

## Tube Bending Essentials

### ■ Target Audience

Technicians, maintenance and engineering personnel looking to gain valuable knowledge and experience in the theory and practice of tube bending. The course covers hand tube bending from 1/8" to 1/2" OD (3mm to 12mm OD) plus an additional module is available for the Swagelok Bench Top Tube Bender (BTB) covering tubing sizes up to 1 1/4" OD (30mm OD).

### ■ Course Length

1 Day

### ■ Practical Content

50%

### ■ Theoretical Content

50%

### ■ Course Aims

To provide delegates with a comprehensive understanding of the various methods of tube bending. Utilising the Swagelok Hand Tube Bender each delegate will complete a variety of exercises comprising of 45°, 90° & 180° bends on different planes using offset calculations. Each delegate will measure then bend tubing to fit out an enclosure internally & externally with tubing runs.

### ■ Course Content

- Understanding Tube Bending Terminology
- Variables - Springback, Stretch & Gain
- Bend Layout Calculations: Measure Bend, Pre-Measure Then Bend & The Swagelok Method (BTB Only)
- Overall Length Calculation To Avoid Wastage
- The Three Marks Used In Tube Bending
- Offset Bend Calculations
- Troubleshooting - Tube Bending Defects
- Swagelok Hand Tube Bender - Practical Activities
- Swagelok Bench Top Tube Bender - Practical Activities

### ■ Delivery

Classroom and Training Workshop

**PART NUMBER:**  
**TSG-SMTUBEBEND**

### ■ Certification

Swagelok® Certificate of Completion – valid for 3 years

### ■ Instructor

Swagelok® Certified Trainers

### ■ Times of Training

09.15 - 15.30 (+ BTB Module 16.30)

### ■ Venues

#### **Swagelok Scotland**

Silvertrees Drive, Silvertrees Business Park, Westhill, Aberdeen, AB32 6BH

#### **Swagelok Teesside**

STEM Centre, Middlesbrough College, Windward Way, Middlesbrough, TS2 1QG

#### **Swagelok Ireland**

Unit 20, Southern Cross Business Park, Boghall Road, Bray, Co. Wicklow, A98 F590

### ■ Contact

On site courses are available. For further details, please contact our Training Division at [scots.training@swagelok.com](mailto:scots.training@swagelok.com) or call **+44 (0) 1224 759916**

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