

# STAD-D



## **Balancing valves**

Balancing valve for domestic water systems, DN 15-50

*Engineering  
GREAT Solutions*

# STAD-D

The STAD-D balancing valve delivers accurate hydronic performance in an impressive range of applications. Ideally suited for use in domestic water systems and on the secondary side in heating and cooling systems.



## Key features

- > **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.
- > **Special surface treatment**  
Ideal for high demanding domestic water applications.

## Technical description

### Application:

Domestic water systems  
Heating and cooling systems

### Functions:

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

### Dimensions:

DN 10-50

### Pressure class:

PN 20

### Temperature:

Max. working temperature: 120°C  
Min. working temperature: -20°C.  
For higher temperatures (max. 150°C), please contact the nearest sales office.

### Media:

Water or neutral fluids, water-glycol mixtures (0-57%).

### Material:

The valves are made of AMETAL®  
Seat seal: Stem with EPDM O-ring  
Spindle seal: EPDM O-ring  
Handwheel: Polyamide and TPE.

AMETAL® is the dezincification resistant alloy of IMI Hydronic Engineering.

### Surface treatment:

Valve body, bonnet, valve plug are completely coated with T.E.A. (TERNARY ECO ALLOY) PLUS®  
*T.E.A. is a registered trademark of La Tecnogalvano.*

### Marking:

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

### Approvals:

Approved for tap water systems (PN 10) by RISE (Research Institutes of Sweden).

## 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  $\Delta p$  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 10/09	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. 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. 2

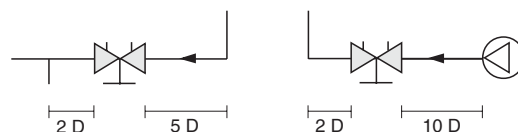
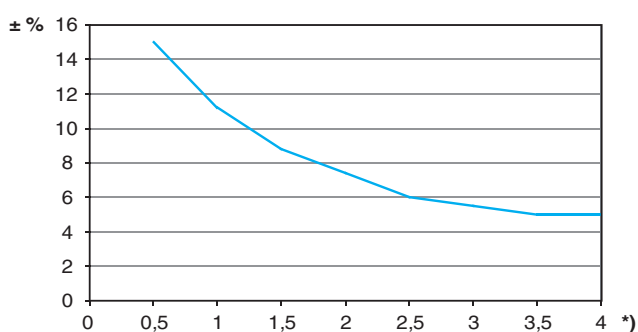


Fig. 1



\*) Setting, No. of turns.

## Correction factors

The flow calculations are valid for water (+20°C). 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.

## 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<sup>3</sup>/h and a pressure drop of 10 kPa.

### Solution:

Draw a straight line joining 1,6 m<sup>3</sup>/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 2,42 turns.

### NOTE:

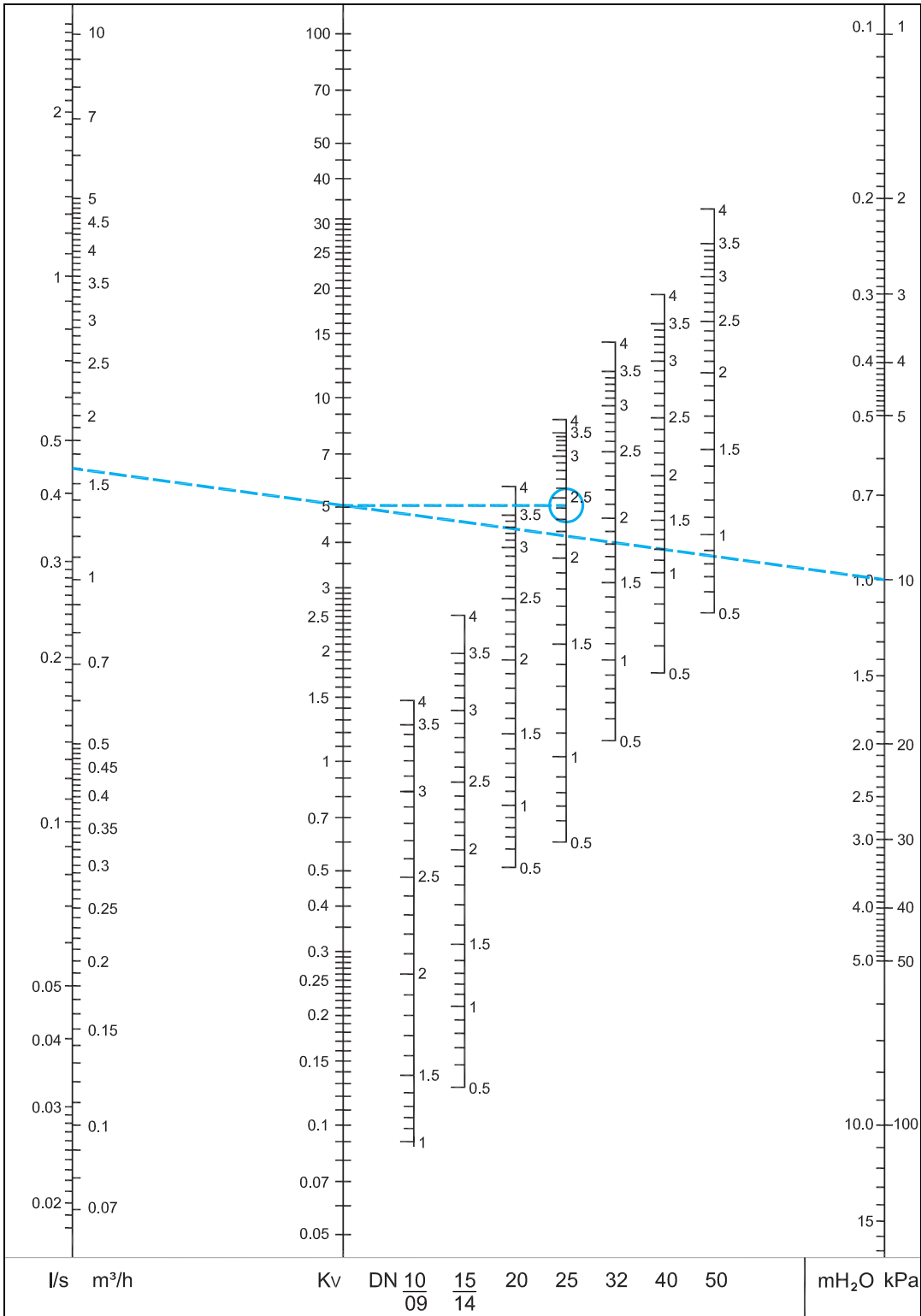
If the flow rate is out of the scale in the diagram, the reading can be made as follows:

Starting with the example above, we get 10 kPa, Kv=5 and flow-rate 1.6 m<sup>3</sup>/h.

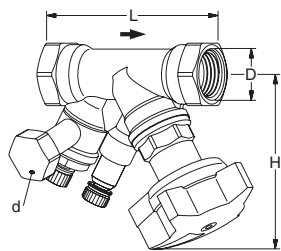
At 10 kPa and Kv=0,5 we get the flow-rate 0,16 m<sup>3</sup>/h, and at Kv=50, we get

16 m<sup>3</sup>/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

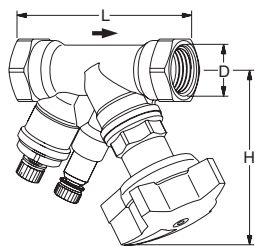


## Articles

**Female threads**

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

DN	D	L	H	Kvs	Kg	EAN	Article No
<b>d = G1/2</b>							
10/09*	G3/8	83	100	1,47	0,65	5902276895500	52 552-209
15/14*	G1/2	90	100	2,52	0,68	5902276895517	52 552-214
20*	G3/4	97	100	5,70	0,77	5902276895524	52 552-220
25	G1	110	105	8,70	0,93	5902276895531	52 552-225
32	G1 1/4	124	110	14,2	1,3	5902276895548	52 552-232
40	G1 1/2	130	120	19,2	1,6	5902276895555	52 552-240
50	G2	155	120	33,0	2,4	5902276895562	52 552-250
<b>d = G3/4</b>							
10/09*	G3/8	83	100	1,47	0,65	5902276895579	52 552-609
15/14*	G1/2	90	100	2,52	0,68	5902276895586	52 552-614
20*	G3/4	97	100	5,70	0,77	5902276895593	52 552-620
25	G1	110	105	8,70	0,93	5902276895609	52 552-625
32	G1 1/4	124	110	14,2	1,3	5902276895616	52 552-632
40	G1 1/2	130	120	19,2	1,6	5902276895623	52 552-640
50	G2	155	120	33,0	2,4	5902276895630	52 552-650

**Female threads**

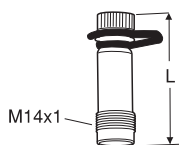
Thread according to ISO 228. Thread length according to ISO 7/1.  
Without drain (can be installed during operation)

DN	D	L	H	Kvs	Kg	EAN	Article No
10/09*	G3/8	83	100	1,47	0,58	5902276895432	52 552-009
15/14*	G1/2	90	100	2,52	0,62	5902276895449	52 552-014
20*	G3/4	97	100	5,70	0,72	5902276895456	52 552-020
25	G1	110	105	8,70	0,88	5902276895463	52 552-025
32	G1 1/4	124	110	14,2	1,2	5902276895470	52 552-032
40	G1 1/2	130	120	19,2	1,4	5902276895487	52 552-040
50	G2	155	120	33,0	2,3	5902276895494	52 552-050

→ = Flow direction

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

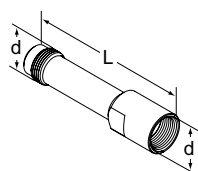
## Accessories



### Measuring points

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

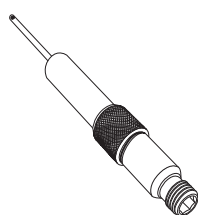
L	EAN	Article No
44	7318792813207	52 179-014
103	7318793858108	52 179-015



### Extension for measuring point M14x1

Suitable when insulation is used.  
AMETAL®

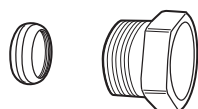
d	L	EAN	Article No
M14x1	71	7318793969507	52 179-016



### Measuring point, extension 60 mm

(not for 52 179-000/-601)  
Can be installed without draining of the system.  
AMETAL®/Stainless steel/EPDM

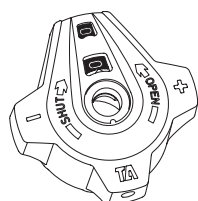
L	EAN	Article No
60	7318792812804	52 179-006



### KOMBI compression coupling

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

Male pipe threads on thrust screw	For pipes, diameter	EAN	Article No
G3/8	8	7318792874505	53 235-103
G3/8	10	7318792874604	53 235-104
G3/8	12	7318792874703	53 235-107
G1/2	10	7318792874901	53 235-109
G1/2	12	7318792875007	53 235-111
G1/2	14	7318792875106	53 235-112
G1/2	15	7318792875205	53 235-113
G1/2	16	7318792875304	53 235-114
G3/4	15	7318792875403	53 235-117
G3/4	18	7318792875601	53 235-121
G3/4	22	7318792875700	53 235-123



### Handwheel

Complete

EAN	Article No
7318792834905	52 186-003

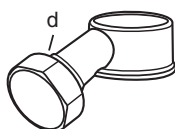
REF
STA DN
PRESETTING POS.
DES. FLOW
q
AP POS.
DATE
NAME

**Identification tag**

EAN	Article No
7318792779206	52 161-990

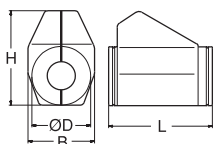

**Allen key**

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


**Draining kit**

Can be installed during operation

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


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