Tetra Pak® Ice Cream Mix unit A2

Model 2,000-8,000 l/h

APPLICATION

Continuous preparation of ice cream mixes at capacities of 2,000–8,000 litres per hour. The unit covers all parts of the preparation process – from high shear mixing and high pressure homogenization to HTST pasteurization and direct delivery to separate aging tanks.

Typical applications

- High viscous ice cream products
- Ice cream products containing pulps, fruit pieces, flavours and fragrances
- Sorbets and water ice

HIGHLIGHTS

- Fully automated continuous production
- Powerful mixing with Tetra Pak® High Shear Mixer, fully compatible with recombinant ice cream production
- Production traceability and product safety system
- Highest focus on hygienic design and sustainability
- Variable options, including integrated CIP unit, external cooler, recipe handling

WORKING PRINCIPLE

Ingredient mixing takes place in a Tetra Pak® High Shear Mixer, which can be either an open mixer with manual handling or a vacuum mixer. Liquid and powder ingredients can be connected directly to the vacuum mixer, minimizing operator resources and optimizing production flow. The mix is recirculated over the mixing tanks to ensure complete hydration of the ingredients. The Tetra Pak® Plate Heat Exchanger facilitates heating and cooling of the mix before homogenization, at pasteurization and at final cooling in a regeneration system that minimizes the energy consumption.
The unit is built in a compact standard system separated into three parts:

- Mixing tanks and Tetra Pak High Shear Mixer
- Unified frame design with pasteurizer, balance tank and HMI
- Tetra Pak® Homogenizer

The design is constructed with a focus on optimizing production space and maximizing work accessibility and cleanability, both with regards to exterior cleaning and CIP.

STANDARD MATERIAL

The unit features two stainless steel mixing tanks equipped with an agitator, sample valve, level sensor and CIP spray balls connected to a nearby Tetra Pak High Shear Mixer for recirculating the ice cream mix. A compact frame with pump, recirculation heater and valves facilitates easy operation.

The main frame contains a double strainer, balance tank, plate heat exchanger (10 bar, M-model) with regenerative sections for product heating and cooling, pumps and hygienic valves, flow controllers, a climbing holding cell for HTST pasteurization and an HMI panel.

The frame is connected to a two stage Tetra Pak® Homogenizer with automatic pressure release and pressure indication.

All parts in contact with product are of hygienic design. The unit is automatically operated from the HMI. Ingredient dosing can be performed manually or automatically depending on the choice of high shear mixer and options for automatic dosing points.

AUTOMATION FUNCTIONS

- Automated PLC operated sequences, Siemens system
  - Sterilization
  - Mixing
  - Pasteurization / production
  - Circulation (water or product)
  - Emptying
  - Intermediate cleaning
  - CIP
- Automated pasteurization temperature control
- Automated flow diversion controlled by temperature sensors before and after holding cell

OPTIONAL EQUIPMENT

- Pressure safety function
- Differential pressure supervision
- Water recovery
- CIP dosing unit
- Rework / fat / sugar / fresh milk dosing inlets
- Extended holding time
- Control of CIP detergents with conductivity
- Connection to automatic powder handling units
- Control system Rockwell
- Product integrator – Tetra Pak® PlantMaster
  - Recipe management
  - Product parameter collection and control

Additionally, it is possible to customize the unit regarding layout and/or design towards a specific product if it falls outside of standard conditions (e.g. viscosity, special ingredients).

TECHNICAL DATA

Capacity	A2 2,000	A2 3,000-6,000	A2 8,000
Pasteurizing flow	2,000 l/h	2,000-6,000 l/h	6,000-8,000 l/h
Mixing tank capacity	2,000 l	2,000-6,000 l	8,000 l

DIMENSIONS

Overall dimensions vary depending on the model and additional options selected. Recommended free space around the unit is 1 metre at the sides and around the frame.
Approximate sizes can be seen in the following table:

	A2 2,000	A2 3,000-5,000	A2 6,000-8,000
Height	3,000 mm	3,500 mm	3,700-4,300 mm
Length	10,700 mm	10,700-13,000 mm	13,250 mm
Width	2,900 mm	2,900-3,300 mm	4,500 mm

The mixing tank capacity is the critical factor with regard to size. Considerations should be made regarding height and length of the production area.

Additionally, the choice of Tetra Pak High Shear Mixer affects the unit size (above mentioned sizes are based on an open mixer).

SERVICE MEDIA

	CONDITIONS
Process water	Temp 18-28°C
Steam	3 bar, saturated
Compressed air	6.0-6.5 bar
Ice water	3 bar, max 2°C
Seal water	3 bar, max 25°C, 10 l/h

ENVIRONMENT

Tetra Pak® Ice Cream Mix unit A2 is built in a modular design, which makes it easy to rebuild and adapt for new purposes.

Energy consumption is optimized throughout via regenerative sections in the plate heat exchanger and thanks to the high efficiency of Tetra Pak® Homogenizer and Tetra Pak® High Shear Mixer.

With Tetra Pak Ice Cream Mix unit A2 you have the option to optimize utility and energy consumption even further with water recovery, pre-cooling and automation functions such as hibernation mode.

Tetra Pak®