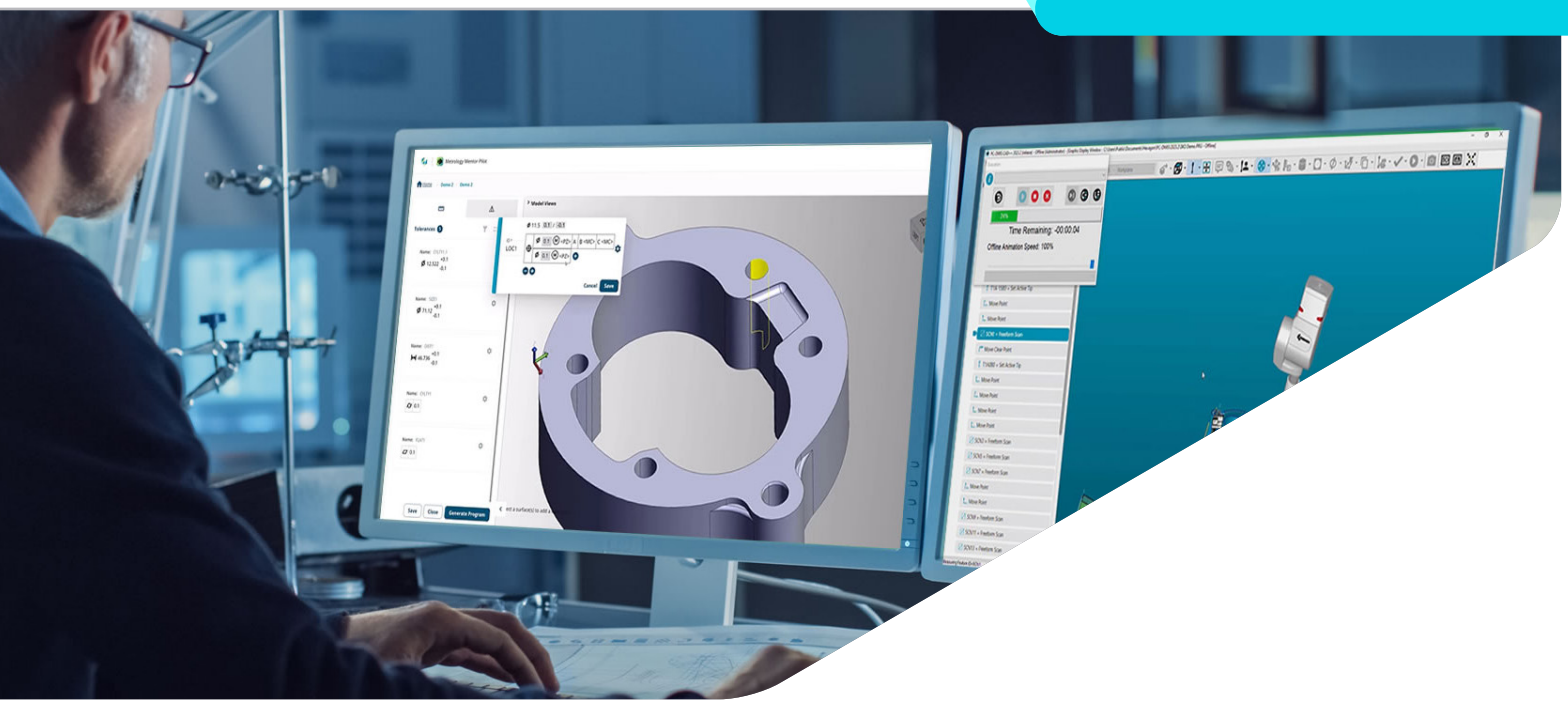
PC-DMIS & MAESTRO FAQ

When considering upgrading from a PC-DMIS setup to a MAESTRO Coordinate Measuring Machine (CMM), there are several key factors and questions a PC-DMIS user would want to explore. Here's a breakdown of what would be important to know.



Standards, compatibility, and capability FAQ

Q: Will my existing PC-DMIS programs run on MAESTRO?

A: Yes. Existing PC-DMIS programs are compatible.

MAESTRO operates within the current PC-DMIS architecture, meaning:

- Legacy touch-trigger routines run as written.
- Scanning routines are supported.
- Alignment strategies, feature construction logic, and reporting structures remain intact.
- CAD-based inspection programs remain fully usable.

No conversion to a different programming environment is required. However:

- High-speed scanning programs may benefit from motion optimization to fully leverage MAESTRO's dynamic performance.
- Very old hardware-dependent driver calls should be validated during FAT.
- Regarding parameter optimization for probing and scanning, as the parameter may differ from legacy, this may require an extra step, which is not mandatory, but would optimize the measurement.

Bottom line: Your measurement logic, GD&T evaluations, and reporting structures remain unchanged – but can be adapted for throughput gains quite easily

Q: Does MAESTRO support GD&T according to ISO and ASME standards?

A: Yes – through PC-DMIS' full GD&T engine.

MAESTRO utilizes PC-DMIS' standards-compliant evaluation algorithms, including:
- ASME Y14.5
- ISO 1101
- ISO 5459
- ISO 14405
- ISO 2692

Since GD&T interpretation resides in PC-DMIS – not in the hardware – MAESTRO fully supports:
- Position
- Profile (surface & line)
- Flatness, cylindricity, circularity
- True position with MMC/LMC
- Composite tolerances
- Datum reference frames per ISO and ASME

There is no change in GD&T calculation methodology when moving to MAESTRO.

Q: Will my ISO-compliant measurement processes remain valid?

A: Yes.

MAESTRO systems are verified in accordance with:
- ISO 10360 (CMM performance verification)

This ensures traceability and compliance for:
- Length measurement error (E)
- Repeatability (R)
- Probing performance

Your existing ISO-based validation procedures and calibration routines remain applicable.

Q: Does MAESTRO change how datums are calculated?

A: No.

Datum establishment is governed by PC-DMIS algorithms aligned with:
- ASME Y14.5
- ISO 5459

MAESTRO improves motion performance but does not alter:
- Best-fit calculations
- Constrained or unconstrained alignments
- Datum shift logic
- MMB/LMB modifiers

Q: Are scanning-based profile tolerances still compliant?

A: Yes.

For profile-of-surface and profile-of-line tolerances per:
- ISO 1101
- ASME Y14.5

MAESTRO enhances performance by:
- Supporting higher-speed scanning
- Reducing motion lag
- Maintaining stable data capture at dynamic speeds

Evaluation algorithms remain those of PC-DMIS — ensuring standards compliance.

Q: Is MAESTRO more accurate for tight GD&T tolerances?

A: MAESTRO does not change the fundamental uncertainty model of coordinate metrology.

Accuracy depends on:
- Machine specification (ISO 10360)
- Probe configuration
- Stylus length
- Environmental control

What MAESTRO improves is dynamic behaviour – reducing vibration and motion-induced variation during scanning.

For high-tolerance parts:
- It is fully capable when installed in controlled conditions.
- It does not eliminate the need for environmental discipline.

Q: Will my existing reporting templates still work?

A: Yes.

PC-DMIS reporting engine remains unchanged.

This includes:
- Custom reports
- FAI formats
- Automotive PPAP
- Aerospace AS9102 documentation
- Traceability outputs

Hardware does not affect reporting architecture.

Q: Does MAESTRO change measurement uncertainty calculations?

A: No.

Uncertainty analysis remains based on:
- ISO 10360 machine performance
- Application-specific uncertainty budgets
- Probe and stylus configuration

MAESTRO's improved dynamics may positively influence repeatability in high-speed scanning, but formal uncertainty analysis follows established methodology.

Q: Are there cases where MAESTRO may not support my application?

A: To provide transparency:

- Very large legacy analog probe systems may require compatibility confirmation.
- Extremely heavy stylus assemblies may limit dynamic performance.
- Uncontrolled shop-floor environments may reduce achievable specification.
- Extremely old PC-DMIS versions require upgrade.

These are configuration considerations — not architectural limitations.

Q: Does moving to MAESTRO require rewriting programs?

A: No.

Measurement strategy remains:
- CAD alignment logic
- Feature extraction logic
- GD&T evaluation
- Reporting
- Macros
- Subroutines

Programs transfer directly under supported PC-DMIS versions.

Optimization may improve cycle time – but rewriting is not required.

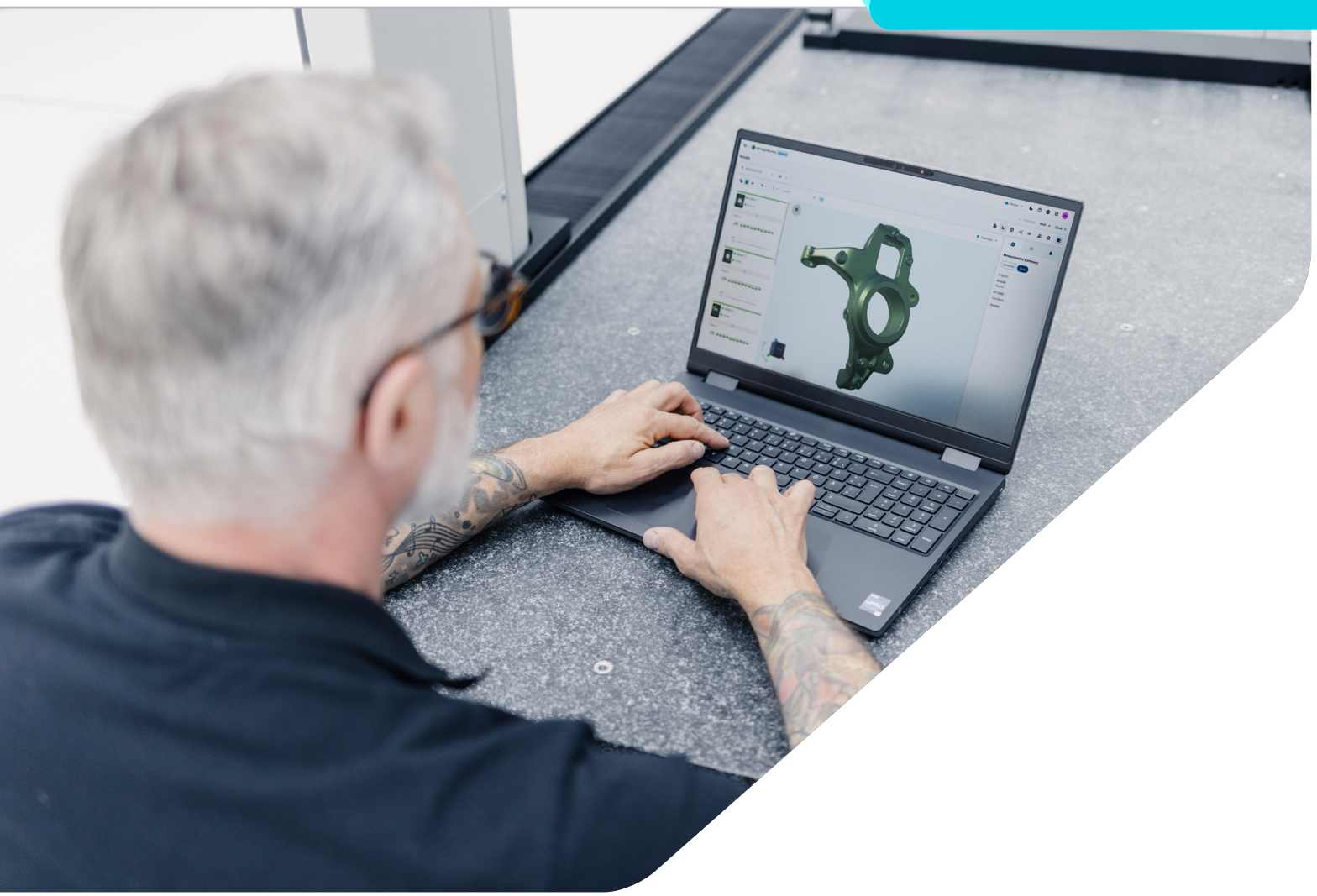
Summary:

For PC-DMIS users operating under ISO or ASME GD&T standards:

MAESTRO provides:
- Full standards-compliant GD&T evaluation
- ISO 10360 verified machine performance
- Complete compatibility with existing PC-DMIS programs
- Enhanced dynamic scanning performance
- A digitally integrated metrology platform

It does **not** alter your measurement philosophy.

It enhances your inspection throughput within the same standards framework you already trust.



General FAQ

Q: Do I need to upgrade my PC-DMIS license?

A: Likely yes if you are not on active maintenance.

MAESTRO support requires a current PC-DMIS release. If you're running an older perpetual version without maintenance, an upgrade may be required.

This ensures:

- Full driver compatibility
- Access to the latest machine control enhancements
- Ongoing software support

Q: Is MAESTRO more accurate than my current CMM?

A: Not necessarily in raw static accuracy.

MAESTRO's advantage is:
- High dynamic motion control
- Reduced settling time
- Efficient scanning performance

In ISO 10360 terms, MAESTRO is competitive with modern bridge CMMs. It does not redefine fundamental metrology physics – it enhances productivity through motion performance and digital control.

Q: Will MAESTRO reduce inspection cycle time?

A: In most cases, yes.

MAESTRO is designed for:
- Faster axis acceleration
- Optimized high-speed scanning
- Reduced non-measuring motion time

Typical productivity gains depend on:
- Program structure
- Stylus configuration
- Part geometry
- Fixture accessibility

Organizations upgrading from older bridge systems often see measurable cycle-time reductions, especially in scan-heavy applications.

Q: Can I use my existing probes and stylus systems?

A: Possibly – but verify.

MAESTRO supports Hexagon's modern probe portfolio, particularly digital systems.

However:
- Older analog systems may require confirmation.
- Not all legacy probe interfaces are guaranteed compatible.
- Large stylus stacks may limit full dynamic performance.

Recommendation: Confirm probe compatibility during configuration.

Q: Is MAESTRO suitable for tight-tolerance applications?

A: Yes – within specification.

Like all CMMs, performance depends on:
- Machine size
- Probe type
- Environmental control
- Stylus configuration

MAESTRO is suitable for precision applications when installed in a controlled environment. It is not a substitute for lab-grade thermal management if operating in unstable shop conditions.

Q: Does MAESTRO support heavy scanning applications?

A: Yes – this is a key strength.

MAESTRO's dynamic architecture is particularly advantageous in:
- Complex surface scanning
- Automotive and aerospace components
- Applications where scan speed impacts throughput

However:
- Maximum performance depends on stylus mass and probe configuration.
- Extremely heavy stylus builds may reduce acceleration benefits.

Q: Is MAESTRO dependent on cloud or network connectivity?

A: Core measurement functionality does not require cloud connectivity.

However, MAESTRO is designed to integrate with Hexagon's digital ecosystem for:
- Asset monitoring
- Machine diagnostics
- Data management

If your organization has strict IT policies, integration planning is recommended.

Q: Will I need retraining?

A: Minimal for PC-DMIS programmers.

Programming logic remains consistent. Operators may require orientation on:
- Updated machine interface
- Digital monitoring features
- System diagnostics tools
- Familiarisation with the Environment Builder (the replacement for the Probe Builder)

Transition is evolutionary rather than disruptive.

Q: Is MAESTRO upgradeable?

A: Yes – within platform architecture.

MAESTRO is designed as a modern digital platform, allowing:
- Software updates
- Feature enhancements
- Ecosystem integration

However:
- Upgrades may require active software maintenance.
- Hardware expansion options depend on initial configuration.

What are MAESTRO's limitations?

To present a balanced view:

- It does not eliminate environmental sensitivity – like for other Bridge systems, temperature and vibration still matter.
- It does not guarantee cycle-time improvement without program optimization.
- Legacy probe systems may require compatibility verification.
- Software updates may require ongoing maintenance agreements.

Who benefits most from MAESTRO?

MAESTRO is especially well suited for:

- High-mix, high-complexity manufacturing
- Serial production
- Scan-intensive inspection environments
- Organizations investing in digital metrology workflows
- Facilities where inspection throughput impacts production flow

Summary:

For PC-DMIS users, MAESTRO represents:
- A performance-focused hardware platform
- Full software continuity
- A digitally integrated future-ready system
- Increased inspection throughput potential

It is not a radical departure from established metrology principles – it is a strategic evolution designed to maximize the value of modern PC-DMIS environments.

Hexagon, is the global leader in precision technologies at any scale. Our digital twins, robotics and AI solutions are transforming the industries that shape our reality.

Hexagon (Nasdaq Stockholm: HEXA B) has approximately 24,800 employees in 50 countries and net sales of approximately 5.4bn EUR. Learn more at hexagon.com and follow us @HexagonAB.

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