

Selective Laser Sintering - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2019 - 2029

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Report description:

The Selective Laser Sintering Market size is estimated at USD 3.93 billion in 2024, and is expected to reach USD 10.81 billion by 2029, growing at a CAGR of 22.46% during the forecast period (2024-2029).

Selective Laser Sintering (SLS), an additive manufacturing (AM) technique, is a process in which a high-powered laser beam is aimed into powdered material (typically nylon or polyamide) bed to sinter a layer of the desired object. Following the completion of that layer, the object is covered with a new layer of powder, and another layer is sintered.

Key Highlights

- The market for SLS equipment is anticipated to be driven by the rising demand from developed countries, owing to the presence of research and development facilities in the countries. The adoption of laser sintering printers has increased due to the ease of availability of non-metal powders to create prototype models and parts. Also, laser sintering printers are the most precise when printing metal parts.
- Selective Laser Sintering (SLS) has been identified as one of the most-preferred technology and is expected to witness robust growth during the forecast period, owing to its various benefits over other technologies used for printing applications.
- SLS utilizes nylon powder as raw material as a substitute for the photosensitive resin used in Stereolithography. Companies and research organizations across the globe have been identified to take advantage of this material and technology to tackle concerns, such as the brittle nature of the resin when exposed to sunlight. In addition, SLS has also been proven to be cost and material friendly, as it does not require any dedicated support structure post-printing. In addition, SLS provides enhanced durability and can perform as well as either functional parts or prototypes.
- SLS further finds a wide array of applications across various verticals, such as aerospace, defense, and automotive, among others. With space exploration witnessing a paradigm shift, the demand for SLS printing is expected to mount, with an increasing

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number of countries gearing up to launch satellites.

-Various aerospace companies are adopting the technology to foster efficient production. For instance, in the space flight branch of aerospace, NASA and private companies are working to build rocket engines (and even entire rockets in the case of Relativity Space) with fewer parts, which is a crucial capability of 3D printing and a way to reduce production time and costs. Using selective laser sintering and the laying down and melting of metal powder (for example, Inconel copper super alloy powder that can withstand high temperatures), parts are built up layer by layer. The SLS technique offers several benefits, like multiple parts can be printed as one unified part in just days; the rocket's weight can be reduced with fewer nuts, bolts, and welds. If the rocket proves faulty during a test, changes can be made to the 3D modeling software for a new rocket, and another test can be quickly set up.

-Further, in December 2021, Primaeam Solutions Pvt Ltd, an additive parts manufacturing company, inaugurated its new Additive Manufacturing Customer Experience Centre, Innovation & Incubation Centre for Healthcare, in Chennai, India. The 10,000 sq. ft. center would allow the company to develop its position as a prominent player in the additive manufacturing service bureau with technologies such as Electron Beam Melting (EBM), Selective Laser Sintering (SLM), Fused Deposition Modelling (FDM), Stereolithography (SLA), Multi Jet Fusion (MJF), and Continuous Filament Fabrication with Fiber reinforcement (CFF).

-The COVID-19 pandemic outbreak has created economic turmoil for small, medium, and large-scale industries worldwide. Adding to the woes, country-wise lockdown inflicted by the governments across the globe (to minimize the spread of the virus) has further resulted in industries taking a hit and disruption in supply chain and manufacturing operations across the world, as a large part of manufacturing includes work on the factory floor, where people are in close contact as they collaborate to boost the productivity.

Selective Laser Sintering (SLS) Market Trends

Aerospace and Defense Industry is Expected to Hold Significant Market Share

- The aerospace industry has an early rate of adoption of most of the technologies in the current generation. Both aircraft and engine manufacturers have been relying on 3D printing technology in order to develop lightweight parts to gain efficiency.

- 3D printing has been used by the National Aeronautics and Space Administration (NASA) for decades for the purposes of prototyping and creating functional parts and, most recently, for building construction systems for the Moon and Mars.

- Bell Textron Inc. was one of the first aerospace companies to experiment with additive manufacturing. The first use of SLS was for quick prototypes of tooling and experimental parts. However, as the additive manufacturing industry progressed, the company understood the need to allow the additive manufacturing industry to mature. Since the start of additive efforts, Bell Textron has produced over 550 parts widely spread among its products with just SLS. While a majority of parts produced are experimental, it is to be noted that over 200 of those 550 parts are for production purposes.

- Moreover, in July 2022, GKN Aerospace expanded its range of metal additive manufacturing machines at the company's global technology center in the United Kingdom by installing RenAM 500 Flex. The RenAM 500Q Flex is a four-laser Additive Manufacturing machine that is expected to optimize Additive Manufacturing for aerospace applications.

- Furthermore, according to the US Census Bureau, it is expected that the revenue of aerospace products and parts manufacturing in the United States will amount to about USD 264.4 billion by 2024. Moreover, It is likely that the revenue of aerospace products and parts manufacturing in Canada will amount to approximately USD 19.3 billion by 2024. Such developments would drive the market's growth positively.

- According to Stockholm International Peace Research Institute (SIPRI), the United States led the ranking of countries with maximum military spending in 2021, with 801 USD billion dedicated to the military, which was 38 percent of the global military expenditure of USD 2.1 trillion.

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North America is Expected to Hold Major Market Share

- North America is home to many companies developing, adopting, or investing in additive manufacturing. There has been a growth in the demand for prototyping in the region which has been majorly driving the market in the region. Further, the demand for SLS in North America is driven by a higher focus on research and development and increased testing in various industries.
- According to Statistics Canada, Canadian businesses intend to spend USD 21.9 billion on in-house industrial research and development in 2021, while USD 22.4 billion is expected to be spent in 2022. Such growth in research and development is expected to push the market for Selective Laser Sintering in North America.
- Companies in the region are doing strategic collaborations to provide their solutions to a broader customer base. For instance, in May 2022, Essentium Inc, a US-based company, partnered with Nuburu, a blue laser solution provider, to develop a blue laser-based metal Additive Manufacturing platform.
- The resulting machine is hoped to enable manufacturers to create production-grade metal parts with high resolution and fast throughput. Further, as a part of the contract, Nuburu will license its additive manufacturing application patents.
- The increase in the usage of new technologies, such as 3D printing, is also expected to drive the market of SLS in the region. For instance, according to World Economic Forum, it is expected that by 2022, 47% of the surveyed companies in the United States will use 3D printing technology.

Selective Laser Sintering (SLS) Industry Overview

The Selective Laser Sintering Market majorly comprises incumbents operating globally, along with a few regional players vying for attention in a consolidated market space. The presence of several players, such as 3D Systems Inc., EOS GmbH Electro Optical Systems, Ricoh Company Ltd., and Fathom Manufacturing, among others with considerable expertise in the field, is expected to intensify the competitive rivalry further.

- June 2022 - 3D Systems and EMS GRILTECH announced the strategic partnership to enhance additive manufacturing materials development. Both companies will introduce a novel nylon copolymer - DuraForm PAx Natural- designed to be used with any commercially-available selective laser sintering (SLS) printer.
- November 2021 - Evonik Industries AG announced that it offers a broader range of RESOMER PrintPowder polymers to enable the 3D printing of personalized implantable medical devices. The new powders are available globally for 3D printing through selective laser sintering (SLS). Due to a broader range of customizable mechanical properties and degradation rates, the new powders could be used for more complex and tailored medical devices, including diverse orthopedic, dental, or soft tissue applications.
- February 2021 - 3D Systems announced the expansion plan of its Rock Hill, South Carolina, location, adding 100,000 square feet to its existing headquarters campus. This expansion will enable the company to consolidate its materials manufacturing, quality, and logistics operations, with new and expanded materials development laboratories to improve operational efficiencies, accelerate solution development, and reduce time to market.

Additional Benefits:

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

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