



Product Test Report

Swagelok Company
29500 Solon Road
Solon, Ohio 44139 U.S.A.

PTR-1967
Ver 04
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TITLE

Positive Pressure Helium Gas Leak Test with Repeated Reassembly of Stainless Steel Swagelok® Medium-Pressure Tube Fittings in Excess of Rated Pressure with SAF 2507™ Super Duplex Stainless Steel Tubing

PRODUCT TESTED

The following stainless steel Swagelok medium-pressure tube fittings were tested with the identified SAF 2507 super duplex stainless steel tubing.

Ordering Number	Quantity Tested	SAF 2507 Tubing in.	Tubing Hardness Rc
SS-4FK0-1-4	6	1/4 × 0.049	32
SS-4FK0-C	6		
SS-6FK0-1-4	6	3/8 × 0.083	29
SS-6FK0-C	6		
SS-8FK0-1-4	6	1/2 × 0.095	25
SS-8FK0-C	6		
SS-12FK0-1-44M	12	3/4 × 0.134	34
SS-12FK0-C	12		

PURPOSE

These assemblies were tested to observe the performance of stainless steel Swagelok medium-pressure tube fittings with SAF 2507 super duplex stainless steel tubing during a reassembly gas seal test under laboratory conditions.

TEST CONDITIONS

Original test date: March 2009

Each sample tested consisted of one tube length and two test fittings. The fittings were assembled according to the Swagelok medium-pressure tube fitting installation instructions. The test was conducted at room temperature.

TEST METHOD

1. The assemblies were attached to a positive gas test stand, submerged in water, pressurized to 1.25 times working pressure with helium for 10 minutes, and monitored for leakage. The judgment criterion was less than one bubble per minute at the applied pressure.
2. Pressure was dropped, and the fittings were disassembled.
3. The fittings were reassembled according to the reassembly instructions listed in the Swagelok medium-pressure tube fitting installation instructions.
4. At every fifth reassembly, the fittings were leak tested using helium at 1.25 times the working pressure following the test procedure and judgment criteria from step 1.
5. A total of 25 reassemblies were conducted on each test sample end.



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TEST RESULTS

SAF 2507 Tubing in.	Samples Tested	Working Pressure (W.P.) psig (bar)	Test Pressure psig (bar)	Results
1/4 × 0.049	6	15 000 (1034)	18 750 (1291)	Pass
3/8 × 0.083	6			Pass
1/2 × 0.095	6			Pass
3/4 × 0.134	12			Pass

The stainless steel Swagelok medium-pressure tube fitting with SAF 2507 super duplex tubing demonstrated both initial assembly gas seal and repeated gas seal through 25 reassemblies at 1.25 times the working pressure, under laboratory conditions.

The tests were conducted beyond the product's recommended operating parameters and do not modify the published product ratings.

These tests were performed to consider a specific set of conditions and should not be considered valid outside those conditions. Swagelok Company makes no representation or warranties regarding these selected conditions or the results attained. Laboratory tests cannot duplicate the variety of actual operating conditions. Test results are not offered as statistically significant. See the product catalog for technical data.

SAFE PRODUCT SELECTION

When selecting a product, the total system design must be considered to ensure safe, trouble-free performance. Function, material compatibility, adequate ratings, proper installation, operation, and maintenance are the responsibilities of the system designer and user.

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