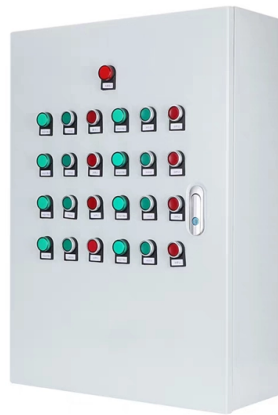


How to connect the busbars of a high-voltage switchgear



Article Overview

Proper busbar connection in high-voltage switchgear requires careful material preparation, secure bolted joints, anti-oxidation treatment, and adherence to insulation and spacing standards to ensure safe and reliable operation.

Busbar Material Preparation

- Identify the busbar material: High-voltage switchgear typically uses copper or aluminum busbars. Copper is preferred for low resistance and compact size, while aluminum is lighter and cost-effective but requires larger cross-sections ().
- Surface cleaning: For copper busbars, polish the contact surfaces with 0-grade sandpaper until a mirror finish is achieved to remove oxidation (). For aluminum, apply an aluminum-specific anti-oxidation agent to prevent corrosion.
- Transition joints: When connecting copper to aluminum, use copper-aluminum transition joints to avoid electrochemical corrosion. These joints should be insulated with heat-shrink tubing rated $\geq 125^{\circ}\text{C}$ ().

Mechanical Connection

- Bolted joints: Use stainless steel bolts that match the connection holes. Ensure bolts are tightened to the manufacturer's recommended torque to maintain low-resistance contact and mechanical stability ().
- Alignment and support: Busbars must remain rigid and aligned to withstand electromagnetic forces, vibration, and thermal expansion during normal and fault conditions (). Use proper supports and spacers to maintain alignment and safe clearances....

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Section 7 Switchgear and controlgear assemblies

7.1.1 Switchgear and controlgear assemblies and their components are to comply with the following standards, as appropriate for the

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Gas-insulated medium voltage switchgear

2.4.2 High voltage cables 58 Page Take particular account of the relevant standards listed below. Observe the national technical

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Major components you can spot while looking at HV/EHV GIS (Gas

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Busbar Systems

In the case of the coupling field, Q3 connects both isolators to coupling the busbars. Several modules can be lay out successively to

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