New Zealand High Voltage Enclosed Busbar

Overview

We have developed a high voltage under-hung busbar arrangement for use in new and existing substations.

Key Takeaways

High-voltage enclosed busbar systems in New Zealand are primarily supplied by PLP New Zealand and NHP, offering solutions up to 500kV for substations and industrial applications.Overview

High-voltage (HV) enclosed busbars are conductive components designed to safely distribute large electrical currents within substations, switchgear, and industrial installations. They replace complex wiring with a centralized, insulated conductor system, improving efficiency, safety, and reliability. These systems are typically made from copper or aluminium, with copper preferred for high-current applications due to its superior conductivity and thermal stability, while aluminium offers a lighter, cost-effective alternative .

Key Manufacturers in New Zealand
• PLP New Zealand: Specializes in air-insulated HV busbar systems up to 500kV, widely used by Transpower and Transgrid. They provide customized busbars, bolted/welded connectors, earth points, end terminals, and supports, with local assembly and kitting for 11, 22, and 33kV terminations . PLP also offers training and installation support across New Zealand.

• NHP New Zealand: Offers CUBIC Modular Busbar Connections rated at 6300A, suitable for integrated power distribution solutions .

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• ElectroNet Group: Focuses on substation design and construction, providing project management and innovative HV solutions .

• Transpower New Zealand: As the national electricity transmission operator, they implement and maintain HV busbar systems in substations, ensuring compliance with operational standards .

Technical Considerations

• Current Rating: Busbars are designed to handle specific currents safely, ranging from hundreds to thousands of amperes depending on the application .

• Insulation: Enclosed busbars use polymeric or epoxy insulation to prevent short circuits and ensure safety in compact or high-voltage assemblies .

• Supports and Mounting: Busbar supports, standoffs, and under-hung systems are used to maintain phase-to-phase and phase-to-earth clearances, absorb mechanical stress, and accommodate thermal expansion .

• Modularity: Many systems, such as NHP's CUBIC busbars, allow modular installation, simplifying maintenance and future expansion .

• Customization: PLP provides custom sizes, materials, and configurations, including welded or bolted connections, to meet specific substation or industrial requirements .

Benefits

• Reduced Energy Losses: High-conductivity materials lower resistance compared to traditional wiring.

• Simplified Installation: Modular layouts and standardized components reduce setup time.

• Enhanced Safety: Enclosed and insulated busbars minimize accidental contact and short circuits.

• Scalability: Systems can be expanded or reconfigured without major rewiring. High-voltage enclosed busbars are essential for reliable power distribution in New Zealand's transmission and industrial networks, offering flexibility, safety, and efficiency for modern electrical infrastructure .

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Article Content

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We are an electrical engineering contracting company with nearly 30 years of experience. We specialize in electrical design, project

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Manufactured Products

Having a Cellpack kitting room inside our factory, we make 11, 22 and 33kV terminations as well as kit

High Power Busway

The systems'' enclosed design provides a high level of reliability, protection, and safety in mission critical

Busbar

In electric power distribution, a busbar (also bus bar) is a metallic strip or bar, typically housed inside

Busbar Chassis

Miniature Circuit Breaker Chassis NHP''s POWERMAX DIN-T GB Busbar Chassis is a high-performance electrical distribution

NZECP 51:2001

The New Zealand Electrical Code of Practice for Homeowner/Occupier''s Electrical Wiring Work in Domestic Installations 2004

Busbars and Connectors in HV and EHV installations

In indoor medium-voltage (MV) and low-voltage (LV) installations—particularly where high currents and limited space

Busbar Trunking

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Standard cubicle configurations for a medium voltage

MV metal-enclosed switchgear This technical article will shed some light on the standard

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Vertiv™ PowerBar HPB is a 1000V totally encased, non-ventilated and low impedance busbar. HPB sandwich construction range

High Voltage Busbars

To connect various high voltage (HV) components to the HV system, we also deliver a wide variety of busbars. In cooperation with

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High volume busbar production: employing craft precision. One of the signature products developed by

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Comprehensive Guide to Busbars: Types, Design,

This middle period saw the introduction of enclosed busbar trunking systems, utilizing sheet

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Minimum distance requirement between bus bars and enclosure per

And for general industrial control equipment, voltage range 301-600, shortest distance is shown as 1/2" with this same

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Insulated Busbars & Trunking Systems In indoors MV and LV installations, namely with high currents and

Flexible tiered busbar enclosure for high current application

The arrangement of busbars in this enclosure can be tailored, allowing a variety of configurations suitable for inflexible, higher-current

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A&T Enclosures specialises in custom busbar design and installation in the UK for a wide range of electrical distribution systems.

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