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3D Printing Metals Market Research Report - Global Forecast till 2030

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Description:

Global 3D Printing Metals Market Overview

3D Printing Metals Market Size was valued at USD 1.3 Billion in 2022 and is projected to grow from USD 2.5 Billion in 2023 to USD 6 Billion by 2030, exhibiting a compound annual growth rate (CAGR) of 30.00% during the forecast period (2023 - 2030). The growth of the global demand for 3D printing metals is primarily due to their rising acceptance in the aerospace and automotive industries are the key market drivers enhancing market growth.

3D Printing Metals Market Overview

Source: Secondary Research, Primary Research, MRFR Database and Analyst Review

3D Printing Metals Market Trends

- **Rising acceptance in the aerospace and automotive industries to boost market growth**

The growth of global demand for 3D printing metals is primarily due to their rising acceptance in the aerospace and automotive industries. This is because 3D printing metals offer several advantages over traditional manufacturing methods, particularly in the production of complex and lightweight components. In the aerospace industry, 3D printing metals are being used to produce parts with intricate geometries that would be difficult or impossible to manufacture using traditional methods. This includes parts for jet engines, such as turbine blades and fuel nozzles, which need to be able to withstand high temperatures and pressures.

Similarly, in the automotive industry, 3D printing metals are being used to produce lightweight components that can help to improve fuel efficiency and reduce emissions. This includes parts such as engine blocks, transmission components, and suspension parts. Overall, the use of 3D printing metals is expected to continue to grow as the technology improves and becomes more widely adopted across a range of industries. Therefore, such factors related to 3D Printing Metals have enhanced the 3D Printing Metals market CAGR across the globe in recent years.

3D Printing Metals Market Segment Insights

3D Printing Metals Material Insights

The 3D Printing Metals Market segmentation, based on material, includes Titanium, Aluminum, Stainless Steel, Nickel, Inconel, and others. The titanium segment held the majority share in 2022 of the 3D Printing Metals Market revenue. Titanium is a popular choice for 3D printing due to its high strength-to-weight ratio, excellent corrosion resistance, and biocompatibility. These properties make it well-suited for use in the aerospace and medical industries, where it is used to produce components such as implants, surgical tools, and aircraft parts.

3D Printing Metals Technology Insights

The 3D Printing Metals Market segmentation, based on technology, includes Vat Photopolymerization, Material Extrusion, Sheet Lamination, Binder Jetting, Material Jetting and others. The Sheet Lamination segment held the majority share in 2022 of the global 3D Printing Metals. Sheet Lamination involves layering sheets of material, which are then bonded together using heat or adhesive. This technology is often used for 3D printing objects made from paper, plastic, or composite materials, rather than metals.

3D Printing Metals Application Insights

Based on application, the 3D Printing Metals Market segmentation includes Aerospace & Defense, Automotive, Healthcare, Building & Construction, Consumer Electronics and others. The Aerospace & Defense segment dominated the market in 2022 and is projected to be the faster-growing segment during the forecast period, 2023-2030. The Aerospace & Defense segment has been one of the key drivers of growth in the 3D printing metals market, and it has dominated the market in the past due to the high demand for lightweight and complex components. 3D printing metals offer significant advantages in terms of design freedom and reduced material waste, making it an attractive technology for the aerospace and defense industry. These all factors for 3D Printing Metals positively impact the market growth.

Figure 2: 3D Printing Metals Market, by Material, 2022 & 2030 (USD Billion)

Source: Secondary Research, Primary Research, MRFR Database and Analyst Review

3D Printing Metals Regional Insights

By region, the study provides market insights into North America, Europe, Asia-Pacific, and the Rest of the World. The Asia-Pacific region is expected to lead the global market for 3D printing metals in the coming years, driven by factors such as increasing industrialization, rising demand for 3D printing metals from various end-use industries, and supportive government initiatives. Countries such as China, Japan, and South Korea have been at the forefront of adopting 3D printing technology, and they are likely to continue to be major contributors to the growth of the 3D printing metals market in the region. These countries have large manufacturing industries and are investing heavily in research and development to advance their capabilities in 3D printing. In addition, the healthcare industry in the Asia-Pacific region is also expected to be a major driver of growth in the 3D printing metals market. The region has a large population, and there is a growing demand for customized medical implants and prosthetics. 3D printing metals offer the ability to produce these products with greater precision and customization, leading to better patient outcomes.

Further, the major countries studied in the market report are The U.S., Canada, Germany, France, the UK, Italy, Spain, China, Japan, India, Australia, South Korea, and Brazil

Figure 3: 3D PRINTING METALS MARKET SHARE BY REGION 2022 (%)

Source: Secondary Research, Primary Research, MRFR Database and Analyst Review

Europe's 3D Printing Metals market accounts for the third-largest market share. The region has a well-established manufacturing industry, with several leading companies in the aerospace, automotive, and healthcare sectors. The aerospace industry, in particular, has been a major driver of growth in the 3D printing metals market in Europe, with several companies using the technology to produce lightweight and complex components for aircraft. In addition, the European Union has been investing heavily in research and development in the 3D printing industry, with several initiatives aimed at advancing the technology and promoting its adoption in various industries. The region has also been at the forefront of developing new 3D printing materials and techniques, which has helped to drive innovation in the industry. Further, the Germany 3D Printing Metals market held the largest market share, and the UK 3D Printing Metals market was the fastest-growing market in the European region.

North America, 3D Printing Metals market, is expected to grow at the fastest CAGR from 2023 to 2030. The region has a strong aerospace and defense industry, which has been a major driver of growth in the 3D printing metals market. In addition, the healthcare and automotive industries in North America have also shown significant potential for growth in the use of 3D printing metals. Moreover, the U.S. 3D Printing Metals market held the largest market share, and the Canada 3D Printing Metals market was the fastest-growing market in the North American region.

3D Printing Metals Key Market Players & Competitive Insights

Major market players are spending a lot of money on R&D to increase their product lines, which will help the 3D Printing Metals market grow even more. Market participants are also taking a range of strategic initiatives to grow their worldwide footprint, with key market developments such as new product launches, contractual agreements, mergers and acquisitions, increased investments, and collaboration with other organizations. Competitors in the 3D Printing Metals industry must offer cost-effective items to expand and survive in an increasingly competitive and rising market environment.

The major market players are investing a lot of money in R&D to expand their product lines, which will spur further market growth for 3D Printing Metals. With significant market development like new product releases, contractual agreements, mergers and acquisitions, increased investments, and collaboration with other organizations, market participants are also undertaking various strategic activities to expand their global presence. To grow and thrive in a market climate that is becoming more competitive and growing, competitors in the 3D Printing Metals industry must offer affordable products.

Manufacturing locally to cut operating costs is one of the main business tactics manufacturers use in the global 3D Printing Metals industry to benefit customers and expand the market sector. Major 3D

Printing Metals market players, including Voxeljet AG, Renishaw plc, 3D Systems, Inc, GKN Aerospace, CRS Holdings Inc (Carpenter Technology Corporation), Triditive, Incus, Materialise, Concept Laser GmbH, Optomec, Inc. SLM Solutions, and others, are attempting to increase market demand by funding R&D initiatives.

Voxeljet AG is a German company that specializes in the production and sale of 3D printing systems and services. Voxeljet's primary focus is on the development and production of large-scale 3D printing systems for industrial applications, with a particular emphasis on the production of sand-casting molds and cores for automotive, aerospace, and other industries. The company also provides 3D printing services, including prototyping and production of parts for its customers. Voxeljet's 3D printing systems are based on binder jetting technology, which involves selectively depositing a binder material onto a bed of powder, layer by layer, to create a solid object. The company's systems are capable of producing parts with a high degree of accuracy and detail, as well as large-scale objects up to several meters in size.

Renishaw is a UK-based global company that specializes in the production and sale of high-precision metrology and additive manufacturing (3D printing) systems. Renishaw's core business is in metrology, where it develops and produces precision measurement and control equipment used in industries such as aerospace, automotive, medical, and electronics. The company's products include coordinate measuring machines (CMMs), laser measurement systems, encoders, and calibration equipment. Renishaw's metrology products are used to measure and control critical dimensions and geometries in manufacturing processes, ensuring high quality and accuracy. In addition to its metrology business, Renishaw has also developed advanced additive manufacturing (3D printing) technology, which it markets under the brand name "RenAM." The company's metal 3D printing systems use a powder bed fusion technique to produce high-quality, complex metal parts for a variety of industries, including aerospace, medical, and industrial automation. Renishaw's 3D printing systems are known for their high precision and reliability, and the company has developed a range of software solutions to support the design and production of parts. Renishaw also offers a range of metal powders for use in its 3D printing systems.

Key Companies in the 3D Printing Metals market include

- Voxeljet AG
- Renishaw plc
- 3D Systems, Inc
- GKN Aerospace
- CRS Holdings Inc (Carpenter Technology Corporation)
- Triditive
- Incus
- Materialise
- Concept Laser GmbH
- Optomec, Inc
- SLM Solutions among others

3D Printing Metals Industry Developments

October 2021: Incus announced that it has partnered with the European Space Agency (ESA), OHB System AG, and Lithoz GmbH in a joint project to develop and test micro-gravity 3D printing.

October 2021: Triditive announced the introduction of new Amcell 8300 and Amcell 1400 3D printers.

3D Printing Metals Market Segmentation

3D Printing Metals Material Outlook

- Titanium
- Aluminum & Stainless Steel
- Nickel & Inconel
- Others

3D Printing Metals Technology Outlook

- Vat Photopolymerization & Material Extrusion
- Sheet Lamination
- Binder Jetting & Material Jetting
- Others

3D Printing Metals Application Outlook

- Aerospace & Defense
- Automotive & Healthcare
- Building & Construction
- Consumer Electronics
- Others

3D Printing Metals Regional Outlook

- North America
    - US
    - Canada
- Europe
    - Germany
    - France
    - UK
    - Italy
    - Spain
    - Rest of Europe
- Asia-Pacific
    - China
    - Japan
    - India
    - Australia
    - South Korea
    - Australia
    - Rest of Asia-Pacific
- Rest of the World
    - Middle East
    - Africa
    - Latin America

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