

Technical Data Sheet

Benchmark 750-6000 with Edge Controller High Efficiency 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. No other product packs as much capacity into such a small footprint that fits through a standard door and can be transported in a freight elevator.

Energy Efficient

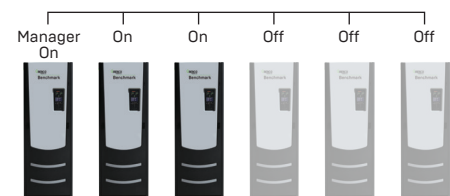
To minimize emissions, the BMK Series is fitted with a low NOx burner whose emissions will meet the most stringent NOx and CO requirements. The fully modulating burner also maintains AERCO standards for energy efficiency, longevity, reliability and construction quality.

The BMK Series comes standard with AERCO's designed and patented, 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. This system, combined with AERCO's TComp™ O₂/air temperature compensation (a standard combustion control feature available with BMK boilers for 15+ years) provides precise combustion and maintains O₂ levels throughout the year for best combustion efficiency.



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 2-16 boilers, the AERCO Edge® built-in Boiler Sequencing Technology (BST)* can be utilized. The Benchmark 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
- 20:1 turndown ratio (5%) depending on capacity
- Integrated O₂ monitoring and alert for critical conditions
- 439 stainless steel fire tube heat exchanger
- Capable of variable primary flow installations
- NOx emissions capable of 9PPM or less @ all firing rates
*depending on capacity
- Compact footprint, light weight, freight elevator friendly
- Ducted combustion air capable
- Easy open access for service
- Reliable quiet operation

- Acceptable vent materials AL29-4C, Polypropylene, PVC, cPVC (model dependent)
- Optional gas train with VPS (Value Proving System) for BMK Platinum 4000/5000/6000
- Outdoor solution available

Edge [i]

- Precise temperature control
- On-board Boiler Sequencing Technology (BST)
- Controls options: constant setpoint, indoor/outdoor reset, remote setpoint, 4-20mA signal or ModBus

Specifications

	BMK									
	750	1000	1500	2000	2500	3000	4000	5000N	5000 ⁴	6000 ⁴
Boiler Category	ASME Sect.IV									
Gas Connections (NPT)	1"		2"				3"		2 / 3"	
Max. Gas Pressure	14"									
Min. Gas Pressure ¹	4"									
Max. Allowed Working Pressure	160 PSIG								80PSIG/150 PSIG Optional	
Electrical Req. 120V/1PH/60Hz ²	13 FLA		16 FLA		N/A					
Electrical Req. 208V/3PH/60Hz ²	N/A				10 FLA		23 FLA		19 FLA	
Electrical Req. 460V/3PH/60Hz ²	N/A				5 FLA		12 FLA		9 FLA	
Electrical Req. 575V/3PH/60Hz ²	N/A				N/A		N/A		7 FLA	
Water Connect. (Flanged)	3"		4"				6"		6"	
Min. Water Flow (GPM)	12		25				35		75	
Max. Water Flow (GPM)	175		250		350		500		600	
Water Volume Gallons	28	26	44	40	60	55	77		110	
Water Pressure Drop	3.0 PSIG @100 GPM		3.0 PSIG @170 GPM		3.2 PSIG @ 250 GPM		5.0 PSIG @475 GPM		4.0 PSIG @500 GPM	
Turndown Ratio	15:1 (7%)	20:1 (5%)		20:1 (5%)	15:1 (7%)	15:1 (7%)	15:1 (7%)	20:1 (7%)	12:1 (8%)	15:1 (7%)
Vent/Air Intake Connections	6 Inch			8 Inch			12 Inch Vent/10 Inch Air Intake		14 Inch Optional/ 12 Inch Flue Venting	
Vent Materials	AL29-4C Polypro, CPVC, PVC		AL29-4C Polypro							
Type of Gas	Natural Gas, Propane, Dual Fuel									
NOx Emissions <9ppm Capability ⁴	✓		✓		<13 ppm		✓		✓	
Temp. Control Range	50°F to 190°F									
Ambient Temp. Range	0°F to 130°F									
Standard Listings & Approvals	UL, CUL, CSD-1, ASME									
Gas Train Operations	FM Compliant or Factory Installed DBB (IRI)						FM Compliant or Factory Installed DBB (IRI), VPS (Value Proving System)		FM Compliant, VPS (Value Proving System)	
Sound Rating dbA	65	65	70	70	72	72	75		79	
Weight (dry) lbs.	669	700	1406	1500	2,000	2,170	2200		3,000	
Shipping Weight lbs.	862	900	1606	1700	2,200	2,300	2350		3,800	

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.
3. BMK5000/6000 operating at standard gas pressure (>14" W.C.) can achieve 9 ppm NOx.
4. BMK5000/6000 low gas pressure option is available as a different style number. It operates between 4" and 10" of gas pressure.

Ratings

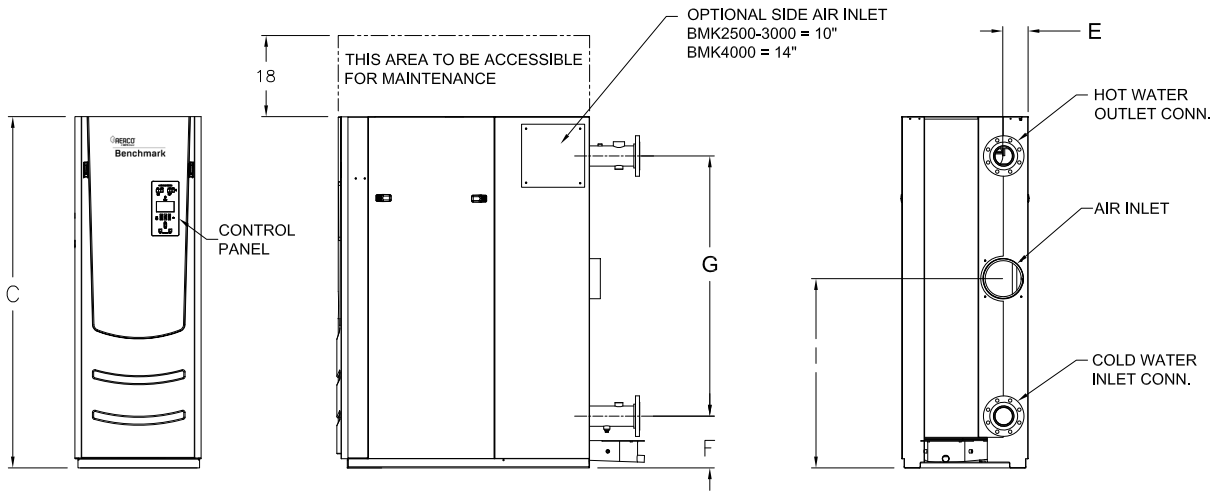
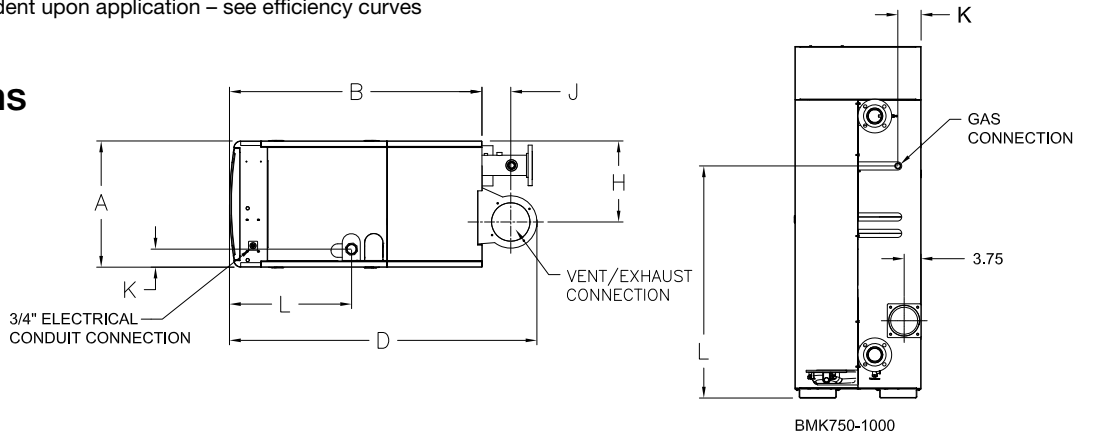
BMK	Min Input MBH	Max Input MBH	Max Output ¹ MBH	Efficiency Range	Thermal Efficiency 80° to 180°F
750	50	750	653-720	87%-98%	95.6%
1000	50	1000	870-960	87%-98%	96.8%
1500	75	1500	1305-1440	87%-98%	94.6%
2000	100	2000	1740-1920	87%-98%	94.6%
2500	167	2500	2175-2400	87%-98%	93.5%
3000	200	3000	2610-2880	87%-98%	94.6%
4000	267	4000	3480-3840	87%-98%	94.1%
5000N	250	4990	4341-4790	87%-98%	93.8%
5000	400	5000	4350-4800	87%-98%	94.8%
6000	400	6000	5220-5760	87%-98%	94.5%

¹Max output dependent upon application – see efficiency curves

Dimensions

750-4000

Dim: Inches

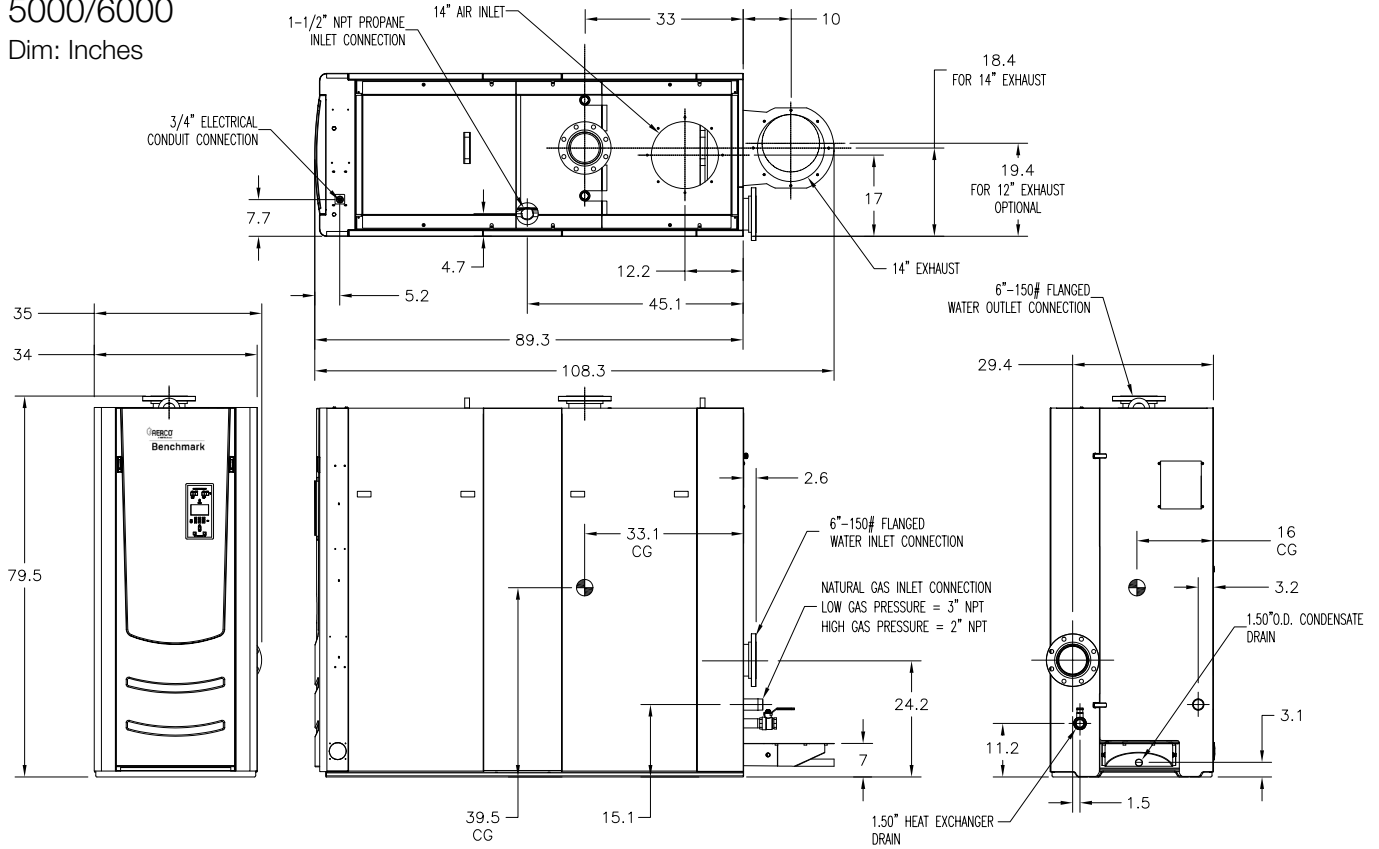


BMK Models	(Width) A	(Depth) B	(Height) C	D	E	F	G	H	I	J	K	L
750	28"	24.5"	78"	34"	10.2"	9.6"	53"	21"	17.1"	4.5"	5.1"	51.5"
1000	28"	25"	78"	34"	10.2"	9.6"	53"	21"	17.1"	4.5"	5.1"	51.5"
1500	28"	43.6"	78"	58.4"	6.6"	11.5"	57.8"	18"	42"	8.9"	4.4"	19.1"
2000	28"	43.6"	78"	58.4"	7"	11.5"	57.8"	18"	42"	8.9"	4.4"	19.1"
2500	28"	56"	78"	68.4"	5.6"	11.5"	57.8"	18"	42"	6.4"	4.4"	27.1"
3000	28"	56"	78"	68.4"	5.6"	11.5"	57.8"	18"	42"	6.4"	4.4"	27.1"
4000	34"	63.5"	78.2"	80.6"	6"	12.4"	56"	21.4"	44.4"	9"	5.5"	28.7"
5000N	34"	63.5"	78.2"	80.6"	6"	12.4"	56"	21.4"	44.4"	9"	5.5"	28.7"

Dimensions

5000/6000

Dim: Inches



BMK Models	(Width) A	(Depth) B	(Height) C
5000	35"	89.3"	79.8"
6000	35"	89.3"	79.8"



Heating and Hot Water Solutions

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