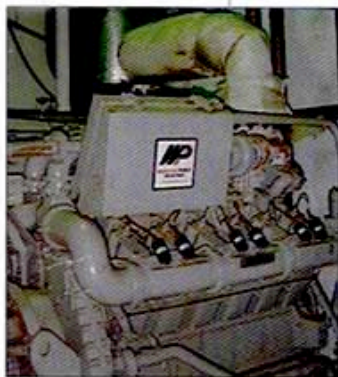




Cogen Produces Big Savings for Metal Finishing Operation

Metal finishing operations offer a perfect opportunity for cogeneration because they have a balanced load of thermal and electrical needs," explained Marty Borruso, President of Utility Metal Research. "Further, electroplating operations, such as Arrow Lock Manufacturing Company, use processes with a lot of energy peaks, which means demand charges can be very high."



The cogeneration system at Arrow Lock Manufacturing Company in Brooklyn, NY, produces 600 kW of electric power and 2100 pounds of 15 psi steam.

Arrow Lock Manufacturing Company, located in Brooklyn, NY, is a leading manufacturer of door locks. Brooklyn Union, a strong proponent of onsite cogeneration, had made a number of cogeneration presentations to Arrow Lock since 1991, but management was not in a position to make a long term financial commitment. Subsequently, the company was purchased by the Swedish company Assa Abloy AB in 1991 and is now part of the largest group of lock companies in the world.

After the company was purchased, Arrow Lock began looking for new ways to improve overall efficiencies and reduce costs. Enter Joe Niemiec, Director of Power Systems for Brooklyn Union and Marty Borruso of Utility Metal Research (UMR): "Marty and Joe had done presentations on cogeneration for Arrow Lock a number of years earlier," recalled Arrow Lock CFO Marty Hoffman. "We had them come in again, and we ran through all the numbers and the equipment specs. When we were done, it was clear that cogeneration made sense for us. Payback was about two years, and our utility costs would be cut in half - from about \$500,000 to \$250,000

per year."

The cogeneration system was engineered and installed by UMR, which also manages maintenance. Major incentives and support from Brooklyn Union and the City of New York also helped make this project a success.

The heart of the Arrow Lock cogeneration system is a Waukesha natural gas engine which provides 600 kW of electric power and 2100 pounds of 15 psi steam. "Our approach," said Borruso, "is to cherry-pick loads with the highest demand for the cogeneration system. We don't try to provide power for the entire site." At Arrow Lock, thermal and electrical energy from the cogen system are used for industrial processes, while low-grade thermal energy from the system is also used to heat plating solutions, run drying and curing ovens, and provide heat for waste treatment. The lighting, phones, computers, and other office systems, on the other hand, are all run off electrical power provided by the local utility company.

A smaller 110-kW cogen unit with a Hercules engine and a 600-kW backup diesel unit complete the Arrow Lock energy system. When the large, 600-kW unit is switched off at the end of the day, the smaller 110-unit takes over and provides production power for a skeleton crew during the night hours. The backup diesel unit comes into play during routine maintenance or overhauls of the large unit. Maintenance costs have been running less than 1¢ per kW and are projected at an average lifetime cost of only 2¢ per kW.

"We're very pleased with the system," concluded Arrow Lock's Marty Hoffman. "It is working the way it is supposed to and, with reduced electric usage from the local utility company and the New York City incentives, it's cut our utility bills in half."

More information on cogeneration systems for the metal finishing industry is available from:

Utility Metal Research Corp.
Circle 600

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Natural gas infrared is ideally suited for a wide range of industrial applications. A double row of profiling emitters manufactured by Kreiger, shown before their assembly into a drying hood, will be used in paper drying applications. The Maxon P/S radiant burners (insert) are being used to dry powder coatings. (Photos courtesy of Kreiger Corp., East Providence, RI, and Maxon Corp., Muncie, IN)

Gas Technology is an educational supplement from the American Gas Association, 1515 Wilson Blvd., Arlington, VA 22209. Phone: (703) 841-8400. Web Site: <http://www.aga.com>. David Parker, President and CEO; Dave Sgrignoli, Senior Vice President, Marketing and Communications. Comments may be directed to the A.G.A. Editor, Plant Engineering magazine, 1350 E. Touhy Ave., P.O. Box 5080, Des Plaines, IL 60017-5080. Telephone: (847) 390-2680. Printed in the U.S.A.

