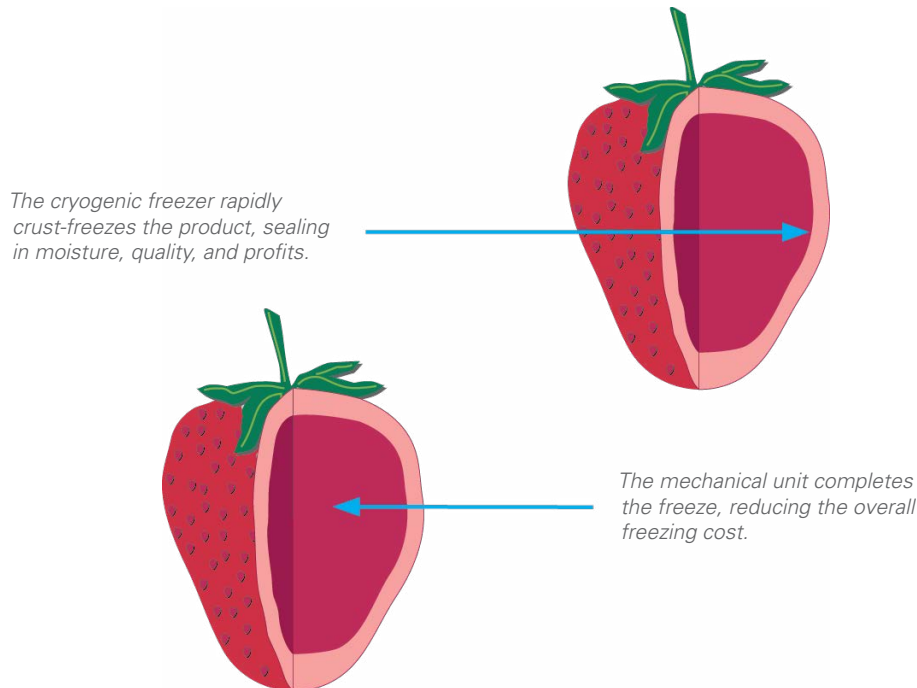


CRYOASSIST Refrigeration Systems.



Introduction

The CRYOASSIST system is a Messer cryogenic freezer used to rapidly crust-freeze food products prior to further processing or freezing. The Messer CRYOASSIST system is often used to “boost” mechanical freezing capacity and/or aid in product handling processes, such as pressing, improve product yield and batter-breading.

While spiral and tunnel freezers can be used in CRYOASSIST systems, typically an immersion freezer is preferred due to its compact size, quick installation, ease of use, and process versatility. We also have more sophisticated systems like the Impingement, Wave Impingement, or Hot Products freezer and your Messer Applications Engineer will evaluate and design options to optimize efficiency and process requirements. Depending on your process and product, Messer has a wide variety of freezing solutions that can be used to CRYOASSIST.

A CRYOASSIST system provides a rapid crust-freeze for a variety of foods including meats, poultry, seafood, baked

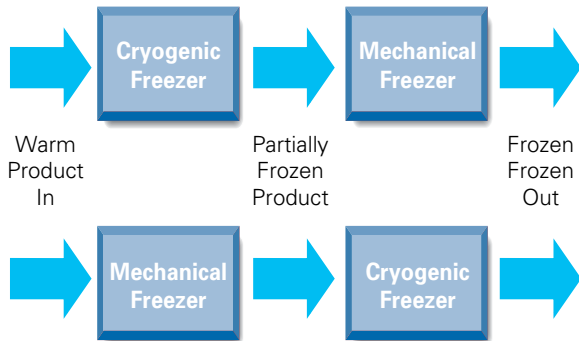
goods, dairy, fruits, and vegetables.

Many meat, seafood, and poultry processors are producing more “value-added” marinated products that are susceptible to belt sticking and high moisture loss. Placement of a CRYOASSIST system in front of the mechanical freezer, pressing machine, or other processing equipment prevents belt sticking and product clumping, increases yield, and minimizes rejected, reworked, and downgraded products. This placement order, which is the preferred configuration, can also be reversed if required by specific process conditions.

How it works

The product is conveyed through the cryogenic freezer, where the product is crust-frozen. The speed and degree to which this occurs depends on your process requirements. The remainder of the product freeze is completed by the mechanical freezer.

By sharing the product heat load, the process gains the most desirable features of each system including lower operating costs, higher quality frozen foods, and increased production rates. Furthermore, dehydration and product losses are typically reduced 1 – 3%.



Benefits

- Improved product handling
- Superior taste
- Higher cooked product weight
- Reduced drip loss
- No sticking or clumping
- Increased refrigeration capacity.

Increased product quality plus better handling

The cryogenic crust-freezing process adds rigidity to food products to better maintain their shapes and can easily transfer from belt to belt. Rapid crust-freezing seals in moisture to minimize product dehydration during mechanical freezing, reduce drip loss upon thawing, and maximize final cooked weight. Quick immersion of wet products in liquid nitrogen also eliminates belt sticking and clumping, thus reducing product losses and downgrading.

Increased mechanical freezer efficiency

The frozen crust prevents migration of moisture from product cells to freezer coils. The result is less frost build-up on freezer coils — and reduced equipment downtime.

Greater refrigeration capacity

By giving an “assist” to down-line mechanical freezers, a CRYOASSIST refrigeration system increases overall refrigeration capacity to handle peak loads and sustained production increases.

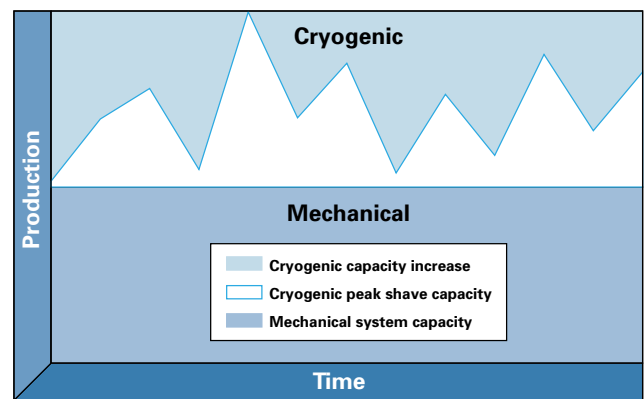
Producers can often avoid a very costly upgrade to an older/undersized mechanical freezer and quickly add significant throughput using CRYOASSIST.

Reduction in space

Messer CRYOASSIST immersion freezers take only 30 – 40% of the floor space required for tunnel or spiral freezers, enabling installation in processes where space is limited.

Meets your specific process requirements

Messer CRYOASSIST refrigeration systems can be tailored by our food engineers to fit your product quality standards, production rates, and other process requirements.



A CRYOASSIST system increases overall refrigeration capacity and therefore increases the capability to handle peak loads or production increases.



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