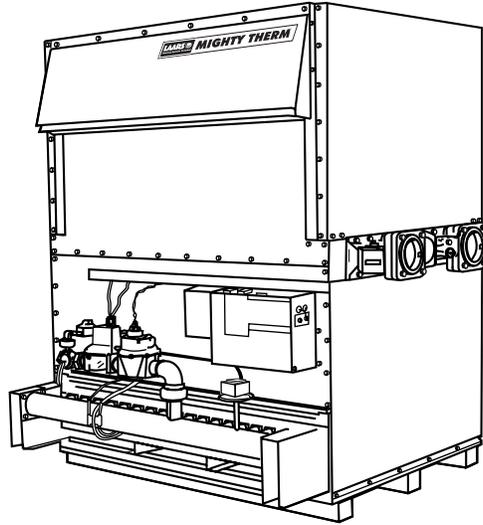


# MIGHTY THERM®



# Hydronic Boilers

HH Hydronic Heating Boiler

Indoor Sizes 2000-2450

Submittal Data **LAARS**  
Heating Systems Company

Date:

Project #:

Engineer:

Prepared By:

Bid Date:

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
- Flow switch
- Temperature pressure gauge
- ASME CSD-1 and FM controls
- 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
- 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
- Covered control box

## Boiler Data

Number of Units:

Firing Rate:

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

Fuel

- Natural
- Propane

Ignition System:

- Spark pilot ignition (system 18)
- Standing pilot (system 16)

Water Trim

- Glass-Lined Cast Iron
- Bronze Trim

Heat Exchanger

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

Heat Exchanger Configuration:

- Two-Pass
- Single-Pass

Options:

- EM2 pump time delay
- 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)

- Outdoor reset 1:1 (for on-off, 2-stage and motorized modulation only)
- Outdoor reset 1:1.5 (for 2-stage only)
- Alarm package with bell, mounted and wired
- Alarm package with dry contacts, mounted and wired
- IRI / CSD-1 (adds normally open vent valve to standard)
- High & low gas pressure switches
- Additional safety valve
- Motorized safety valve with proof of closure
- Additional motorized safety valve with proof of closure
- LDS control package (adds motorized safety valve, high and low gas pressure switches, reversed heat exchanger and external controller connections)
- 200°F max. controls

## Sizing Data

	<u>Indoor Size</u>	Input <sup>1</sup>	Output <sup>1</sup>	IBR Net Rating	Shipping Weight	Input <sup>1</sup>	Output <sup>1</sup>	IBR Net Rating	Shipping Weight
		MBTU/h	MBTU/h	MBTU/h	lbs	kW	kW	kW	kg
□	2000	<b>1999</b>	<b>1640</b>	<b>1425</b>	<b>1755</b>	586	481	418	797
□	2450	<b>2450</b>	<b>2009</b>	<b>1747</b>	<b>2010</b>	718	589	512	913

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

2. 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						
2000	1P	<b>164</b>	<b>3.9</b>	<b>131</b>	<b>2.3</b>	<b>109</b>	<b>1.5</b>	<b>94</b>	<b>1.0</b>
2000	2P	<b>164</b>	<b>10.5</b>	<b>131</b>	<b>7.4</b>	<b>109</b>	<b>4.9</b>	<b>94</b>	<b>3.0</b>
2450	1P	<b>201</b>	<b>5.9</b>	<b>161</b>	<b>4.2</b>	<b>134</b>	<b>3.3</b>	<b>115</b>	<b>2.6</b>
2450	2P	<b>201</b>	<b>16.4</b>	<b>161</b>	<b>10.2</b>	<b>134</b>	<b>7.7</b>	<b>115</b>	<b>5.7</b>

<u>Indoor Size</u>		11°C		14°C		17°C		19°C	
		Water Flow L/M	Head Loss m						
2000	1P	621	1.2	496	0.7	413	0.5	356	0.3
2000	2P	621	4.2	496	4.2	413	1.5	356	0.9
2450	1P	761	1.3	610	1.3	507	1.0	435	0.8
2450	2P	761	3.1	610	3.1	507	2.3	435	1.7

**NOTE:** 1P = Single-Pass; 2P = Two-Pass.

**Clearances**

Appliance Surface	Required Clearance from Combustible Material	
	in	cm
Water Side	24	61
Opposite Side	24	61
Top	24	61
Back	24	61
Front	48	122
Vent	6*	15

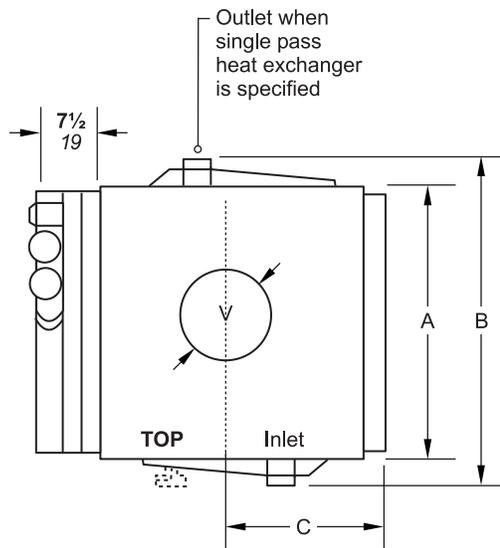
**NOTES:** All sizes must be installed on non-combustible floors or with base for combustible floors (certified base is available from Laars).

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

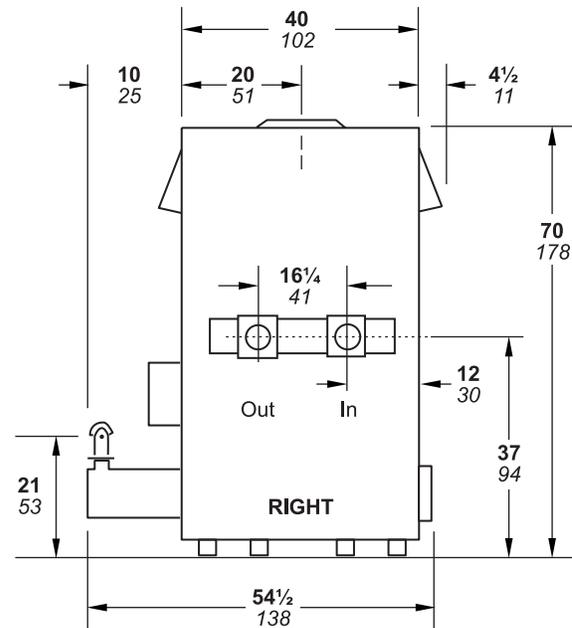
**Electrical Data**

Model	Boiler			Mounted Pump	Pump Delay Connection Rating
	Volts	Phase	Amps		
HH	115	Single	Less than 12	N/A	(when ordered optionally) 115V – Max 1HP or 230V – Max 3/4HP (pilot duty)

## Dimensional Data



Dimensions shown in inches cm.



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	in		in	cm	in	cm	in	cm	in	cm
2000	1½	1¼-1½	4	55½	140	73	185	24½	62	22	56
2450	1½-2	1½	4	65½	166	83	211	24½	62	24	61

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.



Laars Heating Systems Company reserves the right to change specifications, components, features, or to discontinue products without notice.