



I am pleased to confirm that there is good reason why SmartWire-DT is described as revolutionary.

Gerd Meyer, CEO at Meyma GmbH

The Smart Way to Bake

Location:

Cloppenburg, Germany

Segment:

Machine building

Problem:

Automation of two bowl tipplers with over 800 kg weight per machine

Solution:

Easy802 with SmartWire-DT, PKZ motor-protective circuit-breaker, DIL contactors, RMQ-Titan control circuit devices

Results:

Over 60 automated bowl tippler plants as well as 20 kneading machines successfully equipped with SmartWire-DT technology

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Background

Nowadays, the trend towards automation and modernization is taking place in every sector, and even bakeries are no exception. A constant product quality in all baked goods is a key factor for success. The use of smart processes in the production of baked goods such as rolls, bread and cakes, is therefore becoming an increasingly important factor.

Headquartered in Cloppenburg, Meyma GmbH is one of the leading suppliers of machines and plants for the baking sector, and has made a name for itself far beyond the borders of Germany – both with used machines and with innovative new products. The product portfolio ranges from kneading machines to baking ovens, right through to bread roll counting machines. Its new machines primarily consist of bowl tipplers and dough feeding systems. "We ascribe a major part of our success to the fact that we can

flexibly meet the requirements of our customers without any dependence on a particular manufacturer, and can develop or put together the optimum solution for the application at hand," Gerd Meyer, CEO at Meyma explains.

The Bernhardt bakery and confectionery in Wenningsen near Hannover is a good example of this longstanding and successful cooperation with customers. The well-respected medium-sized family run business with 120 employees daily supplies its 15 branches as well as several permanent customers, which include automotive companies and higher education institutions. A close partnership with Meyma has been in place since the opening of the "new" bakery production 15 years ago. When a major modernization project was recently planned for the main site, the bakery chain called on the services of Meyma as a tried and trusted partner.

Challenges

The installation of two high-performance bowl tipplers for feeding dough to machines downstream was an important part of the project. The manufacturing processes in the bakery involve large quantities that have to be produced and processed within a small amount of time. Every month, the bakery in Lower-Saxony converts 150 t of dough into all kinds of baked goods.

This requires adherence to the strict regulations applicable in the food industry, and the requirements of the product also have to be met. In certain circumstances, the failure of a machine can cause dough products to be destroyed, if, for example, they are left too long or get too warm. As in most production processes, failsafe design and the durability of the plants are key importances for the company. Added to this is another important requirement: The bowl tipplers must



Powering Business Worldwide



Gerd Meyer (left), CEO at Meyma GmbH, with Uwe Meyer (right), sales manager at the Bäckerei und Konditorei Bernhardt.



The wiring of the operating elements can also be implemented easily via SmartWire-DT, with which a green light on every slave is used to indicate operational readiness

guarantee a high degree of work safety since they are required to handle considerable weights. The bowl weighs around 250 kg, the frame around 300 kg, and added to this is the tipped dough, which can weigh up to 250 kg. With a total weight of 800 kilos for each tipper, this can present a serious hazard to employees.

“For the automation of our plants we place particular importance on reliability, as well as simple and safe operation,” Gerd Meyer emphasizes. “We owe this to our customers.”

Solution

For the bowl tipper at the Bernhardt bakery, Meyma chose Eaton’s innovative SmartWire-DT communication and wiring technology, which replaced the previously conventionally wired system in the switch cabinet. All SmartWire-DT slaves are then networked together via the green eight-pole ribbon cable. A device plug for each slave is simply positioned on the cable, contacted using a pair of pliers and then plugged onto the device – that’s it! Complex and error prone point-to-point wiring is no longer necessary. The Easy800 control relay takes on the control of the bowl tipper system which communicates via SmartWire-DT directly with the motor protection system. Different control circuit devices on the switch cabinet for the safe operation of the bowl tipper by the user are also integrated into the system.

However, SmartWire-DT has not only considerably reduced the wiring effort for Meyma. It has also made it possible to reduce the size of the switch cabinet by more than 50 % at the same time. “SmartWire-DT has brought us real benefits in several respects,” the bakery specialist explains. “For example, this solution firstly enables us to offer our customers manipulation security/protection, and protect ourselves at the same time. Secondly, the follow-up costs we have for commissioning, repair and maintenance on the plant are negligible. Thirdly, we are thus able to offer our customers a high level flexibility when modifications or expansions to the plant are required over time.”

Whilst with conventionally wired plants untrained personnel under time pressure were tempted in the event of a fault to manually bridge a contactor or even to put their hand in the switch cabinet in order to get the machine started again, this risk is not possible with the SmartWire-DT concept. The control circuits of the bowl tipper are also designed to detect any attempt to manipulate the machine and initiate an appropriate alarm.

Fault diagnostics and troubleshooting couldn’t be easier and do not normally require any specialist personnel – a benefit for the machine builder as well as the end user. A green light on each component indicates at a glance that everything is running correctly. In the event of a problem, a red

light indicates which module is faulty and has to be replaced. The control relay is also provided with a diagnostics buffer.

When commissioning the Easy800, the easySoft-Pro software enables users to view the status of the SmartWire-DT communication in its entirety as well as each individual slave and all data. The programming features here offer a great deal of flexibility: Instead of the previous 50 programs required for different applications, Meyma now only has to maintain one which contains all pre-programmed functions.

This not only benefits the machine builder but also the user. “We can no longer do without the flexibility provided by the pre-programmed options, which we use for example, for handling different types of dough. The machines are adapted to our products and not the other way round,” Sven Friedrichs, CEO of the Bernhardt bakery, explains. “For us it is important to increase the efficiency, economy and competitiveness of our company. The Meyma machines with Eaton technology help us to reach this goal and to produce our products consistently with a high level of quality.”

The SmartWire-DT universal modules also ensure the additional flexibility of the machines. They are used as placeholders for configured but not yet installed SmartWire-DT slaves that may possibly be installed at a later time. These can for example be motor-protective circuit-breakers for

the installation of additional motors or pumps, control circuit devices or I/O modules. Thanks to these universal modules that are also used with the bowl tipper, Meyma can already design and program the full expansion of the system in the controller configuration. In this way, the installation can be expanded simply at any later time by replacing the universal slave with the configured device. Modifications to the software program or the hardware configuration are then no longer necessary.

Results

“When I was first introduced to SmartWire-DT, I was skeptical whether it would bring really tangible benefits,” Gerd Meyer sums up. “However I am pleased to confirm that there is good reason why this technology is described as revolutionary. It is exactly the right thing for our systems. We have already equipped 60 bowl tipper with SmartWire-DT, and this has proved to be so successful that we have started to change to SmartWire-DT even with the complex kneading machines. Already 20 kneading machine have thus been equipped with SmartWire-DT. The technology offers additional freedom and flexibility as well as a high degree of safety and economy. We are saving time, money and nerves. What more could you want? And as you can see, this technology is not only worthwhile for large installations but also for smaller applications such as the bowl tipper.”

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 November 2013

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