

CHA Industries in Silicon Valley decided to use TIA components for its equipment

Coating at its best

When CHA Industries decided to launch a new generation of high vacuum deposition systems, the company chose Siemens as its automation partner. The deciding factor for the "Silicon Valley"-based equipment manufacturer was the Siemens concept of supplying a total automation solution instead of individual components.



What our customers want from Siemens are automation solutions that provide consistent user interfaces for all subsystems, ensure uniform software structures in the equipment, use the same kind of components in all stations, and allow all modules to be maintained in the same way to maximize the availability of the system", asserts Richard Schuler, account manager at Siemens in Silicon Valley.

Founded in 1954, CHA Industries is dedicated to the design, production and distribution of a full line of high vacuum deposition systems for precision coating that have set world-wide standards in the semiconductor, magnetic media and optical coating applications. CHA systems are economical, feature fast loading and unloading, offer broad process flexibility and are equally productive in both sputtering and evaporation processing.

The Mark 50 system, an industry standard, is the foundation of the CHA Web/Roll Coater. Simplicity in design, ease

Integrated platform for an integrated solution: Simatic technology

of operation, and unmatched reliability make it the system of choice in semiconductor facilities around the world. In addition to semiconductor processing, Mark 50 systems are widely used for coating LED (Light-Emitting Diode), MEMS (Micro-Electro-Mechanical System), and magnetic hard disc drives, as well as a wide range of materials in the optical, ophthalmic, optical recording, aviation, and metallurgical fields.

Typical process stations within the high vacuum chamber might include a sputtering cathode, electron beam gun, thermal source, substrate heater array, liner ion beam gun, and a plasma process bar for both reactive and non reactive glow discharge processes. Gas-flow manifolds with pressure and flow controls are provided. A range of shields and shutters are provided to ensure optimized processing and ease of maintenance.

Object-oriented libraries for each control requirement

The entire air-to-air deposition process is automatically controlled by a Siemens Simatic S7 318-2DP PLC system with a Siemens Industrial PC front end. Utilizing a combination of local and Profibus distributed I/O, as well as several third-party devices on Profibus, the system is an expandable platform that has served the CHA customer base well for many years. This Simatic S7 system represents a migration from the Simatic S5 platform, a path that allowed CHA to utilize their proven control libraries in the next generation S7 product line, leveraging the engineering investment from established successful equipment.

Simple object-oriented libraries with structured code can be quickly added or deleted to fit each machine's control requirements. The inherent flexibility of the Simatic S7 318-2DP makes any CHA equipment dramatically more appealing to the market.

Profibus eliminates countless wires

The flexible and modular architecture of the Simatic ET 200M distributed I/O eliminates countless wires from the process chambers to the PLC – reducing machine production costs significantly. Both labor and materials costs are reduced, helping CHA tools remain highly competitive in the semiconductor market.

"The introduction of Siemens automation systems to our product has allowed CHA Industries to maintain our leading position in deposition systems supplied to our global customer base. Siemens has always provided outstanding technical support to CHA Industries and remains a trusted partner", said Mr. Edward Yuill, director of technology, CHA Industries.

CHA Industries has been using Siemens automation and control solutions for over 10 years and this close, long-time partnership has helped them increase the reliability & flexibility of their tools while reducing their operating costs and time to market. ■

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