STAD

Balancing valve

TA

Pressurisation & Water Quality › Balancing & Control › Thermostatic Control

ENGINEERING ADVANTAGE

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.

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 (optional)

Dimensions:
DN 10-50

Pressure class:
PN 20

Temperature:
Max. working temperature: 120°C.
For higher temperatures (max. 150°C), please contact the nearest sales office. **NOTE!** DN 25-50 with smooth ends max working temperature 120°C.
Min. working temperature: -20°

Material:
The valves are made of AMETAL®
Seat seal: Stem with EPDM O-ring
Spindle seal: EPDM O-ring
Handwheel: Polyamide
Smooth ends:
Nipple: AMETAL®
Sealing (DN 25-50): EPDM O-ring

AMETAL® is the dezincification resistant alloy of TA.

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

Measuring points

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

Draining

Valves with draining for G1/2 or G3/4 hose connection. Valves without draining have a sleeve. This sleeve can temporarily be removed and a draining kit is fitted, which is available as an accessory.

Sizing

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

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

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

Kv values

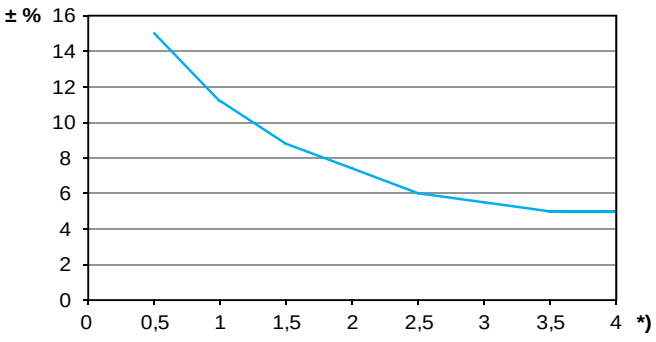
Turns	DN 10/09	DN 15/14	DN 20	DN 25	DN 32	DN 40	DN 50
0.5	-	0.127	0.511	0.60	1.14	1.75	2.56
1	0.090	0.212	0.757	1.03	1.90	3.30	4.20
1.5	0.137	0.314	1.19	2.10	3.10	4.60	7.20
2	0.260	0.571	1.90	3.62	4.66	6.10	11.7
2.5	0.480	0.877	2.80	5.30	7.10	8.80	16.2
3	0.826	1.38	3.87	6.90	9.50	12.6	21.5
3.5	1.26	1.98	4.75	8.00	11.8	16.0	26.5
4	1.47	2.52	5.70	8.70	14.2	19.2	33.0

Measuring accuracy

The zero position is calibrated and must not be changed.

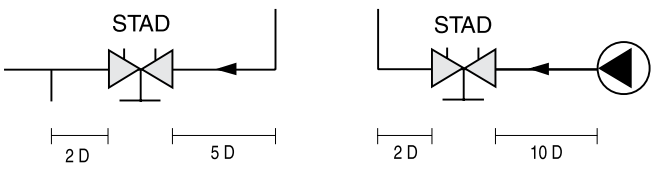
Deviation of flow at different settings
The curve (Fig. 4) is valid for valves with normal pipe fittings (Fig. 5). Try also to avoid mounting taps and pumps, immediately before the valve.
The valve can be installed with the opposite flow direction. The specified flow details are also valid for this direction although tolerances can be greater (maximum 5% more).

Fig. 4



*) Setting, No. of turns.

Fig. 5



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 TA Select or directly in TA's 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

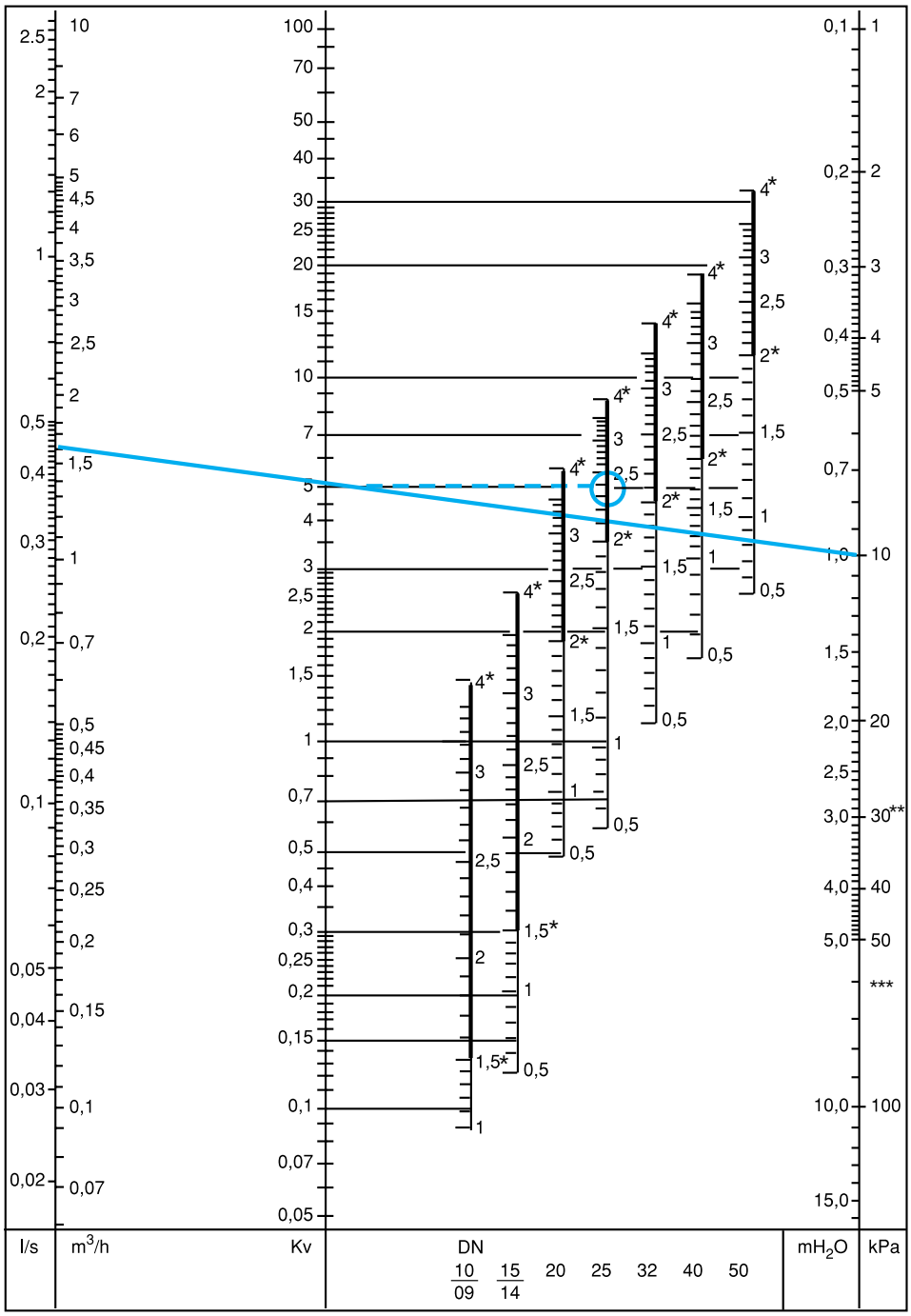
Diagram example

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. Now draw a horizontal line from Kv=5.
This intersects the bar for DN 25 which gives 2,35 turns.

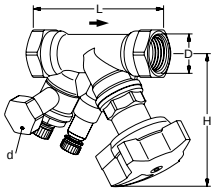
NOTE:
If the flow rate is out of the scale in the diagram, the reading can be made as follows:
Starting with the example above, we get 10 kPa, Kv=5 and flow-rate 1.6 m^3/h.
At 10 kPa and Kv=0,5 we get the flow-rate 0,16 m^3/h, and at Kv=50, we get 16 m^3/h. That is, for a given pressure drop, it is possible to read 10 times or 0.1 times the flow and Kv-values.

Diagram



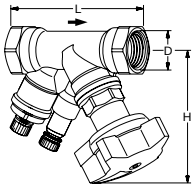
*) Recommended area
**) 25 db (A)
***) 35 db (A)

Articles



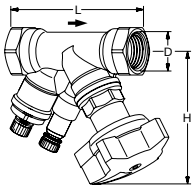
Female threads
Thread according to ISO 228. Thread length according to ISO 7/1.
With drain

Article No	EAN	DN	D	L	H	Kvs	Kg
d = G1/2							
52 151-209*	7318792758904	10/09	G3/8	83	100	1,47	0,65
52 151-214*	7318792759000	15/14	G1/2	90	100	2,52	0,68
52 151-220*	7318792759109	20	G3/4	97	100	5,70	0,77
52 151-225	7318792759208	25	G1	110	105	8,70	0,93
52 151-232	7318792759307	32	G1 1/4	124	110	14,2	1,3
52 151-240	7318792759406	40	G1 1/2	130	120	19,2	1,6
52 151-250	7318792759505	50	G2	155	120	33,0	2,4
d = G3/4							
52 151-609*	7318792760204	10/09	G3/8	83	100	1,47	0,65
52 151-614*	7318792760303	15/14	G1/2	90	100	2,52	0,68
52 151-620*	7318792760402	20	G3/4	97	100	5,70	0,77
52 151-625	7318792760501	25	G1	110	105	8,70	0,93
52 151-632	7318792760600	32	G1 1/4	124	110	14,2	1,3
52 151-640	7318792760709	40	G1 1/2	130	120	19,2	1,6
52 151-650	7318792760808	50	G2	155	120	33,0	2,4



Female threads
Thread according to ISO 228. Thread length according to ISO 7/1.
Without drain (can be installed during operation)

Article No	EAN	DN	D	L	H	Kvs	Kg
52 151-009*	7318792042706	10/09	G3/8	83	100	1,47	0,58
52 151-014*	7318792758003	15/14	G1/2	90	100	2,52	0,62
52 151-020*	7318792758102	20	G3/4	97	100	5,70	0,72
52 151-025	7318792758201	25	G1	110	105	8,70	0,88
52 151-032	7318792758300	32	G1 1/4	124	110	14,2	1,2
52 151-040	7318792758508	40	G1 1/2	130	120	19,2	1,4
52 151-050	7318792758607	50	G2	155	120	33,0	2,3



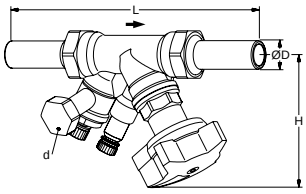
Female threads
Thread according to ISO 7 (≈ BS 21)
Without drain (can be installed during operation)

Article No	EAN	DN	D	L	H	Kvs	Kg
52 251-014	7318793923400	15/14	Rc1/2	90	100	2,52	0,62
52 251-020	7318793923509	20	Rc3/4	97	100	5,70	0,72
52 251-025	7318793923608	25	Rc1	110	105	8,70	0,88
52 251-032	7318793923707	32	Rc1 1/4	124	110	14,2	1,2
52 251-040	7318793923806	40	Rc1 1/2	130	120	19,2	1,4
52 251-050	7318793923905	50	Rc2	155	120	33,0	2,3

→ = Flow direction
Kvs = m^3/h at a pressure drop of 1 bar and fully open valve.
*) Can be connected to smooth pipes by KOMBI compression coupling. See catalogue leaflet KOMBI.

Smooth ends

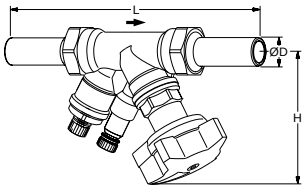
With drain



Article No	EAN	DN	D	L	H	Kvs	Kg
d = G1/2							
52 451-209	7318793931405	10/09	12	141	100	1,47	0,71
52 451-214	7318793931504	15/14	15	154	100	2,52	0,78
52 451-220	7318793931603	20	22	179	100	5,70	0,93
52 451-225	7318793931702	25	28	208	105	8,70	1,2
52 451-232	7318793931801	32	35	233	110	14,2	1,7
52 451-240	7318793931900	40	42	260	120	19,2	2,1
52 451-250	7318793932006	50	54	305	120	33,0	3,2
d = G3/4							
52 451-609	7318793932105	10/09	12	141	100	1,47	0,71
52 451-614	7318793932204	15/14	15	154	100	2,52	0,78
52 451-620	7318793932303	20	22	179	100	5,70	0,93
52 451-625	7318793932402	25	28	208	105	8,70	1,2
52 451-632	7318793932501	32	35	233	110	14,2	1,7
52 451-640	7318793932600	40	42	260	120	19,2	2,1
52 451-650	7318793932709	50	54	305	120	33,0	3,2

Smooth ends

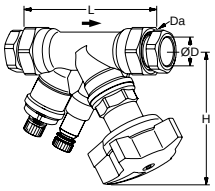
Without drain (can be installed during operation)



Article No	EAN	DN	D	L	H	Kvs	Kg
52 451-009	7318793932808	10/09	12	141	100	1,47	0,64
52 451-014	7318793932907	15/14	15	154	100	2,52	0,72
52 451-020	7318793933003	20	22	179	100	5,70	0,88
52 451-025	7318793933102	25	28	208	105	8,70	1,1
52 451-032	7318793933201	32	35	233	110	14,2	1,6
52 451-040	7318793933300	40	42	260	120	19,2	1,9
52 451-050	7318793933409	50	54	305	120	33,0	3,1

With KOMBI compression couplings (not mounted)

Without drain (can be installed during operation)

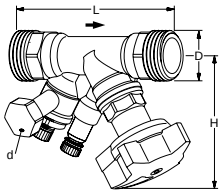


Article No	EAN	DN	Da	D	L	H	Kvs	Kg
52 151-314	7318793857903	15/14	G1/2	12 mm x 2 / 15 mm x 2	90	100	2,52	0,76
52 151-320	7318793858009	20	G3/4	18 mm x 2 / 22 mm x 2	97	100	5,70	0,96

→ = Flow direction

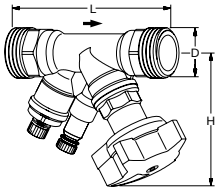
Kvs = m^3/h at a pressure drop of 1 bar and fully open valve.

Male threads (STADA)
Thread length according to DIN 3546
With drain



Article No	EAN	DN	D	L	H	Kvs	Kg
d = G1/2							
52 152-209	7318792763403	10/09	G1/2	105	100	1,47	0,70
52 152-214	7318792763502	15/14	G3/4	114	100	2,52	0,73
52 152-220	7318792763601	20	G1	125	100	5,70	0,88
52 152-225	7318792763700	25	G1 1/4	142	105	8,70	1,2
52 152-232	7318792763809	32	G1 1/2	160	110	14,2	1,6
52 152-240	7318792763908	40	G2	170	120	19,2	2,2
52 152-250	7318792764004	50	G2 1/2	200	120	33,0	3,3
d = G3/4							
52 152-609	7318792764103	10/09	G1/2	105	100	1,47	0,70
52 152-614	7318792764202	15/14	G3/4	114	100	2,52	0,73
52 152-620	7318792764301	20	G1	125	100	5,70	0,88
52 152-625	7318792764400	25	G1 1/4	142	105	8,70	1,2
52 152-632	7318792764509	32	G1 1/2	160	110	14,2	1,6
52 152-640	7318792764608	40	G2	170	120	19,2	2,2
52 152-650	7318792764707	50	G2 1/2	200	120	33,0	3,3

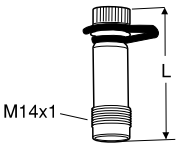
Male threads (STADA)
Thread length according to DIN 3546
Without drain (can be installed during operation)



Article No	EAN	DN	D	L	H	Kvs	Kg
52 152-009	7318792762703	10/09	G1/2	105	100	1,47	0,61
52 152-014	7318792762802	15/14	G3/4	114	100	2,52	0,66
52 152-020	7318792762901	20	G1	125	100	5,70	0,81
52 152-025	7318792763007	25	G1 1/4	142	105	8,70	1,1
52 152-032	7318792763106	32	G1 1/2	160	110	14,2	1,5
52 152-040	7318792763205	40	G2	170	120	19,2	2,1
52 152-050	7318792763304	50	G2 1/2	200	120	33,0	3,2

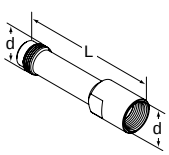
→ = Flow direction
Kvs = m^3/h at a pressure drop of 1 bar and fully open valve.

Accessories



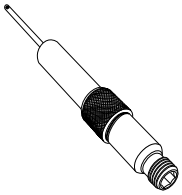
Measuring points
Max 120°C (intermittent 150°C)

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



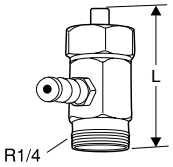
Extension for measuring point M14x1
Suitable when insulation is used.

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



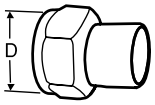
Measuring point
Extensions 60 mm (not for 52 179-000/-601)
Can be installed without draining of the system.

Article No	EAN
52 179-006	7318792812804



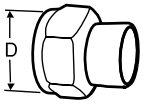
Measuring point
For older STAD and STAF
Max 150°C

Article No	EAN	L
52 179-000	7318792812408	30
52 179-601	7318792814303	90



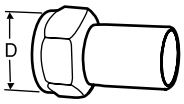
Welding connection
Max 120°C

Article No	EAN	Valve DN	D	Pipe DN
52 009-010	7318792748400	10	G1/2	10
52 009-015	7318792748509	15	G3/4	15
52 009-020	7318792748608	20	G1	20
52 009-025	7318792748707	25	G1 1/4	25
52 009-032	7318792748806	32	G1 1/2	32
52 009-040	7318792748905	40	G2	40
52 009-050	7318792749001	50	G2 1/2	50



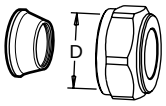
Soldering connection
Max 120°C

TA No	EAN	Valve DN	D	Pipe Ø
52 009-510	7318792749100	10	G1/2	10
52 009-512	7318792749209	10	G1/2	12
52 009-515	7318792749308	15	G3/4	15
52 009-516	7318792749407	15	G3/4	16
52 009-518	7318792749506	20	G1	18
52 009-522	7318792749605	20	G1	22
52 009-528	7318792749704	25	G1 1/4	28
52 009-535	7318792749803	32	G1 1/2	35
52 009-542	7318792749902	40	G2	42
52 009-554	7318792750007	50	G2 1/2	54



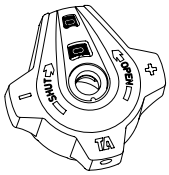
Connection with smooth end
For connection with press coupling
Max 120°C

Article No	EAN	Valve DN	D	Pipe DN
52 009-312	7318793810502	10	G1/2	12
52 009-315	7318793810601	15	G3/4	15
52 009-318	7318793810700	20	G1	18
52 009-322	7318793810809	20	G1	22
52 009-328	7318793810908	25	G1 1/4	28
52 009-335	7318793811004	32	G1 1/2	35
52 009-342	7318793811103	40	G2	42
52 009-354	7318793811202	50	G2 1/2	54



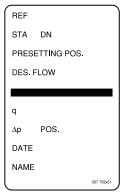
Compression connection
Max 100°C
Support bushes shall be used, for more information see catalogue leaflet FPL.

Article No	EAN	Valve DN	D	Pipe Ø
53 319-208	7318793620002	10	G1/2	8
53 319-210	7318793620101	10	G1/2	10
53 319-212	7318793620200	10	G1/2	12
53 319-215	7318793620309	10	G1/2	15
53 319-216	7318793620408	10	G1/2	16
53 319-615	7318793705006	15	G3/4	15
53 319-618	7318793705105	15	G3/4	18
53 319-622	7318793705204	15	G3/4	22
53 319-928	7318793705402	20	G1	28



Handwheel
Complete

Article No	EAN
52 186-003	7318792834905

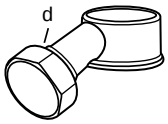


Identification tag
Incl 1 pc per valve

Article No	EAN
52 161-990	7318792779206

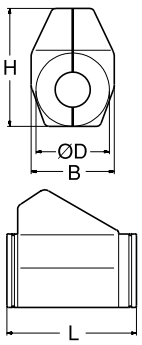
Allen key

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



Draining kit
Can be installed during operation

Article No	EAN	d
52 179-990	7318792814907	G1/2
52 179-996	7318792815003	G3/4



Insulation
For heating/cooling
See catalogue leaflet Prefab insulations for complete details.

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

5-5-10 STAD 03.2011