

Gémima[®]

HOT / COLD BREAK TREATMENT UNITS



Gémima[®]
Procesos Alimentarios, S.L.

HOW IT WORKS

The "break" phase is very important in the processing of tomatoes, so much so that it is considered a fundamental factor in the selection of the variety of tomato to be produced. In this process, the tomatoes are heated very quickly.

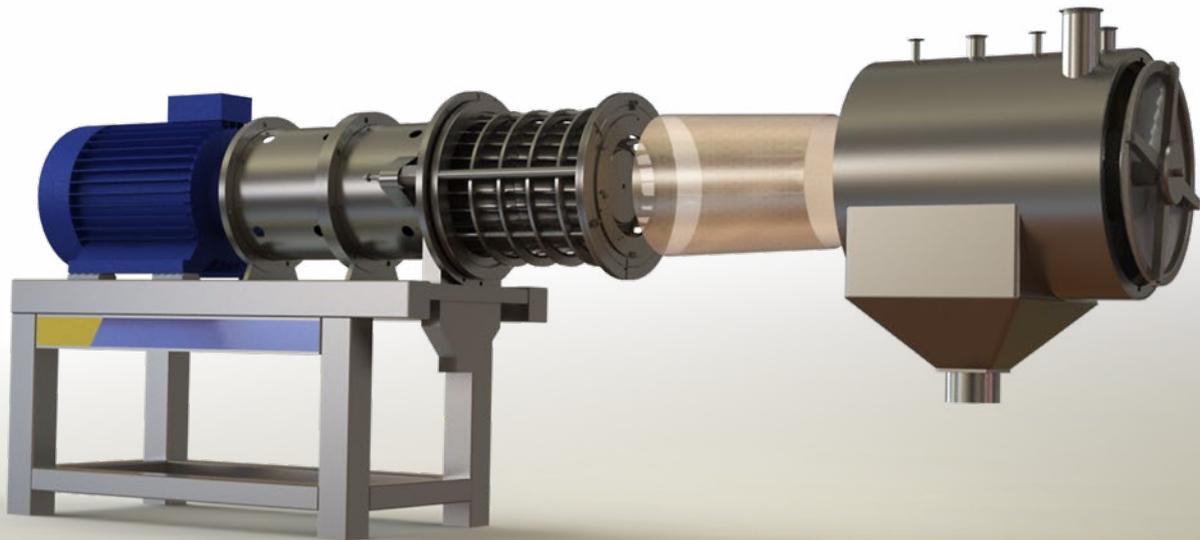
The tomato paste can be processed either as "hot break" or "cold break". Gémina's hot/cold break units can process tomato purée or tomato concentrate guaranteeing the partial or total deactivation of the pectolytic enzymes to allow for the preservation of pectin which bestows greater product consistency.

Essentially, the break process is like cooking tomatoes under a tightly monitored and controlled process using temperature sensors.



ADVANTAGES

- Significant decrease of the phenomenon of syneresis.
- High increase in levels of pectin, viscosity and consistency.
- Automatic temperature level control.
- Higher yields in juice extraction.
- Possibility to switch from hot to cold processes based production needs.
- High product recirculation.



HOT BREAK

- Recommended for high viscosity products such as sauces, ketchup, mashes, purées and similar products.
- Completely de-activates pectin enzymatic activity, and increases the consistency and viscosity of the mix.
- De-activation temperatures between 90oC to 98.8oC.
- This temperature is achieved in short periods of time, prompting an instant increase from room temperature to the breaking enzymatic deactivation temperature.



COLD BREAK

- Recommended for low-viscosity tomato juice and sauces.
- The final product is less viscous, with low pectin content and excellent organoleptic properties.
- Perfect preservation of tomato flavour.
- Temperature treatment between 60oC to 70oC (65.5oC)
- The main difference between HOT and COLD break processes resides in that the cold brake technology achieves a partial enzymatic de-activation, while the hot break process achieves total enzymatic de-activation.





WHY THE DIFFERENCE BETWEEN HOT BREAK AND COLD BREAK? —

The difference originates with the enzymes poly-methyl-esterase, poly-galacturonase, and lipoxygenase which are the substances responsible for the breakdown of the chemical substance known as pectin.

Pectin is a compound that occurs naturally and that is responsible for the binding of tomato cells.

In a Hot Break process, these enzymes are deactivated or neutralised, thus inhibiting the breakdown of pectin and creating a product with greater viscosity.

In a Cold Break process, the enzymes poly-methyl-esterase and poly-galacturonase are not deactivated. This means lower viscosity levels, but advantages in the flavour of the product. The final product is less viscous than the one obtained using HB technology.



Table of models Hot/Cold break for tomato

Model	Maximum Capacity (L/H)	Product	System	Thrust	Recirculated flow	Heating system	Control
HB-T-/10000-a	10000	Tomato	Annular vertical	Centrifuge	100 m ³	Vapour	Automatic
HB-T-/15000-a	15000	Tomato	Annular vertical	Centrifuge	150 m ³	Vapour	Automatic
HB-T-/20000-a	20000	Tomato	Annular vertical	Centrifuge	200 m ³	Vapour	Automatic
HB-T-/30000-a	30000	Tomato	Annular vertical	Centrifuge	300 m ³	Vapour	Automatic
HB-T-/xxxx-a	xxxxx	Tomato	Annular vertical	Centrifuge	xxx ³	Vapour	Automatic

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.



Gemina® at your service

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Collaboration projects:



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