

Laars® Combi Heat™ Residential Energy Saver Gas Water Heater System



Photo is of
LCH-504T10FBN

The Laars® Combi Heat™ Flammable Vapor Ignition Resistant Models Feature (50 gallon model only):

- **Intelligent Gas Control**—Gas control with proven millivolt powered technology and built-in piezo igniter. A standard, off the shelf thermopile converts heat energy from the pilot flame into electrical energy to operate the gas valve and microprocessor. No need for external electricity.
 - **Enhanced Performance**—Proprietary algorithms provide enhanced First Hour Delivery ratings and tighter temperature differentials.
 - **Advanced Temperature Control System**—Microprocessor constantly monitors and controls burner operation to maintain consistent and accurate water temperature levels.
 - **Intelligent Diagnostics**—An exclusive green LED light prompts the installer during start-up and provides ten different diagnostic codes to assist in troubleshooting.
 - **Pilot On Indication**—Flashing green LED provides positive indication that pilot is on.
 - **Separate Immersed Thermowell**—High strength advanced polymer composite thermowell provides isolation between electric temperature sensor and surrounding water. No need to drain the tank when removing gas valve.
- **Internal Double Wall Heat Exchanger**—Double wall 1½" O.D. glass coated (Vitraglas®) steel coil ensures separation of potable water and heating fluid.
 - **3/4" NPT Front Supply and Return Connections.**
 - **Low Heat Exchanger Head Loss**—Up to 8 GPM flow, with less than 6 ft. of head loss. Greatly reduces the required pump size for heat exchange.
- **Advanced ScreenLok® Technology Flame Arrestor Design**—Flame arrestor is designed to prevent ignition of flammable vapor outside of the water heater.
- **Resettable Thermal Switch**—Proven and reliable bimetallic switch prevents burner and pilot operation in case of ongoing flammable vapor burn inside of the combustion chamber or restricted air flow.
- **Maintenance Free**—Regular cleaning of air inlet openings or flame arrestor is not required under normal conditions.
- **Sight Window**—Offers a view into the combustion chamber to observe the operation of the pilot and burner.
- **Factory Installed Sediment Reduction System**—Cold water inlet sediment reducing device helps prevent sediment build up in tank. Increases first hour delivery of hot water while minimizing temperature build up in tank.
- **Glass Lined Tank**—LAARS® Heating Systems tanks are lined with an exclusively engineered enamel formula that provides superior tank protection from the highly corrosive effects of hot water. This formula is fused to the steel surface by firing at a temperature of over 1600°F (871°C).
- **2" Non-CFC Foam Insulation**—Covers the sides and top of tank, reducing the amount of heat loss. This results in less energy consumption, improved operation efficiencies and jacket rigidity.
- **Pedestal Base.**
- **Water Connections**—3/4" NPT factory installed true dielectric fittings.
- **Two Protective Anode Rods.**
- **T&P Relief Valve**—Installed.
- **Low Restriction Brass Drain Valve**—Durable tamper proof design.
- **Thermostatic Mixing Valve (ASSE Approved)**—Included.



10-Year Limited Tank and Heat Exchanger Warranties / 6-Year Limited Warranty on Component Parts.

For products installed in USA, Canada and Puerto Rico. Some states do not allow limitations on warranties. See complete copy of the warranty included with the heater.

MANUFACTURED UNDER ONE OR MORE OF THE FOLLOWING U.S. PATENTS: 5,682,666; 7,634,976; 5,660,165; 5,954,492; 6,056,542; 6,935,280; 5,372,185; 5,485,879; 5,574,822; 7,971,560; 7,992,526; 6,684,821; 6,442,178; 7,334,419; 7,866,168; 7,270,087; 7,007,748; 5,596,952; 6,142,216; 7,699,026; 5,341,770; 7,337,517; 7,665,211; 7,665,210; 7,063,132; 7,063,133; 7,559,293; 7,900,589; 5,943,984; 8,082,888; 5,988,117; 7,621,238; 7,650,859; 5,761,379; 7,409,925; 5,277,171; 8,146,772; 7,458,341; 2,262,174. OTHER U.S. AND FOREIGN PATENT APPLICATIONS PENDING. CURRENT CANADIAN PATENTS: 2,314,845; 2,504,824; 2,108,186; 2,143,031; 2,409,271; 2,548,958; 2,112,515; 2,476,685; 2,239,007; 2,092,105; 2,107,012.

Laars® Combi Heat™ Direct Fired Gas Water Heater System

Deluxe Energy Saver Models

NATURAL GAS AND LIQUID PROPANE GAS

Meet or exceed ASHRAE 90.1b (current standard) C.E.C. Listed
80% Recovery Efficiency

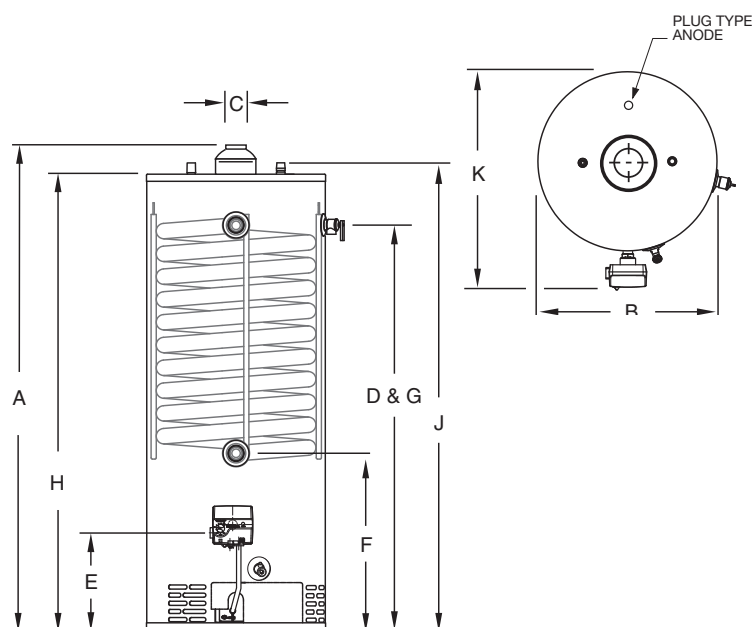
Model Number	Capacity		Nat. BTU/Hr. Input	LP BTU/Hr. Input	Recovery 90°F Rise*				A Floor to Flue Conn.	B Jacket Dia.	C Vent Size	D Floor to T&P Conn.	E Floor to Gas Conn.	F Floor to Exchanger Inlet	G Floor to Exchanger Outlet	H Floor to Top of Heater	J Floor to Water Conn.	K Depth	Approx. Shipping Weight
	U.S. Gal.	Imp. Gal.			Nat. U.S. GPH	Nat. Imp. GPH	LP U.S. GPH	LP Imp. GPH	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	lbs.
LCH-504T10FBN	45	38	65,000	61,000	70	59	66	55	59½	22	4	50	13	27½	50	56½	60½	24½	238

Model Number	Capacity		Nat. kW Input	LP kW Input	Recovery 50°C Rise*				A Floor to Flue Conn.	B Jacket Dia.	C Vent Size	D Floor to T&P Conn.	E Floor to Gas Conn.	F Floor to Exchanger Inlet	G Floor to Exchanger Outlet	H Floor to Top of Heater	J Floor to Water Conn.	K Depth	Approx. Shipping Weight
	Liters				Nat. Liters/Hour	Nat. Imp. GPH	LP Liters/Hour	LP Imp. GPH	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	kg.
LCH-504T10FBN	170		19.1	17.9	265	250	250	250	1505	559	102	1270	330	780	1270	1432	1534	622	108

Propane model features a Titanium Stainless Steel propane burner.

*Based on manufacturers rated recovery efficiency.

CAEF is .55 and CAAFE% is 80.0.



Heat Exchanger Head Loss	
GPM	Ft. of Hd. Loss
2	0.15
5	0.94
8	2.40
10	3.75
12	5.40

Heat Exchanger Values*

Supply Temperature	140°F	120°F	100°F
Return Temperature	120°F	100°F	80°F
Differential	20°F	20°F	20°F
Flow Rate	2.3 GPM	3.4 GPM	4.4 GPM
Net Output	20,000 BTU/Hr.	29,000 BTU/Hr.	38,000 BTU/Hr.

*These values were obtained using 180°F stored tank temperature.

Net Output is the space heating capacity based on normal piping and pickup allowance of 15%.

Actual values may vary based on circulator flow rate, number of zones, water and space heating demands. Numbers subject to change.

Meets NAECA Requirements

General

All gas water heaters are certified at 300 PSI test pressure (2068 kPa) and 150 PSI working pressure (1034 kPa). All potable water and heat exchanger connections are 3/4" NPT (19mm) on 11" (203mm) centers. All gas connections 1/2" (13mm).

All models design certified by CSA International (formerly AGA/CGA), ANSI Z-21.10.1 and peak performance rated.

Dimensions and specifications subject to change without notice in accordance with our policy of continuous product improvement.

Suitable for Water (Potable) Heating and Space Heating.

Toxic chemicals, such as those used for boiler treatment, shall NEVER be introduced into the potable water side. The potable side of this unit may NEVER be connected to any existing heating system or component(s) previously used with a non-potable water heating appliance. The heat exchanger side of the unit may be used in space heating applications.