

# Simple Control; Loaded with Features

Today's Thermolator® TW-E Series maintains the Conair reliability you expect, and with a laundry list of available options, can be as basic or premium as you want.

The TW-E Series standard features: incoloy heaters; silicon carbide pump seals; pressure transducers and a modulating valve.

The TW-E Series options: rotary non-fused disconnect switch, solid state relay heater controls, brazed plate heat exchanger, phase detection circuit, 300°F {149°C} maximum operating temperature, mold purge, strobe alarm, alarm dry contacts, and UL 508A, Modbus-TCP, remote RTD, and vertical unit stacking rack.



TW-E Thermolator®

## We build it how you want it - add the options you need.

These direct injection units are available in single-zone or dual-zone configurations. Pump sizes to 10 Hp {7.46 kW} per zone. Heaters to 48 kW per zone. Standard process temperatures to 250°F {121°C}, with a high-temperature option which increases the unit's capacity to 300°F {149°C}.

Conair has three available Thermolator models. The TW-T is a touch-screen premium TCU, loaded with standard features. The TW-E is one step down, with the most available "select the ones you need" options. The TW-B is the basic TCU - set your temperature and turn it on. For more information about the differences between these models, see the comparison chart on the 3rd page of this document.

The TW-E Thermolator® was designed to be flexible for your needs. Add as many or as few options as you need.

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

This auto-relief feature eliminates those puddles of water you sometimes find on the plant floor around your TCU due to the pressure relief valve opening. Pressure build-up can be caused by high incoming water pressure and thermal expansion due to the TCU warm-up process to reach the desired setpoint. This combination can cause the pressure relief valve to open and relieve pressure. The auto-relief feature on a Thermolator uses the cooling valve of the Thermolator to relieve this built-up pressure - eliminating those water puddles.

### ▶ 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



## 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

### Incoloy Heaters

Minimizes chemical and high temperature damage

### Built-in Sediment Trap

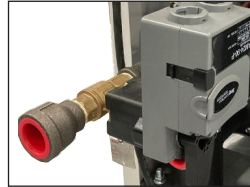
Settles contaminants away from pump seals

### Modulating Cooling Valve

Eliminates water hammer issues with consistent temperature control

### 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.



## Options

# TW-E

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

### Process Supply Check Valve

### Alarm Packages

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

### UL508A Option

Includes UL508A rated electrical cabinet and disconnect switch

### Phase Detection Circuit

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

### Stacking Rack

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

### 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

### 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

### Solid-State Relay

SSRs standard. No more worn-out heater contactors!

### Communications

Ethernet for Modbus-TCP

### Remote RTD




# Control, TW-E

**Easy Access**  
Easy access to User Parameters & Settings screens


**LCD Display**  
Access features with illuminated control buttons

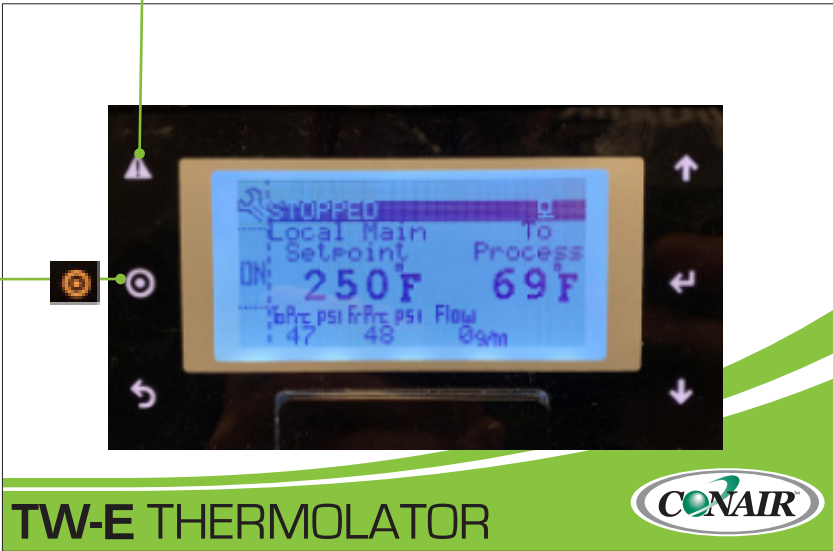
**Simple On/Off Operation**  
Easily accessible On/Off button


**Auto Restart Capability**



**Integrated Diagnostics**  
Run advanced diagnostics whether the TCU is running or off.





**TW-E THERMOLATOR** 

## Control Features on the TW-E Series Thermolators

Model	TW-E
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 (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	○

● 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-T and TW-B Series Thermolators

Model	TW-T	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	●	○
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

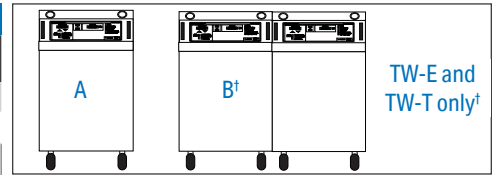
## WATER TEMPERATURE CONTROLLER

Models	TW-E (direct injection) <sup>†</sup>	TW-E (optional closed circuit) <sup>§</sup>
<b>Performance characteristics</b>		
Minimum setpoint temperature °F (°C)	40 {4} (with 100% water process fluid), 18 {-8} (with 75% water / 25% glycol mix), -22 {-30} with 50% water / 50% glycol mix	
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*	
Standard cooling valve size inches (mm)	1/2 {12.7} (Cv=2.9) (varies) (other sizes available as optional special order units)	
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	63.3	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

- \* Lower operating temperatures can be obtained with larger cooling valves.
  - † Available in TW-E and TW-T models only.
  - ‡ Direct Inject (DI) cooling injects cooling water directly into the process loop upon demand.
  - § 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.
  - \*\* 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.
  - †† 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.
  - †† Smaller frame only available on 3/4HP-3HP units with 0-18kW Heater option, without UL508A option.
  - §§ With sufficient cooling water pressure
  - \*\*\* 10 HP not available for 50Hz
- Specifications may change without notice. Consult with a Conair representative for the most current information.

