



ECOSpin2 is equipped with all the necessary process units to produce sterile water, Peracetic acid solution, the cleaning unit and the filtration of all the fluids.

ECOSpin2 speed up to 72000 bottles per hour on 500 ml bottle

up to 165 hours HA OPERATIONS	up to 165 hours LA OPERATIONS	NO intermediate SOP
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GEA Procomac ECOSpin2 important features:

- Line availability:
 - Up to 165 hours for HA operations;
 - Up to 165 hours for LA operations;
 - No intermediate SOP cycles required during production.
- Format change over in 30 minutes with no loss of sterility;
- Sterilization of bottles performed at temperatures under PET shrinkage limits (65°C);
- Residuals below 0.5 ppm as per FDA regulation;
- FDA approvable technology.

We live our values.

Excellence • Passion • Integrity • Responsibility • GEA-versity

GEA Group is a global engineering company with multi-billion euro sales and operations in more than 50 countries. Founded in 1881, the company is one of the largest providers of innovative equipment and process technology. GEA Group is listed in the STOXX® Europe 600 Index.



GEA Procomac ECOSpin2

Long Term Protection

engineering for a better world

2012

6th

ECOSpin2



2015

ECOSpin2 Zero

ECOSpin2 Zero means zero peroxides emissions:

- Liquid PAA solution exceeded is neutralized inside an external tank before drainage phases (end/during production)
- PAA and all chemicals fumes are neutralized before releasing into the environment

ECOSpin2 Zero allows the lowest PAA and water consumption.

GEA Process Engineering

GEA Procomac S.p.A.

Via Fedolfi 29, 43038 Sala Baganza (Parma), Italy
Phone: +39 0521 839411, Fax: +39 0521 833879
sales.procomac.it@gea.com, www.gea.com

ECOSpin2: Long Term Protection

a robust, proven and reliable aseptic technology

GEA Procomac Peracetic Acid (PAA) sterilization technology represents the state of the art for aseptic filling systems.



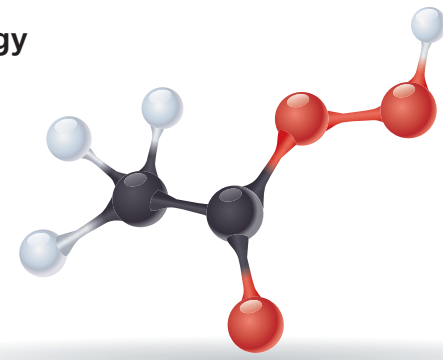
The 6th generation of PAA sterilization technology

With ECOSpin2, GEA Procomac reaches the 6th generation of PAA sterilization technology. It focuses on the saving of space, water and energy which, makes GEA Procomac technology the best choice from operational and investment point of view.

The system consists of bottles and caps Sterilizer and Rinser, Filler and Capper enclosed within a class 100 Microbiological Isolator which provides a physical barrier between the external environment and the microbiological controlled area.

The overpressure inside the Microbiological Isolator is created by independent energy-saving active filtration stations equipped with redundant final HEPA filters.

All relevant internal components can be easily reached through intervention gloves which avoids the operators having any contact with the Sterile Zone.



This keeps the operators safe and avoids any risk to the aseptic environment. Format changeover can be performed, with no loss of sterility, using manipulation gloves.

GEA Procomac PAA technology uses only one sterilizing solution, based on Peracetic acid, to sterilize the environment and the packaging materials. The PAA solution is recovered and, once concentration and temperature are restored, reused in a closed loop.

1 Bottle Sterilization

External bottle sterilization treatment is a GEA Procomac distinctive feature. It is designed to be effective on every bottle shape to avoid microbiological carry-over into the filling area. This ensures GEA Procomac's lines continuously operate under aseptic conditions, with no intermediate environmental sterilization cycles, maximizing the production time. The new full cone penetrating nozzle is used for internal bottle sterilization treatment. This nozzle generates a high pressure PAA solution spray that is able to decontaminate the "Cold Spot" in inoculated bottles.

- ✓ The high-efficiency spraying system keeps treatment time very short.
- ✓ The efficiency of each nozzle is automatically checked by a "Smart sensor" that ensures proper sterilization of each bottle.

The internal bottle sterilization treatment guarantees Up to 6 log reduction.

Moreover ECOSpin2 has a new no valve sterilizer design that makes the machine simpler. No valve design means even no electrical parts allowing easier machine maintenance and less wear and tear.

A special attention to quality
GEA Procomac aseptic technology is designed to respect the natural features of each product

2 Bottle rinsing

After sterilization the bottle is rinsed with sterile water. GEA Procomac sterilizer is based on a full-cone, non-penetrating nozzle that maximizes rinsing efficacy.

This nozzle has a pulsing spraying mode for minimum water consumption. Rinser has really easy construction with a minimized need of maintenance.

3 Caps sterilization and rinsing

The GEA Procomac ECOSpin2 cap sterilization, Sterilcap IM, is able to sterilize one-piece caps by immersion into a PAA solution. The rinsing is performed by sterile water spray.

The mechanical design has been focused on a jam-free spiral channel where the caps are driven by a PAA solution flow.

1993

1st

Aseptic line with clean room



1996

2nd

Unibloc



2001

3rd

Unibloc 2



2005

4th

Unibloc Spin



2009

5th

ECOSpin



GEA Procomac external sterilization is applied to the bottle surface, with dedicated manifolds, to treat:

- Bottle external neck
- Bottle external body
- Bottle external bottom

GEA Procomac external bottle sterilization can reach up to 5 log reductions.

Spot inoculum

Large number of spores (from thousands to millions) are inoculated in a single spot of the package (bottle, cap) or the surfaces of the microbiological isolator.

Cold Spot

This refers to the most critical point of the package to be addressed by the sterilization process.



Sterilcap IM details



Bottle sterilization with high pressure PAA solution spray

