

Freshline® LIN-IS



Precise heat removal for the poultry industry



Advantages of Freshline LIN-IS

- Consistent and repeatable cooling process
- Minimization of microbial growth
- Optimized subsequent forming process
- Consistent portion weights
- Shorter cycle times due to reduced or removed vacuum step of the blend process
- Reduced aroma and flavor loss
- Improved visual appearance
- Optimum liquid nitrogen usage
- Simple to operate, clean and maintain
- Cost effective
- Designed to your specifications
- Complies with latest hygienic design standards

Freshline LIN-IS is used to accurately control the temperature of poultry through the injection of liquid nitrogen into the product during processing.

The growth of grinding, cutting, and forming required to be successful in the poultry industry generates more heat than it ever has in the past. Injecting liquid nitrogen during processing allows you to retain both processing speed and product quality.

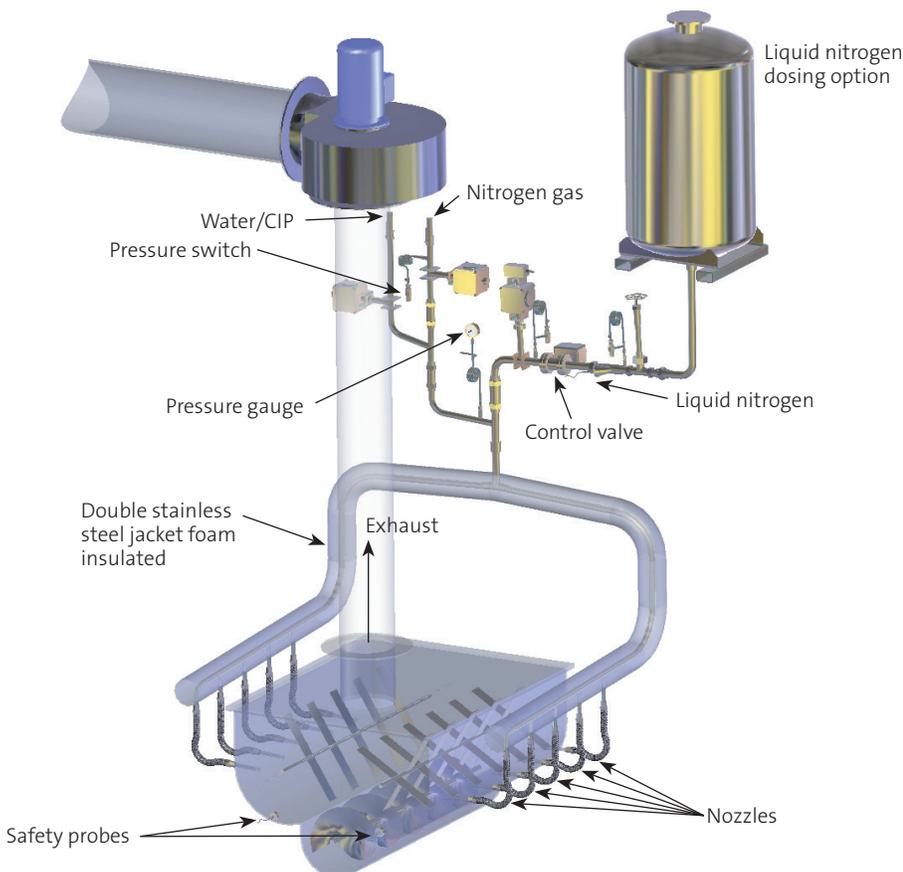
Almost by definition, food processing involves some form of heat, which needs to be removed before packaging or shipping. In poultry processing, fats and marinades melt or soften under the influence of relatively little heat. With the high processing speeds required to be competitive today, more heat is generated during poultry processing. This causes softening or melting of the necessary and desired fats and flavors, and will result in a poor-quality end product. The heat generated during processing can be easily and accurately offset with liquid nitrogen. Injecting liquid nitrogen during grinding, blending, or forming quickly and efficiently removes precisely the quantity of heat desired. Our LIN-IS system can bring the desired temperature within a ½ degree, providing exact temperature control of your product. Whether you want to remove the heat from friction and mechanical energy or facilitate further cooling, liquid nitrogen is up to the job.

Mixers and blenders equipped with an Air Products LIN-IS system are able to achieve the most accurate cooling of the food mixture. Liquid nitrogen systems can bring about a rapid drop in temperature and thus a very efficient chilling solution. Liquid Nitrogen and LIN-IS allows you to consistently have high quality products and repeatable and reliable processes. This is why we have developed a specially designed liquid nitrogen injection solution that can be either bottom or top injection and retrofitted to new or existing mixers, buffers and any type of stainless steel vessel.

How it works

With Freshline LIN-IS, liquid nitrogen is injected into the meat blend through nozzles installed in your mixer/blender/grinder. The nozzle size, arrangement, and configuration is custom-engineered for your processing equipment and desired results. Precise temperature control and nitrogen use is achieved through one of several optional proprietary control schemes. Recipe functionality, exhaust systems, safety controls, and integration into your controls are all part of the full service package that Air Products offers. For a simple animation of the process, go to airproducts.com/food.

Figure 1: Freshline LIN-IS schematic



A complete solution

We don't just supply the injection; we work closely with our customers to create a complete customized solution and help you meet the highest safety and hygiene standards. This can include:

- Liquid nitrogen network from control valve to injectors
- Liquid nitrogen supply to control valve
- Control systems
- Mechanical and electrical modifications
- Exhaust systems
- Process support

Air Products has over 15 years of experience retrofitting nitrogen on many types of mixers and grinders. We can also work with your vessel supplier to make the modifications prior to delivery to your site in order to save time and money.

For more information, please contact us at:

Corporate Headquarters
Air Products and Chemicals, Inc.
7201 Hamilton Boulevard
Allentown, PA 18195-1501
T 800-654-4567
F 800-272-4449
gigmrktg@airproducts.com



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airproducts.com/food