

# Compact Pressure Independent Balancing and Control Valve (Compact-P)

## TA Series 7CP



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### 1.0 PRODUCT DESCRIPTION

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#### Available Sizes

- ½ – 1 ¼"/DN15 – DN32

#### Pressure Class

- 230 psi/1600 kPa/16 bar

#### Application

- Hydronic heating and cooling systems

#### Functions

- Control
  - On/Off (EMO T Normally Closed Actuator)
  - Off/On (EMO T Normally Open Actuator)
  - Modulating (EMO TM, EMO 1 or EMO 3 Actuators)
  - Digitally configurable with proportional control (TA Slider 160, TA Slider 160 Plus or TA Slider 160 KNX Actuators)
- Balancing via pre-setting (max. flow)
- Valve pressure drop max of 58 psi/400 kPa/4 bar
- Measuring ( $\Delta H$ , T, q)
- Shut-off (for isolation during system maintenance up to maximum rated differential pressure)

#### Temperature

- +32°F to +194°F/0°C to +90°C

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### 2.0 CERTIFICATION/LISTINGS

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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 SPECIFICATIONS – MATERIAL

- Body:** Non-ferrous AMETAL® DZR brass copper alloy
- Spindle Seal:** EPDM O-ring
- Valve Insert:** Non-ferrous AMETAL® DZR brass copper alloy
- Spring:** Stainless steel
- Spindle:** Stainless steel
- Valve Plug:** Stainless steel
- Diaphragm:** EPDM and HNBR
- Diaphragm Support:** Polyphenylsulphide (PPS)
- O-Ring:** EPDM

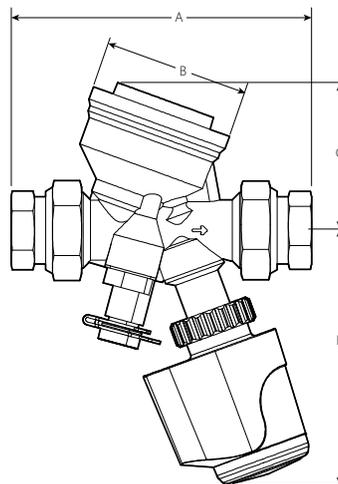
**NOTES**

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

### 4.0 DIMENSIONS

**TA Series 7CP**

Female X Female Threaded



Size		Dimensions						Weight
Nominal inches DN	Actual Outside Diameter inches mm	A End to End inches mm	B inches mm	C inches mm	E EMO 1 EMO 3 inches mm	E EMO TM inches mm	E TA Slider 160 TA Slider 160 Plus TA Slider 160 KNX inches mm	Approximate (Each) lb kg
½ LF DN15 LF	0.840 21.3	2.91 74	2.13 54	2.17 55	4.21 107	4.21 107	4.68 119	1.2 0.5
½ DN15	0.840 21.3	2.91 74	2.13 54	2.17 55	4.21 107	4.21 107	4.68 119	1.2 0.5
¾ DN20	1.050 26.7	3.35 85	2.52 64	2.52 64	4.21 107	4.21 107	4.68 119	1.5 0.7
1 DN25	1.315 33.7	3.66 93	2.52 64	2.52 64	4.45 113	4.50 114	5.12 130	1.7 0.8
1 ¼ DN32	1.660 42.4	4.41 112	3.07 78	3.07 78	4.45 113	4.50 114	5.24 133	3.3 1.5

**NOTES**

- Depending on union end types selected, length "A" may vary slightly.
- LF = Low Flow

## 5.0 PERFORMANCE

### Accessories

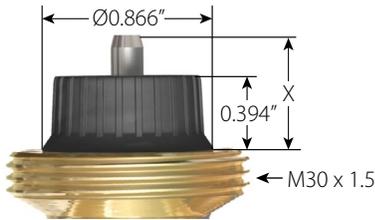
#### EMO Actuators and TA Slider 160 Actuators

TA Series 7CP is designed to work together with the following actuators: EMO T (on/off or off/on), EMO TM (modulating), EMO 1 (proportional for 0-10 V signals), EMO 3 (three-point for 24 V AC signals), TA Slider 160, TA Slider 160 Plus or TA Slider 160 KNX.

Actuators of other brands require a working range of:

- ½ – ¾": X (closed – fully open) = 0.46 – 0.62"/11.7 – 15.7 mm
- 1 – 1 ¼": X (closed – fully open) = 0.40 – 0.66"/10.1 – 16.8 mm

Closing force: Minimum 28 lbf (maximum 112 lbf) for ½ – ¾"; Minimum 43 lbf for 1 – 1 ¼" (maximum 112 lbf)



IMI TA and Victaulic will not be held responsible for the control function if actuators other than EMO T, EMO TM, EMO 1, EMO 3, TA Slider 160, TA Slider 160 Plus or TA Slider 160 KNX are used.

Actuation Speed	
Control Valve	Actuator Travel Speed seconds/mm
EMO T	Approx. 4-minute cycle
EMO TM	30 s/mm
EMO 1	25 s/mm
EMO 3	70 s/mm - 50 Hz
	56 s/mm - 60 Hz
TA Slider 160, TA Slider 160 Plus or TA Slider 160 KNX Actuator	10 s/mm

#### NOTE

- ½"/15 mm and ¾"/20 mm TA Series 7CP have 4 mm of travel.

Maximum recommended pressure drop ( $\Delta pV$ ) for valve and actuator combination. The maximum recommended pressure drop over a valve and actuator combination for shut-off and to fulfill all stated performances ( $\Delta pV_{max}$ ):

Size inches mm	EMO 1 / EMO 3 EMO T / EMO TM TA Slider 160 TA Slider 160 Plus TA Slider 160 KNX <sup>1</sup>
	psi kPa
½	58
	400
¾	58
	400
1	58
	400
1 ¼	58
	400

<sup>1</sup> Closing force 28 lbf (EMO T or EMO TM) or 43 lbf (TA Slider 160, TA Slider 160 Plus or TA Slider 160 KNX)

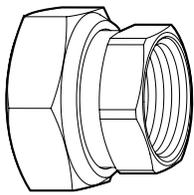
#### NOTE

- $\Delta pV_{max}$  = The maximum allowed pressure drop over the valve, to fulfill all stated flow performances and to ensure the valve can close from an open position without exceeding the stated leakage rate.

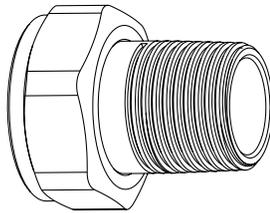
## 5.0 PERFORMANCE (Continued)

### Accessories

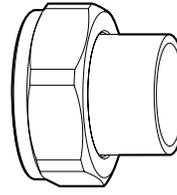
TA Series 7CP Tailpiece Accessories			
Size	Female	Sweat	Male
1/2"	P0047CPF04	P0047CPS04	P0047CPM04
Gasket	P0047CPGSK	P0047CPGSK	P0047CTGSK
3/4"	P0067CPF06	P0067CPS06	P0067CPM06
Reducer 3/4" as 1/2"	P0067CPF04	Not Available	Not Available
Gasket	P0067CPGSK	P0067CPGSK	P0067CTGSK
1"	P0107CPF10	P0107CPS10	P0107CPM10
"Reducer 1" as 3/4"	P0107CPF06	Not Available	Not Available
Gasket	P0107CPGSK	P0107CPGSK	P0107CTGSK
1 1/4"	P0127CPF12	P0127CPS12	Not Available
Reducer 1 1/4" as 1"	P0127CPF10	Not Available	Not Available
Gasket	P0127CPGSK	P0127CPGSK	Not Available



Female NPT



Male NPT

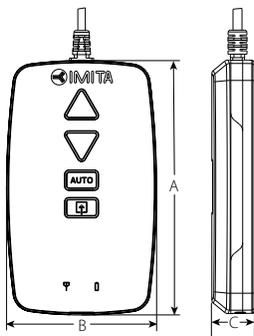


Sweat

**NOTE**

- All tailpieces are one-piece union assemblies with a gasket.

### TA Dongle



Size			Part Code
A inches mm	B inches mm	C inches mm	
5.12 130	3.03 77	0.71 18	P0007MPDON

**NOTE**

- The TA Dongle is available for use with the TA Slider 160 actuators only. The dongle is used to field program and interface with these actuators.

**Sizing**

**TA Series 7CP**

Choose the smallest valve size that can obtain the maximum design flow. The setting should be as open as possible. Check that the available  $\Delta pV$  is within the working range of 2.2 – 58 psi/15.2 – 400 kPa (sizes ½"/15 mm and ¾"/20 mm) or 3.3 – 58 psi/28 – 400 kPa (sizes 1"/25 mm and 1 ¼"/32 mm).

Size inches mm	Valve Position (q_max)									
	1 gpm lpm	2 gpm lpm	3 gpm lpm	4 gpm lpm	5 gpm lpm	6 gpm lpm	7 gpm lpm	8 gpm lpm	9 gpm lpm	10 gpm lpm
½ LF	0.19	0.31	0.43	0.54	0.65	0.75	0.84	0.92	1.00	1.08
12 LF	0.72	1.17	1.6	2.0	2.5	2.8	3.2	3.5	3.8	4.1
½	0.39	0.66	0.88	1.09	1.30	1.50	1.67	1.85	1.98	2.07
12	1.48	2.50	3.33	4.13	4.92	5.68	6.32	7.00	7.50	7.84
¾	0.92	1.47	2.02	2.53	2.99	3.43	3.92	4.36	4.75	5.06
20	3.48	5.56	7.65	9.58	11.32	12.98	14.84	16.50	17.98	19.15
1	1.62	2.68	3.65	4.62	5.58	6.55	7.57	8.23	9.02	9.46
25	6.16	10.16	13.83	17.50	21.16	24.83	28.66	31.16	34.16	35.83
1 ¼	3.52	5.37	7.13	9.06	10.80	12.30	13.60	14.70	15.60	16.30
32	13.32	20.33	26.99	34.29	40.88	46.56	51.48	55.65	59.05	61.70

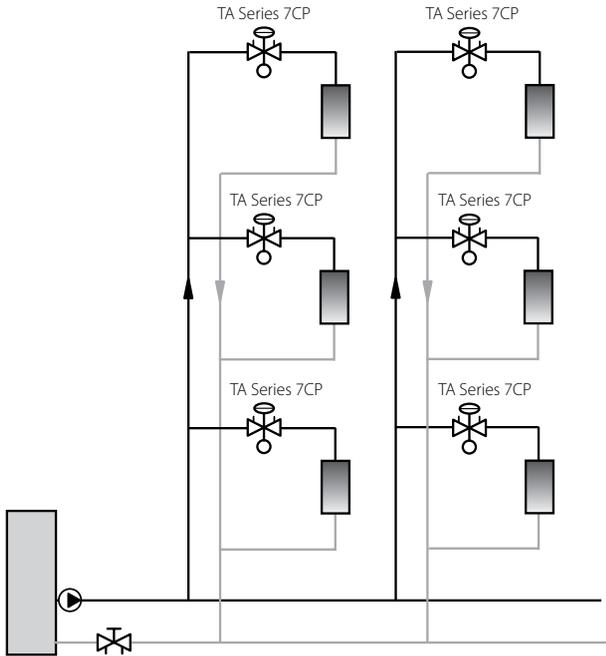
**NOTES**

- $q_{max}$  = gpm (lpm) at each pre-setting and fully open valve plug.
- LF = Low Flow

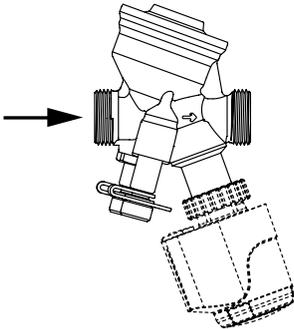
## 5.0 PERFORMANCE (Continued)

### Installation

Application example

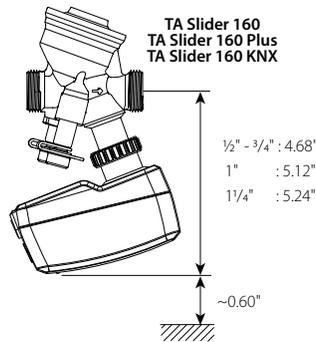
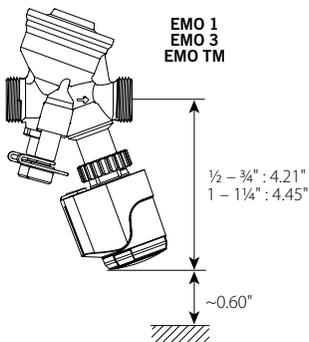


### Flow Direction



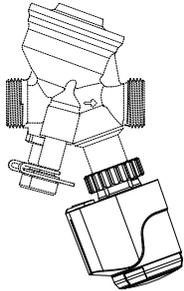
### Installation of Actuator

Approximately 0.60 in of free space is required above the actuator to allow for actuator removal and valve setting adjustment once installed.

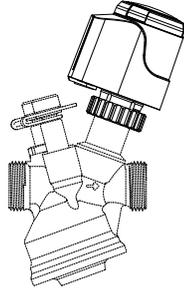


**5.0 PERFORMANCE (Continued)**

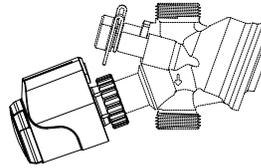
**Acceptable Valve Piping Angles of Assembly for TA Series 7CP + EMO T, EMO TM, EMO 1, EMO 3, TA Slider 160, TA Slider 160 Plus or TA Slider 160 KNX**



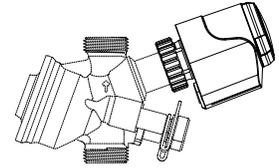
IP54 for EMO T, EMO TM & TA Slider 160 Family<sup>2</sup>  
Not allowed for EMO 1 & EMO 3



IP54 for EMO T, EMO TM & TA Slider 160 Family  
IP43 for EMO 1 & EMO 3



IP54 for EMO T, EMO TM & TA Slider 160 Family  
Not allowed for EMO 1 & EMO 3

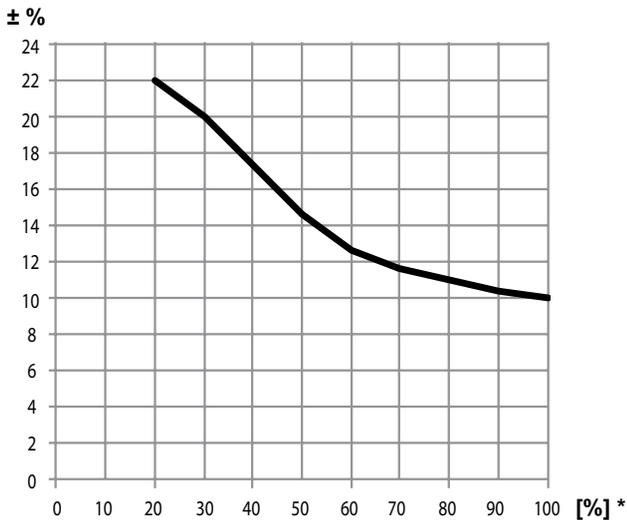


IP54 for EMO T, EMO TM & TA Slider 160 Family  
IP42 for EMO 1 & EMO 3

<sup>2</sup> For chilled water applications, the valve and surrounding pipe should be insulated to prevent condensation from dripping onto actuator.

**Measuring Accuracy**

Maximum flow deviation at different settings



\*Setting (%) of fully open valve.

**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 with the software TA Select or directly in IMI TA's balancing instruments

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## 6.0 NOTIFICATIONS

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Not applicable – contact Victaulic with any questions.

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## 7.0 REFERENCE MATERIALS

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[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](#)

[08.55: Victaulic Compact Pressure Independent Balancing and Control Valve TA Series 7MP](#)

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### 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 TA installation/assembly instructions. Victaulic and IMI TA 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 TA 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](http://www.victaulic.com)

### Warranty

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

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