



Knowles CDE Enhances Capacitor Manufacturing with Ultrasonic Welding Technology

Reliable, high-speed ultrasonic metal welding improves weld consistency, increases production efficiency and supports demanding performance standards in power electronics.

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»» **The Challenge**

Cornell Dubilier needed a dependable method to weld multiple layers of foil to capacitor posts while maintaining high production throughput and strict quality standards.

Traditional mechanical welding methods lacked the required speed, consistency and ease of maintenance. In addition, the company needed a solution capable of handling delicate foils and potentially increasing the number of layers welded in a single operation.

» The Solution

Cornell Dubilier replaced conventional methods with SonoWeld® 1600 2,500-watt metal spot welders. These ultrasonic welding systems use high-frequency vibratory energy to create solid-state metallurgical bonds without heat, current, fluxes or fillers.

A key advantage is Sonobond's patented Wedge-Reed coupling system, which applies high vibratory force with low amplitude to produce strong, consistent welds. This shear-mode vibration minimizes stress and enables reliable bonding of non-ferrous metals, including dissimilar materials such as copper and aluminum.

The microprocessor-controlled system enables single-pulse welding of multiple foil layers with repeatable accuracy. It also offers:

- Storage of up to 250 weld protocols
- Multiple parameter control options (time, energy, or thickness)
- Real-time monitoring and feedback for quality assurance
- Capability for additional applications such as wire-to-terminal welding

» The Results

By adopting Sonobond ultrasonic welding technology, Cornell Dubilier achieved:

- Faster production speeds compared to mechanical welding
- Repeatable, high-quality welds across multiple foil layers
- Improved ease of use and reduced training requirements
- Greater process reliability and consistency

The company particularly values the feedback loop feature that indicates how much power is used for each weld. When set points are met, it confirms that the required weld quality has been achieved, which helps ensure that its capacitors continue to meet exacting performance standards.

The company also increased its production flexibility, enabling it to weld more layers in a single pulse and scale future operations without changing systems.

» Why Sonobond?

Cornell Dubilier cited the SonoWeld's speed, dependability and ease of maintenance, along with Sonobond's strong technical support and ability to provide customized tooling. This combination of innovation and hands-on support made Sonobond the clear choice for expanding its production capabilities.



Images courtesy of www.cde.com

Looking to improve metal welding performance?

Contact Sonobond to explore how ultrasonic welding can increase speed, consistency and reliability in your application.

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