



# Tetra Therm® Aseptic Visco with Tetra Spiraflo

Continuous indirect UHT treatment unit for viscous products



## Application

Continuous aseptic processing unit for indirect heating and cooling of soups & sauces, desserts, fruit preparation, tomato products, baby food and other low or high acid viscous products with or without particles.

## Highlights

- Utilising a range of different tubes to optimize configuration for best design and efficiency
- Enables consistent high food quality
- Ensure uncompromising food safety
- Optimizes operational efficiency
- Adaptable cleaning program to secure food safety and optimized production efficiency
- Guaranteed performance

## Maximizing versatility and efficiency

Tetra Therm Aseptic Visco with Spiraflo tubular heat exchanger enables to produce high quality products at low operation costs. Utilizing of heat regeneration design on water side optimises energy consumption.

Tubular heat exchanger with floating end design minimise maintenance and eliminates crack in the tube material. Protection panels in stainless steel lower the energy losses with up to 15%. Straight tubes with possibility to visual inspect inside if needed.

Optimal versatility in the unit with possibility to produce a wide range of products at different viscosities, smooth or with particles up to 9 mm in diameter.

Option with Aseptic Hibernation function saves energy up to 75% during sterile water circulation. Pressurised internal sterilisation loop minimizes energy consumption during start-up and water circulation.

Advanced automation for reduced human error and maintain constant product quality. Process parameter logging for enables traceability for food safety. Design and production techniques for higher hygiene demands.

## Working principle

The unit is fully automated for safe operation and production. The operation can be divided into three steps:

- Pre-sterilisation
- Production
- AIC (Aseptic Intermediate Cleaning)
- CIP (Cleaning-In-Place)

Before production can commence it is necessary to sterilize the aseptic area of the unit by circulating pressurized hot water. An internal sterilizing loop minimizes the energy consumption and start-up time. After sterilization the unit is cooled down step by step to production temperature. Finally, sterile water is circulated through the production circuit.

When the receiving equipment is ready production starts by filling the unit with product, displacing the water to drain. The water/product mixphase can be sent to drain or reject tank. Thereafter continuous production is running.

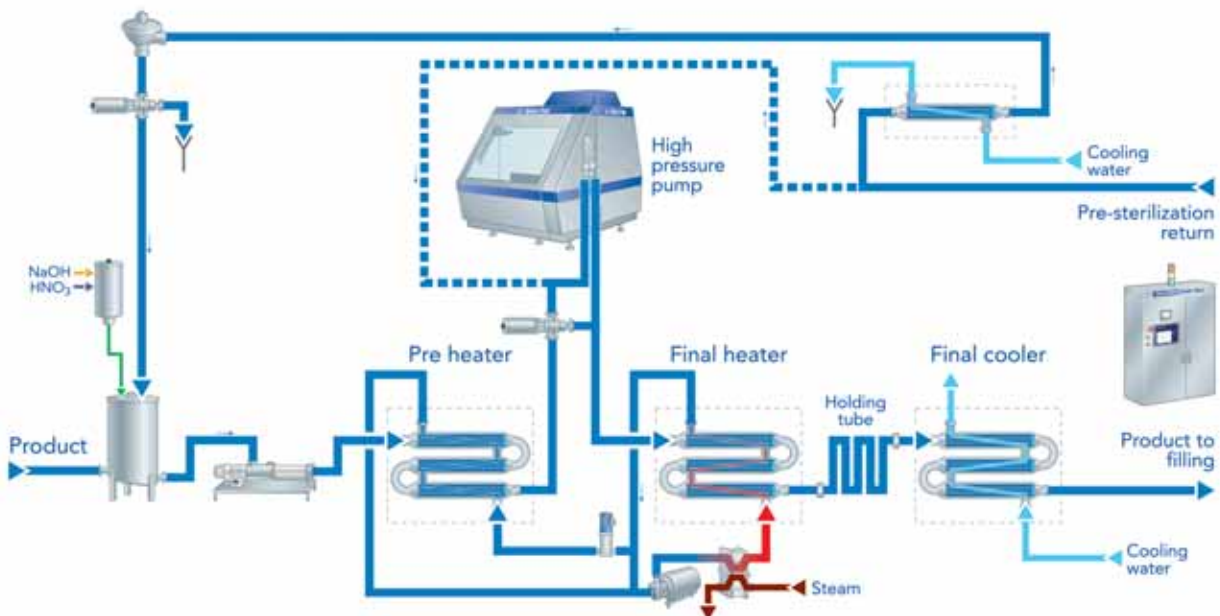
If product supply or receiving equipment fails, sterile water displaces the product and goes into sterile circulation.

The product is heated in Tetra Spiraflo tubular heat exchangers by an indirect hot water circuit. The product passes through a holding tube for the required period of time.

A temperature guard automatically monitors the product temperature after the holding tube. If the temperature drops below the pre-set value, an alarm will be activated, production will automatically cease and the receiving equipment will close. Cooling to filling temperature takes place in additional Tetra Spiraflo tubular heat exchangers.

In order to prolong the production period between full CIP (Cleaning-In-Place), an aseptic intermediate cleaning (AIC) can be performed. 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 the aseptic parts in the module remain sterile. The AIC can be performed either with lye only or lye and acid flush. After each production run, the module undergoes CIP with both lye and acid. The AIC can be performed either with lye only or lye and acid flush. After each production run, the module undergoes full CIP. The CIP sequences can be configured adapted for optimized cleaning result.

## Simplified flowchart



## Processing parameters

Example of a temperature program:  
25 - 137 - holding - 30°C

## Capacity

Typical capacities: 750 - 6 000 l/h.  
The capacity range for Tetra Therm Aseptic Visco with Tetra Spiraflo depends on the application, please contact your Tetra Pak representative for more information.

## Basic Unit

### Feed module

- Product balance tank with level control
- Positive pump for product displacement, frequency controlled
- Centrifugal CIP booster pump, frequency controlled
- Batch header tank for gravity dosing of CIP detergents

### Heat exchanger module

- Tetra Spiraflo tubular heat exchangers in EN 1.4404 (316L) and with floating ends
- Skid mounted and with stainless steel cover plates
- Holding tube for pre-set holding time

### Heating and cooling media module

- Centrifugal pump for water circulation
- Brazed plate heat exchanger for heating the water circuit
- Centrifugal pump for cooling water circuit (in final cooler)

### Control panel

- Stainless steel control cabinet in IP55
- Siemens S7 PLC
- Digital paperless recorder with colour screen
- TPOP HumanMachine-Interface (HMI)

### Other equipment

- Instruments and transmitters
- Automatic process and service valves
- Process pipes in EN1.4404 (316L) stainless steel
- Electrical cables. Pre-wired

Products containing salt (NaCl), both in natural or added form and in combination with low pH, forms a very corrosive media,

## Technical data

### Approximate consumption data for 1 hr production of tomato sauce at 4 000 l/h

Steam, 6 bar	410 kg/h, peak 800 kg/h
Cooling water, 3 bar, 20°C	16 000 l/h, during production 10 000 l/h during pre-sterilisation
Rinsing water, 3 bar	6 00 l/h during CIP rinsing, depending on size and type of THE
Instrument air	50Nl/m, total not depending of capacity
Electricity 380/440 V, AC, 50 Hz	23 kW, excl. homogenizer

especially at high temperatures. For such applications acid proof stainless steel material is available.

### Pre-assembly and water tests in the workshop

### Engineering and programming

### Technical documentation in digital form

### Export packing

### Options

## Special food treatment

- Deaeration
- Homogenization, aseptic or non aseptic
- Direct heating module, DHM
- High Pressure product pump
- Acid proof stainless steel material 254 SMO in hot section of the heat exchanger and in the holding tube
- Tetra Brik Aseptic pressure reduction valve kit
- CIP/water module replacing standard balance tank solution (particle products)

### Operational efficiency and cost

- Heat regeneration during production
- Hibernation during water circulation

### Automation/Control

- Air cooling unit with compressor
- UPS (Uninterrupted Power Supply) to control panel
- Additional human-machine interface (HMI), type Tetra PlantMaster ME for data logging and remote control, In-Touch software included

### Technical documentation

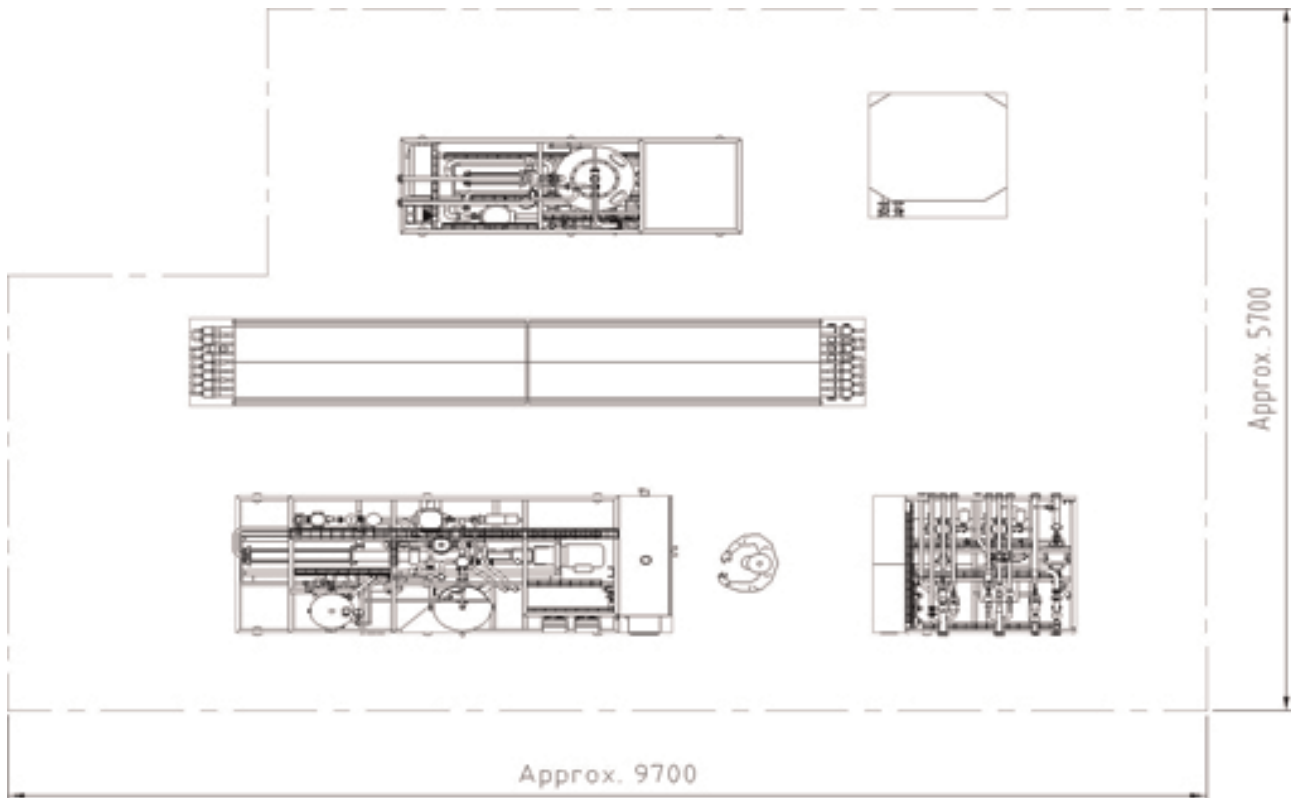
- Documentation in other languages than English or EEA

### CIP

- CIP dosing pumps with detergent containers
- Conductivity meter for CIP control

## Dimensions

Approx measurements including required service area in mm.



## Heights

Modules	Height in mm
Deaerator	max 4 500
Heat exchanger	max 1 650
Feed module	1 500
Heating/Cooling module	2 100
Heating/cooling module	3 300 l/h; 8 800 l/h

## Environment

Tetra Therm Aseptic Visco THE is designed for optimum utility consumption for each specific case. The exact energy consumption depends on the duty the specific heat exchanger performs. Tetra Therm Aseptic Visco THE consists of parts that can be separated for recycling purposes