



# Tetra Pak® Pasteurizer PF



## Application

The Tetra Pak® Pasteurizer PF for prepared food is an investment-efficient and versatile continuous processing unit. It is designed for indirect heating and cooling of desserts, fruit preparations, soups, sauces, tomato preparations and baby food, as well as other low- or high-acid viscous products with or without particles.

The unit can be equipped with different types of heat exchangers, depending on the application. The pasteuriser is available as a standalone unit or as part of a complete line.

## Highlights

- Gain access to all our food engineering know-how
- Low total cost of ownership with guarantees
- Flexible and future-proof
- Faster time to market
- Ensures food safety

## Working principle

The module is fully automated using PLC control for safe operation and production.

The operation can be divided into four steps:

- **Pre-disinfection**
- **Production**
- **Intermediate cleaning**
- **Cleaning-in-place (CIP)**

Before production can start, it is necessary to disinfect the downstream side area of the unit by circulating pressurised hot water. After disinfection, the unit is cooled step by step to production temperature. Lastly, disinfected water is circulated through the unit. When the receiving equipment is ready, production starts by filling the unit with product, displacing the water to drain.

The water/product mix phase is volume controlled enabling minimal product losses. The mix phase can be sent to drain or reject tank. If product supply or receiving equipment fails, disinfected water displaces the product and the pasteuriser goes into disinfection circulation. The product is heated in either tube or plate heat exchangers by an indirect hot water circuit.

The product passes through a holding tube for the required period of time. The flow guard automatically monitors product temperature after the holding tube. If the temperature drops below the pre-set level, an alarm is activated, production automatically ceases and the receiving equipment closes. Cooling to filling temperature takes place in additional tube or plate heat exchangers.

To prolong the production period between CIP, an intermediate cleaning can be performed. When intermediate cleaning is selected, disinfected water displaces the product before cleaning starts. During the intermediate cleaning sequences, the holding tube is kept at the disinfection temperature, meaning that disinfected parts of the module remain disinfected. The intermediate cleaning can be performed either with lye only or lye and acid flush. This enables longer available production time on the pasteuriser before full CIP is required.

After each production run, the module undergoes CIP with both lye and acid. The CIP sequences can be configured for optimal cleaning results.

### **High quality at a low cost**

Tetra Pak Pasteurizer PF makes it possible to produce high-quality products with low operating costs. Using heat regeneration design, when applicable on the water side, it offers optimised energy consumption.

A tubular heat exchanger with a floating end protection system minimises maintenance and eliminates tube cracks. For corrosive products, such as ketchup, a corrosion-resistant material like SMO254 is used. Stainless steel protection panels reduce energy loss by up to 15%. Straight tubes enable visual inspection if needed. A plate heat exchanger with an optimized chevron and distribution pattern maximises heat transfer efficiency. A plate heat

exchanger is easy to open, which minimises service downtime. For products containing high salt content, such as soy sauce, corrosion-resistant titanium plates are used.

The unit offers optimal versatility and the possibility to produce a wide range of products with different viscosities, as well as products that are smooth or contain particles of up to 9 mm in diameter. Advanced automation reduces human error and maintains product quality. Logging of process parameters enables traceability for food safety.

### **Processing parameters**

Temperature program and capacities are specific for each application.

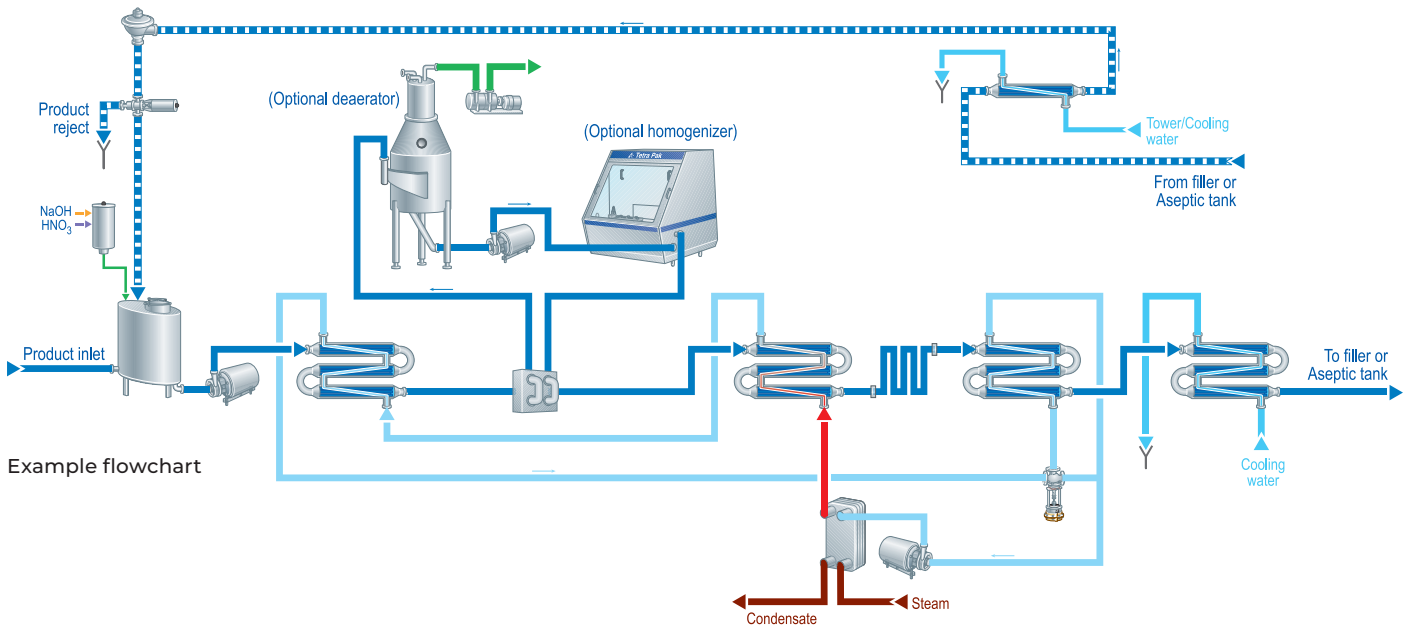
### **Capacity**

The capacity range depends on the application. Typical capacities ranges from 2 000 l/h to 30 000 l/h. For detailed information, please contact your Tetra Pak representative.

### **Scope of supply**

- Product balance tank with level control
- Frequency controlled product pump
- Centrifugal water pump
- Product flow meter
- Water flow meter
- Centrifugal CIP booster pump
- Free-standing Tetra Pak® Tubular Heat Exchanger (THE) with floating connections; or Tetra Pak® Plate Heat Exchanger (PHE) with cooling, regenerative and heating sections, including protection panels/sheets
- Hot water circuit, incl. brazed PHE, pump, steam valve and trap, expansion vessel, shut-off valves, etc.
- Control panel in stainless steel including process controller (PLC), solenoid valves and motor starters
- Automated PLC operated sequences
- Automated process interaction with downstream equipment
- Automated fault supervision and action for pumps, temperatures and diversion valve
- Frequency converters, mounted on the frame
- Pre-wired signal/power cables
- Pneumatic, remote-controlled sanitary valves
- Product piping in AISI 316
- Set of pipes, bends, valves, internal signal wiring, pipes for signal wiring and fittings required for pre-erection of system
- Factory pre-assembled and tested before delivery
- Engineering, programming
- Technical documentation in European Economic Area (EEA) official languages

# Optional features



Example flowchart

## Automation and control

- PLC control system: Siemens and Rockwell
- 21" industrial PC operator panel mounted in control cabinet
- Free-standing PC as operator interface (GUI)
- Tetra Pak® PlantMaster integration
- Uninterrupted power supply (UPS)
- Control panel air cooling
- Digital paperless recorder

## Production

- Automatic CIP of balance tank
- Energy hibernation (EH) for reduced energy consumption
- Different levels of heat recovery

## Special food treatment

- High temperature program for product safety
- Deaerator for product quality and long running time
- Multiple holding tubes
- TetraPak® Homogenizer for product quality

## Food safety

- SMO254 material in tubular heat exchanger for corrosive products
- Positive product pressure and pressure supervision

## Cleaning-in-place (CIP)

- CIP from CIP station or internal CIP system
- Internal CIP system with automated addition of CIP detergent into the balance tank via ratio dosing or header batch system
- CIP recipe editor with possibility to design unique cleaning recipes
- Conductivity transmitter
- Back-flush cleaning of heat exchanger for products containing fibres

## Technical documentation

- Non-EEA languages
- CE marking for countries outside the EEA

## Technical data

- Approx. consumption data for a heat exchanger without regeneration, with a temperature program (per 1000 l of product) of 40°C – 90°C – holding time – 30°C

## Steam (700 kPa)

- 85 kg/h

## Cooling water (300 kPa, 20°C):

- 1000 L/h during production
- No consumption during pre-sterilisation or hibernation mode

## Environment

- Tetra Pak® Pasteurizer unit is built in a modular design, which makes it easy to rebuild and adapt for new duties
- The unit consists of parts that can be separated for recycling purposes
- Regeneration is used and offered when it is applicable

## Rinsing water CIP (300 kPa):

- 1,000–2,000 L during one CIP rinsing cycle (depending on heat exchanger size and configuration)
- Connection point capacity 10-20 m<sup>3</sup>/h

## Instrument air (600 kPa):

- 50 NI/min, total, regardless of capacity

## Electricity (380V/50HZ):

- 9–22 kW, excluding homogeniser

## DIMENSIONS

- Approximate measurements including required service are in mm.
- Dimensional drawing shows optional sub-units

