

# Control Valve with Return Temperature Controller (COMPACT-T)

## TA Series 7CT



### Material Specifications and Technical Data:

**Body:** Corrosion resistant red brass gunmetal

**O-rings:** EPDM Rubber

**Valve seat gasket:** EPDM Rubber

**Return spring:** Stainless steel

**Valve inserts:** Brass

**Spindle:** Niro-steel spindle with double O-ring sealing.

**Handwheel:** ABS

### Product Description:

#### Application:

Typically cooling systems with variable flow.

Installation in return pipe.

#### Functions:

Control

Return temperature control

Temperature measuring

Shut-off

#### Media:

Water or neutral fluids, water-glycol mixtures.

**Pressure Class:** 230psi/PN16

#### Temperature:

**Max. ambient working temperature:** +22°F / +50°C

**Min. ambient working temperature:** +14°F / -10°C

**Return fluid temperature:** +46°F to +69°C / +8°C to +18°C

#### Job/Owner

System No.	
Location	

#### Contractor

Submitted By	
Date	

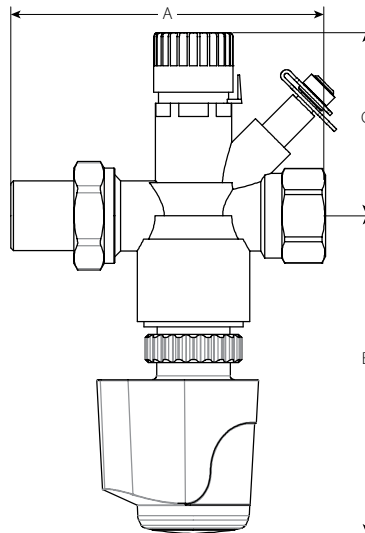
#### Engineer

Spec Section	
Paragraph	
Approved	
Date	

Dimensions:

TA Series 7CT

Male X Female Threaded



Nominal Size inches mm	Actual Outside Diameter inches mm	Dimensions				Approx. Weight Each lbs. kg
		A End to End inches mm	C inches mm	E inches mm	Cvs Kvs	
1/2 15	0.840 21.3	4.41 112	2.05 52	2.99 76	2.63 2.3	1.61 0.7
3/4 20	1.050 26.7	4.84 123	2.05 52	2.99 76	3.60 3.1	1.96 0.9
1 25	1.315 33.7	5.51 140	2.05 52	2.99 76	5.87 5.1	2.71 1.2

Accessories:

Actuator EMO T

TA Series 7CT is developed to work together with the EMO T actuator. Actuators of other brands require a working range of:

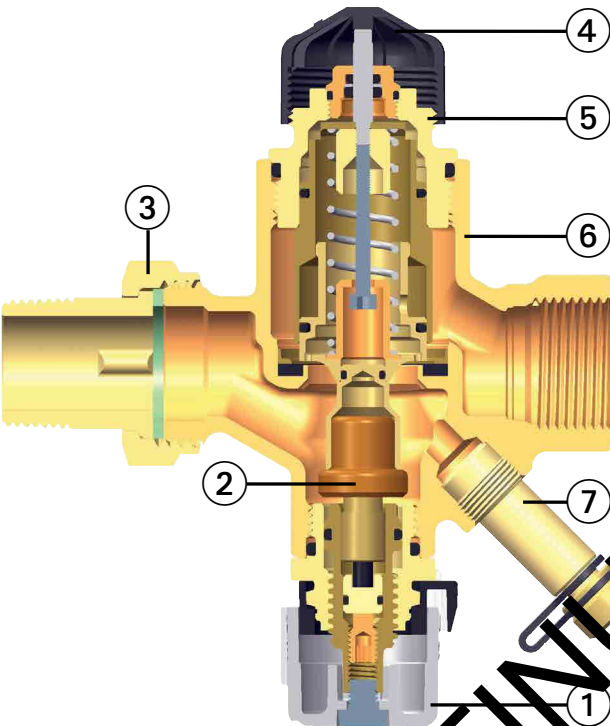
X (closed - fully open) = 0.46 in. - 0.61 in and an adjusting force of 28 lbf.



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

**Construction:**

1. Handwheel for return temperature limiter
2. Sensor
3. Inlet union
4. Protection cap
5. Connection for actuator M30X1.5
6. Valve body
7. Measuring point for temperature measurement



**Function:**

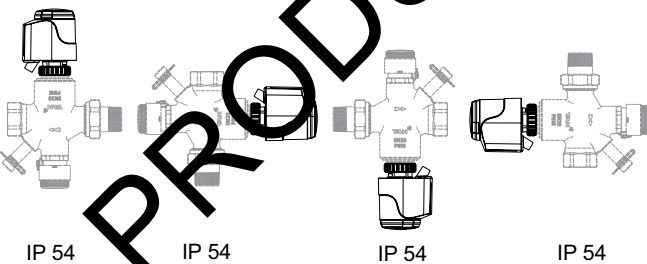
TA Series 7CT is an On/Off control valve with built-in return temperature limiter. From the control aspect, the return temperature controller is a constant proportional controller without an auxiliary power. It does not need any electrical connection or other outside power source. The temperature change of the fluid flowing through (controlled variable) is proportional to the change of the valve lift (correcting variable) and is transferred to the sensor by means of thermal conduction. In case of a decrease of the return temperature, the substance in the temperature sensor shrinks and acts on the diaphragm plunger. The diaphragm plunger decreases flow through the valve. With increasing temperature of the fluid, the process is reversed.

**Setting:** The factory setting of the TA Series 7CT return temperature controller is +54°F / 12.2°C. Other return temperatures can be set as follows:

1. Remove the locking ring of the handwheel.
2. Adjust the handwheel to the desired temperature.
3. Insert the locking ring again, until it clicks. The locking ring protects the handwheel against unauthorized changes of settings.

Setting:	8 <sup>1</sup>	10	12 <sup>2</sup>	14	16	18
Return Temperature:	46	50	54	58	62	64

- 1 Fill and flush setting.
- 2 Delivery setting.



**Sizing:**

**TA Series 7CT**

When  $\Delta p$  and the design flow are known, use the formula to calculate the Cv value.

$$Cv = 1,52 \frac{q}{\sqrt{\Delta p}} \quad q \text{ in GPM, } \Delta p \text{ in Ft}$$

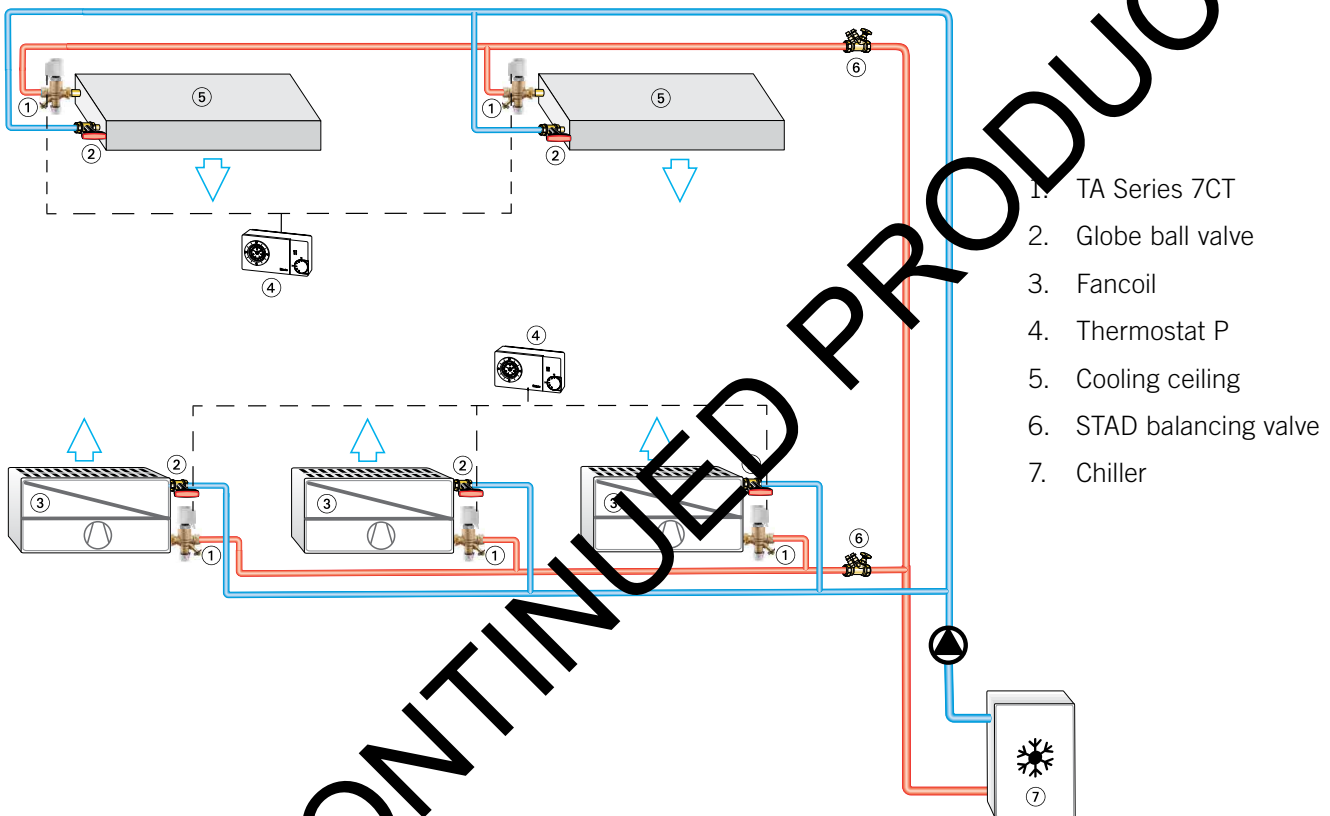
$$Cv = \frac{q}{\sqrt{\Delta p}} \quad q \text{ in GPM, } \Delta p \text{ in psi}$$

Size inches mm	Cv	Kv
1/2 DN15	2.63	2.27
3/4 DN20	3.60	3.10
1 DN25	5.87	5.06

Note: These Cv values would only be effective when the fluid temperature is at or above the valve setting return temperature.

**Application:**

TA Series 7CT is an On/Off control valve with built-in return temperature controller that minimizes fluid returning at less than the setpoint temperature from terminal units in cooling systems. Correct return temperature ensures a high efficiency in the whole system and protects the chiller from low return temperature (low temperature syndrome). The hydronic balancing by means of return temperature control limits over flows and saves pumping costs. TA Series 7CT is also the ideal solution for renovation of existing facilities. A measuring nipple allows temperature measuring and it monitoring. Specification

**Specification:**

**Victaulic / TA-Compact-T Series 7CT (Control Valve with Return Temperature Controller):** ½", ¾", and 1" sizes; 230 psi/16-bar/1000 kPa, MPT x FPT threaded ends, corrosion resistant red brass gunmetal body, brass valve inserts, Nitro-steel spindle with double O-ring sealing, stainless steel return spring, EPDM O-ring seal and seat gasket, and ABS Handwheel. Provided with the EMO-T Normally Open or EMO-T Normally closed actuators.

**Installation**

Reference should always be made to the current IMI Hydronic Engineering installation/assembly instruction for the product you are installing.

**Warranty**

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

**Note**

This product shall be manufactured by Victaulic or to Victaulic specifications. All products to be installed in accordance with current Victaulic installation/assembly instructions. Victaulic reserves the right to change product specifications, designs and standard equipment without notice and without incurring obligations.

**Trademarks**

Victaulic and all other Victaulic marks are the trademarks or registered trademarks of Victaulic Company, and/or its affiliated entities, in the U.S. and/or other countries.