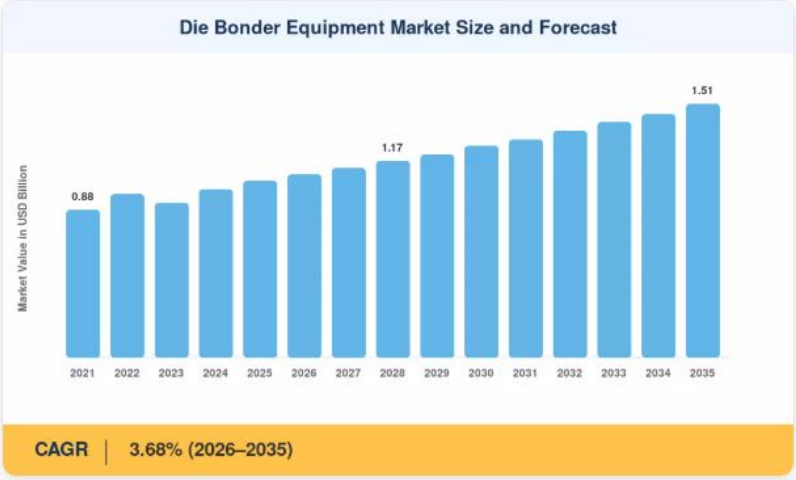
Die Bonder Equipment Market Demand Fuels Growth from USD 1.09 Billion to USD 1.51 Billion by 2035

Die Bonder Equipment Market Size, Share and Research Report By Equipment Type (Automated Die Bonders, Semi-Automated Die Bonders, Manual Die Bonders)



Die Bonder Equipment Market

BERLIN, BERLIN, GERMANY, September 2, 2026 /EINPresswire.com/ -- The Global die bonder equipment market reached an estimated USD 1.05 billion in 2025 and is projected to grow from USD 1.09 billion in 2026 to USD 1.51 billion by 2035, registering a CAGR of 8.21% during the forecast period. Two major catalysts are accelerating this trajectory: the explosive global demand for advanced semiconductor packaging driven by AI accelerator chips, high-bandwidth memory (HBM), and 5G RF components, and the aggressive capacity expansions underway at leading OSAT (outsourced semiconductor assembly and test) facilities across Asia-Pacific and North America. With more than USD 600 billion in cumulative global semiconductor fab and packaging investments anticipated through 2030, chipmakers and packaging houses face mounting pressure to deploy precise, high-throughput die bonding solutions or risk falling behind peers in yield, cycle time, and advanced node compatibility.

> Die Bonder Equipment Market - Propelled by advancing semiconductor packaging technologies, high-density chip assembly, and the surge in demand for microelectronics and power devices."
>
> *Market Research Future (MRFR)*

Legacy epoxy die attach platforms many built for wire-bonded leaded packages and incapable of meeting sub-micron placement tolerances are rapidly giving way to advanced die bonders integrating hybrid bonding, thermo-compression bonding (TCB), flip-chip capabilities, and machine-vision-guided precision alignment systems. A recent SEMI industry report estimated that top-quartile OSATs deploying next-generation die

bonders with in-line force and temperature control achieved 15–19% improvements in first-pass bond yield compared with peers still operating legacy attach equipment. This technology transition is not incremental it represents a fundamental re-platforming of backend semiconductor manufacturing for the heterogeneous integration era.

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 How Significant Is the Die Bonder Equipment Market's Growth?

The die bonder equipment market has demonstrated consistent and robust expansion, rising from approximately USD 2.31 billion in 2021 to an estimated USD 1.05 billion in 2025, representing a healthy historical growth trajectory. The market is expected to more than double over the next decade, driven by the proliferation of advanced semiconductor packages including system-in-package (SiP), 2.5D/3D IC, chiplet architectures, and FOWLP (fan-out wafer-level packaging) all of which demand higher-precision, higher-throughput die attach and bonding solutions.

Surging demand for AI processors, automotive-grade power semiconductors, advanced RF modules, and photonic integrated circuits has created acute need for die bonding equipment capable of handling smaller die sizes, tighter placement tolerances, and exotic substrate materials. Integrated device manufacturers (IDMs), fabless chip companies leveraging OSAT partnerships, and captive packaging operations at major foundries are all investing aggressively in die bonder upgrades and capacity expansions to support next-generation product roadmaps.

 What Does the Future Hold for the Die Bonder Equipment Market?

Hybrid bonding and thermo-compression bonding (TCB) stand at the forefront of the market's next growth phase. These advanced interconnect modalities are enabling chip-to-wafer and wafer-to-wafer stacking at pitches below 10 microns critical for HBM stacks, logic-on-logic 3D ICs, and next-generation image sensor architectures. Equipment vendors are investing heavily in temperature uniformity, bond force control precision, and ultra-low particle environments to meet the stringent process windows demanded by these packaging nodes.

The growing role of AI-driven process control is another defining force shaping the market's future. Modern die bonders increasingly incorporate machine learning algorithms for real-time bond quality prediction, automated recipe optimization, and predictive maintenance scheduling. By correlating in-situ process sensor data with downstream reliability test outcomes, these systems are enabling yield improvements that were previously achievable only through expensive offline statistical process control methodologies.

Automotive-grade die bonding requirements are also reshaping equipment specifications. AEC-

Q100/Q101 qualification demands, wide-bandgap semiconductor substrates (SiC, GaN), and sinter silver die attach processes for high-temperature power modules are pushing equipment OEMs to develop dedicated automotive-optimized bonding platforms with enhanced thermal stability, contamination control, and process repeatability well beyond what commercial-grade bonders can deliver.

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 Who Are the Key Players in the Die Bonder Equipment Market?

The die bonder equipment landscape is characterized by a mix of established semiconductor equipment conglomerates, specialized backend process tool vendors, and emerging precision automation companies. Key participants shaping the competitive dynamics include:

- ASM Pacific Technology (ASMPT)
- Kulicke & Soffa Industries
- Besi (BE Semiconductor Industries)
- Shinkawa Ltd.
- Palomar Technologies
- Toray Engineering
- Panasonic Connect (former Factory Solutions)
- SET (Smart Equipment Technology)
- Fasford Technology
- DISCO Corporation

Competition in the market is intensifying as equipment vendors race to commercialize sub-micron placement accuracy, scale TCB throughput to production-viable levels, and develop dedicated hybrid bonding platforms capable of meeting the volume ramp demands of leading logic and memory chipmakers. Strategic partnerships with advanced packaging research consortia, materials suppliers, and foundry customers are also reshaping the competitive landscape.

 What Are the Emerging Trends in the Die Bonder Equipment Market?

Several transformational trends are redefining how the die bonder equipment market evolves through 2035:

Hybrid Bonding Commercialization: Copper-to-copper hybrid bonding enabling direct die-to-die interconnects without traditional solder bumps is transitioning from R&D to volume production, with equipment vendors racing to achieve the throughput and yield levels required for mass-market HBM and 3D logic stacking applications.

Chiplet and Heterogeneous Integration: The industry-wide shift toward chiplet-based processor architectures (AMD, Intel, NVIDIA, Apple) is generating sustained demand for high-precision multi-die co-packaging equipment capable of placing disparate chiplets onto common substrates with sub-micron accuracy.

AI-Driven Process Control: Embedded machine learning models analyzing real-time bond force, temperature profiles, and vision system data are enabling autonomous recipe optimization and predictive yield management reducing engineer intervention and improving process stability across high-mix production environments.

Sinter Silver and Transient Liquid Phase Bonding: For automotive and power electronics applications, sintered silver and TLP bonding processes are displacing traditional solder die attach, requiring new equipment platforms with precise pressure, temperature, and atmosphere control capabilities.

Wafer-Level and Panel-Level Packaging Integration: Fan-out panel-level packaging (FOPLP) and wafer-level chipscale packaging (WLCSP) programs are driving demand for die bonding equipment capable of operating at panel and wafer scale with uniform process control across large-area substrates.

Equipment Connectivity and Smart Factory Integration: Die bonders increasingly ship with SECS/GEM and SEMI E87/E90 interfaces for full MES integration, enabling real-time OEE tracking, automated lot traceability, and seamless connectivity within Industry 4.0 smart semiconductor fab environments.

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 How Is the Die Bonder Equipment Market Segmented?

The die bonder equipment market report provides a comprehensive segmentation framework:

1. By Bonding Technology: Epoxy Die Attach, Eutectic Die Bonding, Flip-Chip Bonding, Thermo-Compression Bonding (TCB), Hybrid Bonding, Sintered Silver Bonding

2. By Automation Level: Manual, Semi-Automatic, Fully Automatic
3. By End-Use Application: Memory Semiconductors, Logic & Processors, Power Semiconductors, RF & Wireless Components, MEMS & Sensors, Photonics & Optoelectronics
4. By End-User: IDMs (Integrated Device Manufacturers), OSATs (Outsourced Semiconductor Assembly & Test), Foundries, Research & Development Institutes
5. By Die Size: Small Die (Below 2mm²), Medium Die (2–10mm²), Large Die (Above 10mm²)

 What Are the Regional Insights from the Die Bonder Equipment Market?

Asia-Pacific commands approximately 62% of global die bonder equipment market share, underpinned by the concentration of leading OSAT facilities across Taiwan, South Korea, China, Malaysia, and Singapore. Taiwan's dominance in advanced logic packaging (driven by TSMC's CoWoS and SoIC programs), South Korea's HBM and DRAM packaging volumes, and China's rapidly expanding domestic semiconductor packaging ecosystem collectively position Asia-Pacific as the definitive demand center for die bonding equipment globally.

North America holds the second-largest share at approximately 18%, driven by domestic IDM operations (Intel, Texas Instruments, Skyworks, Qorvo), the growing number of advanced packaging R&D programs co-located with leading U.S. semiconductor fabs, and CHIPS Act-funded capacity investments that are expected to materially expand domestic backend semiconductor manufacturing capacity through 2030.

Europe represents a strategically important region, particularly for automotive-grade power semiconductor packaging. Germany's Infineon, Netherlands' NXP, and Italy's STMicroelectronics are all investing in SiC and GaN power module packaging capacity, driving targeted demand for high-temperature and high-pressure sintered silver die bonding equipment optimized for automotive power electronics.

China is projected to register the highest regional CAGR at approximately 9.6% through 2035, fueled by aggressive domestic semiconductor self-sufficiency initiatives, substantial government-directed investment in backend packaging capacity, and the rapid buildout of homegrown OSAT players such as JCET, Tongfu Microelectronics, and Hua Tian Technology targeting market share previously dominated by Taiwanese and Korean rivals.

Rest of World markets, including Japan (with its strong IDM base in image sensors and automotive ICs), India (with nascent semiconductor packaging ambitions supported by government incentive programs), and Southeast Asia (Malaysia's established OSAT cluster and Vietnam's emerging electronics manufacturing base), round out the global demand picture for die bonder equipment.

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