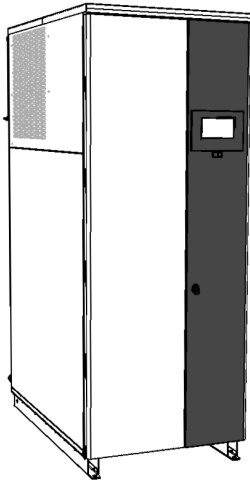


MAGNATHERM® FT



Hydronic Boiler

CFH Firetube Boiler

Indoor/Outdoor, Sizes 1000 - 3000

Date:

Project #:

Engineer:

Prepared By:

Bid Date:

Submittal Data



Project Name:

Location:

Contractor:

Standard Features

- ASME "H" stamp
- 160 psi maximum working pressure
- Certified for Category II and Category IV vent systems
- Indoor/outdoor
- Low NOx system exceeds the most stringent regulations for air quality
- High condensing efficiency
- Up to 20:1 turndown modulation
- Sophisticated gas/air valve allows for constant control of modulation
- Tru Trac™ real-time O₂ sensing maintains efficiency throughout the modulation range
- Stainless steel vertical firetube heat exchanger with welded construction
- Sealed combustion chamber
- Pre-mix stainless steel burner
- Electronic PID modulating control with large touchscreen and color display
- Multiple independent heat demands
- VARI-PRIME boiler pump control via user-selectable fixed boiler temperature rise
- Wired and programmed to control boiler isolation valves
- Controller cascades with up to eight MagnaTherm FT boilers
- Accepts 4-20ma or 0-10VDC external modulation or external set point control
- Modbus RTU & BACnet MSTP on board
- Multiple pump control for boiler pump, system pump, & indirect DHW water pump, each with delay
- Indirect water heater priority
- Sensor for indirect DHW tank
- Outdoor reset with air sensor
- Horizontal or vertical direct vent
- Vent and air pipe lengths of up to 100 equivalent feet (each)
- High & low gas pressure switches
- Vent temperature cutoff
- Normally open alarm contact
- Air filter
- Built-in condensate trap
- Temperature & pressure gauge
- Low water cutoff
- Water flow switch
- 75 psi (517kPa) ASME rated pressure relief valve
- Flange water fittings
- Burner site glass
- Heat exchanger warranty: 10-Year limited non-prorated 25-year limited thermal shock 1-Year limited parts warranty

Boiler Data

Number of Units

Fuel

☐ Natural

Voltage

☐ 120V, single ph (1000-2000)

☐ 208V, single ph (1000-2000)

☐ 220/240V, single ph (1000-2000)

☐ 208V, three ph (2000-3000)

☐ 480V, three ph (2000-3000)

☐ 600V, three ph (2000-3000)

Factory Mounted Options

☐ ASME CSD-1

☐ BACnet IP gateway

☐ LonWorks gateway

☐ Additional auto & manual reset high limit switches

☐ Alarm bell with silence switch

☐ 75 psi pressure relief valve (std)

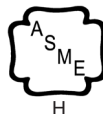
☐ 30 psi pressure relief valve

☐ 50 psi pressure relief valve

☐ 60 psi pressure relief valve

☐ 125 psi pressure relief valve

☐ 150 psi pressure relief valve



Accessories for Field Mounting

☐ Gateway for BACnet IP	☐ Screen for vertical stainless steel vent	☐ Screen/adapter for vertical or horizontal PCV ducted air
☐ Gateway for LonWorks	☐ Screen for horizontal CPVC vent	☐ Screen for horizontal galvanized or vertical ducted air
☐ Motorized isolation valve(s)	☐ Screen for vertical CPVC vent	☐ Screen for horizontal polypropylene ducted air
☐ Condensate neutralizer	☐ Screen for horizontal polypropylene vent	☐ Screen for vertical polypropylene ducted air
☐ Condensate neutralizer with pump	☐ Screen for vertical polypropylene vent	
☐ Vent terminal for outdoor unit		
☐ Screen for outdoor unit air		
☐ Vent terminal for horizontal stainless steel vent		

Sizing Data

Model	Minimum Input Rate		Maximum Input Rate		Minimum Output Rate		Maximum Output Rate		Thermal Efficiency	Combustion Efficiency	Modulation Turndown Ratio
	MBH	kw	MBH	kw	MBH	kw	MBH	kw	%	%	
☐ 1000	67	19.6	999.9	293	63	18.5	950	278	95.8	96.1	15:1
☐ 1500	75	22.0	1500	440	71	20.8	1425	418	95.9	96.3	20:1
☐ 2000	100	29.3	1999.9	586	95	27.8	1900	557	95.4	95.5	20:1
☐ 3000	150	44.0	3000	879	143	41.9	2850	835	95.9	95.9	20:1

Model	Product Weight		Operating Weight		Shipping Weight		Water Content	
	lbs	kg	lbs	kg	lbs	kg	gal	l
1000	1300	590	1934	878	1450	658	76	288
1500	1450	658	2292	1041	1600	726	101	382
2000	1750	795	2717	1234	1950	885	116	439
3000	2050	931	3292	1495	2250	1022	149	564

Clearances

	Clearance to Combustibles		Suggested Service Clearance	
	inches	cm	inches	cm
Front	18	46	24	61
Back	18	46	24	61
Left	3	8	12	30
Right	3	8	12	30
Top	3*	8	24*	61

Note: A 4" high equipment pad is required.

This pad must NOT extend more than 3" beyond the boiler base structure at the rear of the boiler.

*24" top clearance is suggested to service the unit.

Electrical Data

Voltage	1000 Current			1500 Current			2000 Current			3000 Current		
	FLA	MCA	MOP	FLA	MCA	MOP	FLA	MCA	MOP	FLA	MCA	MOP
120V, 1 phase	5.0	6.2	15.0	6.2	7.8	15.0	7.8	9.7	20.0	N/A	N/A	N/A
208V, 1 phase	2.9	3.6	15.0	3.6	4.5	15.0	4.5	5.6	15.0	N/A	N/A	N/A
220/240V, 1 phase	2.7	3.4	15.0	3.4	4.2	15.0	4.3	5.3	15.0	N/A	N/A	N/A
208V, 3 phase	N/A	N/A	N/A	N/A	N/A	N/A	3.3	4.1	15.0	4.5	5.6	15.0
480V, 3 phase	N/A	N/A	N/A	N/A	N/A	N/A	1.5	1.9	15.0	2.1	2.6	15.0
600V, 3 phase	N/A	N/A	N/A	N/A	N/A	N/A	1.1	1.4	15.0	1.4	1.8	15.0

Full Load Amperage
Minimum Circuit Ampacity
Max Over-current Protection

Vent Information

Model	Vent / Air Connector Size		Air Pipe Size		Maximum Ducted Air Pipe Length		Category IV Vent Pipe Size		Maximum Category IV Vent Pipe Length		Typical Category II Vent Pipe Size***	
	inches	cm	inches	cm	ft*	m	inches	cm	ft*	m	inches	cm
1000	6	15	6	15	100	30.5	6	15	100	30.5	12	30
1500	8	20	8	20	100	30.5	8	20	100	30.5	14	36
2000	8	20	8	20	100	30.5	8	20	100	30.5	18	46
3000	10	25	10	25	100	30.5	10	25	100	30.5	22	56

*Equivalent Feet: Equivalent Feet: To calculate maximum equivalent length, measure the linear feet of the pipe and add 5 feet (1.5m) for each elbow used.

***Category II: Category II pipe size may vary. Draft must remain between -0.1 and -0.001" w.c..

Notes:

1. Installations in the U.S. require exhaust vent pipe that is CPVC complying with ANSI/ASTM D1785 F441, stainless steel complying with UL1738, or polypropylene complying with ULC S636.
2. Installations in Canada require exhaust vent pipe that is certified to ULC S636.
3. Intake (air) pipe must be PVC or CPVC that complies with ANSI/ASTM D1785 F441, ABS that complies with ANSI/ASTM D1527, stainless steel, or galvanized material.

Water Flow Requirements

Temperature Rise

Model	20°F		30°F		40°F		50°F		60°F		70°F	
	Flow gpm	HL* ft	Flow gpm	HL* ft	Flow gpm	HL* ft	Flow gpm	HL* ft	Flow gpm	HL* ft	Flow gpm	HL* ft
1000	95	1.9	63	1.1	48	0.7	38	0.5	32	0.4	27	0.3
1500	142	3.4	95	1.6	71	1.0	57	0.6	48	0.5	41	0.3
2000	190	4.5	127	2.1	95	1.2	76	0.8	63	0.6	54	0.4
3000	285	7.0	190	3.5	142	2.1	114	1.4	95	1.0	81	0.8

*Headloss is for boiler only (no piping).

Temperature Rise

Model	11°C		17°C		22°C		28°C		33°C		39°C	
	Flow l/m	HL* (m)	Flow l/m	HL* (m)	Flow l/m	HL* (m)	Flow l/m	HL* (m)	Flow l/m	HL* (m)	Flow l/m	HL* (m)
1000	360	0.6	239	0.3	182	0.2	144	0.2	121	0.1	102	0.1
1500	538	1.0	360	0.5	269	0.3	216	0.2	182	0.2	155	0.1
2000	719	1.4	481	0.6	360	0.4	288	0.2	239	0.2	204	0.1
3000	1079	2.1	719	1.1	538	0.6	432	0.4	360	0.3	307	0.2

*Headloss is for boiler only (no piping).

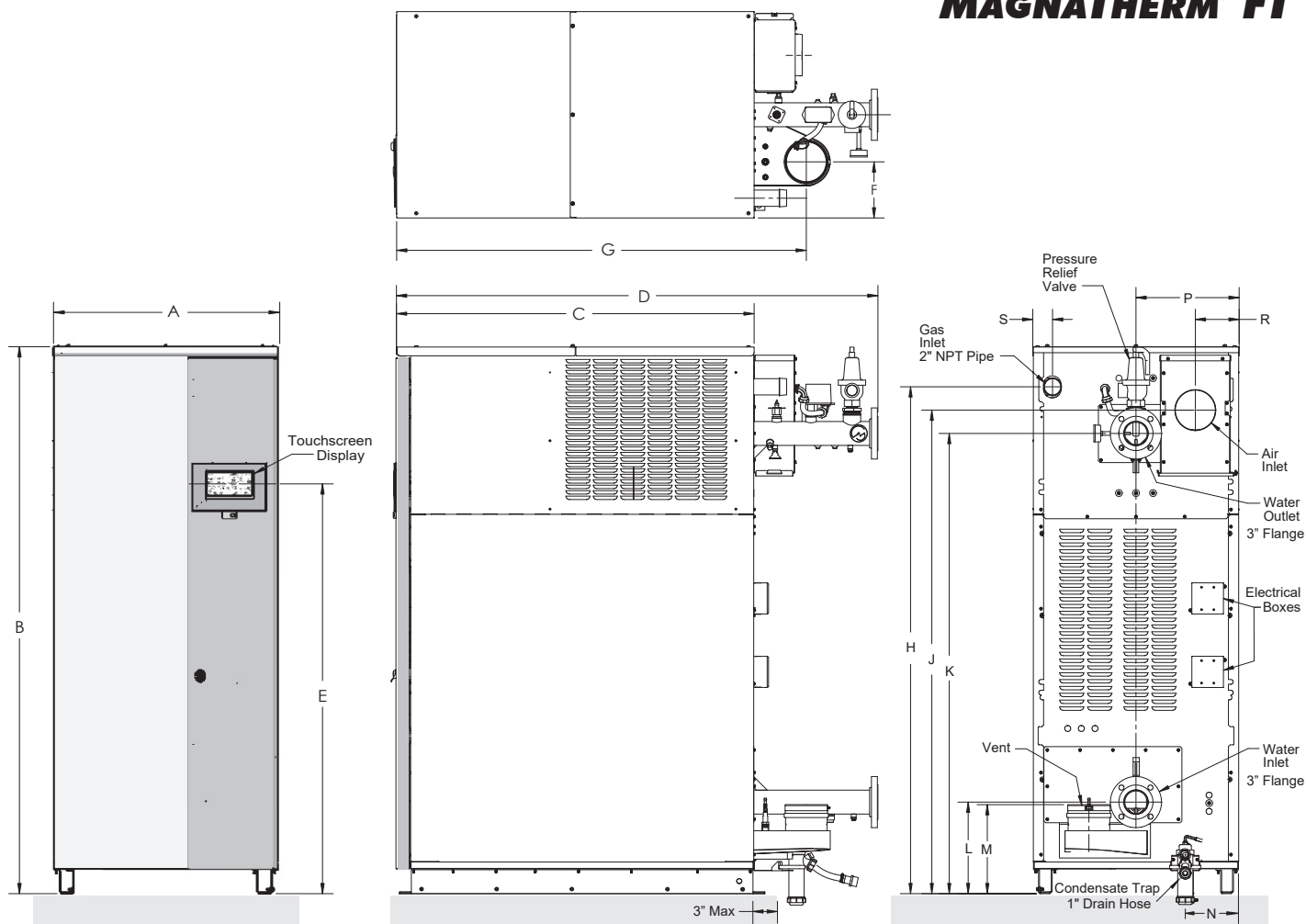
Dimensional Data

Model	"A"		"B"		"C"		"D"		"E"		"F"		"G"		"H"	
	in	(cm)	in	(cm)	in	(cm)	in	(cm)	in	(cm)	in	(cm)	in	(cm)	in	(cm)
1000	30.2	(76.7)	80.0	(203)	52.4	(133)	70.5	(179)	60.0	(152)	8.2	(20.9)	60.0	(152)	74.2	(188)
1500	30.2	(76.7)	80.0	(203)	52.4	(133)	70.5	(179)	60.0	(152)	7.8	(19.7)	60.3	(153)	74.2	(188)
2000	34.6	(87.9)	80.0	(203)	56.3	(143)	73.3	(189)	60.0	(152)	9.1	(23.0)	63.1	(160)	73.6	(187)
3000	34.6	(87.9)	80.0	(203)	56.3	(143)	75.5	(192)	60.0	(152)	8.4	(21.4)	65.4	(166)	73.6	(187)

Model	"J"		"K"		"L"		"M"		"N"		"P"		"R"		"S"	
	in	(cm)	in	(cm)	in	(cm)	in	(cm)	in	(cm)	in	(cm)	in	(cm)	in	(cm)
1000	70.8	(180)	67.3	(171)	13.4	(34.0)	13.0	(33.1)	7.9	(20)	15.1	(38.4)	6.4	(16.3)	2.9	(7.3)
1500	70.8	(180)	67.3	(171)	13.4	(34.0)	13.0	(33.1)	7.9	(20)	15.1	(38.4)	6.4	(16.3)	2.7	(6.9)
2000	72.0	(183)	67.3	(171)	13.4	(34.0)	13.0	(33.1)	10.1	(26)	17.3	(44.0)	8.2	(20.9)	3.8	(9.5)
3000	72.0	(183)	68.4	(174)	14.4	(36.6)	14.0	(35.5)	10.1	(26)	17.3	(44.0)	8.2	(20.9)	3.6	(9.1)

Inlet and outlet water connections are 3-inch 150# flanges, 4 hole, 6" bolt circle

MAGNATHERM® FT



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