



Benchmark
2.0 Low NOx

The Benchmark Line of Boilers

*The Leader in
High Efficiency Innovation*

AERCO
Heat You Can Bank On



“No one comes close to matching the 20:1 and 15:1 turndown of our condensing Benchmark boilers.”

THE AERCO STORY

Ever since AERCO created the market for commercially sized, high-efficiency, hydronic heating products in the U.S. a generation ago, we have remained the category leader. A technology leader, we have focused exclusively on condensing and fully modulating solutions. An education leader, we have challenged conventional system design practices. A standards leader, we were the first manufacturer to publish part-load efficiency curves. And with our expanded line of Benchmark boilers, we have taken the lead once again...

EFFICIENCY YOU CAN TRUST

Between December 2005 and May 2006, the thermal efficiency of the Benchmark 2.0LN was measured under a rigorous new testing protocol that employs real-world operating conditions. The new test was featured in the December 2006 issue of *ASHRAE Journal*. Identical testing was conducted on the Benchmark 3.0LN. Both Benchmark 2 million and 3 million BTU/hr. boilers reflect AERCO's multidimensional approach to maximizing system efficiency:

- **Designed – and warranted – for condensing operation and thermal shock**

- **Unmatched 20:1 and 15:1 turndown maximizes seasonal efficiency**

- Virtually eliminates cycling losses
- Minimizes wear and tear
- Improves temperature control

- **Highest efficiencies achieved at lowest firing rates**

- **AERCO BMS controller maximizes multiple-unit efficiency**

- Operate boiler plants with 40:1, 60:1, 80:1 and better turndown
- Leverage inverse efficiency profile to maximize fuel savings

- **Simplify and streamline overall systems design for greater savings**

In conjunction with the extension of our best-selling Benchmark brand, AERCO is embarking on a mission to provide our customers with efficiency measures that have been witnessed and reviewed by an independent organization. With so many new manufacturers entering this hot market segment, you can have more confidence than ever in the efficiency of AERCO products.

Figure 1 – Thermal Efficiency of BMK2.0LN

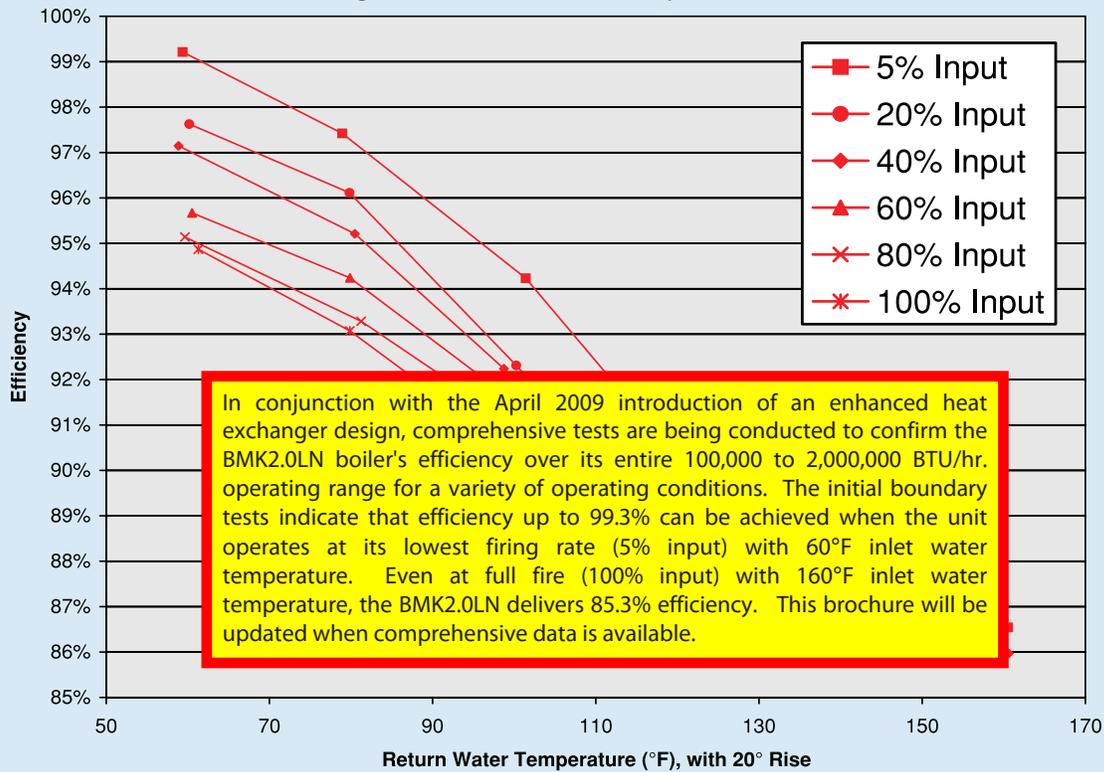
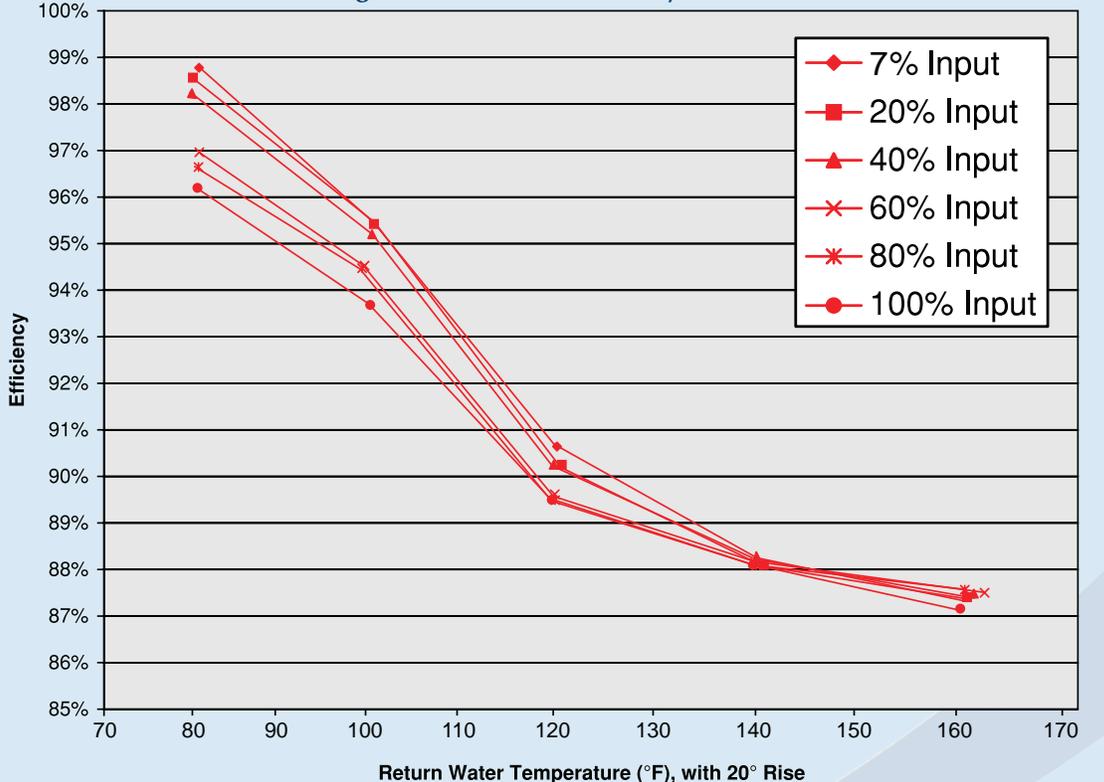
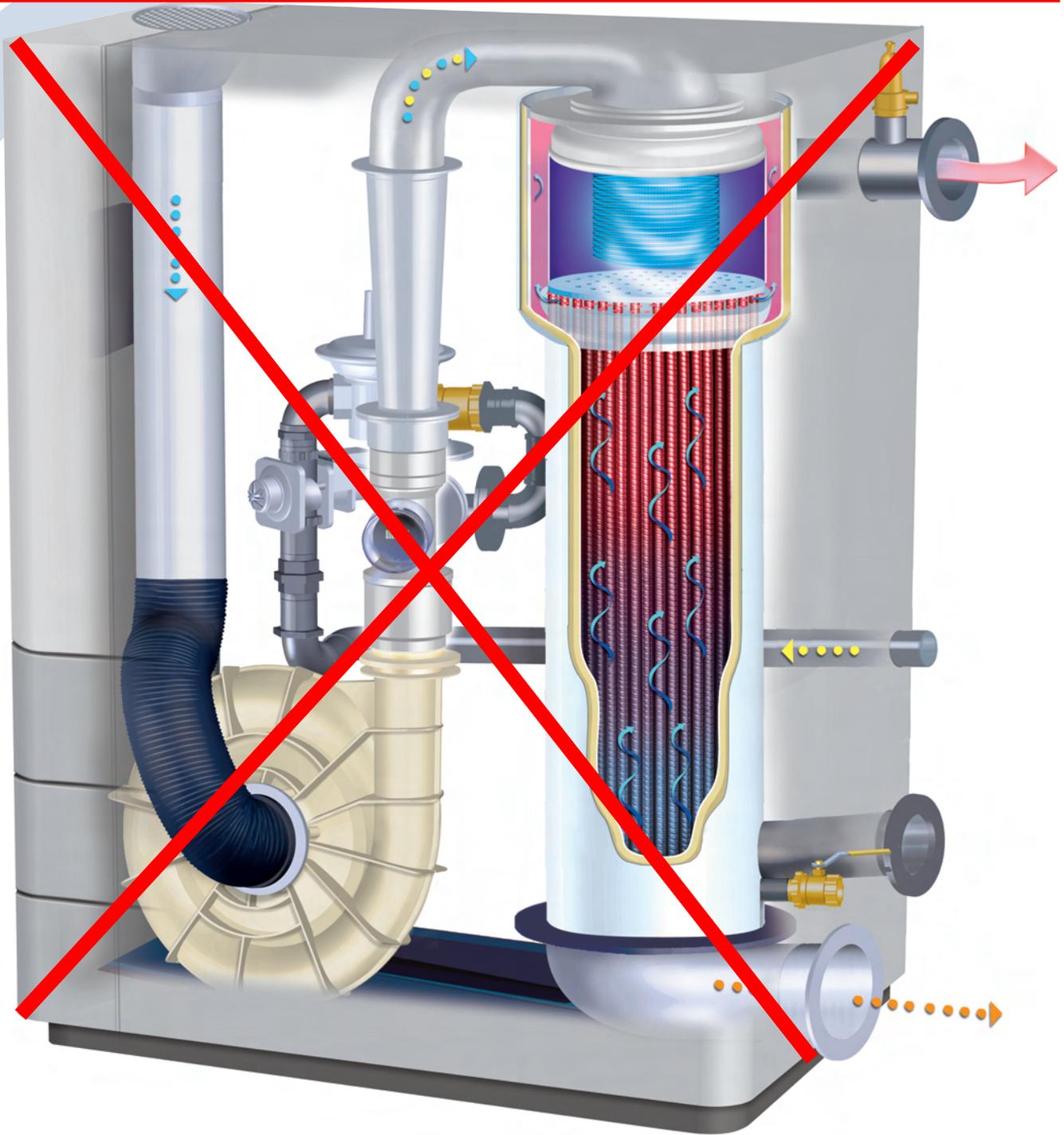


Figure 2 – Thermal Efficiency of BMK3.0LN



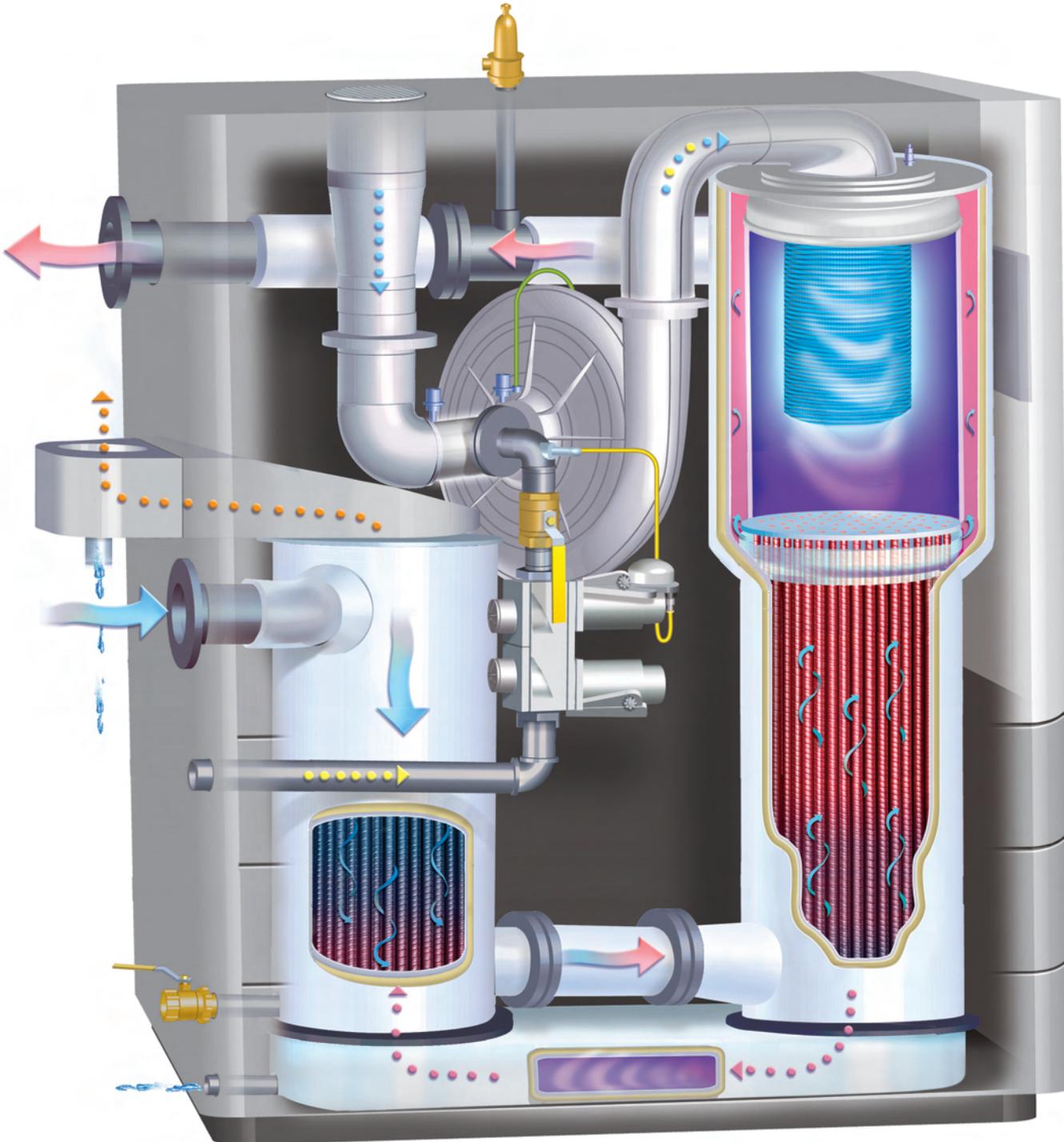
In April 2009, AERCO re-engineered the Benchmark 2.0 Low NOx boiler to feature an enhanced heat exchanger design and air/fuel delivery system. A revised version of this brochure is currently in production. Click here  to view an embedded illustration of the current BMK2.0LN design.



New Benchmark 2.0 Low NOx

-  = Cold Water
-  = Hot Water
-  = Air
-  = Natural Gas
-  = Air/Gas Mix
-  = Cool Exhaust

BTU Input	2,000,000 BTU/hr.
BTU Output	1,720,000–1,860,000 BTU/hr.
Efficiency	99.3% at low fire with 60°F inlet water
Turndown Ratio	20:1
Dimensions	79"H x 28"W x 36"D
Gas Requirements	4" W.C. minimum at full load
Weight, Wet	1,650 lbs.



- = Cold Water
- = Hot Water
- = Air
- = Natural Gas
- = Air/Gas Mix
- = Hot Exhaust
- = Cool Exhaust
- = Condensate

Benchmark 3.0 Low NOx

BTU Input	3,000,000 BTU/hr.
BTU Output	2,610,000–2,883,000 BTU/hr.
Efficiency	99.4% at low fire with 60°F inlet water
Turndown Ratio	15:1
Dimensions	79"H x 28"W x 64"D
Gas Requirements	4" W.C. minimum at full load
Weight, Wet	2,580 lbs.

RELIABILITY THAT'S BEEN FIELD-PROVEN FOR A DECADE

First introduced in 1997, the Benchmark boiler is among the oldest high-efficiency products available in the US. The market leader for the last decade, several thousand Benchmark units have been installed throughout North America and have continued to operate flawlessly season after season. Their performance proven reliability can be credited to:

- **Advanced Design and Components**

- Patented air/fuel delivery system and fully modulating burner reduces cycling losses and wear and tear
- Gravity condensate drain offers added protection against corrosion
- Key components (blower, burner, controls) developed by AERCO and life cycle tested for specific application



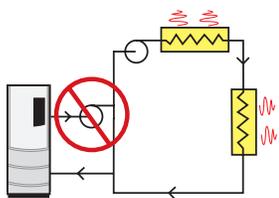
- **Superior Materials of Construction**

- Stainless steel provides maximum resistance to condensate corrosion
- All fireside surfaces – combustion chamber, tubesheets and fire tubes – are stainless steel

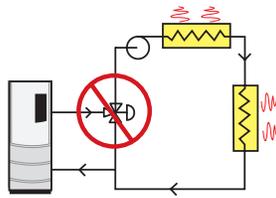


- **Support Simplified System Designs**

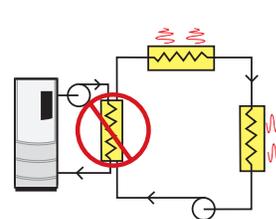
- Fewer system parts mean fewer potential points of failure



No primary boiler pumps



No three-way valves



No extra heat exchangers

The Benchmark's design is based on the same technology and manufacturing practices that AERCO itself introduced in 1987 with its KC1000 line – the first high-efficiency heater and boiler ever available in the United States. With 20 years field experience, AERCO brands are dispelling the early market predictions that condensing equipment would not last the test of time.

C-MORE™ CONTROL SYSTEM SUPPORTS OPERATION, TROUBLESHOOTING AND FULL BAS INTEGRATION

Developed specifically to support the fully modulating operation of AERCO boilers, the C-More™ Control System combines temperature and operating controls, combustion safeguards and fault enunciator functions in a single, state-of-the-art controller that also supports full BAS/EMS integration. In addition to basic boiler operation, the controller simplifies diagnostic troubleshooting and allows full integration with BAS and EMS systems for extensive data tracking and trend analysis.

- **User-friendly interface for control and troubleshooting**
- **Easy-to-understand English – not confusing codes**
- **Step-by-step diagnostics menus and status messages**
- **Read system status during start-up sequence and operation**
- **One-touch access to operating parameters and recent fault history**
- **Flash-upgradeable platform**
- **Supports remote monitoring and control**
- **BMS and EMS system integration via Modbus with optional support for LonWorks, BACnet, N2, etc.**
- **Supports tracking of more than 100 data points via BAS and EMS software**
- **Ensures fail-safe boiler operation if external building controls fail**



ROBUST DESIGN OFFERS FUEL SAVINGS TO A WIDE VARIETY OF APPLICATIONS



Benchmark boilers can deliver significant fuel savings to many types of hydronic systems – conventional space heating loops, heat pump, radiant heat, snow-melt systems and as well as process applications. Their robust design supports even the most challenging project requirements. Please consult individual data sheets for each unit's specific operating parameters.

- **Low Flow**

- Variable flow systems won't automatically require ancillary pumps at the boiler. Benchmark units can withstand "no flow" conditions without damage to the heat exchanger.

- **Low Gas Pressure**

- Benchmark boilers support low gas pressure applications without sacrificing their unmatched turndown.

- **Low NOx Emissions**

- Benchmark's patented fuel delivery system and burner design ensure low NOx emissions at all firing rates. Units have been SCAQMD certified where appropriate and can also be configured in the factory or in the field to meet more stringent emission levels where required.

- **Low Water Temperatures**

- Benchmark's condensing design actually increases operating efficiency when return water temperatures fall below 135°F.

- **Low or High ΔT Systems**

- Benchmark's high turndown ratio ensures extremely tight temperature control that is critical to fault-free operation of many systems designed with a low ΔT . In addition, the condensing boiler design can withstand thermal shock and/or low return water temperatures commonly associated with high ΔT systems.

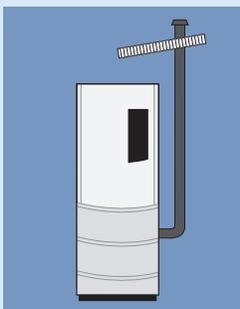
- **Dual Fuel Applications**

- Consult your AERCO sales representative about projects that require dual fuel (natural gas/propane backup).

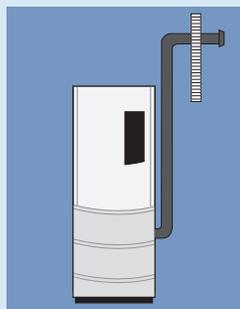
INSTALLATION ADVANTAGES REDUCE PROJECT COSTS

Benchmark boilers reduce costs by eliminating and/or minimizing ancillary equipment requirements in both new installations and retrofits. Simplified system designs can lower both initial project costs and long-term maintenance and replacement expenses for the life of the building.

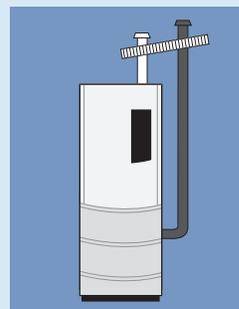
- **Small footprint**
 - Install pairs with zero side clearance
- **Delivered as a single, fully assembled unit**
 - Fits through standard doorways
- **No primary/secondary piping required**
- **Combination SSOV and ventless gas pressure regulator is built in**
- **Supports sealed combustion and/or room air intake**
- **No seasonal recalibration required to support variance in ambient air temperature**
- **Flexible venting**
 - Vent multiple units through a common ceiling vent
 - Vent individual units through a sidewall
 - Positive pressure design supports long runs without extra fans
 - Narrow diameter venting materials



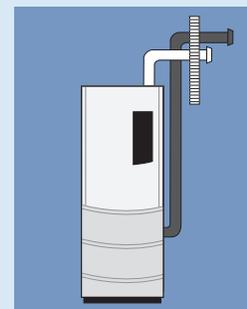
Conventional—vertical



Conventional—sidewall



Sealed Direct Vent—vertical



Sealed Direct Vent—sidewall



SALES REPRESENTATIVES THROUGHOUT THE WORLD

HEAT EXCHANGERS • WATER HEATERS • BOILERS • CONTROL VALVES • STEAM GENERATORS

AERCO INTERNATIONAL, INC. • NORTHVALE, NJ 07647
201-768-2400 • FAX 201-768-7789 • 1-800-526-0288
www.aerco.com • email: info@aerco.com