

# Global 3D Printing Metals Market Research Report 2021-2025

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## Abstracts

According to the types of materials, 3D printing metal materials can be divided into iron-based alloys, titanium and titanium-based alloys, nickel-based alloys, cobalt-chromium alloys, aluminum alloys, copper alloys, and precious metals.

Iron-based alloys are an earlier and more in-depth study of 3D printing metal materials. The more commonly used iron-based alloys include tool steel, 316L stainless steel, M2 high-speed steel, H13 die steel and 15-5PH maraging steel, etc. . The iron-based alloy has low cost, high hardness, good toughness, and good machinability, which is especially suitable for mold manufacturing. 3D printing conformal channel molds are a major application of iron-based alloys. Traditionally shaped channels are difficult to process. 3D printing can control the arrangement of cooling channels to be basically consistent with the geometry of the cavity, which can improve the temperature field Uniformity can effectively reduce product defects and increase mold life.

Titanium and titanium alloys have become ideal materials for medical equipment, chemical equipment, aerospace and sports equipment due to their remarkable high specific strength, good heat resistance, corrosion resistance, and good biocompatibility. However, titanium alloy is a typical difficult-to-machine material, with high stress and high temperature during processing, and severe tool wear, which limits the wide application of titanium alloy. The 3D printing technology is particularly suitable for the manufacture of titanium and titanium alloys. First, when 3D printing is in a protective atmosphere, titanium is not easy to react with elements such as oxygen and nitrogen. The rapid heating and cooling of the micro-zones also limits the volatilization of alloy elements; The second is that complex shapes can be manufactured without cutting processing, and based on the high utilization of powder or wire materials, it will not cause waste of raw materials and greatly reduce manufacturing costs.

At present, the types of 3D printing titanium and titanium alloys include pure Ti, Ti6Al4V (TC4) and Ti6Al7Nb, which can be widely used in aerospace parts and artificial implants (such as bones, teeth, etc.).

Nickel-based alloys are the fastest growing and most widely used superalloys. They have high strength and certain oxidation and corrosion resistance at 650-1000°C. They are widely used in aerospace, petrochemical, shipbuilding, Energy and other fields. For example, nickel-based superalloys can be used in aero-engine turbine blades and turbine disks. Commonly used 3D printing nickel-based alloy grades include Inconel 625, Inconel 718 and Inconel 939.

Cobalt-based alloys can also be used as high-temperature alloys, but due to lack of resources, development is limited. Because cobalt-based alloys have better biocompatibility than titanium alloys, they are currently mostly used as medical materials for the manufacture of dental implants and orthopedic implants. Currently commonly used 3D printing cobalt-based alloy grades are Co 212, Co 452, Co 502 and CoCr28Mo6.

Aluminum alloy has low density, good corrosion resistance, high fatigue resistance, and high specific strength and specific rigidity. It is an ideal lightweight material. The aluminum alloy used in 3D printing is cast aluminum alloy, and commonly used grades are AlSi10Mg, AlSi7Mg, AlSi9Cu3, etc. South Korean communication satellites Koreasat-5A and Koreasat-7 use AlSi7Mg lightweight components manufactured by SLM, which are not only made of multiple original parts as a whole, but the weight of the parts is reduced by 22% compared with the original design and the manufacturing cost is reduced by 30%. , The production cycle is shortened by 1-2 months.

The demand for other metal materials such as copper alloys, magnesium alloys, and precious metals is not as high as the above-mentioned metal materials, but they also have corresponding application prospects.

Metal 3D printing is most suitable for complex, bespoke parts that are difficult or very costly to manufacture with traditional methods. In the context of China-US trade war and COVID-19 epidemic, it will have a big influence on this market. 3D Printing Metals Report by Material, Application, and Geography – Global Forecast to 2025 is a professional and comprehensive research report on the world's major regional market conditions, focusing on the main regions (North America, Europe and Asia-Pacific) and the main countries (United States, Germany, United Kingdom, Japan, South Korea and

China).

In this report, the global 3D Printing Metals market is valued at USD XX million in 2021 and is projected to reach USD XX million by the end of 2025, growing at a CAGR of XX% during the period 2021 to 2025.

The report firstly introduced the 3D Printing Metals basics: definitions, classifications, applications and market overview; product specifications; manufacturing processes; cost structures, raw materials and so on. Then it analyzed the world's main region market conditions, including the product price, profit, capacity, production, supply, demand and market growth rate and forecast etc. In the end, the report introduced new project SWOT analysis, investment feasibility analysis, and investment return analysis.

The major players profiled in this report include:

Stratasys Ltd.

3D Systems Corporation

EOS GmbH

Materialise NV

GE Additive

Renishaw plc

Voxeljet AG

3D Systems, Inc

Sandvik AB

Hoganas AB

The end users/applications and product categories analysis:

On the basis of product, this report displays the sales volume, revenue (Million USD), product price, market share and growth rate of each type, primarily split into-  
General Type

On the basis on the end users/applications, this report focuses on the status and outlook for major applications/end users, sales volume, market share and growth rate of 3D Printing Metals for each application, including-

Aerospace & Defense

Automotive

## Contents

### **PART I 3D PRINTING METALS INDUSTRY OVERVIEW**

#### **CHAPTER ONE 3D PRINTING METALS INDUSTRY OVERVIEW**

- 1.1 3D Printing Metals Definition
- 1.2 3D Printing Metals Classification Analysis
  - 1.2.1 3D Printing Metals Main Classification Analysis
  - 1.2.2 3D Printing Metals Main Classification Share Analysis
- 1.3 3D Printing Metals Application Analysis
  - 1.3.1 3D Printing Metals Main Application Analysis
  - 1.3.2 3D Printing Metals Main Application Share Analysis
- 1.4 3D Printing Metals Industry Chain Structure Analysis
- 1.5 3D Printing Metals Industry Development Overview
  - 1.5.1 3D Printing Metals Product History Development Overview
  - 1.5.1 3D Printing Metals Product Market Development Overview
- 1.6 3D Printing Metals Global Market Comparison Analysis
  - 1.6.1 3D Printing Metals Global Import Market Analysis
  - 1.6.2 3D Printing Metals Global Export Market Analysis
  - 1.6.3 3D Printing Metals Global Main Region Market Analysis
  - 1.6.4 3D Printing Metals Global Market Comparison Analysis
  - 1.6.5 3D Printing Metals Global Market Development Trend Analysis

#### **CHAPTER TWO 3D PRINTING METALS UP AND DOWN STREAM INDUSTRY ANALYSIS**

- 2.1 Upstream Raw Materials Analysis
  - 2.1.1 Proportion of Manufacturing Cost
  - 2.1.2 Manufacturing Cost Structure of 3D Printing Metals Analysis
- 2.2 Down Stream Market Analysis
  - 2.2.1 Down Stream Market Analysis
  - 2.2.2 Down Stream Demand Analysis
  - 2.2.3 Down Stream Market Trend Analysis

### **PART II ASIA 3D PRINTING METALS INDUSTRY (THE REPORT COMPANY INCLUDING THE BELOW LISTED BUT NOT ALL)**

#### **CHAPTER THREE ASIA 3D PRINTING METALS MARKET ANALYSIS**

- 3.1 Asia 3D Printing Metals Product Development History
- 3.2 Asia 3D Printing Metals Competitive Landscape Analysis
- 3.3 Asia 3D Printing Metals Market Development Trend

## **CHAPTER FOUR 2016-2021 ASIA 3D PRINTING METALS PRODUCTIONS SUPPLY SALES DEMAND MARKET STATUS AND FORECAST**

- 4.1 2016-2021 3D Printing Metals Production Overview
- 4.2 2016-2021 3D Printing Metals Production Market Share Analysis
- 4.3 2016-2021 3D Printing Metals Demand Overview
- 4.4 2016-2021 3D Printing Metals Supply Demand and Shortage
- 4.5 2016-2021 3D Printing Metals Import Export Consumption
- 4.6 2016-2021 3D Printing Metals Cost Price Production Value Gross Margin

## **CHAPTER FIVE ASIA 3D PRINTING METALS KEY MANUFACTURERS ANALYSIS**

- 5.1 Company A
  - 5.1.1 Company Profile
  - 5.1.2 Product Picture and Specification
  - 5.1.3 Product Application Analysis
  - 5.1.4 Capacity Production Price Cost Production Value
  - 5.1.5 Contact Information
- 5.2 Company B
  - 5.2.1 Company Profile
  - 5.2.2 Product Picture and Specification
  - 5.2.3 Product Application Analysis
  - 5.2.4 Capacity Production Price Cost Production Value
  - 5.2.5 Contact Information
- 5.3 Company C
  - 5.3.1 Company Profile
  - 5.3.2 Product Picture and Specification
  - 5.3.3 Product Application Analysis
  - 5.3.4 Capacity Production Price Cost Production Value
  - 5.3.5 Contact Information
- 5.4 Company D
  - 5.4.1 Company Profile
  - 5.4.2 Product Picture and Specification
  - 5.4.3 Product Application Analysis

5.4.4 Capacity Production Price Cost Production Value

5.4.5 Contact Information

## **CHAPTER SIX ASIA 3D PRINTING METALS INDUSTRY DEVELOPMENT TREND**

6.1 2021-2025 3D Printing Metals Production Overview

6.2 2021-2025 3D Printing Metals Production Market Share Analysis

6.3 2021-2025 3D Printing Metals Demand Overview

6.4 2021-2025 3D Printing Metals Supply Demand and Shortage

6.5 2021-2025 3D Printing Metals Import Export Consumption

6.6 2021-2025 3D Printing Metals Cost Price Production Value Gross Margin

## **PART III NORTH AMERICAN 3D PRINTING METALS INDUSTRY (THE REPORT COMPANY INCLUDING THE BELOW LISTED BUT NOT ALL)**

### **CHAPTER SEVEN NORTH AMERICAN 3D PRINTING METALS MARKET ANALYSIS**

7.1 North American 3D Printing Metals Product Development History

7.2 North American 3D Printing Metals Competitive Landscape Analysis

7.3 North American 3D Printing Metals Market Development Trend

### **CHAPTER EIGHT 2016-2021 NORTH AMERICAN 3D PRINTING METALS PRODUCTIONS SUPPLY SALES DEMAND MARKET STATUS AND FORECAST**

8.1 2016-2021 3D Printing Metals Production Overview

8.2 2016-2021 3D Printing Metals Production Market Share Analysis

8.3 2016-2021 3D Printing Metals Demand Overview

8.4 2016-2021 3D Printing Metals Supply Demand and Shortage

8.5 2016-2021 3D Printing Metals Import Export Consumption

8.6 2016-2021 3D Printing Metals Cost Price Production Value Gross Margin

### **CHAPTER NINE NORTH AMERICAN 3D PRINTING METALS KEY MANUFACTURERS ANALYSIS**

9.1 Company A

9.1.1 Company Profile

9.1.2 Product Picture and Specification

9.1.3 Product Application Analysis

9.1.4 Capacity Production Price Cost Production Value

- 9.1.5 Contact Information
- 9.2 Company B
  - 9.2.1 Company Profile
  - 9.2.2 Product Picture and Specification
  - 9.2.3 Product Application Analysis
  - 9.2.4 Capacity Production Price Cost Production Value
  - 9.2.5 Contact Information

## **CHAPTER TEN NORTH AMERICAN 3D PRINTING METALS INDUSTRY DEVELOPMENT TREND**

- 10.1 2021-2025 3D Printing Metals Production Overview
- 10.2 2021-2025 3D Printing Metals Production Market Share Analysis
- 10.3 2021-2025 3D Printing Metals Demand Overview
- 10.4 2021-2025 3D Printing Metals Supply Demand and Shortage
- 10.5 2021-2025 3D Printing Metals Import Export Consumption
- 10.6 2021-2025 3D Printing Metals Cost Price Production Value Gross Margin

## **PART IV EUROPE 3D PRINTING METALS INDUSTRY ANALYSIS (THE REPORT COMPANY INCLUDING THE BELOW LISTED BUT NOT ALL)**

### **CHAPTER ELEVEN EUROPE 3D PRINTING METALS MARKET ANALYSIS**

- 11.1 Europe 3D Printing Metals Product Development History
- 11.2 Europe 3D Printing Metals Competitive Landscape Analysis
- 11.3 Europe 3D Printing Metals Market Development Trend

### **CHAPTER TWELVE 2016-2021 EUROPE 3D PRINTING METALS PRODUCTIONS SUPPLY SALES DEMAND MARKET STATUS AND FORECAST**

- 12.1 2016-2021 3D Printing Metals Production Overview
- 12.2 2016-2021 3D Printing Metals Production Market Share Analysis
- 12.3 2016-2021 3D Printing Metals Demand Overview
- 12.4 2016-2021 3D Printing Metals Supply Demand and Shortage
- 12.5 2016-2021 3D Printing Metals Import Export Consumption
- 12.6 2016-2021 3D Printing Metals Cost Price Production Value Gross Margin

### **CHAPTER THIRTEEN EUROPE 3D PRINTING METALS KEY MANUFACTURERS ANALYSIS**

## 13.1 Company A

13.1.1 Company Profile

13.1.2 Product Picture and Specification

13.1.3 Product Application Analysis

13.1.4 Capacity Production Price Cost Production Value

13.1.5 Contact Information

## 13.2 Company B

13.2.1 Company Profile

13.2.2 Product Picture and Specification

13.2.3 Product Application Analysis

13.2.4 Capacity Production Price Cost Production Value

13.2.5 Contact Information

## **CHAPTER FOURTEEN EUROPE 3D PRINTING METALS INDUSTRY DEVELOPMENT TREND**

14.1 2021-2025 3D Printing Metals Production Overview

14.2 2021-2025 3D Printing Metals Production Market Share Analysis

14.3 2021-2025 3D Printing Metals Demand Overview

14.4 2021-2025 3D Printing Metals Supply Demand and Shortage

14.5 2021-2025 3D Printing Metals Import Export Consumption

14.6 2021-2025 3D Printing Metals Cost Price Production Value Gross Margin

## **PART V 3D PRINTING METALS MARKETING CHANNELS AND INVESTMENT FEASIBILITY**

### **CHAPTER FIFTEEN 3D PRINTING METALS MARKETING CHANNELS DEVELOPMENT PROPOSALS ANALYSIS**

15.1 3D Printing Metals Marketing Channels Status

15.2 3D Printing Metals Marketing Channels Characteristic

15.3 3D Printing Metals Marketing Channels Development Trend

15.2 New Firms Enter Market Strategy

15.3 New Project Investment Proposals

### **CHAPTER SIXTEEN DEVELOPMENT ENVIRONMENTAL ANALYSIS**

16.1 China Macroeconomic Environment Analysis



- 16.2 European Economic Environmental Analysis
- 16.3 United States Economic Environmental Analysis
- 16.4 Japan Economic Environmental Analysis
- 16.5 Global Economic Environmental Analysis

## **CHAPTER SEVENTEEN 3D PRINTING METALS NEW PROJECT INVESTMENT FEASIBILITY ANALYSIS**

- 17.1 3D Printing Metals Market Analysis
- 17.2 3D Printing Metals Project SWOT Analysis
- 17.3 3D Printing Metals New Project Investment Feasibility Analysis

## **PART VI GLOBAL 3D PRINTING METALS INDUSTRY CONCLUSIONS**

### **CHAPTER EIGHTEEN 2016-2021 GLOBAL 3D PRINTING METALS PRODUCTIONS SUPPLY SALES DEMAND MARKET STATUS AND FORECAST**

- 18.1 2016-2021 3D Printing Metals Production Overview
- 18.2 2016-2021 3D Printing Metals Production Market Share Analysis
- 18.3 2016-2021 3D Printing Metals Demand Overview
- 18.4 2016-2021 3D Printing Metals Supply Demand and Shortage
- 18.5 2016-2021 3D Printing Metals Import Export Consumption
- 18.6 2016-2021 3D Printing Metals Cost Price Production Value Gross Margin

### **CHAPTER NINETEEN GLOBAL 3D PRINTING METALS INDUSTRY DEVELOPMENT TREND**

- 19.1 2021-2025 3D Printing Metals Production Overview
- 19.2 2021-2025 3D Printing Metals Production Market Share Analysis
- 19.3 2021-2025 3D Printing Metals Demand Overview
- 19.4 2021-2025 3D Printing Metals Supply Demand and Shortage
- 19.5 2021-2025 3D Printing Metals Import Export Consumption
- 19.6 2021-2025 3D Printing Metals Cost Price Production Value Gross Margin

### **CHAPTER TWENTY GLOBAL 3D PRINTING METALS INDUSTRY RESEARCH CONCLUSIONS**

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