

Probe Clean™ on a Silicon Wafer

Probe Clean™ is designed to remove loose debris, which is generated during probing. It is not designed to remove embedded or bonded debris. The removal of embedded or bonded debris requires products such as **Probe Scrub™** or **Probe Polish™**.

GENERAL

Regular use of **Probe Clean™** in the prober during wafer level test extends the time between when abrasive cleaning may be required. The amount of debris generated during testing will determine the number of touchdowns between the uses of **Probe Clean™** for your specific application. **International Test Solutions** recommends that you start with 250 testing touchdowns followed by 10 insertions into the **Probe Clean™**. Probe card cleaning frequency and number of cleaning insertions varies according to the specific testing environment. The temperature range for the product is -35° C to 135° C. Other configurations are available for temperature ranges of -50° C to 200° C.

Probe Clean™ is designed for application to the abrasion plate of a wafer prober. The **Probe Clean™** polymer is installed on a polyester substrate with an adhesive backing. The maximum depth of penetration into the cleaning polymer is 5 mils (127 µm). No lateral forces are applied to the probes. The forces exerted on the probe when cleaning with **Probe Clean™** are less than the forces as during normal testing operations.

The **Probe Clean™** polymer layer collects and traps the debris generated during cleaning. Reuse of the cleaning pad will cause the trapped debris to be pushed deeper into the polymer. This allows reuse of the same location several times. To achieve maximum cleaning efficiency offset each touchdown location approximately 2 times the probe diameter in the X and Y directions, giving consideration to the probe array size and orientation.

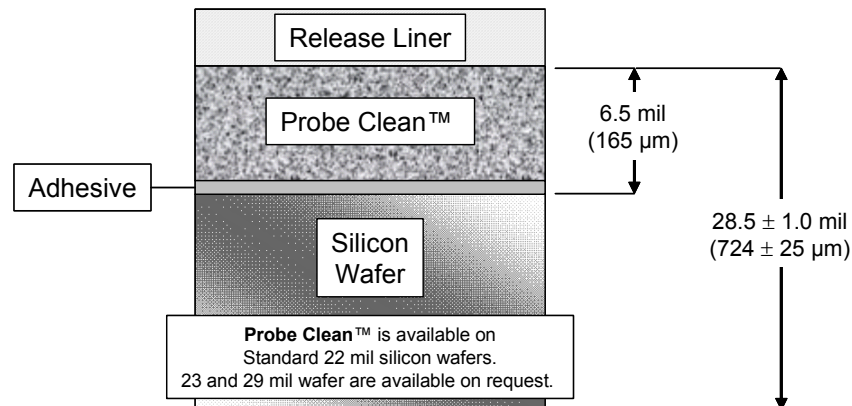
CROSS SECTION

Probe Clean™ cleaning wafers may be purchased with or without a protective cover release liner. If a protective cover is installed, a label with the ITS Logo and measured height of the installed cleaning wafer will be located on the cover. The protective cover must be removed before use of the cleaning wafer.

If the **Probe Clean** cleaning wafer is shipped without a protective cover the measured height of the installed cleaning wafer will be recorded a label applied to the outside front cover of the clamshell.

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Nominal Stack Height = 28.5 ± 1.0 mil (724 ± 25 µm)



Probe Clean™ is a registered trademark of International Test Solutions.

International Test Solutions

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RECOMMENDED USAGE ON A PROBER

1. Remove cleaning wafer from wafer case.
2. If the cleaning wafer has a protective cover, remove the protective cover by touching the edge of the protective cover with a piece of tape and gently peel the cover back across the cleaning wafer.

CAUTION: IF THERE IS NO LABEL ON THE WAFER THEN THERE IS NO PROTECTIVE COVER THAT NEEDS TO BE REMOVED.

USE EXTRA CARE NOT TO TOUCH THE WORKING SURFACE WITH THE SCOTCH TAPE AS IT MAY REMOVE THE PROBE CLEAN™ FROM THE WAFER SURFACE.

3. Install cleaning wafer in prober cleaning tray.
4. Modify the cleaning utility program to overdrive into the non-abrasive polymer 100 to 125 µm (~4 to 5 mil).
 - a. The total height of each cleaning wafer is measured in four quadrants of the wafer and the average is recorded for each wafer.
 - b. Set the contact height equal to measured total height recorded for the wafer.
 - c. Set the overdrive equal to 100 to 125 µm (~4 to 5 mil), depending on probe style.
5. Modify the prober program to move over the entire surface area, ensuring that the probe array remains within the **Probe Polish™** surface area.
 - a. **International Test Solutions** recommends starting with 10 cleaning touchdowns at a new location for each cleaning. Probe card cleaning frequency and number of cleaning insertions varies according to the specific testing environment. Offset the touchdown point by 2X the probe diameter in the "+Y" direction and 2X the probe diameter in the "+X" direction each touchdown. For example, 25 µm (1 mil) probe diameter is offset 50 µm (2 mil) in the "X" direction and 50 (2 mil) µm in the "Y" direction.
 - b. By continuing the offset each time the prober cleans the probe card, a pattern can be developed to fully utilize the entire cleaning surface.
 - c. The cleaning pattern may be repeated several times over the area that has been previously used. The polymer material does not breakdown easily if it is reused in a given area but consideration needs to be given to the amount and type of debris deposited on the abrasive polymer.

Contact **International Test Solutions** at 775-284-9220, or via email at techsupport@inttest.net, to discuss your specific probe card cleaning application and requirements.

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