

Statutory Declaration Registration of Fittings

(a) Design Qualification

I¹ Joel Feldman
Vice President, Engineering
(Position eg, president, plant manager, chief eng.)

Of Swagelok Company
(name of company)

Located at Headquarters: 29500 Solon Road, Solon, Ohio 44139 USA (See Attachment A)
(plant address)

do solemnly declare that the fittings listed hereunder, which are subject to the Boilers & Pressure Vessels Act:

- comply with all the requirements of the ANSI/ASME codes as to their dimensions, material, identification & service for which are required:
 Or
 are not covered by the provisions of the ANSI/ASME codes, and are therefore constructed to comply with _____
 _____ code and standard, and are designed to the best current engineering practice, as shown by the supporting test data.

(b) Quality control of Manufacture

I further declare the manufacture of these fittings is controlled by a quality control program which complies with the requirements of ISO 9001:2015, and has been verified by the following authority or authorized agency BSI

The fittings² covered by this declaration, for which I seek registration, are Category D. Hose

In support of the 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


Declared before me at Salon

In the of state of Ohio

The 18th Day of July AD 20 19

Burda Hammel
A [commissioner for oaths]

Joel C. Feldman
Signature of Declarer³

For Official Use Only	
The application is accepted for registration in Category _____ in accordance with the Boil _____ and CSA Standard B51.	
This registration must be revalidated after ten (10) years from the date of acceptance.	
Registered Number CRN _____	For the Chief Inspector _____ Date _____

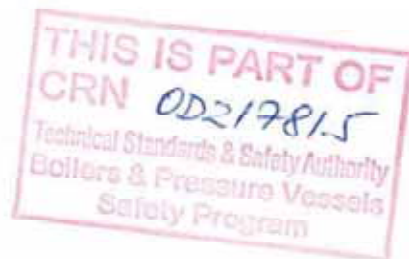
1 **Three completed copied of Statutory Declaration form together with three copies of Catalogs, drawings of Bulletins illustrating above fittings shall be submitted.**
 2 **All fittings are required to be registered in the name of the Manufacturer.**
 3 **This form shall be completed and signed by the president of highest official in the manufacturing plan where the fitting is produced.**

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

The table below represents the scope of Swagelok FM series hose assemblies covered by this submission for CRN approval. These hose assemblies have been evaluated in accordance with ASME B31.3:2016 Process Piping as unlisted components. The referenced port connections and product catalog(s) 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	Nom. Hose Size (in)	End Connections & Sizes	Maximum Working Pressure (psig)		Design Code of Construction
				Up to 100°F	@ Max. Temp.	
FM Series Metal Hose	Core 316L SS (ASTM A240) Braid 316L SS (ASTM A580) End Connections Strain-Hardened 316 SS, 316L SS, or 316LV SS (ASTM A479)	1/4	Tube Fitting [TA, TM, SL, SM] 1/4" – 1/2" (6mm – 10mm) Male & Female VCR Metal Gasket Face Seal Fittings [RM, RF] 1/4" – 1/2" SAE 37° (JIC) Female Swivel [AS] 1/4" – 3/8" Tube Butt Welds [TB] 1/4"	3100	1736 @850°F	ASME B31.3 (Unlisted Components)
			Female VCO O-Ring Face Seal Fittings [VF] 1/4"	3100	2015 @500°F	
			Male & Female Pipe Threads, NPT [PM, PF] 1/4" – 1/2" ISO/BSP Tapered (ISO 7) [MT][FT] 1/4" – 1/2"	3100	2170 @400°F	



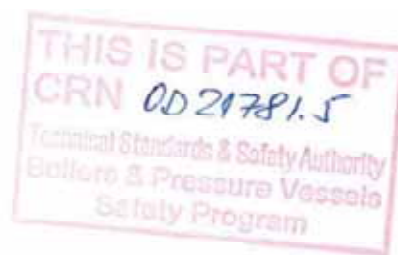
Summary Table (cont'd)

Product Series	Pressure Retaining Material	Nom. Hose Size (in)	End Connections & Sizes	Maximum Working Pressure (psig)		Design Code of Construction				
				Up to 100°F	@ Max. Temp.					
FM Series Metal Hose	<u>Core</u> 316L SS (ASTM A240) <u>Braid</u> 316L SS (ASTM A580) <u>End Connections</u> Strain-Hardened 316 SS, 316L SS, or 316LV SS (ASTM A479)	3/8	Tube Fitting [TA, TM, SL, SM] 1/4" – 1/2" (6mm – 10mm) Male & Female VCR Metal Gasket Face Seal Fittings [RM, RF] 1/4" – 1/2" SAE 37° (JIC) Female Swivel [AS] 3/8" – 1/2" Tube Butt Welds [TB] 3/8" – 1/2"	2000	1120 @850°F	ASME B31.3 (Unlisted Components)				
			Female VCO O-Ring Face Seal Fittings [VF] 3/8"				2000	1300 @500°F		
			Male & Female Pipe Threads, NPT [PM, PF] 1/4" – 1/2"				2000	1400 @400°F		
				1/2	Tube Fitting [TA, TM, SL, SM] 1/4" – 3/4" (6mm – 18mm) Male & Female VCR Metal Gasket Face Seal Fittings [RM, RF] 1/4" – 3/4" SAE 37° (JIC) Female Swivel [AS] 1/2" – 5/8" Tube Butt Welds [TB] 1/2"		1800	1008 @850°F		
					Female VCO O-Ring Face Seal Fittings [VF] 1/2"				1800	1170 @500°F
					Male Pipe Threads, NPT [PM] 1/4" – 3/4"				1800	1260 @400°F
	Female Pipe Threads, NPT [PF] 3/8" – 1/2"									
	ISO/BSP Tapered (ISO 7) [MT][FT] 3/8" – 1/2"									



Summary Table (cont'd)

Product Series	Pressure Retaining Material	Nom. Hose Size (in)	End Connections & Sizes	Maximum Working Pressure (psig)		Design Code of Construction
				Up to 100°F	@ Max. Temp.	
FM Series Metal Hose	Core 316L SS (ASTM A240) Braid 316L SS (ASTM A580) End Connections Strain-Hardened 316 SS, 316L SS, or 316LV SS (ASTM A479)	3/4	Tube Fitting [TA, TM, SL, SM] 1/2" – 1" (12mm – 25mm)	1500	840 @850°F	ASME B31.3 (Unlisted Components)
			Male VCR Metal Gasket Face Seal Fittings [RM] 1/2" – 3/4"			
			Female VCR Metal Gasket Face Seal Fittings [RF] 1/2" – 1"			
			SAE 37° (JIC) Female Swivel [AS] 3/4"	1500	975 @500°F	
			Tube Butt Welds [TB] 3/4"			
Female VCO O-Ring Face Seal Fittings [VF] 1/2" – 3/4"	1500	1050 @400°F				
Male Pipe Threads, NPT [PM] 1/2" – 1"						
Female Pipe Threads, NPT [PF] 1/2" – 3/4"						
			ISO/BSP Tapered (ISO 7) [MT][FT] 3/4" – 1"			



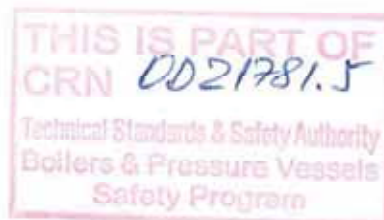
Summary Table (cont'd)

Product Series	Pressure Retaining Material	Nom. Hose Size (in)	End Connections & Sizes	Maximum Working Pressure (psig)		Design Code of Construction
				Up to 100°F	@ Max. Temp.	
FM Series Metal Hose	Core 316L SS (ASTM A240) Braid 316L SS (ASTM A580) End Connections Strain-Hardened 316 SS, 316L SS, or 316LV SS (ASTM A479)	1	Tube Fitting [TA, TM, SL, SM] 1/2" – 1" (16mm – 25mm) Male & Female VCR Metal Gasket Face Seal Fittings [RM, RF] 1" SAE 37° (JIC) Female Swivel [AS] 1" Tube Butt Welds [TB] 3/4" – 1"	1200	672 @850°F	ASME B31.3 (Unlisted Components)
			Female VCO O-Ring Face Seal Fittings [VF] 1"			
			Male Pipe Threads, NPT [PM] 1/2" – 1"	1200	840 @400°F	
			Female Pipe Threads, NPT [PF] 1"			
ISO/BSP Tapered (ISO 7) [MT][FT] 1"						



Summary Table (cont'd)

Product Series	Pressure Retaining Material	Nom. Hose Size (in)	End Connections & Sizes	Maximum Working Pressure (psig)		Design Code of Construction		
				Up to 100°F	@ Max. Temp.			
FM Series Metal Hose	Core 316L SS (ASTM A240) Braid 316L SS (ASTM A580) Weld Collar Strain-Hardened 316 SS (ASTM A479) End Connections Strain-Hardened 316 SS, 316L SS, or 316LV SS (ASTM A479)	1 1/4	Tube Fitting [TA, TM, SL, SM] 1 1/4" (32mm)	950	532 @850°F	ASME B31.3 (Unlisted Components)		
			Male Pipe Threads, NPT [PM] 1" – 1 1/4"	950	665 @400°F			
			Female Pipe Threads, NPT [PF] 1 1/4"					
				1 1/2	ISO/BSP Tapered (ISO 7) [MT][FT] 1 1/4"			
					Tube Fitting [TA, TM, SL, SM] 1 1/2" (38mm)		900	504 @850°F
					Male Pipe Threads, NPT [PM] 1" – 1 1/2"		900	630 @400°F
			Female Pipe Threads, NPT [PF] 1 1/2"					
				ISO/BSP Tapered (ISO 7) [MT][FT] 1 1/2" – 2"				
			2	Tube Fitting [TA, TM, SL, SM] 2" (50mm)	500		280 @850°F	
				Male Pipe Threads, NPT [PM] 1 1/2" – 2"	500		350 @400°F	
				Female Pipe Threads, NPT [PF] 2"				
				ISO/BSP Tapered (ISO 7) [MT][FT] 2"				



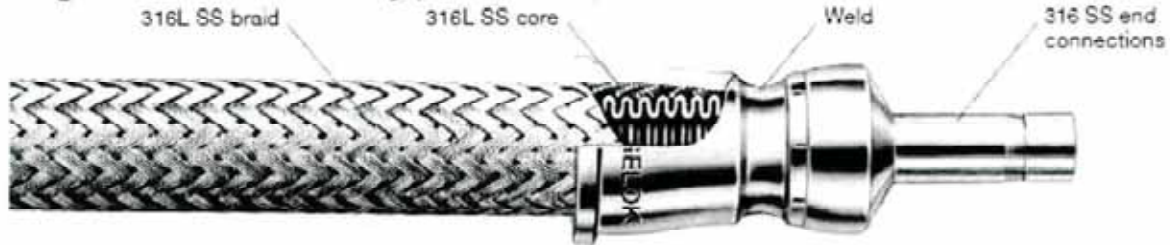
Swagelok

Canadian Registration Number Submittal
 Category D Submission # FM-HOSE-2019

September 4, 2019
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Product Illustration

Swagelok FM Series Assembly (1" and under)



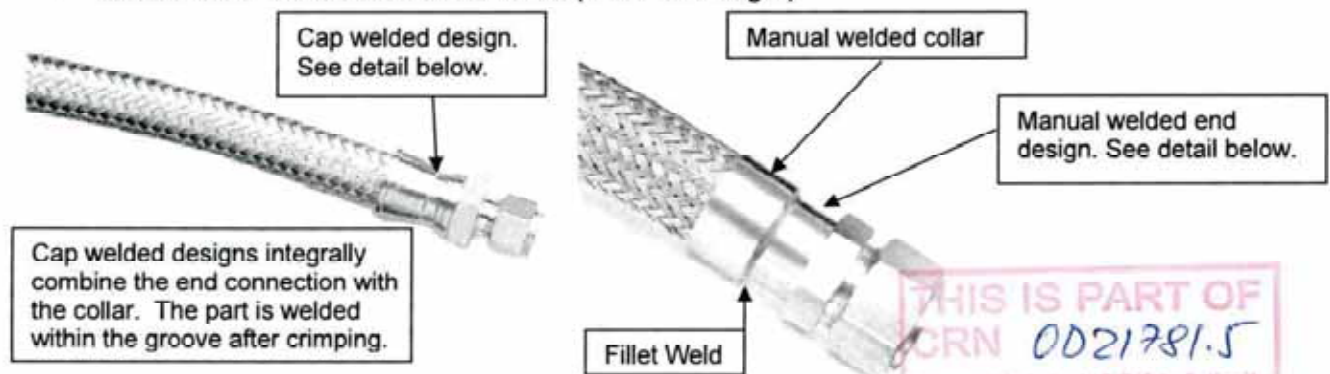
Swagelok FM Series Assembly (1 1/4" and larger)



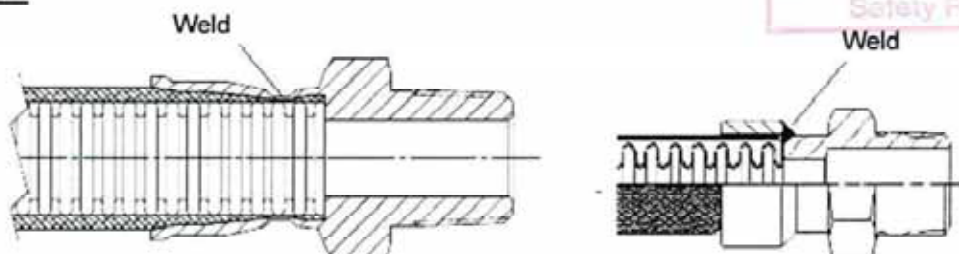
Configuration Example:

FM hoses are available in two styles with many end types, end sizes, and possible overall lengths. There are two ways the hose end connections are attached to the tube and braid depending on the size of the hose:

- Gas Tungsten Arc Weld (GTAW) Cap Weld with Integral Weld Collar (1" and under)
- Manual Weld with Manual Weld Collar (1 1/4" and larger)



Weld Detail:



Product Options:

Additional options and non-pressure boundary alterations that do not affect pressure ratings may be made available within the scope of this approval. Examples of these would include, but are not limited to:

- Cover Options (ex. fire jacket, thermosleeve, spring guard, etc.)
- Tag and Marking Options (ex. tags, lanyards, retaining clamps, etc.)
- Special Testing Options (ex. hydrostatic pressure test, inboard helium leakage test, nitrogen leak test, etc.)
- Other Options (ex. traceable certificates for product)

Additional options that may affect pressure and/or temperature ratings may be made available within the scope of this approval. Examples of these would include the following:

- End Connection Seals or Sealant Options (ex. VCO O-rings, VCR gaskets, pipe thread sealant, etc.)

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 below 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, Rev. S



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

