Tetra Pak® portfolio

Continuous freezers for every need

Tetra Pak®
PROTECTS WHAT'S GOOD

Efficient, flexible and consistent freezing for ice cream and more

Tetra Pak's history in ice cream freezing stretches all the way back to 1948. Some of those very first freezers we delivered are still in operation today, speaking to the quality and craftsmanship that goes into every piece of Tetra Pak equipment.

For over 70 years, we have continuously developed our freezer technologies, creating new possibilities for ice cream producers. Today we offer a comprehensive portfolio of continuous freezers designed with unique, market-leading innovations. Our experts can work with you to find the ideal solutions for your operations, ensuring you get reliably uniform product quality and the best possible lifecycle economy.

Applications
Tetra Pak® Continuous Freezers are designed for freezing, churning, blending, recirculating and aerating of mix to produce ice cream and other frozen desserts. They can also be used for scraped-surface freezing of a wide variety of other products.

Flexibility to match your consumers' demands
We develop our technologies to give ice cream producers the flexibility to deliver the right smoothness and mouthfeel for their consumers. With one Tetra Pak® Continuous Freezer, you can handle thousands of different recipes in the optimal way, producing frozen desserts for all tastes and occasions.

Safe, reliable results – every time
Our exacting specifications help you consistently achieve the quality you demand. This includes uncompromising hygiene standards to keep you in compliance with the toughest food safety regulations. But it also means you can count on uniform results with minimised losses, helping you build a strong brand with consistently delicious products.

Higher uptime, lower costs
All of our freezers have an easy-to-clean design with very low maintenance requirements. The short cleaning-in-place (CIP) times combined with fast freezer start-up allows for rapid product change over. Minimal downtime, together with features for reduced waste, ensure you get a solution for optimal lifecycle economy – in some cases, the lowest total cost per ice cream product available on the market today.

Easy-to-use technology, backed by a global leader
Smart automation with a user-friendly interface makes it easy for even less experienced employees to operate a Tetra Pak® Continuous Freezer with consistent, quality results. And when your team does need support, you can count on a rapid response from an organisation with presence in more than 165 countries. No matter where in the world you're located, we have experienced application experts nearby that can help.

Innovation to boost performance – and profits

Every Tetra Pak® Continuous Freezer is designed with unique features that help you get more out of your production.

Fast start-up
Rapidly decrease temperature and stabilise production parameters at start-up, thanks to:

- An advanced programmable controller (PLC) that incorporates faster control loops
- A unique cylinder design for efficient cooling
- Optimal recipe control

Waste less, spend less
Cut production costs with a range of features that combine to minimise product waste:

- Accurate weight with extremely low standard deviation (in some cases <0.7%) minimises giveaway and rejects
- Start-up procedure that optimises the amount of mix according to the overrun pre-set, adding air to achieve the desired overrun in the first batch
- Automatic compensation for atmospheric pressure changes
- Automatic process regulation optimised for capacity, viscosity and overrun

Built for food safety
Tetra Pak® Continuous Freezers comply with European EHEDG hygiene standards. Several features contribute to the high level of food safety, while also ensuring quick and easy cleaning to minimise downtime:

- Effective air filtration prevents oil aerosols from entering the product
- An efficient air drying system minimises humidity, reducing the risk of bacterial contamination
- A closed and fully welded roof cabinet prevents the entry of dirt
- Use of stainless steel wherever possible enables rapid cleaning
- No dead ends or overlapping surfaces of frame and sheeting that can create dirt traps
- Efficient CIP control programs
- A cylinder design that enables rapid drainage and drying to prevent contamination

Tetra Pak® Continuous Freezer S Series

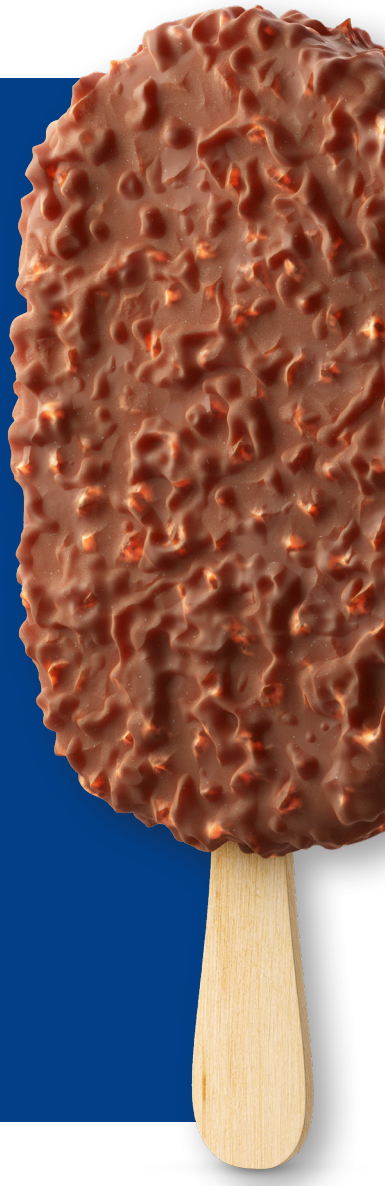
These robust, self-contained freezers offer an ideal solution for small-to-medium sized production, providing high product uniformity at a low total cost of ownership. Four models are available, covering capacity ranges from 20 l/h up to 1500 l/h.

Working principle
This self-contained freezer unit is ready for easy connection to power, air, water and supplies of ice cream mix or other ingredients. A mix pump (inlet pump) supplies a controlled flow of the product mixture into the freezing cylinder with the desired amount of air. As the mixture passes through the cylinder, a beater whips air into it. Simultaneously, a dasher scrapes the frozen mixture off the walls of the cylinder. When ready, the mixture passes to the outlet pump.

Standard design
S-series freezers are produced from high-quality materials and engineered to meet strict standards of hygiene, reliability and durability. All parts that come in contact with the product are manufactured from stainless materials or other food-safe materials.

Standard components include:
- Freezer cabinet
- Freezing cylinder
- Rotary pumps
- Valves
- Motors
- Dasher
- Mass flow meter
- Refrigeration system
- Control panel
- CIP

Optional equipment
- Datalog equipment
- Transportation wheels
- Mix feeding tank
- Dual outlet pumps
- Variable dasher speed
- Pump covers
- Solid dasher
- Water ice kit
- Tetra Pak® Low Temperature kit for continuous freezers



Technical data	Model			
	S80 A1	**S300 M2**	**S700 A2**	**S1500 A2**
Capacity range	20-100 l/h (5-26 gal/h)	75-300 l/h (20-80 gal/h)	150-700 l/h (40-185 gal/h)	300-1500 l/h (80-400 gal/h)
Compressor power	2.8 kW	5.4 kW	12.3 kW / 15 HP	24 kW / 32 HP
Refrigerant gas	R449A	R449A	R449A	R449A
Refrigerant content up to	4.5 kg	1.45 kg	2.5 kg / 5.5 lbs	3.8 kg / 8.4 lbs
Cooling fluid for condenser	Water	Water	Water	Water
Dasher motor power	2.2 kW	3 kW	7.5 kW	11 kW
Overall installed power	10 kW	9.1 kW	21 kW	38 kW
Condenser water consumption **(a)** well water +5 °C (41 °F) **(b)** main water +15 °C (59 °F) **(c)** tower water +28 °C (82 °F) **(d)** tower water +30°C (86°F)	NA	(a) 600 l/h (b) 800 l/h (c) 3100 l/h (d) N/A	(a) 1,110 l/h (b) 2 150 l/h (c) 3 840 l/h (d) N/A	(a) 2,236 l/h (b) 3,359 l/h (c) N/A (d) 13,446 l/h
Water inlet / outlet connector	0.75" pipe	0.75” pipe	1” pipe	1.25” pipe
Mix inlet piping, outside	0.75"	0.5” clamp	1” pipe	1.5” pipe
Ice cream outlet piping, outside	1”	1” clamp	1.5” pipe	1.5” pipe

Tetra Pak® Continuous Freezer A Series

These freezers offer the market's lowest standard deviation, giving you the lowest possible cost per ice cream product produced. The five models in the series cover capacity needs as low as 40 l/h all the way up to 4300 l/h.

Working principle
A mix pump (inlet pump) meters the product mixture into the freezing cylinder. A constant airflow is fed into the cylinder together with the mixture. During the passage through the cylinder, air is whipped into the mixture by a dasher and inner beater. The freezer can be linked to a central refrigerant unit using ammonia (NH_3), carbon dioxide (CO_2) or HFC gas.

This refrigerant surrounds the cylinder, providing the freezing. Stainless steel blades simultaneously scrape the frozen product from the inside wall of the cylinder, and an outlet pump pushes the ice cream forward for filling or extrusion.

Standard design
The frame, sheeting and refrigeration system of **Tetra Pak® Continuous Freezer A Series** models are constructed from stainless steel, as are all other parts which come into contact with the product. This facilitates cleaning and reduces maintenance needs. The freezers comply with EHEDG sanitary standards and are authorized to display the 3-A sanitary standards symbol when supplied with seat valves in lieu of butterfly valves.

The standard design includes:

- Freezer cabinet
- Freezing cylinder
- Rotary pumps
- Drive
- Dasher and inner beater
- Control panel
- Pump guard
- Air metering system
- Freeze-up guard
- Mix metering
- Inlet pressure control
- Stepless variable cylinder pressure
- Automatic viscosity control
- Temperature control
- CIP
- Automatic hot-gas defrosting
- Pump drive
- Mix pump capacity

Optional equipment

- Three-way valve with fittings for ice cream outlet piping
- Built-in continuous mini-aerator for pre-aeration of ice cream mix
- Double cream pump and control
- Recirculation pump and controls
- Variable frequency drive
- Dynamic beater
- Stop-valves for refrigerant
- Automatic drain valve (butterfly or seat valve)
- Designed for connection to all types of HFC refrigerants or CO_2
- TÜV-approved safety valve (Note: Local regulations may require approval from other authorities)
- 3-A approved seat valve (instead of butterfly valve)
- ICM main suction valve with minimized pressure drop allowing a suction pressure corresponding to -31°C (–23.8°F) instead of –34°C (–29.2°F)
- ASME approval of the cooling system
- Tetra Pak® Low Temperature kit for continuous freezers

Technical data	Model		Model		
	500 A2	**1000 A2**	**2000 A2**	**3000 A2**	**4000 A2**
Capacity range	55-550 l/h (15-145 gal/h)	110-1100 l/h (29-290 gal/h)	250-2500 l/h (66-660 gal/h)	320-3200 l/h (85-845 gal/h)	450-4500 l/h (119-1190 gal/h)
Maximum refrigeration load	14,000 kcal/h – 16 kW	27,000 kcal/h - 31 kW	56,000 kcal/h – 65 kW	75,000 kcal/h - 87 kW	100,000 kcal/h - 116 kW
Electric main motor	7.5 kW	15 kW	22 kW	30 kW	37 kW
Electric pump motor	2x0.75 kW	2x0.75 kW	2x0.75 kW	2x1.5 kW	2 x 1.5 kW
Power connection, standard	3 x 400 V	3 x 400 V	3 x 400 V	3 x 400 V	3 x 400 V
Built-in main breaker	25 Amps (st 3 x 400V, 50Hz)	50 Amps (st 3 x 400V, 50Hz)	70 Amps (st 3 x 400V, 50Hz)	80 Amps (st 3 x 400V, 50Hz)	100 Amps (st 3 x 400V, 50Hz)
Ammonia piping					
Suction line, outside diameter	33.7 mm	48.3 mm	76.1 mm	76.1 mm	88.9 mm
Liquid line, outside diameter	17.3 mm	17.3 mm	21.3 mm	21.3 mm	21.3 mm
Hot gas line, outside diameter	17.3 mm	17.3 mm	21.3 mm	21.3 mm	21.3 mm
Drain line, outside diameter	17.3 mm	17.3 mm	21.3 mm	21.3 mm	21.3 mm
Safety line, outside diameter	17.3 mm	17.3 mm	26.9 mm	33.7 mm	42.4 mm
Mix inlet piping, outside diameter	25.4 mm	25.4 mm	38.1 mm	38.1 mm	51.0 mm
Ice cream outlet piping, outside diameter	25.4 mm	38.1 mm	51 mm	63.5 mm	63.5 mm
Air inlet piping, outside diameter	0.5”	0.5"	0.5”	0.5"	0.5"
Air consumption	0.75 m^3/h	1.7 m^3/h	3.5 m^3/h	4.5 m^3/h	6.3 m^3/h
Required air quality: no oil, maximum water content	2.5 g/m^3	2.5 g/m^3	2.5 g/m^3	2.5 g/m^3	2.5 g/m^3
Required air pressure, minimum	6 bar	6 bar	6 bar	6 bar	6 bar
Ammonia content	4 kg	12 kg	24 kg	32 kg	45 kg

Tetra Pak® Low Temperature kit for Continuous Freezers

This option for Tetra Pak® Continuous Freezers makes it possible to save costs and improve product quality at the same time. By installing the kit on your freezer, you can lower product temperatures by a further 2°C, and thereby reduce the overall energy consumption of the equipment. At the same time, the colder temperatures provide enhanced texture and mouthfeel in recipes that require gentle handling or higher product quality.

Working principle

The Tetra Pak® Low Temperature kit for Continuous Freezers is designed to make colder ice cream during production. It does so with a special dasher and beater design that minimises backpressure for the product in the cylinder. In combination with a variable dasher speed, this offers the possibility to optimise agitation in the freezing cylinder.

The result is optimised energy consumption in the production process. Production time can be reduced compared to a traditional setup, either by limiting hardening time or by using only one machine, rather than a two-stage low-temperature freezing process.

Main components

The low temperature kit can be easily installed on both A and S Series freezers. It consists only of automation parts as well as an easily replaceable dasher, inner beater and piping. As the amount of cooling is not increased, the cooling system is not changed, nor is the dasher motor. Main components include:

- Low temperature dasher
- Low temperature beater
- Variable dasher speed
- Stronger scraper knives for high viscosity
- Piping and front cover

Service and expertise to optimise your operations

With Tetra Pak as your partner, the support goes far beyond the stainless steel. Our expert engineers have vast application experience, and can work closely with you to develop customised service solutions that help you get more out of your production. Together with access to the latest updates, you'll always be sure you have the technology and know-how to keep your freezers and other equipment performing optimally long into the future. Learn how we can help you increase uptime, ensure consistent quality, minimise total cost of ownership, reduce environmental impact and maximise equipment lifetime:

Automation services secure performance and reduce unplanned stops, helping you achieve high availability plant-wide to improve overall profitability.

Environmental services make it possible to reduce consumption of energy, water and other resources to both improve the footprint of your production and reduce costs. Our experts can help you identify performance improvements, such as areas to reduce waste, increase uptime and enhance staff capability.

Installation services ensure fast and trouble-free start-up, covering everything from layout design and engineering, to on-time and on-budget project delivery.

Maintenance services combine cutting-edge preventive and corrective maintenance to secure equipment performance with minimal production disturbance.

Parts and logistics services for effective management of your inventory and order administration. With Tetra Pak® e-Business you can save time by ordering parts and services online, 24/7, wherever you are.

Quality management services assure you consistently achieve the desired end-product quality your consumers are after.

Remote services give you preventive and corrective intervention to resolve unplanned stops and predict possible failure. Access expert support by telephone, camera and direct electronic connection to equipment.

Training services help you increase productivity with the latest training methods, technologies, and tools to gain expertly trained operator, maintenance, quality and management personnel.

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