

# Freshline® QuickChill™ Injector for sauces and liquid cooling

Significantly reduce chilling times and increase throughput



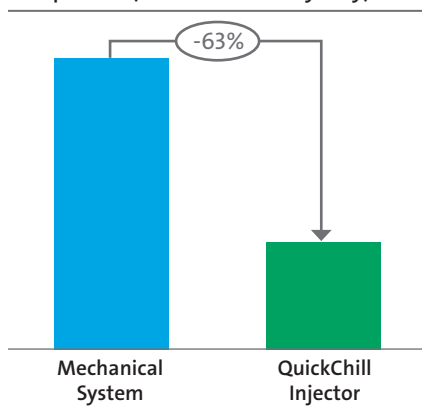
## Features/benefits

- Increase production up to 2-3x or more
- Boost chilling capacity in new or existing systems
- Minimal floor space required
- Comply with USDA cooling guidelines
- Utilizes liquid nitrogen efficiency
- Design is simple and hygienic
- Capable of chilling many liquid products
- Can be installed on new or existing kettles/vessels

Air Products' Cryogenic QuickChill Injector utilizes ultra-cold liquid nitrogen to provide fast and efficient cooling of your sauces or liquid products. Our latest innovation has the capability to double or even triple production of a wide variety of liquid products.

This unit comes in a standard model that can easily be fitted to a variety of new or existing kettles and vessels. Liquid products such as sauces, soups, dressings, marinades, pie fillings, and purees can now be chilled in minutes instead of hours.

Figure 1: Sauce and Liquid Chilling Time Comparison (actual results may vary)



Do you need to increase production but don't want to invest in additional kettles, equipment, or floor space? Or do you need to maximize throughput in a new sauce or liquid chilling operation? Are there bottlenecks in your manufacturing process related to cooling of sauces or liquid products? Are you having trouble meeting U.S. Department of Agriculture (USDA) guidelines for timely temperature reduction? If so, Air Products' Cryogenic QuickChill Injector could be the solution you're looking for. This new technology enables cryogen to be injected directly into new or existing kettles or vessels. You now have the option to speed up the chilling process in your equipment where a mechanical system is not able to achieve the desired results. An Air Products Food Specialist will help to assess your production process and determine the best way to address any challenges you are facing. If the QuickChill Injector is right for you, they will help you choose the optimal configuration based on your chilling needs.

## Increase production 2-3x

The Air Products QuickChill Injector brings the cooling power of liquid nitrogen to reduce chilling times to minutes instead of hours. In a mechanical system, water or a mixture of water and propylene glycol is chilled and pumped through a closed coolant loop to absorb heat from your product. There are temperature limitations to the coolant and thus there are limitations on the system. Injecting liquid nitrogen at -320°F (-196°C) directly into your liquid product can reduce the chilling time from 100°F to 40°F by more than 60%. This reduction provides the opportunity for you to double or even triple production capacity of a wide variety of liquid products.

## Leverage existing equipment and floor space

The Air Products QuickChill Injector delivers the cryogenic power of liquid nitrogen directly into your existing equipment. This will save you from large capital investments such as purchasing additional kettles or vessels, increasing capacity in your scraped surface heat exchanger, and expanding your building to add floor space. If your current cooling system is not keeping up, you now have the option to speed up the chilling process in your existing equipment and footprint.

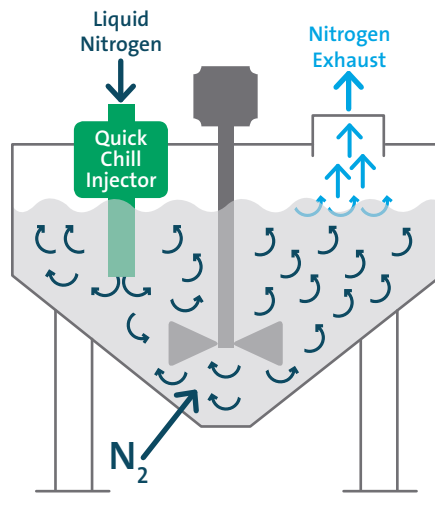
## Comply with USDA cooling guidelines

Improper cooling of hot foods is a significant cause of foodborne illnesses. USDA guidelines require cooked liquid products to be chilled to 40°F (4°C) within 5 to 6 hours depending on the type of product. If you are having trouble meeting that requirement you may be at risk of foodborne illnesses and product recalls. The Air Products QuickChill Injector provides piece of mind in knowing your process complies with USDA guidelines. If you're interested in tracking and recording batch times and temperatures, Air Products also offers Process Intelligence that uses a temperature sensor and communication technology to monitor, control, and track injector operation. Your personnel can receive alerts and remotely access this data for improved process understanding.

## Ask Air Products . . . and expect more

In addition to the equipment and gas supply, we supply the training and safety systems necessary for a quality installation. Our Food Specialists will be there to help you choose the optimal configuration, be there for installation and start-up, and make sure it is meeting your expectations when operated at full capacity. Whether your liquid chilling applications include sauces, soups, dressings, marinades, pie fillings, purees or anything in between, the Air Products team offers you the highest purity gases and the latest equipment. We can help improve your productivity, lower your costs, maximize your returns, and help make you more competitive in the market.

Figure 2: Freshline QuickChill Injector Diagram



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