

# STAD

Balancing valve (MD60, MD61, MD62)



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

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**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°C

**Material:**

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

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

## > Draining

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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.

Formula	
Finding $\Delta p$ of device at known flowrate	$\Delta p = \left( \frac{q \times 36}{Kvs} \right)^2$
Finding q of device at known $\Delta p$	$q = \frac{\sqrt{\Delta p} \times Kvs}{36}$
Finding Kvs from known flowrate and $\Delta p$	$Kvs = \frac{q \times 36}{\sqrt{\Delta p}}$
Where: q = kg/s : $\Delta p$ : Kvs = signal Kv	

## Measuring accuracy

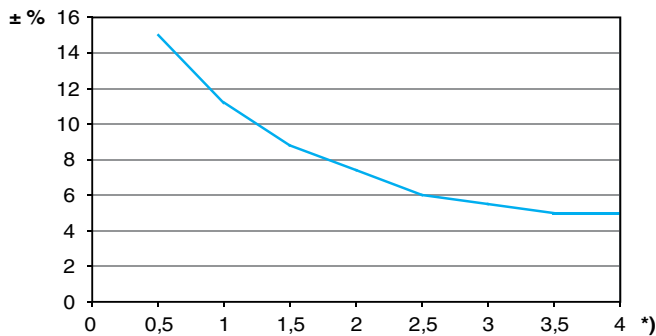
The zero position is calibrated and must not be changed.

### 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.

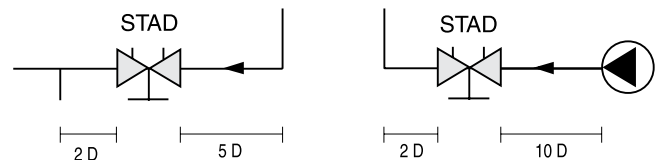
The valve can be installed with the opposite flow direction. The specified flow details are also valid for this direction although tolerances can be greater (maximum 5% more).

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



## 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

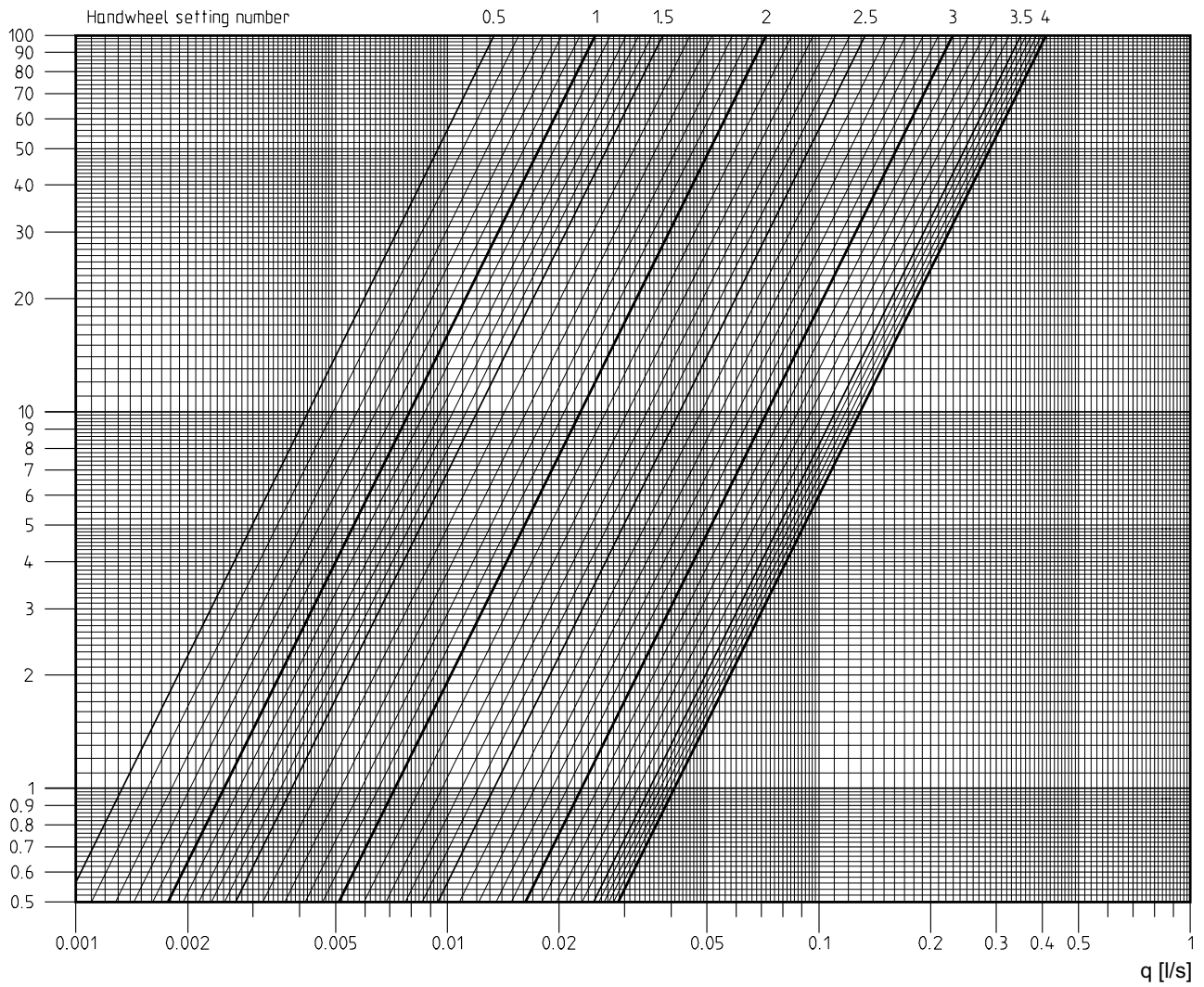
## Performance Graph, DN 15 (1/2)

Ultra Low Flow

Kvs 1,47

Compression Ends

$\Delta p$  [kPa]



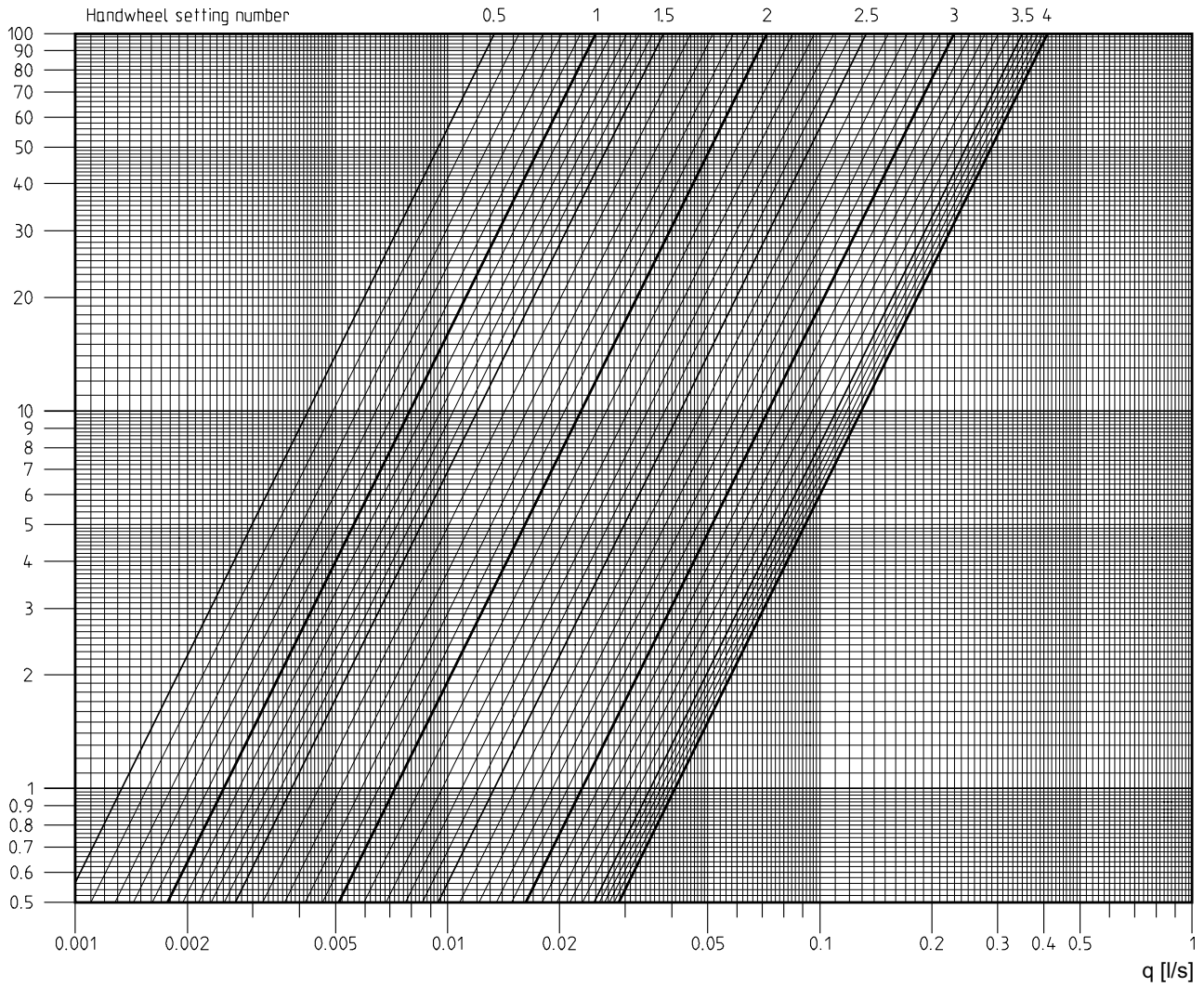
# Performance Graph, DN 15 (1/2)

Ultra Low Flow

Kvs 1,47

Compression Ends

$\Delta p$  [kPa]



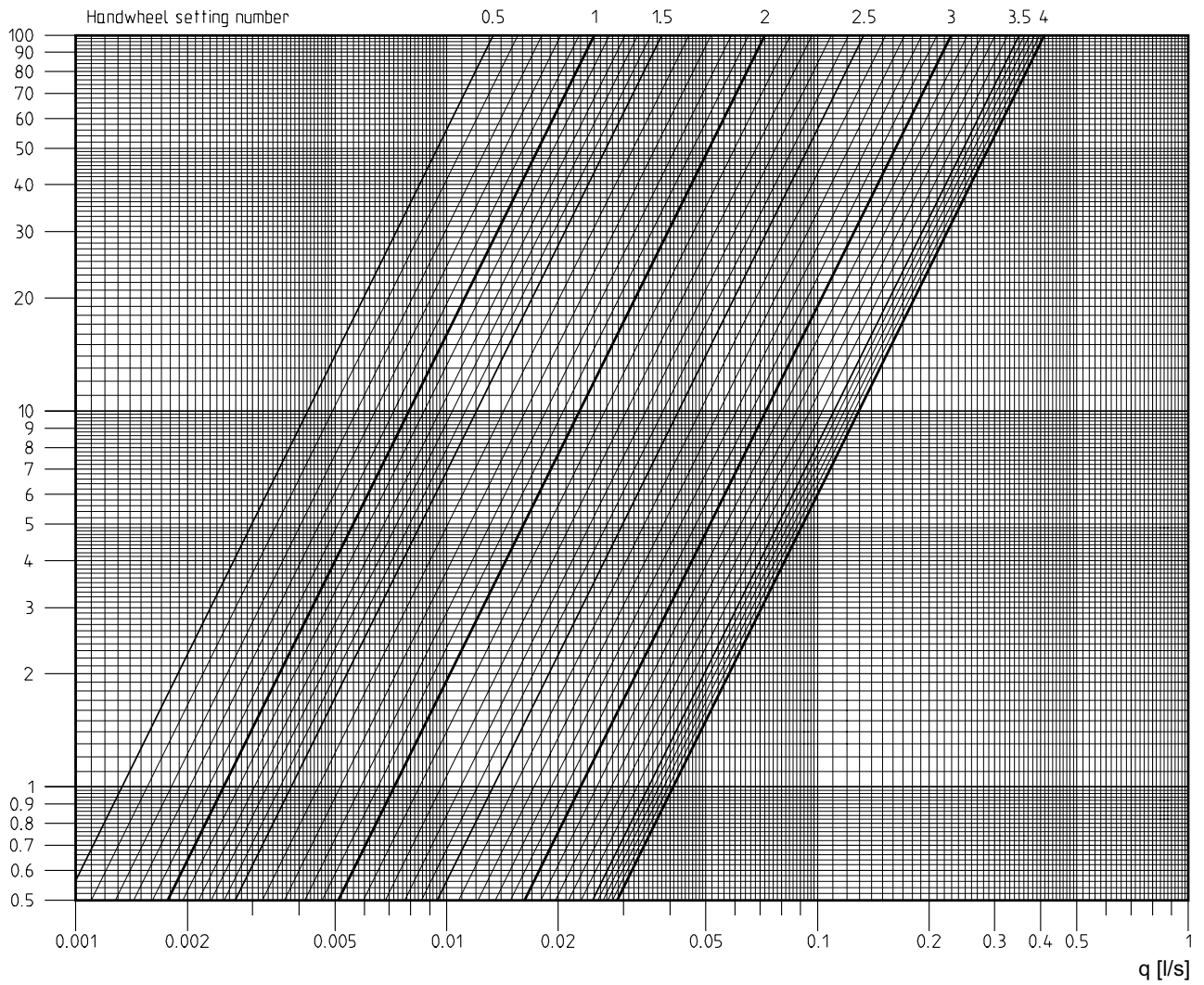
# Performance Graph, DN 15 (1/2)

Ultra Low Flow

Kvs 1,47

Compression Ends

$\Delta p$  [kPa]

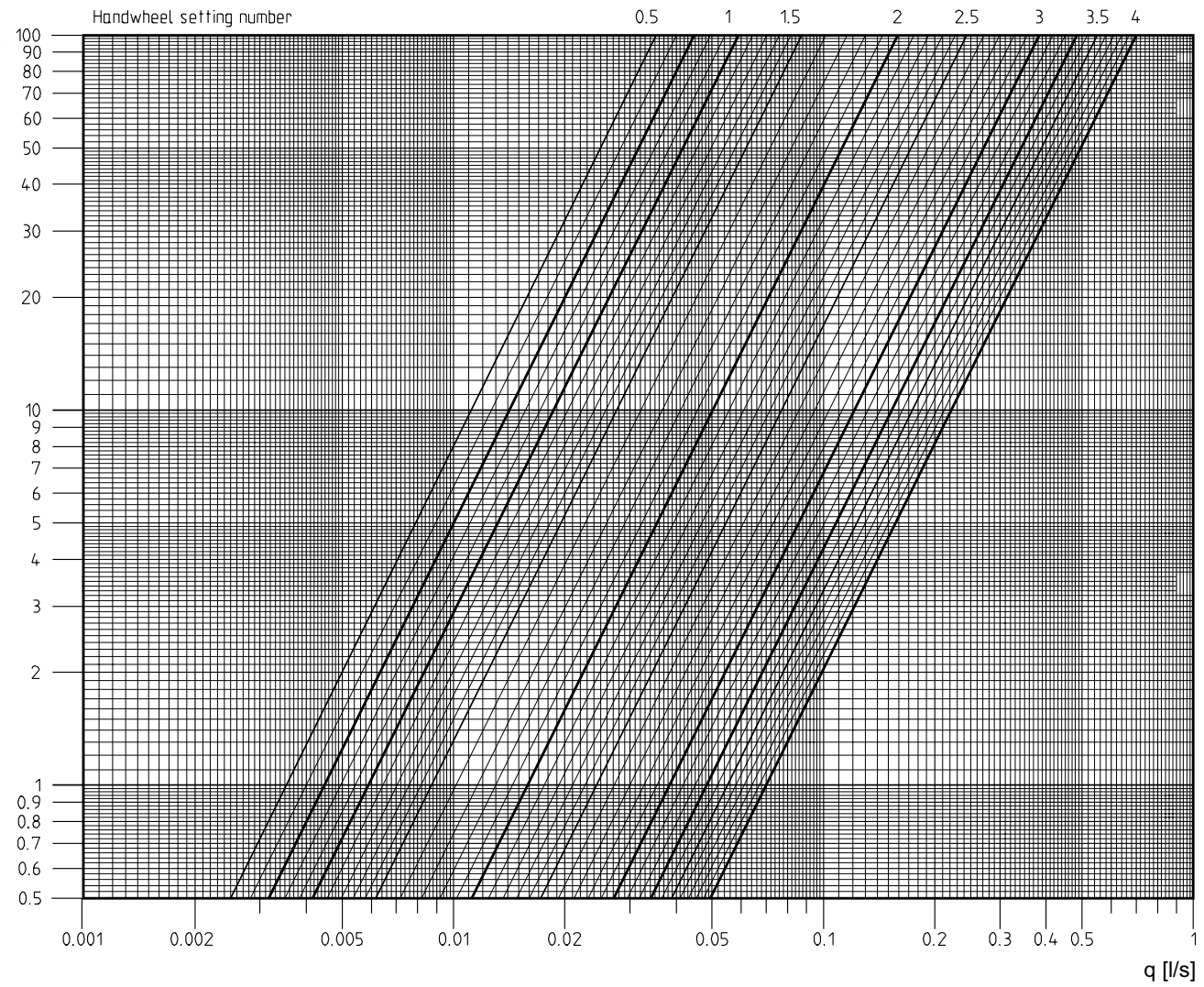


## Performance Graph, DN 15/14 (1/2)\*

Standard Flow

Threaded

$\Delta p$  [kPa]



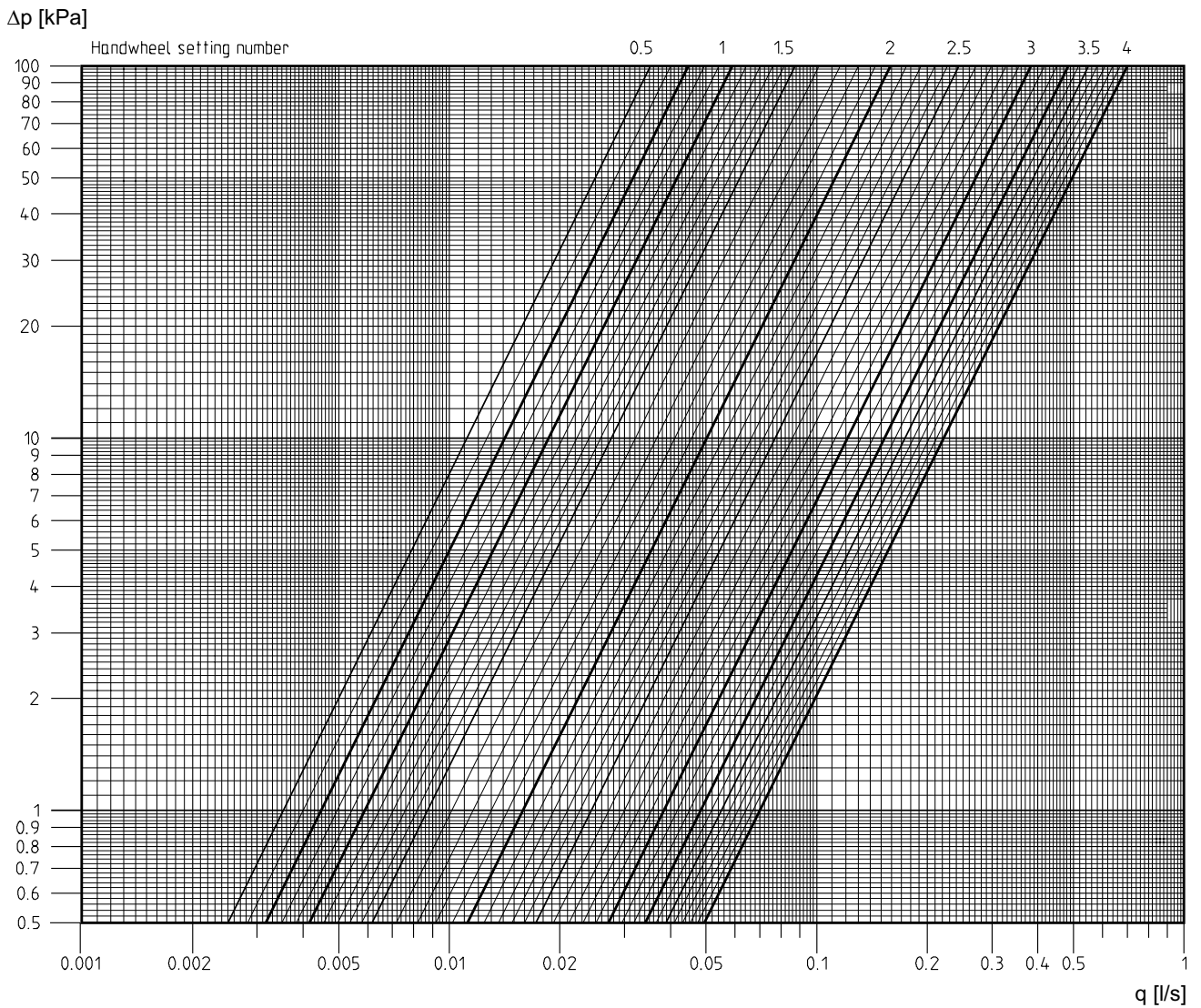
\*) Can be connected to smooth tubes by means of KOMBI compression coupling.



## Performance Graph, DN 15/14 (1/2)\*

Standard Flow

Threaded



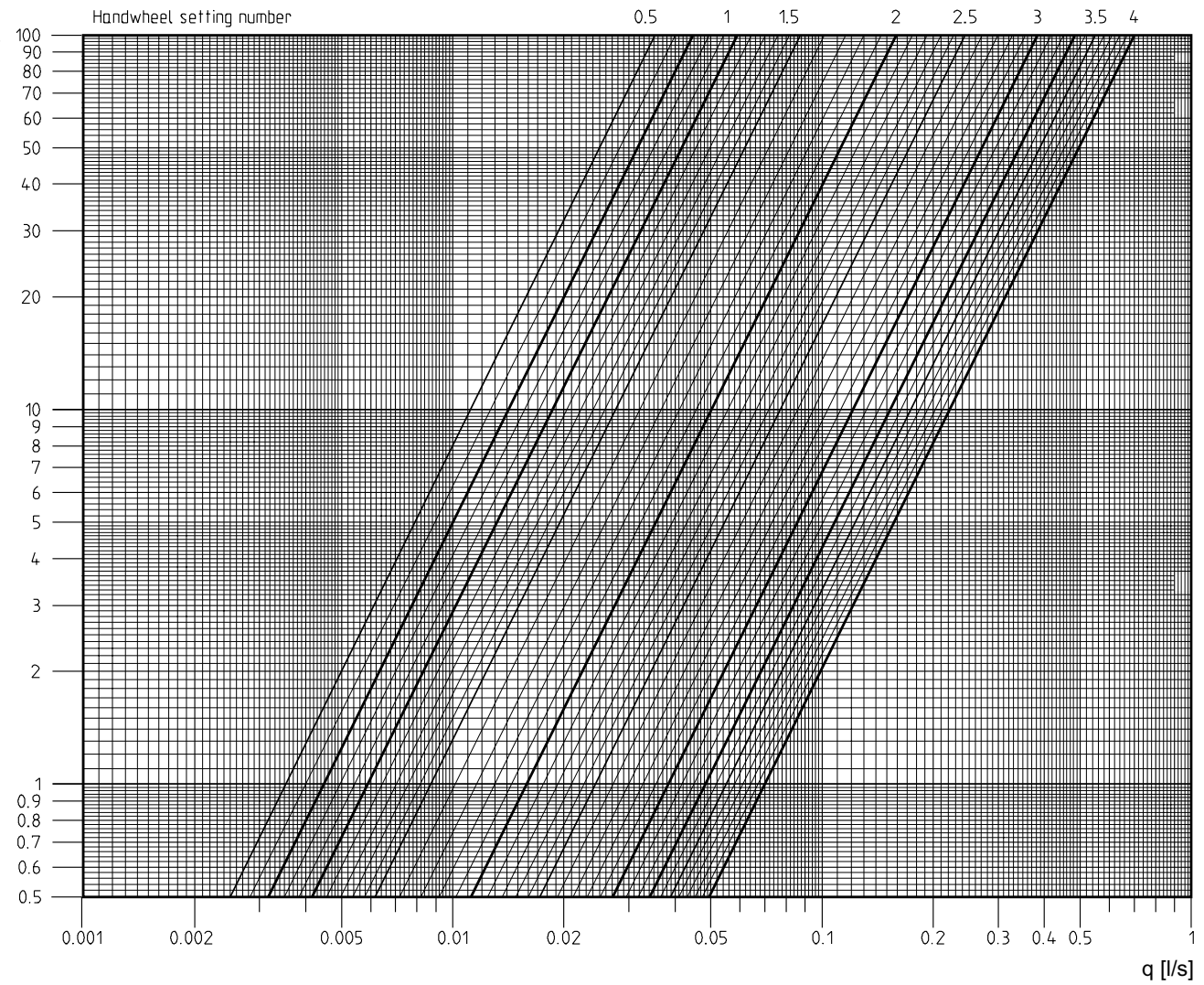
\*) Can be connected to smooth tubes by means of KOMBI compression coupling.

## Performance Graph, DN 15/14 (1/2)\*

Standard Flow

Threaded

$\Delta p$  [kPa]



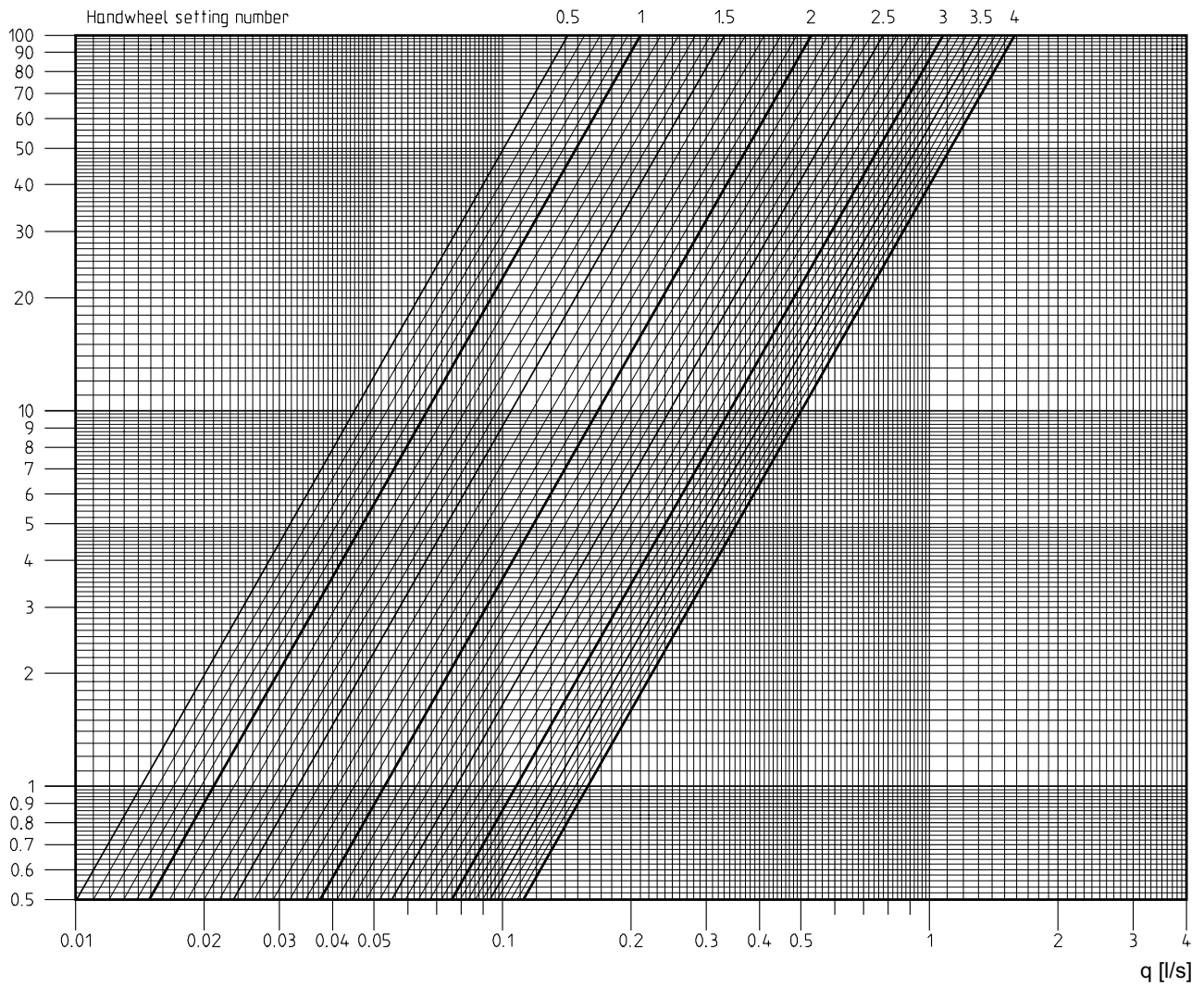
\*) Can be connected to smooth tubes by means of KOMBI compression coupling.

## Performance Graph, DN 20 (3/4)

Standard Flow

Threaded

$\Delta p$  [kPa]

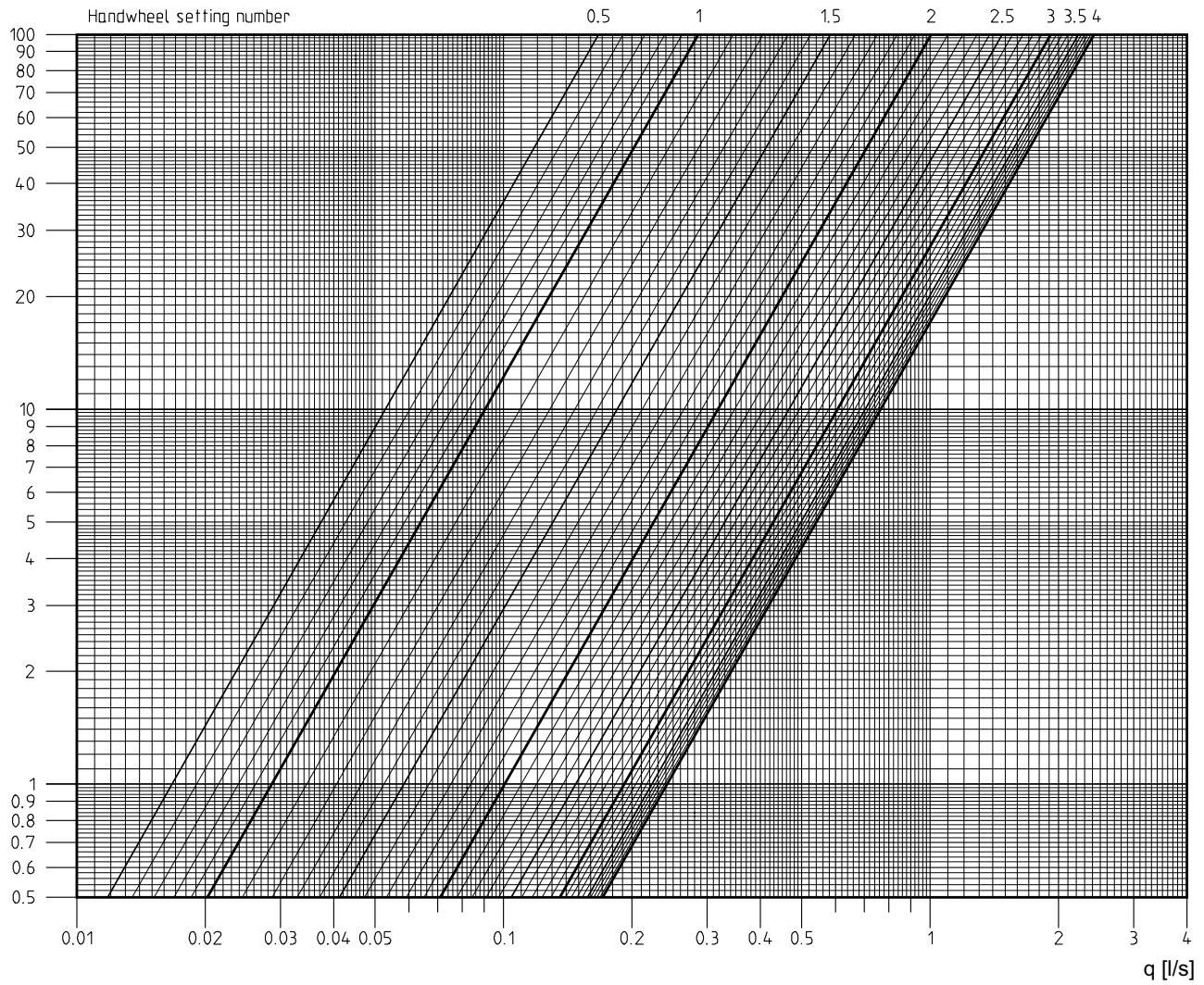


## Performance Graph, DN 25 (3/4)

Standard Flow

Threaded

$\Delta p$  [kPa]

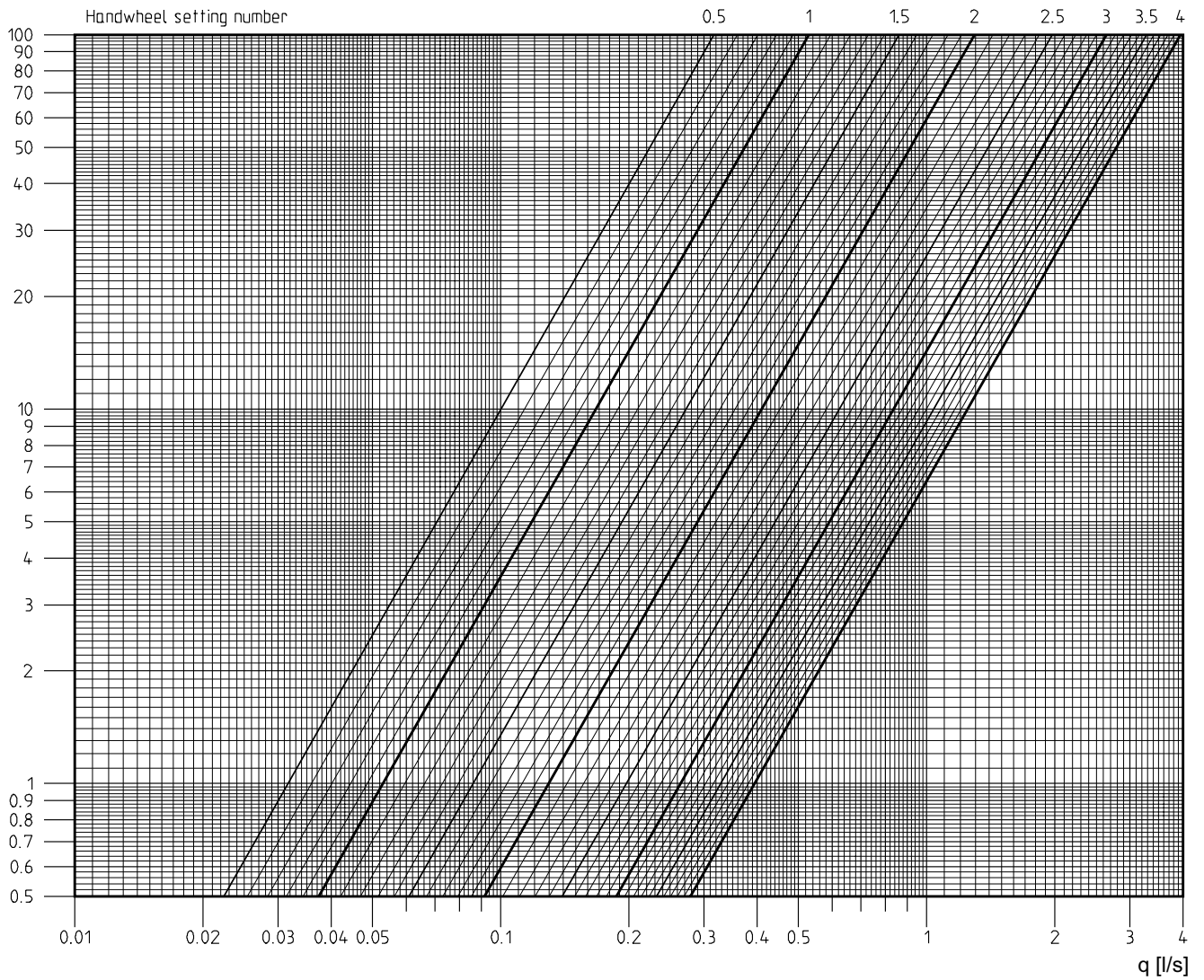


# Performance Graph, DN 32 (1 1/4)

Standard Flow

Threaded

$\Delta p$  [kPa]

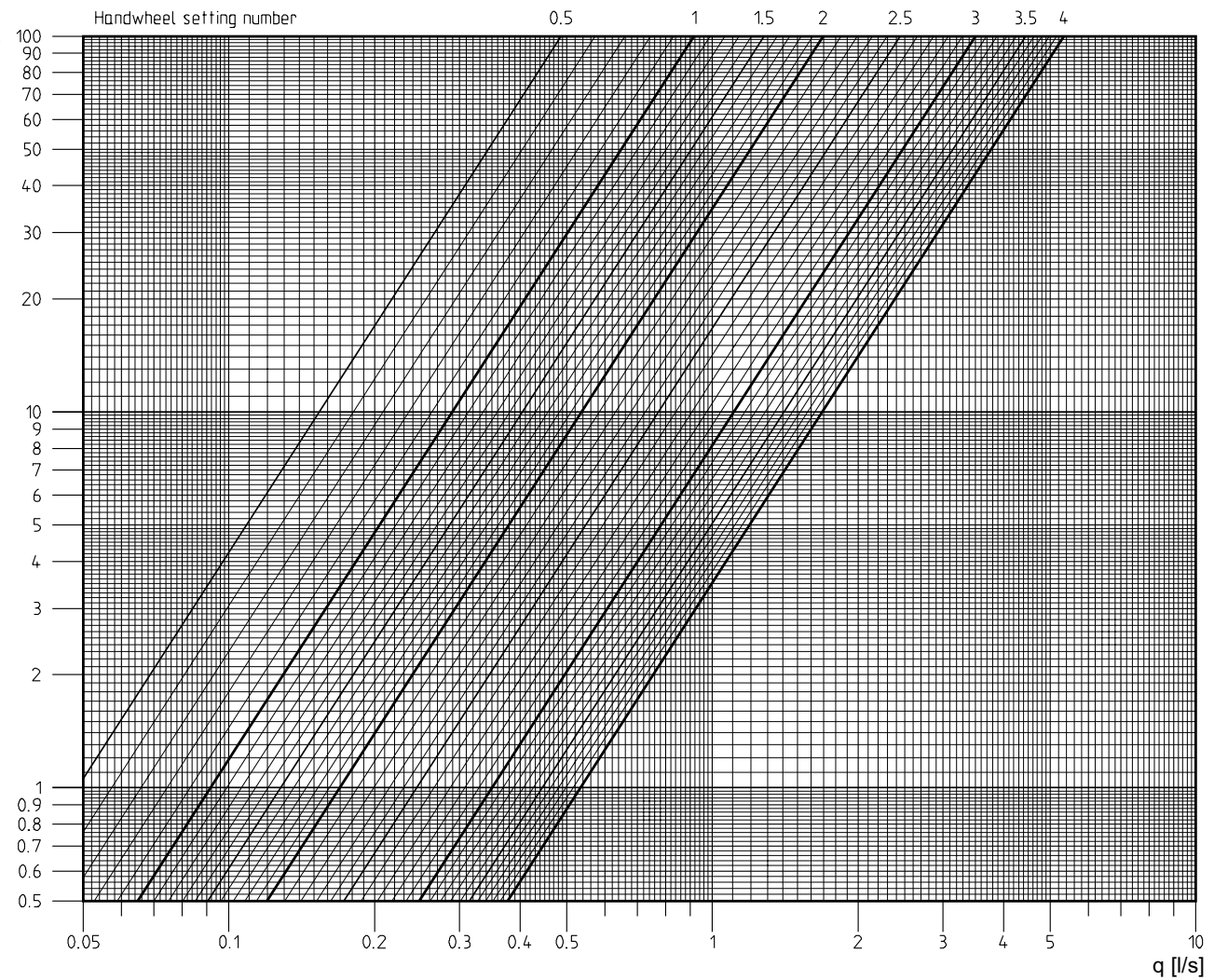


## Performance Graph, DN 40 (1 1/2)\*

Standard Flow

Threaded

$\Delta p$  [kPa]



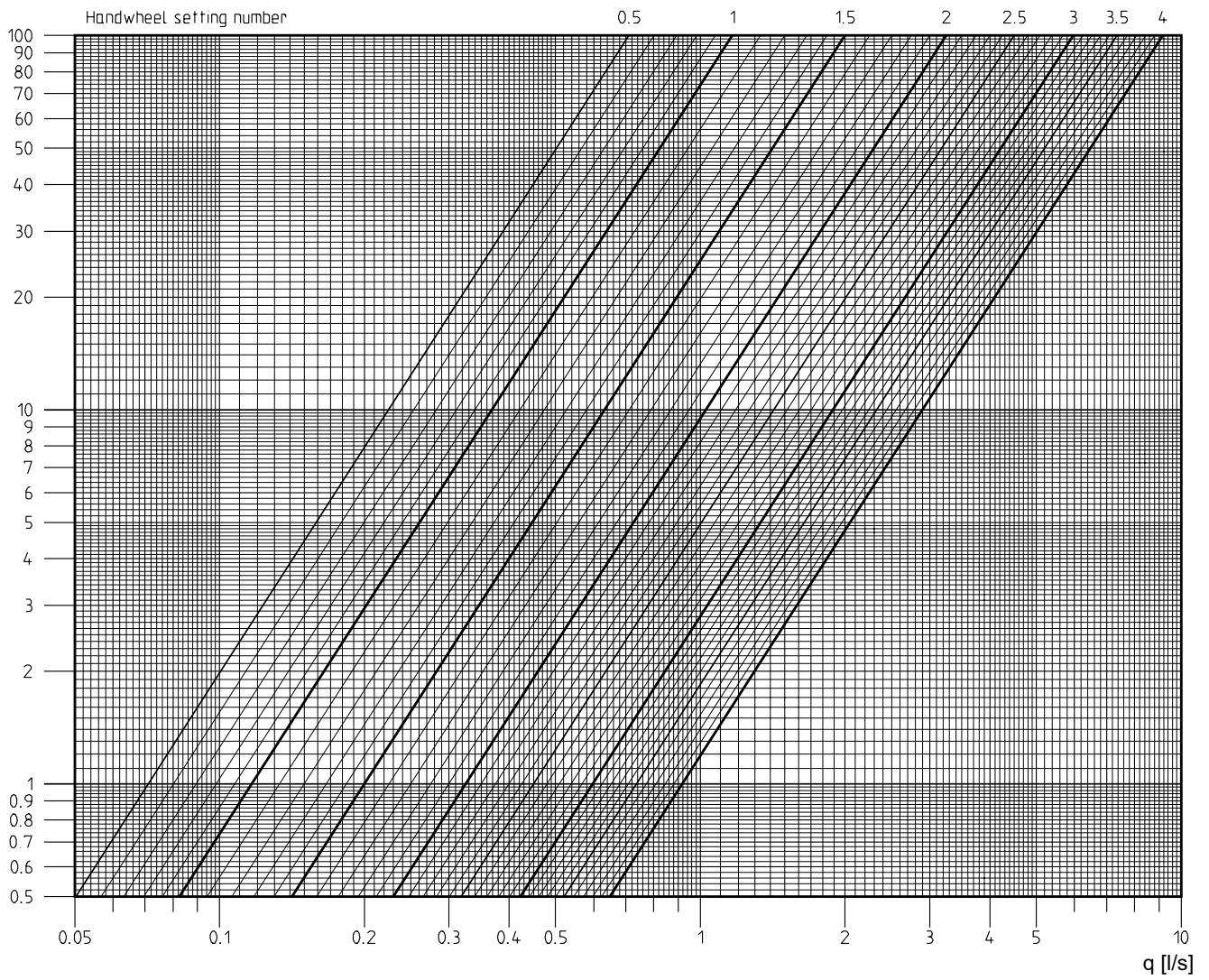
\*) Can be connected to smooth tubes by means of KOMBI compression coupling.

## Performance Graph, DN 50 (2)

Standard Flow

Threaded

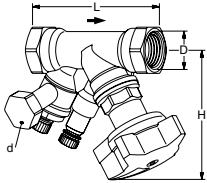
$\Delta p$  [kPa]



## Articles

### Female threads (MD60)

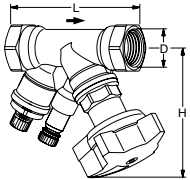
Thread according to ISO 228. Thread length according to ISO 7/1.  
With drain.



Article No	DN	D	L	H	Kvs	Kg
<b>d = G1/2</b>						
52 151-209*	10/09	G3/8	83	100	1,47	0,65
52 151-214*	15/14	G1/2	90	100	2,52	0,68
52 151-220*	20	G3/4	97	100	5,70	0,77
52 151-225	25	G1	110	105	8,70	0,93
52 151-232	32	G1 1/4	124	110	14,2	1,3
52 151-240	40	G1 1/2	130	120	19,2	1,6
52 151-250	50	G2	155	120	33,0	2,4

### Female threads (MD61)

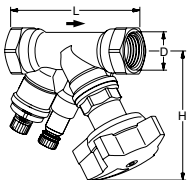
Thread according to ISO 228. Thread length according to ISO 7/1.  
Without drain (can be installed during operation).



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

### Female threads

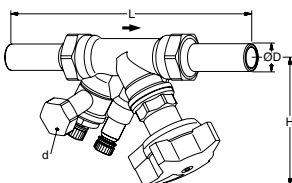
Thread according to ISO 7 (≈ BS 21)  
Without drain (can be installed during operation)



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

### Smooth ends

With drain.



Article No	DN	D	L	H	Kvs	Kg
<b>d = G1/2</b>						
52 451-209	10/09	12	141	100	1,47	0,71
52 451-214	15/14	15	154	100	2,52	0,78
52 451-220	20	22	179	100	5,70	0,93
52 451-225	25	28	208	105	8,70	1,2
52 451-232	32	35	233	110	14,2	1,7
52 451-240	40	42	260	120	19,2	2,1
52 451-250	50	54	305	120	33,0	3,2

→ = Flow direction

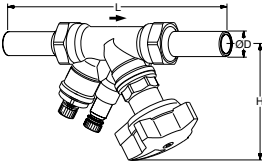
Kvs = m<sup>3</sup>/h at a pressure drop of 1 bar and fully open valve.

\*) Can be connected to smooth pipes by KOMBI compression coupling. See catalogue leaflet KOMBI.



**Smooth ends**

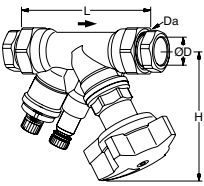
Without drain (can be installed during operation)



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

**With KOMBI compression couplings (not mounted)**

Without drain (can be installed during operation)

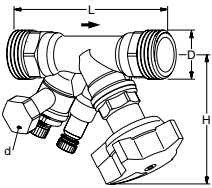


Article No	DN	Da	D	L	H	Kvs	Kg
52 151-314	15/14	G1/2	12 mm x 2 / 15 mm x 2	90	100	2,52	0,76
52 151-320	20	G3/4	18 mm x 2 / 22 mm x 2	97	100	5,70	0,96

**Male threads (STADA)**

Thread length according to DIN 3546

With drain

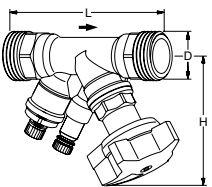


Article No	DN	D	L	H	Kvs	Kg
<b>d = G1/2</b>						
52 152-209	10/09	G1/2	105	100	1,47	0,70
52 152-214	15/14	G3/4	114	100	2,52	0,73
52 152-220	20	G1	125	100	5,70	0,88
52 152-225	25	G1 1/4	142	105	8,70	1,2
52 152-232	32	G1 1/2	160	110	14,2	1,6
52 152-240	40	G2	170	120	19,2	2,2
52 152-250	50	G2 1/2	200	120	33,0	3,3

**Male threads (STADA, MD62)**

Thread length according to DIN 3546

Without drain (can be installed during operation)



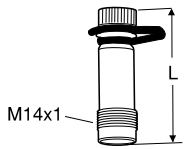
Article No	DN	D	L	H	Kvs	Kg
52 152-009	10/09	G1/2	105	100	1,47	0,61
52 152-014	15/14	G3/4	114	100	2,52	0,66
52 152-020	20	G1	125	100	5,70	0,81
52 152-025	25	G1 1/4	142	105	8,70	1,1
52 152-032	32	G1 1/2	160	110	14,2	1,5
52 152-040	40	G2	170	120	19,2	2,1
52 152-050	50	G2 1/2	200	120	33,0	3,2

→ = Flow direction

 Kvs = m<sup>3</sup>/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.

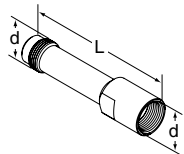
## Accessories



### Measuring points

Max 120°C (intermittent 150°C)

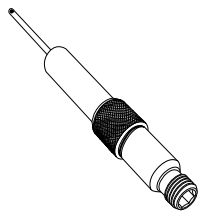
Article No	L
52 179-014	44
52 179-015	103



### Extension for measuring point M14x1

Suitable when insulation is used.

Article No	d	L
52 179-016	M14x1	71

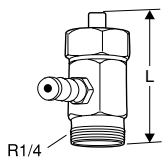


### Measuring point

Extensions 60 mm (not for 52 179-000/-601)

Can be installed without draining of the system.

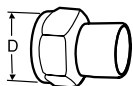
Article No
52 179-006



### Measuring point

For older STAD and STAF  
Max 150°C

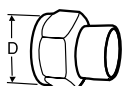
Article No	L
52 179-000	30
52 179-601	90



### Welding connection

Max 120°C

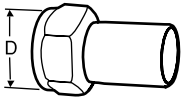
Article No	Valve DN	D	Pipe DN
52 009-010	10	G1/2	10
52 009-015	15	G3/4	15
52 009-020	20	G1	20
52 009-025	25	G1 1/4	25
52 009-032	32	G1 1/2	32
52 009-040	40	G2	40
52 009-050	50	G2 1/2	50



### Soldering connection

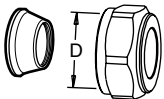
Max 120°C

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



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

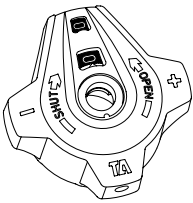
Article No	Valve DN	D	Pipe DN
52 009-312	10	G1/2	12
52 009-315	15	G3/4	15
52 009-318	20	G1	18
52 009-322	20	G1	22
52 009-328	25	G1 1/4	28
52 009-335	32	G1 1/2	35
52 009-342	40	G2	42
52 009-354	50	G2 1/2	54



**Compression connection**  
Max 100°C

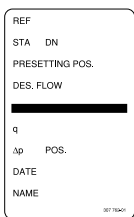
Article No	Valve DN	D	Pipe Ø
53 319-208	10	G1/2	8
53 319-210	10	G1/2	10
53 319-212	10	G1/2	12
53 319-215	10	G1/2	15
53 319-216	10	G1/2	16
53 319-615	15	G3/4	15
53 319-618	15	G3/4	18
53 319-622	15	G3/4	22
53 319-922	20	G1	22
53 319-928	20	G1	28

Support bushes shall be used, for more information see catalogue leaflet FPL.



**Handwheel**  
Complete

Article No
52 186-003



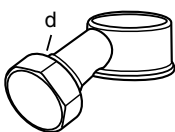
**Identification tag**  
Incl 1 pc per valve

Article No
52 161-990



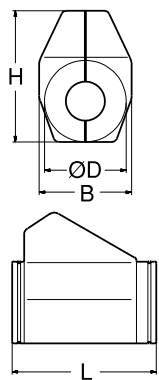
**Allen key**

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



**Draining kit**  
Can be installed during operation

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



**Insulation**

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

Article No	For DN	L	H	D	B
52 189-615	10, 15, 20	155	135	90	103
52 189-625	25	175	142	94	103
52 189-632	32	195	156	106	103
52 189-640	40	214	169	108	113
52 189-650	50	245	178	108	114

The products, texts, photographs, graphics and diagrams in this brochure may be subject to alteration by TA Hydronics with out prior notice or reasons being given.

For the most up to date information about our products and specifications, please visit [www.tahydronics.com](http://www.tahydronics.com).

5-5-10 UK STAD 04.2014