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Swagelok HC-812-1

Swagelok Alloy C-276 Nut User Manual

Model: HC-812-1

1. PRODUCT OVERVIEW

The Swagelok Alloy C-276 Nut (Model: HC-812-1) is a critical component designed for use in high-performance fluid systems. Manufactured from Hastelloy C-276, this nut provides exceptional corrosion resistance in a wide range of aggressive media, making it suitable for demanding industrial applications. It is specifically engineered for 1/2" tube OD compression fittings, ensuring a secure and leak-tight connection when properly installed with compatible Swagelok components.



Image 1: Swagelok Alloy C-276 Nut. This image displays the hexagonal nut with internal threading, designed for compression tube fittings.

2. INSTALLATION AND SETUP

Proper installation is crucial for the performance and safety of Swagelok compression fittings. Always refer to the comprehensive Swagelok Tube Fitting Installation Manual for detailed instructions and safety guidelines. The following provides a general overview for the nut component:

1. **Tube Preparation:** Ensure the tube end is cut square, deburred, and free of scratches or damage. The tube must be clean and free of foreign particles.
2. **Component Inspection:** Verify that the Swagelok Alloy C-276 Nut, ferrules (front and back), and fitting body are clean, undamaged, and of the correct size and material for the application.
3. **Assembly:**
 - Insert the tube into the fitting body until it bottoms out against the shoulder.
 - While holding the tube firmly in place, finger-tighten the Swagelok nut.

- Mark the nut at the 6 o'clock position.

4. Initial Tightening:

- For 1/2" tube fittings, tighten the nut 1 1/4 turns past finger-tight with a wrench.
- The mark on the nut should now be at the 9 o'clock position (for 1 1/4 turns).

5. **Reassembly (if applicable):** If a fitting is disassembled, ensure the ferrules remain on the tube in their original orientation. When reassembling, tighten the nut finger-tight, then turn it approximately 1/4 turn past finger-tight with a wrench.

Warning: Do not overtighten or undertighten. Improper tightening can lead to leaks or fitting failure. Always use appropriate tools and follow manufacturer's torque specifications.

3. OPERATING PRINCIPLES

Once properly installed, the Swagelok Alloy C-276 Nut, in conjunction with the front and back ferrules and the fitting body, creates a robust, leak-tight mechanical seal on the tube. The Hastelloy C-276 material ensures the integrity of this seal even in highly corrosive environments and at elevated temperatures and pressures, within the specified limits of the overall fitting assembly. The nut's primary function is to apply the necessary compressive force to the ferrules, causing them to swage onto the tube and create the seal.

4. MAINTENANCE

Regular inspection and maintenance are essential to ensure the long-term reliability of your fluid system components.

- **Visual Inspection:** Periodically inspect the nut and surrounding fitting for any signs of corrosion, damage, or leaks. Hastelloy C-276 is highly corrosion-resistant, but extreme conditions or incompatible media can still cause issues.
- **Leak Detection:** Use appropriate leak detection methods (e.g., leak detection fluid) to check for any signs of leakage around the fitting connections.
- **Cleaning:** If cleaning is required, use methods compatible with Hastelloy C-276. Avoid abrasive cleaners or tools that could damage the surface or sealing areas.
- **Replacement:** If the nut or any part of the fitting shows signs of wear, damage, or persistent leakage, it should be replaced immediately with a new, genuine Swagelok component. Do not attempt to repair damaged nuts or ferrules.

5. TROUBLESHOOTING

Most issues with compression fittings are related to improper installation or component damage.

Problem	Possible Cause	Solution
Leakage at fitting connection	<ul style="list-style-type: none">• Improper tightening (undertightened or overtightened)• Damaged or incorrect ferrules• Scratched or damaged tube surface• Tube not bottomed out during installation• Contamination in the fitting	<ul style="list-style-type: none">• Re-tighten according to installation instructions (if first time) or replace components.• Replace ferrules and/or nut.• Replace tube or re-prepare end.• Disassemble, inspect, clean, and reassemble correctly.• Disassemble and clean all components thoroughly.

Problem	Possible Cause	Solution
Nut will not tighten fully	<ul style="list-style-type: none">• Cross-threaded• Damaged threads on nut or fitting body• Incorrect component size	<ul style="list-style-type: none">• Disassemble and inspect threads. Replace damaged components.• Verify correct part numbers and sizes.

If troubleshooting steps do not resolve the issue, contact Swagelok technical support or a certified distributor for assistance.

6. SPECIFICATIONS

Attribute	Detail
Model Number	HC-812-1
Brand	Swagelok
Material	Alloy C-276 (Hastelloy)
Tube OD Compatibility	1/2 inch
Fitting Type	Compression Nut
ASIN	B09S5TY5YK
Date First Available	February 9, 2022




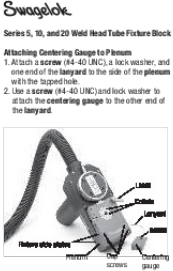


7. WARRANTY AND SUPPORT

Specific warranty details for the Swagelok Alloy C-276 Nut are typically provided with the complete fitting assembly or can be obtained directly from Swagelok or an authorized Swagelok distributor. Swagelok products are known for their high quality and reliability.

For technical support, product inquiries, or to locate an authorized distributor, please visit the official Swagelok website or contact their customer service department. Always use genuine Swagelok components for optimal performance and safety.

Swagelok Official Website: www.swagelok.com



	<p>Swagelok FK Series Medium-Pressure Tube Fittings Installation Guide</p> <p>This guide provides detailed installation instructions for Swagelok FK series medium-pressure tube fittings, covering materials such as 316 stainless steel, alloy 2507, and alloy 625. It outlines required tools, step-by-step assembly procedures, torque specifications for various sizes and materials, and gaugeability checks for proper tightening. Instructions for reassembly, cap installation, plug installation, port connectors, and tube adapters/reducers are also included.</p>
	<p>Swagelok Series 20 Weld Head User's Manual - Precision Welding Guide</p> <p>User's manual for the Swagelok Series 20 Weld Head. Learn about installation, operation, maintenance, and specifications for precise welding of tubing and pipe. Includes model numbers and technical details.</p>
	<p>Swagelok Tube Fitting Installation and Reassembly Instructions</p> <p>Comprehensive guide to installing and reassembling Swagelok tube fittings for 1 inch (25 mm) and smaller sizes, covering safe practices, gaugeability, and reassembly steps.</p>
	<p>Swagelok Series 5, 10, and 20 Weld Head Tube Fixture Block Instructions</p> <p>Instructions for attaching the centering gauge to the plenum and performing alignment adjustments for Swagelok Series 5, 10, and 20 Weld Head Tube Fixture Blocks.</p>
	<p>Swagelok Tube Fittings: An Installer's Pocket Guide</p> <p>Comprehensive guide for Swagelok tube fittings, covering installation, selection, ordering, and replacement parts. Essential resource for installers and engineers.</p>
	<p>Swagelok Gaugeable Tube Fittings & Adapter Fittings Catalog Reliable Fluid System Connections</p> <p>Discover the comprehensive Swagelok catalog detailing gaugeable tube fittings and adapter fittings. Learn about advanced designs, material options, pressure ratings, and installation tools for reliable fluid system connections across diverse industries.</p>