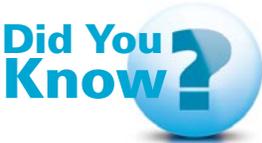


Sustainability in a Bottle:

**Innovative Compressed Air Upgrade
Offers Multiple Benefits**



Atlas Copco continues to be a member of the Dow Jones World Sustainability Index.

“We fill one hundred and fifty million bottles a year,” says Rick Neal, Plant Manager at Coca-Cola of Northern New England (CCNNE) in Londonderry, NH. “We used to buy our 20 ounce plastic bottles from an outside vendor, but we determined that we could save a lot by making our own instead of shipping them in. We designed a system to manufacture the bottles we need, and now we can make 12 ounce, half-liter and 20 ounce bottles. The bottle blowing operation runs 24/5 plus Saturdays during our peak summer season.”

Making their own bottles reduced CCNNE’s cost per bottle, but that wasn’t the only benefit driving this project. “Sustainability is a plant-wide goal at CCNNE,” Neal explains. “Bottles that we now make on site were previously brought in by truck. The bottle preforms are still trucked in, but they’re about 10 times smaller than finished bottles so the number of truckloads has dropped enormously. By blowing our own bottles we eliminated 1,728 truckload deliveries of bottles to our plant per year. We are thrilled to be making that kind of positive environmental impact.”

The bottle blowing operation required new capital equipment, including a PET blow molder and a high-pressure air compressor. “We knew we would need specialized compressed air equipment to blow bottles,” says Russ Bruner, Facilities Engineer for CCNNE. “The required air pressure to produce the bottles can be as high as 600 psig and because they are drinking containers,

product quality is a huge concern. Oil-free compressors are a requirement of Coca-Cola Corporate Engineering for blowing PET bottles, but we’d go oil-free in any event.”

CCNNE engineers then began their equipment evaluation process. “We had been working with a compressed air vendor for a long time and what they recommended for us was essentially more of the same old technology we’d been using for the past 23 years. We decided to get another perspective and called Ron Whelan at Atlas Copco for recommendations.”

Ron Whelan, Sales Manager - Oil-free Air and Key Accounts for Atlas Copco Compressors LLC in West Springfield, Massachusetts, sat down with Neal and Bruner to assess the project. “CCNNE required two compressors for the new project – a low pressure base compressor and a high pressure booster for the PET operation. After touring the plant and reviewing the entire facility compressed air system, it became apparent that other opportunities existed. Their existing machinery used a competitor’s older technology with modulating inlet valve control and the kilowatts consumed per CFM produced were just off the chart. The equipment was difficult to sequence and approaching the end of its design life. Since the planned low pressure compressor for the PET operation was designed to operate at the same discharge pressure as the house compressed air equipment, combining the two systems made sense.”





Whelan determined that a 420 HP oil-free base compressor with variable speed drive could provide low pressure air plant-wide, feeding both the bottle blowing operation and the house air requirement. An Atlas Copco ZR315VSD-FF unit was quoted which included an integrated MD heat of compression desiccant dryer. The recommended high pressure booster compressor was an Atlas Copco DX110 which can generate the 600 psig air pressure required for PET bottle blowing.

“Going with a larger low pressure compressor enabled CCNNE to remove four 23-year-old compressors with inefficient controls.” Whelan explains, “The variable speed drive feature of the new ZR315VSD-FF unit will match the electrical consumption directly to the compressed air load at any given time. This is beneficial to CCNNE as the PET bottling operation is not 24/7. When the compressed air requirement is reduced, the kilowatts consumed by the air compressor will drop off proportionally. The integrated MD air dryer saves even more energy as it provides virtually free compressed air drying. This device uses a rotating desiccant wheel to dry the main air stream to a final pressure dew point of -20 to -40°F with zero purge loss. The MD uses no heaters or refrigeration compressors and the operational cost is equivalent to that of a light bulb.”

Whelan contacted Public Service of New Hampshire, CCNNE’s power supplier, about the proposed project and they became an enthusiastic partner. Based on the reduction in air compressor and air dryer energy consumption, PSNH was able to contribute \$60,000 toward the project. “With all the incentives figured in, the system will pay for itself in less than a year,” plant manager Rick Neal explains.

“We are glad to support commercial customers who want to invest in energy savings,” said Craig Trotter of PSNH. “We commend Coca-Cola of Northern New England for constantly looking at new ways to operate with greater efficiency and environmental stewardship.”

CCNNE’s plant-wide sustainability initiative is supported further by an innovative design feature of the bottle blowing system. High pressure air is used to blow each bottle, and this process creates exhaust air that is still pressurized. Rather than vent it to atmosphere, CCNNE captures the air and feeds it back into the low pressure receiver tank. “We can recapture about 30% of the air used in blowing,” Bruner explains. “That means we need to produce a reduced volume of low pressure air for the PET operation. The ZR315VSD-FF compressor can run at a lower RPM level as a result, conserving even more energy. It’s a snowball effect that significantly reduces electrical consumption.”

The ZR315VSD-FF package reduced the project’s cost further as a result of its low sound levels. “The compressor is so quiet that we were able to locate the unit inside the warehouse,” says Bruner. “If we went with the other manufacturer we had considered, we would have had to build a dedicated compressor room due to the noise levels.”

“Air was something we needed but it wasn’t something we were focused on,” Neal said. “Converting our whole plant to the low pressure ZR315VSD-FF turned out to be a no brainer project. It gives us better quality air in the whole facility, enables us to remove inefficient equipment and gives us much better sustainability. Our previous contractor wanted us to use more of the same old technology. Ron Whelan and Atlas Copco showed us a better way.”

Coca-Cola of Northern New England took flight as a single bottling operation out of Laconia, New Hampshire in 1977. Through rapid growth and various acquisitions, that small operation has developed into one of the nation's largest Coca-Cola bottlers. Today, Coca-Cola of Northern New England operates a state-of-the-art Production Center and 16 Distribution Centers at locations in all six New England states and New York.

Atlas Copco's OriginAir Speeds Project into Operation

"The savings from blowing our own bottles was so big that it really wasn't an option to not do the project," says Rick Neal, Plant Manager for Coca-Cola of Northern New England. "We didn't want to waste the opportunity and decided to move on it right away."

Ron Whelan, Sales Manager - Oil-free Air and Key Accounts for Atlas Copco Compressors LLC in West Springfield, Massachusetts, worked on ways to speed the project's implementation. "The business case for the project was so strong it's no surprise that CCNNE wanted to get the new compressed air system up and running quickly," says Whelan. "However, since larger ZR's are typically built or customized to the customer's specification, there would be a time delay before the benefits could be realized."



"This is one of the great benefits of OriginAir, Atlas Copco's used equipment operation located in Charlotte, NC. They had recently acquired an identical ZR315VSD-FF in excellent condition from a plant that had closed and were offering it for sale on their company wide website. CCNNE had previously expressed interest in acquiring a back up compressor but the budget did not allow for the purchase of a second brand new ZR315VSD-FF. However, sufficient funds were available for a used back up machine which, as blind luck would offer, was in stock at OriginAIR. CCNNE acted quickly and installed it right away. The project energy reduction benefits were brought to life and a 100% redundant system for the future was guaranteed."