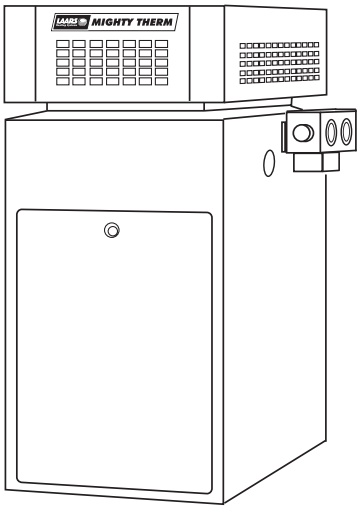
MIGHTY THERM®

Hydronic Boilers

HH	Hydronic Heating Boiler
PH	Hydronic Heating Boiler with pump

Indoor/Outdoor Sizes 175-400

Submittal Data LAARS® Heating Systems Company



Date:

Project #:

Engineer:

Project Name:

Prepared By:

Location:

Bid Date:

Contractor:

Standard Equipment

- ASME 160 psi working pressure heat exchanger
- ASME "H" stamp
- Flanged water connections
- Glass-lined headers
- 75 psi (517 kPa) ASME rated pressure relief valve
- Non-combustible base
- Pump, mounted and wired (PH)
- Flow switch
- Temperature pressure gauge
- Manual "A" gas valve
- Operating gas valve / gas pressure regulator
- Stainless steel burners
- Removable burner tray
- On/off toggle switch
- 115/24VAC transformer
- 24V control system
- 2-Amp fuse
- Terminal strip
- Operating control
- Manual reset high limit
- EM2 pump time delay (std on PH, optional on HH)
- 100% shut-off / lockout

Boiler Data

Model:
- ☐ HH (no pump)
- ☐ PH (pump mounted)

Number of Units:
☐

Firing Rate / Ignition System:
- ☐ On-off, system 1 (standing pilot)
- ☐ On-off, system 12 (spark ignition)
- ☐ 2-stage, system 12 (spark ignition)

Fuel:
- ☐ Natural
- ☐ Propane

Heat Exchanger:
- ☐ Copper
- ☐ Cupro-Nickel
- ☐ Copper, reversed
- ☐ Cupro-Nickel, reversed

Water Trim:
- ☐ Glass-Lined Cast Iron
- ☐ Bronze Trim

Options:
- ☐ EM2 Pump Time Delay (std on PH)
- ☐ Low Water Cutoff
- ☐ Auto Reset High Limit
- ☐ 200°F Max. Controls
- ☐ External Controller Connections (2-Stage units only)
- ☐ External Controller Connections with Selector Switch (2-Stage units only)
- ☐ Alarm Package with Bell
- ☐ Alarm Package with Dry Contacts
- ☐ Outdoor Reset 1:1
- ☐ Outdoor Reset 1:1.5 (2-Stage units only)
- ☐ High & Low Gas Pressure Switches (shipped loose)

Hydronics Industry Alliance

Sizing Data

Size	Input[1] MBTU/h	Output[1] MBTU/h	IBR Net Rating MBTU/h	Shipping Weight[2] lbs	*Input[1] kW*	*Output[1] kW*	*IBR Net Rating kW*	*Shipping Weight[2] kg*
☐ 175	**175**	**142**	**125**	**356**	*51*	*42*	*37*	*162*
☐ 250	**250**	**205**	**178**	**391**	*73*	*60*	*52*	*178*
☐ 325	**325**	**263**	**232**	**416**	*95*	*77*	*68*	*189*
☐ 400	**400**	**324**	**285**	**456**	*117*	*95*	*83*	*207*

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 15 pounds *(7 kg)*.
3. For other boiler ratings:
Boiler Horsepower: HP = $\frac{\text{Output}}{33{,}475}$ Radiation Surface: EDR sq. ft. = $\frac{\text{Output}}{150}$ IBR sq. ft. = $\frac{\text{Net IBR Rating}}{150}$

Accessories

☐ Drafthood with Vent Damper (required for all 175-250 indoor installations)

☐ Drafthood (required for all 325-400 indoor installations)

☐ Outdoor Vent Cap (optional for outdoor units)

☐ Power Venter

Water Flow Data and Pressure Drop

Design Temperature Rise Across Boiler

Indoor Size	20°F Water Flow GPM	20°F Head Loss ft	*11°C Water Flow L/m*	*11°C Head Loss m*	25°F Water Flow GPM	25°F Head Loss Ft	*14°C Water Flow L/m*	*14°C Head Loss m*	30°F Water Flow GPM	30°F Head Loss Ft	*17°C Water Flow L/m*	*17°C Head Loss m*
175	**14**	**0.5**	*53*	*0.2*	**11**	**0.6**	*42*	*0.2*	**9**	**0.5**	*34*	*0.2*
250	**21**	**2.1**	*76*	*0.6*	**16**	**1.2**	*61*	*0.4*	**14**	**0.8**	*53*	*0.2*
325	**26**	**3.4**	*98*	*1.0*	**21**	**2.1**	*80*	*0.6*	**18**	**1.4**	*68*	*0.4*
400	**32**	**5.2**	*121*	*1.6*	**26**	**3.4**	*98*	*1.0*	**22**	**2.3**	*83*	*0.7*

Clearances

Recommended Minimum Clearance from	Indoor Units in	Indoor Units *cm*	Outdoor Units in	Outdoor Units *cm*
Water Connection Side	**12**	*30*	**Unobstructed**	
Opposite Side	**6**	*15*	**6**	*15*
Top	**37**	*94*	**Unobstructed**	
Front	**Unobstructed**		**Unobstructed**	
Back	**6**	*15*	**6**	*15*
Vent	**6***	*15*	**n/a**	*n/a*

***** 1" if B-vent is used.

NOTES: Base for combustible flooring is standard on all indoor and outdoor sizes. **At least 48" clearance should be provided in front of the boiler for maintenance accessibility (removal of burners, etc.).**

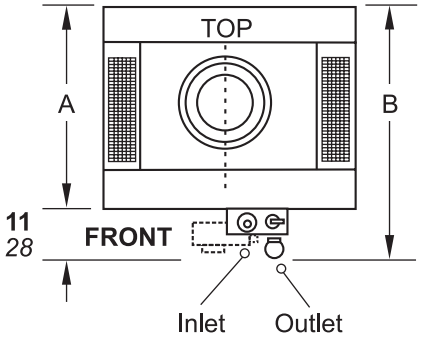
Electrical Data

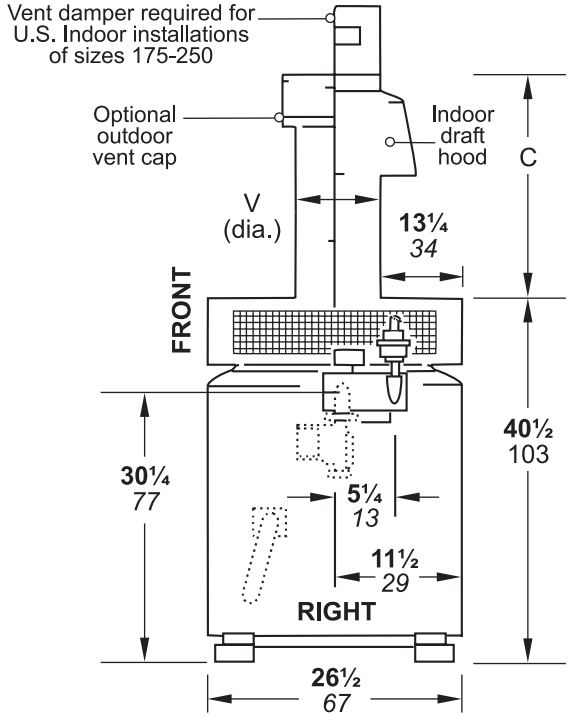
Model	Boiler			Mounted Pump	Pump Delay
	Volts	Phase	Amps		
HH (boiler only)	115	Single	Less than 12	n/a	115V – Max 1HP or 230V – Max 3/4HP (pilot duty)
PH (boiler with pump)	115	Single	Less than 12	Included in Mighty Therm connection	Included in Mighty Therm connection

Pump Data

Size	PH Boilers	
	Power (HP)	Current (Amps)
175	1/25	0.75
250	1/8	1.8
325	1/6	2.0
400	1/6	2.0

Dimensional Data





Dimensions shown in **inches** *cm*.

Indoor Size	Gas Connection Size inches[1] Natural	LP	Water Conn. Size inches	Dimensions[1] A in	A cm	B in	B cm	C with Vent Damper[2] in	C with Vent Damper[2] cm	C w/o Vent Damper in	C w/o Vent Damper cm	V in	V cm
175	½/¾	½	1½	**18**	*46*	**27**	*69*	**28½**	*72*	**23½**	*60*	**6**	*15*
250	¾	½	1½	**22½**	*57*	**31½**	80	**30½**	*77*	**24¾**	*63*	**7**	*18*
325	¾	½	1½	**26¾**	*68*	**35¾**	*91*	**—**	—	**26**	*66*	**8**	*21*
400	¾	½	1½	**31¾**	*81*	**40¾**	*104*	**—**	—	**27**	*68*	**9**	*23*

Outdoor Size	Gas Connection Size inches[1] Natural	LP	Water Conn. Size inches	Dimensions A in	A cm	B in	B cm	C in	C cm	V in	V cm
175	½/¾	½	1½	**18**	*46*	**27**	*69*	**14**	*36*	**6**	*15*
250	¾	½	1½	**22½**	*57*	**31¼**	*79*	**18¾**	*47*	**7**	*18*
325	¾	½	1½	**26¾**	*68*	**35¾**	*91*	**19¼**	*49*	**8**	*21*
400	¾	½	1½	**31¾**	*81*	**40¾**	*104*	**22¾**	*58*	**9**	*23*

NOTES: **1.** Dimensions are nominal.
2. Vent damper required for U.S. indoor installations of sizes 175-250.

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