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Prestressed Concrete Wire and Strand Market Assessment, By Product Type [Bare PC Strand, Stainless Steel PC Strand, Prestressed PC Steel Wire, Plain PC Wire, Indented PC Wire, Spiral Ribbed PC Wire, Others], By Surface Coating [Uncoated, Galvanized, Epoxy, Others], By Carbon Content [High, Medium, Low], By Application [Bridges, Construction Equipment, Stadiums, Coal Mines, Nuclear Power Plants, Highways, Railways, Beams and Floors, Others], By End-use Industry [Residential, Commercial, Industrial, Infrastructure], By Region, Opportunities and Forecast, 2016-2030F

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Abstracts

Global prestressed concrete wire and strand market size 162.17 kilotons in 2022, which is expected to grow to USD 218.55 kilotons in 2030, with a CAGR of 3.8% during the forecast period between 2023 and 2030. The increasing infrastructure development projects and the rising deployment of prestressed concrete wire and strand in construction equipment applications are the major elements accelerating the market growth. In addition, the new coal mining exploration projects in various regions will create a lucrative opportunity for prestressed concrete wire and strands demand growth to strengthen the structure, which will boost the revenue expansion of the market in the upcoming years.

The rising commercial construction activities, increasing orders for cranes, and the

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surging adoption of excavators in mining activities are prominent aspects fueling the demand for construction equipment. Moreover, the increasing government investments in infrastructure development projects, rising development of bridges, and growing foreign direct investments in infrastructure projects for the developing economies are the prime factors driving the infrastructure industry advancements. Thus, the bolstering infrastructure development projects coupled with the increasing demand for construction equipment are fostering the demand for prestressed concrete wire and strands to ensure consistent mechanical properties, which, in turn, is propelling the market growth. Nonetheless, the instability in raw materials prices is restraining the growth of the prestressed concrete wire and strand market.

Booming Infrastructure Development Activities are Supplementing the Market Growth

The primary characteristics of prestressed concrete wires and strands include a reduction in the occurrence of cracks, less deformations, and increased durability. Thus, prestressed concrete wires and strands are ideal for infrastructure projects such as railways, roads, tunnels, and bridges. The increase in public-private partnerships for the infrastructure projects, development of new tunnels, and rising investment in green building materials in the infrastructure projects are the key trends spurring the new infrastructure project development.

For instance, in December 2022, construction works commenced for the new Parkchester train station in the United States. The new Parkchester train station will be operational in 2027. Hence, the increasing infrastructure development projects are driving the demand for prestressed concrete wires and strands to increase the material’s effectiveness, which is supplementing the market growth.

Rising Adoption of Prestressed Concrete Wire and Strand for Bridges

In bridge development projects, using stainless-steel PC strands and plain PC wires is vital to minimize the amount of weight dissipated in concrete construction. The growth of the bridge development projects is attributed to factors such as the replacement of aging bridge structures and the efficient functioning of transport vehicles by reducing traffic.

For instance, as of October 2023, various bridges are under the construction phase, including the Gordie Howe International Bridge in Canada and the United States, projected to complete in 2024, the Bataan-Cavite Interlink Bridge in Philippines with project completion year 2024, and Fourth Mainland Bridge, Nigeria with project

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completion year 2027. Therefore, the increase in bridge construction projects is fueling the demand for prestressed concrete wire and strand to increase the strength of the structure, which is proliferating the market growth.

Increasing Building and Construction Activities in Asia-Pacific are Augmenting the Market Growth

Building and construction activities are increasing in Asia-Pacific due to factors, including rising investment in road construction projects, growing need for larger commercial spaces, and surging demand for affordable housing. Since the building and construction sector is the major end-user of prestressed concrete wires and strands, the adoption of prestressed steel wire and plain PC wire is increasing in Asia-Pacific.

For example, in Q2 2023, various infrastructure development projects commenced in Asia-Pacific, including Handan-Huanghua Port Expressway in China with project completion year 2025, Shimla to Matour Highway Widening in India, projected to complete in 2028, and HSR – Xiongan New Area-Xinzhou High-Speed Railway in China with project completion in 2027. Therefore, the ongoing development of new infrastructure development projects is boosting the growth of global prestressed concrete wires and strands market.

Future Market Scenario

The tunnel construction projects under the planning stage will boost the demand for prestressed concrete wires and strands, thereby creating a prominent potential for market growth in the coming years. For example, the George Massey Tunnel Replacement project in Canada is in the planning phase. The development of the George Massey Tunnel Replacement project will be completed by the end of 2030.

The increasing infrastructure developments in countries such as China, India, and Germany will create a favorable market outlook in the forecast period. For instance, the overall infrastructure investment during the 14th Five-Year Plan (2021-2025) in China will reach about USD 4.2 trillion. The 14th Five-Year Plan in China emphasizes increasing green building development, more than 350 million square meters of building renovation, and 50 million square meters of building construction with net zero energy consumption.

The increasing investment in mining projects will augment the adoption of prestressed concrete wires and strands to ensure superior durability of mining structures, thereby

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creating a prosperous market growth scenario in the forecast period. For instance, in October 2023, J&F, an industrial conglomerate in Brazil announced an investment of USD 7 billion through 2026 in mining activities, power, and logistics.

Key Players Landscape and Outlook

The prominent growth outlook of the construction industry is boosting the demand for prestressed concrete wires and strands. It in turn, is increasing the competition in the overall market. The key players operating in the prestressed concrete wire and strand industry with a strong geographic presence in the global market include THE SIAM INDUSTRIAL WIRE CO. (Tata Steel), Usha Martin Limited, ArcelorMittal, and ?EL?K HALAT. The manufacturers of the prestressed concrete wires and strands are entering the market to increase their revenue share.

In October 2021, JSW Steel, a global player in wires and strands acquired a 51% share of Neotrex Steel, which is a manufacturer of prestressed concrete strands in India. The prime focus of the acquisition was to increase JSW Steel's share in the global market.

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