

# SYNCOS MES

SIMPLY EXCELLENT





## MORE THAN 20 YEARS OF COMPETENCE!

Being one of the leading project-oriented software providers of MES solutions for the discrete manufacturing industry, we develop and distribute software for medium-sized businesses around the world. In that context, the core competences of innotec Systemtechnik GmbH are in the field of the MES (manufacturing execution system), primarily in the areas of operating, machine and process data acquisition, advanced planning and scheduling (APS), traceability and quality management with CAQ.

Our powerful and integrative standard software solution Syncos MES is based on more than 20 years of best practice experience with suitably qualified consulting services. As our customer, you consequently profit from trend-setting technologies that are safe for investment and simultaneously offer extensive flexibility for your individual requirements.

## SUCCESSFUL PROJECTS

On the one hand, our company has the right size to be able to cater to our markets and customers in a quick and flexible manner. On the other hand, we are large and independent enough to realise successful projects in a professional manner. We also involve our customers in the development process and consequently create software "made in Germany" which has been developed from the practice, for the practice. 20 years of experience as integral provider of production and quality management solutions speak for us!

## RESPECT AND HONESTY

*FLEXIBILITY*

*ASPIRATION*

**SUSTAINABILITY AND INVESTMENT PROTECTION**

**HEALTHY, ORGANIC GROWTH**

## INNOTEC IN FACTS AND FIGURES

Foundation **1991**

## MANAGING DIRECTORS

Stephan Rohleder & Jochen Schüler

Owner-managed and  
independently made in Germany

Competence teams with a total of  
**MORE THAN 45 EXPERTS**

Locations **SCHWELM**  
**DENZLINGEN** near Freiburg  
**MÖNCHENGLADBACH**





## Manufacturing execution system; (short MES, process-oriented level of a multi-level production management system)

### WHAT DOES MES ACCOMPLISH?

MES is the missing link between your ERP system and the shop floor. MES enables you to continuously receive valid information on the production value creation process at the push of a button, both from the past and from the present. Based on the information collected by an MES, companies are able to identify potentials for optimisation and develop the manufacturing into a lean production much better and quicker than before. The key for that is real-time data.

### THE BEST OF THE BEST: SYNCOS MES

The current version of our standard software solution Syncos unites both the production and the quality management in a highly integrative, modular system and supports Six Sigma, TPM as well as lean production.

Syncos MES possesses more than 20 years of practical experience. It is without a question highly available in the usage and facilitates the global use in a centralised operating concept. Customer-specific requirements are always integrated in the implementation phase upon request. You consequently invest in a future-proof MES system with a global operating and support model. Extensive integrated base functions in Syncos MES create additional advantages which facilitate the usage in a quick manner and without additional costs. Instead of optional and costly features as is often customary with other product manufacturers, Syncos MES is implemented with many extras included.

### TOTAL CONTROL WITH MES

#### KEYWORD: TRANSPARENCY IN THE PRODUCTION

Reliable and evaluable information on the entire production process is available to you on each company level in real time with MES. This way, foresighted action becomes your motto instead of reaction after the fact. An approach which helps our customers to noticeably increase their productivity in a stress-free manner with the available means.

#### KEYWORD: QUALITY ASSURANCE AND QUALITY IMPROVEMENT

You may retrace in a detailed manner with MES what was produced by whom in which manner at which workstation at what time. These exact pieces of data help you to simply and quickly uncover and ultimately resolve error sources.

#### KEYWORD: OPTIMISATION OF THE PRODUCTION

With the help of MES, you may check, analyse and control the production processes in your company around the clock. A comprehensive and exact data pool enables you to detect and resolve weaknesses and avoid them in the future.

*"Innotec offers with Syncos MES integral production and quality management without additional interfaces – Cost and labour-intensive stand-alone solutions are consequently a thing of the past. Together with the generation of real-time data from the production, a direct connection to the superordinate ERP system facilitates permanent optimisations in all areas of the company."*

## OUR CUSTOMERS

Syncos MES is particularly suitable for medium-sized and larger company structures of the discrete manufacturing industry.

We listen to you, we understand and we offer integral MES solutions. It starts with the project analysis with accompanying consulting and continues to the realisation of the entire project. We value the integration in the existing IT environment and our following support and maintenance concept in that context.

Being simple and consistent in the operation, Syncos MES offers the optimum information density to each target group: Faster access to basic information for the management, comprehensive overviews for the production leader and quality manager level and in-depth details for the professionals at the machines.

We do not think like a software company, but rather like a customer!

**AUTOMOTIVE**  
**AERONAUTICS AND ASTRONAUTICS**  
**ELECTRONICS AND ELECTRICAL ENGINEERING**  
**PLASTICS PROCESSING**  
**MECHANICAL AND SYSTEM ENGINEERING**  
**METAL PROCESSING**  
**MEDICAL ENGINEERING**

## MARKET SITUATION AND ECONOMIC CLIMATE

The discrete manufacturing industry increasingly struggles with the growing complexity, the global competitive pressure, the rapidly changing economic environment and fluctuating prices of raw materials. The complexity of the industry is also a result of new factors, e.g. the planning of demand which is difficult to predict, the difficulty to submit a suitable bid for project tenders and the project profitability. The situation is additionally worsened by enormous pressure to reduce costs which increases with a rising trend.

Most companies have been forced by the rapidly changing basic economic parameters to be content with lower production quantities and/or lower prices as a type of "new normal base". As a result, it comes as no surprise that sales, profitability and production costs will be at the top of the list of priorities in the next years.



## THIS IS THE WAY!

*The initial situations for various business processes must be examined with regard to the involved production data to find approaches for Syncos MES in the company. Then the following potentials may be developed by integrating the production processes and the business processes in the company:*

### **DETAILED PLANNING AND CONTROL**

This MES function deals with the realisation of the work queue with limited production resources. In other words, the available production means must be assigned to the personnel capacities and the associated material in such a manner that a production sequence develops which is optimised for meeting the production due dates. On the one hand, the planning component of MES which among others supports the simulation of production scenarios is used in that context. On the other hand, the controlling component which facilitates a reaction to disruptions of and changes to the ongoing production processes in real time is used as well.

### **RESOURCE MANAGEMENT**

The goal of this function is to ensure the availability in accordance with the schedule and the needs and the technical functionality of the systems and machines in the manufacturing. As an increasing machine runtime also results in increasing wear, a typical conflict of goals exists between the requirement of long availability times and the desired high level of reliability in that context.

### **MATERIAL MANAGEMENT**

This deals with the supply of the manufacturing with material in accordance with the schedule and the needs. This MES performance feature also provides the means to separately view and monitor the revolving inventories – also referred to as work in progress (WIP).

### **DATA ACQUISITION**

The goal of this function is the event-controlled acquisition of the data from the production process. In addition to the automatic data transfer, semi-automatic and manual acquisitions of the data are possible, e.g. via label scan or terminal entry. Other than the inbound processing and the pre-processing, the “data acquisition” function also handles the consolidation of the data and provides status information. The intermediary plausibility check helps preventing acquisition errors.

### **PERFORMANCE ANALYSIS**

This functional module addresses two areas. On the one hand, there are control loops with a short cycle time exhibiting a frequency of hours or shifts. Determined desired/actual deviations are supposed to be influenced in an operational manner in that case. On the other hand, defaults are qualified for control loops with a longer cycle time which among others might take weeks, months or years in order to optimise these processes. MES provides the bases for the decisions for long-term improvements of the manufacturing organisation in that case.

### **QUALITY MANAGEMENT**

The MES function quality management supports assuring the product quality and the capability of the processes (also referred to as process quality). This includes quality planning, inspection planning, machine capability and process capability. Thus, the area includes activities which are linked to the direct or indirect production process.

### **INFORMATION MANAGEMENT**

This function describes the integration of other MES functions and workflows while processing the jobs and optimising the processes. Information management facilitates the assignment of job data, production requirements and process parameters. Another goal of the information management is the provision of documentations for the respective workstation or process step in the spirit of “paperless production”.

### **AREAS OF APPLICATION OF PRODUCTION CHARACTERISTICS**

Characteristics are used for the definition and evaluation of set targets for the production control and monitoring. Additional applications are benchmarks and comparisons, estimates and forecasts of production times. After all, the person that wants to improve something also needs to know what can be improved. Clear statements regarding the productivity, speed or work quality are the focus in that context. Additional priorities are logistical quantities as well as organisational variables and quality numbers to provide the user with a comprehensive overview of the production components.





## PRODUCTIVITY HAS PRIORITY

The complexity of “operational excellence”, i.e. the optimisation of the production and business processes, has increased for manufacturing companies. The most important goals in this context are cost reduction and productivity improvements as well as achieving a high level of customer satisfaction.

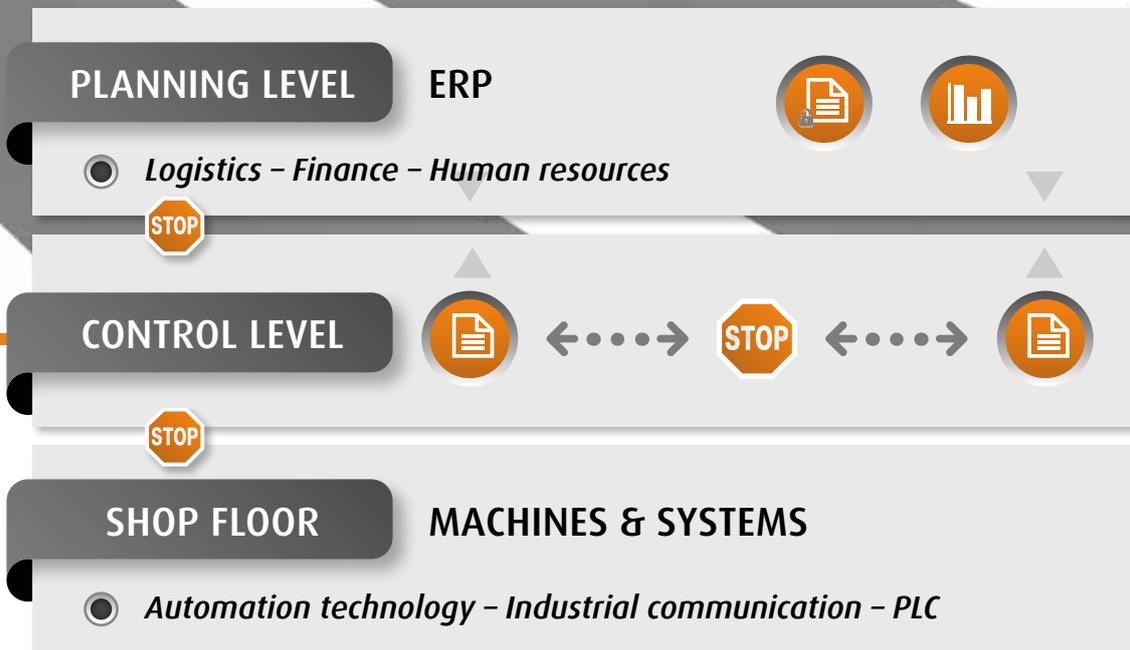
Achieving operational excellence requires suitably qualified employees, agile and adaptable processes as well as available and relevant information.

However, a link-up of process and business data is required to manufacture in a more efficient manner. This is the only way for better resource planning. In that context it is important that the actual operating and machine data is taken into consideration when modelling the processes.

### TYPICAL WITHOUT MES

-  Existing solutions, e.g. ERP or different stand-alone variations, do not provide all the necessary information. There is no common data pool for the entire production process.
-  Information is often available too late or even in an incorrect state at the vital points within the value creation chain.
-  A data set for strategic decisions may only be created with extensive manual effort due to the fact that the relevant information is spread to many Excel tables, databases and systems that are not connected to each other.
-  The mandatory compliance with standards like ISO/TS 16949, QS9000 etc. considerably increases the manual effort as well.
-  Data is kept and maintained in a redundant manner.
-  Valid information is rarely given as production factor and is not available to the management in a timely and consistent manner.
-  Weaknesses are frequently identified too late, feedback is provided manually, prone to errors and subject to excessive time offset.





## DAILY CHALLENGES ...

### ... IN THE PRODUCTION

Cost reduction and higher productivity are the essential challenges in manufacturing.

In many cases organisational changes are necessary to facilitate producing in a more efficient and cost-saving manner. However, this requires the available production data to be acquired and analysed without errors first. That is particularly necessary to minimise disruptions to the production and other unplanned downtimes and – if a disruption of the business operations has occurred – to resolve the disruption as quickly as possible.

More efficient manufacturing requires a well-founded performance analysis of all resources. At the same time, corporate decisions must be supported with the timely consolidation and analysis of data from most distinct systems and the connection to an ERP system.

The IT environment in the production has often grown over time and is frequently quite diverse. In addition, most of the time there are no interfaces between the individual systems, resulting in the availability of just stand-alone solutions. Legal requirements as well as the competitive situation also pose new challenges in the area of quality assurance as well as in the pre-tracing and retracing of material and production batches to many companies.

### ... IN BUSINESS IT

From the perspective of business IT, production IT works rather hidden due to the fact that each area in the company views and uses IT differently. This also affects the view which different areas of the company use to approach the topic of MES.

IT is responsible for controlling and monitoring systems and machines in the production if available. The operating mode of production IT is event-controlled and analyses the gathered machine and process data. The used hardware and software solutions form an IT environment with largely independent technologies and infrastructures. In contrast, business IT views the processes in the company comprehensively and attempts to reproduce them as transactions. ERP, office and communication systems as well as a number of applications triggering these transactions are available for the modelling, control and visualisation of the transactions.

Syncos MES provides a new, integrated view of these production and business processes which have predominantly taken place apart from each other so far. Syncos MES relies on interactive, task-oriented and transparent methods in that context. Consistent communication spanning the most distinct areas and processes develops in the entire company.

These different areas of the company also become one company in the IT environment in that manner!



## SYNCOS MES: LINK BETWEEN ERP AND THE SHOP FLOOR

The requirements of the market are aimed at a closed control loop. Syncos MES meets these requirements in a comprehensive and process-oriented manner and consequently supports an integral production control loop.

Syncos MES facilitates all necessary dynamic and production-oriented control loops that are required for a modern production and cannot be covered by ERP/PPS systems by standardising and synchronising the subprocesses in the production.

After all, such systems primarily view the production process from a commercial perspective, only know rather rough planning units and also never take the actual state of the production into consideration. Most

of the time feedback is only provided manually and with substantial time delay. Accordingly, Syncos MES supplements ERP/PPS systems with the means for planning and controlling the production on the basis of valid data in real time.

Our highly integrative standard software solution consequently acts as a link between the event-controlled shop floor and the transaction-controlled ERP. As a result, it does not just add transparency to the job processing, but also closes the gap between the manufacturing and the other areas of the company involved in the job. This results in clean, clear interfaces as well as task differentiations – and consequently more efficiency.

### YOUR ADVANTAGES AT A GLANCE

-  Integral control loop of ERP, production and quality management
-  Standardised conformity to standards
-  Integrated alarm and workflow management incl. monitoring of the characteristics
-  Turn-key MES system with seamless integration in the existing IT environment
-  Scalable and configurable system for the modular introduction

#### PLANNING LEVEL ERP

● *Logistics – Finance – Human resources*

#### CONTROL LEVEL



#### SHOP FLOOR MACHINES & SYSTEMS

● *Automation technology – Industrial communication – PLC*

## INTEGRATED PROCESSES – CONSOLIDATED IT INFRASTRUCTURE

The benefit of a manufacturing execution system like Syncos MES primarily results from the integration with ERP/PPS solutions. Syncos MES constitutes an interface between the production job (ERP) and the operational manufacturing. The MRP (manufacturing resource planning) generates production jobs within the ERP solution that are subsequently transferred to Syncos MES. Utilising the information of the ERP production job, Syncos MES takes over the operational production planning and control on the basis of the current situation.

The activities are “buffered” by Syncos MES via the selective synchronous or asynchronous transmission of the production jobs in case of a non-availability of the interface of the systems. Among others, this optimised realisation results in the reduction of processing times and production costs, the increase of the numbers of pieces as well as the product quality and simpler compliance with legal requirements, for example the German Product Liability Act.

## ADDITIONAL POTENTIAL BENEFITS FOR YOU

-  Increase of the productivity without additional capital expenditure
-  Improved adherence to delivery dates
-  Increased customer satisfaction
-  Higher motivation of the employees
-  Creation of a central knowledge base
-  Immediate availability of the production factor “information”

## YOUR BENEFIT IN FIGURES

**56%** shorter processing times

**36%** reduction of the manual data maintenance and input

**32%** less work in progress (WIP) as well as revolving inventories and consequently better liquidity

**67%** reduced paperwork between the shifts

**22%** less production errors and consequently fewer rejects

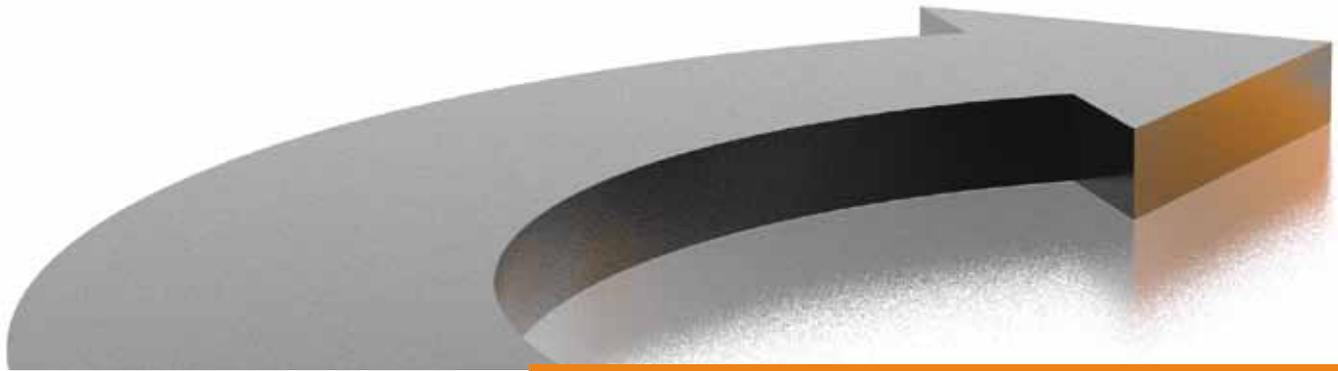
**32%** reduced pre-series times, for example the setup

**55%** better flow of information due to fewer lost work documents

Source: Field study of MESA, [www.mesa.org](http://www.mesa.org)

## Return on investment:

*The amortisation period of an MES project is between six months and two years – 14 months on average!*



## SYNCOS MES: ACCURATELY INFORMED!

*The use of Syncos MES enables you to acquire new information from the various involved systems that has not been available so far or could only be obtained with extensive manual acquisition effort. This information is available to you for the timely planning and control of the production processes and a real-time flow of information within the value creation chain now.*

*From the manufacturing, this information may also be used for the decision making and reaction in the current production process as well as the optimisation of the superordinate business processes due to the fact that Syncos MES collects, consolidates and checks the plausibility of the production data directly and in real time.*

### DETAILED PLANNING AND DETAILED CONTROL

While the production-related systems only show the actual situation at the machine and in the material flow, Syncos MES also prepares a view of the working cycles in the production process that may be problematic. In addition, this view of all production systems may be used to identify possible bottlenecks. For example, if a machine, material or personnel failure occurs, Syncos MES will automatically alert the responsible detailed planning employee in order to simulate the design of evasion scenarios. In addition, Syncos MES will process the available information while taking the affected working cycles into consideration, ensuring that the subsequent processes containing the respective working cycle will be informed in real time.

### MATERIAL MANAGEMENT

The flow of material is continuously optimised due to the fact that Syncos MES connects the existing solutions for ERP and PPS to each other. This enables Syncos MES to improve the material transport by continuously synchronising data, for example within just-in-time or just-in-sequence methods. At the same time, material bottlenecks become visible at an early stage, facilitating the initiation of possible evasion scenarios in real time and avoiding production downtimes.

### QUALITY MANAGEMENT

Business concepts for the TQM (total quality management) are supported by Syncos MES in all

areas of the manufacturing. Syncos MES records and processes the activities to be controlled to that end. The information acquired in that manner is used for quality control, but may also be used for functions like the retraceability in accordance with legal requirements and DIN as well as ISO standards. The data from Syncos MES may also be used for the improvement of the work instructions for the respective working cycles.

### RESOURCE MANAGEMENT

Production bottlenecks are detected and reported by Syncos MES at an early stage. Syncos MES supports the corresponding countermeasures in that manner. The superordinate view of Syncos MES makes machine failures or machine problems predictable, even if those only occur with a specific processing material in a certain cycle, to name but an example. In addition, Syncos MES helps managing the typical challenges for the resource management, e.g. the material provision, the fork-lift management or the personnel planning.

### INTEGRATED PROCESSES

A central data pool which enables companies to react quicker and with a higher degree of precision to the events in the production develops due to the fact that Syncos MES is continuously informed about all processes in the production. Syncos MES receives the specifications attached to the job from the ERP system and determines all production and work sequences, respectively. Following the completion



of or even during the production, the entire data relevant to the job is automatically consolidated and transmitted in accordance with your specifications via Syncos MES to the ERP. If optimisations and adjustments have been performed during the production processes, this information may also be automatically reported by Syncos MES to the ERP.

#### **OPTIMISATION POTENTIALS**

The result from the business perspective: An optimisation of the job planning from within the ERP. The data relevant to the production remains in Syncos MES and is among others assigned to additional sequences or new production strands there.

Redundant data maintenance is avoided due to the fact that data and information are only available at points where they are actually needed for a job.

In addition, the control loop between ERP and Syncos MES supports the preliminary and final calculation with real data due to the fact that the calculation of the ERP often greatly deviates from the actual values.

This results in clean, clear interfaces and task differentiations – and consequently more efficiency.

#### **ERP INTEGRATION**

ERP/PPS systems only consider the production process. Syncos MES supplements ERP/PPS systems with the means for planning and controlling the production on the basis of valid data in real time.

Syncos MES contains all functions for the conversion of a production plan into the production commands for the manufacturing. For a start, this includes the automatic download and the execution of the production plan on the software side.

The necessary production master data is managed in support of that. After that, Syncos MES controls the local assignment and execution of production jobs at

production lines and machines in accordance with the available capacities.

Syncos MES contains functions for the retracing and analysis of semi-finished goods and the work in progress (WIP) as well as the download of machine and production parameters and the coordination of the process sequence to support the control of the production flow.

The data may be acquired directly from the machines and converted into usable information with Syncos MES. In addition, the production characteristics as well as the availability and the utilisation of production equipment are acquired for the quality and productivity control. Syncos MES realises the statistical process control (SPC) and the connection of the IT systems in the production.

Syncos MES simplifies the flexible management of production sequences and facilitates an adaptation of the functionality to the development of the company.

#### **INTEGRATED SYSTEM ENVIRONMENT**

The data of all levels may be gathered and analysed in a timely manner due to the integration on the different levels of a system environment – from the ERP via the MES to each individual PDA terminal.

The production processes are reproduced and controlled in detail which supports avoiding errors and results in a quality increase. Complete retracing of the components used in the production process is possible in Syncos MES at any time, i.e. even while production is ongoing.

Due to the machine connection, the information is available in a quick and unaltered manner for maintenance (plant maintenance). Malfunctions and failures of machines are consequently reported directly and maintenance messages may be generated directly and transferred to the ERP/PPS from within Syncos MES.



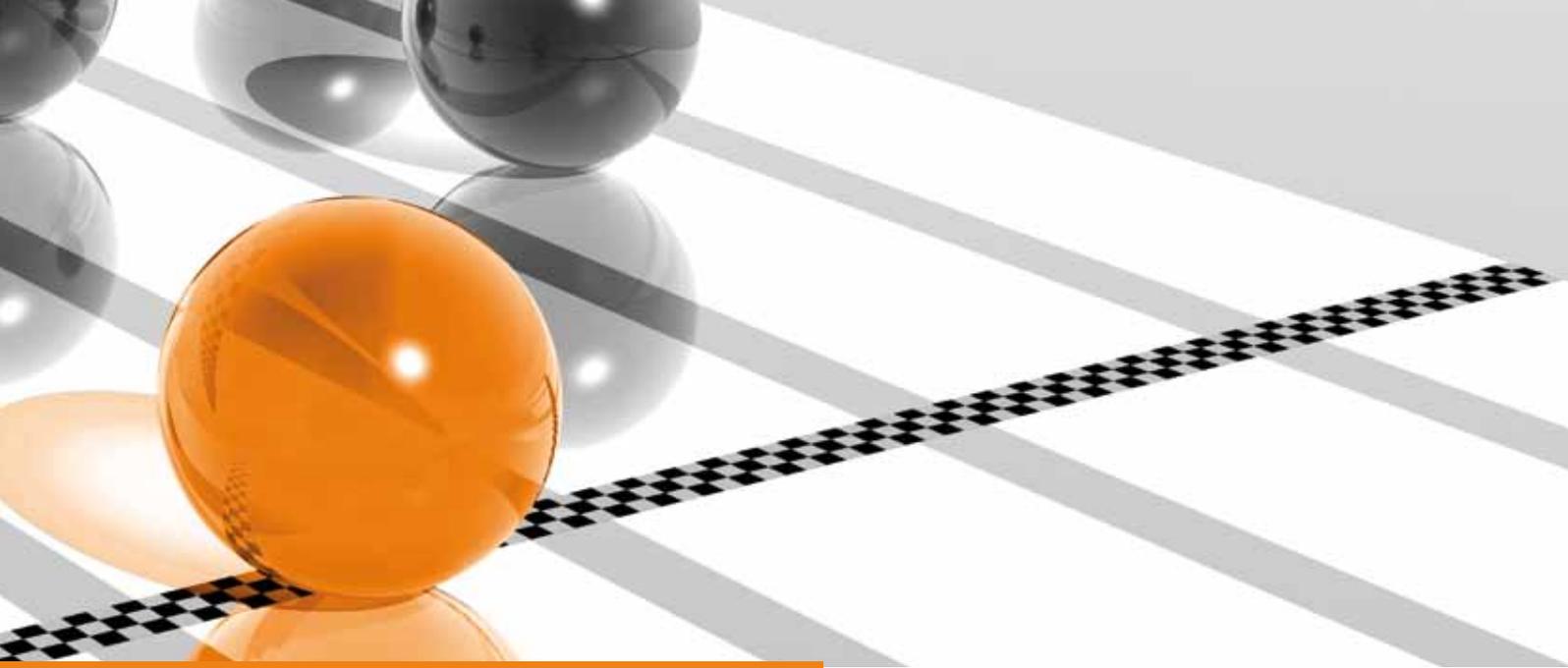
## WHAT BELONGS TOGETHER, COMES TOGETHER!

Syncos MES is the tool for the reliable control of all production, quality and logistics processes in your company and forms the link between the company management level and the production. Being a modular production management system, it integrates the functional blocks resulting from the VDI 5600 directive in a unit.



## THIS IS WHAT YOU GAIN!

-  Syncos MES supports the workflow of the entire process realisation.  
» *You use existing resources in an ideal manner.*
-  It is directly connected to the information flow in the production process.  
» *You are able to immediately react to process deviations and always trace a feasible production plan.*
-  The control of complex structures in the production process is simplified.  
» *You gain more transparency and consequently more reliability for decisions.*
-  You secure and improve the product quality and the production process with Syncos MES.  
» *The increase of the readiness for delivery and the adherence to deadlines are measurable results.*
-  All areas that are relevant to the production are integrated in a complete, continuous system.  
» *You utilise all potential savings in the value creation process.*



## CONTINUOUS PRODUCTION MONITORING

Due to the vertical integration of Syncos MES in your company, you may apply jobs directly from your ERP/PPS solution and immediately plan the underlying working cycles by means of the electronic planning board on the machines and systems. At the same time, the ERP/PPS solution is supplied with all relevant information from the ongoing production in a timely manner.

Due to the horizontal integration of Syncos MES, all elements involved in the production may access a comprehensive data pool and consequently be adapted to each other in an ideal manner. Among others, you may use this data for the analysis of weaknesses as well as the retracing and quality assurance of products. The performance and the efficiency of your production become measurable and controllable in this manner.

The modular design of Syncos MES offers you ideal growth opportunities. The quicker and easier a software may be used, the sooner you receive exactly the information that you can use to optimise your production:

- *Interfaces may be separately adapted and supplemented with additional boxes.*
- *This also applies to reports or OLAP analyses via the intuitive and integrated editors.*
- *Syncos MES is international and multilingual – German and English are the default, additional languages may be added at any time.*
- *Decentralised working with a central and consistent data set is possible immediately.*
- *You have a central overview of production and quality data at any time.*
- *You receive status information on individual jobs, machines, groups of machines, departments, facilities etc. at the push of a button.*
- *You easily and quickly generate detailed information on all production characteristics in accordance with VDI 5600 with a click of the mouse.*
- *The preconfigured default system facilitates a high level of individualisation for your specific requirements.*
- *The interface based on Windows may be grasped intuitively and consequently facilitates a quick familiarisation – even for employees without extensive IT knowledge.*
- *Valid traceability, i.e. the clear time-based identification of all data resulting from the respective production steps (PDA, MDA, CAQ), is a matter of course.*





## **SYNCOS MES – FAR MORE THAN CAQ: QUALITY MANAGEMENT WITH SYNCOS QM**

Business concepts for the TQM (total quality management) are supported by Syncos MES in all areas of the manufacturing via the activities to be checked being acquired and processed. The information gathered in that manner is used for quality control, but may also be used for functions like the retraceability in accordance with legal requirements and standards as well as guidelines.

### **SYNCOS MES QM – THE ESP FOR YOUR QUALITY MANAGEMENT**

-  Syncos MES QM offers the complete solution for all tasks in the quality planning and assurance.
-  All processes of producing companies along the value creation chain that are relevant to quality, for example quality planning, preventive quality assurance and measuring as well as inspection processes, are organised and supported.
-  All data that is relevant to quality is available in a central and process-oriented manner.
-  Syncos MES QM optimises internal and external business processes.
-  Weaknesses in the goods receipt or the production are detected and countermeasures are initiated more quickly and the product quality is noticeably increased.
-  Requirements of the market for a complete documentation of the production process are met in accordance with the valid standards.
-  For example, the traceability function facilitates retracing whether and – if yes – which products, deliveries and customers might still be affected in case of product recalls.
-  Syncos MES QM may be used in a modular manner.



## THE PERFECT COMBINATION DECIDES ON THE SUCCESS!

### **FOREWARNED IS FOREARMED!**

Syncos MES QM operates in the entirety as complete, closed CAQ system in a control loop, though the individual modules may also be combined in an arbitrary manner or be used as perfect stand-alone solution in a flexible manner. Syncos MES QM aims at effective error prevention and consequently guarantees you a clear cost reduction and ensures your competitiveness as well as your economic success in the long term.

Syncos MES QM helps you to optimise your internal and external business processes. Weaknesses along the value creation chain – via the development, the goods receipt, the production or the goods issue – are identified more quickly. Then remedial measures may be initiated in a targeted manner to increase the quality of your products in that manner.

### **QUALITY ASSURANCE PAR EXCELLENCE!**

Similar to the field of production management, Syncos MES QM provides you with all relevant data at your business objects in a process-oriented manner. In addition, it contributes to a reduction of the expenditure in many areas. Cost reduction potentials are consequently increased and optimise your success.

The requirements of your customers and the standards for a complete documentation of the production processes are met with Syncos MES. Syncos MES offers you more than CAQ in that context due to the fact that the production management is also an integral part of Syncos and consequently creates a central, valid and continuous data pool.

We offer you with Syncos MES QM a modular, complete solution for all quality planning and assurance tasks along the value creation chain. Syncos MES QM becomes active for you and monitors characteristics, the cpk value, costs in accordance with your specifications in that context. If Syncos determines deviations from your specified targets, Syncos will escalate the matter in accordance with the defined process plans via the integrated workflow management.

## PDA/MDA PRODUCTION MANAGEMENT

Planning board

Machine runtime

Control centre

Maintenance

PDA

Tool management

MDA

Containers

Process data

Traceability

### BASE FUNCTIONS

- Document management
- Versioning
- Report designer
- OLAP analyses
- Office connector
- Quick reports
- Favourites
- Variable views
- GUI designer
- Workflow
- Active PM system

## SYNCOS MES – SIMPLY MORE!

*The use of Syncos MES enables you to acquire new information from the various involved systems that has not been available so far or could only be obtained with extensive manual acquisition effort. This information is available to you for the timely planning and control of the production processes and a real-time flow of information within the value creation chain now. Use it both for the decision making and reaction in the current production process and for the optimisation of the superordinate business processes:*

### DETAILED PLANNING AND CONTROL

While the production-related systems only show the actual situation at the machine and in the material flow, Syncos MES also prepares a view of the working cycles in the production process which may be problematic. In addition, this view of all production systems may be used to identify possible "bottlenecks". Syncos MES will process the available information while taking the affected working cycles into consideration, ensuring that the subsequent processes containing the respective working cycle will be informed in real time.

### MATERIAL MANAGEMENT

The flow of material is continuously optimised due to the fact that Syncos MES connects the existing solutions for ERP and PPS to each other. This enables the MES system to improve the material transport by continuously synchronising data, for example within just-in-time or

just-in-sequence methods. At the same time, material bottlenecks become visible at an early stage, facilitating the initiation of possible evasion scenarios in real time and avoiding production downtimes.

### RESOURCE MANAGEMENT

Syncos MES detects and reports production bottlenecks at an early stage and supports corresponding countermeasures. This superordinate view makes machine failures or machine problems predictable, even if those only occur with a specific processing material in a certain cycle, to name but an example. In addition, Syncos MES helps managing the typical challenges for the resource management, e.g. the material provision, the fork-lift management or the personnel planning.



### **IMPROVING PERFORMANCE AND EFFICIENCY WITH PRODUCTION CHARACTERISTICS**

Key performance indicators (KPI) are key business characteristics which reflect the performance and the efficiency of a company. They are used as operational characteristics which represent the success or failure of the company. The timeliness of the production characteristics plays an important role in that context: If the KPIs indicate to you that planning data can no longer be met in the assigned time period, you may intervene in the process in a correcting manner, accordingly. The comparison of completed processes to the characteristics of existing sequences is also a vital component of a continuous improvement process (CIP).

### **GLOBALLY DETERMINING PRODUCTIVITY CHARACTERISTICS WITH ACCURACY**

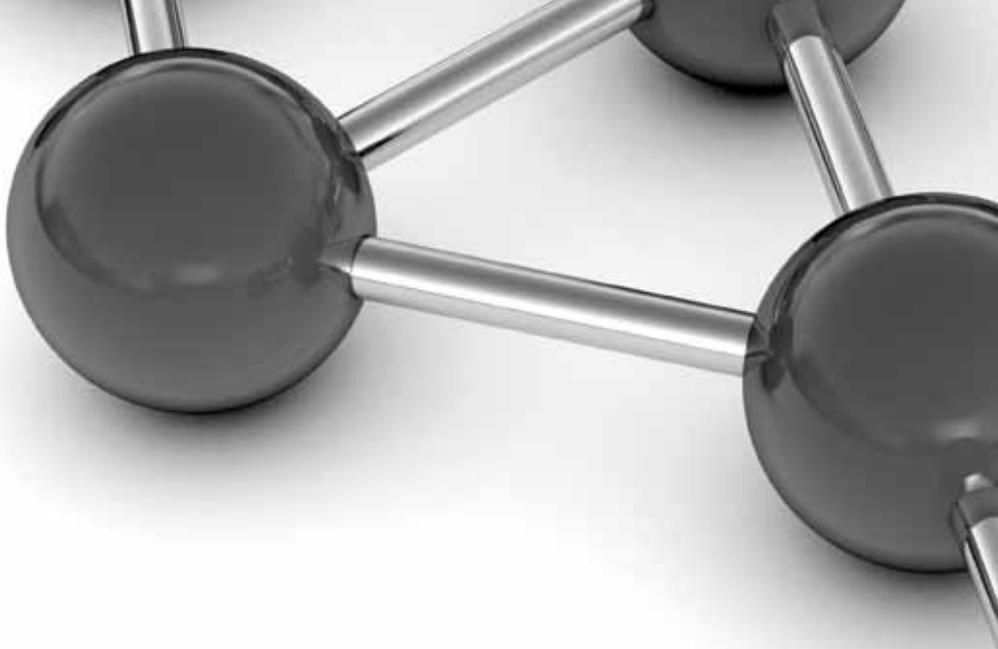
The exact knowledge of the availability of machines and the efficiency of the production (overall equipment effectiveness) is the basis for a successful (continuous) optimisation process. The OEE characteristic is one of the most significant characteristics for the performance of a machine, production line or production cluster. The OEE characteristic directly indicates losses in efficiency which facilitates a comparison of machines regardless of the respectively manufactured product. The Syncos MES dashboard provides all relevant individuals and departments in a web-based and timely manner with the required analyses in that context.

### **SYNCOS MES – OEE ANALYSIS AND CHARACTERISTICS AT THE PUSH OF A BUTTON**

Syncos MES already provides you with detailed analyses (OLAP) on all relevant process-influencing variables for the OEE analysis by default. Syncos MES receives automated feedback from the systems and machines (MDA) as well as manual feedback (PDA) and determines the required characteristics on the basis of standardised calculation formulas and analyses as detailed in VDMA standard sheet DIN 66412-1 to that end.

Links, rules and standards or dependencies may be configured in an arbitrary manner, just as the layout of the reports and OLAP analyses. You may also immediately identify via drill-down functions where the “problem causer” may be found in your process or in the company.





## COMPETENCE IN CONCENTRATED FORM!

### WHAT YOU MAY EXPECT FROM US

Our services are based on the understanding of needs, processes and technologies. We take care of your MES system from the first appraisal to the maintenance in the ongoing operation. You can depend on it: The reliable integration of MES solutions in complex systems always requires extensive know-how and excellent project management.

At the beginning of each project, we listen to you with utmost care to ensure that we can accurately assess your requirements. Our consultants possess many years of experience and broadly diversified expert knowledge on products and industries. They consult you with regard to the process-oriented reproduction of your quality and production processes directly on site.

### AS INDIVIDUAL AS POSSIBLE

Syncos MES is modular and exhibits many configuration options. As a result, you receive your individual MES solution which has been exactly adapted to the needs of your company. We work closely or in partnership with your IT experts and jointly analyse your production and automation technology to ensure that Syncos MES may be integrated in a seamless manner in the processes of your company.

Last but not least, the successful use of Syncos MES also depends on the users. Because of that, we convey the necessary knowledge for all performance features you selected in the context of intensive training. A modular training concept ensures that individual

training is provided to each user. Our experts train with your specific usage examples in your company in that context. The data generated throughout is available to you for continued use afterwards.

Following the roll-out of Syncos MES in your company, we still remain your contact for additional questions.

### OUR BEST MARKETING IS OUR SUPPORT

The personal availability of our customer care is one of our best arguments. Short response times and a competent team which deals with your questions. Time and time again, you may benefit from updates and upgrades within the framework of a maintenance agreement. However, the on-line support or our on-site service solves problems in a speedy and competent manner as well. In addition, we offer you the customer day and the exchange of experiences in user groups. This way you can also actively contribute to the continued development of Syncos MES.





## ON DUTY FOR YOU!

We rely on competent partners that we have a great deal of trust in to ensure that we can offer you individual systems meeting the highest quality requirements. We are consequently able to utilise synergistic effects and combine strengths. This results in effective project work - even with regard to the costs. Together with these partners, we possess extensive process know-how. As a result, you gain reliable innovation and investment safety.

We are very clear that we primarily rely on established high-quality software of leading manufacturers in that context. In the fields of databases and ERP systems, we have decided to cooperate with selected partners to ensure that mature and trend-setting technologies are used in Syncos MES. This guarantees you a particularly high quality and stability of your system.

## TIME-TESTED: OUR PARTNERSHIPS

Syncos MES offers default interfaces to all well-known ERP providers. Among others, these include SAP, Infor, Microsoft Dynamics, Abas, proALPHA, PSIpenta etc. Due to our cooperations with these market leaders, we always have access to the newest trends and technologies and are able to adapt our products to them in an ideal manner.

Practice-oriented integration solutions, a simple connection, exchange of master and transaction data as well as the avoidance of redundancies and feedback to the ERP system guarantee an integrated IT solution. These are supplemented with a regular exchange of experiences which develops Syncos MES further and adapts it to the respective requirements time and time again.





**MORE THAN 20 YEARS  
OF EXPERIENCE  
CREATE  
SAFETY FOR INVESTMENTS  
AND GUARANTEE  
100 PER CENT  
MES COMPETENCE**

**MES | PDA | MDA | CAQ**



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