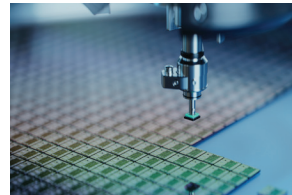
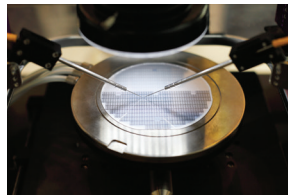


Test & Measurement Technologies for the Semiconductor Industry



Leading the Test & Measurement Industry for 25+ Years.

VITREK

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Vitrek's extensive product portfolio, comprised of Vitrek, MTI Instruments and GaGe brand technologies, is employed worldwide in a wide range of applications. Vitrek offers a variety of products supporting the semiconductor industry for quality control of the fabrication process as well as testing and verification of semiconductor devices' operational performance as well as supporting the performance of capital equipment used in the semiconductor manufacturing process. Some Vitrek product applications include:

Semiconductor Wafer Metrology

- Monitoring wafers during preparation stages to check thickness for compliance with minimal bow, warp and total thickness variation (TTV).
- In-process monitoring of solar/photovoltaic wafer measuring for multi-channel thickness, TTV & bow measurement.
- Ultrasonic, non-destructive inspection of wafers for potential flaws or manufacturing defects.

Semiconductor Test & Characterization

- Operational testing and characterization of packaged semiconductor devices.
- Software utilized in high-speed PASS/FAIL testing systems.
- Signal simulation for calibrating data acquisition systems and providing precision voltages for device testing.
- Real-time acquisition and analysis of storage media read-and-write head signals in manufacturing.
- Real-time ultrasonic characterization of semiconductor die adhesion in manufacturing.

Semiconductor Fabrication Capital Equipment

- Sensors used in the high-resolution focusing of complex lens systems used in photolithography tools.
- Sensors utilized to deliver precise measurements of displacement, active vibration, position and distance.
- Digitizers used in real-time process control allowing for characterization of fabrication processes and short data latency to enable fast device control loops.
- Design and production testing in a wide range of fabrication gear.

To learn more about these applications visit www.Vitrek.com, email Info@Vitrek.com or call (815) 838-0005.

VITREK

Vitrek Honored as Top Semiconductor Solution Provider of 2024

"We are honored to receive this recognition," said Ken Ameika, Vitrek VP of Global Sales. "This award is a testament to our commitment to innovation, quality, and customer satisfaction. We will continue to push the boundaries of technology to meet the evolving needs of the semiconductor industry."



Proforma 300iSA Semiconductor Metrology System

Applications: Semiconductor Wafer Metrology

Supported Wafer Sizes: 3"-12" | Wafer Materials: Si, Ga, As, Ge, SiC, InP

Measurement Features (ASTM F33): Thickness; TTV; Bow; Warp; Flatness

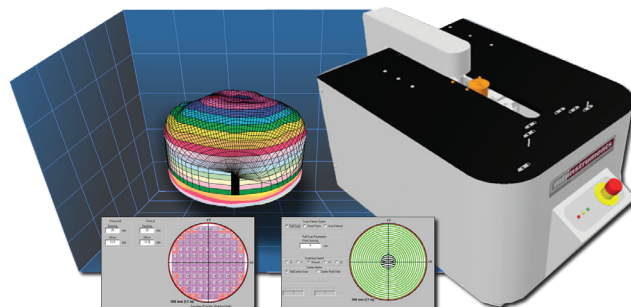


Wafer metrology systems are critical tools in semiconductor manufacturing for measuring and characterizing various properties of wafers at different stages of the fabrication process. These systems enable precise and accurate measurements of wafer dimensions, surface topography, film thickness, and other critical parameters.

Customized data reporting, multi-format data export and full network capability are just a few of the advanced features of the MTI Instruments Proforma 300iSA Semi-Automated Semiconductor Metrology System. The Proforma 300iSA is a desktop, semi-automated wafer measurement system for semi-conducting and semi-insulating materials. The unit delivers full wafer surface scanning for thickness, thickness variation, bow, warp, site and global flatness. The quick and easy to use Windows-based control system performs complex data analysis and provides output in tabular and 3-D graphical formats which can be exported to spreadsheets and word processing programs.

Features:

- Non-contact full wafer scanning
- 3-D mapping of thickness and shape
- Measures semi-conducting and semi-insulating wafers
- Standard Windows-based user interface
- Powerful software & graphics package
- Customized data recording
- Upgradeable to fully automated system
- Up to 1000 μm measurement range
- Remote data analysis and recipe creation

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Proforma 300i Manual Semiconductor Metrology System

Applications: Semiconductor Wafer Metrology

Supported Wafer Sizes: 3"-12" | Wafer Materials: Si, Ge, InP, GaAs

Measurement Features: Thickness; TTV; Bow

When you need a cost-effective alternative to a fully-automated wafer measurement and inspection system, the MTI Proforma 300i is the solution for you! The 300i can provide measurements of thickness and bow of all wafer materials including Silicon, Gallium-Arsenide, Indium-Phosphide and sapphire or tape.

The Proforma 300i wafer thickness gauge is a capacitance based, differential measurement system that performs non-contact thickness measurements of semiconducting and semi-insulating wafers. By utilizing MTI's Push/Pull technology, the Proforma 300i does not require the wafers to have a consistent electrical ground, resulting in exceptional accuracy and repeatability for most wafer types. The Proforma 300i system includes full remote control operating software and Ethernet network interface capability.



1510A Signal Simulators

Applications: Semiconductor Test & Characterization



Signal simulators are essential tools in semiconductor manufacturing for testing and verifying the performance of semiconductor devices and circuits. They are used to generate and simulate electrical signals that mimic real-world conditions, allowing engineers to assess the functionality and reliability of their designs before fabrication.

The 1510A Signal Simulator is a sophisticated two-channel, battery-powered, microprocessor-controlled direct digital signal generator that can be used for calibrating data acquisition systems and providing precision voltages for device testing. It can generate a sine wave, a square wave, a sawtooth wave and triangle continuous signals on both channels as well as single pulse and odd pulses.

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Accumeasure Capacitance Sensors

Applications: Semiconductor Fabrication Capital Equipment

Capacitance sensors play a crucial role in semiconductor manufacturing processes for various applications. They are utilized for measuring and monitoring parameters such as film thickness, displacement and wafer-to-wafer uniformity.

MTI Instruments' Accumeasure product line features capacitive sensor products for high resolution gap and displacement measurements that require a high level of accuracy that is both stable and repeatable. Capacitive measurements can be performed in a multitude of environments using non-contact passive capacitance probes that are not affected by magnetic fields, temperature, humidity, nuclear radiation or pressure.

Extremely high-precision and high linearity amplifiers make these systems ideal for critical measurements in X-Y stages, rotating spindles, shaft position, armature gap, disk position, and piezo electric positioning applications. MTI's Accumeasure product line delivers a highly stable, accurate, low noise amplifier with a fast response time.



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PA Series Power Analyzers

Applications: Semiconductor Test & Characterization

Power analyzers are essential tools in semiconductor manufacturing for measuring and analyzing electrical power parameters of semiconductor devices, circuits, and systems. They provide valuable insights into power consumption, efficiency, and performance, enabling engineers to optimize power usage, diagnose issues, and ensure the quality of their semiconductor products. Vitrek's precision harmonic power analyzer, the PA920 is the most accurate power analyzer available on the market today (0.024%). The PA920's modular design can hold up to 4 channels of power measurement in any combination of different channel card types. It is flexible, easy-to-use and provides high-performance — at a price that won't break your budget.

The PA920 is the workhorse of power analyzers. It can operate from μW to MW. It's six test instruments in one: 1) Power Analyzer, 2) Oscilloscope, 3) Data Logger, 4) Conducted Emissions Analyzer, 5) Spectrum Analyzer and 6) Phase Meter. It is also small, light, accurate and easy-to-use.



VITREK

DL Series DC Electronic Load

Applications: Semiconductor Test & Characterization

Vitrek's DL Series of DC Electronic Load devices are the ideal choice for testing and characterizing DC power sources, power supplies, and semiconductor devices. They provide a controllable load that simulates real-world operating conditions, allowing engineers to evaluate the performance, stability, and efficiency of their designs. The DL Series is equipped with an easy-to-read color display and is a combined load, four five-digit meters, an oscilloscope and a datalogger in one compact, easy-to-use instrument.

The design utilizes high performance semiconductors with high speed and high accuracy, and wide dynamic range of loading from $10 \mu\text{W}$ to 14.5 kV. The DL Series offers transient and non-linear loading capabilities and sweep feature. The highly accurate (0.035% base voltage and current accuracies) enables use in a wide range of applications from production line settings to the engineering bench.



VITREK

High-Speed Digitizers

Applications: Wafer Metrology, Test & Characterization, Fabrication

High-speed digitizers, also known as high-speed data acquisition systems or oscilloscopes, are essential tools used in semiconductor manufacturing for capturing and analyzing fast electrical signals with high fidelity. They enable engineers to observe and measure the behavior of semiconductor devices and circuits in real-time, facilitating design validation, performance analysis, and troubleshooting.

GaGe high-performance digitizers are renowned for sustaining the maximum effective number of bits (ENOB) over a wide signal frequency range with quality signal conditioning and signal fidelity features.

With sampling rates up to 6 GS/s and very deep onboard acquisition memory of up to 16 GB, our high speed PCIe and PXIe digitizers provide optimal combinations of high sampling speeds with 8-bit, 12-bit, 14-bit, and 16-bit high resolution rates with large sampling memory options and high-speed data streaming capabilities.



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