



**Concept** Achieving desirable food products is challenging as consumers increasingly demand safer and more appealing food choices. To fulfil these requirements, chilling or freezing is the preferred preservation method to increase shelf life and maintain food quality.

When deciding on the type of freezer, variables such as desired production output, available floor space, and final product quality all have to be considered.

The CRYOLINE®CS is a new generation of spiral freezer, providing compact design and high capacity. It uses vertical height instead of linear floor space to achieve large volume output within a small production floor space. Cryogenic gas is the powerful coolant used in the CRYOLINE®CS to achieve rapid heat-exchange. This “rapid freeze” ensures lower product yield losses than other slower and higher-temperature freezers. Consequently, the CRYOLINE®CS will improve yield and maintain food quality.

The CRYOLINE®CS is the first cryogenic self-stacking spiral freezer. The self-stacking design reduces the mechanical maintenance typical with other freezers/belt-driven systems. It satisfies the highest hygienic standards. The 8-sided form is made to secure the least amount of space around the belt, and provides the greatest access to all internal parts. The rounded design also minimises unnecessary space, improves gas flow velocity, and increases cryogen efficiency.

The cryogenic supply and gas balance is controlled by a state-of-the-art automatic system. This means less idle consumption compared to existing spiral freezers.

The CRYOLINE®CS is suitable for freezing a wide range of products including meat patties, whole fish or fish fillets, pies, ice cream, pastries, pizza and ready-made dishes. The spiral can be used also as a cooling unit.

Cryogenics allow for a very low operating temperature, enabling a fast freezing action, preserving the quality and the shape of the product and keeping weight loss to a minimum. Cryogenic freezing is normally most economical at low to medium volumes, but also when yield savings, high volume and high quality or space savings are required, the CRYOLINE®CS is a suitable and economical option.

**Hygiene** The freezer can be completely opened up for cleaning and inspection. The doors give full access to all parts of the freezing section. Together with the all-stainless-steel design, the polished surfaces and sloping floors, this ensures that the freezer satisfies the highest food hygiene demands in the food industry.

**Standard configuration** The unit is delivered fully assembled and pre-tested with:

- Stainless-steel mesh belt
- Drive motor with variable-speed control
- Single fan for vertical gas movement
- Side-mounted control panel with easy-to-use switches, automatic gas supply controller and temperature readout
- Made of sandwich panels with non-freon polyurethane insulation with inner and outer stainless-steel facing
- Fully welded construction
- Infeed with curtain and outfeed with breakaway belt scraper
- Liquid nitrogen system with spray manifolds, circulation fans and exhaust fan
- Emergency shutdown switches, flashlight warning
- Door safety system ensures all doors are closed before cryogen injection
- Stand with adjustable feet, allowing ease of cleaning below the freezer

**Operation** The spiral acts as a heat exchanger, in which the cryogen is sprayed directly onto the product, thus efficiently extracting heat from it. The cold cryogenic gas is circulated at high velocity and extracted with the exhaust system at controlled set-points to maximise rapid and efficient heat transfer. The automatic exhaust control monitoring system in the CRYOLINE®CS ensures that the gas is fully utilised before leaving the spiral, keeping gas consumption and running costs low.

The spiral is chilled down and ready for operation in less than fifteen minutes via easy-to-operate automatic control devices.

The working environment is of utmost importance and through the design of the freezer this has been secured, using extremely low-noise fans and by careful insulation of all critical points.

**Special features** The freezer doors are equipped with pneumatic seals to:

- Prevent cryogenic gases from escaping from the freezer enclosure
- Lock the freezer doors

When all freezer doors are closed and the switch “Sealing” is activated, the seals inflate and the doors cannot be opened, it is only when the switch is deactivated that the seals deflate and the doors can be opened again.

**Technical data** CRYOLINE®CS

		80mm link height	110mm link height
Overall length	mm	3,330	3,330
Overall width	mm	2,450	2,450
Overall height	mm	3,100	3,100
Net belt width	mm	320	320
Max. product height	mm	60	90
Effective belt area	m <sup>2</sup>	32	22.5
Number of belt tiers		17	12
Retention time	min	9-90	6-60
Total weight	kg	3,700	3,500
Power demand*	kW	24.2	24.2

Note: \* Normal consumption with 3x380V, 50Hz supply