

Nestlé automates end-to-end production of hypoallergenic baby foods

Leading food company uses single EtherNet/IP network and solutions from Rockwell Automation and Endress+Hauser

Solution


An integrated automation concept from Rockwell Automation and Endress+Hauser that includes:

- 50 Allen-Bradley® ControlLogix® programmable automation controllers (PACs) with the appropriate switches
- About 150 PowerFlex® AC drives (0.75 - 315KW)
- EtherNet/IP network infrastructure for end-to-end process communication
- Flex/Point I/O™
- Stratix integrated switches
- Endress+Hauser Coriolis flow measurement systems
- Endress+Hauser FieldCare asset management tool

Results

- End-to-end automation for manufacturing, filling and packaging processes in a demanding environment
- Rockwell Automation components and EtherNet/IP, provide a solution that can be reproduced for other Nestlé factories
- Time savings on hardware commissioning
- Structured and modularised automation concept, facilitating rapid and flexible system extensions when needed

Alliance Partner

Endress+Hauser 



Background

With its 650 employees, the Nestlé factory in Biessenhofen is one of Nestlé's larger facilities in Germany and is recognised as a competence centre for the production of hypoallergenic baby food. The factory also produces the Alete and Beba brands of cereal pastes, as well as clinical liquid nutrition. Other products made in Biessenhofen include NescaféXpress coffee-based drinks and Thomy sauces.

Nestlé has expanded the factory and more than doubled its production capacity. Rockwell Automation was involved in equipping the new site early on in the project due its excellent reputation and experience in the food manufacturing industry.

Rockwell Automation, which already works with Nestlé on a global level, was selected as the system supplier for the new project. Control cabinets, control systems and AC drives – the company delivered a wide range of Allen-Bradley® hardware to automate the new factory.

The project began in summer 2009 and production started in summer 2011.

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The food industry's production methods are oriented towards market demands, among other factors. The market's central requirements include the ability to react fast to new situations, maintain transparency in increasingly complex production processes, and monitor costs.

The daily work at Nestlé Biessenhofen includes carefully selecting raw materials, processing them with the highest levels of precision, and maintaining constant quality control at various stages in the production process. Needless to say, the hygiene and quality control standards go far beyond the standard legal requirements.

Challenge

In Biessenhofen, Nestlé wanted to introduce a fully integrated solution in a completely new facility and automate it from start to finish.

The project involved automating the sterile filling and packaging sections as well as the manufacturing area. Producing hypoallergenic baby food is such a complex process that it would be hard to manage without computer-aided process controls operating within very narrow tolerance levels. Every stage of the process has to be managed, monitored and documented.

Nestlé set several strategic and technological goals for the automation project at Biessenhofen. One of these

was the optimisation of tolerance levels and the ability to easily reproduce processes. Another was to improve quality assurance, verification and batch traceability. The company also wanted to increase the flexibility of machine and process functions. On the operational level, Nestlé wanted to minimise losses and night shifts while reducing labour costs and throughput times. The Biessenhofen plant was also tasked with optimising the production surface area, inventory and general monitoring costs.

Solution

Nestlé believed the standardised Ethernet approach was crucial for the installation, as it facilitates the planning and visualisation of the whole production process. Process monitoring is made easier in the I/O network by centralised switches which help to optimise availability and detect any issues before they cause machine failure. The performance and flexibility of the field devices – and their integration – was another reason the Nestlé project team selected Rockwell Automation. "Nestlé has already implemented several projects with Rockwell Automation and Endress+Hauser" notes Florian Schreyer, Automation Engineer at Nestlé. "Both companies have tailored their products and systems to the specific requirements of the food manufacturing industry. Their worldwide availability helps to support systems and applications throughout their lifecycle."



To support seamless production processes, Rockwell Automation was asked to supply and install control cabinets, 50 Allen-Bradley ControlLogix® Programmable Automation Controllers (PACs) with the appropriate switches, and about 150 PowerFlex® AC drives (0.75 KW - 315 KW). All the automation technology is based on ControlLogix® and includes FieldCare (the plant asset management tool from Endress+Hauser), PowerFlex® drives with a safe torque-off feature, Flex/Point I/O™, Ethernet/IP, Stratix and integrated switching technology.

An advantage of the Rockwell Automation-based EtherNet/IP solution is that it supports end-to-end processes throughout the production plant and facilitates the integration of the network and field devices into the Rockwell Automation environment. "Almost as soon as the team at Nestlé started talking about EtherNet/IP, Endress+Hauser became part of the equation," says Manfred Rothen, Sales Manager for Germany at Rockwell Automation. "The partnership between Endress+Hauser and Rockwell Automation, and the two companies' strategy and product development, made it clear that we were well aligned with the direction Nestlé wanted to take." Endress+Hauser, an Encompass and Alliance partner of Rockwell Automation, had already installed new EtherNet/IP technology at the start of the Biessenhofen project when it implemented its Promass Coriolis flow measurement system, which fit in seamlessly with the planned Rockwell Automation concept.

The factory benefits from structured and modularised automation technology, facilitating rapid and flexible system extensions. Also, the types of system and technology in Biessenhofen can be used globally; helping to support the system's long-term manageability.

Results

The Biessenhofen project, which started in summer 2009 and has production running since summer 2011 has been a success for all involved. Along with the hardware, Rockwell Automation also provided the system design via its Solutions and Services Business and made sure it complied with the highest standards. The company also produced the control cabinets and delivered them, ready for installation, to Nestlé. This helped save a significant amount of time on hardware commissioning. The production staff and managers at Nestlé have high



expectations for sustainable and – especially – trouble-free production, which is exactly the area where Rockwell Automation's strengths lie. The factory benefits from structured and modularised automation technology, facilitating rapid and flexible system extensions. Also, the types of system and technology in Biessenhofen are available and can be used globally, helping to support the system's long-term manageability.

Together, Rockwell Automation and Endress+Hauser provide a proven, integrated system. "As a result, the user can analyse real-time data from the production plant in higher-level business systems. This helps customers improve their plant efficiency and transparency – and that translates into real cash savings," concludes Dion Bouwer, Product Manager Fieldbus Systems, Endress+Hauser.

The Nestlé team's use of industry-standard solutions makes maintenance work and system adjustments much easier. "We're expecting EtherNet/IP to be future-proof," says Florian Schreyer. "It has delivered the huge benefit of giving us centralised access to most of the information from the plant floor."

Additional Information

www.rockwellautomation.com

The results mentioned above are specific to Nestlé's use of Rockwell Automation products and services in conjunction with other products. Specific results may vary for other customers.

Endress+Hauser 



Rockwell Automation and PartnerNetwork companies collaborate to help you develop an ongoing approach to plant-wide optimization, improve your machine performance and achieve your sustainability objectives.

Endress+Hauser Instruments International AG
Kaegenstr. 2
4153 Reinach
Switzerland

Tel.: +41 61 715 81 00
Fax: +41 61 715 25 00

<http://www.endress.com>

Rockwell Automation and Endress+Hauser are collaborating to meet your needs for process automation solutions using best-in-class control systems, instrumentation, software and components. The collaboration delivers value within three key strategic cooperation initiatives: Technology innovation, Integrated asset management and Coordinated engineering services.

Rockwell Automation and Endress+Hauser are able to provide a wide range of pre-tested, standards-based measurement, automation and information solutions to help you reduce integration costs, improve operational and maintenance efficiency and optimise plant assets.

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Power, Control and Information Solutions Headquarters

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

Europe/Middle East/Africa: Rockwell Automation NV, Pegasus Park, De Kleetlaan 12a, 1831 Diegem, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846