VITREK

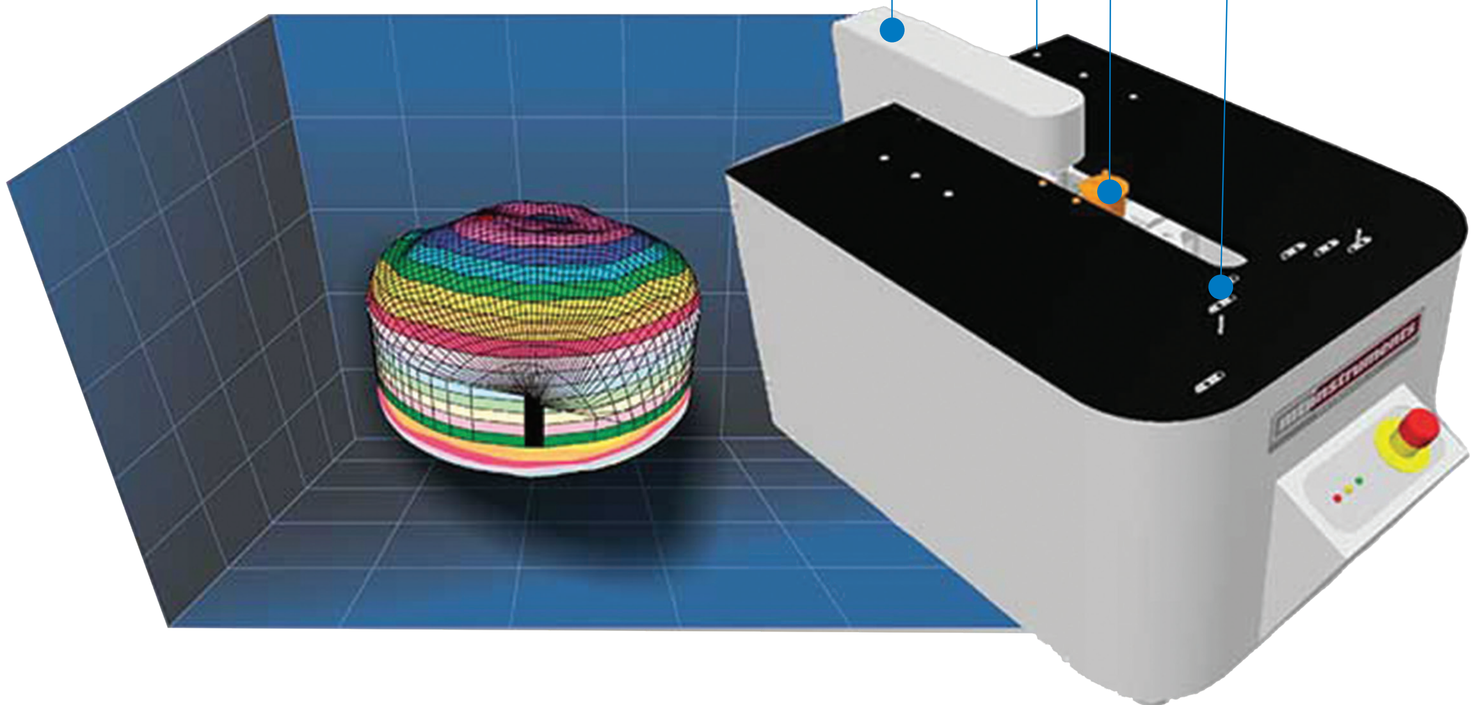
mtiinstruments

Proforma™ 300iSA and 300i

Manual and Full Wafer
Measurement Systems
for Semiconducting
and Semi-insulating Wafers

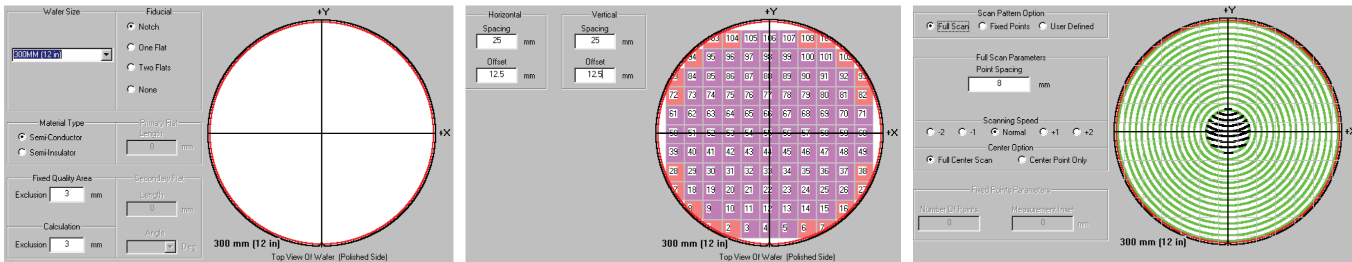
Proforma™ 300iSA

The Proforma 300iSA is a desktop, semi-automated wafer measurement system for semi-conducting and semi-insulating materials. It delivers full wafer surface scanning for thickness, thickness variation, bow, warp, site and global flatness. User-defined and ASTM/ SEMI compliant scan patterns are used to generate 3-D wafer images.



Proforma 300iSA Controller Facilitates Custom Graphing

The Proforma 300iSA Controller contains all the electronics and control hardware necessary to control the Measurement Stage. It is also the interface to the external computer.

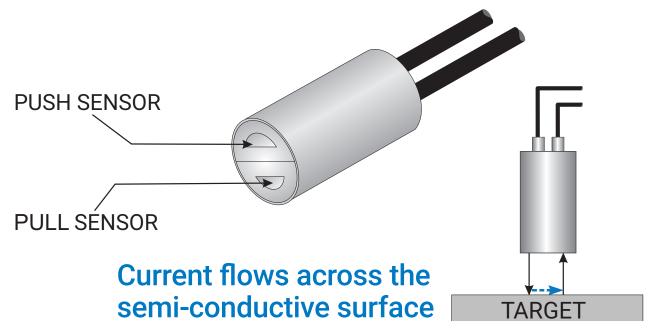


Unique Push/Pull Technology

Two Probes built into one body

To address the needs of the semiconductor industry Vitrek developed its unique “push-pull™” probe technology. Each probe consists of two capacitance sensors. Each sensor is driven at the same voltage, however, there is a 180 degree phase shift between signals. This shift allows the current path to travel across the target surface rather than through the target to ground, eliminating any inaccuracies created by poorly grounded targets.

Additionally, highly non-conductive targets can be measured with this technology, thus allowing capacitance sensors to be used on semi-insulating and semi-conducting targets.



Features

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

Proforma™ 300iSA - Semi Automated Measurement Tool

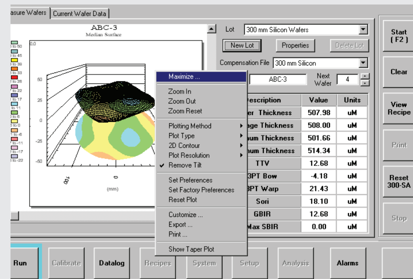
Customized data reporting, multi-format data export and full network capability mean that the 300iSA provides easy access to your process information from anywhere on your network.

The quick and easy to use Windows-based control system performs complex data analysis and provides output tabular and 3-D graphical formats which can be exported to spreadsheet and word processing programs.

The systems come preset for SEMI standard wafers and offer the ability to add custom wafer parameters if required. Each measurement system parameter is selected from the user-friendly software interface.

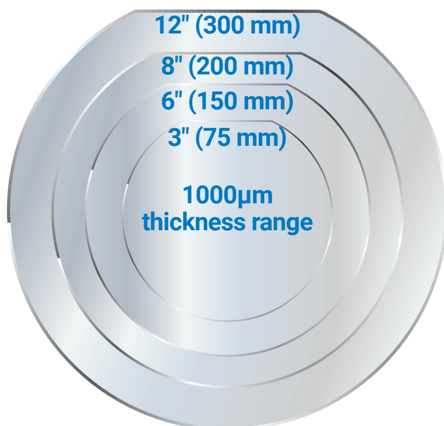
Parameters can be modified and data recalculated without the need to the rescan the wafer allowing "what-if" analysis of standards and tolerances. Moreover, an optional software package can be added for determination of wafer stress.

Able to measure as-cut, lapped, etched, polished or patterned wafers, the Proforma™ 300iSA provide fast, accurate information about your process.



Wafer Summary Report

Proforma™ 300iSA - Si, GaAs, Ge, SiC, InP Wafers



Measurement Features	Standard Range	Extended Range
Thickness (ASTM F533)	± 0.25 µm	± 0.50 µm
Accuracy	0.050 µm	0.075 µm
Repeatability		
TTV (ASTM F533)	± 0.25 µm	± 0.5 µm
Accuracy	0.050 µm	0.075 µm
Repeatability		
BOW (ASTM F534)	± 500 µm	± 800 µm
Range	± 2.0 µm	± 5.0 µm
Accuracy	0.750 µm	0.750 µm
Repeatability		
Warp (ASTM F1390)	± 500 µm	± 1500 µm
Range	± 2.0 µm	± 5.0 µm
Accuracy	0.750 µm	0.750 µm
Repeatability		
Flatness - Global and Site (ASTM F1530)	± 0.05 µm	± 0.15 µm
Accuracy	± 0.03 µm	0.05 µm
Repeatability		

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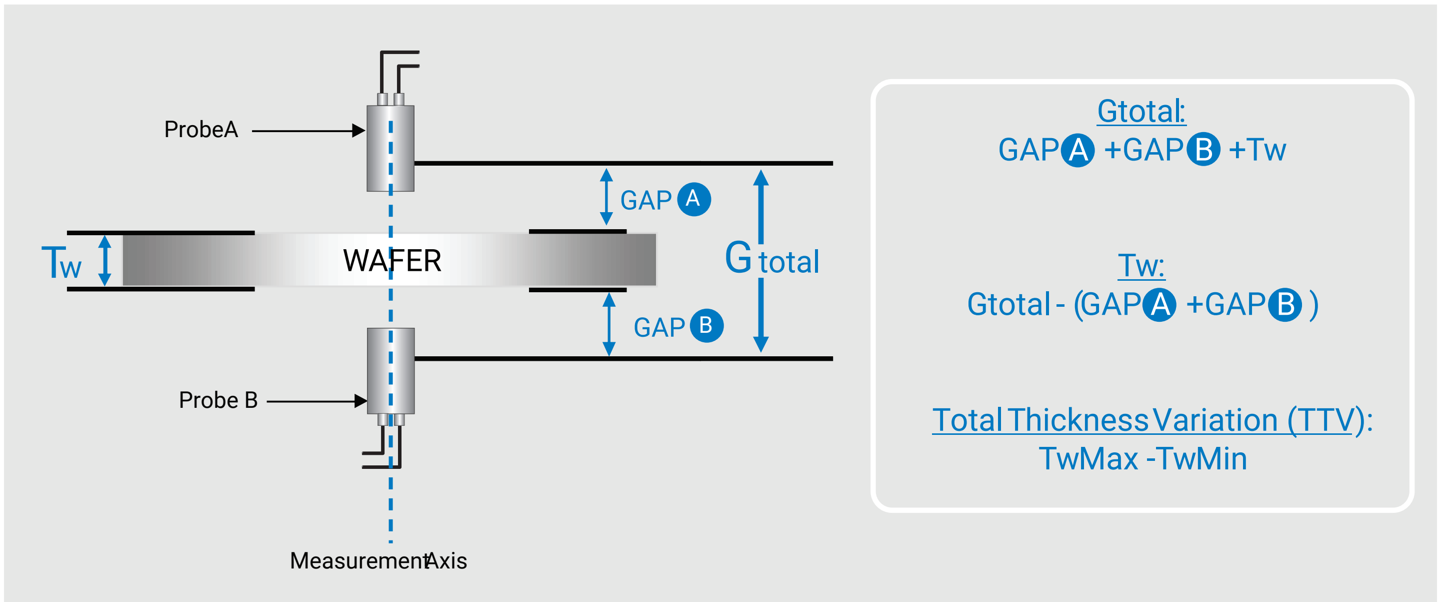
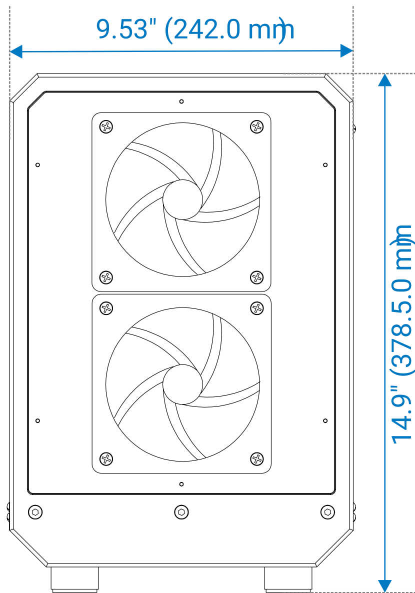
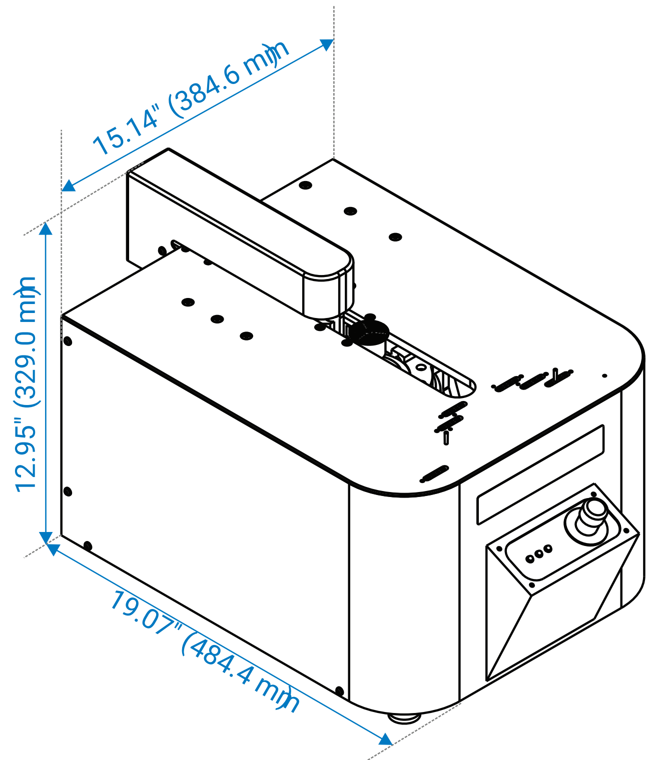
Proforma™ 300iSA - Measurement Principles



Product Number	Model
8000-6485	Proforma 300iSA (includes controller)
	Options
2000-2000	Silicon (Si) calibration standard
2000-2001	Gallium Arsenide (GaAs) calibration standard

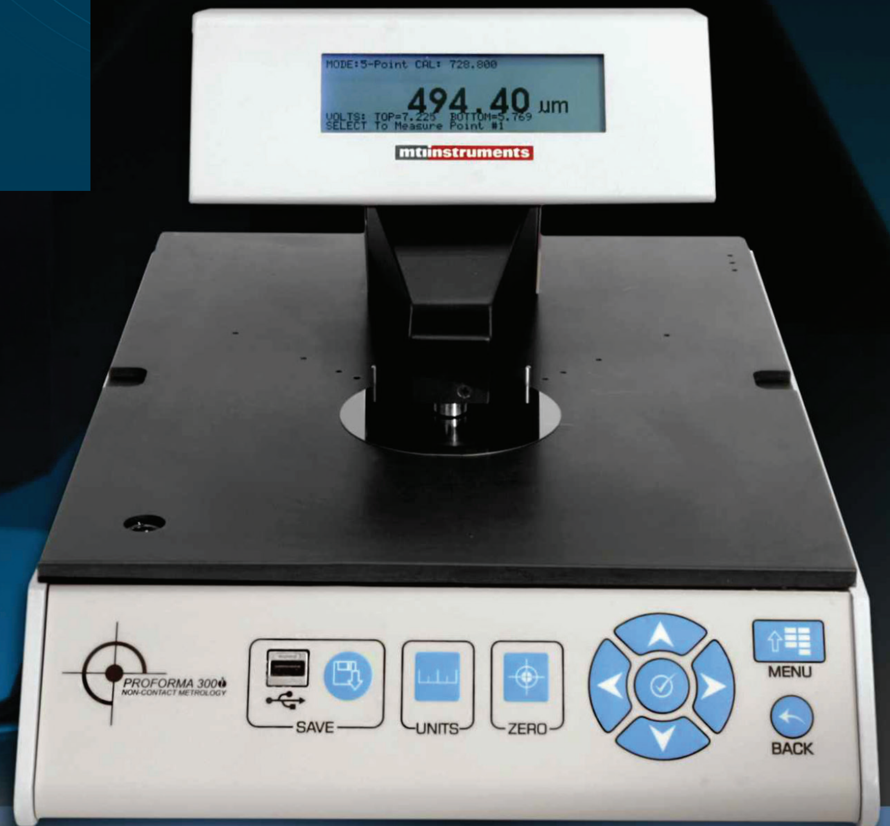




Proforma™ 300i

Cost-effective alternative to fully-automated wafer inspection systems

- 76-300 mm wafer diameters
- High-resolution LCD display
- Menu-driven for fast, easy setup
- 5-point, TTV and bow measurements
- Ethernet and RS232 computer interface
- Front USB interface for easy data storage
- Up to 1700µm measurement range



Using MTI's proprietary non-contact capacitance probes, the Proforma 300i is fast, accurate and reliable. The Proforma 300i is capable of measuring wafer up to 300mm in diameter for thickness, total thickness variation (TTV) and bow.

Proforma™ 300i Specifications

	Proforma 300i	Proforma 300 OEMi[1]
Accuracy[2]	±0.25 µm	
Repeatability[2]	±0.25 µm	
Resolution	0.05 µm	
Electrical Input (Voltage)	100 to 240VAC	
Electrical Input (Frequency)	50 to 60Hz	
Electrical Input (Power)	50 Watts	
Temperature (Operational)	15 to 40°C	
Response Time	60ms	Custom
Dimensions (LxWxH)	482x330x279 mm	483x388x89 mm
Data Interfaces	RS232, Ethernet, USB, LCD	RS232, Ethernet
Known Supported Materials[4]		
Si, Ge, InP, GaAs	✓	✓
Weight	12.3 kg	5.9 kg

Access the data logger program via computer

Set test parameters

OPTIONAL

SEMI MF534-0707 Bow Wafer Ring

Bow wafer ring not only allows for measurement of bow but also eliminates contact between the wafer and table, providing additional wafer protection.

1 The OEM model consists of the acquisition system and probes only. As such, several parameters will be dependent on the custom installation parameters. Contact MTI Instruments to discuss custom applications and expected performance in these applications.

2 At constant 22°C.

3 Within limits of repositioning.

4 The ability to measure can vary dependent on several factors (such as bulk resistivity).

Which product is right for you?
Contact us today.

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