

Precision cleaning of biocompatible components

Parts cleaning has become an absolute must for many industries. Especially for the medical sector, parts cleaning is an indispensable process. This article introduces a precision cleaning system that meets highest demands.

The CM Group - also known as Cendres & Métaux - is a Swiss company whose history goes back 120 years. In 1885, a small precious metal smelter was founded in Biel, Switzerland's watch making region. Over the years, this small company specialised in the production of wedding rings, jewellery, dental implants and medical devices, parts for watch making as well as components for the electronic industry. During the past decades, the CM Group has become a worldwide leading manufacturer of attachments.

Attachments, e.g. anchor systems, are used to connect dental prostheses (dentures) to natural roots or implants. A considerable part of the turnover is achieved through worldwide export. Over 300 employees guarantee for very high quality standards and the adherence to delivery dates.

The final cleaning of components is of paramount importance

For a precision company, cleaning is a very important step within the production process. As yet, the CM Group has accomplished the cleaning of components with help of a water-based multi-tank immersion cleaning unit. The company's growth, however, has made it necessary to increase the investment in cleaning machines. When planning this new project, the manager of the micromechanical production department had to take into consideration that the workpieces had to be biocompatible after passing the cleaning process. Amsonic's cleaning process was validated during the evaluation phase. The biocompatibility is checked annually.

If biocompatibility is required, the final cleaning has to be water-based in order to avoid any carbon

Conclusion

Cleaning is an integral part of product quality

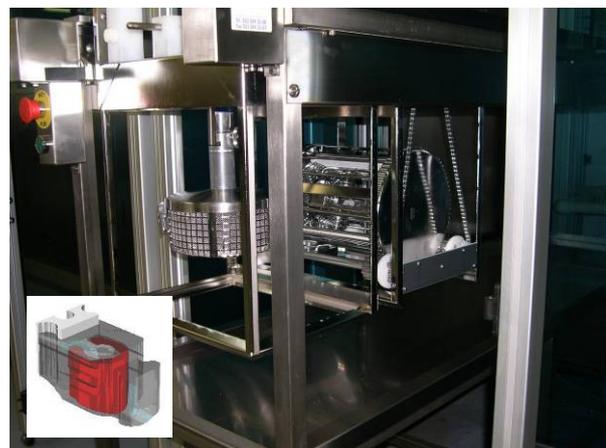
The person responsible for the AquaLine cleaning unit estimates a maintenance effort of approx. one and a half hours per week. In addition, Amsonic maintains the machine twice a year according to medicinal technology requirements.

Until a few years ago, cleaning was a necessary evil in production processes. Now it is more and more developing into an integral part of product quality. This conclusion has to be considered within the medicinal technology sector as well as the automobile, aircraft and electronics industry.

soilings. Rinsing is essential since detergents (builder and tenside) have to be removed efficiently.

Various companies were considered during the evaluation phase. Amsonic was chosen due to the optimal test results achieved by the cleaning process, the user-friendly machine control (PC) and also because of the wide know-how concerning validation and support for machine qualification (IQ, OQ). The cleaning unit is fully automated and controlled via PC. The machine's concept is based on the following cleaning phases:

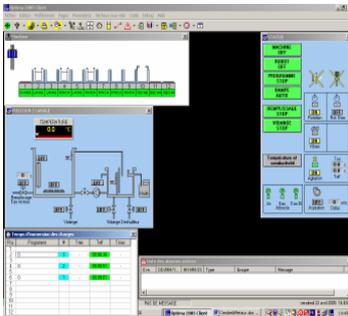
- 2 ultrasonic cleaning tanks
- Rinsing
- Ultrasonic cleaning
- Rinsing
- 3 rinsing tanks with DI water, thereof two with ultrasonics
- Warm air drying, vacuum drying



With various processes, the Amsonic AquaLine cleans complex components that are used for the medical sector and therefore need to be optimally biocompatible.



The CM Group in Biel with 300 employees is divided into various divisions.



PC control with functional chart of the machine.

Warm air vacuum drying

The machine has a throughput of four baskets per hour. The DI water production unit is integrated. The warm air vacuum dryer "WetEx" has been developed in collaboration with the Fraunhofer Institute. It guarantees a perfect and stainless drying even for bulk goods with tapped blind holes, e.g. attachments.

The baskets were especially developed for use under vacuum. Vibration baskets are used for the cleaning and drying of "delicate" parts. They allow a smooth turning of the parts around the basket's vertical axis. Virtually the complete CM product range is cleaned with the AquaLine.

The cleaning process is checked with TOC and IR analyses annually. If the analyses are satisfying, it is assumed that the application is guaranteed and that no cytotoxic potential exists. In order to be able to certify the parts, the PC control allows the automatic printing of a cleaning protocol for each charge. Thus, ensuring that the validated cleaning parameters, e.g. sequence of the cleaning phases, cleaning

cycles, functions (ultrasonics, basket rotation etc.), temperatures, DI water values etc. are adhered to.

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