

DIE BONDING

What We Offer

Design &
Simulation



Prototyping &
Fabrication



Testing &
Characterization



Die bonding is a critical semiconductor assembly process used to mount a die (chip) onto a substrate, package, or wafer with high spatial precision. Utilizing advanced optical alignment and controlled thermal or force application, it enables reliable electrical, thermal, and mechanical connections for complex microelectronic, optoelectronic, and flip-chip architectures.

Key applications

**Optoelectronic component
packaging and precision
chip-on-wafer / chip-on-
substrate bonding**

**Laser bar placement
and alignment**

**Sub-micron
prototyping and
advanced R&D micro-
assembly**

Finetech Fineplacer PICO

- Manual alignment
- Placement accuracy 5 µm
- Manual placement arm with vacuum
- Available pick-up tools:
 - Pick-up tool for chip 0.4 × 3 mm
 - Pick-up tool for chip 0.4 × 2 mm
 - Placement head for laser bars for chip 0.4 × 5 × 0.2 mm
- Placement arm force range 0.1 – 20 N
- Plate with vacuum chuck and heating
- Heating plate temperature up to 420 °C
- Temperature ramp up to 20 K/s
- Nitrogen gas cooling
- Target + chip max thickness 15 mm
- Target size up to 40 × 40 mm

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Finetech Fineplacer Sigma

- Accuracy – placement 0.5 μm , alignment 0.1 μm
- Optics – Field of view minimum 3.8 × 2.7 mm, optical resolution 1 $\mu\text{m}/\text{px}$
- Working stage:
 - X-travel 350 mm
 - Y-travel 150 mm
 - Z-travel 10 mm
- Bonding force: 0.2 – 40 N
- Heating: chip heating 40 – 450 °C, substrate heating 40 – 500 °C
- UV station – irradiance 300 – 2500 mW/cm², angle of irradiation 45° – 130°, angle of illumination 0° – 60°

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Features:

- Scalable bonding force control covering macro and delicate micro-placements from 0.1 N up to 40 N for larger placements
- Quick substrate heating up to 500 °C with nitrogen cooling
- Integrated UV light station
- The system uses a computer-controlled interface alongside a high-resolution microscope and camera to easily manage sample alignment

Capabilities:

- Ultra-Precise Material Placement, achieves spatial placement accuracy down to sub-micron tolerances (0.5 μm)
- Possibility to bond using thermocompression bonding or adhesive bonding
- The system handles a wide range of substrates with heating element size up to 40 × 40 mm and can easily accommodate combined target and chip thicknesses of up to 15 mm
- Vacuum pick-up tools for chips and laser bars of different sizes
- TO56 adapter for heating plate

If you have any questions, please contact us by email:
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