FUJIFILM

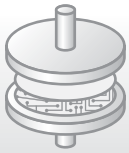
PRESCALE

Pressure Measurement Film

PRESCALE

Application Examples [No.17]

Measured Object



Wafer bonding equipment
Thermocompression bonds

Uses

To ensure high-quality thermocompression bonding by the application of uniform pressure

Benefits

- Malfunction analysis
- Fewer defects
- Lower costs

Industry

Manufacturing (e.g., bonding equipment/MEMS/silicon wafers/compound semiconductors/CMOS image sensors)

Applications

Checking pressure uniformity during heat fixing

Challenges

"Wafer bonding" is a process for creating devices by bonding together two (or more) wafers or substrates. In recent years the main method for doing this has been thermobonding. In this method, the precision of contact bonding is highly dependent on the applied pressure. Even with MEMS, if the pressure applied to bond the wafers or substrates is not constant, problems such as "defective sealing," "uneven bonding strength," and "pattern width unevenness" may occur.

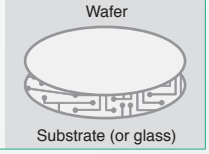
Measure-ment

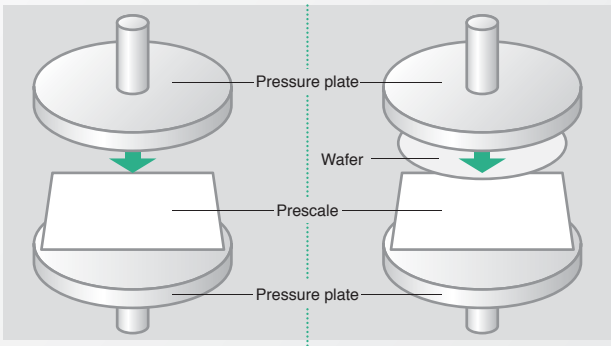
Product used: Prescale (Extreme Low Pressure 4LW, Ultra Super Low Pressure LLLW)

* Image provided by: SÜSS MicroTec AG

<Examples of combining objects>

Wafer + wafer, wafer + glass, wafer + substrate, etc.





Application 1 Without an object

Insert the Prescale between the pressure plates of the bonding equipment, apply pressure and then check the evenness of the pressure. In this way it is possible to check the evenness of the bonding device.

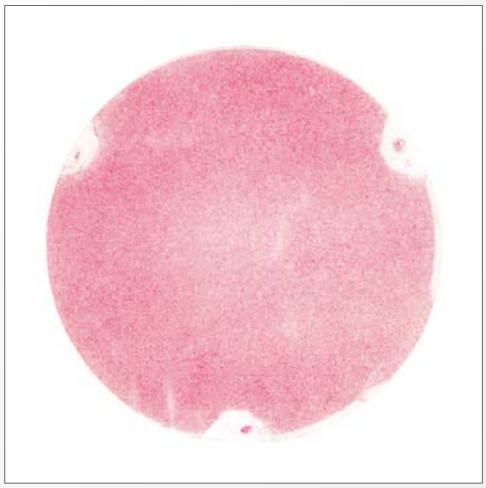
Application 2 With an object

Place the Prescale between the bond side of the objects, or between the object and pressure plate, apply pressure and then check the evenness of the pressure. In this way it is possible to check the evenness of the object.

Results (images)

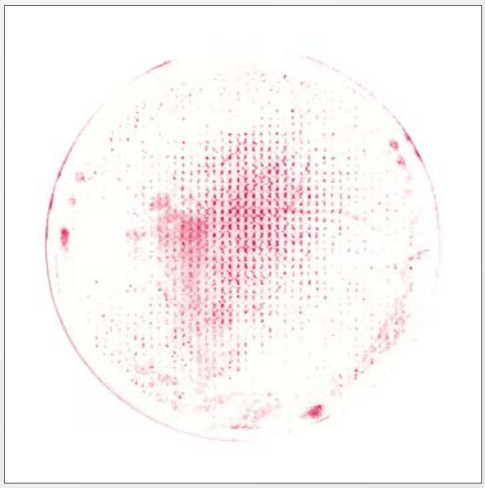
Application 1 **[Measurement result A]**

Coloring is uniform over the bonding surface, confirming that the pressure was even.



Application 2 **[Measurement result B]**

Coloring is not uniform when the work is inserted, confirming that the pressure on the work is uneven.



Benefits of Prescale

Prescale can prevent the occurrence of defects in wafer bonds produced by the thermobonding processes. At the same time, in the event that a problem occurs, Prescale can help to identify the cause of the problem because it enables corroborative measurement information to be obtained simply and rapidly.

- Higher efficiency in designing thermobonding units
- Verification of thermobonding uniformity
- Faster, easier analysis if defects occur

Without using Prescale

When a bonding defect occurs, **time is lost and extra labor is needed investigating and correcting the problem**.

With Prescale

The state of the bonding surface can be checked quickly and easily, **saving time and labor in investigating and correcting problems**.

*Note that the specifications and performance data described in this catalog are subject to change without notice for the purpose of improvement. Since images are used for illustration purposes, they may differ slightly from the actual product.

TACTILE PRESSURE EXPERTS
SPI
SENSOR PRODUCTS INC.

Sensor Products Inc.
300 Madison Avenue
Madison, NJ 07940 USA
Phone: 1.973.884.1755
Fax: 1.973.884.1699
www.sensorprod.com

www.Sensorprod.com