

MIGHTY THERM[®] AP

Gas-fired Commercial
Pool Heating Boiler



**POWERFUL | EFFICIENT
RELIABLE | ECONOMICAL**

LAARS[®] 
Heating Systems Company

MIGHTY THERM® AP

HIGH PERFORMANCE POOL HEATERS

Since our beginning as Laars Engineering in 1948, Laars has embodied innovation and advancement in heating technology. We have built upon our technology over the past seventy plus years to ensure Laars products meet the demands of today's discerning customer. Laars stands behind each of its products with stringent quality standards which require each unit to be live-fired before it's packaged, and a service and support team that places the customer and their needs first – every time.



Laars Mighty Therm® AP pool heaters are backed by over 75 years of commercial pool heater manufacturing experience. The Mighty Therm AP compact and energy-efficient pool heater is designed for commercial, institutional, and large residential pools where economical performance and rapid-up are needed.



Built for Efficiency & Accuracy

- Integral pump ensures proper water flow (Models 500 - 1825)
- High temperature refractory firebox liner - to 2000°F for greater efficiency
- Electronic temperature control for accuracy (Models 500 - 1825)
- Integral lined copper tube heat exchanger for higher efficiency



Flexible Configurations

- Natural or propane
- Glass-lined or bronze headers for corrosion resistance
- Indoor models in sizes from 500 to 5000 MBH
- Outdoor models in sizes from 500 to 4500 MBH



Design Advantages

- Primary / Secondary Pump & Control (Models 500 - 1825)
- Flow switch standard on all models
- Stainless steel burners for extended life
- Galvanized steel jacket with acrylic finish for strength and long life
- Electronic ignition
- Automatic gas shut-off



Easy Installation & Service

- Slide-out burner tray for easy maintenance (Models 500 - 1825)
- Electronic flame supervision
- Integral header flanges for easier serviceability
- Built-in draft diverter (indoor models) to simplify installation



Control System

- Automatic temperature control
- Temperature limit
- Gas pressure regulator
- Redundant electric gas valve
- Manual gas shut-off

SIZING CHART

For Indoor Pool

The selection charts below will assist in choosing the correct size Pennant for an indoor pool.

1. Calculate the pool's surface area in square feet or meters
2. Find the closest surface area of the pool using the 10°F (6°C) Temperature Difference column.
3. Identify the heater model needed from the PNCP model column.

For normal conditions, Laars recommends using the 10°F (6°C) Temperature Difference column which provides 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.

1. Determine the difference between the desired pool temperature and the average air temperature during the coldest month in the which the pool will be used.
2. Calculate the surface area of the pool in square feet or meters.
3. Using the column which provides the closest Temperature Difference and then finding the closest Surface Area of the Pool in that column, identify the recommended Mighty Therm AP model.

INDOOR MODEL I • 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
SURFACE AREA OF POOL (SQ. FT.)																		
500 I	3900	362	2600	242	1950	181	1560	145	1300	121	1115	104	975	91	870	81	780	72
600 I	4680	435	3120	290	2340	217	1870	174	1560	145	1340	124	1170	109	1040	97	935	87
715 I	5580	518	3720	346	2790	259	2230	207	1860	173	1595	148	1395	130	1240	115	1115	104
850 I	6630	616	4420	411	3315	308	2650	246	2210	205	1895	176	1660	154	1475	137	1325	123
1010 I	7880	732	5250	488	3940	366	3150	293	2625	244	2259	210	1970	183	1750	163	1575	146
1200 I	9360	870	6240	580	4680	435	3745	348	3120	290	2675	249	2340	217	2080	193	1870	174
1430 I	11155	1036	7435	691	5580	518	4460	414	3720	346	3190	296	2790	259	2480	230	2230	207
1670 I	13025	1210	8685	807	6515	605	5210	484	4340	403	3720	346	3260	303	2895	269	2605	242
1825 I	14235	1322	9490	882	7120	661	5695	528	4745	441	4070	378	3560	331	3165	294	2850	265
2000 I	16400	1524	10935	1016	8200	819	6560	609	5465	508	4685	435	4100	381	3645	339	3280	305
2450 I	20090	1866	13395	1244	10045	933	8035	746	6695	622	5740	533	5025	467	4465	415	4020	373
3050 I	25010	2323	16675	1549	12505	1162	10000	929	8335	744	7145	664	6255	581	5560	517	5000	465
3500 I	28700	2666	19135	1778	14350	1333	11480	1066	9565	889	8200	764	7175	667	6380	593	5740	533
4050 I	33210	3085	22140	2057	16605	1543	13285	1234	11070	1028	9490	882	8300	771	7380	686	6640	617
4500 I	36900	3428	24600	2285	18450	1714	14760	1371	12300	1143	10545	980	9225	857	8200	762	7380	686
5000 I	41000	3809	27335	2539	20500	1904	16400	1524	13665	1269	11715	1088	10250	952	9110	846	8200	762

OUTDOOR MODEL E • 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
SURFACE AREA OF POOL (SQ. FT.)																		
500 E	4000	372	2665	248	2000	186	1600	149	1330	124	1140	106	1000	93	885	82	800	74
600 E	4800	446	3200	297	2400	223	1920	178	1600	149	1370	127	1200	111	1065	99	960	89
715 E	5720	531	3810	354	2860	266	2285	212	1905	177	1630	151	1430	133	1270	118	1140	106
850 E	6800	632	4530	421	3400	316	2720	253	2265	210	1940	180	1700	158	1510	140	1360	126
1010 E	8080	751	5385	500	4040	375	3230	300	2690	250	2305	214	2020	188	1795	167	1615	150
1200 E	9600	892	6400	595	4800	446	3840	357	3200	297	2740	255	2400	223	2130	198	1920	178
1430 E	11440	1063	7625	708	5720	531	4575	425	3810	354	3265	303	2860	266	2540	236	2285	212
1670 E	13360	1241	8905	827	6680	621	5344	496	4450	413	3815	354	3340	310	2965	275	2670	248
1825 E	14600	1356	9730	904	7300	678	5840	543	4865	452	4170	387	3650	339	3240	301	2920	271
2200 E	17861	1659	11907	1106	8930	830	7144	664	5954	553	5103	474	4465	415	3969	369	3572	332
2800 E	22235	2066	14823	1377	11117	1033	8894	826	7412	689	6353	590	5559	516	4941	459	4447	413
3200 E	25515	2370	17010	1580	12758	1185	10206	948	8505	790	7290	677	6379	593	5670	527	5103	474
3600 E	29525	2743	19683	1829	14762	1371	11810	1097	9842	914	8436	784	7381	686	6561	610	5905	549
4000 E	32805	3048	21870	2032	16403	1524	13122	1219	10935	1016	9373	871	8201	762	7290	677	6561	610
4500 E	36450	3386	24300	2257	18225	1693	14580	1354	12150	1129	10414	967	9113	847	8100	752	7290	677

Notes: 1. For high altitude pools, reduce the surface area figures shown in the charts by 4% for each 1000 ft. above sea level. (No derating is necessary up to 2000 ft. above sea level.)
 2. Laars maintains a policy of continuous improvements and therefore reserves the right to change specifications without notice. 3. Sizing for outdoor pools is based on 3½ mph average wind.

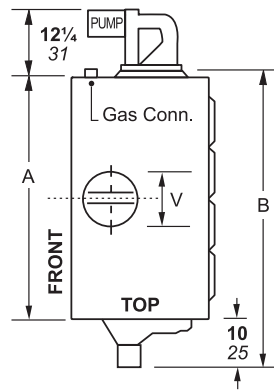
DIMENSIONAL DATA

INDOOR MODELS (I)

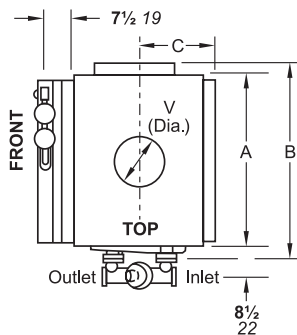
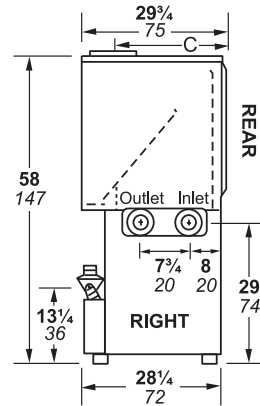
INDOOR SIZE	INPUT ¹		OUTPUT ¹		GAS CONN. ² SIZE inches NPT		WATER CONN. ² SIZE inches NPT	DIMENSIONS ² inches cm								SHIPPING WEIGHT ¹	
	MBTU/h	kW	MBTU/h	kW	Natural ³	LP ³		A		B		C		V		lbs.	kgs
500 I	500	147	405	119	1	¾	2½	33¾	86	45¼	115	23¾	60	10	25	808	367
600 I	600	176	486	143	1	¾	2½	38¾	98	50¼	128	22¾	58	12	30	819	372
715 I	715	210	579	170	1	¾	2½	44¼	112	55¾	142	22¾	58	12	30	873	396
850 I	850	249	689	202	1	¾	2½	50¾	129	62¼	158	21¾	55	14	36	945	429
1010 I	1010	296	818	240	1¼	1	2½	58	147	69½	177	20¾	53	16	41	1041	473
1200 I	1200	352	972	285	1¼	1	2½	66¼	168	77¾	197	20¾	53	16	41	1199	544
1450 I	1430	419	1158	339	1¼	1¼	2½	76	193	87½	222	19¾	50	18	46	1280	581
1670 I	1670	489	1353	396	1½	1¼	2½	85½	217	97	246	19¾	50	18	46	1445	656
1825 I	1825	535	1478	433	1½	1¼	2½	92½	235	103¾	264	19¾	50	18	46	1570	713
2000 I	2000	586	1639	490	1½	1¼	4	55½	141	73	185	24½	62	22	56	1950	885
2450 I	2450	718	2009	589	1½	1½	4	65½	166	83	211	24½	62	24	61	2100	913
3050 I	3050	894	2501	733	2	1½	4	78	198	95½	243	24½	62	26	66	2250	1022
3500 I	3500	1025	2870	841	2	1½	4	88	224	105½	268	24½	62	28	71	2510	1140
4050 I	4050	1186	3321	973	2	2	4	100½	255	118	300	24½	62	30	76	2750	1249
4500 I	4500	1318	3690	1061	2½	2	4	110½	281	128	325	24½	62	32	81	2900	1317
5000 I	5000	1465	4100	1201	2½	2	4	123	312	140½	357	24½	62	34	86	3200	1453

NOTE: 1. Input and output must be derated 4% per 1000 feet above sea level when installed above 2000 feet altitude.

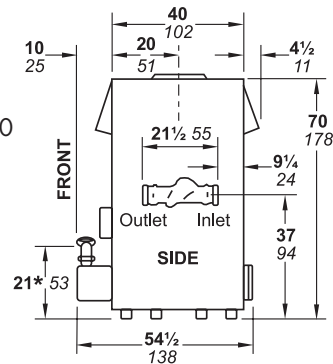
2. Dimensions are nominal. 3. Integral pump included on sizes 500 -1825.



INDOOR
Sizes 500 - 1825



INDOOR
Sizes 2000 - 5000



DIMENSIONAL DATA

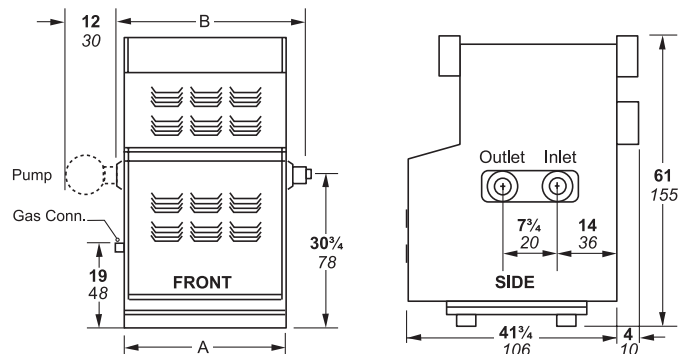
OUTDOOR MODELS (E)

OUTDOOR SIZE	INPUT ¹		OUTPUT ¹		GAS CONN. ² SIZE		WATER CONN. ² SIZE	DIMENSIONS ² inches cm									
	MBTU/h	kW	MBTU/h	kW	inches NPT	inches NPT		A	B	C	D	E	F	V			
500 E	500	147	410	120	1	¾	2½	33¾ 86	45¼ 115	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
600 E	600	176	492	144	1	¾	2½	38¾ 98	50¼ 128	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
715 E	715	210	586	172	1	¾	2½	44¼ 112	55¼ 142	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
850 E	850	249	697	204	1	¾	2½	50¾ 129	26¼ 158	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
1010 E	1010	296	828	243	1¼	1	2½	58 147	69½ 177	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
1200 E	1200	352	984	288	1¼	1	2½	66¼ 168	77¼ 197	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
1450 E	1430	419	1173	344	1¼	1¼	2½	76 193	87½ 222	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
1670 E	1670	489	1370	401	1½	1¼	2½	85½ 217	97 246	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
1825 E	1825	535	1497	439	1½	1¼	2½	92½ 235	103¾ 264	-- --	-- --	-- --	-- --	-- --	-- --	-- --	-- --
2200 E	2205	646	1786	523	1½	1¼	4	65½ 166	83 211	16 41	28¼ 72	15 38	24 61	18 46			
2800 E	2745	804	2223	651	1½	1¼	4	78 198	95½ 243	20 51	28¼ 72	15 38	24 61	18 46			
3200 E	3150	923	2552	748	2	1¼	4	88 224	105½ 268	23 58	31½ 80	16½ 42	36 91	20 51			
3600 E	3645	1068	2952	865	2	2	4	100½ 255	118 300	29 74	31½ 80	16½ 42	36 91	20 51			
4000 E	4050	1187	3281	961	2½	2	4	110½ 281	128 325	30½ 77	34½ 88	18 46	36 91	22 56			
4500 E	4500	1319	3645	1068	2½	2	4	123 312	140½ 357	34 86	37¾ 96	19½ 50	36 91	24 61			

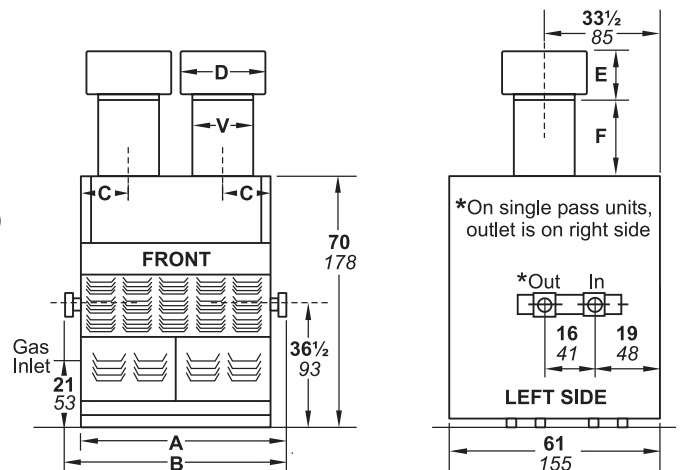
NOTE: 1. Input and output must be derated 4% per 1000 feet above sea level when installed above 2000 feet altitude.
2. Dimensions are nominal. 3. Integral pump included on sizes 500 - 1825.

OUTDOOR SIZE	SHIPPING WEIGHT ¹	
	lbs.	kgs
500	855	388
600	949	431
715	1050	477
850	1100	499
1010	1240	563
1200	1410	640
1450	1570	713
1670	1622	736
1825	1725	783
2200	2320	1053
2800	2500	1135
3200	2840	1289
3600	3175	1142
4000	3940	1789
4500	3790	1721

OUTDOOR Sizes 500 - 1825



OUTDOOR Sizes 2000 - 4500



*On single pass units, outlet is on right side



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The Mighty
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