PENNANT

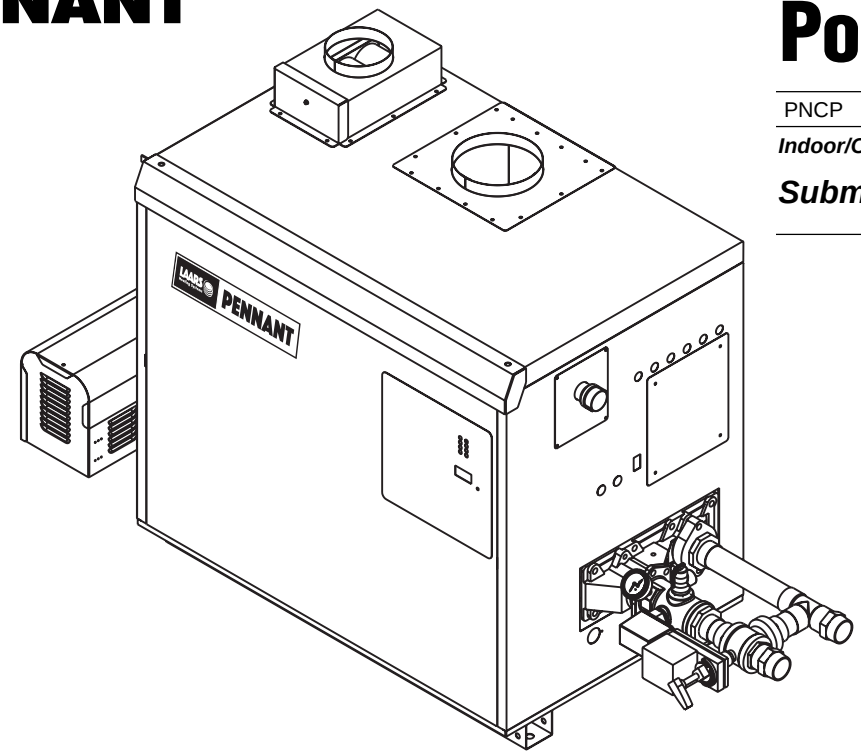
Pump-Mounted Pool Heater

PNCP	Pump Mounted Pool Heater

Indoor/Outdoor Sizes 500-2000

Submittal Data

LAARS Heating Systems



Standard Equipment

- ASME 160 psi working pressure heat exchanger
- ASME “H” stamp
- Flanged water connections
- Glass-lined cast iron headers
- External header gaskets
- 75 psi (817 kPa) ASME rated pressure relief valve
- Flow switch
- Temperature and pressure gauge
- Pump mounted and wired
- Mixing system for low temperature protection
- Multiple operating gas valve/ pressure regulators
- Manual “A” gas valve
- Intake air filter
- Multiple, removable burner trays
- Stainless steel burners
- Built-in draft fan(s) for Category I or III venting
- Air pressure switch
- Burner site glass
- 24V control system
- 115/24VAC transformer
- Manual reset high limit
- Automatic reset high limit
- Electronic PID temperature control with LCD and touchpad
- PC board for electrical connections
- Hot surface ignition
- On/Off toggle switch
- Pump time delay
- Diagnostic lights
- Less than 10ppm NOx

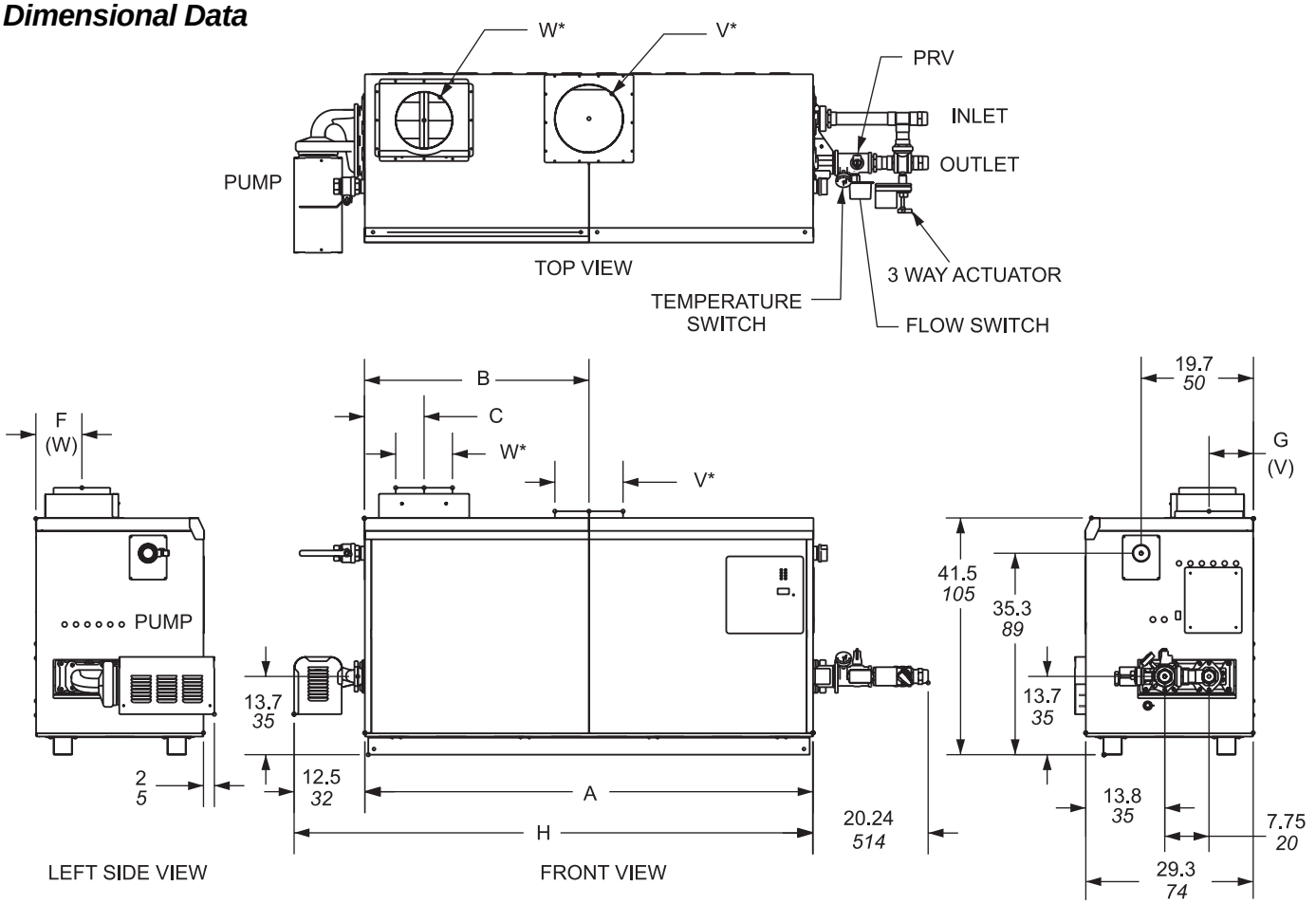
Sizing Data

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 4% per 1000 feet above sea level when installed above 2000 feet altitude.

2. Dimensions are nominal.

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*	6	*15*	6	*15*
750	45½	*116*	21¾	*55*	5¾	*15*	29¾	*76*	32¾	*83*	7¾	*20*	8¾	*22*	58	*147*	6	*15*	8	*20*	6	*15*
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*	10 1/8	*26*	30¾	*78*	29½	*75*	8¾	*22*	8¾	*22*	80	*203*	8	*20*	12	*30*	8	*20*
1500	78½	*199*	39¾	*101*	10 1/8	*26*	30¾	*78*	29½	*75*	8¾	*22*	8¾	*22*	91	*231*	8	*20*	12	*30*	8	*20*
1750	89	*226*	44½	*113*	10 1/8	*26*	30¾	*78*	29½	*75*	8¾	*22*	8¾	*22*	101	*256*	8	*20*	14	*36*	8	*20*
2000	99½	*253*	49¾	*126*	10 1/8	*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.

Dimensions in inches *cm*.

Clearances

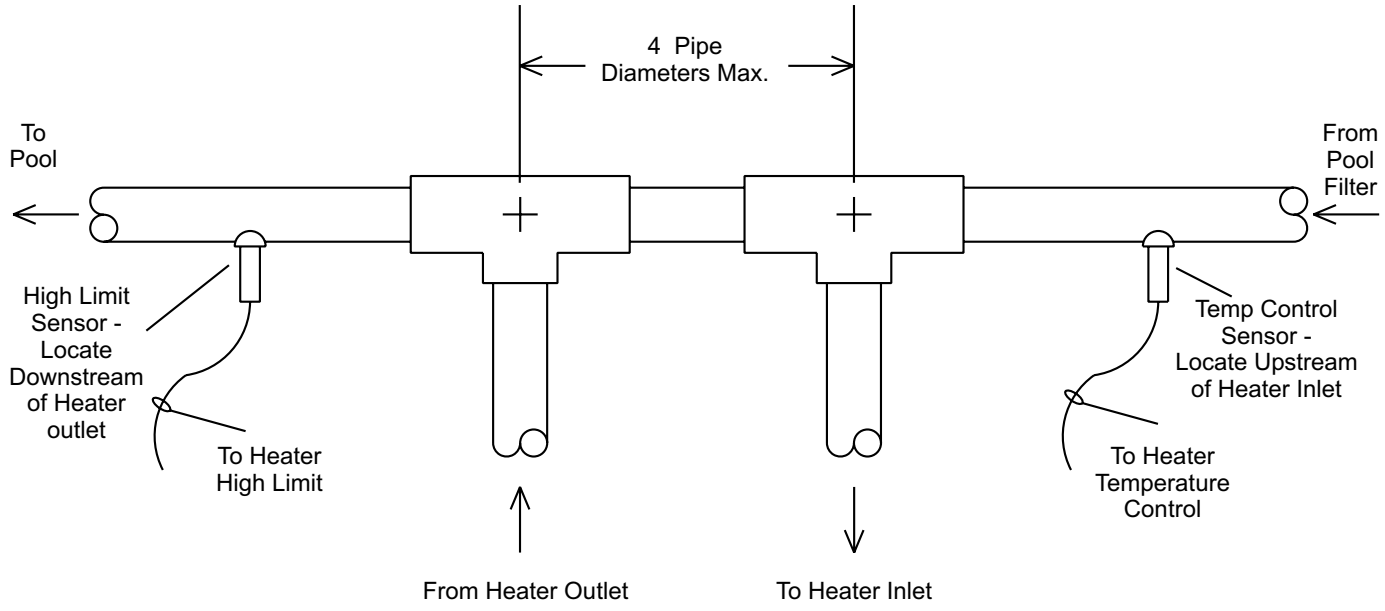
Appliance Surface	Required Clearance From Combustible Material		Suggested Service Access Clearances	
Left Side	1	*2.5*	24	*61*
Right Side	1	*2.5*	24	*61*
Top	1	*2.5*	12	*30*
Back*	1	*2.5*	12	*30*
Front	1	*2.5*	36	*91*
Vent	Per venting system supplier's instructions			

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

Dimensions in inches *cm*

Piping and Sensor Location

The Pennant Pool Heater is shipped with a field-installed mixing system, and must be piped in primary-secondary style, as shown. A remote pool temperature sensor and remote pool temperature high limit are wired to the Pennant, to be mounted in the pool water loop, as shown.



Heater Sizing Chart

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																
PNCH	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*
Model	Surface Area of Pool																	
	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*

LAARS Heating Systems

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