



Technical description

Applications:

Heating and cooling circulating systems (ethylene glycol and brine), not in potable water systems.

Functions:

Balancing
Pre-setting
Measuring
Shut-off
The restriction cone for valve sizes 2 1/2" to 12" is pressure released.

Pressure class:

Class 150 (PN 16)

Temperature:

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

Material:

Body: Ductile iron, EN-GJS-400-15 ~ ASTM A536 Grade 60-40-18 (ISO 1083 Grade 400-15).
Restriction cone: AMETAL® 2 1/2"-6", Gunmetal 8"-12".
Spindle: AMETAL®
Bonnet: 2 1/2"-6" made of AMETAL®, 8"-12" made of ductile iron.
Seat seal: EPDM ring.
Bonnet bolts: Chromed steel
Digital handwheel: 2 1/2"-6" are fitted with a red Polyamide handwheel, 8"-12" with a red aluminium handwheel.

AMETAL® is the dezincification resistant alloy of TA.

Surface treatment:

Size 2 1/2"-6": Epoxy painting.
Size 8"-12": Duasolid painting.

Flanges:

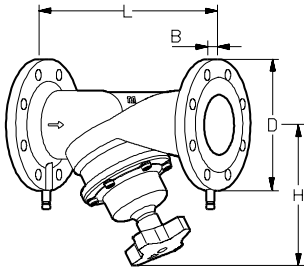
Class 150 ASME/ANSI B16.42

Measuring points:

The measuring points feature self-sealing construction for insertion type pressure or temperature probes. A protective cap is included.

STAF-SG with ANSI flanges

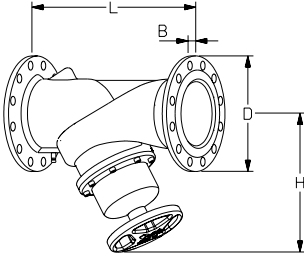
Bolted bonnet



TA No	Size	No of bolt holes	L inches	H inches	D inches	Cvs	Weight Lbs
52 182-965	2 1/2"	4	11.38	8.00	7.00	98.6	24
52 182-980	3"	4	12.25	8.63	7.50	139	31
52 182-990	4"	8	13.75	9.44	9.00	220	43
52 182-991	5"	8	15.75	10.88	10.00	348	62
52 182-992	6"	8	18.88	11.25	11.00	487	82

Bolted bonnet

Measurement point in body



TA No	Size inches	No of bolt holes	L inches	H inches	D inches	Cvs	Weight Lbs
52 182-993	8"	12	23.63	17.00	13.50	887	168
52 182-994	10"	12	28.75	17.75	16.00	1375	270
52 182-995	12"	12	33.50	19.00	19.00	1682	360

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

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 for 2 1/2"-6"
12 turns for 8"-10"
16 turns for 12"

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 an 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).

Example 2 1/2"

Fig. 1 Valve closed

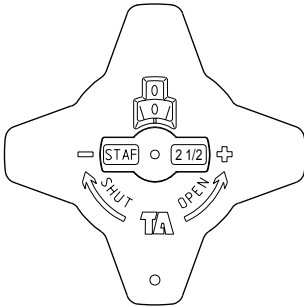
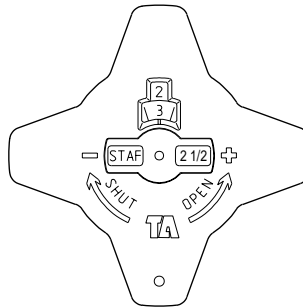


Fig. 2 The valve is set 2.3



Example 8"

Fig. 1 Valve closed

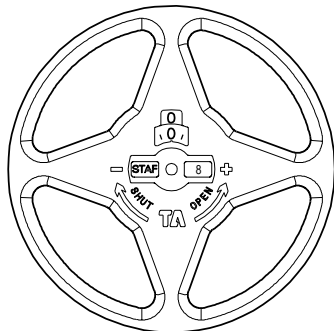
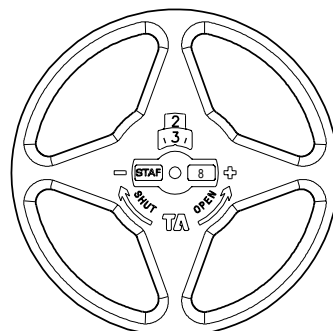


Fig. 2 The valve is set 2.3



Measuring accuracy

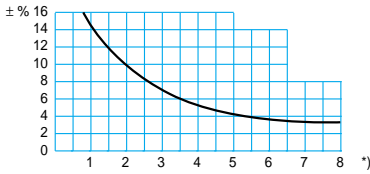
The handwheel zero position is calibrated and must not be changed.

Deviation concerning flow with different pre-setting:

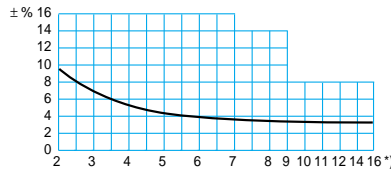
The curve (Fig. 4) holds for valves with normal pipe fittings** (Fig. 5).

Try also to avoid mounting valves, restricting devices and pumps immediately before the valve.

Fig. 4
2 1/2"-6"

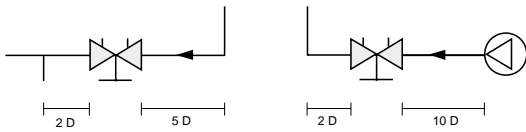


8"-12"



*) Pre-setting, no. of turns

Fig. 5



**) 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 (max 5% more).

Correction factors

The flow calculations are valid for water (+68°F). For other liquids with approx. the same viscosity as water ($\leq 20 \text{cSt} = 3^\circ \text{E} = 100 \text{S.U.}$), 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 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 graph.

$$Cv = 1,52 \frac{q}{\sqrt{\Delta p}} \quad q \text{ in GPM, } \Delta p \text{ in Ft}$$

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

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.

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	Size							
	2 1/2"N	3"	4"	5"	6"	8"	10"	12"
0.5	2.09	2.32	2.9	6.38	7.54	-	-	-
1	3.94	4.64	6.96	12.2	13.9	-	-	-
1.5	5.68	6.96	10.4	18.0	25.5	-	-	-
2	7.54	9.28	13.3	24.9	46.4	46.4	104	-
2.5	10.8	12.8	18.6	31.3	75.4	58	128	-
3	18.9	16.2	30.2	41.8	116	75.4	162	174
3.5	29.7	22.6	51.0	63.8	157	104	226	267
4	40.9	33.6	73.1	96.3	196	139	296	348
4.5	51.6	47.6	92.8	132	240	191	371	429
5	60.3	63.8	114	164	281	261	447	522
5.5	70.2	78.9	133	194	324	331	516	621
6	78.9	92.8	153	229	362	394	580	719
6.5	84.7	107	168	255	394	464	632	800
7	89.3	119	184	289	426	505	684	870
7.5	93.4	131	203	320	454	545	766	945
8	98.6	139	220	348	487	597	841	1032
9	-	-	-	-	-	690	951	1125
10	-	-	-	-	-	754	1090	1206
11	-	-	-	-	-	824	1218	1299
12	-	-	-	-	-	887	1375	1392
13	-	-	-	-	-	-	-	1531
14	-	-	-	-	-	-	-	1589
15	-	-	-	-	-	-	-	1624
16	-	-	-	-	-	-	-	1682

Example

Pre-setting for 2 1/2" at a desired flow rate of 47 GPM and a pressure drop of 2 Ft WG.

Solution:

Draw a straight line joining 47 GPM and 2 Ft WG. This gives Cv=50.

Now draw a horizontal line from Cv=50.

This intersects the bar for 2 1/2" at the desired pre-setting of 2.1 turns.

Diagram 2 1/2" - 6"

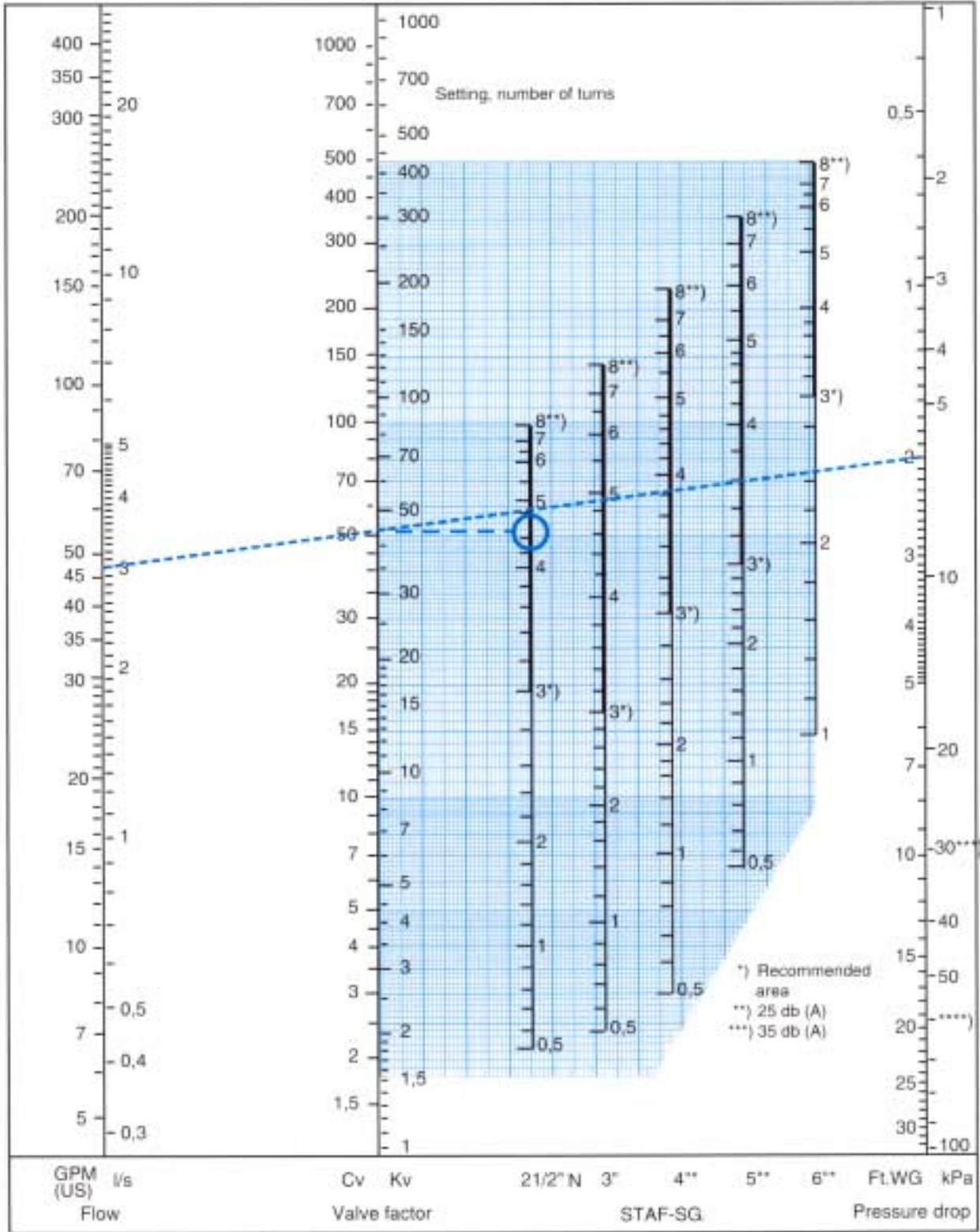
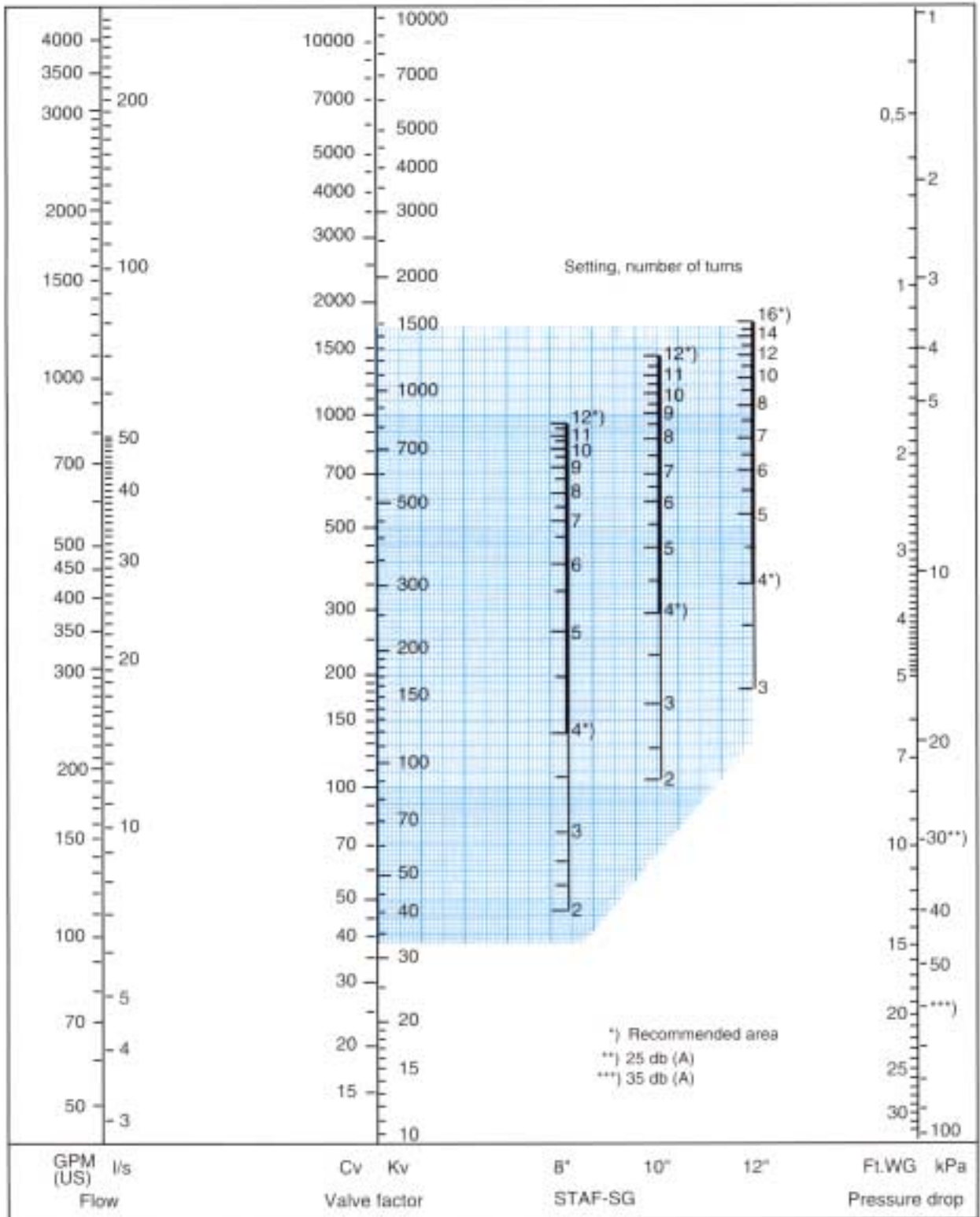
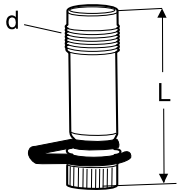


Diagram 8" - 12"



Accessories

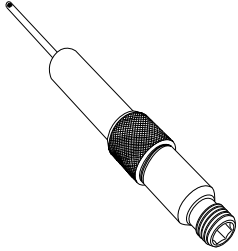
Measurement point



TA No	d	L
2 1/2"-12"		
52 179-008	3/8	1 3/16
52 179-608	3/8	3 1/2

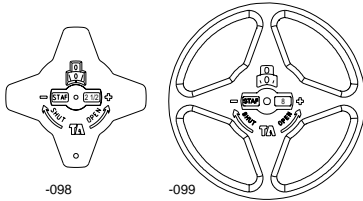
Measuring point, extension 2 3/8

Can be installed without draining of the system.



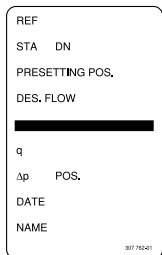
TA No
52 179-006

Complete digital handwheel



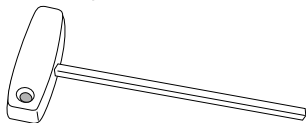
TA No	For size
52 186-098	2 1/2" - 6"
52 186-099	8" - 12"

Identification tag (incl 1 pc per valve)



TA No
52 161-990

Allen key



TA No		For size
52 187-105	5 mm	2 1/2" - 6"
-	8 mm	8" - 12"