DIGITAL PROBES

Flatness Checks in Electronics

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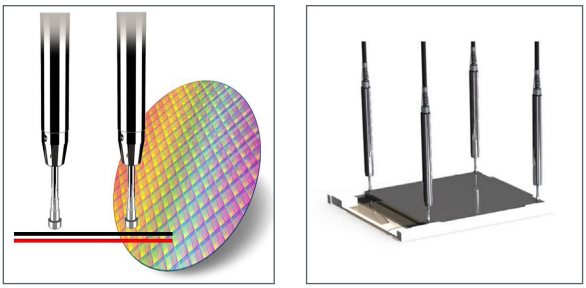
The Challenge

In Electronics, the flatness of a part may be a critical feature. Everything from Cell Phone glass to a semi-conductor wafers may carry sub-micron tolerances for flatness, so they may properly fit inside a larger assembly.

For this, several points over a small surface area must be checked, with high accuracy being a key feature. Non contact 3D or Imaging solutions can be used, but with a high cost and possible loss in accuracy.



Flatness check of semi-conductor wafer (left) and glass in a cell phone casing (right) with Ultra Feather Touch probes

6mm and 3mm Diameter Probes mean several points can be checked for flatness in tighter areas

Solartron Displacement transducers have been used to monitor the flatness of a platen that holds a semi-conductor wafer

Solartron Ultra Feather Touch probes have been used to check flatness of a semi conductor wafer

The Solution

Solartron Digital Gauging Probes provide excellent performance for Flatness applications due to the following features :

- **Class leading resolution of down to 0.01 µm -** This means even the slightest variability between points will be measured.
- **Repeatability of up to 0.15 µm -** Measurements will be consistent from part to part.
- **Low Tip Forces -**Solartron offers low tip forces of 0.30N with its Feather Touch probes and 0.03 to 0.05N with its Ultra Feather Touch probes, meaning the surfaces being checked won't be scratched or damaged. In addition, the low forces mean a part won't be "lifted" or shifted during measurement
- **Measure Multiple points easily -** With the Solartron Orbit® network, up to 200 points can be allocated instantaneously and output to a PC. (Up to 150 for a PLC.) Flatness or "Max – Min" can then be calculated using an Excel Pack or other software.
- **Lower Cost -** A Solartron Gauging Probe provides significantly lower cost per point compared to a costly imaging system or 3D scanner, with higher repeatability and easier set up.

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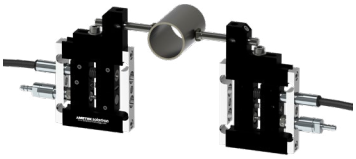
THE ORBIT® NETWORK

ORBIT® – The Total Measurement System from Solartron Metrology

The Solartron Orbit® Digital Measuring System provides a limitless set of measurement solutions, with numerous different interfaces to computers and PLC's.

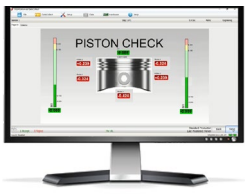


Flexures

Block Gauges

Displacement

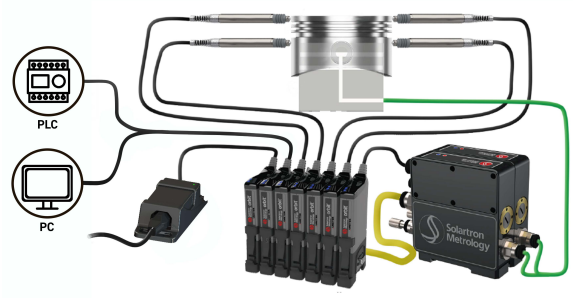
Multi Channel Wireless Gauge



Orbit Gauge Software 4.0

Digital Probes and Lasers checking an EV pouch

Bore Gauging



Measurement of Piston with Air Gauging checking ID, and connected to Orbit with the Air Gauge Module. OD Checked with Digital Probes.

Microflex Sensor

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