



Success in digital production thanks to MES

User Report

Diehl Controls Wangen

DIEHL
Controls



Diehl Controls Wangen – Factory of the Year 2015

Among industrial companies, the competition for the “Factory of the Year/ Global Excellence in Operations” award is considered one of the toughest benchmark competitions in Europe. Manufacturing companies in all industries often work towards this award for years, which has been awarded by A. T. Kearney, a leading international management consultancy, since 1991. Diehl Controls is awarded the overall winner in 2015.

The company convinced the jury with its transparent and fully automated production line. The MES FASTEC 4 PRO decisively contributed to this success. Diehl Controls is one of the world’s leading manufacturers of electronic components for the household appliance industry (appliances) and hardware, software as well as backend solutions for intelligent energy management systems of buildings.



DIEHL
Controls

**DIE FABRIK
DES JAHRES**
Global Excellence
in Operations
Produktion AT&Kearney

“At the beginning we did not use the FASTEC system as intensively as we do today – partly because we were not yet fully aware of the potential of FASTEC. Depending on the product, we have now achieved an OEE increase of 5-15%.”

Stefan Wespel
Plant Process Manager
Diehl Controls, Wangen

Fully Automated Production Lines

Awarded Factory of the Year 2015 Thanks to Transparent, Fully Automated Production Lines



In addition to the business activities in the appliance sector, Diehl Controls has also housed connectivity solutions at the Wangen location. The plant's machine park now comprises seven Speed Lines – the largest of which, with a length of 86 meters, now consists of 73 modules. There is also a test and assembly line and three SMT lines.

“Already after the first week that FASTEC was with us, the online monitoring was ready for use on the first line.”

Thomas Schelke
Automation Support
Diehl Controls, Wangen

The Decision in Favor of FASTEC Was Made Due to the High Flexibility of the MES System

In 2009, the go-ahead was given to implement the MES system at Diehl Controls in Wangen. By then, the company has used its in-house “My MDA” system to increase transparency in production processes through monitoring. Due to the high costs and personnel required to operate the system, the Executive Board made the decision to replace “My MDA” with a commercial MES system.

The main reason for choosing FASTEC was the high flexibility of FASTEC 4 PRO – a decision that has proved successful against the background of the further development of Diehl Controls in Wangen (in short: DCW). Thanks to the self-developed solution “My MDE,” high-quality data from an existing head PLC could already be accessed at the start of the project. The aim was to replace the old online monitoring in production, on which cycle times and reasons for rejects were displayed.

Stefan Wespel, Plant Process Manager at DCW, remembers: “We were very satisfied with our monitoring view at that time and the level of acceptance among the employees was also high. This meant that we had very concrete specifications to be implemented by FASTEC. The new monitoring view now looks almost identical, but offers us significantly more options.”

In contrast to “My MDE,” the FASTEC 4 PRO system not only offers online monitoring, but also archives the recorded data in a database. Faults can therefore not only be displayed in real time, but can also be evaluated and analyzed according to many different criteria using the corresponding report functions.

Ready for Use in Just One Week

Electronic Error Data Collection

Defect Collector Charts and SAP BW Connection

In addition to online monitoring, the exact recording of rejects is also important for DCW. For this purpose, DCW makes use of defect collector charts in which the scrap is noted down. This enables DCW to quantify rejects by number of pieces and cost at any time. Rejects are recorded using an error button and entirely paperless. The resulting added value results from the comparison with the previous approach: During production, machine operators had to keep tally sheets, which were then scanned and sent to an external location for data entry, only to ultimately – with a few days' delay – end up back in Wangen. Today, the data obtained in the electronic defect collector charts is transferred directly to SAP BW. In recent years, DCW has gradually expanded this collection on its own. Whereas in the beginning, the machine operator had to press a specific button to record rejects, the selection is now made directly in the plant (the head PLC) and is transferred to SAP BW via FASTEC. There is no longer any need to press a button and the acquisition is also more accurate.

Automatic Order Registration Through Interface to FIT System

The FIT system (Functional Integration Tester) is used for the final test of the fully assembled components. The machine operator must first register the order. The tester is then configured according to the data stored for the order. The order data is also required by the PDA module in FASTEC 4 PRO.

An interface to the FIT system was created in FASTEC 4 PRO so that the machine operator does not have to carry out a double order registration. The order registration is automatically forwarded to FASTEC 4 PRO via the interface.

“Particularly important for quality is identifying the reasons for rejects. The defect collector charts allow us to record the errors in digital form. We need our quality statistics to know which order and which material is having problems.”

Stefan Wespel

Plant Process Manager
Diehl Controls, Wangen

Paperless Recording of Rejects

Data Available Online for Production Team Analyses – Lean Management at Its Best



The corporate philosophy of Diehl Controls is characterized by transparency, common goals and fairness towards the individual employees. Information and communication are indispensable requirements for this. One term that has gained in importance both in this context and in connection with Industry 4.0 is shop floor management: The presentation of production-relevant information, tailored to the respective target group right in the middle of production plays a central role. Diehl Controls implements this through its own contact program, which includes these meeting formats:

- **Daily task force meetings:** Analysis of the last 24 hours of production
- **Weekly CIP meetings:** Here, among other things, the OEE of the last few days is discussed and, if necessary, potential for improvement is uncovered
- **The monthly big key figure meeting:** Analysis of production and production key figures over the period of a whole month

Live data from FASTEC 4 PRO is the central data source for all three formats. For these three meeting formats, Diehl Controls uses so-called contact corners in the midst of production. These contain a PC with a 50 inch monitor with access to SAP BW and FASTEC 4 PRO, which enables access to all production-related data.

“We do not need to prepare documents for any of our meetings. We access the data live in FASTEC and can thus analyze exactly where and when disruptions occurred at any time,” summarizes Stefan Wespel.

FASTEC also uses maintenance intensively for its tasks. For example, an analysis of the reasons for disturbances based on the data collected here takes place as part of a 14-day maintenance meeting. Furthermore, the worst machine is dealt with intensively in each case here. In addition, preventive maintenance measures are decided in this meeting.

FASTEC 4 PRO as a Central Data Source

Transparent Monitoring for Maintenance and Warehouse

Monitoring in Almost Every Department

The flexibility of the MES system FASTEC 4 PRO is particularly reflected in the diverse applications of the monitoring module at Diehl Controls in Wangen. The online monitoring screens are not only located above the lines, but also support other areas that are in direct contact with production.

For example, a monitor view for maintenance was designed in-house, which displays all test data for all testers in real time. Whenever the tolerance limit of 96 % stored in FASTEC is fallen below, a red field signals to the maintenance employee that intervention is required. He now checks online what the problem is and fixes it.

This procedure relieves the line manager, who usually only finds out afterwards that a malfunction has occurred. In the event that a problem cannot be solved by maintenance staff alone, the maintenance employee informs the line manager, who then attempts to determine the problem directly on the line. Diehl Controls in Wangen has thus created a control loop: Where previously the machine operators informed maintenance of a problem via moni-

toring in almost every department, this step is now skipped; today, thanks to monitoring, maintenance usually knows about downtimes before the machine operators do and can intervene before a malfunction occurs.

Diehl Controls has made use of the same method of providing information in the warehouse: Previously, an employee was informed by phone when new material from the warehouse was needed in production. Now a monitor in the warehouse signals how high the remaining quantity of the current order is. This process is particularly useful for large-volume parts (e.g. housings) that take up a lot of space and therefore have to be brought to the line for assembly as soon as possible.

“Without the monitoring system, we can no longer work efficiently. FASTEC monitoring is an essential tool in our daily work, both for the employees on the lines, in maintenance and for us, as we are responsible for the continuous optimization of production.”

Katrin Fricke

Operations Director
Electronics Plant, Wangen

Relief for Employees



Hard Work Pays Off: Awarded as “Factory of the Year”

Summary:

When Stefan Wespel describes what everyday life at Diehl Controls in Wangen looks like today, it is much easier to imagine what production in the direction of Industry 4.0 might look like. Karl-Heinz Gerdes, founder and former managing director at FASTEC, points out:

“When it comes to the benefits of MES systems, there’s one thing that should not be lost sight of: Productivity does not improve by itself just because you now measure the OEE value. The basic requirement for the successful implementation of an MES system and the return on investment is committed employees who deal intensively and regularly with the data provided and thus continuously improve performance. Without a doubt, Diehl Controls in Wangen would not have made it to Factory of the Year 2015 without its strong commitment, pronounced perseverance and great diligence. We congratulate everyone involved for this diligence and this extraordinary achievement and are proud to have contributed a small part to it.”



Stefan Wespel

Plant Process Manager, Diehl Controls, Wangen

Stefan Wespel reaffirms this statement: “At the beginning, we did not use the FASTEC system as intensively as we do today – also because we were not aware of the full potential of FASTEC. The endeavor to continue developing our production in the direction of Industry 4.0 led us to deal intensively with this tool. We have thus made production more transparent and the preparation of data easier and more comprehensible for everyone, so that everyone can work with it without any problems. Especially in the last few years, the system has paid off for us, because we can use it in a multitude of departments and adapt it flexibly to the requirements of each department. Monitoring has become indispensable for our production today.”



FASTEC 4 PRO Has Become Indispensable for Us.

Why Not Get to Know Us Personally?

Production companies must produce on time, in a traceable, flexible and customer-specific manner, while ensuring consistently high quality. Achieving these goals requires transparency through real-time information, good planning and quick and adequate reactions to deviations. Our Manufacturing Execution System (MES) FASTEC 4 PRO is the right tool for this purpose. With great success 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 gain the necessary level of transparency in all areas of production in real time, enabling you to discover previously unused potential for increasing productivity and optimizing processes. Thanks to targeted planning, you can also respond to short-term requirements from sales and efficiently design production processes – traceable and documented.

FASTEC 4 PRO

- Get transparent data in real time
- Reduce production costs
- Detect and eliminate weak points
- Develop high productivity potentials
- Benefit from the continuous flow of information
- Use available resources efficiently

 **As a data hub, FASTEC 4 PRO is essential on the way to the Smart Factory.**