

Bottling company improves operations with industrial refrigeration system

Result

- \$160,000 annual energy savings
- Tighter process control
- Line speed throughput increased by 42 percent
- Low ammonia refrigerant charge
- Refrigerant is confined to packaged refrigeration system, and not to operation spaces

Application

315 horsepower processing chiller using low charge of natural refrigerant.

Customer

The Caribbean Bottling Company Ltd is a major packager and distributor of Coca-Cola product lines in the Bahamas. The company has serviced the Bahamian market with Coca-Cola products for over 70 years.

Challenge

In 2009, The Caribbean Bottling Company Ltd broke ground on an ambitious expansion project. The goal was to relocate the entire production and distribution operation to a state-of-the-art plant by the end of 2011 without disrupting operations. A massive new refrigeration system was needed to maximize control and energy efficiency. The new plant was designed to run a 24,000 bottles per hour PET line and a 25,000 cans per hour canning line. An ammonia refrigeration chiller cools glycol, which cools the product. The outdoor ambient temperature design condition is 29 degrees C (85F). Product needed to be cooled to 7 degrees C (45F).



“The Vilter Engineering team did an excellent job in the design of this ammonia plant. The project was completed ahead of schedule and technical support has been impeccable.”

Niall Ragoonan Singh

Maintenance Manager at the Caribbean Bottling Company

More efficient operation would allow the new plant to bottle more beverages in less time. At the old plant they struggled to keep temperatures in range for production, which meant the line needed to run at a slower speed. They were counting on the new system to maintain consistent temperatures at faster line speeds, resulting in higher productivity and better efficiencies.

Solution

The Vilter™ industrial refrigeration system is 315 tons, expandable to 350 tons of refrigeration and is designed to cool 373 gallons per minute of propylene glycol using ammonia as the environmentally-friendly refrigerant. The glycol is pumped into the bottling system for the fillers, carbon cooler, and even air conditioning of the plant and offices.

A VILTech reciprocating compressor micro-controller from Vilter was programmed to improve and fine tune the refrigeration compressors. The user found the simple and reliable design easy to use, and the controller provides full compressor protection. The remote communication capability allows the user to monitor and change process conditions depending on the product being produced. This new controller measures, monitors, and controls the refrigeration system, product temperatures, and can be adjusted to exact product needs.

The Vilter compressor package includes a Vilter evaporative condenser with variable frequency drives on the fans and water pump to keep a steady condensing head pressure, which saves energy. At the old plant, adjustments had to be done manually, and the system ran 100% loaded which used more energy. The new system saves \$160,000 each year on electricity, uses much less refrigerant, and controls process temperatures tighter to allow for faster production.

Vilter Manufacturing LLC, a company of the Emerson Climate Technologies business segment, is a technology leader in energy-efficient, environmentally-conscious solutions for the industrial refrigeration and gas compression industries. The company's line of compressors and packaged solutions, including technologically advanced single screw compressors, and reciprocating compressors and twin screw compressors, are sold globally through a vast network of aligned contractors and packagers.



Resources

Learn more about the Vilter compressors at:
EmersonClimate.com

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