

Gémima[®]

BLENDING



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Procesos Alimentarios, S.L.

BLENDING

In blending processes, the individual raw materials are mixed to exact proportions.

Gémina offers different high precision mixing - batch - systems, where quantities of differing products are added to exact measures through weighing or through the measurement of the flow with a mass flowmeter.

An alternative method is that of continuous mixing, where the mix is realised with the aid of refractometers and flow-metres, and there is no storage of intermediate byproducts.



APPLICATIONS/IMPLEMENTATION

Mixing using recipes based on a data base and transfer of process parameters to the pasteuriser. The addition of aromas and small components is automated, reducing their waste by emptying the pipes through the injection of air or ultra-pure nitrogen.

Batch mixing



For the automated production and intermediate storage, it is important to automate the process tanks.

Gémina develops a wide range of technical processes by administering CIP/SIP simultaneous mixing processes with complete food safety levels.

This mixing process is realised securely, thanks to the double-seat valves and leak detection.

These mixing systems are usually utilised in the juice industry, where it is routine that the mixture of various compounds results in juices with a mix of various flavours.

To achieve this, it is necessary to control, with precision, the amount that each tank stores and distributes, making necessary the use of instruments that monitor this magnitude. Primarily, this control is well achieved through load cells (tank weight control) or through flow-meters (control of the flow that supplies the tank).

In this manner, by controlling each input individually, the final product can be controlled holistically, or by the sum of its components.

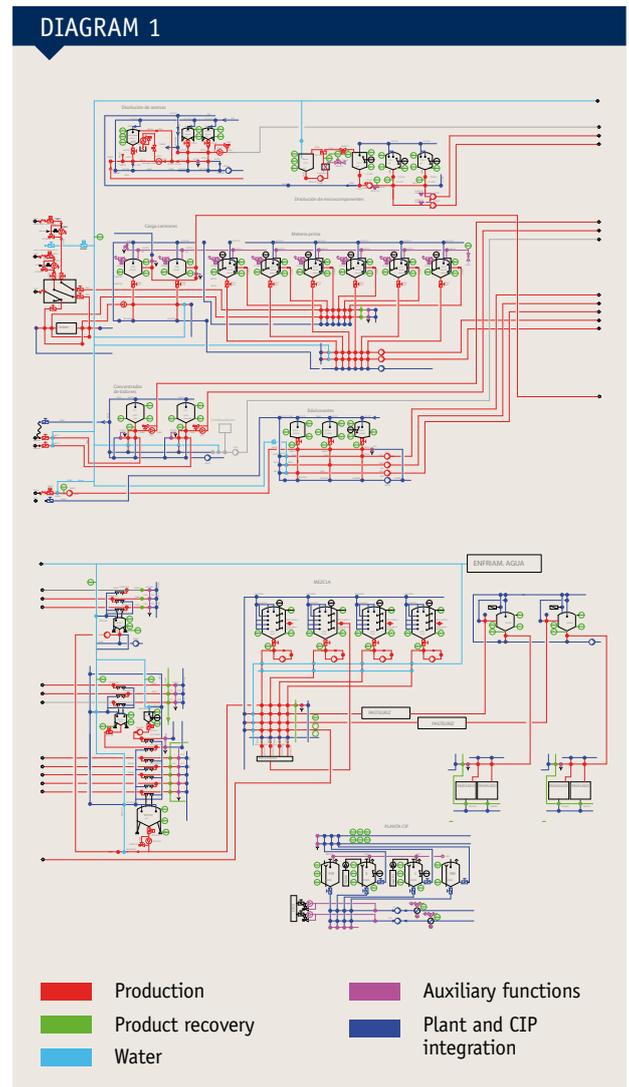


MIXING ROOM

These formulated products contain various inputs (up to 30 different components) in batches that range from 1,000 kg – 100,000 kg.

The configuration options are diverse, i.e. a system can be designed as a continuous production working process, that is, without interruptions. Working in this manner, whilst a tank of formulated product is being cleaned, in another similar tank the mixture is being prepared.

The following diagram demonstrates a typical case of batch mixing.



The quality assurance and increase in productivity depend on the increased automation level of the plants.

Advantages of this method are evident. The elaboration and production times are reduced and operation errors are eliminated. The plants are controlled in a way that the essential production parameters are automatically monitored and recorded.

Gémina offers a wide range of innovative processes in automated systems, integrated electronic instruments that comply with hygienic processes, with the highest level of food safety standards.

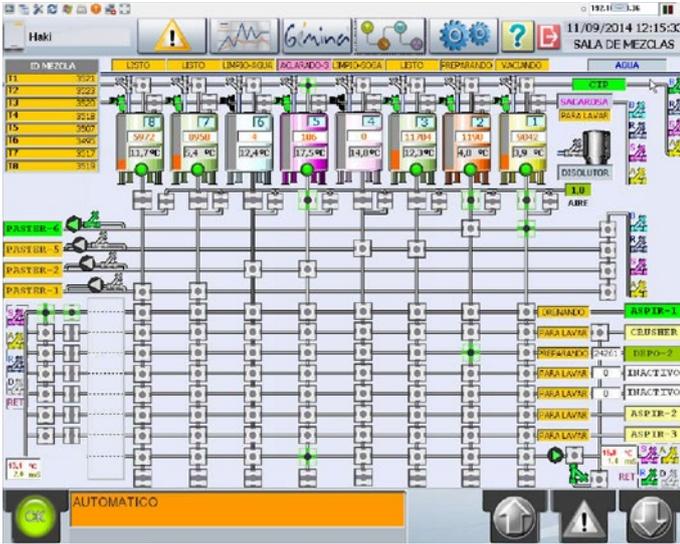
Gémina works with the latest advances in automated control. Batches are automated according to the ISA88a standard, which is an essential requirement for product traceability records.

ASI-Bus, Profibus, Profinet systems lead to a reduction in cabling and an easy integration.

Continuous mixing

Gémina distinguishes between various types of continuous mixing, and for this reason we have designed various equipment that caters to every industry and different mixing needs.

DIAGRAM 1.2 – Automation



For example, for the dairy industry, we have designed a high precision system for the standardisation of dairy cream that automatically controls and corrects the level of fat content in milk.

This continuous mixing program is installed at the last stage, at the centrifuge. In this manner, the continuous mix system is fed, on one side, with skimmed milk, and on the other, solely with the fat content of milk. As a result, it is possible to obtain various types of standardised milks.

Considering the precision of the centrifuge (force?, it can be taken as a constant figure, and the fat content of the milk, then, is a recognisable figure.

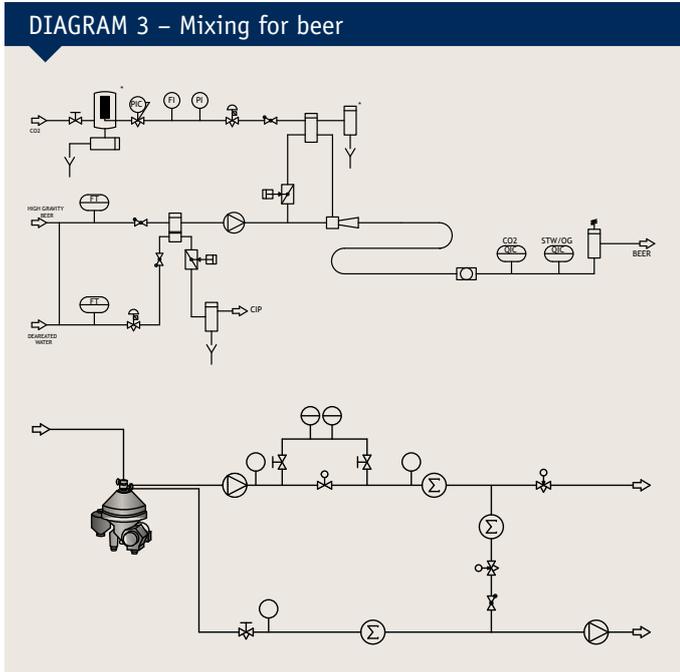


DIAGRAM 3 – Mixing for beer

For the beer industry, the mixing system needs carbonating equipment to add CO2 into the mix.

In specific cases, it is desirable to have a system of water deaeration that allows obtaining an airless mixture in the process that avoids measuring errors.

In the example shown, at the first stage, the deaeration of water is achieved through vacuum methods, before the second phase starts. Here, a quantity of CO2 is injected into the water, with the purpose of increasing the levels of free oxygen.

During the continuous mix phase, the water and the syrup are mixed into formulated product. The liquids flow through separate tubes controlled by independent flow-meters, and compared through a digital controller against defined desired ratios.

Any deviation or change is instantly and automatically compensated. Then, a pump sends the finished product into a CO2 saturator.

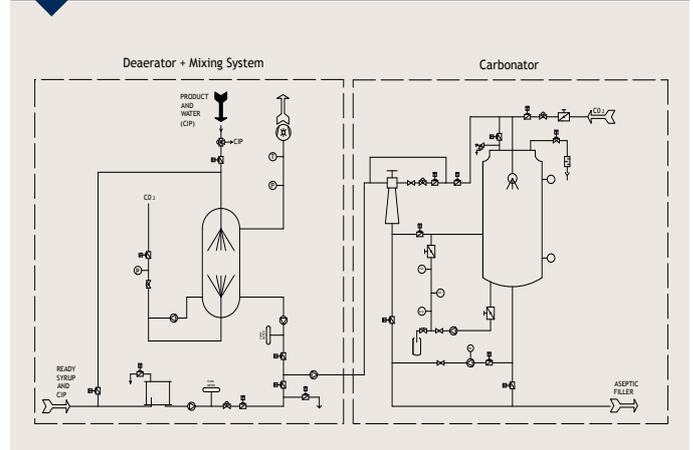
The flow velocity through the saturator is constantly maintained within the range of optimal levels, through an optimized control operator.

The partial vacuum generated in a section of the saturator causes a reduction in pressure levels that leads to the desired suction of the CO2 needed.

Apart from this, an instant increase of the flow produces a fine CO2 gas distribution, and an even blend within the product.

The CO2 is passed into the saturator from the pressure tank which has a constant overpressure that in turn guarantees a consistent carbonisation of the overall product.

DIAGRAM 4. Mixing + blending + carbonisation



Additionally, this system provides the possibility to realise analysis to test the state of the product made, so that it enables the monitoring of CO2 levels, the conductivity, and the brix concentration of the product.

The whole system is completely compatible with the CIP (Clean In Place) hygienic cleaning system.

Gémina can adapt these systems to different fill capacity for every factory or industry level.

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®

Procesos Alimentarios, S.L.

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Collaboration projects:



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