Up-to-Date Software Enables Time and Cost Savings

CMMs — Reliable, High-quality Measuring Technology

ZEISS Software

Easy Solutions to Challenging Tasks

Seeing beyond

Empower Your Shop to Meet Customer Demands

Coordinate measuring machines (CMMs) empower shops to check the increasingly tight part tolerances demanded by customers. But older, unsophisticated CMMs using outdated software can create a bottleneck in the production process.

Manufacturers using electrical discharge machining (EDM) must be vigilant in adopting the latest CMM measurement software to preset measurements of electrode cutting tools and workpieces. And any production cycle would benefit from bypassing 100% inspection and only inspecting parts outside of process control.

How can you ensure your CMM is up-to-date with the latest software release? Utilize ZEISS CALYPSO's unique and high-powered modules to speed up your manufacturing processes by presetting measurements and providing a list of characteristics within process controls that can be skipped.

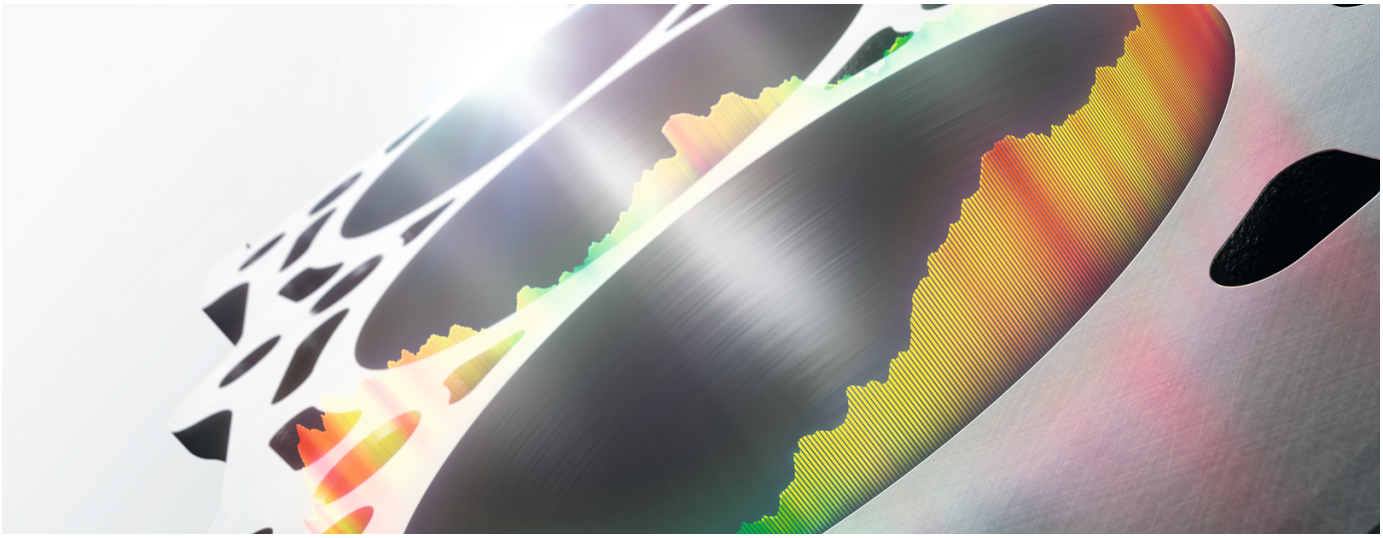
Software Upgrades — Critical for Keeping CMMs Functioning Efficiently

There are many reasons to retrofit an older CMM. And if you already have a CMM, modernizing it is so much less expensive than buying a new Is your CMM still mechanically sound? Replacing its metrology software is a cost-efficient upgrade.

Software upgrades are a critical aspect of keeping CMMs functioning efficiently. If a shop has 15–30-year-old CMMs in good physical condition but is running a DOS- or early Windows-based computer platform, a software retrofit with modern operating systems lets a shop:

- Import key CAD files and assembly files directly into CALYPSO
- Select areas to be measured and automatically create measuring programs
- Create standardization that facilitates the addition of new CMM equipment, as software can migrate to a new machine
- Keep track of what's within process control, saving time as only characteristics out of process control need to be inspected
- Run different brands of CMMs on a common software package, which lets operators move from machine to machine more easily
- Benefit from using the same software as OEMs for the sake of compatibility
- Program offline, which allows inspection operations to continue while operators prepare for a new part

These additions create an operator-oriented, state-of-the-art software that upscales the measurement capability and performance of existing CMMs.



Challenges that Require Software Upgrades

For EDM Manufacturers

Toolmakers and manufacturers who use EDM for machining must calculate an offset in relation to the zero-point clamping system and the workpiece/wire-cut workpiece.

"This measurement used to be done manually and directly on the EDM machine," explains Thomas Feil, Product Manager for ZEISS Industrial Quality Solutions. Feil says this method had several disadvantages, including:

- Long-taking set-up times, while EDM machine is not producing
- Low productivity
- High costs due to machine-hour-rate
- Long lead-times in production
- No information about the electrode's quality

"Instead, [users] might perform off-line probing on a coordinate measuring machine (CMM) and transfer the measured offsets to the offset registers in a machine's CNC," says Derek Korn of Modern Machine Shop. "This requires standardizing on a pallet workholding method for repeatable part positioning on both the machine and CMM."

Process Control

Metrology is often used in designing and controlling manufacturing processes by measuring parts to identify what dimensions are within specification limits and have capable manufacturing processes.

"Measurements are a necessary part of commerce because they provide the data on which to base decisions, such as whether to accept or reject a product based on its measured performance, or whether and how much to adjust a manufacturing process or to pass or reject a part based on its measured and specified properties," says James E. Potzick of the National Institute of Standards and Technology.

But according to Scott Lowen, Software Product Manager, North America, for ZEISS Industrial Quality Solutions, vendors can establish relationships with OEMs where certain part characteristics are considered "well within process control." While aerospace parts and medical device manufacturers require 100% inspection due to the safety-critical nature of parts, industries like automotive do allow for only inspecting parts outside of process control.

The term "well within process control" is often applied to:

- Dimensions with relatively large tolerances
- Measurements within specification limits
- Capable manufacturing process

"Inspecting most or all of the parts in a large-volume batch slows down the production process," says Lowen. "Many manufacturers want to find ways to speed up the process but struggle to achieve the ability to guarantee certain part characteristics are well within process control."

Measuring Software Enables Technology Compatibility

ZEISS Software Solution to Improve Productivity

ZEISS CALYPSO is the universal software for dimensional metrology applications used in all ZEISS CMMs. You want to utilize the latest version of the measuring software to enable compatibility for the latest technologies and standards. Every update transfers all measurements programs, settings and stylus systems setups from older measurement software.

ZEISS FutureFit

ZEISS FutureFit serves as a basis for software maintenance contracts and extended software functions. Older CMMs from 2000 onwards can be brought up to spec and use current and future software with this advanced CMM upgrade.

Once your ZEISS CMM meets contemporary standards with FutureFit, you can upgrade ZEISS CALYPSO with software options for special applications and measurement tasks. These additional features adapt to your individual measurement requirements.

Some of these performance-enhancing software options include ZEISS CALYPSO dynamic planning and ZEISS CALYPSO preset modules:

ZEISS CALYPSO preset for EDM

ZEISS CALYPSO preset is used to preset and check the quality of electrodes and workpieces. The user-friendly module gives you the ability to:

- Transfer the offset from the CMM to the EDM machine
- Use the EDM machine to produce parts, not to measure them
- Measure the offset in relation to the zero-point clamping system
- Access a large library of electrodes and clamping systems
- Measure with points and not need to make an inspection plan
- Choose from three different preset options:
  - ZEISS Metrology Standalone – corrected directly to EDM machine
  - ZEISS Metrology Semi-Automated – connected to job manager
  - ZEISS Metrology Fully-Automated – connected to job manager and robot

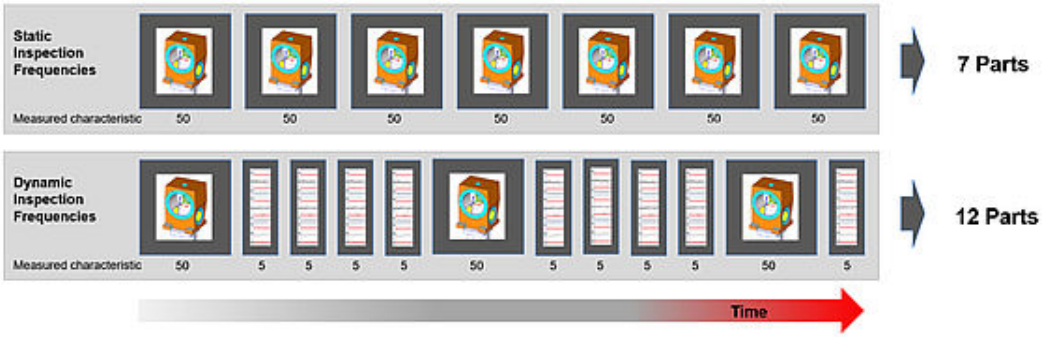
Operators can use ZEISS CALYPSO preset to preset electrodes and workpieces reliably. This external presetting reduces setup times by 90% and optimizes aligning accuracy.

ZEISS CALYPSO dynamic planning

According to Lowen, ZEISS CALYPSO dynamic planning feature treats each dimension on a part as an independent, autonomous object that:

- Decreases the number of measurements per part
- Increases the number of inspected parts
- Reduces demand on CMM
- Improves manufacturing productivity and efficiencies
- Allows quality to focus on dimension of concern in a scientific method
- Allows for adjustment of the inspection scope based on dynamic rules from the computer-aided quality system (CAQ) and manufacturing execution system (MES)

This module reduces the demand on CMMs by automatically and dynamically skipping characteristics well within process control. The functionality is easily adapted to existing or new measurement plans.



Conclusion

Connecting EDM machines and CMMs together with ZEISS CALYPSO preset for EDM can grow production efficiency, decrease costs and contribute toward automation. And ZEISS CALYPSO dynamic planning is highly beneficial for any high-volume manufacturers.

Modernize your CMMs with ZEISS FutureFit so you can take advantage of the many benefits of ZEISS CALYPSO preset and ZEISS CALYPSO dynamic planning. Improvements in programming processes will contribute to additional time and financial savings.

Contact us to learn more information.

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