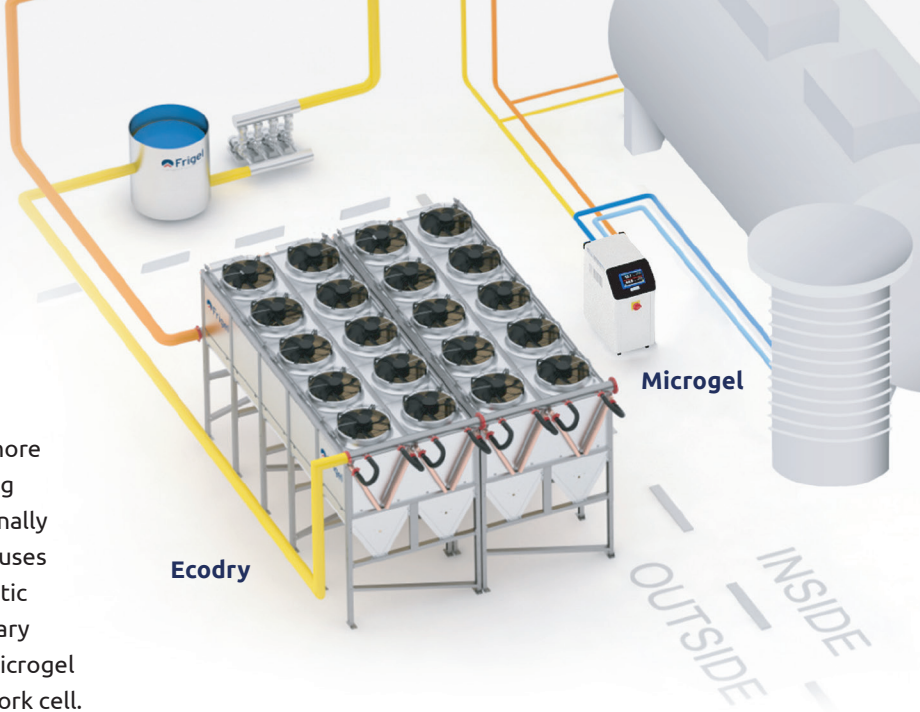


Frigel North America Editorial Backgrounder Heat Treating Industry



Intelligent Process Cooling Overview

Originally introduced to the plastics industry by Frigel more than 50 years ago, the proven Intelligent Process Cooling approach describes the use of the company's internationally patented Ecody closed-loop adiabatic fluid cooler that uses heat exchangers and an internationally patented adiabatic chamber to cool water and circulate it to and from primary processing equipment directly or to and from smaller Microgel chillers positioned near each heat-treating process or work cell. It eliminates the need for an open cooling tower, dry cooler or centralized chiller.

An adiabatic fluid cooler allows for "free cooling" because it uses ambient air to cool process water. There is no need for central or dedicated chillers to meet cooling loads when ambient conditions permit. Instead, the system automatically shuts down the chillers for any given process to capitalize on free cooling, in turn saving energy.

The Frigel 3PR Intelligent Control System automatically adjusts the complete system to ensure optimum performance based on a wide range of operating parameters. It gives users extended functionality for monitoring and adjusting system parameters using real-time data to further enhance performance. Troubleshooting features, combined with remote access capability, also help users quickly resolve issues and minimize downtime associated with routine maintenance.

Intelligent Process Cooling vs. Traditional Technologies

Intelligent Process Cooling goes beyond existing technologies used at most heat-treating operations today to deliver quantifiably better results, including dramatic reductions in water consumption and operational costs.

Frigel vs. Cooling Towers

- Frigel's adiabatic fluid cooler can lower water consumption by as much as 95 percent when compared with cooling towers.
- As a closed-loop system, there are minimal maintenance issues when compared to systems incorporating conventional evaporative cooling towers.
- A continuous supply of clean water results in consistent furnace performance, while ensuring reliability and uptime.
- The Frigel system reduces chemical use by as much as 40 percent to meet stringent municipal water quality regulations.

Frigel vs. Central Chiller

- Frigel's adiabatic fluid cooler provides precise temperature control at the point of use when paired with Microgel chillers for energy savings.
- Efficient machine-side free cooling opportunities result in significant energy savings.

Frigel vs. Dry Cooler

- Frigel's adiabatic fluid cooler provides cooling water temperatures in a wide range of ambient conditions.
- The adiabatic fluid cooler, in combination with dedicated chillers, goes beyond dry cooling by allowing for free cooling opportunities.
- Operations achieve energy cost reduction of up to 80 percent per year.



About Frigel North America

Frigel North America is located in East Dundee, Ill., a suburb of Chicago, and is responsible for engineering, sales, service and parts for the United States, Canada, Mexico and the Caribbean. The corporate headquarters of Frigel is located in Scandicci (Florence), Italy.



Matteo Gallerini Bio

Frigel North America is led by Matteo Gallerini, President & COO, Frigel North America. Gallerini began his career with Frigel in 2002 as an Application Engineer. Since his early years with the company he has played a key role in the company's global expansion and continued

success. In 2007, he joined the Frigel North America operation. He has a Master of Science degree in Mechanical Engineering from the University of Florence, Italy.



Gary Burgardt Bio

Gary Burgardt, Frigel North America Market Development Manager, works closely with prospects and customers to ensure every Frigel process cooling solution delivers measurable results based on each company's unique processes and business goals. In addition to

expertise in Intelligent Process Cooling, Burgardt leverages 30 years of experience in process cooling across a wide range of industries to assist customers at every stage of the planning and buying process.

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