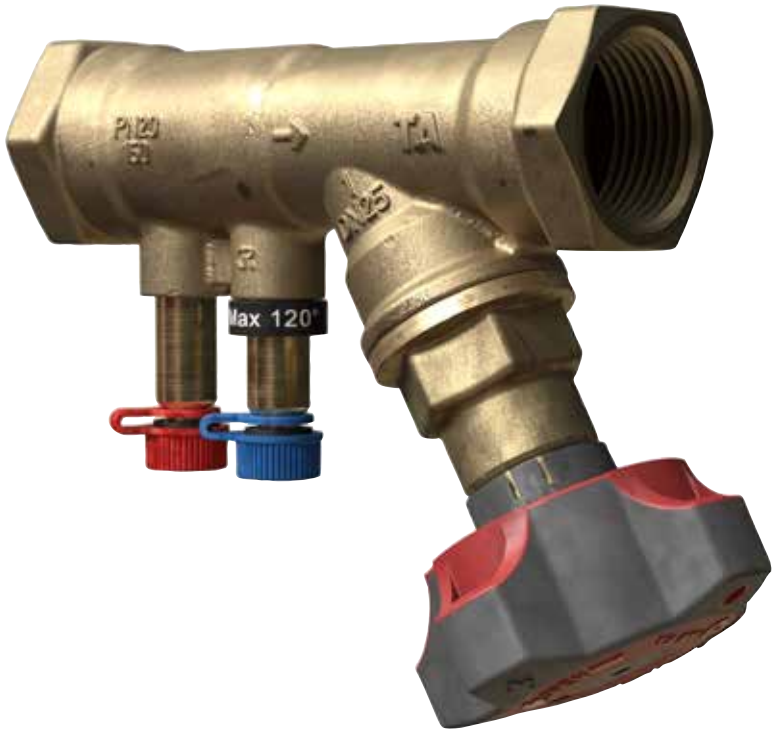
IMI TA

STAV



Balancing valves

DN 15-50 with venturi orifice

IMI Hydronic Engineering

Breakthrough Engineering

STAV

The STAV balancing valve 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.

Key features

- **Self-sealing measuring points**
  For simple, accurate balancing.
- **Handwheel**
  Equipped with a digital read-out, the handwheel ensures accurate and straightforward balancing.
- **Venturi orifice**
  For more accurate flow readings than traditional orifice plates and low permanent pressure loss.

Technical description

Applications:
Heating and cooling systems.
Tap water systems.

Functions:
Balancing
Pre-setting
Measuring
Shut-off

Dimensions:
DN 15-50

Pressure class:
PN 20

Temperature:
Max. working temperature: 120°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

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

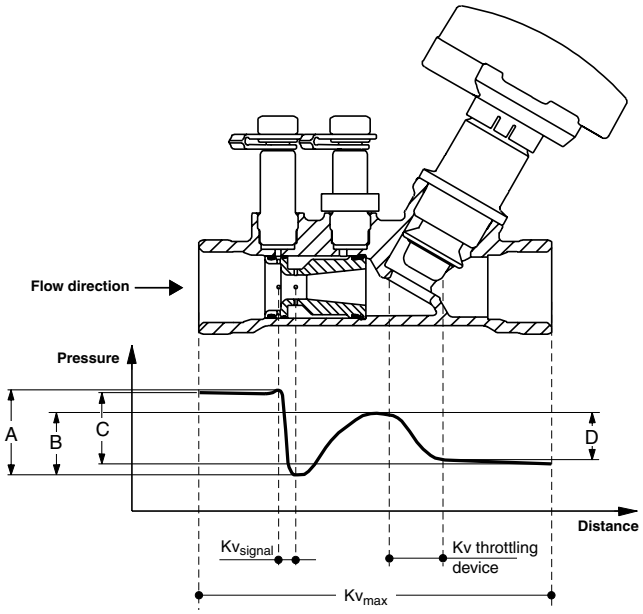
Marking:
Body: TA, PN 20, DN and inch size.
Handwheel: Valve type and DN.
Marking ring on measuring point:
Normal flow (MD 71): Black, 120°C, Kv_{signal}
Low flow (MD 72): White, 120°C, Kv_{signal}
Ultra low flow (MD 73): Blue, 120°C, Kv_{signal}

Connection:
Female thread according to ISO 228.
Thread length according to ISO 7/1.

Operating function

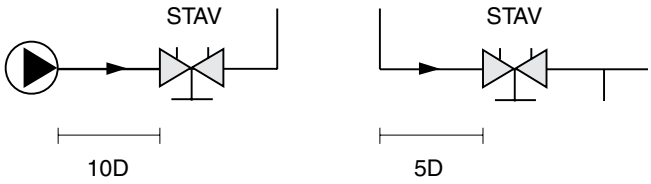
The pressure drop over the valve may be lower than the pressure drop between the two measuring points, since most of that pressure drop will be recovered in the outlet part of the venturi nozzle, see figure.

A Pressure drop between measuring points
B Recovered pressure
C Pressure drop over the valve
D Pressure drop over the throttling device



Measuring accuracy

Flow deviation less than ±5%.



Kv values

Kv_{max} at different settings

No of turns	Normal flow (MD 71)						Low flow (MD 72)	Ultra low flow (MD 73)
	DN 15	DN 20	DN 25	DN 32	DN 40	DN 50	DN 15	DN 15
0.5	0.127	0.511	0.600	1.14	1.75	2.56	-	-
1	0.212	0.757	1.03	1.90	3.30	4.20	0.090	0.090
1.5	0.314	1.19	2.10	3.10	4.60	7.20	0.134	0.126
2	0.571	1.80	3.61	4.66	6.10	11.6	0.280	0.217
2.5	0.862	2.46	4.68	6.72	8.43	16.1	0.465	0.277
3	1.22	3.24	5.34	8.62	11.7	20.7	0.657	0.304
3.5	1.55	3.74	5.92	9.96	13.9	24.5	0.795	0.316
4	1.75	3.98	6.46	11.43	15.8	29.3	0.821	0.319

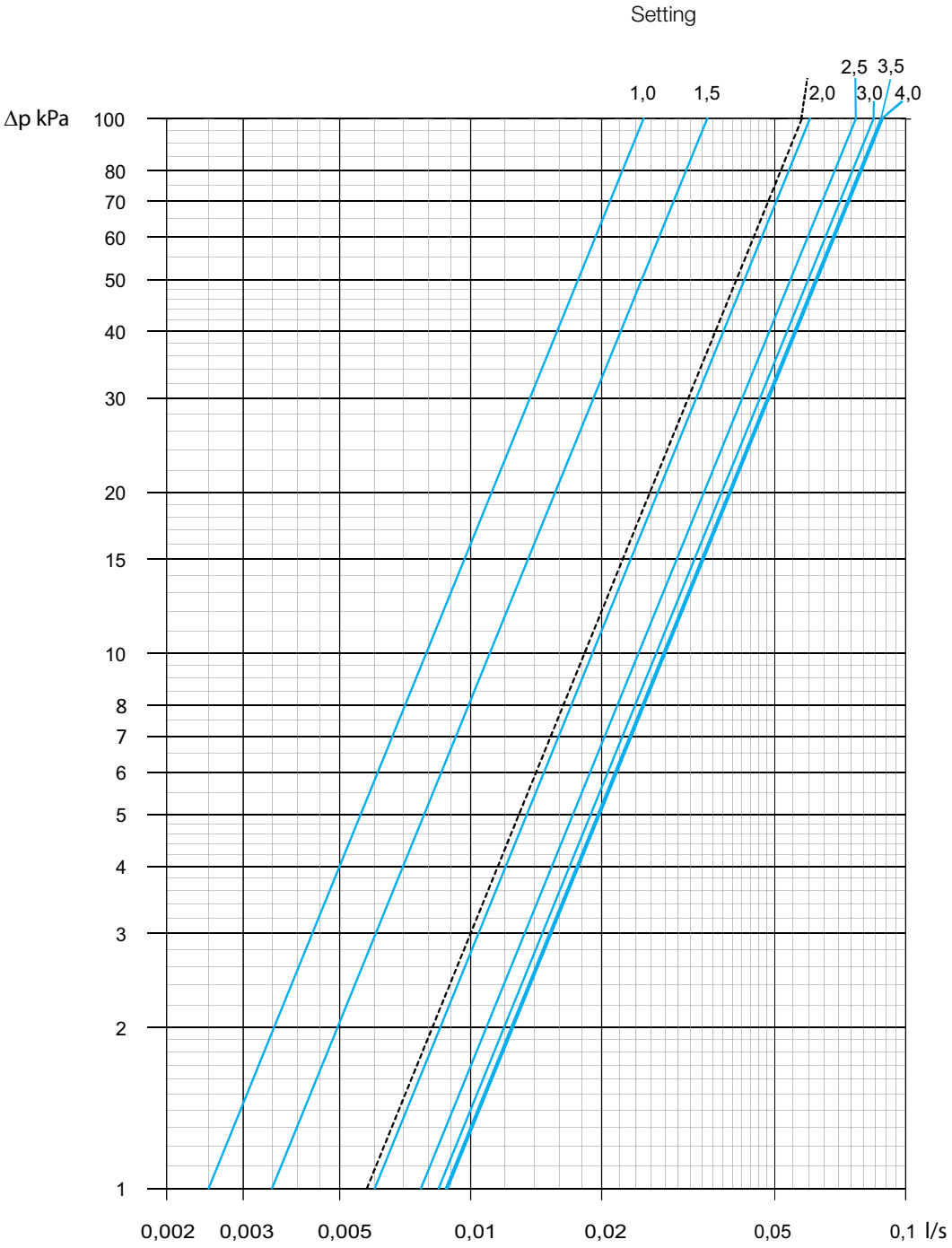
Sizing

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

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

Performance graph, DN 15

Ultra low flow



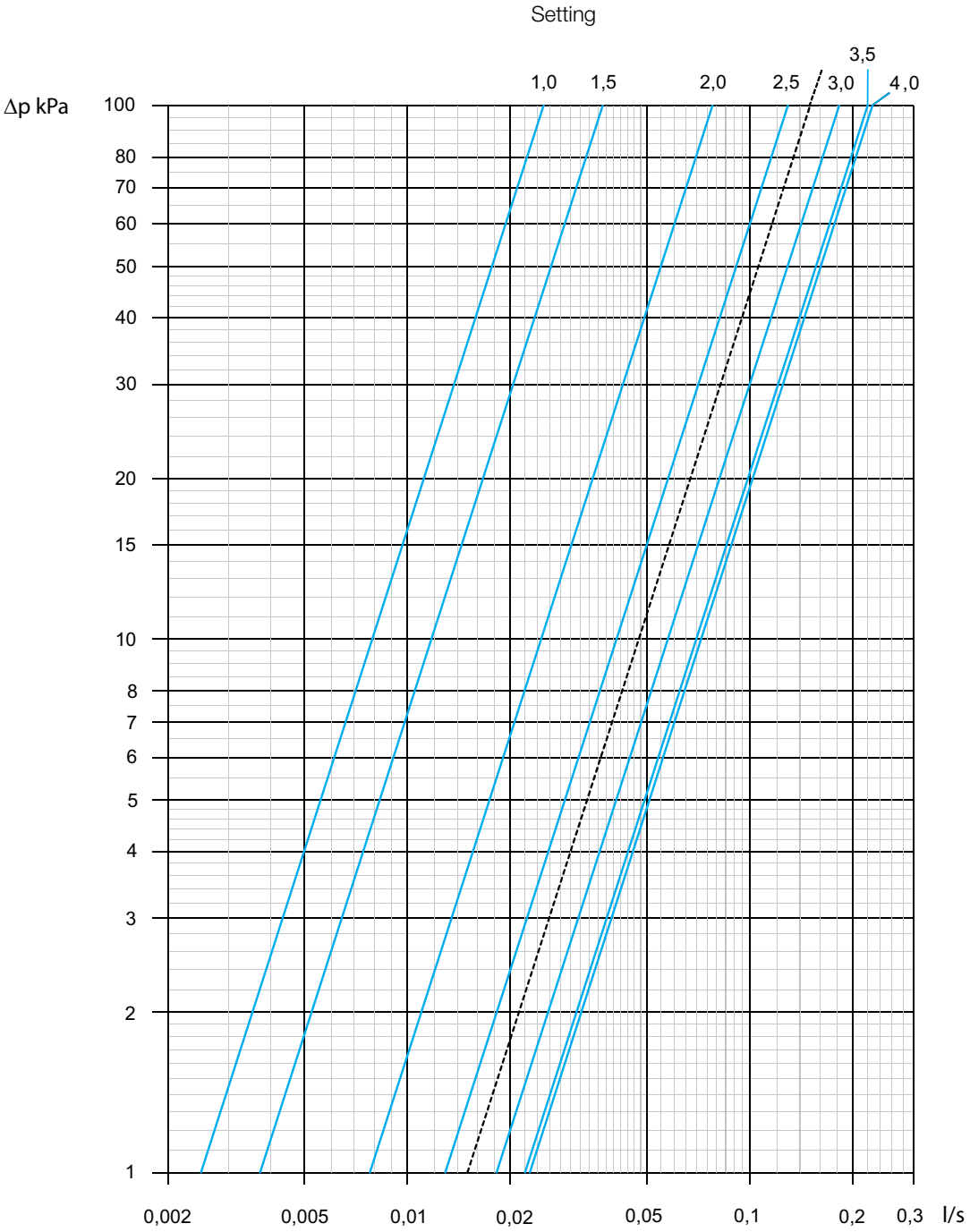
Kv $_{max}$

Kv $_{signal}$

Kv$_{max}$ is the Kv value for the total valve.
Kv$_{signal}$ is the Kv value used for flow measuring.

Performance graph, DN 15

Low flow



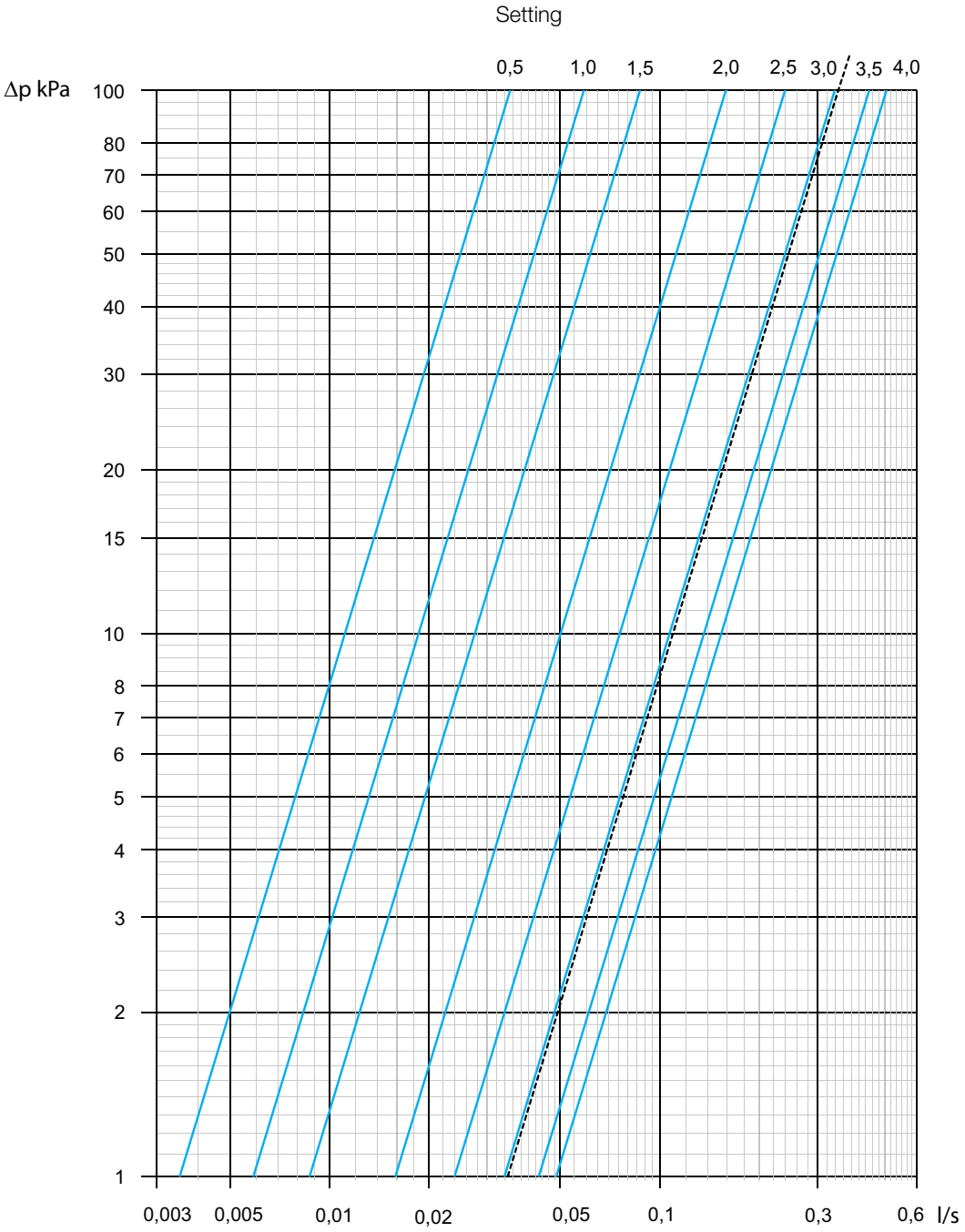
—— Kv $_{max}$

----- Kv $_{signal}$

Kv$_{max}$ is the Kv value for the total valve.
Kv$_{signal}$ is the Kv value used for flow measuring.

Performance graph, DN 15

Normal flow



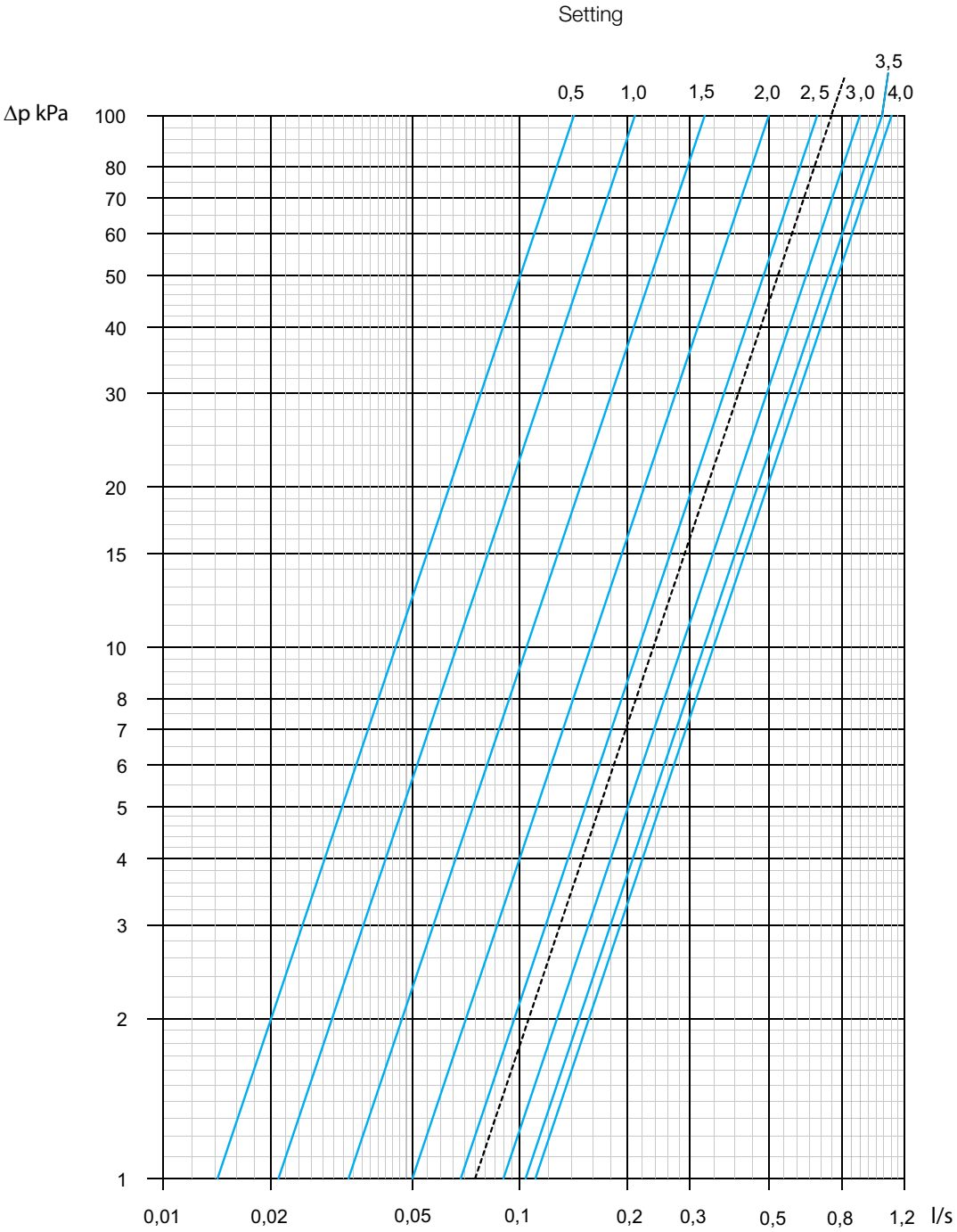
—— Kv max

----- Kv signal

Kv$_{max}$ is the Kv value for the total valve.
Kv$_{signal}$ is the Kv value used for flow measuring.

Performance graph, DN 20

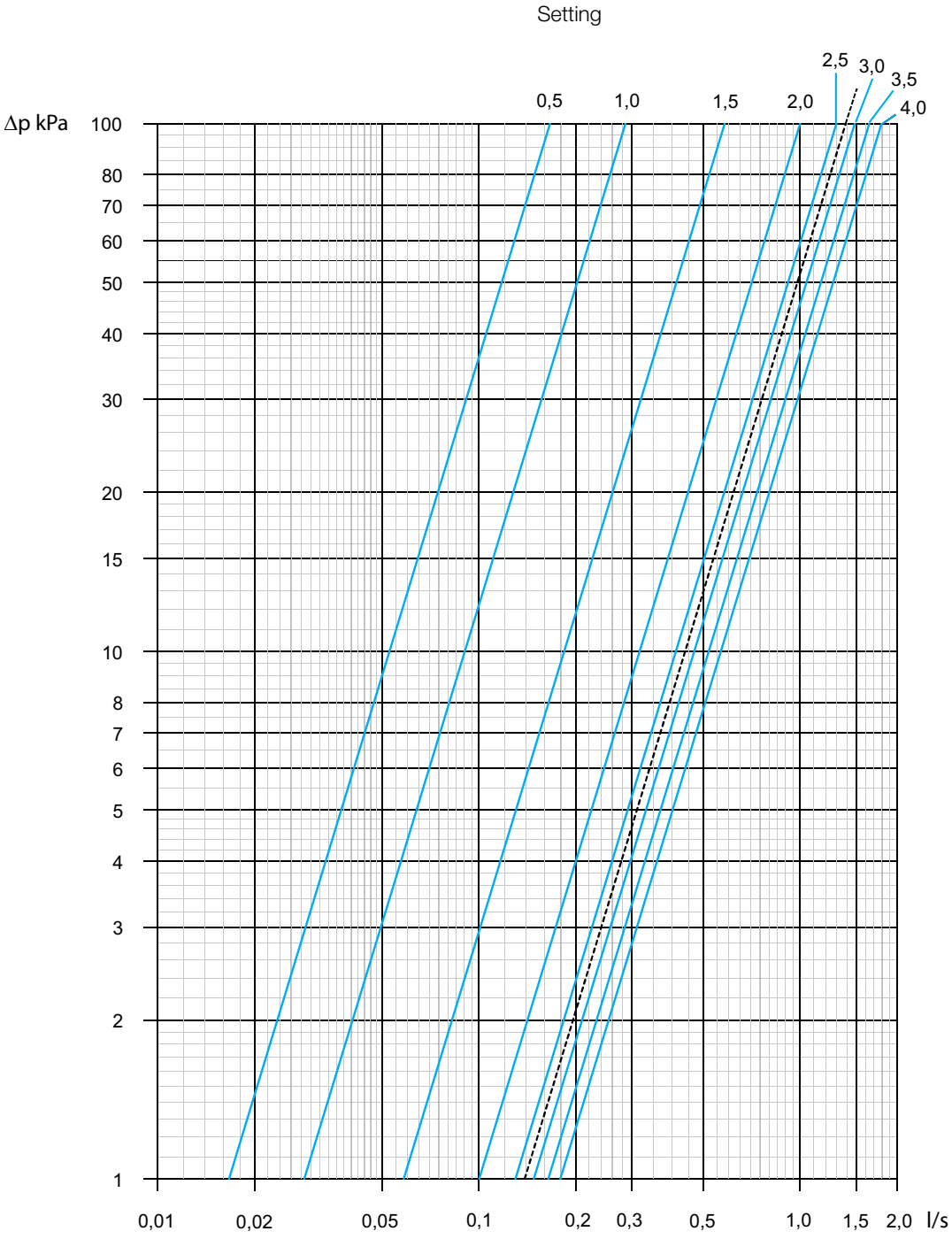
Normal flow



Kv$_{max}$ is the Kv value for the total valve.
Kv$_{signal}$ is the Kv value used for flow measuring.

Performance graph, DN 25

Normal flow



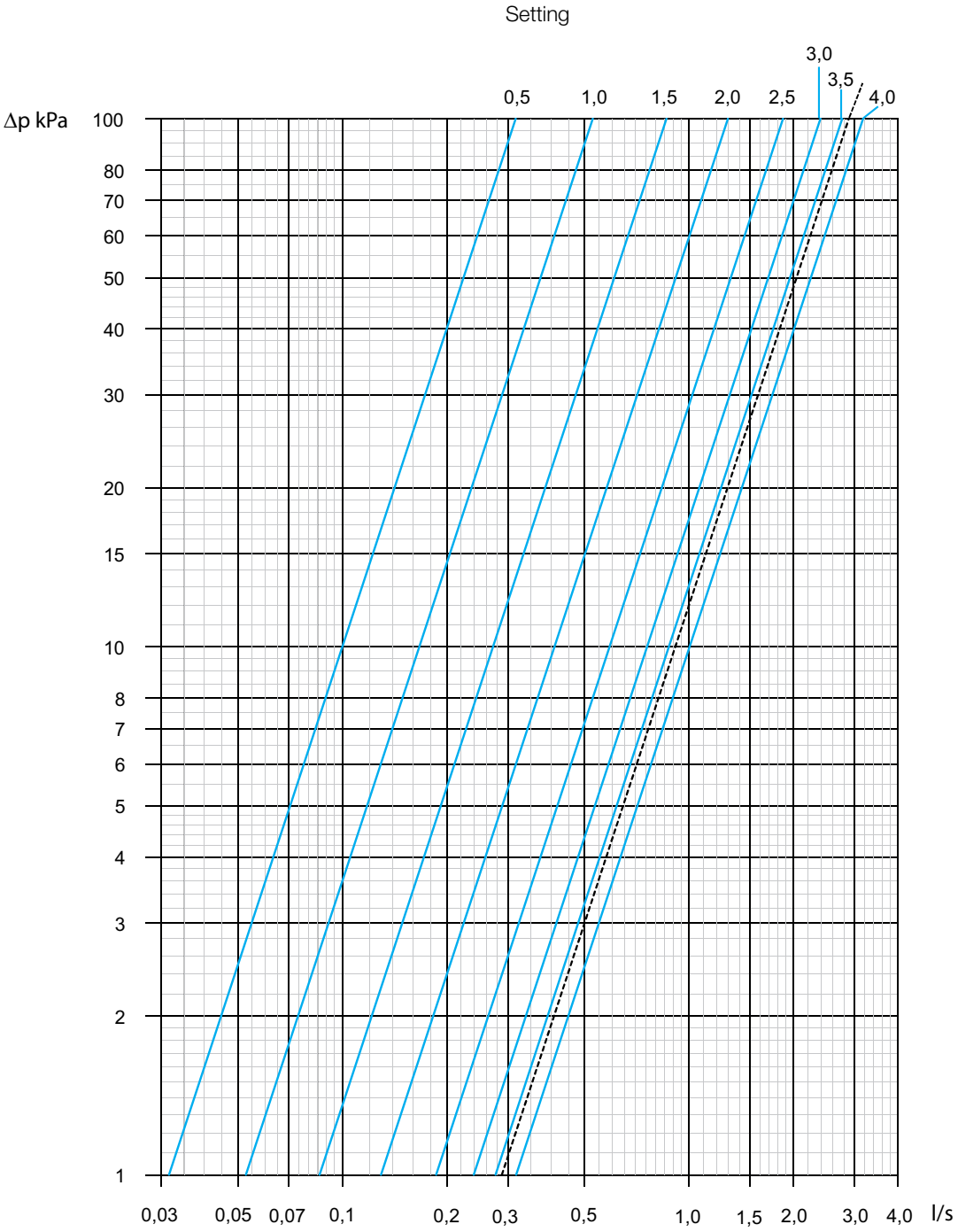
—— Kv $_{max}$

----- Kv $_{signal}$

Kv$_{max}$ is the Kv value for the total valve.
Kv$_{signal}$ is the Kv value used for flow measuring.

Performance graph, DN 32

Normal flow



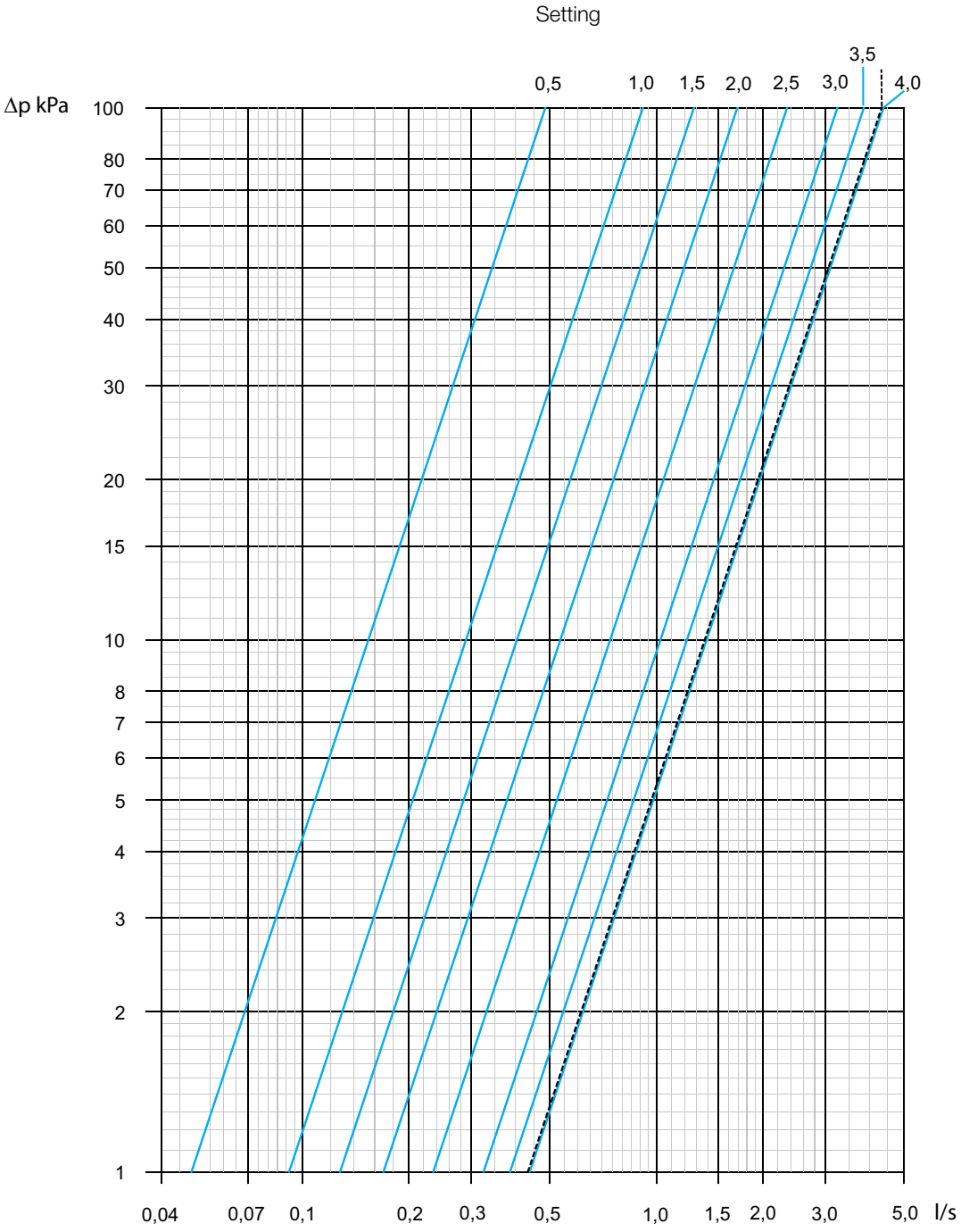
—— Kv $_{max}$

----- Kv $_{signal}$

Kv$_{max}$ is the Kv value for the total valve.
Kv$_{signal}$ is the Kv value used for flow measuring.

Performance graph, DN 40

Normal flow



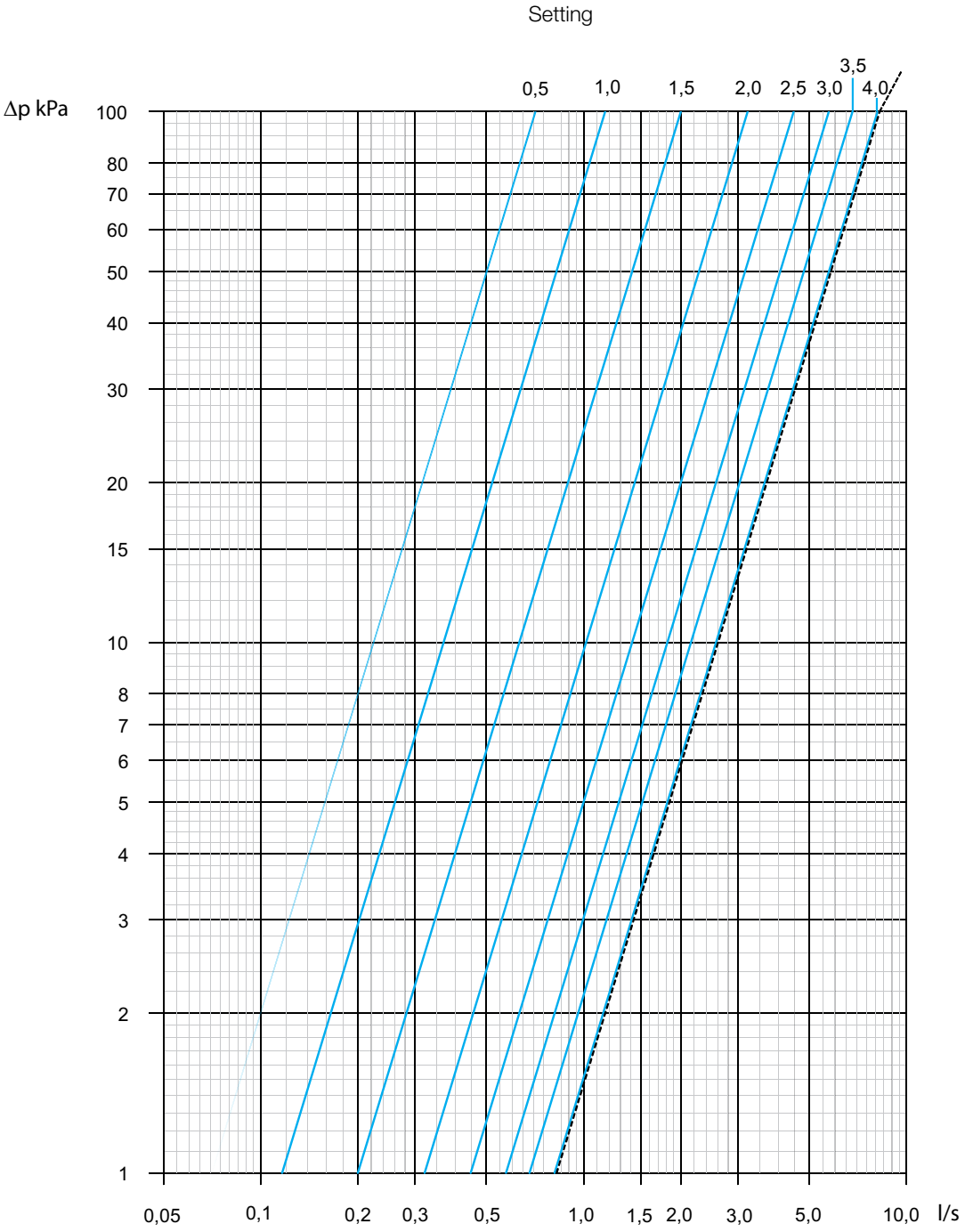
Kv $_{max}$

Kv $_{signal}$

Kv$_{max}$ is the Kv value for the total valve.
Kv$_{signal}$ is the Kv value used for flow measuring.

Performance graph, DN 50

Normal flow

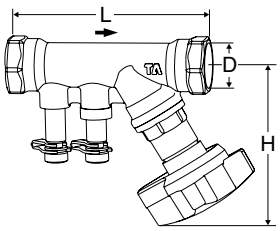


—— Kv $_{max}$

----- Kv $_{signal}$

Kv$_{max}$ is the Kv value for the total valve.
Kv$_{signal}$ is the Kv value used for flow measuring.

Articles



With female threads
Thread according to ISO 228. Thread length according to ISO 7/1.

DN	D*	L	H	Kv_{max}	Kv_{signal}	l/h**	l/s**	Kg	Article No
Normal flow (MD 71)									
15*	G1/2	113	100	1.75	1.25	125-395	0.035-0.110	0.58	52 572-015
20*	G3/4	122	100	3.98	2.70	270-854	0.075-0.237	0.69	52 572-020
25	G1	137	105	6.46	5.00	500-1581	0.139-0.439	0.92	52 572-025
32	G1 1/4	156	110	11.43	10.4	1040-3289	0.289-0.914	1.3	52 572-032
40	G1 1/2	168	120	15.8	15.6	1560-4933	0.433-1.370	1.8	52 572-040
50	G2	206	120	29.3	29.7	2970-9392	0.825-2.609	2.9	52 572-050
Low flow (MD 72)									
15*	G1/2	113	100	0.821	0.540	54-171	0.015-0.047	0.58	52 572-115
Ultra low flow (MD 73)									
15*	G1/2	113	100	0.319	0.208	21-66	0.006-0.018	0.58	52 572-215

→ = Flow direction
*) Can be connected to smooth pipes by KOMBI compression coupling. If using pipes smaller than valve size – contact IMI Hydronic Engineering. For further information of KOMBI – see catalogue leaflet KOMBI.
**) Recommended flow rate. Min. flow rate is based upon a measured pressure drop of 1 kPa.

Kv_{max} is the Kv value for the total valve.
Kv_{signal} is the Kv value used for flow measuring.