

## CUSTOMER SUCCESS STORY

### Bruker Delivers Fully Automated Tool in Three Months

Bruker Corporation, a \$1 Billion US company, is one of the worldwide top ten analytical instrumentation companies delivering solutions for a large variety of industries. Bruker AXS, headquartered in Madison, Wisconsin, USA, has a long history developing instruments based on X-ray technology and is the world market leader for X-ray Diffraction (XRD) equipment. Bruker AXS GmbH is located in Karlsruhe, Germany and supplies X-ray R&D equipment to semiconductor wafer fabs, OEMs, and universities for materials analysis. Along the way to 45nm manufacturing, Bruker AXS developed the strategy to turn their R&D metrology tools into fully automated in-line fab tools while maintaining their high quality standards and continuing to advance their state-of-the-art X-ray diffraction technology.

#### Focusing on core competencies

Early in 2008, an IC manufacturer asked Bruker AXS to prepare one of their X-ray metrology instruments for automated production and have it ready in three months. Bruker AXS has traditionally done all of their equipment development internally but chose to outsource this automation project. “As a developer of analytical instruments, we have a strong software development team,” says Assunta Vigliante, Business Development Manager of Bruker AXS. “But I prefer that our software engineers focus on our core competency—equipment control and data analysis—and to outsource automation, which doesn’t add competitive value to our equipment.”

While the hardware integration is straightforward, it is the software integration that typically presents the most challenges to OEMs. So Bruker AXS turned to PEER Group, which has the most equipment automation experience in the semiconductor industry of any company globally. PEER Group engineers worked closely with Bruker AXS engineers to develop a plan to integrate all of the hardware and software needed to complete the project. The schedule was aggressive, but Ms. Vigliante knew that PEER Group had done this before under similar time constraints.

“I was aware that PEER Group had a good reputation of on-time delivery with other semiconductor OEMs,” says Ms. Vigliante. “Nevertheless, it’s a big project and we were a little nervous that we would not meet our customer’s schedule and specific automation requirements.”

The project consisted of:

- Integrating all of the EFEM hardware to the equipment frame
- Integrating the automation software to the equipment controller and EFEM hardware
- Configuring PEER Tool Orchestrator (PTO™) for specific fab automation specifications, including the user interface
- Adding several custom features
- Testing the entire system, including the SECS/GEM interface

Ms. Vigliante continues, “What really sold me on PEER Group was the depth of their knowledge regarding tool automation requirements and fab acceptance. Coupled with the functionality built in to their rapid development product, PTO, I was confident that they could deliver on their commitments.”

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Assunta Vigliante  
Business Development Mgr  
Bruker AXS

## Proven automation software solutions

Using their PTO product as an automation framework, PEER Group's OEM automation team quickly went to work. "We have automated about 30 equipment platforms over the past six years," says Bill Schmalz, director of PEER Group's OEM Automation Division, "so I knew our automation team could do it. Our proven development platform and domain knowledge provides us with the confidence to quickly handle any unforeseen problems that might come up during complicated integration projects."

*"The final integration testing at our site was completed in about three hours, and testing in the customer's fab was complete in one day. We were very happy and so was our customer."*

PTO handles all of the SEMI automation standards for 300mm automation and connectivity and even has many of the world's fab-specific operational scenarios built-in. Furthermore, PTO has drivers for most of the industry's popular EFEM hardware components (i.e., robots, load ports, aligners). So the biggest tasks are the communication between PTO and the equipment control system (ECS) and developing the special customer automation requirements. Schmalz continues, "We become part of the customer's engineering team to make sure the integration goes smoothly."

The tool was ready for final testing in a little less than three months, but most OEMs know that final integration testing often reveals difficult problems that can take additional weeks or months to correct. "The final integration testing at our site was completed in about three hours," Ms. Vigliante proudly claims. "And testing in the customer's fab was complete in one day. We were very happy and so was our customer."

### About Bruker AXS

Bruker AXS, an operating company of Bruker Corporation, is a global market and technology leader in materials research and quality control instrumentation for elemental and crystalline structure investigations. The range of solutions covers biological and chemical crystallography, bulk material and surface sensitive X-ray diffraction, atomic force microscopy, wavelength and energy dispersive X-ray fluorescence analysis, optical emission spectroscopy, and combustion analysis. Learn more about Bruker AXS at [www.bruker-axs.de](http://www.bruker-axs.de).

### About The PEER Group Inc.

PEER Group provides leading-edge factory automation software solutions and consulting services to advanced manufacturers and OEMs in the semiconductor, electronics, life sciences, automotive and solar industries. Many of the world's best manufacturing companies turn to PEER Group to solve their most challenging equipment automation, data management and custom application development problems. PEER Group partners with leading software and automation companies to ensure the most efficient delivery of highly functional, reliable and scalable solutions. Learn more about PEER Group at [www.peergroup.com](http://www.peergroup.com).

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