

TBV-C

Terminal balancing valve for ON-OFF control



Pressurisation & Water Quality › Balancing & Control › Thermostatic Control

ENGINEERING ADVANTAGE

Designed for use in terminal units in heating and cooling systems, the TBV-C 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

Material:

Valve body: AMETAL®

Seat seal: Valve disc of EPDM (DN 15-20). EPDM/AMETAL® (DN 25).

Spindle seal: EPDM O-ring

Valve insert: AMETAL®, PPS (polyphenylsulphide)

Return spring: Stainless steel

Spindle: Teflonized AMETAL®

Smooth ends:

Nipple: 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.

Actuators:

See separate information on TSE.

Sizing

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

$$K_v = 0,01 \frac{q}{\sqrt{\Delta p}} \quad q \text{ l/h, } \Delta p \text{ kPa}$$

$$K_v = 36 \frac{q}{\sqrt{\Delta p}} \quad q \text{ l/s, } \Delta p \text{ kPa}$$

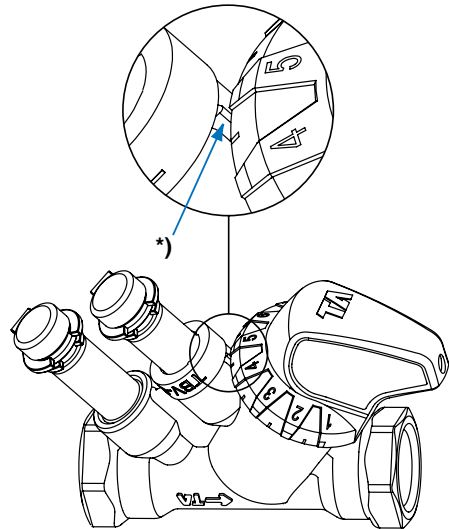
Setting

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

TBV-C is delivered with the pre-setting fully open. The setting of a valve for a given pressure drop, 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 presetting tool. The valve is now set.

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



Noise

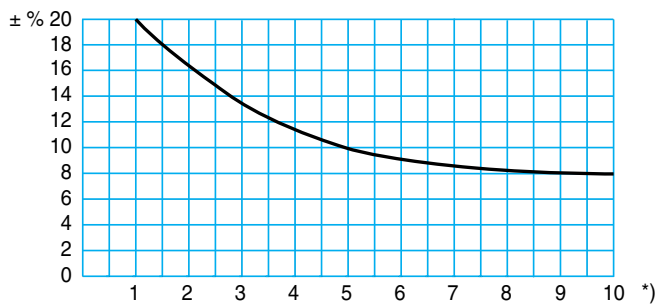
The following conditions must be fulfilled in order to avoid noise in the heating system:

- Flows correctly balanced
- The water in the system must have been de-aerated
- Circulation pumps which do not generate excessive differential pressures (alternatively use a differential pressure controller, e.g. STAP)

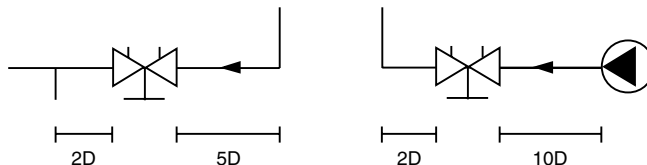
The maximum recommended pressure drop in order to avoid noise is 30 kPa = 0,3 bar.

Measuring accuracy

Flow deviation at different settings

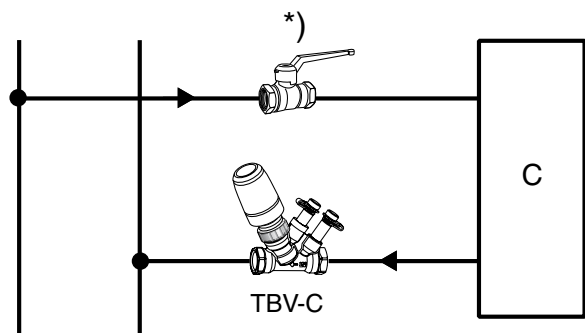


Try to avoid mounting taps and pumps immediately before the valve.



*) Position

Application example



*) Shut-off valve

When the valve is mounted with the actuator downwards and there is a risk of condensation, an actuator with protection class IP 34, or higher is needed.

Closing force

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

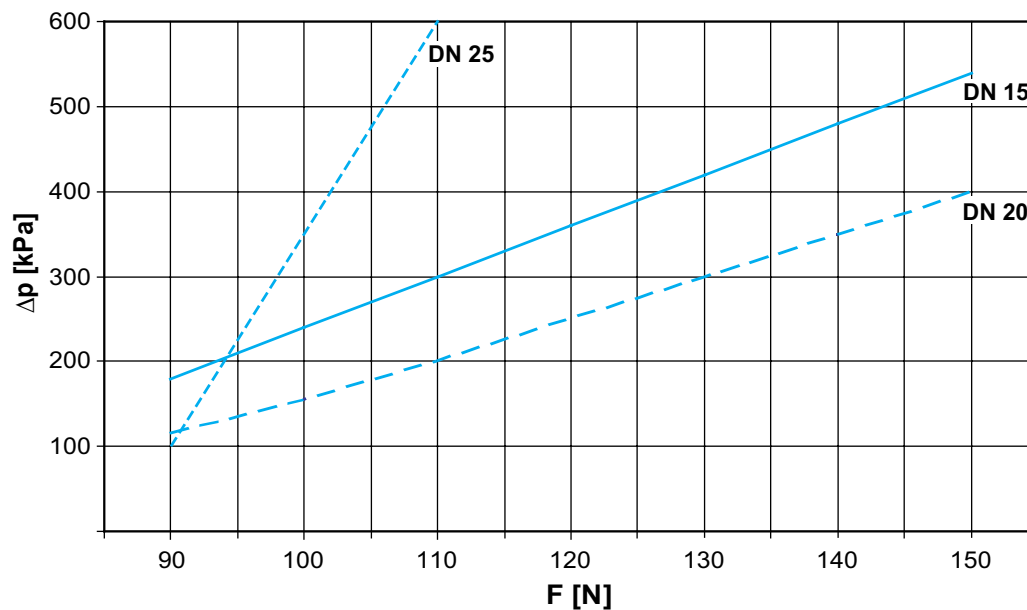
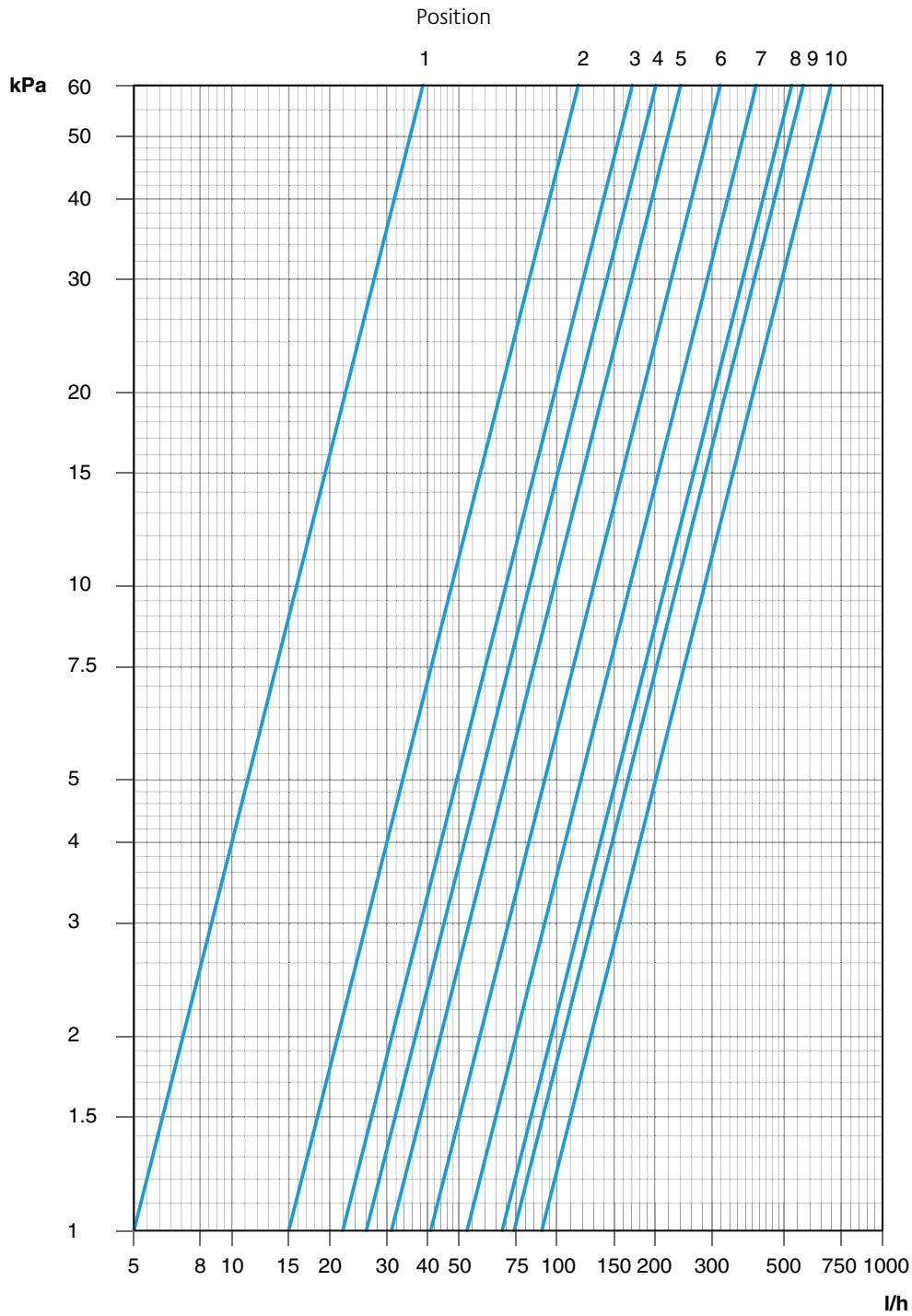


Diagram TBV-C LF, DN 15

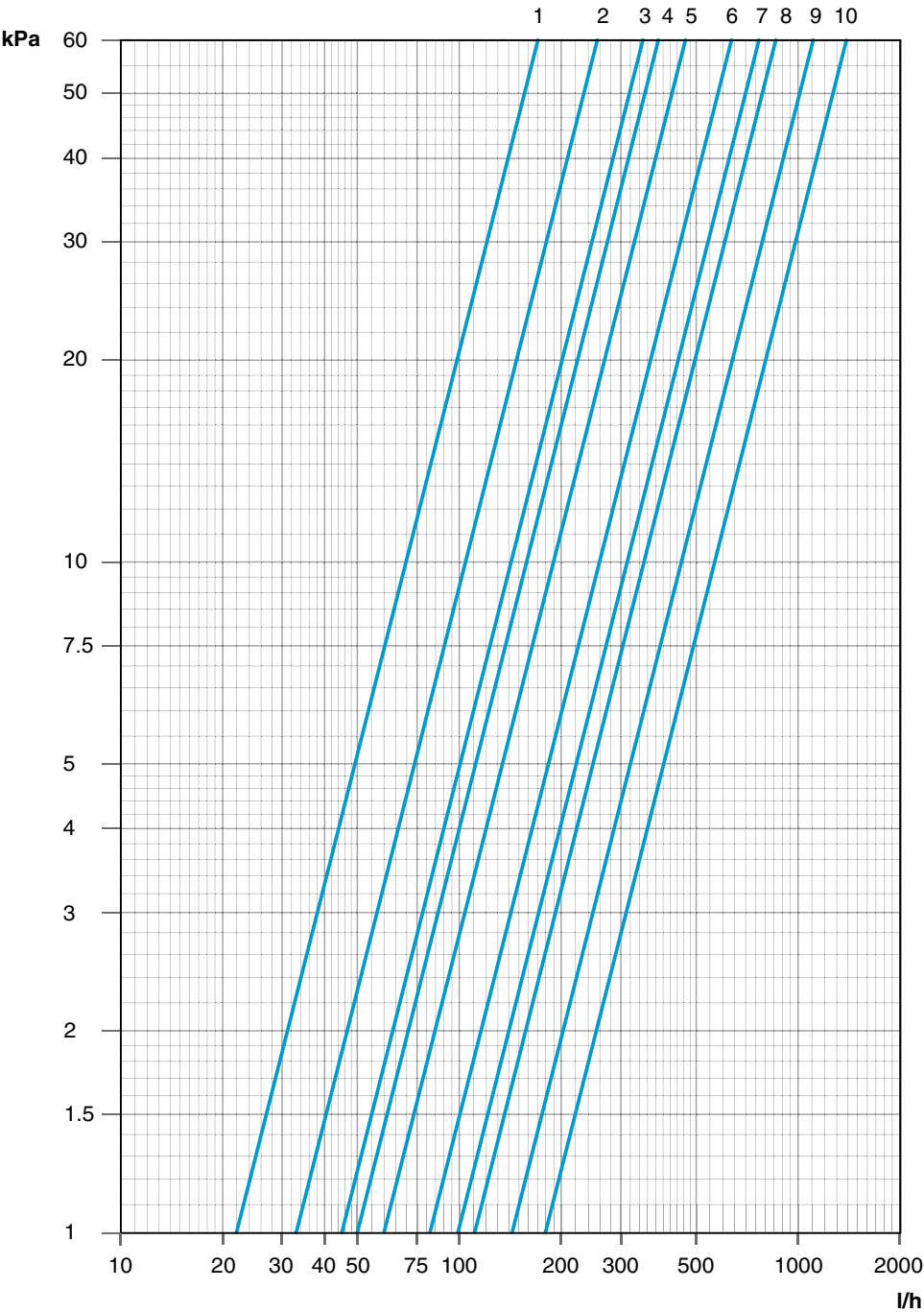


Position	1	2	3	4	5	6	7	8	9	10
Kv	0,05	0,15	0,22	0,26	0,31	0,41	0,53	0,68	0,74	0,90

Recommended setting: Position 3-10

Diagram TBV-C NF, DN 15

Position

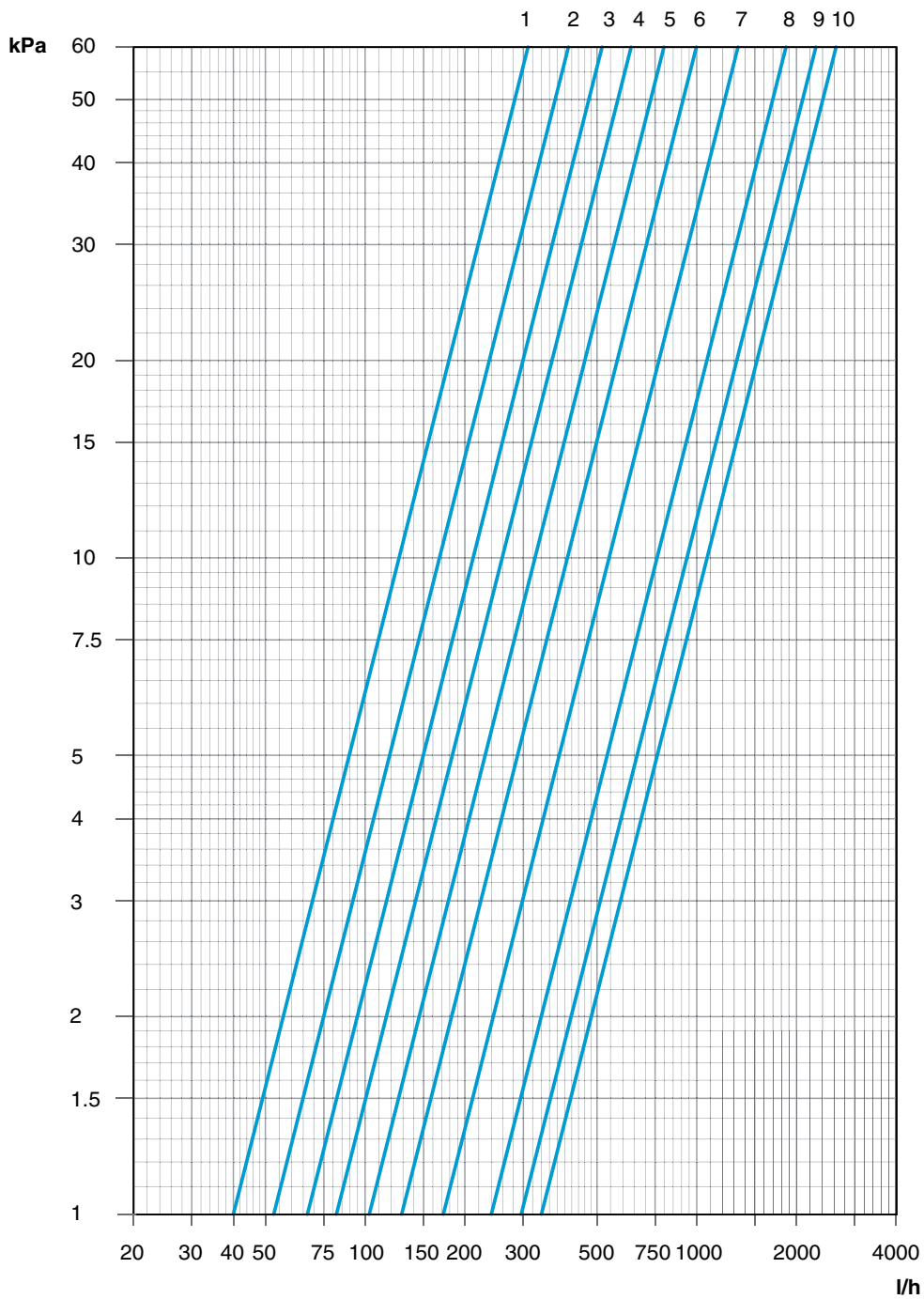


Position	1	2	3	4	5	6	7	8	9	10
Kv	0,22	0,33	0,45	0,50	0,60	0,82	0,99	1,1	1,4	1,8

Recommended setting: Position 3-10

Diagram TBV-C NF, DN 20

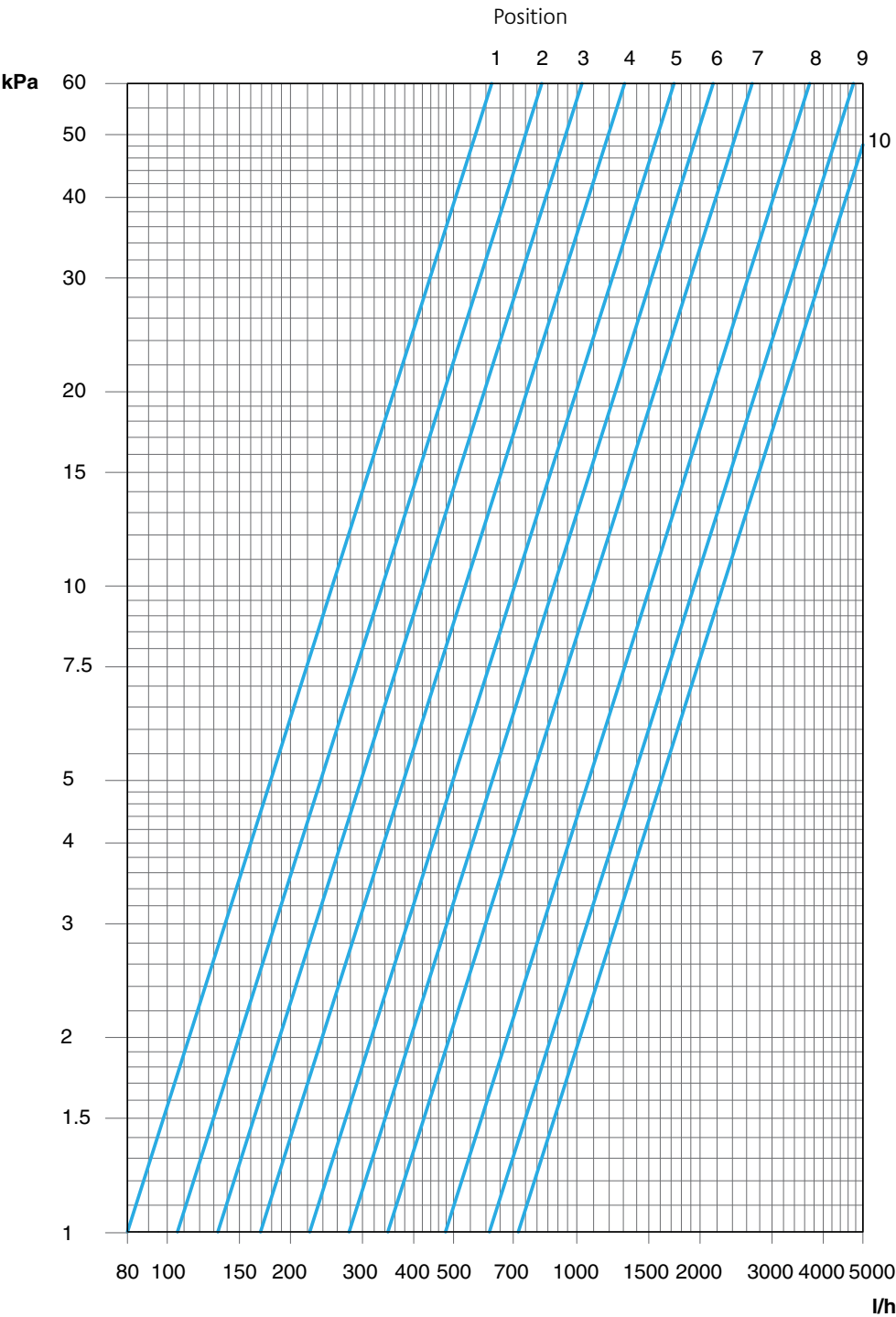
Position



Position	1	2	3	4	5	6	7	8	9	10
Kv	0,40	0,53	0,67	0,82	1,0	1,3	1,7	2,4	3,0	3,4

Recommended setting: Position 3-10

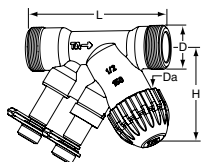
Diagram TBV-C NF, DN 25



Position	1	2	3	4	5	6	7	8	9	10
Kv	0,80	1,0	1,3	1,7	2,2	2,8	3,5	4,8	6,1	7,2

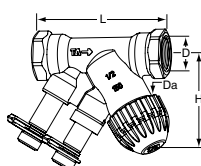
Recommended setting: Position 3-10

Articles



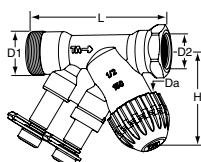
Male thread

Article No	EAN	DN	D	Da*	L	H	Kvs	Kg
TBV-C LF, low flow								
52 133-015	7318793870506	15	G3/4	M30x1,5	85	58	0,90	0,35
TBV-C NF, normal flow								
52 134-015	7318793870803	15	G3/4	M30x1,5	85	58	1,8	0,35
52 134-020	7318793870902	20	G1	M30x1,5	96	57	3,4	0,40



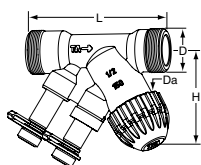
Female thread

Article No	EAN	DN	D	Da*	L	H	Kvs	Kg
TBV-C LF, low flow								
52 133-115	7318793859204	15	G1/2**	M30x1,5	81	58	0,90	0,34
52 133-615	7318793991102	15	Rc1/2	M30x1,5	81	58	0,90	0,34
TBV-C NF, normal flow								
52 134-115	7318793871008	15	G1/2**	M30x1,5	81	58	1,8	0,34
52 134-120	7318793871107	20	G3/4**	M30x1,5	91	57	3,4	0,40
52 134-125	7318793966100	25	G1	M30x1,5	111	64	7,2	0,73
52 134-615	7318793991201	15	Rc1/2	M30x1,5	81	58	1,8	0,34
52 134-620	7318793991300	20	Rc3/4	M30x1,5	91	57	3,4	0,40
52 134-625	7318793991409	25	Rc1	M30x1,5	111	64	7,2	0,73



Male thread with eurocone x Female thread

Article No	EAN	DN	D1	D2	Da*	L	H	Kvs	Kg
TBV-C LF, low flow									
52 133-215	7318793870605	15	G3/4	G1/2**	M30x1,5	85	58	0,90	0,36
TBV-C NF, normal flow									
52 134-215	7318793871206	15	G3/4	G1/2**	M30x1,5	85	58	1,8	0,35



Male thread with eurocone

Article No	EAN	DN	D	Da*	L	H	Kvs	Kg
TBV-C LF, low flow								
52 133-315	7318793870704	15	G3/4	M30x1,5	84	58	0,90	0,35
TBV-C NF, normal flow								
52 134-315	7318793871305	15	G3/4	M30x1,5	84	58	1,8	0,34

*) Connection to actuator or thermostatic head.

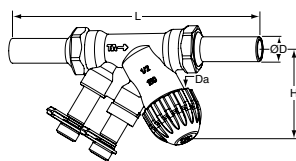
**) Can be connected to smooth pipes by KOMBI compression coupling. See catalogue leaflet KOMBI.

Kvs = m³/h at a pressure drop of 1 bar and fully open valve.

G = Thread according to ISO 228. Thread length according to ISO 7/1.

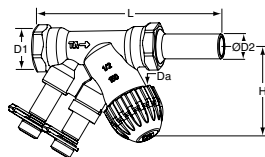
Rc = Thread according to ISO 7 (≈ BS 21).

Smooth ends



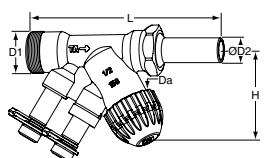
Article No	EAN	DN	D	Da*	L	H	Kvs	Kg
TBV-C LF, low flow								
52 433-115	7318793935700	15	15	M30x1,5	145	58	0,90	0,44
TBV-C NF, normal flow								
52 434-115	7318793935908	15	15	M30x1,5	145	58	1,8	0,44
52 434-120	7318793936103	20	22	M30x1,5	173	57	3,4	0,57

Female thread x Smooth end



Article No	EAN	DN	D1	D2	Da*	L	H	Kvs	Kg
TBV-C LF, low flow									
52 435-115	7318793935809	15	G1/2**	15	M30x1,5	113	58	0,90	0,39
TBV-C NF, normal flow									
52 436-115	7318793936004	15	G1/2**	15	M30x1,5	113	58	1,8	0,39
52 436-120	7318793936202	20	G3/4**	22	M30x1,5	132	57	3,4	0,48

Male thread with eurocone x Smooth end



Article No	EAN	DN	D1	D2	Da*	L	H	Kvs	Kg
TBV-C LF, low flow									
52 433-215	7318793936301	15	G3/4	15	M30x1,5	117	58	0,90	0,40
TBV-C NF, normal flow									
52 434-215	7318793936400	15	G3/4	15	M30x1,5	117	58	1,8	0,40

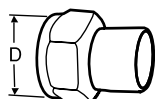
*) Connection to actuator or thermostatic head.

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

Kvs = m³/h at a pressure drop of 1 bar and fully open valve.

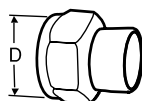
G = Thread according to ISO 228. Thread length according to ISO 7/1.

Connections for male thread



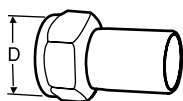
Welding connection
max 120°C

Article No	EAN	Valve DN	D	For pipe DN
52 009-015	7318792748509	15	G3/4	15
52 009-020	7318792748608	20	G1	20



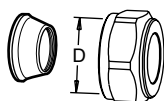
Soldering connection
max 120°C

Article No	EAN	Valve DN	D	For pipe Ø
52 009-515	7318792749308	15	G3/4	15
52 009-516	7318792749407	15	G3/4	16
52 009-518	7318792749506	20	G1	18
52 009-522	7318792749605	20	G1	22

**Connection with smooth end**

For connection with press coupling
max 120°C

Article No	EAN	Valve DN	D	For pipe Ø
52 009-315	7318793810601	15	G3/4	15
52 009-318	7318793810700	20	G1	18
52 009-322	7318793810809	20	G1	22

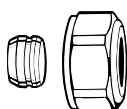
**Compression connection**

max 100°C

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

Article No	EAN	Valve DN	D	For pipe Ø
53 319-615	7318793705006	15	G3/4	15
53 319-618	7318793705105	15	G3/4	18
53 319-622	7318793705204	15	G3/4	22
53 319-928	7318793705402	20	G1	28

Connections for male thread with eurocone

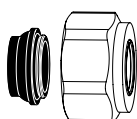
**Compression fitting for copper or steel pipes**

For eurocone

Metal-to-metal sealing

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

Article No	EAN	For pipe Ø
52 136-010	7318793880901	10
52 136-012	7318793881007	12
52 136-014	7318793881106	14
52 136-015	7318793881205	15
52 136-016	7318793881304	16
52 136-018	7318793881403	18

**Compression fitting for copper or steel pipes**

For eurocone

Nickel plated, soft sealing (EPDM)

Article No	EAN	For pipe Ø
52 136-112	7318793881502	12
52 136-114	7318793881601	14
52 136-115	7318793881700	15
52 136-116	7318793881809	16
52 136-118	7318793881908	18

**Compression fitting for plastic pipes**

For eurocone

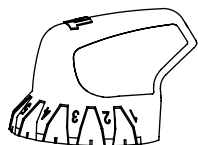
Article No	EAN	For pipe Ø
52 136-212	7318793882004	12x2
52 136-214	7318793882103	14x2
52 136-216	7318793882202	16x2
52 136-217	7318793882301	17x2
52 136-218	7318793882400	18x2
52 136-219	7318793882509	18x2,5
52 136-220	7318793882608	20x2
52 136-221	7318793882707	21x2,5

**Compression fitting for multi-layer pipes**

For eurocone

Article No	EAN	For pipe Ø
52 136-314	7318793882806	14x2
52 136-316	7318793882905	16x2
52 136-318	7318793883001	18x2

Accessories

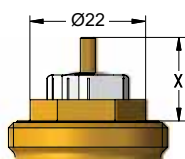


Presetting tool TBV-C, TBV-CM, TBV-CMP

Article No	EAN
52 133-100	7318793886002

Actuator TSE

For more details of TSE, see separate catalogue leaflet.



TBV-C is developed to work together with the TSE actuator. Actuators of other brands require a working range of:

X (closed - fully open) = 11,4 - 15,1 (DN 15-20) / 11,4 - 15,8 (DN 25)

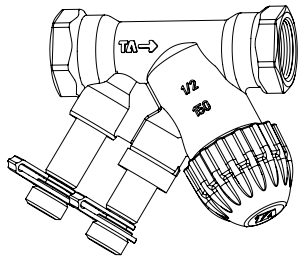
Tour & Andersson (TA) will not be held responsible for the control function if actuators other than TSE are used.

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5-5-25 TBV-C 03.2011

TBV-C




IMI Hydronic
Engineering

-20°C – +120°C

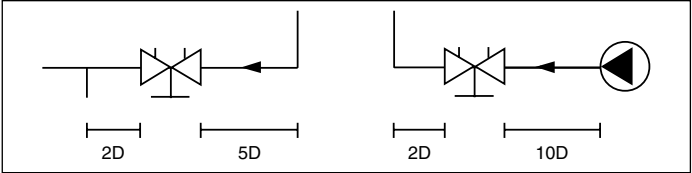
PN 16
(max. 16 bar)

Max Δp:
30 kPa = 0,3 bar

 Position	Kv			
	TBV-C LF DN 15	TBV-C NF		
	DN 15	DN 15	DN 20	DN 25
1	0,05	0,22	0,40	0,80
2	0,15	0,33	0,53	1,1
3	0,22	0,45	0,67	1,3
4	0,26	0,50	0,82	1,7
5	0,31	0,60	1,0	2,2
6	0,41	0,82	1,3	2,8
7	0,53	0,99	1,7	3,5
8	0,68	1,1	2,4	4,8
9	0,74	1,4	3,0	6,1
10	0,90	1,8	3,4	7,2

Position 3-10 =

Rekommenderat område	Felhasználási terület
Anbefalt område	Zalecany obszar
Suositusalue	Doporučená oblast
Anbefalet indstillingsområde	Odporúčaná oblasť
Recommended area	Priporočeno območje
Empfohlener Bereich	Domeniu recomandat
Plage recommandée	Препоръчителна област
Aanbevolen gebied	Preporučenno područje
Rango recomendado	Preporučenno područje
Secção recomendada	Препоручено подручје
Faixa recomendada	Soovitav ala
Zona raccomandata	Iteicamais diapazons
Συνιστώμενη περιοχή	Rekomenduojama sritis
Рекомендованная область	Qasam rikmandat



5a

5b

TBV-C + EMOT:

We reserve the right to introduce technical alterations
without previous notice.