

UNIFORM STATUTORY DECLARATION FORM FOR THE REGISTRATION OF FITTING DESIGNS

NEW BRUNSWICK
NUNAVUT

NOVA SCOTIA
YUKON

PRINCE EDWARD ISLAND
NORTHWEST TERRITORIES

NEWFOUNDLAND AND LABRADOR

MANUFACTURERS NAME: <u>Swagelok Company</u>	
MANUFACTURERS ADDRESS: <u>29500 Solon Road, Solon, Ohio 44139 USA</u>	
PLANT LOCATIONS: <u>Headquarters: 29500 Solon Road, Solon, Ohio 44139 USA (See Attachment A)</u>	
<p align="center">CATEGORY OF FITTINGS TO BE REGISTERED. CIRCLE ONE CATEGORY ONLY</p> <p>A Pipe fittings, including couplings, tees, elbows, Ys, plugs, unions, pipe caps, or reducers B Flanges: all flanges C Valves: all line valves <input checked="" type="radio"/> D Expansion joints, flexible connections, and hose assemblies: all types E Strainers, filters, separators, and steam traps F Measuring devices, including pressure gauges, level gauges, sight glasses, levels, or pressure transmitters G Certified capacity-rated pressure relief devices acceptable as primary over pressure protection on boilers, pressure vessels, piping and fusible plugs H Pressure retaining components that do not fall into one of the above categories N Nuclear components: Class 1 <input type="checkbox"/> Class 2 <input type="checkbox"/> Class 3 <input type="checkbox"/>, (Meeting AECB or ASME requirements)</p>	<p align="center">TITLE OF THE STANDARD OF CONSTRUCTION</p> <p align="center">ASME B31.3 for unlisted components</p>
SHOW MANUFACTURERS NAME, TRADEMARK, OR LOGO AS IT WILL APPEAR ON THE PRODUCT	
Swagelok	<p align="center">TYPE OF CONSTRUCTION</p> <p>FORGED <input type="checkbox"/> WELDED <input type="checkbox"/> WROUGHT <input checked="" type="checkbox"/> CAST <input type="checkbox"/> OTHER <input type="checkbox"/> DESCRIBE OTHER:</p>
<p>LIST OF SUPPORTING DOCUMENTATION AND IDENTIFICATION OF THE ACTUAL ITEMS TO BE REGISTERED:</p> <p>ISO 9001:2015 Certificate, Attachment A, Attachment B, Catalog Information and other Support Documents</p>	

DECLARATION:

I Joel Feldman, Vice President, Engineering (see note 2) employed by Swagelok Company and being the person having full authority and responsibility for the quality of the end product do solemnly declare that the information contained in this form is true and to the best of my knowledge represents the product for which registration is sought. The dimensions, materials of construction, pressure temperature ratings, and identification markings are in accordance with the herein named standards. I further declare that the manufacture of these fittings is regulated by a Quality Control Program which extends to each plant where fabrication occurs in whole or in part and has been verified by BSI as being suitable for that purpose and I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath.

Signature of Declarer: *Joel C. Feldman*
 Declared before me at Solon, Ohio
 This 18th day of July AD 2019
 Commissioner of Oaths or Notary Public: (sign) *Brenda Hannel*
 (Affix Official seal to the right)

USE THIS SPACE FOR OFFICIAL SEAL



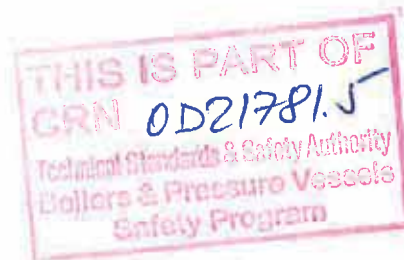
This space for Regulatory Authority use This registration must be revalidated after ten (10) years from the date of acceptance.	
CRN: <u>0D21781.5</u>	
FID#: <u>1214</u>	
FM SERIES HOSE ASSEMBLIES Notes: 1. All fittings shall be registered in the name of the Manufacturer. 2. Each category shall be supported with two Statutory Declaration forms and one copy of supporting documentation. 3. The declaration shall be made by the person having full authority and responsibility for the quality of the end product. 4. Quality control programs shall be resubmitted for validation at a maximum interval of five (5) years. CRN EXPIRES <u>SEPT. 15, 2029 - D.G.</u>	

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	



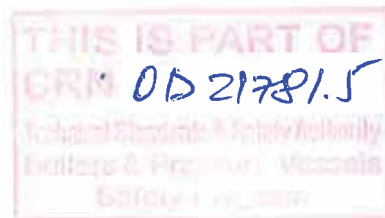
Summary Table (cont'd)

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
			ISO/BSP Tapered (ISO 7) [MT][FT] 3/8"					
			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"					
		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"						

THIS IS PART OF
 CRN 0D21781.5
 Technical Standards & Safety Authority
 Lulworth & Proctor Vascular
 Safety Products

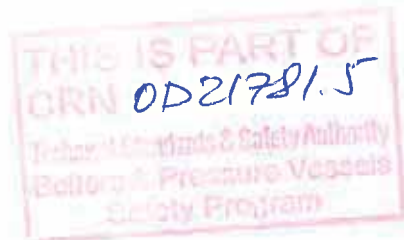
Summary Table (cont'd)

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"			
			Tube Butt Welds [TB] 3/4"			
			Female VCO O-Ring Face Seal Fittings [VF] 1/2" – 3/4"	1500	975 @500°F	
			Male Pipe Threads, NPT [PM] 1/2" – 1"			
			Female Pipe Threads, NPT [PF] 1/2" – 3/4"	1500	1050 @400°F	
			ISO/BSP Tapered (ISO 7) [MT][FT] 3/4" – 1"			



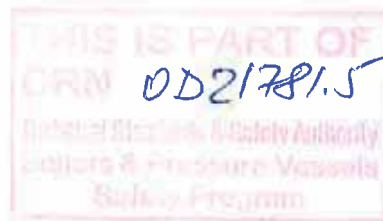
Summary Table (cont'd)

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	<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)	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"	1200	780 @500°F	
			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	<u>Core</u> 316L SS (ASTM A240) <u>Braid</u> 316L SS (ASTM A580) <u>Weld Collar</u> Strain-Hardened 316 SS (ASTM A479) <u>End Connections</u> 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"			
			ISO/BSP Tapered (ISO 7) [MT][FT] 1 1/4"			
		1 1/2	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"			



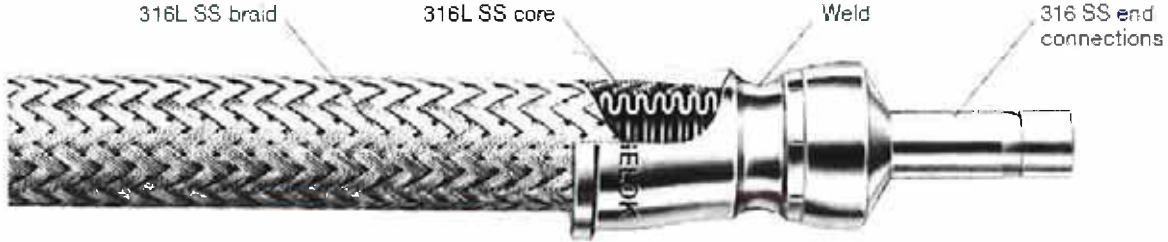
Swagelok

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)



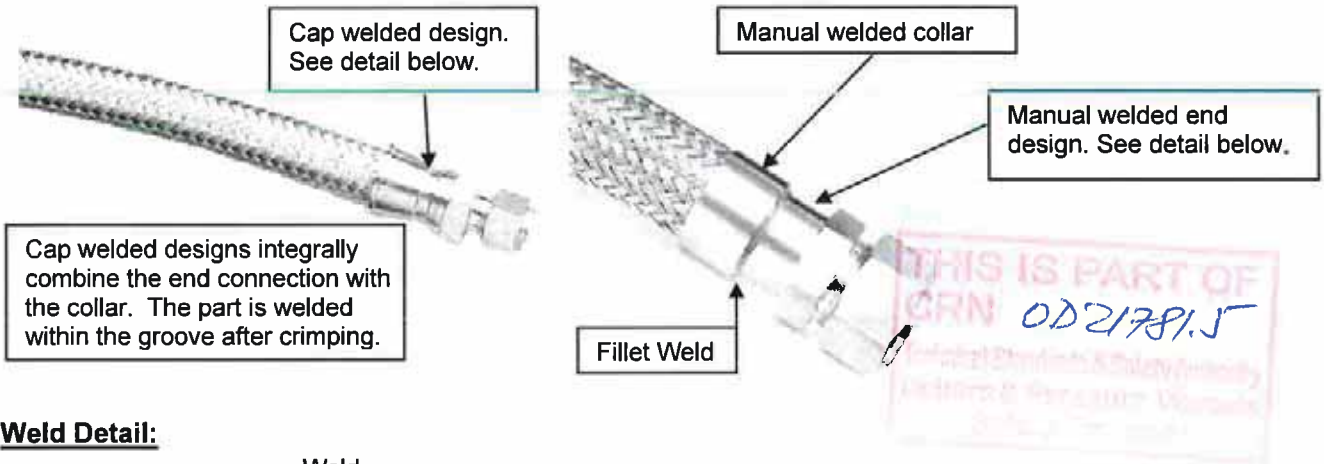
Swagelok FM Series Assembly (1 1/4" and larger)



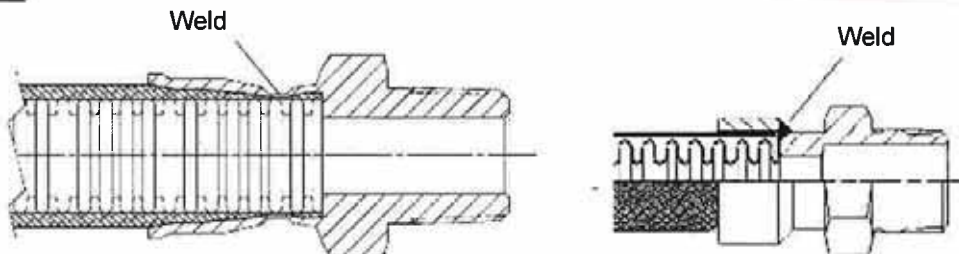
Configuration Example:

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.)

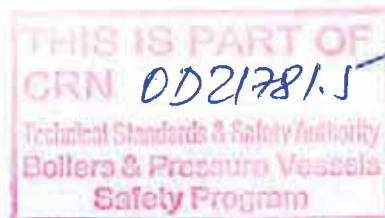
Quality System

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

