

# Cost Savings Starting from Purchase Date, and Continued Daily

The **Thermolator® TW-T Series** is a top-of-the-line Thermolator package with extensive options for maintaining the process temperature with circulated water that has been heated or cooled to the required setpoint.

TW-T Series Standard Features: State-of-the-art HMI touch screen control, incoloy heaters, silicon carbide pump seals, pressure transducers, adaptive max setpoint, modulating cooling valve, solid-state relay heater controls, industrial heater construction, integrated flow meter, Ethernet communications, and intuitive touch screen HMI control.

These Thermolators offer consistent temperatures, extended range of capacity, and performance monitoring all in one unit, saving energy and increasing efficiency while the small footprint saves valuable floor space.



TW-T Thermolator®

## Tomorrow's Temperature Control Unit Available Today!

### TW-T: What's New?

**Increased cabinet airflow** - heater and pump visual inspection is a breeze, no panels to remove in the back. The increased airflow will extend the life of the pump and internal components.

**Phase detection** - know immediately if your incoming power is phased correctly. No more looking at pump shafts to determine rotation.

**Adaptive maximum setpoint** - let your cooling water supply pressure determine the machine's maximum setpoint (up to 250°F standard, and 300°F optional). Low-pressure installations are now possible.

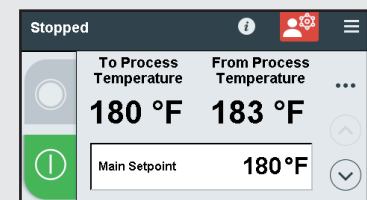
**Modulating cooling valve** for consistent temperature control and process variations without valve changes.

**Industrial heater construction** with leak-free heater gasket under high-pressure applications. Gasket replacements are a thing of the past.

**15% smaller footprint!**

#### ▶ State-of-the-art touch screen control

Microprocessor controls offer uniform temperature control regardless of external loading. The HMI can be modified to display two values of the operator's choice. Process supply and setpoint values are displayed on the control simultaneously. Built-in features include: Auto restart, Auto Cool Stop, pump running hours count, ramp/soak program, alternate and external setpoint selection, recipes, temperature deviation alarms & warnings, adjustable alarm delay times, alarm horn & silence switch, multi-level user security, error diagnostics, and simple-to-use control screens. Perfect for new operators or experienced processors.



#### ▶ Auto-relief - no pressure relief puddles

The auto-relief feature uses the cooling valve of the Thermolator to relieve built-up pressure thus eliminating water puddles from a pressure relief valve opening.

#### ▶ Single-zone and dual-zone configurations

Dual-zone models control two process temperatures at different locations in a mold and have common cooling water manifolds and electrical connections for convenience.

#### ▶ Incoloy heaters

Made to resist damage from high temperature and chemicals; standard on all Conair Thermolators

#### ▶ "Casters up" warranty

Three full years on all Thermolator TW Series models



WATER TEMPERATURE CONTROLLER

## Features

### Built-in Pressure Transducers

Pressure is displayed on the HMI, and the control regulates the pressure as part of the Auto-Relief feature

### Adaptive Max Setpoint

Automatically changes the maximum setpoint to respond to plumbing pressure and desired setpoint

### Integrated Flow Meter

Digitally displays calculated current flow rates and historical trends to determine if mold cleaning is necessary

### Communications

Ethernet for Modbus-TCP and OPC-UA



### Built-in Sediment Trap

Settles contaminants away from pump seals

### 5 Step Ramp/Soak

Run for ramp/soak application

### Modulating Cooling Valve

Eliminates water hammer issues with consistent temperature control



### Phase Detection Circuit

Monitor incoming 3-phase electrical power for problems (reverse phase rotation, missing phase, low leg, etc.)

### Incoloy Heaters

Minimizes chemical and high temperature damage

### Solid-State Relay

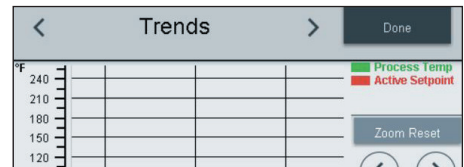
SSRs standard. No more worn-out heater contactors!

### High Efficiency Pumps

3/4 Hp {0.56 kW} to 10 Hp {7.46 kW} Industry standard cast iron pump impellers on all models. Brass impellers and castings available for non-ferrous applications. Silicon carbide pump seals are standard.

### Trending

Follow the performance of the machine using temperature trends and flow rate trends. Up to 4 simultaneous trendlines!



## Options

# TW-T

Options can be included or excluded based on the desired configuration

### 300°F {149°C} Construction

Used in high-temperature applications such as medical and packaging

### Corrosion Resistance Package

Protect components from damage with bronze or stainless external fittings, bronze castings, non-ferrous pump impellers, and stainless steel heater flanges

### Closed Circuit with Brazed Plate Heat Exchanger

Offers greater performance, greater capacity, and less pressure drop than competitor's shell and tube heat exchangers.

### MedLine

Includes corrosion resistance package as well as traceable calibrated RTDs

### Communications Options

SPI via RS-485 (Ethernet for ModBus-TCP & OPC-UA come standard)

### Process Supply Check Valve

### UL508A Option

Includes UL508A rated electrical cabinet and disconnect switch

### High-accuracy Flow Meter

(or optional card to interface your own high accuracy flow meter)

### Alarm Packages

Call attention to alarm conditions with red alarm strobe light and dry contacts.

### Compressed Air Purge Valve (Mold Purge)

Quickly evacuates fluid from the process circuit, allowing for faster, cleaner disconnection of the temperature controller from molds and hoses

### Stacking Rack

Save floor space by stacking TCUs two-high (Single-zone models only)

### Remote RTD

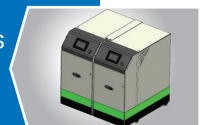
For on-die process temperature measurements

### Worldwide Voltage Options

208-230V/60Hz, 400V/50Hz, 460V/60Hz, 575/60Hz

### Dual-zone

Control two process temperatures at different locations in a mold; common cooling water manifolds and electrical connections for convenience



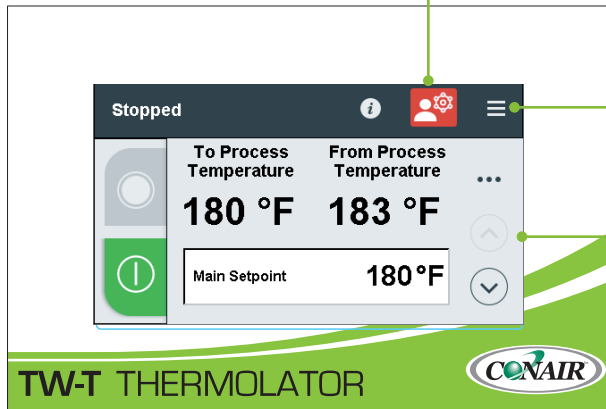
WATER TEMPERATURE CONTROLLER

# Touch Screen Control, TW-T

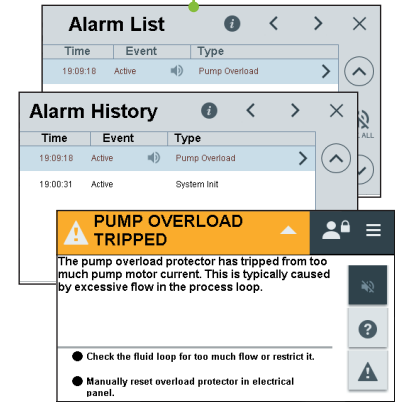
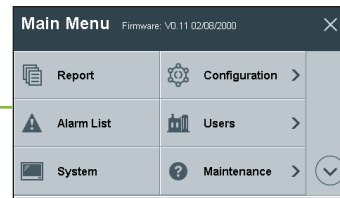
**Multi-level User Security**  
Identify User and Log-in Status

**Simple Menu Operation**  
Access to all features

**Alarm Lists, History, and Details**  
Operators can drill down from the Alarm List to the Alarm History and Alarm Details screens to analyze issues. Alarm details are specific, with recommended corrective actions.

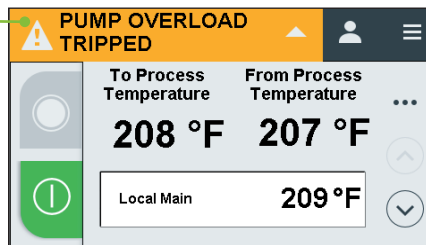


**Touch Screen Display**  
Large, customizable Home screen display with current temps



**Alarm and Warning Banners**  
Easy-to-see banners

<b>Warning</b> Yellow	Thermolator continues running
<b>Alarm</b> Red	Machine shuts down until the condition is corrected



**Contextual Help Mode**  
On-screen descriptions of features when touched

## Control Features on the TW-T Series Thermolators

Model	TW-T
Direct Injection	●
Closed Circuit - Common Source	○
Closed Circuit - Separate Source	○
<b>Construction</b>	
Standard Pump Range	3/4 to 10 Hp
Standard Heater Range	0 to 48 kW
Cast Heater / Pump	●
Incoloy Heaters	●
Silicon Carbide Seals	●
Pressure Gauges	●
Pressure Transducer	●
Solid State Heater Relays (SSRS)	●
<b>Controls</b>	
PID Control	●
Setpoint / Actual Display	●
Password Protection	●
Modbus-RTU via RS-485	●
Modbus-TCP via Ethernet	●
SPI RS-485 Interface	○
OPC-UA via Ethernet	●
Retransmit Process Temp	●
Auto Restart Capability	●
Mold Purge (Factory Installed)	○
Phase Detection Circuit	●
Choice of Control Points	●
Auto Cool Stop	●
<b>Status / Alarm Lights</b>	
Audible Alarm	●
Strobe Light	○
Alarm Dry Contacts	○
Remote RTD Support	●
Trending	●

● Standard  
○ Optional

- Purge On/Off button included on control.
- Phase detection indicates incorrect pump rotation or an open electrical leg.
- Control temperature based on temperature at process supply or return points, or an average of the two points.

## Control Features on the TW-E and TW-B Series Thermolators

Model	TW-E	TW-B
Direct Injection	●	●
Closed Circuit - Common Source	○	○
Closed Circuit - Separate Source	○	○
<b>Construction</b>		
Standard Pump Range	3/4 to 10 Hp	3/4 or 2 Hp
Standard Heater Range	0 to 48 kW	12 kW
Cast Heater / Pump	●	●
Incoloy Heaters	●	●
Silicon Carbide Seals	●	●
Pressure Gauges	●	●
Pressure Transducer	●	●
Solid State Heater Relays (SSRS)	○	○
<b>Controls</b>		
PID Control	●	●
Setpoint / Actual Display	●	●
Password Protection	●	●
Modbus-RTU via RS-485	●	●
Modbus-TCP via Ethernet	○	○
SPI RS-485 Interface	○	○
OPC-UA	○	○
Retransmit Process Temp	● (0-10 VDC)	○
Auto Restart Capability	●	○
Mold Purge (Factory Installed)	○	○
Phase Detection Circuit	○	○
Choice of Control Points	●	●
Auto Cool Stop	●	○
<b>Status / Alarm Lights</b>		
Audible Alarm	●	●
Strobe Light	○	○
Alarm Dry Contacts	○	○
Remote RTD Support	●	○
Trending	○	○



# Specifications

## WATER TEMPERATURE CONTROLLER

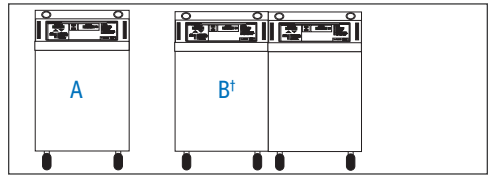
Models	TW-T (direct injection) <sup>†</sup>	TW-T (closed circuit) <sup>§</sup>
<b>Performance characteristics</b>		
Minimum setpoint temperature °F [°C]	40 {4} (with 100% water process fluid), optional lower temperatures with various glycol mixtures are available consult factory	
Maximum setpoint temperature °F [°C]	250 {121}, {300 {149} optional <sup>††</sup> §§	
Minimum operating temperature °F [°C]	Approximately 20° {11°} above the cooling water inlet temperature <sup>†</sup>	
Standard cooling valve size inches [mm] Cv	1/2 {12.7} (CV=2.9) (varies)	
Available pump sizes	0.75, 1, 2, 3, 5, 7.5, 10 Hp {0.56, 0.75, 1.49, 2.24, 3.73, 5.59, or 7.46 kW} <sup>***</sup>	
Available heater sizes	0, 9, 12, 18, 24, 36 or 48 kW	0, 9, 12, 18, 24, or 36 kW
Connections to/from process NPT (female)	1.50 inches	
Connections in/out cooling water NPT (female)	1.00 inches	

**Pump performance - Consult your Conair representative for pump performance characteristics at other operating points.**

Pump	3/4 Hp {0.56 kW}	1 Hp {0.75 kW}	2 Hp {1.49 kW}	3 Hp {2.24 kW}	5 Hp {3.73 kW}	7.5 Hp {5.59 kW}	10 Hp {7.46 kW}
Nominal flow gpm {lpm}	50 {189}	55 {208}	75 {284}	85 {322}	100 {379}	120 {454}	150 {568}
Pressure @ nominal flow psi {kg/cm <sup>2</sup> } <sup>†††</sup>	20 {1.4}	25 {1.7}	30 {2.1}	32 {2.2}	46 {3.2}	56 {3.9}	65 {4.5}

**Dimensions inches [mm] <sup>††</sup>**

Cabinet style	Single Zone Small (A)	Single Zone Large (A)	Dual Zone Small (B) <sup>†</sup>	Dual Zone Large (B) <sup>†</sup>
Height	24.98 {634}	28.98 {735}	24.98 {635}	28.98 {736}
Width	14.09 {358}	14.09 {358}	28.41 {722}	28.41 {722}
Depth	24.09 {612}	26.09 {663}	24.09 {612}	26.09 {663}



**Shipping weight ranges lb {kg}** Weights vary depending on cabinet size, options, and cooling type (DI or CC).

Pump	Single Zone				Dual Zone			
	Minimum	Maximum	Minimum	Maximum				
0.75 Hp {0.56 kW}	240 {109}	280 {127}	491 {223}	576 {261}				
1 Hp {0.75 kW}	245 {111}	290 {132}	499 {226}	584 {265}				
2 Hp {1.49 kW}	248 {113}	298 {135}	515 {234}	590 {268}				
3 Hp {2.24 kW}	259 {118}	299 {136}	538 {244}	623 {283}				
5 Hp {3.73 kW}	302 {137}	352 {160}	629 {285}	699 {317}				
7.5 Hp {5.59 kW}	317 {144}	362 {164}	649 {294}	729 {331}				
10 Hp {7.46 kW}	329 {149}	379 {172}	683 {310}	763 {346}				

**Total full load amps per zone <sup>§</sup>**

Heater	9 kW				12 kW				18 kW			
	460/3/60	208-230/3/60	575/3/60	400/3/50	460/3/60	208-230/3/60	575/3/60	400/3/50	460/3/60	208-230/3/60	575/3/60	400/3/50
<b>Pump size</b>												
0.75 Hp {0.56 kW}	12.9	25.8	10.4	14.9	16.7	33.3	13.4	19.2	24.2	48.4	19.5	27.9
1.0 Hp {0.75 kW}	13.2	24.3	10.5	16.0	17.0	34.0	13.5	20.3	24.5	49.1	19.6	29.0
2.0 Hp {1.49 kW}	14.4	28.7	11.5	17.1	18.2	36.2	14.5	21.4	25.7	51.3	20.6	30.1
3.0 Hp {2.24 kW}	15.5	31.5	12.4	18.1	19.3	39.0	15.4	22.4	26.8	54.1	21.5	31.1
5.0 Hp {3.73 kW}	17.6	36.1	14.0	18.7	21.4	43.6	17.0	22.5	28.9	58.7	23.1	30.0
7.5 Hp {5.59 kW}	20.2	41.1	15.9	23.2	24.0	48.6	18.9	27.0	31.5	63.7	25.0	34.5
10.0 Hp {7.46 kW}	23.6	N/A	18.8	N/A	27.4	N/A	21.8	N/A	34.9	N/A	27.9	N/A

**Total full load amps per zone <sup>\*\*</sup>**

Heater	24 kW				36 kW				48 kW			
	460/3/60	208-230/3/60	575/3/60	400/3/50	460/3/60	208-230/3/60	575/3/60	400/3/50	460/3/60	208-230/3/60	575/3/60	400/3/50
<b>Pump size</b>												
0.75 Hp {0.56 kW}	31.7	63.4	25.5	36.5	46.8	N/A	37.5	N/A	61.8	N/A	49.6	N/A
1.0 Hp {0.75 kW}	32.0	64.1	25.6	37.6	47.1	N/A	37.6	N/A	62.1	N/A	49.7	N/A
2.0 Hp {1.49 kW}	33.2	66.3	26.6	38.7	48.3	N/A	38.6	N/A	63.6	N/A	50.7	N/A
3.0 Hp {2.24 kW}	34.3	69.1	27.5	39.7	49.4	N/A	39.5	N/A	64.4	N/A	51.6	N/A
5.0 Hp {3.73 kW}	36.4	73.7	29.1	37.5	51.5	N/A	41.1	N/A	66.5	N/A	53.2	N/A
7.5 Hp {5.59 kW}	39.0	78.7	31.0	42.0	54.1	N/A	43.0	N/A	69.1	N/A	55.1	N/A
10.0 Hp {7.46 kW}	42.4	N/A	33.9	N/A	57.5	N/A	45.9	N/A	72.5	N/A	58.0	N/A

**Specification Notes**

- <sup>\*</sup> Lower operating temperatures can be obtained with larger cooling valves.
- <sup>†</sup> Available in TW-E and TW-T models only.
- <sup>††</sup> Direct Inject (DI) cooling injects cooling water directly into the process loop upon demand.
- <sup>§</sup> Closed Circuit Common Source (CCCS) cooling injects cooling water in the process loop only during the initial filling or when make-up water is needed. Closed Circuit Separate Source maintains separation via heat exchanger between the cooling and process fluids at all times.
- <sup>\*\*</sup> FLA data for reference purposes only. Does not include any options/accessories on equipment. For full FLA detail of specific machines/systems, refer to the electrical diagrams of the equipment order and the nameplate applied. Note: 208V units will consume less than the 230V FLA values shown in the chart.
- <sup>†††</sup> 300°F units require 75 psi minimum inlet cooling source pressure to operate at the highest temperature at sea level. Higher elevations will require slightly more pressure.
- <sup>§§</sup> Smaller frame only available on 3/4HP-3HP units with 0-18kW Heater option
- <sup>§§§</sup> With sufficient cooling water pressure
- <sup>\*\*\*</sup> 10 HP not available for 50Hz

Specifications may change without notice. Consult with a Conair representative for the most current information.

