Raw materials for aluminum alloy tray-type cable trays

Article Overview

Aluminum alloy cable trays are primarily made from 6000-series aluminum alloys, often 6063-T5 or 6063-T6, combined with alloying elements like magnesium and silicon to enhance strength, corrosion resistance, and conductivity.

Core Materials

Aluminum Base: The primary raw material is aluminum, chosen for its lightweight, corrosion resistance, and non-magnetic properties, which reduce electrical losses and ease installation . Alloying Elements: To improve mechanical strength and durability, aluminum is alloyed with elements such as:

o Magnesium (Mg): Enhances corrosion resistance and strength.
o Silicon (Si): Improves hardness and thermal stability.
o Copper (Cu) and Zinc (Zn): Used in some series for additional strength, particularly in heat-treatable alloys .
Common Alloy Series:
o 6063-T5/T6: Widely used for structural components of cable trays due to its balance of strength, corrosion resistance, and workability .
o Other 6000-series alloys: May be selected depending on load requirements and environmental conditions.

Surface Treatments and Enhancements

Anodizing: Aluminum trays are often anodized, forming a dense oxide layer that enhances corrosion resistance, especially in outdoor, coastal, or industrial environments . Micro-arc Oxidation or Coatings: Additional treatments can improve hardness and resistance to salt spray or chemical exposure, extending service life .

Fabrication Considerations

Extrusion: Aluminum alloy cable trays are typically fabricated through extrusion, which allows precise shaping and ensures uniform mechanical properties . Heat Treatment: Heat-treatable alloys (like 6063-T6) undergo thermal processing to increase yield strength and hardness, making them suitable for heavy-duty applications . Cold Working: Non-heat-treatable alloys (1000, 3000, 5000 series) can be strengthened through cold working, denoted by "H" tempers .

Summary

The raw materials for aluminum alloy cable trays consist of high-purity aluminum combined with magnesium,

silicon, and sometimes copper or zinc, processed through extrusion and optionally heat-treated or anodized. These materials provide a lightweight, corrosion-resistant, and electrically efficient solution for cable management in industrial, commercial, and outdoor environments .

Specifications of aluminum cable tray Material: aluminum alloy. Width: Perforated type: 50 mm, 100 mm,

Stainless steel and aluminum cable trays are more aesthetically pleasing compared to mild steel cable

2.1 Aluminum alloy cable tray is made of aluminum alloy through extrusion molding.Aluminum alloy cable trays refer to

Learn how to choose the best cable tray system for your needs. Explore types, materials,

Aluminum cable trays of NewReach are crafted from high-performance materials from durable aluminum alloys including 6063,

Aluminium cable trays are lighter than steel, highly resistant to corrosion, and durable in cold climates. Moreover, they reduce weight

This article is about Material Selection Guide for Cable Tray, Metallic Tray Systems for commercial buildings, plants and refinery

Basic structural members of aluminum cable tray systems can be made from 6063-T6 aluminum extrusions, a material which

In designing supports for a cable tray system, consideration should be given to the loads associated with future cable additions and

Extra wide aluminum rungs are welded to extruded aluminum I-beam side rails. Every second rung is reversed to allow for easy top

Two common materials used in manufacturing cable trays are aluminum alloy (Alum Alloy) and galvanized steel (Galv

Aluminum alloy cable trays have good strength, beautiful appearance, large carrying capacity. Also, they are designed into several

Aluminium, steel, or plastic? Compare key features of electrical cable tray materials to find

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Aluminum Cable Tray systems are lighter than steel cable tray and Certified CSA Cable Tray, UL listed, NEMA and certified.

Increasingly, however, aluminum is becoming the material of choice for cable tray systems. In these days of shrinking construction

This document provides specifications for perforated and solid cable tray systems including: - Straight sections that come in various

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