

STA-DR

Balancing valve – Reduced Kv



TA

Pressurisation & Water Quality › Balancing & Control › Thermostatic Control

ENGINEERING ADVANTAGE

The STA-DR, balancing valve for renovation, delivers accurate hydronic performance in an impressive range of applications. Ideally suited for use on the secondary side in heating, cooling, 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
Tapwater systems

Functions:

Balancing
Pre-setting
Measuring
Shut-off
Draining

Dimensions:

DN 15-25

Pressure class:

PN 20

Temperature:

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

Material:

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

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.

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 15, 20	DN 25
0.5	-	0.210
1	0.107	0.361
1.5	0.172	0.520
2	0.362	1.02
2.5	0.645	1.85
3	1.16	3.00
3.5	1.78	3.70
4	2.00	4.01

Draining

Valves with draining for G1/2 or G3/4 hose connection.

Measuring accuracy

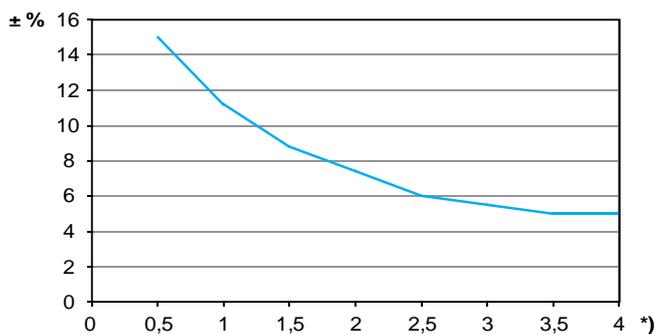
The zero position is calibrated and must not be changed.

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.

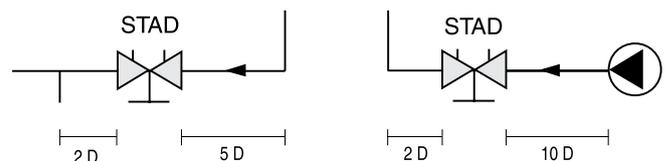
The valve can be installed with the opposite flow direction. The specified flow details are also valid for this direction although tolerances can be greater (maximum 5% more).

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 ($\leq 20 \text{ cSt} = 3^\circ\text{E}=100\text{S.U.}$), 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 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

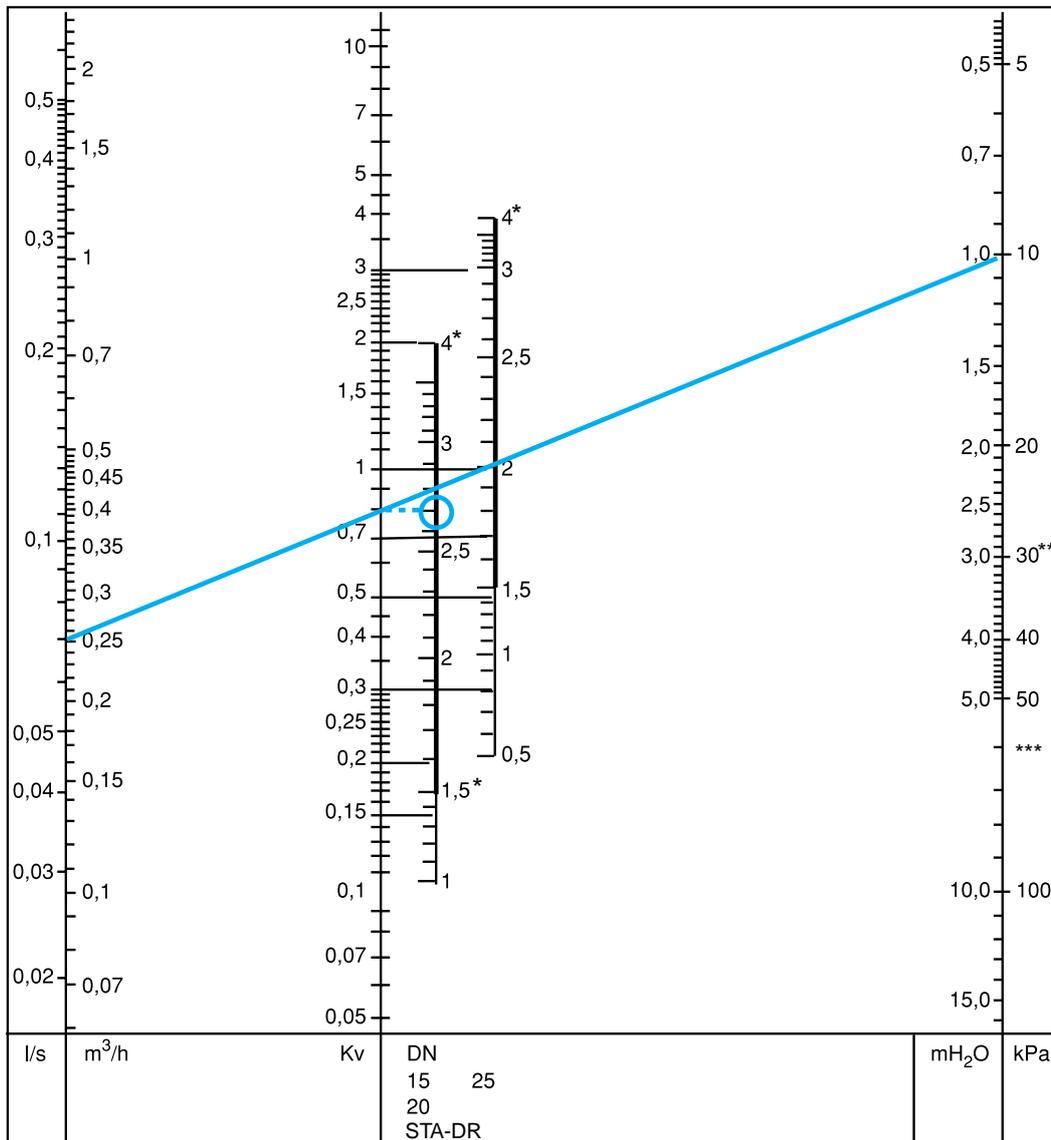
Wanted:

Presetting for DN 20 at a desired flow rate of 0,25 m³/h and a pressure drop of 10 kPa.

Solution:

Draw a straight line joining 0,25 m³/h and 10 kPa. This gives Kv=0,8. Now draw a horizontal line from Kv=0,8. This intersects the bar for DN 20 which gives 2,7 turns.

Diagram



*) Recommended area

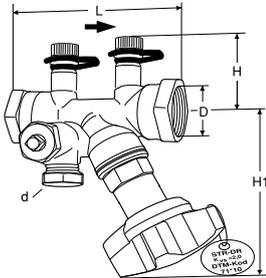
**) 25 db (A)

***) 35 db (A)

Articles

Female threads

Thread length according to ISO7/1
With drain



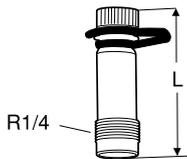
Article No	EAN	DN	D	L	H	H1	Kvs	Kg
d = G1/2								
52 173-015*	7318792801303	15	G1/2	94	50	92	2,0	0,70
52 173-020*	7318792801402	20	G3/4	104	50	92	2,0	0,76
52 173-025	7318792801501	25	G1	104	53	94	4,01	0,86
d = G3/4								
52 173-615*	7318792801907	15	G1/2	94	50	92	2,0	0,70
52 173-620*	7318792802003	20	G3/4	104	50	92	2,0	0,76
52 173-625	7318792802102	25	G1	104	53	94	4,01	0,86

→ = 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. See catalogue leaflet KOMBI.

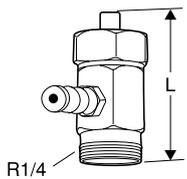
Accessories



Measuring points

Max 120°C (intermittent 150°C)

Article No	EAN	L
52 179-009	7318792813108	39
52 179-609	7318792814600	103



Measuring point

For older STAD and STAF
Max 150°C

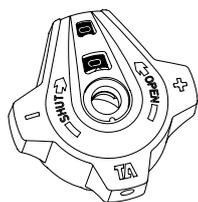
Article No	EAN	L
52 179-000	7318792812408	30
52 179-601	7318792814303	90



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



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

The products, texts, photographs, graphics and diagrams in this document may be subject to alteration by TA Hydronics without prior notice or reasons being given.

For the most up to date information about our products and specifications, please visit www.tahydronics.com.

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