



Tetra Pak® Pasteurizer D Base

Simple yet smart pasteurization for your daily dairy applications



Highlights

- Capacity up to 10,000 l/h of milk
- Specific designs for milk, yoghurt and cream.
- Full production overview and control of the heating unit from the operator interface
- Higher pressure in the downstream sections to minimize risk of contamination
- Integrated CIP system for cleaning of the pasteurizer and connected sub-modules
- Compact yet service-friendly design
- Prepared for connection to a separator, homogenizer and standardization

Application

Tetra Pak® Pasteurizer D Base for dairy applications is designed for continuous processing and pasteurization of market milk, yoghurt milk, cream and other low acid liquid dairy products.

Tetra Pak Pasteurizer D Base provides a flexible solution with well-proven functions for common types of non-aseptic pasteurization. The heat treatment in the pasteurizer is based on a Tetra Pak Plate Heat Exchanger.

Simple yet smart

This pasteurization unit is specially developed for dairies with a need for a production capacity of up to 10,000 l/h. Even with this more simple pasteurizer, the operator can enjoy the benefits that smart control gives with the latest automation platform from Tetra Pak.

With intelligent automation, the pasteurizer enhances both machine and human capabilities. The unit is created with operators at every level in mind, which makes it easy and safe to use and simpler to maintain with minimal downtime.

Advanced automated control over production and safe operation ensure that the unit gives reliable results time after time. Tetra Pak Pasteurizer D Base therefore provides high levels of food safety.

Tetra Pak® Pasteurizer D Base

Simple yet smart pasteurization for your daily dairy applications

Working principle

As standard, Tetra Pak® Pasteurizer D Base is automated to safeguard production. Production is strictly controlled by production recipes with processing parameters.

The process can be divided into the following main steps:

- Disinfection
- Filling
- Production/circulation
- Emptying
- Cleaning in place

Before production, the unit is typically disinfected by the circulation of hot water for 20 minutes. After disinfection, the unit is cooled down and stabilized to production temperature.

When downstream equipment is ready, production can start. Production starts by filling the unit with product via the balance tank. The product displaces the water/product mix to drain, white water tank or reject tank. The balance tank includes level control which safeguards the gentle treatment of the product and a CIP device which ensures a high degree of cleanability.

Before being homogenized, the product is pre-heated in a Tetra Pak® Plate Heat Exchanger (PHE) by the outgoing pasteurized product. Other matching optional sub-units include functions like separation and fat standardization. To ensure even heating on the product, final heating takes place in the PHE by means of an indirect hot water circuit.

The product is held in an integrated climbing holding cell for the required period of time. If the pasteurization temperature gets too low, the product is diverted back to the balance tank. After the holding time, the product is cooled by the incoming product in the regenerative section of the PHE. As a safety feature, the pressure on the pasteurized side is higher than on the non-pasteurized side.

If required, the product is further cooled by ice water in the final cooling section.

If product supply fails or a failure at the receiving unit occurs, the unit switches to product recirculation.

After each complete production run, the heating unit is cleaned with both acid and lye. This is supplied into the balance tank by an internal cleaning system.

The operator interface is used for process monitoring and selection of required functions. The unit will continuously log pasteurization temperature, flow and the position of the flow diversion valve.

A data logging system in the unit keeps track of the date of production, processed volumes, processing times, type of CIP performed, etc.

Main unit

- Product balance tank with level control
- Centrifugal product feed pump
- Flow control (frequency-controlled feed pump)
- Free-standing Tetra Pak Plate Heat Exchanger (PHE) with cooling, regenerative and heating sections
- Climbing holding tube
- Hot water unit, 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 pasteurization temperature control
- Automated flow diversion, triggered by temperature failure before and after the holding tube
- Automated product circulation when fault occurs
- Automated process interaction with up- and down-stream equipment, such as source and destination tanks
- Automated fault supervision and action for pumps, temperatures and flow diversion valve
- Registration of pasteurization and outlet temperatures
- Pneumatic, remote-controlled sanitary valves
- Product piping and components in stainless steel
- Set of pipes, bends, valves, internal signal wiring, required for the pre-erection of the system
- Integrated internal CIP system with pneumatic dosing pumps for caustic and acid

Options

Automation and control

- PLC control system
- 21" industrial PC operator panel mounted in the control cabinet
- Free-standing PC as operator interface (HMI)
- Tetra Pak® PlantMaster integration
- Control panel air cooling

Design for different applications

- Yoghurt temperature program
- Cream temperature program

Temperatures and holding time for milk

- Constant temperature to separator and/or homogenizer

Connections to sub-units

- Homogenizer, separator, standardization unit and spiral holding cell
- Swing bend bypass of sub-units

Production efficiency, safety and convenience

- Hot divert with position feedback
- Supervision of differential pressure

Environment

Tetra Pak Pasteurizer D Base is built with a modular design, which makes it easy to rebuild and adopt for new duties.

The unit consists of parts that can be separated for recycling purposes.

Technical data

Capacity

Pasteurization		
Milk and yoghurt milk (l/h)	5,000	10,000
Cream (l/h)	2,500	5,000

Processing parameters

Standard temperature programs	Market milk	Yoghurt milk	Cream
Inlet temperature (°C)	4	4	4-8
Pasteurization temperature (°C)	74	95	82
Holding time (s)	15	300	15
Separation and homogenization temp. (°C)	~55	~60 - ~75	-
Outlet temperature (°C)	4	43	8-10
Heat regeneration (%)	85	85	85

Consumption data

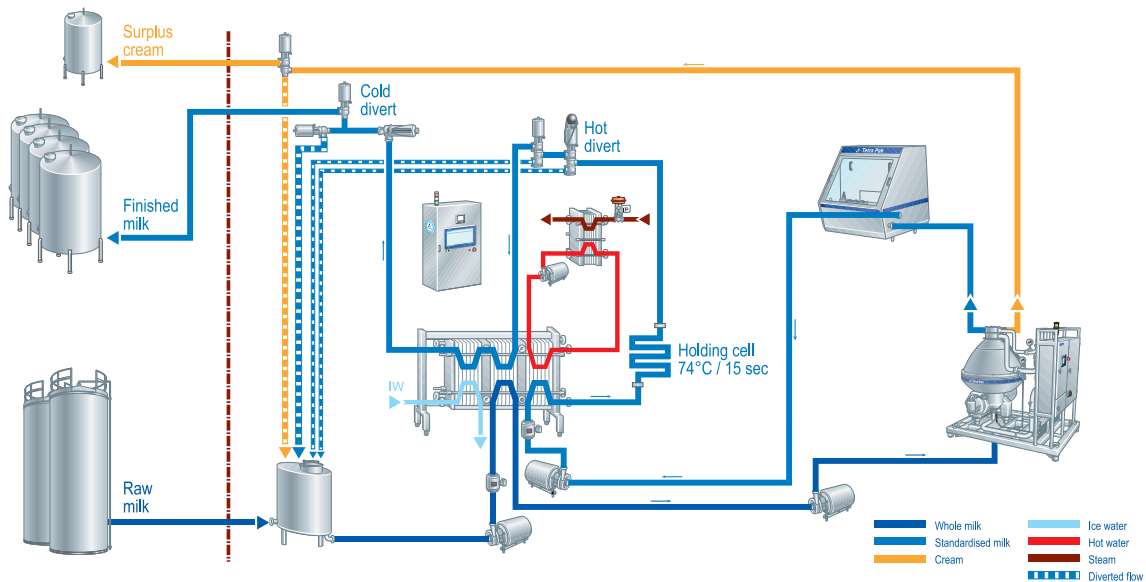
Approx. consumption data for Tetra Pak Pasteurizer D Base per 1,000 l of market milk for a dairy processing 2,000 – 10,000 l/h:

During production	Consumption
Steam 3 bar*	~21 kg/h
Ice water, 3 bar, 2°C (outlet 7°C)	~2,200 l/h
Rinsing water during CIP, 3 bar	~945 l/h

*Steam 3 bar: 50 kg/h peak during disinfection

- No ice water consumption during disinfection or during hibernation
- Instrument air: 50 NI/m, total not depending on capacity
- Electricity: 7 – 15 kW, depending on capacity and on options excluding connected sub-modules

Tetra Pak® Pasteurizer D Base



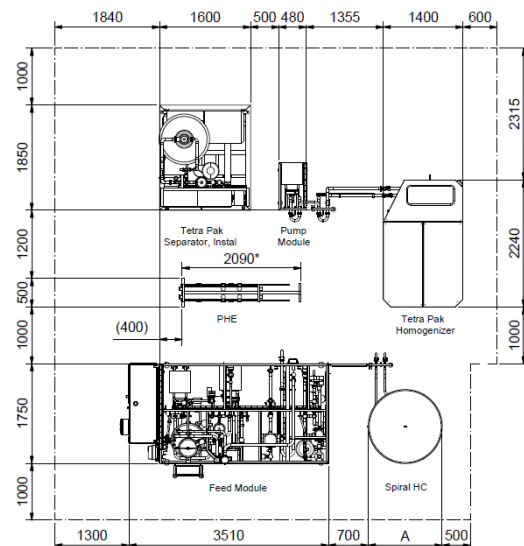
Example flow chart – Milk configuration

Dimensions

- Approximate measurements including required service areas are in mm.
- Dimensional drawing shows optional sub-units for separation, standardization, homogenization and Spiral Holding Cell.
- Specific measurements will vary depending on capacity and configuration.

Modules	A	B
Capacity 5,000 (l/h)		2,900
Capacity 10,000 (l/h)		2,900
Tetra Pak Homogenizer M25		1,700
Tetra Pak Homogenizer M25G		1,700
Tetra Pak Separator H10		2,450
Tetra Pak Separator H15		2,450
Spiral Holding Cell 5,000(l/h)	1,300	2,100
Spiral Holding Cell 10,000(l/h)	1,780	2,400

B; Is height of the equipment. Additional free space required for service and maintenance above.
Tetra Pak Separator: 1,000mm



*Depending on configuration.

□ □ □ □ Working and service area