

Focused Ion Beam Market Report by Ion Source (Ga+ Liquid Metal, Gas Field, Plasma), Application (Failure Analysis, Nanofabrication, Device Modification, Circuit Edit, and Others), End Use (Electronics and Semiconductor, Industrial Science, Bioscience, Material Science, and Others), and Region 2024-2032

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Abstracts

The global focused ion beam market size reached US\$ 1,043.9 Million in 2023. Looking forward, IMARC Group expects the market to reach US\$ 1,714.8 Million by 2032, exhibiting a growth rate (CAGR) of 5.6% during 2024-2032.

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 2024-2032. 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

1. What was the size of the global focused ion beam market in 2023?
2. What is the expected growth rate of the global focused ion beam market during

2024-2032?

3. What are the key factors driving the global focused ion beam market?
4. What has been the impact of COVID-19 on the global focused ion beam market?
5. What is the breakup of the global focused ion beam market based on the ion source?
6. What is the breakup of the global focused ion beam market based on the application?
7. What is the breakup of the global focused ion beam market based on the end use?
8. What are the key regions in the global focused ion beam market?
9. Who are the key players/companies in the global focused ion beam market?

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