

# Gémima<sup>®</sup>

## PROCESSING TANKS



Gémima<sup>®</sup>  
Procesos Alimentarios, S.L.

## APPLICATIONS

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The aseptic processing tanks are used as storage in aseptic packaging machines for liquid and viscous products with LOW and HIGH pHs.

Specifically, there are two main groups: those for the dairy industry, and those for the fruit juicing industry. The difference between them is that the processing tanks for the juicing industry need a shaker installed.

Juices pasteurised at low temperature, which are high in quality, stored at low temperatures, are preserved and distributed at cold or low temperatures.

The life expectancy of vitamin C depends largely on this process. Hence, the product's recirculation is critical for pasteurisation systems.

To avoid this problem, aseptic processing tanks are needed for these processes.



## Working principle

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Aseptic processing tanks are sterilised using steam at a minimum temperature of 130o – 150o C, for 30 minutes. Then these are cooled down through the injection of sterile nitrogen and the forced flow of high pressurised water into the outer shell of the tank.

The pressure during this phase of the process remains consistently positive to avoid the entry of contaminating agents.

During production time, the sterile nitrogen fills the space on top of the product as it keeps the aseptic filler's flux at a constant pressure. The CIP cleaning process is realised separately from the sterilisation and packaging plants. Hence, working cycles are independent.

## ADVANTAGES

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The aseptic filler is constantly fed, independently on the flow of the pasteuriser or steriliser. In this manner, the product's recirculations are prevented, avoiding the double sterilisation of the same product.

The tanks can stand as an independent unit, or as part of an integrated pasteurisation system.

## Models and functioning parameters

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CAPACITY
5000 L
10000 L
15000 L
20000 L

### Working pressure

- Maximum atmospheric pressure
- 300 Kpa (3 Bar) at 50°C
- 270 Kpa (2,7 Bar) at 140°C

\*bespoke sizes available depending on requirements/needs

## OTHER FEATURES

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- Automation through PLC.
- HMI (Human Machine Interface) touch screen with flow diagrams and application tools.
- Function switch between air and nitrogen.
- Shacking via nitrogen injection.
- Integrated loss reduction for the aseptic and sterilising tanks.
- Hot water enabled mechanical locks (expansion of lock lifetime)
- Speed shifter of the shaker for recipe
- Integrated steam pressure reduction stages.
- Refractometer-enabled control for product packaging.
- Curves and parameters log.
- Sterilising steam condenser.
- Tanks built from non-rusting iron AISI 316 covering every point of contact with the product.



# OPTIONAL KIT: PRODUCT WASTE RECOVERY

## Working principle

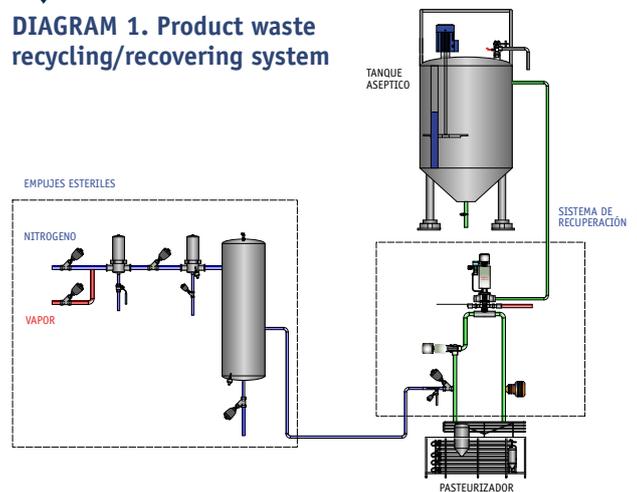


Is a system aimed at the recovery of waste that it is produced in the pasteurisation and sterilisation processes of liquid products such as milk, (fruit) juices and similar products, with the goal of keeping such waste at minimum levels.

This process requires the integration of a buffer tank for the provision of a sterile gas for pushing, such as air or nitrogen, towards the return circuit of the pasteurisation system. The aim of this technique is to recover, at the end of the product-making phase, any waste left inside the pipes and exchangers, and send it back towards the aseptic tank.

The refractometre linked to the pasteurisation system deals with distinguishing between the product and the water mix, and at the final production stage, it sends an activating signal for the supply of the sterile gas from the buffer tank.

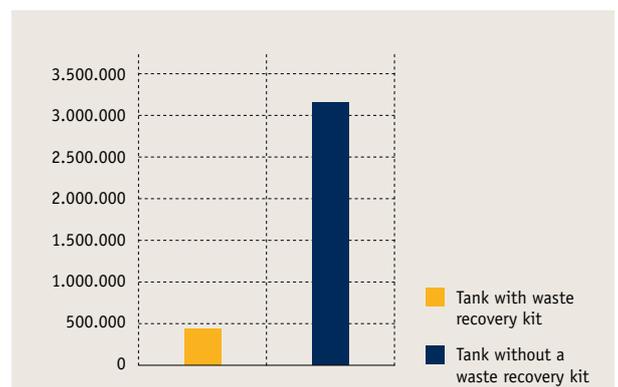
**DIAGRAM 1. Product waste recycling/recovering system**



## Advantages

The patented product waste recovering system (WRK) provided as an optional feature for the process tanks, allows for a 20% waste recovery of the product, independently on the type of steriliser used (plates or tubular), and on the volume of the batch. This system is ideal for small batch processing, inclusive those less than 5 Tn, where the waste percentage increases due to its low volume capacity.

The following graphs show the existing difference of product waste between a system with the waste recovery kit and without the one.



# Our company



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 Gémima, 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. Gémima 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.
- Gémima 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 pectolytic 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 processing and packing lines.



Gémina® at your service

**Gémina**®

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Collaboration projects:



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