Manual Riveting Connection for Busbars

Overview

Busbar Jointing and Torque Guidelines | PDF | Screw | WeldingBusbar Jointing and Torque Guidelines The document provides specifications for electrical swit.

Key Takeaways

Manual riveting is a practical method for mechanically joining busbars, providing reliable electrical and mechanical connections while allowing controlled assembly in small-scale or flexible production setups.

Overview of Manual Riveting for Busbars

Manual riveting involves overlapping busbar sections and inserting rivets through pre-aligned holes to create a mechanical interlock that secures the conductors. This method is widely used for aluminum busbars and can be adapted for hybrid aluminum-copper busbars, although hybrid assemblies may require specialized processes to ensure consistent contact and low electrical resistance.

Assembly Process

A typical manual busbar riveting assembly line consists of three main stations: Pre-assembly Station – Busbar pieces are aligned and positioned for riveting. Riveting Station – Rivets are manually inserted and compressed to form a secure joint. Operators may rotate or adjust the busbar to ensure proper alignment.

Accessory Assembly Station – Additional components, such as insulating supports or connectors, are installed. All operations, including rotating, riveting, and positioning, are performed manually, which allows flexibility for different busbar sizes and configurations. The equipment is designed to minimize labor while maintaining high-quality joints and can handle both two-piece and four-piece busbar assemblies.

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Advantages

Mechanical Strength: Riveted joints provide robust, vibration-resistant connections suitable for high-current applications. Electrical Performance: Properly executed riveting ensures low contact resistance and uniform current distribution across the joint. Flexibility: Manual operation allows adaptation to different busbar geometries and thicknesses.

Cost-

Effective for Small Batches: Ideal for low- to medium-volume production where automated systems may not be justified.

Considerations for Hybrid Busbars

When joining aluminum and copper sheets, special attention is required due to differences in thickness, thermal conductivity, and susceptibility to galvanic corrosion. Techniques such as double-flush riveting or countersunk rivets can help maintain flat surfaces and consistent contact pressure, improving both mechanical integrity and electrical conductivity. Comparison with Other Joining MethodsBolted Joints: Easier to assemble in the field but may have uneven contact pressure and higher resistance.

Welded or Soldered Joints: Provide low resistance but require heat, which can distort thin busbars or affect dissimilar metals. Flush Riveting: Embeds the rivet head for a smooth surface, often used in aerospace, and can be adapted for busbars to reduce protrusions and improve assembly compactness.

Practical Tips

Ensure proper alignment of busbar sheets before riveting to avoid uneven contact. Use rivets compatible with the busbar material to prevent galvanic corrosion. Maintain consistent rivet compression to achieve uniform mechanical and electrical performance.

For hybrid busbars, consider pre-treatment or coatings to reduce corrosion risk at the aluminum-copper interface. Manual riveting remains a reliable and versatile method for busbar assembly, particularly in applications where production flexibility, mechanical robustness, and electrical performance are critical.

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Article Content

Busbar Jointing and Torque Guidelines | PDF | Screw | Welding

Busbar Jointing and Torque Guidelines The document provides specifications for electrical switchgear assembly, including: 1) Tables listing recommended bar widths, lengths of overlap, bolt sizes, hole

A Comprehensive Guide to Jointing Busbars: Which

This process, called “jointing,” may be needed to create a longer busbar from shorter, more manageable pieces; or to create a T-shaped tap-off connection

Double-Flush Riveting for Hybrid Busbar Assembly

The novel double-flush riveting process for assembling hybrid busbars made from aluminum and copper sheets of varying thicknesses involves a series of operations, including drilling,

Copper for Busbars

It is usually necessary to joint busbars on site during installation and this is most easily accomplished by bolting bars together or by welding. For long and reliable service, joints need to be carefully made

Joining by Forming of Busbars for Electrical Applications

Shear destructive tests with injection lap riveted busbars provide peak values that are appropriate for industrial applications involving passage and distribution of electrical power.

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This document is for preliminary research. Verify specifications against current standards, product documentation and project requirements.

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