

Semiconductor Etch Equipment Market to Reach USD 28.26 Billion by 2032, Growing at 8.7% CAGR

Global Semiconductor Etch Equipment Market is projected to grow at 8.7% CAGR, reaching \$28.26 Bn by 2032. Driven by AI, 5G, and wafer miniaturization.

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Introduction of Semiconductor Etch Equipment Market

The [global Semiconductor Etch](#)

[Equipment Market](#) is projected to exhibit a Compound Annual Growth Rate (CAGR) of 8.7% from 2024 to 2032.

Semiconductor etch equipment is a prime processing machinery, performing 50-60% of the operations in the finishing phase of semiconductor production. These machines level wafer surfaces using two main operations: dry etch and wet etch. They are crucial for manufacturing intricate logic and memory chips and are heavily adopted in industries such as semiconductor fabrication plants/foundries, semiconductor electronics manufacturing, and test homes. The market's scope is expanding rapidly due to the rising demand for advanced semiconductor nodes, 5G, AI, and the constant push for miniaturization of wafers to 2.5D and 3D dimensions.

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Fortune Business Insights



Semiconductor Etch Equipment Industry

Semiconductor Etch Equipment Market Snapshot

- Market Size (2023 Value): USD 13.47 billion
- Market Size (Forecast Values): USD 28.26 billion by 2032
- CAGR (%): 8.7% (2024–2032)
- Regional Insights (2023 Share): Asia Pacific dominated with 61.69% share.
- Key Players: Applied Materials Inc., Tokyo Electron Limited, Lam Research Corporation, ASML, KLA Corporation.
- Other highlights: Fastest-growing region is North America, and the end-user leader is the

Foundry segment.

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Semiconductor Etch Equipment Market Size

The Semiconductor Etch Equipment Market size was valued at USD 13.47 billion in 2023. The market is projected to grow from USD 14.51 billion in 2024 to USD 28.26 billion by 2032, recording a CAGR of 8.7% during the forecast period (2024-2032). This growth trajectory is fueled by heavy investments from global tech giants to establish in-house semiconductor manufacturing and increasing capacity additions by foundries.

Semiconductor Etch Equipment Market Share

The Semiconductor Etch Equipment Market share accounted for a strong dominance by the Asia Pacific region, which held a share of 61.69% in 2023. This regional contribution is driven by robust R&D efforts in developed countries like South Korea, China, and Japan, along with significant investments in new fabrication facilities across developing nations. In terms of application, the Semiconductor Fabrication Plant/Foundry segment holds the highest market share due to soaring demand for circuits across consumer electronics, medical devices, and automotive sectors.

Semiconductor Etch Equipment Market Growth

The Semiconductor Etch Equipment Market growth is driven by a CAGR of 8.7% and is propelled by the following key factors and opportunities:

- Drivers: High demand for etch equipment in logic and memory chip production; strategic expansions and capacity additions by semiconductor foundries; government support and investment (e.g., U.S. CHIPS Act and South Korea's AI investments); growth of IoT, data centers, and mobile devices; and the surge in demand for FinFET and 3D NAND technologies.
- Opportunities: The rising implementation of Artificial Intelligence (AI) and 5G technologies, as well as the increasing emphasis on the miniaturization of wafers to 2.5D and 3D dimensions, present significant growth opportunities for advanced etch equipment.

Competitive Landscape

The Semiconductor Etch Equipment Market is highly competitive, with key players actively leveraging research and development to achieve technological advancements and expand their market share.

List of Top Semiconductor Etch Equipment Companies:

- Applied Materials Inc. (U.S.)
- Tokyo Electron Limited (Japan)
- Lam Research Corporation (U.S.)
- ASML (Netherlands)
- KLA Corporation (Netherlands)

- Dainippon Screen Group (Japan)
- Hitachi High Technologies Corporation (Japan)
- ASM International (U.S.)
- Ferrotec Holdings Corporation (Japan)
- Canon Machinery Inc. (Japan)

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Market Dynamics

Drivers

- High demand for advanced semiconductor chips, IC chips, and logic circuits across industries (EV, consumer electronics, connected devices).
- Growing emphasis on wafer miniaturization to 2.5D and 3D for compact and cost-efficient devices.
- Increasing deployment of AI and 5G technologies, requiring advanced wafer processing.

Restraints

- Heavy initial investments and late Return on Investment (ROI) for semiconductor machinery.
- High initial setup cost, acting as a hindrance for medium-scale enterprises and start-ups.
- Supply chain interruptions, as seen during the COVID-19 pandemic.

Opportunities

- Technological advancements, such as the development of equipment for high-precision 3D semiconductor devices and next-generation packaging solutions.
- Expanding application in the automotive, remote healthcare, and advanced computing sectors.

Challenges

- The continuous need for innovation to keep up with the shrinking feature sizes and complexity of integrated circuits.

Segmentation

By Etch Type: Dry Etch, Wet Etch

By Dimension: 2D, 2.5D, 3D (largest share held by 3D segment)

By Application: Semiconductor Fabrication Plant/Foundry, Semiconductor Electronics, Test Home

Regional Analysis

Regionally, the Semiconductor Etch Equipment Market is segmented into North America, Europe, Asia Pacific, the Middle East & Africa, and South America.

- Asia Pacific (Regional Value in 2023: USD 8.81 Billion): The region dominates the global market

with the largest share and is set to record the highest CAGR. This is primarily due to extensive R&D and the presence of major semiconductor manufacturing hubs in China, Japan, South Korea, and Taiwan. China specifically leads due to the high demand for dry etch equipment in 2.5D and 3D wafer manufacturing.

- North America: Set to grow at a progressive pace, driven by the presence of key manufacturers, prominent research facilities, and government initiatives like the CHIPS and Science Act, which promotes incentives for domestic chip manufacturing.
- Europe: Expected to grow steadily, supported by good trade relations and increasing government initiatives for new semiconductor manufacturing.
- Middle East & Africa & South America: These regions are set for steady to significant growth, driven by increasing investments to set up semiconductor manufacturing plants to support market expansion.

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Key Industry Developments

- March 2024 (Product Launch): LAM Research launched the world's first production-oriented Pulse Laser Deposition (PLD) tool for next-generation MEMS-based microphones and Radio Frequency (RF) filters.
- December 2023 (Collaboration): Applied Materials Inc. signed a collaboration deal with Ushio Inc. to improve its portfolio of semiconductor manufacturing equipment, focusing on 3D semiconductors and AI chips.
- December 2023 (Expansion): Axcelis Technologies Inc. opened a new Axcelis Logistics Center in Beverly, Massachusetts,

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