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Medical Injection Molding Market Size and Forecast (2021 - 2031), Global and Regional Share, Trend, and Growth Opportunity Analysis Report Coverage: By Material [Polyvinyl Chloride (PVC), Poly(Methyl Methacrylate) (PMMA), Polyether Ether Ketone (PEEK), Metals, and Others], Type (Plastic Injection Molding, Overmolding, Liquid Silicone Molding, and Others), End User (Medical Device Companies, Pharmaceutical Drug Packaging Companies, Surgical Instruments Companies, and Others), Product Type (Medical Equipment Components, Consumables, Patient Aids, Orthopedic Instruments, Dental Products, and Others), System (Hot Runner and Cold Runner), and Geography (North America, Europe, Asia Pacific, Middle East & Africa, and South & Central America)

https://marketpublishers.com/r/M1E7CFDBE177EN.html
Date: March 2025
Pages: 190
Price: US$ 4,450.00 (Single User License)
ID: M1E7CFDBE177EN

Abstracts

The medical injection molding market is anticipated to grow from US$ 7.52 billion in 2024 and is projected to reach US$ 10.80 billion by 2031; it is expected to register a CAGR of 5.3% during 2025–2031. The medical injection molding market growth is attributed to the increasing demand for medical devices and equipment, and advancements in molding technologies.

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Medical injection molding is a manufacturing process used to produce precision plastic components for medical applications. It involves injecting molten plastic into a mold cavity under high pressure, where it cools down and solidifies into the desired shape.

The medical injection molding market in North America is segmented into the US, Canada, and Mexico. The North American region is anticipated to play a pivotal role in driving the market's growth. The region's robust healthcare infrastructure and increasing demand for high-quality medical devices, such as syringes, catheters, and diagnostic tools, are several key factors driving the market's growth. Additionally, advancements in medical technologies and the rise in chronic diseases require precise, cost-effective manufacturing processes like injection molding. The growing adoption of minimally invasive surgeries and personalized medicine further fuels the need for innovative, high-performance medical products in the North American market..

In North America, the US holds a significant share of the medical injection molding market. In the US, the expansion of the medical injection molding market is driven by the growing demand for medical devices and components, which are essential for diagnosing, treating, and monitoring various health conditions. The aging population and the rising incidence of diabetes, cardiovascular diseases (CVDs), respiratory disorders, and other chronic conditions are the main factors driving the demand for medical devices in the country. The Centers for Disease Control and Prevention (CDC) reports that approximately 60% American adults in the country suffer from at least 1 chronic disease, while ~40% adults have two or more. Such elevated incidence rates of chronic diseases result in the need for various medical devices and components in disease management. According to the CDC’s National Diabetes Statistics Report for 2022, ~37.3 million Americans were living with diabetes as of 2022; this has led to a higher demand for insulin delivery devices, such as pens and syringes, which are often produced using medical injection molding techniques. Medical injection molding is employed in the manufacturing process to produce precise and complex components essential for various medical applications. This process is particularly valuable for creating single-use medical devices.

Milacron, LLC, one of the key players in the US medical injection molding market, has a diverse product lineup that includes injection molding machines, extrusion and blow molding equipment, and hot runner systems. In addition to these offerings, the company provides mold bases and components, process control systems, and MRO supplies for fluid technology and plastic processing equipment. With clamp capacities ranging from 17 to 7,650 tons, the machines can produce an array of items, from precise medical

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components to large structural plastic products. Additionally, the increasing adoption of single-use medical devices for infection control has further driven the demand for injection-molded components.

Combination of 3D Printing with Injection Molding to Provide Market Opportunities in Future

The growing adoption of hybrid manufacturing techniques is transforming the medical injection molding sector, providing greater flexibility, improved accuracy, and a streamlined production process that meets both patient needs and regulatory standards. The fusion of 3D printing and injection molding is emerging as a significant trend in the medical injection molding market, reshaping how personalized medical devices are created and making production more precise, efficient, and cost-effective. By leveraging 3D printing for rapid prototyping and injection molding for large-scale production, manufacturers can develop custom implants, prosthetics, and intricate medical components with greater ease. 3D printing is known for its ability to quickly generate complex designs, thereby enabling fast prototyping and design adjustments. On the other hand, injection molding guarantees mass production with superior consistency and durability. Thus, the synergy of both these techniques accelerates product innovation and enhances patient-specific treatment solutions, making medical devices more adaptive to individual needs.

As per an article published by Reuters in 2024, researchers in China have developed a 3D-printed breast prosthesis capable of detecting and treating cancer recurrence. This prosthesis contains a specialized gel that responds to tumor activity by releasing therapeutic agents, demonstrating strong anti-cancer effects in preclinical studies. Further, companies such as Fortify offer injection molding services that utilize 3D-printed molds to produce orthopedic components. This method allows for the rapid prototyping and production of parts using validated medical-grade plastics, ensuring both speed and compliance with industry standards.

The key advantages of combining 3D printing with injection molding for medical device manufacturing as as follows:

Accelerated development and testing – Using 3D printing, manufacturers can create testable prototypes before moving to full-scale injection molding.

Cost optimization – The need for costly prototype molds is reduced, lowering initial investment in product development.

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Enhanced personalization – Patient-specific components, such as implants, dental prosthetics, and surgical models, can be fine-tuned before mass production.

Reduced material waste – 3D printing uses only the necessary material, and injection molding ensures strength and reliability in the final product.

Regulatory compliance and precision – While 3D printing allows for quick iterations, injection molding ensures tight tolerances and quality control required for medical use.

Stratasys, a pioneer in 3D printing, has developed biocompatible materials for medical use. The company collaborates with injection molding firms to create highly detailed surgical models and prosthetic components. Their PolyJet technology is particularly beneficial for producing realistic anatomical structures for medical planning. Westfall Technik, a specialist in advanced manufacturing, integrates 3D printing into its processes to enhance precision in medical device production. This approach has allowed them to refine the development of customized hearing aids, orthopedic implants, and dental restorations.

The World Health Organization, National Health of Health, and Organisation for Economic Co-operation and Development are among the primary and secondary sources referred to while preparing the medical injection molding market report.

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