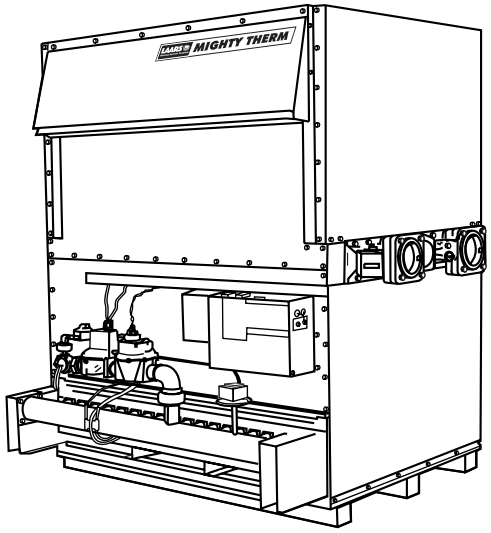
MIGHTY THERM®

Volume Water Heaters

VW	Volume Water Heater

Indoor Sizes 2000-2450

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
- External water-side gaskets
- 125 psi (861 kPa) ASME rated pressure relief valve
- Flow switch
- Temperature pressure gauge
- 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 24V system 18 (standard)
- ☐ Spark pilot ignition 120V system 04

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)
- ☐ Alarm package with bell, mounted and wired
- ☐ Alarm package with dry contacts, mounted and wired
- ☐ ASME CSD-1
- ☐ High & low gas pressure switches
- ☐ Additional safety valve
- ☐ Motorized safety valve with proof of closure
- ☐ Additional motorized safety valve with proof of closure
- ☐ ASME "HLW" Stamp

Sizing Data

Indoor Size	Input[1] MBTU/h	Output[1] MBTU/h	Shipping Weight lbs	*Input[1] kW*	*Output[1] kW*	*Shipping Weight kg*
2000	**1999**	**1640**	**1755**	*586*	*481*	*797*
2450	**2450**	**2009**	**2010**	*718*	*589*	*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:

Boiler Horsepower: HP = $\frac{\text{Output}}{33.475}$ **Radiation Surface:** EDR sq. ft. = $\frac{\text{Output}}{150}$

Recovery Data

	Design Temperature Rise Across Boiler								
Size	**40°F gph**	**50°F gph**	**60°F gph**	**70°F gph**	**80°F gph**	**90°F gph**	**100°F gph**	**120°F gph**	**140°F gph**
2000	**4922**	**3938**	**3281**	**2813**	**2461**	**2188**	**1969**	**1641**	**1406**
2450	**6029**	**4824**	**4020**	**3445**	**3015**	**2680**	**2412**	**2010**	**1723**

Size	***22°C L/h***	***28°C L/h***	***33°C L/h***	***39°C L/h***	***44°C L/h***	***50°C L/h***	***56°C L/h***	***67°C L/h***	***78°C L/h***
2000	*18605*	*14884*	*12403*	*10631*	*9303*	*8269*	*7442*	*6202*	*5316*
2450	*22791*	*18233*	*15194*	*13024*	*11396*	*10129*	*9116*	*7597*	*6512*

Water Flow Data

		Hard Water			Normal Water			Soft Water		
Size	**Configuration**	**Flow Rate gpm**	**Head Loss ft**	**Temp Rise °F**	**Flow Rate gpm**	**Head Loss ft**	**Temp Rise °F**	**Flow Rate gpm**	**Head Loss ft**	**Temp Rise °F**
2000	Two-Pass	**200**	**15**	**16**	**150**	**9.0**	**22**	**100**	**4.2**	**33**
2000	Single-Pass	**200**	**5.5**	**16**	**150**	**3.3**	**22**	**100**	**1.5**	**33**
2450	Two-Pass	**200**	**16**	**20**	**150**	**9.7**	**27**	**100**	**4.5**	**40**
2450	Single-Pass	**200**	**5.9**	**20**	**150**	**3.6**	**27**	**100**	**1.6**	**40**

Size	***Configuration***	***Flow Rate l/m***	***Head Loss m***	***Temp Rise °C***	***Flow Rate l/m***	***Head Loss m***	***Temp Rise °C***	***Flow Rate l/m***	***Head Loss m***	***Temp Rise °C***
2000	*Two-Pass*	*757*	*4.6*	*9*	*568*	*2.7*	*12*	*379*	*1.3*	*18*
2000	*Single-Pass*	*757*	*1.7*	*9*	*568*	*1.0*	*12*	*379*	*0.5*	*18*
2450	*Two-Pass*	*757*	*4.9*	*11*	*568*	*3.0*	*15*	*379*	*1.4*	*22*
2450	*Single-Pass*	*757*	*1.8*	*11*	*568*	*1.1*	*15*	*379*	*0.5*	*22*

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*

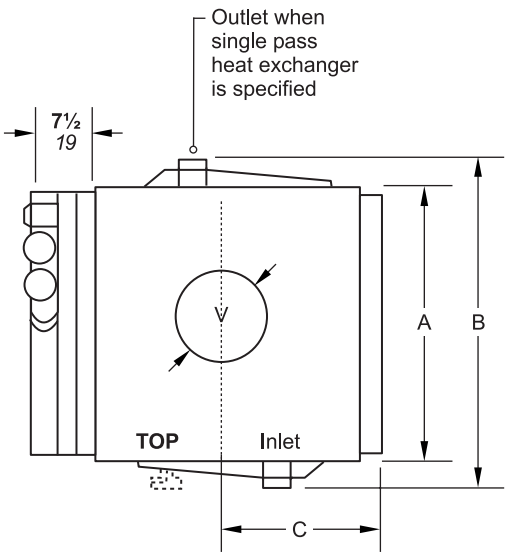
NOTES: All sizes must be installed on non-combustible floors or with base for combustible floors (certified base is available from Laars).

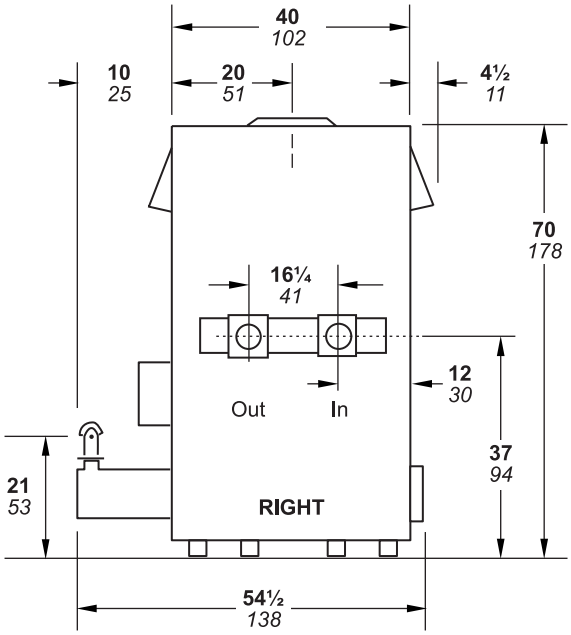
*1" if B-vent is used (refer to manufacturer's instructions).

Electrical Data

Model	Boiler			Mounted Pump	Pump Delay Connection Rating
	Volts	Phase	Amps		
VW	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	Dimensions[1]							
				A		B		C		V	
	Natural[2]	LP[2]	in[1]	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.

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