

Wafer Cleaning Equipment - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2019 - 2029

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Report description:

The Wafer Cleaning Equipment Market size is estimated at USD 9.10 billion in 2024, and is expected to reach USD 13.57 billion by 2029, growing at a CAGR of 8.33% during the forecast period (2024-2029).

Due to the massive demand for electronic components owing to amplified usage, the increasing measures to make electronic packaging highly resourceful have made wafer-cleaning equipment used in myriad applications.

Key Highlights

-The growth in adopting smart and compatible devices and feasible networks is significantly aiding the development of the global wafer-cleaning equipment market. For instance, in June 2022, DISH informed that Project Genesis would be expanded to over 20% of the US population (in 120 cities across the USA) only 42 days after the initial launch. As such, it just met the FCC's interim deadline. The network is very developed, completely cloud-native, and reliant on Open RAN architecture.

-Furthermore, the increasing penetration of printed electronics and rising concern for upgrading and improving the semiconductor product quality and production standards in the semiconductor devices industry are some prominent factors behind the development of the Wafer Cleaning Equipment Market.

-In June 2022, NEO Battery Materials Ltd. signed a strategic Memorandum of Understanding (MoU) with Automobile & PCB Inc., a Korean company manufacturing printed circuit boards. Through this collaboration, both players will leverage NEO's technical expertise and the reputable and recognized network of A&P's related companies, YSP and Yongsan, to strengthen NEO's business network globally. Such activities for product development may further drive the growth of printed electronics, creating demand for studied market growth.

-An increase in demand for silicon-based sensors is anticipated to deliver lucrative possibilities for market expansion. Further, some vendors are already working toward increasing the production of SiC wafers. For instance, in August 2023, Infineon

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Technologies AG announced its plans to expand its manufacturing facility in Malaysia to establish 200 mm SiC fab. Such developments indicate the growing demand for wafer transition.

-Furthermore, Cree (Wolfspeed) is also elevating its production capacity for its Wolfspeed brand of power and radio frequency semiconductors, an ongoing strategy that grew when the company sold its lighting business to focus on SiC and GaN products. To meet the high demand in EVs, industrial markets, and mobile telecommunications, Cree is building a USD 1.2 billion 200mm SiC wafer fab in New York, where production began in 2022.

-The major challenge for the production of these materials is to control the environment, especially in the process of wafer cleaning, especially dust and biohazard waste are generated, which have a direct impact on the climate if they are not appropriately treated. Therefore different government regulations are made to consider how they must be handled to avoid such problems. Moreover, the need for a skilled workforce and strict and changing quality standards hinder the market growth.

Wafer Cleaning Equipment Market Trends

Smartphones & Tablets to Drive the Market Growth

- The increase in the usage of consumer electronic devices such as smartphones and tablets has stimulated the growth of the wafer-cleaning equipment market. Emerging new technologies and growth in consumer demand for more advanced smartphones and tablets have boosted the growth pace of the industry to a great extent. For instance, according to Ericsson, the global number of smartphone subscribers is anticipated to reach 7,840 million by 2027.

- The enormous growth in the tablets and smartphones market has raised the need for semiconductor wafers, thus raising the demand for wafer-cleaning equipment. According to India Cellular & Electronics Association (ICEA), India is anticipated to acquire a value of USD 100 billion in manufacturing laptops and tablets by 2025. In addition, the Indian mobile phone market is expected to generate INR 2.4 trillion (USD 29.38 billion) in revenue by FY2026.

- The demand for smartphones has increased, and PC sales have declined because most tasks, such as emailing, social media, gaming, and chatting, can now be done via smartphones. According to GSMA, there will be about 7.5 billion smartphone connections by 2025, accounting for above four in five mobile connections.

- Smartphone technology is developing to influence the consumer's daily marketing strategies, business activities, and lifestyle. The acceptance of smartphone technology is a crucial factor in the success of today's technology. Due to this, identifying the main factors that influence the consumer's behavior toward smartphone technology is extremely valuable.

- According to IBEF, Samsung announced plans to invest INR 3.7 lakh crore (USD 50 billion) in India over the next five years to manufacture phones. It plans to produce phones worth INR 2.2 lakh crore (USD 30 billion), priced above INR 15,000 (USD 200), under the PLI scheme. Such expansion in consumer electronics such as smartphones and tablets may further drive the demand for Wafer Cleaning equipment.

Asia Pacific to Experience Significant Market Growth

- Asia Pacific region has appeared as the largest semiconductor market. The growing penetration of digital technologies, rapid urbanization, and industrialization contribute to this growth. Additionally, the presence of large semiconductor manufacturing, packaging, and assembly industries also creates a favorable scenario for developing the wafer equipment market in the region.

- In addition, China is the largest semiconductor hub not only in Asia-Pacific but also in the world. As per Semiconductor Industry Association, China recently led the semiconductor market with total chip sales of USD 192.5 billion, marking an expansion of 27.1 percent year on year. The country also draws huge investments from significant chipmakers to extend chip production by launching new facilities. Further, in 2022, WSTS forecasted global sales totaled USD 573 billion.

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- Furthermore, Japanese companies are creating heavy investments to improve the production of SiC power semiconductors driven by the increased demand from the EV industry. For instance, in March 2022, Tokyo-headquartered Showa Denko KK introduced the mass production of silicon carbide single crystal wafers (SiC wafers) with a diameter of 6 inches (150 mm), which are used as materials for SiC epitaxial wafers to be processed and installed into SiC power semiconductors.
- Asia-Pacific is one of the vital semiconductor wafer cleaning markets owing to the presence of the ever-growing consumer electronics and semiconductor industries. The rise in demand for small and smart portable devices supplements the market growth in the region. According to IBEF, India's consumer electronics (ACE) market increased at 9 percent CAGR to reach INR 3.15 trillion (USD 48.37 billion) in 2022. Furthermore, in September 2022, monthly mobile phone exports from India crossed the USD 1 billion mark for the first time.
- The stay-at-home trend spurred by the coronavirus pandemic continues to drive the demand for semiconductor chips. For instance, according to WSTS, the estimated semiconductor industry revenue in the Asia Pacific region is expected to reach over USD 400 billion in 2023. Such trends encourage leading equipment manufacturers to enter the Asia Pacific (APAC) market.
- For instance, ASML, one of the most prominent vendors in the market, recently opened a new state-of-the-art training facility in Tainan, Taiwan. The above expansion in the region may further create demand for the Wafer Cleaning Equipment in the forecasted period.

Wafer Cleaning Equipment Industry Overview

The Wafer Cleaning Equipment Market is quite fragmented, with the major players in the studied market such as Lam Research Corporation, Applied Materials, Inc., Veeco Instruments Inc., Tokyo Electron Limited, Entegris, Inc, Modutek Corporation, Semes Co., Ltd., among others. These players account for a significant share and are reliable, leading to higher market consolidation.

- December 2022 - SCREEN Semiconductor Solutions Co., Ltd., a SCREEN Holdings Group company, finalized the development of its new SU-3400 single-wafer cleaning system, which provides throughput² and a range of unique cleaning technologies.
- December 2022 - Tokyo Electron announced the launch of the CELLESTA MS2, a system for surface preparation and wafer cleaning, which incorporates a physical cleaning function featuring dual-fluid spray technology and brushes. Its capability to process both wafer sides simultaneously significantly boosts the system's productivity per unit area, pushing it over 1.5 times more productive than TEL's existing systems when both wafer sides need to be cleaned.

Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

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