

Swagelok®

Indonesia



Swagelok Installation Training Course

For BP Tangguh Contractors and Staff

Swagelok Installation Training

The integrity and performance of the fluid systems at the BP Tangguh site, whether liquid or gas, depends on a combination of elements: good design, quality fluid system components and competent assembly and installation by qualified personnel.

Well trained installation contractors and field operatives working offshore or onshore on the LNG trains inevitably leads to reduced material costs, more efficient installations and improved safety.

Attendees on the course, conducted by Swagelok Indonesia training staff, will learn how they can:

- Enhance fluid system performance & efficiency
- Improve safety in the work place
- Reduce costly downtime
- Help eliminate unnecessary leakage and fugitive emissions

Who Should Attend?

The Swagelok Installation Training course, tailored for materials, products and applications found at BP Tangguh, is ideally suited to anyone who is directly involved with the installation and assembly of fluid systems. Anyone involved with the design and specification of fluid systems would also benefit as increased awareness of the practical issues will optimize the design and simplify the installation process.

Course Details

Swagelok Installation Training is an intensive one and a half day course of both theoretical and practical instruction covering four major themes - Tube Fitting Installation, Tubing Installation, Safety & Error Reduction and a bespoke module overing topics specific to the BP Tangguh Expansion Project and site specifications.

Training is held in our Training Centre in Jakarta or on-site at Tangguh or contractor's yard (eg; Karimum Island).

Assessing For Competency

Swagelok Indonesia takes our training seriously hence there is an assessment that follows the theoretical portion of the course followed by two practical exams comprising of tube bending and tube fitting installation.

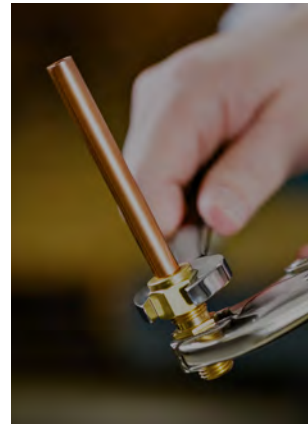
If a pass mark of 80% is reached in the test and the practicals are passed satisfactorily then the attendees will be qualified in the Swagelok Installation Training course and will receive a certificate of competency and credit card style pass ID (and registered on our global database).

BP, CSTS or Saipem can then check with Swagelok Indonesia that contractors and staff working on-site have been equipped with the proper skills and safety awareness regarding fluid system installation practices.

What Is Included In The Training Package?

Training costs include the following:

- All materials, Swagelok products, tubing used on the course
- Swagelok Tube Fitters Manual
- Swagelok Pocket Installation Manual (for use on-site)
- Swagelok Pocket Tube Bending Manual (for use on-site)
- Two Swagelok Training Manuals (which covers the entire course contents)
- eDTR (Electronic Desk Top Reference Tool) containing BP specified products
- Theoretical Assessment
- Two Practical Assessments (Tube Fitting Installation and Tube Handling / Bending)
- Pressure Test and Certificate for Tube Fitting Installation
- Certificate of Competency for the Swagelok Installation Training Course
- Credit Card Pass ID (and Global Registration)
- Lunch and refreshments throughout the day (if held at Swagelok Indonesia)



TUBE FITTING INSTALLATION ESSENTIALS - 4 HOURS - DAY 1

Attendees will learn the proper way to cut and deburr tubing, correctly assemble a Swagelok tube fitting, gauge a tube fitting assembly, identify thread types and installation practices, and properly prepare threaded installations. They will also gain an understanding of the differences in tube fitting design characteristics, tube fitting components and their importance to proper assembly. Several practical demonstrations will be conducted by each attendee and there is a theoretical assessment to finish. Course content includes:

- Tube and pipe fitting design characteristics
- Correct fitting installation
- Re-tightening instructions
- Understanding leakage and ensuring leak-free make-up



TUBING INSTALLATION ESSENTIALS - 4 HOURS - DAY 1

Attendees will learn the proper way to cut and deburr tubing, handle tubing safely and provide adequate support on tubing runs, plan for routing, measure and complete bended assemblies. This course demonstrates proper tube bending techniques through hands-on exercises for every situation as well as proper tubing selection and specification and concludes with a practical test. Course content includes:

- Introduction to tube bending equipment
- Tube bending philosophy and terminologies
- Direct measurement bending method
- Gain adjustment bending method
- Bend offset calculations and preparing for work
- Tube bending assessment



SAFETY AND ERROR REDUCTION ESSENTIALS - 1.5 HOURS - DAY 2

This section will educate attendees in the safe and proper installation of tube fitting assemblies to completely avoid leakage and misalignment. Attention will be drawn to best practices and ways to avoid unnecessary maintenance or re-tightening. Course content includes:

- Use of gap inspection gauge and other equipment to ensure connection integrity
- Fluid system troubleshooting
- Intermixing and interchange of components and materials
- Fitting differentiation on-site (metric vs fractional, fake components, 316 vs 6Moly etc..)
- Installation inspection and reducing fugitive emissions & leakage



BP TANGGUH MODULE - 1.5 HOURS - DAY 2

This 1.5 hours seminar will assist in ensuring that all participants have a good understanding of BP's fluid system philosophy and have a deeper knowledge of the materials and engineered combinations to be used on-site.

Course content includes:

- BP's threadless philosophy
- Typical hook-ups on the BP Tangguh Expansion Project
- Review of Swagelok products used on site
- Materials explanation (Stainless Steel, 6Moly / 254, 625, Hastelloy)
- Engineering combinations (Utilizing Stainless Steel fittings with 6Moly / 254 Tubing)



INTERACTIVE Q&A SESSION and WRAP UP - 1 HOUR - DAY 2

This one hour seminar will provide an opportunity for attendees to ask any additional questions, deepen their understanding of any topics of interest or re-visit any areas of concern. We would also appreciate participant feedback at this time.



ENGINEERED TO PERFORM CONSISTENTLY

MINIMIZE OPERATING COST, ENHANCE SAFETY AND
IMPROVE THE INTEGRITY OF YOUR FLUID SYSTEMS
WITH SWAGELOK INSTALLATION TRAINING

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