Automated Inspection & Reporting
3D Scanning and Reverse Engineering
Reduce Scrap, Improve Quality, and Increase Productivity

The flexibility of Master3DGage™ makes it ideal for inspection and reverse engineering. The multi-axis CMM arm features absolute encoders for quick start-up and ultra-high precision measurements while its highly articulated wrist enables you to measure hard to access surfaces by reaching around and under parts. The lightweight, wireless design makes it easy to place the Master3DGage right into your CNC machine while the magnetic base locks it into place on the machine bed to quickly inspect parts while maintaining critical part to machine alignment. Optional 3D scanner and hot swappable probes with automatic probe recognition make it easy to change from scanning a complex profile to probing a small feature in seconds. Implementing Master3DGage in-process inspection identifies out-of-tolerance conditions sooner enabling immediate corrective action.

**Powered by Verisurf**

The Master3DGage is powered by Verisurf Software, which is available in Solution Suites to configure the right functionality for your application and budget.

- **Quick start absolute encoders**
- **Multi-axis CMM arm with 1.2 m (4 ft) measuring volume**
- **Low CTE carbon fiber tubing**
- **Hot swap between probes (3 included) and optional scanner**
- **Counterweight balancing**
- **Rechargeable lithium-ion battery**
- **Wireless communication (WiFi)**
- **Stable freestanding measuring base included**
- **Portable & lightweight**

**Includes three hot-swappable probes with automatic recognition for flexibility and efficiency:** 3mm ruby; 6mm ruby; 15mm steel spherical.

Optional non-contact laser scanner is interchangeable with tactile probes on the Master3DGage. This expands application flexibility between contact probing used in many inspection processes and high-speed non-contact 3D scanning, typically used in reverse engineering.
First article inspections that used to take hours now take just minutes using three easy steps.

- Align Part to CAD Model
- Inspect Part to CAD Datums
- Report Part Deviations Compared to Nominal CAD

Software productivity features make scanning and reverse engineering fast and easy.

- Scan Measurements to Point Cloud
- Mesh Watertight Geometry
- Model Intelligent 3D CAD
Hardware Specifications

PCMM Standard System

- **Portable measuring arm**
  - Master3DGage™ articulated arm PCMM
  - 6-Axis 1.2m (4 ft.)
- **Ergonomic counterweight design**
- **USB and power cables, Universal worldwide voltage** 110V-240V, CE compliant
- **Quick setup guide and mouse pad**
- **Calibration certificate**
- **Internal lithium-ion battery and WiFi**
- **Anodized aluminum training part**
- **Rugged, three-handle, wheeled transport case**
- **1-year hardware warranty**

**NIST traceable length bar**
Certified length standard, 305mm (12 in.) with ISO 17025 certificate

**Standard probes**
- 3mm ruby, 6mm ruby, 15mm steel spherical hard probes (including case)
- Quick disconnect, hot swappable with automatic probe identification

**Certified qualification sphere**
- Size ± 0.0005mm (0.00002 in.)
- Spherical within 0.0001mm (0.000005 in.)

**PCMM Specifications**

- **Calibration Specifications**
  - Certified to ISO 10360-2 and 12 specifications
- **Probing volumetric accuracy** ±0.025mm (.00098 in.)
- **Probing point repeatability** 0.014mm (.00055 in.)
- **Measuring volume** 1.2m (4 ft.) with absolute encoders
- **Weight** (system with transit case) 12.0 kg/26.45 lb. (35.3 kg/77.82 lb.)
- **Universal power supply** 110-240 VAC, 50/60 Hz
- **Operating temperature** +5º to +40ºC (39º F to 104ºF)
- **Storage temperature** -30° C to 70° C (-22° F to 158° F)
- **Relative humidity** 10% to 90% non-condensing
- **Transit case size** 30.5 x 53.3 x 96.5cm (12 x 21 x 38 in.)

**Transit Case**

Master3DGage™

Software Specifications

**Verisurf Software**
Coordinate Metrology Software
- NIST Tested
- PTB Certified
Windows 7, 8 and 10 Operating Systems

**Verisurf Software Flexibility**
Verisurf software modules are available in Solution Suite configurations to deliver the right functionality for your application and budget.

**Report Formats**
- 3D PDF, Excel, PowerPoint, Word, HTML, Text, Database

**Optional File Formats**
- **Native CAD**: CATIA V4, V5, V6, Siemens NX, PTC Creo
- **Neutral CAD**: ASCII, XYZ Cloud, XYZRGB Cloud

**Hardware Options**

**PCMM Options**
- Short probe kit
- Long probe kit
- Custom probes
- **Magnetic base kit**
  - 3 precision ground magnetic blocks with mounting hardware
- **Threaded stand adapter**
- **1, 2 & 3-year extended warranties**

**Laser Scanner Option**
- **3D laser scanner**
- **Scanner cable**
- **Calibration sphere**
- **Rugged transport case**

**Laser Scanner Specifications**
- **Accuracy** ±40μm 2 sigma
- **Point acquisition rate** 45,000 points/second
- **Points per line** 750 @60Hz
- **Line rate** 60Hz
- **Line width (mid-field)** 80mm (3.1 in.)
- **Stand-off distance** 135mm ±45mm (5.3in. ±1.8)
- **Minimum point spacing** 0.08mm (.0031 in.)

**Laser scanner specifications**

**Laser Power Adjustment**
- **Semi-automatic**

**Probe/Scanner Mount**
- **Hot swappable**

**Weight**
- 0.32 kg (.70 lb.)

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