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

TITLE

Hydrostatic Pressure Test of Alloy 2507 Swagelok® Medium-Pressure Tube Fittings

PRODUCT TESTED

The following alloy 2507 Swagelok medium-pressure tube fittings were tested with the identified 2507 super duplex seamless tubing.

Ordering Number	Quantity Tested	Tubing in.	Tubing Hardness
2507-4FK0-1-4HP-SG2	12	1/4 × 0.049	HRC 24
2507-4FK0-9-SG2	12		
2507-6FK0-1-4HP-SG2	12	3/8 × 0.083	HRC 28
2507-6FK0-9-SG2	12		
2507-8FK0-1-4HP-SG2	12	1/2 × 0.095	HRC 30
2507-8FK0-9-SG2	12		
2507-12FK0-1-4HP-SG2	12	3/4 × 0.134	HRC 28
2507-12FK0-9-SG2	12		

PURPOSE

The assemblies were tested to observe the tube grip performance of alloy 2507 Swagelok medium-pressure tube fittings with alloy 2507 super duplex tubing under laboratory conditions.

TEST CONDITIONS

Original test report date: October 2019

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

TEST METHOD

The fittings were tested as follows:

1. Each sample was attached to a hydraulic test stand.
2. The tubing was restricted from burst by clamping blocks, thereby forcing a failure at the fitting-to-tubing engagement.
3. The pressure was gradually increased and pressure recorded when loss of tube grip, material rupture, or leakage that prevented applying higher pressure occurred, whichever came first.
4. Results were compared to the tubing working pressure.

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TEST RESULTS

Tubing in.	Samples Tested	Working Pressure (WP) ① psig (bar)	Samples Attaining 4 × WP without Leakage or Tube Slip
1/4 × 0.049	12	15 000 (1034)	12/12
3/8 × 0.083	12	15 000 (1034)	12/12
1/2 × 0.095	12	15 000 (1034)	11/12 ②
3/4 × 0.134	12	15 000 (1034)	12/12

① Allowable working pressures are calculated in accordance with ASME B31.3.
② One sample exhibited leakage at 3.87 to 1.

Tubing in.	Samples Tested	Working Pressure (WP)① psig (bar)	Samples Attaining 2 × WP with Material Adjustment②
1/4 × 0.049	12	22 500 (1550)	12/12
3/8 × 0.083	12	22 500 (1550)	12/12
1/2 × 0.095	12	22 500 (1550)	12/12
3/4 × 0.134	12	20 000 (1378)	12/12

① Allowable working pressures are calculated in accordance with chapter IX of ASME B31.3.
② Testing in accordance with chapter IX of ASME B31.3.

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.

Referenced Document

ASME B31.3, *Process Piping*, ASME International, Three Park Avenue, New York, NY, 10016-5900 USA, www.asme.org