


(Resistance) Welding is Fundamental

As someone who has sold resistance welding (RW) equipment for more than a decade, I may at first seem a little biased when I say RW is a huge part of our everyday lives, but it plays a bigger role than many realize. It's easy to think of the RW process as primarily used in cars. From spot-welded door skins and seam welds on structural members to the projection-welded fasteners that allow panels to be bolted together, it sure seems like the automotive industry is the number one user of RW. In fact, as a manufacturer of transformers and power supplies for RW, I can say that this is correct; automobiles are number one by number of transformers. However, manufacturers of welded wire assemblies are likely the largest users by number of welds per day.

There are many obvious welded wire applications, like livestock fencing and safety guarding. Some others are hidden. So much of our built space includes concrete, from roads and bridges to homes and warehouses. Most of the concrete we see, whether pre-cast or site poured, incorporates some sort of steel wire or rod as a reinforcement, as do many concrete block or brick constructions. Some construction uses projection-welded rebar mat, while others use rebar tied together (this will depend on the engineering specifications for the finished structure). Not every rebar assembly needs a mat welder either. Some spot weld gun manufacturers make weld gun arms specifically for joining heavy rebar.

Many other products with which we interact even more frequently — like oven racks; car seats; and football, hockey, and lacrosse face masks — are also cross-wire weld applications. Welded wire products can also be tiny or zero-fail. For example, the AWS D17D Subcommittee on Resistance Welding in the Aircraft and Aerospace Industries is working on adding specifications for wire mesh welding to the next revision of AWS D17.2, *Specification for Resistance Welding for Aerospace Applications*. This follows many inquiries from aerospace manufacturers looking for standard weld and testing specifications. These manufacturers recognize that keeping planes in the sky cannot be reliant on company tradecraft alone.

So what's next? RW is a process that's more than 120 years old, but updates keep coming both in technology and in standardization. In addition to D17D, the Resistance Welding Manufacturing Alliance (RWMA), an AWS Standing Committee, is also updating one of its key technical documents: the RWMA *Resistance Welding Manual* (5th edition). Cross-wire welding is part of a very large RW ecosystem that requires skilled setup, maintenance, and support personnel. To echo a question we often hear across the industry, "Who will keep these complex systems running in the future?" The Certified Resistance Welding Technician (CRWT) certification was released by AWS in 2020. Like the Certified Welding Inspector (CWI) for arc welding, it gives us a global standard against which we can evaluate RW staff. This is the only RW certification of its kind in the world. The Emmett A. Craig Welding School (sponsored by RWMA) helps prepare students to attain this certification and gain a broad knowledge of RW. AWS also offers a CRWT-specific pre-exam course.

How can we help? Keeping welding, including RW, at the forefront of joining processes is part of AWS's mission. We are helped tremendously with this task by the dedicated members of RWMA and AWS technical committees. If you are involved with RW, whether as a machine builder, an integrator, a parts or components supplier, or an end user, I encourage you to explore opportunities to serve on AWS technical committees and subcommittees. These include the D17D Subcommittee, C1 Committee on Resistance Welding, D8 Committee on Automotive Welding, and J1 Committee on Resistance Welding Equipment. You might even consider joining RWMA, not just for the networking but to help grow the industry's knowledge base. Like welded wire assemblies, we're much stronger together. 



Niels Johnson
vice chair, RWMA

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