MULTI-SENSOR METROLOGY
FOR FRONT END

MicroProf® FE
Standard metrology for wafer manufacturing
The MicroProf® FE is FRT’s standard fully automated 2D/3D wafer metrology tool. It combines the capabilities of the worldwide established MicroProf® 300 with a wafer handling system within an Equipment Front End Module (EFEM). With it’s fully SEMI-compliant metrology solutions and almost maintenance-free hardware components, providing high throughput inspection, the MicroProf® FE is the perfect workhorse in any front end HVM fab.

Besides the standard configuration, the tool can be equipped with numerous additional features, which can also be retrofitted at a later time. The MicroProf® FE enables you keeping pace with technology’s progression fast and at reduced investment cost!

The tool can be used for measurements on bare and structured wafers for both front and back end.

Typical samples are:
- Bare wafers: post grinding and post polishing
- Coated wafers
- Structured wafers: various lithographic process steps, measurement of conducting traces, bumps etc.
- MEMS product wafers: acceleration sensors, pressure sensors, micro optics, etc.
- 3D packaging: wafers at different 3D packaging process steps, e.g. with through silicon vias or trenches after etching

Wafer – thin films and multi layers
- Single layer thickness

Bumps
- Height, diameter, pitch
AUTOMATED MEASUREMENT AND EVALUATION – FRT ACQUIRE AUTOMATION XT

The tool is driven by the SEMI-compliant FRT Acquire Automation XT software. This modular recipe based software enables the measurement and data analysis of structured and unstructured wafers. Choose the suitable measurement and evaluation routines for your measuring task from a variety of packages. For recurring structures, a layout wizard with a graphical user interface (GUI) supports you in teaching the step-and-repeat measuring locations. In addition, sample fine alignment via pattern recognition is available.

This software provides comprehensive capabilities, from manual measurement on the tool to fully automated measurement with one-button operation and integration into production control systems, e.g. via a SECS/GEM interface.

You can easily configure various measurement tasks using different sensors to run consecutively as a measurement sequence. This includes the execution of measurements, processing and analysis using intelligent algorithms, output and visualization of results in form of reports and the export of results in various data formats.

UPGRADE AND RETROFIT

As for all the tools of the MicroProf® family, MicroProf® FE can be equipped with a multi-sensor configuration to individually combine different measurement applications within one metrology unit. Typical setups feature chromatic point sensors for both single side and dual side inspection (TTV), field of view sensors (confocal or white light interferometry), film thickness sensors and even AFM.

OPTIONS

<table>
<thead>
<tr>
<th>METROLOGY UNIT</th>
<th>WAFER HANDLING UNIT</th>
<th>SOFTWARE</th>
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<tbody>
<tr>
<td>&gt; high-resolution camera</td>
<td>&gt; load ports for open cassette handling (150 or 200 mm wafers)</td>
<td>&gt; additional AA XT software packages:</td>
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<tr>
<td>&gt; pattern recognition software</td>
<td>&gt; bridge tool option (two wafer sizes in one tool)</td>
<td>&gt; step height and width</td>
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<td>&gt; TTV-setup</td>
<td>&gt; edge grip handling option</td>
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<td>&gt; film thickness sensor IRT</td>
<td>&gt; warped wafer handling option for thin wafers</td>
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<td>&gt; thin film sensor FTR</td>
<td>&gt; Bernoulli (non-contact) handling option for thin wafers</td>
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<tr>
<td>&gt; field of view sensor CFM, CFM DT, WLI FL, WLI PL</td>
<td>&gt; frame cassette handling</td>
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<td>&gt; chromatic line sensor SLS</td>
<td>&gt; OCR reader (front/back)</td>
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<td>&gt; brightfield IR illumination + IR camera for inspection</td>
<td>&gt; ionizer bar</td>
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<tr>
<td>&gt; 3 point wafer fixture for two wafer sizes</td>
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<tr>
<td>&gt; fully supported wafer fixture with vacuum for one or two wafer sizes</td>
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<tr>
<td>&gt; thermo unit (controlled hot &amp; cold chuck)</td>
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<td>&gt; AFM</td>
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Questions? Talk to an expert!

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