

Registration/Order Form

Four easy ways:

1. Call 1-800-443-9353, Ext. 449, between the hours of 8 a.m. and 5 p.m., EST. Please have your AWS membership number, a purchase order number or credit card ready.
2. Go online: <http://www.aws.org>, click on "Conferences"
3. FAX order form 24-hours a day: 305-648-1655 or 305-443-7559
4. Return registration form to:
American Welding Society
P.O. Box 440367
Miami, Florida 33144-0367

Note: Registrant information needed for each registrant

Type of Business

(Check ONE only)

- A Contract construction
- B Chemicals & allied products
- C Petroleum & coal industries
- D Primary metal industries
- E Fabricated metal products
- F Machinery except elect. (incl. gas welding)
- G Electrical equip., supplies, electrodes
- H Transportation equip. — air, aerospace
- I Transportation equip. — automotive
- J Transportation equip. — boats, ships
- K Transportation equip. — railroad
- L Utilities
- M Welding distributors & retail trade
- N Misc. repair services (incl. welding shops)
- O Educational Services (univ., libraries, schools)
- P Engineering & architectural services (incl. assns.)
- Q Misc. business services (incl. commercial labs)
- R Government (federal, state, local)
- S Other

Job Classification

(Check ONE only)

- 01 President, owner, partner, officer
- 02 Manager, director, superintendent (or assistant)
- 03 Sales
- 04 Purchasing
- 05 Engineer — welding
- 20 Engineer — design
- 21 Engineer — manufacturing
- 06 Engineer — other
- 10 Architect designer
- 12 Metallurgist
- 13 Research & Development
- 22 Quality Control
- 07 Inspector, tester
- 08 Supervisor, foreman
- 14 Technician
- 09 Welder, welding or cutting operator
- 11 Consultant
- 15 Educator
- 17 Librarian
- 16 Student
- 18 Customer Service
- 19 Other

Your Technical Interests

(Place number on line in choice order: 1-2-3, etc.)

- A Ferrous metals
- B Aluminum
- C Nonferrous Metals except aluminum
- D Advanced Materials/Intermetallics
- E Ceramics
- F High Energy Beam Processes
- G Arc Welding
- H Brazing and Soldering
- I Resistance Welding
- J Thermal Spray
- K Cutting
- L NDT
- M Safety and Health
- N Bending and Shearing
- O Roll Forming
- P Stamping and Punching
- Q Aerospace
- R Automotive
- S Machinery
- T Marine
- U Piping and Tubing
- V Pressure Vessels and Tanks
- W Sheet Metal
- X Structures
- Y Other
- 1 Robotics
- 2 Computerization of Welding

AWS Member No. _____

Name _____ E-Mail _____

Company _____ Title _____

Business Other _____

Address _____ City/State/Zip _____

Daytime Phone _____ FAX _____

Method of Payment: Bill Me (AWS members only) Bill My Company (Must include Purchase Order No.) P.O. No. _____

Check Money Order VISA MasterCard American Express Diners Club Discover Carte Blanche

Card No. _____ Signature _____ Exp. Date _____

Please send me the FREE AWS CATALOG. I prefer to receive reminders about seminars via E-mail Postal mail

Code	Title	Member	Nonmember	Quantity	Total
COGMAW-2	CONFERENCE REGISTRATION FEE	\$ 550.00	\$ 675.00		
COGMAW2E	EXHIBITOR REGISTRATION FEE	\$ 750.00	\$ 750.00		
	TOTAL				

Dues include \$28.30 for *Welding Journal* subscription and \$4.00 for the AWS Foundation.

*The non-member conference fee includes a two-year membership in the American Welding Society.

Please note that your AWS Membership will be active after completion of event.

SPECIAL CONSIDERATIONS

In accordance with the Americans with Disabilities Act (ADA), AWS strives to accommodate all participants with special needs. If you require assistance, or need further information please inform the AWS Conference Department, 800-443-9353, ext. 449, well in advance of the date of the event.

REFUND POLICY

AWS knows your plans can change and offers a flexible refund policy. If you notify AWS at least two weeks before a scheduled seminar that you are unable to attend, you will receive a full refund less a \$75 administration/hotel attrition fee. Notification received less than two weeks before a seminar is scheduled will result in a refund less a \$175 administration/hotel attrition fee. If you are a no-show, no registration fees will be refunded.

AWS encourages substitutions at any time and will work to reschedule registrants on a space-available basis.

Note: AWS reserves the right to cancel any event in its reasonable discretion. In the event of cancellation by AWS, registration fees will be refunded in full. AWS shall have no further liability.

Remit Payment To:

American Welding Society
P.O. Box 440367 Miami, Florida 33144-0367

AWS USE ONLY

1. Check # _____
2. Date Rec'd _____
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4. Account# _____

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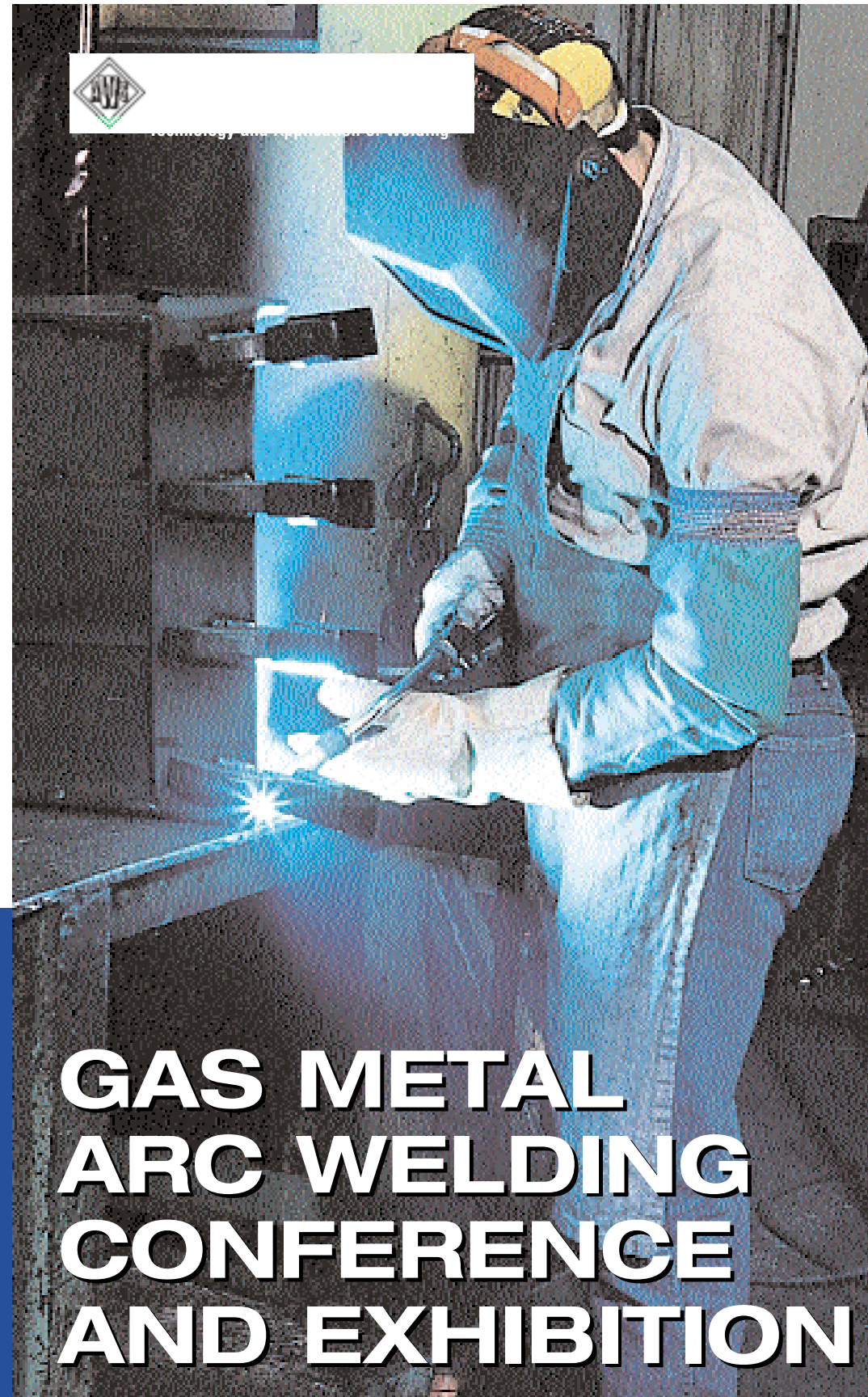


**GAS METAL
ARC WELDING
CONFERENCE
AND EXHIBITION**

**September 17-18, 2002
Grosvenor Resort
Orlando, Florida**

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GAS METAL ARC WELDING CONFERENCE AND EXHIBITION

September 17-18, 2002
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Orlando, Florida

GMAW is the most active segment within the entire welding industry. Innovations are prevalent. Keeping up with these innovations can be a full-time job in itself. The Industry is constantly changing its procedures in order to accommodate new technology. Welding engineers, in particular, find a thorough conference on GMAW to be essential.

The topics are drawn from four main categories: filler metal, power sources, shielding gases, and automation. Under filler metals for steels, there are solid wires, flux-cored wires, and metal cored wires. Vastly improved power sources are being introduced. Robotics is becoming enormously popular among users of GMAW. Also, the conference is not restricted to steels, but also includes information about welding of stainless steels and aluminum.

CONFERENCE PROGRAM

TUESDAY, SEPTEMBER 17, 2002

9:00 a.m. Welcoming Remarks
Robert R. Irving, Conference Chair
Irving & Associates, Yardley,
Pennsylvania

9:15 a.m. **Determination of the Optimum Toughness Envelope for Pulsed Gas Metal Arc Welds (GMAW) in HY80 Steel**

Defence R&D Canada's efforts have led to the identification of Gas Metal Arc Welding with T.I.M.E (Transfer Ionized Molten Energy) gas as the preferred process, from the perspective of providing a combination of optimal arc characteristics and superior weld zone mechanical properties. Dynamic Tear Transition Testing and Explosion Bulge Testing are the primary special tests used for weld process and consumable approvals. This work has yielded a connection between the transition results and quantitative fracture mechanics. Dynamic tear testing is used to develop notch toughness transition curves for five weld heat input levels.

Darren S. Begg, BMT Fleet Technology Limited, Ontario, Canada

Dr. James R. Matthews, Defence R&D Canada-Atlantic, Nova Scotia, Canada

John F. Porter, Defence R&D Canada-Atlantic, Nova Scotia, Canada

10:00 a.m. Presentation to be announced.

10:45 a.m. **Morning Refreshment Break**

11:15 a.m. **Process Monitoring before, during and after Welding**

New laser vision technology facilitates improved process monitoring and control of GMAW. Information can be used to improve weld quality and to reduce the cost of welding.

Jeff S. Noruk, Servo-Robot Corp., Mequon, Wisconsin

12:00 noon Lunch (Provided)

1:00 p.m. **Understanding Welding Costs — Using Metal Cored Wire for Cost Reduction and Quality Improvement**

This presentation will initially provide the attendee with a basic understanding of what comprises total welding costs. The second part of the presentation will focus on how metal cored wire can be used to replace solid wire for improved weld quality, higher productivity, and lower total welding costs.

Steven E. Barborst, Hobart Brothers Co., Troy, Ohio

1:45 p.m. **Robotic Welding in Heavy Fabrication**

Robotic welding of heavy section fabrications will be discussed. Important concepts for successful implementation will be presented, including control of manufacturing variability, use of process simulation, and robotic programming. The use of a well-structured, integrated plan will be emphasized.

Howard L. Ludewig, Caterpillar, Inc., Peoria, Illinois

2:30 p.m. **Modern Power Supplies for Gas Metal Arc Welding**

The design and control technologies used in new power supplies will be discussed. In addition, the benefits of pulsed versus non-pulsed and constant-voltage versus constant-energy power supplies will be summarized. Guidelines for power supply and process selection will be provided for various applications.

Frank G. Armao, The Lincoln Electric Co., Inc., Cleveland, Ohio

3:15 p.m. **Afternoon Refreshment Break**

3:45 p.m. **Weld Monitoring System on Torque Converter Line at Ford Motor Co.**

Weld monitoring was used to diagnose problems with the closure weld on a production line. The monitor provided information that was used to create the welding productivity to over 150%, and reduce the repair/rework rate from 5% to less than 1%.

Dr. Jerald E. Jones, NA Technologies, Golden, Colorado

4:30 p.m. **Adjournment**

WEDNESDAY, SEPTEMBER 18, 2002

9:00 a.m. **Metallurgical Concerns in Gas Metal Arc Welding**

This presentation will discuss the metallurgical aspects of gas metal arc welding. Better understanding of GMAW process variables and their influence on materials will greatly enhance the production capability and efficiency.

Dr. Glen R. Edwards, Colorado School of Mines, Golden, Colorado

Dr. Stephen Liu, Colorado School of Mines, Golden, Colorado

9:45 a.m. **Shielding Gases for High Productivity Welding**

The selection of the right shielding gas blend can have a significant impact on the productivity of a gas metal arc welding operation. Welding speeds can be increased by 20-30% by utilizing multi-component gas mixtures tailored to a specific application. Both carbon and stainless steel welding can benefit from the proper choice of a shielding gas for the GMAW welding process variation used.

Kevin A. Lytle, Praxair, Inc., Tonawanda, New York

10:30 a.m. **Morning Refreshment Break**

11:00 a.m. **Advantages to Gas Metal Arc Welding with Solid Wire**

The presentation discusses high production GMAW solid wire welding in automotive applications, welding on coated steels with GMAW solid wire, advantages of GMAW solid wire welding in robotic applications, and decreasing downtime in automotive solid welding wire applications.

Fred P. Bernier, Thermadyne Industries, Lake Orion, Michigan

12:00 noon Lunch (Provided)

1:00 p.m. **Arc-Weld Monitoring for AC Power Supplies**

A number of new power supplies use AC operation to better manage gap control and penetration effects. How do these new supplies affect arc-weld monitoring techniques? The talk presents the results of a series of fault analysis tests performed with different supplies.

Stephen P. Ivkovich, Impact Engineering, Inc., Jackson, Michigan

1:45 p.m. **Selection of Power Sources**

This presentation will cover the GMAW modes of transfer and equipment best utilized for these transfer modes. Topics include power sources for shop and field GMAW welding along with equipment-vs.-operator skill level and options available on GMAW power sources. In addition, the presentation will go into the economics of upgrading equipment.

Guy S. Mulee, Eastman Kodak Co., Rochester, New York

2:30 p.m. **Refreshment Break**

3:00 p.m. **Welding Stainless Steel Piping with No Backing Gas**

For the first time in welding history, Flour and partners are welding austenitic stainless steel with no backing gas (NBG) in shop and field. The achievement combines an inverter power source, high content silicon filler wire, and a tri-mix shielding gas to successfully produce quality Code welds that directly contribute to the reduction of overall welding and setup costs. A commitment to innovative thinking, quality improvement and reduction of construction costs moved "welding of stainless steel piping with no backing gas" from concept to reality!

Charles W. Patrick, Fluor Corp., Sugarland, Texas

3:45 p.m. **New Developments in Flux-Cored Arc Welding Electrodes**

This presentation will reflect on flux-cored gas-shielded arc welding (FCAW-G) electrodes — summary of the most popular electrodes and applications.

Kenneth Y. Lee, The Lincoln Electric Co., Inc., Cleveland, Ohio

4:30 p.m. **Closing Remarks and Conference Adjournment**

RECOMMENDED READING:

Materials and Applications – Part 2 Welding Handbook, 8th Ed., Vol. 4

Volume Four contains considerable expansion of information provided in previous editions. This expanded coverage has resulted in the presentation of material never before published by AWS. Like its predecessors, this volume of the Welding Handbook is the ultimate reference tool. Not only does the book come equipped with two separate indexes, but each chapter boasts its own Table of Contents. Packed with more than 500 tables, charts and photos, it will make your research efforts easier than ever. Chapters: Carbon and Low-Alloy Steels; High-Alloy Steels; Coated Steels; Tool and Die Steels; Stainless and Heat-Resisting Steels; Clad and Dissimilar Metals; Surfacing; Cast Irons; Titanium and Titanium Alloys; Reactive, Refractory, and Precious Metals and Alloys. Published in 1998.

WHB-4.8\$156.00
AWS Members\$117.00

Recommended Practices for Choosing Shielding Gases for Welding and Plasma Arc Cutting

Instruction on selecting a particular shielding gas or gas mixture for optimum operation of the arc welding or cutting process. Six industrial gases examined are: argon, carbon dioxide, helium, hydrogen, nitrogen, and oxygen. This Recommended Practice is applicable for FCAW, GTAW, GMAW, EGW and PAC, but does not include shielding for oxyfuel gas processes or heat treating processes. 46 pages, 24 tables, 22 figures. Published in 1994. ANSI Approved.

C5.10-94\$56.00
AWS Members\$42.00

Everyday Pocket Handbook for Gas Metal Arc and Flux Cored Arc Welding

GMAW portion includes shielding gas information for both spray arc transfer and short-circuiting arc transfer, globular to spray transition currents, arc voltages, wire-feed speed, melting rates, and typical welding conditions for carbon and low-alloy steels, stainless steels and aluminum. FCAW electrodes, and same topics as GMAW portion for CO2 and self-shielding. Covers troubleshooting advice for mechanical and electrical GMAW and FCAW. 50 pages, 2-1/2" x 6", spiral bound.

PHB-4\$12.00
AWS Members\$9.00

Guide for Components of Robotic and Automatic Welding Installations

Performance recommendations for evaluating components of a typical robotic or automatic welding installation. Emphasis is placed on the role of the welding interface. Chapters include arc welding power sources, torches and accessories, dereeling system, shielding gas delivery systems, electrode feeling equipment, welding circuit, communication control wiring, and system grounding. 10 pages of text, 2 tables (including connector pin assignments), 4 figures. Developed in conjunction with the National Electrical Manufacturers Association and ANSI Approved. Published in 2001, 13 pages.

D16.2/D16.2M:2001 \$60.00
AWS Members\$45.00

Risk Assessment Guide for Robotic Arc Welding

This document provides recommendations and guidelines for the safe application of robotic arc welding. Emphasis is placed on conformance of this process with prevailing industry standards for hazard analysis and proper safeguarding. Published in 2001, 30 pages.

D16.3M/D16.3:2001 \$32.00
AWS Members\$24.00

Specification for Qualification of Robotic Arc Welding Personnel

14 pages, published in 1999. ANSI Approved.

B5.2:2001\$24.00
AWS Members\$18.00

Guide for the Gas Shielded Arc Welding of Aluminum and Aluminum Alloy Pipe

Expanded from a Recommended Practice to a Guide, this important pipe welding standard reflects the present state of the art. Sections include welding characteristics of aluminum; processes (GTAW, DCEN, GMAW, and automatic); materials; preparation; conditions; backing technique; heat treatment; and safety and health. 29 pages, 13 tables, 5 figures. U.S. Customary Units and metric; pipe sizes listed as diameter nominal (DN) and nominal pipe size (NPS). ANSI Approved. Published in 2000.

D10.7M/D10.7:2000 \$56.00
AWS Members\$42.00

Conference Registration Fees

Code: COGMAW

Member:.....\$550

Nonmember:\$675

Exhibitor Registration Fee:

Code: COGMAW-E

Member:.....\$750

Nonmember:\$750

A \$750 exhibitor fee includes one 8' x 10' space, one draped 6' table, one chair, an identification sign, and one complete conference registration. Exhibition space is now open, and exhibit selection is on a first-come, first-served basis.

Fee includes two lunches, refreshment breaks, and presentation handouts. Registration fees do not include hotel accommodations. Please make checks payable to the American Welding Society. AWS will issue a registration confirmation. On-site Registration is available throughout the conference.

Conference Site and Accommodations

Grosvenor Resort

In the WALT DISNEY WORLD Resort

Downtown Disney

1850 Hotel Plaza Blvd.

Post Office Box 22202

Lake Buena Vista, Florida 32830-2202

Ph: (407) 828-4444

Website: www.grosvenorresort.com

Individuals who call and say they are attending the AWS Conference are eligible for a special rate of \$90 + 11% tax for single/double occupancy. The room block will be held until August 17, 2002. After that date, reservations will be accepted on a space-and rate-available basis.

Accommodations for the Disabled

Pursuant to the Americans with the Disabilities Act (ADA), AWS and The Grosvenor Resort strive to ensure accessibility for all of their guests. Please inform the hotel when you make your reservations and contact the AWS Conference Business Unit at (800) 443-9353, ext. 449.

Special Conference Features

- Nonmember attendees will become AWS members for two years at no additional charge.
- Each participant will receive an AWS Certificate of Attendance listing a total of 10 Professional Development Hours (PDHs). These hours can accrue towards your education/training requirements for the renewal of your Certified Welding Inspector's license.