Climate
Control

IMI TA

TBV-C – NPT threads

Combined control & balancing valves for small terminal units

For ON-OFF control

Breakthrough
engineering for
a better world

TBV-C – NPT threads

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. IMI's dezincification resistant alloy, AMETAL®, minimizes the risk of leakage.

Key features

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 (not steam) and cooling systems.

Functions:
Control
Balancing
Pre-setting
Measuring
Shut-off (for isolation during system maintenance)

Dimensions:
1/2" – 1"

Pressure class:
PN 16 (230 psi)

Temperature:
Max. working temperature: 248°F
Min. working temperature: -4°F

Leakage rate:
Tight sealing

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: AMETAL®

AMETAL® is the dezincification resistant alloy of IMI.

Actuators:
See separate information on EMO T.

Sizing

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

$$Cv = 1.52 \frac{q}{\sqrt{\Delta p}}$$ q in GPM, Δp in ft WG

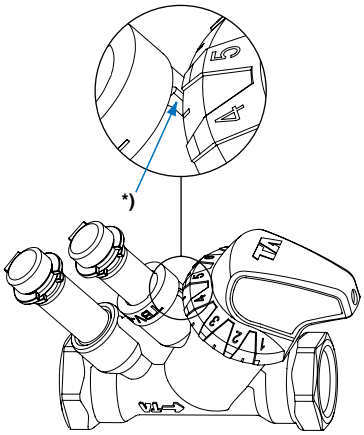
$$Cv = \frac{q}{\sqrt{\Delta p}}$$ q in GPM, Δp in psi

Setting

TBV-C is delivered with a red protective cap, Article 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, Article 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.



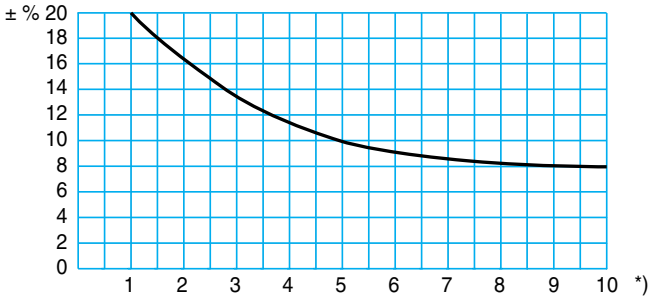
Noise

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 4.35 psi.

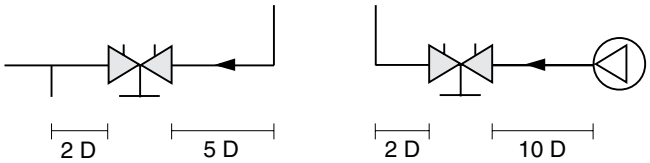
Measuring accuracy

Flow deviation at different settings



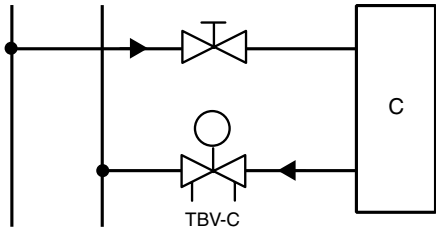
*) Position

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

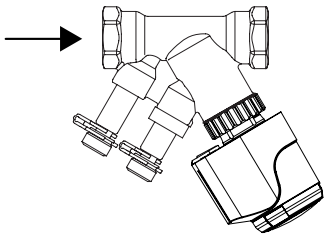


Installation

Application example

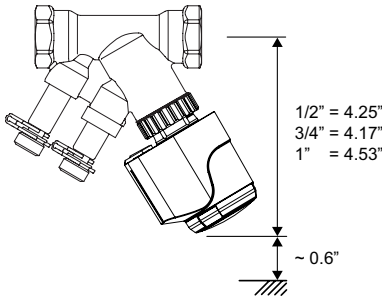


Flow direction

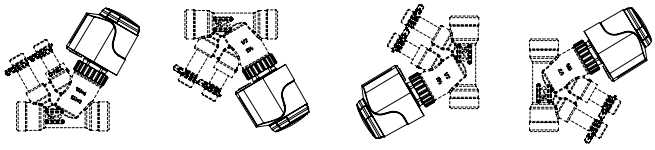


Installation of actuator

Approx. 0.60 in of free space is required above the actuator.



TBV-C + EMO T



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Closing force

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

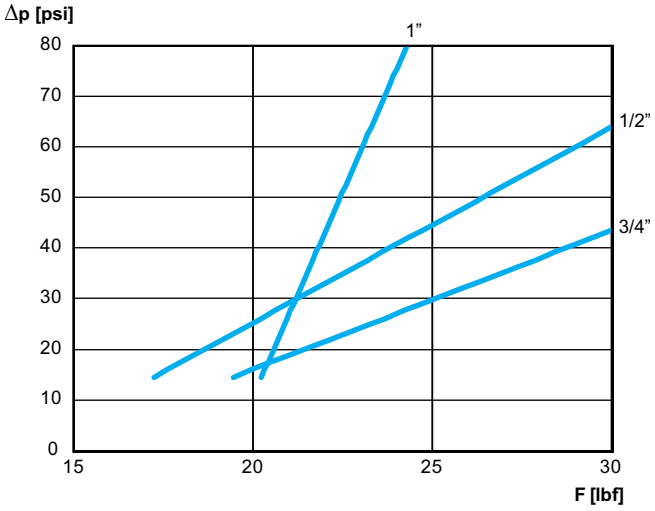
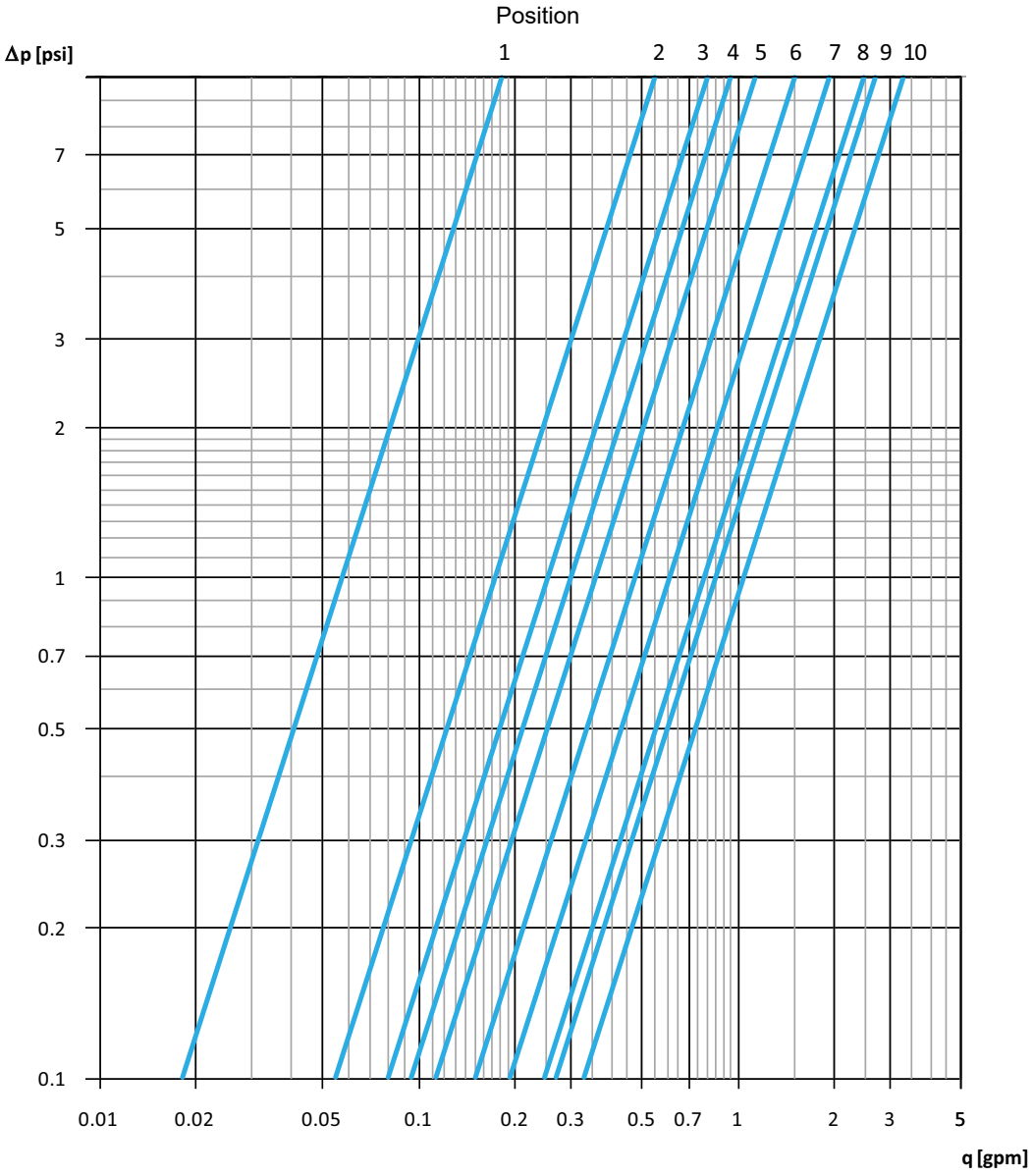


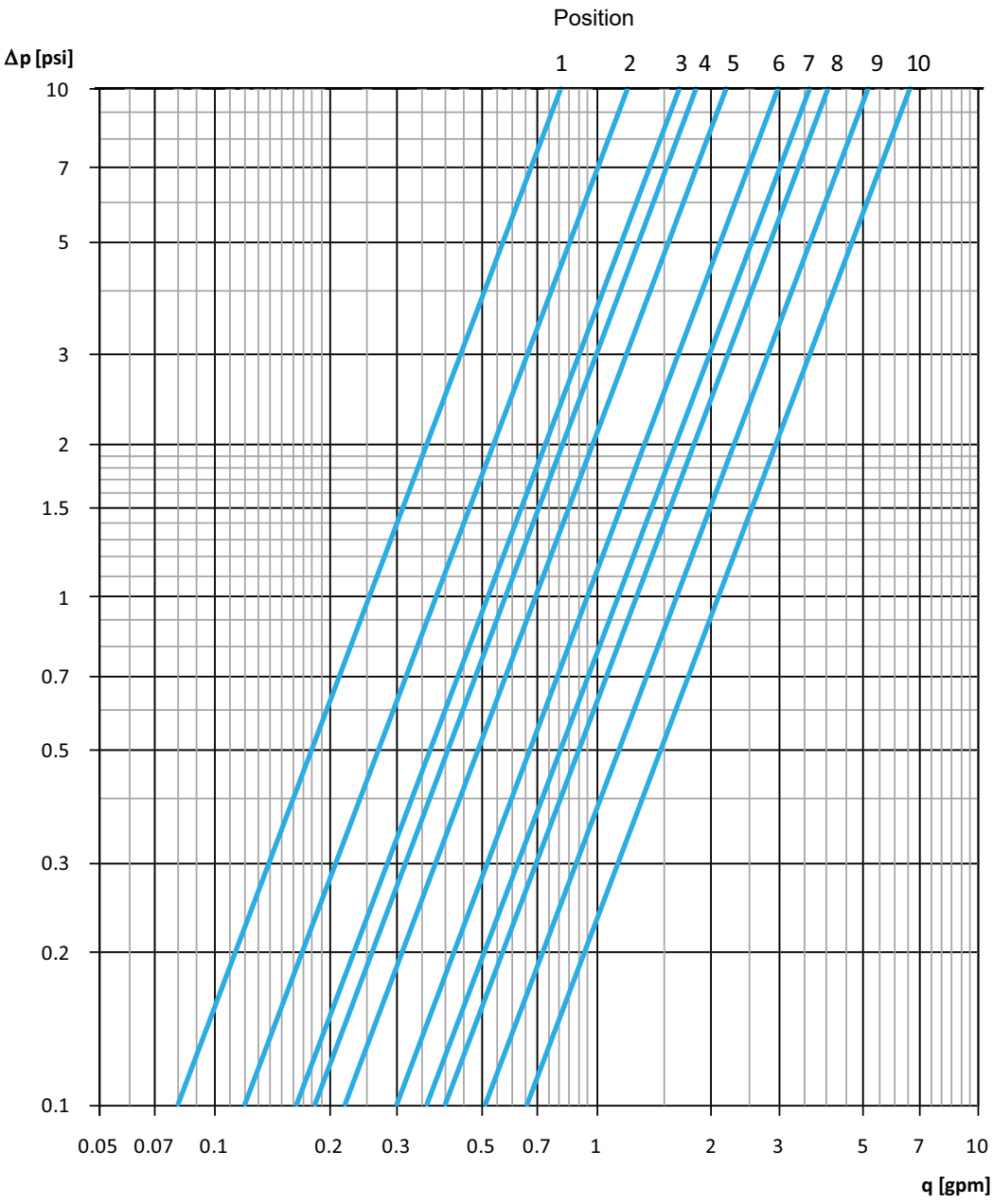
Diagram TBV-C LF, size 1/2”



Position	1	2	3	4	5	6	7	8	9	10
Cv	0.06	0.17	0.26	0.30	0.36	0.48	0.61	0.79	0.86	1.04

Recommended setting: Position 3-10

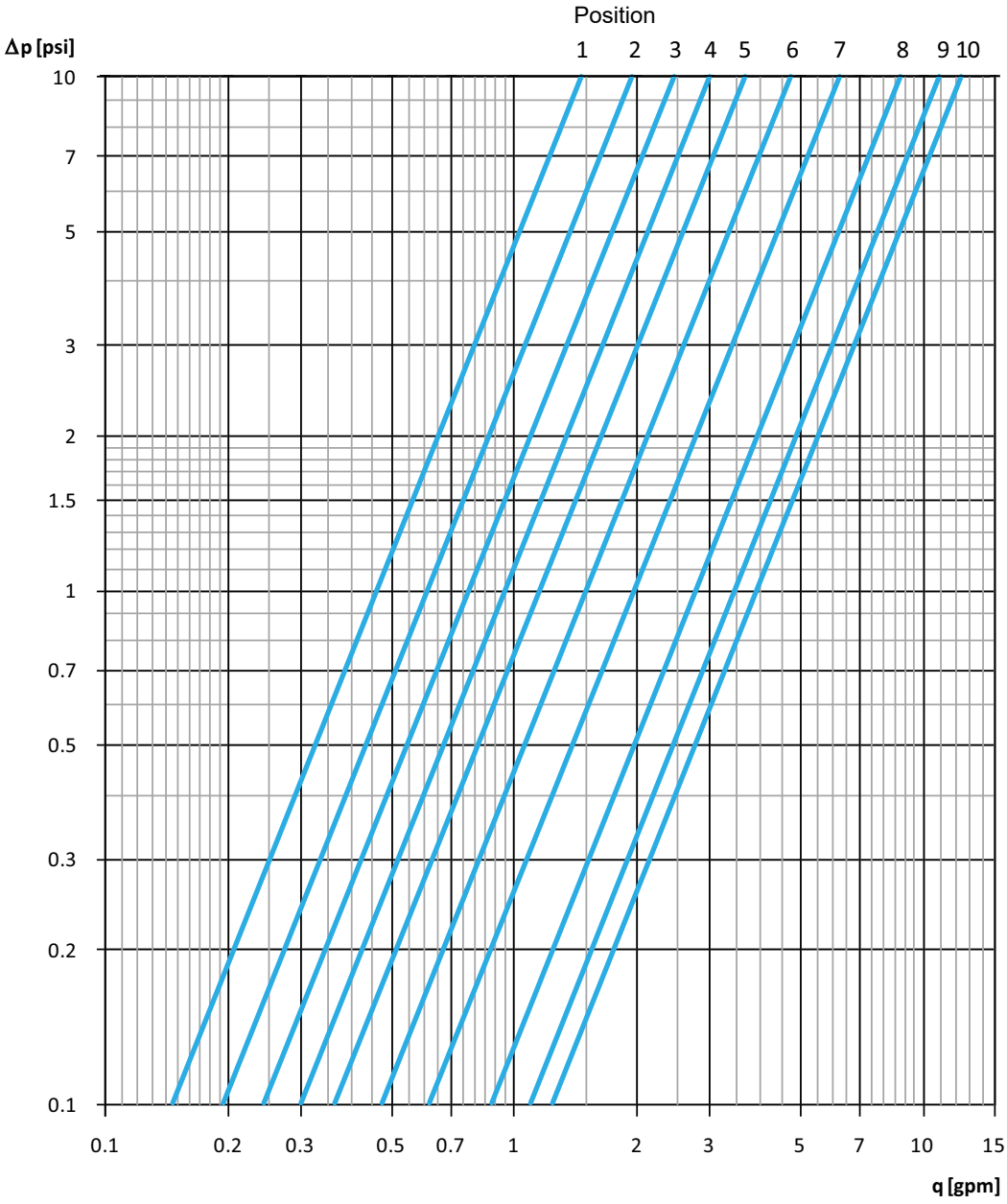
Diagram TBV-C NF, size 1/2”



Position	1	2	3	4	5	6	7	8	9	10
Cv	0.26	0.38	0.52	0.58	0.70	0.95	1.15	1.28	1.62	2.09

Recommended setting: Position 3-10

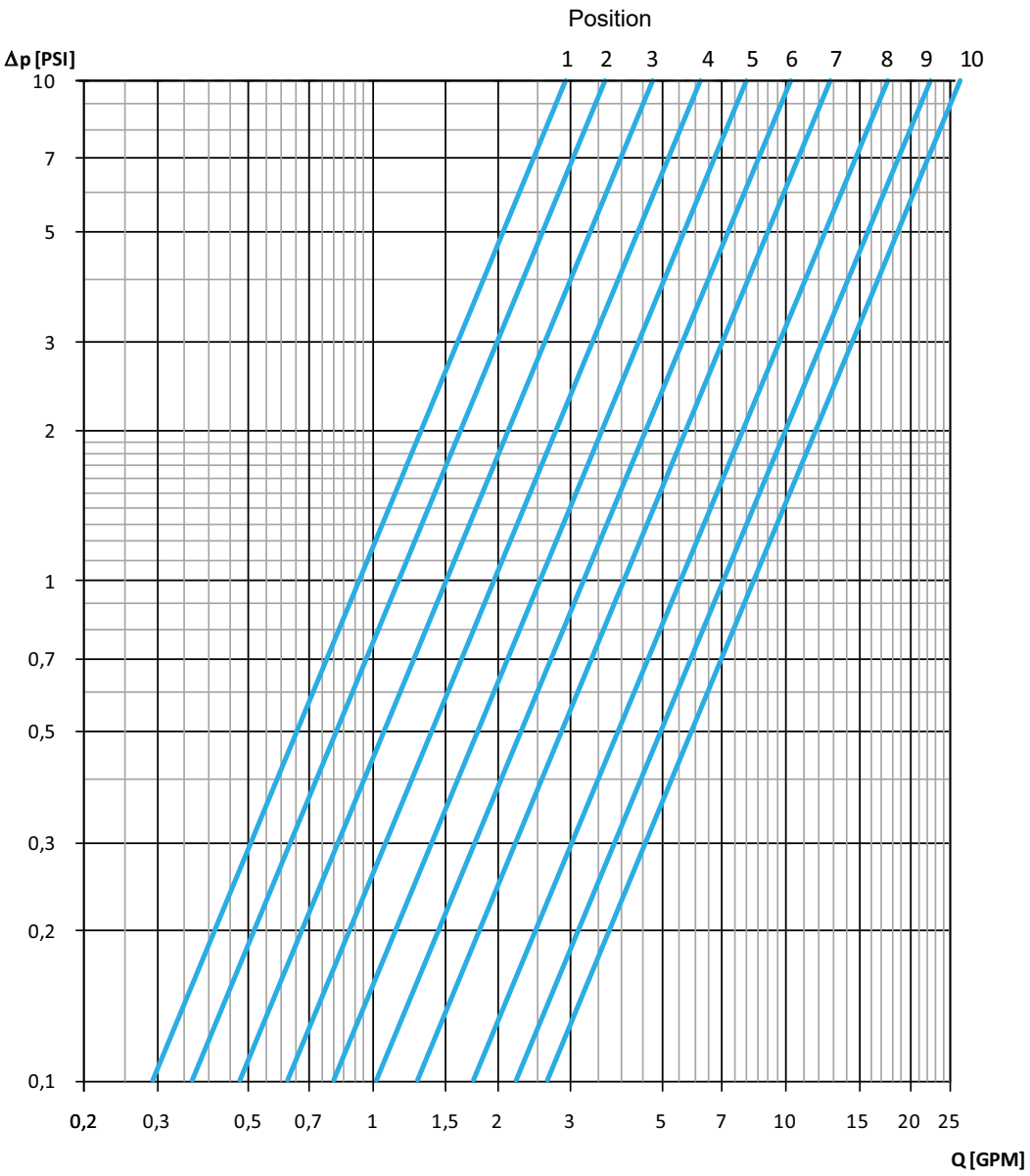
Diagram TBV-C NF, size 3/4”



Position	1	2	3	4	5	6	7	8	9	10
Cv	0.46	0.61	0.78	0.95	1.16	1.51	1.97	2.78	3.48	3.94

Recommended setting: Position 3-10

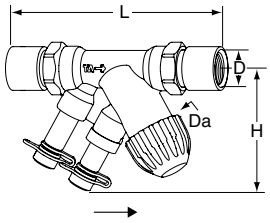
Diagram TBV-C NF, size 1”



Position	1	2	3	4	5	6	7	8	9	10
Cv	0.93	1.16	1.51	1.97	2.55	3.25	4.06	5.57	7.08	8.35

Recommended setting: Position 3-10

Articles



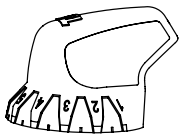
Internal thread

Size	(DN)	D	Da*	L [in]	H [in]	Cvs	lb	Article No ** North America
TBV-C LF, low flow								
1/2”	15	1/2 NPT	M30x1,5	5.04	2.28	1.04	1.15	52 133-715
TBV-C NF, normal flow								
1/2”	15	1/2 NPT	M30x1,5	5.04	2.28	2.08	1.15	52 134-715
3/4”	20	3/4 NPT	M30x1,5	5.47	2.24	3.94	1.41	52 134-720
1”	25	1 NPT	M30x1,5	6.46	2.52	8.35	2.18	52 134-725

*) Connection to actuator.
**) Distributed by Victaulic.

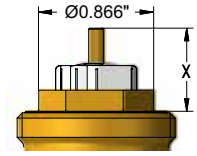
Cvs = gpm at a pressure drop of 1 psi and fully open valve.
→ = Flow direction

Accessories



Presetting tool
For TBV-C, TBV-CM

Article No
52 133-100



Actuator EMO T
For more details of EMO T, see separate catalogue leaflet.
TBV-C is developed to work together with the EMO T actuator. Actuators of other brands require a working range of:

X (closed - fully open) = 0.448” - 0.594” (1/2”-3/4”) / 0.448” - 0.622” (1”)

IMI will not be held responsible for the control function if other brands of actuator are used.
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