

User Report

Yaskawa components ensure fully automated operation

Saturated storage facilities

Long before the grain is ground to flour to be transformed into bread and pastries for your enjoyment, the grains have to pass through a number of work steps and stations between the field and the baker's shop. We visited the Nestelberger hulling and storage mill in Perg, Upper Austria, to take a closer look at its automation solution based on Yaskawa components.

After each harvest, the storage facilities of the Nestelberger hulling mill are full to the brim with organic cereals. "We have around 2,500 tons of spelt, wheat, barley, oats, etc. stored in 24 containers," explains Peter Pils, Production Manager at the Nestelberger hulling mill. But before we get to that stage, the grains undergo a number of processing steps:

The delivered grain is drawn up into the mill, cleaned (stones, weeds and anything else that accumulated during the harvesting process is removed) and weighed. During the cleaning and weighing processes, the grain drops back down where it is hulled and/or transported back up to be stored in the corresponding silos.

An in-depth understanding of the entire process is crucial in order to implement an optimal automation system in a plant of this size. Andreas Stingeder, from the electrical

installation company MESTA, was responsible for everything from planning, control cabinet construction, cabling and programming to visualization and commissioning. During the construction and commissioning stages, Stingeder was also involved in the management of the hulling mill in order to "fully immerse himself in plant life."

Now the mill operator can adjust all relevant parameters using the visualization system of the "zenon" software from Copa Data. First, the type of grain is selected and then the desired process—hulling, storing or filling—can be specified easily and intuitively with just a few clicks. Once the desired sequence has

been set for the grain, the operator initiates the process with the "Start" button and the mill springs into action.

The person responsible for the mill now has a considerably easier task and is able to operate the mill single-handed

in fully automated mode.



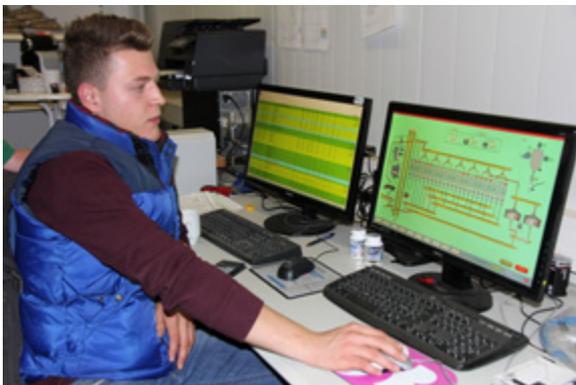
Implementation

The fact that such a complex system can be operated in such a simple way is largely thanks to the automation components used. "This was the first project that we jointly implemented with VIPA Elektronik-Systeme

GmbH, a long-standing distribution partner from Vienna. For me, the solutions provided by Yaskawa were the most logical choice and suited our projects right from the outset. There were no problems with these components at any point,” enthuses Andreas Stinger.

“However, the components required did become more complex over the course of time. Initially, we were only considering a controller. After further discussions, however, we realized that there were additional interfaces we could jointly develop,” adds Martin Zöchling, Managing Director of Yaskawa distribution partner VIPA Elektronik-Systeme.

This is due to the fact that the customer was unclear of its automation requirements at the



start of the project. “Over time, the extent of the automation became apparent. Now we rely on VIPA Elektronik-Systeme for all our Yaskawa components, from controllers to drive technology. The advantage is that everything comes from a single source. The main thing that impressed the customer was the service from VIPA Elektronik-Systeme with its competent contact partners and fast delivery times,” says Stinger.

The finer details

The Nestelberger hulling mill is essentially split into two areas. Firstly, the silo plant for storage of the grain and, secondly, the hulling plant. Both plant sections are controlled by a “VIPA SLIO CPU 015” with memory expansion. The controller is thus responsible for all conveyor motors—both vertical and horizontal—as well as screw conveyors, dosing valves, fill level controllers and contact detectors on gate valves. The controller is also equipped with an Ethernet connection for visualization using zenon.

“Communication is generally transmitted via Profibus, although the Yaskawa inverter



drives are compatible with all common bus systems,” explains Zöchling. A total of three Yaskawa inverter drives from the “V1000” series are used to control the drives. The inverter drives in this series not only impress with their compact size but also with extremely robust electronics and powerful performance. “These inverter drives really are extremely robust. There are no problems at all with power cuts or load shedding following an emergency stop. I’ve seen plenty of other inverter drives that were not able to withstand such pressures,” says Stinger. “The robustness of these inverter drives is directly attributable to the generous dimensions of the power units and their vast reserves — this means they can withstand a great deal,” adds Zöchling.

Stinger has incorporated text-based error messages in the zenon visualization system for any problems that may occur during operation of the system. This immediately shows where the error has occurred and alerts the plant operator.

Complete package

“Yaskawa products were the ideal solution for this project. I will certainly use these products again in the future — at the mo-



ment I simply cannot imagine using anything else. But it’s not just the components that are impressive. If I have any questions at all, I can call VIPA Elektronik-Systeme and get immediate answers and suggestions for solutions from competent contact persons,” summarizes Stinger.

The hulling mill completes its technical con-



figuration with a remote maintenance solution equipped with a “VIPA TM-C Teleservice Router”. This allows the managers of the Nestelberger hulling mill to query all production data and plant statuses via the Internet or mobile devices.

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