Aluminum Bare Wire Market in India is Set to Grow $2,548.8 million by 2033

The market is driven by rising demand for efficient, sustainable transmission solutions in India's growing power infrastructure.

WILMINGTON, DE, UNITED STATES, November 19, 2024 /EINPresswire.com/ -- According to a new report published by Allied Market Research, titled, " India Aluminum Bare Wire Market by Type, by Voltage and End-Use: Opportunity Analysis and industry forecast, 2023–2033", the India aluminum bare wire market size was valued at $1,668.2 in 2023, and is projected to reach $2,548.8 million by 2033, registering a CAGR of 4.4% from 2024 to 2033.

According to Eswara Prasad, Manager, Energy and Power, Allied Market Research, "The India aluminum bare wire conductor market is primarily driven by the rising demand for efficient and sustainable transmission solutions in the India expanding power and electrical infrastructure, such as power lines, substations, and grid expansions. The lightweight nature, high conductivity, and resistance to corrosion of aluminum conductors make them a cost-effective alternative to copper, suitable for high-voltage applications and challenging environments, ultimately reducing energy losses and transmission costs. As a result, there is growing demand for India aluminum bare wire conductor market.

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Market Dynamics
The expansion of renewable energy projects in India, particularly in the solar and wind power sectors, is playing a crucial role in driving the demand for aluminum bare wire conductors. India has set ambitious targets to increase its renewable energy capacity, aiming for 500 GW of installed capacity by 2030. This includes large-scale solar parks, wind farms, and hybrid renewable energy installations, all of which require extensive transmission infrastructure to connect the power generated to the national grid. Aluminum conductors, known for their cost-effectiveness, light weight, and corrosion resistance, are widely preferred in these projects for transmitting electricity over long distances.

Solar power is witnessing rapid growth across various regions in India. Large solar farms, especially in states like Rajasthan, Gujarat, and Tamil Nadu, are contributing significantly to the country's renewable energy output. These projects require efficient and durable transmission lines to transport electricity from often remote locations to urban centers and industrial areas.

Aluminum bare wire conductors are ideal for such applications due to their light weight, which reduces the overall cost of installation, and their high conductivity, which ensures efficient energy transfer. All these factors are expected to drive the demand for the India aluminum bare wire conductor market during the forecast period.

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Aluminum is a globally traded commodity, and its prices are subject to volatility due to various factors such as changes in supply-demand dynamics, geopolitical tensions, trade tariffs, and fluctuations in energy costs, which are crucial for aluminum smelting. These price fluctuations create uncertainty for manufacturers of aluminum bare wire conductors, making it difficult to plan long-term production and pricing strategies. All these factors hamper the India aluminum bare wire conductor market growth.

Aluminum bare wire conductors are a critical element in the development of smart grids due to their lightweight properties, excellent conductivity, and cost-effectiveness. As smart grids require extensive and efficient electrical networks for the transmission of power, aluminum bare wire conductors provide a reliable solution for connecting various components, including renewable energy sources, substations, and consumers. Their ability to reduce transmission losses and enhance overall grid efficiency aligns perfectly with the goals of smart grid initiatives. Furthermore, aluminum's corrosion resistance makes it suitable for a variety of environmental conditions, contributing to the longevity and durability of smart grid infrastructure. All these factors are anticipated to offer new growth opportunities for India Aluminum bare wire conductor market during the forecast period.

Segments Overview

The India aluminum bare wire conductor market is segmented into type, voltage, and end use. On the basis of type, the market is categorized into all aluminum alloy conductor (AAAC), aluminum alloy wire, and aluminum conductor steel reinforced (ACSR). On the basis of voltage, the market is classified into low voltage, medium voltage, and high voltage. On the basis of end use, it is divided into electronics & electrical, aerospace, automotive, building & construction, packaging, power, and others.

Competitive Analysis

The major players operating in the India aluminum bare wire conductor market include Arfin India Limited, Bansal Wires, MMP Industries Ltd, Hindalco Industries Ltd, Sterlite Power, Devi Dayal Wire & Strip Corp, BIC WIRES, KEI Industries Ltd, APAR Industries Ltd., and Pooja Wire Industries.

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Key Findings of the Study

- As per India aluminum bare wire conductor market analysis, by type, the aluminum conductor

steel reinforced (ACSR)segment was the highest revenue contributor, growing with a CAGR of 4.1%.
• Based on voltage, the medium voltage segment was the highest revenue contributor in 2023.
• Based on End-Use, the electronics and electrical segment was the highest revenue contributor in 2023.

Key regulations on the India Aluminum Bare Wire Conductor
• Indian Standards (IS)
Indian Standard (IS) 398 outlines the requirements for aluminum conductors used in overhead transmission applications, divided into three parts: Part 1 specifies the standards for aluminum stranded conductors, Part 2 details the specifications for aluminum conductors reinforced with galvanized steel, and Part 3 focuses on aluminum conductors reinforced with aluminized steel.
• Indian Standard IS 398
General Specifications: This standard specifies requirements for aluminum conductors used for overhead transmission. It includes guidelines on material purity (99.5% minimum for aluminum) and mechanical properties such as tensile strength and elongation5.
Breaking Strength: Conductors must have a minimum breaking strength of 350 kg, ensuring they can withstand operational stress.

Draft IS 14255

• This draft standard focuses on aluminum alloy messenger wires for overhead distribution feeders up to 1,100 V. Key aspects include:
• Insulation Thickness: Specifies the required thickness of insulation for safety against environmental factors.
• Weather Resistance: Defines carbon content and testing methods to ensure insulation can withstand weather conditions.
• High Voltage Testing: Conductors must withstand a high voltage test of 3 kV AC or 7.2 kV DC for five minutes without failure.

These draft standard addresses aerial bunched cables with aluminum conductors, specifying cable sizes of up to 185 square millimeters. It outlines requirements for insulation thickness and weather resistance, ensuring durability and reliability in various environmental conditions. In addition, the standard includes provisions for marking and sampling plans to facilitate acceptance tests, ensuring compliance with established quality and performance criteria.

David Correa
Allied Analytics LLP
+1 5038946022
email us here
Visit us on social media:
Facebook
X