Modular, scalable and flexible.

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info@homag.com
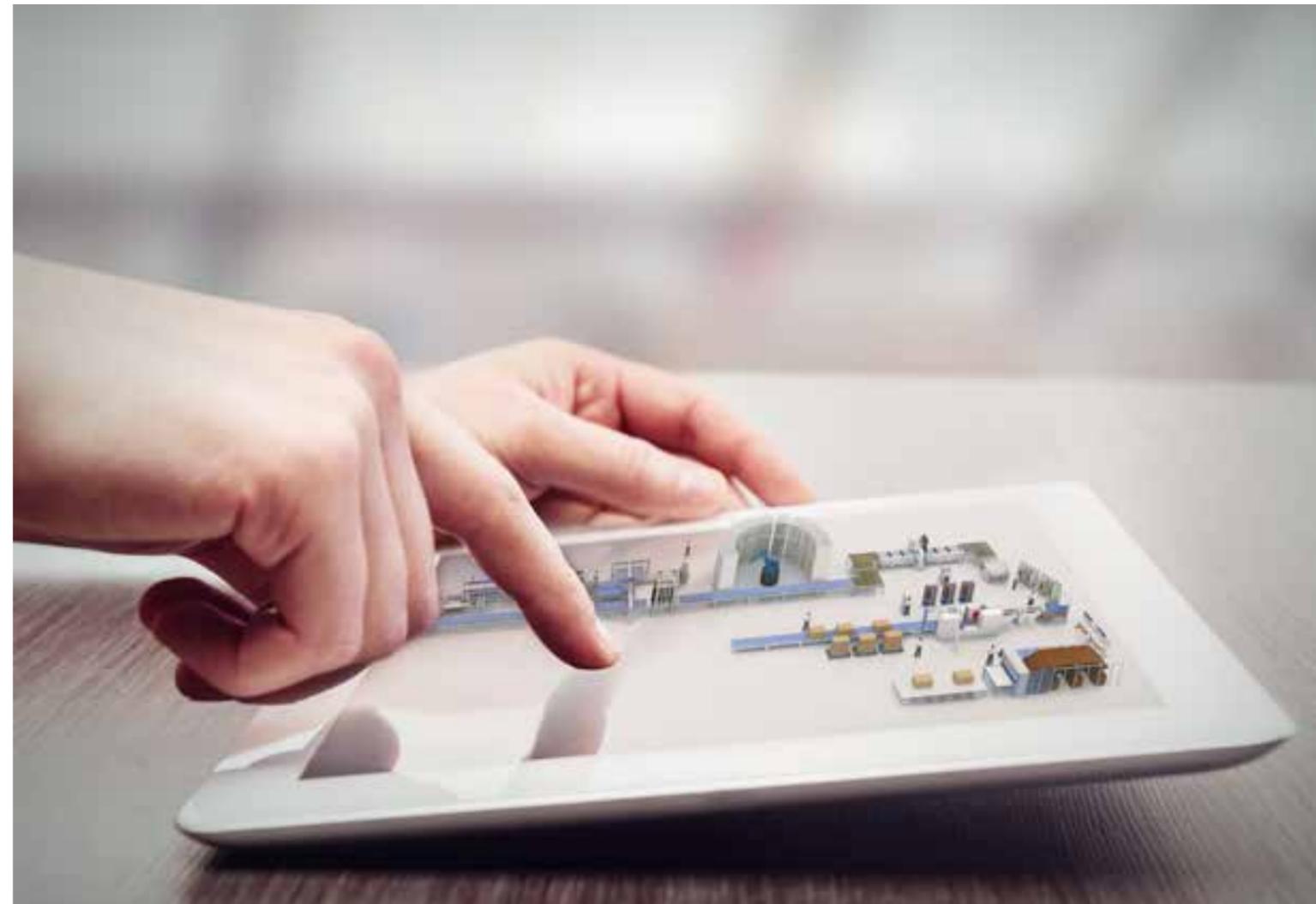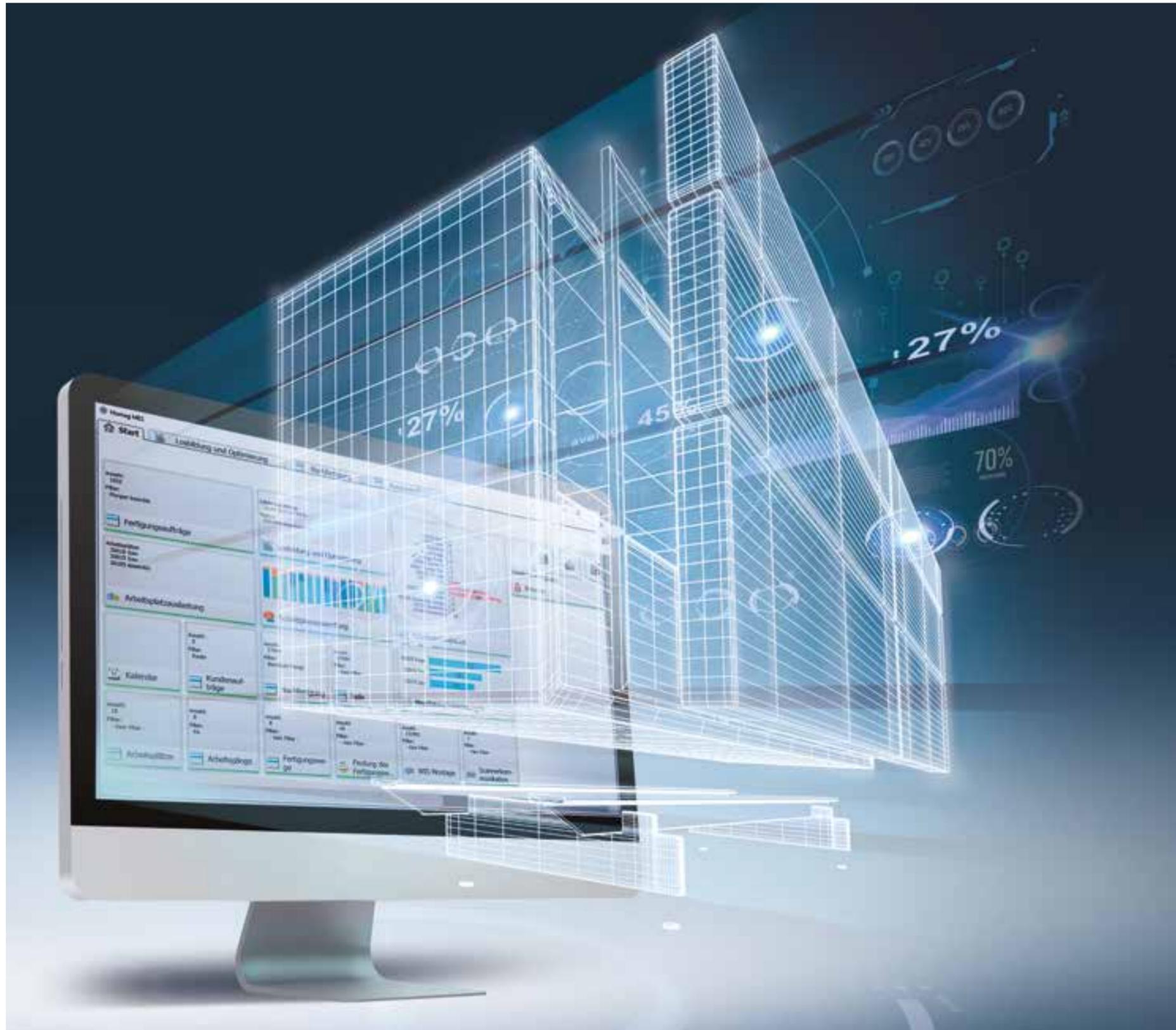www.homag.com

YOUR SOLUTION

Our Manufacturing Execution System
ControllerMES

YOUR SOLUTION

ControllerMES –
One software platform
Modular, scalable and flexible

Industry 4.0 has long been a part of the wood processing industry. Digitization is also progressing here; machines and production systems can no longer be considered in isolation. In order to operate them, you need a production system that is efficient and powerful and an IT system to organize and design the information flows. With the ControllerMES manufacturing execution system, HOMAG offers you a platform that optimally organizes the production processes and perfects the interaction of machines and manual work stations. We support your process with the modular system — from the intelligent configuration and optimization of the production data, to the production planning and ultimately the completeness check after final assembly. ControllerMES uses the latest technology and is tailored to the specific requirements of the wood and furniture industry. It is not only information flows that are optimized; the production as a whole is also improved and the performance is increased. You therefore not only work more cost-effectively but also benefit from lower capital commitment.

YOUR SOLUTION

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ControllerMES

CONTENTS

Increased productivity. Efficient processes.

When it comes to the digitization of your production, three elements are particularly important: Efficient production processes. Optimized data quality. And absolute transparency. ControllerMES — the manufacturing execution system from HOMAG — is an important building block for networking your machines and conducting analyses to optimize production. The production control system is adapted to the respective production system and supports you with exact planning so that you get the best from the processes. This can lower costs, reduce breaks in production and make the use of material more efficient.

Companies that rely on ControllerMES significantly improve transparency, efficiency and control and benefit from support with the optimization of production processes and the organization of information flows. The software enables the perfect interaction between human and machine in networked production.

ERP
ORDER AND PARTS LIST DATA

CONTROLLERMES

Production planning ▸ Production data ▸ Production control

Cutting

Edge

Assembly

Drilling

As an addition to standard ERP systems ControllerMES offers important industry-specific and production-related functions and so integrates the production optimally into the company's information flow.

Optimal data quality for your production

With the Data Configurator, you optimize the quality of the data with rule-based correction and expansion of data from the upstream system. Missing data, e.g. for programs of edge banding machines, is generated automatically by the system. You reduce the error rate for data handling and data provision with the automated distribution to the processing machines. Due to the high data availability, all information is available at any time at the touch of a button.

Increased productivity

Flexible production planning enables you to optimize your production. Material consumption, idle times and non-value-adding activities are reduced, and the throughput times are minimized. With the HOMAG ControllerMES, you increase productivity and improve the utilization of your production capacity.

Increased process reliability, optimized organization

The ControllerMES allows you to manage the complexity of modern batch size 1 production at all times. Processes are automated and production becomes transparent, thus enabling better monitoring and control. Problem situations are detected at an early stage, workflows take effect and the delivery date is upheld.

Investment in the future

With a modular, scalable standard software design, the fully updatable system offers a wide range of possibilities for configuration and expansion, allowing you to adapt it to your processes. Based on the established powerTouch software platform and thanks to the use of the latest software technologies, ControllerMES is a modern system with which you can prepare the IT in your production for the future.

The four key factors for your production: data, planning, organization, control

To make sure that the result is right at the end, everything has to run perfectly from the beginning. It is only with optimal planning, first-class organization and continuous control that you achieve perfect products.

Improve your production planning

In companies that manufacture based on orders or in small series, production planning has a large impact on the productivity of the production. In the wood and furniture industry, grouping and sorting operations play a prominent role for the generation of production batches. The scheduling also has a decisive influence on the processes in production and therefore has a direct impact on capital commitment, space requirements and adherence to deadlines. If production orders are started too early, waiting times are incurred — components or assembly units must be stored

temporarily, the space required increases and this leads to an increased capital commitment. If production orders are started too late, the scheduled dates are not upheld. Scheduling that is as exact as possible must therefore often take into account further framework conditions in addition to available capacities. ControllerMES offers modules for production planning, scheduling and capacity overview that are designed specifically to meet the needs of furniture production.

Take a seat in the cockpit. You can keep an eye on everything from here: You can track production in real time with status information and direct access to all important apps. You can therefore intervene in the event of a problem and have better control of the production.
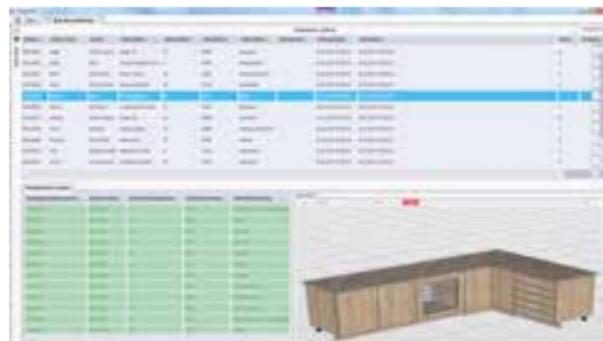
Central database for customers and production orders

All customer orders are managed in a central database with the associated production orders and detailed information.

. Order information

. Order data

. Components with process steps

. Dispatch of production orders to machines, systems and manual work stations

After the production approval, the data is available for production planning.

Capacity overview

The capacity overview gives a live view of the utilization per work station and working day. A color marking makes the status of the production orders transparent and these can be taken into account during planning.

Generation of production batches

For optimal planning, the capacities of the critical work stations are displayed directly in the batch generation module and taken into account. The production planner has flexible sorting and filtering criteria available to control the production with optimized production batches. This makes it simple and quick to implement even the distribution of production orders to multiple saws or nesting machines for example.

In conjunction with the cutting optimization, ControllerMES ensures optimized utilization of materials through the integration of the optional parts and filler parts logic and the prioritized, quick re-use of panel remnants.

Integration of cutting optimization

The Cut Rite cutting optimization is directly integrated into the process of batch generation. The planner therefore works with just one system and there is no need for manual data handling.
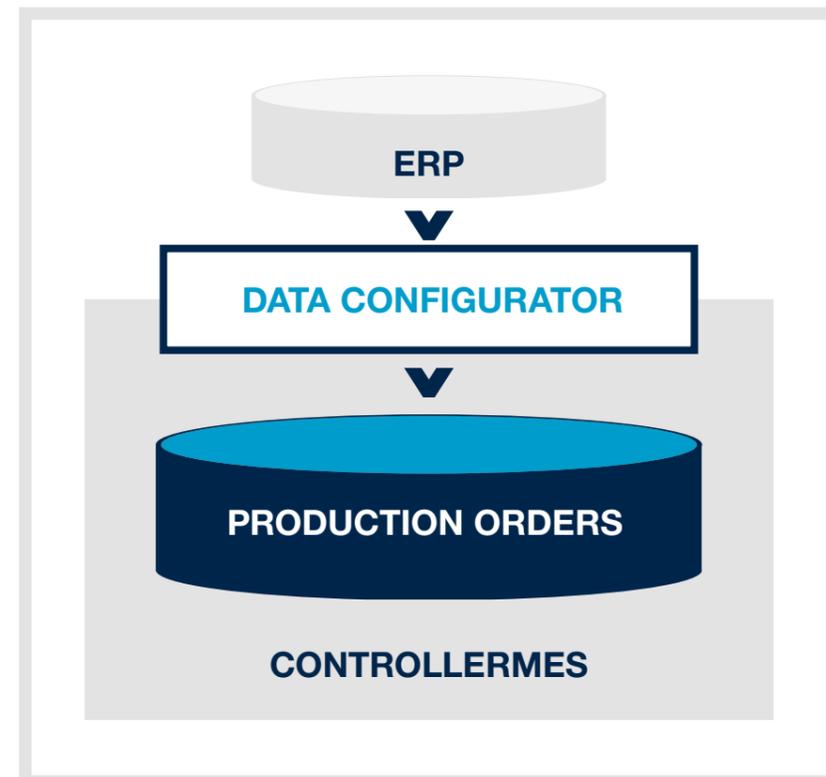
Automated batch generation

ControllerMES additionally offers the option of automating the process of batch generation, whereby stop limits control the automatic approval of the optimization runs. This makes work significantly easier particularly in industrial production with a large number of parts.

The secret of efficiency:
Generate data intelligently and maintain it rationally

For the efficient operation of production systems, the right information has to be in the right place at the right time — and it should get there without the need for manual intervention as far as possible. This not only saves valuable time — for the employees and the machines — but also ensures the quality of the data so that costly errors can be avoided. This need for information is especially clear when new, automated machines and systems are installed. So that these can execute a particular processing task, they need detailed data records with technical product features as well as production and machine-specific data. The administration of this data in standard ERP systems is often not appropriate or not available.

The right data, at the right time — optimized for your production. With the Data Configurator, ControllerMES completes and optimizes the data of the upstream system and generates additional data if necessary.

Preparation of the processing data for edge banding machines

ControllerMES generates all the required machining data for the automated operation of edge banding machines in barcode-controlled batch size 1 production.

ERP

▼

DATA CONFIGURATOR

▼

PRODUCTION ORDERS

CONTROLLERMES

Data-related optimization of production orders

With ControllerMES, the data from the upstream system is adapted and optimized for the individual production system. One of the particular strengths here is the rule-based completion, optimization and generation of data with the Data Configurator. Supplemented with easy-to-use functions for the management of technical master data in the form of libraries, the information for all work stations and machines is optimized for specific situations and components. ControllerMES thus represents the intelligence of your production system and allows for a virtually unlimited number of variants in production, while minimizing costs for the maintenance of master data.

Data distribution

All the data required in the production for processing machines and manual work stations is supplied close to the production. There is no need to perform manual editing or to open programs.

Barcode control system

With the integrated barcode technology, the software makes a decisive contribution to the prevention of errors during machine operation. The unique part ID that is particularly necessary in batch size 1 production is automatically assigned by ControllerMES and is used for unique identification of components in the entire production process.

Everything under control. Increase transparency, capacity utilization and availability

Your goal: continuous quality control, increase in capacity utilization and improvement of availability. The solution: 100% transparency through automatic feedback or manual completion messages. You receive these either directly through the networked machines or through the use of barcode scanners and smartphones. All information is brought together with the help of ControllerMES. The order progress is shown here at all times. This allows you to detect production problems and bottlenecks immediately and to react without delay. You can see at a glance where your customer order is — and whether it is complete.

Monitoring of production progress

- Monitoring of customer order and production order progress
- Monitoring of the production processes using visualization of the production status with detection of standstills and problems
- Check for completeness of orders and batches
- Quality control, including the evaluation of faulty parts

Automated feedback from machines and work stations

- Automatic feedback of the completed process steps for the saws, edge banding machines, buffer and sorter magazine and other processing machines involved in the process
- Manual feedback from terminals by means of a scanner, touch panel or mobile device
- Pre-configured interfaces to HOMAG machines

Work station-based visualization of key figures

- The dashboard creates transparency in the production process. Current information and key performance indicators are visualized uniformly and clearly
- Status and achievement of targets for each work station can be seen at a glance

Identification of optimization potential

With the evaluation of historical data, ControllerMES offers the option to detect dependencies in production and to identify optimization potential. This means, for example, that production bottlenecks and causes can be identified. All data present in the system can be shown in chronological context, linked and evaluated:

- Feedback and production progress
- Utilization and capacities
- Material consumption, times and quantities
- Defective components

In the right place at the right time:
Make better use of information

The efficient production of furniture parts requires the right information to be available where it is needed. And exactly when it is needed. With ControllerMES, you can provide your production staff with all the required information for the current process step — digitally and accessible at any time. Worker information systems assist with the correct execution of manual work steps. The employees in the final assembly can thus, for example, immediately check whether jobs are complete and all assembly information is available. This ensures that information is up to date at all times. ControllerMES helps you to organize your production with pre-configured modules. The process for reworking defective components has already been planned ahead and integrated into the quality control system, for example. You increase the effectiveness of your production and save time and money.

**Paperless organization of production with worker information systems**

With the production clients and information terminals ControllerMES enables the permanent availability of all information at the touch of a button. The information is shown in optimized form for the respective work station. For example, an assembly employee is shown all the information about the order: completeness, drawings of components and assemblies, assembly and packaging information and important dates.

The information is guaranteed to be up to date at all times and paper is no longer needed as information flows are digitized.

Organization of sorting and order picking processes

- Support for manual sorting and order picking work as well as the handling of packages and order picking trolleys
- Provision of lists on terminals or as printed picking list for removal of units from storage systems
- Monitoring of the completeness of assembly or shipping units
- Identification of packages by barcode or RFID
- Organization of the shipment
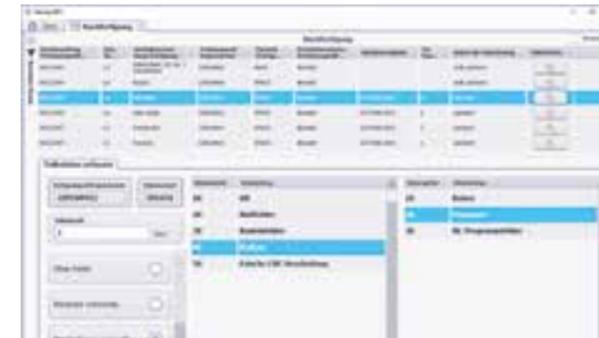
Reworking and quality control

With the reworking module, you can organize and optimize your quality inspection and reworking processes.

- Preparation of the processing data for edge banding machines
- Feedback to the upstream ERP system or other systems
- Statistics and evaluations with reason for the error and error causes

Optimization of production processes

With ControllerMES, you have optimum organization for your production. Activities that do not add value and material consumption alike are reduced, thus saving time:

- There is no need for costly printing and distribution of production documents
- The information is always up to date
- Searching for missing components is a thing of the past
- Reworking is organized and monitored
- Reduced work for picking and sorting
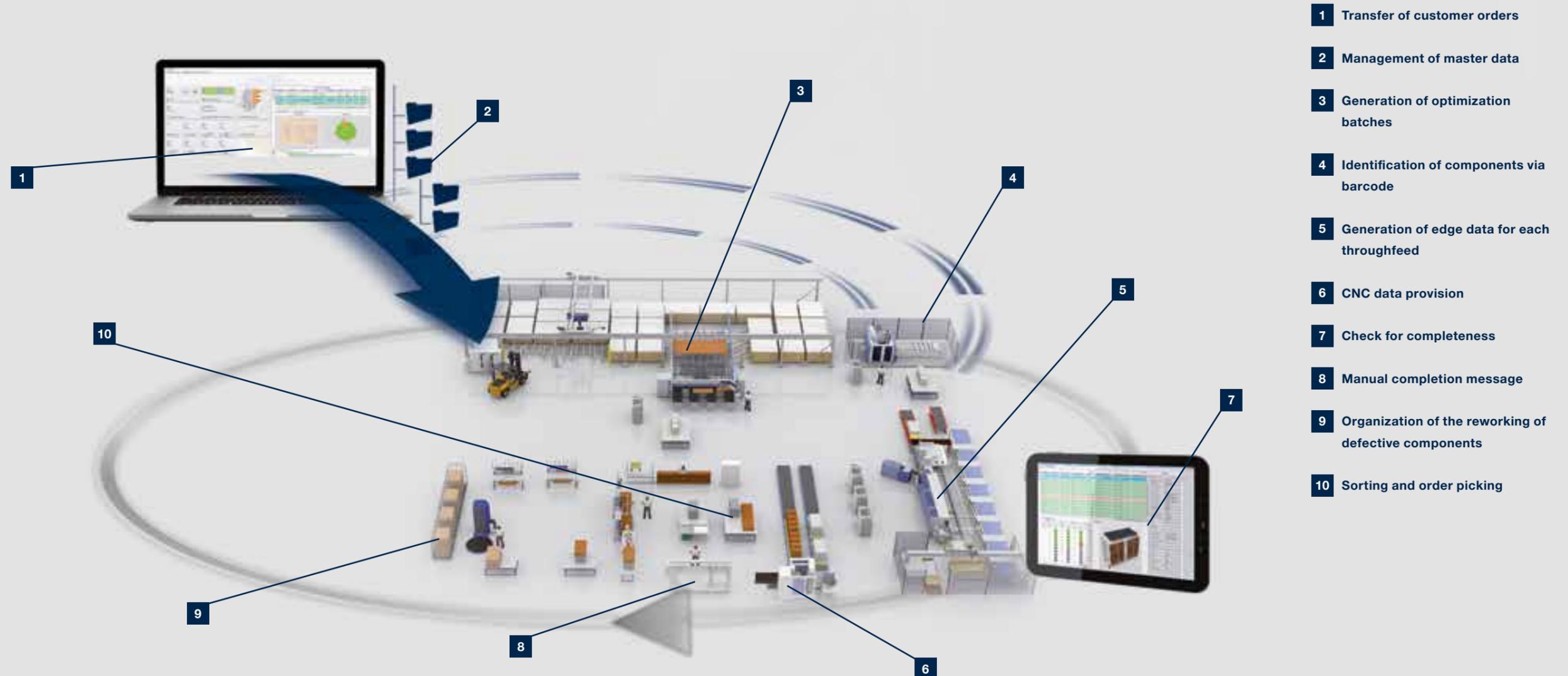
1 Transfer of customer orders

2 Management of master data

3 Generation of optimization batches

4 Identification of components via barcode

5 Generation of edge data for each throughfeed

6 CNC data provision

7 Check for completeness

8 Manual completion message

9 Organization of the reworking of defective components

10 Sorting and order picking

Optimum production processes are not a matter of company size

The same is also true for smaller furniture production companies: With ControllerMES, you can digitize your production processes and optimize them significantly. Everything starts with the transfer of the customer orders from woodCAD|CAM or another industry solution and continues through the provision of the CNC data using a barcode scanner until at the end there is a message when the product is finished after the final assembly. All production processes are digitally recorded and automated. The benefits for you: You have an overview at any time of the production planning with cross-order production batches, and benefit from additions to the production data and the clear marking of components. In other words: ControllerMES enables you to always keep control of production planning and organization.

Scope of functions:

- Transfer of customer orders from upstream woodCADICAM
- Universal concept for marking and identification of components using barcode
- Generation of production and optimization batches
- Management of production-related master data

- Rule-based generation of data records for edge processing
- CNC data handling
- Feedback and completeness checks
- Organization of the reworking of defective components
- Sorting and order picking

Interlinked furniture manufacturing.
Simplified production.

By using ControllerMES, you benefit from consistent networking and availability of all the important data from the beginning to the end of furniture production, even for batch size 1. Data is adapted from the upstream system, optimized and adopted for the machine and production concept. A particular advantage is that the Data Configurator generates and completes rule-based data. Production and optimization batches can be generated automatically. The cutting optimization is integrated, data records for the edge processing can be easily generated and thanks to the completeness checks and reporting of missing parts, you always have an overview for production batches and customer orders. Not forgetting the barcode labeling of components, which significantly simplifies identification. And of course, all of the data that is necessary for these tasks is independently distributed by the ControllerMES intelligent production control system.

Scope of functions:

- Transfer and feedback of production orders to and from the ERP system
- Rule-based completion and generation of data with the Data Configurator
- Automated generation of production and optimization batches
- Integration of cutting optimization
- Rule-based generation of data records for edge processing
- Data distribution in the entire system
- Edge preview and edge management
- CNC data generation and handling

- Control of the sorter
- Completeness checks and indication of missing parts for production batch/customer order
- Organization and prioritization of the reworking of defective components
- Statistics and evaluations of errors, causes, time and frequency
- System visualization/production dashboard
- Provision of the assembly information and manual message for completion of assembly
- Automated printing of package labels

1 Transfer of production orders

2 Rule-based completion and generation of data

3 Automated batch generation — integration of cutting optimization

4 Generation of edge data for each throughfeed

5 Data distribution in the entire system

6 Feedback after process — completeness check

7 Automated reworking of defective components

8 Provision of the assembly information

9 Automated printing of package labels

10 System visualization