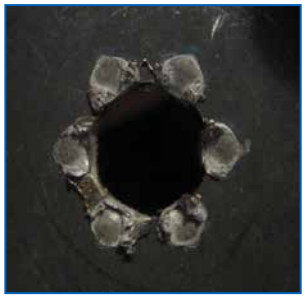
WSI WELD SYSTEMS INTEGRATORS, INC.

RESISTANCE WELDING. SOLVED.

CAPACITOR DISCHARGE (CD) WELDING

CD Welding for DIFFICULT Joining Applications



CAPACITOR DISCHARGE (CD) WELDING PROCESS:

- Low primary power requirement, relative to resistance welding.
- No Peak Energy Billing.
- 99.9% Power Factor means virtually no wasted welding current.
- Very fast weld time (typically under 10ms).
- Ultra-Fast Rise Time welds fast while minimizing heat-affected zone (HAZ).
- Tooling Often Lasts 3-5 Times Longer than other processes.

THE WSI ADVANTAGE:

- Maximum current draw of 30 Amps for the welding process.
- 60 Amps or less Single-Phase Primary Power required for a complete machine.
- 100,000+ Peak Amps in under 5 milliseconds.
- Fast Follow-up Design allows for instantaneous response to weld set-down.
- No Water Cooling Required for Power Supply and Control. Tooling may require minimal cooling depending on final specifications.
- Fully-Monitored for Process Confirmation and Maintenance.
- Easy to use HMI User Interface.
- Robust, Reliable, Consistent Process.
- Welds with WSI CD Welders can achieve up to 200% Required Torque and Push-Out Values.
- Over 10 years of Consistent, Proven Results.
- WSI CD Welders are designed around customer applications, and are not 'cookie-cutter' machines.
- Specifications are determined by WSI engineers in WSI's own welding lab, setting the standard for the industry.
- WSI CD Welders are designed for safe, easy operation by human operators, or for ease of integration into robotic cells. Controls, safety circuits, and guarding are engineered to customer specifications.
- WSI Single, Dual, or Multi-Head Welders are easily integrated with nut/part feeders, and are perfect for nut farms, and other high-density manufacturing operations.

Can be applied to a number of applications:

A. Steel:
- Mild and Stainless
- Tempered and Hardened
- TRIP (Transformation-Induced Plasticity) and DP (Dual-Phase)
- Cast
- Sintered
- Hot-Stamped High-Boron Steels (like USIBOR®)

B. Coated Metal:
- AlSi-coated hot-formed parts
- Zinc / Tin Plated & Galvanized

C. Non-Ferrous Metal:
- Aluminum
- Copper
- Brass
- Other Metal Alloys

D. Heat-Sensitive Joints – Close Proximity to:
- Electronics
- Low-Melting-Point materials like plastics
- Paint / Other coloring

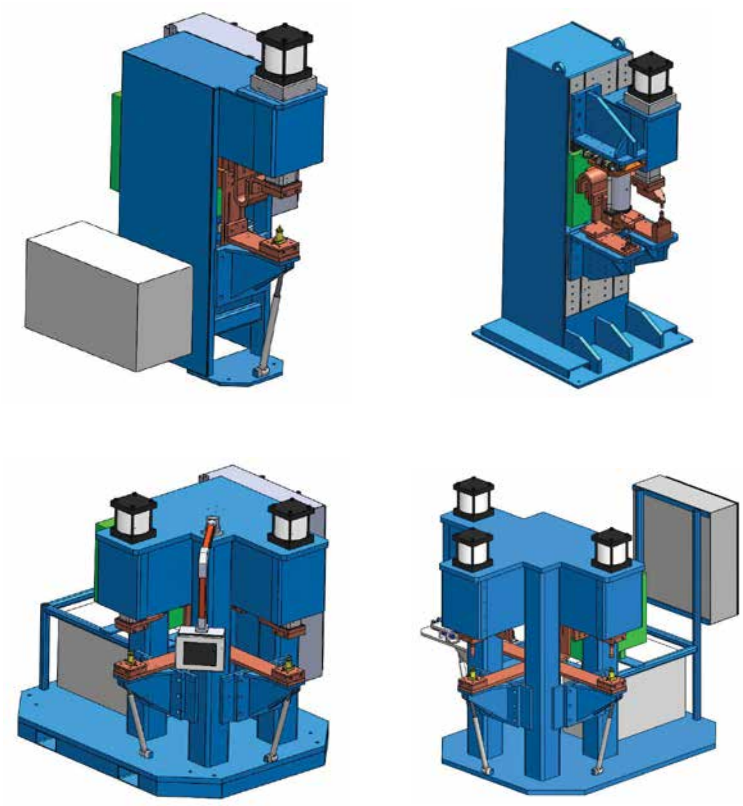
Over 10 years of proven results with tough-to-weld applications, like projection welding fasteners to Hot-Stamped, High-Boron AlSi-Coated parts!

THE CHALLENGE:

- Fasteners are extremely soft compared to the base material.
- Hot-Stamp Materials develop AlSi coating in the furnace.
- Resistive qualities of AlSi coating are inconsistent across the part.
- Short Weld Times called for in projection welding makes it difficult to deliver enough heat to the base material, often vaporizing the projections without welding.
- Consistent projection welding is difficult with most processes, and even with many CD welding machines!

THE SOLUTION:

- 10 years of consistent results have proven that WSI CD Welders can make good welds 100% of the time.



Custom head configuration based on application requirements.

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