



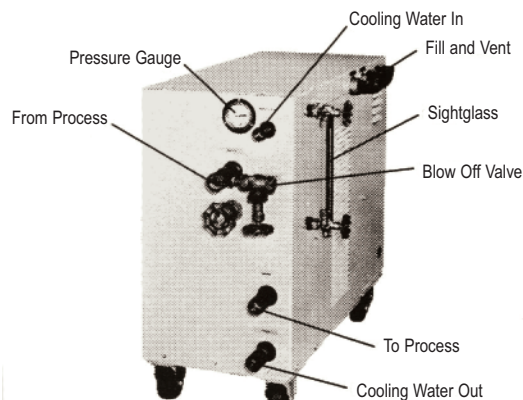
HEAT & COOL

VULCAN SERIES HOT OIL UNITS



VULCAN SERIES TCU

Compact in size, but big in performance, Vulcan Series oil temperature control units provide accurate process temperature control wherever you want it - not wherever it fits. This versatile unit's controls and connections are optimally located for ease of use and hookup.



STANDARD FEATURES

- Small footprint: 13 1/2" W, 22" L and 30" H
- 6 kW 3-phase heater
- 1.5² ft water-cooled heat exchanger
- 6 gpm flow at 50 psi
- Heavy-duty 3/4 hp positive-displacement pump
- 100° to 400°F operation with synthetic fluid
- NEMA 1 electrics
- "Off-the-shelf" PID microprocessor control
- LED Setpoint and To Process temperature displays
- High temperature safety thermostat
- Water supply low pressure safety switch
- Automatic process fluid bypass



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TRUETEMP VULCAN SERIES HOT OIL TCU

Compact in size, but big in performance, Vulcan Series oil temperature control units provide accurate process temperature control wherever you want it—not wherever it fits. This versatile unit's controls and connections are optimally located for ease of use and hookup.

STANDARD FEATURES

- Off-the-shelf auto-tune microprocessor-based PID temperature controller with process and set value LED readout
- 2-gallon (8-liter) reservoir
- Check valve on water supply
- IEC contactors
- Compact cabinet with removable panels
- Branch fusing
- 1.5 sq. ft. heat exchanger
- Mechanical seal pump
- 400°F (204°C) operating temperature
- 6 kW heater
- Pressure actuated bypass
- Positive displacement pump
- Reservoir with sight glass
- Independent safety thermostat with safety contactor



Model TDOS

OPTIONAL FEATURES

- 3.7 sq. ft. heat exchanger, outside the unit, 1/2" supply connection, 3/4" drain
- Y-strainer
- Pump reverse
- Lexan® cover
- High temperature hose (see next page for details)
- Audible alarm
- Y-Strainer on process return

SPECIFICATIONS

Model	Pump, hp (kW)	Flow, gpm (lpm)	Pressure, psi (kPa, bars)	Dimensions, in. (mm)
TDOS	0.75 (0.56)	6 (22.7)	50 (344.8, 3.45)	Height 27 (705)
				Width 13 (330)
				Depth 31 (787)

Because of high temperatures, flash steam may accrue in heat exchangers. Some applications may require the use of a condensate tank. Consult factory for non-matching dual zones with differing flows and pressures.

HIGH TEMPERATURE HOSE OPTIONS

Part Number	Diameter, in.	Length, ft. (m)
572-16969-02	0.75	6 (1.83)
572-16969-12	0.75	10 (3.05)
572-16969-76	1	5 (1.52)
572-16969-08	1	10 (3.05)
572-16969-53	1	15 (4.57)
572-16969-59	1.5	10 (3.05)
572-16969-49	1.5	15 (4.57)

Hose material is Flexonics Series 101 corrugated hose fabricated from carbon steel with single braid.



HEAT & COOL

TCO SERIES HOT OIL TEMPERATURE CONTROL UNITS



Precise Temperature Control, Rugged Design

Engineered To Withstand the Rigors Of High-Temperature Heat Transfer

100°-550°F Operating Range

Immersion-Style Heaters

TrueTemp TCO Series Hot Oil Temperature Control Units from AEC provide highly accurate control for production applications requiring a continuous supply of high-temperature-controlled fluids.

A DIN-style, auto-tuning PID fuzzy logic controller monitors process temperature to cycle the heating/cooling process. This off-the-shelf controller ensures precise adherence to programmed temperature setpoints and carries a five-year warranty.

Units are available in 12kW, 18kW or 24kW configurations. Each provides consistent and reliable heating up to 550°F. To reduce energy consumption, a half heat/full heat feature is incorporated into the control circuit.

TrueTemp TCO Series Hot Oil Temperature Control Units feature an optional closed circuit heat exchanger for cooling in capacities from 3.9 to 6.7 sq. ft. The "U" type heat exchanger design offers superior heat transfer and is highly resistant to thermal stress when cooling water enters the system. Changeable and replaceable tube bundles help to minimize maintenance.

STANDARD FEATURES

- Simplified internal design to deliver more efficient heat transfer
- An off-the-shelf, DIN-style, auto-tuning PID fuzzy logic controller
- High-flow pumps with 18 gpm to 24 gpm capacities
- Easy-access cabinet design
- Compact footprint: 18 1/4" W x 42" D x 46" H



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HEAT & COOL

TCO SERIES HOT OIL TEMPERATURE CONTROL UNITS



TRUETEMP TCO SERIES

- Vertically mounted pump available in 1 and 2 Hp
- Immersion-style heaters
- Half heat or full heat capability for tighter temperature control
- Easily removable side panels allow quick access to internal components
- Oil pressure switch
- Non-fused, lockable disconnect
- Easy-to-read graphic display control panel



Optional advanced controller

FEATURES

- Premium-efficiency, extended cycle cooling valves
- NEMA 12 electrical cabinet with branch fusing
- To-process pressure gauge
- Independent safety thermostat
- IEC contractors and motor starter
- Controls meet NFPA 70/79 standards

AVAILABLE OPTIONS

- Automatic Auto-Vent Sequence removes air from system to minimize oxidation
- Advanced controller (as shown above)
- Low level alarm
- Manual bypass
- 3.9- or 6.7-square-foot heat exchanger
- NEMA-4/4x enclosure/entire unit
- Drain valve
- Hour meter
- Audible/visual alarms
- Pulse cooling
- Leak detection circuit
- Communications - RS485/SPI, RS232 or 485/GEN
- Multi-port manifold
- Other off-the-shelf DIN PID controllers
- Remote mountable controls
- Lexan® cover



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TRUETEMP TCO SERIES HOT OIL TCU

TrueTemp TCO Series Hot Oil TCUs from AEC provide highly accurate control for production applications requiring a continuous supply of high-temperature-controlled fluids.

All TrueTemp TCO Series hot oil portable temperature control units have an operating temperature range of 100°F up to a maximum of 550°F (38°C to 288°C). For applications outside this range, consult the factory.



TrueTemp TCO Series

STANDARD FEATURES

- Single or dual zone (2TCO) models available
- 6 kW heater [maximum operating temp of 400°F (204°C)]
- Omron® E5CK microprocessor controller with fuzzy logic; includes diagnostic features with indicator and warning status lights
- System status graphic display
- Dual stage immersion heater(s) with IEC contactors
- 550°F (288°C) maximum operating temperature
- Branch circuit protection
- Non-fused lockable rotary disconnect
- Pressure switch for low pump pressure shut-down
- NEMA 12 electrical enclosure
- UL listed subpanel
- To Process pressure gauge
- Independent safety thermostat
- Y-strainer on From Process line
- Positive displacement pumps capable of reversing to evacuate the process
- Easily removable panels for quick access to internal components
- Audible alarm
- 1 year parts and labor warranty at the factory
- 5 year controller warranty

OPTIONAL FEATURES

- 12, 18, or 24 kW heaters maximum operating temp of 550°F (288°C)
- Drain valve
- Analog flow meter
- General fault visual alarm
- U-tube heat exchangers, 3.9 sq. ft. or 6.7 sq. ft.
- 208/3/60, 230/3/60, 380/3/50, 415/3/50, 575/3/60 operating voltage
- CE certification
- Oil filtration cart package with one 50 micron filter
- Filters, sold by the case (30 filters per case), 25 micron, 50 micron, or 100 micron
- TrueTherm™ heat transfer fluid, 5 gallons (p.n. A0549000) or 55 gallons (p.n. A0549001)
- TrueFlush™ flushing fluid, 5 gallons (p.n. A0549002) or 55 gallons (p.n. A0549003)

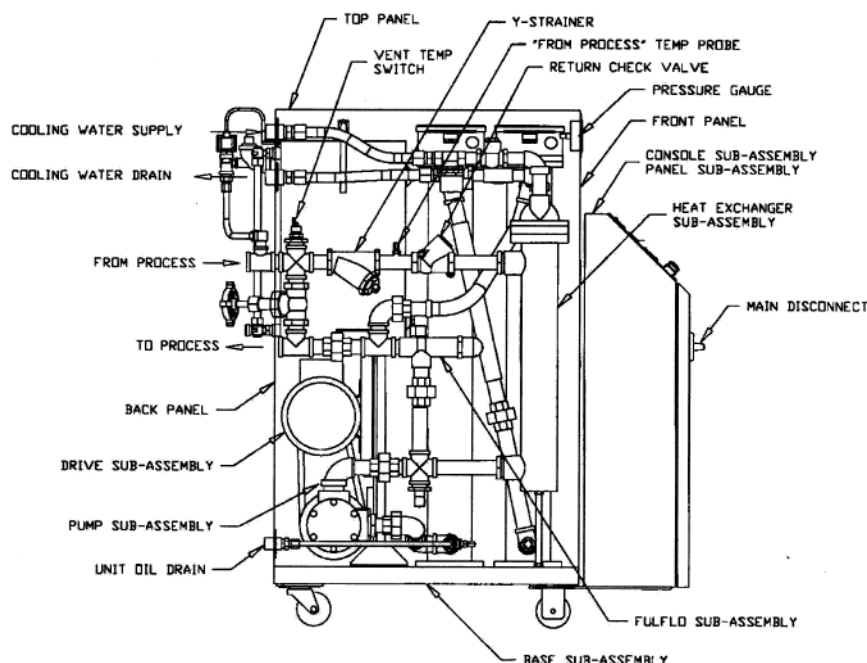
SPECIFICATIONS

Model	Pump, hp (kW)	Flow, gpm (lpm)	Height, in. (cm)	Width, in. (cm)	Depth, in. (cm)	Ship. weight, lbs. (kg)
TCO 1	1 (0.746)	18 (68.1)	46 (117)	18.25 (46)	42 (107)	600 (273)
TCO 1.5	1.5 (1.119)	18 (68.1)	46 (117)	18.25 (46)	42 (107)	600 (273)
TCO 2	2 (1.492)	24 (90.8)	46 (117)	18.25 (46)	42 (107)	600 (273)
2TCO 1 (2 zone)	1 (0.746)	18 (68.1)	46 (117)	36.5 (93)	42 (107)	1200 (546)
2 TCO 1.5 (2 zone)	1.5 (1.119)	18 (68.1)	46 (117)	36.5 (93)	42 (107)	600 (273)
2 TCO 2 (2 zone)	2 (1.492)	24 (90.8)	46 (117)	36.5 (93)	42 (107)	600 (273)

CONTROLLER OPTIONS

Controller	Options
Standard	4 to 20 mA retransmission of process variable (E5CK only) 4 to 20 mA remote setpoint & retransmission of process variable (E5AK only) Communication: RS-232, RS-485, RS-485 SPI (Athena 16 CT) Remote probe: local/remote control (remote probe and internal probe change to 100 ohm RTD) Hour meter, for pump run time
Advanced	4 to 20 mA remote setpoint and retransmission of process variable, setpoint, or flow rate Communication: RS-232 Modbus, RS-485 Modbus, RS-485 SPI, Ethernet IP via Modbus RTU Remote probe ¹
Remote control enclosure with 20 ft. cable (additional cable available at extra charge)	

¹ Remote probe with advanced controller allows customer to either monitor or control from a customer supplied type J or K thermocouple or 100 or 1000 ohm RTD. Additional cost to have probe supplied by manufacturer.



Optional Advanced Controller



HEAT & COOL

TCO-U SERIES HOT OIL TEMPERATURE CONTROL UNITS



Precision Heat Transfer For A Wide Range Of Applications

Rugged, Compact And Fully Portable

100°F (38°C) - 550°F (288°C) Operating Range

Single Pass Oil Heating Reduces Operating Noise Level

Rapid response to all your needs for process heating and cooling. That's what AEC is all about. Our hot oil TCO-U Series high temperature control units are no exception.

Engineered to withstand the rigors of high temperature heat transfer fluid recirculation, the TCO-U Series is designed for a wide range of processing applications from 100°F (38°C) to 550°F (288°C).

- Simplified internal design delivers efficient heat transfer
- An off-the-shelf, DIN-style, auto-tuning PID fuzzy logic controller accurate to within $\pm 1^\circ\text{F}$
- High-flow pumps with 18gpm to 50gpm capacities
- Compact footprint: 24" W (610 mm) x 35" D (890 mm)* x 62" H (1575 mm)

*Increases to 44" (1117 mm) for heaters over 24kW

Several flow and output options are available to accommodate individual process requirements, including optional heat exchangers for cooling in capacities from 3.9 to 21 square feet. The "U" type heat exchanger design offers superior heat transfer and is highly resistant to thermal stress when cooling water enters the system. Cleanable and replaceable tube bundles help to minimize maintenance.

The TCO-U Series is designed for easy maintenance and immediate hook-up to process. A rugged cabinet with removable panels provides easy access to all components.



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HEAT & COOL

TCO-U SERIES HOT OIL TEMPERATURE CONTROL UNITS



TCO-U SERIES HOT OIL UNITS

- Full 3-year controller warranty
- Removable panels with hand grips for ease of handling
- Easy-to-read to-process pressure gauge
- Positive-seating water supply and drain check valves
- TEFC motor
- Dependable positive displacement gear pump with mechanical seals
- 17 gallon expansion tank with convenient, protected sight glass
- Full-sized water and oil piping connections
- NEMA-2 control enclosure
- Rotary through-the-door disconnect switch
- Automatic venting sequence
- Low level alarm
- Manual bypass

ADVANCED CONTROLLER

- 4 line x 20 character LCD display
- Fuzzy logic for higher accuracy and better repeatability
- 16 segment ramp/soak program
- Setpoint, To Process, From Process and ΔT displays



User-friendly standard control panel features a highly accurate non-proprietary controller with operating status and alarm indicating lights.



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TRUETEMP TCO-U SERIES HOT OIL TCU

With rapid response to all your needs for process heating and cooling, our hot oil TCO-U Series high temperature control units are no exception. Engineered to withstand the rigors of high temperature heat transfer fluid recirculation, the TCO-U Series is designed for a wide range of processing applications from 100°F (38°C) to 550°F (288°C).



STANDARD FEATURES

- 550°F (288°C) maximum operating temperature
- Branch fusing
- Non-fused lockable rotary disconnect
- Independent safety thermostat with safety connector
- Y-strainer on From Process line
- Pressure-activated bypass valve
- To Process pressure gauge
- Dual stage immersion heater with IEC contactors
- Simplified internal design delivers efficient heat transfer
- An off-the-shelf, DIN-style, auto-tuning PID fuzzy logic controller accurate to within $\pm 1^\circ\text{F}$
- High-flow pumps with 18 gpm to 50 gpm capacities
- Compact footprint: 24" W (610 mm) x 34" D (864 mm) x 62" H (1575 mm). Increases to 44" (1117 mm) for heaters up to 48 kW
- Full 3-year controller warranty
- Removable panels with hand grips for ease of handling
- Positive-seating water supply and drain check valves
- TEFC motor
- Dependable positive displacement gear pump with mechanical seals
- 17 gallon expansion tank with convenient, protected sight glass
- Full-sized water and oil piping connections
- Drain valve

OPTIONAL FEATURES

- Lexan® cover
- Advanced controller
- U-tube type heat exchangers
- 208/3/60, 230/3/60, 380/3/50, 415/3/50, 575/3/60 operating voltage
- CE certification
- High tank level alarm, general fault visual alarm
- Hour meter
- Analog flow gauge

SPECIFICATIONS

Model		TCOU-xx				2TCOU-xx			
		1 hp	1.5 hp	2 hp	3 hp	1 hp	1.5 hp	2 hp	3 hp
Full Load Amps, 460/3/60 VAC	12 kW heater	17	18	19	20	34	36	38	40
	18 kW heater	25	26	27	28	50	52	54	56
	24 kW heater	32	33	34	35	64	66	68	70
	36 kW heater	47	48	49	50	94	96	98	100
	48 kW heater	62	63	64	65	124	126	128	130
Reservoir Capacity (gal)		17 gallons each zone							
TEFC Pump	HP (kW)	1 (0.75)	1.5 (1.1)	2 (1.5)	3 (2.2)	1 (0.75)	1.5 (1.1)	2 (1.5)	3 (2.2)
	Flow, gpm (lpm)	18 (68)		24 (91)	50 (227)	18 (68)		24 (91)	50 (227)
	Pressure, psig (bar)	30 (2.0)	50 (3.4)	30/50 (2.0/5.4)	50 (5.4)	30 (2.0)	50 (3.4)	30/50 (2.0/5.4)	50 (5.4)
	Connection Size, in.	1"			1.5"	1"			1.5"
Dimensions	Height, in.	62 (1,575)							
	Width, in.	24 (610)				48 (1,220)			
	Depth, in.	34 (864) ≤ 24 kW 44 (1,118) > 24 kW							
Shipping Wt, lbs. (kg)	≤ 24 kW	700 (318)			850 (386)	1400 (635)			1700 (771)
	> 24 kW	950 (431)			1050 (476)	1900 (862)			2100 (953)

CONTROLLER OPTIONS

Controller	Options
Standard	4 to 20 mA retransmission of process variable (E5CK only) not available with modulating valve. 4 to 20 mA remote setpoint & retransmission of process variable (E5AK only) Communication: RS-232, RS-485, RS-485 SPI (Athena 16 CT) Remote probe: local/remote control (remote probe and internal probe change to 100 ohm RTD)
Advanced	4 to 20 mA remote setpoint and retransmission of process variable, setpoint, or flow rate Communication: RS-232 Modbus, RS-485 Modbus, RS-485 SPI, Ethernet IP via Modbus RTU Remote probe ¹
Remote control enclosure with 20 ft. cable (additional cable available at extra charge)	

¹ Remote probe with advanced controller allows customer to either monitor or control from a customer supplied type J or K thermocouple or 100 or 1000 ohm RTD. Additional cost to have probe supplied by manufacturer.



Optional Advanced Controller



HEAT & COOL

TDH-6 SERIES FLUID CIRCULATING CONTROL SYSTEM



TDH-6 SERIES TEMPERATURE CONTROL UNIT

AEC's vast background of experience and skill in designing and building temperature control equipment assures you of peak performance from this unit.

Carefully designed and balanced control systems assure sensitivity and instantaneous reaction to temperature changes. Operation is simple, and the unit is complete and easy to use. Ready to operate when power and circulation connections are made.

Several combinations of heater sizes and pumping rates are available. Cooling controls are optional. We will be happy to assist you in selecting the proper unit for your requirements.

Precise Temperature Control, Rugged Design

NEMA 12-style electrical control enclosure

550°F Operating Range

Higher capacities

STANDARD FEATURES

- Viking positive displacement, packed pump with drip return pump
- TEFC Pump Motor
- NEMA 12-style electrical control enclosure with IEC electrical components
- Disconnect switch
- Pressure-actuated bypass valve
- System status graphics display
- To Process oil pressure gauge
- Temperature to 550°F
- Heater sizes from 50 to 200 kW
- Pump rates of 90, 150 or 200 gpm
- UL listed electrical subpanel
- Optional cooling capabilities
- E5AK, 1/4 DIN control standard
- Low level alarm



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TDH-6 SERIES FLUID CIRCULATING CONTROL SYSTEM

AVAILABLE OPTIONS

- Mechanical seal pump
- Autovent
- Autoshtutdown (E5AK controller)
- Manual bypass
- Shell & Tube heat exchanger
- Advanced controller

Note: heat exchanger is setup to pulse heat transfer fluid and continuously pass water through tubes.

DIMENSIONS

Small Cabinet: 30" W x 58" D x 70" H

Large Cabinet: 46" W x 58" D x 70" H



Optional advanced controller

ADVANCED CONTROLLER FEATURES

- PID Control for both heating and cooling
- 4 line x 20 character LCD Display Screen
- Setpoint, To Process, From Process, and DT displays
- Start, stop, vent, and alarm silence switches
- Triac outputs for heating and cooling

Model Number	Motor hp	Pump Flow gpm	Pressure PSI	Pipe Size NPT	Heating Capacity (kW)						
					50	60	75	100	120	150	200
TDH-6	5	90	50	2"	small	small	small	small	large	large	large
	10	150	50	2 1/2"	large*	large*	large*	large*	large	large	large
	15	200	50	3"	large	large	large	large	large	large	large

* For these capacities, the unit is built in the large cabinet as standard. In a heating only unit, it could be built in the small cabinet.



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TDH-6 FLUID CIRCULATING CONTROL SYSTEM

AEC's vast background of experience and skill in designing and building temperature control equipment assures you of peak performance from this unit. Carefully designed and balanced control systems assure sensitivity and instantaneous reaction to temperature changes. Operation is simple, and the unit is complete and easy to use. Ready to operate when power and circulation connections are made. Several combinations of heater sizes and pumping rates are available. Cooling controls are optional. We will be happy to assist you in selecting the proper unit for your requirements.



TDH-6 Fluid Circulating System

STANDARD FEATURES

- Viking positive displacement, packed pump with drip return pump
- TEFC Pump Motor
- NEMA 12-style electrical control enclosure with IEC electrical components
- Disconnect switch
- Pressure-actuated bypass valve
- System status graphics display
- To Process oil pressure gauge
- Temperature to 550°F
- Heater sizes from 50 to 200 kW
- Pump rates of 90, 150 or 200 gpm
- UL listed electrical subpanel
- Optional cooling capabilities
- E5AK, 1/4 DIN control standard
- Low level alarm

OPTIONAL FEATURES

- Mechanical seal pump
- Autovent
- Autosutdown (E5AK controller)
- Manual bypass
- Shell and tube heat exchanger
- Advanced controller

Note: heat exchanger is setup to pulse heat transfer fluid and continuously pass water through tubes.

SPECIFICATIONS

Model Number	Motor hp	Pump Flow gpm	Pressure PSI	Pipe Size NPT	Heating Capacity (kW)						
					50	60	75	100	120	150	200
TDH-6	5	90	50	2"	small	small	small	small	large	large	large
	10	150	50	2 1/2"	large*	large*	large*	large*	large	large	large
	15	200	50	3"	large	large	large	large	large	large	large

* For these capacities, the unit is built in the large cabinet as standard. In a heating only unit, it could be built in the small cabinet.

DIMENSIONS

Small Cabinet: 30" W x 58" D x 70" H

Large Cabinet: 46" W x 58" D x 70" H



Optional advanced controller

ADVANCED CONTROLLER FEATURES

- PID Control for both heating and cooling
- 4 line x 20 character LCD Display Screen
- Setpoint, To Process, From Process, and DT displays
- Start, stop, vent, and alarm silence switches
- Triac outputs for heating and cooling