



The Enhanced Approach for METAL LIFT OFF PROCESSES

Single Wafer Solvent applications are becoming more and more relevant for the MEMS industry. As a consequence SICONNEX expanded its activities and offers Metal Lift Off, Resist Strip and Polymer Removal processes on the SICONNEX VERTICAL 200 platform.

VERTICAL 200 SOLVENT – The System

The process head is especially designed to run solvent applications such as Metal Lift Off, Resist Strip and Polymer Removal. The Substrate Face-Down Technology eliminates the risk of wafer contamination. Dry wafer handling throughout the system minimizes maintenance. Up to 6 process modules are arranged in a stacked chamber design, keeping the footprint (with integrated chemical conditioning system) smaller than 4m². Based on this configuration a typical Lift-Off application achieves a throughput of 125wph. Wafer sizes up to 8-inch are processed in this system.

The Advantages

InSitu Lift-Off Chamber

Compared to other available systems on the market, the SICONNEX VERTICAL 200 SOLVENT performs both in one chamber, a complete soaking process as well as the final High-Pressure Lift-Off cycle. The soaking step is done by utilizing dedicated

spray nozzles, up to a pressure of approximately 2 bar. Using the mechanical force of this stream, the soaking time can be reduced by over 75%. The subsequent High-Pressure step eliminates residues and cleans the surface completely. The required pressure (up to 150 bar) can be adjusted in the recipe.

Substrate Face-Down Technology

Wafers are loaded face-down into the process chamber, where they are held by a vacuum chuck. A N₂-Purge completely protects the wafer backside from splash-



Figure 1: SICONNEX VERTICAL 200 SOLVENT, Single Wafer Solvent Processor.

backs caused by the high pressure step. Due to Substrate Face-Down Technology, all residues will be kept away from the wafer surface by gravity. In addition, this technology prevents the wafer from scratches caused by metal residues.

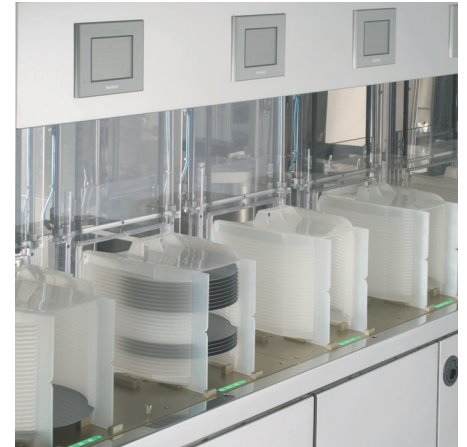


Figure 2: Loading Station.

Process Qualification in SICONNEX Laboratory

SICONNEX qualifies all processes in its laboratory in Salzburg.

The cleanroom is equipped with all SICONNEX systems being offered to the industry – PRODUCE 200 ACID for batch spray acid applications, PRODUCE 200 SOLVENT for batch spray solvent applications and VERTICAL 200 SOLVENT for single wafer solvent applications.

Currently, more than 50.000 wafers were processed in the VERTICAL 200 SOLVENT to develop and qualify Metal Lift Off, Resist Strip and Polymer Removal processes. Upcoming scheduled laboratory activities are the qualification of contactless handling (Bernoulli chuck) and the development of the VERTICAL 200 ACID for single wafer acid applications.

Siconnex – Wet Spray Expert

Siconnex is a global leading equipment manufacturer for the semiconductor and related industry.

Founded in 2002, SICONNEX is headquartered in Salzburg/Hof, Austria, and operates via a global customer support network, with subsidiaries in France, Malaysia and Taiwan.

SICONNEX provides surface preparation equipment and processes, including WET BATCH SPRAY and SINGLE WAFER SPRAY systems for MEMS, III-V Semiconductor, Wireless, Power, Energy Harvesting, WLP, Data Storage and Logic industries. SICONNEX systems are leading when an extremely small footprint, safety, full automation, high

throughput and economical resource consumption is important.

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