



DXB Wafer Bonder Application Note

Void Free Bonding

- Void Free Bonding
- Reduced TTV
- Dual chamber pressure controls

Background:

Temporary wafer bonding is used to secure a wafer to a substrate for downstream wafer processing and dicing operations. During wafer bonding, one of the most difficult challenges to overcome is elimination of air voids between the substrate and the wafer. These voids cause an increase in the total thickness variation (TTV) and interfere with wafer processing.



The Solution:

The Dynatex International solution to this problem utilizes a simple process that requires only three components:

- Dynatex International WaferGrip temporary adhesive
- Dynatex International DXB Wafer Bonder
- Dynatex International Auxiliary Control Box

WaferGrip Temporary Adhesive:

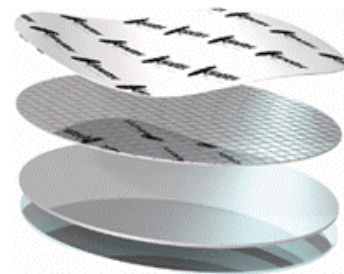
WaferGrip is an EVA (ethylene vinyl acetate) based polymer that has a high-shear strength which allows for faster dicing speeds on smaller die. WaferGrip comes pre-measured and pre-cut to allow simple application of the adhesive. WaferGrip adhesives come in thin film sheets in various thicknesses and sizes, as either an adhesive on mylar backing or as an adhesive film on release paper.



DXB Wafer Bonder:

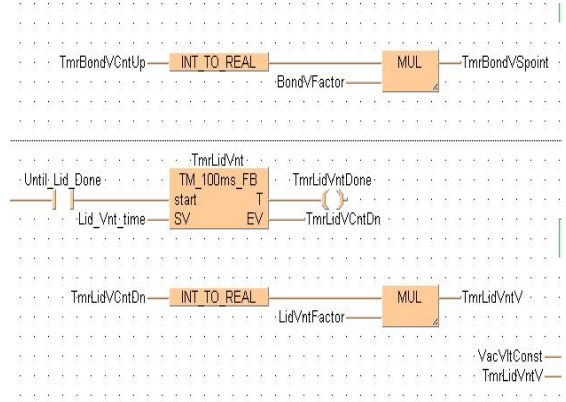
The bonder achieves void-free bonding by controlling three key parameters during the bonding cycle:

- **Bonder chamber pressure:** The DXB bonder creates and regulates vacuum pressure inside the chamber to eliminate air voids.
- **Applied Force:** The DXB bonder lid selectively and gradually applies force to ensure an even bond.
- **Regulated temperature:** The DXB bonder regulates bonding temperature to insure consistent bonding and maintain robust process window.



Automatic operation with the DXB-888 control box

The DXB Bonder can be easily automated with the addition of the Auxiliary Control Box. The user simply follows the prompts on the integrated touch screen or on their laptop computer (depending upon your customizable configuration) to input desired pressure intervals, temperature ramp times and re-pressurization times. Once this data is input into the system, the user simply presses the start button and the control box processes your sample from start to finish.



DXB Wafer Bonder Specifications

- Bonding Chamber Size
 - DXB-525-01 5.2 inches (132 mm)
 - DXB-525-02 5.2 inches (132 mm)
 - DXB-120-01 11 inches (279 mm)
 - DXB-120-03 11 inches (279 mm)
- Temperature Range: 100-320° F (40-160° C)
- Power Required
 - DXB-525-02 220/240 VAC 2.5 amp, 50/60Hz
 - DXB-525-01 100/120 VAC 5 amp, 50/60Hz
 - DXB-120-02 220/240 VAC 5 amp, 50/60Hz
 - DXB-120-01 100/120 VAC 10 amp, 50/60Hz
- Vacuum Required: 26 in Hg
- Environmental: 60-80° F (15-27° C), 0-95 % Humidity (non-condensing)
- Dimensions

DXB-525-XX	Height	7 in (180 mm)
	Width	9 in (225 mm)
	Depth	11.5 in (290 mm)
	Chuck	5.25 in (135 mm)
DXB-120-XX	Height	8 in (200 mm)
	Width	15 in (375 mm)
	Depth	17.5 in (440 mm)
	Chuck	11.25 in (285 mm)
DXB-888-XX	Dimensions	Application Specific



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