MFC II

Multi-Fuel Condensing Hydronic Boilers

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A Multi-Fuel Solution For Demanding Applications

MFC II is a mid- to large-capacity, multi-fuel condensing boiler (4,000-12,000 MBH) designed for facilities where uptime is critical and operating conditions can change without warning. It combines dual-fuel capability, high-efficiency condensing performance with up to 94.5% thermal efficiency, and durable fire-tube construction. The result is reliable heat across a wide range of mission-critical applications.

Designed for hospitals, campuses, military installations, central plants, and industrial facilities, MFC II supports modern boiler plant strategies, including redundancy, load matching, and integration with building automation systems. Its multi-fuel capability ensures continued operation during fuel disruptions, while flexible controls allow it to adapt to varying plant configurations.

A large waterside volume helps stabilize system operation by minimizing cycling and absorbing load swings. Combined with up to 7:1 turndown on gas and 5:1 on oil, MFC II maintains precise control across changing load conditions while reducing thermal stress and wear on system components.

ASME H

GAS-FIRED
cULus LISTED

Multi-fuel operation (gas, propane, #2 oil backup)

Up to 7:1 turndown (gas)

Low NOx emissions (30 ppm, 7 ppm optional)

Large water volume for stable operation

Stainless steel condensing surfaces

Service-friendly access design

Built for Uninterrupted Operation and Performance

Designed for uptime in mission-critical plants

MFC II supports continuous operation in facilities where heating downtime is not acceptable. Dual-fuel capability allows the boiler to operate on natural gas or propane, with #2 fuel oil available as backup during supply interruptions. This supports plant resilience strategies in healthcare, military, and central plant applications.

Supports modern boiler plant design

MFC II integrates into multi-boiler systems using Modbus communication and lead-lag sequencing. This allows engineers to design for N+1 redundancy, staged capacity, and optimized load distribution across the plant.

Stable operation across varying loads

The combination of high turndown and large water volume reduces short cycling and allows the boiler to respond smoothly to changing demand. This helps extend equipment life and maintain more stable system temperatures during part-load operation.

Improves efficiency without sacrificing reliability

Condensing operation enables thermal efficiencies up to 94.5% while maintaining the durability of a three-pass fire-tube heat exchanger. The design balances heat transfer performance with long-term reliability in demanding applications.

Simplifies maintenance and service access

The furnace design and rear access door allow technicians to inspect and service internal components without removing the burner or fuel train. This reduces service time and improves accessibility in tight mechanical rooms.

Flexible integration with building systems

Multiple control strategies, including set point, reset and external modulation, allow the boiler to operate within a wide range of control schemes. Native Modbus communication simplifies integration with buildings.

Healthcare | Education | Government | Military & Law Enforcement | Emergency Shelters | Industrial

Delivers Consistent Performance in Demanding Systems

Supporting ESG goals and decarbonization

MFC II supports ESG and sustainability goals through highefficiency condensing operation and low-emission combustion. By reducing fuel use, it helps lower overall carbon output without sacrificing performance. Its fully modulating burner meets stringent NOx and CO requirements, with emissions of 30 ppm or less on natural gas, while condensing efficiency up to 94.5% further reduces fuel consumption and associated emissions.

Performance and efficiency:

- 4,000–12,000 MBH capacity range
- Condensing operation (gas and ultra-low sulfur oil)
- Thermal efficiency up to 94.5%
- Up to 7:1 turndown ratio (14%) on natural gas; up to 5:1 (20%) on oil
- Low NOx emissions: 30 ppm (7 ppm available up to 8,000 MBH)
- Industry-leading power burner (Weishaupt)
- Precise temperature control

Design and durability:

- 3-pass fire-tube heat exchanger, constructed of carbon steel and 316L stainless steel
- Fuel flexibility: natural gas, propane, or dualfuel (#2 oil backup)
- Furnace design enables service access without removing burner or fuel train
- Optional dual return water connections

Installation and integration:

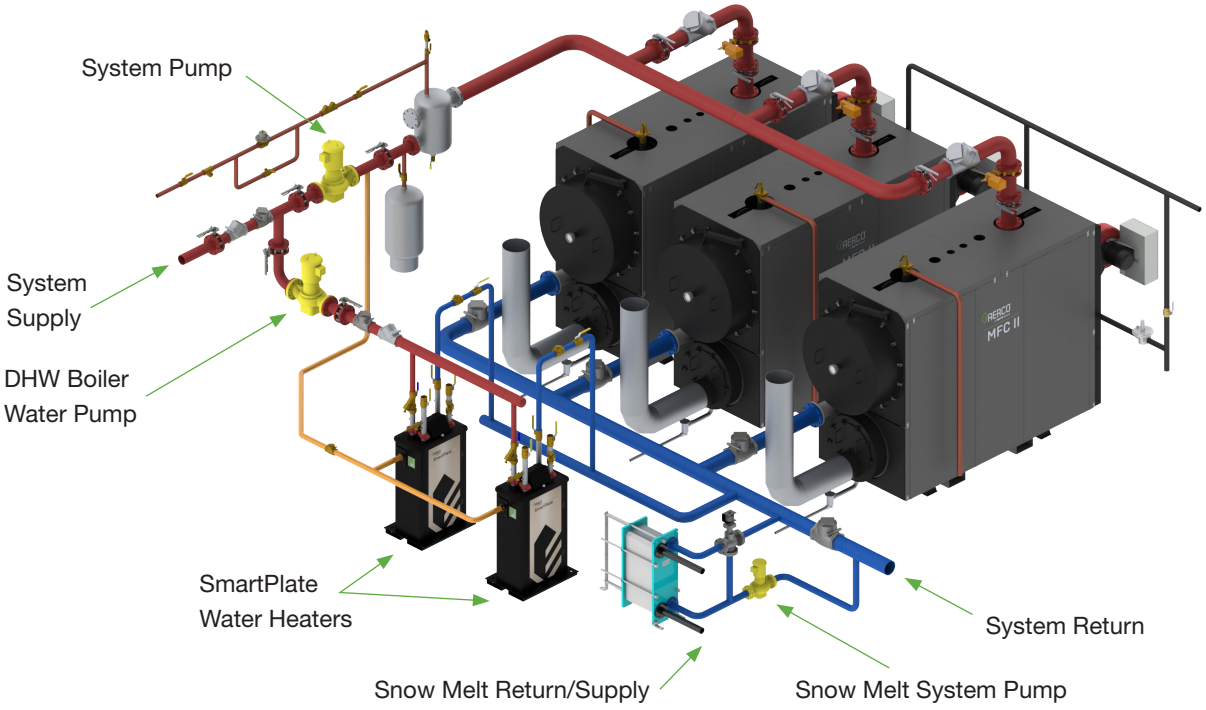
- •Capable of variable primary flow installations
- Ducted combustion air capable
- Acceptable vent materials: UL 1738 certified stainless steel
- Controls options: constant setpoint, indoor/outdoor reset, remote setpoint (Modbus), or 4–20 mA modulation

Model	Min Input MBH [a]	Max Input MBH	Max Output MBH [a]	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%

[a] Values based on natural gas/propane firing

[b] Max output dependent upon application - See efficiency curves

Supports Complex System Applications



An example of an MFC II hospital installation featuring an MFC II boiler for space heating, a SmartPlate for domestic hot water, optional dual return configuration, and a snow melt system to improve efficiency and enhance safety for patients, staff, and visitors.

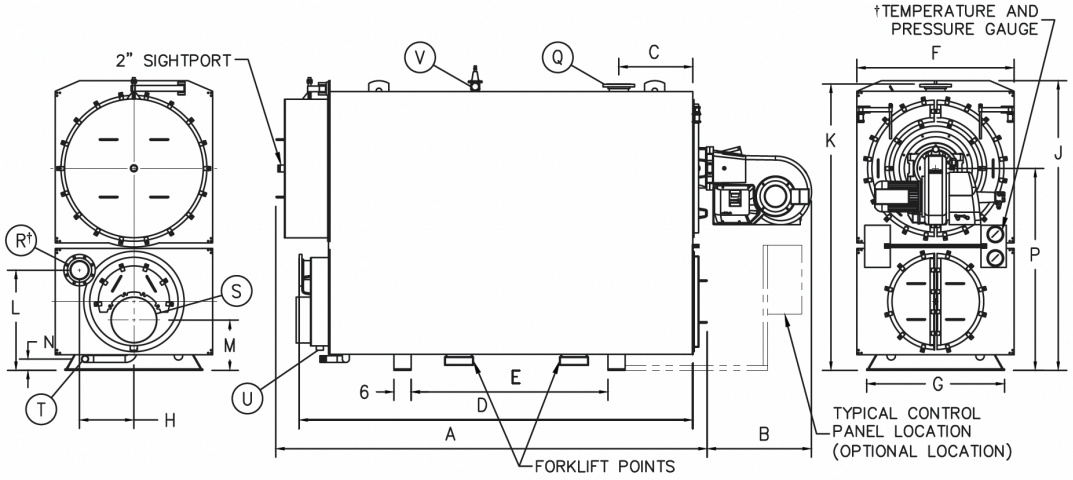
Sequencing Control Panel for Multiple Boiler Heating Plants

MFC II can be applied as a standalone unit or in modular boiler plants. AERCO sequencing controls maintain precise water temperature across multi-boiler plants, supporting up to eight units. Lead/lag control with automatic rotation balances runtime and load. Setpoints can be based on outdoor reset or fixed temperature. Native Modbus (TCP/IP or RTU) enables BMS integration, with optional gateways for BACnet and Metasys, along with control of pumps and motorized valves for complete system coordination..

- 10” touchscreen display
- Parallel or sequential modulation
- Automatic rotation or lead boiler selection
- DHW priority (select models)
- Burner status and alarms
- Data capture to USB
- High-limit protection with automatic firing rate reduction

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
CONNECTIONS						
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
MINIMUM CLEARANCES						
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



Specifications

	4000	5000	6000	8000	10000	12000
Boiler Category	ASME Sect.IV					
Max. Allowed Working Pressure	160 psi					
Max. Working Temperature	210ºF					
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 [a]	20-32 FLA	20-32 FLA	22-35 FLA	32-48 FLA	48-59 FLA	59 FLA
Electrical Req. 240V/3PH/60Hz [a]	17-28 FLA	17-28 FLA	20-30 FLA	28-42 FLA	42-52 FLA	49-52 FLA
Electrical Req. 460V/3PH/60Hz [a]	9-14 FLA	9-14 FLA	10-15 FLA	14-21 FLA	21-26 FLA	26-29 FLA
Electrical Req. 575V/3PH/60Hz [a]	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	90ºF to 190ºF					
Minimum Water Inlet Temperature	Natural Gas/Propane - no minimum; #2 Fuel Oil 140ºF (100ºF for ultra-low sulfur, <15ppm)					
Ambient Temp. Range	32ºF to 140ºF					
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

[a] Actual Electrical Requirement dependent on configured burner model

[b] Actual Fuel oil supply flow rate dependent on configured burner model

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

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Heating and Hot Water Solutions

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