

Skids for the Production of Sauces and Other Food Products

I Applications

These skids are specially designed for the production of **sauces** with or without solid ingredients.

These skids can be used to produce formulas that require heating, cooling, cooking, dispersal, mixing and homogenisation. The processes can be single- or multi-stage. Obviously, the means of adding the ingredients, and the point at which they are added, can also vary.

Some examples:

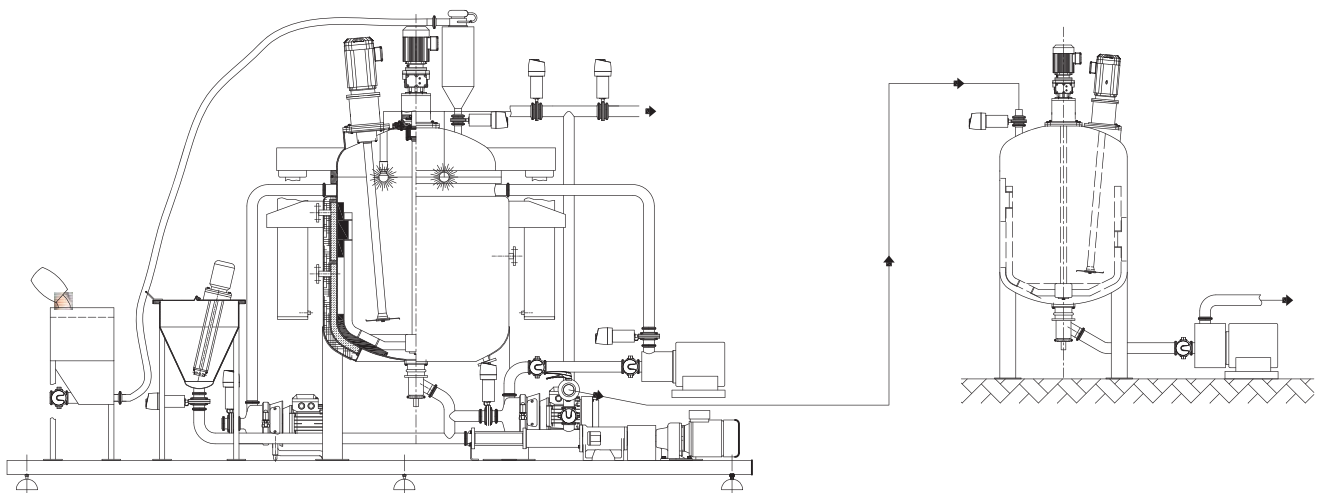
Special sauces

- Cheese – Chocolate – Foie gras and nougat
- Fruit coffee with spices
- Soups with vegetables – Chicken – Meat – Fruit
- Tomato ketchup – Flour mixtures for crepes – Churros
- Light mixtures for calorie reduction for flour-based sauces
- Cheese – Yoghurt – Chocolate – Olive sauces

Food sauces for

- Pastas – Meats – Fish – Desserts
- Cocktail – Sweet and sour – Vinaigrette – Cheese – Caesar
- Jams and injectable fillings – Creme patisserie – Fruit preparations

I INOXPA solution



This type of compact equipment is designed to ensure reliability when producing **all types of sauces, pastas, gels and viscous drinks**. Parts in contact with the product are AISI 316 (EN 1.4404) and the rest of the parts is AISI 304 (EN 1.4301).

The internal surface finish is bright polished, and the external surface finish is matt.

The skid consists of a baseplate or frame upon which the production tank, pre-mixing tank, minority solid ingredients tank, pumps, mixer-emulsifier and other elements are mounted. The control panels can be installed in another place due to logistical and sanitary reasons.

The design is modular and elements can be added or removed, depending on the specific characteristics of the product to be produced.

Depending on the configuration, a CIP unit including a recirculation pump can be included.

I Production process

The sauce production process is highly specific, with formulas containing numerous ingredients. For this reason, we have designed a compact unit that can be used in many ways and with numerous operational possibilities.

These compact skids are provided with a pump to transfer liquid products directly from the containers of raw material.

The dosed solid ingredient and additives are added.

If required, the product is heated, cooked or cooled. After the homogenisation, this mixture is recirculated through the ME 4100 emulsifying mixer for a specified period of time and then discharged into the finished product tank.

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I Equipment

Main agitation elements

The basic unit consists of a tank with a heating jacket provided with an agitation system, curved lid and hydraulic lifting system.

The main agitating elements are:

- Central anchor-type agitator with scrapers for the internal surfaces of the tank.
- Radial agitator mounted in the lid for fast, dispersal agitation.
- Electronic frequency converter for the speed of the anchor agitator between 8 - 20 rpm, and between 600 and 1200 rpm for the dispersal-type agitator.

The internal temperature of the tank is achieved by circulating steam or water, according to the requirements, through the heating chamber. The temperature is controlled by a PT100 thermocouple or a 4–20 mA electronic temperature sensor.

Depending on the application, the valve set can be seat valves, diaphragm valves or butterfly valves. All valves are suitable for food applications. For the tank cleaning system, there is a circuit of pipes and spray balls, which can be connected to the CIP unit. A recirculation pump can be incorporated into this system in order to perform semi-automatic cleaning.

The internal surface finish of the vat, the lid and all parts in contact with the product is bright polished. The external surface finish is matt. The colour of the the frame, motors and other elements (not stainless steel) is white RAL 9010.

Pre-mixing

The smaller capacity skids are normally provided with a double heating jacket, a lid and fast agitation system for pre-mixing.

The internal surface finish of the vat, the lid and all parts in contact with the product is bright polished.

The external surface finish is matt. A discharge valve with diameter DN50 for discharge using a recirculating pump.

Manual or automatic control of all the equipment is centralised on a touch-screen.

Loading system

Solid ingredients are loaded by intermittent pneumatic transport under vacuum. Liquids are loaded under vacuum or using a transfer pump. The loading device for solid ingredient is provided with a hopper into which the product is emptied directly from sacks or drums. There is also the possibility of suctioning the solid ingredients under vacuum without a filter, through the bottom of the unit, normally for large capacity production units.

Discharge and recirculation system

Discharge and recirculation will always be carried out using the type of transfer pump appropriate for each product. A slow progressive cavity pump with elastic stator, which can transport the solid product without excessive damage, is usually assembled.

This system is provided with pipes with a minimum diameter of 50 mm and sanitary fittings and valves.

This pump allows for discharge, recirculation, addition of additives and injection of the product into an in-line emulsifier.

Emulsifier

Standard INOXPA ME 4100-type in-line mixer with a rotor and stator appropriate for the product. An ME 8100-type multitooth mixer can also be installed. It depends on the shearing capacity required by the process.

This unit is characterised by a double pass system, it is useful for cleaning and to maintain the flow rate. It is fed by a discharge or recirculation pump, and it discharges the product into the main production unit.

Control panel

A compact unit that can control all the equipment via a touch screen, allowing the programming of temperature, stir rate and process time.

Manual mode is always possible. The most appropriate control panel will be chosen in each case.

The electrical protection, normally IP65, will be as requested.



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I Production mode

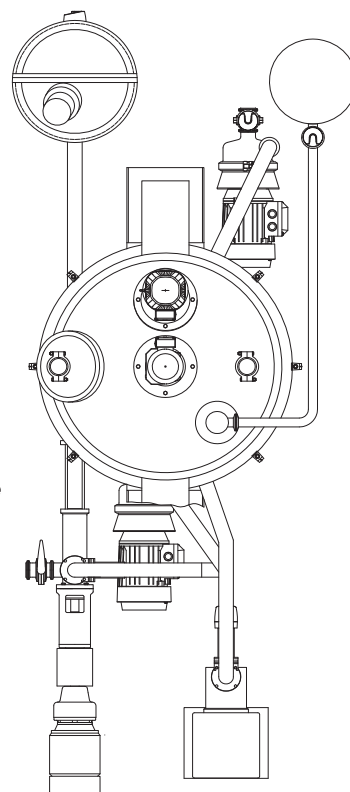
All equipment

- Ensure that all equipment is clean and ready for use
- Check that all connections are correct



Production equipment

- Connect the main unit
- Dose the liquid product in the 1st phase
- Dose the main solid product
- Dose the liquid product in the 2nd phase
- Dose the minor ingredients/additives
- Disperse the resulting mixture for 15 minutes with cooling or heating if required.
- Homogenise and recirculate the product with the ME 4100 mixer for 20 minutes.
- Stop the recirculation and start the cooling process. Apply agitation by an anchor-type agitator, if required.
- Once the required temperature has been reached, discharge the product into the storage tank.



I Standard compact units

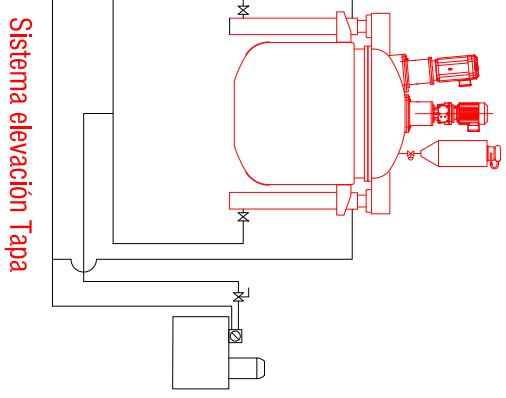
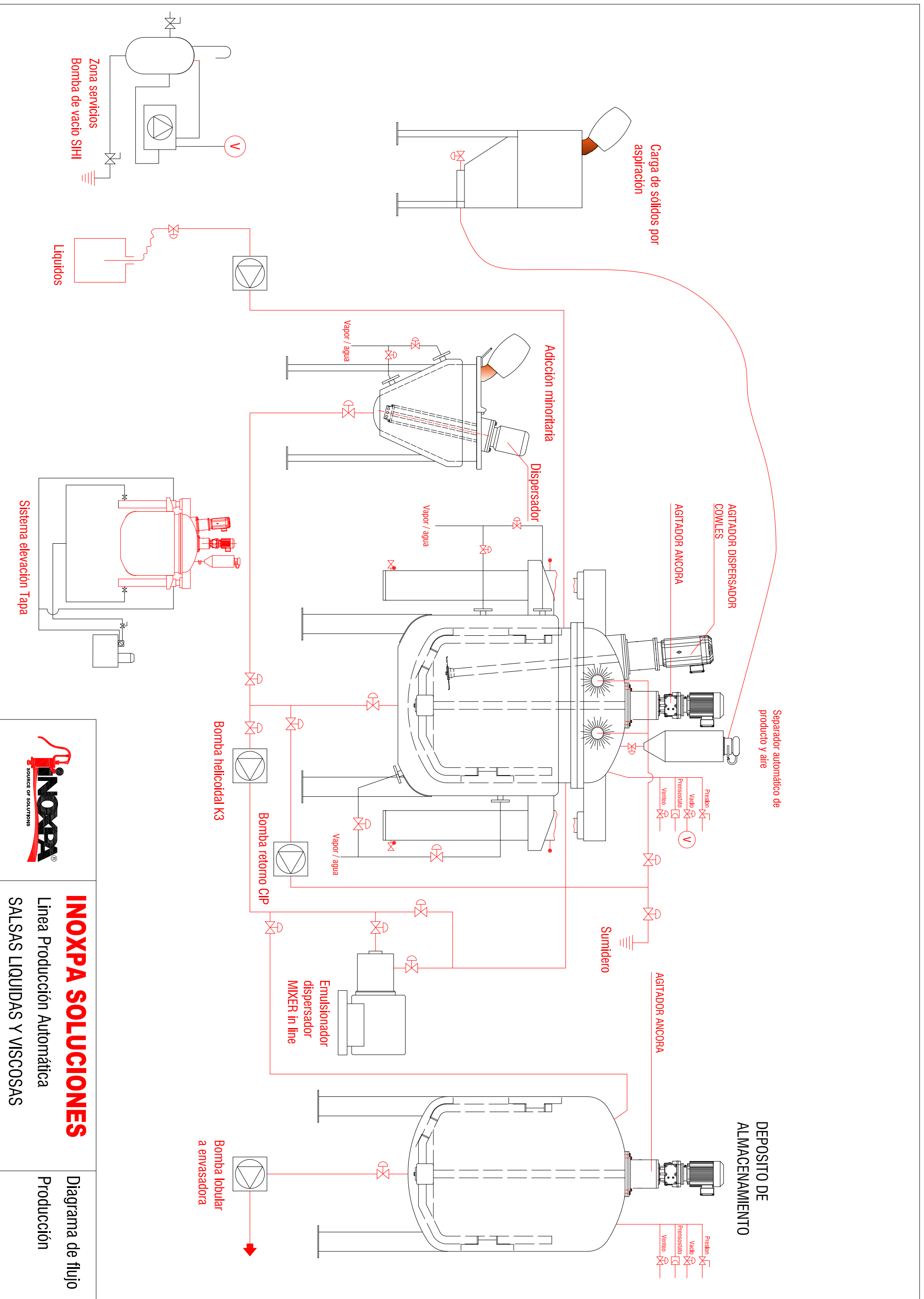
These compact units are supplied complete finished or with the accessories required for each case, depending on the formulation, working method and process requirements.
Batch-production unit.

| Tank capacity | Main 250 L | Secondary 30 L | Main 500 L | Secondary 50 L | Main 1000 L | Secondary 100 L |
|--|--|-------------------|---------------|-------------------|----------------|--------------------|
| Product loading | Intermittent with no vacuum in equipment. By pneumatic transport | | | | | |
| Vacuum loading and mixing | Yes | | | | | |
| Discharge pump | Lobe rotor or progressive cavity | | | | | |
| Liquid loading | Pump or vacuum | | | | | |
| Recirculation and homogenisation | ME 4100 series | | | | | |
| Cleaning | Recirculation with pump | | | | | |
| Lid lifter | Hydraulic system | | | | | |
| Heating chamber | Yes | | | | | |
| Direct injection of cooking steam | Yes | | | | | |
| Anchor agitator power | ~2 kW | | ~3 kW | | ~5.5 kW | |
| Fast radial agitator power | ~3 kW | | ~5.5 kW | | ~10 kW | |
| Emulsifying agitator power | | ~1 kW | | ~1.5 kW | | ~2 kW |
| Power (pumps) | ~4 kW | | ~5.5 kW | | ~7.5 kW | |
| Emulsifier power | ~4 kW | | ~4 kW | | ~7.5 kW | |
| Peripherals | Steam, cold water, electricity, compressed air, vacuum | | | | | |
| Agitations speed | Product-dependent, with variable frequency drive | | | | | |
| Pipe diameters | DN 50 | | DN 50 | | DN 65 | |



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