

35kV Cabinet Busbar Spacing



Article Overview

For 35 kV distribution cabinets, typical busbar spacing ranges from 7 to 8 inches between bushings, with phase-to-phase and phase-to-ground clearances designed according to ANSI, IEC, and manufacturer guidelines.

ANSI and Manufacturer Guidelines

ANSI standards for switchgear are performance-based, meaning they specify dielectric and impulse withstand tests rather than exact spacing dimensions. Manufacturers design busbar spacing to meet these tests safely. For 35 kV switchgear, Eaton's Cooper Power series specifies minimum bushing centerline spacing of 8 inches, except for the C-phase bushings, which may be 7 inches. Standoff brackets or parking stands are typically mounted 4 inches from the bushing centerline to support the busbar mechanically and maintain clearance .

IEC Clearance Considerations

IEC standards provide guidelines for phase-to-phase and phase-to-earth spacing, which vary depending on pollution degree, insulation type, and environmental conditions. For pollution degree 3, larger clearances or additional insulation barriers are recommended. Designers must also account for altitude, as air pressure decreases at higher elevations, reducing dielectric strength. For example, at 3000 meters, clearances should be increased by approximately 25% .

Practical Design Factors...

Article Content

May 11, 2026

Safe Distance Between High-Voltage Busbars

Designing safe distances between high-voltage busbars is essential for equipment performance and safety. It requires evaluating

Mar 05, 2026

Busbar Clearances and Creepage Distances:

Learn how to correctly calculate busbar clearances and creepage distances per IEC 60664-1 & IEC 61439. A

Aug 29, 2025

Busbar support spacing as it relates to interrupting rating in LV AND ...

If you are developing a new product, at first you have to size the busbar support and spacing based on calculation

Jul 08, 2026

PowlSmart Product Data Sheet

When considering bus spacings, two dimensions are important. The first is clearance, or the distance through air between

Sep 06, 2025

35KV Outdoor Busbar Spacing

Busbar Distance Calculation – Complete Guide, Learn busbar distance calculation with practical formulas, design standards, and

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Busbar Size Calculator

Busbar size calculator is an online calculator tool to determine copper (or) aluminum busbar dimensions based on

Oct 23, 2025

IEC Busbar Mounting System Specifications Technical Data

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

Jun 26, 2026

Bus Spacings in Metal-Enclosed Switchgear

When considering bus spacings, two dimensions are important. The first is clearance, or the distance through air between

Jul 25, 2026

Catalog Extract LV 10 · 10/2022

Our busbar systems for electrical installations offer a particularly easy way of fitting distribution systems with electrotechnical

Dec 18, 2025

35kV Substation Electrical Design

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

Feb 07, 2026

Electrical Cabinet Design: Optimal Low Voltage Busbar Insulator ...

Introduction Electrical cabinet design requires meticulous attention to component placement, particularly when

Dec 11, 2025

Busbar Calculator — Current Rating, Temperature Rise, IEC 61439

The busbar sizing calculator determines the required busbar dimensions based on the continuous current rating, short

Sep 22, 2025

Phase to Phase Clearance as per IEC 61439: Standard & Chart

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

Nov 02, 2025

Section 7 Switchgear and controlgear assemblies

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

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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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Safety Clearance Recommendations for Electrical Panel

Clearance Tables includes working space and clearance around indoor electrical panel, Circuit Board (NES 312.2),

Dec 08, 2025

Functional Specification for 15 kV, 25 kV, or 35 kV Underground ...

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

Sep 15, 2025

Minimum Spacing Between Busbars | Information by Electrical ...

I'm being asked to verify minimum spacing between the busbars, as there is a concern by connecting our lugs

Mar 04, 2026

35KV Outdoor Busbar Spacing

Busbar Design Calculation for 220kV The document outlines the busbar design calculations for a 220/33kV substation, detailing

Sep 06, 2025

Clearance and Creepage Distances in Bus Bar System Design

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

Aug 31, 2025

Standard cubicle configurations for a medium voltage metal ...

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

Dec 12, 2025

Design Guide for bus bars

Impedance In the design of laminated bus bars, you should consider maintaining the impedance at the lowest possible level. This will

Jul 29, 2025

Creepage and clearance in low voltage switchboards

Learn about clearances and creepage distances in LV electrical switchboards.
Understand the importance of complying

Oct 23, 2025

Electrical Thumb Rules You MUST Follow (Part 4)

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

Jul 06, 2026

Minimum distance requirement between bus bars and enclosure per

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

May 10, 2026

Safety Distance for Low-Voltage Busbars

Insulated busbars: Insulation allows for reduced clearance but must meet IEC 60664 or UL 746C dielectric strength requirements.

Jan 16, 2026

IEC 61439 Busbar Standard: A Guide to Low-Voltage Busbar

This standard covers busbars used for low-voltage assemblies, power distribution, photovoltaic power systems, and

Contact Us

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