



Success in digital production thanks to MES

User Report

Alfred Ritter GmbH & Co. KG



Initial Situation

In the city of Waldenbuch in Aichtal, Germany, sweet happiness has been poured into square shapes since 1932 by the business Alfred Ritter GmbH and Co. KG. By now, they have been exported to more than 100 countries.

The family company RITTER SPORT, founded in 1912, has declared chocolate production its core competence and consistently pursues its self-defined aspiration to be the best within each category of each individual kind of chocolate. This requires a consistently high quality of the raw ingredients

and flexible processing. The business RITTER SPORT introduced easyOEE in 2010 already, the flexible instrument is measuring the effectiveness of specific machines to record and evaluate the reasons for downtimes.

The easyOEE complemented the in-house performance measurement system until this combination was replaced by the holistic MES solution FASTEC 4 PRO in 2012.



"I spent a significant amount of time on the evaluation of data using the old performance measurement system – time that I can now invest in the analysis and implementation of CIP measures, because of the diverse evaluation options instantly available at the push of a button in FASTEC 4 PRO."

Torsten Schlegel
CIP coordinator
RITTER SPORT



Analyzing Production Holistically

From easyOEE to FASTEC 4 PRO

- **Production Process**

To obtain the square end product, each RITTER SPORT chocolate passes through several stations. Each kind of chocolate starts at one of the three basic mixture lines, with which more than 50 kinds of chocolate are produced. Is the chocolate mass ready for further processing, it continues on the supply line up to the next station – one of six chocolate molding plants – in which the chocolate is poured in its respective mold. Each chocolate molding plant consists of multiple casting machines, but not every machine can produce all the different kinds of chocolate.

Once the respective kind of chocolate is produced, order-related packaging on the high-performance packaging machines wraps up a lot size with up to 1,100 pieces per minute.

- **Limits of the In-House Software Solution**

To gain an insight into the performance of production, RITTER SPORT used an in-house performance measurement system until the implementation of FASTEC 4 PRO.

However, this in-house system was subject to clear restrictions, because no fixed causes of downtimes were stored. Another factor complicating matters is that the generated data was stored in one data base only. There were no fast and focused evaluation options (for example the evaluation of certain causes of downtimes), which is why the realization of evaluations took a lot of time.



Up to 1,100 Pieces per Minute

Aim: Clear Data for All Departments

In 2012 the decision was made to implement a holistic MES solution. Markus Schimpf, project manager production at RITTER SPORT, has been there from the beginning of the FASTEC-MES launch and appreciates the fast and focused creation of evaluations that is done within a matter of seconds.

“Not only in the CIP department there is a need for clear production data, downtime protocols and analyses of causes. An improved operability and a fast and focused evaluation were in focus.”

Markus Schimpf
Project manager production
RITTER SPORT

“In our search for a suitable MES, in which we looked at the solutions of a number of providers, we chose FASTEC again quite quickly; on one hand, because we already had the best experience with easyOEE – which we are, as a matter of fact, still using – and on the other hand, because we are able to expand the modularity of the system at any time and thus, adjust our MES easily to new requirements.”

Markus Schimpf
Project manager production
RITTER SPORT



Evaluations Within a Matter of Seconds

Employee Acceptance and Employee Motivation

With the goal in mind to connect the entire machinery to the MES, the project started in 2012 with a pilot installation of a molding plant – including the packaging machine and memory.

Approximately four weeks passed from the start of the project to the first substantial data, in the following, the remaining machines were connected quickly.

At RITTER SPORT, machine data are read out via an interface directly from the S7 controller. The application of an order in FASTEC 4 PRO is carried out directly through the S7 controller. This way, double entries by the machine operator are avoided and at the same time, forgetting to register a process step is prevented.

Prior to the decision in favor of FASTEC 4 PRO, production data were recorded at RITTER SPORT. A part of the information were provided by the performance measurement system, in which downtimes, set-up times and other stoppages were recorded on paper by the machine operators, manually filled in on the computer and analyzed afterwards.

Ever since the implementation of FASTEC 4 PRO, data entries about production downtimes are carried out directly via the production terminal.

“The implementation of MES is not always appreciated by the employees. Fortunately, FASTEC has been widely accepted.

Due to the production terminal, the already required entries can now be performed way easier and less complicated, thanks to the qualified acquisition of downtimes, our employees can apply specific measures to reduce downtimes.”

Torsten Schlegel
CIP coordinator
RITTER SPORT

Automatic Application of an Order



Daily 9 O’Clock Round Provides Clarity

The newly won data are basis for the daily “9 o’clock round” since 2005. It is an approximately ten minutes of handing over each day, in which the management shortly review which kind of chocolate was produced in which quantity and what disturbances or issues occurred. The OEE values are mentioned.

The regular review is tried and tested at RITTER SPORT and does not only provide Torsten Schlegel’s CIP department with crucial input, but is also important for quality management, research and development, technology, maintenance, logistics and management.

“Thanks to to the daily 9 o’clock round, we’ve reached a very high transparency. The meeting guarantees this transparency, because every team leader in production presents the daily performance of the last 24 hours, whereby a complete transparency is ensured. Errors and issues are immediately reported to the respective departments and not procrastinated,” says Torsten Schlegel.

“Because all production data and deviations are collected automatically, they are complete and accurate compared to the manual records of the past.”

Torsten Schlegel
CIP coordinator
RITTER SPORT

“Prior to this, almost 90 % of the occurring disturbances were generally defined as a ‘technical error.’ Today, this unspecific part is incredibly small, because the machine operators can now access detailed and descriptive reasons for faults.”

Torsten Schlegel
CIP coordinator
RITTER SPORT



Data at the Push of a Button

Data Quality and Interfaces

• New Challenges Due to Data Quality

With regard to the newly won transparency and the achieved results, Torsten Schlegel emphasizes: "The high transparency and data quality are, of course, also a challenge. You have to learn how to deal with it accordingly. Naturally, on the management level we can now better understand in how far our standards work well, e.g. our setup changeovers. This also applies to us and leads to a greater awareness. The same applies to targeted CIP projects: Here, we clearly notice a major advance compared to the times in which we manually filled out check lists. Today, we can get the desired evaluation at the push of a button."

• SAP Interface

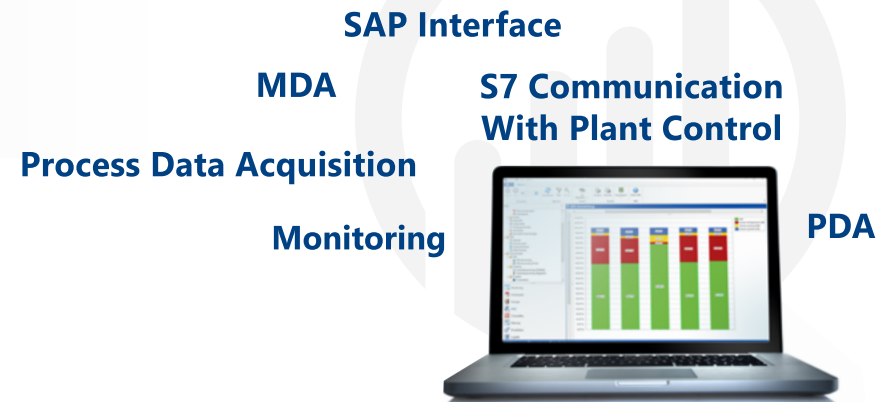
For the project rollout, master data such as articles, kinds of chocolate, etc. were still imported into FASTEC 4 PRO via Excel. New data coming in had to be manually added. This step had become superfluous after the importing of articles and orders could be made based on the function modules of FASTEC via the SAP interface.

RITTER SPORT is implementing SAP for the weekly planning according to a given setup sequence in which production is implemented. The SAP interface is currently expanded to report back the production times and quantities. This enables more efficient planning and a more accurate post-order calculation.

"Naturally, we can now better understand in how far our standards work well."

Torsten Schlegel
CIP coordinator
RITTER SPORT

SAP Master Data Import



Recognizing the Need for Action



- **Indicated Need for Action**

Apart from non-standard packaging sizes, every single chocolate bar at RITTER SPORT needs to meet a certain condition in chocolate production: The daily mean value of a production batch has to conform to the respective target weight depending on the format. This is why with the help of process data acquisition, the weight of the chocolate bars is constantly monitored – these information come from the weighing scales of Mettler Toledo for which a FASTEC interface has been implemented.

“The immediate availability of all plant conditions is a decisive advantage. On every single PC it is traceable how things are going, be it in production or supporting areas. We can see when things are running smoothly and we can also see issues occurring just as unfiltered.

This way, we can use resources deliberately.”

Torsten Schlegel

CIP coordinator, RITTER SPORT

- **Other Important Process Data:**

Molding Speed:

This value can indicate issues that cause production downtimes and are not necessarily noticeable just by booked machine states. Machines that run too slowly are a factor for the chocolate manufacturer that can significantly influence the quality of the chocolate. Such conditions can be caused by setup changeovers, after which the machine cannot produce with the specified output. The downtimes can be better understood and prevented from occurring again by exactly recording the disturbances.

Filling Level in Front of the Packaging Machines:

In order to estimate the capacity of the packaging systems and to be able to react to delays in the packaging machine, the machine operators on the chocolate molding plants need the monitor to trace the filling level. If the level is reached, the chocolate molding plant can react in time to reduce the production speed or create a gap in which no chocolate is being filled in the molding plant.

These process data are displayed on large monitors in central areas of production and are a kind of production thermometer at the same time, which almost all employees rely on in their daily routines.

Markus Schimpf says: “Using a timeline, every employee can see at a glance how his system has run so far in the current shift as well as which production events have occurred. Thus, he can possibly estimate what to expect during his shift. These data are important to us as well as to the machine operators and technology to continuously improve our production performance. Comparable to a warning signal in the cockpit of an airplane, we know where the real problems lie and where we might have to get involved.”

Logistics also uses the monitoring to provide materials and for planning according to possible changes in plans based on the current order progress.

Individual Lot Sizes

Conclusion: More Time for Further Projects Thanks to MES

• Additional Benefits and Future Prospects

To illustrate the added value of the FASTEC 4 PRO MES solution that RITTER SPORT has gained, CIP coordinator Torsten Schlegel likes to look back at the agenda of his Six Sigma training.

"In the past, I have been showered with amounts of data coming from our performance measurement system, from which I should derive needs for action. For such an evaluation on a single machine I had to schedule almost a full day back then – today, I can evaluate all plants in just 30 minutes thanks to FASTEC 4 PRO."

Torsten Schlegel
CIP coordinator
RITTER SPORT

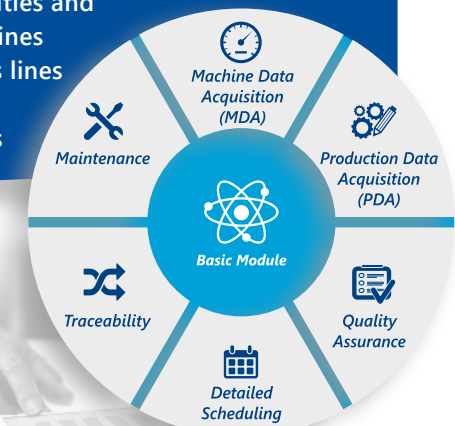
Both Mr. Schimpf as well as Mr. Schlegel share concrete ideas for the further expansion of their MES: Thus, the topic of energy monitoring is to be strengthened. RITTER SPORT can already see how much energy is consumed in each building. The ultimate goal is to identify the consumed energy of each individual kind of chocolate to reduce consumed energy even more efficiently. Also, employees should be informed and supported by providing further information at the terminals, e.g. about storage places and processes.

Due to the many diverse systems used by RITTER SPORT in production, Mr. Schlegel clearly emphasizes the need to consolidate data – a further task for FASTEC 4 PRO.

Overview:

MES solution FASTEC 4 PRO has been in use since 2012. Implemented modules and interfaces:

- MDA
- PDA
- Monitoring
- Process data acquisition
- SAP-interface for transferring master data as well as order data
- S7-communication with plant control
- Connected Plants:
 - 4 storage facilities and 20 packaging lines
 - 3 ground mass lines
 - 6 chocolate molding plants



Time Savings and Transparency

Why Not Get to Know Us Personally?

Production companies have to be able to produce on schedule, flexibly and tailored to individual needs of customers fully traceable up to lot 1. This requires transparency through real-time information, thorough planning and quick and adequate reactions in case of occurring deviations. Our Manufacturing Execution System (MES) FASTEC 4 PRO is the perfect tool for this endeavor. We are offering solutions since 1995.

We would also like to give you a good advice personally!

Our sales department will be happy to provide you with further user reports and information material! Or else, make an appointment with our sales department for a presentation at your location, in our company or via web. Of course, you can also experience FASTEC 4 PRO live and on site with our customers.

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Additionally, we offer videos of our software and customer solutions in our YouTube channel:

www.youtube.com/FASTECGmbH

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Gold
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With FASTEC 4 PRO you can gain the ideal level of transparency in all areas of production and make use of previously unused potential to increase productivity and explore process optimization. Through focused planning, you can react to requirements from sales at short notice and thus control production processes starting at lot size 1 – and, last but not least, all of that fully traceable and documented.

 **FASTEC 4 PRO**



- Transparent real-time data
- Continuous flow of information
- Discovering and eliminating deficiencies
- Efficient use of available resources
- Developing high productivity potential between 15 to 70 %
- Average return on investment (ROI) < 12 months
- Reducing production costs

 **FASTEC 4 PRO functions as an essential data hub on the way to a smart factory.**