NEW BRUNSWICK NUNAVUT

NOVA SCOTIA YUKON PRINCE EDWARD ISLAND NORTHWEST TERRITORIES

NEWFOUNDLAND AND LABRADOR

MANUFACTURERS NAME: Swagelok Company	
MANUFACTURERS ADDRESS: 29500 Solon Road, Solon, Ohio 44139 USA	
PLANT LOCATIONS: Headquarters: 29500 Solon Road, Solon, Ohio 44139 USA (S	Son Attachmant ()
CATEGORY OF FITTINGS TO BE REGISTERED. CIRCLE ONE CATEGORY ONLY	THE OF THE STANDARD OF CONSTRUCTION
A Pipe fittings, including couplings, tees, elbows, Ys, plugs, unions, pipe caps, or reducers B Flanges: all flanges C Valves: all line valves D Expansion joints, flaxible connections, and hose assemblies: all types E Strainers, 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 or 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 □ Class 2 □ Class 3 □, (Meeting AECB or ASME requirement	ASME B31.3 for unlisted components
SHOW MANUFACTURERS NAME, TRADEMARK, OR LOGO AS IT WILL APPEAR ON THE PRO	DDUCT TYPE OF CONSTRUCTION
Swagelok	FORGED WELDED WROUGHT CAST OTHER M DESCRIBE OTHER WIRE, Strip, bar
LIST OF SUPPORTING DOCUMENTATION AND IDENTIFICATION OF THE ACTUAL ITEMS TO  ISO 9001:2015 Certificate, Attachment A, Attachment B, Catalog Information and other	
ny knowledge represents the product for which registration is sought. The dimensions, ma emperature ratings, and identification markings are in accordance with the herein named s nanufacture of these fittings is regulated by a Quality Control Program which extends to ea	atenais of construction, pressure stendards. I further declare that the ach plant where fabrication occurs in whole
ignature of Declarer: 2/10/2021   7:27 AM EST	
eclared before me at Unable to get a notary signature or	IIS SPACE FOR THE
ommissioner of Oaths  Oaths  Oaths  Oaths  Oaths	FFICIAL SEAL
(Affix Official seal to the right)	
This space for Regulatory Authority use	
This registration must be revalidated after ten (10) years from the control of the second sec	ENT OF
Notes:	(A)
CRN 60  3. The declaration shall be made by the person having full authority and especially for the guality of the end exposure.	D20616.5Y ADD1
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# Attachment B: Scope of Registration for Swagelok FJ Series Hose Assemblies (Category D)

#### **Product Scope**

The table below represents the scope of Swagelok FJ series hose assemblies covered by this submission for CRN approval. These hose assemblies are assembled by Hose Master LLC and at the Swagelok Company locations in Solon, Ohio and have been evaluated in accordance with ASME B31.3 and ISO 10380. The referenced product catalog(s) do not represent the full scope of the submission but rather detail some of the most common options.

# **Summary Table**

Technical Standards and Safety Authority

Product Pressure Series Retaining	Retaining Port Connections	Port Connection	Maximum Work	ng Pressuré es Program	Sels Safety Design Code		
and Size (in)	Material (Standard)	1 of Connections	Sizes	At Min Temp (-325°F to 100°F)	At Max Temp (800°F)	Construction	
			Swagelok Tube Fitting [TA TM SL SM]	1/8" - 1/2" 3mm - 12mm	1600	1184	
		Female and Male VCR Metal Gasket Face seal Fitting [RF RM]	1/8" - 1/2"	1600	1184		
	<u>Core</u> 316/316L SS (ASTM A240)	Male High Flow VCR Metal Gasket Face seal Fitting [HRM]	1/4"	1600	1184		
	Braid 304 SS or		Female and Male VCO O-ring Face seal Fitting [VF VM]	1/8" - 1/2"	1600 (1)	1328 @550°F (1)	
FJ Series Metal Hose-	(ASTM A478)  Weld Collar	Female 37° JIC and male 37° JIC with female swivel nut [AN AS]	1/8" - 1/2"	1600	1184	ASME B31.3	
1/4"	304/304L SS (ASTM A269) or 316/316L SS	Female and male NPT Tapered Pipe Fitting <b>[PM PF]</b>	1/8" - 1/2"	1600 (2)	1424 @450°F (2)	ISO 10380	
(AS <u>Co</u> 310	(ASTM A269) <u>End</u>	Female and male ISO/BSP Tapered (ISO 7) Pipe Threads [MT FT]	1/8" - 1/2"	1600 (2)	1424 @450°F (2)		
	Connections 316/316L SS (ASTM A479)	Tube Butt Welds [TB MTB]	1/8" - 1/2" 6mm - 12mm	1600	1184		
		Female ISO/BSP Parallel Threads (ISO 228) <b>[FS]</b>	1/4" - 1/2"	1600	1472 @400°F (1)		
		Male UN/UNF (SAE J1926) Stud End <b>[ST]</b>	1/8" - 1/2"	1600 (1)	1472 @400°F (1)		

<sup>(1)</sup> Temperature and/or pressure ratings are determined by gasket or O-ring materials. Refer to Swagelok catalog MS-01-147 for ratings.

<sup>(2)</sup> Temperature and/or pressure ratings are determined by pipe thread sealant type. Refer to Swagelok catalog MS-01-91 for ratings.



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Product Series	Pressure Retaining	aining Port Connections Connection (psig)		etaining Port Connections	_	Design Code of
and Size (in)	(Standard)		Sizes	At Min Temp (-325°F to 100°F)	At Max Temp (800°F)	Construction
		Swagelok Tube Fitting [TA TM SL SM]	1/4" - 3/4" 6mm - 18mm	1470	1088	
FJ Series	<u>Core</u>	Female and Male VCR Metal Gasket Face seal Fitting [RF RM]	1/4" - 3/4"	1470	1088	
	316/316L SS (ASTM A240) Braid	Female and Male VCO O-ring Face seal Fitting [VF VM]	1/4" - 3/4"	1470 (1)	1220 @550°F (1)	
	304 SS or 316L SS (ASTM A478) Weld Collar 304/304L SS (ASTM A269) or 316/316L SS (ASTM A269) End Connections 316/316L SS (ASTM A479)	Female 37° JIC and male 37° JIC with female swivel nut [AN AS]	1/4" - 3/4"	1470	1088	
Metal Hose-		Female and male NPT Tapered Pipe Fitting <b>[PM PF]</b>	1/4" - 3/4"	1470 (2)	1308 @450°F (2)	ASME B31.3 ISO 10380
3/8 3 (A C		Female and male ISO/BSP Tapered (ISO 7) Pipe Threads [MT FT]	1/4" - 3/4"	1470 (2)	1308 @450°F (2)	
		Tube Butt Welds [TB MTB]	1/4" - 3/4" 6mm - 18mm	1470	1088	
		Female ISO/BSP Parallel Threads (ISO 228) <b>[FS]</b>	1/4" - 1/2"	1470	1352 @400°F (1)	
		Male UN/UNF (SAE J1926) Stud End [ST]	1/4" - 3/4"	1470 (1)	1352 @400°F (1)	

- (1) Temperature and/or pressure ratings are determined by gasket or O-ring materials. Refer to Swagelok catalog MS-01-147 for ratings.
- (2) Temperature and/or pressure ratings are determined by pipe thread sealant type. Refer to Swagelok catalog MS-01-91 for ratings.

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Product Series	Pressure Retaining	Port Connections	Port (psig)  Maximum Working Properties (psig)		Port	_	Design Code of
and Size (in)	Material (Standard)		Sizes	At Min Temp (-325°F to 100°F)	At Max Temp (800°F)	Construction	
		Swagelok Tube Fitting [TA TM SL SM]	3/8" - 1" 10mm - 25mm	1110	821		
	<u>Core</u> 316/316L SS	Female and Male VCR Metal Gasket Face seal Fitting [RF RM]	3/8" - 1"	1110	821		
Braid	(ASTM A240)  Braid 304 SS or	Female and Male VCO O-ring Face seal Fitting [VF VM]	3/8" - 1"	1110 (1)	921 @550°F (1)		
FJ Series	316L SS (ASTM A478)	Female 37° JIC and male 37° JIC with female swivel nut [AN AS]	3/8" - 1"	1110	821		
Metal Hose-	Hose- Weld Collar 304/304L SS	Female and male NPT Tapered Pipe Fitting  [PM PF]	3/8" - 1"	1110 (2)	988 @450°F (2)	ASME B31.3 ISO 10380	
1/2" (ASTM A269) or 316/316L SS (ASTM A269) End Connections 316/316L SS (ASTM A479)	Female and male ISO/BSP Tapered (ISO 7) Pipe Threads [MT FT]	3/8" - 1"	1110 (2)	988 @450°F (2)			
	End Connections 316/316L SS	Tube Butt Welds [TB MTB]	3/8" - 1" 10mm - 25mm	1110	821		
		Female ISO/BSP Parallel Threads (ISO 228) <b>[FS]</b>	3/8"-1/2"	1110	1021 @400°F (1)		
		Male UN/UNF (SAE J1926) Stud End [ST]	3/8" - 1"	1110 (1)	1021 @400°F (1)		

- (1) Temperature and/or pressure ratings are determined by gasket or O-ring materials. Refer to Swagelok catalog MS-01-147 for ratings.
- (2) Temperature and/or pressure ratings are determined by pipe thread sealant type. Refer to Swagelok catalog MS-01-91 for ratings.

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Product Series	Pressure Retaining	Port Connections	Port Connection Sizes		Maximum Worki (psig	•	Design Code of
and Size (in)	Material (Standard)			At Min Temp (-325°F to 100°F)	At Max Temp (800°F)	Construction	
		Swagelok Tube Fitting [TA TM SL SM]	1/2" - 1 1/4" 12mm - 32mm	860	636		
	<u>Core</u> 316/316L SS	Female and Male VCR Metal Gasket Face seal Fitting [RF RM]	1/2" - 1"	860	636		
	(ASTM A240)  Braid	Female and Male VCO O-ring Face seal Fitting [VF VM]	1/2" - 1"	860 (1)	714 @550°F (1)		
FJ Series	304 SS or 316L SS (ASTM A478)	Female 37° JIC and male 37° JIC with female swivel nut [AN AS]	1/2" - 1"	860	636		
Metal Hose-	Weld Collar 304/304L SS	Female and male NPT Tapered Pipe Fitting [PM PF]	1/2" - 1 1/4"	860 (2)	765 @450°F (2)	ASME B31.3 ISO 10380	
3/4 3/6 (A	(ASTM A269) or 316/316L SS (ASTM A269) End Connections 316/316L SS (ASTM A479)	Female and male ISO/BSP Tapered (ISO 7) Pipe Threads [MT FT]	1/2" - 1 1/4"	860 (2)	765 @450°F (2)		
		Tube Butt Welds [TB MTB]	1/2" - 1" 12mm - 25mm	860	636		
		Female ISO/BSP Parallel Threads (ISO 228) <b>[FS]</b>	1/2"	860	791 @400°F (1)		
		Male UN/UNF (SAE J1926) Stud End [ST]	1/2" - 1 1/4"	860 (1)	791 @400°F (1)		

- (1) Temperature and/or pressure ratings are determined by gasket or O-ring materials. Refer to Swagelok catalog MS-01-147 for ratings.
- (2) Temperature and/or pressure ratings are determined by pipe thread sealant type. Refer to Swagelok catalog MS-01-91 for ratings.

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Product Series	Pressure Retaining	Port Connections	Port Connection	Maximum Work (psig	_	Design Code of
and Size (in)	Material (Standard)		Sizes	At Min Temp (- 325°F to 100°F)	At Max Temp (800°F)	Construction
FJ Series Metal Hose- 1"	Core	Swagelok Tube Fitting [TA TM SL SM]	3/4" - 1 1/2" 18mm - 38mm	680	503	
	316/316L SS (ASTM A240)	Female and Male VCR Metal Gasket Face seal Fitting [RF RM]	3/4" - 1"	680	503	
	304 SS or 316L SS (ASTM A478) F Weld Collar 304/304L SS (ASTM A269) or 316/316L SS	Female and Male VCO O-ring Face seal Fitting [VF VM]	3/4" - 1"	680 (1)	564 @550°F (1)	
		Female 37° JIC and male 37° JIC with female swivel nut  [AN AS]	3/4" - 1"	680	503	ASME B31.3
		Female and male NPT Tapered Pipe Fitting [PM PF]	3/4" - 1 1/2"	680 (2)	605 @450°F (2)	ISO 10380
		Female and male ISO/BSP Tapered (ISO 7) Pipe Threads [MT FT]	3/4" - 1 1/2"	680 (2)	605 @450°F (2)	
		Tube Butt Welds [TB MTB]	3/4" - 1" 18mm - 25mm	680	503	
		Male UN/UNF (SAE J1926) Stud End [ST]	3/4" - 1 1/2"	680 (1)	626 @400°F (1)	

- (1) Temperature and/or pressure ratings are determined by gasket or O-ring materials. Refer to Swagelok catalog MS-01-147 for ratings.
- (2) Temperature and/or pressure ratings are determined by pipe thread sealant type. Refer to Swagelok catalog MS-01-91 for ratings.

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Product Series	eries Retaining Port Connections Connections Size	Port Connections	Port Connection	Maximum Worki (psig	•	Design Code of	
(in)		Sizes	At Min Temp (-325°F to 100°F)	At Max Temp (800°F)	Construction		
		Swagelok Tube Fitting [TA TM SL SM]	1" - 2" 25mm - 50mm	680	503		
	<u>Core</u> 316/316L SS (ASTM A240)	Female and Male VCR Metal Gasket Face seal Fitting [RF RM]	1"	680	503		
	Braid 304 SS or 316L SS (ASTM A478)	Braid 304 SS or	Female and Male VCO O-ring Face seal Fitting [VF VM]	1"	680 (1)	564 @550°F (1)	
		Female 37° JIC and male 37° JIC with female swivel nut [AN AS]	1"	680	503	ASME B31.3	
		304/304L SS (ASTM A269) or	Female and male NPT Tapered Pipe Fitting [PM PF]	1" - 2"	680 (2)	605 @450°F (2)	ISO 10380
		Female and male ISO/BSP Tapered (ISO 7) Pipe Threads [MT FT]	1" - 2"	680 (2)	605 @450°F (2)		
		Tube Butt Welds [TB MTB]	1" 25mm	680	503		
		Male UN/UNF (SAE J1926) Stud End [ST]	1" - 2"	680 (1)	626 @400°F (1)		

- (1) Temperature and/or pressure ratings are determined by gasket or O-ring materials. Refer to Swagelok catalog MS-01-147 for ratings.
- (2) Temperature and/or pressure ratings are determined by pipe thread sealant type. Refer to Swagelok catalog MS-01-91 for ratings.

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Product Series	Pressure Retaining	Port Connections	Port Connection	Maximum Work (psiç	_	Design Code of
and Size (in)	Material (Standard)		Sizes	At Min Temp (-325°F to 100°F)	At Max Temp (800°F)	Construction
		Swagelok Tube Fitting [TA TM SL SM]	1 1/4" - 2" 32mm - 50mm	520	385	
FJ Series	316/316L SS (ASTM A240)  2" Braid 304 SS or 316L SS (ASTM A478)  Weld Collar 304/304L SS (ASTM A269) or 316/316L SS (ASTM A269) ies tal Se- 2" End Connections 316/316L SS	Female and male NPT Tapered Pipe Fitting [PM PF]	1 1/4" – 2"	520 (2)	463 @450°F (2)	
Metal Hose- 1 1/2"		Female and male ISO/BSP Tapered (ISO 7) Pipe Threads [MT FT]	1 1/4" – 2"	520 (2)	463 @450°F (2)	
		Male UN/UNF (SAE J1926) Stud End [ST]	1 1/4" – 2"	520 (1)	478 @400°F (1)	ASME B31.3
		Swagelok Tube Fitting [TA TM SL SM]	1 1/2" - 2" 38mm - 50mm	450	333	ISO 10380
Series Metal Hose-		Female and male NPT Tapered Pipe Fitting [PM PF]	1 1/2" - 2"	450 (2)	401 @450°F (2)	
		Female and male ISO/BSP Tapered (ISO 7) Pipe Threads [MT FT]	1 1/2" - 2"	450 (2)	401 @450°F (2)	
		Male UN/UNF (SAE J1926) Stud End [ST]	1 1/2" - 2"	450 (1)	414 @400°F (1)	

- (1) Temperature and/or pressure ratings are determined by gasket or O-ring materials. Refer to Swagelok catalog MS-01-147 for ratings.
- (2) Temperature and/or pressure ratings are determined by pipe thread sealant type. Refer to Swagelok catalog MS-01-91 for ratings.

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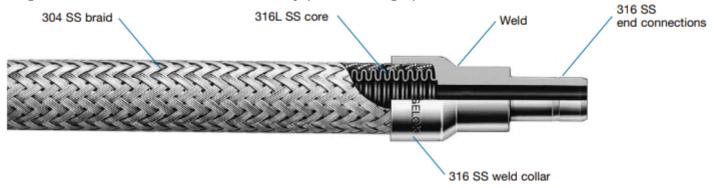
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#### **Product Illustration**

Swagelok FJ Series Manual Weld Assembly (1/4" and larger)



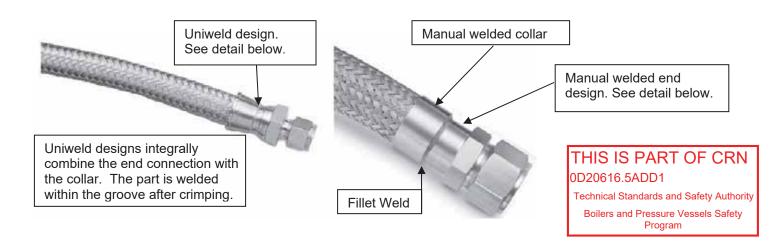
Swagelok FJ Series Automatic Weld Assembly (1/2" and under)



# **Configuration Example:**

FJ 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) Uniweld with Integral Weld Collar (1/2" and under)
- Manual Weld with Manual Weld Collar (1/4" and larger)





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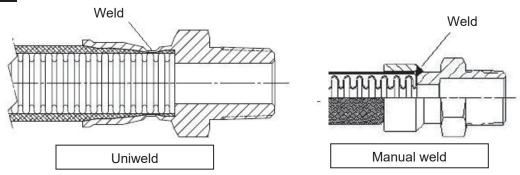
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Technical Standards and Safety Authority

Boilers and Pressure Vessels Safety

Program

#### Weld Detail:



#### **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:

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# **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

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

- 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 FJ series hose assemblies are manufactured at Hose Master LLC and at the Swagelok Company locations in Solon, Ohio.

#### 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

# **Attachment A. Swagelok Manufacturing Locations**

This document lists the Swagelok locations where end item or component level manufacturing activities take place.

		THIS IS PART OF 0D20616.5ADD1	CRN
Swagelok Company 29500 Solon Road Solon, Ohio 44139 USA	Swagelok Company (Falon 1) 348 Bishop Road Highland Heights, Ohio 44143 USA	Technical Standards and Safet Boilers and Pressure Vessel Program	1
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 Me 6060 Cochran Road Solon, Ohio 44139 USA	etal)	
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 (Strongsvi 15400 Foltz Road Strongsville, Ohio 44119	ille)	
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		