

Commercial Tankless Electric Water Heaters

G & F SERIES

(FORMERLY C1N & C2N SERIES)

Fluid heating for light industrial applications



LAARS[®]
Heating Systems Company

PRECISE. RELIABLE. DURABLE. TANKLESS.

POWERED BY  **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.

G & F SERIES (FORMERLY C1N & C2N SERIES) LIGHT INDUSTRIAL APPLICATIONS



G & F Series (Formerly C1N & C2N Series)

The G & F Series (formerly C1N & C2N Series) are designed to accommodate light industrial fluid heating applications where demand is between 18 and 50 kW and total flow is ≤ 15 GPM (56.8 L-Min). The heaters activate only when needed and provide an unlimited supply of hot water to meet the needs of your light industrial application. Heaters activate at 0.75 GPM (2.8 L-Min) with low flow options available, depending on the heater.

Key markets & applications

Markets include pharmaceuticals, food and beverage, waste water treatment plants, municipal buildings, manufacturing, zoos, lodging, transportation and marine.

Applications include chemical process heating direct/indirect, laundry, train & truck washing, heating deionized water, potable water distribution, snow melt, classified areas, heating consumables requiring FDA approval, recirculation, reverse osmosis pre- and post-heating, heating jacketed equipment and washdown (parts, clean room, sensitive materials, manufacturing).

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



kW Range
G Series: 18 - 25 kW
F Series: 36 - 50 kW



Flow Range
0.75 - 15 GPM (2.8 - 56.8 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**



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 & output temperature.



Precise Temperature Range & Flow

The electronic power modulation system can control outlet water temperature to within +/- 1°F (+/-0.56°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

Extends the life of the metal components.



Provides protection, durability and resistance to scaling from hard water. Water is only heated when flowing; 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.

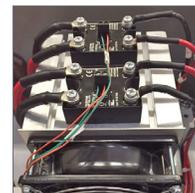


Auto Reset High Limit Switch

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.

Solid State Relays

G Series (formerly C1N Series) feature liquid-cooled, solid state relays to 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. The F Series (formerly C2N Series) feature fan-cooled relays (above), ideal for high temperature recirculation loops.



Independent & Redundant Safeties

Laars light industrial heaters include multiple features that ensure years of reliable service and the safety of your employees

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.



G & F SERIES (FORMERLY C1N & C2N SERIES)

STANDARD FEATURES

NEMA 4 Enclosures

Standard wall cabinet enclosure is NEMA 4 rated and constructed of 16 gauge steel with corrosion-resistant paint. Enclosure protects components from dust and water.

Minimal Pressure Drop

Laars' best in industry low pressure drop reduces or eliminates the need and 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 switch 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 & brass construction extend the life of the heat exchanger.

Recirculation Capable

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

Activation Requirements

On-demand heaters require a minimum flow rate for activation. Water heaters come standard with 0.75 GPM (2.8 L-Min) activation set point & can provide flow up to 15 GPM (56.8 L-Min). Minimum flow requirements provide maximum efficiency.



Reliable Performance & Minimal Maintenance

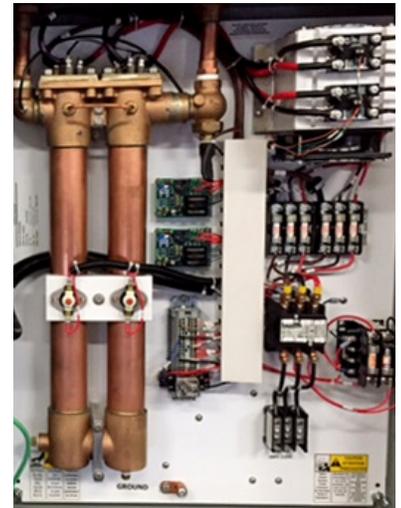
The heater maintenance schedule falls within the normal facilities maintenance program requirements. LED indicators, test buttons, and reset buttons on the front cover dramatically reduce the need to open the enclosure making maintenance or troubleshooting even easier.

Easy to Install

Heaters can be wall- or floor-mounted almost anywhere. Without a traditional tank the G & F Series (formerly C1N & C2N Series) save space in any installation location.



G Interior



F Interior

OPTIONAL FEATURES

NEMA 4X Enclosures

For harsh environments, NEMA 4X watertight enclosures are available for an additional level of protection. Enclosures are 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 the heater location, a computer interface integrates with the BMS.

Low Flow Activation

Activate heater at a lower flow rate than the standard 0.75 GPM (2.8 L-Min). G Series (formerly C1N Series) activation available as low as 0.25 GPM (1.0 L-Min) and F Series (formerly C2N Series), 0.5 GPM (1.9 L-Min).

Integral Ground Fault

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

High Temperature Package

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

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.

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

Exclusive TE and 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 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 & aluminum products and/or equipment
- Heating corrosive and/or non-flammable liquids
- Desalination systems

G & F SERIES (FORMERLY C1N & C2N SERIES)

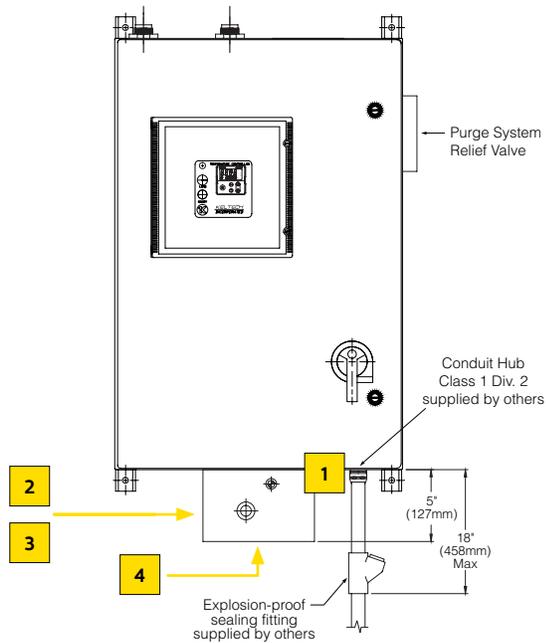
OPTIONAL FEATURES

Explosion-Proof Purge System

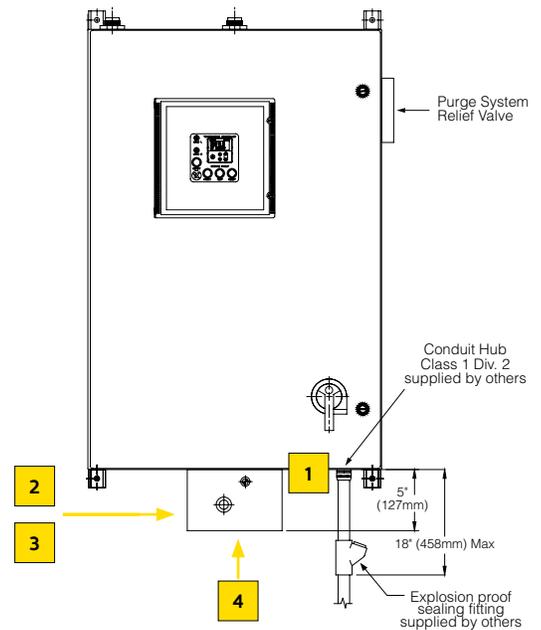
G & F Series (formerly C1N & C2N Series) light industrial heaters in NEMA 4/4X enclosures can be equipped with an explosion-proof purge system. The type of purge system determines the classification or division the enclosure will meet; G & F Series (formerly C1N & C2N Series) Series use a system that 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

G Series (Formerly C1N Series)



F Series (Formerly C2N Series)



- 1 Suggested region for power entrance. Entrance hole and components to be provided by installer.
- 2 Purge control panel Class 1 Division 2.

- 3 Purge gas/compressed air inlet fitting here.
- 4 Spark arrestor with calibration orifice is located in the bottom of the enclosure.

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



PRECISE. RELIABLE. DURABLE. TANKLESS.

LAARS[®]
Heating Systems Company
A subsidiary of **BRADFORD WHITE**[®] Corporation

Customer Service and Product Support: 800.900.9276 • Fax 800.559.1583
Headquarters: 20 Industrial Way, Rochester, NH, USA 03867 • 603.335.6300 • Fax 603.335.3355
9 Brigden Gate, Halton Hills, Ontario, Canada L7G 0A3 (905) 203-0600 Fax: (905) 636-0666
www.Laars.com Litho in U.S.A. © Laars Heating Systems 2021