

Article Overview

Anti-corrosion cable trays can be protected using galvanization, powder coating, painting, stainless steel, and high-resistance alloy coatings, tailored to environmental conditions and durability requirements.

Common Anti-Corrosion Treatments

1. Hot-Dip Galvanization Hot-dip galvanization involves immersing the cable tray in molten zinc, forming a robust zinc-iron alloy coating. This method provides long-lasting corrosion resistance, especially suitable for outdoor, industrial, or coastal environments with moderate to high pollution levels. It is ideal for high-temperature and chemically aggressive conditions but may not be suitable for small parts or thin elements due to potential deformation from thermal shock . 2. Electro-Galvanization Electro-galvanization deposits a thin zinc layer on the tray surface using electrolysis. While it offers less corrosion resistance than hot-dip galvanization, it is cost-effective and suitable for dry indoor environments or areas with lower corrosion risk . 3. Powder Coating Powder coating involves spraying powdered paint onto the tray and curing it at high temperatures to form a durable protective layer. This method is environmentally friendly, provides excellent aesthetics, and is suitable for indoor, dry environments such as data centers or office spaces . 4. Painting Traditional painting, including epoxy coatings, provides a protective barrier against corrosion and chemical exposure. It allows color customization and is effective in environments where both durability and appearance are important . 5. Stainless Steel Stainless steel trays offer exceptional corrosion resistance without additional coatings, making them ideal for harsh industrial, marine, or high-humidity environments. Although more expensive, they provide long-term durability and minimal maintenance . 6. High-Resistance Alloy Coatings (Zn-Al-Mg, Zn-Mg, Zn-Ni) Advanced coatings such as Zinc-Aluminum-Magnesium (Zn-Al-Mg) or Zinc-Nickel (Zn-Ni) create a self-healing protective layer that resists chlorides, acids, and humidity. These are particularly suitable for extreme environments classified as C8, including coastal, tropical, or industrial areas with aggressive contaminants . 7. Anodizing (for Aluminum Trays) Anodizing enhances the surface hardness and corrosion resistance of aluminum trays by forming a dense oxide layer. It also provides UV resistance, making it suitable for outdoor applications .

Standards and Testing

- o ISO 12944: Provides guidance on corrosion protection, coating selection, application, and durability classification (Low to Very High) based on environmental conditions .
- o IEC 61537 / UNE-EN IEC 61537: Specifies corrosion resistance requirements for cable trays, often verified through salt spray tests (ISO 9227) .
- o Durability Categories: Protective coatings are selected based on expected lifespan, ranging from low (up to 7 years) to very high (over 25 years) .

Processing Technology of Anti-corrosion Cable Trays

Environmental Considerations

- o Indoor, dry environments: Electro-galvanized, powder-coated, or painted trays.
- o Outdoor or industrial environments: Hot-dip galvanized, stainless steel, or high-resistance alloy coatings.
- o Extreme corrosive environments (C8): High-resistance coatings, thick hot-dip galvanization, or stainless steel for maximum protection .

Conclusion

Selecting the appropriate anti-corrosion treatment for cable trays depends on material, environmental conditions, expected durability, and aesthetic requirements. Combining standards compliance with suitable coatings ensures long-term performance, safety, and reduced maintenance costs.

There are different methods to check the durability of steel parts. Some are standardized, others are empirical. According to IEC

Cable tray manufacturers are adopting CNC, corrosion control and precision forming to improve load performance,

This guide provides detailed insights into preventing corrosion and extending the lifespan of cable trays. Why

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

TO PROVIDE A COMPLETE SYSTEM THAT RESISTS CORROSION Cablofil, a Legrand Group brand, is now offering a new finish

As a crucial component of power and electrical engineering, cable trays have complex production processes involving

The Cable Trays Surface Treatment is a crucial factor influencing their durability, corrosion

The anti-corrosion layers on cable trays include hot-dip galvanizing, galvanized nickel, cold galvanizing, powder electrostatic

Corrosion-resistant cable trays are essential components in modern electrical infrastructure, especially in

Choosing the right cable tray solutions in the petrochemical industry is essential for maintaining safety and

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efficiency.

The Galvanization of Cable Tray has to undergo a thorough process, which includes a proper treatment of cable trays.

Explore the cable tray manufacturing process, types of cable trays, and important factors. Learn how it all works in an

Maintenance against corrosion of cable ladder and cable tray installations is generally impractical. It is vital at the specification stage

Learn about the hot-dip galvanize cable trays process, benefits, and key considerations.

To ensure that cable trays perform well under diverse and challenging environmental conditions, selecting the right

Cable Trays - Cable support and management system Founded in 2006, Hengshui Excellent Technology Co., Ltd. has many years of

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