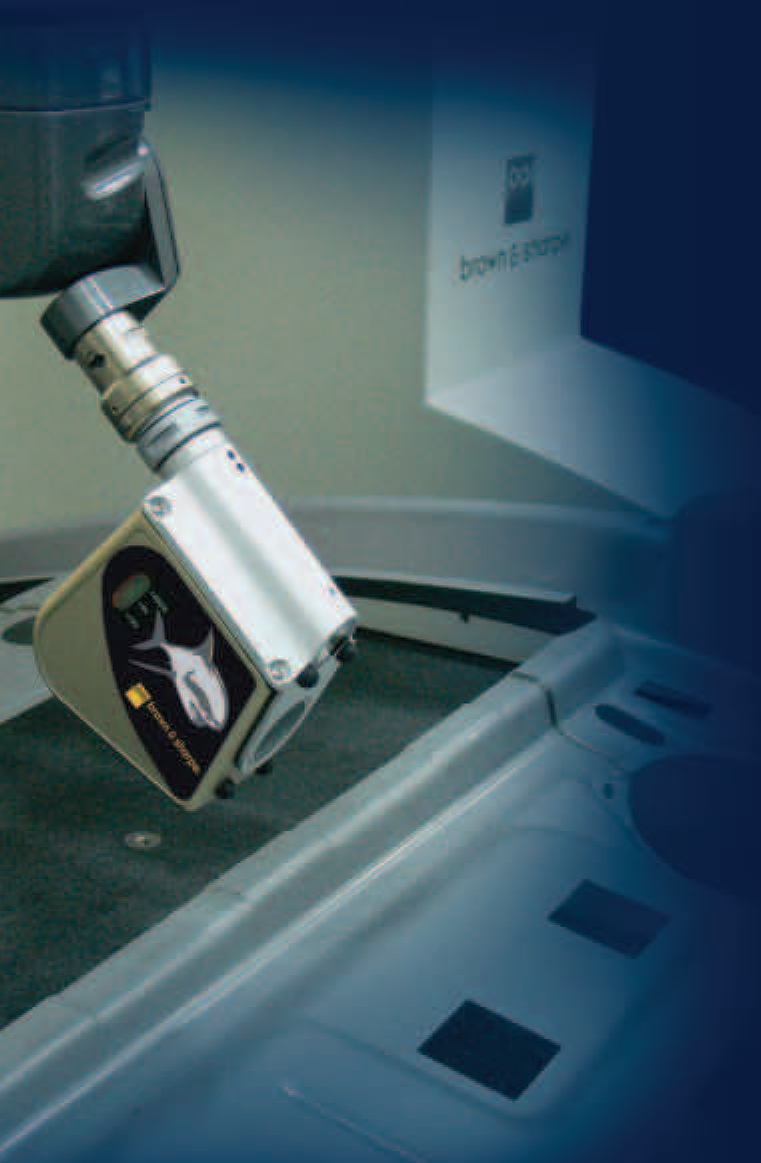
HEXAGON
METROLOGY



New ScanShark™ non-contact laser scanning . . .

. . . provides reverse engineering, point cloud-to-CAD comparison, 3D visualization and inspection capability in a complete, powerful turnkey package. With availability on ROMER INFINITE portable arms as well as Brown & Sharpe Global Performance and Advantage CMMs, you can choose between manual and DCC systems.

- ScanShark can gather up to 25 times more points per second than other laser systems. It's perfect for quick surface inspection of large, complex areas and generating point clouds for reverse engineering.

- It's ideal for all kinds of surfaces, especially flexible, fragile or soft-bodied parts that could be marred or deflected by a contact probe.

- The ScanShark V5 probe can capture up to 458,000 points per second (23,000 points per second on V4 models), comparing each point scanned to a CAD model in real-time. With so many scanned points, you get far more detailed views of both geometric and surface features than with a conventional touch-trigger probe.

- ScanShark probes are less sensitive to surface finish and ambient lighting conditions than other non-contact technologies.

A ScanShark for every application.

Scanning parts has never been easier or more affordable. With ScanShark, you can choose a probe, CMM platform and software package tailored for your needs. All ScanShark probes use the same basic operating principle—using triangulation, the ScanShark probes capture profiles generated by the intersection of a projected laser plane and the target topography.

The V5 probe features unmatched scan data density—capturing up to 7640 points along the laser line at 60Hz provides an incredible 458,400 points per second and minimum point-to-point resolution of 14µm. Proprietary field of view projection aids the operator by showing scanning extent and optimal offset distance. The V5 probe is available on ROMER INFINITE portable arm CMMs.

SCANSHARK CONTOUR PROBE for DCC CMMs

The Brown & Sharpe Global CMM provides a superior metrology platform for the ScanShark probe, offering fully automatic operation and unsurpassed positioning accuracy, reliability and ease of use. Global technology combines cutting edge mechanical innovations with state-of-the-art motion control and advanced temperature and geometric compensation models to create the ideal platform for non-contact laser scanning.

- DCC operation reduces labor time in inspection and data collection, and allows precise control over point collection angles, cloud densities and feature collection sequence.
- The **TESAStar-m** automatic indexable wrist allows optimal probe positioning—2,952 possible indexing positions allow precise control for even the most complex parts. A wide variety of touch-trigger probes can be easily mounted for inspection of particular features.

Global Performance and Global Advantage sizes (metric): 7.10.7; 9.12.8; 9.15.8; 9.20.8; 12.15.10; 12.22.10; 12.30.10; 15.22.10; 15.30.10; 20.33.15; 20.40.15.

Two ScanShark configurations are available:

- Inspection Package with PC-DMIS® CAD++.
- Reverse engineering and Inspection package with PC-DMIS CAD++ and PolyWorks®/Modeler™.

Versatile **V4 Series probes** are available on Brown & Sharpe Global CMMs as well as ROMER portable arm CMMs. With a maximum width and depth of field of 73mm and 109mm respectively, ScanShark V4i and V4ix contour probes allow users to rapidly capture large, geometrically complex areas. Class-leading dynamic range and advanced filtering technology make these probes impervious to ambient light.

The V3 probe lowers the cost of scanning while retaining the functionality and accuracy required for most measurement tasks. Scanning up to 768 points along the laser line at a rate of 30Hz – 23,040 points per second – provides the user with high-density scan data at a minimum point-to-point resolution of 72µm. Superior optical design allows measurement of almost any surface finish, including gloss black and chrome. Available on ROMER portable arm CMMs.

SCANSHARK CONTOUR PROBE

for Portable CMMs

A ScanShark-equipped ROMER INFINITE portable CMM is ideal for large workpieces that cannot be easily moved, or in areas that are difficult to access such as inside or underneath a workpiece. And the INFINITE portable arm features an ergonomic design that reduces operator fatigue and increases usability:

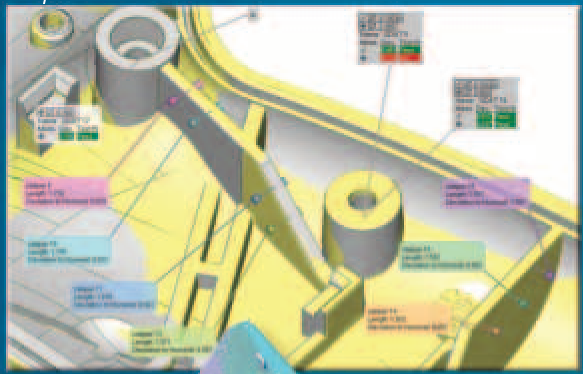
- Patented infinite rotation of the primary axes, and an integral low-profile zero-g counterbalance.
- Advanced carbon fiber arm tubes that are strong, light weight, dimensionally stable and feature a lifetime warranty.
- Next-generation electronics with onboard diagnostics, integrated Wi-Fi wireless communication and a universal mounting system.

The ROMER INFINITE ScanShark solution is available for 4′, 6′, 8′, 9′, 10′ and 12′ (1.2m, 1.8m, 2.4m, 2.8m, 3.0m and 3.6m) measuring envelopes, in your choice of configurations:

- Reverse-engineering package with PolyWorks®/Modeler™.
- Inspection package with PolyWorks®/Inspector™.
- Combination Inspection and Reverse Engineering with both PolyWorks®/Modeler™ and PolyWorks®/Inspector™.

Devour dimensional data with state-of-the-art PolyWorks® and PC-DMIS® software packages.

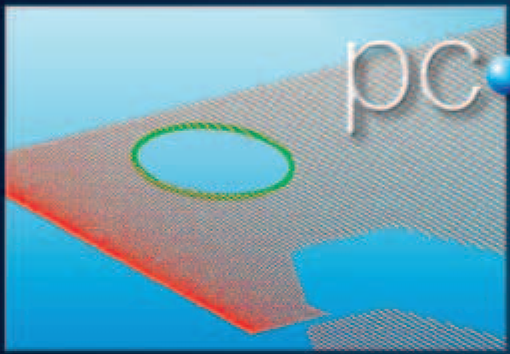
PolyWorks/Inspector showing high-density "weathermap" of point-cloud tolerances and GD&T callouts.



PolyWorks®/Inspector™ uses high-density point clouds and contact-probe datasets to control the quality of parts and tools at every phase of your manufacturing process:

- Quickly identify deformations and fix problems in early stages of manufacturing.
- Approve your manufacturing process by fully inspecting initial assembled products.
- Monitor production by automatically measuring tool wear and quickly detecting any abrupt degradation in product quality.
- Verify the compliance of finished products through sample check inspection using automated techniques.

PolyWorks®/Modeler™ is a comprehensive software solution for creating accurate, smooth polygonal models and NURBS surfaces from high-density point clouds. Preferred by automotive design studios worldwide, PolyWorks/Modeler is the only software solution that has demonstrated the capability of creating Class A polygonal models for stringent polygonal manufacturing applications such as 3- and 5-axis milling, aerodynamic simulation, and digital review. It also offers a powerful, rapid surfacing methodology that delivers the most usable NURBS surfaces in CAD software such as CATIA and UG.



pc·dmis

PC-DMIS® CAD++, the world's most widely used dimensional inspection software, incorporates scanning and digitizing functions for fast and efficient measurement of complex shapes. Point clouds *(example at left)* from PC-DMIS can be imported into PolyWorks/Modeler and processed independently on an offline station to reduce interruption on the CMM. Features include:

- Link to CAD bi-directionally using built-in DES, DMIS, DWG, DXF, IGES, STEP, STL, VDAFS and XYZIJK translators.
- Direct CAD Interface (DCI) option to create part programs directly from CAD models utilizing the native CAD system algorithms and tools. Connect to many popular CAD systems, including Unigraphics, Solidworks, Pro-E, CATIA, V5, IDEAs and ACIS.
- Scan types include rotary, patch, linear open and closed loop, perimeter, section, UV and edge point.

ScanShark Probe Specifications

Model	V3	V4i	V4ix	V5
Availability	ROMER INFINITE, Stinger	ROMER INFINITE, Stinger	Brown & Sharpe Global (Advantage & Performance)	ROMER INFINITE
Software Compatibility	Polyworks/Modeler Polyworks/Inspector	Polyworks/Modeler Polyworks/Inspector	Polyworks/Modeler PC-DMIS CAD++	Polyworks/Modeler Polworks/Inspector
Profile density	768 points/line	768 points/line	768 points/line	7640 points/line
Update frequency	30 Hz	30 Hz	30 Hz	60 Hz
Scan rate	23,040 points/sec.	23,040 points/sec.	23,040 points/sec.	458,400 points/sec.
Mean point-to-point resolution	0.072 mm	0.057 mm	0.57 mm	0.0137 mm
Stand-off	144 mm	118 mm	118 mm	100 mm
Depth of field	75 mm	109 mm	109 mm	110 mm
Near field width	47 mm	34 mm	34 mm	93 mm
Mid field width	55 mm	45 mm	45 mm	105 mm
Far field width	73 mm	73 mm	73 mm	140 mm
Measurement accuracy (Corner test)	0.0340 mm 2Σ	0.0240 mm 2Σ	0.0240 mm 2Σ	0.0240 mm 2Σ
Feature resolution (Sphere test)	0.0060 mm 2Σ	0.0045 mm 2Σ	0.0045 mm 2Σ	0.0045 mm 2Σ
Feature repeatability (Sphere test)	0.0070 mm 2Σ	0.0050 mm 2Σ	0.0050 mm 2Σ	0.0050 mm 2Σ
Dimensions	105 mm x 52 mm x 90 mm	105 mm x 52 mm x 90 mm	105 mm x 52 mm x 90 mm	115 mm x 100 mm x 80 mm
Mass	340 g	340 g	340 g	438 g
Safety	Class 2M, 660 nm laser			
Certifications	UL, CSA, CE			
Environmental	10°C to 40°C			
Protection	Sensor IP64/Enclosure IP31			

NIST Standard; OSIS Standard. Specifications subject to change without notice

Visit www.ScanShark.com, or call (800) 274-9433.

ROMER

ROMER Inc.
Hexagon Metrology, Inc.
51170 Grand River Avenue, Wixom, MI 48393
Phone: (800) 218-7125 Fax: (248) 449-9445
Email: sales@romer.com
http://us.romer.com

brown & sharpe

Brown & Sharpe
Hexagon Metrology, Inc.
250 Circuit Drive, North Kingston, RI 02852
Phone: (800) 343-7933 Fax: (401) 886-2727
Email: info@hexagonmetrology.com
www.BrownandSharpe.com