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A COOL NEW APPROACH TO HEAT TRANSFER

API Heat Transfer installs air flow test lab with 30,000 scfm capacity; focuses on growth in on- and off-highway markets

BY DAWN M. GESKE

As heat transfer manufacturer API Heat Transfer makes its way into 2010, its focus is aimed on advancing the testing and development of its air-cooled, shell and tube, and plate products marketed under the Airtech, Basco and Schmidt brands.

The Buffalo, N.Y.-headquartered company has installed a new 30,000 scfm capacity calorimetric airflow test lab, completed a 53,000 sq.ft. addition to its Buffalo manufacturing plant and expanded its business in both the on- and off-highway markets, recently securing a 2010 contract with Spartan Chassis for custom cooling packages.

Under the Airtech brand, API Heat Transfer produces vacuum-brazed aluminum bar and plate coolers, vacuum-brazed aluminum radiators in two-, three- or four-row depths and with a variety of external fins and pre-cooler, chiller, reheater (PCR) for air dryers

and aluminum fan-cooled oil coolers and after-cooler units. Its Basco line features a complete range of custom and standard shell and tube designs including TEMA types, fixed and removable bundle designs, extended surface plate fin units and a family of pre-engineered standard pipe size heat exchangers. The Schmidt series comprises a full range of plate heat exchangers including gasketed plate and frame, semi-welded, all-welded, plate and shell, and brazed units, as well as complete thermal systems.

As API Heat Transfer extended its reach deeper into the on- and off-highway markets, it realized a need for expanded testing capabilities in order to truly meet the needs of its customers. To meet this objective, the company installed a calorimetric test stand and necessary process loops.

With the added capacity of the test lab, API Heat Transfer said it is able to

perform real-time testing and evaluation of larger products, reducing the amount of time to develop working cooling systems for customers and eliminating multiple product prototype designs. The new laboratory has process loops to test large shell and tube heat exchangers and plate heat exchangers. The process loops allow testing over a wide range of operational parameters.

"We are able to conduct performance evaluations of full-size coolers and cooling packages for on-highway and off-highway applications under actual under-the-hood conditions," said Dr. Arif Khan, director of product development at API Heat Transfer. "We are able to do real-time testing before coolers are in a vehicle. Design and development iterations are eliminated and our customers are assured about the performance of the heat exchangers they are getting from API."

In addition to the installation of the



API Heat Transfer produces heat transfer products under the Airtech, Basco and Schmidt product lines. Shown here is a radiator for Spartan Chassis integrating a tube and fin louvered radiator. Each Spartan chassis features a customized cooling package specific to its engine and design assembly.

airflow test lab, API Heat Transfer also added 53,000 sq.ft. of manufacturing floor space at its Buffalo facility. "We added the extra capacity as we were seeing more of a demand in market segments such as power and process for larger and heavier heat exchangers than we were previously capable of manufacturing," said Mike

Sanders, vice president, business development and new products at API Heat Transfer. "The expansion allows us to produce shell and tube units almost twice what we were able to make before. Similarly, it allows us to manufacture large plate heat exchangers and thermal systems to serve our customers in the Americas."

Adding a test lab in the downturn of

2009 — when most companies were looking for ways to cut costs — may be considered a questionable move. API Heat Transfer said it considered the investment a testament to its commitment to customer service and customer satisfaction.

"We have been planning for some time, as our company has been quite healthy," said Khan. "We see our company growing in the coming years and this was an opportunity to separate us from our competitors."

"We want customers to come in here and witness the testing," Sanders said. "They can look at the data through our Labview system and witness the same measurements we are taking so they are completely confident when they install the coolers in their vehicles."

With the new calorimetric test stand, API Heat Transfer can simulate air flows to 30,000 scfm and air temperatures within engine compartments. Fluid flow loops include aqueous glycol, water and oils. Temperatures of

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Spartan Chassis has specified API Heat Transfer's packages for its full line of motorhome chassis it sells to body builders such as Fleetwood, Newmar, Tiffin and Jayco. The Spartan motorhome chassis lineup includes the entry level NVS, midlevel Mountain Master and highline K2 and K3 (shown here) models.

flowing fluids can be controlled as desired while a dedicated air compressor with humidification loop provides dry or humidified air at desired temperatures over a large flow range to test charge-air coolers and extended surface industrial intercoolers and aftercoolers. A data acquisition system using Labview software is used to control and run tests.

"We've created a true full-size validation capability so the cooling products will perform in our lab just like they will in the customer's engine compartments or process loops," said Sanders.

The new calorimetric test stand enables API Heat Transfer to test all cooling packages for RV applications, developed for all of Spartan Chassis' motorhome chassis in a contract for 2010.

With 2010 engines requiring changes in cooling systems due to space constraints, weight and thermal load, Spartan was in the market for a cooling package supplier that could deliver customized systems to fit the similar footprint of its 2009 chassis models while providing efficiency and cooling for the 2010 engines it uses in its motorhome lineup of rear engine-driven chassis.

"We were looking at our customers' requirement, which was to do anything we could to limit the growth of the size

of the cooling packages for the new emissions year," said Kevin Hubert, senior project engineer at Spartan Chassis. "We were trying to minimize the size of the change, and with API we've been able to look at some different technology and use a more efficient system to eliminate the need to grow heat exchangers bigger."

Spartan specified API Heat Transfer's packages for its full line of motorhome chassis it sells to body builders such as Fleetwood, Newmar, Tiffin and Jayco. The Spartan motorhome chassis lineup includes the entry level NVS, midlevel Mountain Master and highline K2 and K3 models. Each chassis features a customized cooling package specific to its engine and design assembly integrating a tube and fin-louvered radiator.

"API provides us an integrated cooling system for charged air and a radiator system," said Hubert. "It arrives from API with the charge-air cooler and radiator assembled inside the framework assembly so we are getting a module from them."

Spartan produces the NVS, Mountain Master, K2 and K3 chassis in Charlotte, Mich. The chassis are powered by Cummins 2010 ISB, ISX, ISC and ISL diesel engines rated 360 to 600 hp, depending on model, and

mated to Allison automatic six-speed transmissions.

While the cooling package that API Heat Transfer is providing for Spartan features a similar footprint, it also is achieving a significant weight reduction. "We've seen in the neighborhood of a 50% weight reduction in the overall cooling package," said Hubert. As an example, Hubert said one particular model went from a 350 lb. cooling package to 190 lb.

"They have worked hand in hand with us to develop the whole system and not an out-of-the-box solution," said Hubert. "They've worked with our other suppliers in order to have a whole system that works the most efficiently together."

Shell and tube heat exchangers and plate heat exchangers are manufactured at API Heat Transfer's Buffalo plant. API Heat Transfer has another plant in Arcade, N.Y., where it produces aluminum air-cooled heat exchangers. International production occurs in Bretten, Germany, and Suzhou, Jiangsu Province, China — a plant established in 2004, and expanded in 2005.

As API Heat Transfer moves forward, it continues to look at new investments and markets, trending toward the Brazil, India and Russia markets as new opportunities to better serve its customer base. "We are in various stages of looking at all three of these," said Sanders. "We know our customers domestically are setting up operations in these countries and we want to be there locally to service their needs.

"We want to expand our sales force globally so that we can be in front of more customers, more frequently, and get them aware of what our capabilities are and get them into our test lab facilities so they can see exactly what we can do for them from a solutions standpoint." **dp**

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