TBV-CM

Terminal balancing valve for modulating control

Designed for use in terminal units in heating and cooling systems, the TBV-CM ensures accurate hydronic control and optimum throughput over a long lifetime. TA's dezincification resistant alloy, AMETAL®, minimises the risk of leakage.

〉 **Presetting tool**
For accurate and easy balancing.

〉 **Shut-off function**
Ensures straightforward maintenance procedures.

〉 **Self-sealing measuring points**
For quick and easy measurement.

〉Technical description

Application:
Heating and cooling systems.

Functions:
Control
Balancing
Pre-setting
Measuring
Shut-off

Dimensions:
DN 15-25

Pressure class:
PN 16

Temperature:
Max. working temperature: 120°C
Min. working temperature: -20°C

Lift:
4 mm

Material:
Valve body: AMETAL®
Valve plug: PPS (polyphenylsulphide)
Seat seal: EPDM/Stainless steel (DN 15-20). EPDM/AMETAL®
(DN 25).
Spindle seal: EPDM O-ring
Valve insert: AMETAL®, PPS (polyphenylsulphide)
Return spring: Stainless steel
Spindle: Nedox® coated AMETAL®

AMETAL® is the dezincification resistant alloy of TA.

Marking:
Body: TA, PN 16/150, DN, inch size and flow direction arrow.
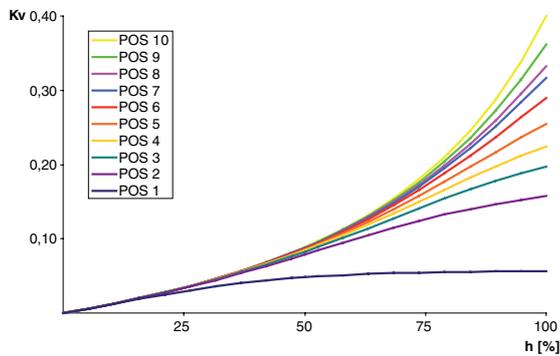Identification ring on measuring point:
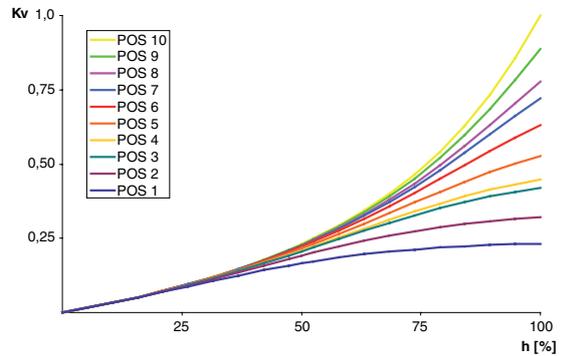White = Low flow (LF)
Black = Normal flow (NF)

Actuators:
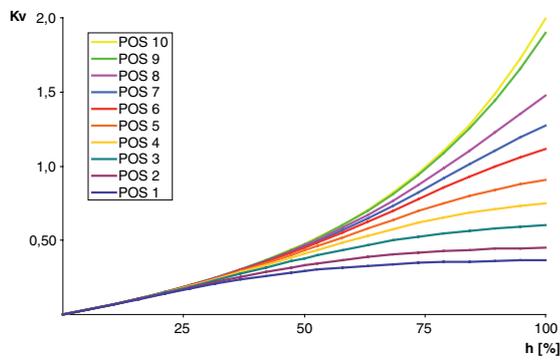See separate information on TSE-M

❯ Valve characteristics
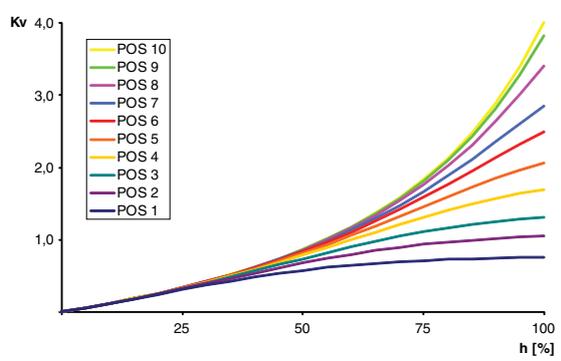
TBV-CM LF, DN 15, Kvs 0,40

TBV-CM NF, DN 15, Kvs 1,0
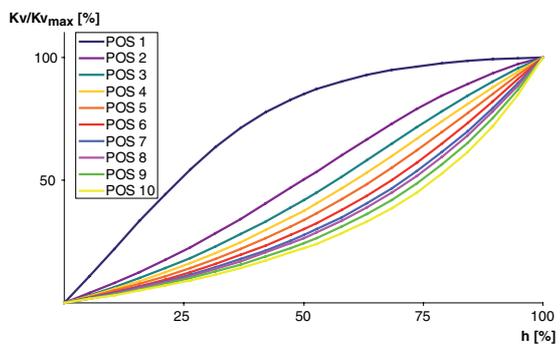

TBV-CM NF, DN 20, Kvs 2,0
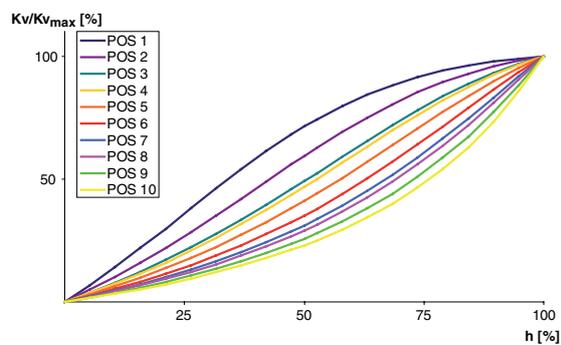

TBV-CM NF, DN 25, Kvs 4,0

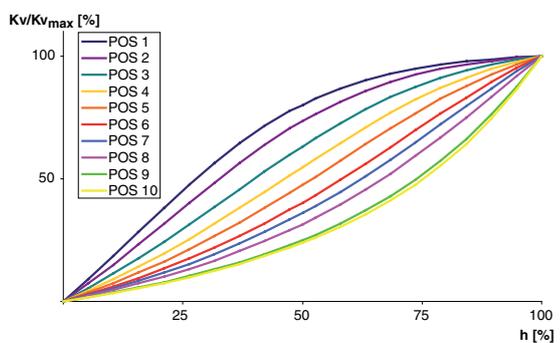

Standardised valve characteristic
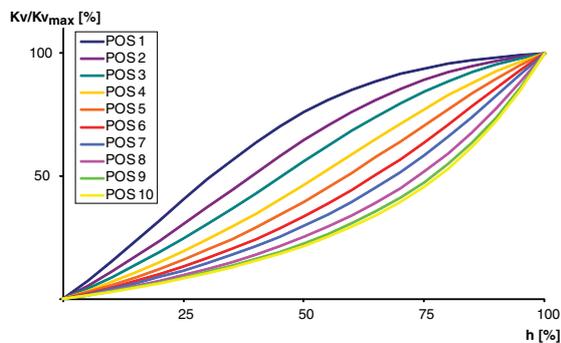
TBV-CM LF, DN 15, Kvs 0,40

TBV-CM NF, DN 15, Kvs 1,0

TBV-CM NF, DN 20, Kvs 2,0

TBV-CM NF, DN 25, Kvs 4,0

Kv_{max} = m³/h at a pressure drop of 1 bar at each pre-setting and fully open valve plug.
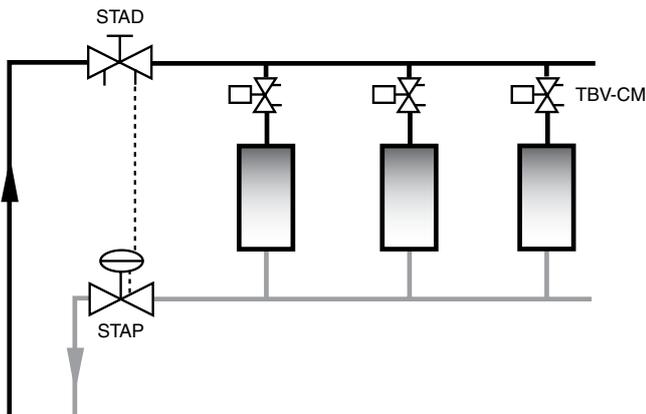Kvs = m³/h at a pressure drop of 1 bar and fully open valve.
h = lift

〉Sizing

When Δp and the design flow are known, use the following formulas to calculate the Kv-value.

$$Kv = 0,01 \frac{q}{\sqrt{\Delta p}} \qquad q\ l/h,\ \Delta p\ kPa$$

$$Kv = 36 \frac{q}{\sqrt{\Delta p}} \qquad q\ l/s,\ \Delta p\ kPa$$

〉Application example

〉Setting

TBV-CM is delivered with a red protective cap, Article No 52 143-100, which must be used when isolating the valve.

TBV-CM is delivered with the pre-setting fully open. Pre-setting of a valve for a given Kv_{max} value, e.g. corresponding to position 5, is done as follows:

1. Place the presetting tool, TA No 52 133-100, at the valve.
2. Turn the presetting tool so that position 5 is pointing at the index* of the valve body.
3. Remove the adjustment tool. The valve is now pre-set.

There is a diagram for every valve size that shows the flow for different pressure drops and settings.
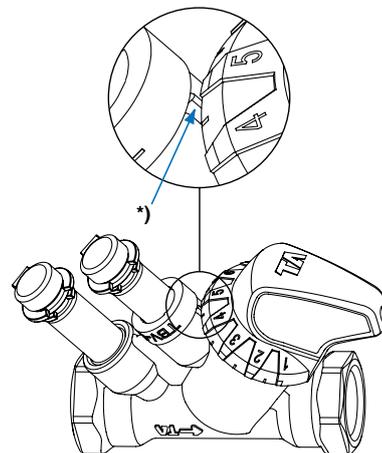
〉Noise

In order to avoid noise in the installation the flows must be correctly balanced and the water de-aerated.
Excessive differential pressures can cause noise in the installations, and in that case, differential pressure controllers should be used.

The maximum recommended pressure drop in order to avoid noise is 30 kPa = 0,3 bar.

❯ Measuring accuracy

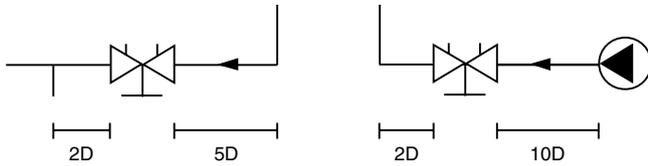**Maximum flow deviation at different settings**
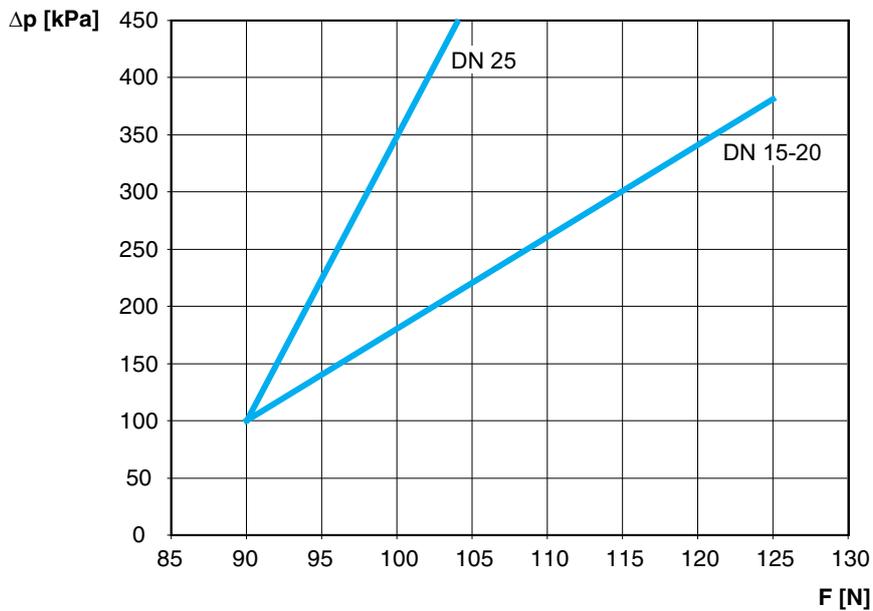
TBV-CM LF

TBV-CM NF

*) Position

Try to avoid mounting taps and pumps immediately before the valve.

❯ Closing force

Necessary force (F) to close the valve versus the differential pressure (Δp).

〉 Diagram TBV-CM LF, DN 15
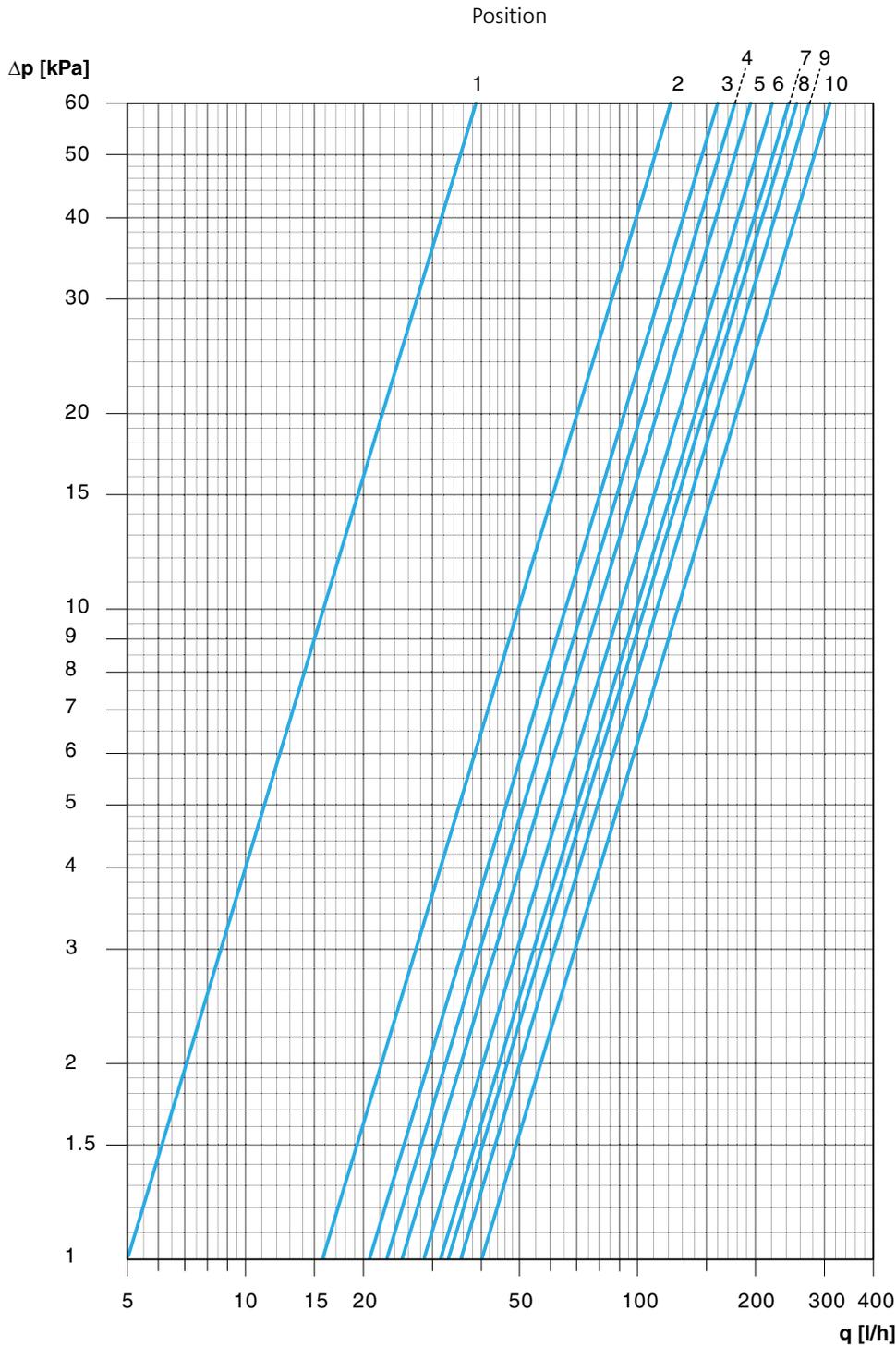
Position	1	2	3	4	5	6	7	8	9	10
Kv$_{max}$	0,05	0,16	0,21	0,23	0,25	0,29	0,31	0,33	0,35	0,40

Kv$_{max}$ = m³/h at a pressure drop of 1 bar at each pre-setting and fully open valve plug.

❯ Diagram TBV-CM NF, DN 15

Kv$_{max}$ = m^3/h at a pressure drop of 1 bar at each pre-setting and fully open valve plug.
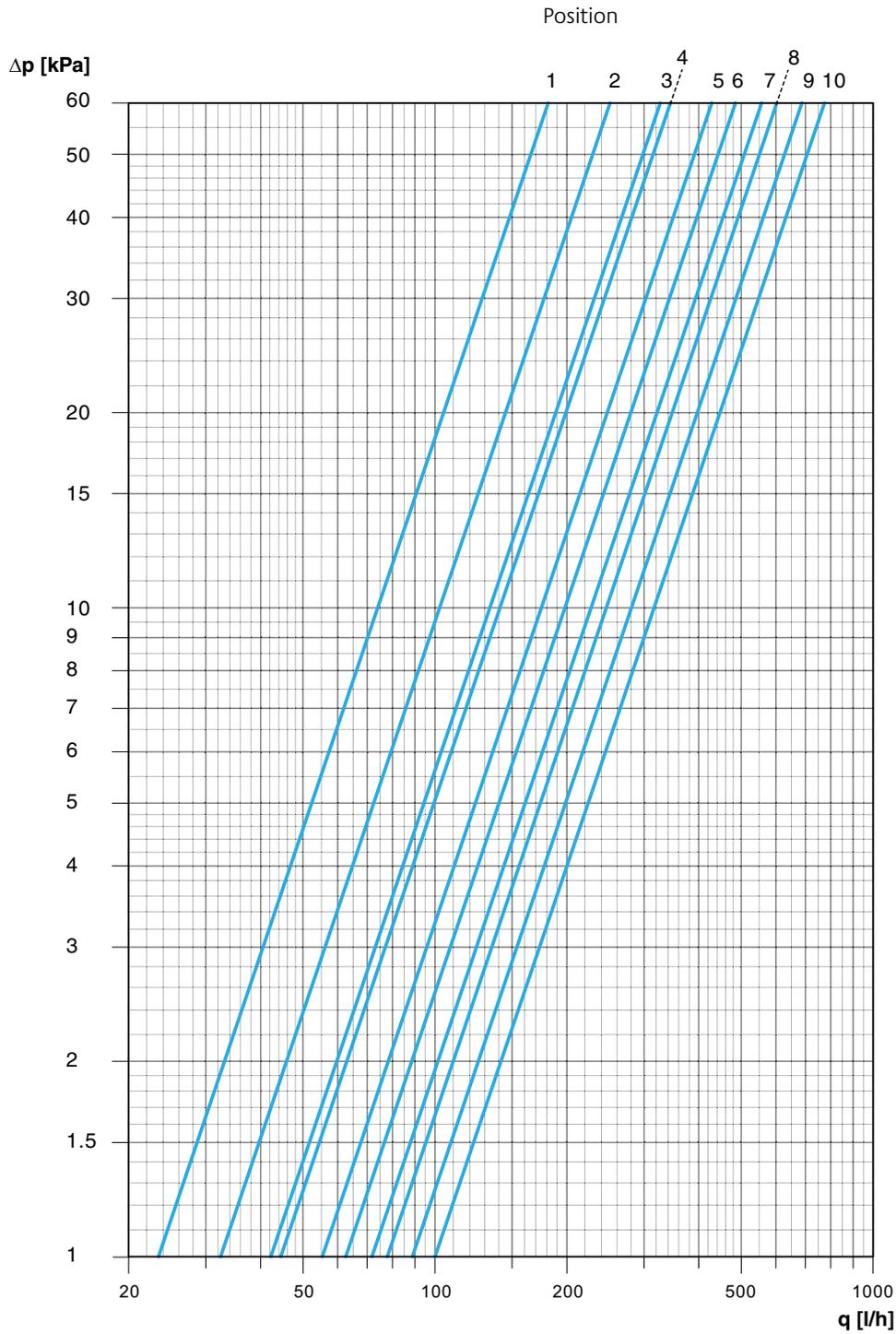
Position	1	2	3	4	5	6	7	8	9	10
Kv$_{max}$	0,23	0,32	0,42	0,45	0,55	0,63	0,72	0,78	0,89	1,0

❯ Diagram TBV-CM NF, DN 20
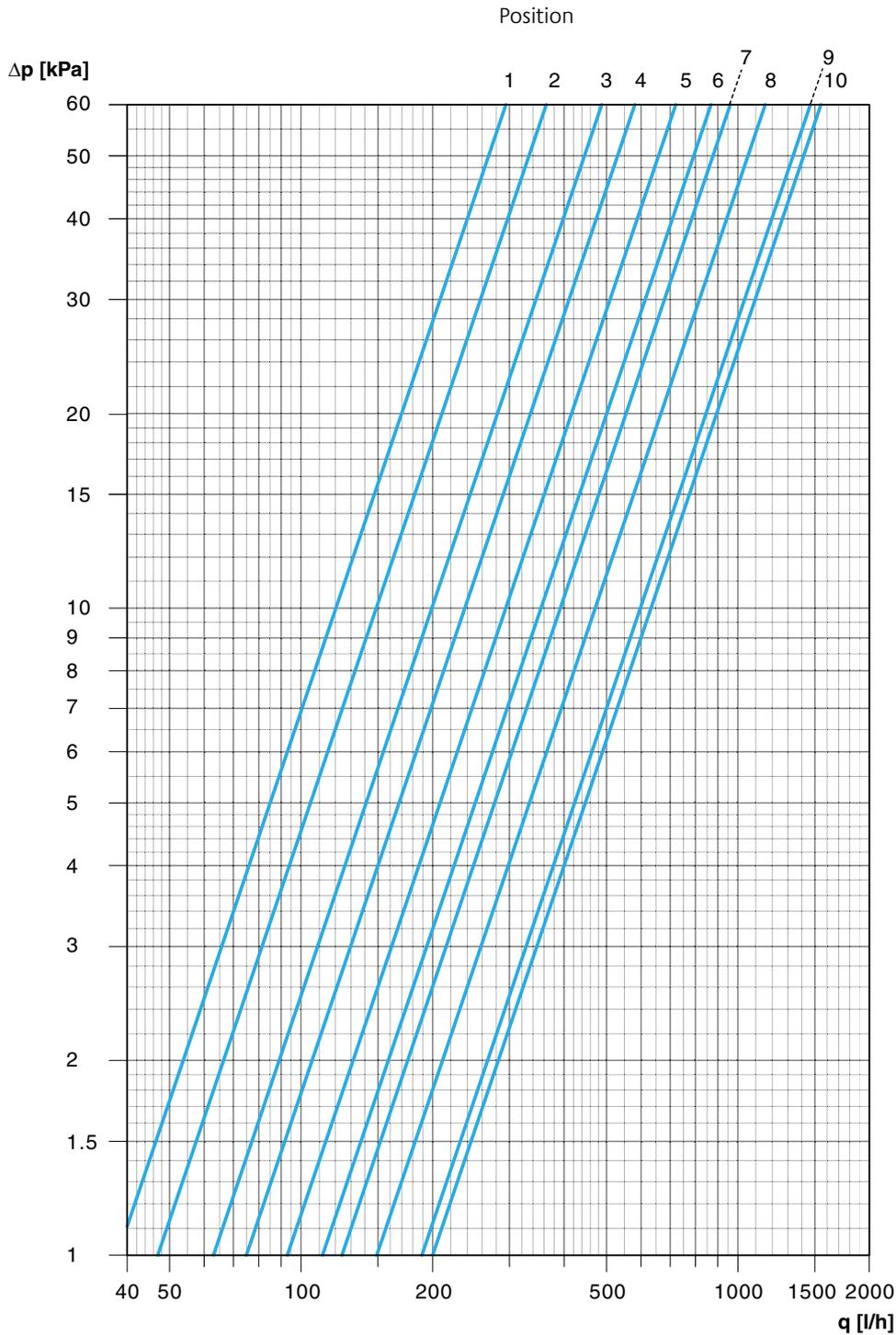
Position	1	2	3	4	5	6	7	8	9	10
Kv$_{max}$	0,38	0,47	0,63	0,75	0,93	1,1	1,2	1,5	1,9	2,0

Kv$_{max}$ = m^3/h at a pressure drop of 1 bar at each pre-setting and fully open valve plug.

〉 Diagram TBV-CM NF, DN 25
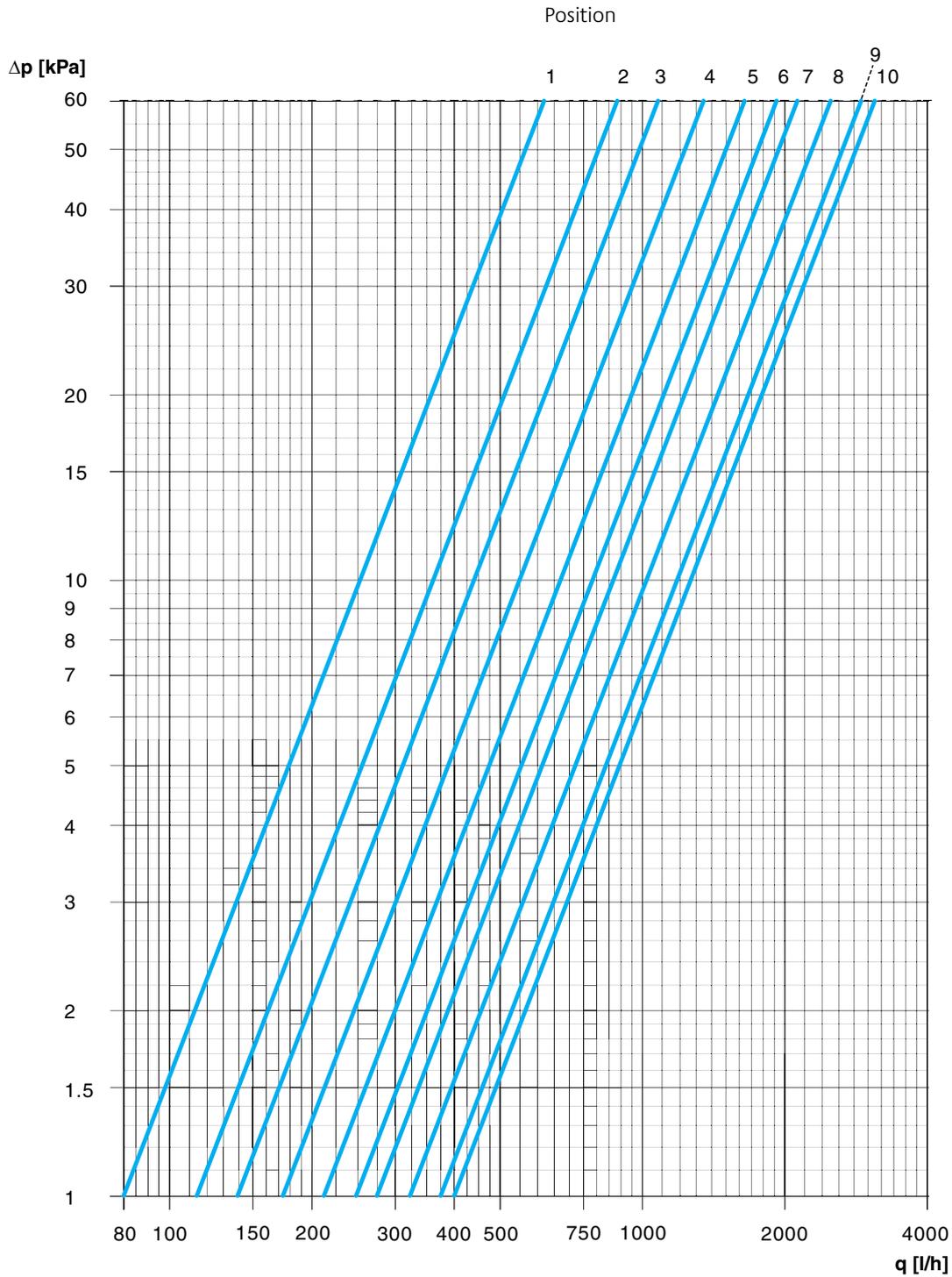
Position	1	2	3	4	5	6	7	8	9	10
Kv_{max}	0,80	1,1	1,4	1,7	2,1	2,5	2,8	3,2	3,7	4,0

Kv_{max} = m³/h at a pressure drop of 1 bar at each pre-setting and fully open valve plug.

〉 Articles
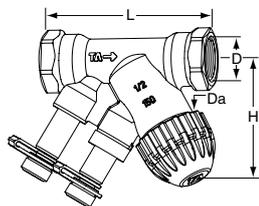
Female thread

Article No	EAN	DN	D	Da*	L	H	Kvs	Kg
TBV-CM LF, low flow								
52 143-115	7318793950703	15	G1/2	M30x1,5	81	58	0,40	0,34
TBV-CM NF, normal flow								
52 144-115	7318793950505	15	G1/2	M30x1,5	81	58	1,0	0,34
52 144-120	7318793951403	20	G3/4	M30x1,5	91	57	2,0	0,40
52 144-125	7318793977502	25	G1	M30x1,5	111	64	4,0	0,73

*) Connection to actuator.
Kvs = m^3/h at a pressure drop of 1 bar and fully open valve.

TBV-CM (DN 15-20) can be connected to smooth pipes by KOMBI compression coupling.
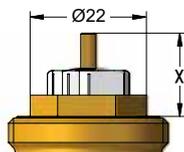(See catalogue leaflet KOMBI)

〉 Accessories

Presetting tool
For TBV-C, TBV-CM, TBV-CMP, KTCM 512

Article No	EAN
52 133-100	7318793886002

Actuator TSE-M
For more details of TSE-M, see separate catalogue leaflet.

TBV-CM is developed to work together with the TSE-M actuator. Actuators of other brands require a working range of:
X = 11,50 - 15,80 (closed - fully open)

TA will not be held responsible for the control function if actuators other than TSE-M are used.

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

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