



Bell & Gossett Pumps Cool Chicago Office Towers

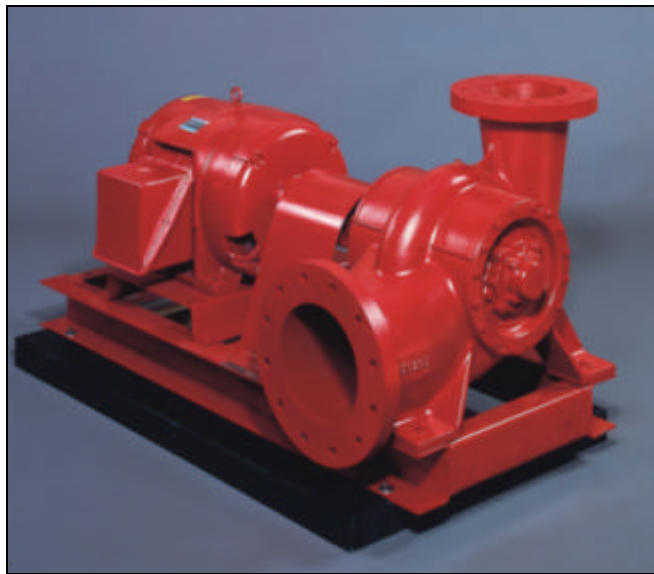
A unique building in Chicago contains 5.5 million pounds of ice to create chilled water. Pumping this icy water to cost-effectively cool 10 large Chicago office buildings is the North American leader in HVAC pumping applications...ITT Industries' Bell & Gossett pump unit.

Eliminating the use of 50,000 pounds of CFC's from the environment while cost effectively cooling 10 large Chicago office buildings with 60 huge blocks of ice is a challenge for only the most qualified systems engineer.

That's all in a day's work for Unicom Thermal Technologies which has built three refrigeration plants in the heart of downtown Chicago. The process of "putting Chicago on ice" is relatively straightforward. Chilled water from the Unicom Thermal Technologies' first district cooling plant is circulated to structures throughout the Windy City's "Loop" area. After being pumped through piping running under city streets, the water, which leaves the plant at 34° F, then absorbs thermal energy from individual buildings' systems - and cools them - via plate heat exchangers.

District cooling systems provide benefits to individual building users and the environment. First, individual buildings and plants can efficiently "outsource" their chilled water needs and no longer have to build, maintain and operate their own capital intensive chilling plants. Second, building and plant engineers can avoid wrangling with regulations affecting the availability of CFC refrigerants, used in virtually all centrifugal chillers and linked to the thinning of the ozone layer,

Unicom Thermal's first plant, located above retail space at the corner of State and Adams Streets, has 25,000 tons of chiller capacity and can cool as many as 10 large office towers and eliminate the use of 50,000 pounds of CFC's. Additionally, the plant provides chilled water more cost-effectively than individual building chiller plants.



Bell & Gossett pumps handle the chilled water that cools 10 large office towers.

Bell & Gossett assisted in developing this unique chilled water system. In fact, Bell & Gossett pumps now serve as an integral part of the system. "Bell & Gossett seemed to understand and appreciate the needs of a district cooling provider," said Russell Reynolds, Unicom Thermal's Operations Vice President. "This allowed them to meet our selection requirements.

At the existing multi-story Unicom Thermal plant, water in 60, 18,000-gallon tanks is frozen by coils containing glycol to make approximately 5.5 million pounds of ice. Water flows over the ice and

is pumped via four B&G pumps - two 700 HP HSCS models and to 300 HP Series VSCS models - into the system and to customer's mechanical rooms. Initial flow rates are 5,000 gallons per minute (GPM), and as pumps are staged, increase to as much as 30,000 GPM.

"We selected the pumps based on their different hydraulic performance for a district cooling system," Reynolds said. "The pumps have to operate over a wide hydraulic range, and we had to make sure they would operate well in the system under all conditions throughout the hydraulic curve."

After completing its trip through the entire system, water returns to Unicom Thermal's ice refrigeration plant at 54° F. Heat is then removed from the water as it passes through the chiller and ice tanks, which are joined in a series, sending the water out at 34° F.



Unicom Thermal's flagship refrigeration plant in the heart of downtown Chicago.

To avoid contamination and the problem of pressure drops, Unicom Thermal's chilled water never actually enters individual building systems. All thermal transfer between the district cooling and building system is accomplished via heat exchangers. In fact, to aid identification and tracking in the event of a leak or mishap, all Unicom Thermal's chilled water is dyed pink.