Pressure class:
PN 20

Temperature:
Max. working temperature: 250°F
Min. working temperature: -4°F

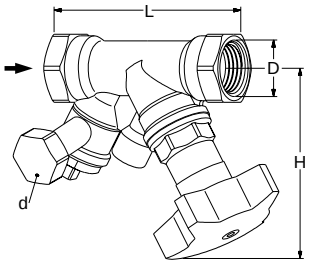
Material:
The valves are made of AMETAL®.
Seat seal: EPDM O-ring
Spindle seal: EPDM O-ring
Handwheel: Polyamide

AMETAL® is the dezincification resistant alloy of TA.

Marking:
Body: PN 20/150, DN and inch size.
Handwheel: Valve type and size.

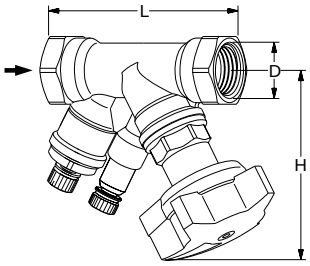
STAD: NPT threads

With draining



TA No	Size	D	L	H	Weight Lbs	Cvs
d=3/4" NPS						
52 151-814	1/2" N	1/2 NPT	3.50	4.00	1.5	2.92
52 151-820	3/4"	3/4 NPT	3.81	4.00	1.6	6.61
52 151-825	1"	1 NPT	4.31	4.50	2.0	10.1
52 151-832	1 1/4"	1 1/4 NPT	4.88	4.31	2.6	16.5
52 151-840	1 1/2"	1 1/2 NPT	5.13	4.75	3.3	22.3
52 151-850	2"	2 NPT	6.13	4.75	5.0	38.0

Excl draining



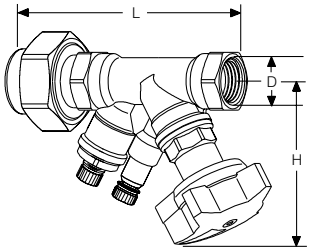
TA No	Size	D	L	H	Weight Lbs	Cvs
52 151-514	1/2" N	1/2 NPT	3.50	4.00	1.5	2.92
52 151-520	3/4"	3/4 NPT	3.81	4.00	1.6	6.61
52 151-525	1"	1 NPT	4.31	4.50	2.0	10.1
52 151-532	1 1/4"	1 1/4 NPT	4.88	4.31	2.6	16.5
52 151-540	1 1/2"	1 1/2 NPT	5.13	4.75	3.3	22.3
52 151-550	2"	2 NPT	6.13	4.75	5.0	38.0

Draining can be installed during operation

Cvs = GPM at a pressure drop of 14,5 psi and fully open valve.

STAD: NPT threads with union end

Excl. draining



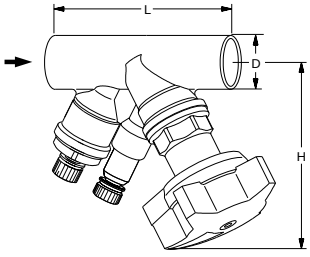
TA No	Size	D	L	H	Weight Lbs	Cvs
52 167-414	1/2" N	1/2 NPT	4.82	4.00	1.6	2.92
52 167-420	3/4"	3/4 NPT	5.18	4.00	2.1	6.61
52 167-425	1"	1 NPT	6.02	4.50	2.5	10.1

Draining can be installed during operation

Cvs = GPM at a pressure drop of 14,5 psi and fully open valve.

STAS: With solder ends

Excl. draining



TA No	Size	D	L	H	Weight Lbs	Cvs
52 151-914	1/2" N	1/2"	3.50	4.00	1.4	2.92
52 151-920	3/4"	3/4"	3.81	4.00	1.4	6.61
52 151-925	1"	1"	4.31	4.50	1.9	10.1
52 151-932	1 1/4"	1 1/4"	4.88	4.31	2.4	16.5
52 151-940	1 1/2"	1 1/2"	5.13	4.75	3.1	22.3
52 151-950	2"	2"	6.13	4.75	4.5	38.3

Draining can be installed during operation

Cvs = GPM at a pressure drop of 14,5 psi and fully open valve.

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

Fig. 1. Valve closed

Fig. 2. The valve is set at 2.3

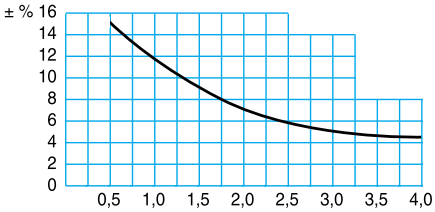
Fig. 3. Fully open valve

Measuring accuracy

The zero position is calibrated and must not be changed.

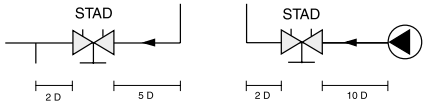
Deviation of flow at different settings
The curve (Fig. 4) is valid for valves with normal pipe fittings* (Fig. 5). Try also to avoid mounting taps and pumps, immediately before the valve.

Fig 4



Setting, No. of turns.

Fig 5



*) The valve can be installed with the opposite flow direction. The specified flow details also are valid for this direction although tolerances can be greater (maximum 5% more).

Correction factors

The flow calculations are valid for water (+68°F). For other liquids with approx. 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 direct in TA-CBI.

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

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

Support material

Software
TA Select: Makes it easy to choose the right balancing valves by taking into account the desired flow, pressure drop and flow rate.

Measuring instruments
Use the TA-CBI electronic instrument. It is programmed with valve characteristics for TA valves, enabling measured differential pressure to be read off directly as a flow rate. For further information on TA-CBI, see catalogue leaflet TA-CBI.

Conversion disc
By using the conversion disc it is easy to calculate the relationship between flow, pressure and setting values for all valve sizes.

Manuals
See the following manuals for descriptions of various balancing methods:
Total hydronic balancing
Manual no. 1: Balancing control circuits
Manual no. 2: Balancing distribution systems
Manual no. 3: Balancing radiator systems
Manual no. 4: Stabilising differential pressure

Cv values

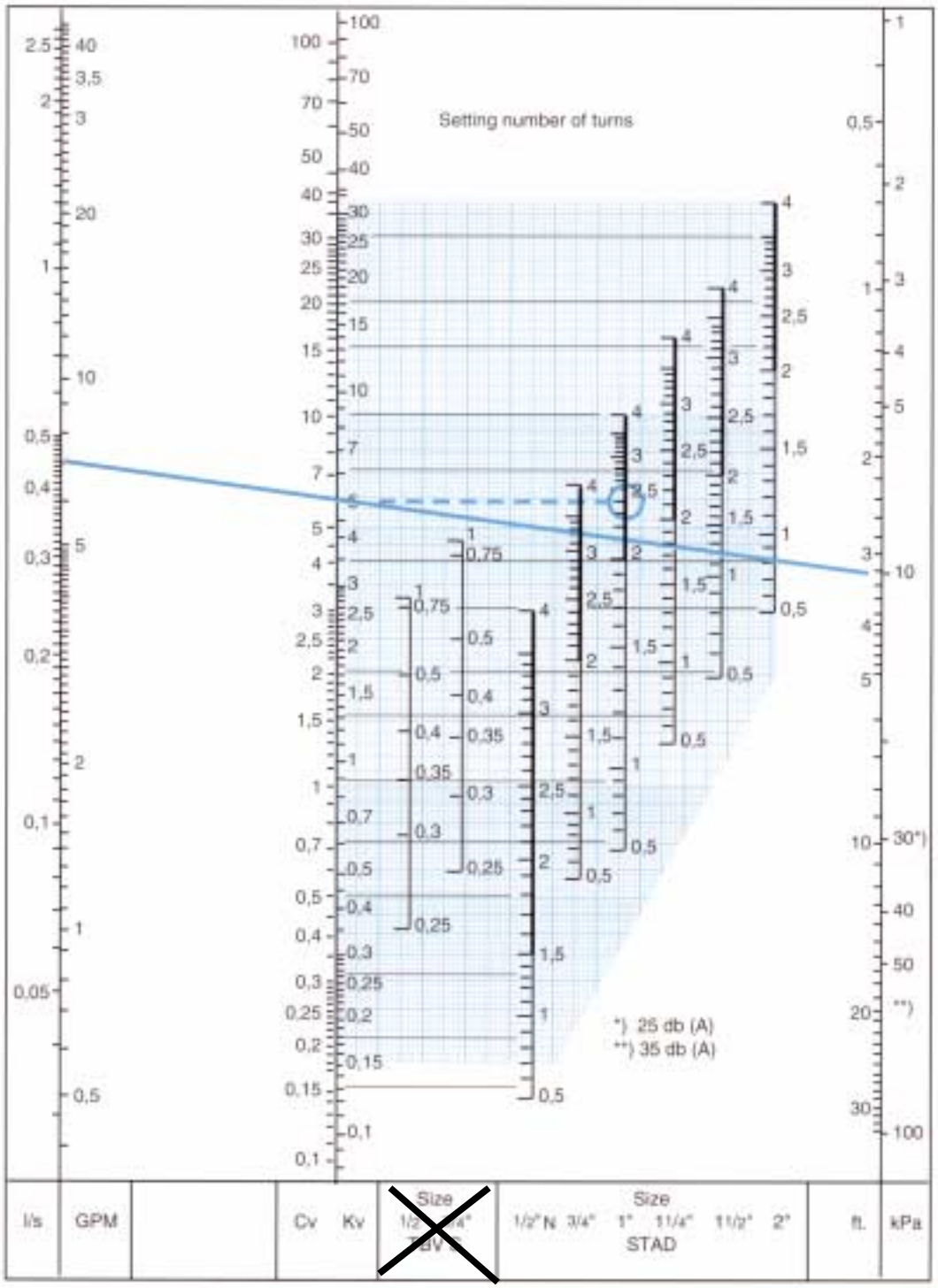
No of Turns	1/2”N	3/4”	1”	1 1/4”	1 1/2”	2”
0.5	.147	.593	.70	1.32	2.03	2.97
1	.246	.878	1.19	2.20	3.83	4.87
1.5	.364	1.38	2.4	3.60	5.34	8.35
2	.662	2.20	4.20	5.40	7.08	13.6
2.5	1.02	3.24	6.15	8.24	10.2	18.8
3	1.60	4.49	8.00	11.0	14.6	24.9
3.5	2.30	5.51	9.28	13.7	18.6	30.7
4	2.92	6.61	10.1	16.5	22.3	38.3

Diagram 1/2” - 2”

Wanted:
Presetting for a 1” valve at a desired flow rate of 6.7 GPM and a pressure drop of 3 ft.

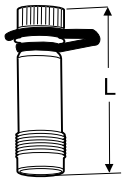
Solution:
Draw a straight line joining 6.7 GPM and 3 ft. This gives Cv=5.9. Now draw a horizontal line from Cv=5.9.
This intersects the bar for a 1” valve at the desired pre-setting of 2.35.

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 ft., Cv=5.9 and flow-rate 6.7 GPM. At 3 ft. and Cv=0,59 we get the flow-rate 0,67 GPM, and at Cv=59, we get 67 GPM. That is, for a given pressure drop, it is possible to read 10 times or 0.1 times the flow and Cv-values.



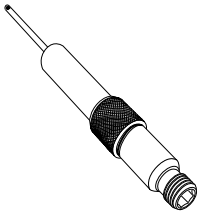
Accessories

Measuring point
Max 250°F



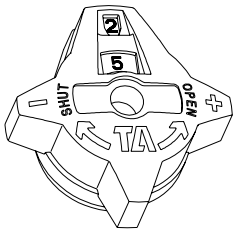
TA No	L
52 179-014	1 3/4

Measuring point, extension
2 3/8 IN (60 mm)
Can be installed without draining of the system.



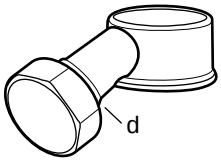
TA No
52 179-006

Handwheel, complete



TA No
52 186-003

Draining kit
Can be installed during operation

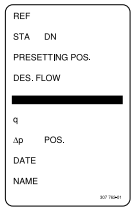


TA No	d
52 179-997	3/4” NPS

Size plate, handwheel

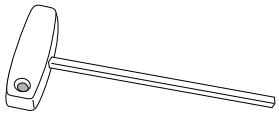
TA No	Size
308 812-01	1/2N
308 812-02	3/4
308 812-03	1
308 812-04	1 1/4
308 812-05	1 1/2
308 812-06	2

Identification tag
(incl 1 pc per valve)



TA No
52 161-990

Allen key



TA No		
52 187-103	3 mm	Pre-setting
52 187-105	5 mm	Draining

Tour & Andersson retains the right to make changes to its products and specifications without prior notice.