

# Alfa Laval Astepo High speed low acid filler

Aseptic bag-in-box filler for juices, beverages, purees and dairy products



## Introduction

The Alfa Laval Astepo High speed low acid (HS-LA) filler is designed for bag-in-box filling under aseptic conditions.

## Application

The HS-LA filler is suitable for handling high ( $\text{pH} < 4.5$ ) and low ( $\text{pH} > 4.5$ ) acid products such as:

- Fruit juices, concentrates and beverages
- Dairy products, such as UHT milk, flavoured milk, soft ice mix and cheese sauce
- Sauces and condiments
- Syrups and post mix.

## Benefits

- Alfa Laval Astepo fillers are proven solutions based on 30 years of experience in aseptic processing.
- A fail safe system continuously controls the sterile conditions.
- In case of an unexpected risk of sterility loss the equipment aborts production and notifies the operator.
- The PLC allows for return to production mode only after all the parameters necessary for sterility have been reset successfully.

## Design

The HS-LA filler can be supplied as a stand-alone module or integrated into an Alfa Laval food processing line, for example a sterilizer and cartoning system.

The bags are delivered pre-irradiated with gamma rays.

Caps are of the flat rigid type with high or low fitments or other dispensing caps from major suppliers.

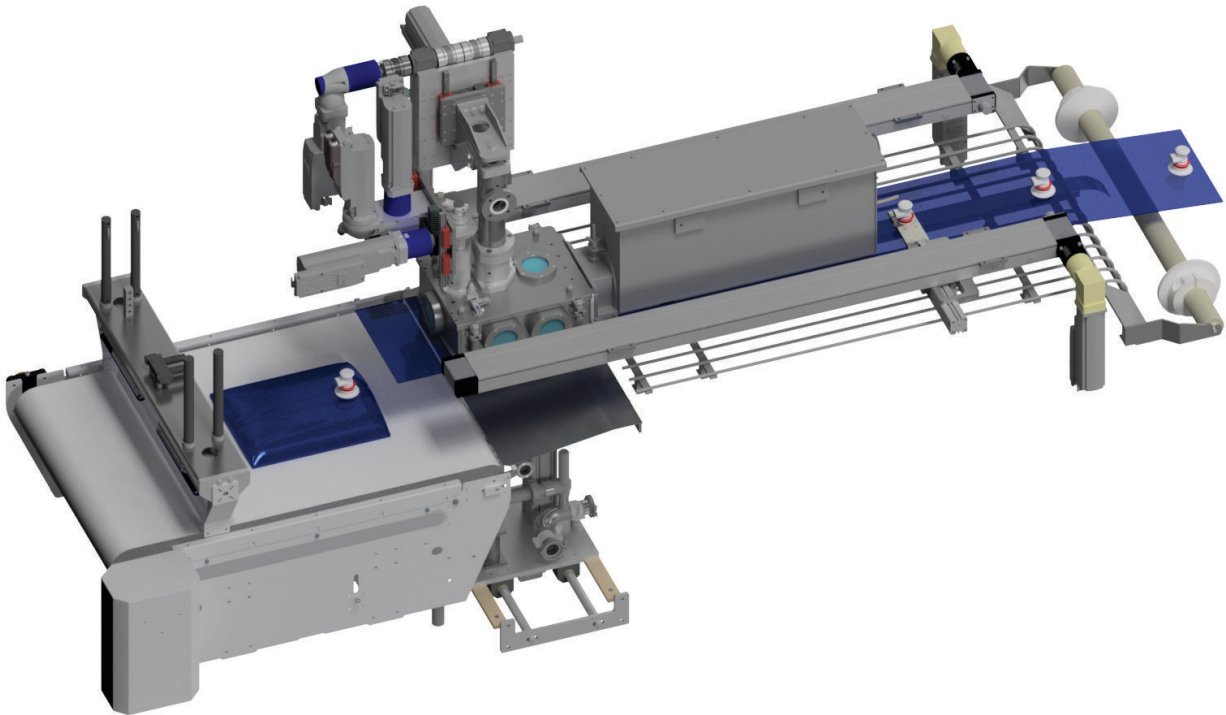
### Standard equipment for the HS-LA filling system includes:

- Stainless steel supporting frame.
- ABF/a - Automatic bag feeder, completely integrated in the filling head, for the handling of web type bags.
- Sterilizing tunnel made of stainless steel AISI 304 for the sterilization of caps/spouts.
- No. 1 filling head, controlled by servo motors made in stainless steel, comprises one aseptic chamber and one filling valve with cold aseptic bellow.
- Volumetric flowmeter. Precision of batch refers to pasty homogenous products in 10 litre bags:  $\pm 0.5\%$ .
- Motorized conveyor made of stainless steel for the expulsion of filled bags and to drive the cartoning operation.

- CIP and sterilization loop to be connected to the existing product piping.
- 1 steam treatment and distribution group complete with gauges, pressure reduction and valves.
- Air-steam indirect heat exchanger and micro sterile filters for air treatment.
- The filler is managed by a PLC interfaced with a SCADA PC of Touch Screen type.

### Options

- SteriTank: pressurized, hygienic tanks to prevent, for example, foaming and to achieve better accuracy.
- Mass flow meter for higher accuracy.
- Selected bag-in-box decapping tools for dispenser caps.
- Water/air flow for filled bag-in-box polishing, drying.
- Ink jet printer for filled bags traceability.
- Tailor-made solutions to ensure that the bags fit smoothly into the cartons.
- Two or more machines can be aligned to provide large capacities, with synchronized filling processes and cartoning devices.



## Working principle

**Sanitization:** Before production starts all food contact surfaces are automatically sanitized and sterilized. This procedure is fully automatic, consisting of a cleaning in place phase (CIP), followed by an in-line sterilization phase (SIP) both featuring cyclic action of valves in contact with the product, the circulation valves and jets of steam.

If an alarm is set off during CIP and SIP the time counter is automatically set to zero and does not restart until the condition that triggered the alarm has been reset.

Non-food contact surfaces such as the filling head and the tunnel will also be completely sterilized using steam and vaporized hydrogen peroxide.

**Moving:** The operator only has to introduce the first bag, then the bag feeder will automatically feed the bags into the sterilization tunnel and the filling head. After this step the cap is re-inserted in the bag spout and an automatic cutter will separate the filled bag from the web.

A motorized roller conveyor will move the bags out of the machine.

**Filling:** In the sterilization tunnel the caps are sterilized with a dosed and monitored jet of vaporized hydrogen peroxide. The spouts are then introduced inside the aseptic head where a positive sterile air flow is used to keep out any airborne contaminant. Both the temperature and the positive pressure inside the chamber are constantly monitored (critical factor).

The implementation of brushless electric servomotor technology enables control and adjustment of the movements, speed and acceleration of the aseptic valve.

Cap removal is done by using pincers and an air seal system closes the spout to prevent any contaminating agent from entering the bag.

### Technical data

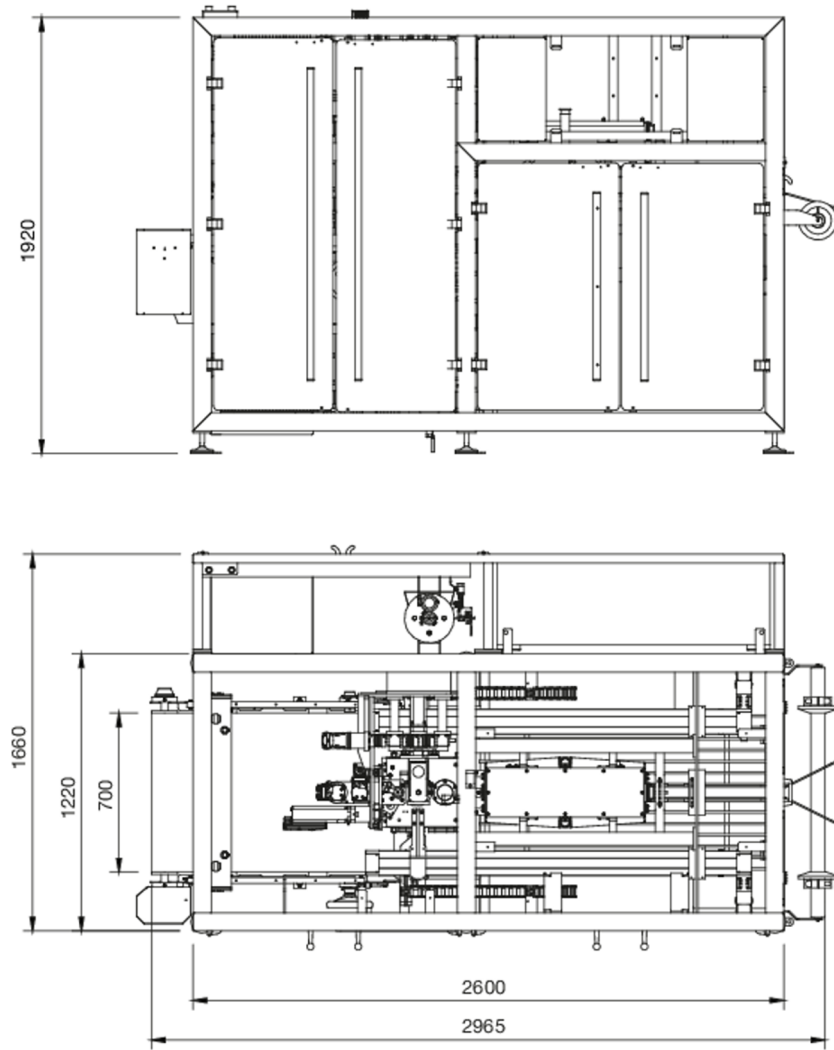
Filling accuracy	±0.5% on the filled value
Filling range	3-25 litres (0.5-6 gallons)
Power requirements	400V 50/60 Hz 3P + GND; Installed 15 kW (CIP return pump inclusive)
Air (dry/oil free)	8 bar, consumption 35 m <sup>3</sup> /h
Steam (food grade)	6-8 bar, consumption during filling 15 kg/h; consumption during sterilization 30 kg/h

### Working capacity<sup>1</sup>

5 l	10-12 bags/minute
10 l	8-10 bags/minute
20 l	6-8 bags/minute

<sup>1</sup> Max. capacity for product input flow of 12,000 l/h and viscosity like water

## Dimensional drawing



### Dimensions

Height	1,920 mm (75.6 inches)
Width	1,660 mm (65.3 inches)
Length	2,965 mm (116.5 inches)

This document and its contents are subject to copyrights and other intellectual property rights owned by Alfa Laval Corporate AB. No part of this document may be copied, re-produced or transmitted in any form or by any means, or for any purpose, without Alfa Laval Corporate AB's prior express written permission. Information and services provided in this document are made as a benefit and service to the user, and no representations or warranties are made about the accuracy or suitability of this information and these services for any purpose. All rights are reserved.

### How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at [www.alfalaval.com](http://www.alfalaval.com)