

Gaugeable Alloy 2507 Super Duplex Tube Fittings



- Excellent corrosion resistance in chloride-containing environments
- Advanced-geometry back ferrule design enhances sealing action
- Same gaugeability as traditional Swagelok® tube fittings
- Easy installation using hand tools
- Available in sizes from 1/4 to 3/4 in.

Features

Swagelok Company has worked with Sandvik® Steel, the makers of Alloy 2507 super duplex stainless steel, to create a tube fitting design for connecting Alloy 2507 tube systems. This fitting combines a patented, advanced-geometry shape for the back ferrule and a patented ferrule hardening process. The result is a Swagelok tube fitting that can reliably grip and seal on exceptionally hard Alloy 2507 tube.

Swagelok Alloy 2507 tube fittings are available in sizes from 1/4 to 3/4 in. and can be installed using simple hand tools. All Alloy 2507 and 6-moly tube fitting components are manufactured from controlled chemistry material with a minimum pitting resistance equivalent (PRE) value of 42.5. Each Swagelok Alloy 2507 tube fitting component is stamped with its material type.

Materials of Construction



Component	Material	Marking
1 Nut	Alloy 2507 super duplex SS	Notched hex, "Alloy 2507" on face
2 Back ferrule	6-moly ^①	"254" or "6XN" on outer rim
3 Front ferrule	<i>Alloy 2507 super duplex SS</i>	"2507" on outer rim
4 Body	<i>Alloy 2507 super duplex SS</i>	"2507" on neck

Wetted components listed in *italics*.

① Alloy 254—UNS S31254; alloy AL-6XN®—UNS N08367.

⚠ Do not mix components of other materials with Alloy 2507 tube fittings.

Pressure Ratings

Pressure ratings for a fluid system are determined by the end connection or system component with the lowest pressure rating. Ratings for the end connections listed in this catalog are discussed below.

Swagelok Tube Fittings

Swagelok tube fittings listed in this catalog are rated to the pressure rating of the tubing (see table below).

Pressure Ratings for Swagelok Alloy 2507 Tube Fittings Used with Alloy 2507 Tubing

Pressure ratings are calculated from S values (38 700 psi [266 MPa]), in accordance with ASME B31.3, Process Piping. Tubing pressure ratings are for metal temperatures from -20 to 100°F (-28 to 37°C). Alloy 2507 tubing, fully annealed, meets ASTM A789 or equivalent. Hardness value is HRC 32 or less.

For lower temperature use, see **Low-Temperature Ratings**, page 3. For gas service, use tube wall thicknesses **outside** the shaded area.

Tube OD in.	Tube Wall Thickness, in.				
	0.035	0.049	0.065	0.083	0.095
	Working Pressure, psig (bar)				
1/4	10 000 (690)	15 000 (1040) ^①	—	—	—
3/8	6 500 (450)	10 100 (700) ^①	12 700 (880)	—	—
1/2	5 000 (350)	7 200 (500)	10 100 (700) ^①	12 900 (890)	—
5/8	—	5 800 (400)	7 600 (530)	10 100 (700)	—
3/4	—	4 700 (330)	6 300 (440)	8 500 (590)	10 000 (690)

① Pressure ratings based on special wall thickness tolerance for Swagelok Alloy 2507 tubing.

Male NPT End Connections

Male NPT pipe end connections up to 1/2 in. are rated to 15 000 psig (1040 bar); sizes over 1/2 in. are rated to 10 000 psig (690 bar).

SAE/MS End Connections

SAE/MS end connections up to 1/2 in. are rated to 4500 psig (310 bar); sizes over 1/2 in. are rated to 3600 psig (250 bar), in accordance with SAE J1926.

Cone-and-Thread End Connections

Cone-and-thread end connections listed in this catalog are manufactured to API-6A "Specification for Wellhead and Christmas Tree Equipment" tolerances, Autoclave Engineers, and Butech Pressure Systems catalog dimensions. Sizes up to 9/16 in. are rated to 20 000 psig (1380 bar); sizes over 9/16 in. are rated to 10 000 psig (690 bar).

Elevated Temperature Ratings

Tube Fitting and NPT End Connections

Multiply working pressure from the table above by the appropriate factor to obtain working pressure at elevated temperatures.

Example: 1/4 in. tubing with 0.035 in. wall at 300°F (148°C):

The working pressure at 100°F (37°C) is 10 000 psig (690 bar).

The temperature factor for 300°F (148°C) is 0.85.

10 000 psig (690 bar) × 0.85 is 8500 psig (585 bar).

The working pressure for 1/4 in. tubing with 0.035 in. wall at 300°F (148°C) is 8500 psig (585 bar).

Use of Alloy 2507 super duplex stainless steel at temperatures above 482°F (250°C) causes microstructural changes that lead to embrittlement and loss of corrosion

Temperature °F (°C)	Factor
200 (93)	0.90
300 (148)	0.85
400 (204)	0.82
482 (250)	0.81

Pressure Ratings

resistance.

Low-Temperature Ratings

Fitting pressure ratings are for metal temperatures from -50 to 100°F (-46 to 37°C), based on -50°F (-46°C) impact tests performed on Alloy 2507 bar and forgings. The tubing listed in the table on page 2 has a minimum use temperature of -20°F (-28°C) in accordance with ASME B31.3.

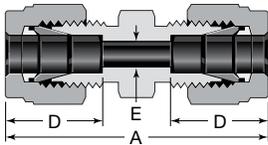
However, the NORSOK M-001 Materials Selection standard allows this tubing to be used at a minimum temperature of -50°F (-46°C). According to the NORSOK M-630 Material Data Sheets for Piping, Alloy 2507 tubing does not have to undergo low-temperature impact testing so long as wall thicknesses are below 0.236 in. (6 mm).

Ordering Information and Dimensions

- Dimensions are for reference only and are subject to change.
- Dimensions are shown with Swagelok tube fitting nuts finger-tight. For Swagelok nut dimensions, see page 7.
- The E dimension is the minimum nominal opening.
- CAD templates are available on www.swagelok.com.

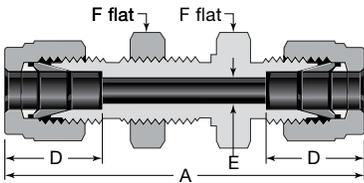
Straight Fittings

Unions



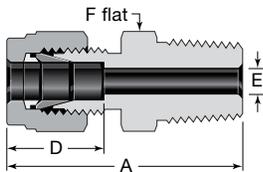
Tube OD in.	Ordering Number	Dimensions, in. (mm)		
		A	D	E
1/4	2507-400-6	1.61 (40.9)	0.60 (15.2)	0.19 (4.8)
3/8	2507-600-6	1.77 (45.0)	0.66 (16.8)	0.28 (7.1)
1/2	2507-810-6	2.02 (51.3)	0.90 (22.9)	0.41 (10.4)
5/8	2507-1010-6	2.11 (53.5)	0.96 (24.4)	0.50 (12.7)
3/4	2507-1210-6	2.11 (53.5)	0.96 (24.4)	0.62 (15.9)

Bulkhead Unions



Tube OD in.	Ordering Number	Dimensions, in. (mm)					
		A	D	E	F	Panel Hole Size	Max Panel Thickness
1/4	2507-400-61	2.27 (57.7)	0.60 (15.2)	0.19 (4.8)	5/8	29/64	0.40 (10.2)
3/8	2507-600-61	2.45 (62.2)	0.66 (16.8)	0.28 (7.1)	13/16	37/64	0.44 (11.2)
1/2	2507-810-61	2.80 (71.1)	0.90 (22.9)	0.41 (10.4)	1 1/16	49/64	0.50 (12.7)
5/8	2507-1010-61	3.11 (78.9)	0.96 (24.4)	0.50 (12.7)	1 3/16	1 1/64	0.66 (16.8)
3/4	2507-1210-61	3.33 (84.5)	0.96 (24.4)	0.62 (15.9)	1 3/8	1 9/64	0.75 (19.0)

Male Connectors

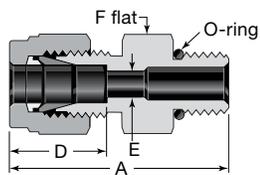


NPT

Tube OD in.	NPT Size	Ordering Number	Dimensions, in. (mm)			
			A	D	E	F
1/4	1/4	2507-400-1-4	1.49 (37.8)	0.60 (15.2)	0.19 (4.8)	9/16 7/8
	1/2	2507-400-1-8	1.76 (44.7)			
3/8	1/4	2507-600-1-4	1.57 (39.9)	0.66 (16.8)	0.28 (7.1)	5/8 11/16 7/8
	3/8	2507-600-1-6	1.57 (39.9)			
	1/2	2507-600-1-8	1.82 (46.2)			
1/2	1/4	2507-810-1-4	1.71 (43.4)	0.90 (22.9)	0.28 (7.1) 0.38 (9.7) 0.41 (10.4)	13/16 13/16 7/8
	3/8	2507-810-1-6	1.71 (43.4)			
	1/2	2507-810-1-8	1.93 (49.0)			
5/8	1/2	2507-1010-1-8	1.99 (50.5)	0.96 (24.4)	0.47 (11.9)	1 1/16
3/4	3/4	2507-1210-1-12	1.99 (50.5)	0.96 (24.4)	0.62 (15.9)	1 3/16 1 3/8
	1	2507-1210-1-16	2.25 (57.1)			

Straight Fittings

Male Connectors



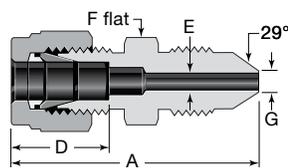
SAE/MS Straight Thread (ST)

Tube OD in.	SAE/MS Thread Size	Ordering Number	Dimensions, in. (mm)				Uniform O-ring Size ^②
			A	D	E ^①	F	
1/4	7/16-20	2507-400-1-4ST	1.34 (34.0)	0.60 (15.2)	0.19 (4.8)	9/16	904
	9/16-18	2507-400-1-6ST	1.40 (35.6)				
3/8	9/16-18	2507-600-1-6ST	1.46 (37.1)	0.66 (16.8)	0.28 (7.1)	11/16	906
1/2	9/16-18	2507-810-1-6ST	1.54 (39.1)	0.90 (22.9)	0.28 (7.1)	13/16	906
	3/4-16	2507-810-1-8ST	1.65 (41.9)				
5/8	7/8-14	2507-1010-1-10ST	1.77 (44.9)	0.96 (24.4)	0.50 (12.7)	1 1/16	910
3/4	1 1/16-12	2507-1210-1-12ST	1.93 (49.0)	0.96 (24.4)	0.62 (15.6)	1 3/8	912

① May be back drilled to larger ID at straight thread end.

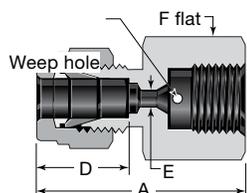
② Standard O-ring material is 90 durometer fluorocarbon FKM.

Cone-and-Thread



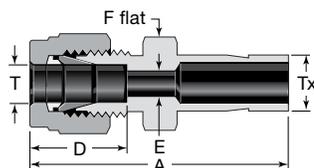
Tube OD in.	Medium-Pressure Tube Size in.	Ordering Number	Dimensions, in. (mm)					Thread Size
			A	D	E	F	G	
1/4	1/4	2507-400-1-4MP	1.62 (41.1)	0.60 (15.2)	0.11 (2.8)	1/2	0.14 (3.6)	7/16-20 UNF-2
3/8	3/8	2507-600-1-6MP	1.92 (48.8)	0.66 (16.8)	0.21 (5.3)	5/8	0.25 (6.4)	9/16-18 UNF-2
1/2	9/16	2507-810-1-9MP	2.15 (54.6)	0.90 (22.9)	0.31 (7.9)	7/8	0.41 (10.4)	13/16-16 UN-2
5/8	9/16	2507-1010-1-9MP	2.24 (56.8)	0.96 (24.4)	0.31 (7.9)	1 1/16	0.41 (10.4)	13/16-16 UN-2
3/4	3/4	2507-1210-1-12MP	2.53 (64.2)	0.96 (24.4)	0.45 (11.5)	1 3/16	0.56 (14.2)	3/4-14 NPSM-2

Cone-and-Thread Female Connectors



Tube OD in.	Medium-Pressure Tube Size in.	Ordering Number	Dimensions, in. (mm)				Thread Size
			A	D	E	F	
1/4	1/4	2507-400-7-4MP	1.37 (34.8)	0.60 (15.2)	0.11 (2.8)	11/16	7/16-20 UNF-2
3/8	3/8	2507-600-7-6MP	1.57 (39.9)	0.66 (16.8)	0.20 (5.1)	7/8	9/16-18 UNF-2
1/2	9/16	2507-810-7-9MP	1.96 (49.8)	0.90 (22.9)	0.36 (9.1)	1 1/16	13/16-16 UN-2

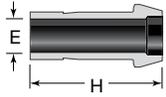
Reducers



Tube OD, in.		Ordering Number	Dimensions, in. (mm)			
T	Tx		A	D	E	
1/4	3/8	2507-400-R-6	1.60 (40.6)	0.60 (15.2)	0.19 (4.8)	
	1/2	2507-400-R-8	1.82 (46.2)			
3/8	1/4	2507-600-R-4	1.63 (41.4)	0.66 (16.8)	0.17 (4.3)	
	1/2	2507-600-R-8	1.91 (48.5)			0.28 (7.1)
1/2	1/4	2507-810-R-4	1.77 (45.0)	0.90 (22.9)	0.17 (4.3)	
	3/8	2507-810-R-6	1.84 (46.7)			0.27 (6.9)
	3/4	2507-810-R-12	2.12 (53.8)			0.41 (10.3)
3/4	1/2	2507-1210-R-8	2.20 (55.8)	0.96 (24.4)	0.37 (9.3)	

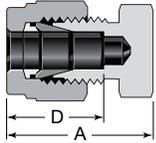
Straight Fittings

Port Connectors



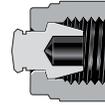
Tube OD in.	Ordering Number	Dimensions, in. (mm)	
		E	H
1/4	2507-401-PC	0.17 (4.3)	0.98 (24.9)
3/8	2507-601-PC	0.27 (6.9)	1.05 (26.7)
1/2	2507-811-PC	0.37 (9.3)	1.43 (36.3)
5/8	2507-1011-PC	0.47 (12.0)	1.49 (37.8)
3/4	2507-1211-PC	0.58 (14.7)	1.49 (37.8)

Caps



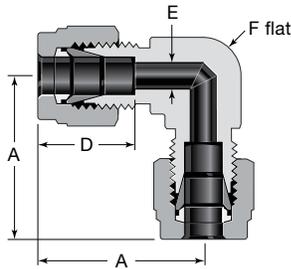
Tube OD in.	Ordering Number	Dimensions, in. (mm)	
		A	D
1/4	2507-400-C	0.92 (23.4)	0.60 (15.2)
3/8	2507-600-C	1.01 (25.7)	0.66 (16.8)
1/2	2507-810-C	1.15 (29.2)	0.90 (22.9)
5/8	2507-1010-C	1.24 (31.5)	0.96 (24.4)
3/4	2507-1210-C	1.34 (34.0)	0.96 (24.4)

Plugs



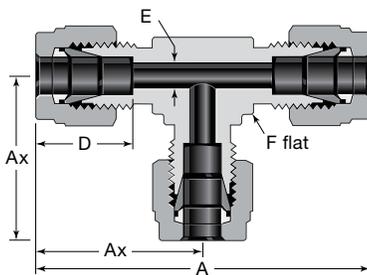
Tube OD in.	Ordering Number
1/4	2507-400-P
3/8	2507-600-P
1/2	2507-810-P
5/8	2507-1010-P
3/4	2507-1210-P

Union Elbows



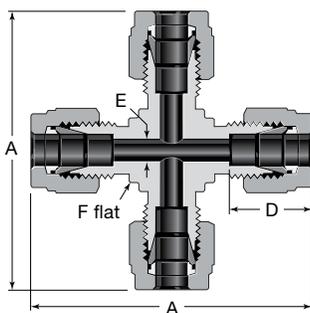
Tube OD in.	Ordering Number	Dimensions, in. (mm)			
		A	D	E	F
1/4	2507-400-9	1.06 (26.9)	0.60 (15.2)	0.19 (4.8)	1/2
3/8	2507-600-9	1.20 (30.5)	0.66 (16.8)	0.28 (7.1)	5/8
1/2	2507-810-9	1.42 (36.1)	0.90 (22.9)	0.41 (10.4)	13/16
5/8	2507-1010-9	1.57 (39.8)	0.96 (24.4)	0.50 (12.7)	1 1/16
3/4	2507-1210-9	1.70 (43.1)	0.96 (24.4)	0.62 (15.9)	1 3/16

Union Tees



Tube OD in.	Ordering Number	Dimensions, in. (mm)				
		A	Ax	D	E	F
1/4	2507-400-3	2.12 (53.8)	1.06 (26.9)	0.60 (15.2)	0.19 (4.8)	1/2
3/8	2507-600-3	2.40 (61.0)	1.20 (30.5)	0.66 (16.8)	0.28 (7.1)	5/8
1/2	2507-810-3	2.84 (72.1)	1.42 (36.1)	0.90 (22.9)	0.41 (10.4)	13/16
5/8	2507-1010-3	3.14 (79.6)	1.57 (39.8)	0.96 (24.4)	0.50 (12.7)	1 1/16
3/4	2507-1210-3	3.40 (86.2)	1.70 (43.1)	0.96 (24.4)	0.62 (15.9)	1 3/16

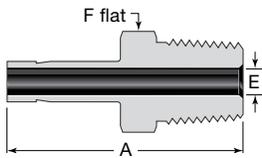
Union Crosses



Tube OD in.	Ordering Number	Dimensions, in. (mm)			
		A	D	E	F
1/4	2507-400-4	2.12 (53.8)	0.60 (15.2)	0.19 (4.8)	1/2
3/8	2507-600-4	2.40 (61.0)	0.66 (16.8)	0.28 (7.1)	5/8
1/2	2507-810-4	2.84 (72.1)	0.90 (22.9)	0.41 (10.4)	13/16

Tube Adapters

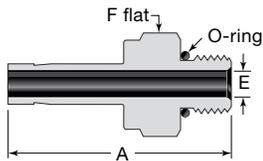
Male Adapters



NPT

Tube OD in.	NPT Size in.	Ordering Number	Dimensions		
			A	E	F
1/4	1/4	2507-4-TA-1-4	1.46 (37.1)	0.17 (4.3)	9/16
3/8	1/4	2507-6-TA-1-4	1.53 (38.9)	0.27 (6.9)	9/16
	3/8	2507-6-TA-1-6	1.56 (39.6)		11/16
	1/2	2507-6-TA-1-8	1.78 (45.2)		7/8
1/2	1/4	2507-8-TA-1-4	1.75 (44.4)	0.28 (7.1)	9/16
	1/2	2507-8-TA-1-8	2.00 (50.8)	0.37 (9.4)	7/8
5/8	1/2	2507-10-TA-1-8	2.06 (52.3)	0.47 (11.9)	7/8
3/4	3/4	2507-12-TA-1-12	2.06 (52.3)	0.58 (14.7)	1 1/16

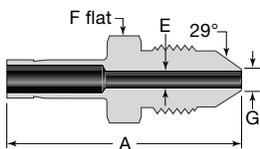
SAE/MS Straight Thread (ST)



Tube OD in.	SAE/MS Thread Size	Basic Ordering Number	Dimensions			Uniform O-ring Size ^①
			A	E	F	
1/4	7/16-20	2507-4-TA-1-4ST	1.39 (35.3)	0.17 (4.3)	9/16	904
3/8	7/16-20	2507-6-TA-1-4ST	1.46 (37.1)	0.20 (5.1)	9/16	904
	9/16-18	2507-6-TA-1-6ST	1.52 (38.6)	0.27 (6.9)	11/16	906
1/2	9/16-18	2507-8-TA-1-6ST	1.74 (44.2)	0.28 (7.1)	11/16	906
	3/4-16	2507-8-TA-1-8ST	1.82 (46.2)	0.37 (9.4)	7/8	908
3/4	1 1/16-12	2507-12-TA-1-12ST	2.10 (53.3)	0.58 (14.7)	1 1/4	912

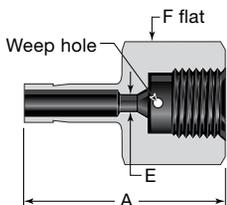
① Standard O-ring material is 90 durometer fluorocarbon FKM.

Cone-and-Thread Fitting



Tube OD in.	Medium-Pressure Tube Size in.	Ordering Number	Dimensions, in. (mm)				Thread Size
			A	E	F	G	
1/4	1/4	2507-4-TA-1-4MP	1.56 (39.6)	0.11 (2.8)	1/2	0.14 (3.6)	7/16-20 UNF-2
3/8	3/8	2507-6-TA-1-6MP	1.86 (47.2)	0.21 (5.3)	5/8	0.25 (6.4)	9/16-18 UNF-2
1/2	9/16	2507-8-TA-1-9MP	2.24 (56.9)	0.31 (7.9)	7/8	0.41 (10.4)	13/16-16 UN-2
5/8	9/16	2507-10-TA-1-9MP	2.40 (61.0)	0.31 (7.9)	7/8	0.41 (10.4)	13/16-16 UN-2
3/4	3/4	2507-12-TA-1-12MP	2.68 (68.1)	0.45 (11.5)	1 1/8	0.56 (14.2)	3/4-14 NPSM-2

Cone-and-Thread Female Adapters



Tube OD in.	Medium-Pressure Tube Size in.	Ordering Number	Dimensions, in. (mm)			Thread Size
			A	E	F	
1/4	1/4	2507-4-TA-7-4MP	1.31 (33.3)	0.11 (2.8)	11/16	7/16-20 UNF-2
3/8	3/8	2507-6-TA-7-6MP	1.51 (38.4)	0.20 (5.1)	7/8	9/16-18 UNF-2
1/2	9/16	2507-8-TA-7-9MP	2.05 (52.1)	0.36 (9.1)	1 1/16	13/16-16 UN-2

Replacement Parts

Nuts



Tube OD in.	Ordering Number	Dimensions in. (mm)	
		G	L
1/4	2507-402-1	9/16	0.50 (12.7)
3/8	2507-602-1	11/16	0.56 (14.2)
1/2	2507-812-1	7/8	0.69 (17.4)
5/8	2507-1012-1	1 1/8	0.69 (17.4)
3/4	2507-1212-1	1 1/4	0.69 (17.4)

Ferrules

Front



Tube OD in.	Ordering Number
1/4	2507-403-1
3/8	2507-603-1
1/2	2507-813-1
5/8	2507-1013-1
3/4	2507-1213-1

Back



Tube OD in.	Ordering Number
1/4	6ML-404-1A
3/8	6ML-604-1A
1/2	6ML-814-1A
5/8	6ML-1014-1A
3/4	6ML-1214-1A

Cleaning and Packaging

Fitting components are cleaned to remove machine oil, grease, and loose particles. For more information, see *Swagelok Standard Cleaning and Packaging (SC-10)*, MS-06-62.

Tools for Use with Alloy 2507 Tube Fittings

Preswaging Tools



Tube OD in.	Ordering Number
1/4	MS-ST-400
3/8	MS-ST-600
1/2	MS-ST-810
5/8	MS-ST-2507-1010
3/4	MS-ST-2507-1210

For Swagelok tube fitting installations in close quarters, the Swagelok preswaging tool is a convenient accessory.

Multihead Hydraulic Swaging Unit (MHSU)



- Preswages Swagelok ferrules onto 5/8 and 3/4 in. Alloy 2507 tubing. For 5/8 and 3/4 in. Alloy 2507 tubing, order the 1 in./25 mm and over unit and Alloy 2507 tooling. The MHSU cannot be used for Alloy 2507 tubing 1/2 in. and under.
- Provides Swagelok tube fittings that are 100 % gaugeable when installed
- Places no initial strain on nut or fitting body threads or on body seal surfaces
- Is standard with a tube marking feature to indicate when tube is properly bottomed

Description	Ordering Number
MHSU only (1 in. and over unit)	MS-MHSU-O-E
5/8 in. tooling	MS-MHSUT-O-2507-1010-M
3/4 in. tooling	MS-MHSUT-O-2507-1212-M

For additional information, see the *Swagelok Gaugeable Tube Fittings and Adapter Fittings* catalog, MS-01-140. For instructions, see *Multihead Hydraulic Swaging Unit (MHSU) Setup and Operation Instructions*, MS-12-37.

Tools for Use with Alloy 2507 Tube Fittings

Gap Inspection Gauges

Swagelok gap inspection gauges assure the installer or inspector that the fitting has been sufficiently pulled up on initial installation, whether using a multihead hydraulic swaging unit (MHSU) or wrench tightening.

For Installation Using a Wrench



Tube OD in.	Ordering Number
1/4	MS-IG-400
3/8	MS-IG-600
1/2	MS-IG-810
5/8	MS-IG-2507-1010
3/4	MS-IG-2507-1210

For Installation Using the MHSU



Tube OD in.	Ordering Number
5/8	MS-MHSU-IG-2507-1010
3/4	MS-MHSU-IG-2507-1210

Depth Marking Tools



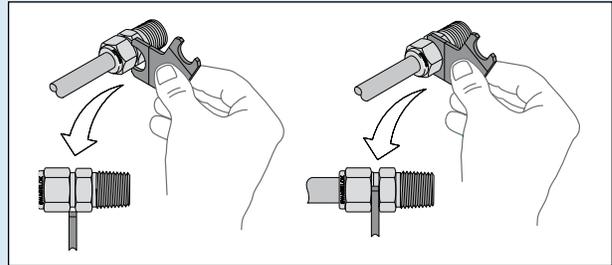
Swagelok depth marking tools help ensure that tubing is bottomed on the shoulder inside the Swagelok tube fitting body.

Tube OD in.	Ordering Number
1/4	MS-DMT-400
3/8	MS-DMT-600
1/2	MS-DMT-810
5/8	MS-DMT-1010
3/4	MS-DMT-1210

Gaugeability

On initial installation, the Swagelok gap inspection gauge assures the installer or inspector that a fitting has been sufficiently tightened.

Position the Swagelok gap inspection gauge next to the gap between the nut and body.



If the gauge **will not** enter the gap, **the fitting is sufficiently tightened.**

If the gauge **will** enter the gap, **additional tightening is required.**

⚠ Always depressurize the system before adjusting the tightness of a tube fitting connection.

Interchangeability

Intermixing and interchanging tube fitting components of different manufacturers can be dangerous. Leak-tight seals that will withstand high pressure, vibration, vacuum, and temperature changes depend on close tolerances and consistent, exacting quality control in conjunction with good design principles. The critical interaction of precision parts is essential for reliability and safety.

Components of other manufacturers may look like Swagelok tube fitting components—but they cannot be manufactured in accordance with Swagelok engineering standards, nor do they benefit from innovations in design and manufacture defined by active Swagelok tube fitting patents.

Installation Instructions

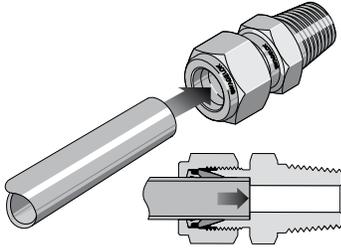
Swagelok Alloy 2507 super duplex tube fittings can be installed quickly, easily, and reliably.

Safety Precautions

- Do not bleed system by loosening fitting nut or fitting plug.
- Do not assemble or tighten fittings when system is pressurized.
- Make sure that the tube rests firmly on the shoulder of the tube fitting body before tightening the nut.
- Use the correct Swagelok gap inspection gauge to ensure sufficient pull-up upon initial installation.
- Always use proper thread sealants on tapered pipe threads.
- Do not mix materials or fitting components from various manufacturers—ferrules, nuts, and fitting bodies.
- Never turn fitting body. Instead, hold fitting body and turn nut.
- Avoid unnecessary disassembly of unused fittings.

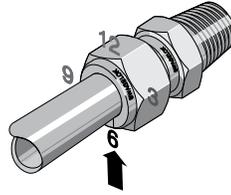
Installation Instructions

Swagelok Tube Fittings

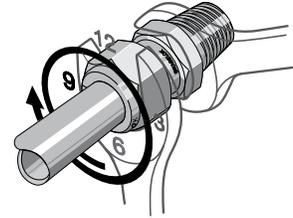


Fully insert the tube into the fitting and against the shoulder; rotate the nut finger-tight.

High-pressure applications and high safety-factor systems: Further tighten the nut until the tube will not turn by hand or move axially in the fitting.



Mark the nut at the 6 o'clock position.



While holding the fitting body steady, tighten the nut one and one-quarter turns to the 9 o'clock position.

Connections Preswaged with the MHSU

1. Preswage the ferrules onto the tube using a Swagelok multihead hydraulic swaging unit (MHSU).
2. Insert the tube with preswaged ferrules into the fitting until the front ferrule seats against the fitting body; rotate the nut finger-tight.

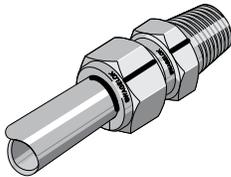
3. Mark the nut at the 6 o'clock position.
4. While holding the fitting body steady, tight the nut one-half turn to the 12 o'clock position.

Use the Swagelok MHSU gap inspection gauge to ensure that the fitting has been tightened sufficiently.

Reassembly

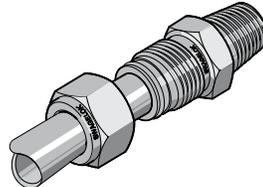
You may disassemble and reassemble Swagelok tube fittings many times.

⚠ Always depressurize the system before disassembling a Swagelok tube fitting.

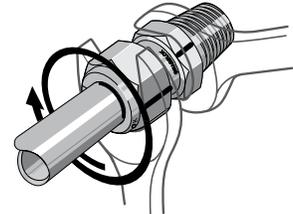


Prior to disassembly, mark the tube at the back of the nut; mark a line along the nut and fitting body flats.

Use these marks to ensure that you return the nut to the previously pulled-up position.



Insert the tube with preswaged ferrules into the fitting until the front ferrule seats against the fitting body.



While holding the fitting body steady, rotate the nut with a wrench to the previously pulled-up position, as indicated by the marks on the tube and the flats. At this point, you will feel a significant increase in resistance. Tighten the nut slightly.

⚠ Do not use the Swagelok gap inspection gauge with reassembled fittings.

Caps and Plugs



Caps

See Swagelok tube fitting installation and reassembly, above.



Plugs

While holding fitting body steady, tighten the plug one-quarter turn from the finger-tight position.

⚠ Do not use the Swagelok gap inspection gauge with plug assemblies.

Reassembly

You may disassemble and reassemble Swagelok plugs many times. Make subsequent connections by slightly tightening with a wrench after snugging the nut by hand.

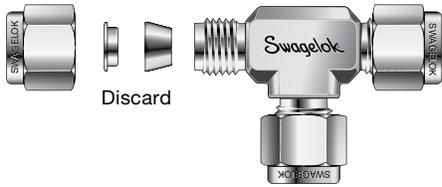
Installation Instructions

Port Connectors

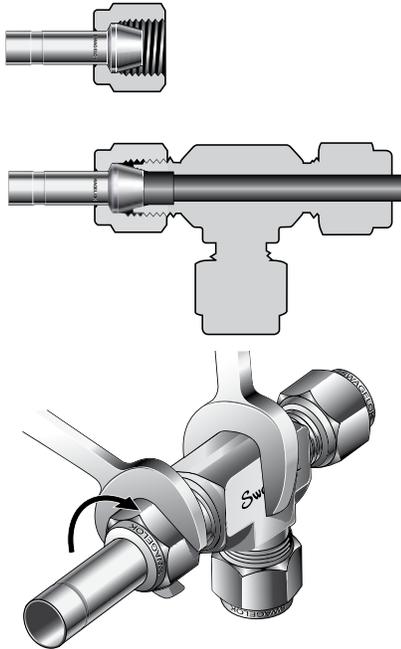
Connect the machined ferrule end **before** connecting the tube adapter end.

Machined Ferrule End

1. Remove the nut and ferrules from the Swagelok end connection. Discard the ferrules.



2. Slip the nut over the machined ferrule end of the port connector.
3. Insert the port connector into the end connection and finger-tighten the nut.
4. While holding fitting body steady, tighten the nut one-quarter turn.



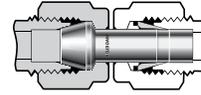
⚠ Do not use the Swagelok gap inspection gauge with machined ferrule ends.

Reassembly

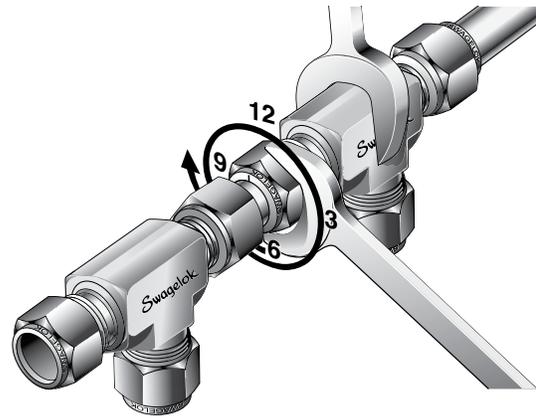
You may disassemble and reassemble Swagelok port connectors many times. Make subsequent connections by slightly tightening with a wrench after snugging the nut by hand.

Tube Adapter End

5. Insert the tube adapter until it rests firmly on the shoulder of the Swagelok tube fitting body. Finger-tighten the nut.



6. Mark the nut at the 6 o'clock position. While holding fitting body steady, tighten the nut one and one-quarter turns to the 9 o'clock position.



Reassembly

See Swagelok tube fitting reassembly, page 9.

Tube Adapters

Fig. 1



Female pipe port on existing equipment

Fig. 2



1. Install the end opposite the tube adapter end (Fig. 1).
2. Insert the tube adapter into the Swagelok tube fitting. Make sure that the tube adapter rests firmly on the shoulder of the tube fitting body and that the nut is finger-tight (Fig. 2).
3. Mark the nut at the 6 o'clock position.

4. While holding fitting body steady, tighten the nut one and one-quarter turns to the 9 o'clock position.

Reassembly

See Swagelok tube fitting reassembly, page 9.

Installation Instructions

Depth Marking Tool

Fig. 1



Fig. 2



1. Insert cleanly cut, fully deburred tube into the depth marking tool (DMT) until the tube is against the shoulder of the tool. Using a pen or pencil, mark the tube at the top of the DMT (Fig. 1).
2. Remove the tube from the DMT and insert it into the Swagelok fitting until it is against the shoulder of the fitting body (Fig. 2). Rotate the nut finger-tight. If any portion of the mark on the tube can be seen above the fitting nut, the tube is not fully inserted into the fitting.
3. While holding the fitting body steady, follow Swagelok tube fitting installation instructions, page 9.

Preswaging Tool

Fig. 1



Fig. 2



Fig. 3



1. Install the Swagelok nut and ferrules onto the preswaging tool.
2. Insert the tube into the preswaging tool.
3. Make sure that the tube rests firmly on the shoulder of the preswaging tool body and that the nut is finger-tight.
4. Mark the nut at the 6 o'clock position.
5. While holding the preswaging tool steady, tighten the nut one and one-quarter turns to the 9 o'clock position (Fig. 1).
6. Loosen the nut.
7. Remove the tube with preswaged ferrules from the preswaging tool. If the tube sticks in the preswaging tool, remove the tube by gently rocking it back and forth. Do not turn the tube (Fig. 2).
8. Insert the tube with preswaged ferrules into the fitting until the front ferrule seats against the fitting body.
9. While holding the fitting body steady, rotate the nut with a wrench to the previously pulled-up position; at this point, you will feel a significant increase in resistance.
10. Tighten the nut slightly (Fig. 3).

⚠ Do not use the Swagelok gap inspection gauge with fittings that were assembled using the preswaging tool.

Alloy 2507 Tubing



Swagelok offers Alloy 2507 tubing in sizes of 1/4 to 1 in. outside diameter. See the Swagelok *Alloy 2507 Seamless Super Duplex Tubing—Fractional Sizes* catalog, MS-02-151, for more information.

Alloy 2507 Weld Fittings

See the Swagelok *Alloy 2507 Super Duplex Weld Fittings* catalog, MS-01-173, for more information.



Tubing Tools and Accessories

For tube benders, wrenches, cutters, liquid leak detectors, and more, see the Swagelok *Tubing Tools and Accessories* catalog, MS-01-179.



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.

Caution: Do not mix or interchange parts with those of other manufacturers.

Warranty Information

Swagelok products are backed by The Swagelok Limited Lifetime Warranty. For a copy, visit swagelok.com or contact your authorized Swagelok representative.

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