

UNIFORM STATUTORY DECLARATION FORM FOR THE REGISTRATION OF FITTING DESIGNS

NEW BRUNSWICK
NUNAVUT

NOVA SCOTIA
YUKON

PRINCE EDWARD ISLAND
NORTHWEST TERRITORIES

NEWFOUNDLAND AND LABRADOR

MANUFACTURER'S NAME: <u>Swagelok Company</u>	
MANUFACTURER'S ADDRESS: <u>29500 Solon Road, Solon, Ohio 44139 USA</u>	
PLANT LOCATIONS: <u>Headquarters: 29500 Solon Road, Solon, Ohio 44139 USA (See Attachment A)</u>	
CATEGORY OF FITTING TO BE REGISTERED. CIRCLE ONE CATEGORY ONLY (A) Pipe fittings, including couplings, tees, elbows, Ys, plugs, unions, pipe caps, or reducers B Flanges: all flanges C Valves: all line valves D Expansion joints, flexible connections, and hose assemblies: all types E Strainers, filters, separators, and steam traps F Measuring devices, including pressure gauges, level gauges, sight glasses, levels, or pressure transmitters G Certified capacity-rated pressure relief devices acceptable as primary over pressure protection on boilers, pressure vessels, piping and fusible plugs H Pressure retaining components that do not fall into one of the above categories N Nuclear components: Class 1 <input type="checkbox"/> Class 2 <input type="checkbox"/> Class 3 <input type="checkbox"/> . (Meeting ASME or ASME requirements)	TITLE OF THE STANDARD OF CONSTRUCTION ASME B31.1 for unlisted components, ASME B31.3 for unlisted components
SHOW MANUFACTURER'S NAME, TRADEMARK, OR LOGO AS IT WILL APPEAR ON THE PRODUCT <div style="text-align: center; font-size: 2em; font-family: cursive;">Swagelok</div>	TYPE OF CONSTRUCTION FORGED <input type="checkbox"/> WELDED <input type="checkbox"/> MACHINED <input checked="" type="checkbox"/> CAST <input type="checkbox"/> OTHER <input type="checkbox"/> DISCLOSE OTHER:
LIMIT OF SUPPORTING DOCUMENTATION AND IDENTIFICATION OF THE ACTUAL ITEMS TO BE REGISTERED: ISO 9001:2015 Certificate, Attachment A, Attachment B, Catalog Information and other Support Documents	

DECLARATION:

I, Joel Feldman, Vice President, Engineering (per rule 2) employed by Swagelok Company and being the person having full authority and responsibility for the quality of the end product do solemnly declare that the information contained in this form is true and to the best of my knowledge represents the product for which registration is sought. The dimensions, materials of construction, pressure temperature ratings, and identification markings are in accordance with the herein named standards. I further declare that the manufacture of these fittings is regulated by a Quality Control Program which extends to each plant where fabrication occurs in whole or in part and has been verified by ESI as being suitable for that purpose and I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under penalty of perjury.

Signature of Declarer: [Signature]
 Declared before me at Solon Ohio
 This 18th day of July AD 2019
 Commissioner of Oaths or Notary Public: (sign) [Signature]
(Affix Official seal to the right)

USE THIS SPACE FOR OFFICIAL SEAL



This space for Regulatory Authority use This registration must be revalidated after ten (10) years from the date of expiration. CRN: <u>0A21661.5</u> FID#: <u>1214</u> Scope: <u>C.S. TUBE FITTINGS</u> Notes: 1. All fittings shall be registered in the name of the Manufacturer. 2. Each category shall be supported with two Statutory Declaration forms and one copy of supporting documentation. 3. The declaration shall be made by the person having full authority and responsibility for the quality of the end product. 4. Quality control programs shall be resubmitted for validation at a maximum interval of five (5) years. CRN EXPIRES AUG. 2, 2029 - D.G.	NUNAVUT Boilers and Pressure Vessels Act REGISTERED CRN: <u>0A21661.5N</u> Date: <u>August 30, 2019</u> Signed: <u>[Signature]</u> Chief Inspector Territorial Registration Fee
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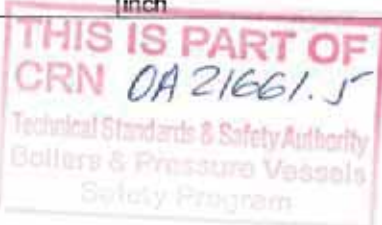
Attachment B. Scope of Registration for Swagelok Carbon Steel Tube Fittings (Category A)

This document represents the scope of Swagelok Carbon Steel Tube Fittings covered by this submission for CRN approval. These Swagelok Tube Fittings have been evaluated in accordance with ASME B31.1-2016 for unlisted components and ASME B31.3-2016 for unlisted components.

Summary Table

Product Description or Series	Body Material (Standard)	Port Connections and Sizes	Maximum Allowable Working Pressure		Design Code of Construction	
			Up to 100°F	At maximum temperature 375°F (190°C)		
Gaugeable Tube Fittings and Adapter Fittings	Straight fittings: 11L37 Carbon Steel (ASTM A108) or 12L14 Carbon Steel (ASTM A108) Shaped fittings: 1137 Carbon Steel Forging (ASTM A181) or 1035 Carbon Steel Forging (ASTM A105)	Swagelok End Connection 1/8 - 2 inch (Fractional) 6mm - 38mm (Metric)	See Table on Page 2	See Table on Page 2	ASME B31.3 (Unlisted Components) ASME B31.1 (Unlisted Components)	
		NPT Male 1/16 - 2 inch	ASME B31.3	11000 - 3900 psig	9570 - 3390 psig	Based on ASME B1.20.1 listed in Table 326.1 of B31.3 and Table 126.1 of B31.1
			ASME B31.1	8250 - 2920 psig	7180 - 2540 psig	
		NPT Female 1/16 - 2 inch	ASME B31.3	6700 - 3900 psig	5830 - 3390 psig	
			ASME B31.1	5020 - 2920 psig	4370 - 2540 psig	
		ISO/BSP (parallel) PR Male 1/8 - 1 inch		4568 - 2320 psig*	4568 - 2320 psig @150° (65°C)	ASME B31.3 (Unlisted Components) ASME B31.1 (Unlisted Components)
		ISO/BSP (parallel) RS Male 1/8-1 inch		5800-4700 psig with FKM bonded gasket*	5800-4700 psig with FKM bonded gasket*	
		ISO/BSP (parallel) RG Female 1/4 - 1/2 inch		4036 psig with copper gasket*	4036 psig with copper gasket*	
		ISO-7 (tapered)(RT) Male 1/8 - 2 inch	ASME B31.3	11000 - 3900 psig	9570 - 3390 psig	
			ASME B31.1	8250 - 2920 psig	7180 - 2540 psig	
		ISO-7 (tapered)(RT) Female 1/8-2 inch	ASME B31.3	6700 - 3900 psig	5830 - 3390 psig	
			ASME B31.1	5020 - 2920 psig	4370 - 2540 psig	
		UN / UNF(SAE) Stud (ST) 1/8 - 2 inch		4568 - 1813 psig*	4568 - 1813 psig	
		UN / UNF (SAE) Pos. (ST) Male 1/4 - 2 inch		4568 - 1450 psig*	4568 - 1450 psig	
		Unified (UNJ) (AN) Male Straight 1/8 - 1 inch		5000 - 3000 psig	5000 - 3000 psig	
		Unified (UNJ) (AN) Male Shape 1/8 - 1 inch		5000 - 3000 psig	5000 - 3000 psig	
Unified (UNJ) (AN) Female w/ Swivel Nut 1/4 - 1 inch		4500 - 2500 psig	3900 - 2200 psig			

*Pressure rating is gasket-dependent.



Carbon Steel Swagelok Tube Fitting Pressure Rating Table

Swagelok End Connection Size	Maximum Allowable Working Pressure per ASTM B31.3		Maximum Allowable Working Pressure per ASTM B31.1 (1)	
	Up to 100°F	At maximum temperature 375°F (190°C)	Up to 100°F	At maximum temperature 375°F (190°C)
1/8 inch	10 200 psig	8 874 psig	8 670 psig	7 543 psig
3/16 inch	5 100 psig	4 437 psig	4 335 psig	3 771 psig
1/4 inch	4 800 psig	4 176 psig	4 080 psig	3 550 psig
5/16 inch	5 500 psig	4 785 psig	4 675 psig	4 067 psig
3/8 inch	4 500 psig	3 915 psig	3 825 psig	3 328 psig
1/2 inch	5 900 psig	5 133 psig	5 015 psig	4 363 psig
5/8 inch	5 300 psig	4 611 psig	4 505 psig	3 919 psig
3/4 inch	4 300 psig	3 741 psig	3 665 psig	3 180 psig
7/8 inch	3 700 psig	3 219 psig	3 145 psig	2 736 psig
1 inch	2 700 psig	2 349 psig	2 295 psig	1 997 psig
1 1/4 inch	3 200 psig	2 784 psig	2 720 psig	2 366 psig
1 1/2 inch	3 300 psig	2 871 psig	2 805 psig	2 440 psig
2 inch	3 000 psig	2 610 psig	2 550 psig	2 218 psig
6 mm	370 bar	322 bar	315 bar	274 bar
8 mm	330 bar	287 bar	281 bar	244 bar
10 mm	330 bar	287 bar	281 bar	244 bar
12 mm	420 bar	365 bar	357 bar	311 bar
14 mm	350 bar	305 bar	298 bar	259 bar
15 mm	330 bar	287 bar	281 bar	244 bar
16 mm	350 bar	305 bar	298 bar	259 bar
18 mm	270 bar	235 bar	230 bar	200 bar
20 mm	270 bar	235 bar	230 bar	200 bar
22 mm	240 bar	209 bar	204 bar	178 bar
25 mm	180 bar	157 bar	153 bar	133 bar
28 mm	160 bar	139 bar	136 bar	118 bar
30 mm	150 bar	130 bar	127 bar	110 bar
32 mm	160 bar	139 bar	136 bar	118 bar
38 mm	160 bar	139 bar	136 bar	118 bar

Note (1): Working pressures for ASME B31.1 are reduced by a factor of 0.85 per the Swagelok Tubing Data publication MS-01-107.

THIS IS PART OF
 ORN 0A 21661.5
 Technical Standards & Safety Authority
 Fittings & Pressure Vessels

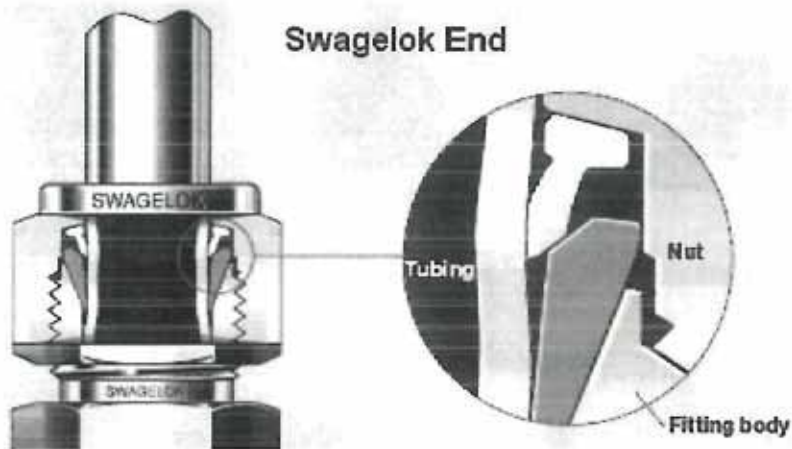
Swagelok

Canadian Registration Number Submittal #S-TUBEFIT-2019
Category A: Swagelok Carbon Steel Tube Fittings

Date: June 18, 2019
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Product Description

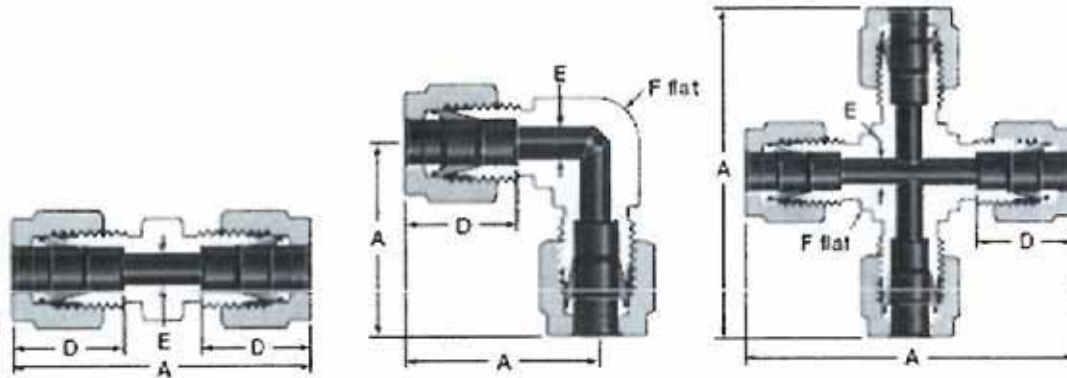
Swagelok Fittings are furnished in a variety of configurations and shapes (straight, elbow, tee or cross). Swagelok Fittings consist of at least one Swagelok End – a two-ferrule mechanical-grip design. The Swagelok end is a proprietary design, and the assembly consists of Swagelok body, nut, front and back ferrule (see detail). The table above, as well as the "Configurations" section, covers a variety of other end connections.



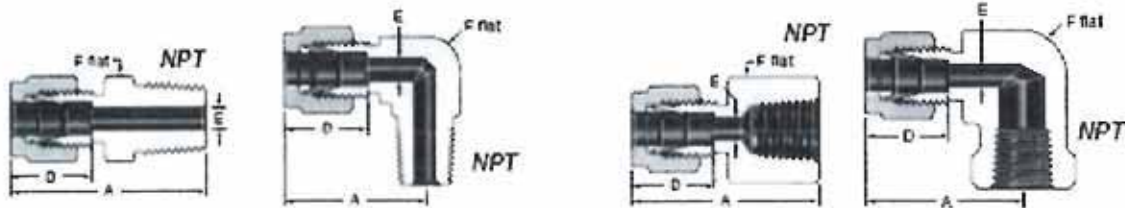
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Pipes & Pressure Vessels
Safety Program

Configurations

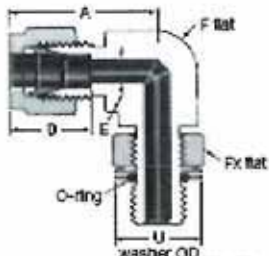
1. Unions.



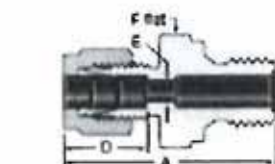
2. Male and Female connectors / adapters.



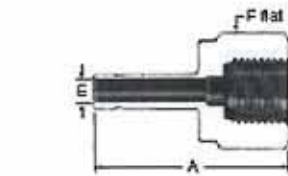
NPT Male Connectors



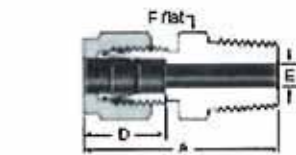
Positionable, ISO/BSP Parallel Thread (PR)



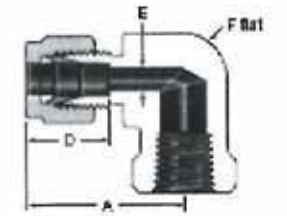
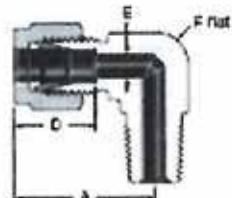
ISO/BSP Parallel Thread (RS)



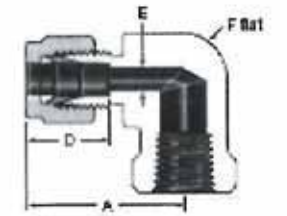
ISO/DSP Parallel Thread (RG, Gauge)



ISO/BSP Tapered Thread (RT)



ISO/BSP Tapered Female Thread (RT)



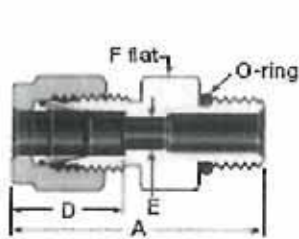
ISO/BSP Tapered Female Thread (RT)

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 Technical Standards & Safety Authority
 Rollers & Pressure Vessels
 Safety Program

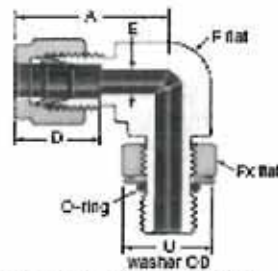
Swagelok

Canadian Registration Number Submittal #S-TUBEFIT-2019
Category A: Swagelok Carbon Steel Tube Fittings

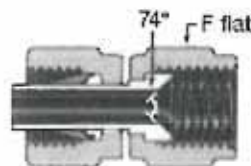
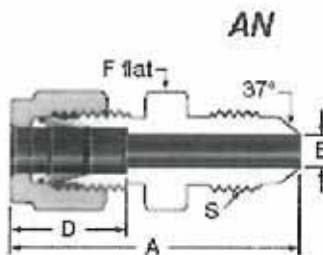
Date: June 18, 2019
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SAE/MS Straight Thread Stud (ST)

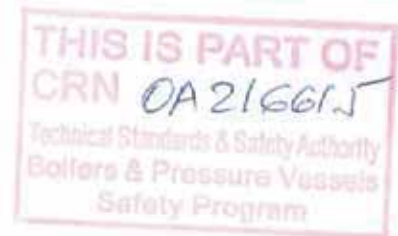


Positionable, SAE/MS Straight Thread (ST)



AN Female

(For dimensions see catalog.)



Product Options:

The product options listed below affect pressure and/or temperature ratings shown in the above Summary Table, but in all cases the ratings are less than those shown in the table.

1. Swagelok Bored-Trough Fittings.
2. RS gaskets:
 - a. Bonded metal-and-elastomer
 - b. Non-bonded stainless steel
 - c. Copper
3. RG gaskets:
 - a. Copper
 - b. Nickel
 - c. PTFE
4. The tapered pipe threads (NPT and ISO-7) sealants.
 - a. Curable resin with PTFE
 - b. PTFE tape

Additional options that do not affect pressure and/or temperature ratings may be made available within the scope of this approval. Examples of these would include the following:

1. Special marking
2. Special cleaning
3. Wire drills
4. bulkhead configurations
5. Snubbers /frits and orifice plates
6. Equivalent metric or fractional hex sizes

Other options, not shown above, with pressure/temperature ratings equal to or less than shown in the Summary Table or do not affect pressure/temperature ratings, are within the scope of this approval.

Quality System

The Swagelok Company quality system complies with the requirements of ISO 9001:2015. The Swagelok Company maintains BSI Certificate of Registration Number FM 01729, which applies to all locations listed on the Certificate.

References

The product catalog does not represent the full scope of the registration but rather details some of the most common options.

- Gaugeable Tube Fittings and Adapter Fittings MS-01-140, Rev Y
- Swagelok Tubing Data Sheet MS-01-107, Rev N



Attachment A. Swagelok Manufacturing Locations

This document lists the Swagelok locations where end item or component level manufacturing activities take place.

Swagelok Company 29500 Solon Road Solon, Ohio 44139 USA	Swagelok Company (Falon 1) 348 Bishop Road Highland Heights, Ohio 44143 USA
Swagelok Company (Highland) 318 Bishop Road Highland Heights, Ohio 44143 USA	Swagelok Company (Falon 2) 358 Bishop Road Highland Heights, Ohio 44143 USA
Swagelok Company (OFC) 29495 F.A. Lennon Drive Solon, Ohio 44139 USA	Swagelok Company (HPF) 6050 Cochran Road Solon, Ohio 44139 USA
Swagelok Company (Atlantic) 26651 Curtiss Wright Parkway Willoughby Hills, Ohio 44092 USA	Swagelok Company (Snow Metal) 6060 Cochran Road Solon, Ohio 44139 USA
Swagelok Company (Micro) 26653 Curtiss Wright Parkway Willoughby Hills, Ohio 44092 USA	Swagelok Company (Alfred) 29500 Ambina Drive Solon, Ohio 44139
Swagelok Hose Services Company (SHSC) 29900 Solon Industrial Parkway Solon, Ohio 44139	Swagelok Company (Strongsville) 15400 Foltz Road Strongsville, Ohio 44119
Swagelok (China) Fluid System Technologies Ltd. Changshu Export Process Zone Changshu Economic Development Zone Changshu, Jiangshu 215513 China	Swagelok Company A.G. (European Technology Center) St. GallerstraBe 84 Lachen, Switzerland 8853 Switzerland
Swagelok Limited Ballafletcher Road Tromode IM4 4RA Isle of Man	

