



Tetra Pak® Continuous Freezer S A2

Self-contained continuous freezers with built in refrigeration unit



Tetra Pak® Continuous Freezer S700 A2



Tetra Pak® Continuous Freezer S1500 A2

Highlights

- Robust design
- Uniform product quality
- 150-700 litres (40-185 US gallons) / 300-1500 litres (80-400 US gallons) of ice cream per hour
- Increased flexibility
- Can handle a wider product range
- Low product loss
- User-friendly

Application

Freezing, mixing and whipping of ice cream mix and air to produce ice cream. Scraped-surface freezing of other products.

Working principle

The freezer is a self-contained unit ready to be connected to power, air, water and mix supplies. The ice cream mix is metered into the freezing cylinder by a gear pump. A constant airflow is fed into the cylinder together with the mix.

The freezing cylinder is cooled by the built-in freon refrigeration plant. During the passage through the cylinder, the air is whipped into the mix by a dasher.

The stainless steel blades mounted on the dasher continuously scrape the frozen ice cream from the inside wall of the cylinder. The ice cream then passes to the outlet pump.

Tetra Pak® Continuous Freezer S A2 series

Design

The freezer is produced from high-quality materials and are engineered to meet strict standards of hygiene, reliability and durability. All parts of the freezer that are in contact with mix and ice cream are manufactured from stainless steel materials or other food-safe materials. The freezer complies with EHEDG sanitary standards.

Freezer cabinet

The freezer cabinet is a self-supporting construction made of stainless steel. The stainless steel side doors and back plate are detachable for easy access to all parts of the machine.

Freezing cylinder

The freezing cylinder with its hard chromium-plated and mirror-finished inner surface provides highly effective heat exchange between the ice cream mix and the refrigerant, giving an efficient freezing of the mix. The stainless steel dasher that is equipped with scraper blades and a beater is designed to assure a smooth and uniform texture of the ice cream product. Power is transferred from the main motor directly to the dasher by belts.

Refrigeration system

The R404A refrigeration system is equipped with a built-in, semi-hermetic compressor and a plate heat exchanger for refrigerant condensation.

Pump unit

The mix and ice cream pumps are gear pumps. The end clearance of the pumps can be adjusted to compensate for normal wear. The design and the materials are carefully chosen to minimize wear. The pumps are driven by frequency-inverter-controlled gear motors.

Air metering

An air mass flow controller regulates the air flow and secures that the overrun of frozen ice cream is kept at the preselected value. A built-in air-drying unit secures that the water content is less than 0.8 g/m³ (0.02 g/cu. ft.).

Control panel

The freezer is equipped with Siemens PLC and all operations of the machine are operated from the front touchscreen panel. The control panel provides clear and easily understood information to the operator by means of graphic displays and written text and includes the following features:

- Easy monitoring and adjustments of process parameters.
- Up to 100 recipes for different products can be stored to facilitate fast start-up and easy operation.
- Automatic viscosity or outlet temperature control with display of pre-selected and actual viscosity / temperature.
- Protection against impending overload.

Installation

After connection to power, water, air and mix supply, the freezer is ready for production.

Start-up

The freezer is very easy to start up, thanks to the PLC-controlled recipe menu and the automatic start-up sequence.

During production

The following PLC-controlled production parameters can be adjusted and monitored on the touchscreen panel before and during production:

- Flow
- Viscosity
- Overrun
- Cylinder pressure
- Ice cream temperature

If forced stoppages occur during production, rapid hot-gas defrosting takes place, enabling production to be re-started quickly and without damage to the freezer. HOLD functionality is also included, for short production stops, and easy restarts.

Cleaning

The freezer can be cleaned by connecting it to a central CIP system and then activating the PLC-controlled CIP program. This program ensures that the wheels of the gear pumps is disengaged, allowing a heavy flow of detergent. The PLC program also ensures that the pumps and dasher are activated at certain intervals during cleaning. All this gives maximum hygiene at minimum operational cost. The freezer is equipped with clamp-type pipe connections on the mix and ice cream pipes.



Nominal output

Tetra Pak® Continuous Freezer S700 A2: 150-700 litres (40-185 US gallons) of ice cream/hour.

Tetra Pak® Continuous Freezer S1500 A2: 300-1500 litres (80-400 US gallons) of ice cream/hour.

Nominal output figures are based on the following conditions and standard mix recipe:

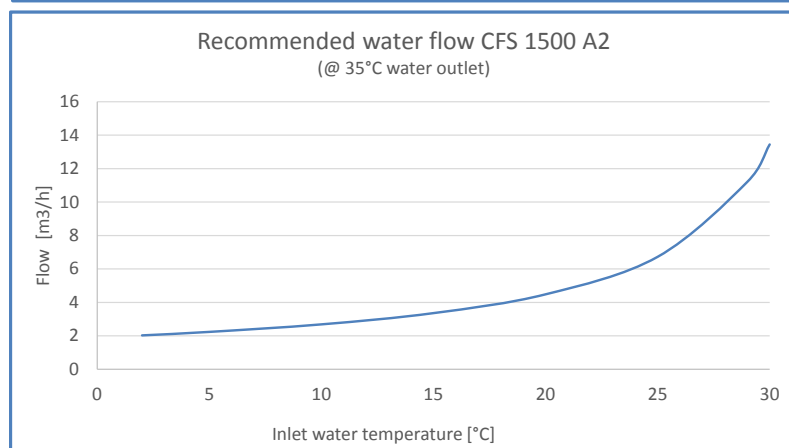
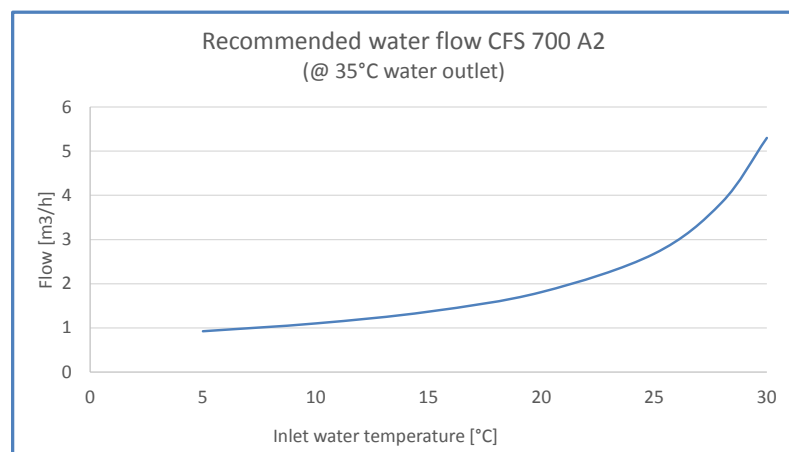
- Inlet of mix: +5°C +41°F
- Outlet of ice cream: -5°C +23°F
- Overrun: 100%

Reference mix recipe (%)

- Fat (HCO) 10.0
- Skimmed milk powder 10.5
- Sugar (sucrose) 12.0
- Glucose syrup 5.0
- Stabilizer/emulsifier 0.5
- Total solids 38.0
- Water 62.0

Upon receipt of the customer's actual mix recipe, a more precise capacity and outlet temperature can be determined.

Cooling water consumption in relation to water supply temperature (based on water outlet temperature of 35°C (95°F))



Standard Equipment

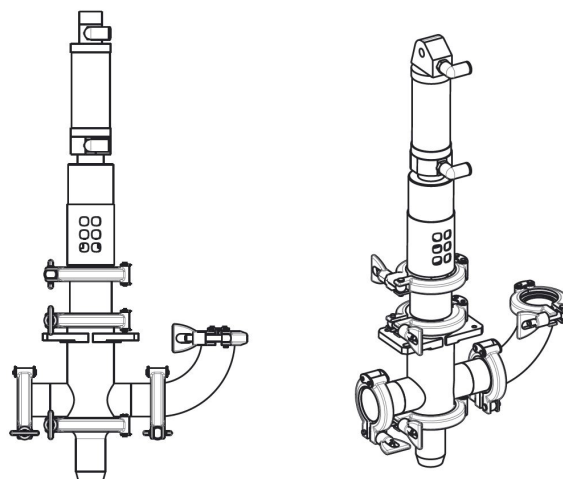
| | Continuous Freezer S700 A2 | Continuous Freezer S1500 A2 |
|--|----------------------------|-----------------------------|
| Outlet temperaturesensor | Included | Included |
| Cooling media | Freon R404 | Included |
| Automation control system | Siemens S7 | Included |
| | OR Mitsubishi | Included |
| Local language (EU languages standard, non EU languages optional) | Included | Included |
| Standard dasher | Included | NA |
| Multi dasher | Optional | Included |
| Inner beater Wing beater | Included | Included |
| Air mass flow controller | Included | Included |
| Sanetary air filter + dryer | Included | Included |
| Cooling regulation selection Viscosity - Temperature control | Included | Included |
| Cylinder pressure regulation | Included | Included |
| CIP interface signals | Included | Included |
| Air booster | Included | Included |
| CIP pumps | Included | Included |
| 24-7 spare parts service | Included | Included |
| Instruction videos | Included | Included |
| Hard metal shaft seal. | Included | Included |

Optional Equipment

| | | |
|---|----------|----------|
| Solid dasher | Optional | Optional |
| The solid dasher is applied where the mix needs minimal agitation and short cylinder retention time | | |
| Pressure regulator for S700 only | Optional | NA |
| Used when there is low demand for overrun accuracy. Supplied as replacement for air controller | | |
| Pump covers | Optional | Optional |
| Safety cover for FP pump drive shafts | | |
| Outlet pump configuration Single/Dual outlet pumps | Optional | Optional |
| For freezers where a two-lane filler is used, to provide accurate flow in each filling line | | |
| Build-in mini pre-aerator | Optional | Optional |
| Build-in mini aerator, for mixes that requires additional aeration for air incorporation | | |
| Remote support | Optional | Optional |
| Cisco router enabling connection to remote support from Tetra Pak | | |
| Variabel dasher speed | Optional | Optional |
| Used to accommodate different recipes with different need for agitation | | |
| Passive communication | Optional | Optional |
| Communication package, that allows customers central computer to monitor, set and adjust production data, as well as selecting recipes, hold, re-start and CIP commands | | |
| Outlet pipe pressure sensor | Optional | Optional |
| Pressure gauge to monitor the pressure in the freezers outlet cream pipe | | |
| UL Approved electricals | Optional | Optional |
| Analog communication 4 – 20 mA | Optional | Optional |

Time elapse filling module

Also optional for both freezer sizes are a time elapse filling moduled for hand filling of cups or containers. The 1.5" filling module is a one nozzle, pneumatically operated time elapse filler, which is controlled from the operating panel of the freezer. The filling nozzle is a two-inlet nozzle, supplied with plug to support only one inlet. Up to 10 mm (0.4 inches) inclusions can be added. The filling module is delivered with electrical connections and air hoses included to support an installation approx. 1.5 meters (4.9 ft) from the freezer. Ice cream hose and support for filler installation is not part of the scope.



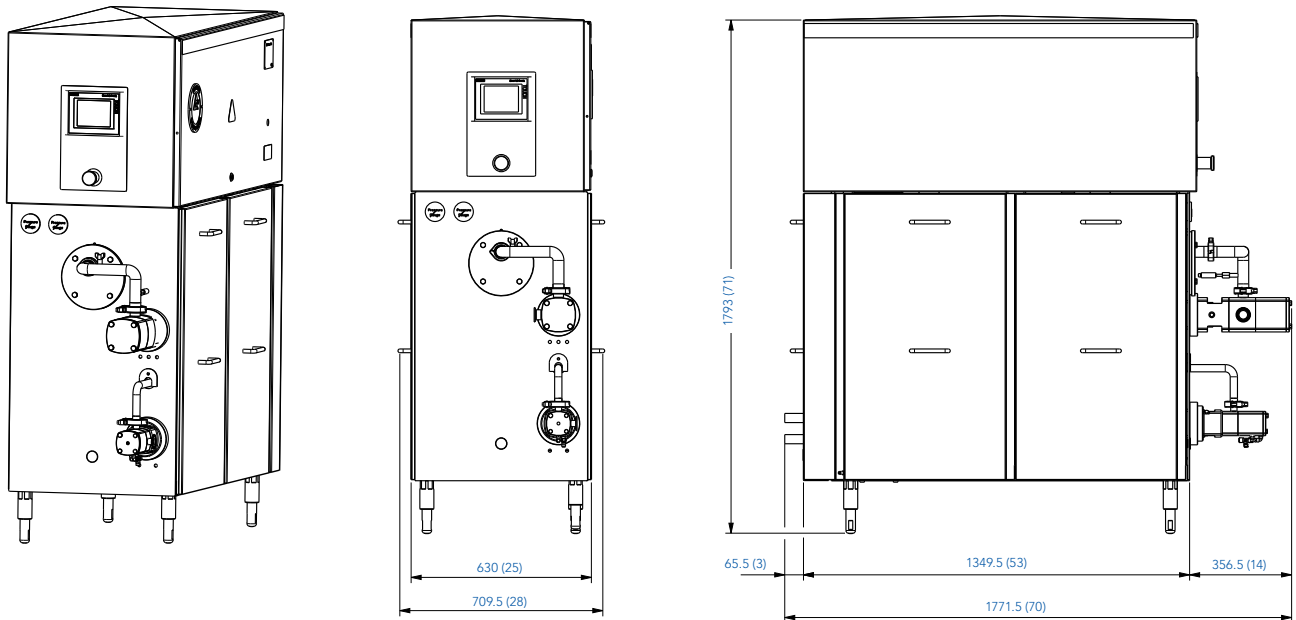
Technical Data

| | Continuous Freezer S700 A2 | Continuous Freezer S1500 A2 |
|--|----------------------------|-----------------------------|
| Compressor power | 12.3 kW / 15 HP | 24 kW / 32 HP |
| Refrigerant gas | R404A | R404A |
| Refrigerant content | 2.5 kg / 5.5 lbs | 3.8 kg / 8.4 lbs |
| Fluid for condensation | Water | Water |
| Dasher motor power | 7.5 kW / 10 HP | 11 kW / 14.8 HP |
| Mix pump motor power | 0.55 kW / 0.74 HP | 0.75 kW / 1 HP |
| Cream pump motor power | 0.55 kW / 0.74 HP | 0.75 kW / 1 HP |
| Total installed power | 21 kW / 28.2 HP | 38 kW / 51 HP |
| Air consumption | 1 m³/h / 36 cu.ft./h | 2 m³/h / 72 cu.ft./h |
| Air pressure required | 6 bar / 87 psi | 6 bar / 87 psi |
| Required air quality: no oil, | | |
| Max water content | 2.5 g/m³ / 0.06 g/cu.ft. | 2.5 g/m³ / 0.06 g/cu.ft. |
| Equipped with main circuit breaker at 400 Volt | 40-50 Amp | 70-80 Amp |
| Condensation water consumption: | | |
| - a) well water +5°C (41°F) | 1 110 L/h (293 US gal/h) | 2,236 L/h (598 US gal/h) |
| - b) mains water +15°C (59°F) | 2 150 L/h (560 US gal/h) | 3,359 L/h (887 US gal/h) |
| - c) tower water +28°C (82°F) | 3 840 L/h (1 014 US gal/h) | NA |
| - c) tower water +30°C (86°F) | NA | 13,446 L/h (3,552 US gal/h) |
| Water inlet connector | 1" gas female | 1 1/4" gas female |
| Water outlet connector | 1" gas female | 1 1/4" gas female |
| Mix-inlet piping, outside | 1" clamp | 1 1/2" clamp |
| Ice cream outlet piping, outside | 1 1/2" clamp | 1 1/2" clamp |
| Maximum overrun | 140% | 140% |

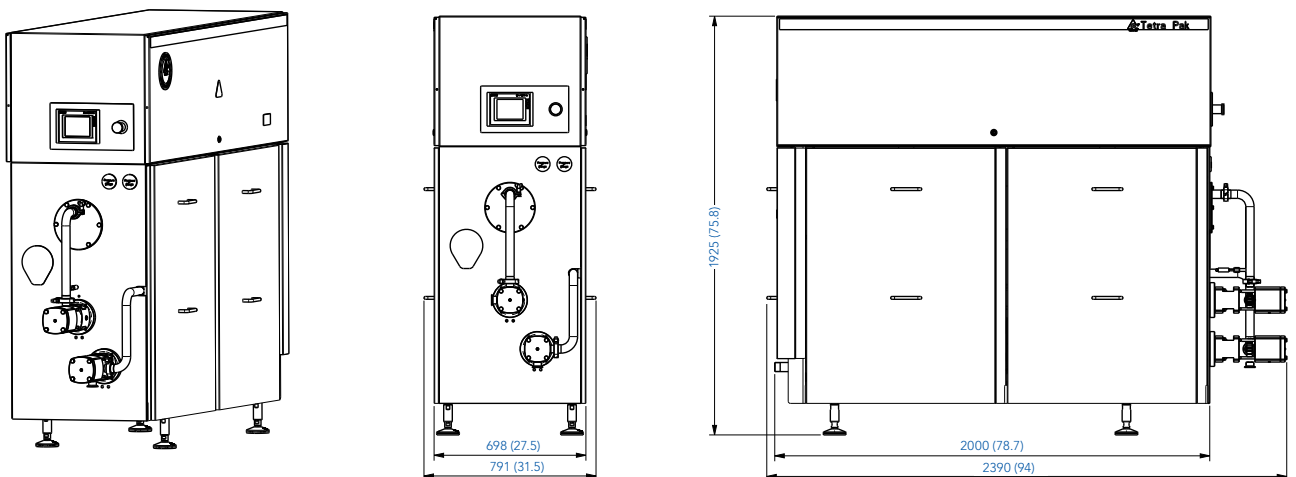
| Shipping Data | Continuous Freezer S700 A2 | Continuous Freezer S1500 A2 |
|---------------|----------------------------|-----------------------------|
| Net weight | 780 kg (1 720 lbs) | 1 250 kg (2 756 lbs) |
| Gross weight | 980 kg (2 160 lbs) | 1 450 kg (3 197 lbs) |
| Volume | 4.0 m³ (142 cu.ft) | 4.8 m³ (170 cu.ft) |

Main dimensions

Continuous Freezer S700 A2



Continuous Freezer S1500 A2



Measurements in mm (inches)

Version PD 80465GB1 - December 2017

We reserve the right to introduce design modifications.
Tetra Pak,  and PROTECTS WHAT'S GOOD
are trademarks belonging to the Tetra Pak Group.

www.tetrapak.com

 **Tetra Pak®**