



Orbital Weld Training Brochure

## Swagelok Orbital Weld Training

Learn and enhance skills necessary for quality orbital welds

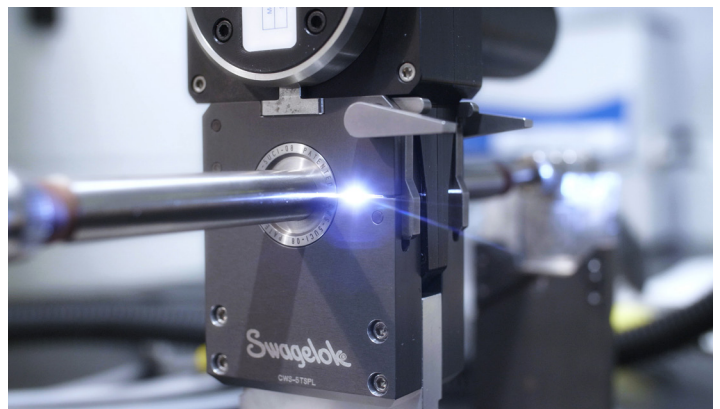
For many decades, Swagelok has offered premium-quality welding tools. Today, our welding training emphasizes the theories and skills associated with Gas Tungsten Arc-based orbital Welding (GTAW) with both classroom and hands-on training in a four day course.

Because of the complexity of skills required to consistently achieve good orbital welds, new and experienced welders must be trained using cutting-edge techniques from qualified instructors. The techniques taught in this course can be applied to any automatic gas tungsten arc welding system.

### Objectives:

- Understand basic metallurgy and industry standards and specifications for welding
- Set up and operate orbital welding equipment
- Learn how proper gas selection and purging techniques affect the quality of a weld

- Practice troubleshooting common issues and learn preventive maintenance procedures that will protect your equipment investment
- Practice orbital weld procedures on applications with up to 4 inch diameter tubing
- Develop a weld procedure and adjust the variables of the GTAW process to impact the quality of a weld practice orbital weld procedures on applications with up to 4 inch diameter tubing



## What You Will Learn:

### Day 1

- Overview of GTAW process (History, evolution, practical theory, and basic variables).
- Overview of SWS functions and operations (Connecting, setting up, and using the SWS-M200. Screens and options available).

### Day 2

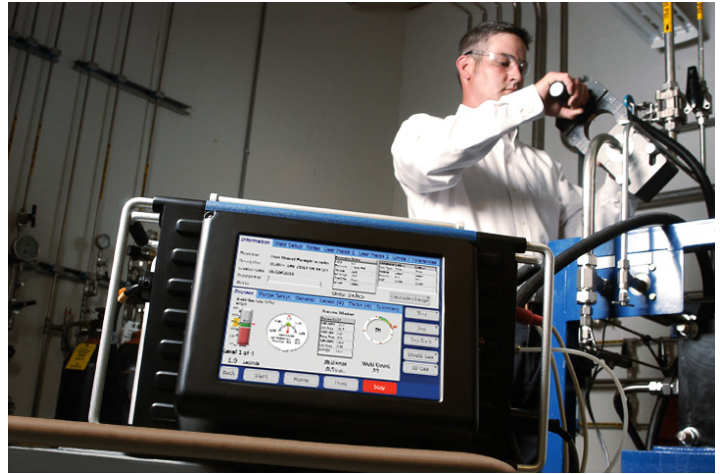
- Introduction to the 5H fixture block (side plates, plenums, collets, adjusting alignment, using the arc gap gauge, etc.).
- Using the auto-generate function to create a welding program on 1/2"x.065" SS tubing.
- Define what makes an acceptable weld, how to evaluate a weld and how to generate a weld coupon.
- Using the level adjustment feature on the M200 power supply.
- Developing weld parameters to meet specific weld size (Root width).

### Day 3

- Auto-generate a new program for 1/4" x .035" SS tubing.
- Creating a weld program for making a dissimilar thickness weld using the level adjustment feature on a previously developed weld program.
- Repackaging the 5H orbital Weld head.
- Features of the 20H fixture block (standard side plate vs thin side plate, collets (tube & pipe), alignment of side plates, arc gap gauge, etc.).
- Creating a weld program for 2" x .083" wall SS tubing.
- Welding an elbow/tee to 2" x .083" wall tubing to use thin side plate.
- Repackaging the 20H orbital weld head.

### Day 4

- Test spool exercises.
- Requirements of ASME section IX including qualifications (WPS, PQR, WOP, etc.).
- Perform Qualification welds for Procedure and Performance in accordance with Swagelok Custom Solutions Policy.
- Roles and responsibility of a weld examiner.
- Making the weld samples 1/4"x .035" and 1/2"x .065" for ASME certificate test.
- Weld "spool" assembly to mock-up custom solutions applications (Using microfit tees, elbows, and VCR glands make an assembly using various collets and fixture plates on Series 5 weld head).
- Micro Weld Heads (as time permits)



**All classes are taught by experienced instructors who have earned the qualification of Certified Weld Inspector (CWI) and Certified Weld Educator (CWE).**

### Noted:

- 1] **An optional fifth day** is available if you wish to learn more about welding under ASME Section IX. Consumables and equipment necessary to obtain your qualification will be provided.
- 2] To complete the course, you must successfully demonstrate the ability to prepare and weld a tubing system, without assistance from the facilitator or peers. Upon successful course completion, you will receive a signed certificate.
- 3] Content may vary by customer and class size. **Class size limit is 10 persons.**

### Needed more information:

For further information about the course, live chat with us via line (@swagelokthailand) or send an email to [swagelokthailand@mjbangkok.com](mailto:swagelokthailand@mjbangkok.com)