

## Technical Data Sheet

# Benchmark® Platinum 750-6000 Boilers

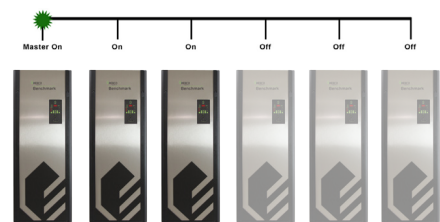
The AERCO Benchmark Platinum (BMK) Water Boiler is designed for condensing application in any closed loop hydronic system. It delivers unmatched burner modulation to match energy input directly to fluctuating system loads to yield the highest possible seasonal efficiencies. And no other product packs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

To minimize emissions, the BMK Series is fitted with a low NO<sub>x</sub> burner whose emissions will meet the most stringent NO<sub>x</sub> and CO requirements. The fully modulating burner also maintains AERCO standards for energy efficiency, longevity, reliability and construction quality.

The BMK Platinum Series comes standard with AERCO's patented AERtrim system, an innovative O<sub>2</sub>-trim system for condensing boilers, built on the Benchmark's original O<sub>2</sub> monitoring system. This system will self-adjust and maintain air-fuel ratios at optimum levels for peak efficiency, low emissions and maximum uptime reliability in event of any site condition changes (air density, gas pressure, BTU content, etc.) which can be detrimental to efficiency, stability and reliability. Oxygen levels can be directly displayed on the unit in real time or be remotely monitored via Modbus or onAER, giving our customers the ability to measure the emissions level and fuel economy of the boiler without traditional combustion calibration devices.

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. Furthermore, BMK Platinum models come standard with dual return connections for optimal application flexibility and seasonal efficiency gains of up to 7%.

Additionally, BMK Platinum boilers come onAER ready and with a 5-year subscription of onAER standard. AERCO's onAER service is a premiere online service which grants the user remote access to view boiler plant operation and status, track performance and efficiency, and set and view alerts such as faults or maintenance. The onAER service can be set to provide alerts to local trained technicians, offering additional peace of mind and ensuring the utmost uptime reliability.



\*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
- AERtrim System Standard
- 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
- Precise Temperature Control
- Standard Dual Return Water Connections
- 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
- 15 year heat exchanger warranty

## Ratings

| BMK Platinum Models | Min Input MBH | Max Input MBH | Max Output <sup>a</sup> MBH | Efficiency Range | Efficiency 80° to 180°F |
|---------------------|---------------|---------------|-----------------------------|------------------|-------------------------|
| 750                 | 50            | 750           | 653-720                     | 87%-98%          | 95.50%                  |
| 1000                | 50            | 1000          | 870-960                     | 87%-98%          | 96.80%                  |
| 1500                | 75            | 1500          | 1305-1425                   | 87%-98%          | 94.60%                  |
| 2000                | 100           | 2000          | 1740-1900                   | 87%-98%          | 94.60%                  |
| 2500                | 167           | 2500          | 2175-2360                   | 87%-98%          | 93.50%                  |
| 3000                | 200           | 3000          | 2610-2880                   | 87%-98%          | 93.50%                  |
| 5000**              | 400           | 5000          | 4350-4800                   | 87%-98%          | 94.50%                  |
| 6000**              | 400           | 6000          | 5220-5670                   | 87%-98%          | 94.50%                  |

<sup>a</sup>Max output dependent upon application – see efficiency curves

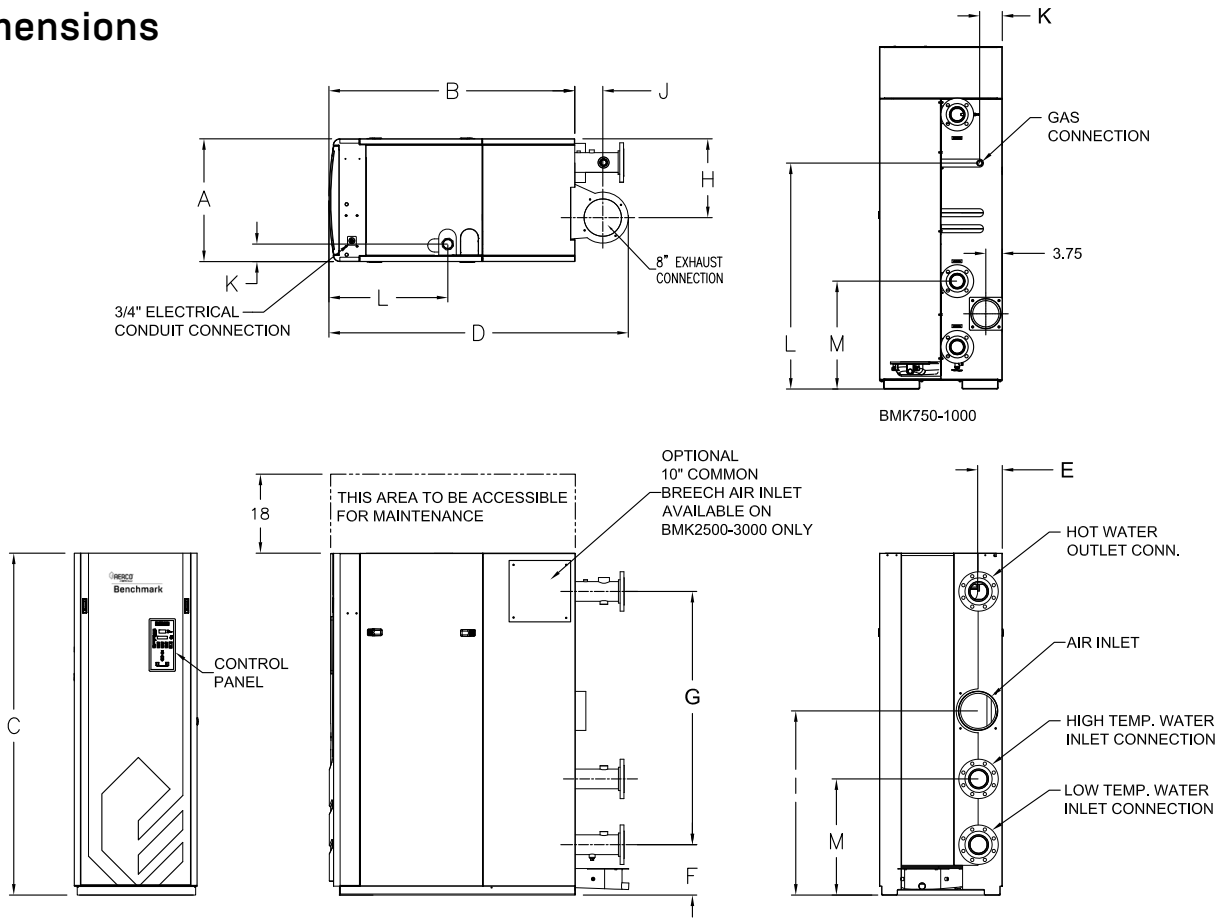
\*\*See separate BMK5000/6000 technical data sheet for additional BMK5000/6000 details

# Specifications

| Models  | BMK Platinum                                |                                  |  |  |  |  |   |   |
|---|---|----------------------------------|--|--|--|--|---|---|
|   | 750   | 1000                             | 1500                                       | 2000                                       | 2500                                       | 3000                                       | 5000**  | 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)                         | 1"  | 1"                               | 2"   | 2"   | 2"   | 2"   | 2"  | 2"  |
| Max. Gas Pressure                             | 14"   | 14"                              | 14"  | 14"  | 14"  | 14"  | 2psi  | 2psi  |
| Min. Gas Pressure <sup>1</sup>                | 4"  | 4"                               | 4"   | 4"   | 4"   | 4"   | 14"   | 14"   |
| Max. Allowed Working Pressure                 | 160 PSIG                                    | 160 PSIG                         | 160 PSIG                                   | 160 PSIG                                   | 160 PSIG                                   | 160 PSIG                                   | 80PSIG/<br>150 PSIG<br>Optional                 | 80 PSIG/<br>150 PSIG<br>Optional                |
| Electrical Req.<br>120V/1PH/60Hz <sup>2</sup> | 13 FLA                                      | 13 FLA                           | 16 FLA                                     | 16 FLA                                     | N/A  | N/A  | N/A   | N/A   |
| Electrical Req.<br>208V/3PH/60Hz <sup>2</sup> | N/A   | N/A                              | N/A  | N/A  | 10 FLA                                     | 10 FLA                                     | 19 FLA  | 19 FLA  |
| Electrical Req.<br>460V/3PH/60Hz <sup>2</sup> | N/A   | N/A                              | N/A  | N/A  | 5 FLA                                      | 5 FLA                                      | 12 FLA  | 12 FLA  |
| Electrical Req.<br>575V/3PH/60Hz <sup>2</sup> | N/A   | N/A                              | N/A  | N/A  | N/A  | N/A  | 8 FLA   | 8 FLA   |
| Water Connections<br>(Flanged)                | 3"  | 3"                               | 4"   | 4"   | 4"   | 4"   | 6"  | 6"  |
| Dual Return Connections                       | ✓   | ✓                                | ✓  | ✓  | ✓  | ✓  | ✓   | ✓   |
| Min. Water Flow (GPM)                         | 12  | 12                               | 25   | 25   | 25   | 25   | 75  | 75  |
| Max. Water Flow (GPM)                         | 175   | 175                              | 250  | 350  | 350  | 350  | 700   | 700   |
| Water Volume Gallons                          | 16.25                                       | 14.25                            | 44   | 40   | 58   | 55   | 110   | 110   |
| Water Pressure Drop                           | 3.0 PSIG<br>@100 GPM                        | 3.0 PSIG<br>@100 GPM             | 3.0 PSIG<br>@170 GPM                       | 3.0 PSIG<br>@170 GPM                       | 3.0 PSIG<br>@218 GPM                       | 3.0 PSIG<br>@261 GPM                       | 4.0 PSIG<br>@500 GPM                            | 4.0 PSIG<br>@500 GPM                            |
| Turndown                                      | 15:1 (7%)                                   | 20:1 (5%)                        | 20:1 (5%)                                  | 20:1 (5%)                                  | 15:1 (7%)                                  | 15:1 (7%)                                  | 12:1 (8%)                                       | 15:1 (7%)                                       |
| Vent/Air Intake<br>Connections                | 6 Inch                                      | 6 Inch                           | 6 Inch                                     | 8 Inch                                     | 8 Inch                                     | 8 Inch                                     | 14 Inch<br>Optional/<br>12 Inch Flue<br>Venting | 14 Inch<br>Optional/<br>12 Inch Flue<br>Venting |
| Vent Materials                                | AL29-4C<br>Polypro,<br>CPVC, PVC            | AL29-4C<br>Polypro,<br>CPVC, PVC | AL29-4C<br>Polypro                         | AL29-4C<br>Polypro                         | AL29-4C<br>Polypro                         | AL29-4C<br>Polypro                         | AL29-4C<br>Polypro                              | AL29-4C<br>Polypro                              |
| Type of Gas                                   | Natural<br>Gas, Pro-<br>pane                | Natural<br>Gas, Pro-<br>pane     | Natural<br>Gas, Pro-<br>pane, Dual<br>Fuel | Natural<br>Gas, Pro-<br>pane, Dual<br>Fuel | Natural<br>Gas, Pro-<br>pane, Dual<br>Fuel | Natural<br>Gas, Pro-<br>pane, Dual<br>Fuel | Natural Gas,<br>Dual Fuel                       | Natural Gas,<br>Dual Fuel                       |
| NOx Emissions <9ppm<br>Capability*            | ✓   | ✓                                | ✓  | ✓  | N/A<br>[<20 ppm]                           | N/A<br>[<20ppm]                            | ✓   | ✓   |
| Temperature<br>Control Range                  | 50°F to 190°F                               |                                  |  |  |  |  |   |   |
| Ambient<br>Temperature Range                  | 0°F to 130°F                                |                                  |  |  |  |  |   |   |
| Standard Listings &<br>Approvals              | UL, CUL, CSD-1, ASME                        |                                  |  |  |  |  |   |   |
| Gas Train Operations                          | FM Compliant or Factory Installed DBB (IRI) |                                  |  |  |  |  |   |   |
| Weight (dry) lbs.                             | 669   | 700                              | 1406                                       | 1500                                       | 2,000                                      | 2,170                                      | 3,000   | 3,000   |
| Weight (wet) lbs.                             | 802   | 817                              | 1654                                       | 1760                                       | 2,332                                      | 2,580                                      | 3,920   | 3,920   |
| Shipping Weight lbs.                          | 862   | 900                              | 1606                                       | 1700                                       | 2,200                                      | 2,370                                      | 3,800   | 3,800   |

\*\*See separate BMK5000/6000 technical data sheet for additional BMK6000 details. <sup>1</sup> 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. <sup>2</sup> See Benchmark Electrical Power Guide GF-2060 for Service Disconnect Switch amperage requirements.

# Dimensions



| BMK Platinum Models | [Width] A | [Depth] B | [Height] C | D      | E     | F     | G     | H     | I     | J    | K     | L     | M     |
|---------------------|-----------|-----------|------------|--------|-------|-------|-------|-------|-------|------|-------|-------|-------|
| 750                 | 28"       | 24.5"     | 78"        | 34"    | 10.2" | 9.6"  | 53"   | 21"   | 17.1" | 4.5" | 5.1"  | 51.5" | 24.6" |
| 1000                | 28"       | 25"       | 78"        | 34"    | 10.2" | 9.6"  | 53"   | 21"   | 17.1" | 4.5" | 5.1"  | 51.5" | 24.6" |
| 1500                | 28"       | 43.6"     | 78"        | 58.4"  | 6.6"  | 11.5" | 57.8" | 18"   | 42"   | 8.9" | 4.4"  | 19.1" | 26.5" |
| 2000                | 28"       | 43.6"     | 78"        | 58.4"  | 7"    | 11.5" | 57.8" | 18"   | 42"   | 8.9" | 4.4"  | 19.1" | 26.5" |
| 2500                | 28"       | 56"       | 78"        | 68.4"  | 5.6"  | 11.5" | 57.8" | 18"   | 42"   | 6.4" | 4.4"  | 27.1" | 26.5" |
| 3000                | 28"       | 56"       | 78"        | 68.4"  | 5.6"  | 11.5" | 57.8" | 18"   | 42"   | 6.4" | 4.4"  | 27.1" | 26.5" |
| 5000**              | 34"       | 89.3"     | 79.8"      | 108.3" | 6.2"  | 42.1" | N/A** | 15.6" | N/A** | 10"  | 27.8" | 29.7" | N/A** |
| BMK 6000**          | 34"       | 89.3"     | 79.8"      | 108.3" | 6.2"  | 42.1" | N/A** | 15.6" | N/A** | 10"  | 27.8" | 29.7" | N/A** |

\*\*See separate BMK5000/6000 technical data sheet for additional BMK5000/6000 dimension details



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