

TBV-CMP

ROOM TEMPERATURE CONTROL

ZONE CONTROL / 2-WAY



PRESSURE INDEPENDENT BALANCING AND CONTROL VALVE (PIBCV)

Designed for modulating control of terminal units in heating and cooling systems, the TBV-CMP ensures optimum performance over a long lifetime. Correct control characteristic contributes to a linear circuit characteristic for accurate hydronic control. The TBV-CMP together with our balancing instruments gives possibility for advanced measuring and diagnostic.



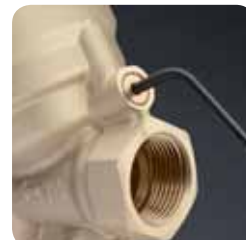
MEASURING OF Δp_L AND ΔH

Ensures design flow and easy trouble shooting.



PRE-SETTING TOOL

For quick and accurate pre-setting of the design flow.



FLUSHING

Simple flushing procedure makes maintenance easy and speed up commissioning.

we knowhow

TA

TBV-CMP

ROOM TEMPERATURE CONTROL

TECHNICAL DESCRIPTION

Application:

Heating and cooling systems.

Functions:

Control
Pre-setting (of flow)
Differential pressure control
Measuring
Shut-off
Flushing

Dimensions:

DN 15-25

Pressure class:

PN 16

Differential pressure (ΔpV):

Max. differential pressure: 350 kPa (ΔH_{max})
Min. differential pressure: 15 kPa (ΔH_{min})
(Valid for position 10, fully open. Other positions will require lower differential pressure, check with the software TA-Select.)

Flow range:

The flow (q_{max}) can be pre-set within the range:
DN 15 LF: 18-142 l/h
DN 15 NF: 77-375 l/h
DN 20 NF: 160-660 l/h
DN 25 NF: 335-1330 l/h

Minimum controllable flow:

DN 15 LF: 3 l/h
DN 15 NF: 7 l/h
DN 20 NF: 10 l/h
DN 25 NF: 20 l/h

Temperature:

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

Lift:

4 mm

Characteristic:

See diagrams under "Valve characteristics".

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)
Spring: Stainless steel
Spindle: Teflonized AMETAL®
Membrane: HNBR

AMETAL® is the dezincification resistant alloy of TA.

Marking:

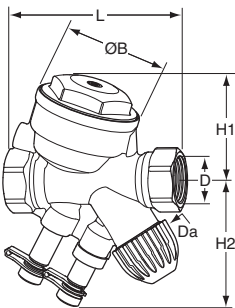
Body: TA, PN 16, DN, inch size and flow direction arrow.
Identification ring on measuring point:
White = Low flow (LF)
Black = Normal flow (NF)

TBV-CMP

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Female thread



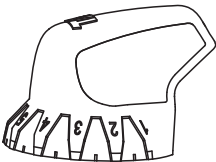
TA No	EAN	DN	D	Da*	L	H1	H2	B	Kg
TBV-CMP LF, low flow									
52 153-115	7318793982001	15	G1/2	M30x1,5	93	62	71	62	0,81
TBV-CMP NF, normal flow									
52 154-115	7318793982100	15	G1/2	M30x1,5	93	62	71	62	0,81
52 154-120	7318793982209	20	G3/4	M30x1,5	99	62	71	62	0,88
52 154-125	7318793982308	25	G1	M30x1,5	126	66	77	62	1,2

*) Connection to actuator.

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

ACCESSORIES

Presetting tool



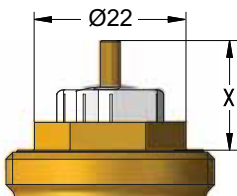
TA No	EAN
52 133-100	7318793886002

Actuator TSE-M

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

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

X = 11,50 - 15,80 (closed - fully open)

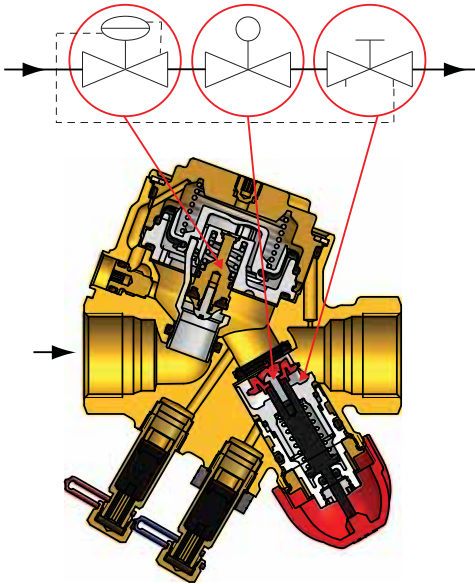


Tour & Andersson (TA) will not be held responsible for the control function if actuators other than TSE-M are used.

TBV-CMP

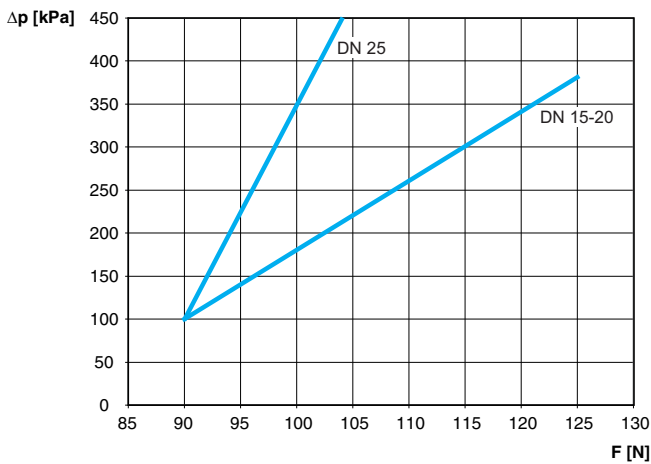
ROOM TEMPERATURE CONTROL

OPERATING FUNCTION



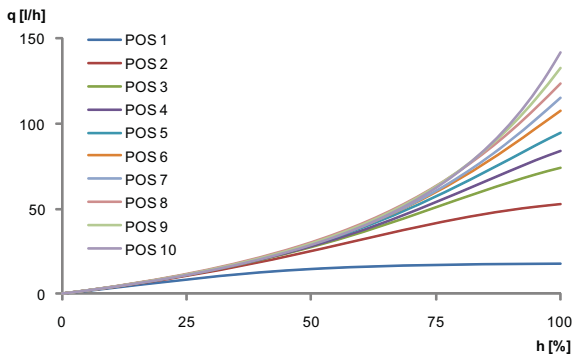
CLOSING FORCE

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

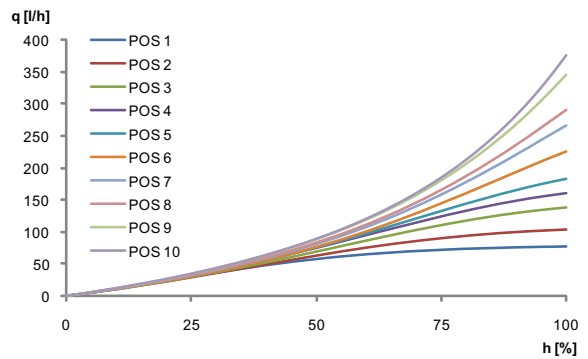


VALVE CHARACTERISTICS

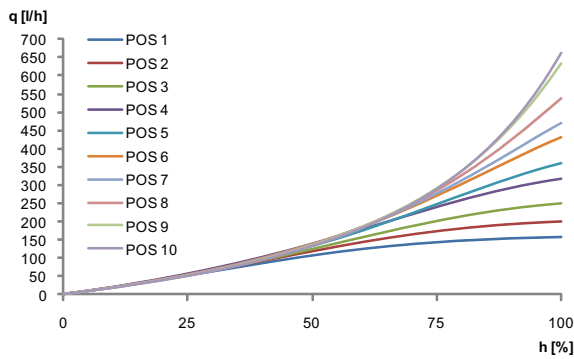
TBV-CMP LF, DN 15



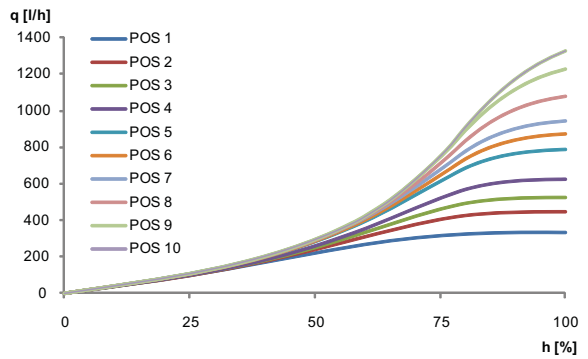
TBV-CMP NF, DN 15



TBV-CMP NF, DN 20

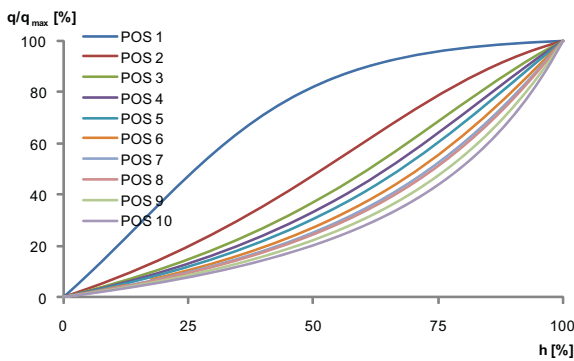


TBV-CMP NF, DN 25

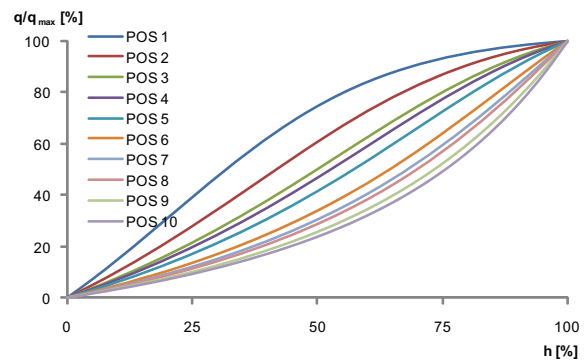


Relative valve characteristic

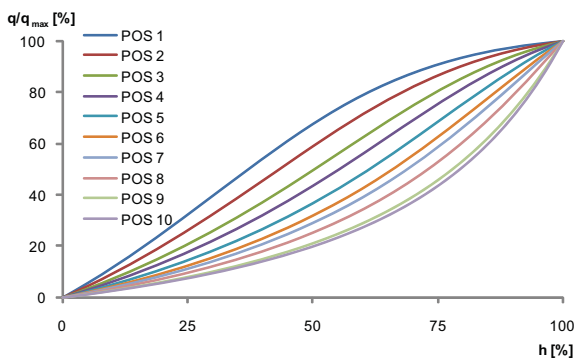
TBV-CMP LF, DN 15



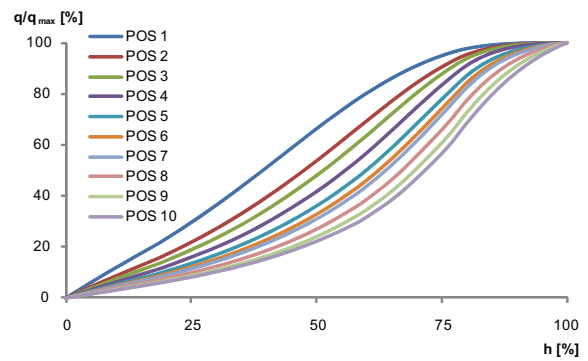
TBV-CMP NF, DN 15



TBV-CMP NF, DN 20



TBV-CMP NF, DN 25



q_{max} = l/h at each pre-setting and fully open valve plug.
h = lift

TBV-CMP

ROOM TEMPERATURE CONTROL

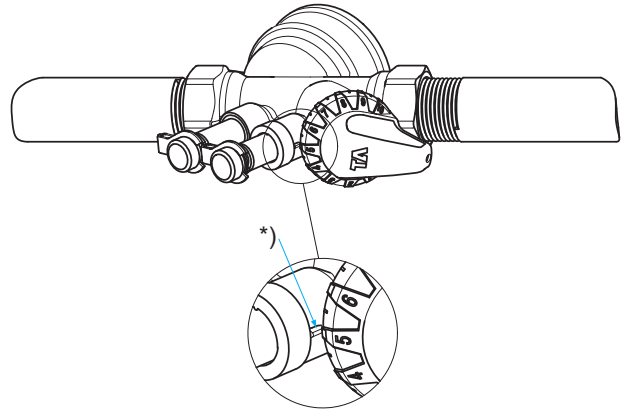
SETTING

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

TBV-CMP is delivered with the pre-setting fully open. Pre-setting of a valve for a given q_{\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 presetting tool. The valve is now pre-set.

There is a table for every valve size that shows the maximum flow for all settings.



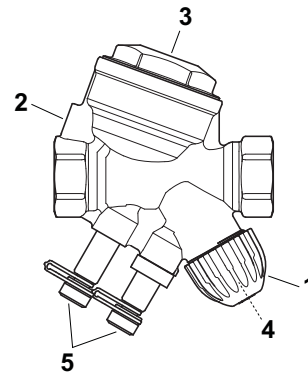
MEASURING

Measuring at setting

Connect TA's balancing or measuring instruments to the measuring points (5). Give the instrument the actual valve size, type (LF/NF) and pre-setting and the actual flow is displayed.

Measuring ΔH

Connect TA's balancing or measuring instruments to the measuring points (5). Close the valve with the protective cap (1) and open the flushing spindle (2).



FLUSHING

To flush/clean the valve throughput

Remove the actuator and open the pre-setting (4) fully (position 10). Then open the flushing spindle (2) fully.

To flush/clean the internal impulse duct

Close the valve with the protective cap (1) and open the flushing spindle (2) fully.

VENTING

To vent the membrane chamber, open venting screw (3).

NOISE

In order to avoid noise in the installation the valve must be correctly installed and the water de-aerated.

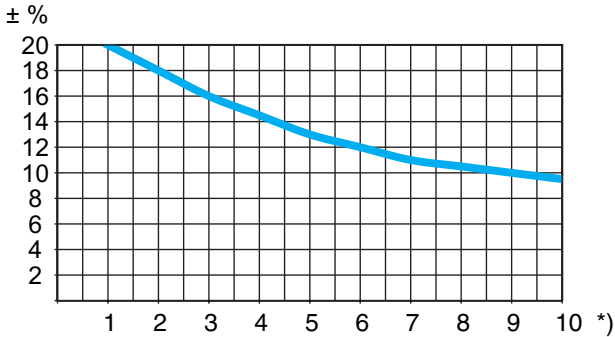
TBV-CMP

ROOM TEMPERATURE CONTROL

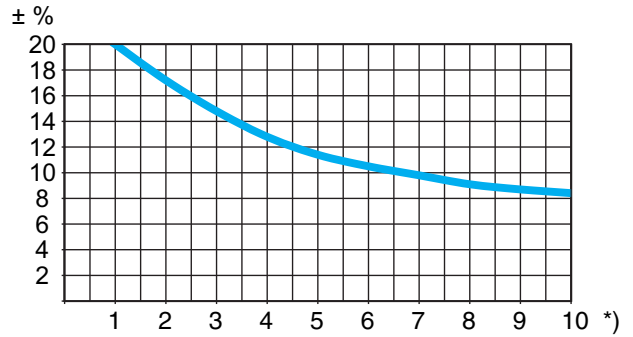
MEASURING ACCURACY

Maximum flow deviation at different settings

TBV-CMP LF



TBV-CMP NF



*) Position

CORRECTION FACTORS

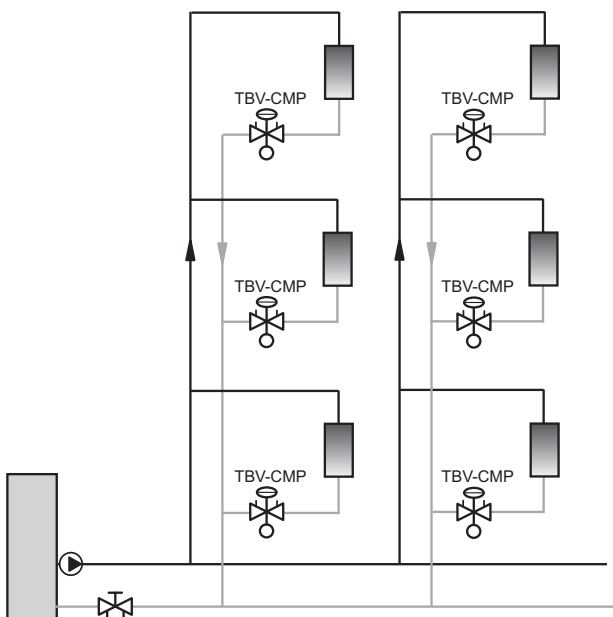
The flow calculations are valid for water (+20°C). For other liquids with approximately the same viscosity as water ($\leq 20 \text{ cSt} = 3^\circ \text{E} = 100 \text{ S.U.}$), it is only necessary to compensate for the specific density. However, at low temperatures, the viscosity increases and laminar 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.

SIZING

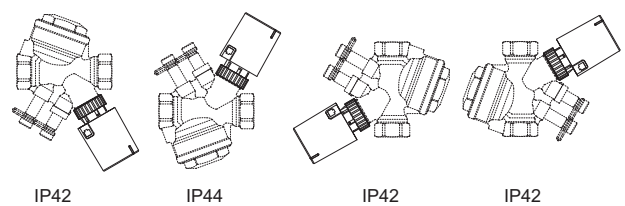
Choose the smallest possible valve size that can obtain the design flow. The pre-setting should be as open as possible to get the optimal circuit characteristics. Ensure that the available differential pressure is between 15-350 kPa. Recommended setting position 3-10.

INSTALLATION

Application example



TBV-CMP + TSE-M



TBV-CMP

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FLOW TABLES

TBV-CMP LF, DN 15

Position	1	2	3	4	5	6	7	8	9	10
q_{\max}	18	53	75	84	94	108	116	124	133	142

TBV-CMP NF, DN 15

Position	1	2	3	4	5	6	7	8	9	10
q_{\max}	77	103	138	160	180	225	265	290	345	375

TBV-CMP NF, DN 20

Position	1	2	3	4	5	6	7	8	9	10
q_{\max}	160	195	250	320	360	435	465	540	635	660

TBV-CMP NF, DN 25

Position	1	2	3	4	5	6	7	8	9	10
q_{\max}	335	445	525	625	785	875	945	1075	1225	1330

q_{\max} = l/h at each pre-setting and fully open valve plug.

Recommended setting: Position 3-10

The products, texts, photographs, graphics and diagrams in this document may be subject to alteration by Tour & Andersson without prior notice or reasons being given.

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

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