



## Product Test Report

**PTR-4131**

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

Ver 04  
December 2023  
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### TITLE

Hydrostatic Pressure Test of 6ABT, 8ABT, 8MABT, 10MABT, and 12MABT Series Stainless Steel Swagelok® Assembly-by-Torque (AbT) Tube Fitting Assembled to Stainless Steel Tubing and Stainless Steel Port Connectors

### PRODUCT TESTED

Ordering Number	Description	Part Form	ABT Hardware Set	Stainless Steel Tubing Size in.	Tubing Hardness HRB
3/8 in.					
SS-600-6BO	Union	Bar stock	SS-6ABT-NFSET	3/8 × 0.049	85
SS-600-9BO	Male Elbow	Forging			
SS-600-6BO	Union	Bar stock		3/8 × 0.065	81
SS-600-9BO	Male Elbow	Forging			
SS-601-PC	Port Connector	Bar stock		N/A	N/A
1/2 in.					
SS-810-6BO	Union	Bar stock	SS-8ABT-NFSET	1/2 × 0.065	81
SS-810-9BO	Male Elbow	Forging			
SS-810-6BO	Union	Bar stock		1/2 × 0.083	79
SS-810-9BO	Male Elbow	Forging			
SS-801-PC	Port Connector	Bar stock		N/A	N/A
8 mm					
SS-8M0-6BO	Union	Bar stock	SS-8MABT-NFSET	8 × 1.0	81
SS-8M0-9BO	Male Elbow	Forging			
SS-8M0-6BO	Union	Bar stock		8 × 1.2	80
SS-8M0-9BO	Male Elbow	Forging			
SS-8M1-PC	Port Connector	Bar stock		N/A	N/A
10 mm					
SS-10M0-6BO	Union	Bar stock	SS-10MABT-NFSET	10 × 1.0	78
SS-10M0-9BO	Male Elbow	Forging			
SS-10M0-6BO	Union	Bar stock		10 × 1.5	80
SS-10M0-9BO	Male Elbow	Forging			
SS-10M1-PC	Port Connector	Bar stock		N/A	N/A
12 mm					
SS-12M0-6BO	Union	Bar stock	SS-12MABT-NFSET	12 × 1.5	81
SS-12M0-9BO	Male Elbow	Forging			
SS-12M0-6BO	Union	Bar stock		12 × 1.8	82
SS-12M0-9BO	Male Elbow	Forging			
SS-12M1-PC	Port Connector	Bar stock		N/A	N/A



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### **PURPOSE**

The assemblies were tested under laboratory conditions to observe the tube grip performance of the 6ABT, 8ABT, 8MABT, 10MABT, and 12MABT series stainless steel Swagelok tube fittings when assembled to stainless steel tubing and port connectors.

### **TEST CONDITIONS**

Original test date: August 2016

- Each tubing assembly tested consisted of one tube length and two fittings, or one port connectors and one fitting.
- Tube assemblies were preswaged and assembled into fitting bodies according to *Assembly-by-Torque (AbT) Fittings* catalog, MS-02-466.
- Tests were conducted at room temperature.

### **TEST METHOD**

The fittings were tested as follows:

1. All nuts and ferrules were preswaged onto the tubing before assembling into the fitting bodies.
2. Each sample was attached to a hydraulic test stand.
3. The tubing was restricted from burst by clamping blocks thereby forcing a failure at the fitting-to-tubing engagement.
4. The pressure was gradually increased and pressure was recorded when loss of tube grip, material rupture or leakage that prevented applying higher pressure occurred, whichever came first.
5. Results were compared to the working pressure ratings listed in the following table.



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### TEST RESULTS

#### Fractional

Stainless Steel	Tubing Size	Ordering Number	Working Pressure (WP) psig (bar)	Samples Attaining a Minimum of $\eta \times WP$		
				Target Performance Factor, $\eta$	Samples Tested	Samples Passed
3/8 in.						
316/316L	3/8 x 0.049	SS-600-6BO	4800 (330)	4.0	12	12
		SS-600-9BO			12	12
316/316L	3/8 x 0.065	SS-600-6BO	6500 (447)	4.0	12	12
		Male Elbow			12	12
316 Port Connector	N/A	SS-601-PC	6500 (447)	4.0	12	12
		SS-600-6BO			12	12
		SS-600-CBO			12	12
1/2 in.						
316/316L	1/2 x 0.065	SS-810-6BO	5100 (351)	4.0	12	12
		SS-810-9BO			12	12
316/316L	1/2 x 0.083	SS-810-6BO	6700 (461)	4.0	12	12
		SS-810-9BO			12	12
316 Port Connector	N/A	SS-801-PC	6700 (461)	4.0	12	12
		SS-810-6BO			12	12
		SS-810-CBO			12	12



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### Metric

Stainless Steel	Tubing Size mm	Ordering Number	Working Pressure (WP) psig (bar)	Samples Attaining a Minimum of $\eta \times WP$		
				Target Performance Factor, $\eta$	Samples Tested	Samples Passed
8 mm						
316/316L	8 x 1.0	SS-8M0-6BO	4500 (310)	4.0	12	12
		SS-8M0-9BO			12	12
316/316L	8 x 1.2	SS-8M0-6BO	5100 (351)	4.0	12	12
		SS-8M0-9BO			12	12
316 Port Connector	N/A	SS-8M1-PC	5100 (351)	4.0	12	12
		SS-8M0-6BO			12	12
		SS-8M0-CBO			12	12
10 mm						
316/316L	10 x 1.0	SS-10M0-6BO	3480 (239)	4.0	12	12
		SS-10M0-9BO			12	12
316/316L	10 x 1.5	SS-10M0-6BO	5100 (351)	4.0	10	10
		SS-10M0-9BO			10	10
316 Port Connector	N/A	SS-10M1-PC	5100 (351)	4.0	10	10
		SS-10M0-6BO			10	10
		SS-10M0-CBO			10	10
12 mm						
316/316L	12 x 1.5	SS-12M0-6BO	4790 (330)	4.0	12	12
		SS-12M0-9BO			12	12
316/316L	12 x 1.8	SS-12M0-6BO	5100 (351)	4.0	10	10
		SS-12M0-9BO			10	10
316 Port Connector	N/A	SS-12M1-PC	5100 (351)	4.0	10	10
		SS-12M0-6BO			10	10
		SS-12M0-CBO			10	10

**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.



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### **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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