

## Technical Data Sheet

# MFC II Multi-Fuel Condensing Fire Tube Boiler

## 4000-12000 MBH

MFC II is a mid- to large-capacity, multi-fuel boiler engineered for mission-critical environments where continuous operation and system resilience are non-negotiable.

Designed for hospitals, healthcare campuses, military installations, data centers, laboratories, and central plants among other applications, MFC II combines dual-fuel adaptability, high-efficiency condensing performance, and robust construction to ensure reliable heat delivery under demanding conditions.

Its design supports redundancy strategies and stable operation across wide load ranges, making it ideal for facilities requiring maximum uptime and compliance with stringent performance standards.

### Engineered for Uninterrupted Service and Easy Plant Integration

MFC II's dual-fuel capability (natural gas, propane, or #2 fuel oil backup) ensures uninterrupted operation during fuel supply disruptions. Integration with lead/lag sequencing and Modbus-based plant control enables redundancy across multiple units, supporting N+1 design strategies for mission-critical systems.

### Stable Performance Across Wide Load Ranges

A large waterside volume minimizes cycling and absorbs load fluctuations, reducing thermal stress and maintaining safe operating conditions even under no-flow scenarios. Turndown ratios up to 7:1 on gas and 5:1 on oil allow precise modulation for varying demand profiles without sacrificing efficiency.



### Integration into Central Plants and BAS

Native Modbus communication and optional Master Lead/Lag panel simplify integration with Building Automation Systems (BAS) and Energy Management platforms. Control flexibility includes constant setpoint, indoor/outdoor reset, remote setpoint, and 4–20 mA modulation, ensuring compatibility with diverse plant strategies.

### Designed for Simplified Service and Greater Durability

The spacious furnace design and davited rear lid provide direct access to the combustion head and heat exchanger without disturbing the burner or fuel train. Full penetration tube welds and stainless steel condensing surfaces enhance durability and reduce maintenance frequency, supporting long-term reliability.

## Features

- 4,000–12,000 MBH capacity range
- Condensing operation (gas and ultra-low sulfur oil)
- Fuel flexibility: Operates on natural gas, propane, or dual-fuel (#2 oil backup)
- Up to 7:1 turndown ratio (14%) when firing on natural gas; up to 5:1 (20%) on oil
- Thermal efficiency up to 94.5%
- Heat exchanger (3-pass fire-tube) made of high-quality, combined carbon steel/ 316L SS
- Industry leading power burner (Weishaupt)
- Low NOx emissions: 30 ppm (7 ppm available up to 8,000 MBH)
- Precise temperature control
- Furnace design enables easy service access without removing burner or fuel train
- Capable of variable primary flow Installations
- Ducted combustion air capable
- Acceptable vent materials: UL 1738 certified stainless steel
- Controls options: constant setpoint, indoor/outdoor reset, remote setpoint (via Modbus) or 4-20mA modulating control.
- Optional dual return water connections

## Ratings

Model	Min Input MBH <sup>a</sup>	Max Input MBH	Max Output MBH <sup>a</sup>	Efficiency Range
MFC II 4000	850	4000	3480 - 3780	87.0% - 94.5%
MFC II 5000	1195	5000	4350 - 4730	87.0% - 94.5%
MFC II 6000	1195	6000	5220 - 5670	87.0% - 94.5%
MFC II 8000	1024	8000	6960 - 7560	87.0% - 94.5%
MFC II 10000	1710	10000	8700 - 9450	87.0% - 94.5%
MFC II 12000	1710	12000	10440 - 11340	87.0% - 94.5%

<sup>a</sup> Values based on natural gas/propane firing

<sup>b</sup> Max output dependent upon application - See efficiency curves

# Specifications

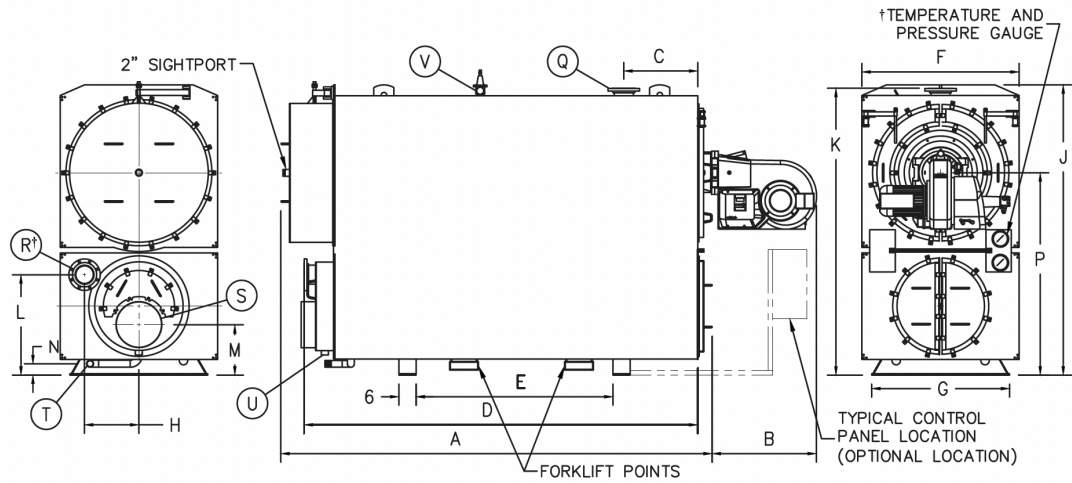
	4000	5000	6000	8000	10000	12000
Boiler Category	ASME Sect.IV					
Max. Allowed Working Pressure	160 psi					
Max. Working Temperature	210°F					
Type of Fuel	Natural Gas, Propane, #2 Fuel Oil (backup)					
Gas Connections (NPT)	1-1/2"			2"		
Oil Connections (NPT)	1/2"			3/4"	1"	
Min. Gas Pressure	1 - 2 psi (See MFC II Gas/Oil Design Guide for size and burner-specific minimum gas pressure)					
Max. Gas Pressure	5 psi					
Max #2 Fuel Oil Consumption Flow rate (GPH)	28.6	35.7	42.9	57.1	71.4	85.7
#2 Fuel Oil Supply Flow Rate (GPH)	93-249	93-249	93-249	125-333	168-454	447-539
Electrical Req. 208V/3PH/60Hz <sup>a</sup>	20-32 FLA	20-32 FLA	22-35 FLA	32-48 FLA	48-59 FLA	59 FLA
Electrical Req. 240V/3PH/60Hz <sup>a</sup>	17-28 FLA	17-28 FLA	20-30 FLA	28-42 FLA	42-52 FLA	49-52 FLA
Electrical Req. 460V/3PH/60Hz <sup>a</sup>	9-14 FLA	9-14 FLA	10-15 FLA	14-21 FLA	21-26 FLA	26-29 FLA
Electrical Req. 575V/3PH/60Hz <sup>a</sup>	7-12 FLA	7-12 FLA	8-16 FLA	12-19 FLA	19-23 FLA	23 FLA
Water Connections (Flanged)	6"				8"	
Min. Water Flow (GPM)	The boiler is capable of operating at zero flow conditions without any harm to the heat exchanger/pressure vessel.					
Max. Water Flow (GPM)	500	630	760	1010	1260	1520
Water Volume Gallons	423	480	480	618	696	876
Water Pressure Drop	3.1 Ft Hd @400 gpm	4.8 Ft Hd @500 gpm	6.9 Ft Hd @600 gpm	12.4 Ft Hd @800 gpm	9.8 Ft Hd @1000 gpm	14.1 Ft Hd @1200 gpm
Turndown (Nat. Gas/Propane)	Up to 7:1 turndown ratio (14%)					
Turndown (#2 Fuel Oil)	Up to 5:1 turndown ratio (20%)					
Vent/Air Intake Connections	12"		12" conn.; Vent: 14" min.	16"		
Vent Materials	UL 1738 certified Stainless Steel					
NOx Emissions	<30 ppm (7ppm Ultra Low Nox available)				<30 ppm	
Temp. Control Range	90°F to 190°F					
Minimum Water Inlet Temperature	Natural Gas/Propane - no minimum; #2 Fuel Oil 140°F (100°F for ultra-low sulfur, <15ppm)					
Ambient Temp. Range	32°F to 140°F					
Standard Listings & Approvals	UL, CUL, CSD-1, ASME					
Gas Train Operations	FM Compliant or Double Block and Bleed					
Shipping Weight lbs.	7600	8900		11000	12300	14500

<sup>a</sup> Actual Electrical Requirement dependent on configured burner model

<sup>b</sup> Actual Fuel oil supply flow rate dependent on configured burner model

All specifications in the table above are preliminary and subject to change

# Dimensions



Model	DIM	4000	5000 6000	8000	10000	12000
Overall Length	A	134	134	150	153	170
Burner Extension	B	33	33	37	37	37
To Supply Nozzle	C	25 3/4	25 3/4	25 3/4	25 3/4	25 3/4
To Return Nozzle	D	123	123	137	145	157
Between Supports	E	62	62	69	78	90
Overall Widths	F	45	51	55	57	57
Support Width	G	42	46	48	50	50
CL to Return	H	17 1/2	18 1/4	19	22 1/2	21 3/4
Overall Heights	J	86 1/2	94 1/2	100 1/2	106 1/2	108 1/2
Outlet Nozzle	K	85 1/2	93 1/2	99 1/2	105 1/2	107 1/2
Return Nozzle	L	32	33 1/2	34 3/4	39	43
Flue Outlet	M	16	15 3/8	17 1/2	17 1/2	17 1/2
Drain	N	4	4	4	4	4
Furnace CL	P	61	66	70	75	77
<b>CONNECTIONS</b>						
Supply Nozzle	Q	6	6	6	8	8
Return Nozzle	R	6	6	6	8	8
Flue Outlet	S	12	12	16	16	16
System Drain	T	2	2	2	2	2
Condensate Drain	U	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
Safety Valve	V	3/4 x 1	1 x 1 1/4	1 1/2 x 2	1 1/2 x 2	1 1/2 x 2
<b>MINIMUM CLEARANCES</b>						
To Combustibles Front		48	48	48	48	48
To Combustibles Side		4	4	4	4	4
To Combustibles Top		20	20	20	20	20
To Combustibles Rear		20	20	20	20	20
Door Swing Side		54/57	54/60	60/67	60/68	60/68
Door Swing Rear		45/40	48/40	51/45	52/45	52/45



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