

XVC600: Networked Confectionery Production



Klößner Hänsel Processing (KHP) offers a wide range of systems that are automated with Moeller's XSystem components. Whilst the requirements of regulations could previously be fulfilled easily and data recorded on paper, current legal regulations stipulate a higher standard of data recording. However, not only current regulations but also end customers demand transparent production processes with the same high level of quality, thus making extensive production control mechanisms unavoidable. The high volume of data involved requires more efficient, cost-effective concepts. With the introduction of a new weighing system using the Moeller XVC600 as the automation platform, KHP has fully met the requirements for operating data acquisition and at the same time the traceability requirements of the EC 178/2002 regulations.

End customers have previously only described the process and the relevant system for the production of new products and never the data framework to be managed. This often meant that the automation system had to be modified extensively, with the necessary data having to be made available in a SCADA system or a customer computer. In order to minimise costs, KHP used to record the data as a precautionary measure. With the implementation of the EU regulations, the additional features required for operation, the recording and provision of data are now taken into account. The new concept enables the data acquisition system to be installed at a later time without any problems.

Combinations form the concept

The new concept is based on standard Moeller automation products. Other HMI-PLCs are used, in addition to the automation of the Contigrav central metering and weighing system for the JellyStar high-performance stir cooker with a Moeller XVC-601 HMI-PLC. Nowadays, all the data required for logging is marked when the PLC programs and the visualization application are designed. The operation of the weighing system, the mimic diagram and the general operation of the system are also combined in a clear and user-friendly layout so that training requirements for new personnel can be kept to a minimum.

The central metering and weighing system processes liquid, powder or granular materials equally. In this process, a high level of precision is required for applying the recipes for jelly or fondant products. The XVC-601 HMI-PLC provides several weighing controllers simultaneously with jobs via a fieldbus. Moreover, it registers and visualises the weighing systems on the touch panel. The HMI-PLC saves up to 250 recipes with up to 64 components. Automatic tare, coarse/fine



metering for high accuracy, emptying control and tolerance monitoring, as well as an interface to the printer complete the range of functions provided by the user-friendly touch panel.

A dynamic metering monitor with the last, the actual and the next step, is provided on the main screen for system supervisors to obtain the latest information on production status. A dynamic clock monitor is also integrated with recipe names and batch numbers. This type of structure reduces the number of recipes and makes them more manageable.

Previously, only a required/actual value comparison of the weighed materials was logged. The new system records basic data such as recipes, parameter changes and operator interventions, extensive operating data such as temperature or pressure, as well as every error. All this data is assigned to a batch, logged and documented with a high level of transparency.

Batch tracing in confectionery production compliant with EU regulations 178/2002

The new EU body EFSA (European Food Safety Authority) has now been set up. The EU regulations 178/2002 were passed by the EU Commission for the protection of consumers and came into force on January 1, 2005. The regulations require that food manufacturers ensure the traceability of their products and the pre-products used in their company. Major food companies have established a standard system of quality assessment with the International Food Standard IFS 4.0, which also includes the requirements for traceability: "The organisation must be able to identify all raw materials by suitable means and be able, if necessary, to trace these materials during processing, as well as the finished products at all stages of manufacturing, storage, shipment and distribution to the customer."

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CONCLUSION

As Friedrich Reinecke, head of electrical engineering at Klöckner Hänsel Processing, explained about the Moeller HMI-PLC concept: "The projects that we implemented jointly were outstanding. The hardware is scalable and can be networked seamlessly. The need for only one software for all systems simplifies and shortens project design and implementation. Thanks to the process data acquisition and batch traceability features, our customers are ensured a future-proof solution. With a single IPC, the data from several HMI-PLCs can be collected in a database and made available to the customer. The data can then be accessed easily and processed as required in an IT environment. This saves us the need for many discussions before, during and after commissioning."

THE COMPANY

Klöckner Hänsel Processing GmbH is part of the Klöckner-Werke AG founded in 1923. Klöckner-Hänsel itself was founded in 1980 by the merger with Otto-Hänsel, Hannover, where the company still has its headquarters. Klöckner Hänsel continued to develop into a respected packaging specialist with special solutions for automation, and as a manufacturer of process systems for the food industry. The innovative system and packaging technology is used in the food and luxury foods sectors.

Moeller GmbH
 Hein-Moeller-Str. 7-11
 53115 Bonn
 Fax: +49 (0)228 602-2275
 E-Mail: info@moeller.net
 Internet: www.moeller.net

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