

Recommended Outdoor Tubular Busbars

Article Overview

Aluminium tubular busbars are generally recommended for outdoor high-voltage applications due to their high strength-to-weight ratio, corrosion resistance, and efficient current-carrying capacity.

Material and Alloy Selection

For outdoor installations, aluminium alloys are preferred over copper for new high-voltage busbars because they offer lighter weight, high stiffness, and good corrosion resistance, which reduces structural load on support insulators and gantry steelwork . Commonly used alloys include 6101B T6 for higher mechanical strength and 6101B T7 for higher electrical conductivity, depending on whether mechanical or electrical performance is prioritized . Copper may still be used for extensions to existing copper busbar systems .

Design Considerations

Key parameters for selecting tubular busbars include:

- Outer diameter and wall thickness: Determines mechanical strength and thermal performance.
- Current rating: Typical continuous current ratings for aluminium busbars are 1250A or 2000A, with higher ratings available for cast resin or bespoke systems .
- Environmental conditions: Outdoor exposure to wind, ice, UV, and corrosive atmospheres should be considered. Aluminium naturally forms a protective oxide layer, and anodizing or surface treatments can extend service life beyond 30 years .
- Span between supports: Tubular busbars provide high section modulus and moment of inertia, allowing spans of 8–15 meters without excessive sag or vibration .

Fittings and Connections

- Open terminal systems should use fittings compliant with ENA TS 41-11 for aluminium or ENA TS 41-16 for copper .
- Current-carrying clamps: Fixed fittings require at least two complete clamps for mechanical stability, while sliding fittings use clamps based on current rating .
- Copper-to-aluminium connections require precautions to prevent electrochemical corrosion .

Alternative Systems...



Article Content

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Busbar Design Guide

Typical Busbar Sizes If this program recommends sizes that do not fit into the ranges below, change either the number of conductors

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In recent years, the low-voltage insulated tubular busbars have been widely implemented due to the merit of high current-carrying

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Business Documentation (DBD)

1. Purpose The purpose of this document is to detail the requirements of Northern Powergrid in relation to the tubular busbar

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Although busbar systems should normally be designed for lowest lifetime cost – which means a lower working temperature to reduce

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Bus Bar Design and Sizing Guide | PDF | Electrical Conductor ...

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Busbar Design in Switchgear: Key Principles & Best

Insulated or fully enclosed busbar systems are preferred when safety, compactness, or

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Design Guide for bus bars

Commonly used insulation materials are: Nomex®, Tedlar®, Mylar®, Kapton®, Ultem®, Mylar/Tedlar,

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Busbars and Connectors in HV and EHV installations

Busbars for Outdoors Installations In HV and EHV installations and in outdoors MV installations bare

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Busbar Types: Copper, Aluminum, Laminated & More Explained

Tubular Busbars Hollow cylindrical conductors. Used in high-voltage outdoor switchyards. Advantages: Better current

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About this Guide Busbars are used within electrical installations for distributing power from a

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Aluminium Busbars and Tubular Conductors | Hydro

Aluminium alloys for busbars and electrical conductor profiles Alloy selection is important for aluminium busbars, tubular conductors

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Business Documentation (DBD)

NPS/003/028 - Technical Specification for Tubular Busbars, Busbar Connectors and Terminal Fittings

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Tech Info: Aluminium Tubular Busbar for HV Substations

In many instances HV outdoor substations with a high current rating are constructed more economically with aluminium tubular

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In many instances HV outdoor substations with a high current rating are constructed more economically with aluminium tubular

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ALUMINIUM TUBULAR BUSBARS FOR HV SUBSTATIONS In many instances HV outdoor substations with a high current rating

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Aluminum Tubular Busbars for HV Use

The document discusses the advantages of using aluminum tubular busbars rather than stranded conductors for high voltage

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Présentation PowerPoint

Design of busbars and connections in AIS substations Rigid tubular connections
Design considerations include: Type of rigid

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EC Aluminum Tubular Busbar Supplier | Chalco Aluminum

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The Most Used Outdoor Switchyard Layouts You

The arrangement of outdoor switchgear layouts and installations is mostly influenced by

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Insulated Busbar Guide: Types, Materials & Applications | CZT

CZT supplies insulated busbars, laminated busbars, and energy storage connection components for EV, solar, and

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Catalogue SIMABUS-EPP-2829-8-16 rev2-HD

The contact profile of the connector surface, as shown on the figure 4 provide multiple contact lines with the tubular conductor,

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Aluminium Tubular Busbar Ampacity Guide

This document contains calculations for the ampacity of aluminium tubular busbars. It lists the system voltage, busbar rating, short

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Design Guide for bus bars

Early involvement enables us to optimize both ease of manufacturing and turnaround time. We recommend that you contact a new

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Exploring Copper Busbars: Types, Shapes, and Applications

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This series of products has unique material properties (LDRE rare-earth aluminum alloy, 6Z63 heat-resistant

Contact Us

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