



Product Test Report

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

PTR-3266
Ver 02
December 2022
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TITLE

Hydrostatic Pressure Test of Alloy 825 Swagelok® Tube Fittings with Alloy 825 Tubing

PRODUCT TESTED

Samples Tested	Alloy 825 Tubing Size OD x Wall in.	Tubing Hardness 15-T	Description Ordering Number	Form
12	3/4 x 0.095	75	Male Connector 825-1210-1-8	Bar stock
			Union Elbow 825-1210-9	Forging
			Plug 825-1210-P	Bar stock
12	1 x 0.109	80	Male Connector 825-1610-1-8	Bar stock
			Union Elbow 825-1610-9	Forging
			Plug 825-1610-P	Bar stock

Samples Tested	Alloy 825 Tubing Size OD x Wall mm	Tubing Hardness 15-T	Description Ordering Number	Form
12	18 x 2.5	87	Male Connector 825-18M0-1-8	Bar stock
			Union Elbow 825-18M0-9	Forging
			Plug 825-18M0-P	Bar stock
12	25 x 2.8	78	Male Connector 825-25M0-1-8	Bar stock
			Union Elbow 825-25M0-9	Forging
			Plug 825-25M0-P	Bar stock



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PURPOSE

These assemblies were tested under laboratory conditions to observe the tube grip performance of alloy 825 Swagelok tube fittings when installed on alloy 825 heavy-wall tubing and subjected to hydrostatic pressure.

TEST CONDITIONS

Original test date: November 2012

- Each sample tested consisted of one tube length and two test fittings. The fittings were assembled according to Swagelok tube fitting installation instructions.
- Testing was conducted at room temperature in a laboratory environment.

TEST METHOD

Hardness Measurements of Tubing:

1. Performed five measurements equally spaced apart on each tube OD with the United Hardness Tester using the 15-T scale with the 1/16-inch diameter ball penetrator.
2. Reported the average of the five measurements.
3. Added the tubing cylindrical values taken from the Wilson Chart #53 Cylindrical Conversion Table.

Hydrostatic Pressure Test:

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. Pressure was gradually increased and the pressure was 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 rated pressures.



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TEST RESULTS

Samples Tested	Alloy 825 Tubing Size OD x Wall in.	Working Pressure (WP) psig (bar)	4 x Working Pressure psig (bar)	Samples Attaining 4 x WP
12	3/4 x 0.095	5800 (399)	23 200 (1598)	12/12
12	1 x 0.109	4200 (289)	16 800 (1157)	12/12

Samples Tested	Alloy 825 Tubing Size OD x Wall mm	Working Pressure (WP) bar (psig)	4 x Working Pressure bar (psig)	Samples Attaining 4 x WP
12	18 x 2.5	400 (5805)	1600 (23 222)	12/12
12	25 x 2.8	300 (4354)	1200 (17 416)	12/12

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 Documents

Wilson Cylindrical Correction Chart # 53, Wilson Instrument Division, 929 Connecticut Avenue, Bridgeport, CT 06602