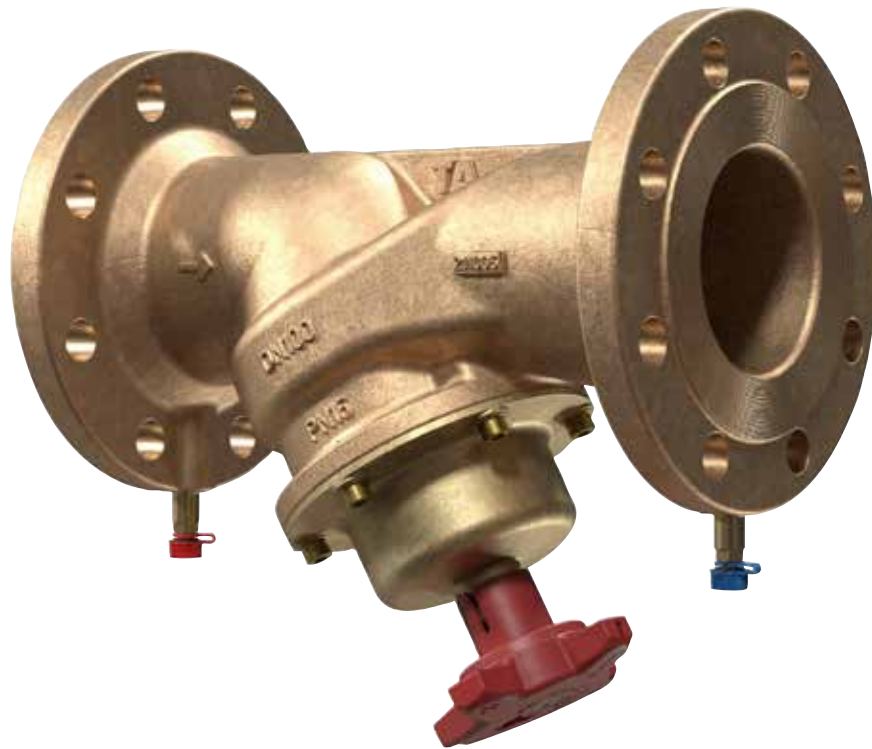


# STAF-R



## Balancing valves

PN 16 (DN 65-150) – Gunmetal

# STAF-R

A flanged balancing valve in gunmetal, that delivers accurate hydronic performance in an impressive range of applications. STAF-R is ideal for use mainly 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. Handwheel for DN 65-150 with side reading makes the read-out easy from any angle.
- > **Accurate and precise**  
Provides high accuracy of measurement.
- > **Self-sealing measuring points**  
For simple, accurate balancing.
- > **Positive shut-off function**  
For easy maintenance.



## Technical description

### Application:

Heating and cooling systems

### Functions:

Balancing  
Pre-setting  
Measuring  
Shut-off (The balancing cone for valves DN 100-150 is pressure released).

### Dimensions:

DN 65-150

### Pressure class:

PN 16

### Temperature:

Max. working temperature: 120°C  
Min. working temperature: -10°C

### Media:

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

### Material:

Body: Gunmetal CuSn5Zn5Pb5 (EN 1982).  
Bonnet, cone (DN 100-150 PTFE coated) and spindle: AMETAL®.  
Seals: EPDM.  
Slip washer: PTFE.  
Bonnet bolts: Stainless steel.  
Measuring points: AMETAL® and EPDM.  
Handwheel: Polyamide.

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

### Marking:

Body: TA, PN, DN, CE, flow direction arrow, material and casting date (year, month, day).

### Flanges:

ISO 7005-2, EN 1092-2.

### Face to face length:

ISO 5752 series 1, EN 558-1 series 1.

## Measuring points

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

## 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 65	DN 80	DN 100	DN 125	DN 150
0.5	1,02	2,33	2,54	5,99	5,39
1	2,39	4,25	5,59	10,9	13,3
1.5	3,77	6,20	8,64	15,7	22,8
2	5,18	8,47	11,5	21,5	41
2.5	6,52	11,4	15,5	29,1	65,7
3	8,18	15	26,2	37,5	92,6
3.5	11,6	20,8	42,8	54,2	127
4	18,6	29,9	66	85,2	176
4.5	29,9	43,3	91,7	118	214
5	39,6	57,5	108	148	249
5.5	47,9	69,6	119	168	281
6	57,5	81,2	136	198	307
6.5	66,3	92,8	151	232	332
7	74,2	104	164	255	353
7.5	80	114	174	275	374
8	85	123	185	294	400

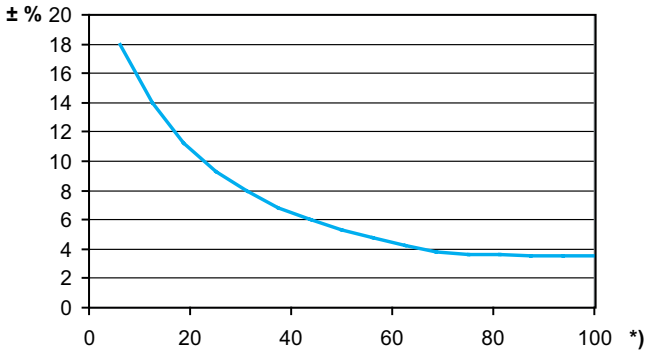
**NOTE:** In softwares (HySelect, HyTools) and balancing instrument (TA-SCOPE) the STAF-R, DN 65-150, is named STAF-R\*.

## Measuring accuracy

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

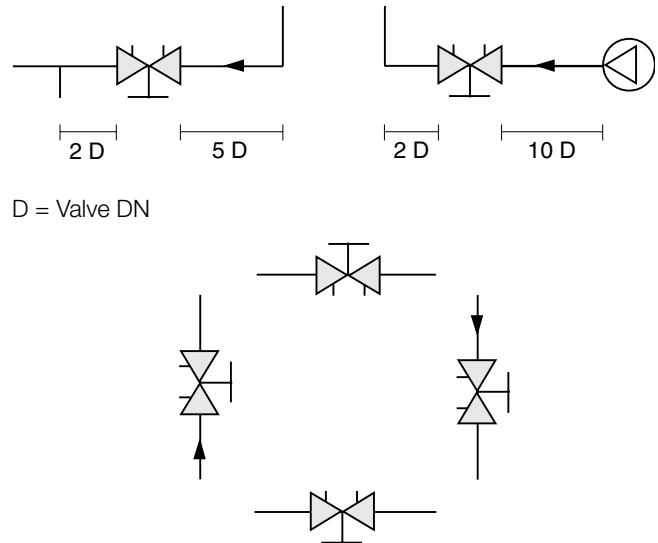
### Deviation of flow at different settings

The curve holds for valves with the correct flow direction, straight pipe distances (Fig. 1) and normal pipe fittings.



\*) Setting (%) of fully open valve.

Fig. 1



## 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

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.

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 a 5 mm Allen key, turn the inner spindle clockwise until stop.
4. The valve is now 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 DN 65

Fig. 1 Valve closed

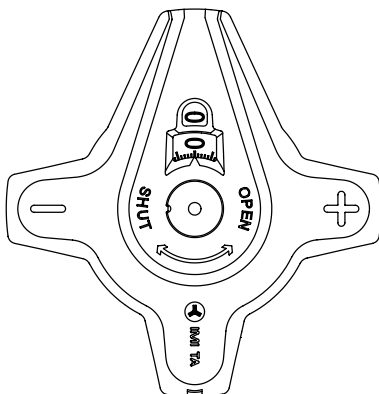


Fig. 2a The valve is set at 2.3

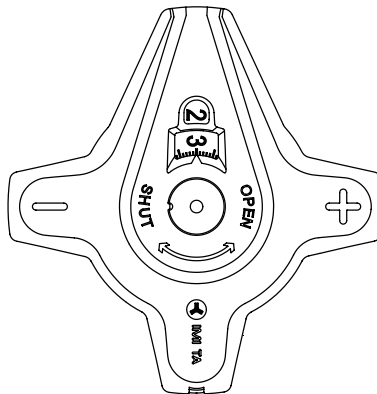
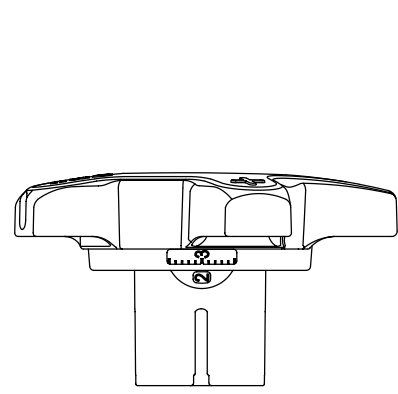
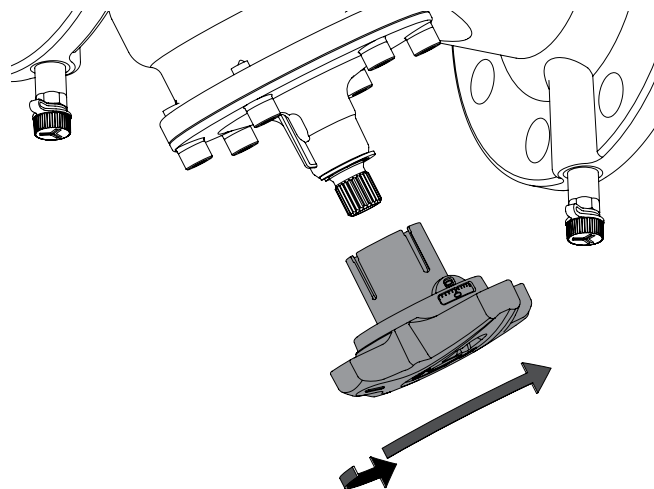


Fig. 2b Setting 2.3 side view



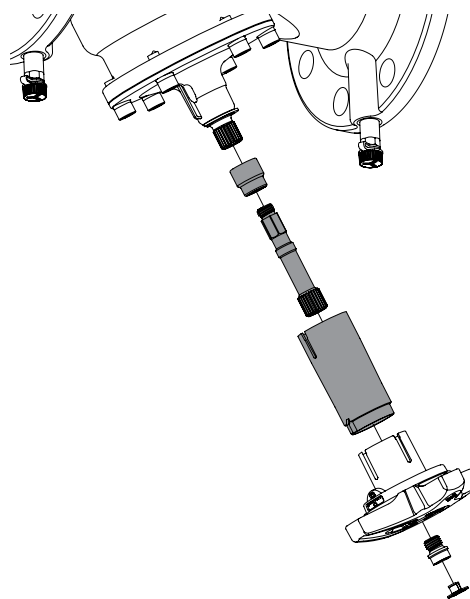
## Change of handwheel position DN 65-150

The handwheel on DN 65-150 have a reading on the side as well as on the top of the handwheel to make it easier to read. The handwheel can be rotated to have the side view reading in three different positions.



## Spindle extension DN 65-150

The spindle can be extended on DN 65-150 to make more room for insulation if needed. An extension kit is included with the DN 65-150 valves.



## Diagram example

### Wanted:

Presetting for DN 80 at a desired flow rate of 26 m<sup>3</sup>/h and a pressure drop of 25 kPa.

### Solution:

Draw a straight line joining 26 m<sup>3</sup>/h and 25 kPa. This gives Kv=52.

Now draw a horizontal line from Kv=52.

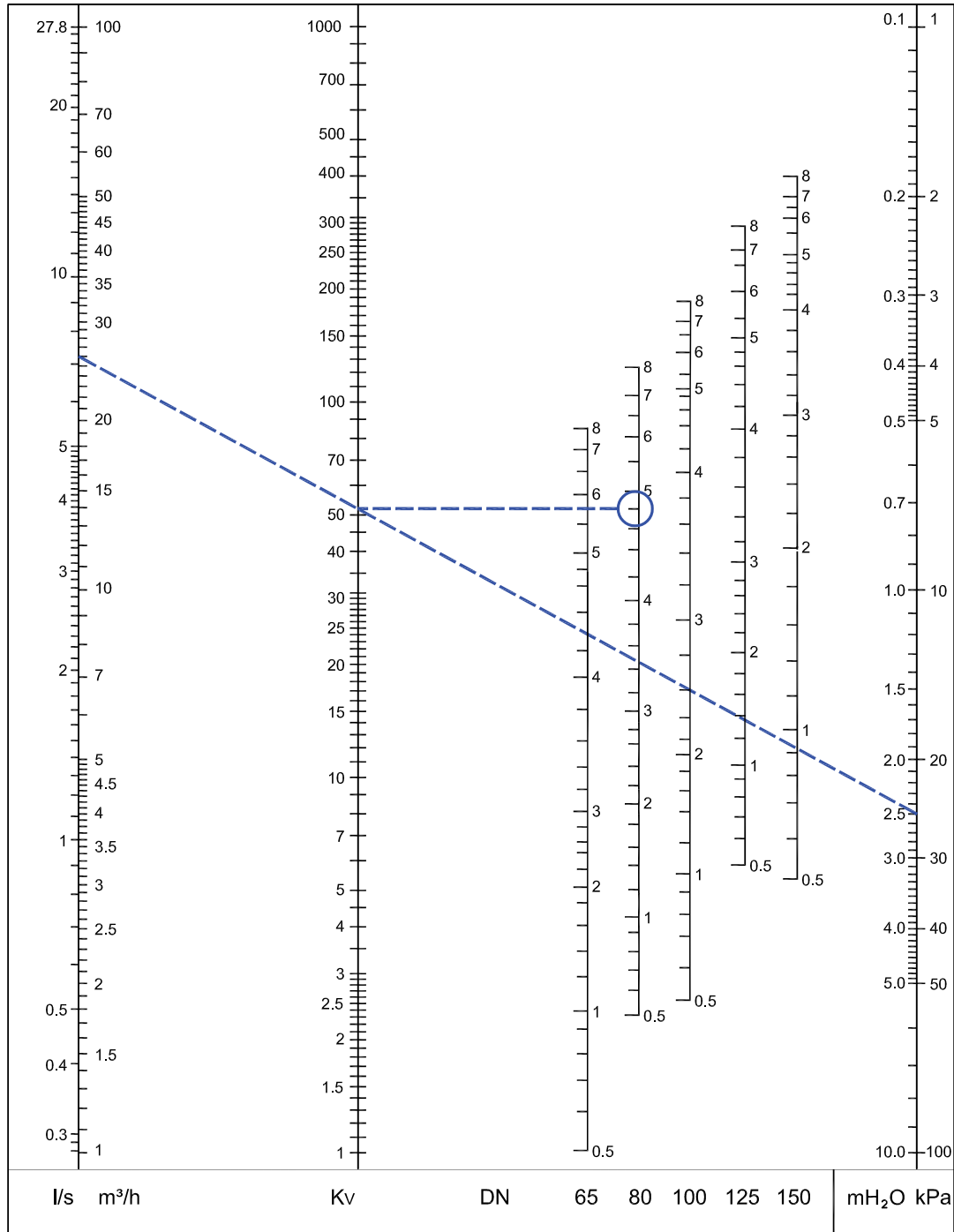
This intersects the bar for DN 80 at the desired presetting of 4.8 turns.

### NOTE:

If the flow rate falls outside the scale in the diagram, the reading can be made as follows:

Starting with the example above, we get 25 kPa, Kv = 52 and flowrate 26 m<sup>3</sup>/h. At 25 kPa and Kv = 5.2 we get the flow-rate 2,6 m<sup>3</sup>/h, and at Kv = 520, we get 260 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.

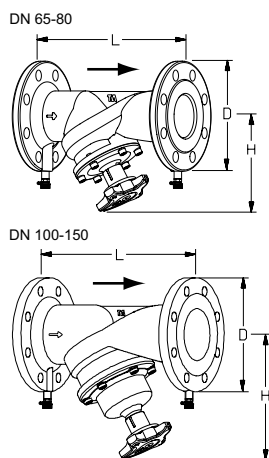
Diagram DN 65-150



Recommended area: See Fig. 3 under "Measuring accuracy".

**NOTE:** In softwares (HySelect, HyTools) and balancing instrument (TA-SCOPE) the STAF-R, DN 65-150, is named STAF-R\*.

## Articles



### Bolted bonnet

Spindle extension for DN 65-150 is included.

#### PN 16, ISO 7005-3, EN 1092-3

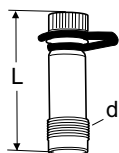
DN	Number of bolt holes	D	L	H	H <sup>1)</sup>	Kvs	Kg	EAN	Article No
65	4	185	290	163	223	85	13,3	5902276805189	52 186-765
80	8	200	310	172	232	123	17,1	5902276805196	52 186-780
100	8	220	350	223	283	185	22,9	5902276805202	52 186-790
125	8	250	400	259	319	294	34,2	5902276805219	52 186-791
150	8	285	480	273	333	400	49,9	5902276805226	52 186-792

1) Height with spindle extension  
 → = Flow direction

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

**NOTE:** In softwares (HySelect, HyTools) and balancing instrument (TA-SCOPE) the STAF-R, DN 65-150, is named STAF-R\*.

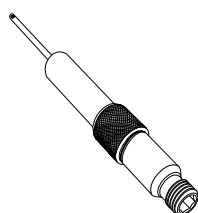
## Accessories



### Measuring point

AMETAL<sup>®</sup>/EPDM

d	L	EAN	Article No
<b>DN 65-300</b>			
R3/8	45	7318792813009	52 179-008
R3/8	101	7318792814501	52 179-608



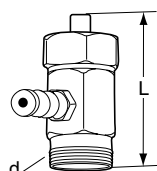
### Measuring point, extension 60 mm

(not for 52 179-000/-601)

Can be installed without draining of the system.

AMETAL<sup>®</sup>/Stainless steel/EPDM

L	EAN	Article No
60	7318792812804	52 179-006



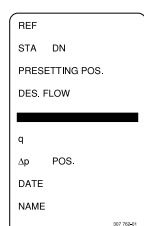
### Measuring point

For older STAD and STAF

Max 150°C

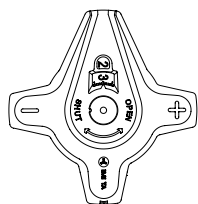
AMETAL<sup>®</sup>/EPDM

d	L	EAN	Article No
<b>DN 65-150</b>			
R3/8	30	7318792812903	52 179-007
R3/8	90	7318792814402	52 179-607



### Identification tag

EAN	Article No
7318792779206	52 161-990



### Handwheel

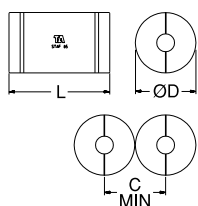
DN	EAN	Article No
65-150	5902276808968	52 186-010



### Allen key

For locking of setting.

[mm]	For DN	EAN	Article No
3	65-150	7318792836008	52 187-103

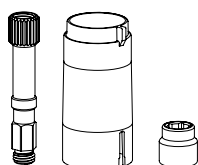


### Insulation

For heating/cooling  
CFC-free polyurethane. Covered with grey PVC.

See catalogue leaflet "Prefab insulations" for complete details.

For DN	L	D	C	EAN	Article No
50	390	250	252	7318792840708	52 189-850
65	450	270	272	7318792840807	52 189-865
80	480	290	292	7318792840906	52 189-880
100	520	320	322	7318792841002	52 189-890
125	570	350	352	7318792841101	52 189-891
150	660	380	382	7318792841200	52 189-892



### Spindle extension

Spare part.

Included in valves DN 65-150.  
Needed on DN 65-80 when using TA prefab insulations (52 189-8xx).

For DN	EAN	Article No
65-150	5902276808951	52 186-015