

Waterproofing of Busbar Joints



Overview

A Comprehensive Guide to Jointing Busbars: Which Clamped joints have many similar design criteria and consideration as bolted joints, but there are some In.

Key Takeaways

Busbar joints can be effectively waterproofed using a combination of cleaning, insulating tapes, and cast resin encapsulation to ensure electrical and mechanical reliability. Key Considerations

Waterproofing busbar joints is essential to prevent moisture ingress, corrosion, and electrical failures. Proper waterproofing ensures long-term electrical performance, mechanical stability, and safety under environmental stress.

Step-by-Step Waterproofing Procedure

- **Surface Preparation:** Clean the busbar and joint surfaces thoroughly using cleaning paper or a suitable solvent to remove dust, grease, and oxidation, ensuring proper adhesion of waterproofing materials (COTRAN) .
- **Insulating Layer:** Wrap the metal parts with a spacer tape to provide initial insulation. This layer acts as a barrier between the busbar and the waterproofing resin.
- **PVC Tape Wrapping:** Apply transparent PVC tape in a 50% overlap, wrapping three layers around the joint to form a soft shell. This creates a mold for the resin encapsulation and ensures uniform coverage .

- **Resin Encapsulation:** Mix a two-component cast resin and pour it into the PVC shell, ensuring the resin height exceeds the top of the busbar by at least 5 cm. Allow the resin to cure completely, forming a solid, waterproof, and mechanically stable joint .
- Alternative Waterproofing Methods**

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Hydrophilic Sealants and Waterbars: For construction or expansion joints in busbar enclosures, swellable profiles or waterstops can provide additional protection against water ingress, especially in concrete or outdoor installations .

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Bolted Joints Considerations: Bolted busbar joints require careful attention to contact resistance and mechanical pressure. Waterproofing should not compromise the electrical contact; encapsulation or resin systems can be applied without affecting the bolted connection integrity .

Maintenance and Reliability

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Periodic inspection of busbar joints is recommended, including visual checks, resistance measurements, and infrared thermography to detect moisture ingress or insulation degradation .

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Properly encapsulated joints can last decades, minimizing maintenance and reducing the risk of overheating or corrosion .

Summary

Effective waterproofing of busbar joints combines surface cleaning, insulating tape, and resin encapsulation. For bolted or mechanical joints, care must be taken to maintain electrical contact while providing a moisture barrier. Using these methods ensures long-term reliability, safety, and reduced maintenance in both indoor and outdoor electrical installations.

Article Content

Hardie™ Fibre Cement Claddin

Steel stud Figure 38: Villaboard™ Lining vertical internal corner tiled detail Framing
Lumberlok® Stud Saver Waterproofing

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