

KUKA partners with Siemens to optimize robot integration

Wafer handling with the robotic touch

The product portfolio of KUKA Roboter GmbH, one of the world's leading manufacturers of industrial robotic units, includes a series of cost-efficient cleanroom robots specifically designed for the semiconductor and integrated circuit industries. At Supfina Semiconductor Technologies of Remscheid, Germany, a KR 3 cleanroom robotic unit was successfully integrated into the modular wafer grinding system with a twin tool spindle to handle wafers. Forming an integral part of the Simatic Equipment Control System (ECS) at Supfina, the unit has performed to the company's full satisfaction.

With its lineup of cleanroom robots, KUKA Roboter GmbH of Augsburg, Germany is able to offer flexible standardized solutions for a variety of applications which, until now, had left customers with little choice but to implement costly dedicated systems. KUKA's cleanroom robotic units primarily differ from its other robots in that they feature specifically ground and painted surfaces to prevent build-up of particle deposits.

First cleanroom robot

Supfina Semiconductor Technologies was one of the first companies in the semiconductor field to utilize industrial robots in its operations. Supfina ST, a division of the Supfina Grieshaber GmbH & Co. KG group and a market leader for Superfinish surface treatment equipment for the auto-

motive and medical industries, developed a modular wafer grinder with a twin tool spindle for both back side and prime wafer grinding. The first wafer handling robot designed by KUKA, the KR 3, was successfully integrated into the system. As a result, Supfina was able to achieve one of the highest throughput rates in the market. "Our decision to go with KUKA was based on the outstanding performance and reliability of the units, combined with their minimal maintenance requirements. These are all key issues in the semiconductor industry," as Christoph Mueller from Supfina Semiconductor Technologies explains.

Simplified integration

To simplify integration of its robots into the Simatic Equipment Control System (ECS),

the control hardware and software platform utilized by Supfina in its semiconductor operations, KUKA set up a joint partnership with Siemens to develop software components specially designed for semiconductor applications. For use in the Simatic ECS the KUKA robots are programmed and controlled directly from the customer's equipment control platform. With the help of the Siemens ECS designer, modules, components and aggregates can be organized into hierarchical modular trees. The ready-to-use library components are easily arranged on a worksheet using drag and drop functions. Once the desired arrangement has been defined, the system automatically generates all of the required automation functions such as hardware configuration, GUI generation, GUI tag management and database population, standard object and screen design, as well as all system messages in the alarm logging system database.

Successful collaboration

Thanks to the partnership with Siemens, KUKA Roboter GmbH is able to more easily integrate its cleanroom robots into the highly advanced and innovative Siemens control hardware and software platform for the semiconductor industry.

KUKA Roboter GmbH

With approximately 2,000 employees and some 20 subsidiaries worldwide, KUKA Roboter GmbH, based in Augsburg, Germany, ranks among the world's leading manufacturers of industrial robots. In 2004, sales of the IWKA Aktiengesellschaft Group member totaled 425 million euros. Core competencies of the company include the development, production and sale of industrial robots, controllers, software and linear units for a broad range of markets, including the automotive, aerospace, consumer goods, logistics, food, pharmaceutical, medical and plastics industries.

The company's 5- and 6-axis robots feature payloads ranging from 3 kg to 570 kg and a reach of between 635 mm and 3,700 mm. The tremendous maneuverability of the robotic units enables objects to be handled from virtually any angle, making them particularly attractive also for the semiconductor industry. KUKA's cleanroom robotic units are specially designed for semiconductor manufacturing, testing and handling applications.

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