

Calloway

QUARTERLY

AERCO SmartPlate Heats Water Efficiently While Optimizing Condensing **BOILER PERFORMANCE**

There is no disputing the superior efficiency of condensing boiler technology. Most engineers readily acknowledge that condensing boilers are the way to go – assuming the system design provides sufficiently low return water temperatures to the boilers. Condensing boilers deliver their highest levels of efficiencies by condensing water out of the flue gas. This is because condensing the water vapor liberates roughly 1,000 Btu/lb vs. the 1 Btu/lb liberated by cooling it 1°F¹. So, providing for low return water temperatures is the key to high condensing boiler efficiency. Thanks to a new product from AERCO, achieving this design scenario just got easier.

Combining condensing boilers with AERCO's new SmartPlate instantaneous water-to-water heater for domestic hot water is the ideal solution for many commercial or institutional facilities. The SmartPlate is uniquely suited for use with high efficiency condensing boilers, like AERCO's KC1000 and Benchmark boilers because it can use boiler water that is as little as 5°F above the required potable water temperature. This drives down the return water temperature within the boiler loop, so that the heating boilers will condense.

SmartPlate heaters support up to 90 gpm loads with fully modulating, variable primary input and work well in facilities with diversified domestic load patterns. They have precise ($\pm 4^\circ\text{F}$) PID temperature control with a set point range of 50°F to 180°F. These PID algorithms monitor outlet temperature and change control valve position for optimal system control. SmartPlate units also support remote monitoring and BAS integration.

With a compact footprint (less than 10 sq. ft.), SmartPlate water heaters are well suited for both new construction and retrofits. They are available as both single and double-wall



heaters, and can be adjusted for two or three-way applications. Long-lasting stainless steel, copper, or copper alloy wetted (potable water side) surfaces are all standard options.

For tech data sheets, specifications, dimensional drawings, sizing charts, piping diagrams, and applications guidelines, visit the SmartPlate heaters at aerco.com.

1. Sellers, D. (2009, May), Boilers: Renovate or Replace. Consulting-Specifying Engineer

Benchmark
2.0 Low NOx



Benchmark 2.0 Low NOx Boiler Now Available for 120 Volt Applications!

AERCO condensing boiler innovations continue to break down the barriers between facilities and high efficiency condensing technology. The most recent innovation is the two-million BTU/hr. 2.0 Low NOx Boiler which requires on 120V of electrical power and 4" gas pressure.

The reduced electrical draw makes the highly regarded Benchmark accessible for many more retrofit applications. This is significant since so many facilities are currently looking to upgrade heating system efficiency while taking the next step toward environmental stewardship. The only emissions released by the burner are <30 ppm NOx. This, and the high efficiency, make it an excellent choice for facilities looking to achieve LEED-EB (Existing Buildings). The boiler has an excellent 20:1 turndown, enabling it to modulate more precisely to demand and thus improving overall efficiency. In fact, running at its lowest fire rate, the unit is 99.3% efficient, and only decreases to 85.3% efficiency when running at its highest fire rate.

Other important features include:

- **New, Smaller Footprint.** Size is no longer an obstacle now that the Benchmark has been redesigned to have a <7 sq ft footprint
- **Convenient Ceiling/Sidewall Venting**
- **Standard, On-board C-More Control System.** This control system can be integrated directly into a facility's Building Automation System via Modbus. It is also fully compatible with AERCO's Boiler Management System II (BMS II) for multiple unit installations.

"Engineers are looking for high impact energy solutions for their clients. This new redesigned Benchmark opens the door to a new level of boiler efficiency to a lot more facilities," remarked Caroline Calloway.

For more information on the Benchmark 2.0 Low NOx Boiler, contact Calloway Engineers Systems, or go to www.aerco.com.

New Automated Design Tool For Freeze Protection

Engineers are now just internet clicks away from designing the perfect freeze protection system for their clients thanks to a new on-line design tool from Tyco Thermal Controls. XL-ERATE is an automated version of the XL-Trace System Design Guide and can be accessed by going onto www.tycothermal.com.

Users simply sign up for an online account and the live tool is at their disposal. It can be used to adjust designs for different pipe materials, insulation types, application locations and all available connection and control options. Once a user is registered, they can create a complete BOM for a single circuit XL-Trace application and submit on-line quote requests.