

# ContourGT

## SPECIFICATIONS

			
	ContourGT-K1	ContourGT-X3	ContourGT-X8
<b>Form Factor</b>	Bench top; Vibration isolation required	Integrated air table optimized for vibration isolation; Optional Ergotron® arm for keyboard and monitor	Integrated air table optimized for vibration isolation; Optional Ergotron® arm for keyboard and monitor
<b>XY Sample Stages</b>	150mm (6in) manual; Optional programmable 150mm (6in) motorized; Tip-tilt in system base	200mm (8in) programmable with encoders; Optional 300mm (12in) programmable with encoders; Tip-tilt in system scanning head	200mm (8in) programmable with encoders; Optional 300mm (12in) programmable with encoders; Tip-tilt in system scanning head
<b>Z Focusing Stage</b>	Motorized, computer controlled; Optional joystick controller	Motorized, computer controlled; Optional joystick controller	Motorized, computer controlled; Optional joystick controller
<b>Optical Assembly Module</b>	Latest generation dual-LED illumination source; Motorized FOV carousel; Automated filter flipper	Latest generation dual-LED illumination source; Motorized FOV carousel; Automated filter flipper	Latest generation dual-LED illumination source; Motorized FOV carousel; Automated filter flipper
<b>Objectives</b>	Parfocal: 2.5x, 5x, 10x, 20x, 50x, 100x Long working distance: 1.5x, 2x, 5x, 10x Special: 1x, Through Transmissive Media	Parfocal: 2.5x, 5x, 10x, 20x, 50x, 100x Long working distance: 1.5x, 2x, 5x, 10x Special: 1x, Through Transmissive Media	Parfocal: 2.5x, 5x, 10x, 20x, 50x, 100x Long working distance: 1.5x, 2x, 5x, 10x Special: 1x, Through Transmissive Media
<b>Objective Mounts</b>	Single objective adapter or 4-position motorized turret	Single objective adapter or 4-position motorized turret	Single objective adapter or 4-position motorized turret
<b>Compute Platform</b>	Multi-core, Windows® 7.0	Multi-core, Windows® 7.0	Multi-core, Windows® 7.0
<b>System Software</b>	Vision64 Operation and Analysis Software	Vision64 Operation and Analysis Software	Vision64 Operation and Analysis Software
<b>Optional Software Analysis</b>	MATLAB®, SureVision, TCP/IP Control, ThickFilm, Annular, Optical	MATLAB®, SureVision, TCP/IP Control, ThickFilm, Annular, Optical	MATLAB®, SureVision, TCP/IP Control, ThickFilm, Annular, Optical
<b>Other Automation</b>	Standard Auto intensity Optional high-speed autofocus; Optional stitching; Optional X-Y automation	Standard Auto intensity; Optional high-speed autofocus; Standard X-Y automation; Optional stitching	Standard Auto intensity; Optional high-speed autofocus; Standard X-Y automation; Optional stitching
<b>Calibration</b>	Manual, uses traceable standards	Manual, uses traceable standards	Automatic and continuous, uses internal reference signal laser (DMI)
<b>Z Scan Range</b>	0.1nm to 10mm	0.1nm to 10mm	0.1nm to 10mm
<b>Max. Scan Speed</b>	28.1µm/sec	28.1µm/sec	92.5µm/sec
<b>Warranty</b>	18 months parts and labor	18 months parts and labor	18 months parts and labor

Note: Performance specifications are typical and subject to change without notice. Visit the Veeco website for most up-to-date specifications.

Cover Image Captions:

Bottom left: 3D form measurement of intraocular lens.

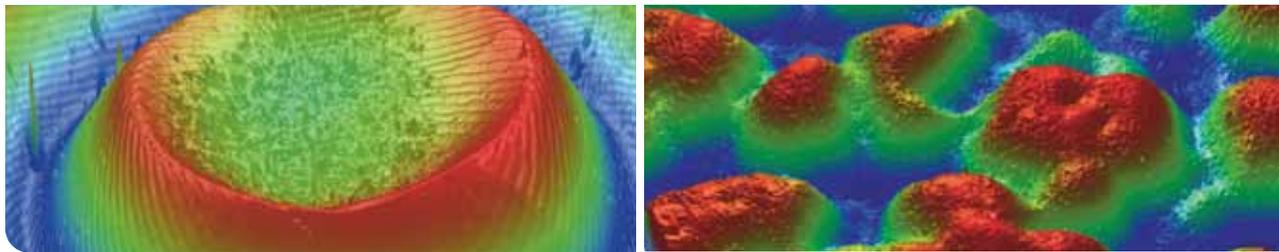
Bottom right: Topographic image of synthetic upholstery showing roughness.



Solutions for a nanoscale world.™

### WORLDWIDE CUSTOMER SUPPORT FROM THE INDUSTRY LEADER

Veeco Instruments Inc. manufactures performance metrology solutions for customers in the HB-LED, solar, industrial and scientific research, data storage, precision machining and semiconductor markets. Global sales and service offices are located throughout the U.S., Europe, Japan and Asia-Pacific. For more information visit [www.veeco.com](http://www.veeco.com), email [metrologyinfo@veeco.com](mailto:metrologyinfo@veeco.com), or call +1.520.741.1044/800.366.9956.



## ContourGT Surface Metrology Product Family

Non-Contact, 3D Optical Profilers for Production and R&D

- Highest Vertical Resolution over Industry's Largest Field of View
- Enhanced Reliability and Repeatability in Production Environments
- Accelerated Surface Measurement and Analyses
- Best-in-Class Ease of Use, Automation, and Analysis



Solutions for a nanoscale world.™

# ContourGT Optical Surface Profiler Family

## 30 Years of Non-Contact Surface Metrology Innovation

The ContourGT™ Family combines advanced 64-bit, multi-core operation and analysis software, patented white light interferometric (WLI) hardware, and unprecedented operator ease-of-use to deliver the most advanced 3D optical surface profilers ever developed. Veeco's tenth-generation surface profilers provide fast, angstrom-to-millimeter vertical-range metrology over large fields of view, with flexible sample setup and industry leading repeatability. The ContourGT Family is the most comprehensive and intuitive 3D surface metrology platform available today for production, research and quality control applications.

### Unmatched Measurement Capabilities with Highest Vertical Resolution over Industry's Largest Field of View

- Magnifications from 0.5X to 200X enable characterization of a wide range of surface shapes and textures
- Sub-angstrom-to-millimeter vertical range at any magnification delivers unparalleled measurement flexibility
- High-resolution camera option increases lateral resolution and improves gauge R&R

### Unique Metrology Hardware for Enhanced Reliability and Repeatability in Production Environments

- Patented dual-source illumination with super high-brightness LEDs provides superior measurement quality and magnification flexibility
- Optimized hardware design improves vibration tolerance and gauge R&R capability
- Patented automatic self-calibration capability on select models ensures tool-to-tool correlation and measurement accuracy and repeatability

### 64-Bit, Multi-Core Compute Platform with Vision64™ Software for Accelerated 3D Surface Measurement and Analyses

- New architecture yields order of magnitude increase in application data processing capacity
- Parallel processing using multi-core optimization and other techniques provides up to 10x higher throughput on critical metrology analyses
- Unmatched stitching capability seamlessly synthesizes thousands of individual datasets into one contiguous image

### Highly Intuitive User Interface with Best-in-Class Ease of Use, Automation, and Analysis

- Streamlined user interface simplifies measurement and data acquisition to increase system and personnel efficiency
- Unique visual workflow tools provide intuitive access to an extensive library of filters and analysis options
- Customized reporting distills analysis data for customer-specific requirements

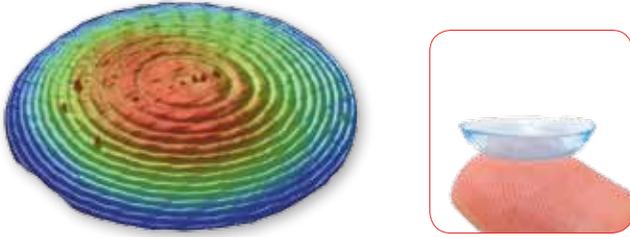


## WIDE ADAPTABILITY WITH APPLICATION-SPECIFIC FOCUS

The ContourGT Family features industry-leading measurement scope and flexibility to provide quantified 3D surface characterization for an extremely wide range of surfaces, from rough to smooth, hard to soft, adhesive, deflectable or otherwise difficult to measure. With its uniquely intuitive user interface and extensive automation features, the ContourGT Profilers can be tailored to meet the needs of virtually any surface metrology application.

### Ophthalmic Contact and Intraocular Lenses

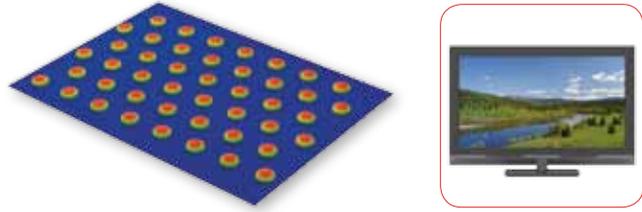
ContourGT Stitching and Optical Analysis plug-ins calculate parameters ranging from Zernike coefficients to aspheric lens properties.



Stitched measurement of a bifocal contact lens showing form.

### High-Brightness LEDs

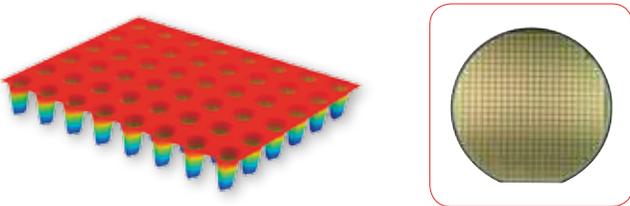
ContourGT Profilers provide high-throughput, non-destructive measurements for PSS height and width, as well as substrate bow, thickness and roughness to improve yield and ensure LED efficiency and color consistency.



Topography of features on a patterned sapphire substrate wafer.

### Through-Silicon-Via (TSV)

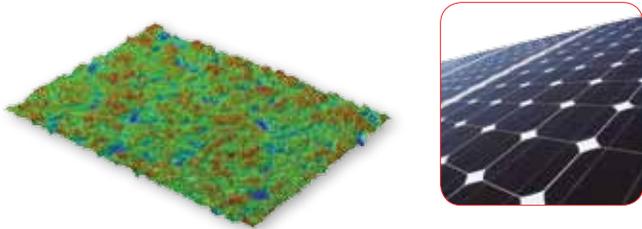
ContourGT Profilers measure up to 10:1 aspect ratios on vias and 30:1 aspect ratios on trenches to ensure compliance with design and manufacturing requirements.



High aspect ratio TSV measurement for stacked chips.

### Solar

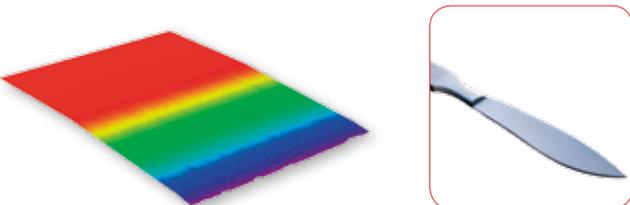
ContourGT Profilers can calculate surface texture parameters that help to increase efficiency and enhance yield in solar cell manufacturing.



3D characterization of monocrystalline solar cell.

### Medical Devices and Tools

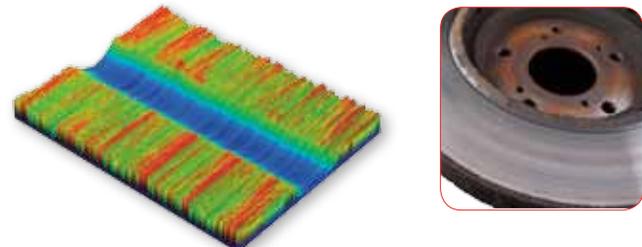
ContourGT Profilers perform automated measurements and analyses on medical sharps and implantable devices to increase quality, refine production processes, and lower costs.



Topography map of a medical cutting blade angle and edge.

### Tribology

ContourGT topographic imaging provides quantitative surface data to facilitate understanding of friction, corrosion and other wear mechanisms for life-cycle and QA/QC.

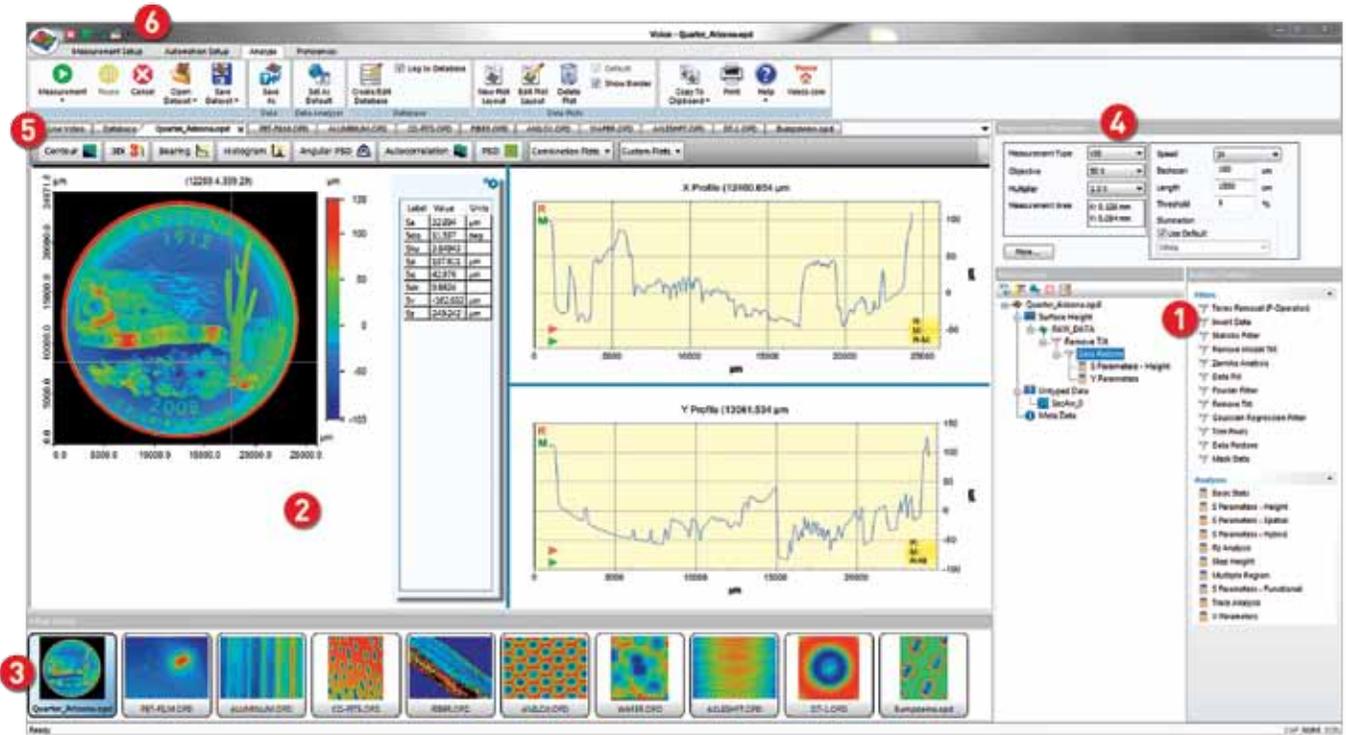


Wear scar in metal showing minor debris deposition on sidewall.

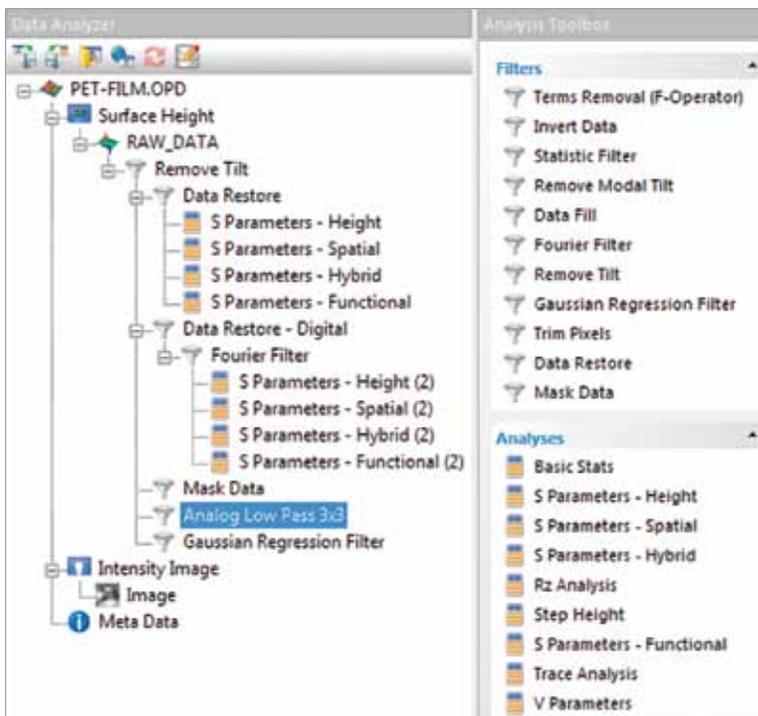
# 3D Surface Metrology

## NEW BENCHMARK FOR OPERATION AND ANALYSIS

Today's sophisticated metrology technology requires advanced software that is powerful, user-friendly, and capable of addressing specific measurement requirements. The new Vision64™ Operation and Analysis Software provides the industry's most functional and streamlined graphical user interface, combining intelligent architecture with intuitive visual workflow and extensive user-defined automation capabilities for fast and comprehensive data collection and analysis.

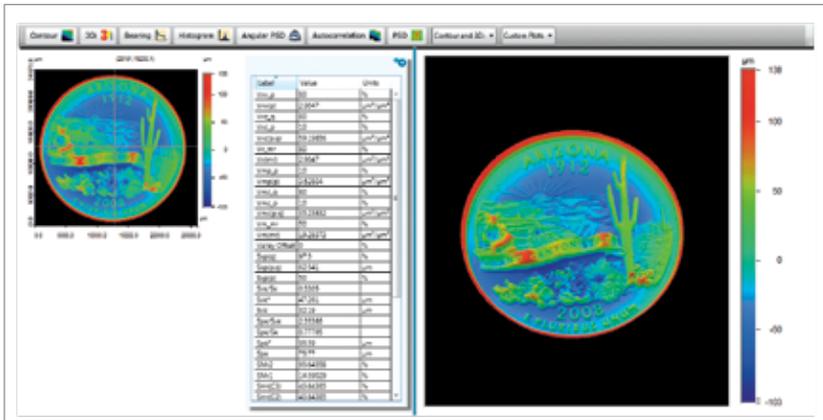


Vision64 GUI — Unmatched Functionality and Ease of Use

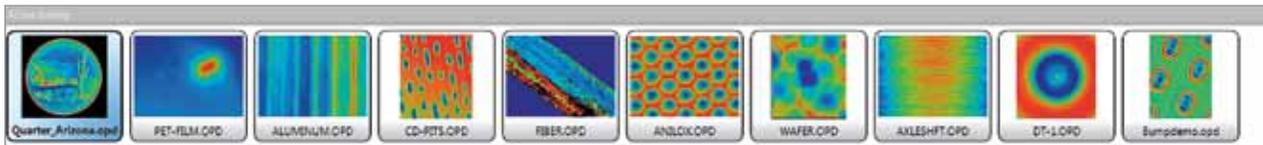


**1** The Data Analyzer and Analysis Toolbox epitomizes the power and simplicity of Vision64's design. The Data Analyzer serves as a visual workflow tree, where each node is either a filtering option or a data analysis selected from the Analysis Toolbox. The Analysis Toolbox contains many filtering options (e.g., Fourier digital filtering, data restore, form removal and masking) as well as a complete set of analysis capabilities (e.g., S-parameters, multiregion, volume analysis and step measurement). Further customization and additional capabilities are provided through optional software packages, such as Optical Analysis, SureVision, and MATLAB scripting.

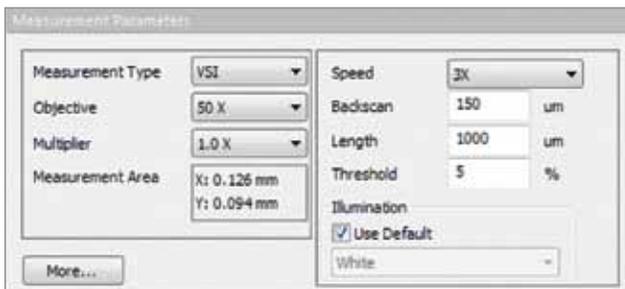
# Powered by Vision64



**2** The Data Visualization Window accesses the most common plot objects with push-button convenience, from 2D and 3D analyses to bearing ratio and power spectral density displays. Customizable plots allow the operator to combine plot types and perform reporting functions, such as adding text and graphics. Data parameter tables are completely configurable and sortable in seconds.

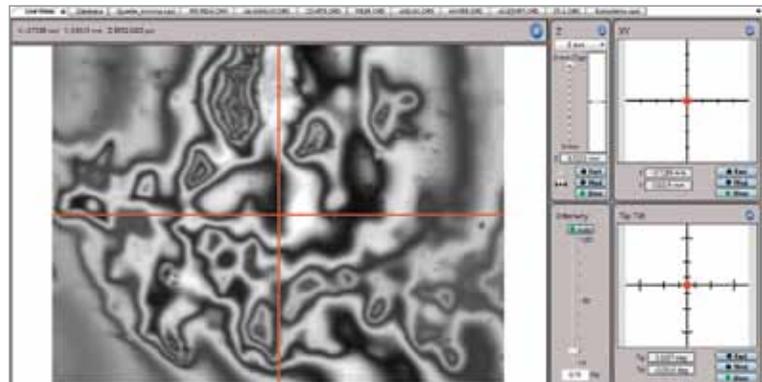


**3** The Active Gallery displays all open datasets in Vision64. Selecting a dataset from the gallery activates its Data Visualization Window and corresponding Data Analysis workflow. The tabbed measurement management feature minimizes operator confusion, and maximizes time to results.



**4** The Measurement Parameters Window conveniently keeps the most common measurement parameters always visible at the top right of the interface. Current measurement mode, relevant options, optics selections, and field of view size are all readily monitored and adjustable.

**5** The Live Video Window puts X, Y and Z stages, tip-tilt, and intensity controls at the operator's fingertips. Push-button auto intensity properly sets light level in seconds while maintaining active adjustment. This ensures measurement consistency scan after scan, even among multiple operators.

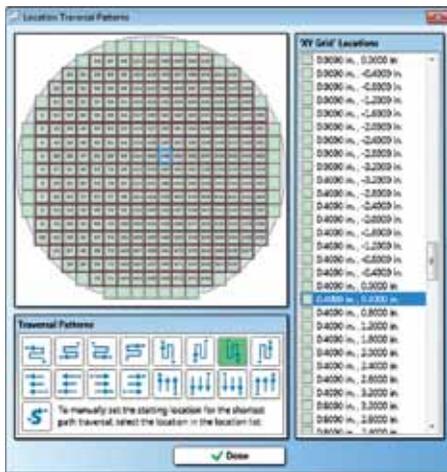
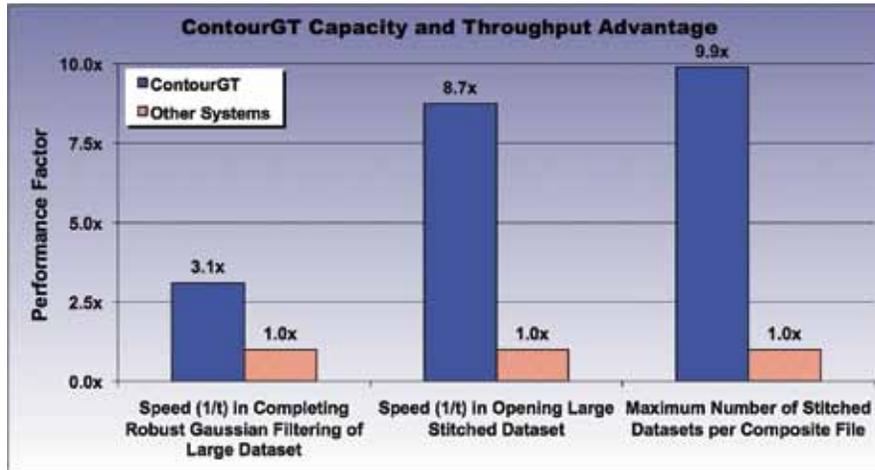


**6** The Toolbar incorporates Windows® 7 functionality and features, including a ribbon design with large intuitive icons and multifunction button controls. The most common system functions are always visible on the left side of the toolbar. Vision also utilizes custom, quick-access functionality to tailor the toolbar to your individual routines and analyses.



## ADVANCED FEATURES FOR HIGH THROUGHPUT AUTOMATION AND QUALITY CONTROL

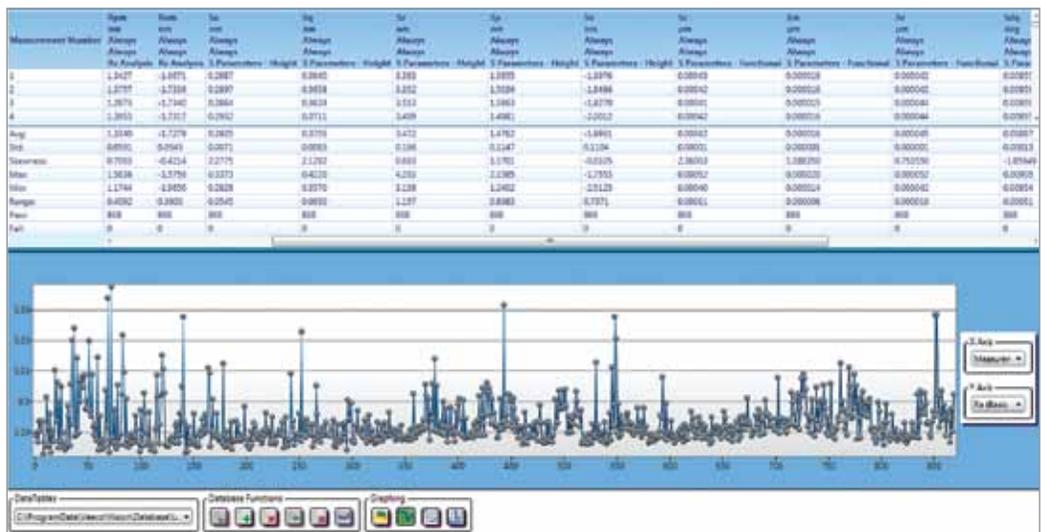
The ContourGT 64-bit, multi-core compute platform and Vision64 software deliver up to 10x greater throughput and capacity than other metrology systems.



### Automation Scripting

has been designed with ease of use as the top priority. X-Y grid automation contains multiple improvements for wafer/die measurement scripting. X-Y scatter automation enables measurement on samples with non-regularly spaced areas of interest. A variety of other automation routines and sample traversal patterns are included.

The Database Window provides a convenient means to define and visualize data from an extensive list of analysis parameters. Automatic data logging and pass/fail criteria give real-time feedback, and results can be easily exported for data management and SPC.



## TEN GENERATIONS OF TECHNOLOGY INNOVATION

Veeco's interferometry firsts include such well-known innovations as Vertical Scanning Interferometry (VSI), tip-tilt in the scanner head, patented self-calibrating scanning and dual-LED illumination. The ContourGT Family combines this proven design functionality with dramatic advances in measurement hardware to deliver the most accurate and repeatable optical profiling performance available. Veeco's optical surface profiling systems have a proven track record of robust performance spanning three decades, with thousands of installations in settings ranging from research labs to manufacturing fabs.

### ■ Superior Vibration Isolation\*

The ContourGT-X profilers are equipped with an integrated air table and composite casting, both are designed to prevent floor vibration from disturbing measurement quality. The result is fast, accurate gauge-capable metrology.

### ■ Optical Metrology Module (OMM)

The OMM incorporates Veeco's patented dual-LED illumination source, providing excellent intensity and uniformity on all sample types at all magnifications. The OMM also delivers uncompromised accuracy and repeatability over its large 10-millimeter scan range. The motorized multiple magnification detector contains up to three fixed field-of-view lenses for maximum magnification flexibility and stability.

### ■ Automatic Self-Calibration\*

Select models of the ContourGT Family include Veeco's patented automatic self-calibration capability with an internal primary standard that provides the ultimate in closed-loop scanner performance. This subsystem includes a reference signal that self-calibrates the system upon start-up, and then continuously monitors and corrects each measurement for absolute accuracy and excellent repeatability.

### ■ Tip-Tilt Cradle\*

Veeco's tip-tilt cradle design tilts the OMM, not the sample. By doing this, the measurement sample always stays in focus and within the measurement field of view, ensuring consistent operator ease of use.



Monitor cart is not included.

### ■ Automated Stages

An automated 8-inch or 12-inch stage is available on the ContourGT-X models. Both stages are equipped standard with 0.5-micron repeatability encoders. The ContourGT-K model has an optional 6-inch motorized stage. An optional XY joystick with Z-focus knob is also available.

### ■ Turret

An optional motorized turret can accommodate up to 4 interferometric objectives, from 1x to 100x. The turret design ensures that your measurement feature stays in-focus and centered, even when switching objective magnifications.

### ■ Operator-Assist Lamp\*

The back of the vibration isolation casting is equipped with an LED light source to help with sample focus and operator visibility.

Whether your application calls for dedicated manual system measurements or 24/7, fully automated and gauge-capable metrology, the ContourGT family has a solution to suit your specific application requirements.

\*These options are available on the ContourGT-X3 and/or ContourGT-X8 models.