American Welding Society®
DETROIT SECTION

e-Bulletin

MARCH 2026

Inside This Issue

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AWS Technical Nights are open to everyone! We encourage that members bring students and non-members to learn more about our organization and industry.

Affiliated With

ESD
THE ENGINEERING SOCIETY

AWS-Detroit Technical Meeting

Thursday, April 9, 2026 • 6 to 8pm
TRUMPF Inc. Laser Technology Center

47711 Clipper St, Plymouth, MI 48170

CLICK LINK TO R.S.V.P.:
https://www.eventsquid.com/event/31377

Laser Fabrication: It's better with TRUMPF.

Join us for April's Technical Meeting to experience live machine demonstrations, in-depth discussions, networking, and more.

EVENT HIGHLIGHTS:

- Intro from a TRUMPF Inc. Executive Member
- TRUMPF Inc. Facility Tour
- State of the art Applications Lab Equipment
- Live Product Demos in Welding, Cutting & Marking
- Food & Drinks
- Networking


DETROIT SECTION PRESENTS
AWS
LADIES' NIGHT
SATURDAY, MARCH 7TH 2026
Please join the Detroit Section of the American Welding Society for an evening of dinner, cocktails and dancing at The Henry Ford Museum.
Shuttle services will be provided to and from The Dearborn Inn
Cocktails- 6pm
Dinner - 7pm
Museum Open - until 10pm
Dancing - until 10pm

Chairman's Message
Donnie Crist

Hello AWS Members and Friends,

The momentum within the AWS Detroit Section continues to build as we move through the first quarter of 2026. From technical advancements to networking events that strengthen our professional community, it has been a strong start to the year. Engagement across our membership remains high, and that participation is what keeps our section vibrant and relevant.

On February 12th, we gathered at Focus:HOPE for an informative and well-attended Technical Meeting featuring Tessonics Ultrasonic Inspection. The presentation provided a comprehensive look at modern ultrasonic inspection solutions, particularly the RSWA F2 platform used extensively in automotive spot-weld evaluation. In addition to discussing practical inspection applications, the team highlighted technologies such as the Real-time Integrated Weld Analyzer (RIWA) and Smart Welding Guns, tools designed to enhance process control and support Industry 4.0 initiatives through advanced data acquisition and analysis. The opportunity for attendees to interact with the F2 inspection units following the presentation added significant value to the evening. We appreciate both Focus:HOPE for hosting and the Tessonics team for delivering an engaging and technically rich program.

"Chairman's Message" *continued on page 7*

Ask the Welding Engineer

By Donald F. Maatz, Jr.

Q: ***"What options exist for evaluating the quality of a weld nut, other than push-off, and how viable are they?"***

A: "Our previous columns (see the growing list below) started a broad look at projection welding (PW). As stated in these earlier submissions, while the initial question related to the important topic of PW quality, it will take us some time to get there as, from my perspective, we need to establish a few important things about the PW process.

- ATWE Dec-22 & Jan-23: Looked at the repair or reprocessing of a solid or forged/coined weld nut
- ATWE Mar-23 & Apr-23: Detailed one measurable quality element of a weld nut – Set Down
- ATWE Sep-23 & Oct-23: Discussed the addition of pre-heat to a PW weld schedule
- ATWE Nov-24: Talked about the process variables needed to be considered for PW
- ATWE Dec-24: Began the conversation of the forged/coined weld nut process
- ATWE Jan-25 & Mar-25: Detailed the unique nature of PW weld schedules
- ATWE Oct-25: Detailed the possible variation in the projections of forged/coined weld nuts
- ATWE Nov-25: Discussed why there was no standardization with forged/coined weld nuts
- ATWE Jan-26: Designed a hypothetical weld nut
- ATWE Feb-26 & ATWE Mar-26: Evaluation of existing projection designs

For this column we will look at a few examples of what is actually out in the field with regard to projection designs, and how weldable they may (or may not) be. If we recall some of the information in our prior columns, there are actually many different design attributes one needs to consider with regard to evaluating the weldability of a projection on various fasteners (forged/coined weld nut & weld stud/screw). These include the following, and all will play a part in our discussion.

A. Number of Projections
B. Projection Shape
C. Projection Size/Length
D. Projection Volume
E. Projection Symmetry
F. Other Design Features
G. Fastener Material

Fastener Projection Design Review

For our purposes we will review six (6) types of projections on projection weld nuts and projection weld studs/screws, to include their unique projection designs and materials. For my part, I am not aware of any formal designation with regard to these designs – They seem to vary by OEM. As such, I'll just use the G-rated terms I have heard most often on the floor. Please reference the numbered and circled/annotated PW fastener in Figure-1 for a visual example of each projection type listed below.

Projection Weld Nuts:

1. Elongated or Banana (two examples)
2. Round (spherical or conical with a flat)
3. Half-Round
4. Four-Corner
5. Eyebrow
6. Full-Ring

Figure-1: Projection weld nuts – Numbered Examples

Projection Weld Studs/Screws:

7. Weld Stud / Weld Screw (with various projection types)*

**For purposes of this column weld studs are not threaded, weld screws are.*

We now continue with our design review – Please see ATWE Feb-26 for the earlier portions (#1 thru #4) of this review.

- **Eyebrow (#5 – Yellow Circle)**

I am just going to come right out and say it – I do not like this design. Why is that? Let's list more than a few reasons. And yes, it is acknowledged the following is almost identical to some of the issues stated for the Four-Corner nuts (see #4 from ATWE Feb-26). Remember history does not repeat itself, but it can rhyme. Anyway…

The real issue is this design manages to take many features to the wrong extreme: **1)** the projection volume and size are both too small – even for larger size variants - meaning thicker gauge and/or stronger base materials are difficult to weld, **2)** the asymmetric design does not provide good mechanical support and can lead to the projection collapsing too quickly under the same conditions as compared to their more robust brethren, and **3)** the projections themselves are located on the extreme edge of the fastener, resulting in some form of visible expulsion even when these nuts are being welded successfully. If one wants to add insult to injury, there are versions of these weld nuts available with six (6) projections – One at each point of the hex. I do not think I need to say anything more about my feelings when I encounter these fasteners. When all is said and done, these types of weld nuts elicit more heartache than anything else.

- **Full-Ring (#6 – Green Circle)**

My initial advise would be to avoid these types of weld nuts at all costs. Why? Just like the Four-Corner weld nuts (see #4 from ATWE Feb-26), they have a hard time sitting level and being welded 'square' to the part. However, when you need something sealed tight, the full-ring is the only way to go. Please note: I did not, and will not say, these types of weld nuts should be used where one needs extra strength. A weld nut with three (3) properly sized projections for the application is more than strong enough. And nothing I have seen in the many years I have been associated with this process has come close to changing my mind on this issue.

That being said, one will need very capable equipment when these types of fasteners are processed as the projection contact area for these welds is large. The good news is the full-ring projections tend to be very similar in design to their elongated comrades (see

"Ask The Welding Engineer" *continued on page 8*

Patrons 2025-26

Thank you for your support!

100%

of the Patron's Fund Donations are directed to scholarships for students who are pursuing careers in Welding Engineering and Welding Technology.

To become a Patron, contact Mike Poss, AWS Detroit Section-Patron's Committee Chair, **michael.g.poss@gm.com**

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Welform Electrodes Inc.
David Williamson

"Chairman's Message" *continued from page 3*

Our attention now turns to Ladies' Night 2026, taking place on Saturday, March 7th at the Henry Ford Museum. This signature event remains one of the highlights of our calendar year. The setting provides a unique atmosphere to connect with colleagues, celebrate our industry, and enjoy an evening among one of Michigan's most iconic collections of innovation and history.

Please note that in observance of Ladies' Night, there will not be a Technical Meeting in March. Our regular technical programming schedule will resume afterward.

Finally, a reminder that the AWS Detroit Section Scholarship application window remains open through April 1, 2026. We encourage members to share this opportunity with eligible students pursuing Welding Engineering, Welding Engineering Technology, welding certification programs, or related fields with substantial welding coursework. Supporting education and workforce development continues to be a foundational priority for our section.

Thank you for your continued involvement and support.
Donnie Crist, *Director of Sales and Application Engineering*

eBulletin Contributors

(Emails linked where available.)

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"Ask The Welding Engineer" *continued from page 4*

#1 from ATWE Feb-26), so if matched correctly to the base material gauge and strength, and one can bring enough pain, I mean current and force, on a machine with enough structural integrity and good follow-up, they can weld ok.

It is understood in the previous paragraph I listed many specific tooling related requirements with regard to welding a Full-Ring projection weld nut. For my part, that is just the way it is. If one tries to process one of these weld nuts and has not spec'd out capable equipment, you need to be prepared to suffer greatly for the duration of the job.

This weld nut also has a pilot. This feature can help with keeping expulsion out of the threads. As with all of these unique design elements, many weld nuts do not have this feature, but some do.

- **Weld Stud/Weld Screws (#7 – Blue Parenthesis)**
  These weld studs are highlighted for one reason, and one reason only – The material they are made from. Their projections are typically similar to what is detailed above in that they may be elongated, round or a full-ring. But what sets them apart is the material they are made from. In many cases, these fasteners are made from bolt-grade stock. As an example, a Class 8.8 weld screw can have an Ultimate Tensile Strength (UTS) of 800 MPa. This is more than 2x the strength of the 1010 Play-Doh®, eh, forged steel fasteners detailed above (see ATWE Dec-22 & ATWE Jan-26). In a word, wow!

But what does this increased strength mean from a welding perspective? These studs have both increased strength in their projections, and a higher bulk resistivity, when compared to any other forged/coined projection welding fastener detailed above. This translates into a much more controllable weld, with a larger degree of process latitude. From a practical standpoint, a Class 8.8 weld screw, with the same projection as its 1010 steel counterpart, will typically need the same (or less) current, the same (or higher) force, and close to the same weld time.

Do not get me wrong, this is still a projection weld, and that means we will still need capable equipment. This means excellent mechanical stiffness, with good mechanical follow-up, and plenty of weld current head room. That being said, one only needs to try to weld one of these bolt-grade studs at an AlSi coated press-hard material and try to not walk away with a smile on your face. If only they made all weld nuts from these same bolt-grade materials. One can only dream…

Final Thoughts…

The aforementioned review is my list of considerations with regard to determining the potential weldability of a forged/coined projection weld nut or weld stud/screw. While not all encompassing, the designs and materials highlighted above cover a broad spectrum of what is out there in the field, and can serve as a guide for us to move forward on related PW topics.

A common theme to come out of this discussion is the idea of matching the projection size and volume, regardless of the design, to the gauge and strength of the base material. Typically, the smaller weld nuts struggle when they are processed into unfavorable conditions, no matter their pedigree. The good news is there has been some movement on this front as specific projection designs from larger weld nuts have been used on smaller size nuts in order to reduce their mismatch. This aligns with what I have talked about for many years with regard to PW: The phone call I never get from someone telling me *their projections are too big.* Maybe someday…

We will continue the conversation on PW with our next column."

The table below (Table-1) might serve as a visual summary. For the purposes of this article, it represents my opinion with regard to the designs reviewed above.

KEY:
3 stars – optimum
2 stars – acceptable
1 star – marginal to bad

***Design can vary – Evaluate case-by-case*
****These specific elements can be crucial and need to be reviewed case-by-case*

Table-1

Category / Design	Elongated or Banana	Round	Half-Round	Four-Corner	Eyebrow	Full-Ring	Weld Stud
Number of Projections	★★★	★★★	★★★	★★	★★★	★	TBD**
Projection Shape	★★★	★★	★★	★★	★	★★★	TBD**
Projection Size/Length	★★★	★★★	★★	★★	★	★★★	TBD**
Projection Volume	★★★	★★★	★★	★★	★	★★★	TBD**
Projection Symmetry	★★★	★★★	★★	★	★	★★★	TBD**
Other Design Features	TBD***	TBD***	TBD***	TBD***	TBD***	TBD***	TBD***
Fastener Material	★	★	★	★	★	★	★★★

If you have more questions, contact Don at:

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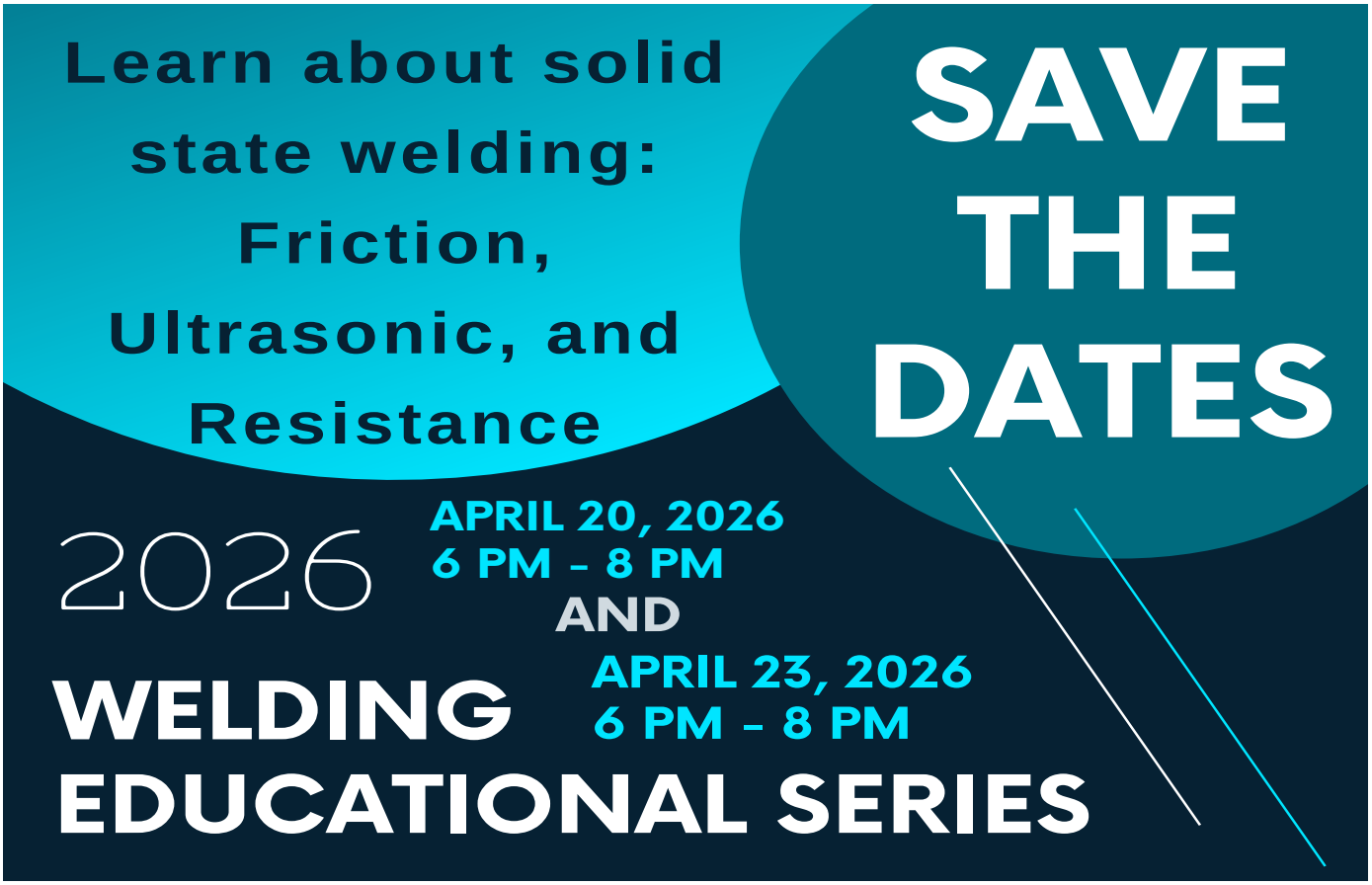
Donald F. Maatz, Jr. is with Milco Manufacturing, and serves in the capacity of Senior Welding Engineer. He is past-chairman of the AWS-Detroit Section, serves on the D8 and D8.9 Automotive Welding Committees, is chair of the D8D, and an advisor to the C1 Resistance Welding Committee, is an AWS endorsed CWI and an instructor for the RWMA School. He is a graduate of Ohio State with a BS in Welding Engineering.

ABSTRACTS DUE APRIL 30th, 2026

BODY CONSTRUCTION | DIGITIZATION | ELECTRIFICATION

Please join the AWS Detroit Section and share your recent technical contributions. The SMWC XXI is accepting papers related to welding and joining solutions for body construction, digitization and electrification. Selected papers will be invited to present their findings at the in-person conference.



INSIDE THIS ISSUE

INSIDE THIS ISSUE

American Welding Society®
DETROIT SECTION

SCHOLARSHIP PROGRAM
2026 – 2027 SCHOOL YEAR
RULES and APPLICATION INSTRUCTIONS

Application Postmark Deadline
April 1, 2026

Completion of this application automatically considers the student for the "Amos and Marilyn Winsand Scholarship," the "Robert P and Mardell D Wilcox Vocational and Engineering Scholarships" and the "Blazok Foundation Scholarship." These are AWS Foundation endowed scholarships.

1. Applicant must be enrolled in a Welding Engineering Program, a Welding Engineering Technology Program, a Post-Secondary Technical Program (Welding Certification targeted program), or a related field of study with a strong welding content.
2. Students are eligible to apply for Detroit Section scholarships if they are permanent residents of the state of Michigan or the following Ontario counties: Essex, Chatham-Kent, and Sarnia-Lambton. Students who are temporary residents attending school in the state of Michigan or the following Ontario counties: Essex, Chatham-Kent, and Sarnia Lambton are eligible for non-named scholarships. Preference will be given to students who are permanent residents of the Detroit Section territory, including Ontario counties: Essex, Chatham-Kent, and Sarnia-Lambton.
3. The Detroit Section Scholarship Committee administrates the AWS Detroit Section Scholarship program, with the assistance of the AWS Foundation. The Committee also selects the recipients of the Foundation scholarships.
4. AWS Detroit Section Scholarships are paid in varying amounts based on individual awards. If an applicant is awarded a scholarship, the payments are made directly to their qualifying educational institution through the AWS Foundation.

Application Instructions

- The information requested on the application form is self-explanatory. Please fill out the form completely.
- The AWS Foundation inter-active application is available either at www.awssection.com/detroit under the Scholarships tab. Or by going directly to the AWS Foundation scholarship page: https://scholarship.aws.org/
- For more additional information about the scholarship program, please see https://www.aws.org/foundation/page/scholarships
- AWS membership is encouraged of all welding aspirants.
- In addition to the application form, you must enclose or attach the following:
  - **Transcript(s)** – Official scholastic records or grade transcripts from the high school, college or university you attended during the recent school year.
  - **Personal Statement and Work Experience** – Ambitions, goals, background, and other factors that will help the selection committee understand your commitment to pursuing a welding career.

Our Mission

is to advance the science, technology and application of welding and allied joining and cutting processes worldwide, including brazing, soldering and thermal spraying. AWS Detroit provides support for the industry in many ways, including:

- ***» Institutional Grants (endowment based);***
- ***» Scholarships through Application (endowment based);***
- ***» Scholarships through aptitude (HSWC);***
- ***» Vocational Support (case by case but budgeted each year), Institution (e.g. supply gas and materials), Local Contest (e.g. travel expense), International Contest (e.g. travel expense);***
- ***» Student Memberships (evaluated each year);***
- ***» Student Chapter (evaluated each year);***
- ***»Technical and Educational Opportunities.***

INSIDE THIS ISSUE

Presented by
AWS Detroit Section

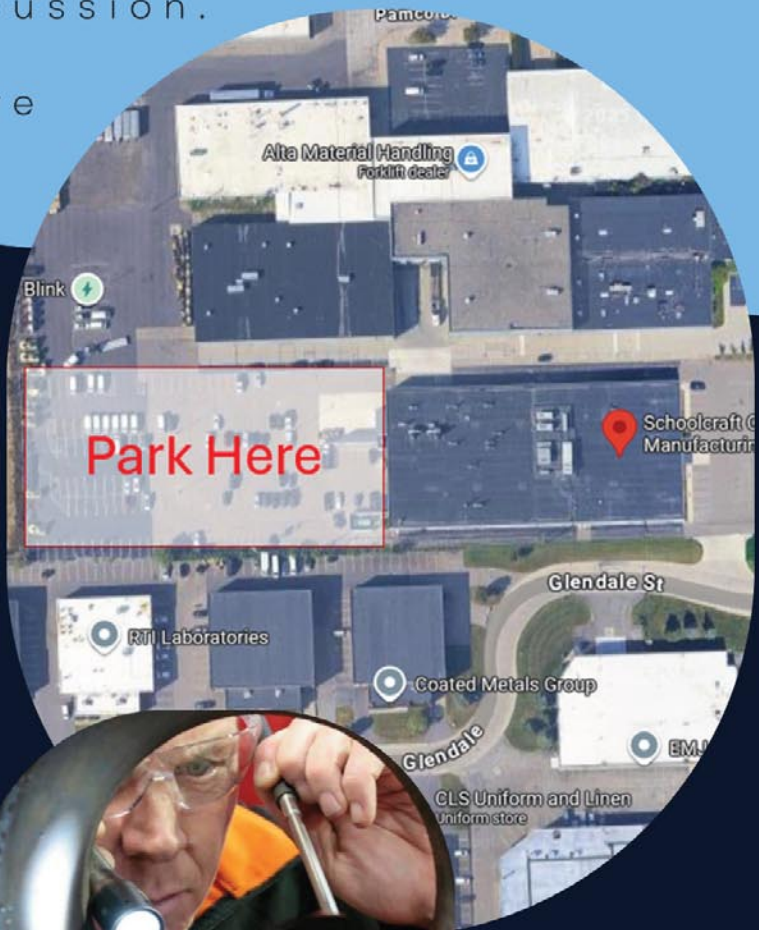
CWI ROUNDTABLE

Connect with industry peers for an interactive discussion. Share insights, tackle challenges, and explore innovations

Saturday
April 18th, 2026
9:00am - 11:00am

Schoolcraft College
MEC building
13001 Merriman Rd
Livonia, MI 48150

1 PDH hour certificates available to those interested



THE SCHEDULE:

- 9 to 9:30 - Coffee, Donuts, and Networking (oh my!)
- 9:30 to 11 - Discussion

RSVP to erin.e.lalinsky@gmail.com