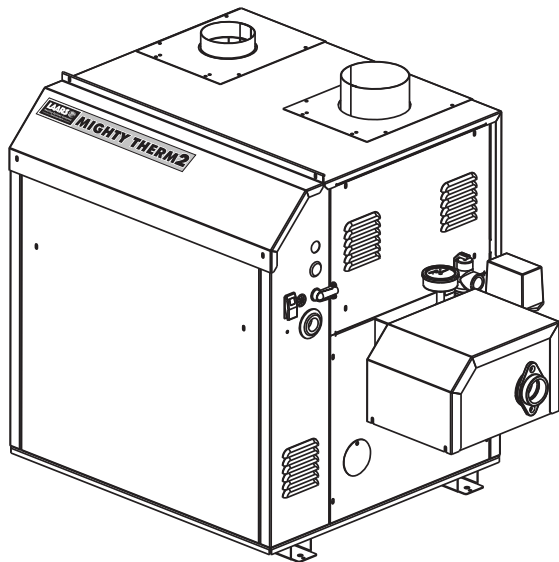


MIGHTY THERM²



Pump Mounted Boiler and Water Heater

MT2H	Hydronic Boiler
MT2V	Volume Water Heater

Indoor/Outdoor Sizes 200-400

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
- Pump, mounted and wired
- Flanged water connections
- Glass-lined headers
- External header gaskets
- 75 psi (517 kPa) ASME rated pressure relief valve (MT2H)
- 125 psi (861 kPa) ASME rated pressure relief valve (MT2V)
- Low lead construction (MT2V)
- Temperature pressure gauge
- Multiple operating gas valve/pressure regulators
- Manual "A" gas valve
- Intake air filter
- Removable burner tray(s)
- Stainless steel burners
- Built-in fan for Category I or III vent systems
- Air pressure switch
- Blocked vent switch
- Burner site glass
- PI controller
- Outdoor reset with ratios of 0.4 to 3.6 (MT2H)
- Warm weather shutdown (MT2H)
- Indicator lights for power, heat call, DHW call and WWSD
- DHW operation
- Automatic boiler differential
- Pump pre-purge, post-purge and exercise
- Blower pre-purge and post-purge
- Inlet, outlet, outdoor and supply sensors
- Codes for sensor errors
- 24V control system
- 115/24V transformer
- Flow switch
- Manual reset high limit
- Fusible link (size 200)
- On-off firing
- Certified for indoor or outdoor use
- Hot surface ignition
- On/off toggle switch
- Pump time delay
- CSD-1 compliant
- Less than 30ppm NOx

Boiler Data

Model:

- ☐ Boiler MT2H
☐ Water Heater MT2V

Number of Units:

Fuel

- ☐ Natural
☐ Propane

Configuration

- ☐ On/Off (standard)
☐ Two-Stage (optional)

Heat Exchanger

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

Pump

- ☐ Normal Water
☐ Soft Water (MT2V only)

Water Trim

- ☐ Glass-Lined Cast Iron
☐ Bronze Trim (std. on MT2V)

Options

- ☐ 200°F Max Controls (std. on MT2V)
☐ Low Water Cutoff
☐ Alarm Package with Bell
☐ ASME "HLW" Stamp (MT2V only)



Sizing Data

Model	Input		Output		A.F.U.E. %	Combustion Efficiency %	Thermal Efficiency %	Gas Conn. Size NPT	Water Conn. Size NPT	Shipping Weight	
	BTU/h	kW	BTU/h	kW						lbs	kg
MT2H0200	199,900	58.6	170,115	50.4	85.1	N/A	N/A	3/4	1-1/2	290	132
MT2H0300	300,000	87.9	255,000	74.7	N/A	85.0	84.0	3/5	1-1/3	320	145
MT2H0400	399,900	117.2	339,915	99.6	N/A	85.0	84.0	3/6	1-1/4	350	159
MT2V0200	199,900	58.6	169,915	49.8	N/A	N/A	85.0	3/7	1-1/5	290	132
MT2V0300	300,000	87.9	255,000	74.7	N/A	N/A	85.0	3/8	1-1/6	320	145
MT2V0400	399,900	117.2	339,915	99.6	N/A	N/A	85.0	3/9	1-1/7	350	159

- NOTES:
- 1. Input and output must be derated 4% per 1000 feet above sea level when installed above 2000 feet altitude.
 - 2. Dimensions are nominal.
 - 3. For other boiler ratings:
Boiler Horsepower: HP = $\frac{\text{Output}}{33,475}$ Radiation Surface: EDR sq. ft. = $\frac{\text{Output}}{150}$

Accessories

- Side-wall vent terminal for indoor installation (required for side-wall venting)
- Side-wall combustion air terminal for indoor installation (required only for ducted combustion air)
- Outdoor vent terminal and combustion air terminal

Water Flow Data

MT2H (Boiler) TEMPERATURE RISE								
Size	20°F	11°C	25°F	14°C	30°F	17°C	35°F	19°C
	Flow gpm	Flow lpm	Flow gpm	Flow lpm	Flow gpm	Flow lpm	Flow gpm	Flow lpm
200	17	64	14	51	11	43	10	37
300	26	98	20	77	17	64	15	55
400	34	129	27	103	23	86	19	74

MT2V (Water Heater)												
	HARD WATER				NORMAL WATER				SOFT WATER			
Size	Flow gpm	Temp Rise °F	Flow lpm	Temp Rise °C	Flow gpm	Temp Rise °F	Flow lpm	Temp Rise °C	Flow gpm	Temp Rise °F	Flow lpm	Temp Rise °C
200	45	8	170	4	35	10	133	5	23	15	87	8
300	45	11	170	6	35	15	133	8	23	22	87	12
400	45	15	170	8	35	19	133	1	23	30	87	16

**Recovery
Data**

WATER TEMPERATURE RISE IN °F									
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
200	510	408	340	291	255	227	204	170	146
300	765	612	510	437	383	340	306	255	219
400	1020	816	680	583	510	453	408	340	291

NOTE: GPH = gallons per hour.

WATER TEMPERATURE RISE IN °C									
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
200	1928	1542	1285	1100	964	858	771	643	552
300	2892	2313	1928	1652	1448	1285	1157	964	828
400	3856	3084	2570	2204	1928	1712	1542	1285	1100

NOTE: L/h = Liters per hour.

Clearances

Appliance Surface	Required Clearance from Combustible Material		Suggested Service Access Clearance	
	inches	cm	inches	cm
Left Side	1	2.54	24	61.0
Right Side	1	2.54	24	61.0
Top	1	2.54	12	30.5
Back*	1	2.54	12	30.5
Front	1	2.54	36	91.4
Vertical Vent** (Category 1)	6	15.2		
Horizontal Vent (Category 3)	per UL1738 venting system supplier's instructions			

* When vent and/or combustion air connects to the back, recommended clearance is 36" 91cm.

** 1" when b-vent is used.

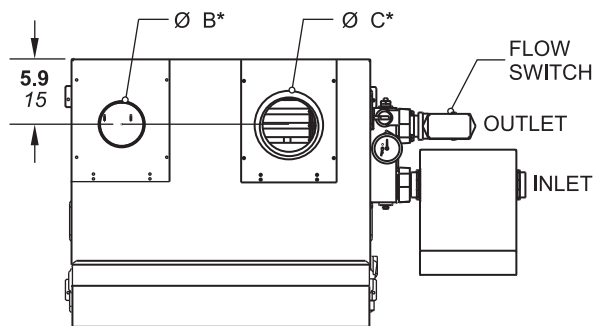
**Electrical
Data**

MT2H & MT2V (pump mounted) Size	Boiler / Heater Circuit Size			Pump	Blower
	Volts	Phase	Amps		
200–400	120	Single	15	Included in Boiler Connection	Included in Boiler Connection

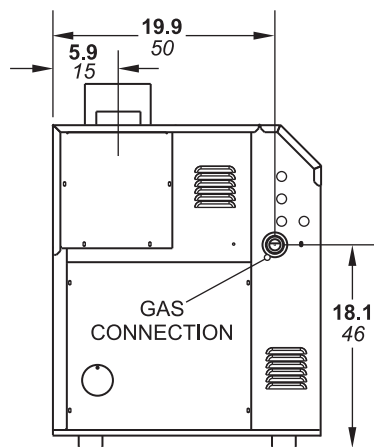
Pump Data

MT2V Water Heaters					MT2H Boilers		
Size	Water Category				Size		
	SOFT		NORMAL			HP	Amps
	HP	Amps	HP	Amps			
200	1/10	1.5	1/6	2.0	200	1/8	1.8
300	1/10	1.5	1/6	2.0	300	1/6	2.0
400	1/10	1.5	1/6	2.0	400	1/6	2.0

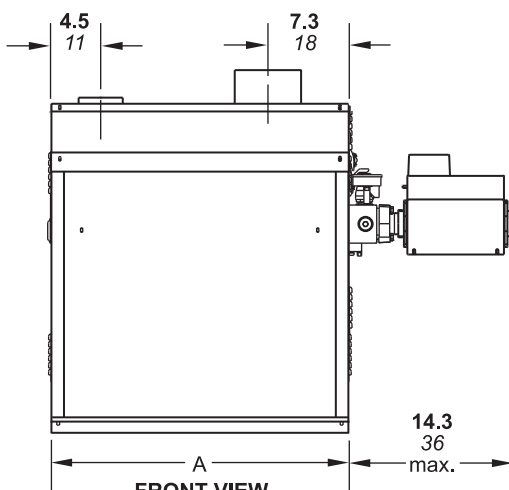
Dimensional Data



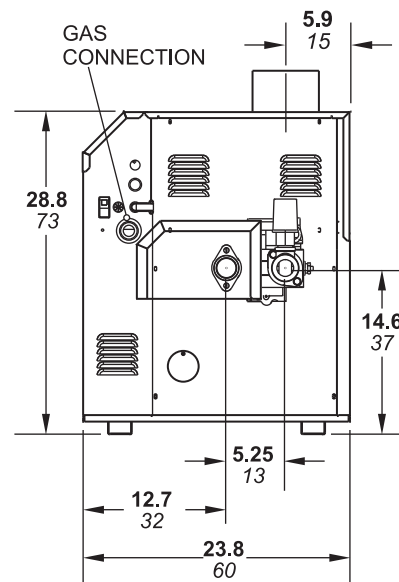
TOP VIEW



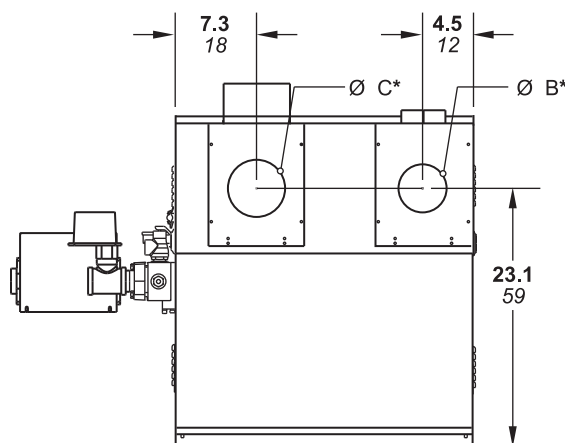
LEFT SIDE VIEW



FRONT VIEW



RIGHT SIDE VIEW



REAR VIEW

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

Size	A		Air Conn. B*		Vent Conn. C*		Horiz Vent Pipe	
	in	cm	in	cm	in	cm	in	cm
200	20½	52	4	10	5	13	4	10
300	26½	67	4	10	6	15	5	13
400	33½	85	6	15	7	18	6	15

*Air and vent connections may be on top or back of the Pennant, and are field convertible.

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