



Fully automated sterile Powder Handling

Richard Denk

RAYA 2023 Finalist Event



Agenda

- 1. Introduction to Application / Pictures / Videos / Explanation of process**
- 2. Present the feature of your application with respect to the 5 Evaluation Criteria**
 1. Attractivity Explanation of Drivers
 2. Cost Effectiveness – Explanantion of ROI
 3. Area of Application
 4. Flexibility with respect to (if applicable)
product to be handled / line clearance / simplicity of re-qualification / built in cleaning procedures
 5. Easyness to integrate
- 3. Final Message, why you application should get the Audience Award today**

Fully automated aluminum can open, weighing and dispensing unit. The aluminum cans get transferred with an automated loading system in the H2O2 Decontamination unit. In the first chamber the aluminum cans get positioned from the robot and afterwards the robot put each can on the can lid opener. Her the robot must identify where the opening wholes are to get the gripper inside to open the first lash. After that the second lash and the crimp is removed. After removing the crimp, the robot push the aluminum can in the next chamber. In this chamber the stopper is removed, and a special design passive split butterfly valve is positioned and fixed on the opening on the aluminum can. The split butterfly can be sterilized and provide a closed transfer emptying the can. In this chamber the weighing docking of the passive split butterfly valve to the active split butterfly valves and discharge the API to the next process step. Empty aluminum cans will be prepared to leave the Isolator system in a unidirectional way out.

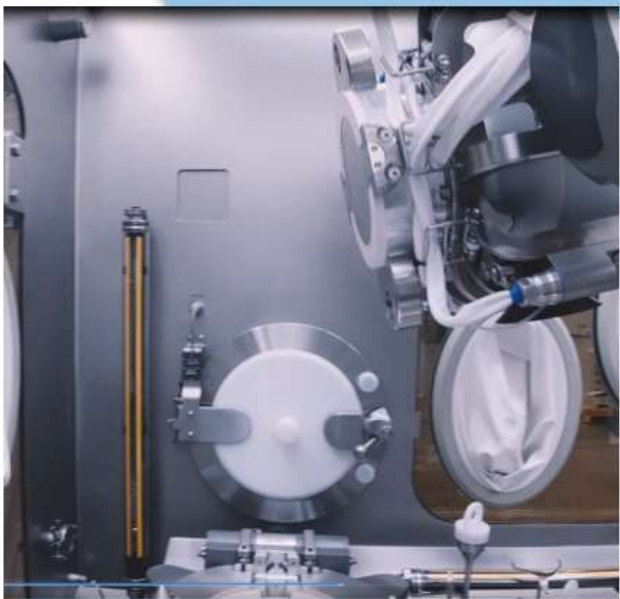


H2O2 Air Lock, First chamber, second chamber



Specific design and development to open the crimp of the aluminum





Active and passive split butterfly valves are connected



Empty drum prepared for leaving the Isolator System

The technology replaced a fully manual process executed in a class B environment. The aluminum can with a weight of 10kg were not easy to handle and a lot of failures happened during the manual process. Now all steps are fully automated with protects the operator and the product. Sustainability is also provided as the Isolator System could be installed in a Grade D area.

The installation of Robotics did solve the quality issues the company had with the manual operation. In general, almost all manual operation can be automatized and this technology should act also as an enabler for future similar projects

Flexibility in terms of Cleaning was one important factor. All areas should be easy to clean and to access. The process should also be handling different can sizes and shapes.

As the process is fully automated there is only one operator needed anymore instead of 6 persons in the room. Calculating every human with its cost and the reduced cleanroom classification the ROT was reached after 4 years

Robotic Powder Handling: Case Study



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1. First Installation on fully automated Robotics for sterile products at the time.
2. Fully Annex 1 GMP Compliance although the design already started years before the first draft of the Annex 1 was published
3. Still state of the art technology as it keeps operators out of critical aseptic operations
4. In use since several years