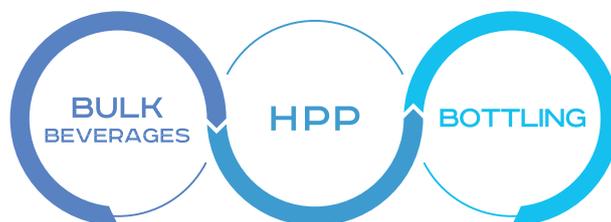


HIPERBARIC BULK



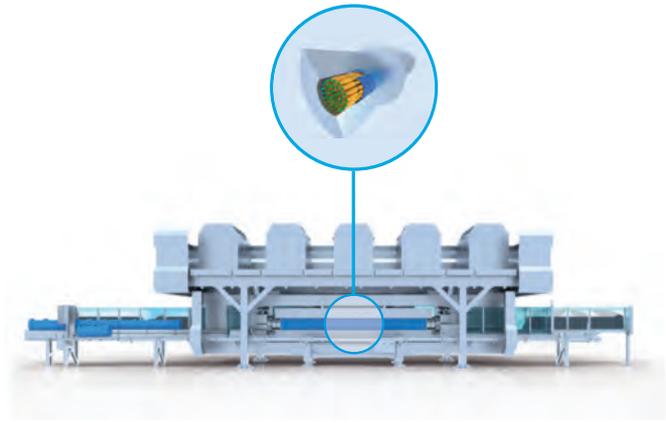
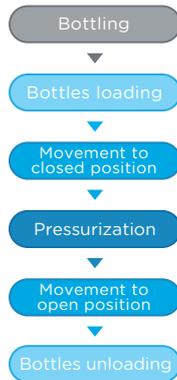
High Pressure Processing (HPP) is the only beverage non-thermal preservation technology that meets the high-standard requirements of both consumers and manufacturers: premium quality, clean label, safety and extended shelf life. Classical in-pack HPP involves processing foods and beverages in their final packaging.

Hiperbaric Bulk Technology is a global innovation for large production of HPP beverages. Both machines, **Hiperbaric 525 Bulk** and **Hiperbaric 1050 Bulk** are based on a revolutionary concept (patent pending), in which beverages will be processed in bulk (before bottling). It delivers up to **10,000 l/h** [2,640 gal/h], which is the world largest productivity, associated with the lowest processing cost and minimum energy consumption. The **Hiperbaric Bulk technology** will fit perfectly into any **large beverages production line** and will allow the use of **any kind of packaging** after HPP, no matter the material, design or size.

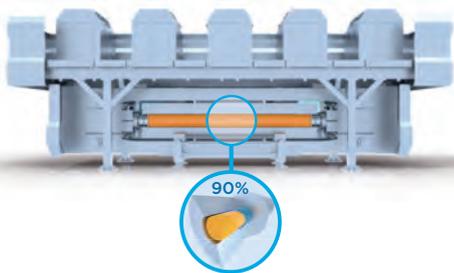


IN-PACK HPP TECHNOLOGY

Until now, HPP works as an **in-pack process**. **Packaged food or beverages are loaded in baskets**, which are introduced in the vessel (obtaining a filling efficiency between 45-55% the nominal volume). Then a cycle starts: after closing the machine the pressure raises up to 6,000 bar / 87,000 psi / 600 MPa with water pumped by the intensifiers and is maintained for a predetermined time. After the holding pressure time, only few seconds are needed to depressurize the vessel and open the machine. The processed product can be unloaded.

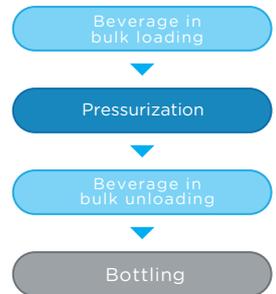


HIPERBARIC BULK TECHNOLOGY



The **Hiperbaric Bulk** allows processing **beverages in bulk before bottling**. With the new technology the process will be **simpler**, with **less steps** and with a **higher productivity**. Its design is based on one or two vessels of 525 liters (Hiperbaric 525 Bulk or Hiperbaric 1050 Bulk), together with a system of tanks (inlet and outlet) where beverage is temporary stored before and after the HPP process.

The unprocessed beverage fills the inlet tank of the machine. From there it goes into the "processing bag", inside the vessel, occupying the **90% of the total volume**, which is roughly the double than the one achieved with the in-pack technology. Then high pressure intensifiers will pump water to the vessel, up to 6,000 bar / 87,000 psi / 600 MPa. The pressure will be kept during a holding time. As soon as the pressure is released, water leaves the vessel and the already processed beverage will go to the outlet tank via sterilized pipes. With the bag completely empty, a new cycle starts. The processed beverage is now **ready to be bottled in an ESL ultra-clean filling line**.



Bulk HPP Advantages

- Premium Quality** | Identical pressure and time conditions to in-pack HPP, providing fresh-like organoleptic properties and guaranteeing product safety.
- Versatility** | Any kind of packaging after HPP can be used, no matter the material (glass, carton, brik...), design or size.
- Easy Integration** | The simplest way to process beverages under pressure that does not require any bottles handling step.
- Costs Reduction** | Total Cost of Ownership (TCO) drastically reduced thanks to lower labor, production, maintenance, and energy costs.



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