

Fiber Optic Preform Market Assessment, By Fabrication Process [Inside Vapor Deposition, Outside Vapor Deposition, Modified Chemical Vapor Deposition, Plasma Activated Chemical Vapor Deposition, Vapor Phase Axial Deposition, Others], By Type [Single mode, Multi-mode], By End-user [Telecommunication, Healthcare, BFSI, Oil and Gas, Military and Defense, Aviation, Others], By Region, Opportunities and Forecast, 2017-2031F

https://marketpublishers.com/r/FB3356D54187EN.html

Date: March 2025 Pages: 225 Price: US\$ 4,500.00 (Single User License) ID: FB3356D54187EN

Abstracts

Global fiber optic preform market size was valued at USD 5.51 billion in 2023, expected to reach USD 20.16 billion in 2031, with a CAGR of 17.6% for the forecast period between 2024 and 2031. The global optic preform market is a dynamic and crucial segment within optics and telecommunications industry. Optic preforms serve as the foundational material to produce optical fibers, playing a pivotal role in the transmission of data, voice, and video across the vast global communications network. These preforms are essentially specialized rods or tubes, typically made from high-purity silica or other glass materials, that undergo intricate manufacturing processes to transform them into optical fibers. The production involves techniques like vapor axial deposition (VAD) and modified chemical vapor deposition (MCVD), ensuring precise control over the optical characteristics of the resulting fibers.

The escalating demand for high-speed internet, driven by factors such as increased data consumption, the proliferation of smart devices, and the advent of 5G technology, has fueled substantial growth in global optic preform market. Telecommunication companies, data centers, and network infrastructure developers heavily rely on optic

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preforms to produce optical fibers that can transmit vast amounts of data with minimal signal loss. Moreover, the market is witnessing technological advancements, including the development of advanced materials and manufacturing techniques, to enhance the performance and efficiency of optic preforms. The rise of technologies like fiber to the home (FTTH) and the ongoing expansion of broadband networks worldwide further contribute to the increasing demand for optic preforms.

Geographically, major players and manufacturers in the fiber optic preform market are strategically positioning themselves to cater to the growing demand in regions with expanding telecommunications infrastructure, such as Asia-Pacific and North America.

Surging Demand for High-Speed Data Transmission with Telecommunication Infrastructure

The global fiber optic preform market is experiencing substantial growth, primarily due to the escalating demand for high-speed data transmission driven by the expansion of telecommunication infrastructure. As the telecommunications industry strives to meet the ever-increasing need for faster and more reliable connectivity, the deployment of fiber optics becomes pivotal. Fiber optic preforms, the building blocks of optical fibers, essential in meeting this demand. The proliferation of 5G technology further intensifies the reliance on fiber optics, as it requires robust and high-capacity communication networks. The global push towards digital transformation in various sectors, coupled with the rising significance of data centers, amplifies the demand for fiber optic preforms.

These preforms serve as a critical element in ensuring the efficiency and performance of optical communication systems. Moreover, the inherent advantages of fiber optics, such as higher bandwidth and lower latency, position them as the preferred choice for transmitting large volumes of data. This surge in demand reflects a broader trend of societies and industries becoming increasingly dependent on seamless and rapid data transfer, influencing the growth trajectory of the global fiber optic preform market.

In October 2022, STL introduced India's inaugural multicore fiber and cable, aiming to boost fiber connectivity, particularly in response to the heightened demands for data transmission speed and volume brought by 5G technology. The innovative multicore fiber design enables the optic fiber cable to carry multiple spatially separated beams of light, maximizing data transmission density. With the rollout of 5G networks in India, operators face the imperative task of significantly enhancing fiberization in their networks to accommodate the substantial increase in data volumes. India currently



contends with one of the lowest fiberization rates globally, with only 30% of its towers presently fiberized. The unveiling of STL's multicore fiber solutions aligns with their '5G Cosmos' initiative. STL asserts that this Atmanirbhar patented solution addresses connectivity challenges, seamlessly linking every tower, small cell, and node to facilitate robust communication infrastructure.

Deployment of Fiber-to-the-Home (FTTH) Influencing the Market

FTTH involves the direct installation of optic fiber cables to individual residences and businesses, offering unparalleled high-speed internet connectivity. The surge in FTTH deployments is driven by the increasing demand for faster and more reliable internet services, especially with the growing reliance on bandwidth-intensive applications like streaming, online gaming, and remote work. FTTH networks heavily depend on fiber optic preforms, which serve as the foundational components for manufacturing optical fibers.

As more regions and countries embrace the transition to FTTH infrastructure, the demand for optic fiber preforms experiences a substantial uptick. These preforms play a crucial role in ensuring the efficiency and performance of FTTH networks, enabling seamless data transmission directly to end-users.

The influence of FTTH on the optic fiber preform market extends beyond improved internet connectivity. It addresses the need for enhanced communication infrastructure, supporting the digital transformation of communities and contributing to the overall growth of the telecommunication industry. The symbiotic relationship between FTTH deployment and the optic fiber preform market underscores the fundamental role these preforms play in shaping the landscape of high-speed, direct-to-home internet access.

In January 2023, based on a survey conducted by Fiber Broadband Association (FBA), the United States currently boasts a collective 68 million fiber broadband passings. It marks 13% increase from the past year and a substantial 27% growth over the preceding 24 months. The FBA highlights that this growth trend predates anticipated higher levels of annual fiber-to-the-home (FTTH) deployments in the coming five years. These projections align with federal funding programs such as BEAD, RDOF, ReConnect, and other initiatives strategically targeting specific markets and demographics. The survey underscores the significant progress in expanding fiber broadband infrastructure in the United States, with the observed surge in passings laying the groundwork for an extensive FTTH deployment in the foreseeable future.



Asia-pacific Dominates the Fiber Optic Preform Market

Asia-Pacific dominates the global fiber optic preform market due to several key factors. China, in particular, plays a pivotal role as a major manufacturing hub for fiber optic preforms and components. The region's dominance is attributed to the rapid expansion of telecommunication infrastructure, increasing internet penetration, and widespread deployment of 5G technology. Growing economies, coupled with a surge in demand for high-speed data transmission, contribute to a significant market share held by Asia-Pacific. Moreover, government initiatives supporting digital connectivity, coupled with the presence of key market players and robust technological advancements, further solidify the region's leadership in global fiber optic preform market. The dynamic growth in telecommunications and the ongoing digital transformation across various industries propel Asia-Pacific as a central hub for the production and adoption of fiber optic preforms.

In June 2022, China has established the world's largest mobile broadband and fiber optic network, achieving network quality that ranks at the global pinnacle. With the deployment of nearly 1.6 million 5G base stations nationwide, China represents over 60% of the global total. The accomplishment positions China as the world's first country to establish a large-scale 5G network based on an independent networking mode, showcasing its leadership in advancing telecommunications infrastructure and technology on a global scale.

Volatility and Uncertainty in Supply Chain to Hinder Market Expansion

A significant challenge for the global optic fiber preform market is the volatility and uncertainty in supply chain. The production of optic fiber preforms involves intricate processes, including the deposition of various materials and precise engineering. Any disruption in the supply chain, whether due to geopolitical tensions, natural disasters, or logistical issues, can lead to delays and shortages in the availability of optic fiber preforms. This challenge is further exacerbated by the global nature of the market, with manufacturers often relying on a network of suppliers and production facilities spread across different regions.

Furthermore, regulatory considerations and trade restrictions impact the optic fiber preform market. Trade tensions and policy changes between major players can introduce uncertainties and affect the smooth flow of raw materials and finished products. Navigating these challenges requires a strategic approach, with industry players focusing on resilience, innovation, and adaptability to sustain growth in the

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dynamic optic fiber preform market.

Impact of COVID-19

The COVID-19 pandemic had a mixed impact on the fiber optic preform market. While increased demand for high-speed internet and data connectivity remained resilient, the industry faced significant challenges. Disruptions in global supply chain, particularly in early 2020, led to delays in manufacturing and logistics. Lockdowns and restrictions impacted construction projects, affecting the deployment of fiber optic networks. However, the pandemic underscored the critical role of digital infrastructure, potentially driving long-term investments in fiber optic technology. Remote work and increased internet usage highlighted the importance of robust connectivity, potentially accelerating the adoption of fiber optics post-pandemic. The market's recovery and growth are contingent on factors like supply chain stability, global economic rebound, and sustained demand for enhanced digital communication capabilities in the evolving post-pandemic landscape.

Government Initiative

The government initiatives are promoting the growth of the market. For instance, in August 2023, the Indian government imposed a five-year anti-dumping duty on optical fiber imports from countries like China, Korea, and Indonesia. The decision follows the Directorate General of Trade Remedies' findings, recommending the action due to these countries selling at prices deemed 'below normal values', adversely affecting domestic producers such as Sterlite Technologies, Birla Furukawa Fibre, and American Corning.

In December 2020, the European Commission initiated an anti-subsidy investigation into the import of optical fiber cables from the People's Republic of China (China or PRC) under Article 10 of the basic Regulation. The investigation was prompted by a complaint from Europacable, representing over 25% of the total Union production of optical fiber cables (OFC). This action was taken to address concerns raised by Union producers.

Key Players Landscape and Outlook

The fiber optic preform market is expanding due to the increasing emphasis placed by companies worldwide on establishing advanced data and network infrastructure. Furthermore, the market expansion is greatly facilitated by automotive industry, along



with significant investments made by companies to enhance research and development resources, engage in collaboration projects, bolster marketing efforts, and expand distribution networks, contributing to the rapid expansion of the market.

In March 2023, Bayobab, a subsidiary of MTN Group, partnered with Africa50 to construct a terrestrial fiber optic cable network spanning the entirety of Africa. Project East2West and backed by a USD 320 million investment, the initiative aims to link the eastern and western coasts of Africa, traversing 10 countries. With an anticipated completion date in 2025, Project East2West aligns with MTN's Ambition 2025 plans and contributes to Bayobab's goal of establishing a proprietary fiber network covering 135,000 km within the next three years. The project is poised to narrow Africa's connectivity gap, enhancing broadband access for landlocked nations, improving data traffic, fostering local content consumption and regional economic development.



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*Companies mentioned above DO NOT hold any order as per market share and can be changed as per information available during research work

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