

IZI Probe

Overview

The IZI Probe is significantly different than other RF probes. Unlike coaxial probes, the IZI Probe utilizes long, spring-like nickel contacts that act like cantilever needles. These contacts touch down independently on the wafer surface, ensuring excellent test results on both even and uneven surfaces. Minimal overtravel is required to ensure repeatable contact. The unique design guarantees unparalleled contact reliability and makes the probe exceptionally easy to handle and align. The IZI Probe is handled slightly differently than a standard RF probe, and it is important to understand and follow the recommendations described here.

Mounting the Probe on the Positioner

The IZI Probe can be mounted on any industry standard positioner arm. Once mounted, position the arm parallel to the wafer surface.

Contact and Alignment

Use the positioner z-axis to lower the probe tips. View each tip under a high resolution microscope as it touches down independently on the wafer surface (parallel contacts will touch down in unison on a planar surface). Position the probe and probe arm parallel to the wafer surface. Contact has been achieved when the tips skate slightly forward. Additional downward z-movement after first contact is called overtravel. It is important that the probe is positioned at the correct angle to the aligned substrate (see graphics below). The probe arm fixing screws can be used to make slight adjustments to the angle of the probe in relation to the substrate structures.

Overtravel



CAUTION

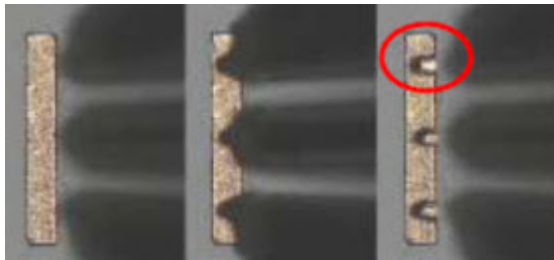
Too much overtravel can damage the wafer and significantly shorten the life span of the probe.

The IZI Probe requires very little overtravel for reliable contact. Recommended overtravel is 5 μm on gold and 30 μm on aluminum pads. For extremely non-planar surfaces (up to 50 μm pad height differences or differing wafer topographies), more overtravel may be required. Some models can withstand an overtravel up to 200 μm . However, using the recommended overtravel will help avoid damage to your DUT. The minimal skate requirements of the IZI Probe enable accurate positioning on very small pads. The independent spring fingers enable consistent contact on uneven surfaces or through vibration interference, even with low overtravel values.

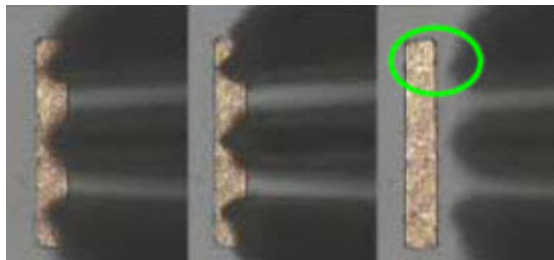
Note that the IZI Probe contacts are typically 10 μm behind the shadow of the probe tip.

It is important that the IZI Probe contacts the wafer directly on the pad surface. Early contact is typically caused by using too much overtravel during alignment, and can result in the scraping away of the pad metal from the side. Too much overtravel can destroy the calibration standards pads.

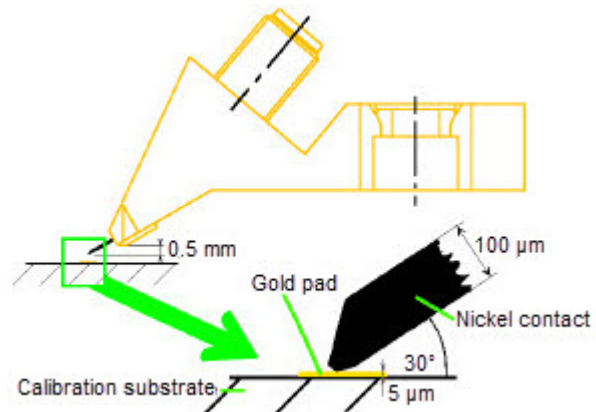
IZI Probe



Worst case: touch down before pad,
overtravel = 100 μm



Best case: touch down on pad, low
overtravel = 5 μm



Perfect case: IZI Probe viewed from the
side on the calibration standard

Handling and Cleaning

Although the IZI Probe is far more robust than other probes, careful handling is required.

- Do not touch the probe tips. Dirty or damaged tips will result in compromised performance.
- Do not use liquid or unglazed ceramic, or an ultrasonic cleaner to clean the probes. A rough ceramic surface will shorten the life of the tip.

To clean the probe tips, Probe Polish™ (P/N K25-39045) is recommended. This is a sticky pad which does not contain liquids, fibers or solvents. Place the Probe Polish pad on the chuck (for example, on the auxiliary substrate area) and touch the probe tips to the pad surface several times using 100 to 200 μm overtravel to safely remove any unwanted substances. The probes can be pulled backwards over the pad like a garden rake, but never move them in a forward direction.

If you have any further questions or comments, please do not hesitate to contact a FormFactor representative.

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Corporate Headquarters

7005 Southfront Road
Livermore, CA 94551
Phone: 925-290-4000
www.formfactor.com

