

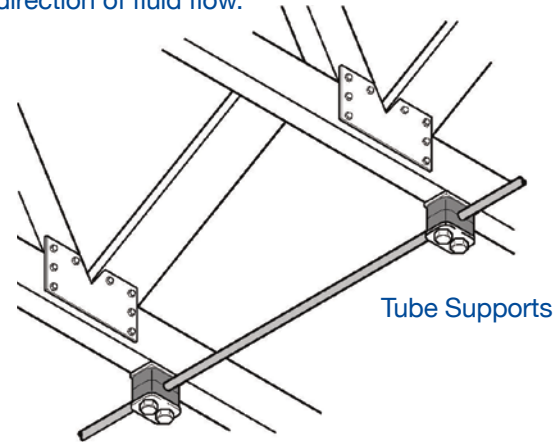
Additional Swagelok Safety Tips



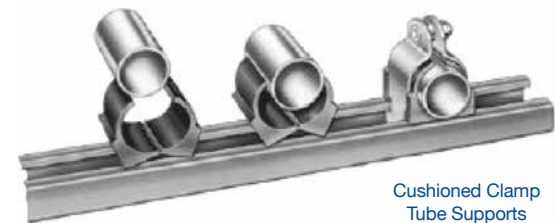
- Never bleed system pressure by loosening fitting nut or plug.
- Never make up and/or tighten fittings when system is pressurized.
- Make sure tubing rests firmly on the shoulder of the tube fitting body before tightening nut.
- Use a gap-inspection gauge to ensure sufficient tightening (NOT on reassembly, though).
- Always use proper thread lubricants and sealants on tapered pipe threads.
- Always turn the fitting nut, not the fitting body, during assembly.
- Never use a fitting to correct tubing misalignment.
- Never mix tube fitting and tubing materials – galvanic corrosion or leakage could occur.
- Always make sure tubing material is softer than fitting material.
- Always check wall thickness extremes against fitting manufacturer's suggested minimum wall thickness limitations.
- Always remember that tubing surface finish is critical – to create proper sealing, avoid tubing with excessive depressions, scratches, or similar defects.
- Never force tubing into a fitting (it should easily fit through nut, ferrules, and body).

Tube Support Options and Considerations

- Proper support limits the effects of system impulse and vibration.
- Always use resilient tubing supports.
- Always support long tubing runs to avoid sagging.
- Always mount instruments independently.
- Fluid density and tube size dictate support frequency.
- Supports are ideally employed near tubing bends to isolate movement caused by changes in direction of fluid flow.



Tube Supports



Cushioned Clamp Tube Supports



Standard Weld Plates



P Clamp Supports



Tube Support Strips

Swagelok®

Swagelok Pittsburgh | Tri-State Area

Swagelok is dedicated to helping you do more –
more safely, productively, efficiently, and profitably.

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PRESSURE
IS KEEPING YOUR SITE
RUNNING SAFELY.



UP TO **42%**
of safety incidents are due to
**PREVENTABLE
ERRORS.**

Here are some tips to
help your maintenance
technicians operate safely
and confidently.

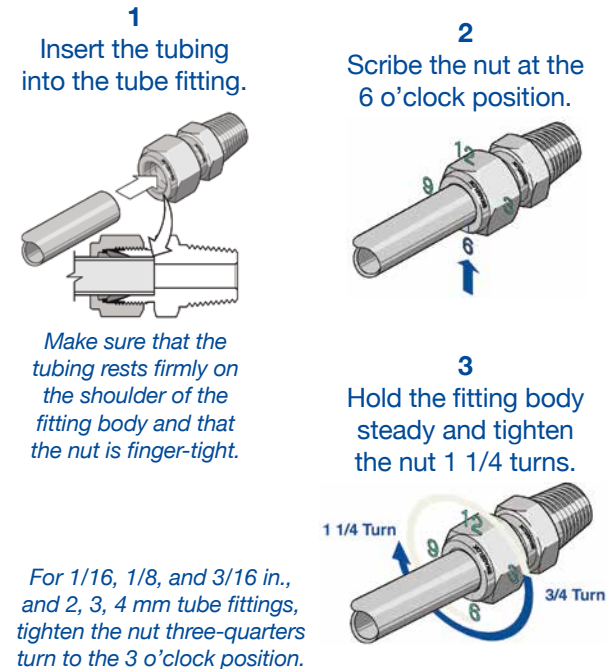
Swagelok®

is synonymous with

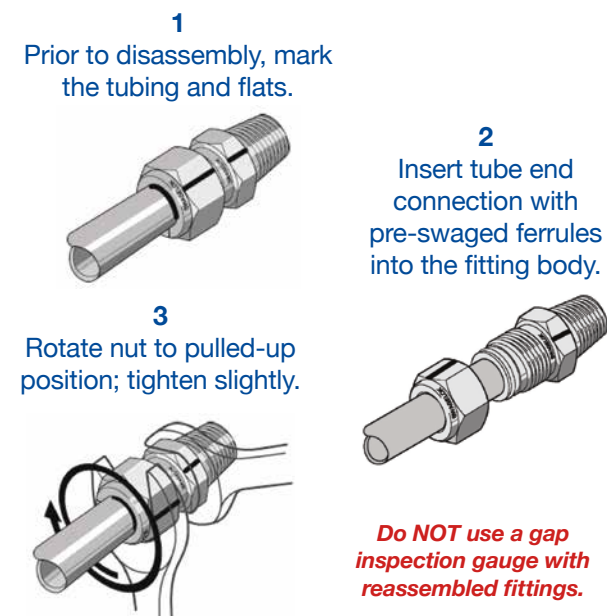
SAFETY

How to Properly and Safely Install and Reassemble Tube Fittings

MANUAL INSTALLATION

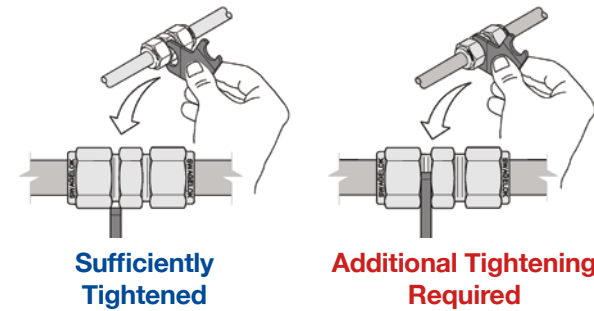


REASSEMBLY INSTRUCTIONS

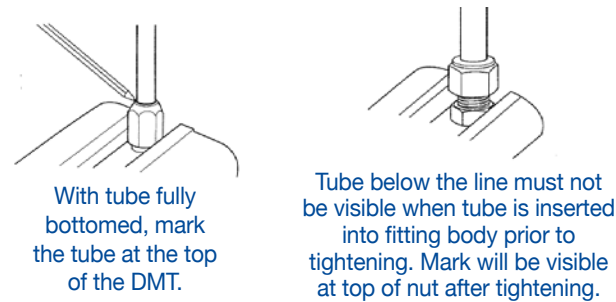


To Further Enhance Worker and Workplace Safety

GAP INSPECTION GAUGE



DEPTH MARKING TOOL



Common Installation Errors Resulting in Fitting Failure and Safety Concerns

Fatigue

- Improper Tubing Support
- Side Load

Stress Corrosion Cracking

- Exposure to Chlorine and/or
Other Corrosive Media

Non-Conforming Tubing

- Hardness
- Outside Diameter
- Wall Thickness

Tubing Blowout

- Improper Initial Assembly
- Un-Bottomed Tubing in
Tube Fitting
- Under-Tightened Tube
Fitting on Initial Assembly
- Improper Remake Assembly
- Undersized Tubing

Improper Tube Fitting Assembly

- Missing Components
- Bad Threads as a Result of
Cross-Threading or
Over-Tightening

Tube Fitting Hardware Safety

**Do not intermix or interchange fitting
ferrules, nuts, and/or bodies from
different manufacturers.**

There is **NO** worldwide
design standard!



**From the United States Nuclear
Regulatory Commission:**

*“The NRC and licensees have
noted problems with the installation
of compression fittings, including
interchanging hardware from different
manufacturers.”*

**Cited in the United Kingdom’s Loss of
Containment Manual:**

*“It is not permissible to interchange
sub-components of different designs of
or types of fittings.”*