- 5-25 kW (17,000 - 85,300 BTU/hr.)
- Low flow activation options at .15 and .25 GPM (0.6 and 0.9 LPM)
- Certified Lead-Free Design
- Variable modulation from 0 to 100% of the rated kW
- Low Pressure Drop Advantage
- 3/4" connections
- ETL and cETL certified to UL and CSA Standards
- Liquid-Cooled Triac Switches
- Surface Mounted Bi-Metal Thermostat with Manual Reset
- Internal fusing (included) adds safety and permits single power connection
- Alternate horizontal mounting*

  * Unit can be installed and rotated clockwise 90° with the inlet and outlet to the right.

Standard Equipment

Tankless Water Heating Specifications

Laars Commercial Tankless Electric Water Heaters, Powered by Keltech™ H Series are designed to accommodate most commercial fluid heating applications including: environments where demand is < 25kW and total flow is ≤ 7 GPM, and environments where lower activation flows are required: standard units are .5 GPM with options as low as .15 GPM. H Series units are also suited to applications where only single phase service is available or 3-Phase 208V, 240V, 315V, 380V, 415V, and 480V, 50/60 Hz is required. H Series 5-18 kW units are available with NEMA 4 and 4X enclosure options. H Series 25 kW units are standard NEMA 4 with NEMA 4X (304 Stainless Steel) enclosure option.

Construction

Temperature Controller

The Laars 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 design ensures greater protection, durability and resistance to scaling from hard water because water is only heated when flowing; this means sediment is less likely to collect in the heat exchanger.

Triac Switches

The liquid cooled, triac switches provide silent switching which has a faster response than mechanical relays to assist in maintaining an accurate temperature.

Electrical

The H Series requires only one service feed per unit. Includes internal fusing as standard. Internal fusing provides superior protection so the incoming circuit can be higher than 48 amps (NEC). Each heating element is protected with fusing.

Independent Safety

The surface mounted bi-metal thermostat with manual reset acts as a fail-safe. In the event the temperature limit is exceeded, it must be manually reset before power is restored to the elements.

Cabinet Enclosure

Standard cabinet enclosure is made from 18 gauge electro galvanized and powder coated steel. The H Series also features an optional 18 gauge NEMA 4 enclosure with ANSI 61 gray, corrosive resistant paint. The H Series 25 kW unit comes standard in the 18 gauge NEMA 4 enclosure. The NEMA 4X enclosures are for harsher environments made from 16 gauge 304 stainless steel.

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
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.

ABS Design Assessed intended for product to be installed on an ABS classed vessel, mobile offshore drilling units (MODU), or facility. This is a Tier 2 Approval that states that the product complies with the stated standards and must receive approval by a Surveyor or Engineer for the intended installation.

Product Options

Building Management System (BMS) Integration

The D1 option has 4-20mA input and allows Building Management Systems to set temperature and view heater outlet temperature via the BMS display. This allows the BMS to command the temperature setting of the unit and verify unit performance with actual process values. The D1 option requires BMS input to establish a temperature setting; local adjustment of set-point per standard interface on the heater control display is not permitted.

The DC option is a RS-485 Modbus RTU and allows Building Management Systems to view heater outlet temperature and heater activation via BMS display as well as changing the temperature set-point from the BMS. This allows the BMS to command the temperature setting of the unit and verify unit performance with actual process values. Local adjustment of set-point per standard interface on the heater control display is permitted.

NEMA 4 or 4X enclosures are required for the D1 or DC option.

Other Product Options

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

Alarm Selection

For critical process applications, the high/low temperature alarm (AL option) alerts you to an over or under temperature situation. The visual indicator alarm is located on the heater control panel. If the process temperature strays from the defined temperature range, an alert is sent to the controller.

Low Pressure Drop Advantage

Pressure Drop							
GPM	1	2	3	4	5	6	7
PSI	0	2	4	8	12	17	24
LPM	3.8	7.6	11.3	15.1	18.9	22.7	26.5
BAR	0.0	0.1	0.3	0.5	0.8	1.2	1.6

Electrical Specifications for the Heater (1-Phase)

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

Capacity (kW)	Voltage	Maximum Amperage	Minimum AWG Wire Size*
5	208	25	10
5	240	21	10
6	208	29	8
6	240	25	8
6	277	22	10
6	480	13	12
10	208	48	4
10	240	42	6
10	480	21	10
15	208	72	3
15	240	63	3
18	208	87	3
18	240	75	3
18	277	65	3
18	480	38	6

Electrical Specifications for the Heater (3-Phase)

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

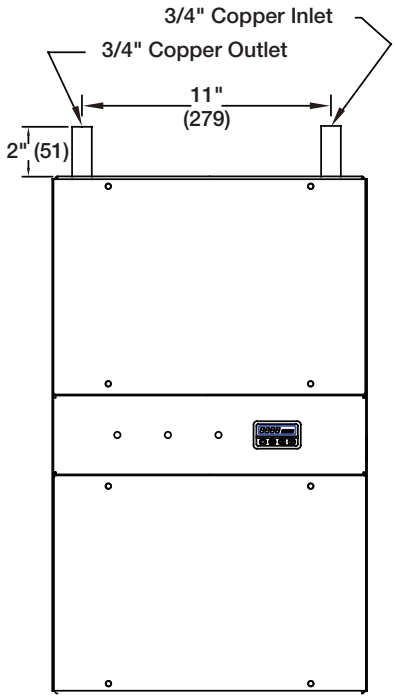
Capacity (kW)	Voltage	Maximum Amperage	Minimum AWG Wire Size*
10	208	28	10
10	380	15	12
10	480	13	12
15	208	42	6
15	240	36	6
15	380	23	10
15	400	22	10
15	415	21	10
18	208	50	4
18	240	43	6
18	480	22	10
18	380	27	10
18	400	26	10
18	415	25	10
25	480	30	8

* Based on the NEC Table 310.16 (Formerly 310.15) for 75°C insulated copper wire @ 30°C Ambient. Aluminum wire requires larger gauges.

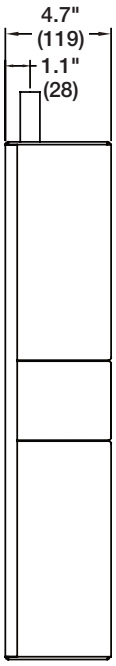
H Series - Standard Dimensions

Select product options shown. Other options available.

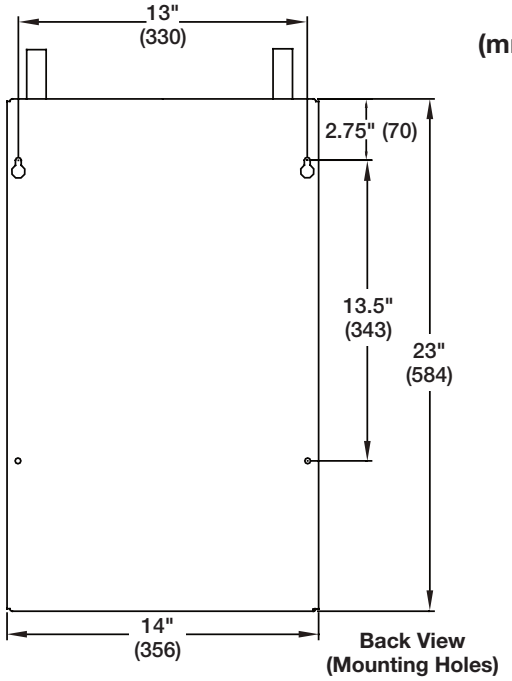
(mm)



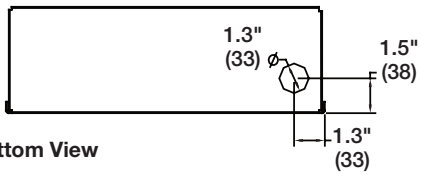
Front View



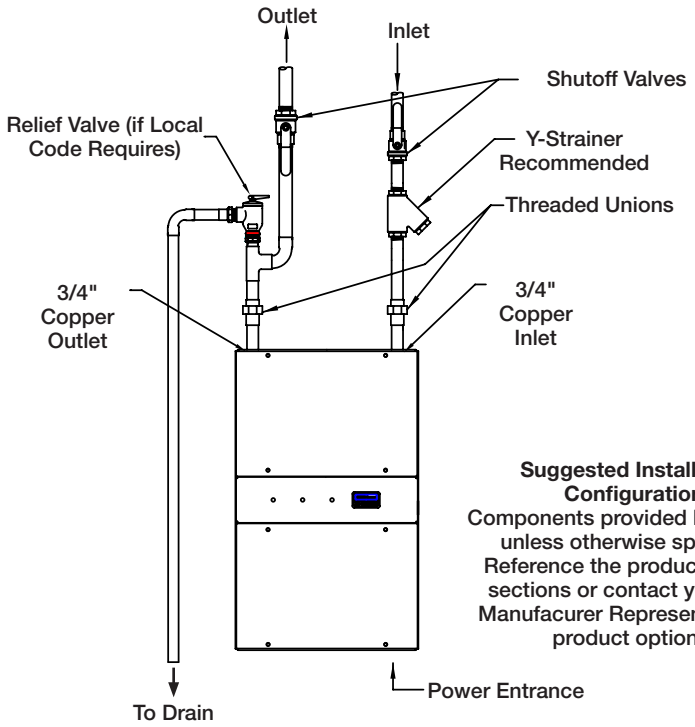
Side View



Back View (Mounting Holes)



Bottom View

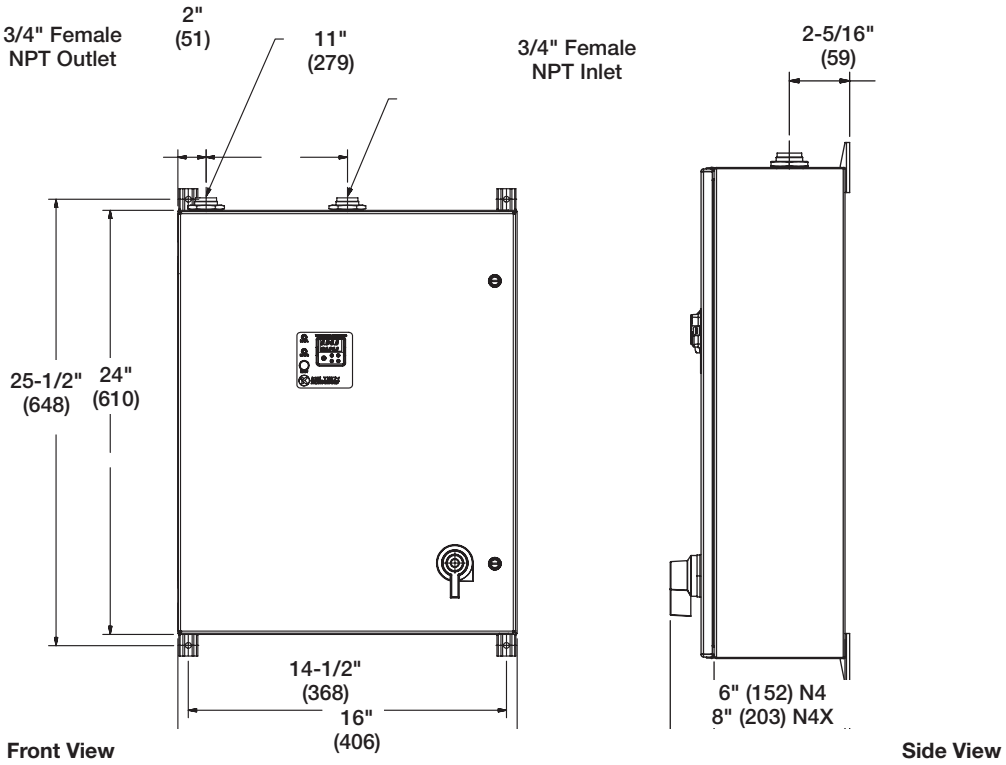


Suggested Installation Configuration
Components provided by installer unless otherwise specified. Reference the product options sections or contact your local Manufacurer Representative for product options.

H Series (5-18 kW) - NEMA 4/4X Dimensions

Select product options shown. Other options available.

(mm)

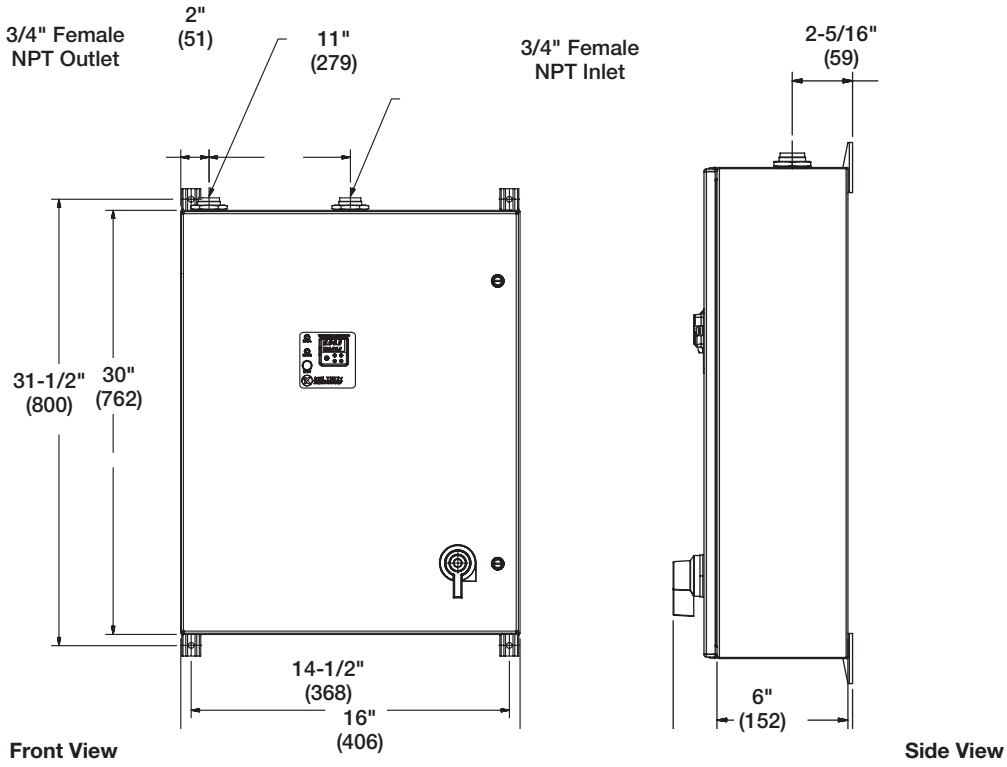


Front View **Side View**

H Series (25 kW) - NEMA 4/4X Dimensions

Select product options shown. Other options available.

(mm)



kW Calculator

H Series: 5, 6, 10, 15, 18, 25 kW

Temperature Δ°F (°C)

Flow GPM	Flow LPM	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°)
0.15	0.6	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
0.25	0.9	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6
0.50	1.9	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	10	10	10	10	10	10	10	10	10	10	10	15
0.75	2.8	5	5	5	5	5	5	5	5	6	6	10	10	10	10	10	10	10	15	15	15	15	15	15	15	15	15	18
1	3.8	5	5	5	5	5	6	6	10	10	10	10	10	15	15	15	15	15	15	15	18	18	18	18	25	25	25	25
1.5	5.7	5	5	5	6	10	10	10	10	15	15	15	15	18	18	18	25	25	25	25	25	25	-	-	-	-	-	-
2	7.6	5	5	6	10	10	15	15	15	15	18	18	25	25	25	25	25	-	-	-	-	-	-	-	-	-	-	-
3	11.3	5	10	10	15	15	18	18	25	25	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	15.1	6	10	15	15	18	25	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	18.9	10	15	15	25	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	22.7	10	15	18	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	26.5	15	18	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sizing for the proper flow rate is important. If the temperature rise requirements exceed a single H Series (formerly HL Series) model, consider using multiple H Series units or the G Series (formerly C1N Series) & F Series (formerly C2N Series) Series. Please contact your Laars Representative for additional product information.

How to Size a Heater

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

LAARS Heating Systems Company
POWERED BY KELTECH™

H Series (Formerly HL Series) Commercial Heaters

Tankless Electric Water Heating Solutions

Brand (1)
L = Laars

Category (2 3 4 5)
C T E H = Commercial Tankless Electric H Series

Power (6 7 8)
0 0 5 = 5kW **0 1 5** = 15kW
0 0 6 = 6kW **0 1 8** = 18kW
0 1 0 = 10kW **0 2 5** = 25kW*
*480V, 3 phase only

Voltage (9)
Single Phase
C = 208
D = 240
E = 277
J = 480

Three Phase
K = 208 **N** = 400*
L = 240 **P** = 415*
M = 380* **S** = 480
*Downrated from 480V

Enclosure Construction (10)
X = Standard 5-18 kW
D = NEMA 4 - Standard 25 kW - Optional 5-18 kW
E = NEMA 4X 304 SSTL

Heat Exchanger (11)
X = Standard
F = TE2 - XF Coated HX

Control (12)
X = Standard
E = AL- Process Temp Alarm
F = D1- 4-20mA Input*
G = DC- RS-485 Modbus RTU*
* NEMA 4 Only

Electrical (13) — X
X = Standard

Temperature Setpoints (14)
X = Standard (0.5 GPM activation & 160F)
1 = T170 High Temp
2 = T180 High Temp
3 = T190 High Temp
C = L15-0.15 gpm activation
D = L25-0.25 gpm activation
F = T170 & L15
G = T180 & L15
H = T190 & L15
K = T170 & L25
L = T180 & L25
M = T190 & L25

Firmware (15)
1 = Process Heat
2 = Residential
3 = Boosting
4 = Re-Circulation
5 = ICXXX Temp Lockout**
6 = Process Heat & ICXXX**
7 = Residential & ICXXX**
8 = Boosting & ICXXX**
9 = Re-Circulation & ICXXX**
**Specify optional lockout temperature: _____

Language (16)
__ = English (blank)
F = French

Installation Accessories

- ☐ **BSPP** = Stainless steel thread adapter converts NPT to BSPP (NEMA 4 or 4X only)
- ☐ **NONE** = None
- ☐ **PR** = Pressure and temperature relief valve
- ☐ **PRS** = ASME pressure relief valve, stainless steel
- ☐ **NONE** = None
- ☐ **YS** = Y-Strainer
- ☐ **YSS** = Y-Strainer, stainless steel
- ☐ **NONE** = None

Application Attributes (MANDATORY)

Coldest incomnig water temperature (140F Max):_____ Minimum Flow:_____ Maximum Flow:_____ Set point temperature:_____

Delta T Calculation: Set Point Temperature - Coldest Incoming Water Temperature = _____ (Maximum Delta T for Application)

Asset Tag

- ☐ **00** None
- ☐ **01** 1 Asset Tag_____
- ☐ **02** 2 Asset Tags_____
- ☐ **03** 3 Asset Tags_____
- ☐ **04** 4 Asset Tags_____
- ☐ **05** 5 Asset Tags_____

☑ **Laars Tankless Water Heaters are built to customer specification and are therefore non-cancelable, non-refundable and non-returnable.**

Model Number Configuration

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L	C	T	E	H								X			

Customer Signoff_____

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