

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

Date: May 14, 2020
Account #: 35231
Journal #: 75724

Attn: CECYLIA GARBACZ

Re: Application for Design Registration

The design, as detailed in your, CRN#0A22314.5, for a Fitting is accepted for registration as follows:

Registered To: SWAGELOK COMPANY **CRN:** 0A22314.51

Drawing #: Scope of Registration

Drawing Revision: N/A

Conditions Of Registration:

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.

Scope of Registration: Attachment A and B, Swagelok Alloy 600 tube fittings

Reviewer's Notes:

As required by CSA B51 4.2.1, this registration expires on 03-Apr-2030. 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# 0A22314.5 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 (Plant Address) (440) 248-4600 (Telephone No.) (440) 349-5970 (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 3rd day of October AD 2019.

Commissioner for Oaths:

Brenda Hammel
(Printed name)

Brenda Hammel
(Signature)

[Signature]
(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

CRN: 0A22314.5

Registered by: [Signature]

Dated: APRIL 3, 2020

NOTE: This registration expires on: APRIL 3, 2030

Technical Standards and Safety Authority Boilers and Pressure Vessels Safety Program

REGISTERED

C.R.N.: 0A22314.5

Signed: [Signature]

Date: April 3, 2020.

Scope of registration: Attachment A and B, Swagelok Alloy 600 tube fittings

**Information provided in this application is releasable under the Freedom of Information and Privacy Protection Act and may be disclosed upon request.*



**Attachment B. Scope of Registration for Swagelok Alloy 600
 (ASTM B166, B564) Tube Fittings (Category A)**

This document represents the scope of Swagelok Inconel Alloy 600 Tube Fittings covered by this submission for CRN approval. These Swagelok Tube Fittings have been evaluated in accordance with ASME B31.3 for unlisted components and ASME B31.1 for unlisted components.

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Summary Table

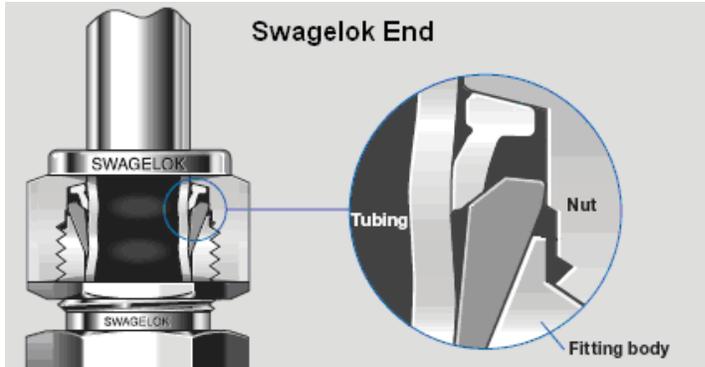
Product Description or Series	Material (Standard)	Port Connections and Sizes	Maximum Allowable Working Pressure		Design Code of Construction
			Up to 100°F	At maximum temperature	
Gaugeable Tube Fittings and Adapter Fittings	Alloy 600 (ASTM B166 / ASTM B564)	Swagelok End Connection 1/4, 3/8, 1/2 inch 6mm, 10mm, 12mm	See Table below	See Table below	ASME B31.1 (Unlisted Components) ASME B31.3 (Unlisted Components)
			NPT Male 1/16 - 1 inch	11 000 – 5300 psig	8800 - 4240 psig @ 900°F (482°C)
		11 000 – 5300 psig		3300 - 1590 psig @ 1000°F (537°C)	ASME B31.3 (Unlisted Components)
		NPT Female 1/16 - 1 inch	6700 – 4400 psig	5360 - 3520 psig @ 900°F (482°C)	ASME B31.1 (Unlisted Components)
			6700 – 4400 psig	2010 - 1320 psig @ 1000°F (537°C)	ASME B31.3 (Unlisted Components)

Alloy 600 Swagelok Tube Fitting Pressure Rating Table

Swagelok End Connection Size	Maximum Allowable Working Pressure		
	Up to 100°F	At maximum temperature 900°F (482°C) ASME B31.1	At maximum temperature 1000°F (537°C) ASME B31.3
1/4	10 200 psig	5814 psig	3570 psig
3/8	6500 psig	3705 psig	2275 psig
1/2	5100 psig	2907 psig	1785 psig
6mm	670 bar	381 bar	234 bar
10mm	380 bar	216 bar	133 bar
12mm	310 bar	176 bar	108 bar

Product Description

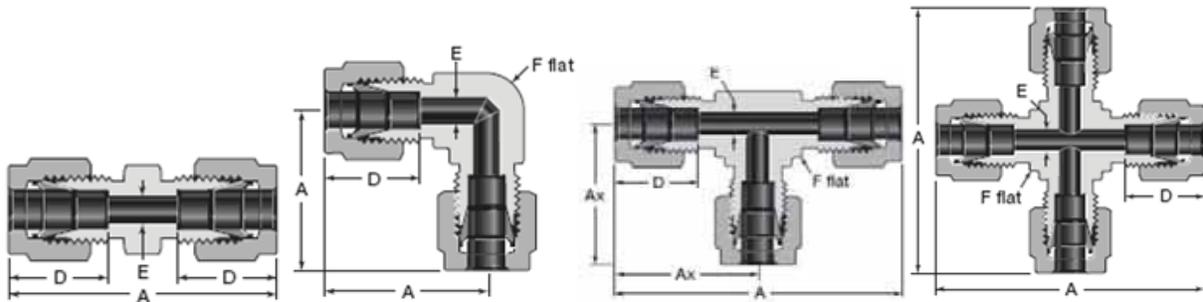
Swagelok Fittings are furnished in a variety of configurations and shapes (straight, elbow, tee or cross). Swagelok Fittings consist of at least one Swagelok End – a proprietary two-ferrule mechanical-grip design. The table below, as well as the “Configurations” section, covers a variety of other end connections.



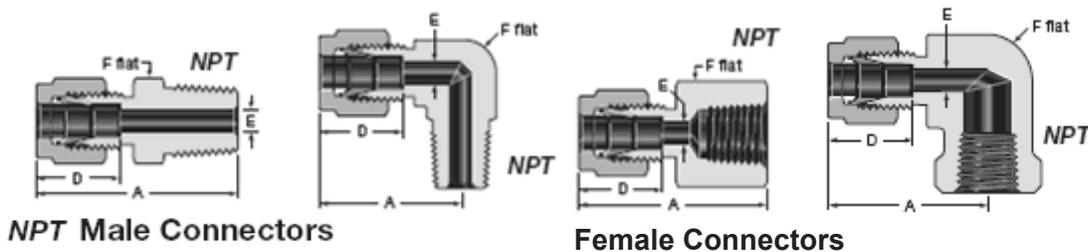
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Configurations

1. Unions.



2. Male and Female connectors / adapters.



Product Options:

Some of the product options listed below affect the pressure-temperature ratings in the “Scope of Registration” section above, but in all cases the pressure ratings are the same or less than those shown in the Summary Table on page 1.

- Tapered pipe thread (NPT) sealant:
 - Curable resin with PTFE
 - PTFE tape
- Bored through fittings
- Plastic ferrules, (Nylon, Teflon, PEEK)

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:

- Special marking
- Special cleaning
- Wire drills
- bulkhead configurations
- Snubbers/frits and orifice plates

All of the above options, those that affect pressure and/or temperature ratings and those that do not, are within the scope of this approval.

Quality System

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

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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.

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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 Limited Ballafletcher Road Tromode IM4 4RA Isle of Man