| MANUFACTURER INSIGHT |

Phc News 2015 Boiler Report

AERCO

The ***Benchmark 6000*** (BMK6000) from AERCO International features 15:1 turndown for energy efficiency, low NO_x emissions, and high reliability in a compact footprint that is half the size of other 6 million BTU/hr boilers. Incorporating AERCO's field-proven stainless steel, fire-tube design, the BMK6000 provides consulting-specifying engineers, facilities management, and building owners with a boiler that provides flexibility to fit in both retrofit and new construction that require one or multiple 6 million BTU/hr boilers.

The BMK6000 has an operating efficiency of 94.5 percent to reduce operating expenses and yield the highest possible seasonal fuel savings. The BMK6000 measures only 79 H x 34 W x 109 D (inches). The BMK6000's 439 stainless steel construction helps the boiler achieve high efficiency, improve longevity and create greater heat exchanger cycling resistance.

The BMK6000 comes standard with AERCO's patented Oxygen Level (O_2) monitoring system that can display the O_2 level directly on the boiler's C-More Touch Screen Control Package in real time. AERCO's remote data collection option continually monitors the internal operations, scanning performance parameters and potential fault risks. The BMK6000 can be remotely accessed via Modbus or Intranet, enabling the boiler's emissions level and fuel economy to be measured without traditional calibration devices to maximize fuel economy.

Employing a proven Low NO_x burner design and proprietary fuel system, the BMK6000 supports strict emissions control. The boiler delivers <20ppm NO_x at all firing levels, making it an ideal choice for environmentally-friendly projects.

The BMK6000 can be serviced via the front, top and side of the boiler, allowing for side-by-side installation, further reducing footprint requirements. The boiler offers venting capabilities including sidewall, through-the-roof, and sealed combustion.

For more information, visit www.aerco.com.

Q: What general developments in boiler technology has the company noticed?

A: There is growing trend in the market for remote monitoring and control tools that allow facility managers and boiler manufacturers to constantly see how systems are operating. Currently, these tools are collecting outbound data only, such as temperature and setback elements. In the near term, systems will provide inbound capabilities to allow proactive adjustments to be made to boilers that will maximize operation and improve overall system life.

Q: What new developments in boiler technology has the company made recently?

A: AERCO is introducing AER-Trim, an advanced O_2 trim technology for its Benchmark boilers that is less than 1/3 the price of comparable alternatives. AER-Trim helps boilers achieve the highest possible efficiency by ensuring the air/fuel ratios are optimized, and maximizes uptime reliability to lower maintenance costs. It achieves this by continually monitoring the system and proactively making changes in boiler operation to maintain peak performance.

Q: What boiler-related customer feedback has the company received?

A: Customers are looking for more advanced integrated controls as part of an overall intelligent solution approach. Customers are asking AERCO to design systems integrating our Benchmark boilers and SmartPlate water heaters to create a single solution for space heating and domestic hot water requirements. This goes beyond the units themselves to incorporate venting, piping and other components, and integrated controls allow the system work together efficiently.

Q: What boiler-specific challenges has the company faced recently?

A: Challenges become opportunities, and AERCO has listened to our customers to create complete solutions. We have started a systems approach that integrates boilers, water heaters, integrated controls, piping, and venting. We have also developed more sophisticated communication and monitoring tools that allow for greater efficiency and reliability.

Q: How is the boiler market today?

A: The market is evolving so that there is a greater understanding that high efficiency is more than simply the boiler. Customers realize that other factors, such as the application in which the boiler will be used and the system components, all must be evaluated and considered to make sure the solution delivers the highest possible efficiency.

Q: What is the company's outlook for the boiler market?

A: AERCO sees many opportunities due to an improving economy and a desire by facility owners and managers to find ways to improve operating efficiency. Our high-efficiency solutions, ability to integrate boilers, water heaters and components into complete solutions, and development of intelligent tools have AERCO well-positioned to provide the systems customers are looking for.

BAXI

The ***Baxi Luna Duo-Tec*** condensing boiler is setting a new performance standard for optimal high efficiency heating appliances. After extensive field testing throughout North America, the Luna Duo-Tec was introduced to North America in the fall of 2013. A kitchen-cabinet-sized gas wall-hung boiler, the boiler achieves up to 98 percent efficiency.

Baxi-certified installers appreciate the boiler's gas-adaptive technology, automatic precision set-up features, as well as an innovative self-calibration function that optimizes energy efficiency continuously for the life of the boiler. Baxi boilers are factory tested, field tested, ENERGY STAR-rated and come loaded with multiple CSA-approved components. The heating appliance also reduces greenhouse gas emissions by up to 90 percent. Other built-in safety features include frost protection, an anti-Legionella function and a domestic hot water heat exchanger that is totally separate from the boiler's primary heat exchanger.

Baxi Luna combi gas boilers typically save home and business owners upwards of 35 percent in utility costs annually. For oil-to-gas conversions, the actual savings can be even more significant. The boiler is ideal for a range of applications, including in-floor radiant, hydro air, radiators, towel warmers and snowmelt systems.

For more information, visit wallhungboilers.com.

Q: What general developments in boiler technology has the company noticed?

A: Featuring automatic and continuous self-calibration, the high efficiency Baxi Luna Duo-Tec modulating, condensing gas boiler is Baxi's most significant advancement in wall-hung boiler technology. Baxi introduced the first "packaged boiler" and combination heating and domestic hot water boiler in North America in the late 1990s. Marathon

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International launched the Baxi Luna Duo-Tec in the fall of 2013, after extensive factory development, as well as field testing.

Engineers and contractors point to the Luna Duo-Tec as a "game-changing" boiler development, with the first gas-adaptive technology on the market. Precise set-up and reliable performance remain the guiding principles for Baxi Luna Duo-Tec engineering excellence. Installers appreciate not only the automatic gas-adaptive and self-calibrations features, but also the automatic de-aeration function that purges the boiler loop for air before commissioning, plus ease of serviceability (with removable front and two side panels). A 7:1 modulating range down to 19,108 BTU/hr, a preheat function for solar water heating applications, a two-stage pump, and multiple built-in safety and performance enhancement components underscore continuous Baxi engineering advancement.

Q: What new developments in boiler technology has the company made recently?

A: Since pioneering wall-hung boiler technology in the 1960s, Baxi has remained committed to quality and reliability, proving that you can never rest on your laurels. The leading boiler manufacturer is developing more enhancements to its residential and light commercial lines for North America, which will be field tested and introduced over the next year.

On the light commercial front, with the ability to string together up to 12 boilers, using a staging controller, to generate up to 4,549,524 BTU/hr, established Baxi Luna HT commercial wall-hung boilers business is also on the rise. In addition, the integrated Baxi Luna SAT system, with a centralized cascade boilers and submetering system (BTU meter, along with hot and cold water meters) promises to reinforce Baxi leadership in providing high efficiency heating and renewable solutions for apartment buildings. Luna SAT systems generate substantial energy conservation, ensure equitable fuel and water cost sharing, and free up valuable living space.

Q: What boiler-related customer feedback has the company received?

A: Baxi distribution partners and contractors are delighted with new Baxi engineering advancements. Customers appreciate a high level of installation and troubleshooting training, and readily accessible technical support. Baxi contractors and service technicians may take Baxi training and certification courses online, and access Baxi technical resources online, 24/7, in the Baxi Certified section of the website. Baxi-certified installers may offer their customers a range of "peace of mind" benefits, including double the parts warranty, and an optional Baxi 10-year extended parts and labor warranty (which requires routine maintenance servicing of the boiler).

Q: What is the company's outlook for the boiler market?

A: Any wall-hung boiler manufacturer must demonstrate ongoing commitment to providing safe, reliable and environmentally responsibility heating solutions. Baxi distribution partners are enabling a growing network of Baxi trained and certified contractors to succeed in delivering that promise.

BOSCH

The wall-mounted Greenstar boiler from Bosch Thermotechnology is now available in a ***Floor Standing*** (FS) version for all eight models. With its sleek appliance-like design and small footprint, Greenstar FS models are ideal for use in applications where wall-mounting options are not feasible or a floor standing unit is preferred.

Greenstar Floor Standing Series boilers are fully modulating condensing boilers that are CSA and ASME approved. Based on the popular Greenstar wall-mounted boilers, floor standing boilers achieve an ENERGY STAR Most Efficient rating of 95 percent.

Along with the Greenstar FS launch, Bosch is introducing a New System Control (NSC) package of intelligent modules designed to control multiple zones and reduce zone "on-off" boiler cycling for increased indoor comfort and greater energy savings. The NSC tightly controls energy use through two-way communications with a range of high efficiency boiler offerings: Bosch Greenstar wall-mounted and floor standing condensing boilers, Buderus GB142 and GB162 condensing boilers for larger homes and light commercial applications.

The Bosch NSC is also ideal in the replacement market as they have similar sizing to existing modules. The NSC is similar to other multi-zone control systems for installation, wiring and set-up purposes using plug and play wiring terminals. Using the NSC modules eliminates the cumbersome set-up of outdoor temperature reset by utilizing Bosch's load compensation. NSC control modules are similar to wiring and installation of a basic "on-off" system but designed to communicate a reduced target supply temperature, thereby increasing comfort and decreasing energy consumption.

For more information, visit www.bosch.us.

Q: What general developments in boiler technology has the company noticed?

A: With Wi-Fi capabilities being the current demand trend, Bosch has introduced its Bosch Control Smart Thermostat. The Bosch Control Smart Thermostat uses a home Wi-Fi connection to allow heating and domestic hot water to be monitored and adjusted from any compatible smartphone or tablet. The device is a programmable room thermostat with integrated temperature sensor and boiler controller in one simple to use device that is intuitive and easy to operate, enabling the user to monitor and control boiler function remotely using a mobile device or tablet.

The Bosch Control Smart Thermostat can show the homeowner their desired scheduled settings as well as outdoor temperature, current space heating or domestic hot water production status and overall energy consumption, all at-a-glance. Up to four mobile devices can be connected to the thermostat to detect when occupants are at home. The sleek black glass wall-mounted rectangular panel is simple to install and connects to any Bosch or Buderus wall-mounted condensing gas boiler using standard two-wired connections.

Q: What new developments in boiler technology has the company made recently?

A: The Greenstar FS is the only high-efficiency combi condensing gas boiler that offers both heat and domestic hot water in one compact floor-standing footprint. The Greenstar FS has many innovative features like an integrated manifold that can be utilized for direct supply and return connections or be field converted into a low loss header, making the Greenstar FS ideal for many applications. All field wiring has been relocated into junction boxes on the back side of the boiler for easier installation. Also, Bosch has increased the venting options to include flexible polypropylene (PP) chimney liners.

Q: What boiler-related customer feedback has the company received?

A: Contractors have been telling us they want a direct replacement high efficiency condensing gas boiler with flexible venting options. The new Greenstar FS meets that demand and can be vented using PP, flexible PP chimney liner, and concentric PP kit, PVC or CPVC.

Q: What boiler-specific challenges has the company faced recently?

A: The diverse mix of federal, state and local utility rebates for high efficiency equipment can be confusing. Enabling consumers to understand and apply for available incentives helps drive the increasing demand for high-efficiency equipment. Utilities offer incentives because high-efficiency equipment helps reduce peak demand and improves utilization of natural gas.

Boiler manufacturers may have experienced challenges with the increasing thresholds for ENERGY STAR 3.0 efficiency

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