



Bag-in-box filling equipment for dairy products

- Packaging and aseptic filling

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What we'll cover today

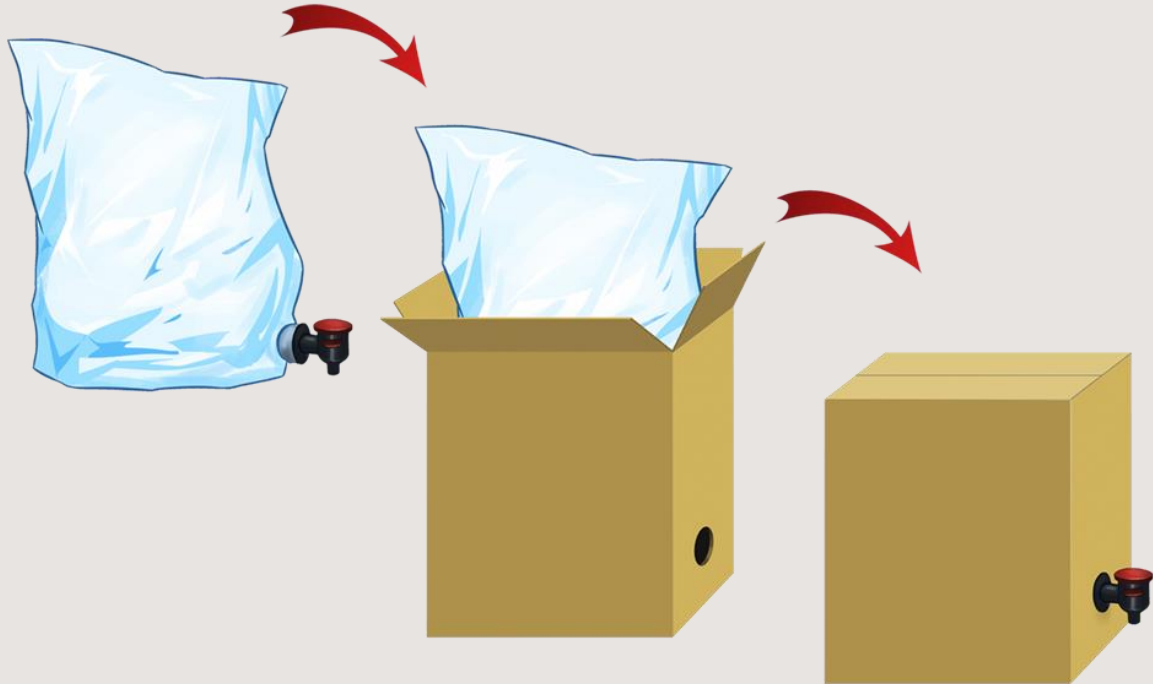
– Agenda



- What is bag-in-box (BIB)?
- Where are the bags sourced?
- Advantages of BIB solutions
- Basics of BIB filler functionality
- Aseptic fillers portfolio
- Non-aseptic fillers portfolio



What is bag-in-box?



- Sustainable packaging option for beverages and liquid foods
- Simple way to store, package, transport or serve beverages and/or liquid foods in flexible multi-material bags
- A big business forecast to grow at 6.5% CAGR to USD \$5.5 billion by 2027

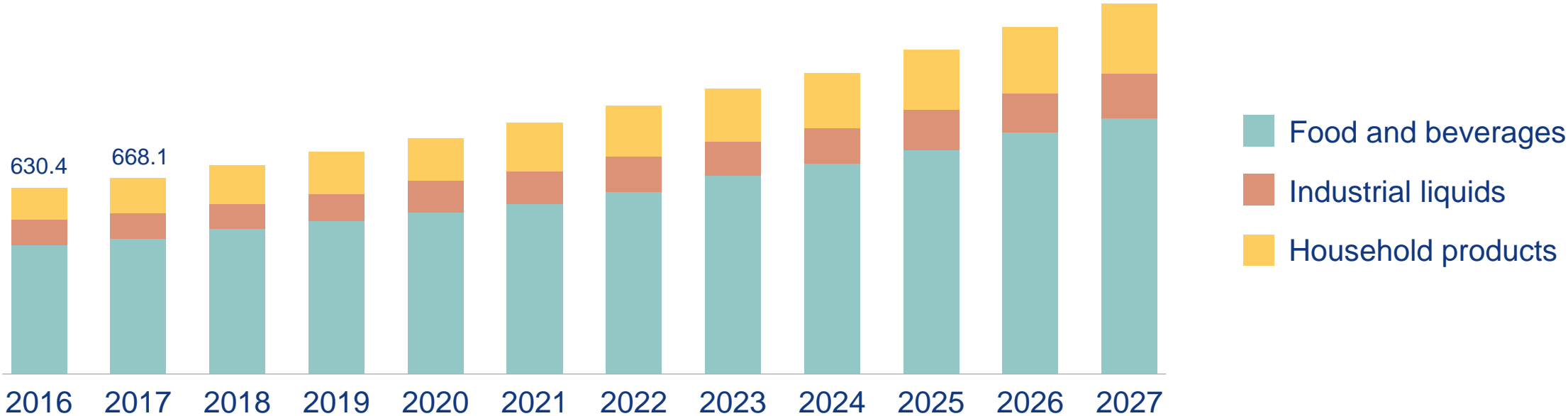
Source: [Grand View Research, February 2020](#)

What is bag-in-box?

- US market growth

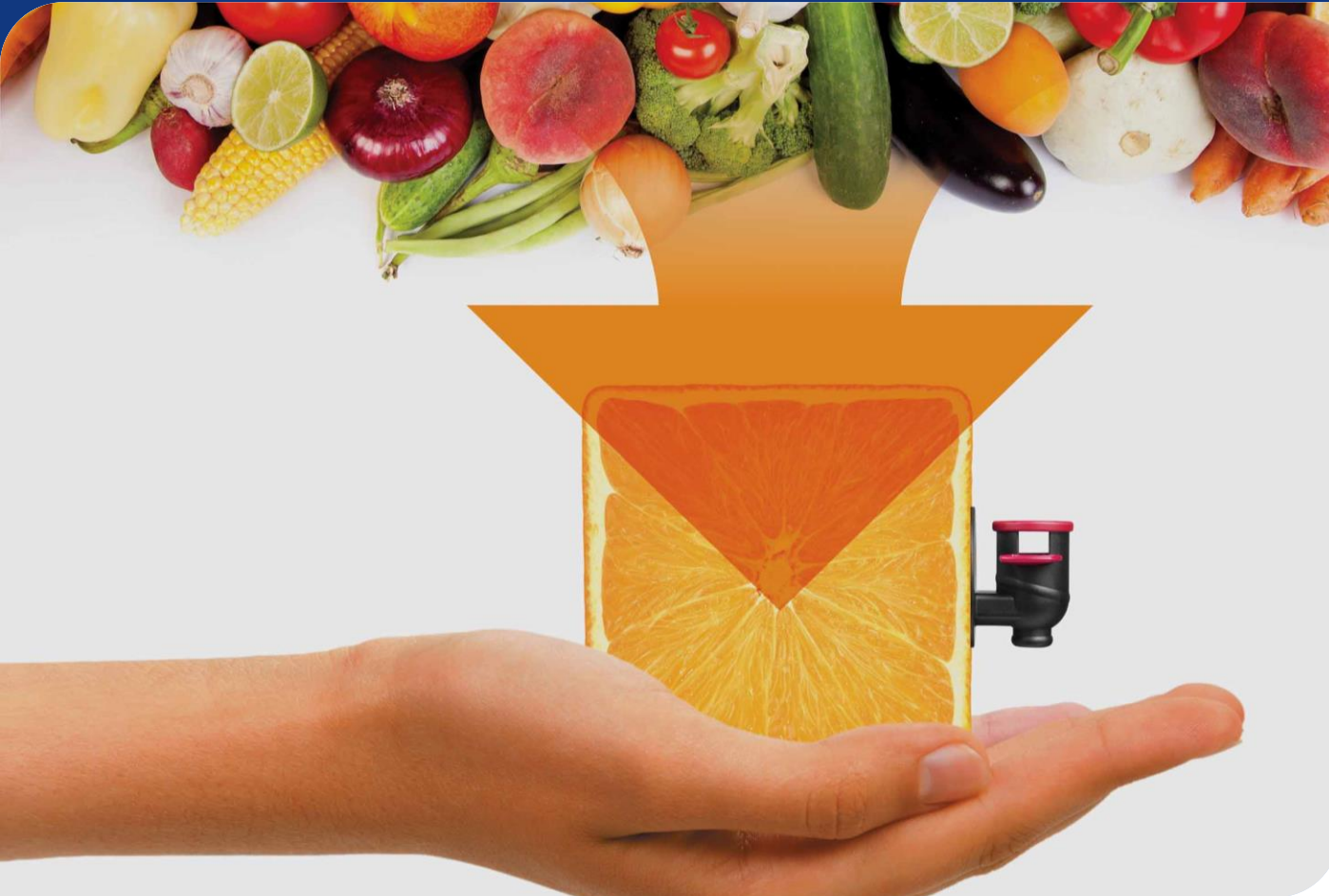


U.S. bag-in-box container market size, by application, 2016–2027 (in millions of USD)



Source: [Grand View Research](#)

What is bag-in-box?



- Filling product into a protective bag
- Combination of flexible packaging materials and/or solutions
- Pre-made bags that are uncapped, filled, and recapped

Which bags can be used?



Basic barrier



Standard barrier

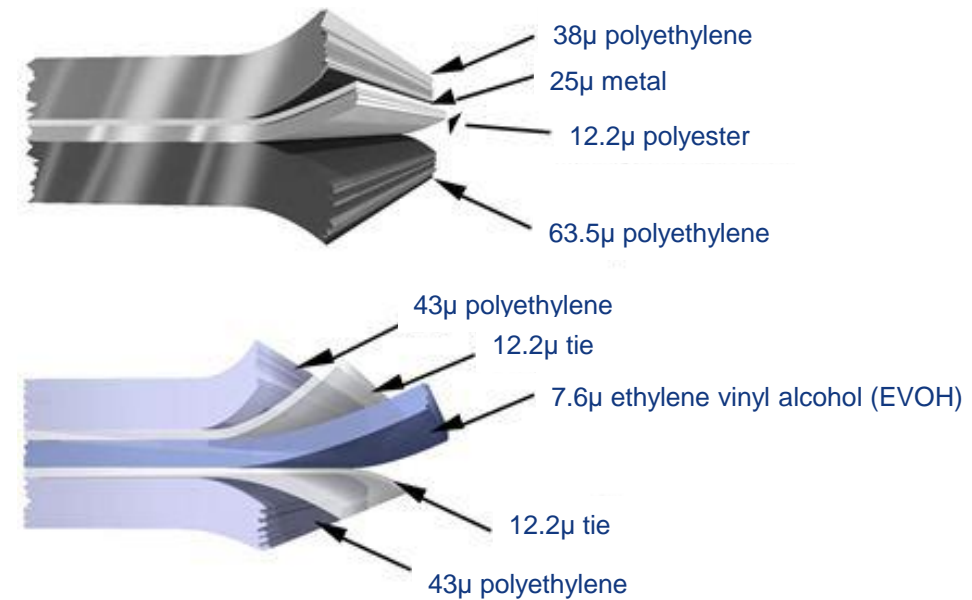


High barrier



Very-high barrier

Specifically
engineered for
every product



Advantages of the bag-in-box



Warehouse
space-savings

Advantages of the bag-in-box



Recyclable

Advantages of the bag-in-box

No oxygen pick-up



Sustainable packaging

Best-in-class carbon footprint

– Flexible, sustainability packaging



**8x lower
carbon footprint**

Compared to
glass bottles



**More than 85%
less plastic**

Bag-in-box uses
less plastic than rigid
plastic containers



**Reduced transport
emissions**

Substantial savings
in logistics costs and
CO₂ emissions



**Transport storage
savings**

One truck carrying BIBs
transports the same
volumes as 7 trucks
carrying 75 cl bottles

Best-in-class carbon footprint

– Flexible, sustainability packaging



**75+% corrugated
cardboard**

Fully recyclable,
renewable and
biodegradable



Recyclable

Minimizes waste
or litter in landfills,
oceans, forests
and coastlines



**Minimal water
and energy use**

Compared to other
packaging types

Future of flexible packaging



Alfa Laval's four Business Principles; **Social, Business integrity, Environment** and **Transparency**, describe the way we must act within society whilst achieving our business goals.

By aspiring to our Business Principles, we can find many opportunities to contribute to a more sustainable future and deliver better everyday conditions for people.

Future of flexible packaging

– A future with far less plastic



Minimize plastic content of packaging

- Reduce the plastic content of packaging
- Switch to mono-material recyclable packaging
- Identify new sustainable packaging materials
- Explore the use of innovative and sustainable materials

Aseptic fillers

Aseptic fillers

– Steam sterilization vs. steam and disinfectant



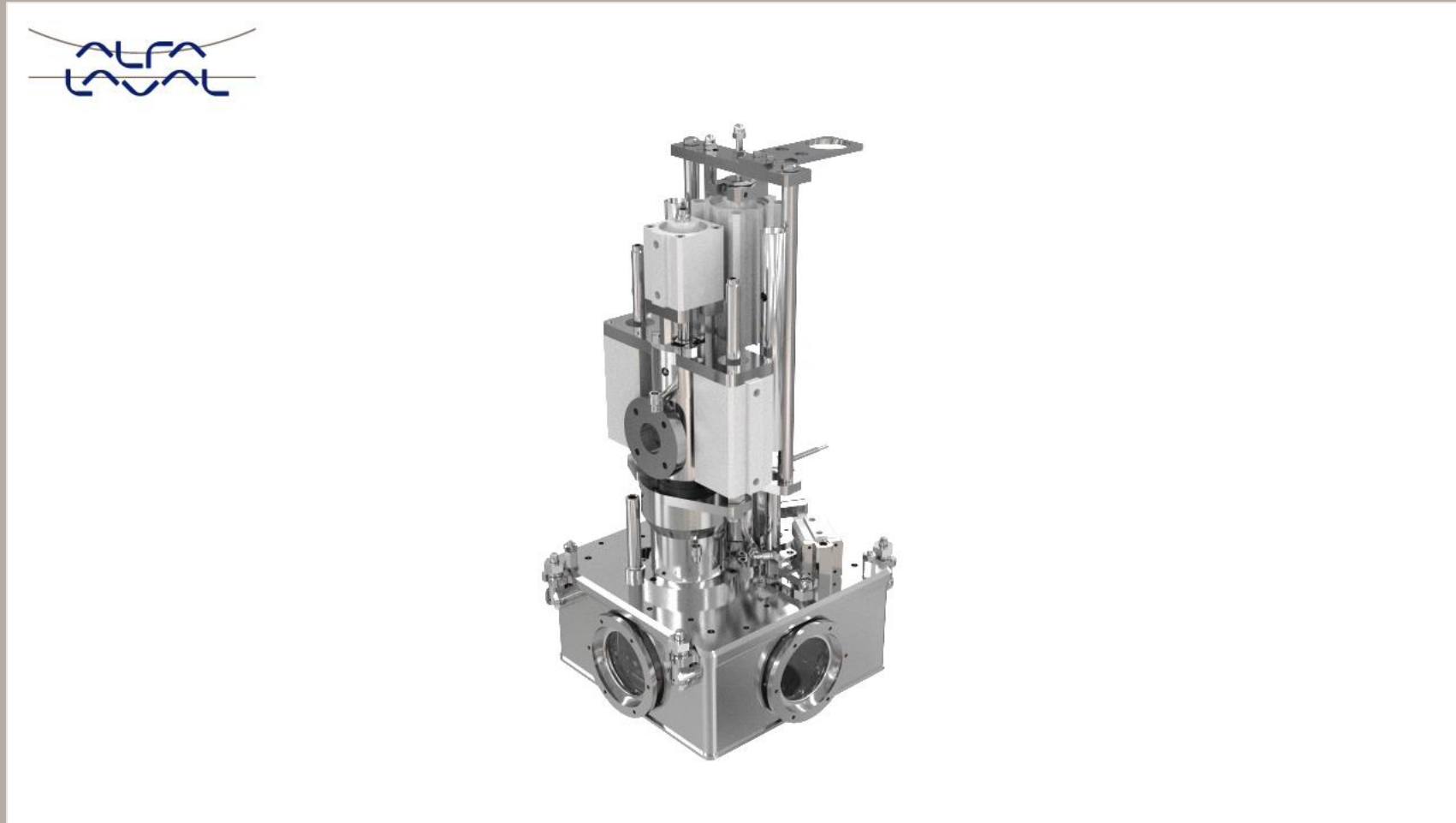
For **high acid pH values**, use only steam for cap sterilization



For **low acid pH values**, use disinfectant and steam for cap sterilization

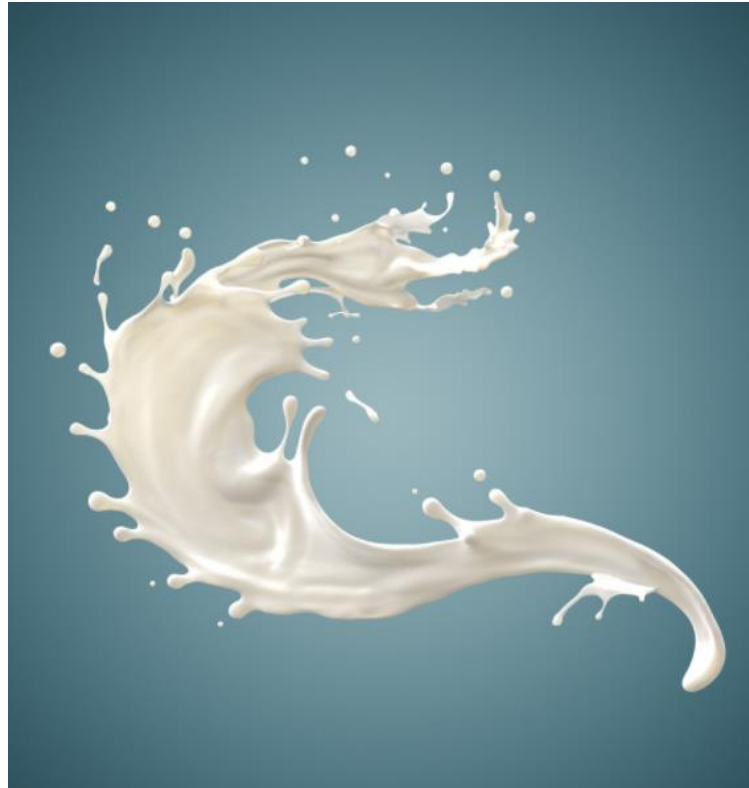
Aseptic fillers

- Video



Aseptic fillers

– Applications



Some dairy applications

- Liquids such UHT milk
- Dense products, such as ice cream mix
- Cream 20–40%

Fillers portfolio

– Complete Alfa Laval portfolio of aseptic fillers



Pilot Aseptic Filler PTAF	Compact Aseptic Filler CAF	Thousand-litre Aseptic Filler TAF	High Speed Low Acid Filler HS-LA
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	Pilot Aseptic Filler PTAF	Compact Aseptic Filler CAF	Thousand-litre Aseptic Filler TAF	High Speed Low Acid Filler HS-LA
Heads No.	1	1-2	1-2	1
Low acid products	✓	✓	✓	✓
2" filling head for particles	✓	✓	✓	-
Ultra Clean Kit	-	-	-	-
Automatic bag feeding system (1" version only)	-	✓	✓	✓
3 - 20 litre (0.5-6 US gal) bags – consumer use/catering	✓	✓	✓	✓
200 litre (52 US gal) bags – industrial use	✓	✓	✓	-
1,000 litre (264 US gal) bags – industrial use	-	✓	✓	-
Max. speed (bags per hour)	200	600	600	600
Stainless steel totes filling option	✓	✓	✓	-
Filling with flow/mass meter	✓	✓	✓	✓
Filling with loading cells	✓	✓	✓	-
US FDA ¹⁾	-	Compliant	Compliant	Approved
EHEDG Filling Valve ²⁾	-	-	-	✓
Hot filling version	✓	-	-	-

1) US Food and Drug Administration
2) European Hygienic Engineering & Design Group

Alfa Laval Pilot aseptic filler

– Aseptic fillers



Pilot aseptic filler (PTAF)

- Compact aseptic filler
- For 3–20 litre sterile flexible bags
- For 200-litre sterile flexible bags
- For larger volume bags with trunk
- With different filling valves

Alfa Laval Pilot aseptic filler

– Aseptic fillers



- Small pilot unit with all the features of a full-size aseptic filler
- Competitively priced, lab-scale unit
- Special FDA version available



Alfa Laval Compact aseptic filler

– Aseptic fillers



Compact aseptic filler (CAF)

- Heavy-duty industrial filler customized to customer requirements
- Tested, pre-assembled, plug-and-play filling system
- Designed for filling of a wide range of food and beverage products
- Fills product into appropriate containers under aseptic conditions

Alfa Laval Compact aseptic filler

– Aseptic fillers



Features and benefits

- Automatic bag filler (ABF) system
- All bag/container size in a single model
- Viscous fluids up to 1,200 Cp at 20°C
- Competitive pricing in case of multi-formats lines (3/20L and 200L/1000L on the same line)



Alfa Laval Compact aseptic filler

- Video



CAF 1H review ABF + 200 litre kit

Alfa Laval High speed low acid aseptic filler



– Aseptic fillers



High speed low acid (HS-LA) aseptic filler

- Designed to meet market demand for faster and better performing machines, with special focus on high and low acid products
- New concept of motion with brushless electric servo motor technology that controls and adjusts all movements inside and outside the aseptic area with an extremely high degree of accuracy

Alfa Laval High speed low acid aseptic filler

– Aseptic fillers



- Unique filler is completely driven by servo motors
- New clamp design, no changeover from high to low spout
- No dripping system
- Hand-off CIP and SIP phases
- Innovative system to store and recall product recipes
- Integrated P&ID on machine HMI



Alfa Laval High speed low acid aseptic filler



- Video



Non-aseptic fillers

Fillers portfolio

– Complete Alfa Laval range of non-aseptic fillers



Piccolo Filler

Beer-in-box Filler

Grande Filler

Clean Filler CF

Drum Filler DF

	Piccolo Filler	Beer-in-box Filler	Grande Filler	Clean Filler CF	Drum Filler DF
Heads No.	1	1	1	1-2	1
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2" filling head for particles	✓	-	-	-	-
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1,000 litre (264 US gal) bags – industrial use	-	-	-	✓	-
Max. speed (bags per hour)	200	200	700	350	40
Stainless steel totes filling option	-	-	-	-	-
Filling with flow/mass meter	✓	✓	✓	✓	✓
Filling with loading cells	✓	✓	-	✓	✓
US FDA ¹⁾	-	-	-	-	-
EHEDG Filling Valve ²⁾	-	-	-	✓	-
Hot filling version	✓	-	✓	-	-

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Non-aseptic fillers

– Applications



Typical non-aseptic applications

- When product is pasteurized and then hot-filled
- When product is stable at ambient temperature
- When product has been filled and is kept in a cold chain

Alfa Laval Piccolo filler

– Non-aseptic fillers



Alfa Laval Piccolo filler

- Simple, compact, universal system
- Low maintenance
- Able to fill a wide range of products and bags

Alfa Laval Piccolo filler

– Non-aseptic fillers



- Entry point for BIB production
- Vacuum system before filling
- Nitrogen puffing after filling
- Plug-and-play
- Possibility to run 200 litres
- Various options to meet every needs



Alfa Laval Piccolo filler

- Video



Alfa Laval Grande filler

– Non-aseptic fillers



Alfa Laval Grande filler

- A high-speed filling machine for web bags applicable for a wide range of caps
- For applications, like the wine industry, that require high speed and complete automation

Alfa Laval Grande filler

– Non-aseptic fillers

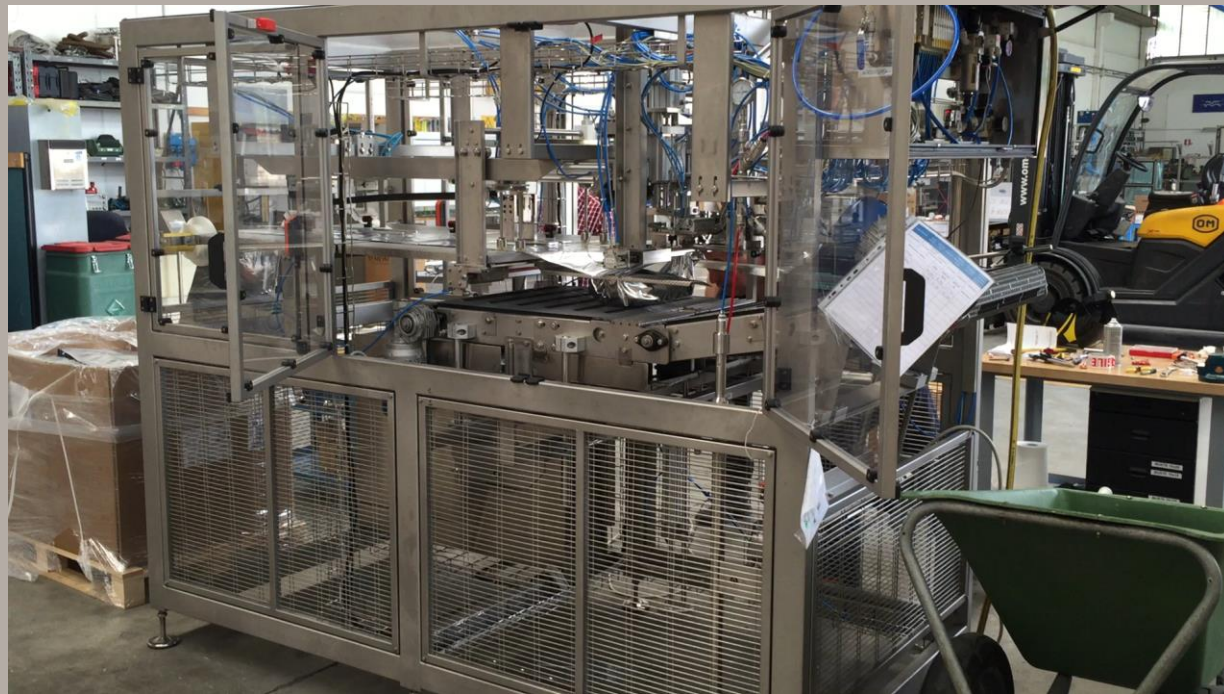


- Plug-and-play system
- Vacuum system before filling
- Nitrogen puffing after filling
- HEPA filter on top for high air overpressure
- Different options to meet every requirement



Alfa Laval Grande filler

– Video



Alfa Laval Combibox

– Non-aseptic fillers



Combibox cartoning machine

- Compact cartoning system for the food and beverage industries
- Most suitable solution for packing bags into bag-in-box cartons from the packaging line

Alfa Laval Combibox

– Non-aseptic fillers



- Complete mono-block with carton former, autoloading and carton closer
- Possibility to run American and French cartons
- Possibility to close cartons with either tape or hot melt glue
- Different hopper design to run from 2- to 25-litre cartons
- Option for stainless steel support frame



Alfa Laval Combibox

- Video



Thank you for
your attention



Any further questions

Please feel free to contact:

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