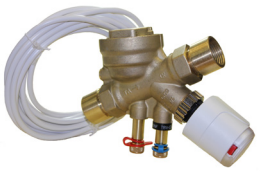
Pressure Independent Balancing and Control Valves (PIBCV)

TA Series TCP

08.39

TA Series TCP



TA Series TCP with Actuator

1.0 PRODUCT DESCRIPTION

Available Sizes

- ½ – 1"/15 – 25 mm

Pressure Class

- 230 psi/1600 kPa/16 bar

Application

- Hydronic heating and cooling systems

Functions

- Control
  - Modulating (depending on actuation)
- Balancing via pre-setting (max. flow)
- Differential pressure control from a min of 2 psi/15 kPa/0.15 bar to a max of 50 psi/350 kPa/3 bar
- Measuring (ΔH, T, q)
- Shut-off (for isolation during system maintenance up to maximum rated differential pressure)

Temperature

- +32°F/0°C to +250°F/+120°C

2.0 CERTIFICATION/LISTINGS

Not applicable – contact Victaulic with any questions.

ALWAYS REFER TO ANY NOTIFICATIONS AT THE END OF THIS DOCUMENT REGARDING PRODUCT INSTALLATION, MAINTENANCE OR SUPPORT.

System No.		Location	
Submitted By		Date	

Spec Section		Paragraph	
Approved		Date	

3.0 MATERIAL SPECIFICATIONS

TA SERIES TCP - Pressure Independent Balancing and Control Valve

Body: Non-ferrous AMETAL® DZR brass copper alloy

Spindle Seal: EPDM O-ring

Seat Seal: EPDM O-ring

EPDM/Stainless steel: ½" LF, ½" NF, ¾" NF

EPDM/AMETAL®: ½" HF, ¾" HF, 1" NF

Valve Insert: AMETAL®, PPS (polyphenylsulphide)

Return Spring: Stainless steel

Spindle: Nedox® coated AMETAL®

Valve Plug: PPS (polyphenylsulphide)

Membrane: HNBR

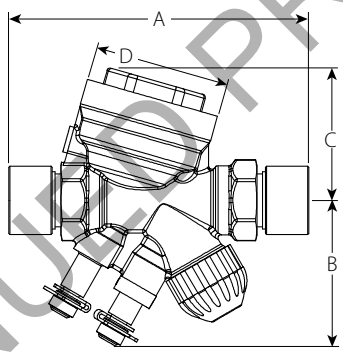
NOTES

- AMETAL® is the dezincification-resistant brass alloy of IMI TA.
- Body material shall be ISO 6509 compliant.

4.0 DIMENSIONS

TA Series TCP

Female X Female Threaded



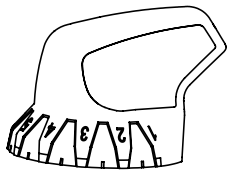
Size		Dimensions				Weight
Nominal inches mm	Actual Outside Diameter inches mm	A End to End inches mm	B inches mm	C inches mm	E inches mm	Approximate (Each) lb kg
½ LF 15	0.840 21.3	5.5 140	2.4 62	2.8 71	2.4 62	2.2 1.0
½ NF 15	0.840 21.3	5.5 140	2.4 62	2.8 71	2.4 62	2.2 1.0
½ HF 15	0.840 21.3	6.6 168	2.4 62	2.8 71	2.4 62	3.3 1.5
¾ NF 20	1.050 26.7	5.8 147	2.4 62	2.8 71	2.4 62	2.5 1.1
¾ HF 20	1.050 26.7	6.6 168	2.4 62	2.8 71	2.4 62	3.3 1.5
1 NF 25	1.315 33.7	6.4 163	2.6 66	3.0 77	2.4 62	3.3 1.5

NOTE

- LF = Low Flow, NF = Normal Flow, HF = High Flow

5.0 PERFORMANCE

Accessories

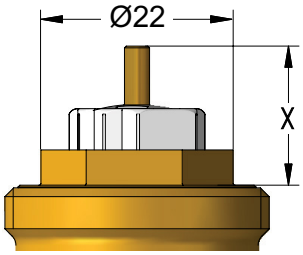


Presetting Tool

The presetting tool (part code R000TBV000) is sold separately.

Actuator EMO TM, EMO 1 or EMO 3

Pressure Independent Terminal Balancing/Control Valves are developed to work together with the EMO TM, EMO 1 or EMO 3 actuators. Actuators of other brands require a working range of: X = 0.453 – 0.622" (closed - fully open).



Actuator EMO

IMI TA and Victaulic will not be held responsible for the control function if actuators other than EMO actuators are used.

Actuation Speed	
Control Valve	**Flow Time** seconds/mm
EMO TM	30 s/mm (when in stand-by mode)
EMO 1	25 s/mm
EMO 3	70 s/mm - 50 Hz
	56 s/mm - 60 Hz

NOTE

- Series TCP has 4 mm of travel.

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 2.2 – 50 psi/ 15 – 350 kPa.

The recommended setting position is between 3-10.

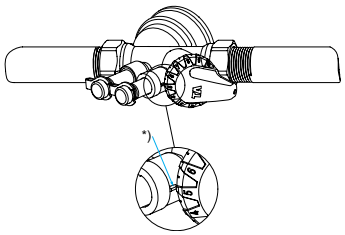
5.0 PERFORMANCE (Continued)

Setting

TA Series TCPs are delivered with a red protective cap. All Terminal Balancing and Control Valves are 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 pre-setting tool at the valve.
2. Turn the pre-setting tool so that position 5 is pointing at the index of the valve body.
3. Remove the pre-setting tool. The valve is now set.

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

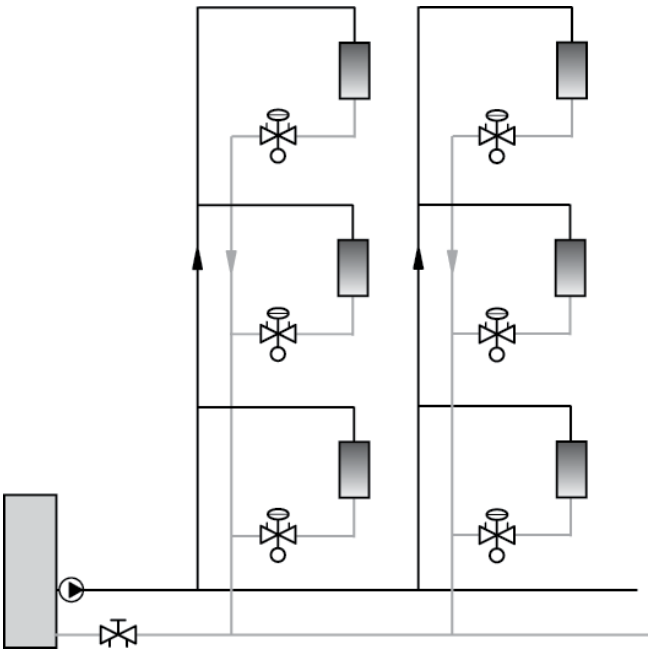


TCP

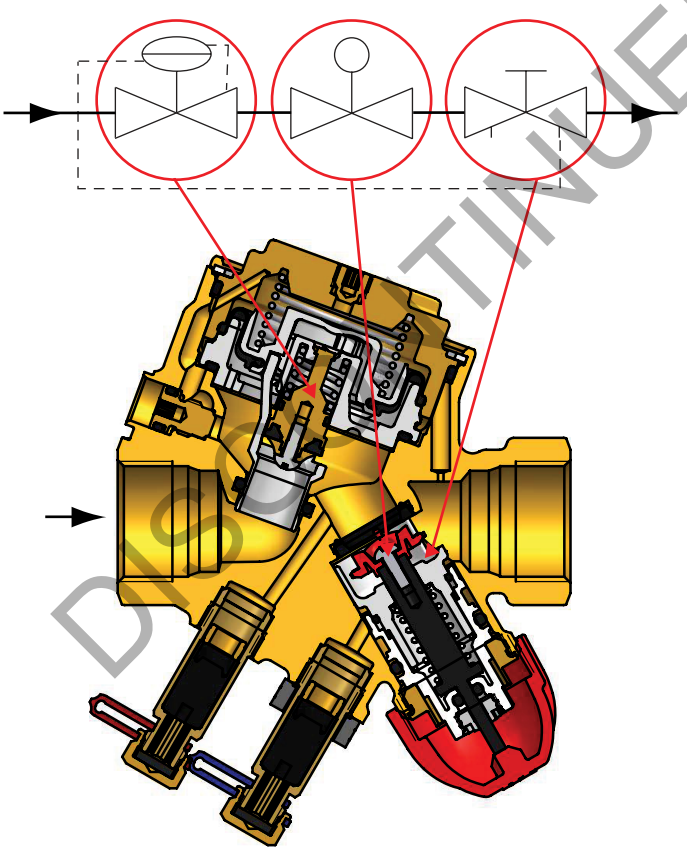
5.0 PERFORMANCE (Continued)

Installation

Application Example



Operating Function

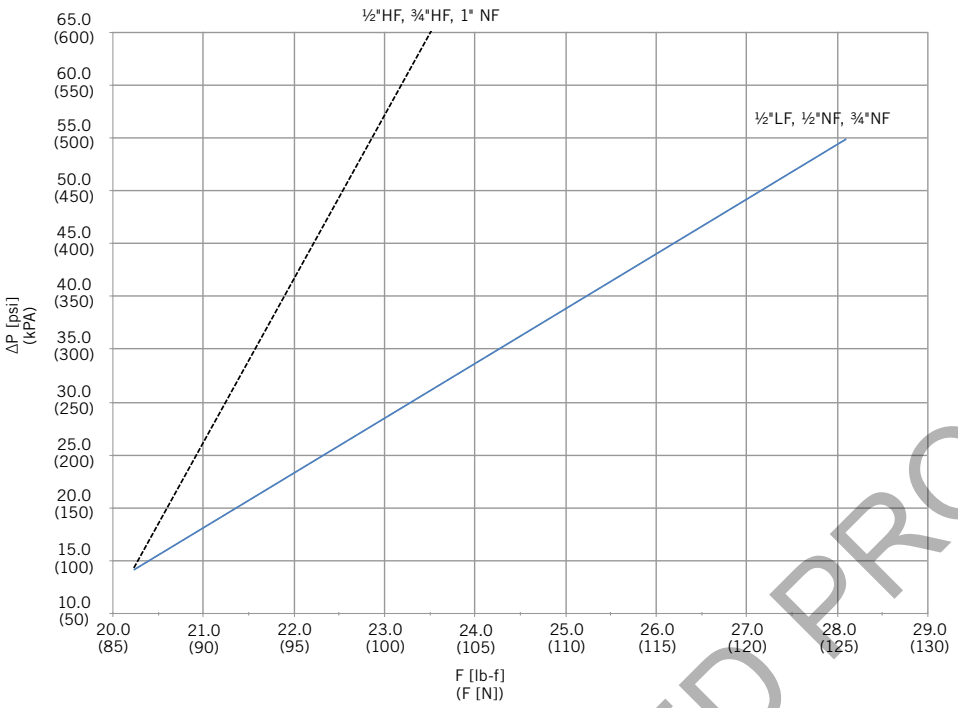


5.0 PERFORMANCE (Continued)

Closing Force

TA Series TCP

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



Correction Factors

The flow calculations are valid for water (68°F/20°C). For other liquids with approximately the same viscosity as water (less than or equal to symbol 20 cSt = 3°E = 100S.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 using the software, TA Select, or TA's balancing instruments.

Flow Tables

	Valve Pre-Set Position									
	1	2	3	4	5	6	7	8	9	10
TCP LF, ½" - q_{max}	0.08	0.23	0.33	0.37	0.41	0.48	0.51	0.55	0.59	0.63
TCP NF, ½" - q_{max}	0.34	0.45	0.61	0.70	0.79	0.99	1.17	1.28	1.52	1.65
TCP HF, ½" - q_{max}	1.47	1.96	2.31	2.75	3.46	3.85	4.16	4.73	5.39	5.86
TCP NF, ¾" - q_{max}	0.70	0.86	1.10	1.41	1.59	1.92	2.05	2.38	2.80	2.91
TCP HF, ¾" - q_{max}	1.47	1.96	2.31	2.75	3.46	3.85	4.16	4.73	5.39	5.86
TCP NF, 1" - q_{max}	1.47	1.96	2.31	2.75	3.46	3.85	4.16	4.73	5.39	5.86

NOTES

- qmax = gpm/lpm at each pre-setting and fully open valve plug.
- The recommended setting position is between 3-10.

6.0 NOTIFICATIONS

Not applicable – contact Victaulic with any questions.

7.0 REFERENCE MATERIALS

08.36: Victaulic Control Valve with Return Temperature Controller (COMPACT-T) TA Series 7CT

08.38: Victaulic TBV Terminal Balancing and Control Valves TA Series TC/TCM

08.39: Victaulic Pressure Independent Balancing and Control Valves (PIBCV) TA Series TCP

08.52: Victaulic Combined Balancing and Control Valves TA Series 7FC

08.53: Victaulic Combined Balancing and Control Valves TA Series 7FP

User Responsibility for Product Selection and Suitability
Each user bears final responsibility for making a determination as to the suitability of Victaulic products for a particular end-use application, in accordance with industry standards and project specifications, as well as Victaulic performance, maintenance, safety, and warning instructions. Nothing in this or any other document, nor any verbal recommendation, advice, or opinion from any Victaulic employee, shall be deemed to alter, vary, supersede, or waive any provision of Victaulic Company's standard conditions of sale, installation guide, or this disclaimer.

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Note
This product shall be manufactured by Victaulic or to Victaulic specifications. Victaulic recommends all products to be installed in accordance with current IMI Hydronic Engineering installation/assembly instructions. Victaulic and IMI Hydronic Engineering reserve the right to change product specifications, designs and standard equipment without notice and without incurring obligations.

Installation
Reference should always be made to the current IMI Hydronic Engineering installation/assembly instructions for the product you are installing. For coupling and strainer installation, reference should always be made to the I-100 Victaulic Field Installation Handbook for the product you are installing. Handbooks are included with each shipment of Victaulic products for complete installation and assembly data, and are available in PDF format on our website at www.victaulic.com.

Warranty
Refer to the Warranty section of the current Price List or contact Victaulic for details.

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