

LAARS[®]
MIGHTY
THERM[®] 2
200-400 SERIES

Residential and Light
Commercial Boiler/Volume
Water Heater



LAARS® MIGHTY THERM® 2

200, 300, 400

The Mighty Therm 2, 200 - 400 series boiler and volume water heater is available in 200, 300 and 400 MBH sizes. It operates at an environmentally friendly 85% efficiency and has low 10 ppm NOx emissions.

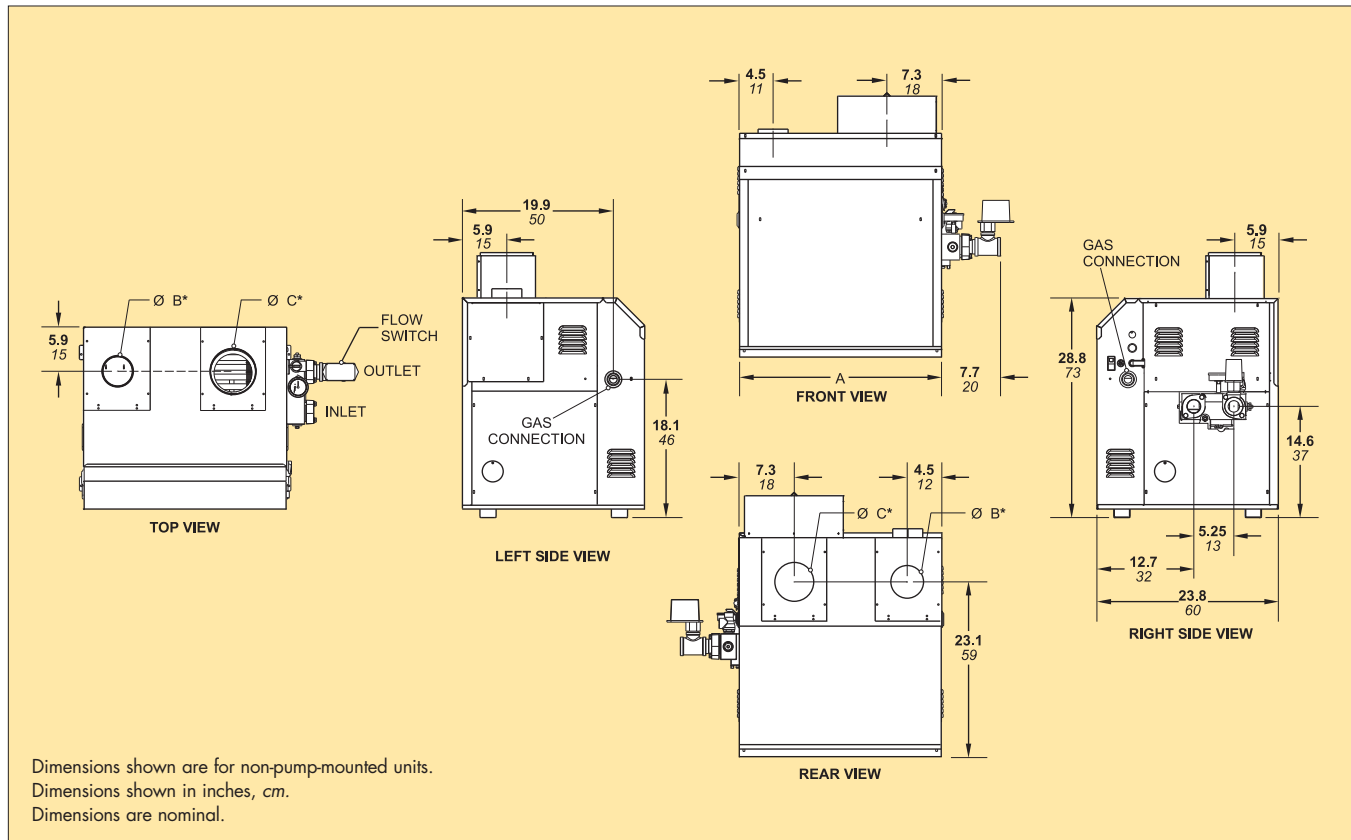
Laars Heating Systems designed the Mighty Therm 2, 200-400 series, to be easy to use, install and maintain. It comes with advanced control programming including a new auto set-point feature that automatically determines the boiler target temperature resulting in easier setup. The compact modular design, top or rear venting options and the ability to be installed either indoors or outdoors, results in installation flexibility.

Standard features include hot surface ignition, on/off firing (optional two-stage firing available), an ASME 160 psi working pressure heat exchanger, flanged water connections, glass-lined headers with external header gaskets, stainless steel burners with removable burner tray, and a built-in fan for Category I or III vent systems..

STANDARD EQUIPMENT

- ASME 160 psi working pressure heat exchanger
- ASME "H" stamp (Optional "HLW" stamp for water heater, Low lead construction (MT2V))
- Flanged water connections
- Glass-lined headers
- External header gaskets
- Blocked vent switch
- 75 psi (517 kPa) ASME rated pressure relief valve (MT2H)
- 125 psi (861 kPa) ASME rated pressure relief valve (MT2V)
- Multiple operating gas valve/pressure regulators
- Temperature pressure gauge
- Manual "A" gas valve
- Intake air filter
- Stainless steel burners
- Built-in fan for Category I or III vent systems
- Air pressure switch
- Burner site glass
- 24V control system
- 115/24V transformer
- Flow switch
- Manual reset high limit
- Fusible link (size 200)
- Certified for indoor or outdoor use
- Hot surface ignition
- On/off toggle switch
- Pump time delay
- CSD-1 Compliant
- Less than 10 ppm NOx
- PI controller
- Outdoor reset with ratio adjustment
- Warm weather shutdown
- Indicator lights for power, heat call, domestic hot water and warm weather shutdown
- Automatic boiler differential
- Pump pre and post purge
- Inlet, outlet and supply sensors
- Codes for sensor errors

DIMENSIONS



DIMENSIONS

Size	A		Air Conn. B*		Vent Conn. C*		Horiz Vent Pipe	
	in.	cm	in.	cm	in.	cm	in.	cm
200	20 1/2	52	4	10	5	13	4	10
300	26 1/2	67	4	10	6	15	5	13
400	33 1/2	85	6	15	7	18	6	15



*Air and vent connections may be on top or back of the Mighty Therm 2, and are field convertible.

EFFICIENCY DATA

Model	Thermal	A.F.U.E.
MT2H200	N/A	85.1
MT2H300	N/A	85.1
MT2H400	85.2	N/A
MT2V200	85.0	N/A
MT2V300	85.0	N/A
MT2V400	85.0	N/A

SIZING DATA

Size	Input MT2H		Output MT2H		Input MT2V		Output MT2V		Gas Conn. Size Inches	Water Conn. Size Inches	Shipping Weight	
	MBH	kW	MBH	kW	MBH	kW	MBH	kW	MBTU/h	MBTU/h	lbs.	kg
200	200.0	58.6	170.0	50.4	199.9	58.6	169.9	49.8	3/4 NPT	1 1/2 NPT	270	123
300	299.9	87.9	255.0	74.7	300.0	87.9	255.0	74.7	3/4 NPT	1 1/2 NPT	300	136
400	399.9	117.2	339.9	99.6	399.9	117.2	339.9	99.6	3/4 NPT	1 1/2 NPT	330	150

- 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 = Output/33,475
 Radiation Surface: EDR sq. ft. = Output/150
 IBR sq. ft. = Net IBR/150
 4. Add 20 lbs. (9kg) to shipping weight for pump-mounted units.

Water Flow Requirements

Temp Rise:	20°F		11°C		25°F		14°C		30°F		17°C		35°F		19°C	
Size	Flow gpm	H/L feet	Flow lpm	H/L m	Flow gpm	H/L feet	Flow lpm	H/L m	Flow gpm	H/L feet	Flow lpm	H/L m	Flow gpm	H/L feet	Flow lpm	H/L m
200	17	1.6	64	0.5	14	1.0	53	0.3	11	0.7	42	0.2	10	0.5	38	0.2
300	26	3.5	97	1.1	20	2.3	76	0.7	17	1.6	64	0.5	15	1.2	57	0.4
400	34	6.3	129	1.9	27	4.0	102	1.2	23	2.8	87	0.9	19	2.1	72	0.6

Size	HARD WATER						NORMAL WATER						SOFT WATER					
	Flow gpm	H/L feet	Temp Rise °F	Flow lpm	H/L m	Temp Rise °C	Flow gpm	H/L feet	Temp Rise °F	Flow lpm	H/L m	Temp Rise °C	Flow gpm	H/L feet	Temp Rise °F	Flow lpm	H/L m	Temp Rise °C
200	45	7.3	8	170	2.2	4	35	4.4	10	133	1.3	6	23	1.9	15	87	0.6	8
300	45	7.4	11	170	2.3	6	35	4.5	15	133	1.4	8	23	2.0	22	87	0.6	12
400	45	7.4	15	170	2.3	8	35	4.5	19	133	1.4	11	23	2.0	30	87	0.6	17

NOTE: gpm = gallons per minute, lpm = liters per minute

Recovery Data

Size	40°F GPH	22°C L/h	50°F GPH	28°C L/h	60°F GPH	33°C L/h	70°F GPH	39°C L/h	80°F GPH	44°C L/h	90°F GPH	50°C L/h	100°F GPH	56°C L/h	120°F GPH	67°C L/h	140°F GPH	78°C L/h
200	510	1928	408	1542	340	1285	291	1100	255	964	227	858	204	771	170	643	146	552
300	765	2892	612	2313	510	1928	437	1652	383	1448	340	1285	306	1157	255	964	219	828
400	1020	3856	816	3084	680	2570	583	2204	510	1928	453	1712	408	1542	340	1285	291	1100

NOTE: GPH = gallons per hour, L/h = Liters per hour

Minimum Clearances from Adjacent Construction

Appliance Surface	Required Clearance from Combustible Material		Suggested Service Access Clearance	
	inches	cm	inches	cm
Left Side	1	2.5	24	61.0
Right Side	1	2.5	24	61.0
Top	1	2.5	12	30.5
Back*	1	2.5	12	30.5
Front	1	2.5	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.



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