Technical Safety Authority of Saskatchewan

2202 2nd Avenue
Regina, SK S4R 1K3 Canada
1 (866) 530-8599
info@tsask.ca
www.tsask.ca

REGISTRATION OF A PRESSURE FITTING DESIGN

05-May-23

TSSA
345 Carlingview Drive
Toronto, Ontario
M9W 6N9

Attention: Tanya Francis **File Number: 13617 [0 F]**

Re: Manufacturer: Swagelok Company
Item: FX Series Hose Assemblies
Catalog or Drawing: Per Swagelok Scope of Registration (Attachment B - June 9, 2022)

TSASK Codes and Standards Compliance has registered the design listed above in accordance with The Boiler and Pressure Vessel Act and Regulations and CSA B51. The Canadian Registration Number (CRN) is:

0C20522.53 **Expiry Date: July 11, 2028**

Please note that every fitting shall be constructed in strict accordance with the registered design.

Fitting registrations are required to be resubmitted for validation after ten (10) years from the registration date in accordance with CSA B51, Clause 4.2.1.

Should you require anything further, please do not hesitate to contact the Codes and Standards Compliance Office at your convenience.

Yours truly,

Athan Syrgiannis, P.Eng.
Codes and Standards Compliance

Remarks:
A valid quality control program must be maintained at the production facilities for the fitting registration to remain valid until the expiry date.

See Attachment A for list of manufacturing locations and Attachment B for Scope of Registration.

Previously registered in Saskatchewan through CSA.

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Statutory Declaration (Registration of Fittings)

TSK-1008

I. Declaration Information

I, Joel Feldman ,

Vice President, Engineering
(company title, e.g. vice president, plant manager, chief engineer)
(must be in a position of authority in the manufacturing plant where the fitting is produced)

of: Swagelok Company
(name of manufacturer)

In this space, show facsimile of manufacturer's logo or trademark as it will appear on the fitting.

Swagelok

located at: Headquarters: 29500 Solon Road (Plant Address – Apt/Street) Solon, Ohio (City,Prov) 44139 USA (Postal Code)

do solemnly declare that the fittings listed hereinunder, which are subject to the ***Saskatchewan Boiler and Pressure Vessel Safety Act*** (check one)

- (●) Comply with the requirements of ASME B31.3 and ISO 10380 (title of recognized North American Standard) which specifies the dimensions, Materials of construction, pressure / temperature ratings and identification marking of the fittings, 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, materials of construction, pressure / temperature ratings and the basis for such ratings, and the marking of the fittings for identification.

I further declare that the manufacturer of these fittings is controlled by a quality control program which has been verified by the following authority, BSI as being suitable for the manufacturer of these fittings to the stated standard. The fittings covered by this declaration, for which I seek registration, are Category D. Hose

In support of this application, the following information, calculations and / or test data are attached:

ISO 9001:2015 Certificate, Attachment A, Attachment B, Catalog Information and other Support Documents

II. Declaration

DECLARED before me at SOLON In the STATE of OHIO

this 31 day of JANUARY , 2023

JEFFREY C TRUMBULL
(print name)

(Signature)

(Signature of Commissioner of Oaths)

JEFFREY C. TRUMBULL
Notary Public
State of Ohio
Recorded in Lake County
Certificate # 2020-RE-813693
My Commission Expires
April 15, 2025

III. Office Use Only

To the best of my knowledge and belief, the application meets the requirements of the ***Boiler and Pressure Vessel Safety Act*** and CSA B51, Clause 4.2, and is accepted for registration in Category _____

(Date Registered – MM DD YYYY) (Expiry Date – MM DD YYYY)
(For the Administrator / Chief Inspector)

Technical Safety Authority of Saskatchewan

Registration No. 0C20522.53

File No. 13617

Registered

Date: May 5, 2023

Expiry Date: July 11, 2028

Codes & Standards Compliance Office

Attachment B: Scope of Registration for Swagelok FX Series Hose Assemblies (Category D)

Product Scope

The table below represents the scope of Swagelok FX series hose assemblies covered by this submission for CRN approval. These hose assemblies have been evaluated in accordance with ASME B31.3 and ISO 10380. The referenced product catalogues do not represent the full scope of the submission but rather detail some of the most common options.

Summary Table

Product Series	Pressure Retaining Material	End Connection & Sizes	Nom. Hose Size (in.)	Maximum Working Pressure in (Psig)		Design Code of Construction
				@ Min. Temp.	@ Max. Temp.	
FX Series Metal Hose	**Core:** 316L SS (ASTM A240) **Braid:** 321 SS (ASTM A580) Or 316L SS (ASTM A240) **Weld Collar:** 304 SS (ASTM A269) **End Connections:** Strain-Hardened 316 SS (ASTM A479)	Tube Fitting 1/4” – 1/2”, 4-10 mm [TA, TM, SL, SM]	1/4	6000 @ -325°F	4236 @ 1000°F	ASME B31.3, ISO 10380
		NPT Female 1/8” – 1/4” [PF] NPT Male 1/8” – 1/2” [PM] Female VCO Fitting 1/4” Male ISO/BSP Tapered threads (ISO 7) 1/4” – 1/2” [MT] Female ISO/BSP Tapered Threads (ISO 7) 1/4” [FT]		6000 @ -60°F	5640 @ 400°F	
		Male Swivel Nut VCR ¼” [RM] Female VCR Fitting ¼” [RF]		5500 @ -325°F	3883 @ 1000°F	
		Tube Fitting 12mm [TM]		5365 @ -325°F	3787 @ 1000°F	
		NPT Female 3/8” [PF]		5300 @ -60°F	4982 @ 400°F	
		Tube Butt Weld ¼” [TB]		5100 @ -325°F	3600 @ 1000°F	
		NPT Female ½” [PF]		4900 @ -60°F	4606 @ 400°F	
		Tube Butt Weld ½” [TB]		3700 @ -325°F	2612 @ 1000°F	
		Male Swivel Nut VCR 1/2” [RM] Female VCR Fitting 1/2” [RF]		3000 @ -325°F	2118 @ 1000°F	

Technical Safety Authority of Saskatchewan

Registration No. 0C20522.53

File No. 13617

Registered

Date: May 5, 2023

Expiry Date: July 11, 2028

Codes & Standards Compliance Office

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Product Series	Pressure Retaining Material	End Connection & Sizes	Nom. Hose Size (in.)	Maximum Working Pressure in (Psig)		Design Code of Construction
				@ Min. Temp.	@ Max. Temp.	
FX Series Metal Hose	**Core:** 316L SS (ASTM A240) **Braid:** 321 SS (ASTM A580) or 316L SS (ASTM A240) **Weld Collar:** 304 SS (ASTM A269) **End Connections:** Strain-Hardened 316 SS (ASTM A479)	Tube Fitting 1/4" – 1/2", 4-12 mm [TA, TM, SL, SM] Female VCO Fitting 1/2" [VF] Male Swivel Nut VCR ¼" [RM] Female VCR Fitting ¼" [RF]	**3/8**	5000 @ -325°F	3530 @ 1000°F	ASME B31.3, ISO 10380
		NPT Female 1/4" – 1/4" [PF] NPT Male 1/4" – 1/2" [PM] Male ISO/BSP Tapered threads (ISO 7) 1/4" – 3/8" [MT]		5000 @ -60°F	4700 @ 400°F	
		NPT Female ½" [PF]		4900 @ -60°F	4606 @ 400°F	
		Tube Butt Weld 1/2" [TB]		3700 @ -325°F	2612 @ 1000°F	
		Tube Butt Weld 3/8" [TB]		3300 @ -325°F	2329 @ 1000°F	
		Male Swivel Nut VCR 1/2" [RM] Female VCR Fitting 1/2" [RF]		3000 @ -325°F	2118 @ 1000°F	
		Tube Fitting 1/4" – 3/4", 6-18 mm [TA, TM, SL, SM] Male Swivel Nut VCR 1/4" [RM] Female VCR Fitting 1/4" [RF] Female VCO Fitting 1/2" [VF]	**1/2**	4500 @ -325°F	3177 @ 1000°F	
		NPT Female 3/8-1/2" [PF] NPT Male 1/4" – 3/4" [PM] Female VCO Fitting 1/4" Male ISO/BSP Tapered threads (ISO 7) 3/8" – 1/2" [MT] Female ISO/BSP Tapered Threads (ISO 7) 1/2" [FT]		4500 @ -60°F	4230 @ 400°F	
		NPT Female 1" [PF]		4400 @ -60°F	4092 @ 400°F	
		Tube Butt Weld ½" [TB]		3700 @ -325°F	2612 @ 1000°F	
		Male Swivel Nut VCR 1/2" [RM] Female VCR Fitting 1/2" [RF]		3000 @ -325°F	2118 @ 1000°F	
		Male Swivel Nut VCR 3/4" [RM] Female VCR Fitting 3/4" [RF]		2800 @ -325°F	1976 @ 1000°F	

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Product Series	Pressure Retaining Material	End Connection & Sizes	Nom. Hose Size (in.)	Maximum Working Pressure in (Psig)		Design Code of Construction
				@ Min. Temp.	@ Max. Temp.	
FX Series Metal Hose	**Core:** 316L SS (ASTM A240) **Braid:** 321 SS (ASTM A580) Or 316L SS (ASTM A240) **Weld Collar:** 304 SS (ASTM A269) **End Connections:** Strain-Hardened 316 SS (ASTM A479)	Tube Fitting 1/2" – 1", 12-20 mm [TA, TM, SL, SM] Female VCO Fitting 1/2" – 3/4" [VF]	3/4	3600 @ -325°F	2541 @ 1000°F	
		NPT Female 1/2"-3/4" [PF] NPT Male 1/2" – 1" [PM] Female VCO Fitting 1/4" Male ISO/BSP Tapered threads (ISO 7) 1/2"-1" [MT] Female ISO/BSP Tapered Threads (ISO 7) 3/4"-1" [FT]	3/4	3600 @ -60°F	3384 @ 400°F	
		Male Swivel Nut VCR 1/2" [RM] Female VCR Fitting 1/2"-1" [RF]	3/4	3000 @ -325°F	2118 @ 1000°F	
		Male Swivel Nut VCR 5/8"-3/4" [RM] Female VCR Fitting 3/4" [RF]	3/4	2800 @ -325°F	1976 @ 1000°F	
		Tube Butt Weld 3/4"-1" [TB]	3/4	2400 @ -325°F	1694 @ 1000°F	
		Tube Fitting 1/2" – 1-1/4", 16-28 mm [TA, TM, SL, SM] Male Swivel Nut VCR 1" [RM] Female VCR Fitting 1" [RF] Female VCO Fitting 1" [VF]	1	3000 @ -325°F	2118 @ 1000°F	
		NPT Female 1" [PF] NPT Male 1/2" – 1" [PM] Female VCO Fitting 1/4" Male ISO/BSP Tapered threads (ISO 7) 1" [MT] Female ISO/BSP Tapered Threads (ISO 7) 1" [FT]	1	3000 @ -60°F	2820 @ 400°F	
		Male Swivel Nut VCR 3/4" [RM] Female VCR Fitting 3/4" [RF]	1	2800 @ -325°F	1976 @ 1000°F	
		Tube Butt Weld 3/4"-1" [TB]	1	2400 @ -325°F	1694 @ 1000°F	

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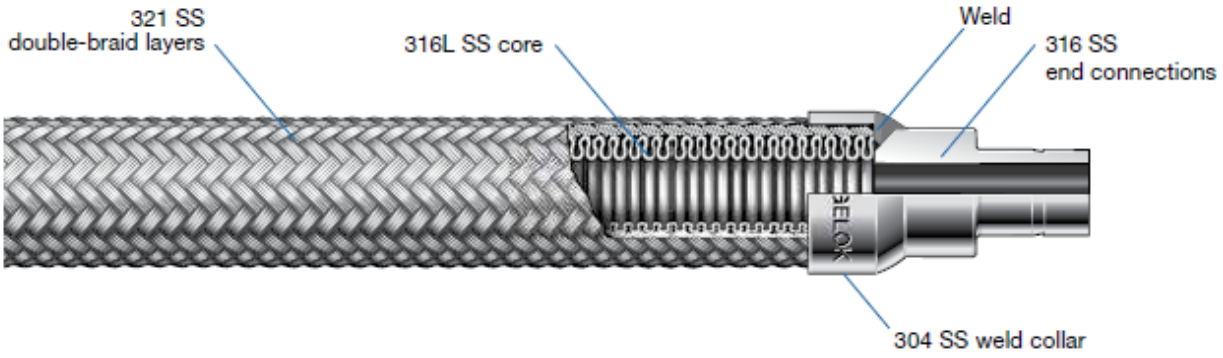
Product Series	Pressure Retaining Material	End Connection & Sizes	Nominal Hose Size (in.)	Maximum Working Pressure in (Psig)		Design Code of Construction
				@ Min. Temp.	@ Max. Temp.	
FX Series Metal Hose	**Core:** 316L SS (ASTM A240) **Braid:** 321 SS (ASTM A580) or 316L SS (ASTM A240) **Weld Collar:** 304 SS (ASTM A269) **End Connections:** Strain-Hardened 316 SS (ASTM A479)	Tube Fitting 1-1/4" – 1-1/2", 28-32 mm [TA, TM, SL, SM]	1-1/4	2600 @ -325°F	1835 @ 1000°F	ASME B31.3, ISO 10380
		NPT Female 1-1/4" [PF] NPT Male 1" – 1-1/4" [PM] Male ISO/BSP Tapered threads (ISO 7) 1-1/4" [MT]		2600 @ -60°F	2444 @ 400°F	
		Tube Butt Weld 1-1/4" [TB]		2400 @ -325°F	1694 @ 1000°F	
		Tube Fitting 1-1/2", 38 mm [TA, TM, SL, SM] Tube Butt Weld 1-1/2" [TB]	1-1/2	2200 @ -325°F	1553 @ 1000°F	
		NPT Female 1-1/2" [PF] NPT Male 1" – 1-1/2" [PM] Male ISO/BSP Tapered threads (ISO 7) 1-1/2" - 2" [MT]		2200 @ -60°F	2068 @ 400°F	
		Tube Fitting 2" [TA, SL] Tube Butt Weld 2" [TB]	2	1675 @ -325°F	1182 @ 1000°F	
		NPT Male 1-1/2" – 2" [PM] Male ISO/BSP Tapered threads (ISO 7) 2" [MT]		1675 @ -60°F	1574 @ 400°F	

Product Illustration

All end connections are welded onto the hose using weld collars.



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Product Options:

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:

Braid Options
- 316L SS

Cover Options
- Armor guard - Interlocking, flexible 302 stainless steel.
- Fire jacket - Woven fiberglass coated with specially compounded aerospace-grade silicone rubber
- Thermosleeve - Braided fiberglass with saturated synthetic material coating.

Tag and Marking Options
- Mat tag - Polyester tag with customer-specified text
- Lanyard tag - Stainless steel tag with customer-specified text
- Clamp tag - Stainless steel tag with customer-specified text

End Connection Seals or Sealant Options
- VCO - O-rings
- VCR - Gasket
- Pipe Thread ends - thread sealant

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. The Swagelok FX series hose assemblies are manufactured at Hose Master and at Swagelok Company location in Solon, Ohio.

References

The product catalog does not represent the full scope of the registration but rather details some of the most common options.
- Hose Assemblies, Bulk Hose, and End Connections Product Catalog MS-01-180

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