A.O. SMITH WATER HEATERS
500 TENNESSEE WALTZ PARKWAY
ASHLAND CITY, TN 37015
www.hotwater.com

For Immediate Release

Contact: Samantha Owens
sowens@gish.com
615.385.1100

A VISION FOR THE FUTURE

Strategic Alliances Bring New Water Heating Technology to Market

ASHLAND CITY, Tenn. – June 1, 2006 – For the last three years, A. O. Smith has been working with the U.S. Department of Energy (DOE) and the leading technology development firm TIAX LLC to accelerate innovation toward increased efficiency in residential water heaters. This strategic partnership has resulted in the development of the A. O. Smith Vertex – a groundbreaking residential gas water heater that combines higher gas input and more efficient combustion to deliver much more hot water while reducing operating costs.

The Development Team

The DOE is committed to strengthening America's energy security, environmental quality and economic vitality in public-private partnerships that enhance energy efficiency and quality of life at the same time. One goal of DOE programs is to provide American consumers with a greater choice of energy-efficient products. The DOE has worked with TIAX and leading manufacturing partners on several breakthrough products including commercial refrigerators and residential clothes dryers that reduce energy consumption by as much as 60 percent.

As the nation's residential hot water consumption continues to rise due to the popularity of larger homes with amenities like deep soaking tubs, radiant heat flooring, steam showers and showers with multiple heads, the development of a cost-efficient condensing water heater heritage of innovation, should be the manufacturing partner for the project, and that TIAX, with its experience in making technologies ready for market, should be involved. A strategic alliance was formed.

The Challenge

Higher efficiency water heaters have been available in the mass market for many years, but these products tend to be much more expensive than traditional storage

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water heaters. Since the thermal efficiency of water heaters is most often affected by flue standby losses, this was one key area for improvement. There is also the high cost of materials such as stainless steel for tanks and heat exchangers as well as expensive burner systems that have been used to achieve the higher efficiencies.

In addition to the cost impact, these stainless steel tanks bring with them a host of difficulties in the manufacturing process with regard to tank welding and overall product reliability. The increased costs and suspect reliability associated with some high-efficiency water heaters suggested tremendous opportunity for a cost-optimized version.

The Solution

The goal was to develop a heater that uses relatively low-cost, available technologies to achieve higher efficiency with a modest cost premium. Such a product would reduce the payback time from energy savings to a more reasonable length and make the product more appealing to the marketplace.

The industry knowledge and engineering expertise of A. O. Smith were integral in finding the right solution to meet the hot water delivery needs of the mass market. It was necessary to consider the design of the heat exchanger system and increase input rates in order to finalize the specifications for this first-of-its-kind residential water heater.

A glass-lined helical coil heat exchanger made from low-carbon steel would provide significant cost savings when compared to stainless steel heat exchangers. Furthermore, a helical coil heat exchanger design provides increased surface area which, combined with the length of the coil, enables

Vertex to accept 76,000 BTU input while keeping heat energy inside the tank longer. This configuration has been proven successful in A. O. Smith's CycloneXHE commercial water heaters.

The end result was a revolutionary condensing water heater that had the following attributes:

- 90% thermal efficiency
- 76,000 Btu/hr input rate
- Significant recovery capability to provide endless hot water
- First hour rating of 127 gph

Vertex is an innovative option for plumbing contractors to satisfy ever-increasing

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consumer demand for hot water, while simplifying installation. This new, 76,000 BTU power-vent residential gas water heater features 90 percent thermal efficiency and it combines higher input with more efficient combustion to produce much more hot water, with lower operating costs. Well-suited for larger homes with high hot water usage, Vertex will set a new benchmark in water heating solutions.

Headquartered in Ashland City, Tenn., A. O. Smith Water Products Company is a leading manufacturer and marketer of residential and commercial water heaters and hydronic boilers. A. O. Smith offers contractors an additional competitive advantage in that the company designs, builds, distributes and field supports the world's broadest and deepest line of residential and commercial water heaters, as well as commercial boilers. This single-source concept simplifies ordering, installation and service and is backed by almost 70 years of research and innovation. For more information, visit www.hotwater.com.

About TIAX:
TIAX LLC (www.tiaxllc.com) is a leading technology development firm that accelerates innovation to help its clients create an impact in the market--and in people's lives. Founded in 2002, it integrates business, industry, and hands-on technology expertise to transform ideas into technologies. TIAX builds on a rich heritage of breakthrough innovation and client success. TIAX was selected as a Technology Pioneer 2003 by the World Economic Forum and is ISO 9001 certified, with more than 50 research and development laboratories acquired from the former Arthur D. Little, Inc. The company is based in Cambridge, Mass.

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