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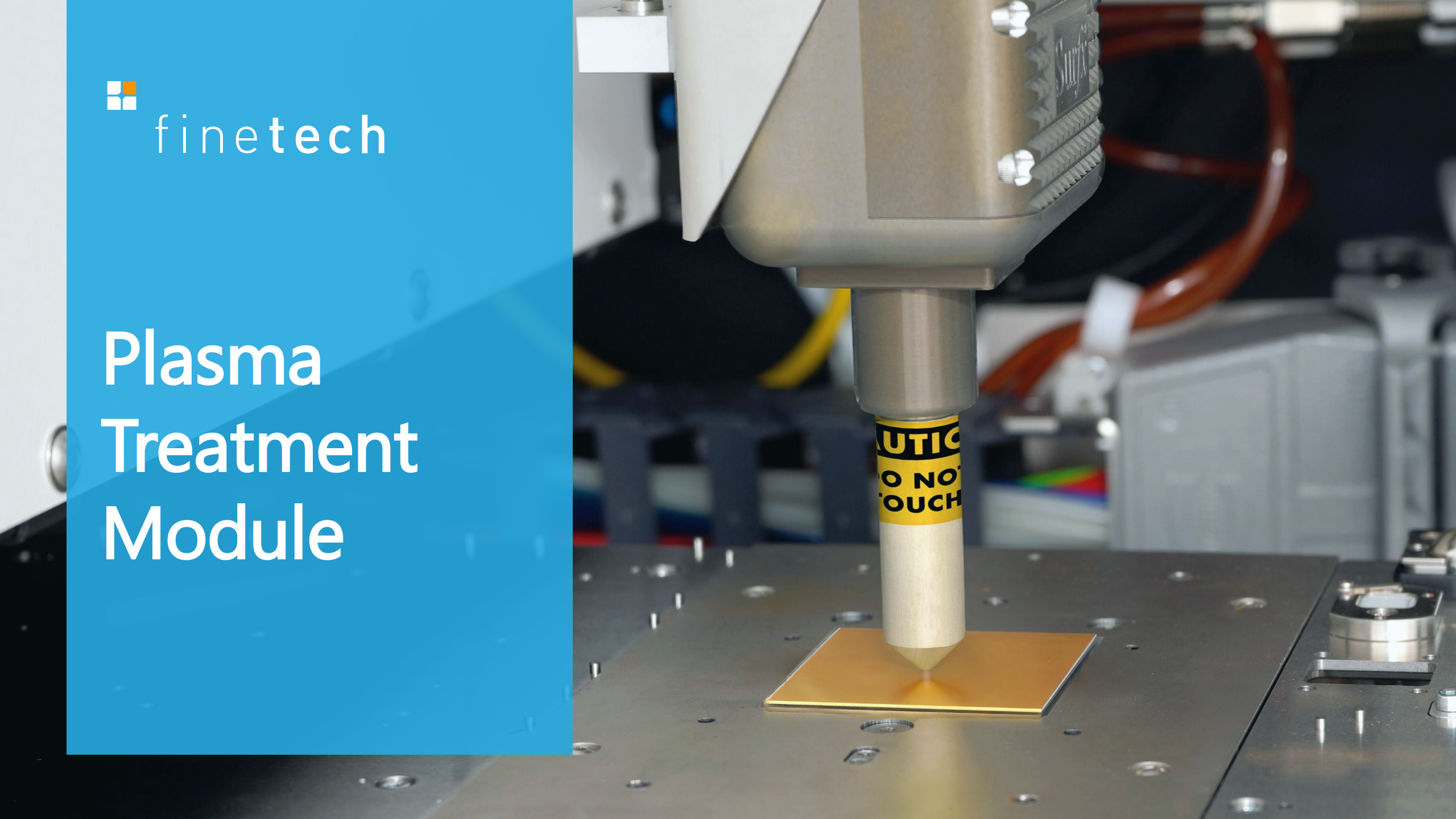
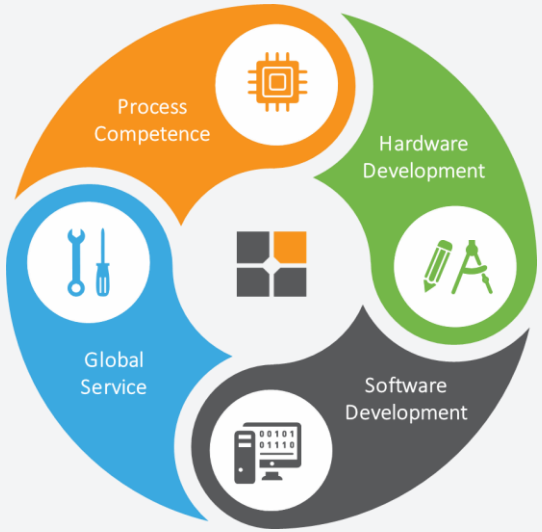
Plasma Treatment Module



Leading Manufacturer for
Sub-micron Die Bonding Equipment

30 years
simply accurate

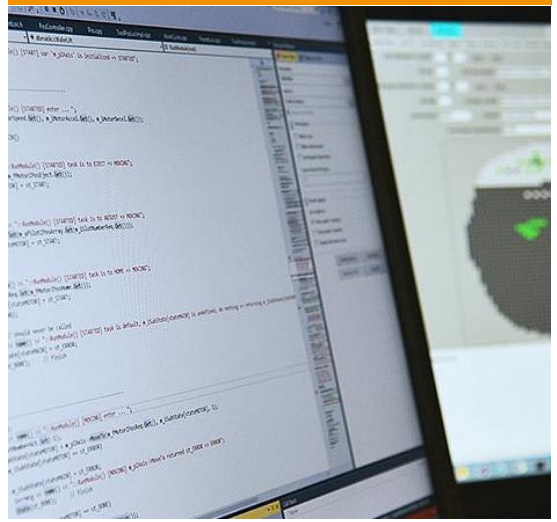


Dedicated since 30 years+

High Level of Vertical Integration

Worldwide support

High-accuracy flip chip die bonders for every stage of your die packaging journey

Manual systems	Semi-automated systems	Fully automated systems	Software
			

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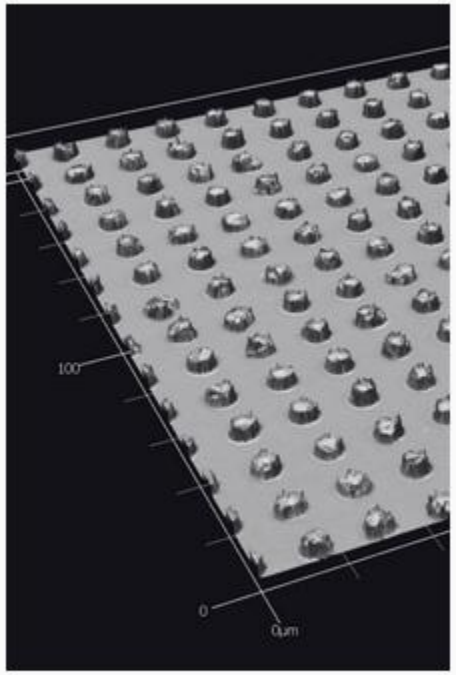
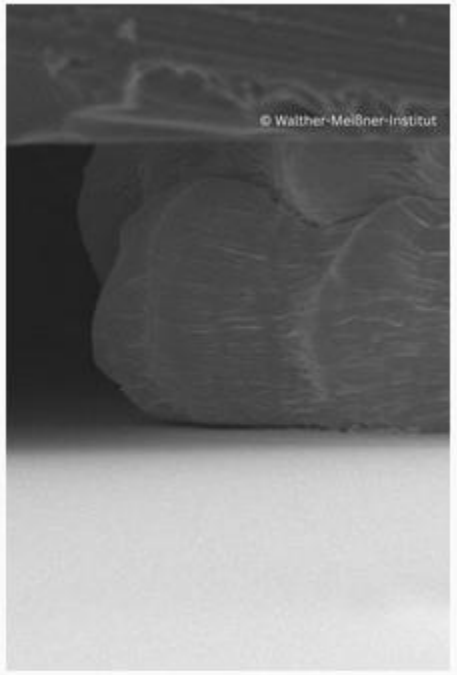
Unlimited Bonding Technologies

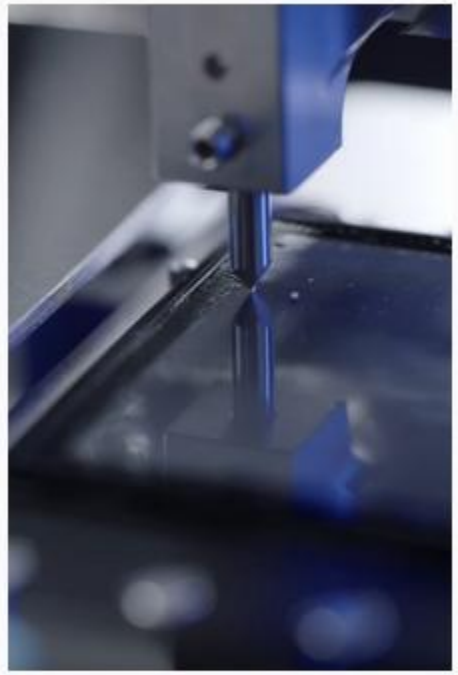


Indium Bump Interconnect

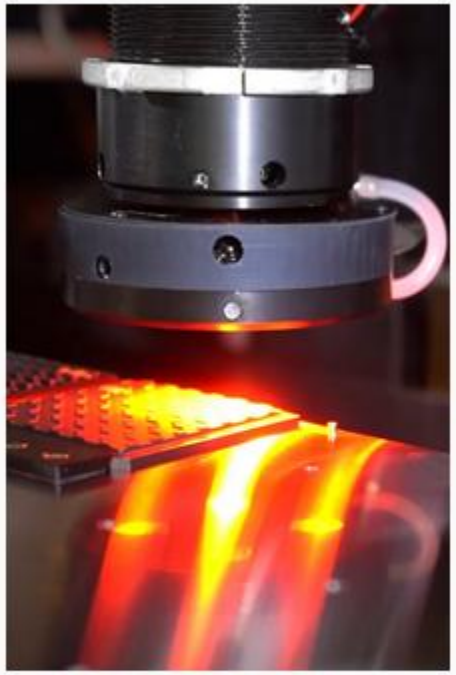


Thermo-Compression Bonding

Adhesive Bonding / UV Curing



Ultrasonic Bonding



Laser-Assisted Bonding / Eutectic Bonding

Market Trend: Plasma Treatment

1. New challenges and approaches in advanced packaging **require extremely clean surfaces** (e.g. direct and hybrid bonding).

2. Plasma treatment has become an **essential preparation step** of die packaging with a huge impact on **bond quality and process repeatability**.

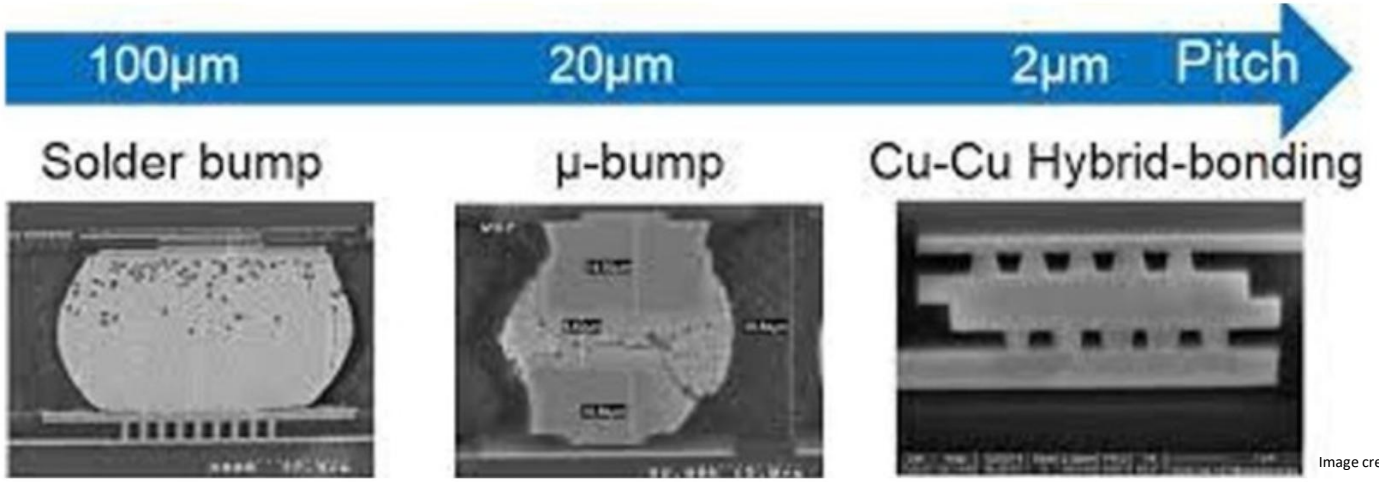
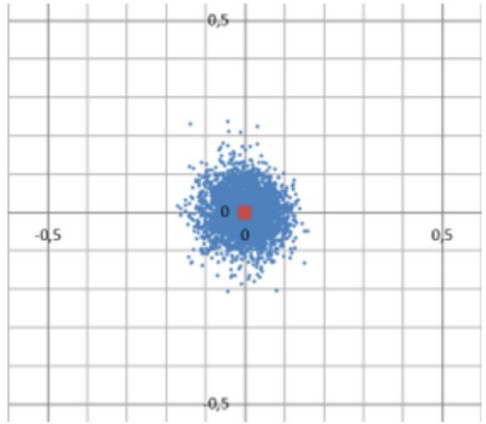
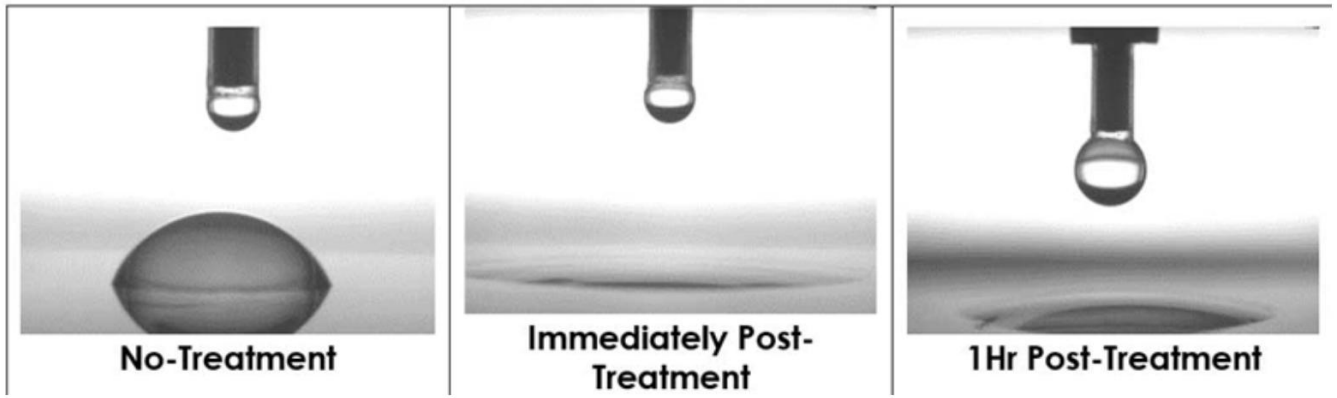


Image credit 1)





Benefits of Plasma Treatment

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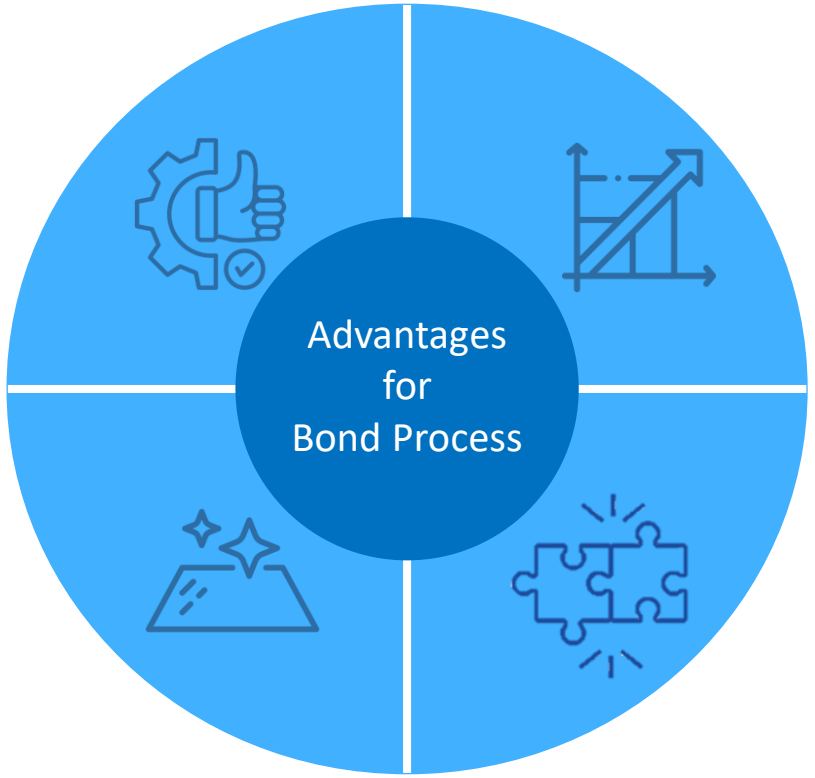
- **Improved Reliability:**
  Ensures uniform, defect-free bonds for better performance. Reduce delamination & boost bonding strength

- **Surface Cleaning:**
  Removes contaminants and residues for optimal bond quality



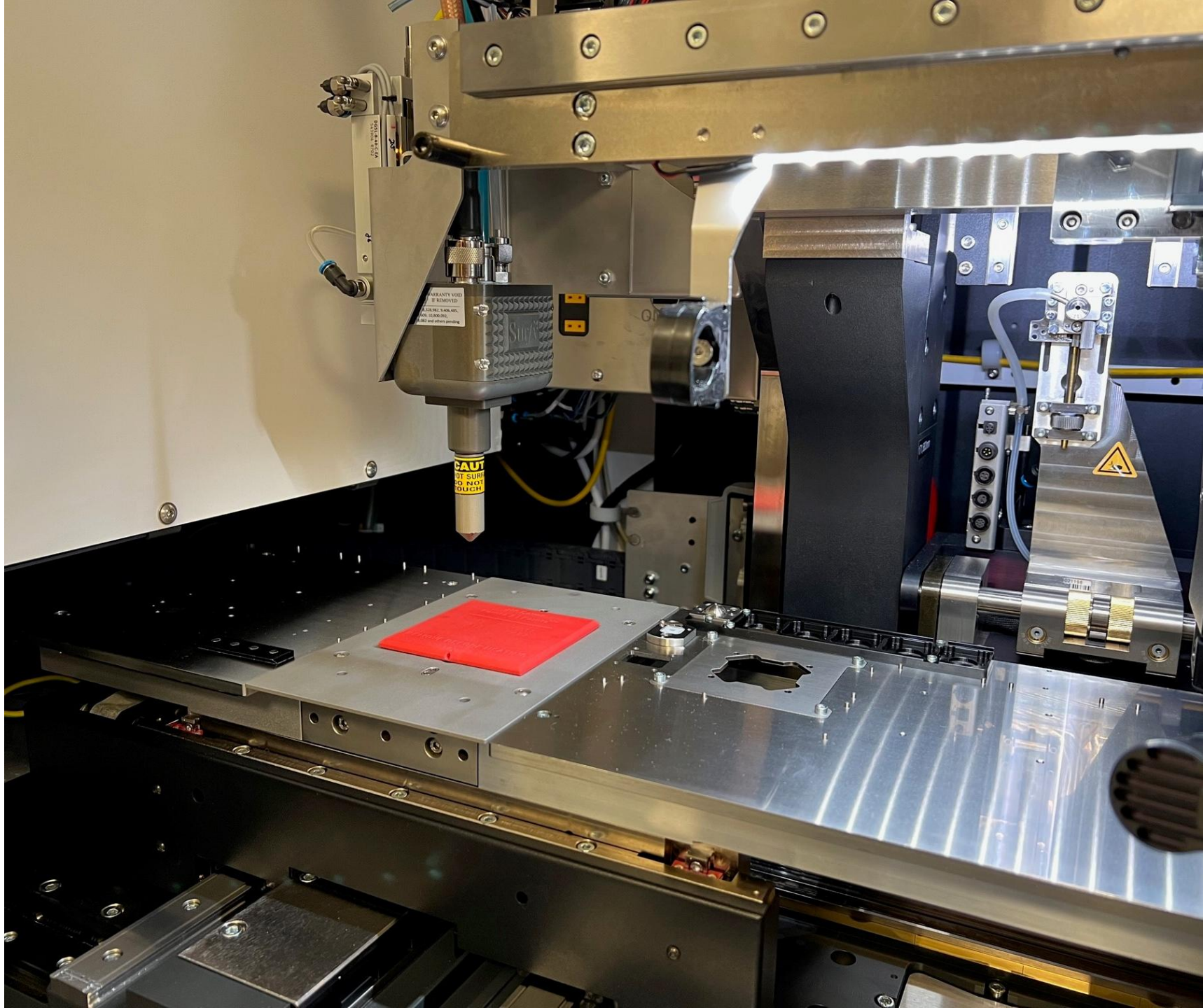
- **Scalability & Control:**
  Ensures precision in high-volume semiconductor production

- **Material Compatibility:**
  Allows bonding challenging surfaces by modifying properties

Plasma treatment optimizes die bonding performance, ensuring reliability and efficiency in semiconductor production.

Your Benefits: Technology

- **Gentle Plasma Technology:** Argon-based plasma is electrically neutral and safe for sensitive devices.
- **Material Versatility:** Supports ArO_2 and ArH_2 plasmas for various material treatments.
- **Temperature-Controlled:** Low-temperature (<70°C) treatment protects delicate materials.
- **Semiconductor Compatibility:** Uniform plasma and low particle level ensure precision processing.



Your Benefits: Process

- **Increased Productivity:** In-situ plasma treatment minimizes handling and cycle time for higher efficiency and immediately before bonding.

- **Advanced Process Integration:** Automated cleaning and real-time monitoring improve control and traceability.

Use Cases / Applications

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Image credit 2)

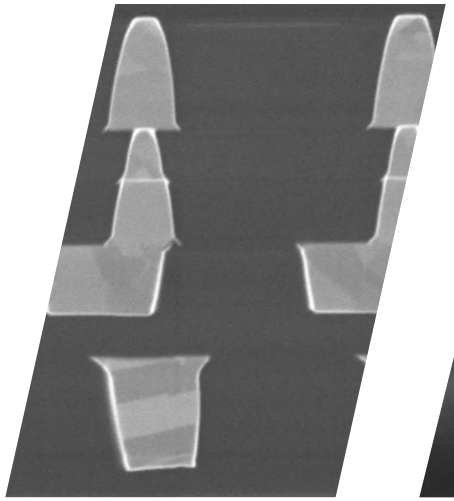
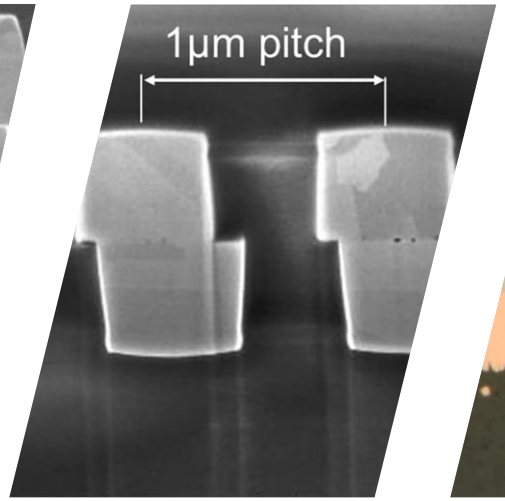


Image credit 3)



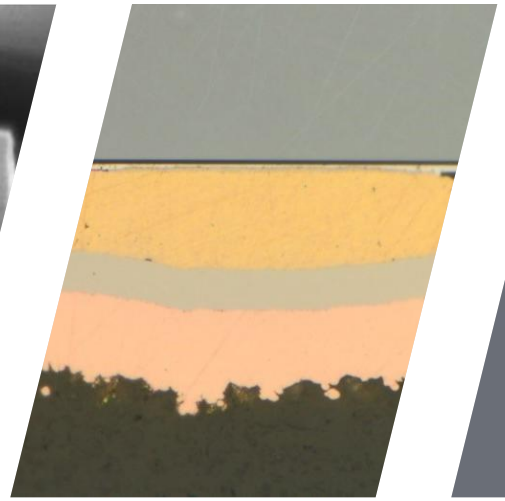
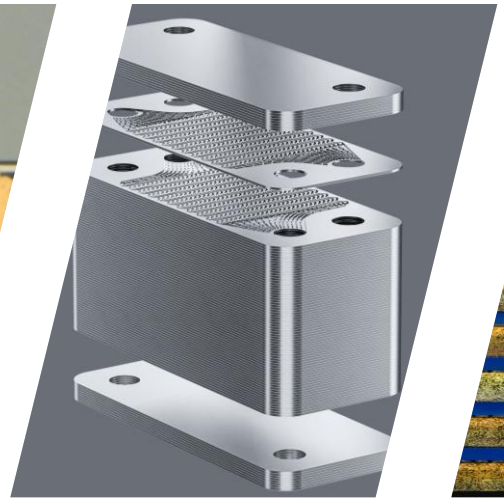
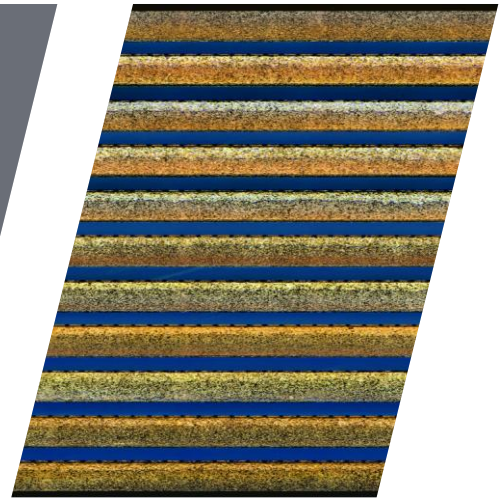


Image credit 4)





Hybrid Bonding: Enhances adhesion and alignment between micro-layers.

Direct Bonding: Provides uniform surface activation for adhesive-free bonding.

Thermocompression Bonding: Removes oxides, improving bond strength and electrical performance.

Metal-to-Metal Diffusion Bonding: Facilitates strong, clean diffusion bonds for reliable electronics.

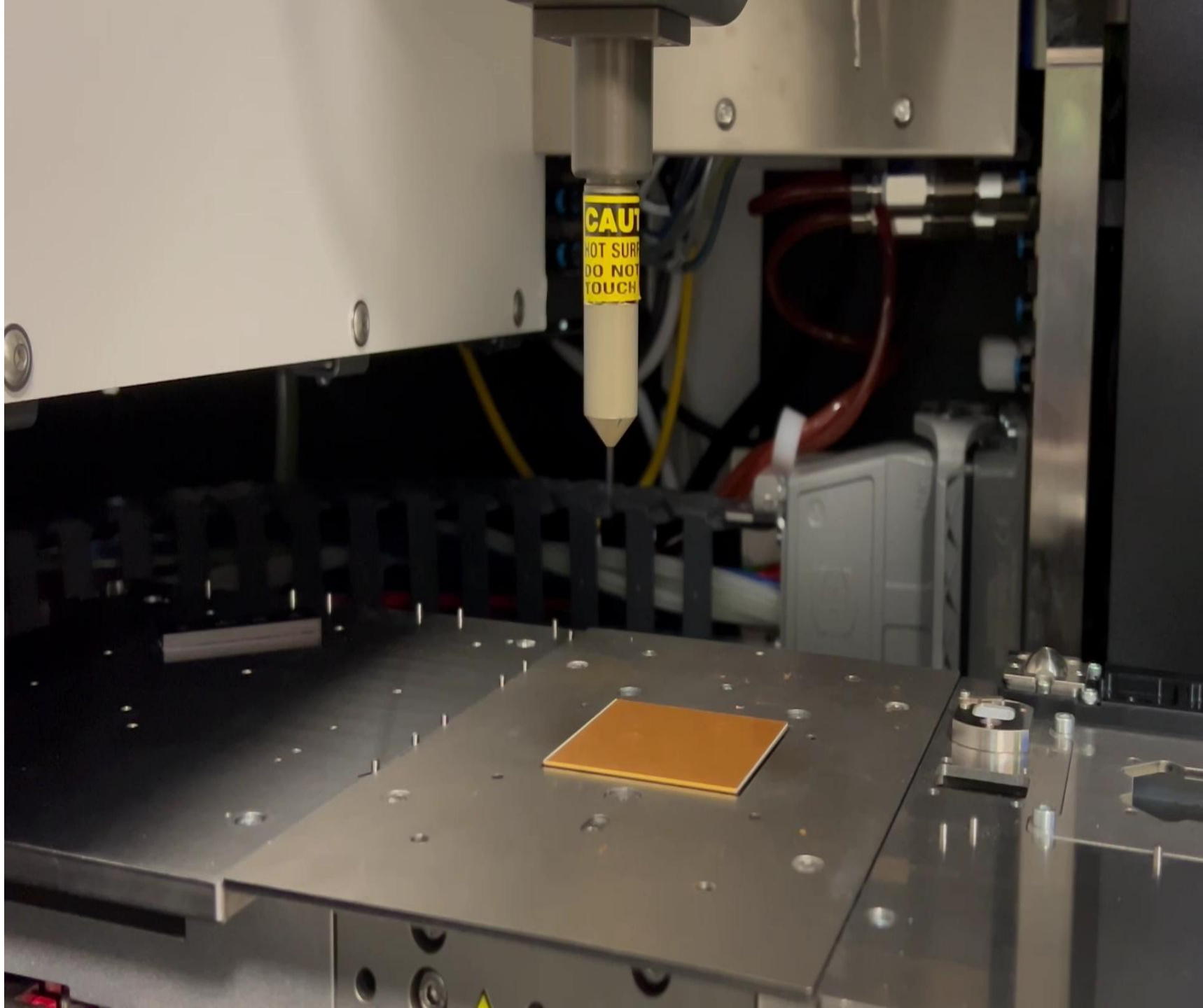
Soldering: Prepares surfaces for cleaner, stronger solder joints.

Versatile gas options - Argon, Argon-Oxygen, and Argon-Hydrogen - make the Plasma Treatment Module perfect for delivering pristine surfaces and superior bonding in semiconductor manufacturing.

Summary

Elevate Your Die Bonding Processes

- **Plasma Cleaning:** Essential for quality and repeatability in advanced packaging.
- **Finetech Solutions:** Integrated plasma treatment and die bonding for cutting-edge packaging.
- **Seamless Integration:** Compatible with FINEPLACER® femto and FineXT® for R&D and production.
- **Efficient & Versatile:** Safe, flexible support for diverse bonding applications.



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Thank you!

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