

PENNANT

Commercial Pool Heaters

85% Efficient

High Performance

Heaters from

500-1999 MBTU



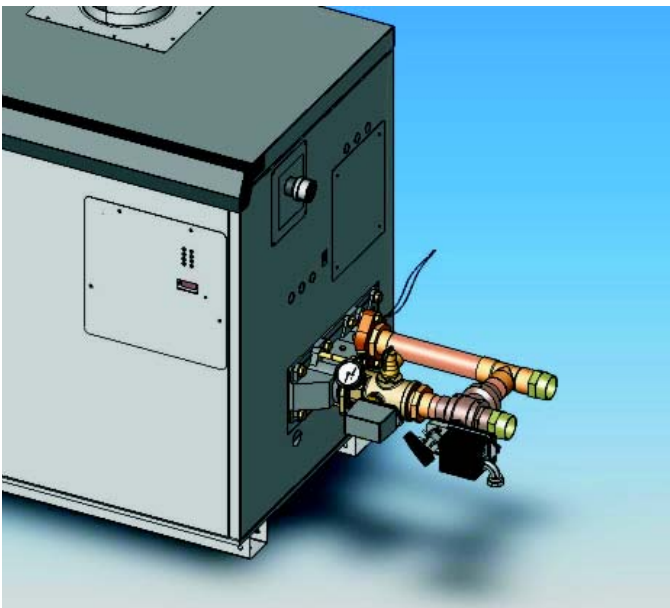
LAARS[®] 
Heating Systems Company
A subsidiary of **BRADFORD WHITE**[®] Corporation

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.



Automatic Mixing System.



Low Return Water Temperature Protection.

Pennant Pool Heaters Include Advanced Features

Pennant commercial pool heaters from LAARS Heating Systems are backed by over 50 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 now 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

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.

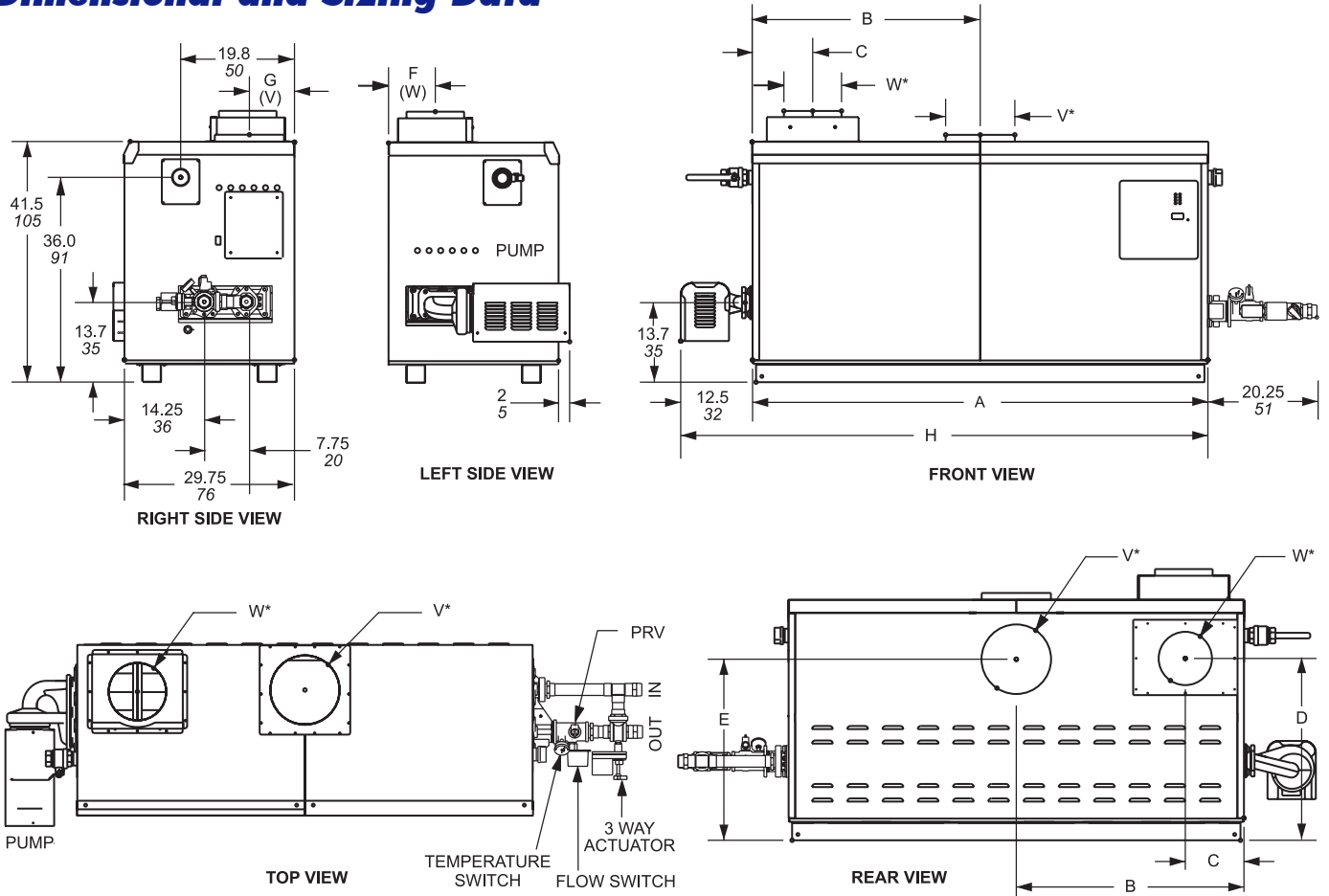
Pennants Fit a Wide Range of Application Requirements

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 bypass 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.

Dimensional and Sizing Data



Dimensional Data

Dimensions shown in inches, cm.

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	6	15	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	8	20	12	30	8	20
1500	78½	199	39¾	101	10¼	26	30¾	78	29½	75	8¾	22	8¾	22	91	231	8	20	12	30	8	20
1750	89	226	44½	113	10¼	26	30¾	78	29½	75	8¾	22	8¾	22	101	256	8	20	14	36	8	20
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 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 kg
500	500	425	1¼	2	2	495 225
750	750	638	1¼	2	2	575 261
1000	999	849	1½	2½	2	685 311
1250	1250	1063	2	2½	2	730 331
1500	1500	1275	2	2½	2	830 377
1750	1750	1488	2	2½	2	880 400
2000	1999	1699	2	2½	2	1025 465

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

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 Difference																		
		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	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	Appliance Surface	Clearance from Combustible Material	Service Access Clearance
Right Side	1" 2.5 cm	24" 61 cm	Top	1" 2.5 cm	12" 30 cm
Left Side	1" 2.5 cm	24" 61 cm	Back*	1" 2.5 cm	12" 30 cm
Front	1" 2.5 cm	36" 91 cm	Vent	Per venting system supplier's instructions	

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