Gémina©

AST ASEPTIC FILLERS

Gémina©

Procesos Alimentarios, S.L.

APPLICATIONS

- **Concentrates: tomato concentrate, fruit concentrate, wine concentrate, etc.**
- **Fruit, vegetable and root vegetable purée**
- **Sauces**
- **Fruit juices**
- **Particulated products**
- **Small cubed products (fruits and vegetables)**

DESCRIPTION

Aseptic filling machines for metallic drums to be filled with pre-sterilised bags with pressure caps, or for cartons containing products with pH<5 *(for pH>4.6 products, an additional kit is necessary, as explained at the end of document)*. The machine's compound consists of one or two filling heads, depending on filler model, split at the centre by a command chart and area for the operator. At either side of this area, the filling head is located over a motorised conveyor belt which facilitates the entry, exit and placement of drums in the filling position.

The filling head is a mobile set that moves vertically to adjust the height of the bag according to how its weight changes as the product is poured in. This vertical movement will avoid the tension between the filling head the bag, and will increase filling precision.

Control of the quantity of product poured into the bags is done through high-resolution load cells located in the swivelling base of the conveyor belt.

The bottom part of the filling head consists of a sterilised chamber that has been sterilised with steam at 110ºC. The nozzle of the bag to be filled is introduced into this chamber, where a series of clamps activated by pneumatic cylinders remove the cap, fill the containers, and replace back the lid, maintaining a sterilised environment throughout the whole process.

For every critical joint in the mechanism of the filling head there is a steam seal or barrier to ensure sterilised conditions throughout the product's journey.

This sterilisation process is automated and controlled through temperature sensors, ensuring the efficiency of the process.

The automatic functioning is controlled using a PC with touch screen, placed at the front of the electric panel of the machine. The PC's software is programmed based on the job requirements, and serves to control the machine, the selection of process parameters, of container type, of fill amount, of input and output of drums, and the aseptic filling process.

The machine has two types of configurations, depending on the need for one or two of the filling lines. Hence, the possibilities lie with machine A1 and A2, which indicate the number of filling heads and, as a result, the number of filling lines.

AST ASEPTIC FILLERS SERIES A

(Models: AST-2A , AST-1A)

Structure of the machine

- Structure or central chassis in stain-less steel AISI 304.
- One or two filling heads (depending on model) activated through pneumatic cylinders. The movement of the filling heads in relation to the chassis (vertical movement) is achieved through a hydraulic cylinder.
- Transport line: Motorised conveyor belt for a straight line trajectory of entry to and exit from the filler. Motorized conveyor belt with swivel base to place drums in pallets when filled.
- Automation and control system of vapour-based sterilisation using temperature sensors installed all along the filling line.
- Set of high-resolution load cells placed at the four corners of the swivelling base of the conveyor belt.
- Touch screen enabled for machine control by operators.
- Management software for the machine and the process. It allows the production of full logs all the variables of and events generated by the process.
- Label print out for product identification, including client's details and bar codes.

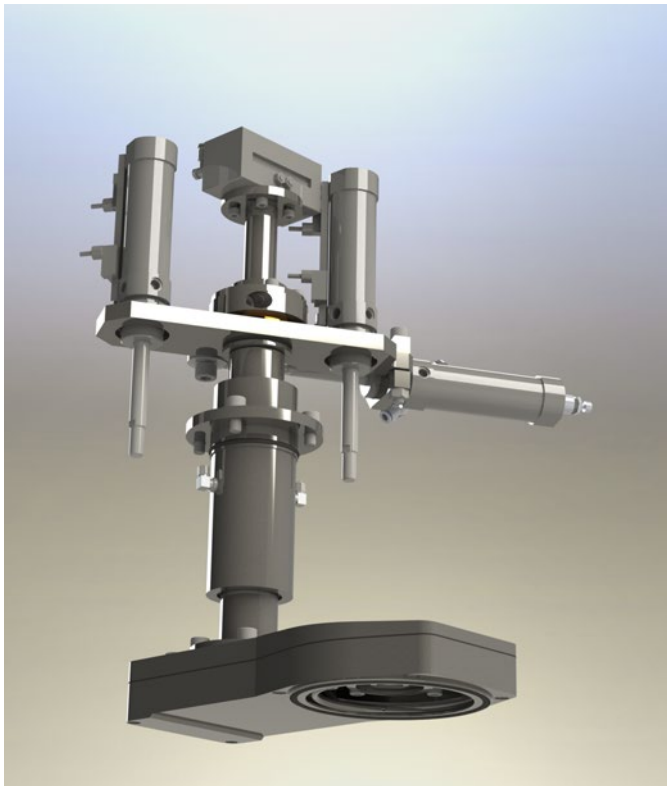
Materials

The whole of the machine is build using stain-less steel AISI 304, and with AISI 316 for those parts in permanent contact with the product.

Other accessories and components are built with materials safe for use in the food industry, all approved by the FDA (Food and Drug Administration).

Advantages

- High level of control over the automatization and the process, which facilitates the use of machine and its operations.
- Automatic cleaning process.
- Thanks to the weight control system it can be used for a wide range of products, either with chunks, viscous products, or products of varying weight.
- Continuous and durable operation of the filling heads.
- Sterilising or cooling unit coupling enabled.
- Eliminates the need for lifting platforms, replaced in this case by the hydraulic piston.
- Possible to work using only a single filling head, or to conduct maintenance or repair work on one head without interrupting the process of the other filling head.
- Safety for the operator ensured. At no point is the operator in an at-risk zone.
- CE marking.
- Ease of use: one operator can control both machine heads.
- Flexible format adaptation.



AST/1-2A FILL CAPACITY

Bag capacity (litres)	Bags / hour AST 2A	Bags / hour AST 1A
5-20 l (Additional bag filling kit needed)	150	75
200 l	50	25
1000 l	14	7

RESOURCES / CONSUMPTION

Model	AST 2A	AST 1A
Installed electric power (supply)	7 Kw	4 Kw
Dry saturated steam at 4 bar	42 (Kg/h)	21 (Kg/h)
Water	1 m^3/h	0.5 m^3/h
Compressed air at 7 bar	110 Nl/min	55 Nl/min

DIMENSIONES

Model	AST 2A
Length (mm)	5587
Width (mm)	5100
Height (mm)	5062

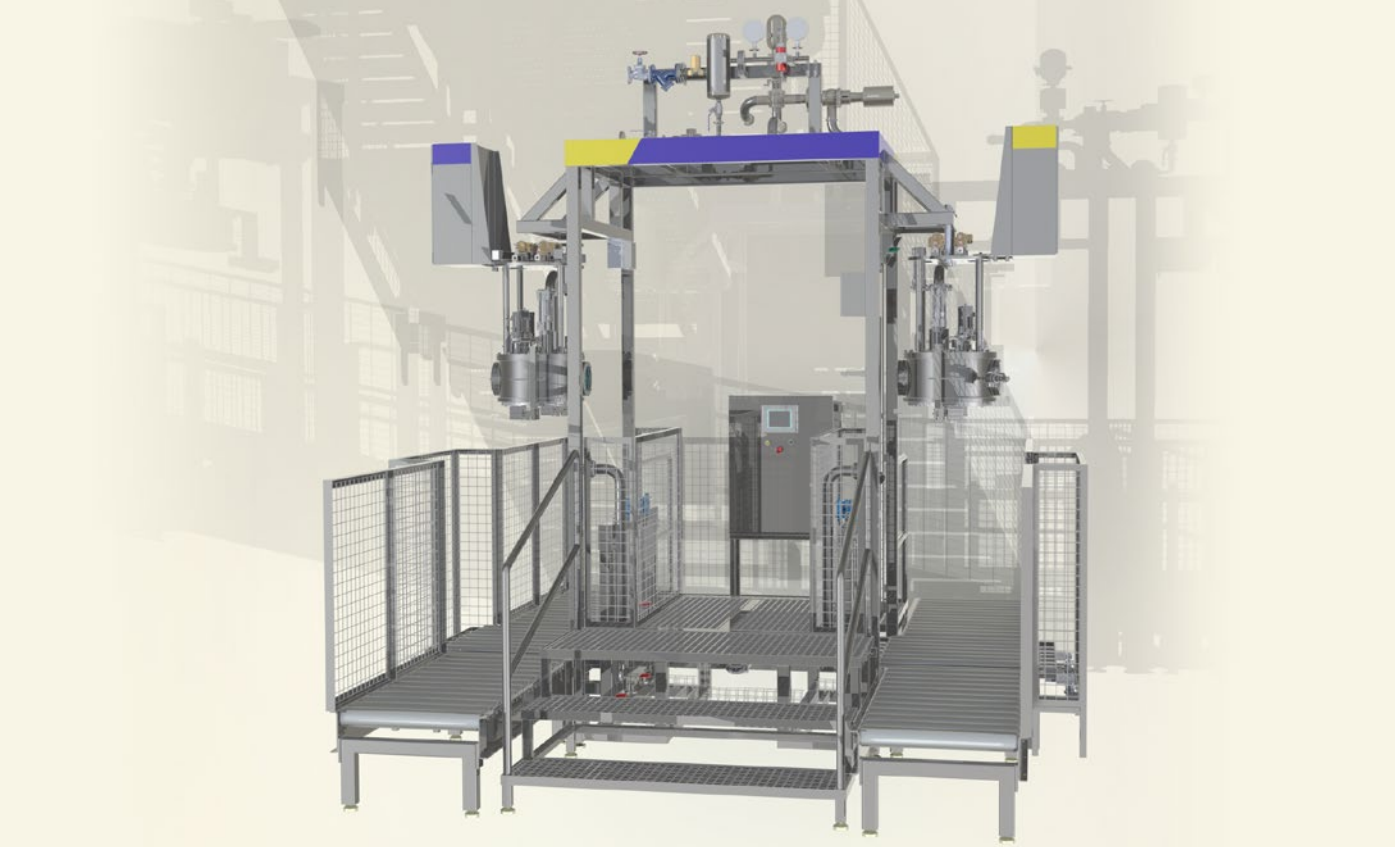
AST ASEPTIC FILLERS SERIES B

Models: AST 2B , AST 1B

One or two heads (depending on model) aseptic filler for filling of metallic drums with manual drum transport. The fill head is a fixed piece attached to the central chassis of the machine. The transport line consists of two motor-less conveyor belts and a lifting conveyor belt, which lifts the drum to the filling position.

The fill head is identical to that of the A Series. The workings of the filling head and the container to be filled is the same in both models, but they differ on the following functions. In the AST 1-2B filler:

- The filling head is fixed; hence it is the container that gets lifted until it reaches the head.
- The conveyor belt is not motorised. The drums move along the transport line due to its small vertical tilt.
- The central table, where the filling processes takes place, does not swivel. Instead it consists of a motorised lifting set with load cells at the base in order to control the filling process.
- Containers are manually fed, one by one.



Machine's structure

- Central chassis built with stain-less steel AISI 304.
- Up to two fill heads.
- Non –motorised conveyor belt for the input/output metallic drums. Lifting table with non-motorised conveyor line used to place bags in filling position.
- System of automatization and control of steam sterilisation through the use of temperature sensors installed along the transport line.
- Operator machine control through touch screen technology.
- Management software for the machine and the process. It allows the production of full logs all the variables of and events generated by the process.
- Label print out for product identification, including client's details and bar codes.

AST /1-2B FILL CAPACITY

Bag capacity (litres)	Bag/hour AST 2B	Bag/hour AST 1B
200 l	45	20

RESOURCES / CONSUMPTION

Model	AST 2A	AST 1A
Installed electric power (supply)	1 Kw	0.5 Kw
Dry saturated steam at 4 bar	42 (Kg/h)	21 (Kg/h)
Water	1 m^3/h	0.5 m^3/h
Compressed air at 7 bar	110 Nl/min	51 Nl/min

DIMENSIONS

Model	AST 2B
Length (mm)	3825
Width (mm)	3316
Height (mm)	3350

Overall features by model type table

MODELS	Capacity Litre/ Hour	Product	Nº Fill heads	Sterilising method	Container transport	Bag volume	Container type	Weight control
AST 1B	4000	PH<5	1	Steam	Manual	20 a 200	Metallic	Load cell
AST 1A	5000	PH<5	1	Steam	Pallet	20 a 1000	Metallic and cardboard	Load cell
AST 2B	10000	PH<5	2	Steam	Manual	20 a 200	Metallic	Load cell
AST 2A	10000	PH<5	2	Steam	Pallet	20 a 1000	Metallic and cardboardn	Load cell

OPTIONAL KIT: HIGHER THAN PH>4.6 PRODUCTS

Steam sterilisation is appropriate for products with pH>4.6. For all other products with a higher pH, an additional device is needed to ensure the sterilisation of the machine. This accessory adds to the previous sterilisation process mentioned a chemical sterilisation, harmless to the product but of high aseptic efficiency.

This kit can be used with all AST aseptic filler models built by Gémina.

A-SERIES OPTIONAL KIT: CONTAINER VERSATILITY

For A-Series models, where the fill head moves vertically to facilitate bag fill, Gémina has designed a servomotor-activated system that controls this vertical movement, replacing the hydraulic cylinder, and creating in this way a very versatile piece of equipment that can adapt to any container format, without the need of mechanical adjustments.

OPTIONAL KIT: PRECISE VOLUME-IN-BAG CONTROL

This kit replaces the pneumatic open/close control of the filling valve with a servomotor control which enables maximum precision of the filling volume.

This kit can be used with all AST aseptic filler models built by Gémina..

OPTIONAL KIT: CAP TYPOLOGIES

All models are set ready to work with 1" caps. Additionally, Gémina can provide other formats of different sizes, such as the case of bags with 2" caps.

OPTIONAL KIT: 500 OR 1000 KG BOX FILLING

For A-Series models, Gémina is can supply the necessary equipment for the fill of 500 and 1000 Kg containers.

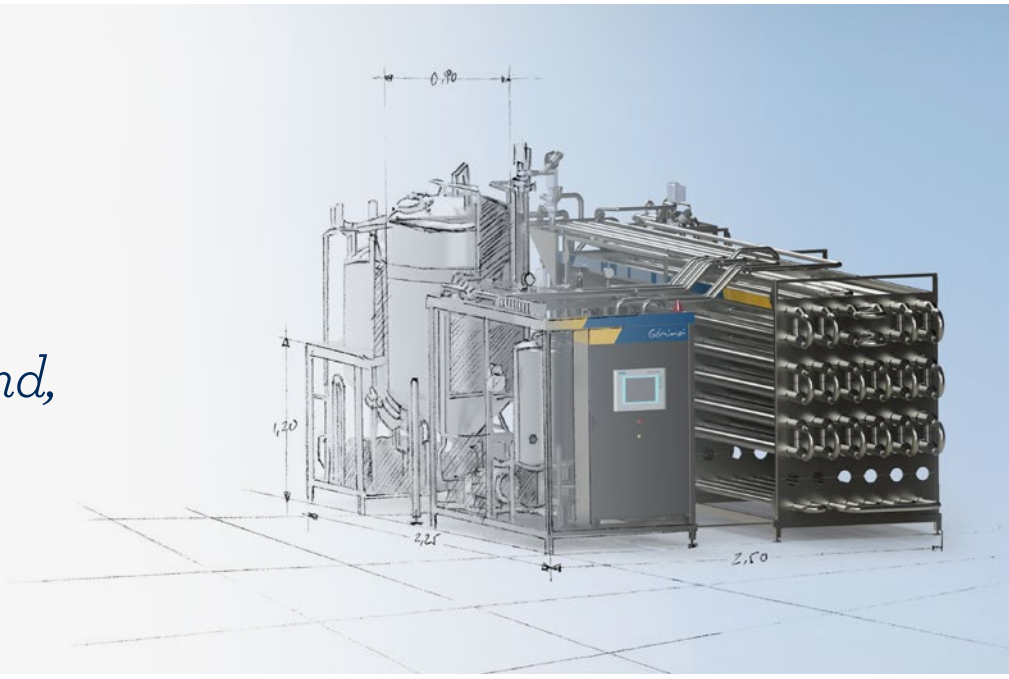
Our company

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.

Gémina©

Procesos Alimentarios, S.L.

GÉMINA Procesos Alimentarios S.L.
Polígono Industrial Los Romerales
Parcelas 3 y 4 - 30520 Jumilla
Murcia - España
Apartado de Correos 231
T/ + 34 968 716 018
E/ gemina@gemina.es

www.gemina.es

Authorized Distributor | Authorized Service Partner | Authorized Integrator

Collaboration projects: Cámara Murcia

Follow us on: Blog