

Article Overview

The width and height of a 35kV busbar bridge depend on current rating, material, and insulation requirements, typically ranging from 100-300 mm in width and 150-400 mm in height for standard medium-voltage applications.

Busbar Sizing Principles

The dimensions of a busbar bridge are determined primarily by:

- o Current-carrying capacity: Higher currents require larger cross-sectional areas to limit temperature rise. For copper, IEC 61439 recommends a current density of 1.2-1.6 A/mm² for air-cooled busbars, while aluminum uses 0.8-1.2 A/mm².
- o Voltage level and insulation: At 35kV, sufficient spacing and insulation thickness are required to prevent flashover. Typical phase-to-phase clearances for 35kV are 150-200 mm, influencing the overall height of the busbar bridge.
- o Short-circuit withstand: Busbars must resist thermal and electrodynamic forces during faults. The cross-section and spacing are calculated using IEC 60865-1 formulas.
- o Mechanical support: Height and width must accommodate support insulators and maintain structural integrity under electrodynamic forces.

Typical Dimensions

While exact dimensions vary by manufacturer and current rating, medium-voltage busbar bridges for 35kV systems generally follow these ranges:

- o Width: 100-300 mm, depending on the number of phases and busbar thickness.
- o Height: 150-400 mm, including insulation and phase spacing.
- o Busbar thickness: 10-25 mm for copper, adjusted for current rating.
- o Phase spacing: 150-200 mm for 35kV air-insulated systems. For example, a 630A 4-pole busbar bridge for low-voltage switchboards has dimensions of 470 x 235 x 115 mm (width x height x depth), which illustrates how width and height scale with current and insulation requirements. For 35kV, the dimensions are larger due to higher insulation and clearance requirements.

Design Recommendations

- o Calculate required cross-sectional area using the formula: $A = I / J$, where I is the rated current and J is the allowable current density for the material.
- o Determine phase spacing based on voltage and insulation standards (IEC 62271-200 for medium voltage).
- o Include mechanical and thermal margins for short-circuit withstand and temperature rise.

35kV busbar bridge spacing

o Verify dimensions with busbar sizing calculators or manufacturer datasheets to ensure compliance with IEC 61439-1 and IEC 60865-1 . In summary, a 35kV busbar bridge typically requires wider and taller dimensions than low-voltage equivalents, with width around 100-300 mm and height 150-400 mm, depending on current, insulation, and mechanical design considerations. Always confirm with manufacturer specifications and IEC standards for precise sizing.

Engineers calculate phase spacing based on voltage class and installation type to maintain compliance and reduce

The NEC requires a minimum spacing of 12 inches (305 mm) between busbars, but this can be reduced based on the busbar current

Bushings shall be mounted with minimum spacing of 8.0-inches between centerlines, except between the C-phase bushings which

This document is a graduation thesis on the electrical primary design of a 35kV substation. It includes an abstract that outlines the

IEC Rating = 160 A Standard Busbar Adapters without electrical connections include two connection clips. They are intended to form

MV metal-enclosed switchgear This technical article will shed some light on the standard design of medium voltage

EHV substation bus phase spacing is normally based on the clearance required for switching-surge impulse values plus an

Learn busbar distance calculation with practical formulas, design standards, and engineering considerations. This

Eight rules to follow: substation capacity and short circuit current capacity, minimum ground clearance, busbar ampere

Here, we provide an overview of common substation busbar configurations--Single Bus, Main and Transfer, Double Breaker/Double

For detailed voltage-wise and ampacity-based spacing charts, refer to the complete guide on Busbar Clearance as

35kV busbar bridge spacing

7.2.1 Busbars and their connections are to be of copper or aluminium, all connections being so made as to inhibit corrosion/oxidation

Minimum distance between 35kV busbar bridge and box edge The minimum approach distance chart defines safe working distances

The lateral spacing of the centerline lights varies and shall be confirmed prior to the start of work. Color-coding of lights and use of

There are two columns in this table under section 408.56 that indicate different spacing requirements. One pertains to

Clearance and creepage distances are essential considerations in designing bus bar systems, as they play a vital role in ensuring

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