ZITHA TECH SPECIALTY CABLES (Pty) Ltd

Spot welding of distribution box casing



Overview

Welding electrical enclosures/ distribution boxes with hanging spot. Experience a brief tour of features designed to deliver dependable outcomes. In this.

Key Takeaways

Spot welding is a widely used method for joining metal panels of distribution box casings, offering efficiency, precision, and structural integrity when applied correctly.Overview of Spot Welding

Spot welding, a type of resistance welding, joins two or more metal sheets at localized points by applying heat and pressure through copper electrodes. The electrical current passes through the contact points, generating heat due to resistance, which melts the metal and forms a strong bond at each spot . This process is particularly suitable for thin sheet metals, typically ranging from 0.020” to 0.090” in thickness .

Application in Distribution Boxes

In the production of metal distribution boxes, spot welding is commonly used at corners and overlapping panels to assemble the enclosure efficiently . AC spot welding machines are often employed, capable of handling materials like iron, stainless steel, and galvanized steel. These machines use double-sided electrodes to apply pressure and current simultaneously, ensuring a reliable weld without damaging the internal structure of the metal sheets .

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Advantages
• High-speed production: Spot welding allows rapid assembly of multiple units, ideal for high-volume manufacturing .

• Class A finish: Properly placed spot welds can eliminate the need for grinding or additional finishing, providing a clean appearance .

• Precision and control: Modern machines with touch screens and adjustable parameters enable consistent weld quality, even for beginners .

• Cost efficiency: Reduces labor and material costs compared to continuous seam welding for certain applications .
Limitations and Considerations
• Sealing performance: Spot welding alone may leave microscopic gaps, which can compromise long-term waterproofing and corrosion resistance, especially for outdoor enclosures. Continuous seam welding or additional sealants may be required to meet IP54 or IP65 standards .

• Material thickness: Spot welding is less effective for very thick or very thin sheets; plug welding or seam welding may be preferable in such cases .

• Environmental exposure: For outdoor distribution boxes, gaps in spot welds can allow moisture ingress over time, potentially causing rust or short circuits .
Best Practices
• Ensure proper electrode alignment and pressure to achieve uniform welds.

• Use appropriate current and duration settings based on material type and thickness.

• Combine spot welding with sealants or seam welding for enclosures requiring high ingress protection.

• Conduct quality inspections such as visual checks, pull tests, or vacuum decay tests to verify weld integrity and sealing performance .
Conclusion

Spot welding is an efficient and precise method for assembling distribution box casings, particularly for high-volume production of thin sheet metal enclosures. While it provides strong localized joints and a clean finish, attention must be paid to sealing and corrosion protection for outdoor applications. Combining spot welding with additional sealing techniques ensures both structural integrity and long-term durability.

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