

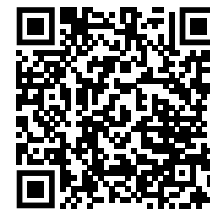
MEDLINE

Wet Chemical Treatment for Medical Applications

The improved state-of-the-art wet processing system for surface treatment like cleaning, etching and drying



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SINGULUS TECHNOLOGIES - Technologies for a Sustainable World

Responsible and sustainable corporate governance is very important to SINGULUS TECHNOLOGIES. SINGULUS TECHNOLOGIES develops and assembles innovative machines and systems for efficient and resource-saving production processes, which are used worldwide in the solar/hydrogen, semiconductor, medical technology, consumer goods and data storage sectors. SINGULUS TECHNOLOGIES regards sustainability as an opportunity to position itself with innovative products that follow this spirit. In the focus are:

- environmental awareness
- efficient use of resources
- avoidance of unnecessary CO₂ pollution

The company's core competencies include various processes of coating technology, surface treatment as well as wet-chemical and thermal production processes.

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MEDLINE

The Progressive Wet
Chemical Platform
for Medical Technology
Applications

SINGULUS TECHNOLOGIES

Wet Processing Systems for Medical Applications

MEDLINE Wet Processing: Batch Systems as well as Customized Solutions

MEDLINE Wet Chemical for Medical Technology

SINGULUS TECHNOLOGIES develops and supplies machines and systems for efficient and resource-saving production processes, which are used world-wide in the medical technology, solar, semiconductor, consumer goods and data storage sectors. The company's core competencies include various processes of coating technology, surface treatment, wet-chemical and thermal production processes.

For the medical technology sector, SINGULUS TECHNOLOGIES offers innovative wet chemical process solutions.

Typical Examples of Wet Chemical Processes for Medical Applications:

- Extraction/hydration
- Etching
- Cleaning
- Surface conditioning and modification
- Coating

Products for Wet Chemical Surface Treatment in the Medical Sector

- Contact lenses and eye care
- Dental implants (orthodontics)
- Joint surgery (e.g. hip prosthesis)
- Housings (e.g. pacemaker)
- Medical devices (e.g. stents)
- and further implants which require a chemical surface treatment

Wet Processing: Batch Systems as well as Customized Solutions

SINGULUS TECHNOLOGIES presents with the MEDLINE platform, a modular system for wet chemical applications, adaptable for different process applications. Eye lenses, dental implants or pacemaker parts are only several examples for the applications. The product range portfolio starts from manually loaded wet chemical tools for research and development applications, up to fully automated platforms for high volume mass production in demanding technologies.

"MEDLINE" Overview

- Modular process configuration
- Processing of substrates by carrier or magazines
- Carrier processing includes fully automated load/unload function (to carrier) and carrier return system, with clean and drying function
- Agitation support for optimum substrate processing and surface treatment results
- Minimized chemical drag-over
- Integrated sanitization/disinfection systems
- Solvent based systems with integrated fire suppression
- GMP conform

The MEDLINE system family offers high flexibility and customized solutions. The systems are available as a batch version, with the implementation of customer requirements to the standard platform. The modular design provides flexibility for both manual and fully automated operation. The systems can be easily integrated in every production process.

SINGULUS TECHNOLOGIES pursues the integrative validation strategy and supports customers in the validation of machine technology. The corresponding



quality management system has been adopted at SINGULUS TECHNOLOGIES. This serves to guarantee product quality and meet the binding market requirements of health agencies, in particular the rules of GMP or other regulations.

GMP Compliance Management

- Dedicated team and business processes for projects in medical technology / regulated industry
- Regular training, education and professional development for employees (e.g., GMP, GDP, Hygienics, GAMP 5)
- Trained subsidiaries in Asia, United States and Europe
- Supplier management /audits
- GMP confirm documentation, certificate handling and validation support

