

Technical Data Sheet

Benchmark 750-6000 Boilers

The AERCO Benchmark (BMK) Water Boiler is designed for condensing application in any closed loop hydronic system. It delivers unmatched burner modulation to match energy input directly to fluctuating system loads to yield the highest possible seasonal efficiencies. And no other product packs as much capacity into such a small footprint.

Energy Efficient

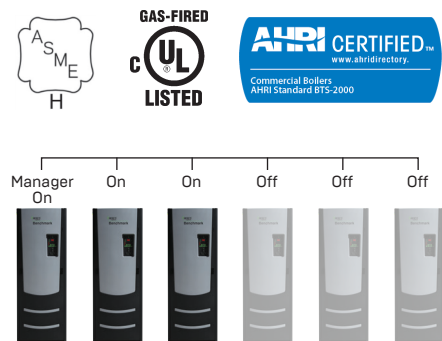
To minimize emissions, the BMK Series is fitted with a low NO_x burner whose emissions will meet the most stringent NO_x and CO requirements. The fully modulating burner also maintains AERCO standards for energy efficiency, longevity, reliability and construction quality.

The BMK Series comes standard with AERCO's Patent Pending, Oxygen Level (O₂) monitoring system. This monitoring system, designed to display the O₂ level directly on the unit in real time, can also be remotely monitored via Modbus giving the customer the ability to measure the emissions level and fuel economy of the boiler without traditional combustion calibration devices.



Application and Plant Design

The BMK boilers can be used as an individual unit or in modular arrangements and offers selectable modes of operation. In addition to controlling the boiler according to a constant set point, indoor/outdoor reset schedule or 4-20mA signal, one or more units can be integrated via Modbus communications protocol. For boiler plants ranging from 2-8 boilers, AERCO'S built-in Boiler Sequencing Technology (BST)* can be utilized. For heating plants greater than 8 boilers, AERCO's ACS (AERCO Control System) provides the right solution. Likewise, Benchmark systems can be easily integrated with a facility-wide Energy Management or Building Automation System.



*See BST System technical data sheet for additional system details and capabilities

Features

- Natural Gas, Propane, or Dual Fuel (model dependent)
- 20:1 Turndown Ratio (5%) depending on capacity
- Oxygen Level (O₂) Monitoring Standard
- Stainless Steel Fire Tube heat exchanger
- Capable of variable primary flow Installations
- NO_x Emissions capable of 9PPM or less @ all firing rates *depending on capacity
- Compact Footprint
- Precise Temperature Control
- On-board Boiler Sequencing Technology (BST)
- Ducted Combustion Air Capable
- Easy Open Access for Service
- Acceptable vent materials AL29-4C, Polypropylene, PVC, cPVC (model dependent)
- Reliable Quiet Operation
- Controls Options: Constant Setpoint, Indoor/Outdoor Reset, Remote Setpoint, 4-20mA signal or ModBus

Specifications

	BMK 750	BMK 1000	BMK 1500	BMK 2000	BMK 2500	BMK 3000	BMK 5000	BMK 6000
Boiler Category	ASME Sect.IV	ASME Sect.IV	ASME Sect.IV	ASME Sect.IV	ASME Sect.IV	ASME Sect.IV	ASME Sect.IV	ASME Sect.IV
Gas Connections (NPT)	DN25	DN25	DN50	DN50	DN50	DN50	DN50	DN50
Max. Gas Pressure, Pa	3500	3500	3500	3500	3500	3500	13790/2500*	13790/2500*
Min. Gas Pressure, Pa ¹	1000	1000	1000	1000	1000	1000	3500/1000*	3500/1000*
Max. Allowed Working Pressure, Mpa	1.1	1.1	1.1	1.1	1.1	1.1	0.55/1.03	0.55/1.03
Electricity	230V/IPH/50-60Hz	230V/IPH/50-60Hz	230V/IPH/50-60Hz	230V/IPH/50-60Hz	380V/3PH/50-60Hz	380V/3PH/50-60Hz	380V/3PH/50-60Hz	380V/3PH/50-60Hz
Water Connections (Flanged)	DN80	DN80	DN100	DN100	DN100	DN100	DN150	DN150
Dual Return Connections	✓	✓	✓	✓	✓	✓	N/A	N/A
Min. Water Flow L/min	46	46	94.6	94.6	94.6	94.6	283.9	283.9
Max. Water Flow L/min	662.4	662.4	946.4	1324.9	1324.9	1324.9	2271.4	2271.4
Water Volume L	61.5	53.9	166.6	151.4	219.6	208.2	416.4	416.4
Water Pressure Drop Kpa	21 @ 6.3 LPS	21 @ 6.3 LPS	21 @ 10.7 LPS	21 @ 10.7 LPS	21 @ 13.8 LPS	21 @ 16.5 LPS	28 @ 31.5 LPS	28 @ 31.5 LPS
Turndown Ratio	15:1 (7%)	20:1 (5%)	20:1 (5%)	20:1 (5%)	15:1 (7%)	15:1 (7%)	12.5:1 (8%)	15:1 (7%)
Vent/Air Intake Connections in mm	152.4	152.4	152.4	203.2	203.2	203.2	355 Optional /305 Flue Venting	355 Optional /305 Flue Venting
Vent Materials	AL29-4C Polypro, CPVC, PVC	AL29-4C Polypro, CPVC, PVC	AL29-4C Polypro	AL29-4C Polypro	AL29-4C Polypro	AL29-4C Polypro	AL29-4C Polypro	AL29-4C Polypro
Type of Gas	Natural Gas, Propane	Natural Gas, Propane	Natural Gas, Propane, Dual Fuel	Natural Gas, Propane, Dual Fuel	Natural Gas, Propane, Dual Fuel	Natural Gas, Propane, Dual Fuel	Natural Gas, Dual Fuel	Natural Gas, Dual Fuel
NOx Emissions <9ppm Capability*	✓	✓	✓	✓	N/A (<20 ppm)	N/A (<20ppm)	✓	✓
Temperature Control Range	10°C to 87.8°C							
Ambient Temp. Range	-17.8°C to 54.4°C							
Standard Listings & Approvals	UL, CUL, CSD-I, ASME, AHRI							
Gas Train Operations	FM Compliant or Factory Installed DBB (IRI)						FM Compliant	
Weight (dry) kg	333	348	668	710	937	1014	1391	1391
Shipping Weight kg	421	438	758	801	1028	1105	1754	1754

*BMK5000/6000 low gas pressure option is available as a different style number. It operates between 4" and 10" of gas pressure.

1. Values are for natural gas FM compliant gas trains only. See Benchmark Gas Components & Supply Design Guide GF-2030 for propane, DBB & dual fuel gas train minimum gas pressure requirements.

2. See Benchmark Electrical Power Guide GF-2060 for Service Disconnect Switch amperage requirements.

Ratings

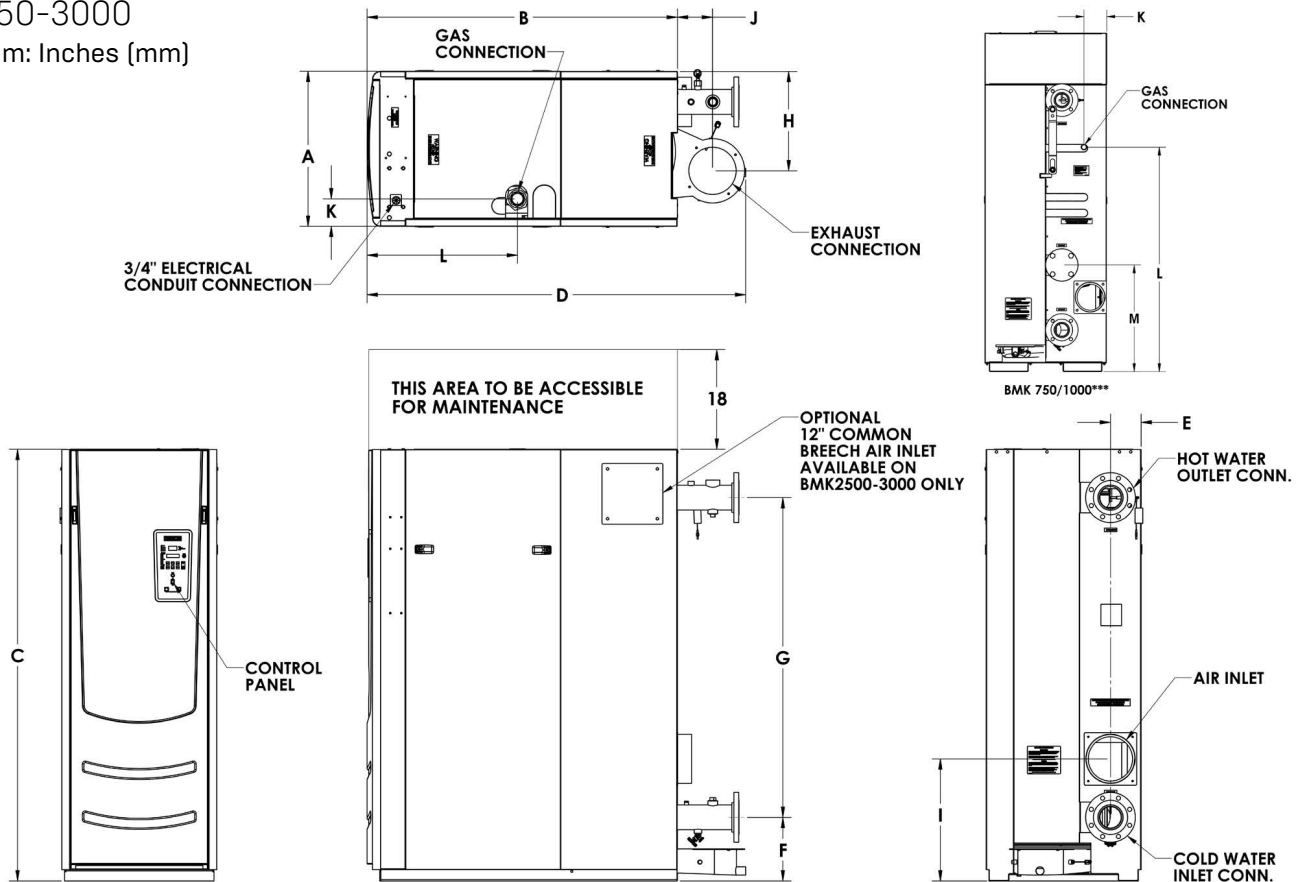
BMK Models	Min Input kW	Max Input kW	Max Output* kW	Efficiency Range	AHRI Efficiency 26.7° to 82.2°C
750	15	220	191-211	87%-98%	95.50%
1000	15	293	255-281	87%-98%	96.80%
1500	22	439	382-411	87%-98%	94.60%
2000	29	586	510-556	87%-98%	94.60%
2500	49	732	637-691	87%-98%	93.50%
3000	59	879	764-843	87%-98%	93.50%
5000	117	1758	1529-1661	87%-98%	94.50%
6000	117	1758	1529-1661	87%-98%	94.50%

*Max output dependent upon application – see efficiency curves

Dimensions

750-3000

Dim: Inches (mm)

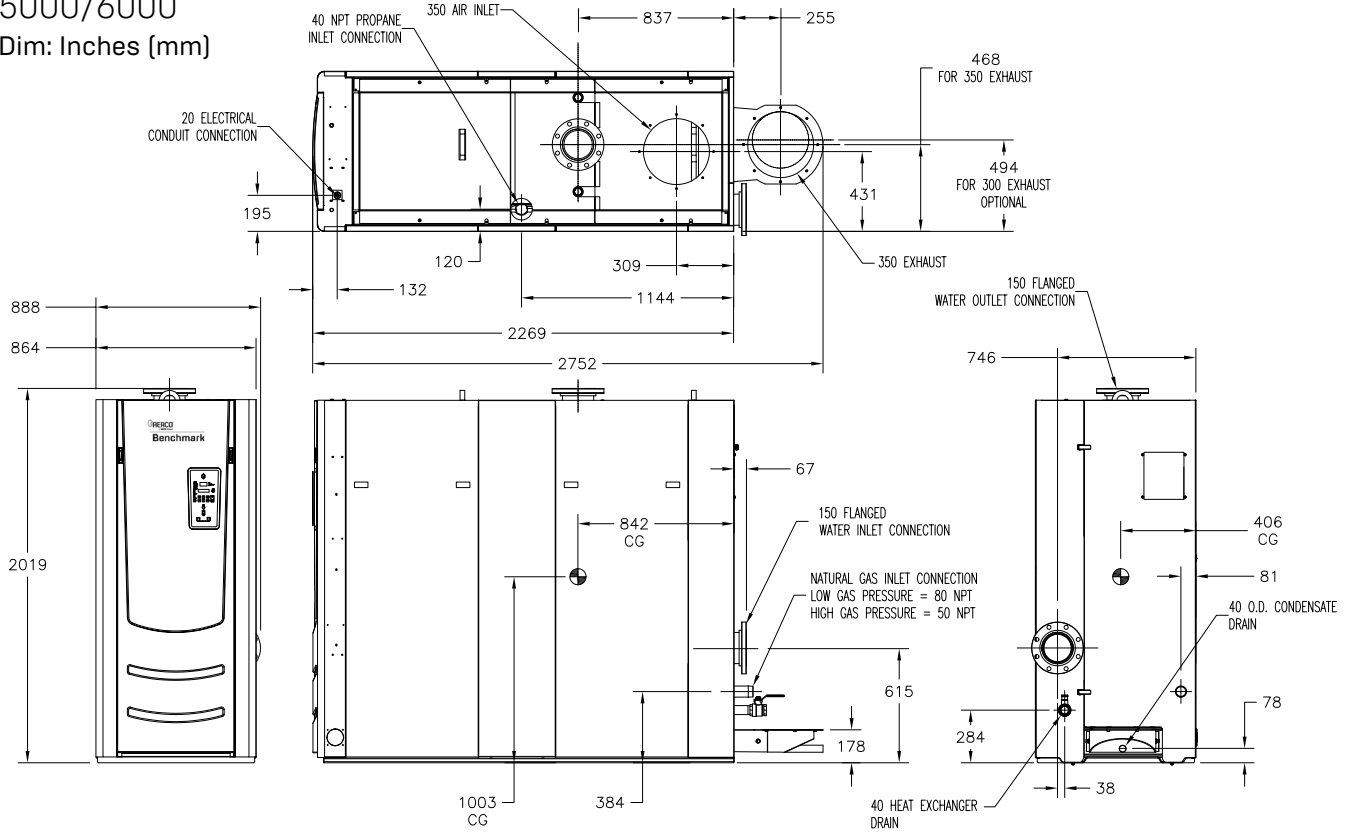


BMK Models	(Width) A	(Depth) B	(Height) C	D	E	F	G	H	I	J	K	L	M
750	71.1 cm	63.5 cm	198.1 cm	86.4	25.4	25.4	134.6	53.3	43.2	10.2	12.7	131.6	62.5
1000	71.1 cm	63.5 cm	198.1 cm	86.4	25.4	25.4	134.6	53.3	43.2	10.2	12.7	131.6	62.5
1500	71.1 cm	110.7 cm	198.1 cm	148.3	17.8	29.2	146.8	45.7	55.9	22.6	11.9	49.5	67.3
2000	71.1 cm	110.7 cm	198.1 cm	148.3	17.8	29.2	146.8	45.7	55.9	22.6	11.9	49.5	67.3
2500	71.1 cm	142.2 cm	198.1 cm	173.7	13.7	29.2	146.8	45.7	55.9	16.3	9.1	66	67.3
3000	71.1 cm	142.2 cm	198.1 cm	173.7	13.7	29.2	146.8	45.7	55.9	16.3	9.1	66	67.3

Dimensions

5000/6000

Dim: Inches (mm)



BMK Models	[Width] A [cm]	[Depth] B [cm]	[Height] C [cm]
5000	89	226.8	210.7
6000	89	226.8	210.7



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