

GEA UNIBLOC FLEX

The world’s first aseptic filling system for aluminum bottles

Engineering for a better world.

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ASEPTIC AND ALUMINUM JOIN FORCES.

Sales of aseptic beverages are on the rise globally. Whether milk-based or plant-based, consumers love these drinks because they're tasty, healthy, convenient – and more sustainable.
Aluminum bottles are also trending, mainly because they give beverages a boost in quality, safety, sustainability – and elegance.

Now aseptic and aluminum are joining forces.

Introducing GEA's Unibloc Flex: the world's first line system for filling aluminum bottles using aseptic processing technology. For producers of highly sensitive beverages, the Unibloc Flex offers an innovative, practical way to transition to aluminum bottling – and take their drinks to the next level.





Why aluminum?

- **Safety and quality** – Aluminum provides an exceptional barrier to light, air and bacteria, making it unmatched in preserving taste, color, odor and overall quality of beverages, while maintaining safety and nutritional value.
- **Sustainability** – Aluminum bottles are made from a single material, so they're fully recyclable. Unlike multi-material packaging, they can be easily recycled through established collection systems.
- **Elegance** – The sleek appearance of aluminum containers gives beverages a higher-end look and feel – and competitive edge.

LEADING THE WAY IN ASEPTIC.

GEA developed the Unibloc Flex over more than a year working closely with aluminum bottle and closure suppliers, building on more than 15 years of experience in FDA-approved projects and numerous package sterilization tests on aluminum bottles.

For decades, GEA has proven the high sterilization efficiency and reliability of its aseptic technology for every step of sensitive beverage filling.



The sterilization efficiency of aluminum or PET bottles is automatically checked by a smart sensor to ensure proper sterilization of each bottle.



GEA sterilization solution ensures a *B.atrophaeus* reduction of up to 6 log for both aluminum and PET containers.



GEA's VHP-based closure sterilization technologies provide an effective and gentle closure treatment that does not use water during production.

Smart water management for sustainable performance: heading towards zero water waste with GEA's Add Better solutions.

Efficient nozzle design for maximum water savings

The GEA Unibloc Flex rinsing module features an advanced nozzle design that enhances rinsing efficiency by optimizing both treatment time and water flow. Compared to previous-generation nozzles used in GEA's PAA-based aseptic filling systems, this configuration enables a significant reduction in water consumption – up to 91% – while ensuring consistently high sterilization performance. Residual peroxide levels inside the bottle remain well below 0.5 ppm, fully meeting safety and quality standards.

These results make the system a highly effective solution for manufacturers looking to reduce their environmental footprint and lower operational costs.

Second rinsing water recovery system

The GEA Unibloc Flex's innovative second rinse water recovery system strengthens its commitment to resource efficiency and sustainable production by minimizing water waste without compromising the effectiveness of wet sterilization.

The water from the first rinse, which has a higher concentration of peroxide residue, is partially reused to prepare the sterilizing solution. The system also recovers and reuses the water from the second rinsing phase. This targeted approach enables the recovery and reuse of up to 86% of the rinsing water during production, reducing overall water consumption by up to 50%.

By drastically reducing the use of fresh water, the GEA Unibloc Flex supports environmental goals, reduces costs and meets the stringent standards of the Add Better certification, GEA's Net Zero Mission 26 and our customers' sustainability targets.

The second rinse water recovery system is protected by a patent granted in 2025.



Compact layout.
A practical, robust solution for reliable container and closure sterility in all environments

The beauty of Flex.

Unibloc Flex can fill a complete range of sensitive products: high or low acid, still or carbonated drinks with or without particles, UHT milk, plant-based dairy alternatives and other liquid dairy beverages.

It can fill both aluminum and PET bottles, making it easier for sensitive beverage producers to add aluminum bottles to their portfolio. Changing from one bottle shape or format to another requires just a simple adjustment.

The Unibloc Flex requires minimal maintenance and, thanks to its compact layout, can be managed by a single operator.





Benefits

- Aluminum bottles enhance quality, safety, sustainability and elegance of aseptic beverages
- Single filling line for both aluminum and PET plastic bottles
- Suitable for the complete range of sensitive beverage products
- Minimal maintenance, compact layout, single operator
- Proven aseptic filling technology for container sterilization results in safe, premium products with very long shelf life
- Smart sensor technology ensures proper sterilization of each bottle
- State-of-the-art technology for aluminum closure sterilization and handling
- Aluminum bottles with threaded caps for container recloseability and portability
- Energy savings compared to conventional retort processing

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