

# SWAGELOK<sup>®</sup> TRAINING

PROVIDED BY SWAGELOK NORTH CAROLINA | EAST TENNESSEE



Swagelok

# Tube Fitting Installation | Tube Bending

## TUBE FITTING INSTALLATION - 2 Hour Class

Decrease costs, increase employee safety and equipment uptime, and minimize leaks with correct tube fitting selection, preparation, and installation. Attendees will learn the proper way to cut and deburr tubing, install, disassemble and reassemble a Swagelok tube fitting, and identify basic thread types. Zero leaks and reworks are possible with critical skill training.

### COURSE OUTLINE:

#### Tube Fitting Installation and Safety

- Identify parts of a tube fitting
- Discuss and demonstrate proper installation and reassembly procedures
- Understand the differences in tube fitting designs, components and the importance of proper assembly
- Identify thread types and installation practices

#### Tube Handling and Care

- Discuss different tubing variables and how to properly select tubing
- Identify cutting methods and proper techniques for deburring tubing

**Price:** \$179 per person *(includes workbook, gap inspection gauge, t-shirt and other consumables)*

## TUBE FITTING INSTALLATION | TUBE BENDING - 1/2 Day Class

Ensure system integrity and minimize leakage risks through proper fitting assembly and installation procedures. Discover how incorporating bent tubing into your system can eliminate connections and potential leak points found in traditional screwed and welded pipe systems.

### COURSE OUTLINE:

#### Tube Fitting Installation and Safety

- Identify parts of a tube fitting
- Discuss and demonstrate proper installation and reassembly procedures
- Understand the differences in tube fitting designs, components and the importance of proper assembly
- Identify thread types and installation practices

#### Tube Bending

- Discuss tubing variables and how to properly inspect and select tubing
- Learn cutting methods and proper techniques for deburring tubing
- Identify the parts and procedures of tube benders
- Perform hands-on fixture bending
  - Calculate tubing runs from CAD drawings and bend tubing
  - Properly assemble a box comprised of various tubing lengths

**Price:** \$299 per person *(includes lunch, workbook, gap inspection gauge, t-shirt and other consumables)*

“Businesses spend \$170 billion a year on costs associated with occupational injuries and illnesses - expenditures that come straight out of company profits.”<sup>1</sup>

-- Occupational Safety and Health Administration





# Orbital Welding | Sampling Systems

## ORBITAL WELDING - Full Day Class

If you're designing a critical fluid system, you're likely looking at welding for assembly. And with the Swagelok M200 welding system, it's easy to make precise, consistent, quality welds.

Attendees will gain comprehensive knowledge of the equipment and techniques used in orbital welding. With plenty of hands-on instruction, participants will learn basic orbital welding principles, plus how to set up, run and troubleshoot an orbital welding system.

### COURSE OUTLINE:

- Discover Gas Tungsten Arc Welding (GTAW) and Orbital Welding Basics
- Understand the components of the Swagelok Welding System (SWS)
- Learn how to setup and operate the Swagelok Welding System
- Swagelok Welding System weld troubleshooting
- Basic use of the controls and adjustment of the SWS M200
- Regular maintenance and caring for weld heads

**Price:** \$425 per person (includes lunch, workbook, t-shirt and other consumables)

\*A five day advanced Orbital Welding Training is available from Swagelok to achieve ASME Section IX qualification. Price varies based on class location.



**“Top performing companies not only recognize the importance of their people but also the need to provide the right skills to enable their people.”<sup>2</sup>**

*--IBM Corporation, The Value of Training, 2014*

## SAMPLING SYSTEMS TRAINING - Swagelok Sponsored

Better sample system designs means more representative samples. Learn to recognize and eliminate the issues that might be compromising your sample and analyzer systems with our expert-led classes so you can increase efficiency and save money.

Anyone who designs, constructs, operates or maintains sampling systems will gain valuable knowledge to enhance their operations. All classes are taught by industry experts, each with over 30 years' experience, and are designed for participants of varying experience levels and industries.

**Sample System Problem Solving and Maintenance (SSM):** Learn how to troubleshoot a variety of common and complex design issues from the process line through sample disposal. *Class duration: 2 days, \$950 per person.*

**Process Analyzer Sampling System (PASS) Training:** Gain a high level understanding of sampling systems while designing and building an optimized system that delivers timely, accurate results. *Class duration: 5 days, \$2,499 per person.*

**Process Analyzer Sampling System (PASS) Subsystem Training:** Sharpen your skills by breaking sampling systems down into subsystems and their discrete function blocks to learn how each subsystem impacts analyzer results. *Class duration: 5 days, \$2,499 per person.*



# Tools to Support Your Installations

## BENCHTOP TUBE BENDER

Bend fractional and metric tubing with the Swagelok benchtop tube bender. This tool features a rugged, light-weight aluminum construction with a 1 to 180 degree bending range and comes with 1/2 to 1 in. aluminum bend.

*Available for rent or purchase. Training can be incorporated into Tube Fitting Installation and Tube Bending courses.*



## MULTI-HEAD SWAGING UNIT

Reduce assembly torque and installation time by preswaging Swagelok tube fitting ferrules onto tubing prior to assembly with the Multihead Swaging Unit. This tool comes in two unit sizes with a choice of interchangeable fractional tooling for 1/2 up to 1 in. and 1 to 2 in.

*Available for rent or purchase. Training can be incorporated into Tube Fitting Installation and Tube Bending courses.*



## Other Tools Available from Swagelok:

- Electric Tube Bender for bends over 1 in.
- Tube Facing Tool
- M200 Orbital Welding System
- 5H, 10H, 20H, and 40H Weld Heads and Side Plates
- Tube Straightener

*Contact us for pricing and availability.*

# Swagelok®

North Carolina | East Tennessee

## Contact us to schedule your next training class. All classes can be held at our location or yours.

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**Raleigh, NC**  
office: 919.878.8085

**Charlotte, NC**  
office: 704.289.7400

**Knoxville, TN**  
office: 865.673.6610

1 IBM Corporation, "The Value of Training," <https://www-304.ibm.com/services/learning/pdfs/IBMTTraining-TheValueofTraining.pdf>. IBM Corporation Software Group, May 2014.  
2 Occupational Safety and Health Administration, "Safety and Health Add Value," <https://www.osha.gov/Publications/safety-health-addvalue.html>. Occupational Safety and Health Administration, undated.

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