

# **Focused Ion Beam Market: Global Industry Trends, Share, Size, Growth, Opportunity and Forecast 2023-2028**

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## **Abstracts**

The global focused ion beam market size reached US\$ 982 Million in 2022. Looking forward, IMARC Group expects the market to reach US\$ 1,449 Million by 2028, exhibiting a growth rate (CAGR) of 6.3% during 2023-2028.

The focused ion beam, or FIB, refers to an advanced technique that uses a highly focused beam of ions for site-specific analysis, deposition, and removal of structures. It is extensively utilized for rapid preparation of transmission electron microscope (TEM) sample, evaluation of beam-sensitive materials, three-dimensional (3D) tomography, and fabrication of micro-electromechanical systems (MEMS). It is also employed to modify the specimen surface directly through the sputtering process. The intensity and energy of the ion beam can be controlled to perform nano-machining with high precision to create minute components or remove unwanted materials. In recent years, FIB has gained immense traction as it enables the imaging and modification of a specimen with high spatial resolution.

**Focused Ion Beam Market Trends:**

FIB systems are extensively used in the ion beam lithography process for producing patterns across the surface of samples. As a result, the increasing FIB applications for examining mechanical properties, analyzing high-resolution structures, and determining force interactions represents the primary factor driving the market growth. Besides this, the widespread product adoption in material science as a microscope and specimen preparation tool represents another major growth-inducing factor. Additionally, there has been a significant rise in the demand for failure analysis in the electronics and semiconductor industries. This, in line with the growing usage of FIB in nanofabrication applications, is catalyzing the product demand. Furthermore, the ongoing research and

development (R&D) activities in the field of material science and biomaterials are offering lucrative growth opportunities to the market players. Moreover, the leading manufacturers are launching innovative FIB systems to facilitate accurate nanoscale measurements, thereby contributing to the market growth. Other factors, including the introduction of new ion sources, technological advancements, and emerging circuit editing applications, are also anticipated to create a positive market outlook in the upcoming years.

#### Key Market Segmentation:

IMARC Group provides an analysis of the key trends in each sub-segment of the global focused ion beam market report, along with forecasts at the global, regional and country level from 2023-2028. Our report has categorized the market based on ion source, application and end use.

#### Breakup by Ion Source:

- Ga+ Liquid Metal
- Gas Field
- Plasma

#### Breakup by Application:

- Failure Analysis
- Nanofabrication
- Device Modification
- Circuit Edit
- Others

#### Breakup by End Use:

- Electronics and Semiconductor
- Industrial Science
- Bioscience
- Material Science
- Others

#### Breakup by Region:

- North America

United States  
Canada  
Asia-Pacific  
China  
Japan  
India  
South Korea  
Australia  
Indonesia  
Others  
Europe  
Germany  
France  
United Kingdom  
Italy  
Spain  
Russia  
Others  
Latin America  
Brazil  
Mexico  
Others  
Middle East and Africa

#### Competitive Landscape:

The competitive landscape of the industry has also been examined along with the profiles of the key players being A&D Company Limited, Carl Zeiss AG, Eurofins Scientific, Fibics Incorporated, Hitachi Ltd., JEOL Ltd., Raith GmbH, Tescan Orsay Holding A.S., Thermo Fisher Scientific, Waters Corporation and zeroK NanoTech Corporation.

#### Key Questions Answered in This Report:

How has the global focused ion beam market performed so far and how will it perform in the coming years?  
What has been the impact of COVID-19 on the global focused ion beam market?  
What are the key regional markets?  
What is the breakup of the market based on the ion source?  
What is the breakup of the market based on the application?  
What is the breakup of the market based on the end use?

What are the various stages in the value chain of the industry?

What are the key driving factors and challenges in the industry?

What is the structure of the global focused ion beam market and who are the key players?

What is the degree of competition in the industry?

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