



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:

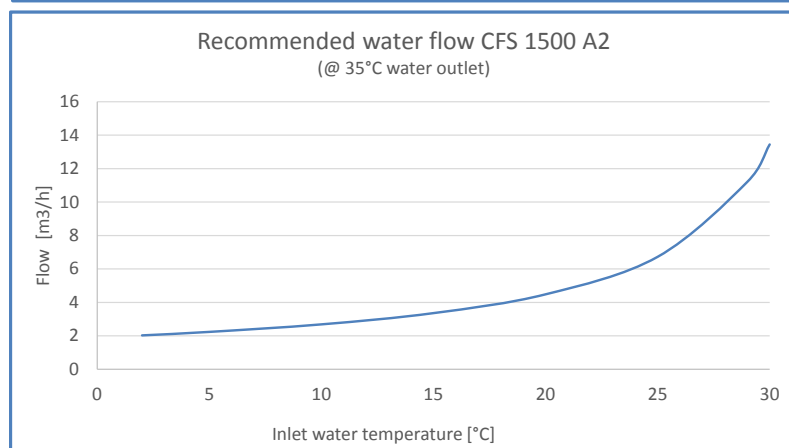
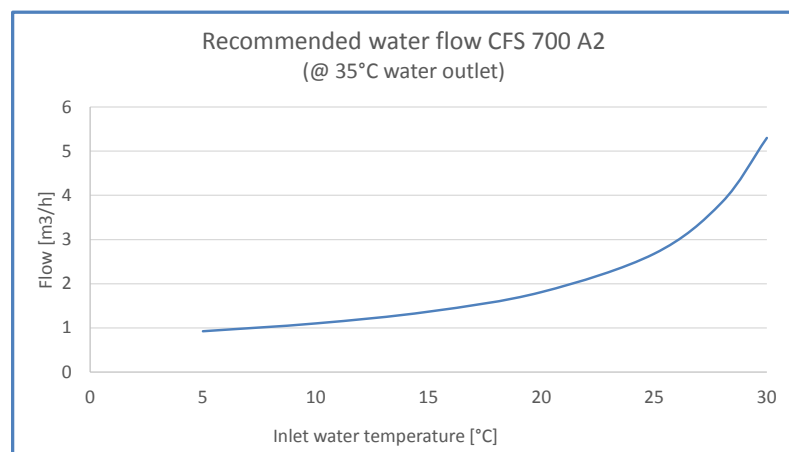
- Inlet of mix: +5°C +41°F
- Outlet of ice cream: -5°C +23°F
- Overrun: 100%

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

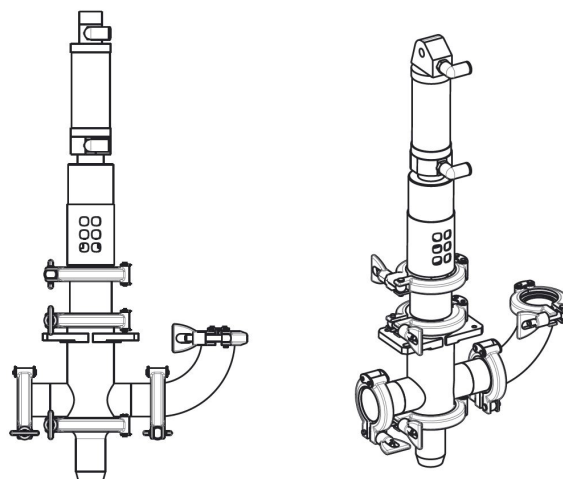
		Continuous Freezer S700 A2	Continuous Freezer S1500 A2
Outlet temperaturesensor		Included	Included
Cooling media	Freon R449	Included	Included
Automation control system	Siemens S7	Included	Included
	Mitsubishi	Optional	Optional
Local language (EU languages standard, non EU languages optional)		Included	Included
Standard dasher		Included	NA
Multi dasher		Optional	Included
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 less agitation and short cylinder retention time			
Water ice kit		Optional	Optional
Used for water ice applications or for a recipe with high water content. Solid beater, thick knives included.			
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.



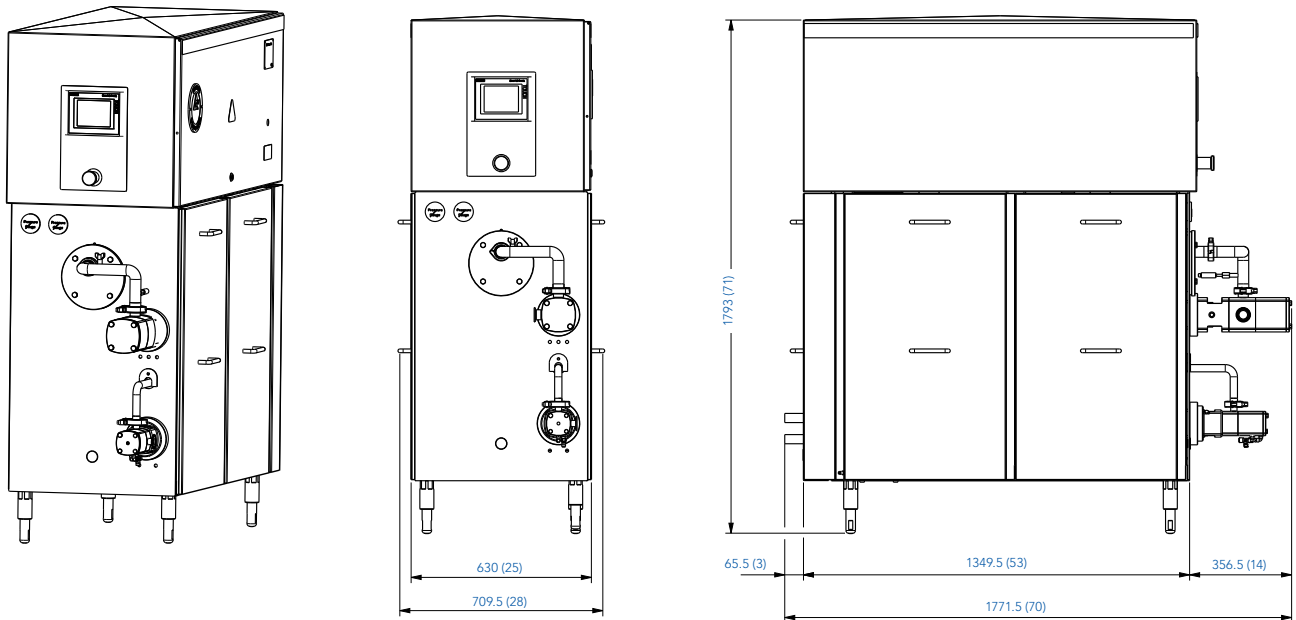
Technical Data

	Continuous Freezer S700 A2	Continuous Freezer S1500 A2
Compressor power	12.3 kW / 15 HP	24 kW / 32 HP
Refrigerant gas	R449A	R449A
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 male	1 1/4" gas male
Water pressure drop up to	2 bar	2 bar
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%

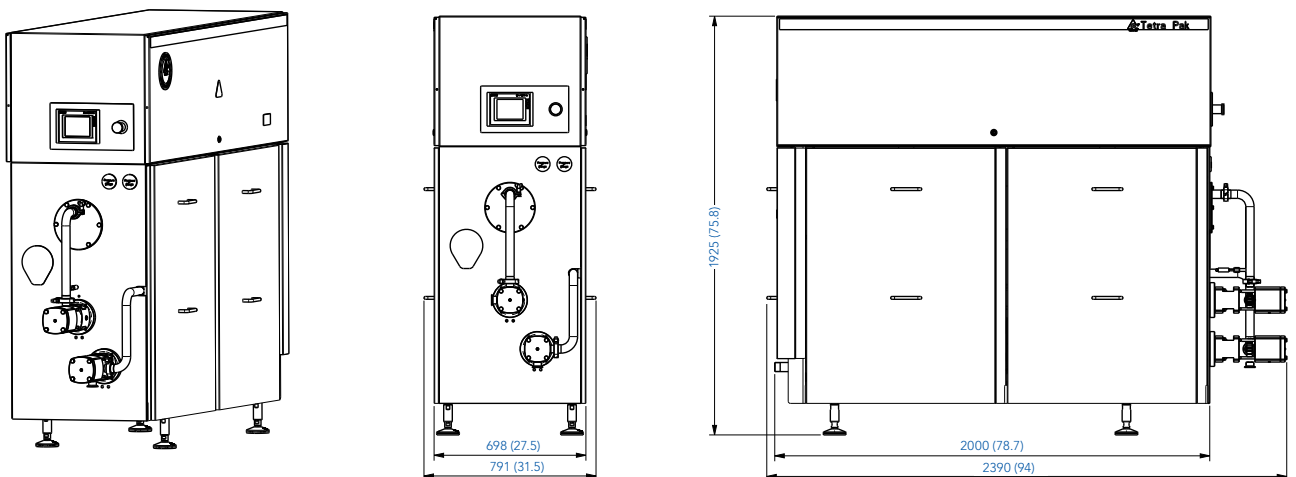
Shipping Data	Continuous Freezer S700 A2	Continuous Freezer S1500 A2
Net weight	780 kg (1 720 lbs)	1 250 kg (2 756 lbs)
Gross weight	980 kg (2 160 lbs)	1 450 kg (3 197 lbs)
Volume	4.0 m³ (142 cu.ft)	4.8 m³ (170 cu.ft)

Main dimensions

Continuous Freezer S700 A2



Continuous Freezer S1500 A2



Measurements in mm (inches)

Version PD 80465GB3 -December 2019

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®**