SUSiETEC®
A Brand of Kontron

Success Story ⚙

Introducing the first ToolCommander®
for Beneq Oy

Using ToolCommander® to control an ALD (Atomic Layer De-position) system from the Finnish company Beneq is another success story for one of the leading control frameworks in the semiconductor industry.

After a successful test run at Beneq's headquarters in Espoo (Finland), the coating system for the production of OLED microdisplays in China was put into operation. In addition to system control with ToolCommander®, the project also inclu-ded the implementation of a host interface.

The project

❯ Implementing an ALD control system using ToolComman-der® with a subordinate Beckhoff PLC

The platform(s)

❯ ToolCommander®

The service

❯ Providing Windows 10
❯ TwinCAT
❯ CC-Link

The goals

❯ Controlling the ALD equipment with ToolCommander®
❯ Ensuring high software quality
❯ Quick and easy start-up

The challenge

❯ Support for single wafer and batch processing
❯ Provision of a customer-specific horizontal and vertical interface

The solution

❯ Introducing ToolCommander® control software
❯ Implementing a customer-specific interface solution using the FabLink® interface product

kontron
The Power of IoT

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Technical details of the project

A special feature of the project was that both single-wafer processes and batch processes can run in Beneq Oy's ALD systems. As a universal framework for machine control, the ToolCommander® supports various systems - including batch, cluster and inline systems.

The existing functions and the user interface of the ToolCommander® therefore served as the basis for integrating the Beneq Oy Beckhoff PLC to control ALD processes. The Beckhoff TwinCAT protocol was used for communication between ToolComander® and the Beckhoff PLC. By using a decentralized I/O terminal and various TCP/IP interfaces, components such as load locks and the pump unit were directly controlled.

For vertical host integration, the Chinese end customer defined their own interface protocol, which was similar to SECS/GEM standards, but also included customer-specific functions. On this basis, susietec® experts developed an additional adapter. Horizontal integration into the main cluster was achieved through a CC-Link interface.

Customer Benefits

The first phase of the project included a machine control specification, which was carried out in close cooperation with Beneq Oy. As part of this specification process, various test scenarios were also defined.

Prior to delivery, an in-house test was carried out using the simulation options of the ToolCommander®. There was also regular exchange of ideas and experience with the developers at Beneq Oy. Six months after the start of the project, the system was shipped to China and put into operation on site.

Customer key figures

> 25 wafers are processed in a batch
> almost 300 data points for the Beckhoff PLC
> 6 months from project start to delivery

About Beneq

The home of ALD (Atomic Layer Deposition): As market leader, the Finnish company Beneq offers a broad portfolio of machine products and development services. In addition to innovative solutions for flexible series production (BENEQ TransformTM) and high-precision spatial ALD coatings (C2R), this also includes the production of thin-film coatings (WCS 600) and thicker film stacks (P400, P800). Beneq's aim is to make ALD technology accessible for research and development - and as a result create a decisive advantage for new semiconductor applications.

For more information, visit:
www.beneq.com

About susietec®

We see digital transformation as a holistic approach. With the susietec® Toolset, we support companies in recognizing the potential of IoT and digitization: The combination of software, hardware and know-how enables functional and smart solutions for equipment suppliers, providers and manufacturers. That is how we succeed in implementing purposedriven changes effectively – with the aim of driving forward digitization in the long term. susietec® solutions can be used in an existing environment and also provide a basis for the new development of machines, components and production plants.

As part of the Kontron Group, we help you take the decisive steps towards digital transformation using our experience from numerous digitalization projects.

For more information, please visit:
www.susietec.com

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Kontakt

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