



Tetra Therm® Aseptic Flex 1

Indirect UHT units with solid performance



Highlights

- Basic model with low investment cost
- Great flexibility in balancing performance with investment
- Wider capacity range
- Improved efficiency thanks to CMR 125 tubular heat exchanger
- Extended running time
- New automation platform with easier line integration
- Highly upgradable thanks to wide range of options
- Available as stand-alone unit or part of line solution

Application

Continuous aseptic processing unit for indirect UHT treatment in CMR 125 tubular heat exchanger. Products include milk, flavoured milk, chocolate milk, cream, recombined milk, drinking yoghurt, soy milk, buffalo milk, juice, tea and coffee.

Working principle

The module is fully automated to safeguard the aseptic status while in production. The operation is divided into four steps:

- Pre-sterilization
- Production
- AIC (aseptic intermediate cleaning)
- CIP (cleaning-in-place)

Before production can start, it is necessary to sterilize the aseptic area by circulating pressurized hot water. After sterilization, the unit is cooled down to production temperature. Finally, sterile water is circulated through the production unit.

Production starts by filling the unit with product via the balance tank. The product displaces the water/product mix to the drain or reject tank.

When an aseptic tank or filling machine is ready, production can start. The product is regeneratively pre-heated in a Tetra Spiraflo® CMR 125 tubular heat exchanger before being homogenized in a Tetra Alex® homogenizer. The product is held in a holding tube for the required period of time. Regenerative cooling to packaging temperature takes place in the heat exchanger.

Aseptic intermediate cleaning (AIC) can be performed to extend the production period between full cleaning in place (CIP). When AIC is selected, the product is displaced by sterile water before cleaning starts. During the AIC sequences, the holding tube is kept at the sterilization temperature, thus keeping the aseptic parts of the unit sterile. AIC can be performed either with lye only or with lye and acid flush. After each production run, the unit undergoes CIP with both lye and acid. In the event of product supply failure or a filling machine stop, the unit goes into sterile water circulation.

Basic unit

Tetra Therm® Aseptic Flex 1 is a platform-based highly economical UHT unit. The lower investment cost is thanks to direct steam in the shell side in the final heating section of the UHT phase. The new version provides a wider selection of flexible solutions, capacities and options for a broader range of customer needs. Tetra Therm Aseptic Flex 1 is an indirect sterilizer using Tetra Spiraflo CMR 125 tubular heat exchanger as standard. This improves operational efficiency in terms of lower steam consumption.

Standard components

- Product balance tank with level control
- Pumps for CIP dosing system
- Centrifugal pump for product
- Flow meter for product
- Centrifugal pump for water
- Frequency converters, mounted on the frame
- Centrifugal pump for CIP
- Flow meter for water
- Valves, pipes, fittings
- Pre-wired, signal/power cables (excluding homogenizer cable)
- Heat exchanger, Tetra Spiraflo CMR 125 (with Tetra Spiraflo connections)
- TPOP human-machine interface (HMI), mounted on the control panel
- 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 the pre-erection of the UHT system
- Pre-assembly and water test in factory before delivery
- Engineering, programming
- Technical documentation

Control panel

Tetra Therm Aseptic Flex 1 is controlled by an Allen Bradley Compact Logix control system, and is prepared for easy integration with Tetra PlantMaster®.

Capacity

Standard modules with fixed capacities from 5 000 up to 18 000 litres/h. Variable capacity as an option.

Options

Control panel

- Communication with Ethernet

Production safety

- Closed product balance tank with CIP device
- Conductivity meter for CIP control
- Uninterrupted power supply (UPS)
- Air cooling unit with compressor

Product information

- Digital paperless recorder
- Additional HMI, type Tetra PlantMaster ME

Capacity

- Variable capacity 1:3 max. incl. split heater

Improved production time

- Protein-stabilization holding tube
- Temperature control for protein-stabilization holding tube
- Correction heater
- Correction cooler
- Additional heating area
- Hot water circuit in the final heating section

Reduced product losses

- Butterfly valve and automation control of balance tank

Improved production quality

- Deaeration module

Improved energy efficiency

- Additional tubes in regenerative sections
- Closed pre-sterilization loop

Special product treatment

- Extra holding tube, for holding time up to 30 seconds

Reduced outlet temperature

- Automatic media control
- Final cooler with manual valves (includes two additional tubes)
- Final cooler with automatic valves (includes two additional tubes)

Homogenization

- Design for aseptic homogenizer instead of non-aseptic

Technical documentation

- Other languages than EEA languages
- CE marking for countries outside of the EEA area

Consumption data

Approx. consumption data for THE-based module with product-to-product heat regeneration up to 125°C (CMR>125) (per 1 000 L product)

Electrical power (400 V, 50 Hz)

23-60 kW, excl. homogenizer

Rinsing water at 300 kPa (3 bar)

1 000 - 2 000 L/h during CIP rinsing (depending on heat exchanger size and configuration)

Cooling water at 300 kPa (3 bar), 20°C

0 - 100 L/h during production

500 L/h during cooling

Steam at 700 kPa (7 bar)

30 kg/h, peak 110 kg/h (can be reduced with options)

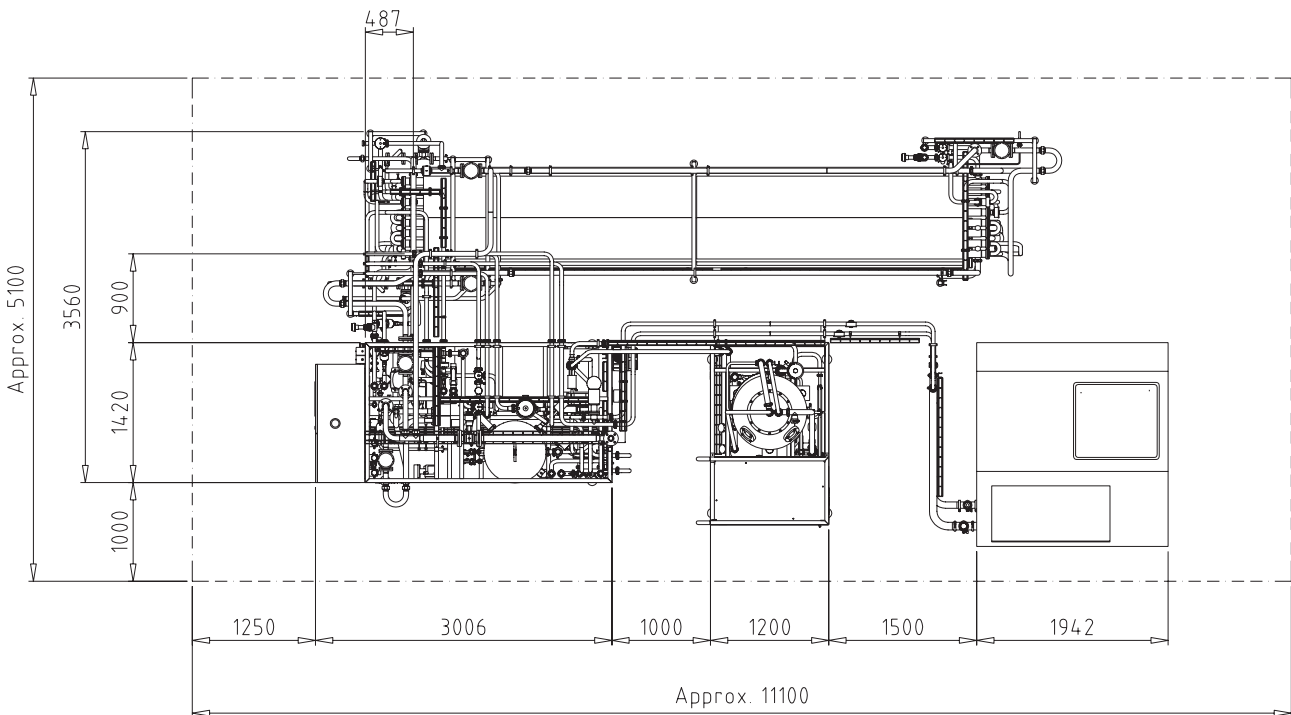
Instrument air

50 NI/min, total regardless of capacity

Layout

Approx. measurements including required service area in mm

Capacity: 7 000 L/h



Note: drawing includes optional deaerator.