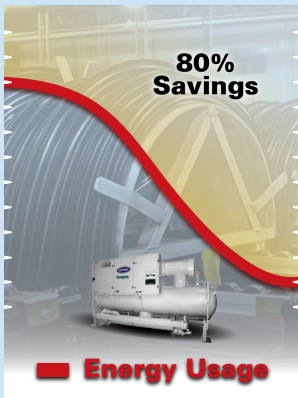




Waterville TG

EVERGREEN® 23XRV CHILLER ENHANCES MANUFACTURING, EFFICIENCY AND ENVIRONMENTAL STEWARDSHIP AT WATERVILLE TG

CARRIER CHILLER WITH HFC-134A REFRIGERANT DELIVERS ENERGY SAVINGS, PROCESS AND SPACE COOLING



The chiller system at Waterville TG provides chilled water to the manufacturing process, enabling the mixing and extrusion equipment to operate within correct temperature parameters. It uses environmentally balanced HCF-134a refrigerant, and delivers an 80% energy savings over the previous chiller.

Project Objectives

Waterville TG is a world leader in automotive sealing systems. They design, fabricate and supply automotive weather strips (EPDM and plastic) to major customers such as Toyota, Ford, Honda, Subaru, BMW, GM and many more. The North American head office is located in the town of Waterville, Québec, where it is a major employer with a commitment to its community and the environment. Faced with new production needs that entailed operating with higher-temperature evaporator water, the plant engineering department at Waterville TG, headed by M. Serge Lamontagne, sought to replace an outdated ammonia-cooled chiller with a new unit that could operate very efficiently in a range of conditions and loads, and that met the environmental goals of the company.

"The Evergreen® 23XRV chiller has met manufacturing parameters and delivered an energy savings of 80 percent over the previous unit."

– Sebastien Dupont,
Technical Advisor at Leprohon

Project Solution

Waterville TG and Leprohon, their mechanical contractor, considered reciprocating, centrifugal and screw-type chillers for the replacement project, eliminating reciprocating chillers because they were not suitable for the tonnage required; and centrifugal chillers because they did not operate efficiently at very low load levels. Having selected the screw-chiller type, and given the company's previous experience with the efficiency and reliability of Carrier chillers—including a Carrier 30HXA246 in service at the plant and not part of the upgrade project—the engineering department chose a Carrier Evergreen® 23XRV water-cooled screw chiller, the first ever installed in Canada. The Evergreen 23XRV has met manufacturing parameters and delivered an energy savings of 80 percent over the previous unit. The chiller also uses the environmentally balanced refrigerant HFC-134a, which meets the environmental goals of the company.



Synopsis

Waterville TG is a world leader in automotive sealing systems. They design, fabricate and supply automotive weather strips (EPDM and plastic) to major customers such as Toyota, Ford, Honda, Subaru, BMW, GM and many more. The North American head office is located in the town of Waterville, Québec, where it is a major employer with a commitment to its community and the environment. Waterville TG has been certified ISO 14001 since 2001 and is proud to actively participate in environmental initiatives to reduce its environmental footprint. Waterville TG has won many environmental awards from clients, environmental groups and their electrical utility supplier.

The chiller system at Waterville TG provides chilled water to the manufacturing process, enabling the mixing and extrusion (EPDM and plastic) equipment to operate within correct temperature parameters. Faced with new production needs that entailed operating with higher temperature evaporator water, the plant engineering department at Waterville TG headed by M. Serge Lamontagne, eng., Maintenance, Plant Engineering & Environment Manager, sought to replace an outdated ammonia-cooled chiller with a new unit that could operate very efficiently in a range of conditions and loads, and that met the environmental goals of the company. Waterville TG considered reciprocating, centrifugal and screw-type chillers for the replacement project, eventually eliminating reciprocating chillers because they were not suitable for the tonnage required, and centrifugal chillers because they did not operate efficiently at very low load levels.

Martin Vadeboncoeur, Sales Engineer at Carrier Enterprise, assisted M. Lamontagne in choosing the technology best suited to Waterville TG's needs. Having selected the screw-chiller class, and given the company's previous experience with the efficiency and reliability of Carrier chillers—including a Carrier 30HXA246 still in service at the plant and not part of the upgrade project—the engineering department

chose a Carrier Evergreen® 23XRV water-cooled screw chiller, the first ever installed in Canada.

The Evergreen 23XRV achieves its high efficiency in part through the use of variable speed drives, which enable the chiller to operate efficiently at the partial loads that characterize the majority of chiller run-time. This flexibility—important in all chiller applications—was crucial at Waterville TG, since load requirements vary rapidly from 35 tons to more than 480 tons.

Sebastien Dupont, Technical Advisor at Leprohon, the mechanical contractor serving Waterville TG, said, "The Evergreen 23XRV has met manufacturing parameters at Waterville TG, and delivered an energy use reduction of 80 percent over the previous unit. The savings are enormous!" The plant was also able to replace the old chiller that had an average of 270 amps (460V) by the Evergreen 23XRV that had a 61 amp consumption (460V) for the same load and in addition, has seen a reduction in maintenance costs.

The new chiller uses the environmentally balanced refrigerant HFC-134a, which meets the environmental and community goals of the company. Said M. Lamontagne, "Since the plant is in the middle of town, eliminating ammonia is safer for the community, and it is in alignment with the company's environmental values." He added, "Waterville TG has been really satisfied with the performance of the Evergreen 23XRV chiller. The company is considering adding a second unit in the future to further increase capacity and efficiency."

M. Dupont concurred. "We are very proud of the team that worked on this project. The results are real. The Evergreen 23XRV has proven to have optimum performance, plus safe and quiet operation. We recommend this chiller!"

Project Summary

LOCATION: Waterville, Quebec

PROJECT TYPE: Chiller upgrade

BUILDING SIZE: 37,161 m² (399,997.7 ft²)

BUILDING USAGE: Automotive sealing manufacturing plant

OBJECTIVES: Meet new production needs; replace outdated ammonia chiller with environmentally balanced chiller; improve energy efficiency.

EQUIPMENT: One Evergreen® 23XRV water-cooled screw chiller

MAJOR DECISION DRIVERS: Ability of the Evergreen 23XRV chiller to operate efficiently at very low speeds; use of environmentally balanced HFC-134a refrigerant; known efficiency and reliability of Carrier chillers.

UNIQUE FEATURES: Evergreen 23XRV chiller used not only to keep plant atmosphere cool and dehumidified, but also as part of the production machinery, to keep plastics extruders within correct operating temperatures. First Evergreen 23XRV unit in Canada.

INSTALLATION DATE: 2008

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