



Advanced Tube Bending Training

Swagelok-certified 3-day course

Sound tube bends are hard to achieve in any condition or setting, no matter how simple it may appear. Attempts to do without proper training may cost you expensive downtime and money. This valuable three-day course will challenge attendees with a variety of exercises designed to improve their abilities with both basic and advanced bending techniques in any situation.

This training will provide you with:

- A detailed, mathematical approach that will improve accuracy, allowing for better quality prototypes and output
- Improved system performance and enhanced aesthetic qualities of your tubing system
- Reduced scrap and rework time caused by inaccurate or unqualified tube bending practices
- An emphasis on operational issues, overcome through unique, hands-on learning experiences

Primary topics will include:

- Using the Swagelok Hand Tube Bender
- The Measure-Bend Method of Tube Bending
- The Swagelok Method of Tube Bending
- How to make both simple and custom offset bends
- Making both segmented bends and rolling offsets
- Understanding constraints of tube bending, such as minimum distances between bends
- Hands-on experience constructing a peg board (shown at right)
- How to use Swagelok electric bender (ETB) and bench top tube bender (BTTB) (Day 3)
- Additional time to complete all the types of bends and finish constructing the peg board as well as bend larger tubing using the ETB and BTTB (Day 3)

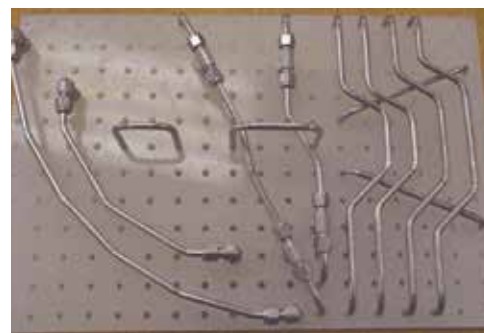
Tuition is \$2,249 per attendee

Which covers all course materials, including equipment and training materials and lunch/snacks/beverages. For more information, please contact your account manager or Swagelok Northern California, call (510) 933-2500, or email jeff.hopkins@swagelok.com.



WHO SHOULD ATTEND?

- Hands-on personnel who need to learn the art of tube bending or upgrade their skills
- Engineers who design systems that include bent tubing
- Supervisors of operations personnel
- Quality assurance and quality control personnel



We supply all training materials:

componentry, tube benders, tubing...

Students simply need to show up!

all participants receive

- Swagelok Advanced Tube Bending Workbook
- Tube Bending Fractional Data
- Measurement Worksheets
- Genuine Swagelok Certificate of Completion



Meet your instructor: MIKE GAGEL,

*a 20-year Swagelok
Company veteran and
certified tube-bending
master.*

Graduate Testimonials:

"Even though I've been bending tubes for a long time, I learned plenty."

"I'll now be able to stop wasting time and material."

"I learned new – and better – ways to bend tubes."

"You can bet I'll make fewer mistakes when making complicated bends."

"Anyone who bends tubes needs to enroll in this class."

"I especially benefitted from the hands-on portion of this class."

"Highly informative and fun!"

"Came away feeling confident about making high-quality offset bends."

"Now feel I can master the rolling offsets and parallel runs that used to give me trouble."

"This course is ideal for Mechanics who have to make multiple tubing runs."

"I know now that my bending will certainly help improve the quality of our finished product."

"I can bend anything now."

"Learning the Swagelok Bending Method was the highlight for me."

"Being able to make more accurate measurements will mean far less wasted tubing."

"Any Engineer incorporating bends into a design would find this session worthwhile."

"Never knew the impact and importance of bend deduction and gain."

"Learning the calculations to bend tubing more precisely was my big takeaway."

"This class offers something for benders of all levels: beginners as well as experienced."

"I used to create so much scrap when bending...now I know I can make tubes that fit."

"Hearing bending theory...then putting it into practice...wonderful learning experience."

"Enables me to now make unassisted tubing repairs on our skids."