

A stylized white hummingbird is depicted in flight, facing right. The bird is composed of several white triangular shapes that form its body, wings, and tail. The background is a solid orange color with a network of thin, light-orange lines that create a geometric, web-like pattern. The hummingbird is positioned in the upper left quadrant of the image.

the agile
Hummingbird
MES-System®

The modular MES System
for Digitalizing your
Manufacturing Processes

YOUR PRODUCTION ENVIRONMENT





For manufacturing industries with the highest requirements

The Manufacturing Execution System (MES) from Hummingbird is basically suitable for all industries and company sizes, but demonstrates its strengths particularly in companies that have a wide variety of products, complex production with fluctuating capacity utilization and many changeovers or adjustments in day-to-day business.

Here are some typical areas of application

- Single part and small-batch production
- High-precision manufacturing
- Tool and mold making
- Mechanical engineering
- Aerospace

Hummingbird Systems: Your pioneer for the manufacturing world 4.0

Founded in 2015 in Nuremberg, Germany, Hummingbird Systems GmbH supports the philosophy that it is better to integrate the best systems for your respective applications into the MES rather than try to do everything yourself – in line with the connectivity idea of Industry 4.0.

The team of engineers and consultants has two decades of digital competence in tool and mold making, many years of experience in MES implementation, and expertise in all areas of single part and small-batch production gained from being involved in hundreds of digitalization and automation projects.

Hummingbird Systems GmbH is majority-owned by the CAD/CAM software developer OPEN MIND Technologies AG, based in Wessling near Munich, Germany. Its powerful CAD/CAM solution *hyperMILL*® can be seamlessly integrated into the Hummingbird-MES.

CAM/CNC Integration

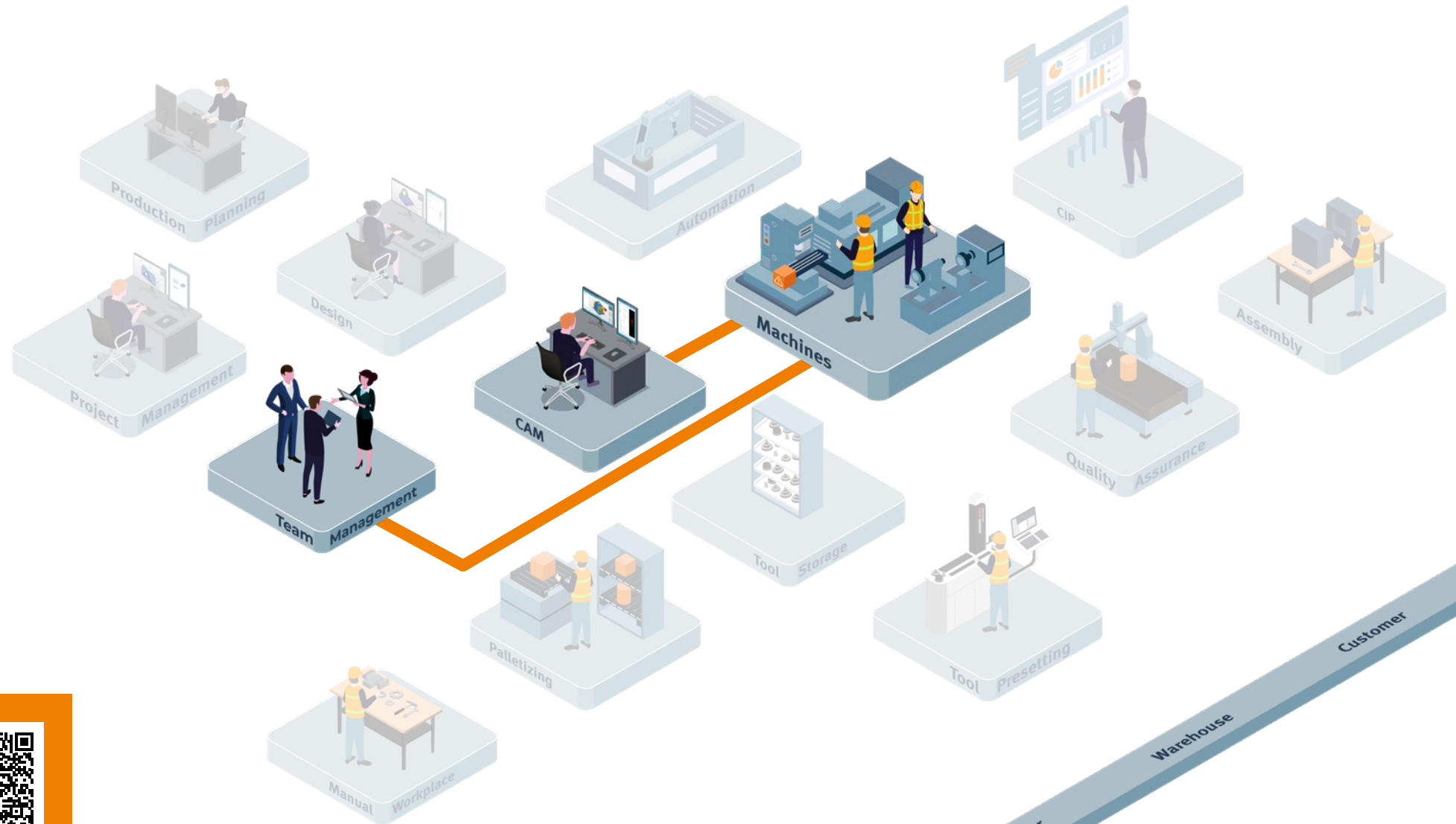
Tool Logistics

**Machine Data
Collection (MDC)**

Planning and Control

Our agile Hummingbird-MES ensures greater efficiency and fewer annoying problems on the shop floor, shorter processing and setup times, maximum transparency, control, and traceability. Also good to know: The modular design and division into four modules allow you to get started in a customized way that is perfectly adapted to your specific needs.

CAM/CNC INTEGRATION



Scan for more information about: CAM/CNC integration

Rely on digital processes for your CAM and CNC data

The Hummingbird-MES takes over the complete management of CAM projects and NC data as well as tool and manufacturing information, and delivers NC programs to the machines at the touch of a button. Digital and paperless – this reduces the workload on your staff and prevents costly errors.

Your advantages at a glance

- CAD/CAM data management and control with the Hummingbird-MES
- Centralized and versioned data management, paperless and digital up to the machines
- All CAM projects and their status can be viewed in real time
- Use Hummingbird to increase productivity, processing times, and delivery reliability

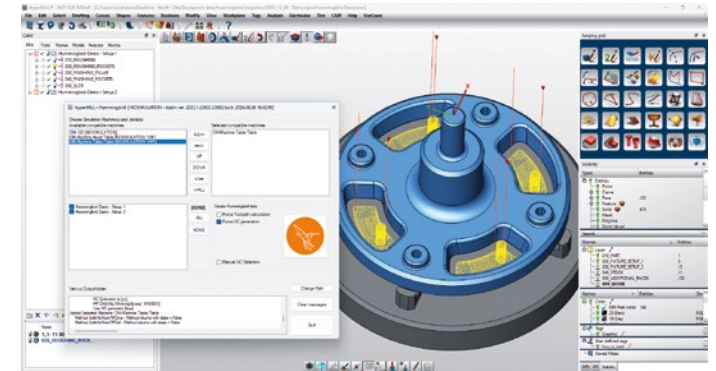
A continuous workflow from A to Z

Manufacturing projects for the respective machines are created automatically from the CAM system. The agile planning board can be used to plan and view the machining and assignment for the individual machines. All necessary information and an electronic routing slip are transferred to the respective machine

workstation. This means that the NC program, setup sheets, tool and job information are available at the machine, which allows the operator to concentrate on their main tasks.

The Hummingbird-MES and *hyperMILL*® integration ensures a seamless transition of all data at the touch of a button. In addition to all relevant process, NC, and tool data, a multi-machine NC output for the corresponding CAM project can be started at the touch of a button.

hyperMILL®



Features

■ Information flow from the CAM system

All relevant data from the CAM system such as NC program, tooling sheets, and tool information are automatically transferred to the Hummingbird-MES and managed there for all further processes

■ All information in one place and always visible

The files and information are managed centrally in the Hummingbird-MES and are also saved according to version when changes are made; all information can be viewed at the machine workstations

■ Information transfer to the machine

All information is also available to the machine operator; in addition to the NC program and setup information, a viewer file can be opened, NC programs are transferred directly to the machine

TOOL LOGISTICS



Scan for more information about: Tool logistics

Tool management under control thanks to clever role distribution

Tool logistics, in particular, opens up many opportunities in production to save money, time, and organizational effort. Hummingbird controls the tool logistics in conjunction with the CAM system's leading tool database. This approach significantly reduces costs and effort, speeds up production, and offers great potential for the future.

Application areas

- On the machine
- Tool set-up and measurement
- Tool database of the CAM system
- Tool storage

Connectivity and synchronization

The Hummingbird-MES can be fully synchronized, can retrieve and write back all the necessary data, and implement management processes automatically. In this constellation, our MES acts as a central management system and handles all aspects of tooling. It transmits the setup orders, provides all data for assembly, measurement, and storage, and passes this information on to the tool setters and/or machine operators.

A tool is uniquely identified via a DataMatrix code or RFID chip on the holder. All relevant data is immediately available and new entries can be saved easily. Direct data transfer to the machine makes it possible to transfer all relevant tool data quickly and reliably without any manual input.



Your advantages at a glance

- No more time-consuming information gathering on all aspects of the tools you need
- Accelerated processes in tool management and production
- Less downtime, higher productivity
- Decreased tool inventories
- Reduced risk of errors and damage thanks to automated data transfer

MACHINE DATA COLLECTION



Scan for more
information about:
Machine Data
Collection

Making data-based decisions instead of acting on gut feeling

Only the automated collection and visualization of machine data can show your effective production performance including weak points – without any serious errors and mistakes. Hummingbird's machine data collection module, or MDC for short, can do even more: It generates and monitors Key Performance Indicators (KPIs), integrates a wide variety of machines, and is open to any expansion towards an MES.

Your advantages at a glance

- Automated MDC eliminates manual data collection activities and creates real transparency when it comes to your machine performance – down to the last detail
- MDC provides the data basis that is vital today for making targeted improvements and conclusive decisions in automated production
- Our MDC module works with virtually any machine – this also saves you having to retrofit special interfaces

In times of rising costs and falling margins, data provides the best basis for making profitable decisions. MDC systems use real-time monitoring to provide

continuous information about work statuses, production quantities, capacities, and machine malfunctions. They make running and idle times transparent, make it possible to compare actual and target states, or calculate actual production costs. In short: They reflect your production efficiency – and are nowadays essential to ensure effective optimization.



MDC module from Hummingbird: Your universal collector and guardian

- **Automated data collection and visualization**
Hummingbird collects all available machine data fully automatically and displays it clearly in a dashboard. Machine and work statuses as well as histograms are available in real time.
- **Measure your success with KPIs**
Hummingbird automatically generates typical Key Performance Indicators (KPIs) such as efficiency or Mean Time Between Failures (MTBF). Or you can create key figures with our API function (function for the Application Programming Interface).
- **Interaction with all machines**
The unique openness of Hummingbird allows almost all machines to be connected via a wide range of interfaces, such as OPC UA, MTConnect, Röders XML, or Modbus. With our IoT module, even older machines can be integrated regardless of the interface.

PLANNING AND CONTROL



Scan for more
information about:
Planning and control

Agile planning and control with Hummingbird

Take the first step towards digitalized production with our module: Planning and Control. Thanks to end-to-end digital planning and control, you can detect deviations immediately, implement changes online, and communicate them automatically. You can see in real time where each part is currently located without having to search or go on a tour of the shop floor.

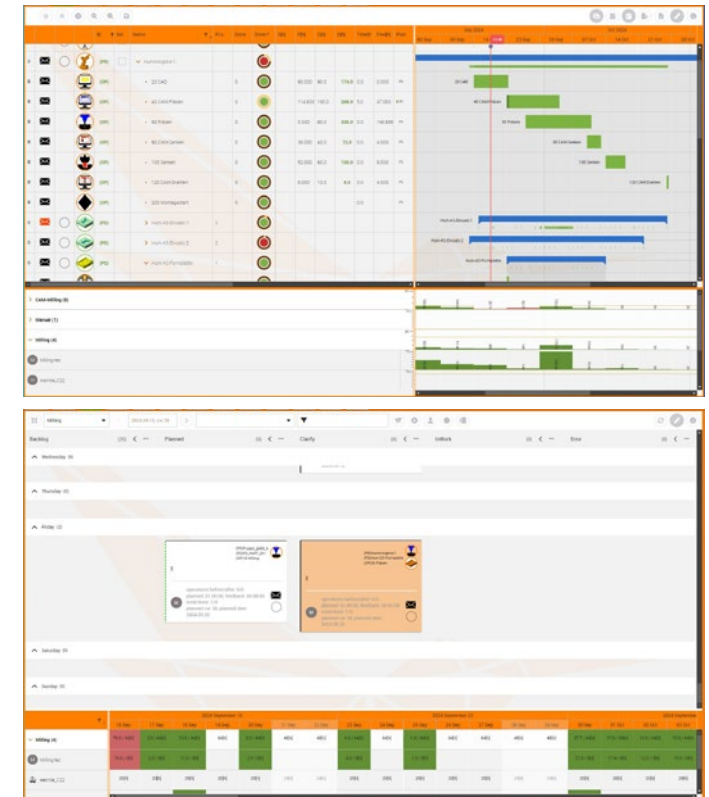
Our module supports you in the following areas

- Process and capacity planning
- Team management
- Machine workstations
- CAM and shop floor workstations

Paperless production

Thanks to Hummingbird, you have all documents, process relevant data, communication, and the entire work organization digitally in one system. This eliminates errors caused by outdated data sheets or incorrect information. Your employees always have access to all information, which increases transparency in the company, and saves time-consuming queries.

Benefit from agile processes and sustainably increase the efficiency of your production. Our agile planning board is the centerpiece – alongside process and capacity planning. It offers full transparency for all processes within a team or machine group and allows you to intervene directly, send notifications, or obtain comprehensive information. Hold meetings directly and interactively in our team board, and save important information and comments there. All progress is immediately visible at every Hummingbird workstation, ensuring seamless communication and collaboration.



Features

- **Dynamic and agile**
Hummingbird uses smart methods such as Scrum and Kanban for time and machine planning – so you can quickly get changes, failures, and optimization loops under control
- **Ever-finer planning**
After rough planning and scheduling in calendar weeks, adjustments can be made to detailed planning, authorized at management or department level, resources can be reassigned using drag-and-drop operations, priorities can be changed, components can be blocked, further machining steps can be added, and much more
- **Just in time**
The MES ensures that all data, materials, machines, and the associated personnel are available in the right place at the right time

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Member of the OPEN MIND Group



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