

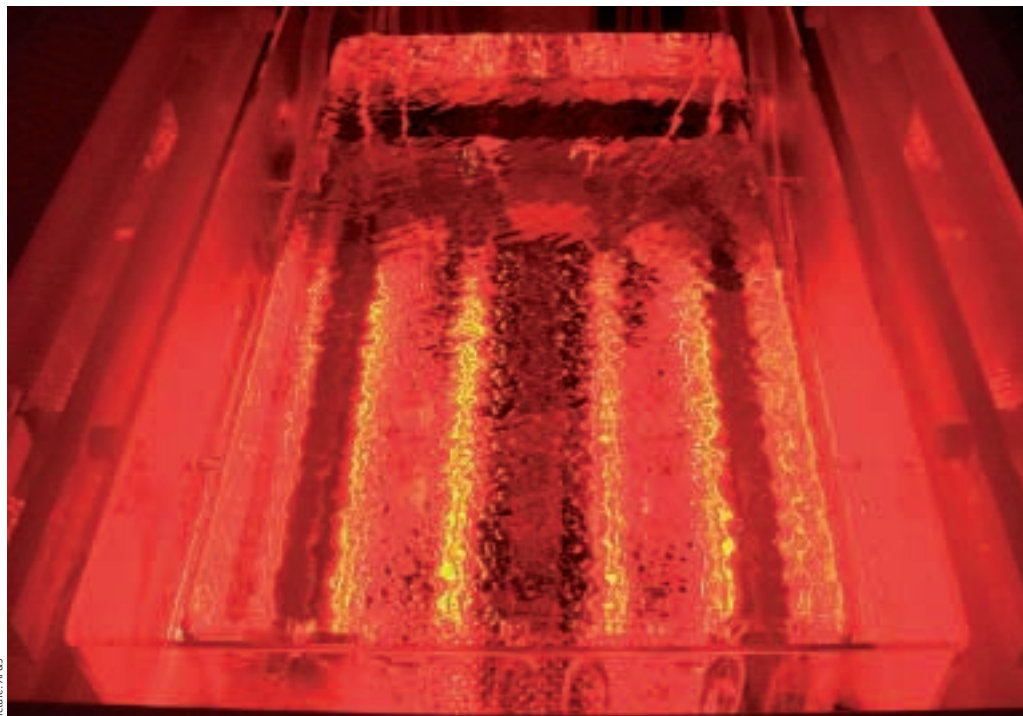
New low-cost wet processing tool equipped with Simatic CPU 315-2 DP and TP 270 from Siemens

Small footprint is sexy

In addition to enhanced flexibility, productivity and cost-effectiveness, a small footprint is key in the development of the latest low-cost wet processing tool at AP&S Customized Solutions in Donaueschingen, Germany. For this reason, the company decided to implement the Simatic TP 270 touch panel, CPU 315-2 DP and ET 200M high-density I/O from Siemens.

AP&S can trace its roots back to the mid 90s when HM Reinraumtechnik GmbH was founded and finally acquired by SEZ AG, Villach, a specialist in single-wafer treatment. The company develops and produces automated wet processing equipment for substrate batch treatment in cleanrooms. Based on its long-standing experience, AP&S specializes in customer-specific process problems.

In a modern chip fab about 25 to 30% wet process steps are required. Immersion processing of wafer batches is required for stripping (photoresist), etching (metal or oxide) and cleaning. After years of large-scale tool installation the focus is now on smaller, more flexible and more cost-effective tools with a wide range of process options.



Picture: AP&S

Meeting new requirements in tool architecture

As a combination of two process stations the so-called TwinStep combines a circulation system with overflow processing. The AeroSonic drying technology with its ability to increase chemical treatments of substrates, allows rinsing and drying within one bath as the core element of its new tool generation. With this combination various process applications are made possible. This new equipment type closes the gap between manual stations with its flexibility but low automation and the highly automated systems with its accuracy and throughput but also high costs.

“With a compact design on a small footprint, based on the dry-in-dry-out principle, we needed a flexible tool control architecture, with minimal space requirements and cost effectiveness,” explains Juergen Funkhaenel, project manager at AP&S.

Beyond the simple manual stations the TwinStep contains an automated process control with wafer cassette handling inside the tool for reliable and repeatable process steps.

“Simatic S7-300 controllers have been chosen by our electrical engineers because of their remarkable low-cost configuring and IEC 61131-3 compliant pro-

▲ Immersion processing of wafer batches is required for a number of process steps in a modern fab

gramming,” says Juergen Funkhaenel, “and in addition to that, we can count on powerful, integrated system and process diagnostics functions which increase controller availability and productivity as well.”

“Our customers also want a graphical user interface, which simplifies the handling of the equipment,” asserts Juergen Funkhaenel, “Simatic TP 270 panels provide intuitive and simple operation by touch. With the integrated communication capability of the TP 270, AP&S also saved considerable expenditures on configuration. The touch panels can be easily integrated into the automation environment, using Profibus DP or MPI and above all the on-board Ethernet communication capabilities enable powerful recipe downloads from host systems.”

At the upcoming SEMICON Europa 2004 show in Munich, AP&S will present AeroSonic drying technology with Simatic technology at the Siemens Pavilion for the first time. ■

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