Digital modules

HERMLE

milling at its best
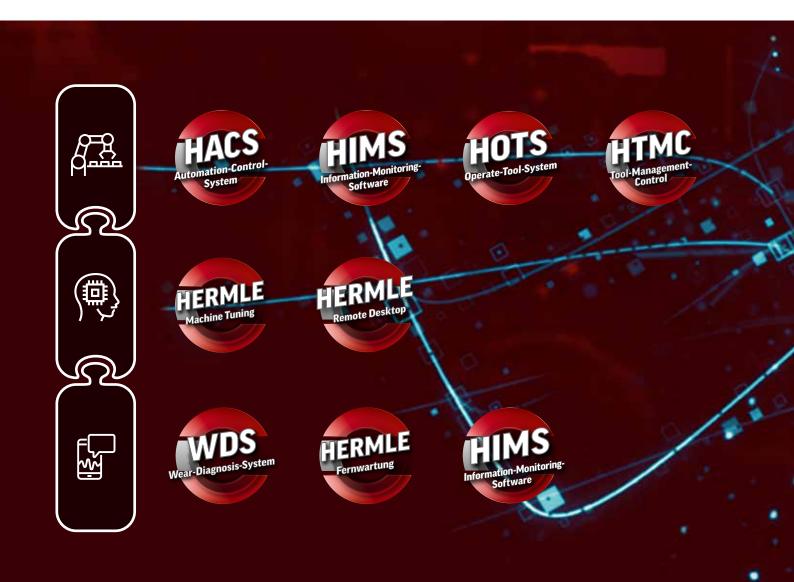
Entering the
digital world.

Industry 4.0 and the Smart Factory.

The digital transformation is now becoming the focus of many different production operations. Hermle is there to provide support while you chart your individual course towards Industry 4.0 and the smart factory. We offer a wide range of software solutions for improving your efficiency, precision and productivity. Our digital components represent links in the chain of smarter production. We can work together in order to find out what your operation needs.

3 steps towards Industry 4.0.

Digital components – The smart all-round package.

With Digital Production, Digital Operation and Digital Service components, we can put together a comprehensive package that will put your Hermle machining centres on a firm footing for future tasks: intelligent order management and transparent machining processes, smart machine tuning, paperless manufacturing and sophisticated technology cycles, as well as options for remote or preventive maintenance. Our digital components improve productivity, ease of operation and efficiency.

HERMLE DIGITAL PRODUCTION

HERMLE DIGITAL OPERATION

HERMLE DIGITAL SERVICE

Minimal downtimes.
Maximum productivity.

HACS – the intelligent order management system.

The intuitive HACS software helps the user in daily tasks and allows a far more intelligent execution of orders. The transparent representation of the orders and the required operator interventions reduce organizational downtimes and maximize the machine's productivity.

FEATURES

- Forecast of runtime and tool usage
- Intuitive allocation of NC programs and zero points
- Order definition for piece counting, order prioritisation and planning
- Dynamic schedule change
- Control independent and can therefore be used for Siemens and Heidenhain

ADVANTAGES

- Intuitive operation
- All relevant data at a glance: System overview, work plans, pallets, tasks,
  tool table and the schedule
- Tool analysis: Display of tools which are not required at the next and last
  application point for all tools (including all NC programs)
- Visualisation of the operator tasks for uninterrupted processing of the schedule
- Production log output
- Easy pallet transport possible via drag&drop
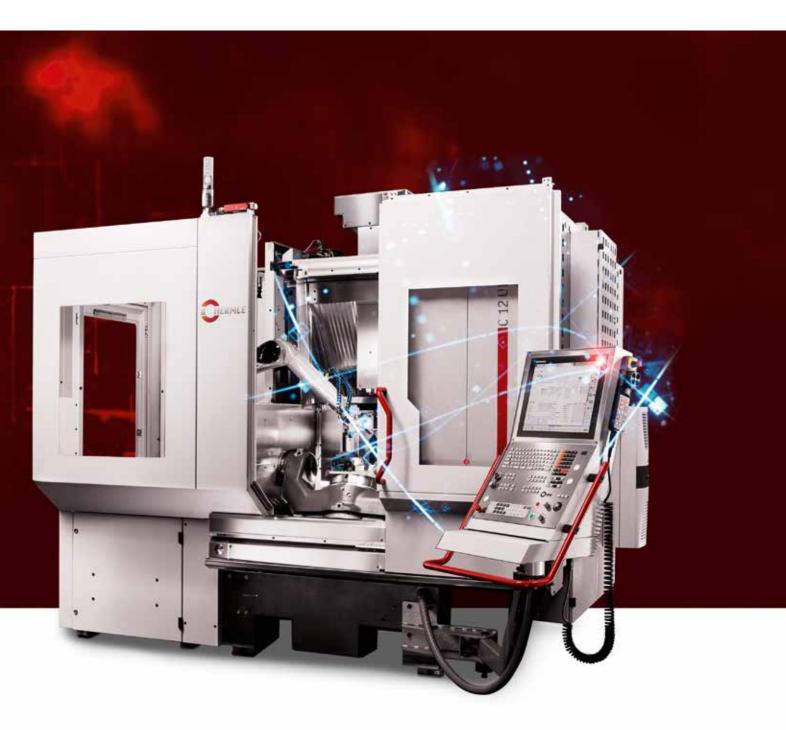- Reduction of organizational downtimes

FEATURES

- Standardized interface (HTTP)
- Bi-directional connection to HACS

ADVANTAGES

- Digital networking of machining processes
- Supervision of current machine states with current production progress report
- Transmission of all production-relevant data and external exploitation (tool data, orders, machine state, production log etc.)
- Orders can be transmitted directly from the ERP system to the machine

Connect with the future.

HACS Connect – the intelligent interface.

We can equip your machining centre with a standardized interface. The network allows for automated data transfer to and from HACS – directly on your machine. This means that all process-relevant data are exchanged with your ERP system in real time. You keep track of things – and most important you keep control over them.

The machine in view – any time and anywhere.

HIMS – the central monitoring tool.

With HIMS software you can query the state of your machine in real time. You are able to access the information from any computer, smartphone or tablet in the network – thanks to the integrated desktop-client and browser solution. And you are informed when machining processes have been completed or production is interrupted at any time by email. Also, HIMS keeps you up to date regarding pending maintenance work.

FEATURES

- Compact overview of the machine(s) with Live Status
- Detailed evaluation of the status history
- Display of the message history
- Export function for status data to .csv-format
- Order preview (only in combination with HACS)
- 24h email notification of incidents or faults affecting the machines
- Calendar function to define the notification periods

ADVANTAGES

- Reduction of downtime
- Production monitoring also during unmanned shifts
- Analysis of your production for CIP
- Central overview of maintenance tasks

Tomorrow's combination.

HACS & HIMS – the full works.

The combination of HACS, our intelligent order management system, and our monitoring software HIMS brings a wide range of benefits for the machine operator. Thanks to the display of the machine data in the monitoring software, the operator has a clear overview of all the tasks required to operate all machines. This means that organizational downtimes are minimized. Amongst other things, the system issues reports on missing tools or pending orders. The trailblazing combination of HIMS and HACS realises significant improvements in the efficiency of your operation.

HACS
Automation-Control-System

HIMS
Information-Monitoring-Software

We manage.
You create.

HTMC & HOTS – tool management made simple.

As well as managing the tools, our HTMC & HOTS software also looks after pre-sorting, and in that way keeps track of your tools. This reduces organizational downtimes caused by missing or worn tools to an absolute minimum.

HTMC Tool-Management-Control

HOTS Operate-Tool-System

FEATURES

- Hermle's own supplement for extended tool management for Siemens / Heidenhain control units
- Assistance for organizing tools and optimizing setting up tasks
- Optimized magazine assignment by means of tool geometry computation in the pick-up magazine

ADVANTAGES

- Efficient use of the tool magazine due to consideration of the tool geometry
- Graphically enhanced operator guidance for setting up tasks (loading, unloading, checking)
- Tool status display
- Loading and unloading lists (tool difference lists) based on program sequence
- Tool requirements computation across several orders taking downtimes into account

Achieve absolute precision and efficiency.

Dynamic adjustment of control parameters and machining setups – intelligent machine tuning.

Conflicting requirements regarding precision, surface quality and machining speed are taken into account through intelligent adjustment of the machine dynamics. In addition, our machining setups include options for you to set the machine's dynamics to suit the application. This allows you to achieve maximum precision while increasing productivity at the same time.

FEATURES

- Enhancing machine productivity and improving process reliability

ADVANTAGES

- Better input rates through reduced chatter tendency (ACC)
- Increased tool lifetime (ACC)
- Variable feed rates depending on spindle performance (AFC)
- Short machining times (ACC and AFC)
- Increased process reliability through tool monitoring (AFC)
- Increased precision and surface quality while at the same time reduced machining time (CTC, AVD, LAC)

ACC – Active Chatter Control

During power cutting, the strong process forces acting through the milling tool generate vibrations in the machine structure. If certain limits are exceeded, this can lead to tool damage, workpiece damage and/or machine damage. ACC computes a compensation signal from the number of teeth and the rotational speed of the spindle, resulting in reduced vibrations. This means that higher rates of feed, input and tool usage times are possible, making for more productivity and lower costs.

AFC – Adaptive Feed Control

Depending on the maximum amount of cutting depth to be expected, you can define maximum process parameters and limits using AFC. If the actual cutting depth is lower on account of varying geometry in the component, AFC increases and permanently monitors the tool-specific process limits on the basis of the spindle performance and the feed rate. In this way, the software increases process reliability and productivity.

AVD – Active Vibration Damping

Machine tools are elastic systems. Oscillations caused by abrupt acceleration lead to varying degrees of precision at the tool centre point. These axis oscillations are compensated by the continuously active AVD software, resulting in improved surface quality, precision, feed rates and productivity.

CTC – Cross Talk Compensation

The effects of inertia and structural flexibility mean that acceleration of the axes can lead to displacement of the tool centre point. Which in turn produces inaccuracies in machining. The constantly running CTC feature compensates for these acceleration-dependent displacements at all times. This improves contour accuracy, precision, feed rates and productivity.
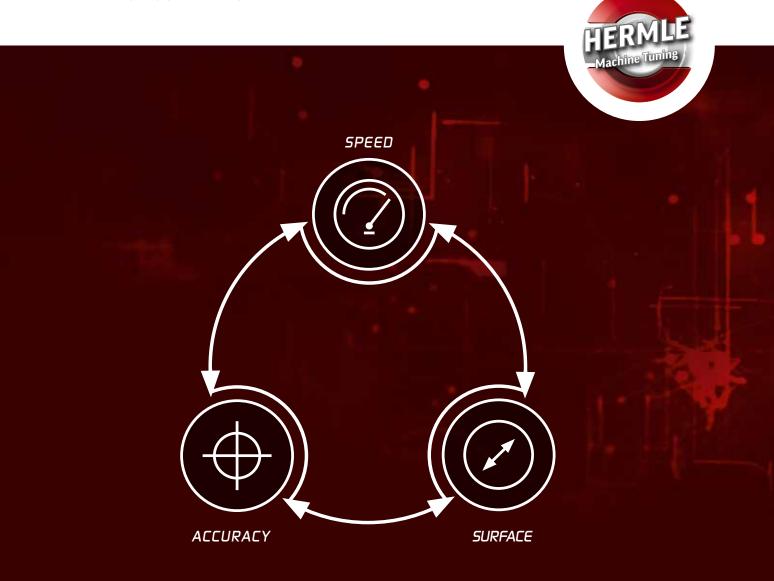
LAC – Load Adaptive Control

As standard, the drive parameters for machine tools are set to cope with the maximum expected workpiece weight. LAC adapts the settings for the rotary axis according to the workpiece. This means you benefit from maximum dynamic capability for each workpiece. And Hermle machining centres with swivelling rotary tables achieve better precision, surface quality and acceleration.

A range of options
for unique quality.

Machining setups – Optimal setting.

Hermle machining centres can be used in all kinds of scenarios. Therefore the standard setup provides for a balance in terms of milling characteristics. But depending on the range of parts and requirements, the user can select one of our six setups that have been optimized for specific machining tasks: Heavy-duty machining, production, 3D contour smoothing, 3D contour tolerance min., 3D contour tolerance max. and 3D path tolerance max. SOFT. So each Hermle machine can be exactly configured to achieve maximum performance – never mind whether the emphasis has to be on surface quality, precision or speed.

SPEED

ACCURACY   SURFACE

The control parameters and machining setups are not available for all control systems used with Hermle machines.

Standard

- standard setting.
- standard setting is reset after a different setup has been used.

HDM – Heavy-Duty Machining

- for roughing in conjunction with high milling power.
- more machining performance possible thanks to reduced machine vibration (depending on the tool and the selected technology data).

HP – Production

- for quicker machining with programs which have many cycle calls or subprograms.

3D-CT – 3D Contour Tolerance max. (SOFT)

- for 3D roughing with low cutting capacity.
- very high machining speed, mainly for free-form surfaces.

3D-CT – 3D Contour Tolerance min.

- for very high machining quality demands, mainly for free-form surfaces.
- can also be used with conventional programs.

3D-PS – 3D Contour Smoothing

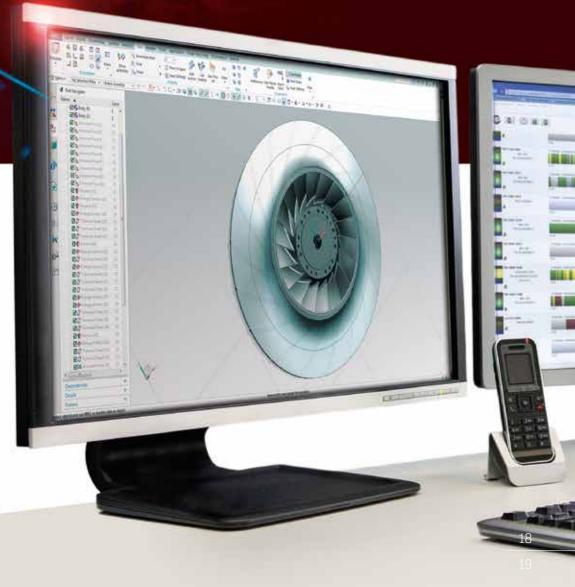- for very high demands on the surface quality, mainly for free-form surfaces.

Easy access
to everything.

Remote Desktop – practical control options.

Remote Desktop allows you to access any PC in the network from the machine control unit. So the operator can use his or her familiar PC environment directly at the machine. All functions of the linked computer are available: Email, calender, CAD, CAM, manufacturing data, clamping plans, stocks, SAP and Windows programs. This saves time and improves operating comfort.

ADVANTAGES

- paperless manufacturing
- direct connection to your IT infrastructure
- use of familiar in-house applications
- all the information you have on your PC directly available at the machine

We prevent downtimes.
So you can keep
up and running.

WDS – the wear diagnostic system.

Our maintenance / diagnosis system ensures regular diagnosis of the machine's condition. The current diagnosis data are then compared with data gathered since the machine was supplied. This highlights where wear has occurred and maintenance can be planned, while unscheduled downtimes can be avoided. And where a problem appears, the software contributes to targeted troubleshooting.

FEATURES

- Analysis of running behaviour of the linear and rotary axes
- Determination of the frequency spectra of the linear and rotary axes
- Evaluation of all relevant sensor data
- Determination of vibration values for the tool spindle
- Determination of the machine precision
- Determination of temperatures of drive motors and tool spindle
- Data analysis and diagnosis by qualified Hermle technicians
- Regular protective earth conductor check

ADVANTAGES

- Regular monitoring of the machine's condition
- Maintenance according to condition as per service record
- Fast and targeted error analysis
- Prevention of unplanned downtimes
- Improved technical availability
- Reduced maintenance and repair overheads
- Shorter downtimes
- Automatic reminders about maintenance cycles (3000h)
- Informative evaluation results report

Solving local problems – without travel costs.

Remote maintenance – fast first aid.

If a problem arises with your Hermle machine, our qualified service technicians can help – quickly and easily via remote maintenance. Concrete problems can be identified quickly and without the need for time-consuming service calls. Irrespective of the control system, we can provide support for operation and programming via a secure connection. There are several options available for remote maintenance: via any PC with internet access, via an industrial PC installed in a machine switching cabinet or via a PC installed in the robot. Each of these options has its advantages – we can work together to find out which one is the best for your case.

ADVANTAGES

- Fast help from qualified service technicians
- Avoidance of service calls
- Fast identification of causes
- Support for operation / programming directly on the customer's machine
- The customer can terminate a session at any time
- Independent of control system type
- Secure connection to Hermle
- Simplified data transfer for updates / service files / ...

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