

## CASE STUDY

# BQ-9000 Biodiesel Producer Selects Sliding Vane Pumps

**Peter Cremer North America, LP chooses sliding vane technology for consistency, reliability, and seal integrity for use throughout plant.**

By Darren Wight

The demand for biodiesel continues to grow every day in the United States. The ability to keep up with that demand while trying to improve efficiencies and uptime is a challenge that all biodiesel producers must continue to refine. Having the correct pumping and storage equipment in place at the production facility is a key component to their success.

No one knows this better than Peter Cremer North America, LP based in Cincinnati, Ohio, the first BQ-9000 producer of biodiesel in the United States. As the demand for biodiesel surges, Peter Cremer serves as an example to other producers on how to successfully increase production and uptime. In July 2006, Peter Cremer, North America (PCNA) completed an expansion project that made it one of the largest biodiesel producers in the United States with a production capacity over 30-million gallons per year.

PCNA began producing biodiesel in 2002 and quickly outgrew its infrastructure in a few years. Knowing the need to grow was imminent, the company mapped out a plan to double its production of 15-million gallons by approving an expansion project in September 2005.

“We knew we had the capacity to produce 30 million gallons, but we were limited by our infrastructure. The addition of the six 1-million gallon tanks will give us the storage capacity to hit our production capacity in 2006,” said Mack Findley, North America Sales Manager for PCNA.

A longtime proponent of biodiesel as a viable alternative fuel, Findley was the first employee at the company hired by its president, Raymond Bitzer, when the company was created in 1999 as an oleochemical services business. The company packages, tests and stores different types of oleochemicals for larger oleochemical producers, and markets crude and refined glycerin, a byproduct during the production of biodiesel. The crossover from oleochemicals to biodiesel was somewhat natural due to similar core competencies.

“When you produce 100 gallons of biodiesel, you also produce 10 gallons of glycerin. PCNA is a global marketer of glycerin,” Findley noted.

## Plant Project

PCNA's original plant design had limitations on storage capacity. The company has storage tanks located near the Ohio River, and is building six new 1-million gallon storage tanks to give the company the capacity to produce 30-million gallons per year. Two of the new tanks hold the soybean oil feedstock that is brought into the facility every day, while the other four tanks are designated for the finished product.

Even though the raw and refined products are located within a few feet of each other, both are being pumped to and from the transesterification production facility via two one-mile long pipelines. The importance of the proper pumping technology used throughout the plant is critical to its success. Without durable pumps that are easy to maintain and designed around the seals where the majority of leaks can occur, PCNA would not be able to meet its targeted production. The company chose to use vane pump technology throughout its plant due to the pump's consistent performance, seal integrity and superior handling ability of thin liquids, such as biodiesel.

“Our entire operation uses NP2 or NP4 Blackmer Vane Pumps. From railcar loading/unloading, to sending the product to our production building and back to storage, or loading it onto the trucks for delivery, over the years we've tried different types of pump technologies, but the vane technology works the best. Some of the pumps might be geared differently in different applications, but these are perfect pumps for our needs,” said Mike Doll, PCNA's Plant Manager.

PCNA soybean oil feedstock is shipped into the facility by railcar. The typical railcar coming into the facility holds roughly 20,000 to 25,000 gallons of soybean oil.

“The railcars enter the plant and are top-unloaded, which is something you probably won't see anywhere else. The Blackmer vane pumps have such a tremendous suction ability that we are able to load and unload from the same point,” noted Doll. “Because of their suction lift





Throughout its biodiesel plant, Peter Cremer North America, LP uses NP2 or NP4 sliding vane pumps manufactured by Blackmer, Grand Rapids, Michigan.

capability, and high performance characteristics the Blackmer vane pumps enable us to unload these railcars very efficiently.”

After the oil is unloaded, it gets pumped to its production facility via a 1-mile long pipeline where it’s processed

and turned into methyl ester. Once again, having the right pumps and piping configuration is essential to this process. The methyl ester is sent back to the new storage tanks via a different pipeline and pumped into the new storage tanks.

“The infrastructure that’s needed to produce 30 million gallons of biodiesel per year is significant. Not everyone takes into consideration all of the piping, pumps, and equipment that’s needed,” said Doll. “We selected vane technology for our pumps because of their superior thin liquid handling capabilities, seal integrity and uptime performance, and have properly configured our piping and production equipment to provide optimum results.”

### Looking Forward

As states such as Minnesota, Illinois, Missouri, and Pennsylvania (to name a few) continue to develop mandates, tax benefits and grants, the acceptance of biodiesel will undoubtedly grow over the next several years. Biodiesel producers, such as Peter Cremer North America, see this as a potential mainstream fuel in the not-too-distant future.

“I think the first major level you’ll see the biodiesel consumption hit will be 1-billion gallons. The U.S. has roughly 300-million gallons of capacity in 2006. But in 2007 to 2008, the industry is going to build another 700-million gallons of capacity. So the capacity will be there to create a 1-billion-gallon market, which will be 2% of the overall U.S. diesel market. It doesn’t sound like a whole lot, but 1-billion gallons will be a major hurdle. I would say that we could see a 1-billion-gallon market within the next five years,” remarked Findley.

*Darren Wight is a freelance writer based in Knoxville, Illinois.* ■

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