

ASM Europe and Siemens form cooperation involving Simatic fail-safe controllers

# Partnering in safety

In spring of 2006, ASM Europe and Siemens signed a letter of intent for the installation of Simatic fail-safe controllers in ASM production machines used in the semiconductor industry. Initially, only the new A412 vertical furnaces, developed for the fabrication of 300mm wafers, are equipped with the safety controllers. Over the long-term, however, cooperation plans between the two companies include the ongoing technical development of the ASM machines, as well as for possible ASM additions to Siemens products and systems.

Since its founding in 1968 as a manufacturer of thermal-chemical wafer processing tools, ASM International has grown to become one of the world's leading suppliers of semiconductor equipment for the front-end and wafer processing as well as back-end, assembly and packaging markets. With the Advance 400 series, its dual-reactor family of vertical furnaces, ASM Europe ranks among the top three furnace suppliers in the world.

## Inherent safety risks

Safety is an extremely important issue at the ASM Europe facility in Almere, Netherlands, as senior engineer Max van den Berg

stresses. "We specialize in equipment used for fabricating wafers. These machines employ a process in which chemicals are used to apply layers of material." The process, however, also involves risks, because explosive and poisonous gases are used. "For example, we dose pure hydrogen and oxygen to initiate the oxidation process. The proportions have to be just right. Otherwise, you create an explosive medium," van den Berg explains.

## Unique integrated safety solutions

A reliable fail-safe controller is absolutely essential for accurate proportioning. The Simatic fail-safe controller from Siemens



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installed at Almere is capable of processing the information of two sets containing mass flow controller and flow meter, thereby enabling direct control of the chemicals dosing, and thus correct process operation. "We work with analog signals that are collected redundantly and used in a safety program," van den Berg adds. "As far as we know, Siemens is still the only supplier to offer this technology as one integrated solution that fits in the current budget."

ASM Europe is very enthusiastic about its Simatic fail-safe controller. According to van den Berg, other suppliers have no comparable product. "At present, Siemens has a clear head start here." And he also has words of praise for the Siemens support: "Whenever we have a question, someone is onto it immediately."

#### Shorter test phase

The first A412 machines to take up operations at the end of 2006 required much less time for testing. This has obvious advantages, as van den Berg explains: "By debugging the program in advance – offline – you can find out at an early stage how it works, and the final debugging phase can be significantly shortened." ■

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## Simatic Safety Integrated Flexible, effective, top-level protection

Accidents, damage and human injury on the factory floor as a result of machine and system faults must be avoided at all costs – not only given the fact that laws governing safety at the workplace are becoming more and more stringent in many countries around the world. With its Simatic Safety Integrated line of products, Siemens has put together a fully integrated, flexible and highly effective system design concept for safety-related applications in the production and process automation industries. Most importantly, Simatic Safety Integrated offers users a high degree of protection for both standard as well as safety-relevant automation tasks.

Conventional fail-safe PLC solutions are rapidly approaching their limits in terms of technological and economic feasibility. With the steadily growing complexity of automation tasks, wiring and engineering costs continue to rise. Troubleshooting generally requires more time, leading to reduced plant and system availability. Not surprisingly, more and more plant operators are seeking out integrated automation solutions to handle the safety-relevant tasks of their factory and process automation systems.

Simatic Safety Integrated is a key element of Totally Integrated Automation, the comprehensive automation solutions concept of Siemens for all industry sectors. Comprising but one fail-safe controller, one distributed I/O module and one bus system, Simatic Safety Integrated requires fewer components than conventional automation safety systems, translating into significant cost savings. As a result, system and plant operation also remains simple, meaning that operation personnel generally require fewer training hours. Moreover, Safety Integrated solutions fully comply with all relevant certification standards, including IEC 61508 (SIL 3), IEC 61511, EN 954 (Category 4), NFPA 79, NFPA 85, SEMI Safety Standard E 54 as well as the IEC 62061 sector standard.

Simatic Safety Integrated forms a seamless fit together with already existing network structures and components. Engineering and programming of both the standard and safety functions is performed with one and the same software tool, the Simatic Step 7, simplifying and speeding up commissioning. Thus, diagnostics of safety-relevant signals, for example, can be read out using standard panels and HMI components. In terms of communications flexibility, Simatic Safety Integrated enables users to handle standard as well as safety-related tasks with both Profibus and Profinet. As such, Simatic Safety Integrated forms a seamless symbiosis between standard and safety automation tasks, while offering flexible, effective, high-level system and plant protection.