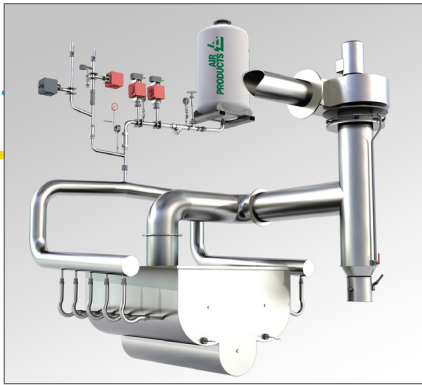


Freshline® LIN-IS



(Liquid Nitrogen Injection System)

A tailor-made temperature control system for mixing and forming applications



Freshline® LIN-IS Advantages

- Consistent and repeatable cooling process
- Provides ideal temperature, texture for further processing
- Cost effective, efficient alternative to CO₂
- Optimizes liquid nitrogen usage
- Simple to operate, clean and maintain
- Complies with the latest hygienic design standards
- Optional CIP available
- Easily retrofitted on existing mixers
- Available in top or bottom injection configurations
- Proven 15-year field installation record

The Freshline® LIN-IS system is used to control the temperature of meat, poultry, and a variety of other food products during the mixing, blending or grinding process through the precise injection of liquid nitrogen into the product. Ultra-cold liquid nitrogen cools very efficiently offering a cost-effective alternative to CO₂ for processors facing CO₂ supply disruptions.



Air Products' Freshline® LIN-IS liquid nitrogen injection cooling system has a 15-year track record of making food processing easier...often at a lower cost compared to traditional methods using CO₂. The proprietary injection system uses liquid nitrogen to deliver rapid, precise temperature control to the blender and mixer/grinder optimizing processing speed and product quality.

This system is perfect for chilling ground meat prior to forming hamburger patties, marinated chicken prior to forming nuggets, or many other products that require heat removal during a mixing, blending or grinding step.

The Freshline LIN-IS system injects ultra-cold liquid nitrogen during grinding, blending or forming. This in turn removes precisely the amount of heat required bringing your product within a ½ degree of the desired temperature. Whether you want to remove the heat generated by friction and mechanical energy in your mixing equipment, or you need the additional cooling required to reduce the temperature of products prior to forming or other further processing steps, the LIN-IS system offers an effective, repeatable cooling solution.

The Freshline LIN-IS system is available in either a bottom or top injection unit. Both can be retrofitted to new or existing mixers, blenders or any type of stainless steel vessel. They are easy to operate, clean and maintain.

Tailor-made for your system

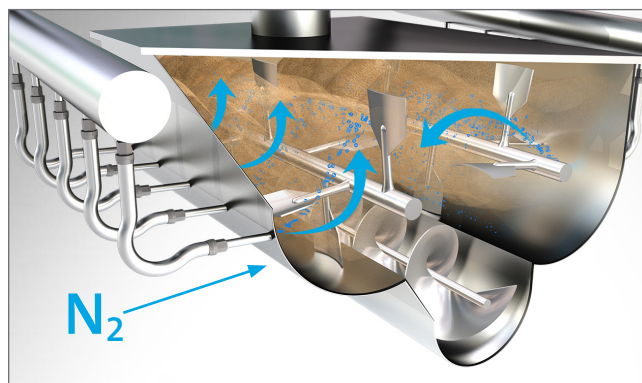
Air Products works hand-to-hand with our customers to assure the system will be efficient, cost-effective and meet hygienic standards. The nozzle size, arrangement, and configuration are custom-engineered for your specific processing equipment and desired results. Precise temperature control and nitrogen use is achieved through one of several optional proprietary control schemas. Recipe functionality, exhaust systems, safety controls, and integration into your controls are all part of the full-service package Air Products provides.

We work closely with our customers and the blender/mixer/grinder OEM's to create a complete customized solution to chill your products fast and efficiently. This includes helping you meet the highest safety and hygiene standards. This support can include:

- Liquid nitrogen piping system design
- Control system design, and integration with the blender/mixer/grinder controls
- Mechanical and electrical modifications
- Exhaust systems
- Process support

Air Products has over 15 years of experience retrofitting our Freshline® LIN-IS system on a variety of types of mixers and grinders at our customer's sites. We can also work directly with the blender/mixer/grinder OEM's to install the system on new equipment prior to delivery to your site to save time and money.

Freshline LIN-IS system: Liquid nitrogen is injected through nozzles. For a simple animation of the process, go to airproducts.com/LIN-IS.



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tell me more
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