ASC9500



Growing Innovation

SUSS

Advanced system for photomask cleaning and manufacturing processes

SUSS introduces the ASC9500, the successor to the ASC5500 and a fully automated photomask cleaning system. The platform combines 172 nm VUV surface preparation, final cleaning, hot bake, and dry-flip handling in one platform. Built on proven cleaning technology, it delivers reliable process results down to the 32 nm technology node, and its robust, long-life design supports stable daily operation in mature photomask production.

Compared with the ASC5500, it gives process engineers a wider process window and more margin for demanding requirements. At the core of this is the patented in-situ UV process, which delivers acid-free cleaning with results comparable to conventional acid-based methods, reduces chemical consumption, and helps extend the lifetime of the mask through its gentler treatment. Within the automated sequence, the front and rear sides are processed in a single pass, which minimizes manual handling and the contamination and damage risks that come with it.

Cleaning performance down to 32 nm

Patented acid-free in-situ UV

Automated dry-flip processing

We are committed to driving the next chapter of innovation and growth in the advanced backend together.

ASC9500
Highlights

Cleaning performance down to 32 nm

Flexible configuration between proven SPM and acid-free in-situ UV processing

Compatibility with multiple process media for greater flexibility

Clean frontside and backside before inspection with adjustable physical force for each layout and mask type

Surface actication and preparation for efficient particle removal



Process modules for flexible configuration possibilities

Pre-Cleaning

The Pre-Cleaning Module reliably removes organic contamination and particles. It combines proven sulfuric acid/hydrogen peroxide mixture (SPM) processing and the patented, acid-free in-situ UV (ISUV) process in one module. Full-jet dispense, beam and megasonic cleaning, and frontside and backside rinse let you adapt the process to each mask type.

Final Cleaning

The optional Final Cleaning Module balances high particle removal efficiency with the protection of fragile mask features such as sub-resolution assist features (SRAFs). Beam and megasonic cleaning combined with droplet spray let you select the right level of physical force for each application. Frontside and backside rinse prepares a clean mask on both sides for inspection.

Hot and Cool Plate

Residual ions such as sulfate and ammonium are a known root cause of haze on masks used in KrF (248 nm) and ArF (193 nm) lithography. In combination with a hot deionized (DI) water rinse, the hot plate provides a dedicated thermal step to reduce residual ions. The cool plate then brings the mask back to a controlled temperature for the next process step.

Dry-Flip Station and 172 UV Unit

The integrated Dry-Flip Station turns the mask in a dry state within the automated sequence. Frontside and backside can be processed in one run without manual intervention. This reduces the risk of contamination and damage and supports a stable, repeatable process flow. The 172 UV Unit activates the surface from hydrophobic to hydrophilic, enabling efficient particle removal and breaking up organic residues for further processing.



ASC9500
Technical data

General	
Dimensions single (w x d x h)	140 x 220 x 232 cm
Dimensions dual (w x d x h)	280 x 220 x 232 cm
Mask sizes	6 inch (5, 6, 7, 9inch planned)
Robot system	Single Arm Robot with low contact Gripper
Used Media	CDA, N2, CO2, O2, DIW, hot DIW, DIW-O3, Cooling Water, NH4OH/TMAH, H2O2, APM
Throughput	2-4 Masks per hour depends on technology node and contamination

Available Modules	
State-of-the-art Main Frame and Housing	FFU incl. Chemical Filtration Main Handling Unit SMIF loadports (standard, OHT or AGV) Aligner, Buffer Pre- and final clean chambers Dry-Flip Wet-Flip 172 VUV unit InSitu UV Prozess (acid free mask cleaning) SPM Prozess NanoSpray Megasonic (different frequencies) Hot Bake (ion residues elimination) SpinRinseDry O3 Generator ESD prevention (air and media) Media Supply Cabinet

Data, design and specification depend on individual process conditions and can vary according to equipment configurations. Not all specifications may be valid simultaneously. Illustrations, photos and specifications in this brochure are not legally binding. SUSS reserves the right to change machine specifications without prior notice.

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