PENNANT

Commercial Pool Heaters

85% Efficient

High Performance

Heaters from

500–1999 MBTU

LAARS® Heating Systems Company

A subsidiary of BRADFORD WHITE® Corporation

85% EFFICIENT COMMERCIAL POOL HEATERS FROM 500–1999 MBTU FOR OLYMPIC SWIMMING POOL AND THEME PARK APPLICATIONS

The Pennant line of high-performance pool heating boilers from LAARS delivers efficiency levels of 85% or more. NOx emissions are among the lowest in the industry at 10 ppm.

Pennant with Low Temp mixing system

Pennant Pool Heaters Include Advanced Features

Pennant commercial pool heaters from LAARS Heating Systems are backed by over 70 years of manufacturing commercial pool heaters and offer many advanced features specific to the commercial swimming pool and water theme park market.

Every Pennant pool heater now comes standard with a built-in automatic mixing system to make sure low return water temperatures won't cause problematic condensation in the heat exchanger. The LAARS mixing system includes an automatic three-way valve, fast-acting electronic actuator, factory mounted and wired pump, and a simple operating control that monitors all the important functions of the system. This means that the Pennant can handle return water temperatures as low as 60 degrees without the problem of condensation. And, every Pennant pool heater comes standard with a "Backwash Switch" that allows maintenance staff to safely prepare the Pennant for a filter backwash by allowing the pump time-delay to complete its cycle before shutting down the heater - avoiding the problem of nuisance high-limit shut-downs.

Whether you want to Automatic Mixing System. 85% Efficient Commercial Pool Heaters from 500–1999 MBTU for Olympic Swimming Pool and Theme Park Applications The Pennant line of high-performance pool heating boilers from LAARS delivers efficiency levels of 85% or more. NOx emissions are among the lowest in the industry at 10 ppm. use room air for combustion or take air from outside; vent into a chimney, or through a side-wall; install the heater indoors or outside, the Pennant is ready "out of the box" to meet your needs.

Pennants Fit a Wide Range of Application Requirements

The Pennant is uniquely designed to make pool heating easy and reliable because LAARS does all of the set-up for you. The Pennant automatic by-pass system is factory pre-set and no field adjustments are required. The same is true for the combustion system. Whether you are installing a Pennant at sea level or at 10,000' elevation, it is complete as it arrives from the factory. No orifice changes or component changes are necessary for high altitude installations.

Installation and Service

Installation and service are also very easy with a Pennant. Fan-assisted and filtered combustion air, reversible vent and intake air terminals, a separate field wiring terminal panel, front panel diagnostics, optional rack-mounting, and reversible gas and water connections allow Pennants to be installed almost anywhere with minimal effort. And, with a quick-access panel for igniter replacement, combustion chamber sight glasses on both right and left sides, and dual ignition systems for all models over 750,000 BTU, the Pennant pool heater takes service access to a new high standard. Where water conditions warrant extra protection, cupronickel tubing in the heat exchanger is an option.

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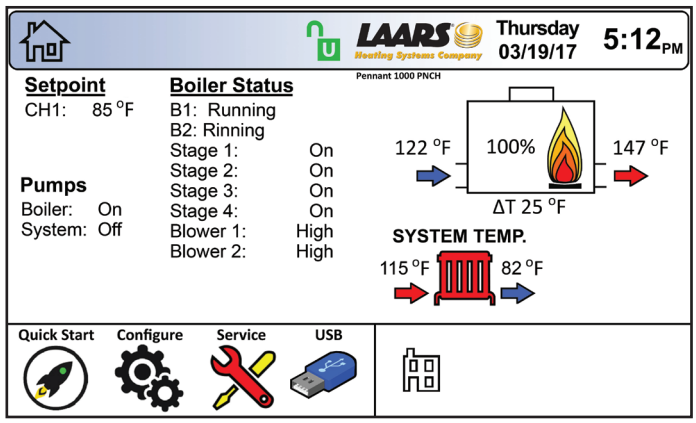
LAARS LINC TOUCH SCREEN CONTROLS

Laars Linc controls are a step beyond smart, they're intuitive.

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.

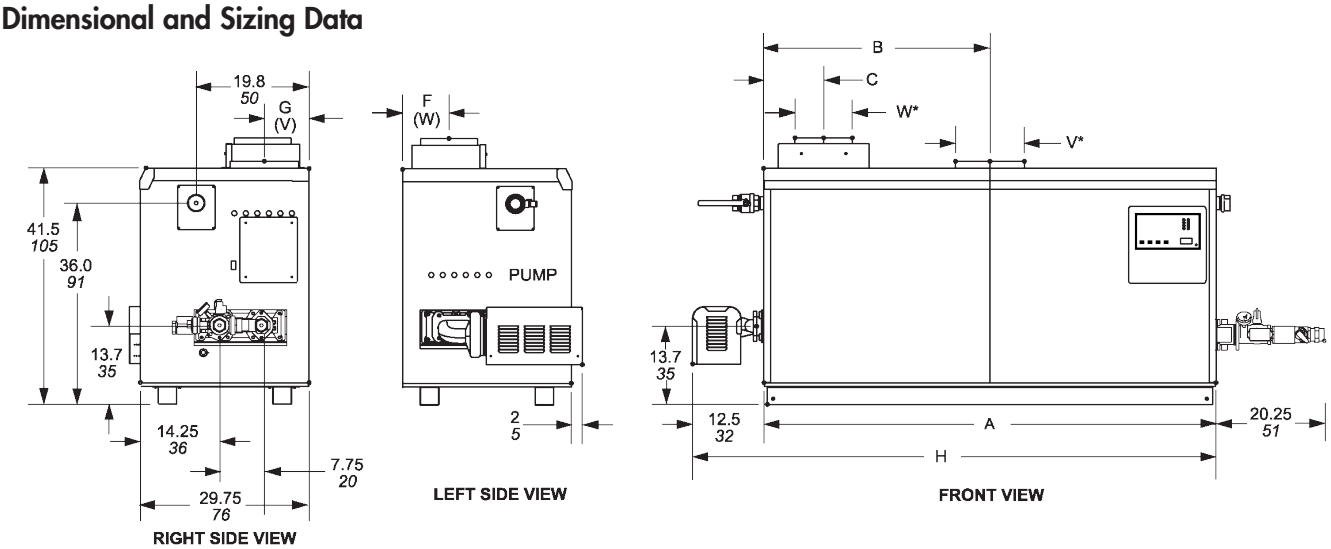
Advanced ease of use functionality includes a home screen summary of operational status, quick start easy configuration, intelligent redundancy and auto cascade configuration for multiple pool heater installations, control to display auto re-configuration when either the display or control is replaced, USB data connection, and much more!

All of these features are easily accessible at your fingertip!



Laars Linc Home Screen

Dimensional and Sizing Data



Dimensional Data

Size	A	B	C	D	E	F	G	H	Air Conn. W*	Vent Conn. V*	Horiz. Vent Pipe
500	33½ 85	15¾ 40	5¾ 15	29¾ 76	32¾ 83	7¾ 20	8¾ 22	46 117	6 15	8 20	6 15
750	45½ 116	21¾ 55	5¾ 15	29¾ 76	32¾ 83	7¾ 20	8¾ 22	58 147	8 20	10 25	8 20
1000	57½ 146	28¾ 73	5¾ 15	29¾ 76	32¾ 83	7¾ 20	7 18	70 178	8 20	10 25	8 20
1250	68 172	34 86	10¼ 26	30¾ 78	29½ 75	8¾ 22	8¾ 22	80 203	12 30	12 30	10 25
1500	78½ 199	39¾ 101	10¼ 26	30¾ 78	29½ 75	8¾ 22	8¾ 22	91 231	12 30	12 30	10 25
1750	89 226	44½ 113	10¼ 26	30¾ 78	29½ 75	8¾ 22	8¾ 22	101 256	12 30	14 36	12 30
2000	99½ 253	49¾ 126	10¼ 26	30¾ 78	29½ 75	8¾ 22	8¾ 22	112 284	12 30	14 36	12 30

**Air and vent connections may be on top or back of the Pennant, and are field convertible.*

SIZING CHART AND CLEARANCES DATA

For Indoor Pools

The selection charts below will assist in choosing the correct size Pennant for an indoor pool. First, calculate the surface area of the pool in square feet. Second, refer to the selection chart. Third, find the closest square footage in the 10°F (6°C) Temperature Difference column, and the heater model which corresponds to it. For normal conditions, Laars recommends using the 10°F (6°C) Temperature Difference columns; this will provide a temperature increase of approximately 6°F (3°C) per 24 hour period.

For Outdoor Pools

The selection charts below will assist in choosing the correct size Pennant for an outdoor pool. First, determine the difference between the desired pool temperature and the average air temperature during the coldest month in which the pool will be used (referred to in the chart below as "Temperature Difference"). Second, calculate the surface area of the pool. Third, refer to the selection chart. Listed are the maximum pool surface areas for each heater model with typical temperature differences. Make the appropriate selection from the chart.

	Temperature								
	10°F 6°C	15°F 8°C	20°F 11°C	25°F 14°C	30°F 17°C	35°F 19°C	40°F 22°C	45°F 25°C	50°F 28°C
PNCP	Surface Area of Pool								
Model	sq. ft. sq. m	sq. ft. sq. m	sq. ft. sq. m	sq. ft. sq. m	sq. ft. sq. m	sq. ft. sq. m	sq. ft. sq. m	sq. ft. sq. m	sq. ft. sq. m
500	4090 370	2720 250	2040 180	1630 150	1360 120	1170 100	1020 90	910 80	810 70
750	6130 560	4090 370	3060 280	2450 220	2040 180	1750 160	1530 140	1360 120	1220 110
1000	8180 750	5450 500	4090 370	3270 300	2720 250	2340 210	2040 180	1820 160	1630 150
1250	10230 950	6820 630	5110 470	4090 370	3410 310	2920 270	2550 230	2280 210	2040 180
1500	12270 1130	8180 750	6130 560	4910 450	4090 370	3510 320	3060 280	2730 250	2450 220
1750	14320 1330	9540 880	7160 660	5720 530	4770 440	4090 370	3580 330	3190 290	2860 260
2000	16370 1520	10910 1010	8180 750	6540 600	5450 500	4680 430	4090 370	3650 330	3270 300

Clearances

Appliance Surface	Clearance from Combustible Material	Service Access Clearance
Right Side	1″ 2.5 cm	24″ 61 cm
Left Side	1″ 2.5 cm	24″ 61 cm
Front	1″ 2.5 cm	36″ 91cm

Appliance Surface	Clearance from Combustible Material	Service Access Clearance
Top	1″ 2.5 cm	12″ 30 cm
Back*	1″ 2.5 cm	12″ 30 cm
Vent	Per venting system supplier's instructions	

*When vent and/or air is connected to the back, 36″ (91 cm) is suggested.

Sizing Data

Indoor Model	Input[1] BTU/H x1000	Output[1] BTU/H x1000	Gas Conn. Size inches[2]	Heater Water Conn. Size inches[2]	Mixing System Water Conn. Size inches[2]	Shipping Weight lbs	Shipping Weight kg
500	500	425	1¼	2	2	775	352
750	750	638	1¼	2	2	870	395
1000	999	849	1½	2½	2	1035	469
1250	1250	1063	2	2½	2	1130	513
1500	1500	1275	2	2½	2	1285	583
1750	1750	1488	2	2½	2	1380	626
2000	1999	1699	2	2½	2	1510	685

NOTE: 1. Input and output must be derated 2% per 1000 feet above sea level when installed above 2000 feet altitude.

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