



CLE Series - Eyewash Heaters

Tankless Water Heating Solutions

- 18 - 25 kW (85,000 - 170,000 BTUs)
- Flow range between 0.75 - 10 GPM (3 - 37.8 L-Min)
- Certified Lead-Free Design
- Pressure Drop Advantage
- Variable Temp Heat Exchanger
- NEMA 4 enclosure standard
- 3/4" connections
- Independent Safeties
- ETL and cETL certified to UL and CSA Standards
- Liquid-Cooled Solid State Relays
- Controller-locked temperature setting, output fixed at 80°F (27°C)
- Meets ANSI Z358.1 Standards
- Internal fusing (included) adds safety and permits single power connection

Standard Equipment

Tankless Water Heating Specifications

Keltech, Inc. Tankless Eye/Face Wash Heaters provide warm water intended to supply safety fixtures. The heaters uniquely perform in applications with low line pressure, while still accommodating ANSI standard flow rates. The durable plumbing components withstand higher pressures which result in a longer service life, while ensuring the delivery of precise output temperature within $\pm 1^\circ\text{F}$. Keltech's durable electrical components withstand power abnormalities found in industrial environments and ensure tepid water standards are never exceeded (100°F), with its three-tier anti-scald protection.

Keltech Tankless systems do not require the installation of an emergency thermostatic mixing valve. The NEMA 4 Enclosure (General Area) is durable and waterproof. NEMA 4X Enclosure offers the same features as a NEMA 4 Enclosure, with the added benefit of corrosion resistance. CLE-Series units are also suited to applications where 3 Phase Delta 480V or 600V, 50/60 Hz is required.

Construction

Temperature Controller

Keltech's PID Temperature Controller is more energy efficient and reliable than traditional microprocessors using staged elements. Power is infinitely variable, with no fixed inputs. The PID controller makes it possible to modulate the amount of power applied to the elements while also dispersing the required power evenly across all elements. This unique feature increases the product's life cycle.

Heating Element

Each heater features a heavy duty, low watt density, incoloy 800 sheathed resistive element. The Keltech design ensures greater protection, durability and resistance to scaling from hard water because water is only heated when flowing; this means sediment will not collect in the heat exchanger.

Solid State Relays

The liquid cooled solid state relays provide silent switching, which has a fast response and works in conjunction with the PID controller to infinitely modulate and add to the life of the heater.



Electrical

The CLE-Series requires only one service feed per unit. Includes internal fusing as standard. Internal fusing provides superior protection. Keltech protects both sides of each heating element with fusing.

Cabinet Enclosure

The wall- or floor-mounted standard cabinet enclosure is NEMA 4 rated and made from 16 gauge mild steel and powder coated with ANSI 61 gray, corrosive resistant paint. The optional NEMA 4X enclosures are for harsher environments and made from 16 gauge 304 stainless steel. The NEMA 4X enclosure can also be specified with 316 stainless steel.

Independent Safeties

The controller alarm sends a signal to disconnect power to the elements if the temperature reaches 90°F (32°C). The internal thermostat with auto reset high limit switch ensures that when the temperature limit is reached (factory preset at 80°F/27°C), the unit will power down a bank of elements; when the temperature returns to the set point, power is restored. The surface mounted bi-metal thermostat with manual reset acts as a fail-safe and must be manually reset before power can be restored to the elements if the temperature limit is exceeded.

Temperature Safety Values:

Internal thermostat with auto reset high limit switch: 95°F (35°C)

Surface mounted bi-metal thermostat with manual reset: 100°F (38°C)

Code Compliance and Certifications



Lead-Free

Products marked with the Lead-Free logo comply with the Safe Drinking Water Act (SDWA) requirements of a weighted average of less than 0.25% lead content on wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures.



ETL listed to UL499

ETL listed to UL 50E



ETL listed to NFPA 496 (Requires EXP2 Option)

cETL listed to CSA-C22.2 No. 88



Standard product selections contained within this document are third party CERTIFIED to NSF/ANSI 372 meeting the Lead-Free content requirement. Any product configured with custom options will be COMPLIANT with NSF/ANSI 372 meeting the Lead-Free content requirement.





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Product Options

Fused Disconnect

Internal fused disconnect interlocks with enclosure door when energized, prohibiting access to a live cabinet. Select the FDS option for an additional level of safety and convenience at the heater location.

Alarm Selections

Keltech offers two levels of building communication alarm options. The AL3 option provides dry contacts that open to signal flow >1.5 gpm has activated the heater. The AL3-SL option provides these dry contacts and additionally activates a local audible and visual alarm on the heater. Alarms activate at 1.5 gpm flow or greater.

Freeze Protection

The standard ambient temperature is 33°F (0.6°C). For environments lower than 33°F, Keltech offers a freeze protection package. ENHT offers protection to -20°F (-28°C). This level of protection utilizes the normal heater supply voltage. No additional dedicated circuit to the unit is required during field installation. Freeze protection (ENHT option) includes an internally insulated NEMA 4/4X enclosure and thermostatically controlled forced air heater to maintain internal temperatures above freezing.

The ENHT option also includes a connection point for DCS monitoring. In the event of a power interruption or ENHT system failure when internal enclosure temperatures reach 40°F (4.4°C) or lower, the unit will notify a facilities control/monitoring system that the unit is unable to maintain freeze protection. Regardless of state of power to the unit, this warning notifies maintenance personnel and provides an opportunity to correct the condition before any damage occurs to the unit.

ENHT is rated to -20°F (-28°C) and EXP2 is rated to -4°F (-20°C). When both ENHT and EXP2 are selected, the unit is rated to -4°F (-20°C). See Ambient Temperature Table for more information.

CLE Ambient Temperatures

Freeze Protection	Explosion Proof Options	
	None	EXP2
None	33°F (0.6°C)	33°F (0.6°C)
ENHT	-20°F (-28°C)	-4°F (-20°C)

Electrical Specifications for the Heater (3-Phase)

All internal fuses necessary for installation are included with the unit.

Capacity (kW)	Voltage	Maximum Amperage	Minimum AWG Wire Size
18	480	22	10
18	600	18	10
25	480	30	8
25	600	24	10

Ground Fault

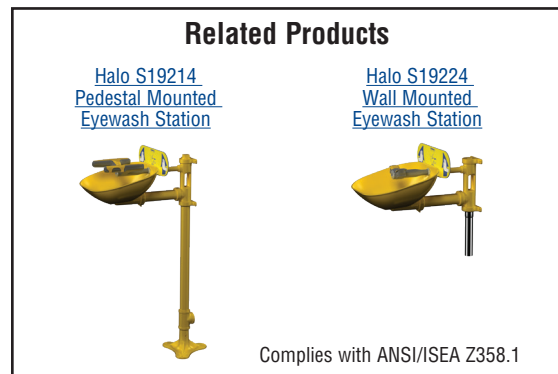
Optional equipment protection ground fault senses leakage current to ground >1 Amp. In the event a fault is detected, this device will terminate the high voltage power supply to heating elements and disable operation of the unit. Fault status is communicated EXTERNALLY at the control interface. Personnel may also test the Ground Fault system and reset any nuisance trips without opening the cabinet.

Explosion Proof Purge System

Keltech's EXP2 option makes heaters compliant for classified areas; Class 1, Division 2, Groups A-D, T5. The Purge System requires a supply of clean instrument air or inert gas (provided by installer). This supply maintains a positive internal pressure and prevents the enclosure from filling with flammable gasses, dusts or vapors from the ambient environment. The externally mounted purge system is rated to -4°F (-20°C). In addition to manufacturer certifications on the purge system, Keltech independently tests and 3rd party certifies all finished product with EXP2 to comply with NFPA 496.

Other Product Options

For additional heater options and installation accessories, reference the appropriate section at the end of this document.



CLE Pressure Drop Advantage

Pressure Drop								
GPM	1	2	3	4	5	6	8	10
PSI	0	1	2	3	4	5	7	10
L-MIN	3.8	7.6	11.3	15.1	18.9	22.7	30.2	37.8
BAR	0.0	0.1	0.1	0.2	0.3	0.4	0.5	0.7



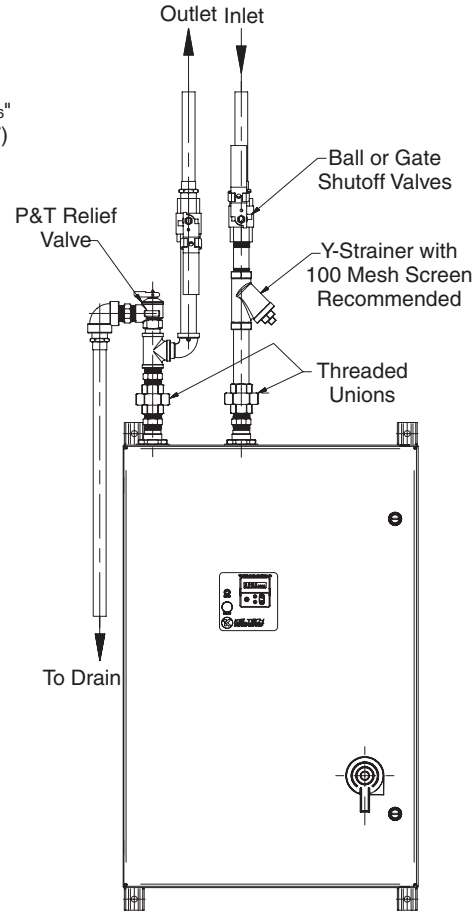
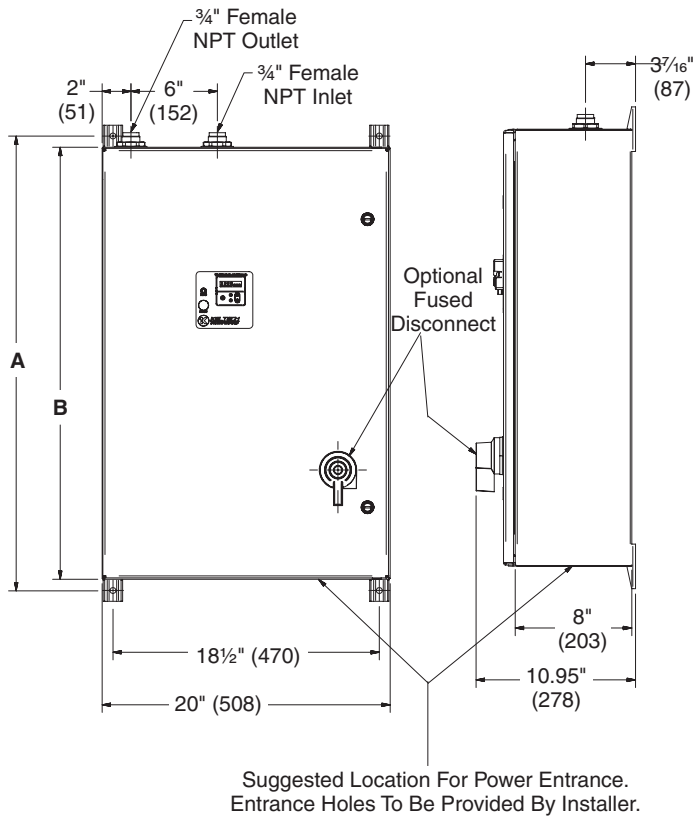
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CLE Series - Dimensions

(mm)

Select product options shown. Other options available.



kW	A	B
18	31-1/2" (800)	30" (762)
25	37-1/2" (953)	36" (914)

Suggested Installation Configuration
 Components provided by installer unless otherwise specified. Reference the product options sections or contact your local Bradley Representative for product options.



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kW Calculator

CLE Series (kW): 18, 25

		Temperature $\Delta^{\circ}\text{F}$ ($^{\circ}\text{C}$)																											
GPM L-MIN		10° (6°)	15° (8°)	20° (11°)	25° (14°)	30° (17°)	35° (19°)	40° (22°)	45° (25°)	50° (28°)	55° (31°)	60° (33°)	65° (36°)	70° (39°)	75° (42°)	80° (44°)	85° (47°)	90° (50°)	95° (53°)	100° (56°)	105° (58°)	110° (61°)	115° (64°)	120° (67°)	125° (69°)	130° (72°)	135° (75°)	140° (78°)	
Flow	0.75 2.8	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	
	1.0 3.8	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	25	25	25	25
	1.5 5.7	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	25	25	25	25	25	25	25	-	-	-	-	-	-
	2 7.6	18	18	18	18	18	18	18	18	18	18	18	18	25	25	25	25	25	-	-	-	-	-	-	-	-	-	-	-
	3 11.3	18	18	18	18	18	18	18	18	18	25	25	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4 15.1	18	18	18	18	18	25	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5 18.9	18	18	18	25	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	6 22.7	18	18	18	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7 26.5	18	18	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	8 30.2	18	18	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9 34.0	18	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
10 37.8	18	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Sizing for the proper flow rate is important. If the temperature rise requirements exceed a single CLE model, consider using multiple CLE-Series units. Please contact your Keltech Representative for additional product information.

How to Size a Heater

- Calculate Delta-T (ΔT).
Set point temp - coldest ground water temp = ΔT $\Delta T =$ _____
- Select kW required by using chart or formula below.
Peak demand in GPM x ΔT x .1465 = kW kW = _____
- Confirm voltage and phase available on site. Voltage and Phase = _____
- Confirm minimum flow. Minimum Flow = _____



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Model	
<input type="checkbox"/> CLE CLE-Series Emergency Eyewash Heater	
Standard Selections (Must select one from each category)	
Kilowatts	
<input type="checkbox"/> 18 18 kilowatts	<input type="checkbox"/> 25 25 kilowatts
AC Power Supply	
<input checked="" type="checkbox"/> 3 Three Phase	
Voltage	
<input type="checkbox"/> 480 480 Volts (standard)	<input type="checkbox"/> 380 380 Volts (down rated from 480V)
<input type="checkbox"/> 600 600 Volts (standard)	<input type="checkbox"/> 400 400 Volts (down rated from 480V)
	<input type="checkbox"/> 415 415 Volts (down rated from 480V)
System Controller	
<input checked="" type="checkbox"/> D Digital Control	
Cabinet Enclosure	
<input type="checkbox"/> N4 NEMA-4 Enclosure (standard)	
<input type="checkbox"/> N4X NEMA-4X Enclosure - Stainless Steel	
<input type="checkbox"/> N4X316 NEMA-4X Enclosure - 316 Stainless Steel	

Heaters listed above can be down rated in 380, 400 and 415 volts. Contact your local Keltech Representative for power ratio and effective kW.

Asset Tag	
<input type="checkbox"/> 00 None	
<input type="checkbox"/> 01 1 Asset Tag	_____
<input type="checkbox"/> 02 2 Asset Tags	_____
<input type="checkbox"/> 03 3 Asset Tags	_____
<input type="checkbox"/> 04 4 Asset Tag	_____
<input type="checkbox"/> 05 5 Asset Tags	_____

Keltech Tankless Water Heaters are non-cancelable, non-refundable and non-returnable.

Product Options (Must select one from each category)	
<input type="checkbox"/> AL3	Distributed Control System Link
<input type="checkbox"/> AL3-SL	Stack Light with Distributed Control System Link
<input type="checkbox"/> NONE	None
<input type="checkbox"/> ENHT	Freeze Protection to -20°F
<input type="checkbox"/> NONE	None
<input type="checkbox"/> EXP2	Explosion Proof Class1/Division2 to -4°F (-20°C)
<input type="checkbox"/> NONE	None
<input type="checkbox"/> FDS	Internal Fused Disconnect
<input type="checkbox"/> NONE	None
<input type="checkbox"/> GF	Ground Fault Package
<input type="checkbox"/> NONE	None
<input type="checkbox"/> LK*	Leg Kit Converts Standard Wall-Mount to Floor-Mount
<input type="checkbox"/> NONE	None

*LK option not available with EXP2 option.

Installation Accessories	
<input type="checkbox"/> BSPP	Stainless steel thread adapter converts NPT to BSPP
<input type="checkbox"/> NONE	None
<input type="checkbox"/> PR	Pressure and temperature relief valve
<input type="checkbox"/> PRS	ASME pressure relief valve, stainless steel
<input type="checkbox"/> NONE	None
<input type="checkbox"/> YS	Y-Strainer
<input type="checkbox"/> YSS	Y-Strainer, stainless steel
<input type="checkbox"/> NONE	None

Application Attributes (MANDATORY)	
Coldest ground water temperature: _____	
Minimum Flow: _____	
Maximum Flow: _____	
Select set point temperature 65°F - 80°F (factory preset at 80°F/27°C): _____	

Delta T Calculation

Set Point Temperature - Coldest Incoming Water Temperature = Minimum Delta T for Application

Model Number Configuration

CLE _____ / D- _____ - _____ - _____ - _____ - _____ - _____
List applicable option codes alphabetically. Do not include Installation Accessories in configuration.

Customer Signoff _____