

Technical description

Application:

Heating and cooling systems.

Functions:

- Control
- Balancing
- Pre-setting
- Measuring
- Shut-off

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
- Spindle seal: EPDM O-ring
- Valve insert: AMETAL®, PPS (polyphenylsulphide)
- Return spring: Stainless steel
- Spindle: Teflonized AMETAL®
- Smooth ends:*
- Nipple: AMETAL®
- Sealing (DN 25-50): EPDM O-ring

AMETAL® is the dezincification resistant alloy of TA.

Marking:

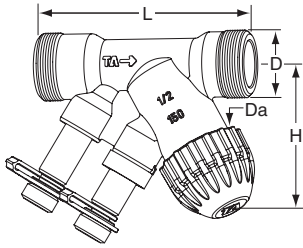
Body: TA, PN 16/150, DN, inch size and flow direction arrow.
 Identification ring on measuring point.

Actuators:

See separate catalogue leaflet TSE 150 under section Radiator valves.

TBV-C – With threaded connections

Male thread



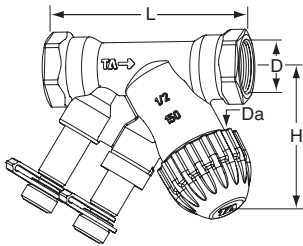
TBV-C LF, low flow

TA No	DN	D	Da*	L	H	Kvs	Kg
52 133-015	15	G3/4	M30x1,5	85	58	0,90	0,35

TBV-C NF, normal flow

TA No	DN	D	Da*	L	H	Kvs	Kg
52 134-015	15	G3/4	M30x1,5	85	58	1,8	0,35
52 134-020	20	G1	M30x1,5	96	57	3,4	0,40

Female thread



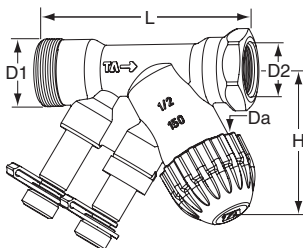
TBV-C LF, low flow

TA No	DN	D	Da*	L	H	Kvs	Kg
52 133-115	15	G1/2	M30x1,5	81	58	0,90	0,34

TBV-C NF, normal flow

TA No	DN	D	Da*	L	H	Kvs	Kg
52 134-115	15	G1/2	M30x1,5	81	58	1,8	0,34
52 134-120	20	G3/4	M30x1,5	91	57	3,4	0,40

Male thread with eurocone x Female thread



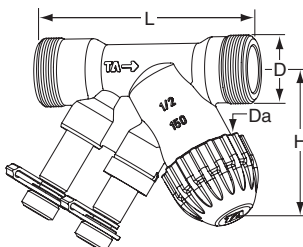
TBV-C LF, low flow

TA No	DN	D1	D2	Da*	L	H	Kvs	Kg
52 133-215	15	G3/4	G1/2	M30x1,5	85	58	0,90	0,36

TBV-C NF, normal flow

TA No	DN	D1	D2	Da*	L	H	Kvs	Kg
52 134-215	15	G3/4	G1/2	M30x1,5	85	58	1,8	0,35

Male thread with eurocone



TBV-C LF, low flow

TA No	DN	D	Da*	L	H	Kvs	Kg
52 133-315	15	G3/4	M30x1,5	84	58	0,90	0,35

TBV-C NF, normal flow

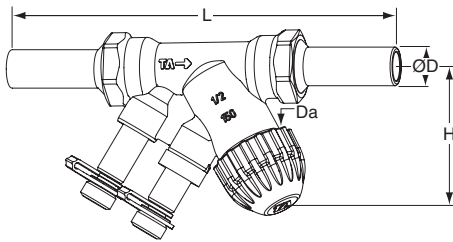
TA No	DN	D	Da*	L	H	Kvs	Kg
52 134-315	15	G3/4	M30x1,5	84	58	1,8	0,34

Kvs = m³/h at a pressure drop of 1 bar and fully open valve.
 *) Connection to actuator or thermostatic head.

TBV-C with female thread can be connected to smooth pipes with KOMBI compression coupling. See catalogue leaflet KOMBI.

TBV-C – With smooth ends

Smooth ends



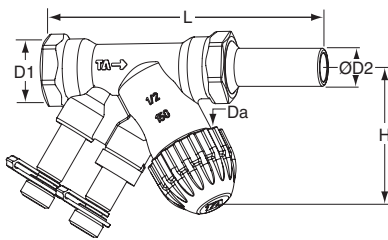
TBV-C LF, low flow

TA No	DN	D	Da*	L	H	Kvs	Kg
52 433-115	15	15	M30x1,5	145	58	0,90	0,44

TBV-C NF, normal flow

TA No	DN	D	Da*	L	H	Kvs	Kg
52 434-115	15	15	M30x1,5	145	58	1,8	0,44
52 434-120	20	22	M30x1,5	173	57	3,4	0,57

Female thread x Smooth end



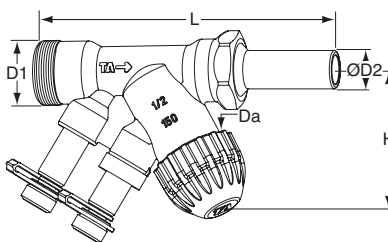
TBV-C LF, low flow

TA No	DN	D1	D2	Da*	L	H	Kvs	Kg
52 435-115	15	G1/2	15	M30x1,5	113	58	0,90	0,39

TBV-C NF, normal flow

TA No	DN	D1	D2	Da*	L	H	Kvs	Kg
52 436-115	15	G1/2	15	M30x1,5	113	58	1,8	0,39
52 436-120	20	G3/4	22	M30x1,5	132	57	3,4	0,48

Male thread with eurocone x Smooth end



TBV-C LF, low flow

TA No	DN	D1	D2	Da*	L	H	Kvs	Kg
52 433-215	15	G3/4	15	M30x1,5	117	58	0,90	0,40

TBV-C NF, normal flow

TA No	DN	D1	D2	Da*	L	H	Kvs	Kg
52 434-215	15	G3/4	15	M30x1,5	117	58	1,8	0,40

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

*) Connection to actuator or thermostatic head.

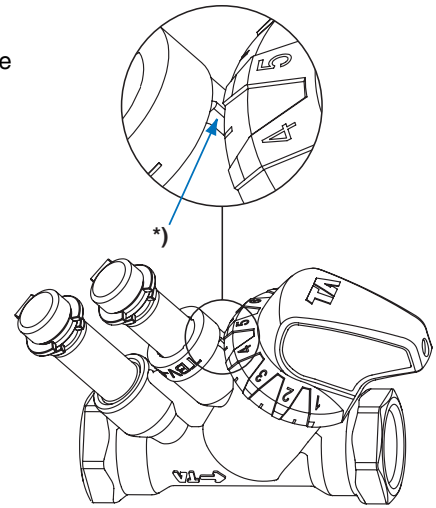
Setting TBV-C

TBV-C is delivered with a red protective cap which can be used to shut-off the valve.

TBV-C is delivered with the pre-setting fully open. Setting of a valve for a given pressure drop, e.g. corresponding to position 5 is done as follows:

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

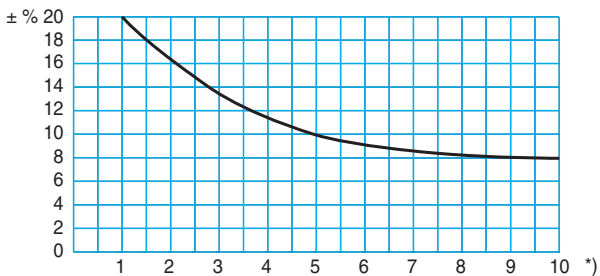
The following conditions must be fulfilled in order to avoid noise in the heating system:

- Flows correctly balanced
- The water in the system must have been de-aerated
- Circulation pumps which do not give too high differential pressure (alternative use a differential pressure controller, e.g. STAP).

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

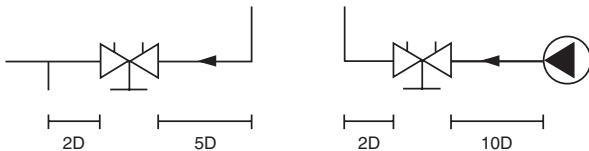
Measuring accuracy

Flow deviation at different settings



*) Position

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



Sizing

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

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

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

Support material

Software

TA Select: Makes it easy to choose the right balancing valves by taking into account the desired flow and pressure drop.

Measuring instruments

Use the balancing instrument TA-CBI or measuring instrument TA-CMI. They are programmed with valve characteristics for TA valves, enabling measured differential pressure to be read off directly as a flow rate.

For further information on TA-CBI and TA-CMI, see each catalogue leaflet.

Conversion disc

By using the conversion disc it is easy to calculate the relationship between flow, pressure and setting values for all valve sizes.

Manuals

See the following manuals for descriptions of various balancing methods:

Total hydronic balancing

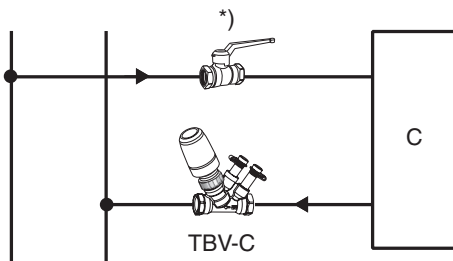
Manual no. 1: Balancing control circuits

Manual no. 2: Balancing distribution systems

Manual no. 3: Balancing of radiator systems

Manual no. 4: Hydronic balancing with differential pressure controllers

Installation



*) 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 vs the differential pressure (Δp).

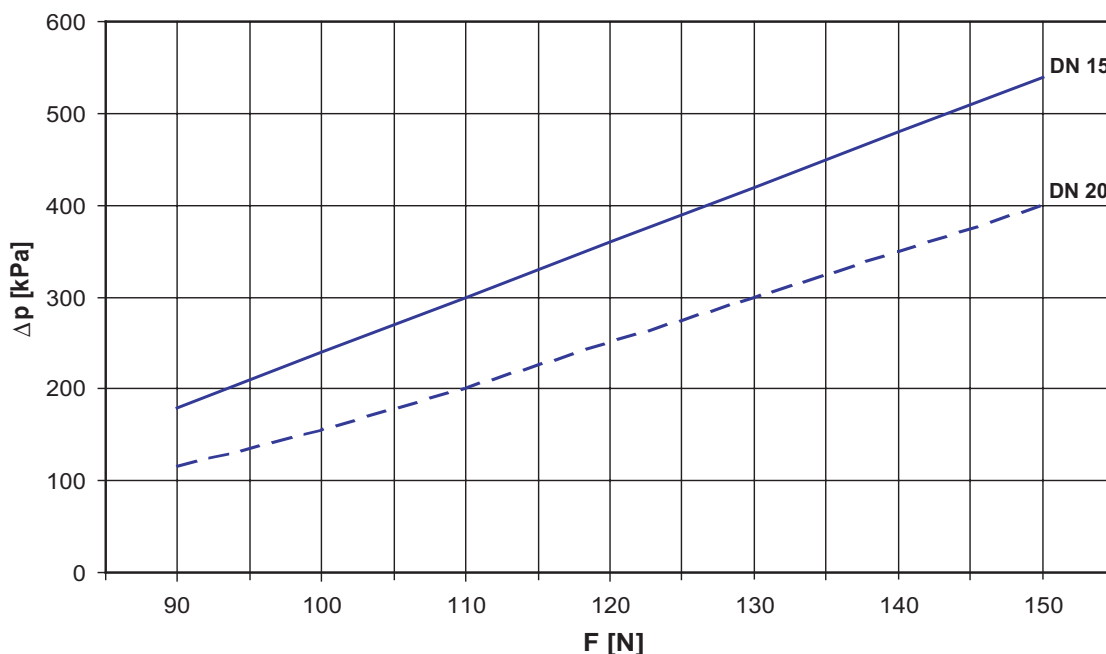
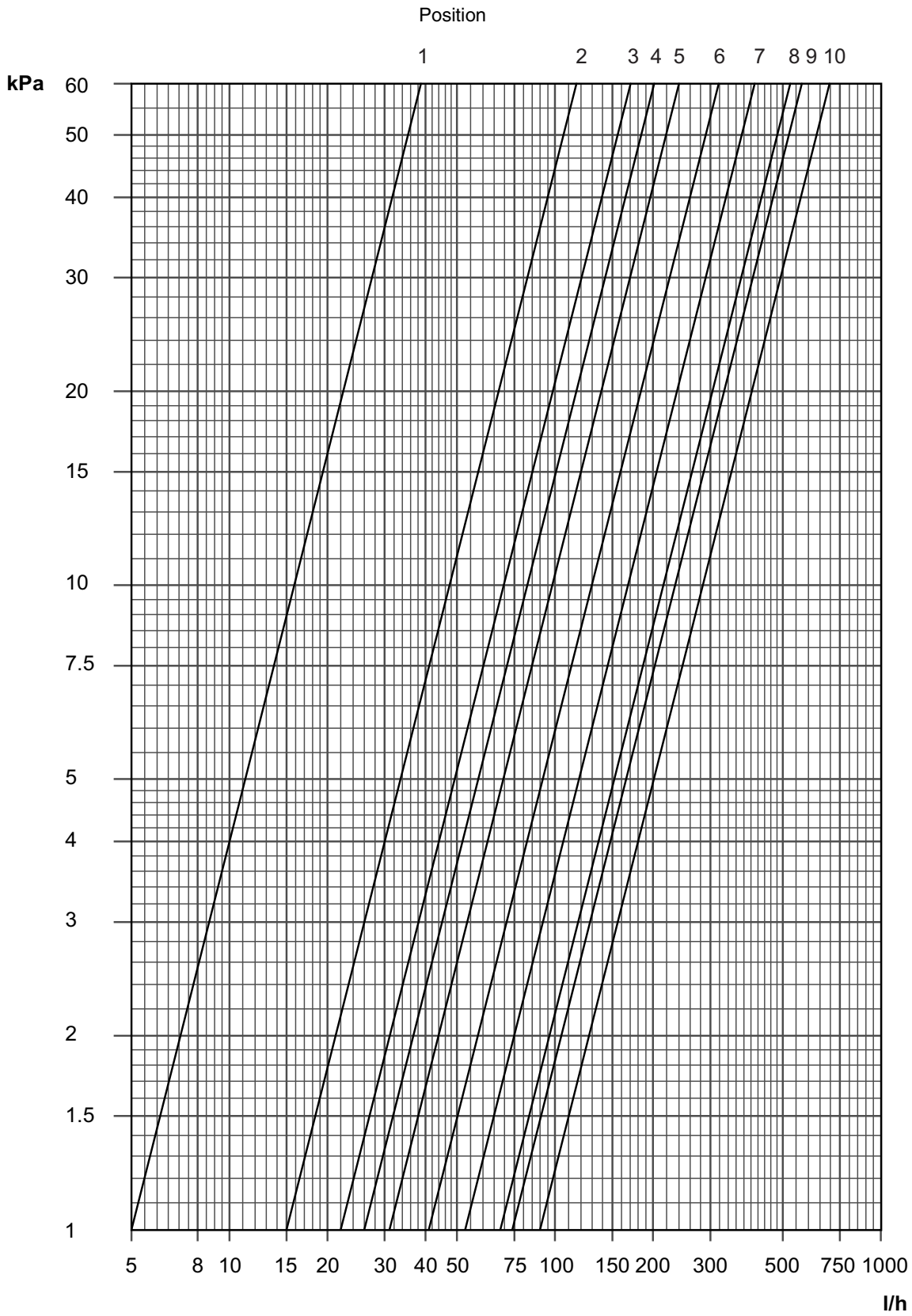


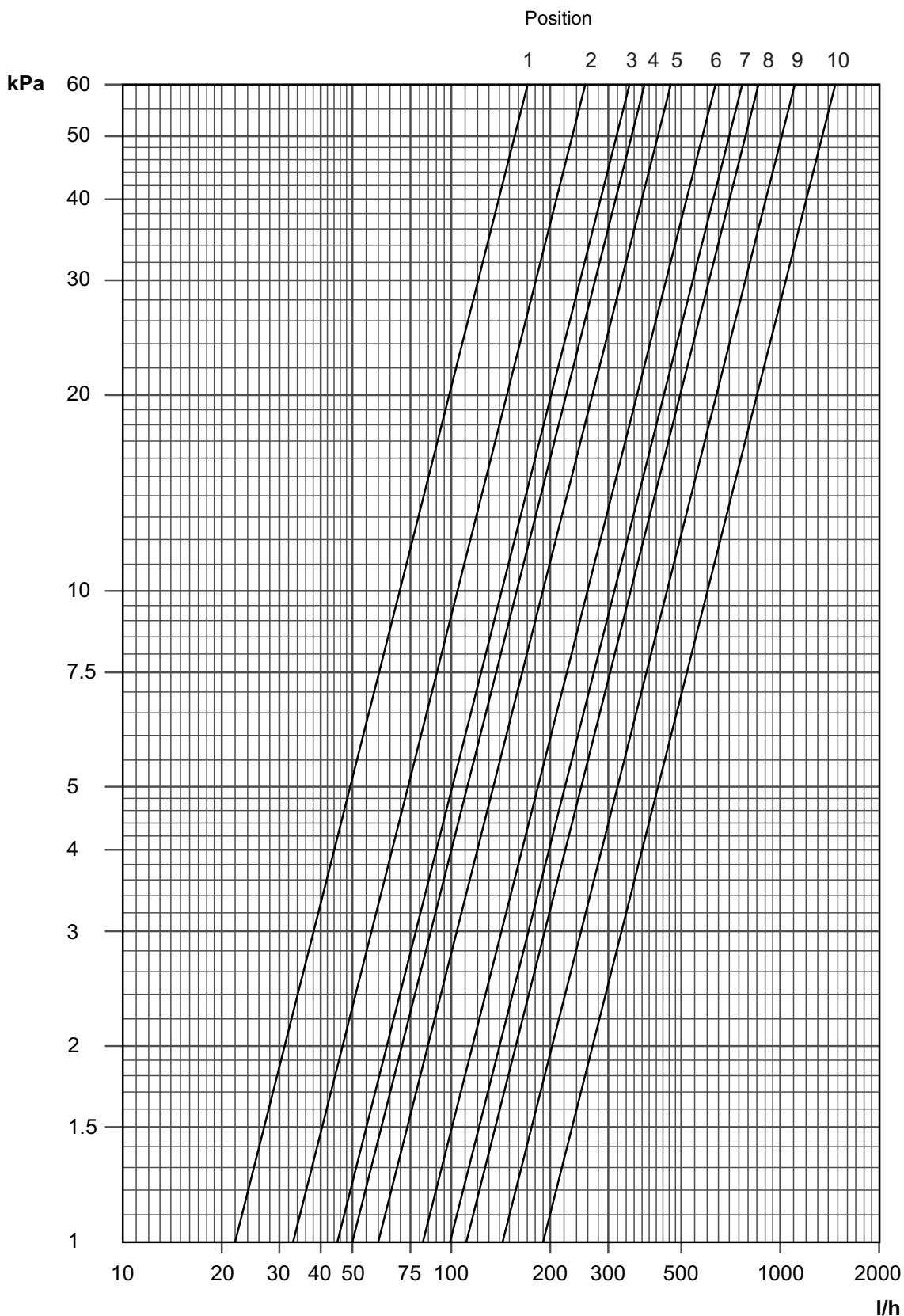
Diagram TBV-C LF, DN 15



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 area: Pos. 3-10

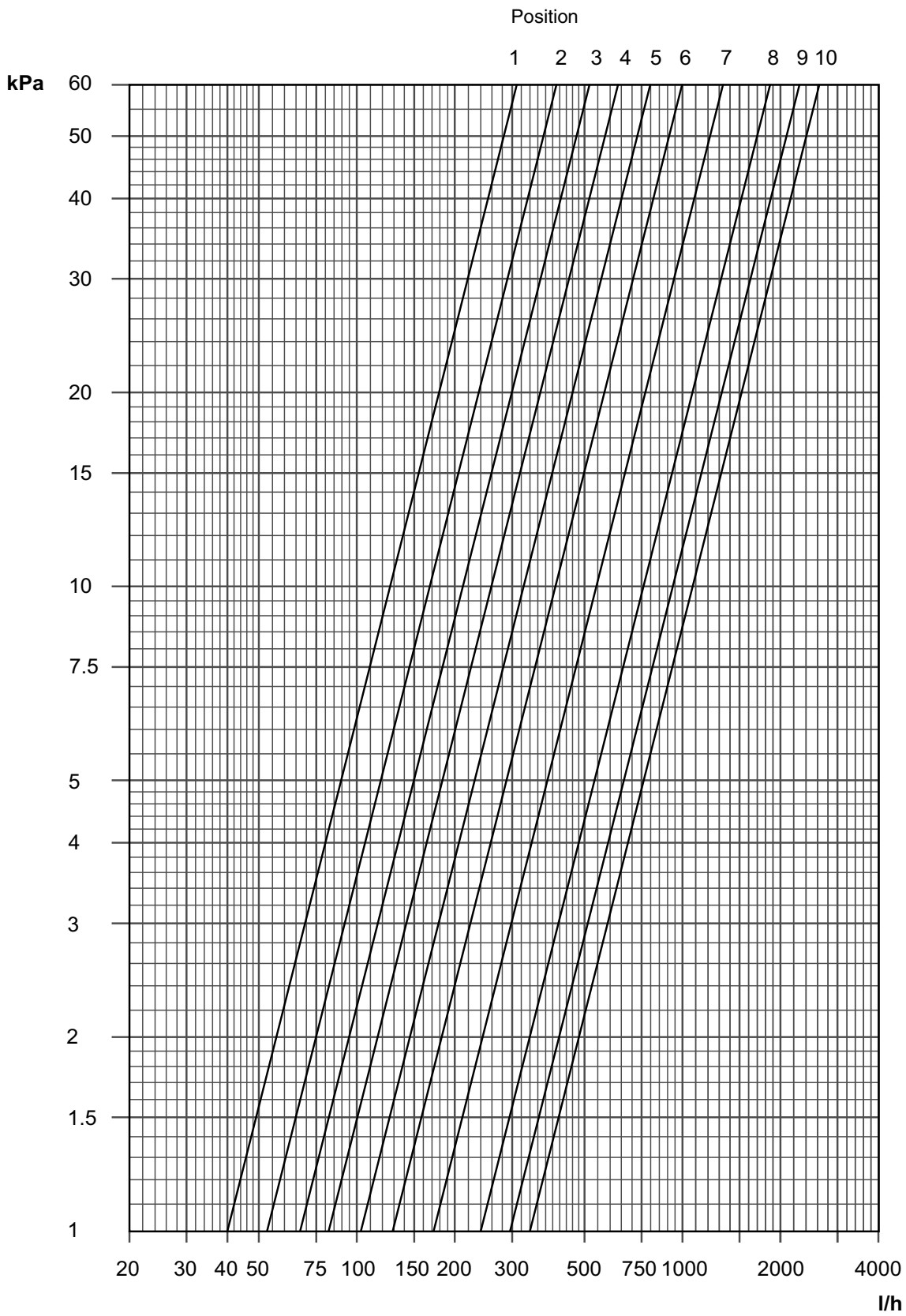
Diagram TBV-C NF, DN 15



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	1,11	1,43	1,80

Recommended area: Pos. 3-10

Diagram TBV-C NF, DN 20



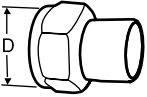
Position	1	2	3	4	5	6	7	8	9	10
Kv	0,40	0,53	0,67	0,82	1,03	1,29	1,72	2,40	2,96	3,40

Recommended area: Pos. 3-10

Connections for male thread

Welding connection

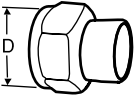
max 120°C



TA No	Valve DN	Thread D	For pipe DN
52 009-015	15	G3/4	15
52 009-020	20	G1	20

Soldering connection

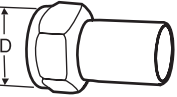
max 120°C



TA No	Valve DN	Thread D	For pipe Ø
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

Connection with smooth end

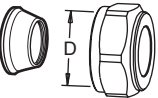
For connection with press coupling
max 120°C



TA No	Valve DN	Thread D	For pipe Ø
52 009-315	15	G3/4	15
52 009-318	20	G1	18
52 009-322	20	G1	22

Compression connection

max 100°C



TA No	Valve DN	Thread D	For pipe Ø
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

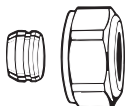
Support bushes shall be used, for more information see FPL, FPL-PX catalogue leaflet.

Connections for male thread with eurocone

Compression fitting for copper or steel pipes

For eurocone

Metal-to-metal sealing



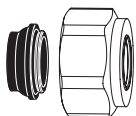
TA No	For pipe Ø
52 136-010	10
52 136-012	12
52 136-014	14
52 136-015	15
52 136-016	16
52 136-018	18

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

Compression fitting for copper or steel pipes

For eurocone

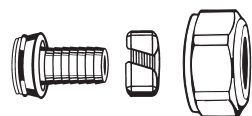
Nickel plated, soft sealing (EPDM)



TA No	For pipe Ø
52 136-112	12
52 136-114	14
52 136-115	15
52 136-116	16
52 136-118	18

Compression fitting for plastic pipes

For eurocone



TA No	For pipe Ø
52 136-212	12x2
52 136-214	14x2
52 136-216	16x2
52 136-217	17x2
52 136-218	18x2
52 136-219	18x2,5
52 136-220	20x2
52 136-221	21x2,5

Compression fitting for multi-layer pipes

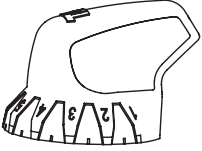
For eurocone



TA No	For pipe Ø
52 136-314	14x2
52 136-316	16x2
52 136-318	18x2

Accessories

Adjustment tool TBV-C



TA No

52 133-100

Handwheel

For manual shut-off of TBV-C



TA No

50 399-003

