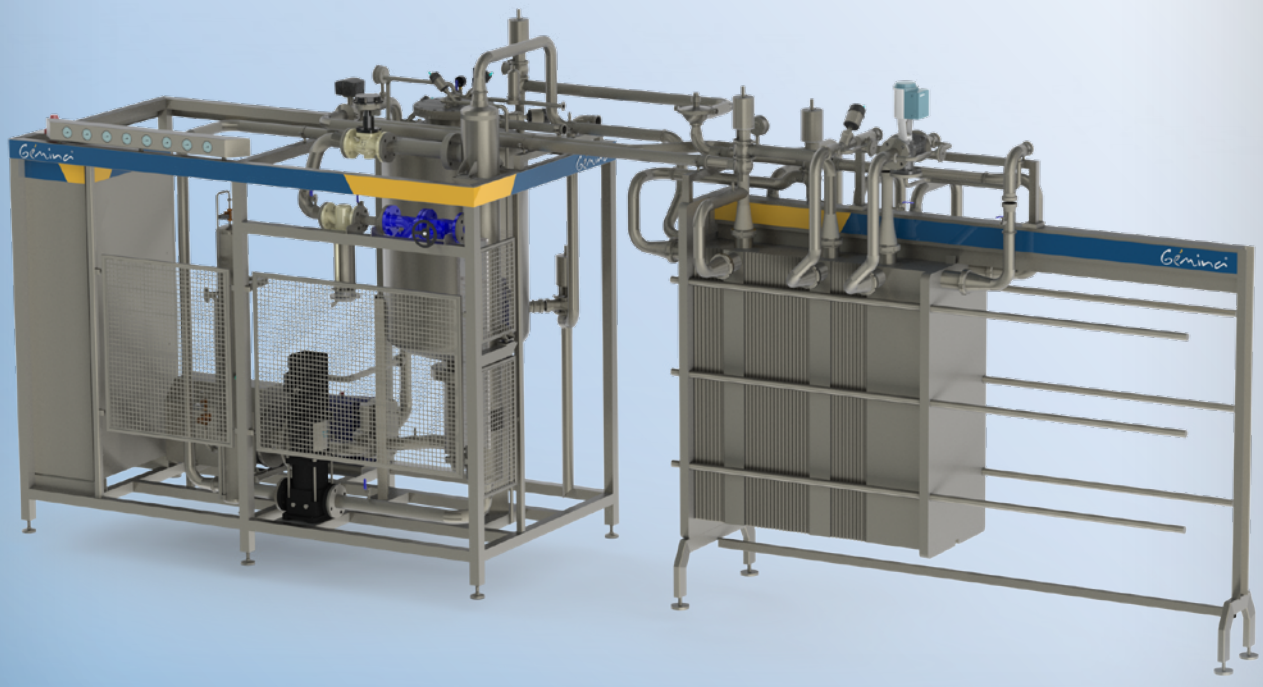
Géminca©

PLATE PASTEURISER



Procesos Alimentarios, S.L.

At Gémina we are aware of the importance of developing pasteurisation methods and techniques that are aligned with the food industry's constant innovations and modern day needs.

For this reason, one of our main professional specialisations consists of assisting the work of our clients through the development of plans for and the construction of pasteurising plants adapted to each particular product requirement.

Adaptable to a wide product range within most industries, plate heat exchangers are a compact and efficient solution. They are designed for exceptional control which makes them the ideal solution for heating and cooling tasks for different products in completely hygienic conditions.

Plate heat exchangers consist of a set of corrugated plates that add turbulence, with hatches for the passage of tow liquids and their heat transfer.

The set of plates is assembled in a shell and compressed by tightening clamping bolts.

The plates are equipped with gaskets that seal the channels and re-direct the fluids towards alternative channels. The number of plates is determined by the flow volume, the physical properties of the product, the pressure fall, and the temperature of the fluid.

The rheological data such as viscosity, thermal conductivity, density and calorific capacity determine the type of heat exchanger and chosen the distance required between the plates.

APPLICATIONS

- Pasteurisation of juices with a low fibre content such as apple juice, musts, orange juice, and fruit nectar.
- All kinds of fizzy/soda drinks.
- Milk and dairy products.
- Beer.

ADVANTAGES

- High heat transfer coefficient.
- Low cost.
- Coupling with energy recovery systems possible: high energy efficiency, recovery of up to 90% of energy used.
- Versatility: possibility of attaching various bodies to the plate heat exchanger.
- Product variety: different sections types which encompass a wide variety of products.

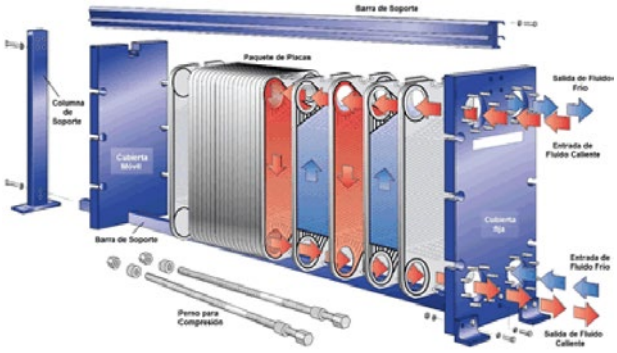


Plate heat exchanger

DESIGN

The pasteurisation process consists, basically, in subjecting the product (dairy and dairy products, creams, juices, concentrates, soups, egg and egg-based products, or any other type of liquid food) to a controlled increasing temperature treatment, followed by cooling one, in this manner achieving the optimal sterilisation of the product without it losing its organoleptic qualities, or its vitamin and protein contents and nutritional value.

FEATURES AND ADVANTAGES

- Working pressure: up to 10 bar.
- Design adapted to client requirements: in all Gémina projects we strive to achieve the integration of the new equipment in a way that perfectly suits our customers' production facilities.
- Mounted on a single chassis of reduced dimensions.
- Simplicity and ease of learning and handling of the automated system: our aim is to facilitate workers' tasks. Due to this, we apply the principles of rationality, ergonomics and functionality which to all our manufacturing methods.
- Designed and manufactured complying with the high hygiene standards recommended by EHEDG (European Hygienic Design Group), and 3A (USA norms).
- Technical assistance via internet: aimed at helping to effectively solve all of our clients' technical difficulties.
- Efficiency: total control of pasteurising processes with double testing of the process' temperatures.

TECHNICAL DETAILS

Automation: wide range of processes; from HMI (Human Machine Interface) to SCADA.

Optimal integration of IT solutions, for example with applications of MES levels (Manufacturing Executing Systems) and ERP (Enterprise Resource Planning).

Integration to other systems, fieldbus, ASI- Bus, Profi-Bus and Ethernet.

We offer the greatest ease of connectivity and implementation of IT systems for process control.

On-line supervision and control of all the automated process.

Components: made with the highest quality components on the market.

Materials: AISI 316 materials used in all areas of contact with the product, and AISI 304 on remaining areas. All components used are FDA approved.

Treatments: passivation treatments that reduce surface corrosion.

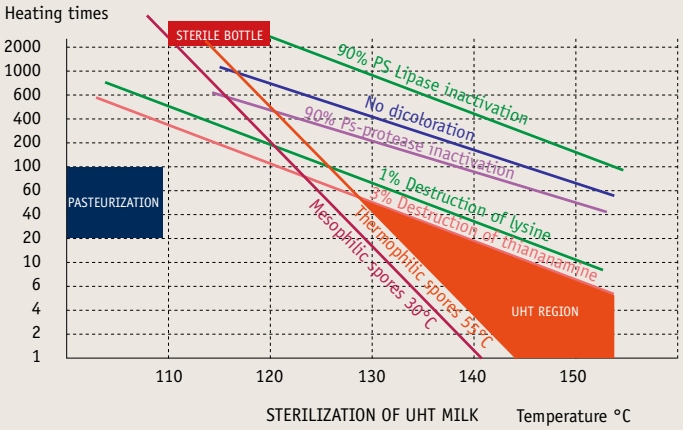
Assembly: pre-mounted on chassis, reducing start-up times at factory.

Excellent surface finishes: with roughness of interior finishes of less than Ra<0.8 mm.

Cleanness: Design without 'dead' zones (internal screws, joints, etc.). All elements designed for reliable and safe production.

WHAT MAKES US UNIQUE?

The calculation and recording of sterilisation factor f_0. This factor is determined by the exposure time and the sterilisation temperature at which the product is treated. Based on both parameters the intensity of heat treatment is determined. The curves represent the lethal effect for varying types of pathogenic bacteria.



ADVANTAGES

- Real time control of pasteurisation and sterilisation times.
- Real time graphic display output of the (flowchart) diagram previously displayed, which points out at which sterilisation section is located the product currently being processed
- Audit solutions: f0 factors reports can be stored, or printed out.

OPTIONAL KIT: DEAERATOR

Fittings for removing dissolved air in products.

Depending on the product's phase previous to pasteurisation, the product could enter the pasteuriser with a high level of dissolved air content. For example, the extraction phase triggers the high dissolution of air in the product.

Not all products have the same oxidation resistance index produced by diluted air. Some products are very sensitive which in turn alters the organoleptic properties which influence their quality.

Basic plate pasteurising units: products with without particles

MODEL	CAPACITY LITRE/ HOUR	PRODUCT	SYSTEM	IMPULSION	MAX PROCESS TEMPERATURE	PRODUCT'S ENTRY TEMPERATURE	HEATING MEDIUM	CONTROL	SECTIONS	HOLDING
JC-P-/250-B	250	juices, fibres < 2%	Plates ,Alfa Laval	Centrifuge	90ºC	> 5ºC <30ºC	Hot water	Semi-automatic	3	30s
JC-P-/500_B	500	juices, fibres < 2%	Plates, Alfa Laval	Centrifuge	90ªC	> 5ºC <30ºC	Hot water	Semi-automatic	3	30s
JC-P-/1000-B	1000	juices, fibres < 2%	Plates ,Alfa Laval	Centrifuge	110ªC	> 5ºC <30ºC	Steam	Semi-automatic	3	30s
JC-P-/1500-B	1500	juices, fibres < 2%	Plates, Alfa Laval	Centrifuge	110ªC	> 5ºC <30ºC	Steam	Semi-automatic	3	30s
JC-P-/2500-B	2500	juices, fibres < 2%	Plates, Alfa Laval	Centrifuge	110ªC	> 5ºC <30ºC	Steam	Semi-automatic	3	30s
JC-P-/4500-B	4500	juices, fibres < 2%	Plates, Alfa Laval	Centrifuge	110ªC	> 5ºC <30ºC	Steam	Automatic	3	30s
JC-P-/6500-B	6500	juices, fibres < 2%	Plates, Alfa Laval	Centrifuge	110ªC	> 5ºC <30ºC	Steam	Automatic	3	30s
JC-P-/8500-B	8500	juices, fibres < 2%	Plates ,Alfa Laval	Centrifuge	110ªC	> 5ºC <30ºC	Steam	Automatic	3	30s
JC-P-/1200-B	12000	juices, fibres < 2%	Plates, Alfa Laval	Centrifuge	110ªC	> 5ºC <30ºC	Steam	Automatic	3	30s
JC-P-/15000-B	15000	juices, fibres < 2%	Plates, Alfa Laval	Centrifuge	110ªC	> 5ºC <30ºC	Steam	Automatic	3	30s
JC-P-/xxxx-B	To measure	juices, fibres < 2%	Plates, Alfa Laval	Centrifuge	To measure	To measure	Steam	Automatic	To measure	To measure

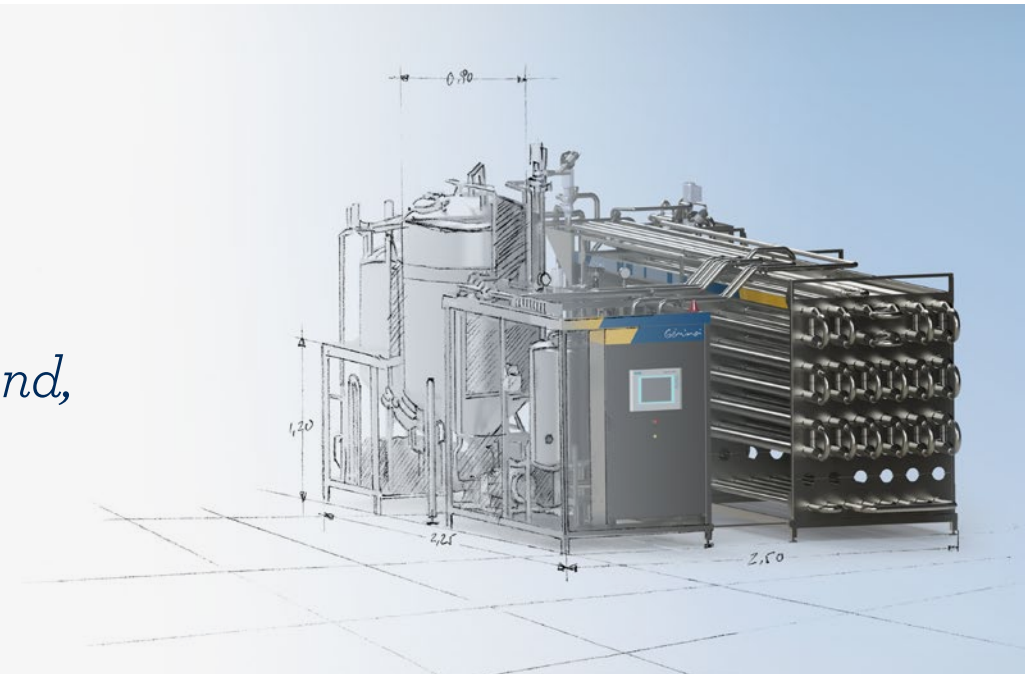
Our company

Gémina©
Procesos Alimentarios, S.L.

GÉMINA Procesos Alimentarios, S.L. is located in Jumilla, Murcia, a spanish autonomous region which is a model in food production.

GÉMINA has 25 years of experience in designing, making and integration of systems which offer innovative solutions for the food sector industry.

You imagine and,
we do it.



BUSINESS LINES

Design and manufacture of machinery

- Design, manufacturing and integration of process equipment and food aseptic packing.
- The Manufacture is completely carried out in our installations.
- All our machinery has CE safety certificate and complies with the most exigent standards.
- I+D+i: We bet on technology innovation.

Engineering and design of processes: Projects management

In Gémina, we love our work and, therefore, our engineering department includes from the design, the calculation, the manufacture, the assembly, the automation and the start up of machines and installations. Therefore, we include a global and integral management of all our projects.

We care of every detail of the process and we advise our clients to optimize their product elaboration procedure. Gémina designs every process adapting it to the customers' requirements and standing out our customers' products among their competitors.

- Versatility and flexibility: we can plan from a plant, a simple line expansion to the installation of an equipment in a process.
- Ability of adaptation to different places and circumstances.
- Our engineering department has a big technical capacity and a long experience in this area.
- Gémina guarantees your success because we manage the whole project, reducing risks, costs and deadlines

Services Provided

1 - Technical assistance service: Alfa-Laval official technical and distributor service

- Maintenance service.
- Installation service.
- Calibrations.
- Replacement parts services.
- "Training" service.
- Online monitoring of production process and breakdown resolution.

2 - Automation and Robotics

- Automation of custom-made processes: integral solutions.
- Total Control of the process: SCADA systems, record and control of data.
- Custom-made robotics applications: different solutions for different necessities.

3 - Food Quality

- Optimization, development and validation of processing and packing equipment, besides of food elaboration processes.
- Consultancy for implantation of standards such as: BRC, IFS: ISO 22.000, FSSC...
- Product development [process + formula].

Customer Service

Gémina is characterized by its exclusive and permanent customer service. Our vocation is to become part in an operational way of the companies which we work.

Our closeness, technical competence, wide experience and self-confident are some of the main features why our costumers place their trust into our equipments and services.

Industries

Industrial sectors where GEMINA develops its projects:

- **Dairy industry**
- **Tomato industry**
- **Juice and drink industry**
- **Vegetables and fruits industry**
- **Citrus fruits industry**

Products catalogue

Aseptic fillings

Aseptic machine which fills metal drums with pre-sterilised bags which have pressurised cap. Besides, it also fills carton containers

Bag in box

Aseptic filling automatic feeding of pre-sterilized bags which have pressurized cap and a low volume (1-20 liters)

Extractors

Processing of a wide variety of products to get a puree free of seeds and peels.

Different methods of using: extractor or refiner

Heat exchanger

We offer all kind of models and designs, from single-tube to partial ones or rough surface exchangers.

Forced circulation evaporators

Concentrators which have great capacity and performance for products having great viscosity and a high content in solid matter. Multiple stages which are adapted to the process and needs.

Hot/cold break units

These units process tomato puree and tomato paste guaranteeing the total or partial deactivation of the pectolitic enzymes and allowing the preservation of the pectine.

Laboratory pilot plants

Pasteurization and aseptic packing in the laboratory of small product samples, such as juices, soda drinks, vegetable creams, soups, etc.

Tubular pasteurizer

Project and constructive development of pasteurization plants adapted to different needs.

UHT

Low-acid liquid products (pH>4.5 for milk pH>6.5) are treated at 135-150°C for a few seconds with indirect heating or direct steam injection.

Heaters and coolers

Heating of products before getting through treatments such as refining or mixing. Cooling previous pasteurization treatments.

Cream extraction plants

Cream extractions of all types of fruits and vegetables, in both cold and hot extraction processes.

Aseptic Monoblock

Integration of an aseptic filling in a pasteurization plant, creating a compact, functional and versatile machine which is adaptable to a wide range of products.

Crusher

Defrosting of stored products such as fruit juices, fruit and vegetables pastes, creams, sauces and so on.

Piston Pump

It is conceived to pump viscous products, big particles of products (fruit in cubes or in pieces) or product which are sensible to shear stress.

Inverse osmosis equipment

Reduction of salinity of salty waters and sea waters.

Blending room / blending

Blending by recipes from database and transference of process parameters to pasteurizers.

Emptying of cans by aspiration

Unloading of metal cans and aseptic bags in blending rooms through emptying techniques in very few seconds.

CIP systems

Cip systems are used to carry out the chemical cleaning of food installations in a completely automatic way.

Processing tanks

Storage in aseptic packing tanks for high and low ph products, in liquid or viscous products.

Blending tanks

We have a wide range of vertical and horizontal tanks with different types of shaking and volumes. They are adapted to process needs.

Storage tanks

Storage rooms in stainless steel tanks having standard volumes or custom-made volumes.

Finisher or pulping machine

It refines crushed product to remove peels, stems and seeds.

Hammer mill

It is a grinder of pitted food (vegetables among others) for processing raw material.

Robotics

Robotic applications in proportion to palletized/ depalletized for the start and the end of proccesing and packing lines.

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