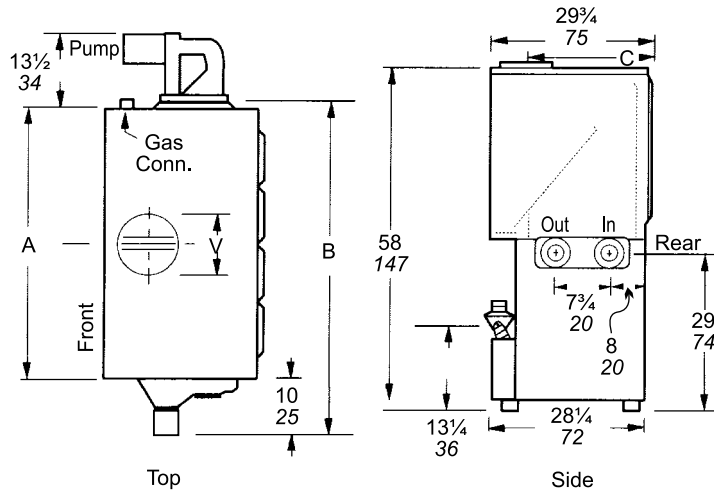


MIGHTY THERM

Commercial Pool Heater

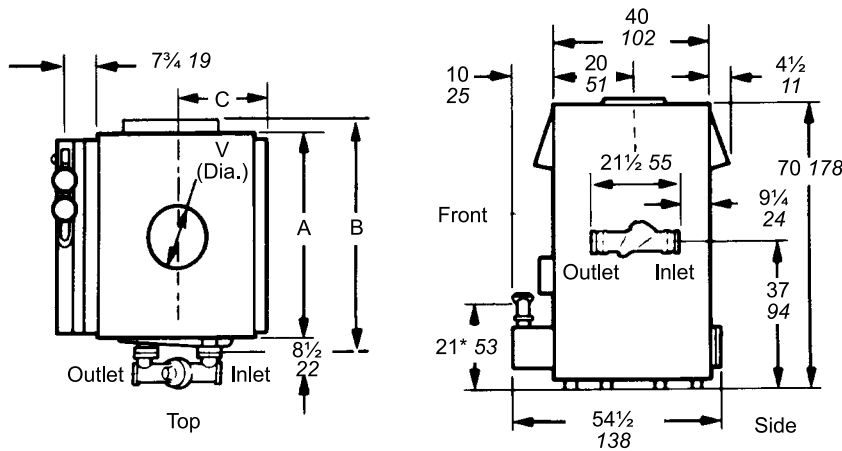


Indoor
Models 500-1825

AP Commercial Pool Heating Boiler
Indoor (I)

Indoor Sizes 500-5000

Submittal Data **LAARS**
Heating Systems



Indoor
Models 2000-5000

*29" for models 3500 - 5000

Dimensions (nominal) shown
in inches *cm.*

Standard Equipment

- ASME 160 lb. working pressure heat exchanger
- 24V control system
- Operating gas valve/pressure regulator
- Water flow sensing device
- Removable burner tray (500-1825)
- Built-in draft hood
- Glass lined cast iron headers
- Flow control valve (2000-5000)
- Pilot gas regulator
- Redundant safety gas valve
- Electronic temperature control (500-1825)
- Manual reset high limit
- Automatic reset high limit (3050-5000)
- Manual "A" gas valve
- Manual shut-off valve
- Manual pilot valve
- Stainless steel burners
- External water side gaskets
- Integral pump (500-1825)
- Flanged connections
- High gas pressure switch (3050-5000)
- Pressure relief valve (75 PSI)
- 115/24V transformer
- Temperature/pressure gauges
- On/Off/Auto toggle switch
- Power on light

Specification Data

Indoor Size	Input ¹		Output ¹		Gas Connection Size Inches		Water Conn. ² Inches
	MBTU/H	kW	MBTU/H	kW	Natural	LP	
500	500	147	405	119	1	¾	2½
600	600	176	486	143	1	¾	2½
715	715	210	579	170	1	¾	2½
850	850	249	689	202	1	¾	2½
1010	1010	296	818	240	1¼	1	2½
1200	1200	352	972	285	1¼	1	2½
1430	1430	419	1158	339	1¼	1¼	2½
1670	1670	489	1353	396	1½	1¼	2½
1825	1825	535	1478	433	1½	1¼	2½
2000	2000	586	1639	480	1½	1¼	4
2450	2450	718	2009	589	1½	1½	4
3050	3050	894	2501	733	2	1½	4
3500	3500	1025	2870	841	2	1½	4
4050	4050	1186	3321	973	2	2	4
4500	4500	1318	3690	1081	2½	2	4
5000	5000	1465	4100	1201	2½	2	4

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.
3. Integral pump included on sizes 500-1825.

Dimensional Data

Indoor Size	Shipping Dimensions ² - inches cm								Weight ³	
	A		B		C		V		lbs.	kgs
500	33¾	85	45	114	23¾	60	10	25	745	338
600	38¾	98	50	127	22¾	58	12	31	835	379
715	44¼	112	55½	141	22¾	58	12	31	905	410
850	50¾	129	62	158	21¾	55	14	36	955	433
1010	58	147	69¼	176	20¾	52	16	41	1075	488
1200	66¼	157	77½	197	20¾	52	16	41	1200	545
1430	76	193	87¼	222	19¾	50	18	46	1345	611
1670	85½	217	96¾	246	19¾	50	18	46	1430	649
1825	92¼	234	103½	263	19¾	50	18	46	1480	672
2000	55½	141	63	160	24½	62	22	56	1755	797
2450	65½	166	73	185	24½	62	24	61	2010	913
3050	78	198	85½	217	24½	62	26	66	2350	1067
3500	88	224	95½	243	24½	62	28	71	2510	1140
4050	100½	255	108	274	24½	62	30	76	2910	1321
4500	110½	281	118	300	24½	62	32	81	3075	1396
5000	123	312	130½	315	24½	62	34	83	3500	1589

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.
3. Integral pump included on sizes 500-1825.

Ignition Safeguard Systems

Systems #9 & #18:
Intermittent electronic ignition with electronic flame supervision. Responds in less than 0.8 second upon flame failure. 24V control circuit. System #9 is standard on models 500 to 1825. System #18 is standard on models 2000 to 5000.

System #16: Standing pilot with electronic flame supervision. Responds in less than 0.8 second upon flame failure and provides 100% safety shutdown. 24V control circuit. Optional for natural and propane.

System #4: Intermittent electronic ignition with electronic flame supervision. Responds in less than 0.8 second upon flame failure. 115V control circuit. Optionally available for natural and propane.

CONTROL OPTIONS	System #9	System #18	System #16	System #4
Firing Modes ON/OFF Firing	✓	✓	✓	—
Motorized Gas Valve ON/OFF	○	○	—	✓
Gas Train Standing Pilot	—	—	✓	—
Intermittent Ignition Device	✓	✓	—	✓
Manual Pilot Valve	✓	✓	✓	✓
Pilot Gas Valve	✓	✓	—	✓
Pilot Gas Regulator	✓	✓	✓	✓
Manual Shut-Off Valve	✓	✓	✓	✓
Safety Gas Valve	✓	✓	✓	✓
Control Components				
Alarm Bell/Indicator Lights	○	○	○	○
Electronic Flame Relay	✓	✓	✓	✓
Gas Pressure Switch - High and Low	○	1	○	○
High Limit - Automatic Reset	○	1	○	1
High Limit - Manual Reset	✓	✓	✓	✓
ON/OFF Toggle Switch	✓	✓	✓	✓
Operating Control	✓	✓	✓	✓
100% Shut-Off/Lockout	2	2	✓	✓
Terminal Strip	✓	✓	✓	✓
CSD-1	○	○	○	○
CSD-1/IRI	○	○	○	○

KEY: Provided as Standard ✓
Optional ○
Not Available —

NOTES: 1. Automatic reset high limit and high gas pressure switch standard on Models 3050 to 5000 and optional on Models 500 to 2450.
2. 100% shut-off/lockout is standard with all propane spark ignition models and with CSD-1.

Motor Electrical Data

Sizes	Factory Installed Pumps		
	Power (HP)	Voltage/Phase	Current (Amps)
500—1670	1/2	115/1	5.8
1825	3/4	115/1	8.8

Minimum Clearances from Adjacent Construction

Recommended Minimum Clearance From	Models 500-1825		Models 2000-5000	
	Indoor		Indoor	
	Inches	cm	Inches	cm
Top	30	76	24	61
Water connection side	12*	31	24	61
Pump side	6*	15	24	61
Front	Alcove*		48	122
Rear	8	20	24	61
Vent pipe	6	15	6	15

NOTE: Models 500 to 1825 must be installed on non-combustible floors or with base for combustible floors (Laars optional base A.G.A. design certified). Models 2000 to 5000 require installation on non-combustible floors.
***For maintenance accessibility (removal of burners, etc.) at least 48" (1220mm) clearance should be provided in front of the boiler, and 24" (610mm) clearance on the water connection and pump sides.**

Bypass Piping

Models 500-1825 heaters **must be piped as shown** in Figure 1. Inlet and outlet piping may be routed in another direction, but valve locations must be the same and the outlet must discharge into the side of a tee as shown.

WARNING: Any deviations from the above may increase load on the pump, reduce flow and decrease heater performance.

NOTES:
 1. 2" pipe, fittings and valves optional for models 500 to 1430L.
 2. Material: 2 1/2" S-80 CPVC shown. Copper optional.

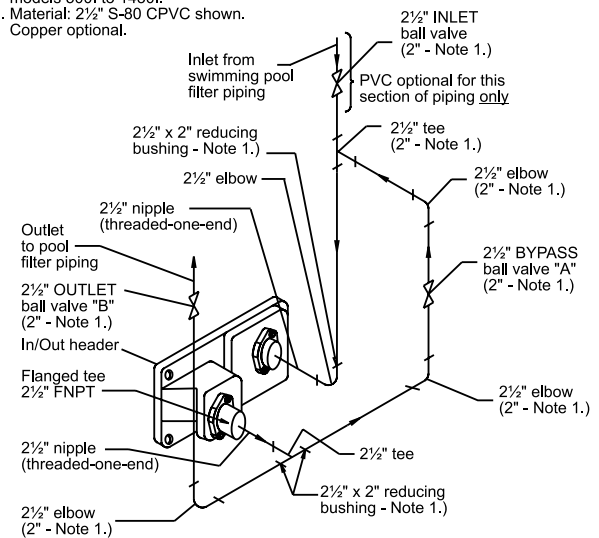


Figure 1.

Thermowell Installation

A temperature sensor and thermowell are supplied with the heater. These must be installed in the field as shown in Figure 2.

WARNING: Do not install in the secondary piping or downstream of the heater inlet tee

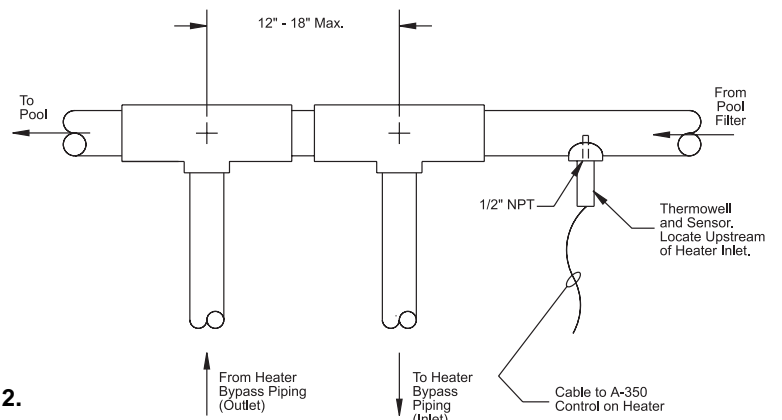


Figure 2.