Global Flow Control Market In The Semiconductor Industry - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

Market Report | 2023-01-23 | 191 pages | Mordor Intelligence

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Report description:

The global flow control market in the semiconductor industry is expected to register a CAGR of 6.41% during the forecast period 2022 to 2027.

Key Highlights
Significant advancements in the semiconductor and electronics industries are expected to drive industrial growth. The strong adoption of the work-from-home lifestyle may also add to the surge in demand for electronic equipment caused by the COVID-19 pandemic. Furthermore, with technological advancements and well-established distribution networks, European and US electronics manufacturers strive to expand operations in emerging nations. Furthermore, the increasing popularity of consumer electronics among China's and India's youth is expected to boost the market revenue in the forecast period.
For instance, in February 2022, the Semiconductor Sector Association (SIA) stated that the global semiconductor industry sales reached USD 555.9 billion in 2021, a 26.2% growth over the previous year's total of USD 440.4 billion. In 2021, the semiconductor industry shipped a record 1.15 trillion units as chipmakers stepped up production to meet the increasing demand, despite a global chip scarcity. Global sales for December 2021 were USD 50.9 billion, up by 28.3% from December 2020 and 1.5% more than November 2021. Sales of USD 152.6 billion in the fourth quarter were 28.3% higher than in the fourth quarter of 2020 and 4.9% higher than in the third quarter of 2021.
According to SIA, sales into the Americas market increased the most (27.4%) in 2021. China remained the largest individual market for semiconductors in 2021, with sales of USD 192.5 billion, up by 27.1%. In 2021, the annual sales increased in Europe (27.3%), Asia-Pacific/All Other (25.9%), and Japan (19.8%). Sales in the Americas (5.2%), China (0.8%), Europe (0.3%), and the Asia-Pacific/All Other (0.1%) increased in December 2021 compared to November 2021 but declined marginally in Japan (-0.3%).
Due to the existence of major global and local players, the market studied is extremely fragmented as of now. With the increasing complexity of semiconductor manufacturing, the requirement for flow control equipment is also increasing, and much more

sophisticated and technologically advanced pumps, valves, and seals are required. Global investment in research and development in power efficiency and facility upgrades in the semiconductor industries are also important drivers of severe competition among companies. The ongoing developments of products and mergers and acquisitions in the market further add to the market's competitiveness.
The COVID-19 epidemic has had a detrimental impact on the market studied. Due to the lockdown and social distancing norms, major corporations have halted operations in several areas. Due to increased urbanization and the growing need for efficient use of available space, the sector anticipates a high level of demand and supply following the epidemic.

Semiconductor Flow Control Market Trends

Mechanical Seals to Register the Fastest Growth

A mechanical seal's primary function is to prevent fluid or gas leakage through the clearance between the shaft and the container. Mechanical seals are made up of two faces separated by carbon rings. The revolving equipment comes in touch with the initial face, which is stationary. Furthermore, the seal ring (first face) is the main component of the seal on which the mechanical force generated by springs, bellows, or fluids in the equipment acts. Mechanical seals have become increasingly significant in various industrial applications, allowing for more efficient operations. Polytetrafluoroethylene (PTFE), polyurethane (AUEU), fluoro silicon (FVMQ), industrial rubber, and other flexible materials are used to make mechanical seals.
The mechanical seal market has seen substantial growth in recent years and is expected to continue to grow in the coming years. In emerging nations, the rise of AI, ML, and IoT, as well as smartphone and consumer electronics development, is predicted to prompt further development policies and investments in the semiconductor industry. Cartridge seals, balanced and unbalanced seals, pusher and non-pusher seals, and conventional seals are examples of mechanical seals impacting emerging countries' mechanical sealing market expansion.
In the fabrication of semiconductor products, seal reliability and contamination reduction are crucial. Chemical filtration, chemical transfer, AODD pump sealing, and silicon wafer fabrication are essential semiconductor applications where mechanical seals have proven to be the best option.
Deposition, etch, ash/strip, plasma, and heat processing or annealing are synergistic process technologies that constitute some of the most difficult environments for elastomer seal materials. These are frequently encountered during the fabrication of semiconductor-integrated circuits. To minimize yield loss and chemical erosion rates, clean-room manufactured seals with low particle and trace metal contamination are used. These seals can provide benefits such as increased system up-time, increased mean time between failure (MTBF), decreased wet clean or mechanical clean frequency, and reduced cost of ownership (CoO) through lower consumable costs (CoC).
Semiconductor equipment is served through feed-throughs and rotary unions. Rotational motion can be transferred from the atmosphere to a vacuum or differential pressure environment using rotary feed-throughs. Vacuum seals are used in semiconductor equipment, OLED displays, vacuum deposition systems, autoclaves, and wafer robots, among other things.

China to Hold Significant Market Share

China has a very ambitious semiconductor agenda. Supported by USD 150 billion in funding, the country is expanding its domestic IC industry, and it plans to produce more of its chips. Greater China, which confines China, Hong Kong, and Taiwan, is a geopolitical hotspot. The US-China trade war is compounding tensions in an area where all the leading process technologies are located, compelling several Chinese firms to invest in semiconductor foundries.
China's latest five-year plan for 2021-2025, revealed in March 2021, demonstrates encouraging basic research as a critical

priority. Central government spending on basic research increased by around 11% in 2021, well above the 7% planned for the overall research and development investment and the 6% target for GDP growth. Semiconductors have been specified as one of the seven areas that are anticipated to be given priority in terms of funding and resources. Companies involved in the design develop nanometer-scale ICs that perform critical tasks that make electronic devices work, such as storage, computing, network connectivity, and power management.
The number of recently registered chip-related establishments in China tripled in the first five months of the year compared to the same period in 2020. According to Qichacha, from January till May 2021, China saw 15,700 new establishments involved in everything, from designing to manufacturing chips.
Furthermore, according to Semiconductor Equipment and Materials International (SEMI), the annual semiconductor equipment spending increased by 58% in China, from USD 18.72 billion in 2020 to USD 29.62 billion in 2021.
Thus, the significant rise in spending on semiconductor equipment year-on-year is expected to drive the demand for vacuum pumps in the country. Expanding the manufacturing capacity of leading semiconductor companies is expected to contribute to the market's growth.

Semiconductor Flow Control Market Competitor Analysis

The competitive rivalry among the flow control equipment providers is moderate, owing to the presence of various dominating brands competing for market shares globally, making the market moderately competitive.

The demand for vacuum pumps has spiked in recent years due to the massive consumer electronics and smartphone penetration across developing countries. This has led to an increased focus on customer acquisition and formulating distribution channels as key strategies to maintain competitive advantage and market share.

March 2022 - Pfeiffer Vacuum introduced a new compact roots pump. The roots pump from the HiLobe series could come with a high pumping speed, covering various applications needing large chambers to be evacuated quickly. Pumping speeds up to 13,600 m3/h could offer low power consumption. The hermetically sealed pump offers a maximum integral leak rate of 1 □ 10-6 Pa m3/h.
October 2021 - Atlas Copco acquired Eugen Theis GmbH, a German company located near Werther. Eugen comprises four employees and has a strong market and customer base in the region. The acquisition would help Atlas Copco target the industrial vacuum products and services in Germany, helping expand its presence in the country.

Additional Benefits:

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

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