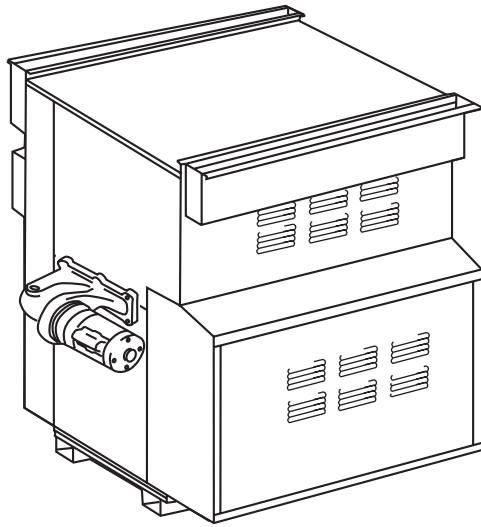


MIGHTY THERM®



Date:

Project #:

Engineer:

Prepared By:

Bid Date:

Volume Water Heaters

VW	Volume Water Heater (circulating storage tank type)
PW	Volume Water Heater with pump
IW	Instantaneous Water Heater

Outdoor 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
- Certified for outdoor use
- Flanged water connections
- Glass-lined headers
- External water-side gaskets
- 125 psi (861 kPa) ASME rated pressure relief valve
- Pump, mounted and wired (PW / IW)
- Flow switch
- Temperature pressure gauge
- Manual "A" gas valve
- Manual pilot valve
- Pilot gas regulator
- 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
- EM2 pump time delay (std on PW, opt on VW, n/a on IW)
- Covered control box

Boiler Data

Model:

- ☐ VW (no pump, for use with storage tank)
- ☐ PW (pump-mounted, for use with storage tank)
- ☐ IW (pump-mounted, for use w/o storage tank, must have adequate storage in recirculation piping)

Number of Units:

Firing Rate:

- ☐ On-off (n/a for IW)
- ☐ Two-stage (n/a for IW)
- ☐ Four-stage
- ☐ Motorized Modulation (n/a for IW)

Pump (PW & IW only):

- ☐ Normal Water
- ☐ Hard Water
- ☐ Soft Water

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:

- ☐ EM2 pump time delay (std on PW, N/A on IW)
- ☐ 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
- ☐ 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

	Outdoor Size	Input¹	Output¹	Shipping Weight²	Input¹	Output¹	Shipping Weight²
		BTU/h	BTU/h	lbs	kW	kW	kg
	500	500,000	410,000	751	147	120	341
	600	600,000	492,000	821	176	144	373
	715	715,000	587,000	906	209	172	411
	850	850,000	697,000	1000	249	204	454
	1010	1,010,000	829,000	1116	296	243	429
	1200	1,200,000	984,000	1185	352	288	538
	1430	1,430,000	1,173,000	1330	419	344	604
	1670	1,670,000	1,370,000	1490	489	401	676
	1825	1,825,000	1,497,000	1630	535	438	740

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 55 pounds (25 kg).

Water Flow Data

Size	Hard Water			Normal Water			Soft Water		
	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
500	90	15.7	8	68	9.9	11	45	5.0	17
600	90	15.9	10	68	10.0	14	45	5.1	20
715	90	17.8	12	68	11.0	16	45	5.3	24
850	90	18.1	15	68	11.1	20	45	5.4	30
1010	90	11.7	18	68	7.5	23	45	3.9	35
1200	90	12.2	21	68	7.8	27	68	7.8	27
1430	90	12.6	24	68	8.1	32	68	8.1	32
1670	90	13.0	28	68	8.3	37	68	8.3	37
1825	90	13.5	30	90	13.5	30	90	13.5	30

Size	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
500	341	4.8	4	257	3.0	6	170	1.5	9
600	341	4.8	6	257	3.0	8	170	1.6	11
715	341	5.4	7	257	3.4	9	170	1.6	13
850	341	5.5	8	257	3.4	11	170	1.6	17
1010	341	3.6	10	257	2.3	13	170	1.2	19
1200	341	3.7	12	257	2.4	15	257	2.4	15
1430	341	3.8	13	257	2.5	18	257	2.5	18
1670	341	4	16	257	2.5	21	257	2.5	21
1825	341	4.1	17	341	4.1	17	341	4.1	17

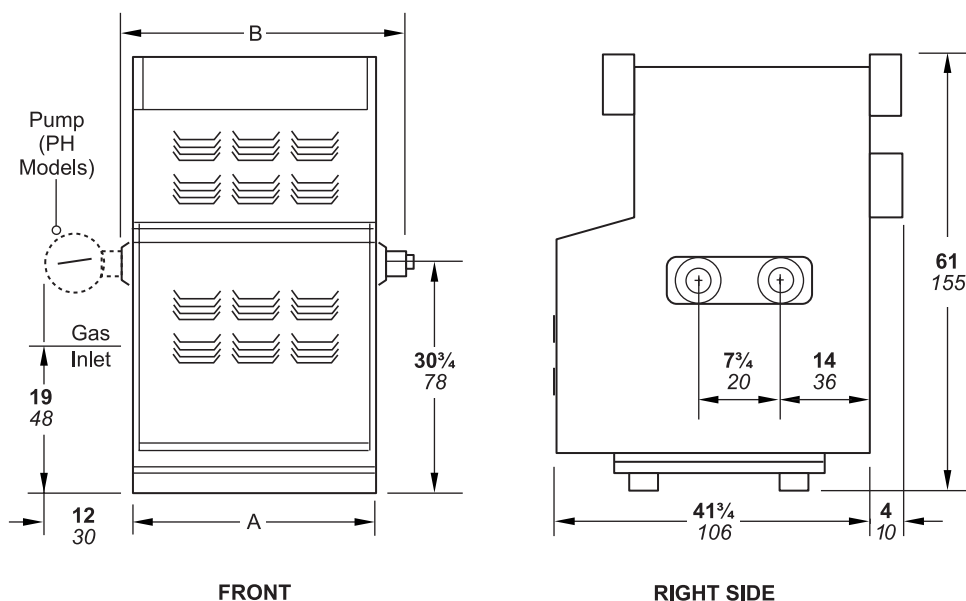
Pressure drop includes loss through 30 feet of pipe and normal fittings when heater is installed with storage tank.
Pipe and fittings are assumed to be 2" NPT on sizes 500-850 and 2½" NPT on sizes 1010-1825.

Recovery Data	Required Water Temperature Rise									
	Outdoor 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
	500	1230	984	820	703	615	547	492	410	352
	600	1477	1181	984	844	738	656	591	492	422
	715	1762	1409	1174	1007	881	783	705	587	503
	850	2092	1673	1395	1195	1046	930	837	697	598
	1010	2488	1990	1659	1422	1244	1106	995	829	711
	1200	2953	2363	1969	1688	1477	1313	1181	984	844
	1430	3520	2816	2347	2012	1760	1565	1408	1173	1006
	1670	4112	3289	2741	2350	2056	1827	1645	1371	1175
	1850	4493	3594	2995	2567	2246	1997	1797	1498	1284
	Outdoor 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
	500	4651	3721	3101	2658	2326	2067	1861	1550	1329
	600	5582	4465	3721	3189	2791	2481	2233	1861	1595
	715	6659	5327	4439	3805	3330	2960	2664	2220	1903
	850	7907	6326	5271	4518	3954	3514	3163	2636	2259
	1010	9405	7524	6270	5374	4702	4180	3762	3135	2687
	1200	11,163	8930	7442	6379	5582	4961	4465	3721	3189
	1430	13,307	10,646	8871	7604	6654	5914	5323	4436	3802
	1670	15,542	12,434	10,361	8881	7771	6908	6217	5181	4441
	1850	16,983	13,586	11,322	9704	8491	7548	6793	5661	4852

Electrical Data	Model	Boiler			Mounted Pump	Pump Delay Connection Rating
		Volts	Phase	Amps		
	VW (no pump)	115	Single	Less than 12	n/a	(when ordered optionally) 115V – Max 1HP or 230V – Max 3/4HP (pilot duty)
	PW / IW (built-in pump)	115	Single	Less than 12	Included in Mighty Therm connection	Included in Mighty Therm connection (IW does not use delay)

Pump Data	Sizes	Water Category					
		Power (HP)			Current (Amps)		
		Soft	Normal	Hard	Soft	Normal	Hard
	500	1/3	1/3	3/4	2.8	2.8	7.2
	600	1/3	1/3	3/4	2.8	2.8	7.2
	715	1/3	1/3	3/4	2.8	2.8	7.2
	850	1/3	1/2	3/4	2.8	5.2	7.2
	1010	1/3	1/2	3/4	2.8	5.2	7.2
	1200	1/3	1/2	3/4	2.8	5.2	7.2
	1430	1/3	1/2	3/4	2.8	5.2	7.2
	1670	1/3	3/4	3/4	2.8	7.2	7.2
	1825	3/4	3/4	3/4	7.2	7.2	7.2

Dimensional Data



Dimensions shown in inches cm.

Outdoor Size	Gas Connection Size inches ¹		Water Conn. Size NPT inches	Dimensions ¹			
	Natural	LP		A		B	
				in	cm	in	cm
500	1	¾	2	33¾	86	39¾	101
600	1	¾	2	38¾	98	44¾	114
715	1	¾	2	44¼	112	50¾	128
850	1	¾	2	50¾	129	56¾	144
1010	1¼	1	2½	58	147	64	163
1200	1¼	1	2½	66¼	168	72¼	184
1430	1¼	1¼	2½	76	193	82	208
1670	1½	1¼	2½	85½	217	91½	232
1825	1½	1¼	2½	92¼	234	98¼	250

NOTE: 1. Dimensions are nominal.

Clearances

Appliance Surface	Required Clearance From Combustible Material	
	inches	cm
Water Side	24	61
Opposite Side	24	61
Top	—	—
Back	24	61
Front	Open	
Vent	—	—



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