Cee® 1300CSX

Thermal Slide Debonder

Cee® 1300CSX thermal slide debonder enables high-temperature slide-off debonding of thinned compound semiconductor materials (GaAs, GaN, InP, and SiC) in a laboratory setting. This tool permits engineers to complete the final step of thinned full wafer processing in a developmental setting. Internal small-scale prototyping capability may be used to accelerate product development cycles and improve time to market for new compound semiconductor applications (high-power RF, LED, and solar).

Serving the Semiconductor Industry Since 1987

Cost Effective Equipment is a predominant supplier of thin-wafer handling technology and is uniquely positioned to provide full process integration, with both equipment and the process knowledge to help implement it. The thermal slide debonder platform has successfully demonstrated industry-leading precision and performance during developental stages.

Reliability and Throughput

Temporary Wafer Bonding Tool Platform Reliability	
Total Throughput	Est. 8-14 WPH for ≤150-mm diameter* Est. 4-8 WPH for 200-300-mm diameter
Qualified Wafer Materials	SiC, GaN, GaAs, InP, sapphire, silicon, glass
System Uptime	>99% over a 12-month period
Mean Time to Repair (MTTR)	< 24 hours**
Mean Time Between Failures (MTBF; hours, cycles)	>600 hours, 6,000 cycles

*Throughput performance is dependent on substrate size
**If critical spare parts are kept at customer site per Brewer Science field service standard working schedule

Benefits

- Design permits in-house debonding of fully processed, proprietary ultrathin device wafers
- Enhanced data logging feature provides detailed process feedback and record keeping
- PC control allows virtually unlimited log storage
- Compact footprint permits installation flexibility

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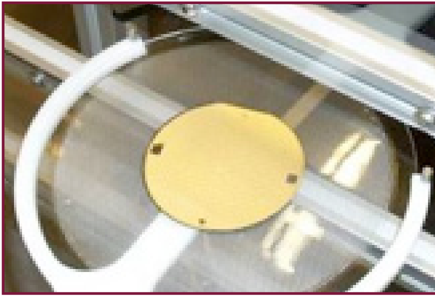
Tool Features

- Network connection hardware/software: RJ-45 Ethernet & USB port
- Bond line axis precision ±1.5 nm
- Specialized insertion and extraction end effectors with vacuum function (foot pedal control)
- Visual and audible light tree alarm
- Enhanced light curtain operation for seamless operation
- Continuous abort override operation for "super user"
- Hinged rear and side access panels

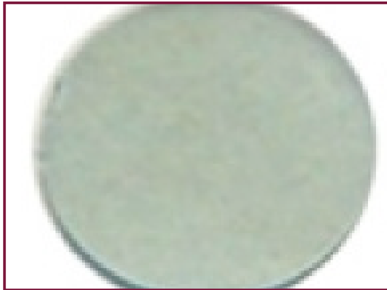
Other Specifications

Platen Maximum Temperature: 300°C
Substrate Sizes (round): 2 in, 3 in, 100 mm, 125 mm, 150 mm, 200 mm
Constant Force Mode: 0 to 100 lb (with maximum velocity limit of 100 mm/s)
Logging: Critical force, distance, velocity, upper/lower platen vacuum, upper/lower platen temperature, z-position, and entire process duration time
Excess Force Sensing: Failsafe error recovery

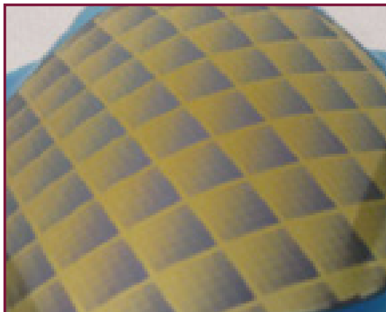
Successfully qualified with the following device wafer types:



GaAs: diameter: 3 in, 100 mm, 150 mm; thickness: 50-170 µm



SiC*: diameter: 100-150 mm; and InP: diameter: 100 mm; thickness: 50-170 µm



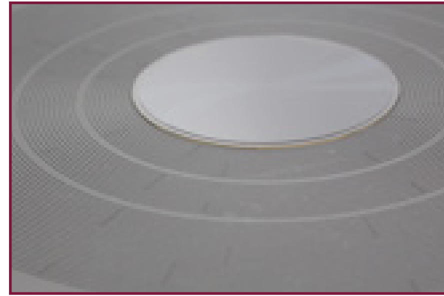
Si: diameter: 3 in to 200 mm; thickness: 50-725 µm

*SiC image courtesy of Silicon Quest International, Inc.

Utility Requirements & Dimensions

Exhaust: 20-30 cfm at 1" W.G. (4" OD exhaust duct)
Electrical: Voltage range 208-240 V, single phase, 50/60 Hz, 3500 W
Power Requirements: 18 amps
Vacuum: -25" to -27" Hg (optimal vacuum: -27" Hg, 4.5 m³/h)
Nitrogen or CDA: 100 psi, 1 cfm
Optional Enclosure Purge: 3/8" push-to-connect (PTC tube) (20 psi)
Dimensions: 49" W x 39.5" D x 52.5" H (125 cm W x 100 cm D x 133 cm H)
Machine Weight: 415 lb (187 kg)
Shipping Weight: 1,280 lb

Compatible bonded-pair carrier materials and sizes:



Sapphire carriers: diameter: 3 in to150 mm; thickness:1-1.5 mm

Si carriers: diameter: 2 in to 200 mm; thickness: 280-725 µm

Glass carriers: diameter: 2 in to 200 mm; thickness: 280-725 µm

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