

## **Mems Mirrors Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)**

Market Report | 2023-01-23 | 120 pages | Mordor Intelligence

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### **Report description:**

The MEMS mirrors market is anticipated to grow at a CAGR of 5.76% over the forecast period. MEMS mirrors are tiny electromagnetic mirrors that include MEMS technology. Within the magnetic field caused by the magnet, electrical current flowing in the coil encircling the mirror makes a Lorentz force based on Fleming's left-hand rule, which drives the mirror. Moreover, MEMS mirrors feature a wide optical deflection angle, high mirror reflectivity, and low power utilization.

### **Key Highlights**

Furthermore, MEMS mirrors offer a significant way to scan light spatially. They are used for various applications, such as raster scanning RGB light for display engines or checking infrared light for depth cameras (3D sensing) using structured light or Time of Flight (TOF) techniques. In addition, the role of the MEMS is significant, and it is responsible for customizing the paths of the other wavelengths in either device. It would be beneficial to improve the execution of such MEMS and, thereby, the performance of the optical components and optical systems they form part of.

In March 2021, STMicroelectronics and OQmented, a deep-tech startup focused on MEMS-mirror technology, agreed to collaborate on advancing the technology for Augmented Reality (AR) and 3D-sensing markets. The joint effort seeks to build on the expertise of both companies to develop the technology and products behind the leading MEMS-mirror-based laser-beam scanning (LBS) solutions in the market.

In September 2021, with a mission to make lightweight AR/VR intelligent glasses a practical reality, venture-backed innovator OQmented declared the industry's first one-chip MEMS mirror-based laser beam scanning (LBS) solution. The development gives product developers the latest ultra-compact projection display option, allowing light and stylish glasses yet entitled to advanced visualization capabilities. OQmented's high-speed LBS solution allows the highest resolution, most considerable operating time, and lowest power utilization with industry-leading cost importance in a tiny package optimized for smooth integration and easy optomechanical alignment.

In March 2021, Hamamatsu Photonics UK Ltd and Medical Technologies Innovation Facility (MTIF) declared that they have entered into a collaboration agreement enabling customers to consider and utilize Hamamatsu's Functional Drug Screening System (FDSS) ?CELL. This is the first FDSS/?CELL to be made available in the UK in this way. This new collaboration focuses on leveraging the

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photonics expertise, novel proprietary technology, and applications of Hamamatsu with the significant medical technology research and development capabilities of MTIF.

Furthermore, in the initial phase of 2020, COVID-19 disease started to spread over the globe, millions of people globally were infected with COVID-19 disease, and significant economies worldwide have implemented foot prohibitions and work stoppage orders. Excluding the medical supplies and life support products industries, many industries have been adversely influenced, and MEMS Mirrors industries have also been significantly impacted. Moreover, COVID-19 can affect the global economy in 3 significant ways by directly influencing production and demand, by creating supply chain and market interruptions, and by its financial impact on firms and financial markets.

## **MEMS Mirrors Market Trends**

### **Automotive is Expected to Hold Significant Market Share**

The growing movements in the automotive industry toward self-driving and electric vehicles are anticipated to be the crucial drivers for newer applications of LiDAR. Self-driving cars have been increasingly using LiDAR sensors to generate 3D maps for 360° vision and for accurate information to assist self-navigation and object detection.

Various manufacturers have focused on product innovations to gain a competitive advantage. For instance, in April 2021, Velodyne and Ansys announced that they are developing software models of next-generation automotive LiDAR sensors to provide substantially improved hazard identification capabilities for highly advanced AVs. The collaboration incorporates Velodyne's LiDAR design into Ansys' virtual sensor suite. It expedites automakers' integration of Velodyne's sensor into AVs - delivering industry-leading driving safety and a drastically faster path to market.

Also, Robosense announced the world's first public road test of a vehicle equipped with a smart LiDAR sensor at CES 2020. The RS-LiDAR-M1 smart LiDAR is the MEMS smart LiDAR sensor that incorporates sensor hardware, AI perception algorithms, and IC chipsets, transforming conventional LiDAR sensors to provide essential information for decision-making related to autonomous vehicles.

In August 2021, Infineon announced a MEMS scanner chipset containing a swiveling mirror that could lay the foundation for a new generation of laser beam scanner projectors for head-up displays. This allows digital information to be projected into the driver's field of vision - one of the essential applications of augmented reality in automotive technology.

Further, in January 2022, Israeli startup Innoviz was viewed as one of the leaders in the emerging market for automotive LiDAR sensors. The company was one of the first to design a sensor that used a MEMS-based sensor, and its first volume commercial product is due to launch with BMW later in 2022, most likely on the new seven series.

### **Asia-Pacific has the Largest Market Share**

China, South Korea, Japan, and India, among others, are significant countries in the Asia-Pacific region. The Asia-Pacific is a vast market for MEMS sensor technologies. The region influences the global semiconductor manufacturing industry and dominates many manufacturing segments of other end-user industries. Countries like China are delivering low-cost products in the market studied. ?

The Chinese government also views its automotive industry, including the auto parts sector, as one of the prominent industries. The Central Government predicts China's automobile output will reach 35 million units by 2025. This makes the automotive industry one of China's most effective uses of MEMS mirrors. However, the country's Association of Automobile Manufacturers revised the predictions for 2020, forecasting an almost 10% drop in sales for the first half of the year and 5% for the entire year, based on the COVID-19 pandemic.?

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India is one of the important markets for consumer goods and the latest gadgets globally. According to IBEF (India Brand Equity Foundation), the Indian appliances and consumer electronics (ACE) market is expected to register a CAGR of 9% to reach INR 3.15 trillion (USD 48.37 billion) in 2022. The government has taken multiple initiatives to boost this product, including the National Policy on Electronics 2019, which aims to boost domestic electronic manufacturing and export a whole value chain to achieve a turnover of approximately USD 400 billion by 2025. Such regional government initiatives are estimated to drive the studied market growth.?

However, even with the presence of consumer electronics giants, including Samsung, Korea's MEMS ecosystem remains relatively small, according to GMEMS, a small MEMS foundry in the region. Most of the top MEMS makers are spread across Japan and China. Nevertheless, the region offers significant scope for market growth. According to the Korean Electronics Association, the country's electronics industry stands third worldwide in production, following the United States and China, and accounts for more than 6% of global production. ?

Moreover, countries like China, Japan, India, Singapore, Taiwan, and South Korea are increasingly advancing their semiconductor industry and funding MEMS development. Taiwan-based Vanguard International Semiconductor Corporation (VIS) acquired US-based Globalfoundries' Fab 3E in Singapore by funding over USD 236 million in its MEMS business.?

## MEMS Mirrors Market Competitor Analysis

The MEMS mirrors market is moderately concentrated, owing to the presence of large and small vendors in the market operating in the domestic as well as in the international market. Vendors in the market are adopting key strategies, such as product innovation, mergers and acquisitions, and strategic partnerships. Some of the key developments in the market are:

July 2022 - Yitoo Micro Technology Corp. developed a microelectromechanical system (MEMS) mirror semiconductor for automotive LiDAR. According to Yitoo Micro, solid-state LiDAR operating a MEMS mirror is one of the most suitable ways to realize LiDAR in vehicles. The LiDAR with combined MEMS mirror is compact and low cost, which was impossible with mechanical methods of rotating LiDAR.

January 2022 - SCHOTT has utilized its longstanding experience in glass-to-metal sealing to develop innovative packaging solutions for RGB laser chips and MEMS mirrors for augmented reality (AR) applications.

### Additional Benefits:

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

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