

Project Accent Fairchild

Achievement

Accent Fairchild is a large plastic injection molding plant in Ville St-Laurent.



Existing system

One (1) 300 ton water tower, 3x 80 ton magnetic coolers used at 90-95% capacity. A 150-ton water tower that operates in the summer when it's hot.

There were also 3 old small water towers and 3 old small chillers which served as “back-up”, 10 pumps totaling 240 H.P. were required to operate.

The systems consumed 1,900,000 kW-h at an energy cost of \$133,000 per year.

New system

A new 350 ton Marley water tower, a new 250 ton SMARTD magnetic chiller, 2 new 30 H.P. pumps, a new plate heat exchanger, a filtration system and a new Allen Bradley branded control panel. The old small coolers and the old water towers have been removed.

Technical innovation and energy saving device

1. A refrigerant pump system cools the magnetic chiller and operates at 60°F the water temperature of the water tower.
2. When the outside temperature is below 55°F, the system can operate in “free cooling” 61% of the time using only the water towers and passing through a plate exchanger to cool the whole factory.
3. Process set points have been changed from 50 to 55°F and the water tower set point may drop to 65°F in chiller mode. This allows an increase in efficiency from 0.65kW / ton to 0.2 to 0.3 kW/ton on average.
4. The number of pumps used has gone from 10 pumps totaling 240 H.P. to 3 variable speed pumps totaling 100 H.P. by reconfiguring the way pumps and chillers are used.
5. Even adding a new large production machine, the new 250 ton chiller is capable of cooling the casting water on its own using only 40-70% capacity vs. 240 tons at 90-95% capacity before the changes.
6. A new Allen Bradley controller with variable speed drives for the tower and pumps has been installed and reconfigured to replace the old one.
7. The system is ready for a phase 2 installation of the heat recovery from the cooling system to heat the factory's fresh air.
8. The new system saves 950,000 kW-h at an energy saving of \$66,500 per year.



Project summary

Project cost: \$856,000

Hydro-Quebec subsidy: \$250,000

Energy savings per year: \$66,500

If you consider that Accent had to invest \$500,000 to install a chiller and a new 150-ton cooling tower, the return on investment is instantaneous. The plant now has one of the most efficient cooling systems in the world. Everything is duplicated for safe operation (full back-up) and everything is controlled automatically like in the movies!

This system was designed and produced by MC2.

