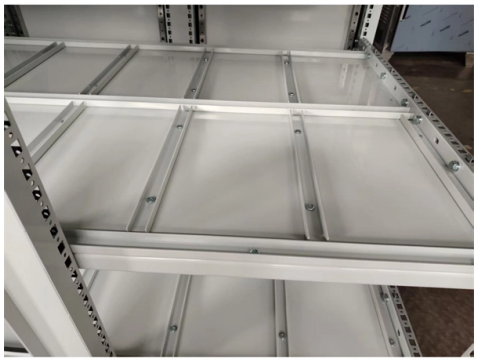
How to bend the copper busbar of the distribution box



Overview

How to Bend Copper Busbar: Radius, SpringbackLearn how to bend copper busbar. Minimum bend radius, springback control, annealing temperatures, CNC machine.

Key Takeaways

Bend copper busbars carefully using proper radius, tooling, and surface protection to avoid cracking, springback issues, and electrical performance loss. Key Considerations1. Material Temper and Ductility Copper busbars can be hard-temper or annealed.

Hard-temper copper allows only about 5% elongation, while annealed copper can deform up to 45% without cracking. If multiple bends are required, annealing (heating to 400–700°C) can restore ductility and reduce the risk of fractures. 2.

Minimum Bend Radius The bending radius should generally be 1. 5–2 times the busbar thickness. A radius smaller than this increases the risk of cracking, while an excessively large radius may affect dimensional accuracy and electrical performance.

Always check vendor guidelines and, if possible, run trial bends on sample pieces. 3. Springback Compensation Copper tends to spring back slightly after bending.

To achieve the desired angle, over-bend slightly beyond the target angle. Modern bending machines often include sensors to automatically adjust for springback. 4.

Surface Protection To prevent scratches or marks, use protective films, shims, or radiused clamps. Deburr edges before bending to avoid pressure points that can damage the surface. 5.

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Tooling and Methods

Manual bending: For small or remote installations, use a vise with radiused jaws or bending bars. Apply steady, even pressure to avoid kinks.

Mechanical or CN

C bending: For thicker or high-current busbars, machines provide precise control over radius, angle, and springback, ensuring consistent quality. Lubrication: Applying a light lubricant can reduce friction and prevent surface damage during bending. 6.

Layout Planning Plan bends in advance, keeping holes, slots, and other features at a safe distance from bend lines to prevent weakening or distortion. Early planning reduces rework and ensures proper fit in the distribution box.

Step-by-

Step Manual Bending (for small installations)Measure and mark the bend line on the busbar. Deburr edges and clean the surface. Place the busbar in a vise or bending jig with radiused jaws.

Apply steady, even pressure to bend the busbar to slightly beyond the desired angle. Check the angle and adjust for springback if necessary. Inspect the surface for scratches or cracks and smooth any imperfections.

By following these steps and considerations, you can safely bend copper busbars while maintaining mechanical integrity and electrical performance in your distribution box.

Article Content

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Learn how to bend copper busbar. Minimum bend radius, springback control, annealing temperatures, CNC machine selection & QA checklist.

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How to Bend Copper Busbar: Radius, Springback

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