

TECHNICAL STANDARDS & SAFETY AUTHORITY
345 CARLINGVIEW DRIVE
TORONTO ON M9W 6N9

Date: October 3, 2019
Account #: 35231
Journal #: 74303

Attn: TANYA FRANCIS

Re: Application for Design Registration

The design, as detailed in your, CRN: 0A21661.5, for a Fitting is accepted for registration as follows:

Registered To: SWAGELOK COMPANY **CRN:** 0A21661.51

Drawing #: Scope of Registration

Drawing Revision: N/A

This design was registered based on a technical review performed by the province of initial registration in accordance with the Association of Chief Inspectors policy on reciprocal recognition of design review.

Reviewer's Notes:

As required by CSA B51 4.2.1, this registration expires on 02-Aug-2029. This CRN is valid until the expiry date as long as the Manufacturer maintains a valid quality control program verified by an acceptable third-party agency until that date. Should the certification of the quality control program lapse before the expiry date, this registration shall become void. Any additional conditions of registration stated in TSSA CRN# 0A21661.5 registration shall apply to BC registration.

Contact me if you have any questions. The invoice for registration will be forwarded under separate cover.

Janina Mihailescu

janina.mihailescu@technicalsaftybc.ca
Design Administration

cc:



Technical Standards and Safety Authority
 345 Carlingview Drive
 Toronto, Ontario M9W 6N9
 www.tssa.org

Show facsimile of manufacturer's logo or trademark, as it will appear on the fitting, in the space below

Swagelok

STATUTORY DECLARATION Registration of Fittings

I, Joel Feldman, Vice President of Engineering
(Name and Position, e.g. President, Plant Manager, Chief Engineer)

of Swagelok Company
(Name of Manufacturer)

Located at 29500 Solon Road, Solon, Ohio 44139 USA (440) 248-4600 (440) 349-5970
(Plant Address) (Telephone No.) (Fax No.)

do solemnly declare that the fittings listed hereunder, which are subject to the **Technical Standards and Safety Act**, Boilers and Pressure Vessels Regulation, comply with all of the requirements of ASME B31.1 for unlisted components, and ASME B31.3 for unlisted components
(Title of recognized North American Standard)
 which specifies the dimensions, materials of construction, pressure/temperature ratings, identification marking the fittings and service;

or are not covered by the provisions of a recognized North American standard and are therefore manufactured to comply with _____ as supported by the attached data which identifies the dimensions, material of construction, pressure/temperature ratings and the basis for such ratings, the marking of the fitting for identification and service.

I further declare that the manufacture of these fittings is controlled by a quality system meeting the requirements of ISO 9001:2015 which has been verified by the following authority, BSI

The items covered by this declaration, for which I seek registration, are category A. Fitting type fittings. In support of this application, the following information and/or test data are attached as follows:
ISO 9001:2015 Certificate, Attachment A, Attachment B, Catalog Information and other Support Documents
(drawings, calculations, test reports, etc.)

Declared before me at Solon in the state of Ohio
 the 18th day of July AD 2019.

Commissioner for Oaths:
Brenda Hammel
(Printed name)
Brenda Hammel
(Signature)

Joel C. Feldman
(Signature of Declarer)

FOR OFFICE USE ONLY
 To the best of my knowledge and belief, the application meets the requirements of the **Technical Standards and Safety Act**, Boilers and Pressure Vessels Regulation, and CSA Standard B51 and is accepted for registration in Category A

Technical Standards and Safety Authority
 Boilers and Pressure Vessels Safety Program
REGISTERED
 C.R.N.: 0A21661.5
 Signed: [Signature]
 Date: August 2, 2019

CRN: 0A21661.5
 Registered by: [Signature]
 Dated: August 2, 2019

NOTE: This registration expires on: August 2, 2029

*Information provided in this application is releasable under the Freedom of Information and Privacy Protection Act and may be disclosed upon request. For scope of registration see attached documents A and B.
 PV 09553 (04/17)

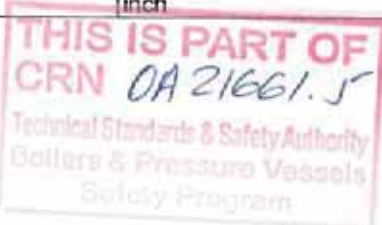
Attachment B. Scope of Registration for Swagelok Carbon Steel Tube Fittings (Category A)

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

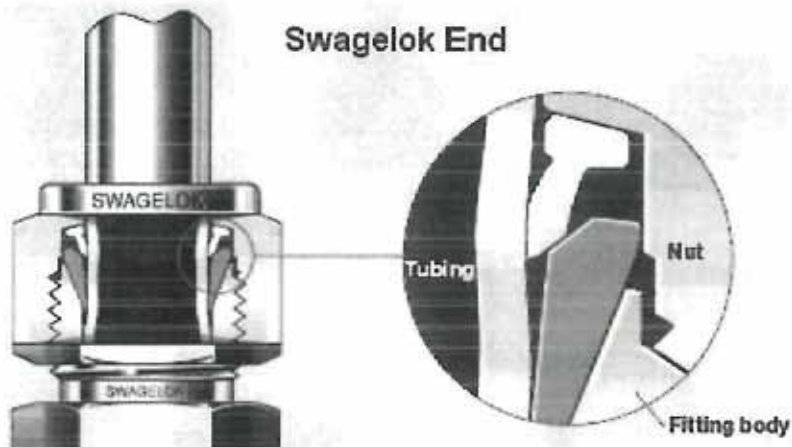
Swagelok

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

Date: June 18, 2019
Page 3 of 6

Product Description

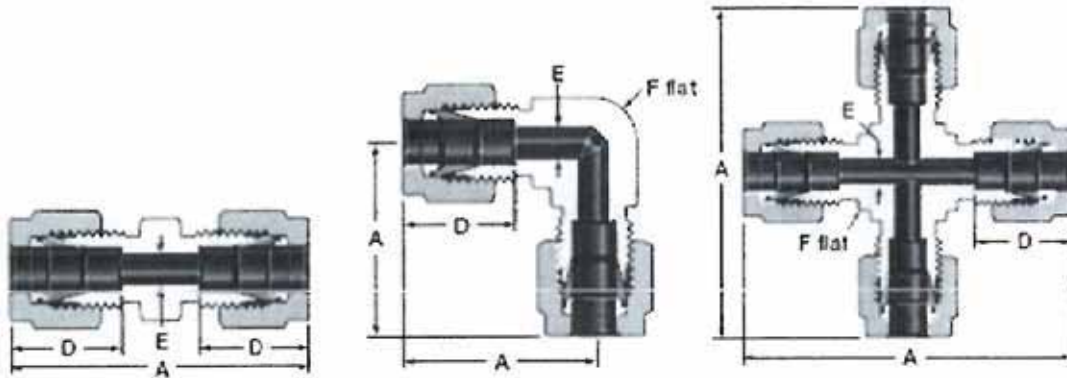
Swagelok Fittings are furnished in a variety of configurations and shapes (straight, elbow, tee or cross). Swagelok Fittings consist of at least one Swagelok End – a two-ferrule mechanical-grip design. The Swagelok end is a proprietary design, and the assembly consists of Swagelok body, nut, front and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



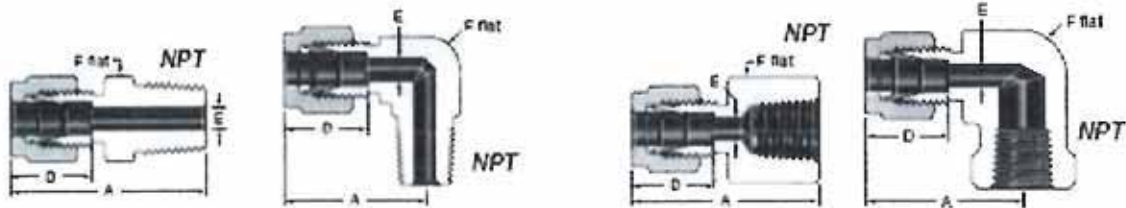
THIS IS PART OF
CRN OA 21661.5
Technical Standards & Safety Authority
Pipes & Pressure Vessels
Safety Program

Configurations

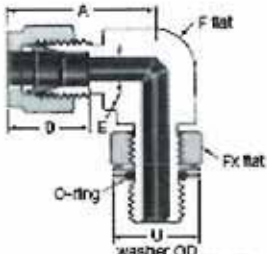
1. Unions.



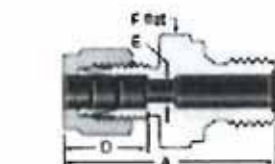
2. Male and Female connectors / adapters.



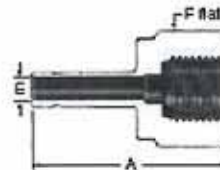
NPT Male Connectors



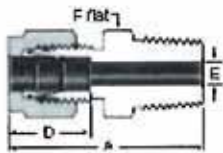
Positionable, ISO/BSP Parallel Thread (PR)



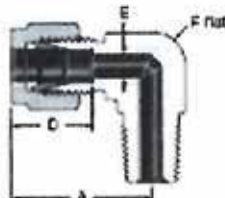
ISO/BSP Parallel Thread (RS)



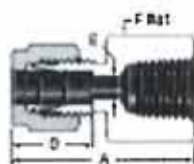
ISO/BSP Parallel Thread (RG, Gauge)



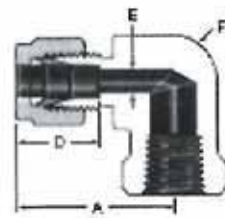
ISO/BSP Tapered Thread (RT)



ISO/BSP Tapered Thread (RT)



ISO/BSP Tapered Female Thread (RT)



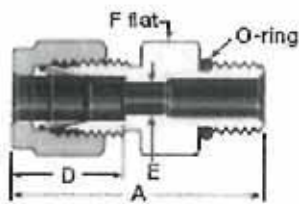
ISO/BSP Tapered Female Thread (RT)

THIS IS PART OF
 CRN 0A21661.5
 Technical Standards & Safety Authority
 Rollers & Pressure Vessels
 Safety Program

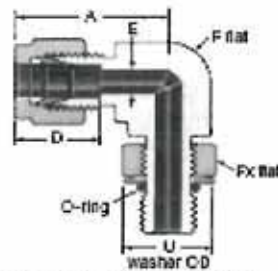
Swagelok

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

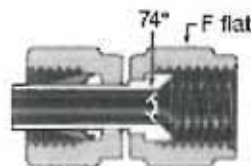
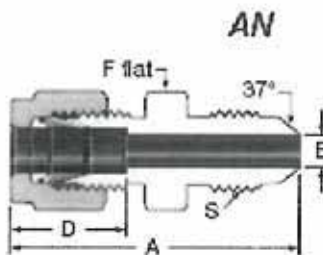
Date: June 18, 2019
Page 5 of 6



SAE/MS Straight Thread Stud (ST)

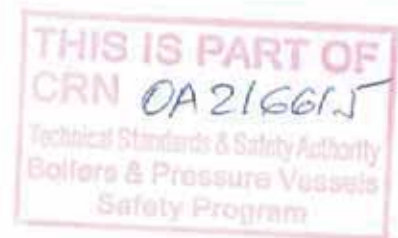


Positionable, SAE/MS Straight Thread (ST)



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	

