Annual Scholarship Night
Thursday, September 14, 2017
Location: Schoolcraft College Vista Tech Center
18600 Haggerty Rd, Livonia, MI 48152
Click here for Google Maps

AGENDA
5:30 - 6:00pm  Welcome Reception & Networking
6:00 - 7:00pm  Dinner
7:00 - 9:00pm  Awarding of Scholarships
9:00pm        Adjourn

Cost: $20.00 for dinner. Free for college staff, award recipients and their parents, spouse or fiancé, or a friend.

RSVP to scholarshiprsvp@awsdetroit.org

The AWS Detroit section promotes the welding industry by investing in students who are attending various universities, community colleges, and trade schools. This year, AWS Detroit section was able to award scholarships over $60,000.00 to help students succeed and promote tomorrow’s welding industry. Student night is a celebration honoring students, parents and teachers. We are very proud of these students.

Come out and celebrate Scholarship night with us! We hope to see as many students as possible! The SchoolCraft VisTaTech Center is a great venue to celebrate your success!

In addition to the formal speeches and awarding of scholarships, we have something a little different planned, and maybe a bit more value added for you, our guests. Mr. Phil Temple, our current District 11 director will be speaking about welding careers as well as some of our AWS Detroit Section Members. Everyone is welcome to attend. Being a member is not a requirement, and the event is open to all ages.

It will be a great event and we are expecting a sold out crowd. So please RSVP as soon as possible!

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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.
Well, it’s September and another exciting year for the AWS Detroit Section is upon us. Hopefully many of you put your welding shield to good use and watched the solar eclipse a couple of weeks ago. I would like to take the opportunity to thank the executive committee members who volunteer their time, the companies who support us and individual member participation.

September is home to our Student Night which will be held at Schoolcraft College. It seems like a distant memory now when I was in school and received scholarships from the AWS Detroit Section. The scholarship program is the cornerstone of our achievements. The investment in the matching funds program has yielded a program that will allow us to contribute over $60,000 towards students each year.

The 2017/18 scholarship program is a successful program for the Detroit Section. We now have on-line applications, making it easier than ever for students to interact with the program. We hope to continue our commitment to students and also to our 1000+ members by offering valuable educational, networking and social events. We strive to achieve our mission of advancing the science, technology and application of welding and allied processes including joining, brazing, soldering, cutting and thermal spray.

The great work done by this section is only possible from the volunteers, patrons, advertisers, supporting companies and great events like Ladies Night, Sheet Metal Welding Conference, Christmas Party, Golf Outing, Technical Meetings, Educational Seminars and other behind the scenes work. We hope to increase our involvement by developing a Grant program this year that will directly help institutions trying to train, educate and inspire the fabricators, skilled trade and engineers of the future.

If you would like to further participate in the Detroit Section, please don’t hesitate to contact me directly: 810-844-2800 or doneth.wesley@fronius.com
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Congratulations to the Detroit Section 2017 – 2018 Scholarship

The scholarship recipients are all invited to attend our September Technical Meeting as a guest of the Detroit Section so they may receive recognition of these awards.

This year the AWS Detroit Section has awarded 38 welding scholarships totaling $60,000. These scholarships are made available to Michigan residents and/or students enrolled in a welding or welding related programs at a college or university in the State of Michigan, and the following counties in the province of Ontario; Essex, Chatham-Kent, and Sarnia-Lambton. The candidates all submitted an application, including transcripts of their academic achievement, a brief letter about their background, their goals and ambitions, and any additional factors that would help the Section Scholarship Committee determine eligibility for an award.

The scholarship process for the 2018-2019 school year will begin in December 2017. This is a program of utmost importance to the Detroit Section and feedback and ideas from all concerned is greatly appreciated.

Donald F. Maatz, Jr.
Section Scholarship Chairman

The 38 recipients of the 2017 – 2018 Scholarships will be attending:

Ferris State University
LeTourneau University
Macomb Community College
Michigan Technological University

Northern Michigan University
Oakland Community College
Pennsylvania College of Technology
Pennsylvania State University

Schoolcraft Community College
St. Clair County Community College
Washtenaw Community College
Wayne County Community College District

2017 – 2018 American Welding Society-Detroit Section Scholarship Winners

AWS-Detroit Section, District 11 Fred Ellicott Scholarship for Arc Welding
Nicholas Horton – Ferris State University – Welding Engineering Technology

AWS-Detroit Section, District 11 Dietrich Roth Scholarship for Resistance Welding
Ty Lattimore – Ferris State University – Welding Engineering Technology

The Amos and Marilyn Winsand Scholarship, funded by the AWS Foundation, was awarded to Codylee Turrell, Ferris State University.

The Robert L. Wilcox Scholarship was awarded to Michelle Riley, Schoolcraft Community College.

The James W. Mitchell Scholarship was awarded to Ty Lattimore, Ferris State University.
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CenterLine Welcomes New Account Manager

Windsor, Canada, August 1, 2017. CenterLine (Windsor) Limited is very pleased to announce the addition of Mr. Kyle Smith to the position of Account Manager. Kyle has nearly five years of sales, customer relations and weld support experience in the automotive industry.
Editor’s Notes

Welcome back AWS Detroit members! Where did summer go? WOW! Are you ready for a new season? This is my sixth year as editor of the AWS Detroit e-bulletin, and for the first time since I started as the editor, I feel a little lost this year. Perhaps, it’s because I stepped out of my comfort zone and jumped into a more challenging position at a new employer. Or maybe, it’s because I know that we (AWS Detroit) have a lot of new challenges this year, and big goals. We’re always looking for people to interact and share their knowledge and experience within our section and our community. We mentioned the new Grant program this year that we are aggressively undertaking. Yes, we want to make a difference in our future. Whether it’s the scholarship program that provides for our students going to college and tech schools, or the community grants that provide for education in the trades. We’ve got a lot of hard work ahead of us, but a lot of opportunity for optimism as well.

Come out and join us at one of the technical meetings! You don’t have to be a member and we welcome everyone! It’s a great opportunity to network and learn something new.

And, until next month... KEEP ON WELDING... Robin
“Which type of transformer is better for the resistance spot welding of sheet metal, especially the new high-strength materials that are becoming more common, AC or MFDC? I ask as I have an old AC machine that runs great and has handled everything I have thrown at it so far?”

In the past three columns we have provided a brief overview detailing the migration of resistance spot welding (RSW) power supplies from alternating current (AC) to Medium-Frequency Direct Current (MFDC). The first column (Mar-17 ATWE) discussed some of the motivation for this change and provided just a bit of historical context. The second column (Apr-17 ATWE) took a look into several of the facility and tooling considerations that one would need to be aware of when dealing with either type of power supply. This column also acknowledged that it was not initially easy to switch from AC to MFDC. But the sales data referenced in our initial column reveals that these issues are now essentially behind us as present MFDC sales beat out AC by almost 20:1. For our third column (May-17 ATWE) we looked at a very specific benefit relating to the utilization of the MFDC power supply as it relates to the tooling, and the effect that its wider secondary current capability had on tooling design, and your needed spare parts inventory. In this column we will take a brief look at the migration of the MFDC units themselves, and make a few quick comparisons to a comparable AC unit.

One of the first items of note with regards to the initial MFDC units that came on the market compared to their brethren of today is that the designers have really made the latest iterations much more efficient. And no place is this efficiency more apparent than in the area of their output for a given mass. For our purposes this will be measured simply as kVA/kg. So how much have things changed? Units from only 15 years ago might be in the area of <3 kVA/kg. Today? It is now common to find the latest models come in at 7 kVA/kg. In real world terms that means a modern 225 kVA unit might fit into a space no bigger than 6” x 7” x 19”, and have a weight of no more than 110 pounds. In a word, wow!

While the modern MFDC unit has taken a bit of time to become more efficient, it has never lost its primary demand electrical advantage when compared to an AC unit. The numbers below really speak for themselves when it comes to the primary current demand for each type of power supply.

**AC:** 1 480; 100 kVA AC; 100,000/480v @ 50% = 208A; 208A * 0.707 = 147A continuous into the transformer. (0.707 used for RMS conversion)

**MFDC:** 3 480; 100 kVA MFDC; 100,000/650v @ 50% = 154A; 154A * 0.707 = 108A continuous into the transformer; 108A * 0.81 = 88A drawn from each leg

(650v as you deal with peak voltage; 0.707 used for RMS conversion; 0.81 conversion to split into 3-legs)

But an MFDC unit has other advantages and/or differences over a comparable AC unit:

- A review of two previous columns (Jan-16 & Feb-16 ATWE) will reveal that secondary loop total impedance and conductor sizing are critical for any resistive welding process. Recall that Impedance (Z) consists of two components: Resistance (R) and Inductive Reactance (XL). Well, imagine if the Inductive Reactance (XL) could be negated. Welcome to the world of MFDC resistance welding. Once one removes Inductive Reactance (XL), literally from the equation, the sizing process takes on a whole different point of view and opens up possibilities with regards tooling design and packaging that were not even possible just 20 years ago. However, there is one area where the Inductive Reactance (XL) cannot be ignored, even for an MFDC unit, and that is when secondary current is initially starting to flow. But this topic is going to have to be the subject of a future column as this one item alone has become a hot-button issue with the RW community. Stay tuned...

- It goes without saying that the functionality and capability of a modern weld control is really straight out of science fiction. The ability to sense a multitude of parameters (primary & secondary current, secondary resistance, and others) and then to be able to adjust the control’s output while the weld is being made is just amazing. But how quickly can this be done? With an AC system you are limited to 60 Hz. But not so with an MFDC system. With integrating periods starting at 400 Hz and climbing up from there (10 kHz anyone?), it really does seem that in this arena the game is just getting started.

- The constant polarity of an MFDC unit can be either a help, or a hindrance, when it comes to the RSW process. The AC unit, with its switching polarity, can offer a stable and even heating situation, and this can translate to more even wear on the electrodes. But sometimes this even heating is not preferred as it is desired to draw heat closer to one electrode than the other. The uneven heating associated with the constant polarity of an MFDC unit is known as the Peltier Effect. The net result is that by placing the positive electrode against the surface where extra heat is desired, you can help draw the recast structure of the weld in the needed direction. But this can also lead to accelerated electrode wear. As the saying goes, there is no such thing as a free lunch.

- The current profile of an AC unit is, by its very definition, much different than that of an MFDC unit. The inter-cycle cooling associated with the AC sine-wave can have an inherent cooling effect that is not possible with MFDC. That is unless one pulses MFDC in a very aggressive manner. This inherent difference between the two types of power supplies is one point that folks make when debating the weldability difference between AC and MFDC, and will part of a future discussion.

With the aforementioned in mind, we are now getting much closer at trying to answer the question we were originally asked – Which is better for RSW, an AC or MFDC power supply.

The author gratefully acknowledges the assistance of Greg Angel of RoMan Manufacturing Inc.

If you have more questions about this topic, Contact Don Maatz at R&E Engineering Services; A subsidiary of R&E Automated Systems, LLC; 70701 Powell Road, Bruce Township, MI 48065; (586) 228-1900 - Office; (734) 793-2304 – Direct dmaatz@reautomated.com

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