

Simple Control; Loaded with Features

Today's Thermolator® TW-S Series maintains the Conair reliability you expect, and adds a touch screen control loaded with available options.

All models offer incoloy heaters; silicon carbide pump seals; pressure gauges; easy-to-use touch screen control and a modulating valve. The TW-S options include: rotary non-fused disconnect switch, UL508A industrial control panel construction, solid state relay heater controls, brazed plate heat exchanger, phase monitor, 300°F {149°C} maximum operating temperature and vertical unit stacking rack.

Ethernet for modbus TCP and OPC-UA comes standard, with SmartServices, SPI communications, and pressure transducers available as options.



TW-S Thermolator®

Save Money Up Front and in the Long Term

Units are available in direct injection, single-zone and 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}.

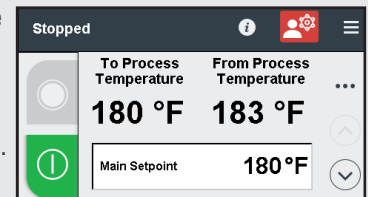
The TW-S Thermolator® was designed to be flexible for your needs. Add as many or as few options as you need.

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

Closed circuit units keep the process fluid separated from the cooling water while operating, minimizing cross-contamination.

▶ 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 Cool Stop, pump running hours count, temperature deviation alarms & warnings, adjustable alarm delay times, alarm horn & silence switch, error diagnostics and simple-to-use control screens.



▶ 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. Note: Requires Pressure Transducer option.

▶ Incoloy heaters

Made to resist damage from high temperature and chemicals.

▶ "Casters up" warranty

Three full years on all Thermolator TW Series models.



Features



Built-in pressure gauges

are standard for all Conair TW-V and TW-S Series Thermolators.

Built-in sediment trap

settles contaminants away from the pump seals.

Modulating Cooling Valve

provides consistent temperature control while eliminating water hammer issues.

Two-zone models

allow independent control of dual cooling zones with the convenience of common cooling water manifolds and electrical connections.

Incoloy heaters

minimize chemical and high temperature damage.

High efficiency pumps

from 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 on all models.

Communications

are standard on the TW-S Thermolator. Ethernet for Modbus TCP and OPC UA.

Options

Corrosion Resistance Package

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



Alarm Packages

Call attention to alarm conditions with red alarm strobe light.

Phase Detection Circuit

Protect your equipment from day 1.

Stacking Rack

Save floor space by stacking TCUs two-high. The stacking rack can be used only with single-zone models.

Closed Circuit with Brazed Plate Heat Exchanger

Offers greater performance, greater capacity, and less pressure drop.

Communications Options

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

SSR Heater Controls

SSRs are included as standard on the TW-P Thermolators, but are options on the TW-S.

300°F {149°C} Construction

Used in high-temperature applications such as medical and packaging.

Pressure Transducers

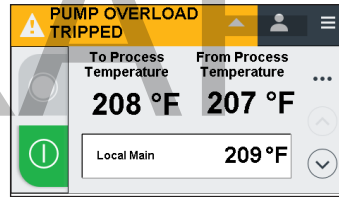
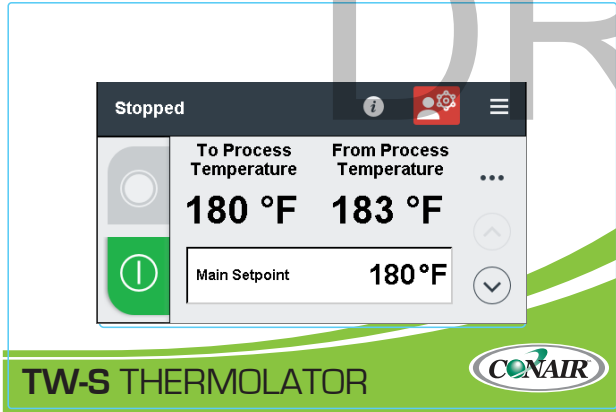
Used for displaying the pressures on the HMI, rather than on analog gauges. The transducers also allow the TW-S software to regulate the pressure as necessary as part of the Auto-Relief functionality.



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.

Touch Screen Control, TW-S

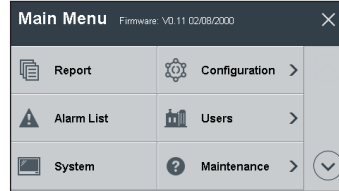


Alarm and Warning Banners

Easy-to-see banners appear on the screen.

Warnings appear in yellow, and the Thermolator continues running.

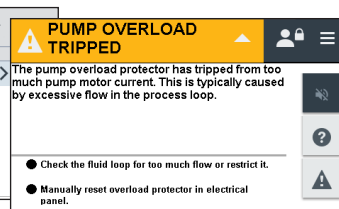
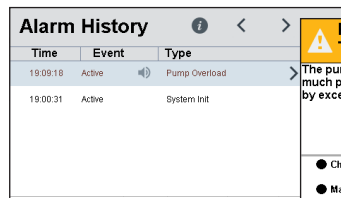
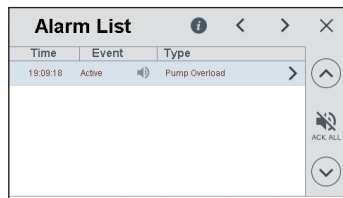
Alarms appear in red, and the machine shuts down until the condition is corrected.



Simple Menu operation

From the Menu screen, you can access:

Reports, alarms, system settings, configuration, users, maintenance, component configuration, display info, machine configuration, setup, and date/time/units.



Alarm lists, history, and details

Operators can navigate to the Alarm List and Alarm History pages. The Alarm details are specific, with recommended corrective actions.

Control features on the TW-S Series Thermolators

Model	TW-S
Direct Injection	●
Closed Circuit - Common Source	○
Construction	
Standard Pump Range	3/4 to 10 Hp {0.56 to 7.45 kW}
Standard Heater Range	0 to 48 kW
Cast Heater / Pump	●
Incoloy Heaters	●
Silicon Carbide Seals	●
Pressure Gauges (if no transducer)	●
Pressure Transducer	○
250°F Setpoint Range	●
300°F Setpoint Range	○
Solid State Relay	○
Controls	
PID Control	●
Setpoint / Actual Display	●
Password Protection	●
Modbus TCP/OPC-UA	●
SPI via RS-485	○
Retransmit Process Temp (4-20mA)	○
Auto Restart Capability	●
Mold Purge	○
Phase Detection Circuit	○
Heat Error for Heater Malfunction	●
Remote Start/Stop	●
120°F Air Purge Cancel	●
Integrated flowmeter	○
Auto Cool Stop	●
Status / Alarm Lights	
Audible Alarm	●
Strobe Light	○

● Standard
○ Optional

● PID Control

○ Phase detection indicates incorrect pump rotation or an open electrical leg.

Control features on the TW-P and TW-V Series Thermolators

Model	TW-P	TW-V
Direct Injection	●	●
Closed Circuit - Common Source	○	○
Construction		
Standard Pump Range	3/4 to 10 Hp {0.56 to 7.45 kW}	3/4 or 2 Hp {0.56 or 1.49 kW}
Standard Heater Range	0 to 48 kW	12 kW
Cast Heater / Pump	●	●
Incoloy Heaters	●	●
Silicon Carbide Seals	●	●
Pressure Gauges (if no transducer)	●	●
Pressure Transducer	●	○
250°F Setpoint Range	●	●
300°F Setpoint Range	○	○
Solid State Relay	●	○
Controls		
PID Control	●	●
Setpoint / Actual Display	●	●
Password Protection	●	●
Modbus TCP/OPC-UA	○	○
SPI via RS-485	○	○
Retransmit Process Temp (4-20mA)	○	○
Auto Restart Capability	●	○
Mold Purge	○	○
Phase Detection Circuit	●	○
Heat Error for Heater Malfunction	●	●
Remote Start/Stop	●	○
120°F Air Purge Cancel	●	●
Integrated flowmeter	○	○
Auto Cool Stop	●	○
Status / Alarm Lights		
Audible Alarm	●	○
Strobe Light	○	○



WATER TEMPERATURE CONTROLLER

Specifications

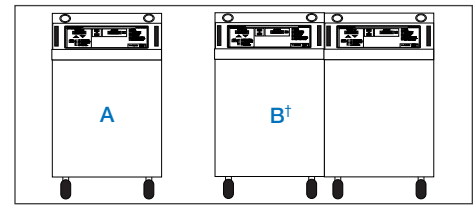
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Models	TW-S (direct injection) [†]
Performance characteristics	
Minimum setpoint temperature °F {°C}	40 {4}
Maximum setpoint temperature °F {°C}	250 {121}, (300 {149} optional ^{**})
Minimum operating temperature °F {°C}	Approximately 20° {11°} above the cooling water inlet temperature*
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}
Available heater sizes	9, 12, 18, 24, 36 or 48 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 ² }* ^{**}	20 {1.4}	25 {1.7}	30 {2.1}	32 {2.2}	46 {3.2}	56 {3.9}	65 {4.5}

Dimensions inches {mm}				
Cabinet style	Single Zone Small (A)	Single Zone Large (A)	Dual Zone Small (B) [†]	Dual Zone Large (B) [†]
Height	24.94 {634}	28.94 {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 and options. Estimated weights.

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 {131}	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 §

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
Pump size												
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 §

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
Pump size												
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

* Lower operating temperatures can be obtained with larger cooling valves.

† Available in TW-S and TW-P models only.

‡ Direct Inject (DI) cooling injects cooling water directly into the process loop upon demand.

§ FLA data for reference purposes only. Does not include any options or accessories on equipment. For full FLA detail for power circuit design of specific machines and systems, refer to the electrical diagrams of the equipment order and the nameplate applied to the machine.

** 300°F units require a minimum of 65 psi inlet cooling source pressure.

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

