

**GRIFOLS**  
**ENGINEERING**  
WE  
KNOW  
HOW



**ABO**  
AUTOMATED  
PLASMA  
BOTTLE  
OPENER

**GRIFOLS**



# **ABO**

## AUTOMATED PLASMA BOTTLE OPENER

GRIFOLS ENGINEERING'S THAWING TUNNEL AND PLASMA BOTTLE WASHING, CUTTING AND HANDLING LINE HAS BEEN DESIGNED TO PERFORM THE FOLLOWING TASKS. FIRST OF ALL, THE FROZEN PLASMA INSIDE THE BOTTLE IS SKIN-THAWED, WHICH CREATES A LIQUID FILM INSIDE THE BOTTLE (SKIN THAW). THEN, THE OUTER SURFACE OF THE PLASTIC BOTTLE IS RINSED WITH FRESH DI OR WFI WATER, REMOVING ANY PARTICLES ADHERED TO IT. THE DROPS ON THE OUTER SURFACE OF THE BOTTLE ARE DRIED, THE BOTTLE IS AUTOMATICALLY CUT AND, BY MEANS OF AN AUTOMATIC SYSTEM, THE BOTTLE IS SEPARATED FROM THE PRODUCT AND THE PRODUCT IS TRANSFERRED INTO THE TANK TO START THE MANUFACTURING PROCESS.

ABO FULFILLS FDA AND EMA REQUIREMENTS.

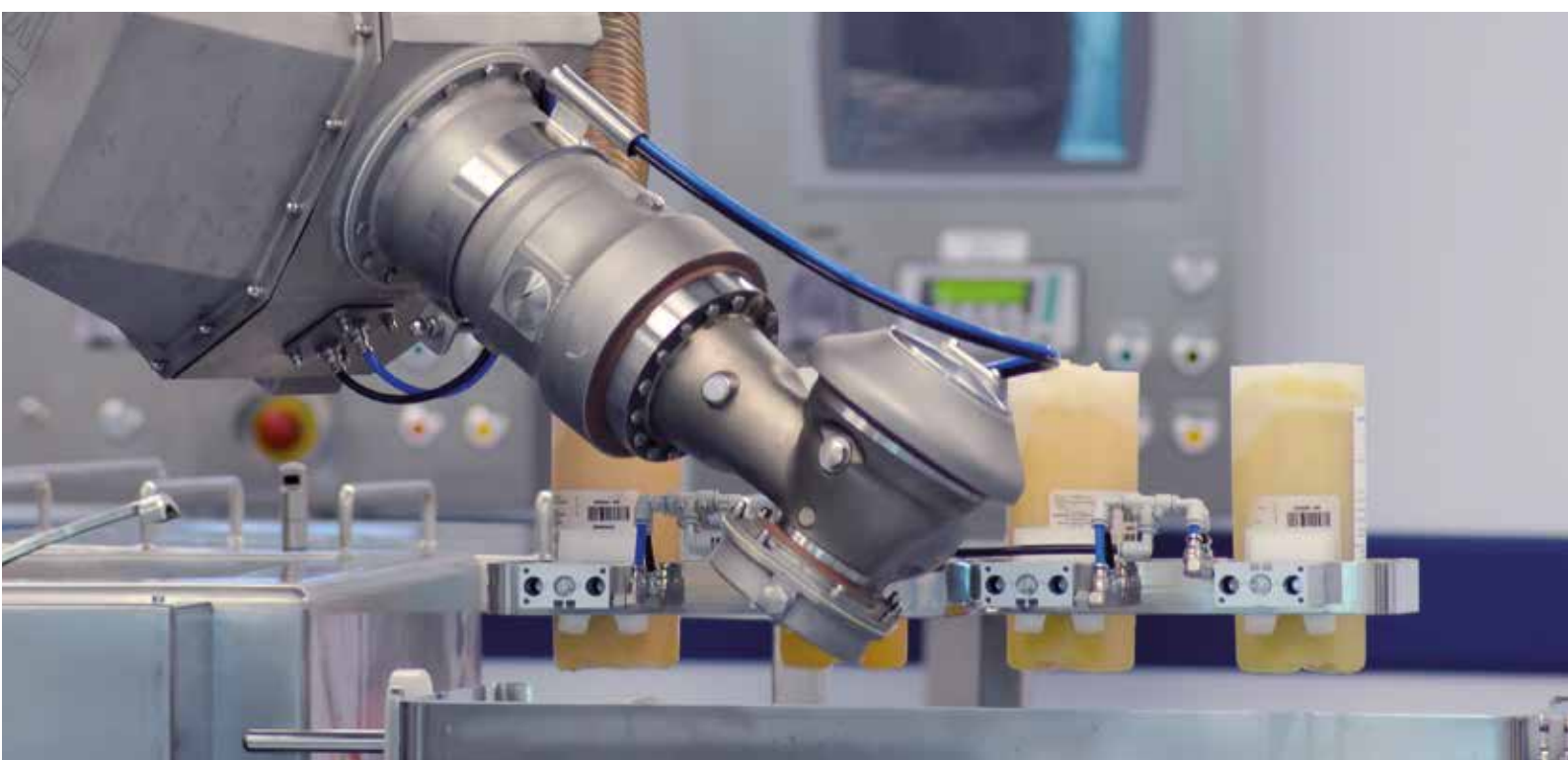
THE AUTOMATED PLASMA THAWING AND BOTTLE EMPTYING PROCESSES OFFER MAXIMUM SAFETY AS PLASMA IS NOT HANDLED BY THE OPERATOR WHILE THE BOTTLES ARE OPEN, THEREBY MINIMIZING POSSIBLE EXTERNAL CONTAMINATION AND ALSO REDUCING COSTS AND INCREASING PERFORMANCE.

## MAIN FEATURES

· Machine parts:

- 1. Thawing tunnel:** Thawing of bottles through recirculating hot purified water.
- 2. Washing station:** Rinsing with purified water.
- 3. Drying unit:** bottles are dried by means of air jet.
- 4. Cutting unit:** Bottles opening by custom-made blade made from surgical stainless steel (safety system for the operator).
- 5. Automated Emptying system:** Automated unloading of bottles mechanically performed by robot.
- 6. Control:**
  - PLC control for traceability.
  - Detection of correct unloading of bottles.
  - Optional connection to plant control system.

- Nominal throughput up to 900 bottles/hour.
- Maximum security: automated opening and emptying of plasma bottles. Avoids human contamination.
- Loading of completely frozen plasma bottles.
- Robot suitable to work in clean areas.
- Possibility to connect the machine to a shredder for empty bottles.
- Maximum product recovery: plasma dripping system.
- Drastic bioburden reduction.
- User friendly human machine interface control.
- Sanitary construction. cGMP design.
- CE mark, UL, ASME
- Complete documentation DQ/IQ/OQ





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**Grifols Engineering, S.A.**

C/Palou 6, 08150 Parets del Vallès - Barcelona - SPAIN - Tel. [34] 93 571 00 42

**Grifols Engineering USA**

2410 Lillyvale Avenue, Los Angeles - California 90032 - USA

8368-US Hwy 70 West, Clayton- North Carolina 27520 - USA - Tel. +1(919)359-7842

[info.ge@grifols.com](mailto:info.ge@grifols.com) - [www.grifolsengineering.com](http://www.grifolsengineering.com)

