

Exsys Case Study

Global Manufacturer Improves Business, Decision Support, Training & Process Control

Silicon Wafer Manufacturing Company



A global leader in the manufacture and sale of wafers and related intermediate products to the semiconductor and solar industries has been using Exsys knowledge automation expert systems technology in its worldwide manufacturing operations for a number of years. The company has realized significant, measurable ROI and benefits by implementing and fielding over 40 systems in many areas including operator training, manufacturing operations consistency, and complex process control troubleshooting.

Simplified Training – Due to the nature of the company’s complexity of manufacturing processes and procedures, the company needed more effective and efficient problem-solving training of operators. Exsys systems have streamlined and cut training costs by over 10%. Instead of time consuming and confusing “classical” instruction that concentrates on figuring out and understanding many, varied complex processes; operators simply “consult” with the expert systems to take appropriate situation-specific actions in troubleshooting. The systems also accelerate new training. The Exsys expert systems guide operators through problem-solving steps, allowing them to concentrate more readily on solving immediate real-time problems. Without having to suddenly locate a process-specific expert, or learn all of the background complexities of many processes, operators can quickly learn to solve real-time problems at hand. In turn, instead of answering repetitive questions, this frees up company experts to solve unique problems and concentrate on creative product development.

Consistent Answers & Ongoing Improvements - Another major benefit that Exsys expert system technology brings to the company is assurance that the same decisions are made under the same circumstances and conditions every time. Operators rely on and are guided by a consistent step-by-step process of evaluation and decision-making that reduces variations throughout the system. The expert systems are consistent and certain in problem-solving abilities - in “knowing” what works and what does not work. Using this knowledge, the systems allow engineers to access, collect and analyze data to help them make further corrections and improvements in manufacturing operations and procedures.

Solving the Problem the Right Way Averts Many Other Problems – The company’s manufacturing and operations processes can be incredibly complicated, and every process may impact dozens of others. Many problems the operators encounter are more involved than they can handle themselves. The experts conduct a Design of Experiment (DOE), account for the relationships among the various process steps and parameters, and use Exsys expert systems to provide operators with simple and logical instructions for complex decision-making processes. The Exsys expert systems take them through a series of appropriate questions drilling down to solve specific problems, and makes recommendations including the correct sequence in solving problems.

Improved Process Control - Exsys expert systems bring other advantages to the company’s manufacturing operations. It strengthens and builds upon their focus of continuous improvement. The systems are linked to their Statistical Process Control (SPC) to enhance control chart reaction effectiveness, and are integrated with the plants’ database.

Because of the advantages of Exsys knowledge automation expert systems, the company has further expanded their utilization on a worldwide basis including locations in North America, Europe and Asia.



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