Digital World of EMCONNECT

Industry 4.0 ready

Digitalisation of the Production

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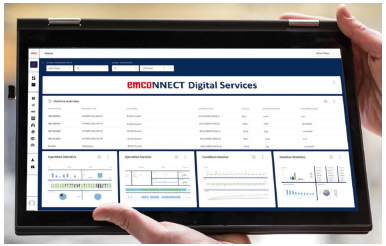
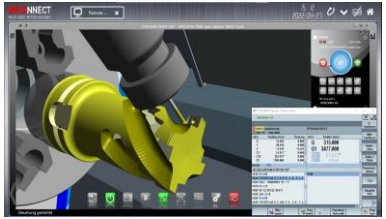
YOUR GUIDE IN TECHNOLOGY



Digital Services

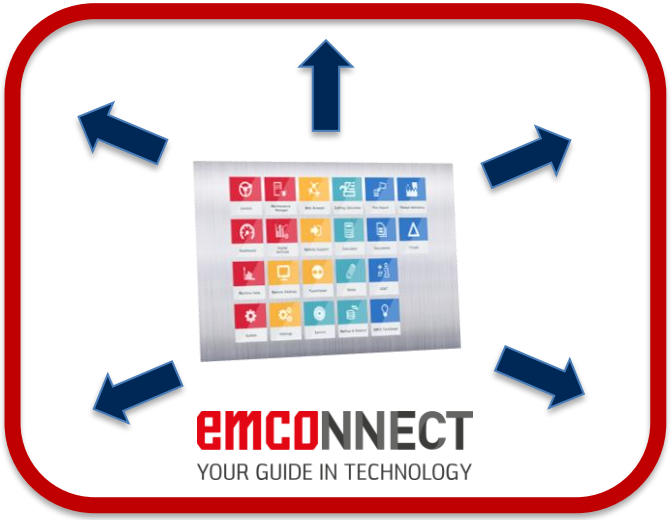


Digital Twin

Shopfloor Management

Remote Support

a company of the **Kuhn** Holding



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Connected Machine

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Fully connected
Access to all applications and data directly at the machine

Customer-oriented
Open platform for integration of customer specific applications

Compatible
Interfaces for seamless integration in the operational environment

User-friendly
Intuitive user interface optimized for touch panel and production

Future-proof
Continuous expansion of the available Apps and easy update/upgrade options

EMCONNECT adapts to your needs and processes

Industry 4.0 ready

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- Access to all applications and data right at the control panel
- Paperless production

Extended functionality

- Supporting Apps for the operator
- Documents on-board for paperless production
- Monitoring machine status and production data

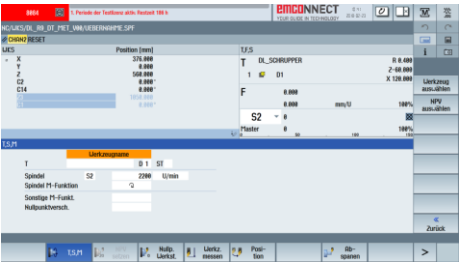
Full connectivity for machine tools

- Remote Desktop for direct access to office computers
- Web-Browser for Web-Applications
- Remote diagnostics and maintenance
- OPC UA interface (optional) for integration in the operational environment

Open platform

- modular and extendable
- adaptable to meet customer specific requirements

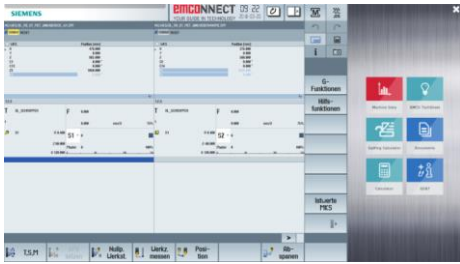
Integration in NC-Control



NC-Control

App Launcher

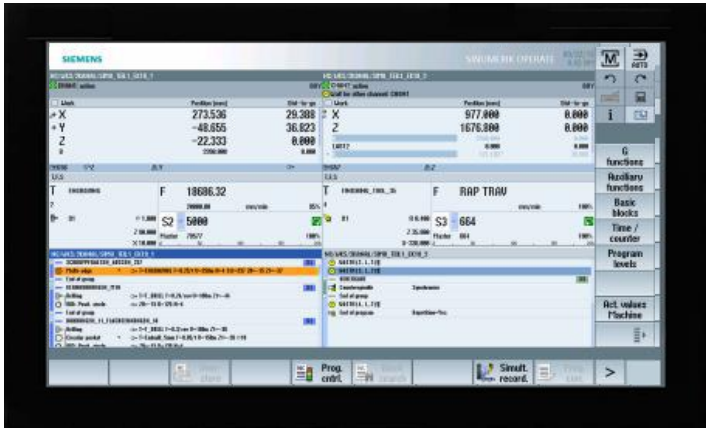
App full screen



Apps in sidebar

- The familiar NC-control remains the hart of the machine
- Seamless integration of EMCONNECT and NC-control
- Use case dependent handling options
- Apps can be used in the sidebar simultaneously with the NC-control
- One click for switching between EMCONNECT and NC-control

Control & Hardware



Handling

- Intuitively handling inspired by smartphones
- Optimised for touch screen and production
- One click for switching between EMCONNECT and NC-control

Hardware

- State-of-the-art 22“ multi-touch-display
- Powerful industrial-PC
- Premium industrial PC-keyboard
- HMI-hotkeys for quick access to frequently used functions

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Software & Apps

- Continuously expansion of the available Apps
- Easily update- and upgradable
- Security functions for blocking unauthorised access

- EMCONNECT - A valuable investment in the digital age of Industry 4.0

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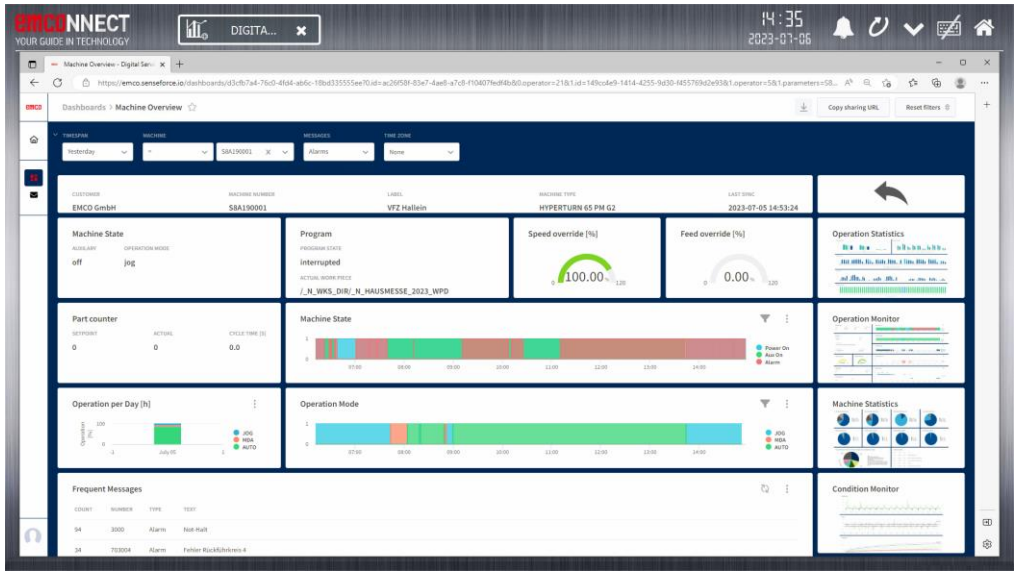
Standard Apps & Details

Digital Services - NEW!



- Online-Access to Digital Services for entitled users at the machine
- Machine data and evaluations in view
- Maintenance Manager

- Machine status and evalutations for alle affected users in view

emco Maintenance Manager – NEW!

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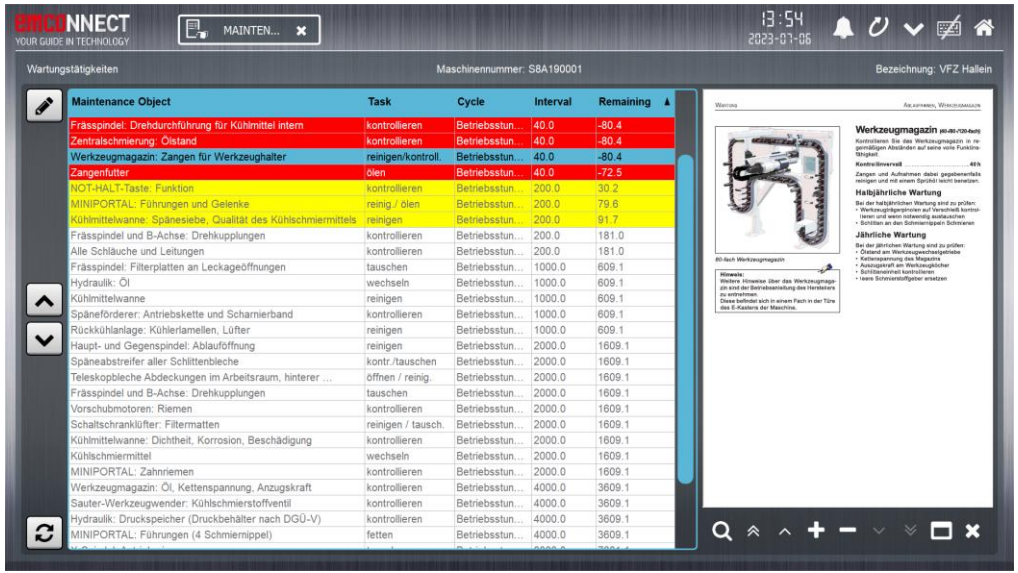
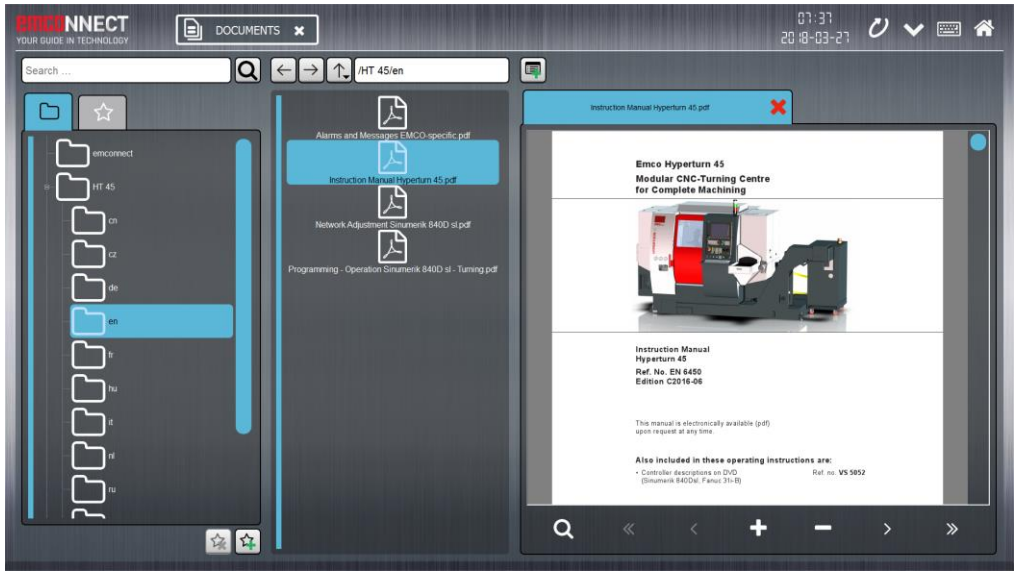


- View upcoming maintenance
- Notice of open maintenance in the control
- View maintenance manual
- Confirm maintenance tasks for entitled users via Digital Services
- Online Wartungslogbuch

- Maintenance planning at a glance for all affected users at all times

Documents On-Board



- User manuals of the machine
- Maintenance & spare parts documentation
- Programmers guide
- Production-/workpiece-documentation
- etc.

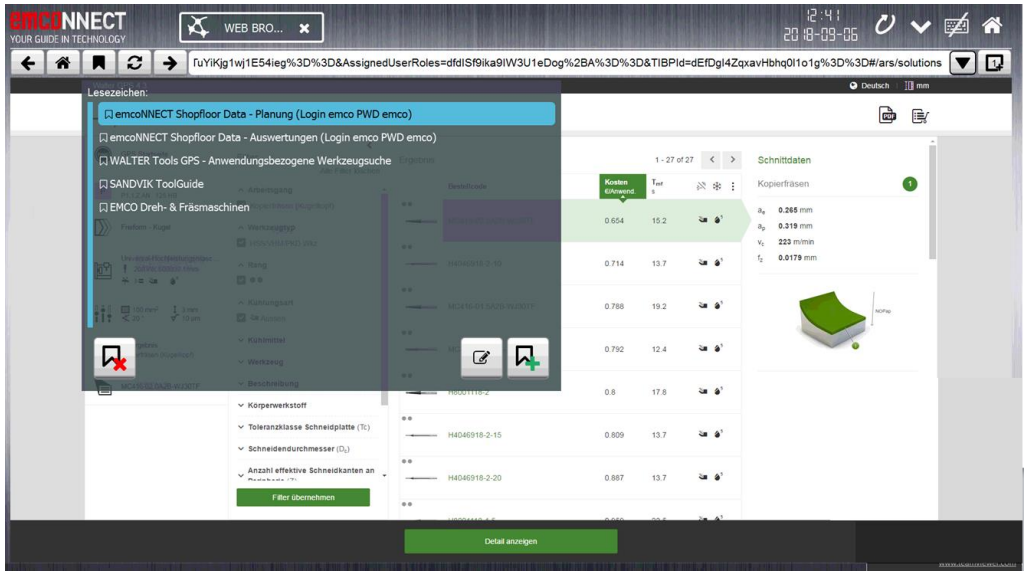
- Direct access to all documents at anytime for **paperless production** environments

Cutting Calculator

- Turning, drilling, milling
- Support for NC-programming
- Optimized machining
- Available in the sidebar
- Direct take over of values into the NC-control

- Optimised cutting data and direct interaction with NC-control

Web Browser

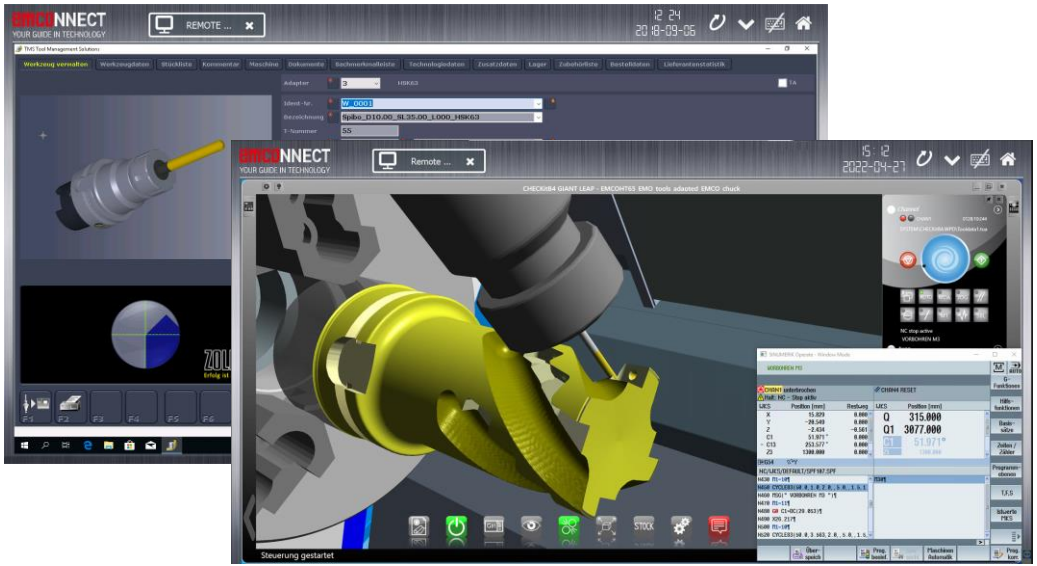


Direct access to Web-Applications:

- Tool Management
- Time Accounting
- PLM
- E-Mail
- etc.

- Access to Intranet and Internet depending on IT-Administration (Firewall!)

Remote Desktop

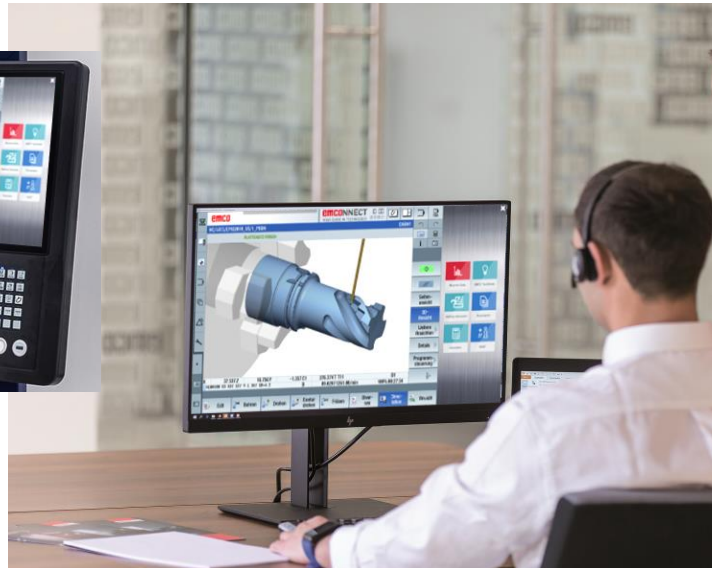


Remote usage of office computers directly at the machine e.g. for Tool Management

- CAD/CAM, CPS-Pilot
- Tool Management
- E-Mail
- Intranet/Internet
- etc.

- Full access to all data and applications without interrupting the production process

Remote Support



The EMCO Helpdesk-Team can be directly connected with the machine on demand

- Remote diagnostics
- Remote maintenance
- Quick and simple help in case of trouble
- Reduced service visits and costly downtimes

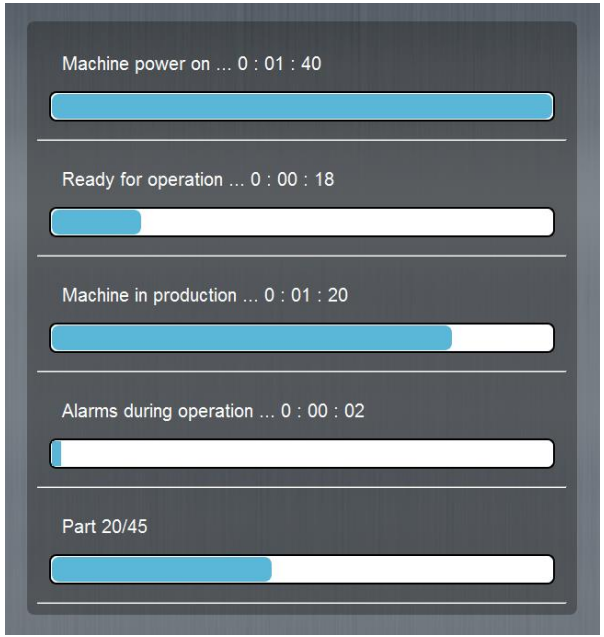
- Accelerated troubleshooting in order to minimize costly downtimes

Dashboard

- Machine status
- Machine data
- Oerational mode
- Active NC-program
- Currently selected tool
- Axis positions
- Override-values
- Alarms
- etc.

- All important data at a glance

Machine Data

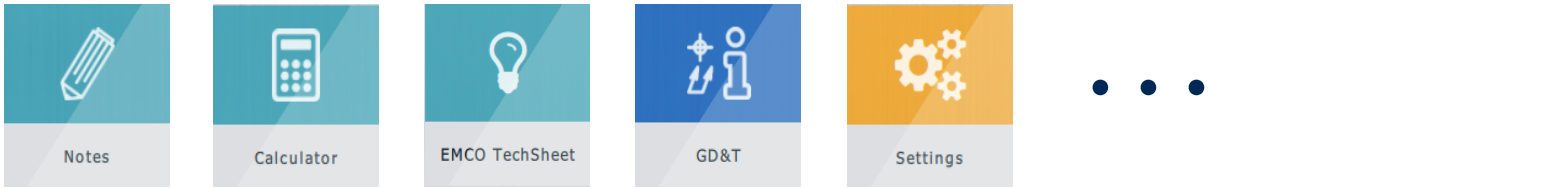


At a glance

- Shop Floor Data Collection (SFDC)
- Machine Data Collection (MDC)

- Local MDC-/SFDC-Function at the machine

Further Apps



Settings for system configuration

Symbols for shape and geometric tolerances

EMCO TechSheet providing important formulas

Calculator with trigonometrical functions

Notes for saving important comments e.g. for shift changes

Portfolio of available Apps is being extended continuously!

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Industrial Security

Factory-made security measures

- whitelisting activated
- firewall activated
- configuration instructions included in users manual
- Goals
- effective blocking of malware
- blocking unauthorised access from the network
- no execution of unknown programs

- When integrating machine tools in the local area network and the operational environment industrial security is of crucial importance

Availability

EMCONNECT as standard for **SINUMERIK 840D sl/One** and **FANUC 31i**

- HT45/65/95/100/110/200
- MT200
- MM400/630/750
- MMV2000/3200-6200
- UMILL 630/750
- UMILL 1500/1800

Optional for MT45-G2, MT65/65-G2, MT95/110, VT160/260/400
Optional for **HEIDENHAIN TNC640**

Languages: DE, EN, IT, CZ, FR, ES, PTB, RU, CN, SWE, FIN, DAN, NED, HUN, POL, TUR

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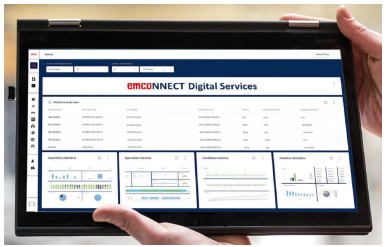
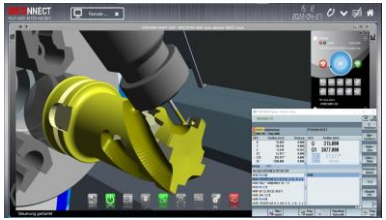
Digitalisation of the Production



Digital Services



Digital Twin

Shopfloor Management

Remote Support

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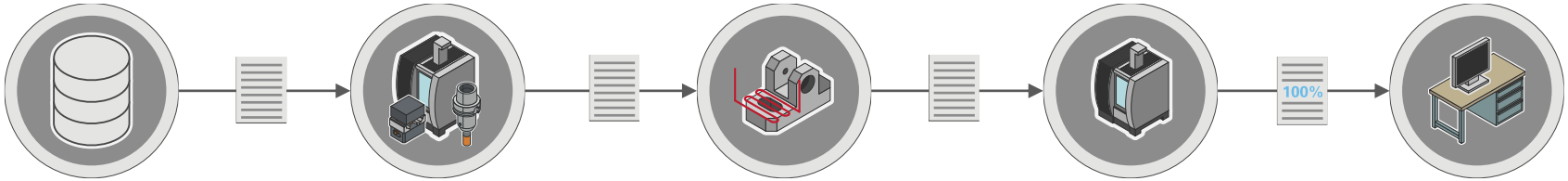
Connected Machine

Virtual Machining Process



ERP

Digital Process Planning

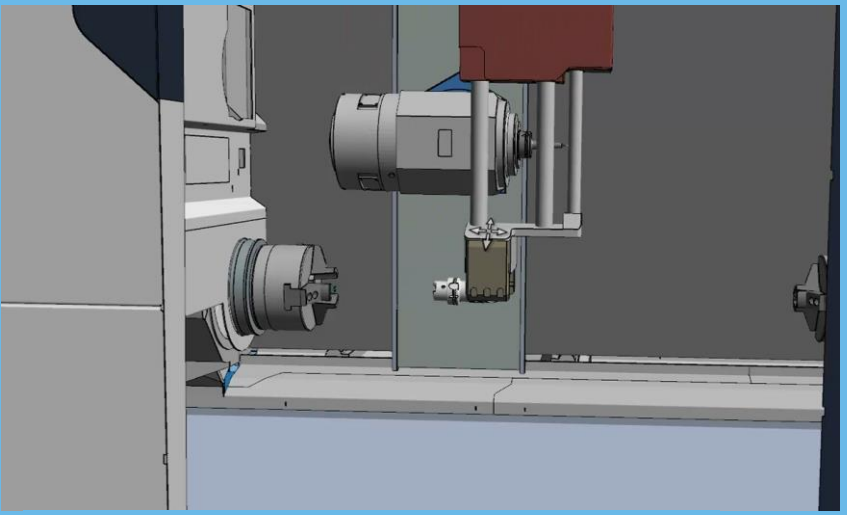
Programming

Virtual Machine

Setup

- Quick and simple from drawing to in-spec part

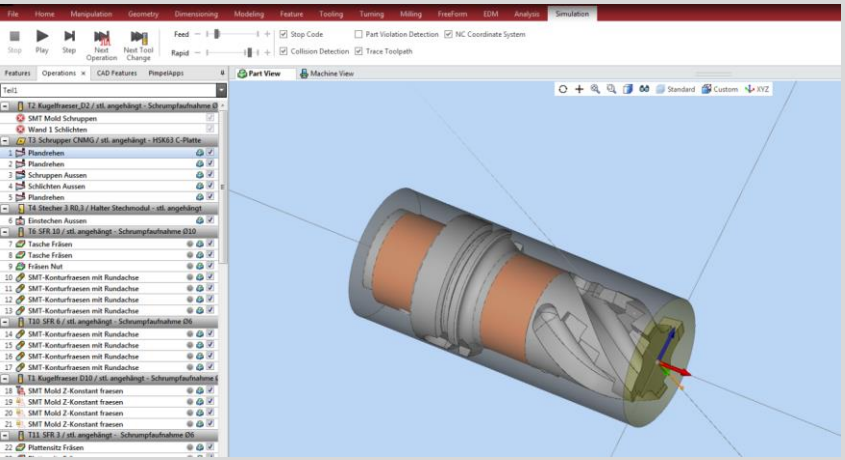
Digital Process Planning



Which clamping?
Which tools?
Which machine?

- Quick process validation without NC-Code
- Simple tool movements over the workpiece by using the mouse
- Detection of collisions and axes end positions
- No need of CAD/CAM knowledge required
- Simple and innovative setup of clamping situations and complete tools
- Generating raw parts
- Interfaces for many CAM systems

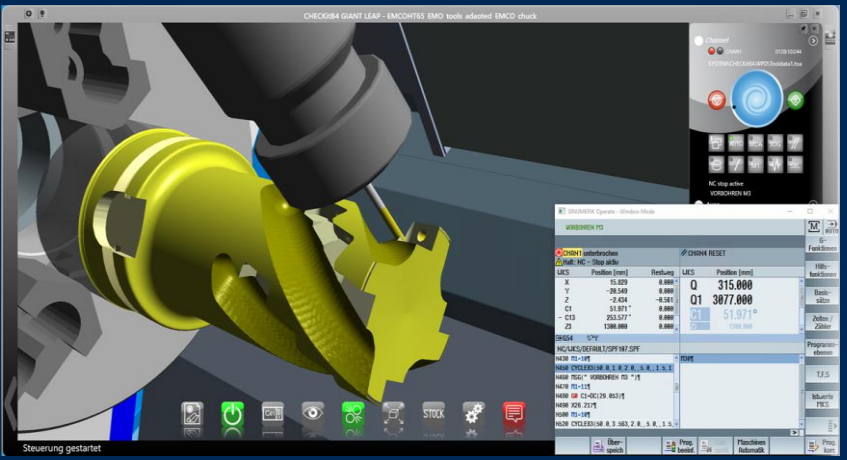
CAM Programming



You can program every EMCO Machine:

- Simple and quick programming of milling- and multi channel turning machines
- Simple synchronisation for multi channel machines
- Quick and easy to learn
- High performance strategies for rough machining
- Knowledgebase-Machining with partly- or full automated programming
- Importing any CAD data
- Certified post processors

Virtual Machine Run



Digital Twin:

- 1:1 representation of real machine incl. control
- Original virtual control (Siemens, Heidenhain)
- Reliable upfront detection of collisions and syntax errors
- Shop floor oriented programming in industrial engineering
- Interfaces to many CAM Systems
- Reduced risk & setup times
- Maximised machine utilisation

- Consistent process chain as precondition for digital production

Digitalisation of the Production

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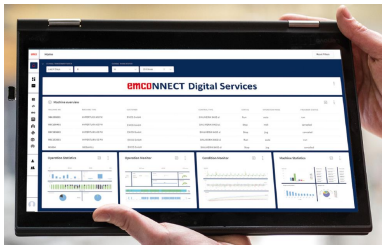

Digital Services

Digital Twin

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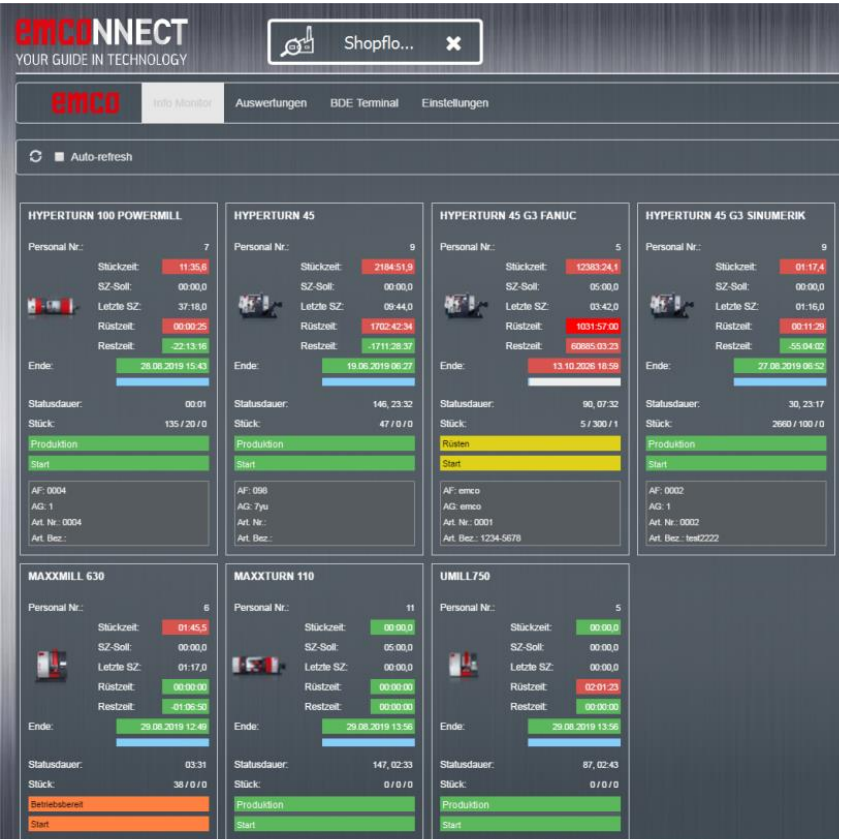
Shopfloor Management



- Machine Data Collection (MDC)
- Shopfloor Data Collection (SFDC)
- Machine- and production status
- Detailed planning & Evaluations
- Optimised production utilisation
- Documents for paperless production
- ERP Integration
- Machine- and vendor independent

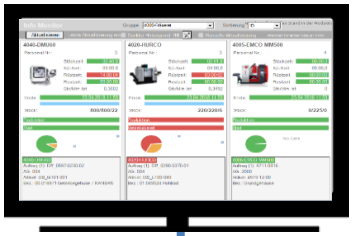
- Comprehensive organisation and optimization of the operational procedures

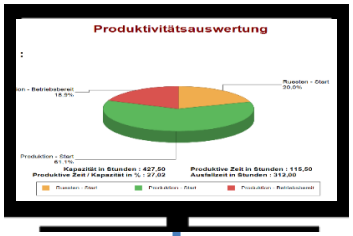
MES System Setup

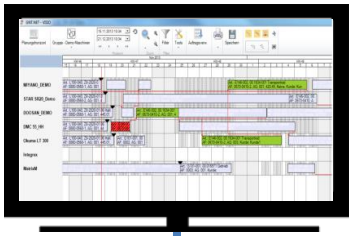
Shopfloor Cockpit

Evaluations

Detailed Planning







ERP

GNT Systems CAM/MES/TMS

MES-Server Master Data

Shopfloor Data

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GNT Systems CAM/MES/TMS

3rd party Machines

- Shopfloor Data for seamless integration in EMCONNECT
- SFDC-Terminal for vendor independent machine integration

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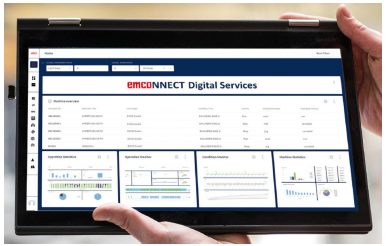
Digitalisation of the Production



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OPC UA

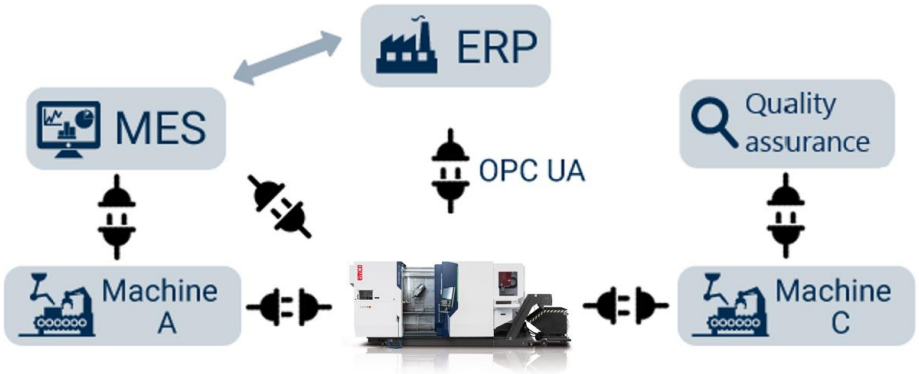
OPC UA / SIEMENS – Interface for MDE-/BDE-Systems

Standard with following Informationen:

- Automatic mode
- Production mode – Program active
- Program running with override 95-105%
- Part counter signal (M30)
- Programmable signal (M300)
- Loading/Changing bar
- Alarm state

- Integration with production environment (MES, ERP,…)
- Also available for SINUMERIK 828/840D w/o EMCONNECT

Plug & Machining



Industry Standard

- Vendor independent
- Open and vendor independent inter-industrial standard
- Plug & Machining enabled
- Simplified machine integration
- Time & cost savings

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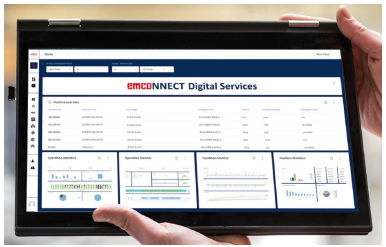

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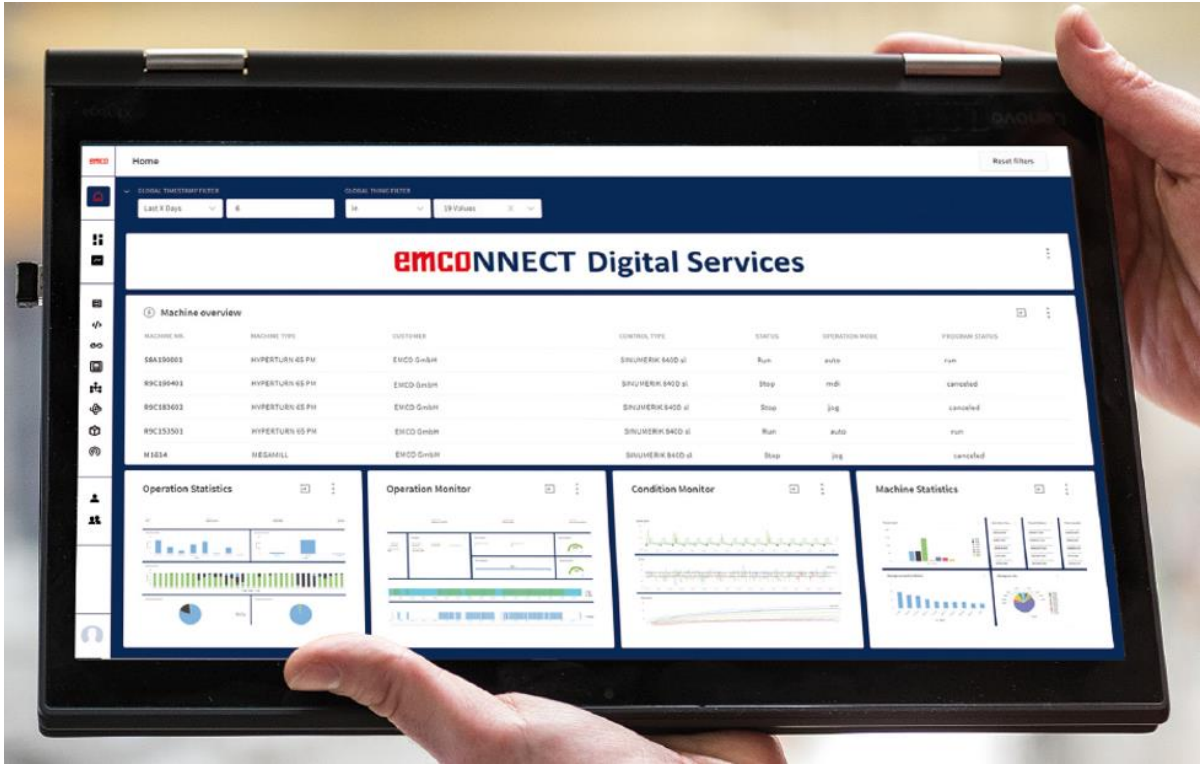
EMCONNECT Digital Services



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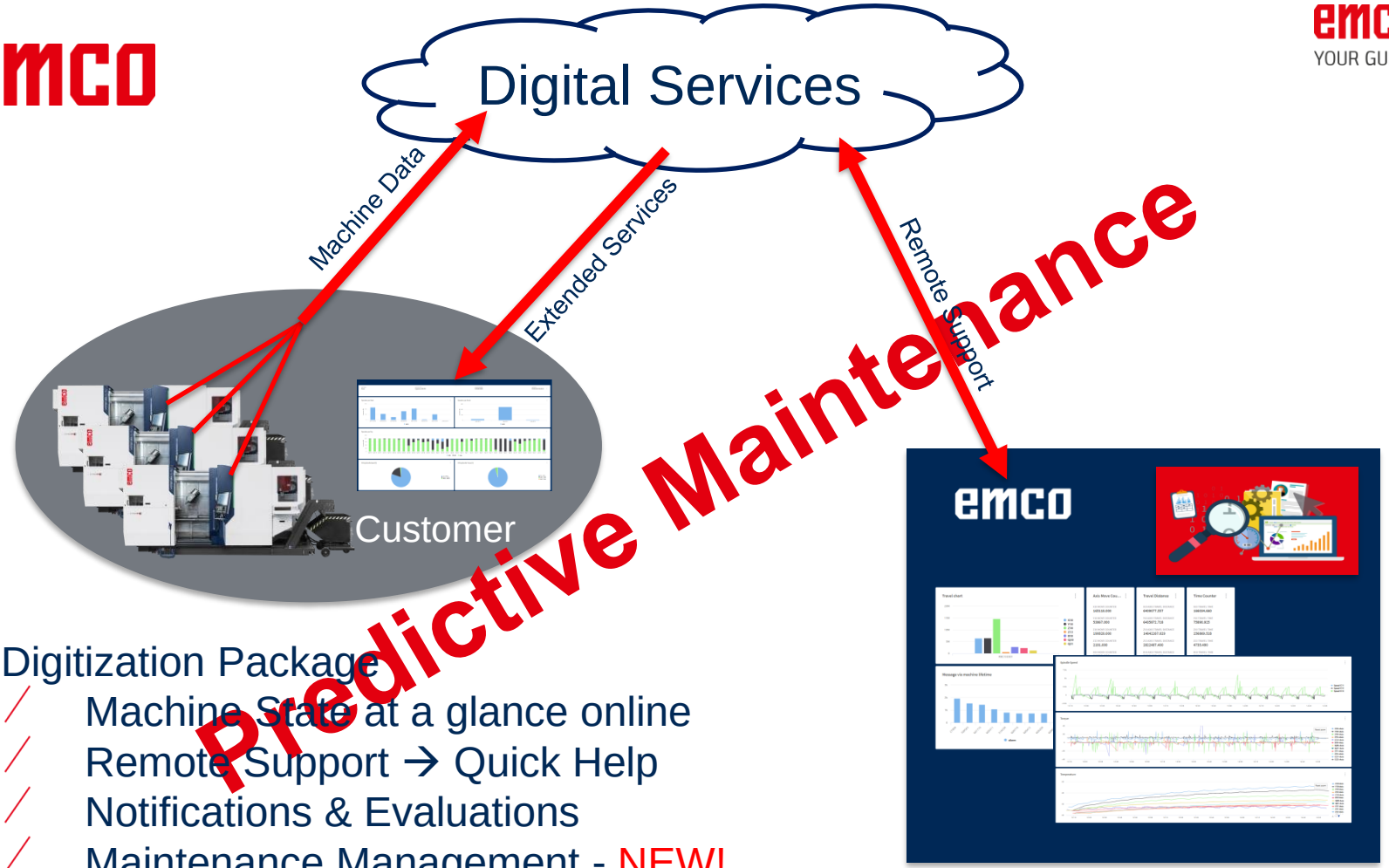

Predictive Maintenance

Digitization Package

- Machine State at a glance online
- Remote Support → Quick Help
- Notifications & Evaluations
- Maintenance Management - NEW!

Maintenance Manager

- Access for all responsible users anytime and anywhere
- E-Mail notification for upcoming maintenance tasks
- Integrated online maintenance log with all tasks (Customer, EMCO)
- Confirmation of tasks by authorized users only
- Automatic backup of maintenance status

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Dashboards

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Multi-Layer Security Concept

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No confidential production data
- Machine internal status-, operational- and diagnostics data only
- No customer-, order- and personal data
- No NC programs

Reliable protection against unauthorized access
- Secure connection completely separated from public internet
- Highly secure data center (MS Azure Germany)
- Firewalls
- Further security measures

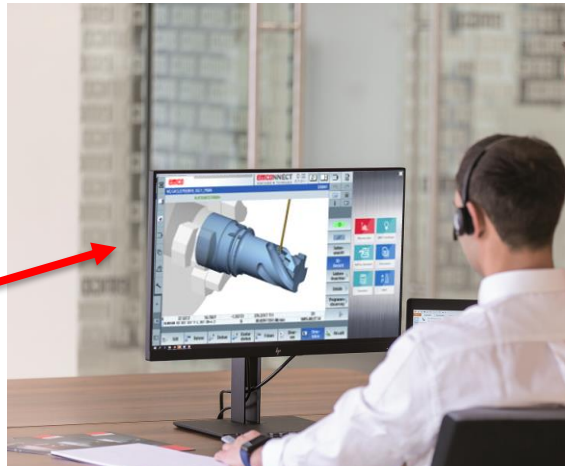
Highlights

Innovative Online Services:

- Machine state and evaluations in view online
- E-mail notification for defined events
- Remote maintenance with extended diagnostics capabilities
- Maintenance Management - NEW!
- Reduction of service visits & unplanned downtimes
- Online Services are continuously enhanced!

- **Now Standard in all machines with EMCONNECT+SINUMERIK**

Free of charge during warranty period



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Ready for digital Production?

beyond standard