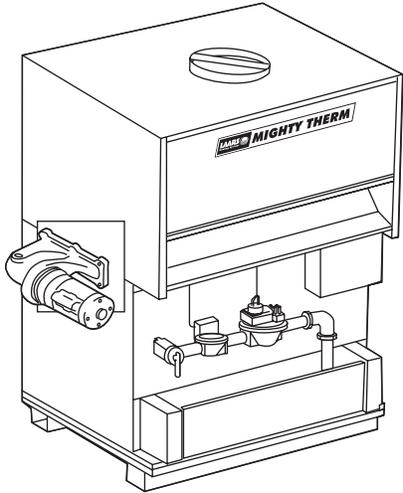


# MIGHTY THERM®



Date:

Project #:

Engineer:

Prepared By:

Bid Date:

# Hydronic Boilers

HH	Hydronic Heating Boiler
PH	Hydronic Heating Boiler with pump

Indoor Sizes 500-1825

Submittal Data **LAARS**  
Heating Systems Company

Project Name:

Location:

Contractor:

## Standard Equipment

- ASME 160 psi working pressure heat exchanger
- ASME "H" stamp
- Flanged water connections
- Glass-lined headers
- External water-side gaskets
- 75 psi (517 kPa) ASME rated pressure relief valve
- Pump, mounted and wired (PH)
- Flow switch
- Temperature pressure gauge
- ASME CSD-1
- Manual "A" gas valve
- Manual pilot valve
- Pilot gas regulator
- Manual shut-off valve
- Operating gas valve / gas pressure regulator
- Redundant safety gas valve
- Stainless steel burners
- Removable burner tray
- Built-in draft hood
- On/off toggle switch
- Power on light
- 115/24VAC transformer
- 24V control system
- 100% shut-off / lock-out ignition control
- 2-Amp fuse
- Terminal strip
- Operating control
- Manual reset high limit
- EM<sup>2</sup> pump time delay (std on PH, opt on HH)
- Covered control box

## Boiler Data

### Model:

- HH (no pump)  
 PH (pump mounted)

### Number of Units:

### Firing Rate:

- On-off  
 Two-stage  
 Four-stage  
 Motorized Modulation

### Ignition System:

- Spark pilot ignition U.S. (system 9)  
 Spark pilot ignition Canada (system 11)

### Fuel

- Natural  
 Propane

### Heat Exchanger

- Copper  
 Cupro-Nickel  
 Copper, Reversed  
 Cupro-Nickel, Reversed

### Water Trim

- Glass-Lined Cast Iron  
 Bronze Trim  
 Full Bronze

### Options:

- EM<sup>2</sup> pump time delay (std on PH)  
 Low water cutoff  
 Auto reset high limit  
 External controller connections (n/a for on-off units)  
 External controller connections with selector switch (n/a for on-off units)  
 Alarm package with bell, mounted and wired  
 Alarm package with dry contacts, mounted and wired  
 High & low gas pressure switches  
 Additional safety valve  
 Motorized safety valve with proof of closure  
 Additional motorized safety valve with proof of closure

## Sizing Data

	<u>Indoor Size</u>	Input <sup>1</sup>	Output <sup>1</sup>	IBR Net Rating	Shipping Weight <sup>2</sup>	Input <sup>1</sup>	Output <sup>1</sup>	IBR Net Rating	Shipping Weight <sup>2</sup>
		BTU/h	BTU/h	MBTU/h	lbs	kW	kW	kW	kg
■	500	<b>500,000</b>	<b>405,000</b>	<b>357</b>	<b>612</b>	147	119	104	278
■	600	<b>600,000</b>	<b>486,000</b>	<b>428</b>	<b>702</b>	176	142	125	319
■	715	<b>715,000</b>	<b>579,150</b>	<b>510</b>	<b>750</b>	210	170	149	340
■	850	<b>850,000</b>	<b>688,500</b>	<b>606</b>	<b>830</b>	249	202	178	377
■	1010	<b>1,010,000</b>	<b>818,100</b>	<b>720</b>	<b>945</b>	296	240	211	429
■	1200	<b>1,200,000</b>	<b>972,000</b>	<b>856</b>	<b>995</b>	352	285	251	451
■	1430	<b>1,430,000</b>	<b>1,158,300</b>	<b>1020</b>	<b>1080</b>	419	339	299	490
■	1670	<b>1,670,000</b>	<b>1,352,700</b>	<b>1191</b>	<b>1175</b>	489	396	349	533
■	1825	<b>1,825,000</b>	<b>1,478,250</b>	<b>1301</b>	<b>1270</b>	535	433	381	576

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

2. Units with pumps: Add 55lbs.

3. For other boiler ratings:

$$\text{Boiler Horsepower: HP} = \frac{\text{Output}}{33.475}$$

$$\text{Radiation Surface: EDR sq. ft.} = \frac{\text{Output}}{150}$$

$$\text{IBR sq. ft.} = \frac{\text{Net IBR Rating}}{150}$$

## Rate of Flow and Pressure Drop

### Design Temperature Rise Across Boiler

<u>Indoor Size</u>	20°F		25°F		30°F		35°F	
	Water Flow GPM	Head Loss Ft						
500	38	1.4	31	1.1	26	0.9	22	0.6
600	47	1.8	37	1.4	31	1.2	27	0.8
715	56	2.5	45	1.9	37	1.5	32	1.0
850	66	3.4	53	2.5	44	2.0	38	1.4
1010	79	4.7	63	3.4	53	2.7	45	1.9
1200	94	6.5	75	4.8	62	3.7	53	2.6
1430	112	8.9	89	6.5	74	5.0	64	3.5
1670	*	*	102	8.8	85	6.7	73	4.7
1825	*	*	114	10	95	8.0	81	5.5

<u>Indoor Size</u>	11°C		14°C		17°C		19°C	
	Water Flow L/M	Head Loss m						
500	144	0.4	117	0.3	98	0.3	83	0.2
600	178	0.5	140	0.4	117	0.4	102	0.2
715	212	0.8	170	0.6	140	0.5	121	0.3
850	250	1.0	201	0.8	167	0.6	144	0.4
1010	299	1.4	239	1.0	201	0.8	170	0.6
1200	356	2.0	284	1.5	235	1.1	201	0.8
1430	424	2.7	337	2.0	280	1.5	242	1.1
1670	*	*	386	2.7	322	2.0	276	1.4
1825	*	*	432	3.0	360	2.4	307	1.7

• Not recommended. Consult factory.

## Electrical Data

Model	Heater			Mounted Pump	Pump Delay Connection Rating
	Volts	Phase	Amps		
HH (no pump)	115	Single	Less than 12	N/A	(when ordered optionally) 115V – Max 1HP or 230V – Max 3/4HP (pilot duty)
PH (built-in pump)	115	Single	Less than 12	Included in Mighty Therm connection	Included in Mighty Therm connection

## Pump Data

Indoor Size	Power (HP)	Current (Amps)
500	1/3	2.8
600	1/3	2.8
715	1/3	2.8
850	1/3	2.8
1010	1/2	5.2
1200	1/2	5.2
1430	3/4	7.2
1670	3/4	7.2
1825	3/4	7.2

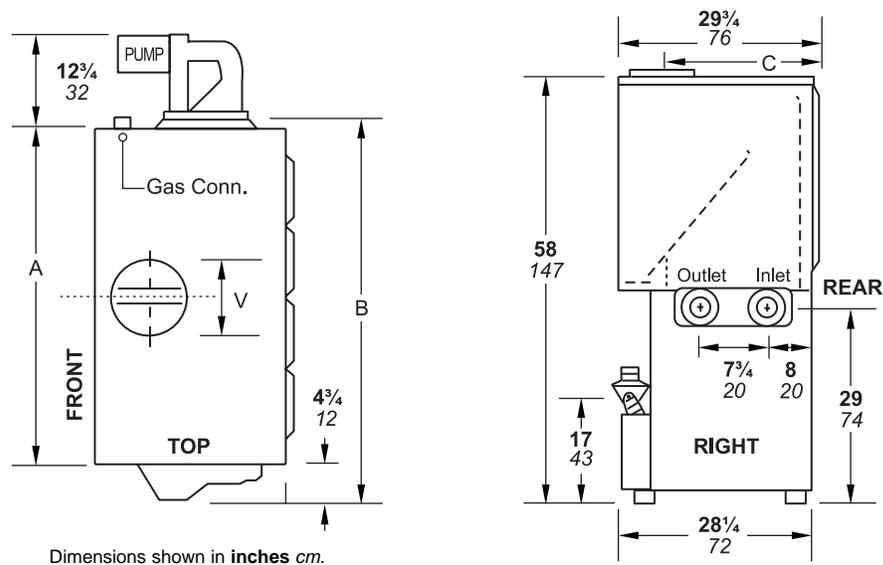
## Clearances

Appliance Surface	Required Clearance From Combustible Material	
	inches	cm
Water Side	12	30
Opposite Side	6	15
Top	30	76
Back	8	20
Front	Alcove	
Vent	6*	15

**NOTES:** All sizes must be installed on non-comustible floors or with base for combustibile floors (certified base is available from Laars).

\* 1" if B-vent is used (refer to manufacturer's instructions)

## Dimensional Data



Indoor Size	Gas Connection Size, inches NPT		Water Conn. Size in <sup>1</sup>	Dimensions <sup>1</sup>							
	Natural <sup>2</sup>	LP <sup>2</sup>		A		B		C		V	
				in	cm	in	cm	in	cm	in	cm
500	1	$\frac{3}{4}$ -1	2	$33\frac{3}{4}$	86	$45\frac{1}{4}$	115	$23\frac{3}{4}$	60	10	25
600	1	$\frac{3}{4}$ -1	2	$38\frac{3}{4}$	98	$50\frac{1}{4}$	128	$22\frac{3}{4}$	58	12	31
715	1	$\frac{3}{4}$ -1	2	$44\frac{1}{4}$	112	$55\frac{3}{4}$	142	$22\frac{3}{4}$	58	12	31
850	1-1 $\frac{1}{4}$	$\frac{3}{4}$ -1 $\frac{1}{4}$	2	$50\frac{3}{4}$	129	$62\frac{1}{4}$	158	$21\frac{1}{4}$	55	14	36
1010	1 $\frac{1}{4}$	1-1 $\frac{1}{4}$	2 $\frac{1}{2}$	58	147	$69\frac{1}{2}$	177	$20\frac{3}{4}$	53	16	41
1200	1 $\frac{1}{4}$	1-1 $\frac{1}{4}$	2 $\frac{1}{2}$	$66\frac{1}{4}$	168	$77\frac{3}{4}$	198	$20\frac{3}{4}$	53	16	41
1430	1 $\frac{1}{4}$	1 $\frac{1}{4}$	2 $\frac{1}{2}$	76	193	$87\frac{1}{2}$	222	$19\frac{3}{4}$	50	18	46
1670	1 $\frac{1}{4}$	1 $\frac{1}{4}$	2 $\frac{1}{2}$	$85\frac{1}{2}$	217	97	246	$19\frac{3}{4}$	50	18	46
1825	1 $\frac{1}{4}$	1 $\frac{1}{4}$	2 $\frac{1}{2}$	$92\frac{1}{4}$	234	$103\frac{3}{4}$	264	$19\frac{3}{4}$	50	18	46

**NOTES:** 1. Dimensions are nominal.

2. When two gas connection sizes are shown, the smaller applies to the standard gas train, while the larger applies to optional trains, such as four stage or motorized gas valves. Consult factory for exact specifications.

Dimensions and specifications subject to change without notice in accordance with our policy of continuous product improvement.

