LAARS® OMNITHERM®

Near Condensing Boiler and Volume Water Heater

- Up to 7:1 Turndown Ratio
- Electronic Fuel-to-Air Ratio Control
- Up to 90% Thermal Efficiency
- Stainless Steel Heat Exchanger
- Indoor/Outdoor Rated
- LAARS LINC® Intuitive Touch Screen Controls

LAARS®
Heating Systems Company

OMNITHERM®

THE LAARS OMNITHERM ADVANTAGE:

Laars OmniTherm Boilers and Volume Water Heaters include advanced features that bring tangible results to building owners.

Designed with Performance and Practicality in Mind

OmniTherm, the new measure for installation flexibility, stands in a performance class of its own. It can easily be applied in replacement applications as well as new installations.

Long Life, Stainless Steel Heat Exchanger

Stainless steel offers protection against heat exchanger corrosion and fouling, results in higher efficiency levels and allows for low temperature return water

Electronic Air-to Fuel Ratio Control

Ideal gas and oxygen density levels are maintained resulting in peak efficiency levels, increased combustion stability, and up to 7:1 turndown

Laars Linc® Controls

Intuitive to use, touch screen control system includes advanced features such as auto cascade, intelligent redundancy, and quick start setup

Flexible Installation

Vertical configuration with small footprint takes up less floor space

Indoor/outdoor rated

Boiler and volume water heater models

INDUSTRY LEADING TECHNOLOGY

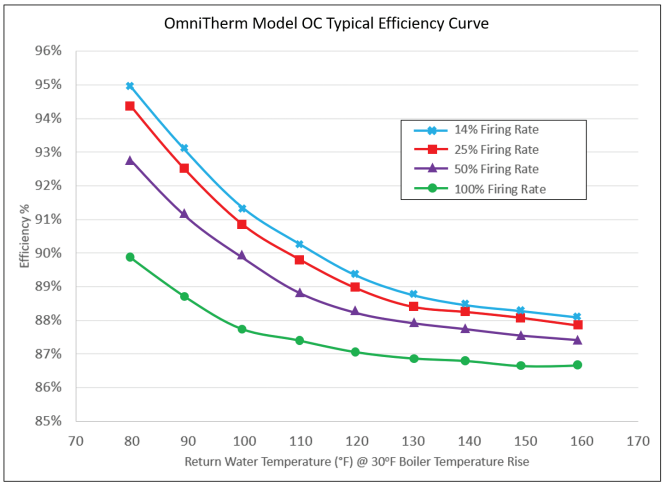
At the heart of the OmniTherm is a patent pending stainless steel corrosion resistant heat exchanger, industry leading Electronic Air-to-Fuel ratio combustion control and the advanced Laars Linc control platform. All of this has been combined for the first time in a robust heating platform.

Electronic Air-to-Fuel Ratio Control Brings Performance to a Whole New Level

The OmniTherm is outfitted with the latest in temperature compensated mass flow combustion control technology. This technology offers one of the highest levels of combustion accuracy and performance available.

Optimized performance, reduced emissions, and reliable operation lower operational costs and increase savings.

- **Peak Performance:** Optimal combustion and low emission levels are achieved by maintaining the ideal gas density levels within the air-fuel mixture regardless of operational demands.
- **Maximized Efficiency Levels:** Electronic management of premix process maintains proper oxygen levels for ideal combustion.
- **High Efficiencies at All Firing Rates:** Real-time air-to-fuel ratio compensation control results in highest possible efficiencies throughout the entire turndown range.
- **Stable Performance:** Electronic mass flow sensors adjust to supply pressure fluctuations to improve performance stability as compared to traditional pneumatic valve technology.
- **Reliable Operation:** Drifting from original set points over time is eliminated, keeping the OmniTherm operating at peak efficiencies.
- **Quick Response Rate:** Real time measurements of pressure, air flow, gas density, and temperature are monitored for fast acting adjustments to heating demands.



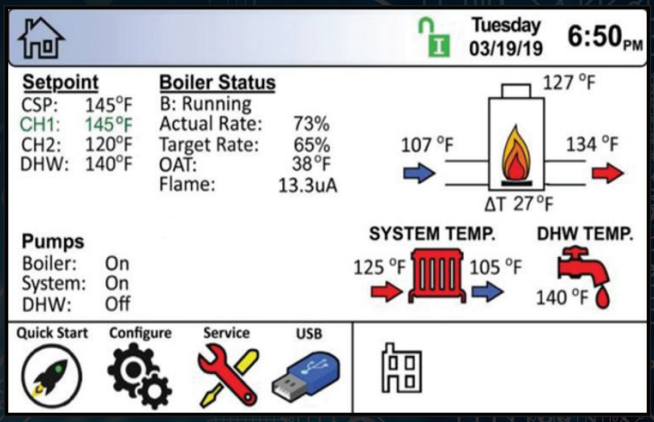
LAARS LINC®

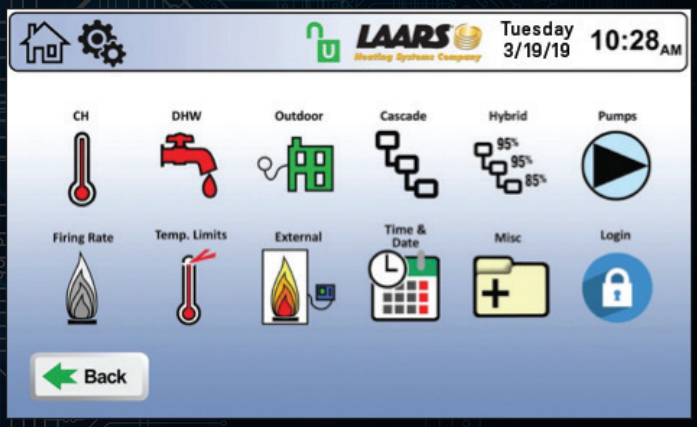
LAARS LINC CONTROLS ARE A STEP BEYOND SMART, THEY'RE INTUITIVE

LAARS LINC®

Powerful control logic is easily managed via icon driven, touch screen technology. The result is an intuitive to use control system with the intelligence to manage installations from the simple to the complex.

ADVANCED EASE OF USE FUNCTIONALITY:





- **HOME SCREEN BOILER STATUS:** The home screen shows the operational status of the boiler; all set points, status of each pump, and boiler run status.
- **QUICK START CONFIGURATOR:** Simply touch the "Quick Start" icon on the home screen to access the most commonly-used parameters for systems that don't require advanced set up.
- **USB DATA CONNECTION:** The USB connection allows for easy transfer of parameter sets from one boiler to another and for the boiler's history data to be transferred to a USB memory device.
- **VARI-PRIME® PUMP CONTROL:** This unique fixed delta T control functionality is included on OmniTherm Category II and IV boilers and works in conjunction with a variable speed boiler pump. As the boiler's firing rate changes, the Vari-Prime control modulates the signal to a variable speed boiler pump to ensure a user-programmable temperature rise is maintained across the boiler. Pump electrical savings as high as 70% can be realized via this configuration vs. constant speed pump installations.
- **LAARS LINC CONTROL TO DISPLAY HANDSHAKE:** If for any reason a display or control board needs to be replaced, the parameter set is automatically transferred from the remaining display or control board to the replaced component. Parameters are stored on both the display and control to auto populate either one!
- **INTELLIGENT REDUNDANCY:** Laars Linc cascade logic includes a built-in redundancy; via either a lag unit's internal setpoint, or a configurable redundant leader. A bank of boilers will continue to operate even if the master control goes down, keeping buildings warm and hot water flowing!
- **AUTO CONFIGURING CASCADE:** Up to 8 units can be automatically configured by simply connecting the controls and selecting the master boiler. The intelligence of Laars Linc takes over to auto configure the remaining follower boilers. No need to register each follower!
- **MULTIPLE PUMP CONTROL:** System pump, boiler pump and domestic water pump operation, each with time delay.
- **BacNET MSTP AND MODBUS RTU ON BOARD**

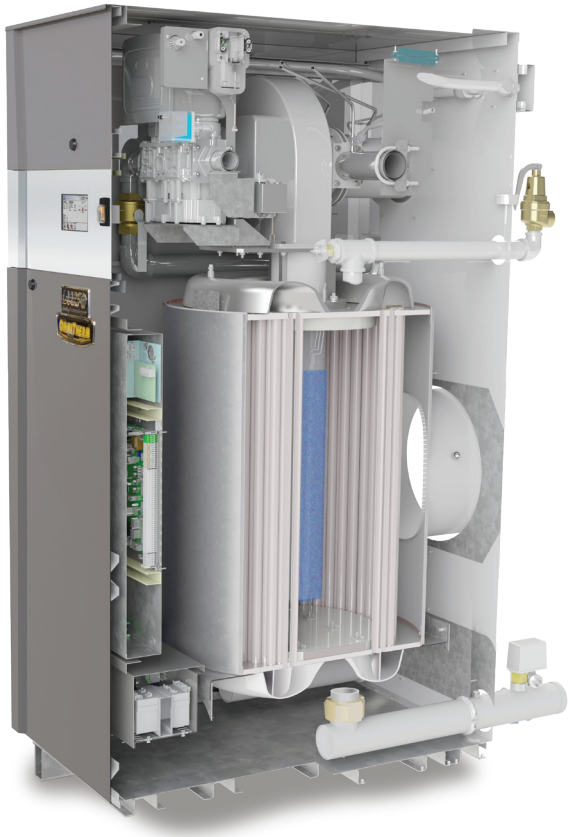
THE LAARS OMNITHERM ADVANTAGE:

DESIGNED TO PERFORM

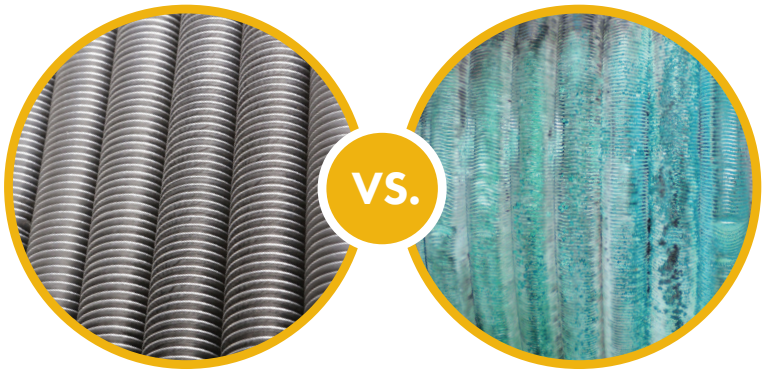
DESIGNED TO LAST

Long life, Stainless Steel Heat Exchanger

Stainless steel offers protection against heat exchanger corrosion and fouling, results in higher efficiency levels and allows for low temperature return water. The OmniTherm incorporates a best-in-class stainless steel heat exchanger design and responsive electronic combustion control for reliable, long life operation.



STAINLESS STEEL VS. COPPER OVERTIME



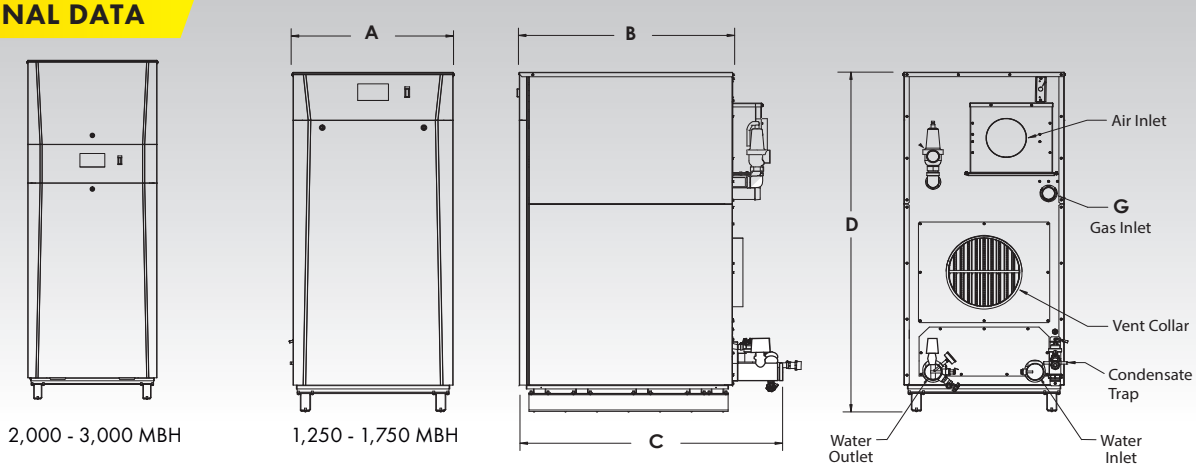
OmniTherm heat exchangers use 439 corrosion resistant stainless steel tubing that can withstand continuous operation in condensing conditions and remain in pristine condition.

Typical vertical copper finned heat exchangers are prone to air side fouling after repeated exposure to condensing conditions. Poor combustion, reduced efficiencies and boiler failure can ultimately occur.

Designed for Performance, Designed to Last

At the heart of the OmniTherm is a patent pending stainless steel corrosion resistant heat exchanger, industry leaving electronic air-to-fuel ratio combustion control and the advanced Laars Linc control platform. All of this has been combined for the first time in a near-condensing platform that can withstand cold return water temperatures. Never again have to worry about heat exchanger fouling issues!

DIMENSIONAL DATA



2,000 - 3,000 MBH

1,250 - 1,750 MBH

Model	"A"		"B"		"C"		"D"		"G" Gas Conn.	Water Inlet & Outlet
	in.	(cm)	in.	(cm)	in.	(cm)	in.	(cm)	NPT	NPT
1250	24½	(62)	27	(69)	39	(99)	66	(168)	2"	2½"
1500	24½	(62)	27	(69)	39	(99)	66	(168)	2"	2½"
1750	32	(81)	43	(109)	53	(135)	69	(175)	2"	3"
2000	32	(81)	43	(109)	53	(135)	78	(198)	2"	3"
2500	32	(81)	43	(109)	53	(135)	78	(198)	2"	3"
3000	32	(81)	43	(109)	53	(135)	85	(216)	2"	3"

ELECTRICAL DATA

Voltage	1250 Current			1500 Current			1750 Current			2000 Current			2500 Current			3000 Current		
	FLA	MCA	MOP	FLA	MCA	MOP	FLA	MCA	MOP	FLA	MCA	MOP	FLA	MCA	MOP	FLA	MCA	MOP
120V, 1 phase	9.4	11.8	20	9.4	11.8	20	9.2	11.5	20	9.2	11.5	20	N/A	N/A	N/A	N/A	N/A	N/A
208V, 1 phase	N/A	N/A	N/A	4.8	6.0	15	5.0	6.3	15	5.0	6.3	15	5.0	6.3	15	N/A	N/A	N/A
220/240V, 1 ph	N/A	N/A	N/A	4.8	6.0	15	4.8	6.0	15	4.8	6.0	15	4.8	6.0	15	N/A	N/A	N/A
208V, 3 phase	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.2	6.5	15	6.2	7.8	15
480V, 3 phase	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.2	2.8	15	2.7	3.4	15
600V, 3 phase	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.8	2.3	15	2.2	2.8	15

VENTING DATA

Model	General Air System Data				Category II and IV Vent Data							
	Air Collar Size "E" and Ducted Air Pipe Size[1]		Maximum Ducted Air Pipe Length[1]		Vent Collar Size		Category IV Vent Pipe Size[4]		Maximum Category IV Vent Pipe Length[4]		Typical[3,4] Category II Vent Pipe Size	
	inches	cm	ft²	m	inches	cm	inches	cm	ft²	m	inches	cm
1250	6	*15*	100	*30.5*	6	*15*	6	*15*	100	*30.5*	12	*30*
1500	6	*15*	100	*30.5*	6	*15*	6	*15*	100	*30.5*	12	*30*
1750	8	*20*	100	*30.5*	8	*20*	8	*20*	100	*30.5*	14	*36*
2000	8	*20*	100	*30.5*	8	*20*	8	*20*	100	*30.5*	14	*36*
2500	8	*20*	100	*30.5*	8	*20*	8	*20*	100	*30.5*	16	*41*
3000	10	*25*	100	*30.5*	10	*25*	10	*25*	100	*30.5*	16	*41*

1. IIntake air pipe may be single-wall galvanized steel pipe, 24 gauge minimum, and properly sealed.
2. Equivalent Feet: To calculate, measure the linear feet of the pipe and add 5 ft (1.5m) for each elbow used.
3. Category II vent pipe sizes shown are typical, but may not meet the requirements of every system.
4. Installations in the U.S. require exhaust vent pipe that is CPVC complying with ANSI/ASTM D1785 F441, stainless steel complying with UL1738, or polypropylene complying with ULC S636.

OmniTherm Models OCH and OCV

BOILER SIZING DATA

OmniTherm Hydronic Model OCH							
Model	Input Rate		Gross Output		AHRI Certified		Turndown Ratio
	MBH	kw	MBH	kw	Thermal Efficiency %	Combustion Efficiency %	
1250	1250	366	1098	322	87.8	87.7	5:1
1500	1500	440	1307	383	87.1	87.2	7:1
1750	1750	513	1523	446	87.0	86.7	7:1
2000	1999.9	586	1756	515	87.8	87.5	5:1
2500	2499.9	733	2193	643	87.7	87.0	7:1
3000	3000	879	2589	759	86.3	86.6	7:1

VOLUME WATER HEATER SIZING DATA

OmniTherm Volume Water Heater Model OCV						
Model	Input Rate		Output Rate		AHRI Certified	Turndown Ratio
	MBH	kw	MBH	kw	Thermal Efficiency %	
1250	1250	366	1125	330	90	5:1
1500	1500	440	1335	391	89	7:1
1750	1750	513	1540	451	88	7:1
2000	1999.9	586	1800	527	90	5:1
2500	2499.9	733	2250	659	90	7:1
3000	3000	879	2610	765	87	7:1

BOILER WATER FLOW REQUIREMENTS

Model	Temperature Rise																			
	20°F (11°C)				25°F (14°C)				30°F (17°C)				35°F (19°C)				40°F (22°C)			
	Flow		Headloss*		Flow		Headloss*		Flow		Headloss*		Flow		Headloss*		Flow		Headloss*	
	gpm	l/m	ft	m	gpm	l/m	ft	m	gpm	l/m	ft	m	gpm	l/m	ft	m	gpm	l/m	ft	m
1250	110	416	25.0	7.6	88	333	16.4	5.0	73	276	11.5	3.5	63	238	8.6	2.6	55	208	6.6	2.0
1500	131	495	34.8	10.6	105	397	22.9	7.0	87	329	16.0	4.9	75	284	12.1	3.7	65	246	9.1	2.8
1750	152	576	19.5	5.9	122	462	13.4	4.1	102	386	9.4	2.9	87	329	6.4	2.0	76	288	4.2	1.3
2000	176	666	24.9	7.6	140	530	16.6	5.1	117	443	11.8	3.6	100	379	8.5	2.6	88	333	6.2	1.9
2500	219	829	36.1	11.0	175	662	24.7	7.5	146	553	17.9	5.5	125	473	13.4	4.1	110	416	10.4	3.2
3000	259	980	65.2	19.9	207	784	40.7	12.4	173	655	28.1	8.6	148	560	20.4	6.2	129	488	15.6	4.8

*Headloss is for boiler only (no piping)

VOLUME WATER HEATER WATER FLOW REQUIREMENTS

Model	1-10 Grains Per Gallon Hardness			11-15 Grains Per Gallon Hardness		
	Flow Rate (gpm)	Headloss* (ft)	Temp Rise (°F)	Flow Rate (gpm)	Headloss* (ft)	Temp Rise (°F)
1250	85	16.1	26	104	23.6	21
1500	90	17.9	29	110	26.3	24
1750	120	12.9	25	150	19.6	20
2000	135	16.1	26	170	24.4	21
2500	140	17.2	31	170	24.4	26
3000	150	21	35	183	31.5	28

Model	*1-10 Grains Per Liter Hardness*			*11-15 Grains Per Liter Hardness*		
	Flow Rate (l/m)	*Headloss* (m)*	*Temp Rise (°C)*	*Flow Rate (l/m)*	*Headloss* (m)*	*Temp Rise (°C)*
1250	*322*	*4.9*	*14*	*394*	*7.2*	*12*
1500	*341*	*5.5*	*16*	*416*	*8.0*	*13*
1750	*454*	*3.9*	*14*	*568*	*6.0*	*11*
2000	*511*	*4.9*	*14*	*644*	*7.4*	*11*
2500	*530*	*5.2*	*17*	*644*	*7.4*	*14*
3000	*568*	*6.4*	*19*	*693*	*9.6*	*16*

*Headloss is for the heater only (no piping)
Allowable pH is 6.5 to 9.5

VOLUME WATER HEATING RECOVERY DATA

Model	Temperature Rise						
	40°F	50°F	60°F	70°F	80°F	90°F	100°F
	gph	gph	gph	gph	gph	gph	gph
1250	3293	2634	2195	1881	1646	1463	1317
1500	3920	3136	2613	2240	1960	1742	1568
1750	4568	3654	3045	2610	2284	2030	1827
2000	5268	4214	3512	3010	2634	2341	2107
2500	6578	5262	4385	3759	3289	2923	2631
3000	7767	6214	5178	4438	3884	3452	3107

Model	Temperature Rise						
	22°C	28°C	33°C	39°C	44°C	50°C	56/°C
	L/h	L/h	L/h	L/h	L/h	L/h	L/h
1250	*12463*	*9971*	*8309*	*7122*	*6232*	*5539*	*4985*
1500	*14837*	*11879*	*9891*	*8478*	*7418*	*6594*	*5935*
1750	*17290*	*13832*	*11527*	*9880*	*8645*	*7684*	*6916*
2000	*19942*	*15953*	*13294*	*11395*	*99711*	*8863*	*7977*
2500	*24899*	*19919*	*16599*	*14228*	*12449*	*11066*	*9959*
3000	*29401*	*23521*	*19601*	*16801*	*14701*	*13067*	*11761*

LLC Low Lead Content

LAARS®
Heating Systems Company

Customer Service and Product Support: 800.900.9276 • Fax 800.559.1583
Headquarters: 20 Industrial Way, Rochester, NH 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.