



WET PROCESS SYSTEMS

for Semiconductor
Applications (WAFER,
MEMS & More)

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Innovative Technologies

Wet Process Systems up to 200 mm
Semiconductor Applications

SINGULUS TECHNOLOGIES develops innovative technologies for efficient production processes. New production technology combined with sustainable processes and the use of novel materials can decouple the use of resources from economic growth in the long-term.

The SINGULUS TECHNOLOGIES product range starts with manual wet stations for R&D, semiautomated systems and up to fully automated tools for the chemical surface treatment like cleaning, etching and drying. They are able to handle all wet processes in the front-end and back-end production area. SINGULUS TECHNOLOGIES also offers new process solution for the cleaning of metal-ceramic components. Metal-ceramic substrates made of silicon nitride have excellent thermal conductivity and excellent mechanical properties. The corresponding components are increasingly being used in high-performance electronics for the field of electromobility (hybrid and electric vehicles).

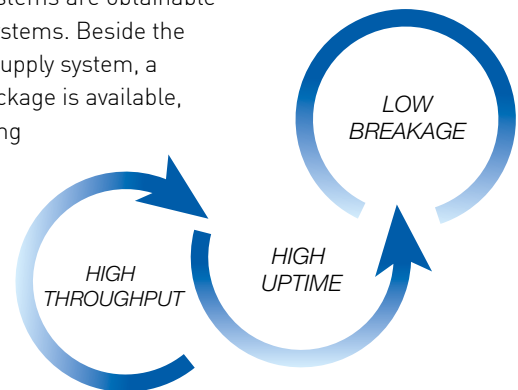
Features

- Up to 200 mm applications (double batch)
- High uptime
- Advanced process control
- Compact footprint – integrated switch boxes
- Upgradable by common and customized options
- Tier-1 components (Iwaki, GF, GEMÜ, SMC, Festo, Siemens)

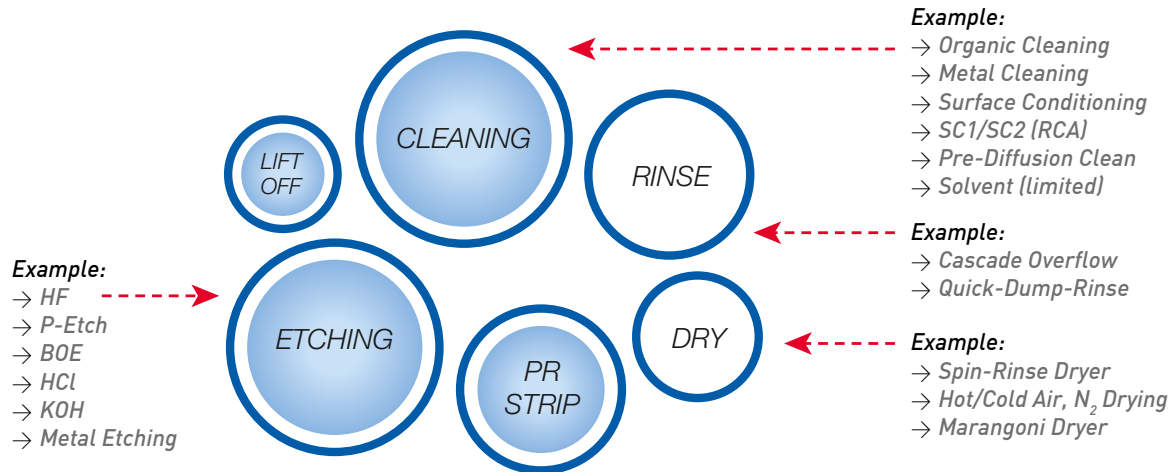
- Platform executed for international industrial standards (CE, OSHA, UL)
- Complies with: FM 4910, SEMI S2 and S8, SECS (if requested)
- Third-party certification and US field labeling available
- Fast installation and start-up according by modular design

Chemical Supply Systems

Chemical systems cover all areas of blending, dispensing, distributing and monitoring high purity bulk chemicals. It is designed around an application specific platform, that can be configured with various delivery options, and is the perfect solution for bulk chemical delivery of acids, bases and solvents. Chemical systems are executed as one drum system (60-1000 liter) or double systems with guaranteed uninterrupted supply option (2x 200 or 2x1000 liter). The systems are obtainable as pump or pressure systems. Beside the stand-alone chemical supply system, a full chemical supply package is available, including chemical piping systems (double tube) and POU boxes.



Typical Applications



Manual Wet Processing Stations

Manual wet processing system executed for max. 2x8" (wafers, MEMS, optoelectronics, photomasks, glass substrates)

- Full modular configuration for a wide range of wet chemical applications, for R&D, pilot and small-scale production
- Executed as fume hood (housing PP or FM4910 compatible material), with high safety standard
- Customizable on required process configurations
- Wide range on standardized process and rinse tank assemblies, dedicated on process solutions
- Integration of third-party equipment, like spin-rinse dryers, hotplates, ovens, spin-coaters

Semiautomated Wet Process Stations

Semiautomated wet process systems executed for maximum three 2x8" tanks (wafers, MEMS, optoelectronics, photomasks, glass substrates) per station

- Full modular configuration for a wide range of wet chemical applications, for pilot and small- and mid-scale production
- Executed as fume hood (housing PP or FM4910 compatible material), with high safety standard

- Systems with rotary robot arm for loading and unloading and optional agitation inside the process bath, dedicated to maximum three process/rinse stations
- Semiautomated rotary arm handling ensures an guaranteed reproducibility on process recipes, by controlled and monitored batch handling
- Customizable on required process configurations
- Wide range on standardized process- and rinse tank assemblies, dedicated on process solutions

Fully Automated Wet Process for Mask Cleaning Application

Fully automated systems executed for max. 2x8", executed as Dry-In/Dry-Out tool

- Full modular configuration with linear handling, for a wide range of wet chemical applications, for mid- and large-scale production
- Standard configurations for different cleaning and etching processes available, customizable on required process configurations
- Wide range on standardized process- and rinse tank assemblies and load/unload configurations (Buffer, SMIF) to ensure optimized process configuration





Headquarters

SINGULUS TECHNOLOGIES AG
Hanauer Landstrasse 103
63796 Kahl, Germany
Tel. +49 6188 440-0
Fax +49 6188 440-1130
sales@singulus.de
www.singulus.de

Production Site for Wet Processing Systems

SINGULUS TECHNOLOGIES AG
Branch Office Fuerstenfeldbruck
Fraunhoferstr. 9
82256 Fuerstenfeldbruck, Germany
Tel. +49 8141 3600-0
Fax +49 8141 3600-2100
sales@singulus.de

Subsidiaries

China
SINGULUS TECHNOLOGIES CHINA
Room B412-413,
No. 1400 Jiangchang Road,
Jingan District, Shanghai, China
Zip Code: 200072
Tel. +86 13916990710

Contact: Greens Pan
Tel. +86 13822138376
greens.pan@singulus.com.cn

Contact: Michael Han
Tel. +86 13917382315
michael.han@singulus.cn

France

**SINGULUS TECHNOLOGIES
FRANCE S.A.R.L.**
Tel. +33 3 893111-29
singulus@club-internet.fr

Latin America

**SINGULUS TECHNOLOGIES
LATIN AMERICA LTDA.**
Tel. +55 1121 6524-10
sales@singulus.com.br

Singapore

**SINGULUS TECHNOLOGIES
ASIA PACIFIC PTE LTD.**
Tel. +65 674 119-12
sales@singulus.com.sg

Taiwan

**SINGULUS TECHNOLOGIES
TAIWAN LTD.**
Tel. +886 2 8692-6996
sales@singulus.com.tw

United States, Mexico and Canada

SINGULUS TECHNOLOGIES INC.
Tel. +1 860 68380-00
sales@singulus.com



THIN FILM
DEPOSITION

SURFACE
ENGINEERING

THERMAL
PROCESSING

WET
CHEMICAL

SINGULUS TECHNOLOGIES – Innovations for New Technologies

SINGULUS TECHNOLOGIES develops and assembles innovative machines and systems for efficient and resource-saving production processes, which are used worldwide in the solar, semiconductor, medical technology, consumer goods and data storage.

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