



**If this brochure were as efficient as the RHEOS+,  
we could fit everything we'd like to tell you into this square.**





### Introducing the LAARS Rheos+

LAARS introduces a breakthrough in condensing boiler design – the Rheos+. This innovative modulating commercial boiler/water heater/pool heater is ideal for a wide range of applications including low temperature operating environments. It's the first unit of its kind developed expressly to provide "plug and play" ease of installation and operation, combined with low maintenance and high reliability for the commercial world.

Even better, the Rheos+ delivers up to 98 percent heat transfer efficiency, allowing your customers to qualify for the largest possible energy rebates while saving money every day. All four LAARS Rheos+ models, with BTU capacities of 1200, 1600, 2000 and 2400 MBTU/h, are also affordable – especially when there are considerable energy savings.

### Advanced Technology Pays Dividends

Based on advanced materials engineering, leading-edge heat transfer technology and solid control systems technology, the LAARS Rheos+ technology advantage includes:

- Copper or cupro-nickel tubing in the primary double-row, low-mass heat exchanger for significant improvement in thermal transfer capacity over the steel, cast iron and aluminum heat exchangers in competing units, as well as significant resistance to scaling and immunity from thermal shock

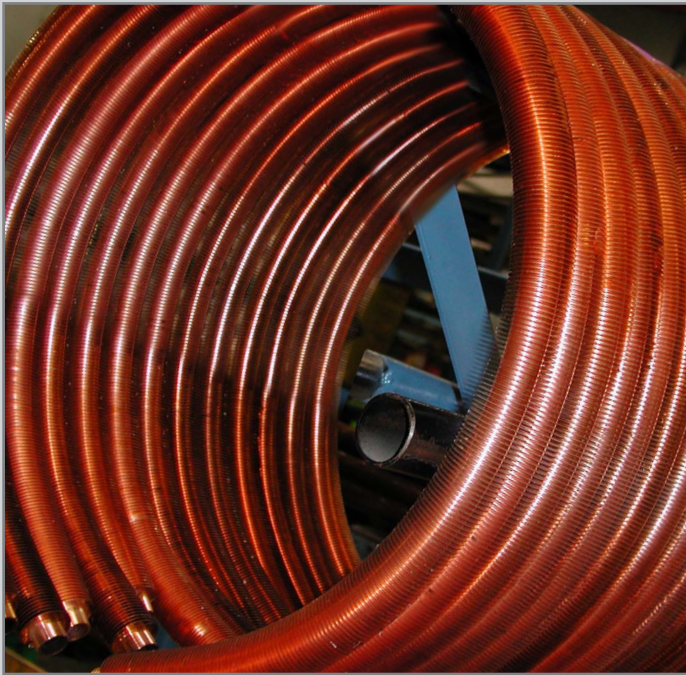


- Stainless steel tubing in the secondary heat exchanger to maximize service life in potentially corrosive condensing atmospheres
- Fins on both copper and stainless steel tubing to maximize the heat transfer area and reduce required floor space

### The LAARS Advantage

LAARS Heating Systems has a single focus – providing customers with a clear advantage in commercial water heating applications from concept to completion. Over 50 years experience in designing, installing and maintaining commercial hydronic boilers and volume water heaters come together during each project. Combining innovative design tools, superior manufacturing, well-trained experts and an unrivaled commitment to service, the LAARS advantage helps you – our partners – deliver the high efficiency, ease of installation and maintenance, and long working life that make your customers happy – and you more successful.





- Internal factory mounted and wired pump eliminates the need for additional boiler pumps in most applications, automatically controlling the flow and velocity through the internal mixing system

LAARS technology ensures that all Rheos+ water-heating installations exceed customer expectations for efficiency, reliability and performance for years to come.

### “Plug and Play” Versatility

The LAARS Rheos+ provides the features and functionality that deliver real value to customers. These include:

- Modulation of firing rate from 25 percent to full fire to match required heat load and maximize efficiency
- Self-adjusting combustion system for handling ambient conditions from sea level to 10,000 feet
- Mixing system for built-in low return water protection while maintaining proper flow rates through the heat exchangers
- Visible front control panel for easy diagnostics and access to internal electronics
- Flexible vent and piping options for ease of installation and maintenance



### Control It Your Way

All LAARS Rheos+ boilers/water heaters contain a very capable PI control system and run at full efficiency “out of the box.” They also offer one of the widest choices of control system options, including:



- Compatibility with virtually any building automation system (BAS) – simply throw a single switch on

the front panel, connect the wiring and remote control is initiated

- The LAARS MC multiple modulating boiler sequencing control (with outdoor reset and all control algorithms) for staging up to eight boilers in a unified high efficiency hot water installation

- Communications interface cards for popular control systems, including Toleron Controls, Metasys and LONWorks connectivity



## Specifications\*

Model (Size)	1200		1600		2000		2400	
Input, High Fire	1,200 MBTU/h	352 kW	1,600 MBTU/h	469 kW	2,000 MBTU/h	586 kW	2,400 MBTU/h	703 kW
Output, High Fire	1,080 MBTU/h	316 kW	1,440 MBTU/h	422 kW	1,800 MBTU/h	527 kW	2,160 MBTU/h	633 kW
Input, Low Fire	300 MBTU/h	88 kW	400 MBTU/h	117 kW	500 MBTU/h	146 kW	600 MBTU/h	176 kW
Output, Low Fire	270 MBTU/h	79 kW	360 MBTU/h	105 kW	450 MBTU/h	132 kW	540 MBTU/h	159 kW
Vent Size (Cat. IV)	6"	15 cm	6"	15 cm	7"	18 cm	10"	25 cm
Combustion Air Size	6"	15 cm	8"	20 cm	8"	20 cm	8"	20 cm
Electrical Requirements - Rheos	120V / single phase / 20A		120V / single phase / 20A		120V / single phase / 20A		120V / single phase / 20A	
Electrical Requirements - Pump	120V / 230V / single phase 40 / 20 Amps, 60Hz		120V / 230V / single phase 40 / 20 Amps, 60Hz		120V / 230V / single phase 40 / 20 Amps, 60Hz		120V / 230V / single phase 40 / 20 Amps, 60Hz	
Shipping Weight	1420 lbs.	645 kg	1465 lbs.	666 kg	1495 lbs.	678 kg	1550 lbs.	704 kg

\*Important Note: output shown is calculated using a 90% combustion efficiency. The efficiency of this unit will increase with lower return water temperature and/or lower modulation point, which will increase the output of the Rheos+.

## Standard Equipment

- Water flow switch
- Low water cutoff with test light and manual reset button
- Manual reset high limit
- High gas pressure switch
- Low gas pressure switch
- Air pressure switch
- Low-fire start time delay
- Modulation capabilities down to 25% of full fire
- ASME CSD-1
- Leak test valve
- Manual firing valve
- ASME 160 lb. w.p. heat exchanger
- Less than 10 ppm NOx
- Pump mounted
- Pump time delay (adjustable 0.1 - 10 min.)
- 75 psi pressure relief valve (RHHH+)
- 125 psi pressure relief valve (RHHV+)
- Temperature and pressure gauge
- Indicator/status lights for: Power On, Call for Heat; Pre-Purge; Burner On; Ignition Failure
- Selector switch for internal or external (0-10VDC) control
- 100% lockout ignition control
- Copper primary heat exchanger
- Stainless steel secondary heat exchanger
- Internal water mixing system to allow minimum 70°F water inlet

## Clearances

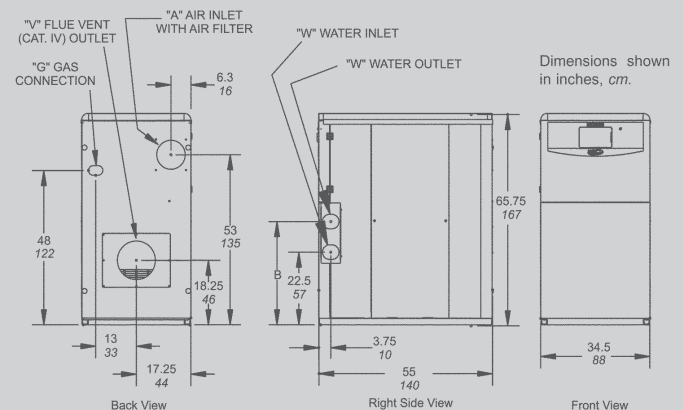
Appliance Surface	Clearance From Combustible Material		Service Access Clearance	
Piping Side	1"	2.5 cm	18"	46 cm
Opposite Side	1"	2.5 cm	1"	2.5 cm
Top	1"	2.5 cm	24"	61 cm
Back	1"	2.5 cm	36"	91 cm
Front	1"	2.5 cm	36"	91 cm
Vent	Per UL1738 venting system supplier's instructions*			

## Optional Equipment

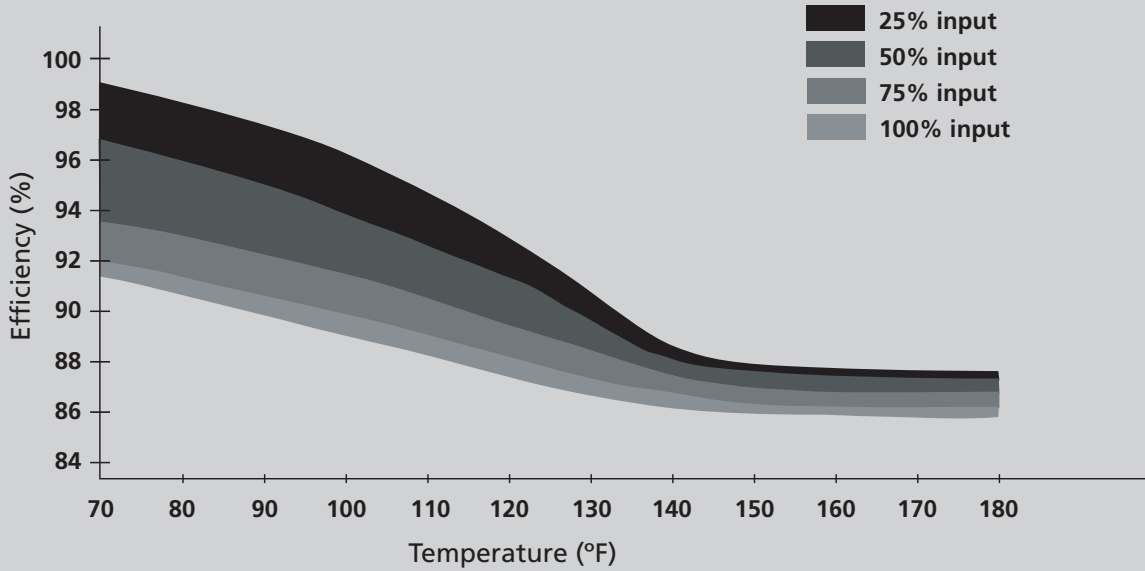
- Factory-installed LON or N2 (Metasys) card for communicating inlet water temperature, outlet water temperature, mixing system temperature, extra temperature (user-chosen), low mixing system temperature alarm, burner on/off status
  - Cupro-nickel primary heat exchanger
  - Hard water pump (water heaters only)
  - Normally open vent valve\*
  - Alarm bell\*
  - Additional motorized safety valve with proof of closure\*
  - Additional solenoid safety valve\*
  - 200°F max. temperature controls\*
  - Ignition module with three attempts (non-CSD-1)\*
- \*Included as part of option kit

## Dimensions

Model	"V" Vent Outlet Connection		"A" Air Inlet Connection		"W" Inlet / Outlet Water Connection NPT	"G" Gas Connections Control Packages			"B" Dimensions	
	inches	cm	inches	cm		Std & A Nat / LP NPT	B & E Nat NPT	B & E LP NPT	inches	cm
1200	6	15	6	15	2-1/2"	1"	1-1/2"	1-1/2"	34-1/4"	87
1600	6	15	8	20	2-1/2"	1-1/2"	2"	2"	34-1/4"	87
2000	7	18	8	20	3"	1-1/2"	2"	2"	34-1/4"	87
2400	10	25	8	20	3"	1-1/2"	2"	2"	32"	81



### Efficiency Curve



### Water Flow Data\*

RHHH (Boiler)						
TEMPERATURE RISE IN DEGREES						
	20°F	11°C	25°F	14°C	30°F	17°C
Model Size	Flow gpm	Flow lpm	Flow gpm	Flow lpm	Flow gpm	Flow lpm
1200	108	409	86	327	72	273
1600	144	545	115	436	96	363
2000	180	681	144	545	120	454
2400	216	818	173	654	144	545

Model Size	RHHV (Water Heater)											
	HARD WATER				NORMAL WATER				SOFT WATER			
	Flow gpm	Temp Rise °F	Flow lpm	Temp Rise °C	Flow gpm	Temp Rise °F	Flow lpm	Temp Rise °C	Flow gpm	Temp Rise °F	Flow lpm	Temp Rise °C
1200	108	20	409	11	86	25	327	14	72	30	273	17
1600	169	17	641	9	137	21	519	12	93	31	352	17
2000	189	19	717	11	157	23	593	13	103	35	389	19
2400	216	20	818	11	173	25	654	14	144	30	545	17

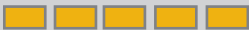
NOTE: Soft water: 1 to 7.5 grains per gallon. Normal water: 7.6 to 17 grains per gallon. Hard water: More than 17 grains per gallon.

\*Important Note: water flow shown is calculated using a 90% combustion efficiency. The efficiency of this unit will increase with lower return water temperature and/or lower modulation point, which will lead to varying temperature rise.

### Minimum Recovery Table\*

Model Size	GPH L/h Delivered																	
	REQUIRED WATER TEMPERATURE RISE °F / °C																	
	40°F 22°C	50°F 28°C	60°F 33°C	70°F 39°C	80°F 44°C	90°F 50°C	100°F 56°C	120°F 67°C	140°F 78°C	GPH	L/h	GPH	L/h	GPH	L/h			
1200	3241	12252	2593	9802	2161	8168	1852	7001	1621	6126	1441	5445	1297	4901	1080	4084	926	3501
1600	4322	16336	3457	13069	2881	10891	2470	9335	2161	8168	1921	7261	1729	6534	1441	5445	1235	4667
2000	5402	20420	4322	16336	3601	13613	3087	11669	2701	10210	2401	9076	2161	8168	1801	6807	1543	5834
2400	6483	24504	5186	19603	4322	16336	3704	14002	3241	12252	2881	10891	2593	9802	2161	8168	1852	7001

\*Important Note: recovery shown is calculated using a 90% combustion efficiency. The efficiency of this unit will increase with lower return water temperature and/or lower modulation point, which will lead to higher recovery.



## Service and Support You Can Count On

As with all LAARS products, Rheos+ condensing boilers are backed by the LAARS Applications Engineering department. With decades of heating systems experience, these talented professionals assist business partners in all phases of hydronic hot water system engineering and model selection. Whether it involves difficult boiler site requirements or just optimizing the Rheos+ for highest efficiency, LAARS applications engineers can help – on-site or by phone during regular business hours, and over the Internet.

Similarly, a dedicated factory-trained field service team is ready to support LAARS Rheos+ customers on-site throughout North America – both during and after installation. Facility managers and contractors who use LAARS products can select from a range of support programs to meet needs within budgets. More than a dozen regularly scheduled classes are held each year in California, New Hampshire and Canada, and special sessions can be arranged anywhere in North America for volume partners.

### Rheos+ Features:

- The largest condensing boiler built in the U.S.
- 1.2, 1.6, 2.0 and 2.4 million BTU/hour heating capacities
- Efficiency up to 98 percent
- Internal water mixing system to allow minimum 70°F inlet temperatures
- Seamless modulation down to 25 percent of input
- Built-in BAS interface
- NOx emissions less than 10 ppm

6000 Condor Drive

Moorpark, CA 93021

Phone - 805.529.2000

Fax - 805.529.5934

[www.laars.com](http://www.laars.com)



### Waterpik Technologies

20 Industrial Way

Rochester, NH 03867

Phone - 603.335.6300

Fax - 603.335.3355

480 South Service Road West

Oakville, Ontario, Canada L6K 2H4

Phone - 905.844.8233

Fax - 905.844.2635