

# ECOSpin

## Long Term Protection



GEA Process Engineering  
GEA Procomac S.p.A.



*By joining GEA Group Process Engineering division, GEA Procomac S.p.A. adds its core competences to the outstanding liquid process engineering capabilities of GEA Group to offer cutting-edge turnkey project capabilities from raw materials up to packaged product. GEA Procomac S.p.A. specializes in development, manufacture and engineering of cutting-edge bottling and packaging technology for a variety of products, formats and containers.*



GEA Process Engineering  
**GEA Procomac S.p.A.**  
via Fedolfi 29, 43038 Sala Baganza (PR) Italy  
Tel. +39 0521 839411, Fax +39 0521 833879  
sales.procomac.it@geagroup.com, www.procomac.it

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ECOSpin 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.

GEA Procomac ECOSpin important features:

• Line availability of:

- Up to 120 hours for HA operations;
- Up to 72 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.

LINE AVAILABILITY OF

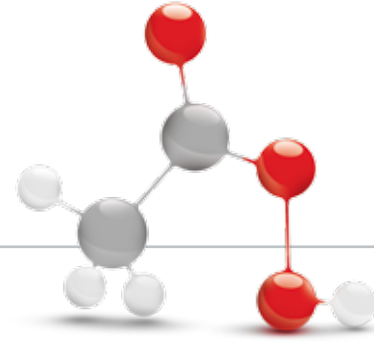
120 hours HA OPERATIONS	72 hours LA OPERATIONS	NO intermediate SOP
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2009  
5<sup>th</sup> EcoSpin



# ECOSpin: Long Term Protection

a robust, proven and reliable aseptic technology



With ECOSpin, GEA Procomac reaches the 5th generation of PAA sterilization technology. It focuses on the saving water and energy which, with the GEA Procomac Safe Aseptic™, 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 operator 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.

# GEA Procomac Peracetic Acid (PAA) sterilization technology

represents the state of the art for aseptic filling systems.



## 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.



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.

A proprietary-designed 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.

### 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.



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 has recently introduced a new rinsing concept based on a full-cone, non-penetrating nozzle that maximizes rinsing efficacy. This nozzle has a pulsing spraying mode for minimum water consumption. The rinser has been completely redesigned to reduce the number of wear and tear parts and simplify maintenance.

## 3 Caps sterilization and rinsing

The GEA Procomac ECOSpin 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

1<sup>st</sup> Aseptic line with clean room



1996

2<sup>nd</sup> Unibloc



2001

3<sup>rd</sup> Unibloc 2



2005

4<sup>th</sup> Unibloc Spin



↻ Sterilcap IM details

← Bottle sterilization with high pressure PAA solution spray