

The Boiler 411

Plumbing Engineer has obtained the inside scoop from the top boiler manufacturers about new product introductions and other industry news and notes. Here is a compilation of companies interviewed. They appear in no particular order.

AERCO International, Inc. www.aerco.com

Company profile: AERCO International, Inc. (AERCO) is a leading supplier of boilers and water-heating products. Founded by Henry Angelery in 1949, the company introduced a revolutionary design for an indirect-fired water heater that heated water on demand, without storage, at a controlled temperature. This innovation became the standard for water heaters. In 1988, AERCO became the first U.S. manufacturer to offer a fully modulating and condensing commercial gas-fired water heater and extended this design to the hydronic boiler marketplace.

SmartPlate water-to-water heaters help reduce system energy costs by utilizing innovative designs uniquely suited for use with high-efficiency condensing boilers.

What's new: The new SmartPlate water-to-water heaters help reduce system energy costs by utilizing innovative designs uniquely suited for use with high-efficiency condensing boilers. Capable of supporting up to 90 gpm domestic loads at a 100° F rise,

these fully packaged, instantaneous heaters incorporate real-time load tracking capabilities and responsive controls to maintain accurate hot water temperatures under diversified load patterns common in commercial and institutional applications.

All SmartPlate water heaters incorporate a PID temperature controller and a high turndown, electronic control valve to maintain outstanding $\pm 2^\circ\text{F}$ temperature control when operated under constant load conditions with variances held to $\pm 4^\circ\text{F}$ under normal load changes. Each SmartPlate heater utilizes a counter flow, stainless steel, brazed plate or plate and frame heat exchanger — the most efficient heat exchangers available for indirect water heating — in an instantaneous design that eliminates the need for storage tanks and blending valves.

AERCO also has launched a new website (www.aerco.com) makes it easy to find information on high-efficiency boilers and water heaters, as well as on condensing technology. Plumbing engineers now have a convenient resource to determine what boilers and hot water heaters are best suited for their projects.

HTP (Heat Transfer Products) www.htproducts.com

Company profile: Established in 1974, HTP is a full-fledged manufacturer on the cutting edge of energy-efficient space and water heating technology. HTP was the first U.S.-based manufacturer to release a condensing gas water heater domestically, unveiling the Voyager in 1994. In 1996, HTP delivered another breakthrough with the launch of the Munchkin boiler. This highly compact boiler coupled condensing technology with a modulating burner to further trim energy consumption. HTP's offerings include residential and commercial boilers, residential and commercial water heaters, indirect tanks, and a range of solar products. All offerings are high-efficiency.

What's new: HTP will be introducing a new heating boiler set for release in the fall of 2010. This new boiler will redefine the hydronics market by offering a product that is both highly combustion efficient and highly thermal efficient, coupled with enough hydronic mass to stabilize any system and eliminate the need for primary/secondary piping.

High efficiency boilers have continued to gain as a percentage of overall boiler market share. With federal and state legislation, as well as utility companies, encouraging upgrades and new installations through rebates and stimulus programs, an increase in sales of high efficiency boilers is forecasted.



The Elite Heating Boiler Series features inputs ranging from 80,000 BTU per hour to 399,000 BTU per hour and an industry-leading turndown ratio of six to one.

Hydrotherm, a Mestek Co. www.hydrothermkn.com

Company profile: Hydrotherm created a small cast iron boiler suitable for New York apartments. Playing off that same concept, Hydrotherm entered the commercial market by banking these smaller boilers together, thus forming the modular boiler concept. In the 1970s, Hydrotherm produced the first successful condensing boiler. In an age where typical efficiencies were 65-70%, Hydrotherm's Pulse boiler provided efficiencies of 90%. Hydrotherm joined the Mestek family of heating products in 1990 and continued its strong innovative path. The KN Series, Hydrotherm's flagship product offering is the industry's first cast iron condensing boiler available with outputs ranging from 200MBH - 3,000MBH. KN Series units feature HeatNet control technology. Heat Net is a proprietary control platform ensuring optimum combustion performance offering superior system efficiency control and communication.

What's new: Offering efficiencies of up to 99% with inputs of 200 and 400 MBH, the new KN-2 and KN-4 Series boilers offer the ultimate combination — the small footprint of modern low mass boilers and the long life and reliability of cast iron.



KN-Series boilers feature HeatNet control technology, which eliminates the need for wall-mounted third-party control panels. Built into each KN-Series boiler, the plug-and-play HeatNet control maximizes operating efficiency and turndown rates to create substantial energy savings whether it is operating on a single unit, part of a Building Management System or as a member of a network of up to 16 boilers.

Laars Heating Systems Co.,
a subsidiary of Bradford White Corp.
www.laars.com

Company profile: In 1948, Laars engineers invented a way to improve the transfer of heat between metals, which led to the design of a new commercial boiler. Their concept was based on the principle that water could be heated rapidly through a finned copper tube heat exchanger exposed to gas flames, a technique that virtually eliminated the



The NeoTherm® condensing boiler is a fully packaged, space-saving hydronic solution that offers 95% energy efficiency. Laars is now adding three additional commercial NeoTherm boiler sizes (600, 750, 850) to the full line-up of current residential sizes (80, 105, 150, 210) and commercial sizes (285, 399, 500), extending the NeoTherm range from 80 MBH all the way to 850 MBH.

scaling and electrolytic corrosion that shortened the life of the cast iron and steel tube boilers. In the 70s, the company expanded into residential hydronic systems.

Laars Heating Systems Company (www.laars.com) was purchased by the Bradford White Corporation in 2005, greatly expanding Laars' scope and marketplace. Recently, Laars completed full consolidation of all manufacturing at its Rochester, N.H. plant, with facilities in Canada.

What's new: Laars has just introduced three new commercial sizes of our NeoTherm mod-con line, the NTH 600, 750, and 850, each with a 5:1 turn-down ratio and standard controls that will modulate and stage up to 8 boilers with outdoor reset and lead/lag boiler rotation. Also, Laars has just released 5 sizes of a new condensing volume water heaters, the NeoTherm NTV 150, 199, 285, 399 & 500. Also, in the new product category, Laars will soon introduce the Laars System Commander, an automatic "gateway" device that allows the Laars Integrated Control used on NeoTherm boilers to communicate directly with building automation systems with BACNET and LON protocols. The Laars System Commander is a "plug 'n play" control that auto-detects the BAS protocol and communicates seamlessly without having to map data points, and also auto-detects and names all Laars boilers connected to the system, with up to 12 burners.

Lochinvar Corporation
www.Lochinvar.com

Company profile: Lochinvar's history dates back to 1919 with its founder Walter Vallett, Sr.'s entry into the water heater business. A true industry pioneer, Vallett was instrumental in the development of the first automatic gas fired water heaters early in his career. He founded the Walter Vallett Company May 16, 1946, which eventually became Lochinvar Water Heaters, and is known today as Lochinvar Corporation.



What's new: The latest addition to Lochinvar's family of commercial, stainless steel, condensing boilers is the CREST™ heating boiler, which will be available later this year.

CREST will include the SMART TOUCH™ operating control platform enhanced with an eight-inch touchscreen display; this advanced control will offer ease of set-up and use by installing contractors and will include Modbus protocol for easy integration into Building Management Systems.

This innovative new line has been developed to offer engineers more system design flexibility, sizes and distinctive performance characteristics to meet today's building standards for new construction and energy retrofit applications. The CREST heating boiler will be offered in five models with capacities of 1.5, 2.0, 2.5, 3.0 and 3.5 million Btu/hr inputs. Each of these models will feature an advanced burner and combustion system designed to provide exceptional turndown capabilities and improve overall seasonal efficiencies.

Lochinvar also announced their Solar Thermal Heating initiative, which is the result of a new partnership with TiSUN® GmbH of Tyrol, Austria. The partnership between Lochinvar and TiSUN has resulted in a winning team with smart strategies that provide the exact product, training and support that mechanical and plumbing design engineers and contractors need to provide renewable energy solutions for their clients.

Lochinvar has expanded upon its highly successful Squire® Indirect Water Heater line to include a total of 12 stainless steel models with capacities between 30 and 119 gallons. Among the new models are six solar units, each of which features a hybrid system incorporating solar thermal panels along with a secondary boiler heating coil or electric back-up.

Slant/Fin Corp
www.slantfin.com

Company profile: Slant/Fin was founded in 1949 by Mel Dubin. He began manufacturing commercial fin tube in the back of a bakery in Brooklyn, New York. The company has since grown and is still a privately held company now manufacturing in Greenvale, N.Y. Slant/Fin manufactures a full line of residential and commercial fin tube radiators, as well as a full line of gas and oil boilers. Since 1949, heating contractors, engineers and builders have depended on Slant/Fin for products of the highest quality. Slant/Fin is dedicated to satisfying its customers through on-time delivery of quality products — along with the best technical and customer support in the industry.



The specially designed three-pass heat exchanger maximizes heat transfer and delivers 87% AFUE. Plenty of room for thermal expansion of the flue gases to keep burner and flame noise to a minimum.

What's new: The EUTECTIC Series is the newest high efficiency, cast iron, oil-fired boilers by Slant/Fin.

Made from proprietary cast iron, the heat exchanger is resistant to thermal shock and corrosion. Suitable for lower temperature oper-

ation and outdoor reset controls. The specially designed three pass heat exchanger maximizes heat transfer and delivers 87% AFUE. Runs quietly. There is plenty of room for thermal expansion of the flue gasses to keep burner and flame noise to a very minimum. It is easy to clean, the door is reversible, the baffles are removable and brushing the flueways is a snap. Cleans easily with a reversible swing-open door and removable baffles. Engineered to run clean under all ambient conditions. Available in sizes you need from 88,000 to 350,000 btuh.

The cast iron is flexible and resilient which allows for lower temperature operation especially with outdoor reset controls. This yields significant energy savings. The EUTECTIC boiler, like other Slant/Fin oil boilers, will operate cleanly under all the different operating conditions. It has done the testing and has matched burners and components to this boiler to make sure the boiler will stay running clean after you leave the job.

RBI, a Mestek Co.
www.rbiwaterheaters

Company profile: RBI built its foundation as a contract builder of copper finned heat exchangers. In the mid-1990s, RBI became a Mestek company. With the leverage of Mestek's marketing and technology resources, RBI was able to quickly grow and establish itself as an industry leader in copper finned-tube hot water supply equipment. The introduction of the near condensing XLF Series gives new meaning to "high output, small footprint" boilers with sizes up to 4000MBH. The condensing Fusion Series offers full input efficiencies of up to 98%. Select RBI units feature HeatNet control technology.



Infinite Energy, high efficiency condensing boiler products, operates with combustion efficiencies as high as 97.3% and can be vented through standard schedule 40 PVC piping.

What's new: Infinite Energy high efficiency condensing gas boilers, the latest addition to the RBI family of high efficiency condensing boiler products operates with combustion efficiencies as high as 97.3% and can be vented through standard schedule 40 PVC piping. It's fully modulating LoNOx commercial-grade stainless steel burner configuration insures optimal efficiencies and superior performance throughout all firing rates.

The Infinite Energy's stainless steel heat exchanger assembly incorporates an integral condensate neutralizer with float switch protection for safe and efficient operation.

Units feature an exclusive on-board control platform allowing application versatility and master/member boiler communication of up to 16 units using outdoor reset as standard.

The direct-vent, sealed combustion Infinite Energy uses a small footprint with zero clearance to combustibles. Features:

- Up to 97.3% efficient
- Direct vent, sealed combustion
- Full modulation
- Pre-mix stainless steel burner
- Integrated boiler control platform (operate up to 16 boilers)
- ASME & ETL Certified
- Built-in condensate neutralizer and float switch protection
- Outdoor reset capable
- PVC venting approved
- Environmentally friendly — Low NOx.

Weil-McLain
www.weil-mclain.com

Company profile: Weil-McLain is a leading designer, manufacturer and marketer of heating and cooling equipment in residential, commercial and institutional buildings. Building on a tradition of quality and innovation, the mission is simple: to design and build the best products on the market, to make them first and to make them last — for decades. In September of 2010, Weil-McLain will celebrate its 130th anniversary. With a corporate headquarters nestled alongside the beaches of Lake Michigan in Michigan City, Ind., and a state-of-the-art manufacturing facility, as well as a world-class customer training facility in Eden, North Carolina, Weil-McLain is a leader in the comfort heating industry. Weil-McLain is now taking its expertise beyond North America's borders, as well — with approximately 700 employees worldwide.



Available in two sizes (550 & 750 MBH), the Ultra Commercial offers an efficiency rating of 94%. The Ultra Commercial is CSD-1 compliant and is lightweight and require minimal clearance, making for a fast & easy out-of-the-box installation.

New products: Weil-McLain unveils Ultra Commercial: Available in two sizes (550 & 750 MBH), the Ultra Commercial offers an efficiency rating of 94%. The Ultra Commercial is CSD-1 compliant and is lightweight and require minimal clearance.

Key features include:

- 93.9% thermal efficiency
- 94% combustion efficiency
- CSD-1 Compliant is standard
- Lightweight and requires minimal clearance
- Fast & easy out-of-the-box installation
- Low NOx Certified
- PVC venting for direct vent and direct exhaust
- Compact design packaged boiler
- 20% - 100% modulation
- U-Control flexibility

U.S. Boiler Co., Inc.
www.usboiler.burnham.com

Company profile: The Burnham Brand made by U.S. Boiler Company has introduced more new, high efficiency products over the last several years than any other company at any time in the history of hydronic heating. From new energy star® certified, gas-fired residential boilers — to high efficiency oil-fired boilers including advanced-design, three-pass, cast iron boilers — along with the industry's only 3-pass, oil-fired, steam boiler. Taken together, U.S. Boiler Company's expansive lineup of Burnham hydronic heating products boasts the highest average efficiency, exceeding 85%, with maximum efficiencies more than 95%.



The Burnham brand continues to set the new standards for hydronic heating equipment in residential and commercial products for gas-fired and oil-fired applications — with water and steam boilers — and super high efficiency condensing boilers.

U.S. Boiler Company now offers the broadest line of Burnham condensing boilers available from any manufacturer anywhere including both cast aluminum heat and stainless steel heat exchangers. Also, many Burnham products now boast exclusive leading-edge boiler control technology with both the Burnham IQ™ control system and the advanced Burnham Sage2™ boiler control system. Both systems have been specifically designed by U.S. Boiler engineers for unmatched control of Burnham boilers.

To provide this extensive and industry-leading product lineup, U.S. Boiler Company has invested in world class manufacturing facilities along with the Burnham Foundry, LLC in Zanesville, Ohio and new assembly operations in Lancaster, Pa. with state-of-the art computer numerical controlled machines providing exacting product tolerances.