

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

Date: September 3, 2019
Account #: 35231
Journal #: 74078

Attn: TANYA FRANCIS

Re: Application for Design Registration

The design, as detailed in your, CRN: 0A21487.5, for a Fitting is accepted for registration as follows:

Registered To: SWAGELOK COMPANY **CRN:** 0A21487.51

Drawing #: MS-01-140

Drawing Revision: Y

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 10-Jun-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# 0A21487.5 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. Fittings _____ 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 14th day of March AD 20 19

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

Boilers and Pressure Vessels Safety Program

REGISTERED

C.R.N.: OA21487-5

Signed: [Signature]

Date: June 10, 2019

CRN: OA21487-5

Registered by: [Signature]

Dated: June 10, 2019

NOTE: This registration expires on: June 10, 2029

PV 09553 (06/16)

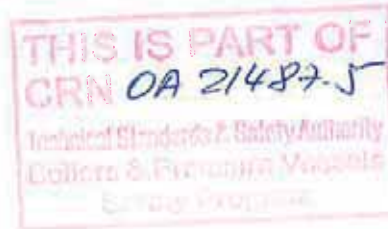
For scope of registration see attached stamped documents: attachment A and B

**Attachment B. Scope of Registration for Swagelok Alloy 400,
 (ASTM B164 / B564), Tube Fittings (Category A)**

This document represents the scope of Swagelok Alloy 400 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.

Summary Table

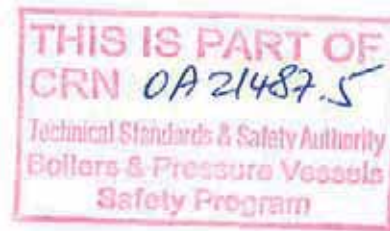
| Product Description or Series | Material | Port Connections and Sizes | Maximum Allowable Working Pressure | | Design Code of Construction |
|--|------------------------------|---|------------------------------------|----------------------------------|----------------------------------|
| | | | Up to 100°F | At maximum temperature | |
| Gaugeable Tube Fittings and Adapter Fittings | Alloy 400 (ASTM B164 / B564) | Swagelok tube fitting 1/8 – 1 inch 6mm - 25mm | See Table on Page 2 | See Table on Page 2 | ASME B31.3 (Unlisted Components) |
| | | NPT Male 1/16 - 1 inch | 9200-4400 psig | 6900 – 3300 psig @ 800°F (426°C) | |
| | | NPT Female 1/16 - 1 inch | 5600-3700 psig | 4200 – 2775 psig @ 800°F (426°C) | |



Alloy 400 Swagelok Tube Fitting Pressure Rating Table

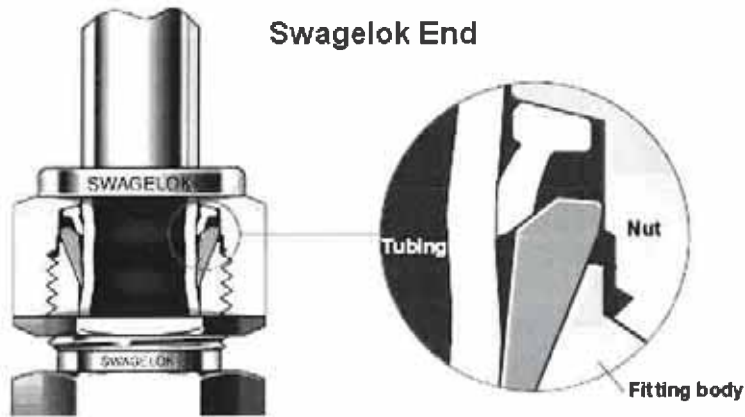
| Swagelok End Connection Size | Maximum Allowable Working Pressure (1) | |
|------------------------------|--|--------------------------------------|
| | Up to 100°F | At maximum temperature 800°F (426°C) |
| 1/8 | 10,100 psig | 7575 psig |
| 3/16 | 9500 psig | 7125 psig |
| 1/4 | 9500 psig | 7125 psig |
| 5/16 | 7300 psig | 5475 psig |
| 3/8 | 6100 psig | 4575 psig |
| 1/2 | 4400 psig | 3300 psig |
| 5/8 | 5600 psig | 4200 psig |
| 3/4 | 4600 psig | 3450 psig |
| 7/8 | 4500 psig | 3375 psig |
| 1" | 4300 psig | 3225 psig |
| 6 mm | 620 bar | 465 bar |
| 8 mm | 450 bar | 337.5 bar |
| 10 mm | 350 bar | 262.5 bar |
| 12 mm | 290 bar | 217.5 bar |
| 14 mm | 270 bar | 202.5 bar |
| 15 mm | 330 bar | 247.5 bar |
| 16 mm | 320 bar | 240 bar |
| 18 mm | 300 bar | 225 bar |
| 20 mm | 290 bar | 217.5 bar |
| 22 mm | 310 bar | 232.5 bar |
| 25 mm | 290 bar | 217.5 bar |

Note (1): Values based on thickest wall alloy 400 tubing per Swagelok Tubing Data Sheet MS-01-107.



Product Description

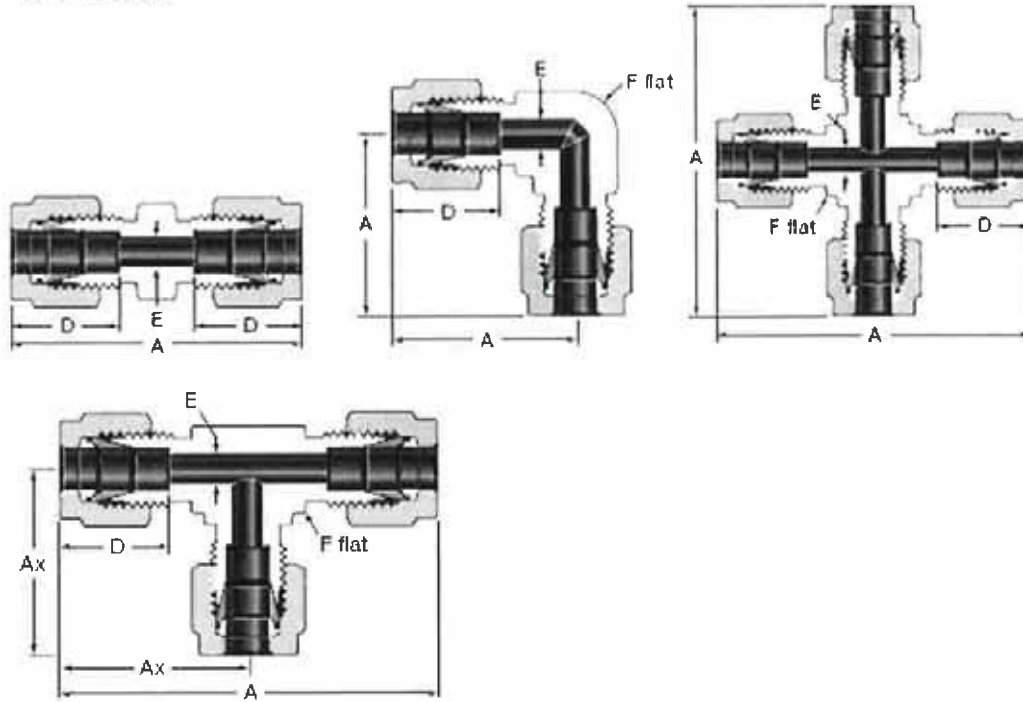
Swagelok Fittings are furnished in a variety of configurations and shapes (straight, elbow, tee or cross). Swagelok Fittings consist of at least one Swagelok End – a proprietary two-ferrule mechanical-grip design. The “Configurations” section covers other available end connections.



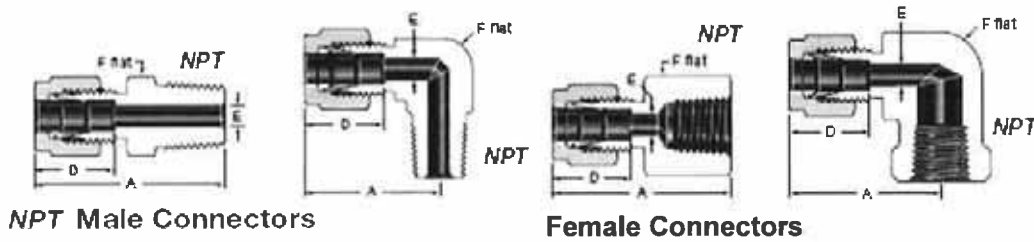
THIS IS PART OF
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Technical Standards & Safety Agency
Collars & Pressure Vessels
Safety Program

Configurations

1. Unions.



2. Male and Female connectors / adapters.



THIS IS PART OF
CRN 0A 21487.5
Technical Standards & Safety Authority
Boilers & Pressure Vessels
- Safety Program

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 table.

1. Tapered pipe threads (NPT) with sealant.
 - a. Curable resin with PTFE
 - b. PTFE tape
2. Bored through fittings
3. 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:

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 may be made available under 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 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 Q



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 Limited Ballafletcher Road Tromode IM4 4RA Isle of Man |

