

CTM ALIGNED TOOL, PROCESS AND MACHINE CONDITION MONITORING





Aligned tool, process and machine condition monitoring: CTM

CTM safeguards and optimizes complex production processes in metal-cutting machine tools thanks to aligned in-process monitoring. It delivers the right functions for almost every production scenario. The flexible interface concept enables problem-free integration within many environments – from entry solutions with no fieldbus connections, all the way to branched Ethernet architectures.

- >> Evaluation and control is carried out with process-dependent strategies. It can be extremely finely adjusted to optimally harness the potential of the equipment
- >> All relevant process parameters are defined, and the necessary limits are laid down and taught, so that they match the application precisely
- >> The process monitoring works either with fixed or dynamic alarm limits

Capable of tackling every challenge – the monitoring strategies

Standard:

The breakage limits are defined and parameterized. Monitoring works reliably from the very first cut.

Self-Adjusting System (SAS):

The self-adjusting segmentation and adaptation responds automatically to process fluctuations. This considerably simplifies operation.

dx/dt:

For applications where no comparison between actual and set values is possible – such as with raw parts with large material deviations or with longer processing times.

Options

Adaptive Control:

Without increasing the spindle performance, the adaptive control (AC) harnesses the equipment reserves by ad-

Your benefits:

- >> Comprehensive protection of machine, workpiece and tool
- >> Monitoring in real time
- >> Optimum tool utilization
- >> Reducing the number of rejects
- >> Perfect adjustment even in the case of complex processes
- >> Seamlessly documented parts quality and process analysis
- >> Interconnection with other systems possible

Data capturing

- >> Sensorless with DTA (digital torque adapter) Uses a selection of drive data collected by the control for the evaluation of the torque of the spindle and the feed axes
- >> Additional or alternative sensors for
 - Strain and force
 - M True power
 - O Torque
 - 🚻 Vibration and acceleration
 - M Acoustic emission

Standard power voltage signals





justing the feed speed to the material deviations. The function protects both machine and tool under high load for example, due to wear, by reducing the feed force. The selected tool monitoring strategy identifying breakage, missing and wear, operates in parallel to AC.

Gear hobbing:

The wear calculation is specially tuned to the typical gear hobbing processes and it also takes into consideration changes in diameter after regrinding. The tools are replaced based on the evaluation of the actual wear. Compared to replacement at fixed regular intervals, the wearbased method safeguards quality and optimizes service life times of the hobs.

Fluid monitoring:

Processes with very small tools, e.g. deep hole drilling, can be effectively monitored via the coolant flow rate. The quality is assured by continuously checking the flow rate during machining.

Process documentation:

Workpiece-related, automatic and process-accompanying documentation of cutting and machine data.



Evaluates every process transparently and in a user-friendly way: the visualization software is an elementary part of the ARTIS tool and process monitoring systems.



With over 2,500 employees, the MARPOSS Group is one of the leading developers and producers of precision measuring technology for the metal processing sector. MARPOSS products are rugged enough to survive under tough production conditions, and make a crucial contribution to higher quality and more rational production.

As a member of the MARPOSS Group, ARTIS is a pioneering specialist in tool and process monitoring, as well as adaptive control for metal cutting operations.



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