

Commercial Tankless Electric Water Heaters

N SERIES

(FORMERLY CNA SERIES)

Fluid heating for heavy industrial applications



LAARS®
Heating Systems Company

PRECISE. RELIABLE. DURABLE. TANKLESS.

POWERED BY **1K** KELTECH™

COMMERCIAL TANKLESS ELECTRIC WATER HEATERS

Laars - Powered by Keltech™

Keltech® technology is the recognized leader in powering commercial tankless electric water heating systems, especially for the bid spec market. For well over 30 years, tankless electric water heaters Powered by Keltech™ are known for their savings (energy, space) and simplicity (installation, maintenance).

Products which have the “Powered by Keltech™” label are known to complement a wide range of applications and unique environments. Anyone who owns a “Powered by Keltech™” product knows they are durable, reliable, and manufactured in the United States. And with Laars manufacturing the products, customers can also trust that they are Built to be the Best®.

- **Save Energy**

No need to generate heat and maintain temperature 24 hours per day, 7 days per week. Laars tankless heaters only heat water when needed. And, Laars' innovative controller is fully modulating so you only use the actual kW needed, not full power or stages.

- **Save Space**

A large commercial tank water heater requires a large space. Laars tankless water heaters only require 3 square feet (0.3 square meters) of space to generate up to 491,000 BTUs.

- **Simple Installation**

Requires only one electrical connection and connection to water. No pumps, no external fusing, and no design needs to be considered externally – it's all built into the heater.

- **Simple to Maintain**

No tank to maintain, no anodes, no softeners.

- **Simply the Best**

Built to the toughest standards with the highest quality materials and engineered to meet the world's most demanding applications.

N SERIES (FORMERLY CNA SERIES) HEAVY INDUSTRIAL APPLICATIONS



N Series (Formerly CNA Series)

N Series (formerly CNA Series) heaters are designed specifically for heavy industrial fluid applications. Heaters activate only when needed and provide an unlimited supply of hot water to meet the needs of your heavy industrial application. Heaters activate at 1.5 GPM (5.7 L-Min) and can handle water flow up to 50 GPM (189 L-Min).

Depending on the application, Laars can also offer a turnkey solution with one of the pre-assembled and transportable Design on Demand™ Skid Series products featuring N Series (formerly CNA Series) heaters.

Key markets & applications

Markets include mining, breweries/wineries, petro/chemical, food & beverage, agriculture/livestock, lumber/pulp/papermills, waste water treatment plants, power generation and nuclear.

Applications include scrubbers, nuclear reactor washdown, classified areas, snow melt, heating consumables, heating jacketed equipment, stadium/ice arena resurfacer filling, chemical process heating direct/indirect, bio-diesel production, fracking injectables and washdowns (parts, vats, containers, large equipment).

Whatever your specific application is, Laars has a tankless heating solution.



kW Range
36 - 144 kW



Flow Range
1.5 - 50 GPM (5.7 - 189 L-Min)



Standard Voltages
480V, 600V 3-Phase Delta

Code Compliance & Certifications



- **Lead-Free**

Brass/Copper heat exchangers certified to NSF/ANSI 372

- **Third-Party Certified**

ETL listed to UL499, UL50E, NFPA 496 (for hazardous locations)

C-ETL listed to CSA-C22.2 No.88.

- **Compliant to NEC/NFPA 70 and Canadian Electrical Code C22.1**

- **ASME Certified**

N Series units (63 kW and over) are the only electric tankless water heaters National Board certified with the HLW stamp.



STANDARD FEATURES

PID Temperature Controller

More energy efficient and reliable than traditional microprocessors, Laars heaters hold temperature as demand changes regardless of incoming ground water temperature. 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.

Simple Touch Operation

Digital LED screen with touch pad for easy operation shows set point and output temperature.



Precise Temperature Range & Flow

The electronic power modulation system can control outlet water temperature to within $\pm 1^\circ\text{F}$ ($\pm 0.56^\circ\text{C}$) over a wide range of flow rates. Precision temperature controls make Laars tankless water heaters the preferred choice for process heating applications or an alternative to high energy consuming boiler use.

Incoloy 800 Elements

Recognized for extending the life of the metal components.

Provides protection, durability and resistance to scaling from hard water. Water is only heated when flowing; this means sediment will not collect in the heat exchanger.

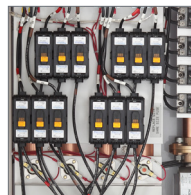


Low Watt Density Element

Extremely low wattage is applied per square inch of the element for improved heat transfer & reduced scaling which results in a longer lasting element.

Electrical Design

Requires only one service feed per unit. Includes internal fusing as standard, which provides superior protection. Units have a delta wiring system and do not require a neutral.

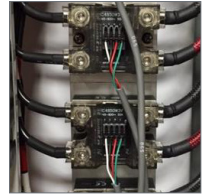


Recirculation Capable

Laars heaters can be installed within a recirculation system, saving money and energy while providing desired temperature on demand.

Liquid-Cooled Solid State Relays

Liquid-cooled, solid state relays provide silent switching which has a faster response than mechanical relays to help maintain an accurate temperature. Relay switching controls also provide an infinitely variable power draw.



Auto Reset High Limit Switch

Internal circuit breakers monitor for over temperature conditions and ensure individual chambers do not exceed standards. Should the heater's safety circuits sense a problem prior to manual shut down, power is safely interrupted at a mechanical relay.

Bi-metal Manual Resets

Every heater that Laars engineers includes a separate set of circuits that monitor over temperature conditions. Should overheating occur, each sector of the heat exchanger has a dedicated thermal switch that breaks power. Normal operation cannot be resumed until the safety switch is manually reset.



N SERIES (FORMERLY CNA SERIES)

STANDARD FEATURES

NEMA 4 Enclosures

Standard floor cabinet enclosure is NEMA 4 rated and constructed of 14 gauge steel with corrosion-resistant paint. Enclosure protects the components of the heavy industrial heater from dust and water.

Minimal Pressure Drop

Laars' best in industry low pressure drop reduces or eliminates the need & expense associated with adding pressure booster pumps.

Durable Plumbing Assembly

All units consist of brazed joints, a brass and copper heat exchanger, industrial-grade flow sensor and brass castings/fittings at all directional changes.

Premium Materials

All waterways consist of high-quality copper and brass construction tested to 300 PSI (20.7 bar). Robust lead-free brass castings & flanges are CNC cut from solid brass blanks for precision fit. High-quality copper and brass construction extend the life of the heat exchanger.



Activation Requirements

On-demand heaters require a minimum flow rate for activation. Water heaters come standard with 1.5 GPM (5.7 L-Min) activation set point and can provide flow up to 50 GPM (189 L-Min). Minimum flow requirements provide maximum efficiency.



Independent & Redundant Safeties

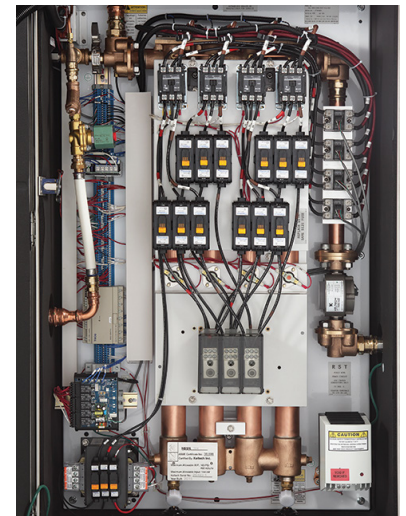
Keltech heavy industrial heaters include multiple features that ensure years of reliable service and the safety of your employees.

Reliable Performance & Minimal Maintenance

The heater maintenance schedule falls within the normal facilities maintenance program requirements. LED indicators, test buttons, and reset buttons on the front cover dramatically reduce the need to open the enclosure making maintenance or troubleshooting even easier.

Easy to Install

Heaters can be floor-mounted almost anywhere. Without a traditional tank the N Series (formerly CNA Series) saves space in any installation location.



OPTIONAL FEATURES

NEMA 4X Enclosures

For harsh environments, NEMA 4X watertight enclosures are available for an additional level of protection. Enclosures made from 304 or 316 stainless steel.

Building Management Systems Integration

Transfers control of the heater to a Building Management System (BMS). Heater is no longer adjusted or controlled at heater location, a computer interface integrates with the BMS.

High Temperature Package

Standard temperature range is 40-160°F (4-71°C). With the high temperature package, heaters can reach & maintain settings as high as 200°F (93°C).

Freeze Protection Package

For temperatures lower than 33°F (0.56°C), Laars offers two freeze protection packages. ENHT offers protection to -20°F (-29°C) & ENHT30 offers protection to -30°F (-34°C). Includes internally insulated NEMA 4/4X enclosure and thermostatically controlled heater to maintain internal temperatures above freezing.

Internal Fused Disconnect

The internal fused disconnect interlocks with the enclosure door when energized, prohibiting access to a live cabinet. There is no need to install an external disconnect.

Integral Ground Fault

Detects electrical leakage from external sources & protects the equipment, electronics and heat exchanger by terminating power to the elements and disabling operation of the unit.

ASME Heat Exchanger

Units 63 kW & higher have the option to be fitted with internal plumbing certified to Section IV of the ASME Boiler & Pressure Vessel Code - an industry exclusive certification.

TE and TE2 Protection System: Deionized Water Solutions & Corrosive Fluid Protection

Exclusive TE & TE2 Protection options protect the heat exchanger from corrosive fluids including deionized water, chlorides, saltwater solutions, reverse osmosis water and caustic alkalis. Laars uses bright annealed, passivated stainless steel elements; all stainless steel plugs and fittings are also used.

TE Protection is recommended when corrosion is a concern. It is FDA approved for use with deionized water or mild corrosive fluid applications. The PFA Teflon® dual coating protects all heat exchanger surfaces that come in contact with heated fluids.

TE2 Protection is recommended when fluid purity is critical (e.g. to heat de-ionized water). To conform to FDA regulations governing direct food contact applications, this option includes a single layer of Xylan® Fluoropolymeric coating on all surfaces and internal passageways that come in contact with the heated media.

Choose the TE or TE2 protective coating option for:

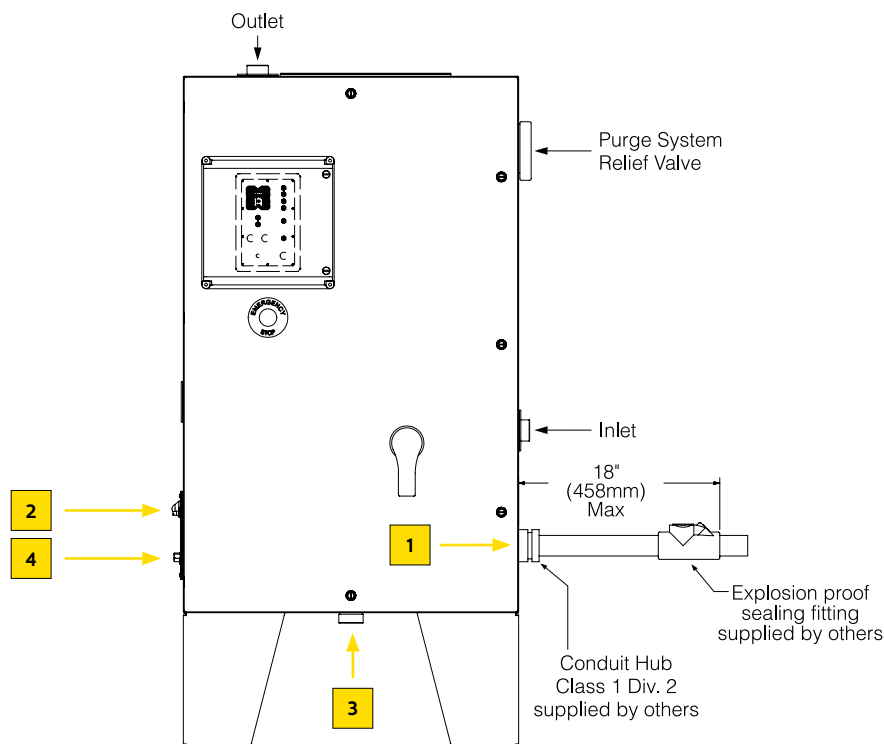
- Media Purity: no contamination of heated fluids
- Non-stick: very low adhesion properties for best possible flow characteristics
- Virtually inert: resists change or destruction due to chemicals or corrosion
- Thermal Stability: resists change due to temperature fluctuations
- Washing solid-state devices, printed circuit boards, parts and aluminum products and/or equipment
- Heating corrosive and/or non-flammable liquids
- Desalination systems

OPTIONAL FEATURES

Explosion-Proof Purge System

N Series (formerly CNA Series) heavy industrial heaters in NEMA 4/4X enclosures can be equipped with an explosion-proof purge system. The type of purge system determines the classification or division the enclosure will meet; N Series (formerly CNA Series) use a system that conforms to Class 1, Division 2 hazardous area standards. Electrical components installed in NEMA 4/4X enclosures allow the system to be pressurized by clean instrument air or inert gas. Heat, moisture, dust and corrosion are eliminated by providing the enclosure with a slow but continuous flow of inert gas or dry compressed air. This process removes flammable gases and/or prevents the accumulation of ignitable dusts within the protected enclosure. The purge system:

- Conforms to Class 1, Division 2 hazardous area standards; other class and division ratings may be available
- Reduces heat build-up in the enclosure
- Inhibits metal corrosion and reduces moisture buildup
- Provides continuous monitoring capabilities
- Eliminates large, heavy explosion-proof enclosures
- A constant supply of inert gas or clean air required



1 Suggested region for power entrance. Entrance hole and components to be provided by installer.

2 Purge control panel Class 1 Division 2.

3 Spark arrestor with calibration orifice is located in the bottom of the enclosure.

4 Purge gas/compressed air inlet fitting here.

All plumbing fittings are 1-1/4"(32 mm) NPT female threaded.

All installation egress from panel must be sealed (electrical conduit) for proper explosion-proof installation.

N SERIES-SKID SYSTEM



Compact, Portable Package

Laars Skid Series are easy to specify for your unique application and can be easily transported with a forklift. Connect a water and power supply and the Laars Skid Series is ready for any situation – even remote locations.



- Electric tankless water heater
- Pre-piped & assembled
- Mounted on portable, pre-assembled steel skid
- Back-to-back N Series (formerly CNA Series) heaters

Applications

Hazardous chemical environments

Power plants

Manufacturing environments

Waste water treatment plants

Mining

Process Heating



MODEL N SERIES-SKID (FORMERLY CNA SERIES-SKID)

Heavy industrial skid with two tankless heaters

- Pre-piped, pre-assembled skid system
- Back-to-back N Series large industrial heaters
- Higher flow demand industrial water heating applications
- Transportable



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