CRYOLINE®XF. Spiral Freezer.

Concept

The CRYOLINE®XF "Cross-flow" is a high-performance spiral freezer built for relatively large production capacities. The patented CRYOLINE®XF technology delivers twice the heat transfer rate of standard cryogenic spiral freezers, yielding a far superior design over traditional cryogenic designs.

Benefits

- High production capacity in a smaller footprint than conventional spiral freezers
- Low operating cost through maximized cryogen efficiency
- Higher frozen product quality from a quicker freeze
- Reduced labor for cleaning and improved food safety through hygienic design
- Less product dehydration through reduced freezing time resulting in higher product yield

Features

The CRYOLINE®XF uses a proprietary cross-flow technology which substantially reduces freezing time and improves cryogen efficiency while reducing overall freezer size. It provides twice the heat transfer rate of conventional spiral freezers by covering nearly 100 % of the belt freezing surface area with a high-velocity, low-temperature gas flow. The increased heat transfer rate correlates with a high operating efficiency, enabling operation of the freezer at warmer temperatures. Steady-state losses are also minimized due to the reduced overall size (50 % less stainless steel to be cooled down).

Operation

The spiral freezer efficiently extracts heat by directly spraying cryogen onto the product. The cryogenic gas is circulated around the product at high velocity and then extracted by the exhaust system. The exhaust system is equipped with a controller which monitors the temperature in the spiral freezer. This ensures that the gas is fully utilized before leaving the spiral freezer, keeping gas consumption and operating costs low.

The CRYOLINE®XF has an HMI (Human Machine Interface) touch screen control. The main menu displays the current product, motor speeds, safety status, machine messages, selected operational mode, freezer temperature, and access to other screens/menus. In the event of a fault, the operator is given specific information about the cause of the fault in the message display area. Recipes can also be loaded into the system, enabling the storage/recall of the operational parameters of all product types to ensure consistent operation.

Hygiene

All CRYOLINE® freezers are designed for hygiene and ease of sanitation. The simple design enables the customer to maximize productivity by reducing cleaning and maintenance downtime. Meeting or even exceeding the latest, strict food hygiene regulations, the CRYOLINE®XF is designed to ensure food safety and sanitation simplicty. Sanitation time is reduced through laser-cut stainless steel, sloped and solid surfaces, rounded corners, polished welds, and total accessibility to all internal parts and areas. Moreover, the freezer has an optional, built-in, self-cleaning CIP ("clean-in-place") belt washer system.

Standard configuration

The fully assembled and pre-tested freezer is delivered with the following features:

- → Stainless steel mesh belt
- → Drive motor with variable-speed control
- → Two blowers/fans for horizontal gas movement
- → Mounted HMI control panel, automatic gas supply controller, and temperature readout
- → Sandwich wall panels with polyurethane insulation as well as inner and outer stainless steel facing
- → Fully welded construction
- → Cryogen spray manifold and exhaust plennums
- → Emergency shutdown switches, flash light warning system, and safety lockouts
- → Stand with adjustable feet, allowing ease of cleaning below the freezer

Technical data

CRYOLINE® XF 700

Electrical Requirements	3 phase, 380–500 V, 100 Amps, 50/60 Hz (power), 24 vdc (control)
Liquid connection type	1" NPT or vacuum-insulated pipework or similar
Vapor connection type	½" NPT
Exhaust System	
Number of connections	3 (1 in-feed (10"/254 mm), 1 out-feed (8"/203 mm) and 1 central (10"/254 mm))
Belt washer Connection	
fitting size	1"/25.4 mm NPT
Belt	
B48-12/16-16	Grid-style belt with mesh overlay
B72-12/16-17	Standard option
Belt turn ratio	1.1:1
Overall belt width	30"/762 mm
Usable belt width	28"/711 mm
In-feed height (top of belt)	32"/813 mm
Out-feed height (top of belt)	85"/2,159 mm
Product constraints	
Max. product height	4"/101 mm
Freezer dimensions	
Height	10.5 ft/3,200 mm with legs
Leg adjustment	4"/101 mm
Freezer width	13.2 ft/4,024 mm closed, 16.8 ft/5,120 mm door open
Overall length	21.2 ft freezer – 24.2 ft in/outfeeds – 27.3 doors open 646 cm freezer – 737 cm in/outfeeds – 832 cm doors open
Freezer weight	Approximately 18,000 lb

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