

STAD



Balancing valves
DN 10-50, PN 25

STAD

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.

Key features

- > **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.
- > **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 (depending on valve type)

Dimensions:

DN 10-50

Pressure class:

PN 25

Temperature:

Max. working temperature: 120°C
(intermittent 150°C)
For higher temperatures (max. 150°C),
see STAD-C.
Min. working temperature: -20°C

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. DN 50 also CE.
Handwheel: TA, STAD* and DN.

Connection:

- Female thread according to ISO 228.
Thread length according to ISO 7/1.
- Male thread according to ISO 228.
Thread length according to DIN 3546.

Approvals:

52 858-1xx/-2xx: WaterMark, IAPMO
R&T OCEANA. License No. WM-022578.

Measuring points

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

Draining

Valves with draining for G1/2 hose connection.

Sizing

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

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

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

Kv values

Turns	DN 10	DN 15	DN 20	DN 25	DN 32	DN 40	DN 50
0.5	-	0.136	0.533	0.599	1.19	1.89	2.62
1	0.091	0.226	0.781	1.03	2.09	3.40	4.10
1.5	0.134	0.347	1.22	2.13	3.36	4.74	6.76
2	0.264	0.618	1.95	3.64	5.22	6.25	11.4
2.5	0.461	0.931	2.71	5.26	7.77	9.16	15.8
3	0.799	1.46	3.71	6.65	9.82	12.8	21.5
3.5	1.22	2.07	4.51	7.79	11.9	16.2	27.0
4	1.36	2.56	5.39	8.59	14.2	19.3	32.3

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

Measuring accuracy

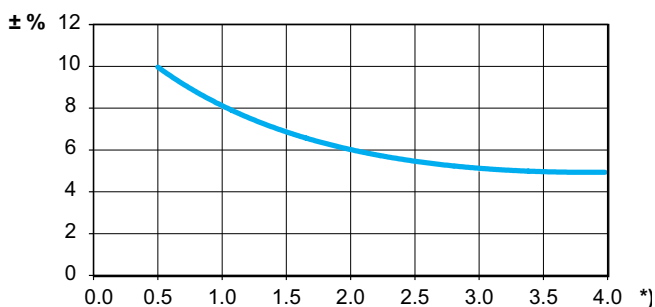
The zero position is calibrated and must not be changed.

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 the valve.

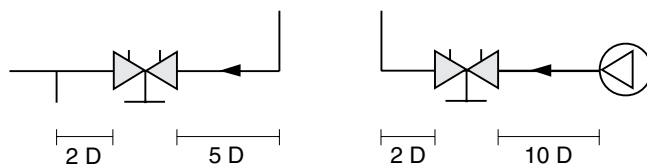
The valve can be installed with the opposite flow direction. The specified flow details are also valid for this direction although tolerances can be greater (maximum 5% more).

Fig. 1



*) Setting, No. of turns.

Fig. 2



D = Valve DN

Correction factors

The flow calculations are valid for water (+20°C). For other liquids with approximately the same viscosity as water (≤ 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.

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 m³/h and a pressure drop of 10 kPa.

Solution:

Draw a straight line joining 1,6 m³/h and 10 kPa. This gives Kv=5,06. Now draw a horizontal line from Kv=5,06. This intersects the bar for DN 25 which gives 2,44 turns.

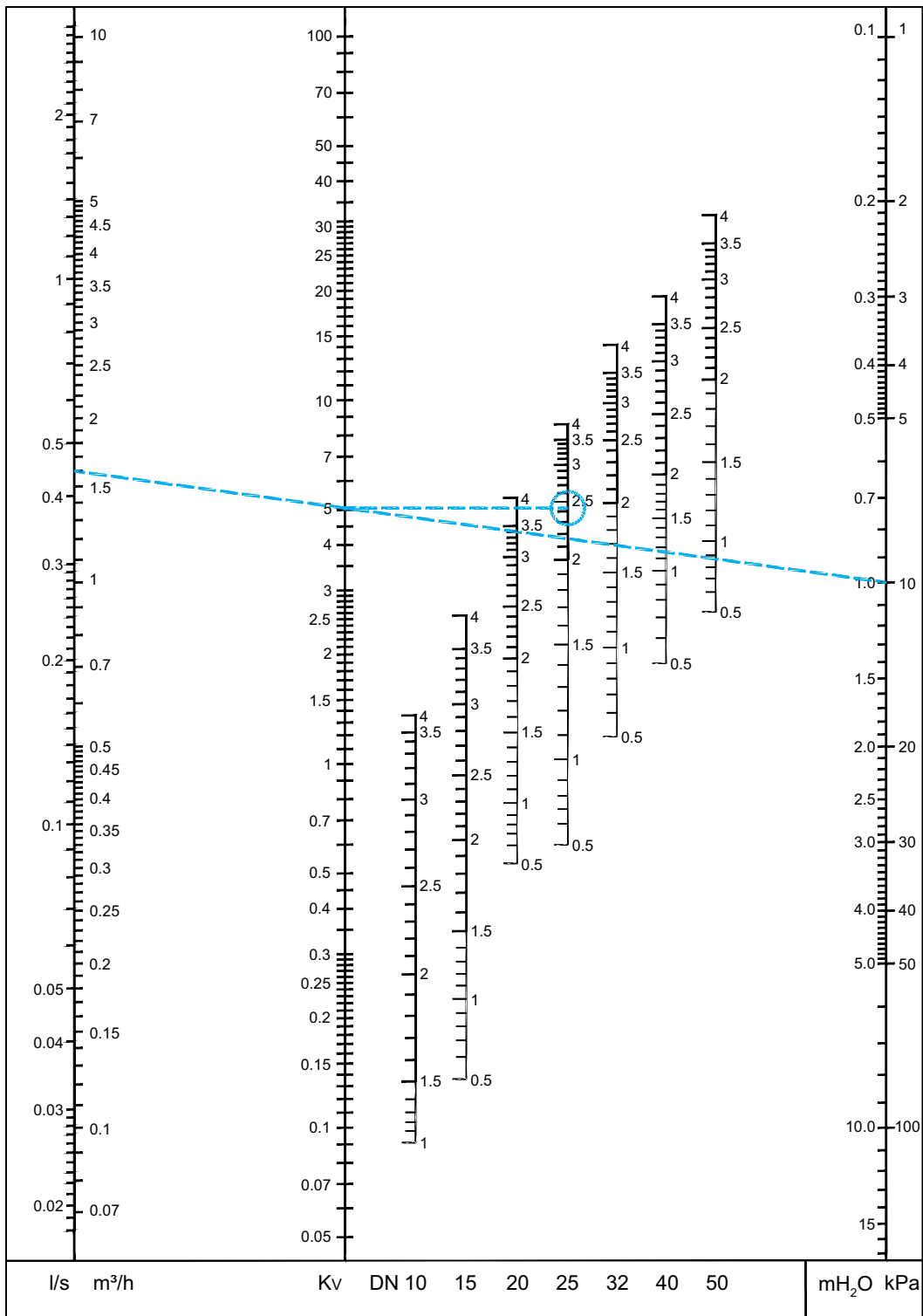
NOTE:

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 10 kPa, Kv=5.06 and flow-rate 1.6 m³/h.

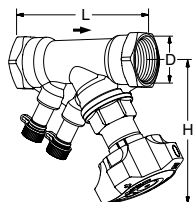
At 10 kPa and Kv=0.506 we get the flow-rate 0.16 m³/h, and at Kv=50.6, we get 16 m³/h. That is, for a given pressure drop, it is possible to read 10 times or 0.1 times the flow and Kv-values.

Diagram



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

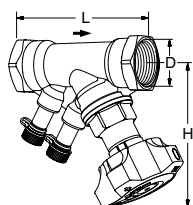
With female threads



Without drain

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

DN	D	L	H	Kvs	Kg	Article No
10*	G3/8	73	100	1,36	0,44	52 851-110
15*	G1/2	84	100	2,56	0,47	52 851-115
20*	G3/4	94	100	5,39	0,55	52 851-120
25	G1	105	105	8,59	0,68	52 851-125
32	G1 1/4	121	110	14,2	1,0	52 851-132
40	G1 1/2	126	120	19,3	1,4	52 851-140
50	G2	155	120	32,3	2,0	52 851-150

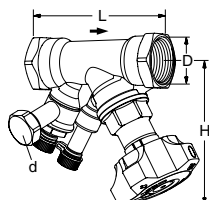


Without drain

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

WaterMark (IAPMO R&T OCEANA)

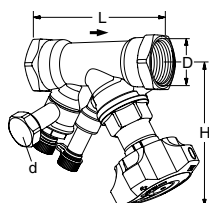
DN	D	L	H	Kvs	Kg	Article No
10*	G3/8	73	100	1,36	0,44	52 858-110
15*	G1/2	84	100	2,56	0,47	52 858-115
20*	G3/4	94	100	5,39	0,55	52 858-120
25	G1	105	105	8,59	0,68	52 858-125
32	G1 1/4	121	110	14,2	1,0	52 858-132
40	G1 1/2	126	120	19,3	1,4	52 858-140
50	G2	155	120	32,3	2,0	52 858-150



With drain

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

DN	D	L	H	Kvs	Kg	Article No
d = G1/2						
10*	G3/8	73	100	1,36	0,53	52 851-210
15*	G1/2	84	100	2,56	0,56	52 851-215
20*	G3/4	94	100	5,39	0,64	52 851-220
25	G1	105	105	8,59	0,77	52 851-225
32	G1 1/4	121	110	14,2	1,1	52 851-232
40	G1 1/2	126	120	19,3	1,5	52 851-240
50	G2	155	120	32,3	2,1	52 851-250



With drain

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

WaterMark (IAPMO R&T OCEANA)

DN	D	L	H	Kvs	Kg	Article No
d = G1/2						
10*	G3/8	73	100	1,36	0,53	52 858-210
15*	G1/2	84	100	2,56	0,56	52 858-215
20*	G3/4	94	100	5,39	0,64	52 858-220
25	G1	105	105	8,59	0,77	52 858-225
32	G1 1/4	121	110	14,2	1,1	52 858-232
40	G1 1/2	126	120	19,3	1,5	52 858-240
50	G2	155	120	32,3	2,1	52 858-250

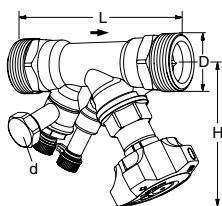
→ = Flow direction

Kvs = m³/h at a pressure drop of 1 bar and fully open valve.

*) Can be connected to smooth pipes by KOMBI compression coupling.

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

With male threads (STADA)



With drain

Male threads. Thread according to ISO 228. Thread length according to DIN 3546.

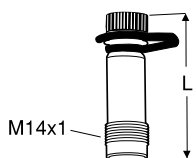
DN	D	L	H	Kvs	Kg	Article No
d = G1/2						
10*	G3/8	95	100	1,36	0,56	52 852-210
15*	G1/2	108	100	2,56	0,61	52 852-215
20*	G3/4	122	100	5,39	0,74	52 852-220
25	G1	137	105	8,59	1,0	52 852-225
32	G1 1/4	157	110	14,2	1,4	52 852-232
40	G1 1/2	166	120	19,3	2,1	52 852-240
50	G2	200	120	32,3	3,0	52 852-250

→ = Flow direction

Kvs = m³/h at a pressure drop of 1 bar and fully open valve.

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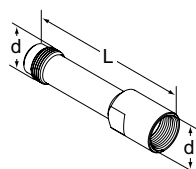
Accessories



Measuring point

Max 120°C (intermittent 150°C)
AMETAL®/EPDM

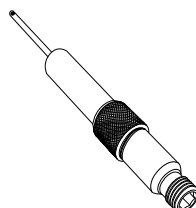
L	Article No
44	52 179-014
103	52 179-015



Extension for measuring point M14x1

Suitable when insulation is used.
AMETAL®

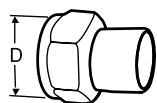
d	L	Article No
M14x1	71	52 179-016



Measuring point, extension 60 mm

Can be installed without draining of the system.
AMETAL®/Stainless steel/EPDM

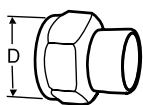
L	Article No
60	52 179-006



Welding connection

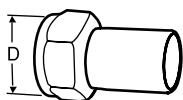
Swivelling nut
Max 120°C
Brass/Steel 1.0045 (EN 10025-2)

Valve DN	D	Pipe DN	Article No
10	G1/2	10	52 009-010
15	G3/4	15	52 009-015
20	G1	20	52 009-020
25	G1 1/4	25	52 009-025
32	G1 1/2	32	52 009-032
40	G2	40	52 009-040
50	G2 1/2	50	52 009-050


Soldering connection

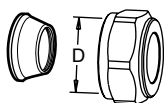
Swivelling nut
 Max 120°C
 Brass/gunmetal CC491K (EN 1982)

Valve DN	D	Pipe Ø	Article No
10	G1/2	10	52 009-510
10	G1/2	12	52 009-512
15	G3/4	15	52 009-515
15	G3/4	16	52 009-516
20	G1	18	52 009-518
20	G1	22	52 009-522
25	G1 1/4	28	52 009-528
32	G1 1/2	35	52 009-535
40	G2	42	52 009-542
50	G2 1/2	54	52 009-554


Connection with smooth end

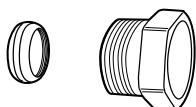
For connection with press coupling
 Swivelling nut
 Max 120°C
 Brass/AMETAL®

Valve DN	D	Pipe Ø	Article No
10	G1/2	12	52 009-312
15	G3/4	15	52 009-315
20	G1	18	52 009-318
20	G1	22	52 009-322
25	G1 1/4	28	52 009-328
32	G1 1/2	35	52 009-335
40	G2	42	52 009-342
50	G2 1/2	54	52 009-354


Compression connection

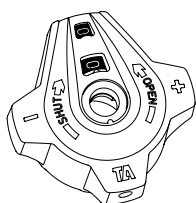
Max 100°C
 Brass/AMETAL®
 Support bushes shall be used, for more information see catalogue leaflet FPL.

Valve DN	D	Pipe Ø	Article No
10	G1/2	8	53 319-208
10	G1/2	10	53 319-210
10	G1/2	12	53 319-212
10	G1/2	15	53 319-215
10	G1/2	16	53 319-216
15	G3/4	15	53 319-615
15	G3/4	18	53 319-618
15	G3/4	22	53 319-622


KOMBI compression coupling

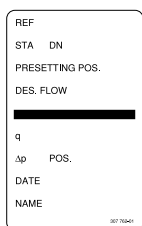
Max.: 100°C
 (For more information see catalogue leaflet KOMBI.)

Male pipe threads on thrust screw	For pipes, diameter	Article No
G3/8	10	53 235-104
G3/8	12	53 235-107
G1/2	10	53 235-109
G1/2	12	53 235-111
G1/2	14	53 235-112
G1/2	15	53 235-113
G1/2	16	53 235-114
G3/4	15	53 235-117
G3/4	18	53 235-121
G3/4	22	53 235-123


Handwheel

Complete

Article No
52 186-007



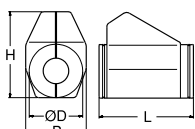
Identification tag

	Article No
	52 161-990



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

