

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 A. Fitting

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 Solon

In the pt State of Ohio

The Day of June AD 20 19

Commissioner for oaths

Signature of Declarer3

For Official Use Only The application is accepted for registration in Category A in accordance with the Boilers and Pressure Vessels Act and CSA Standard B51. This registration must be revalidated after ten (10) years from the date of acceptance. EXP: 4TH OCT 2029 Registered Number CRN CSA-0A21839.56 For the Chief Inspector A. PANWATT Date DEC 05 2019

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 CRN Registration for Swagelok® VCR® and High Flow VCR Metal Gasket Face Seal Fittings (Category A)

This document presents the scope of Swagelok® VCR® and High Flow VCR (HVCR) Metal Gasket Face Seal Fittings covered by this submission for CRN registration. These fittings were designed and evaluated in accordance with ASME B31.1-2016 "Power Piping" for unlisted components and ASME B31.3-2016 "Process Piping" for unlisted components.

THIS IS PART OF
 CRN 0A21839.5
 Technical Specifications & Safety

Summary Table

Product Series (Size)	Pressure Retaining Materials	Pressure Retaining Components	End Connections and Sizes	Maximum Rated Pressure		Design Code of Construction
				At 100°F	At Max Temp (1000°F unless noted otherwise)	
-1 VCR ² (1/16")	316 SS (ASTM A479)	Gland	Tube Socket Weld 1/16"	9000 psig	5080 psig	ASME B31.1 (Unlisted Components) and ASME B31.3 (Unlisted Components)
-2 VCR (1/8")	316 SS (ASTM A479) for straight fittings F316 SS (ASTM A182) for shaped fittings	Gland, Body	Tube Socket Weld 1/8"	7100 psig	4010 psig	
			Male Tube Weld 1/16"-1/8"	11,200-8500 psig	6320-4800 psig	
			Tube Butt Weld 1/8"	8500 psig	3740 psig	
			Male NPT 1/16" - 1/8"	9000 psig	6210 psig @ 450°F w/sealant	
			Female NPT 1/16" - 1/8"	6700-6500 psig	4620-4480 psig @ 450°F w/sealant	
-4 VCR (1/4")	316 SS (ASTM A479) for straight fittings F316 SS (ASTM A182) for shaped fittings	Gland, Body	Tube Butt Weld 1/4", 6mm Automatic Tube Weld 1/4", 6-8mm	6800-5100 psig	2990-2240 psig	
			Tube Socket Weld 1/4"	5500 psig	3100 psig	
			Reducing Tube Socket Weld 1/8"	8000 psig	4520 psig	
			Male Tube Weld 1/8"-1/4"	10,000 psig	5650 psig	
			Male NPT 1/8"-1/4"	10,000 psig	6900 psig @ 450°F w/sealant	
			Male SAE/MS 9/16-18	4500 psig	4500 psig @ 400°F	
			Female NPT 1/8"-1/4"	8000-6600 psig	5520-4550 psig @ 450°F w/sealant	
			Tube Fitting 1/16"-1/2", 3mm-12mm	10,000-6700 psig	5650-5090 psig	
	17-4 PH Metal Injection Mold (MPIF Std 35)	Split Nuts	Nuts Only	5100 psig	3130 psig @ 650°F	
-4 HVCR (1/4")	316 SS (ASTM A479) for straight fittings F316 SS (ASTM A182) for shaped fittings	Gland, Body	Bodies only	10,000 psig	5650 psig	
			Tube Butt Weld 3/8" Automatic Tube Weld 3/8"	3300 psig	1450 psig	

Notes:

- Above maximum rated pressures are for fittings with 316 SS Gasket
- 1 VCR uses -2 VCR size nut and gasket.

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Summary Table (cont'd)

Product Series (Size)	Pressure Retaining Materials	Pressure Retaining Components	End Connections and Sizes	Maximum Rated Pressure ¹		Design Code of Construction
				At 100°F	At Max Temp (1000°F unless noted otherwise)	
-6 VCR (3/8") -8 VCR (1/2")		Gland, Body	Tube Butt Weld 1/4", 3/8", 1/2", 8mm, 10mm, 12mm Automatic Tube Weld 3/8, 1/2", 10mm, 12mm	3500-3100 psig	1540-1360 psig	ASME B31.1 (Unlisted Components) and ASME B31.3 (Unlisted Components)
			Tube Socket Weld 3/8", 1/2"	4300-3000 psig	2430-1690 psig	
			Reducing Tube Socket Weld 1/4"	3500 psig	1970 psig	
			Male Tube Weld 1/4", 3/8", 1/2"	4300-3500 psig	2430-1970 psig	
			Male NPT 1/4", 3/8", 1/2" Female NPT 3/8", 1/2"	4300 psig	2960 psig @ 450°F w/sealant	
			Male SAE/MS 7/8-14, 9/16-18	3500 psig	3070 psig@400°F	
			Tube Fitting 1/8", 1/4", 3/8", 1/2", 3/4", 4mm, 6mm, 8mm, 10mm, 12mm, 18mm	4300 psig	2430 psig	
-10 VCR (5/8")	316 SS (ASTM A479) for straight fittings	Gland, Body	Tube Butt Weld 5/8"	2800 psig	1230 psig	
			Tube Socket Weld 5/8"	2800 psig	1410 psig	
			Male Tube Weld 5/8"	2800 psig	1580 psig	
-12 VCR (3/4")	F316 SS (ASTM A182) for shaped fittings	Gland, Body	Tube Butt Weld 3/4", 18mm Automatic Tube Weld 3/4", 18mm	3000-2400 psig	1320-1050 psig	
			Tube Socket Weld 3/4" Tube Fitting 1/8", 1/4", 3/8", 1/2", 3/4", 1", 6mm, 12mm, 18mm	2800 psig	1580 psig	
			Male Tube Weld 3/4"	3700 psig	2090 psig	
			Male NPT 3/4" Female NPT 3/4"	3700 psig	2550 psig @ 450°F w/sealant	
			Tube Butt Weld 1" Automatic Tube Weld 1"	2400 psig	1050 psig	
-16 VCR (1")		Gland, Body	Tube Socket Weld 1" Male Tube Weld 1"	3000 psig	1690 psig	
			Male NPT 1" Female NPT 1"	3000 psig	2070 psig @ 450°F w/sealant	
			Tube Fitting 1/4", 1/2", 1"	3000 psig	1690 psig	

Note 1. Above maximum rated pressures are for fittings with 316L SS Gasket

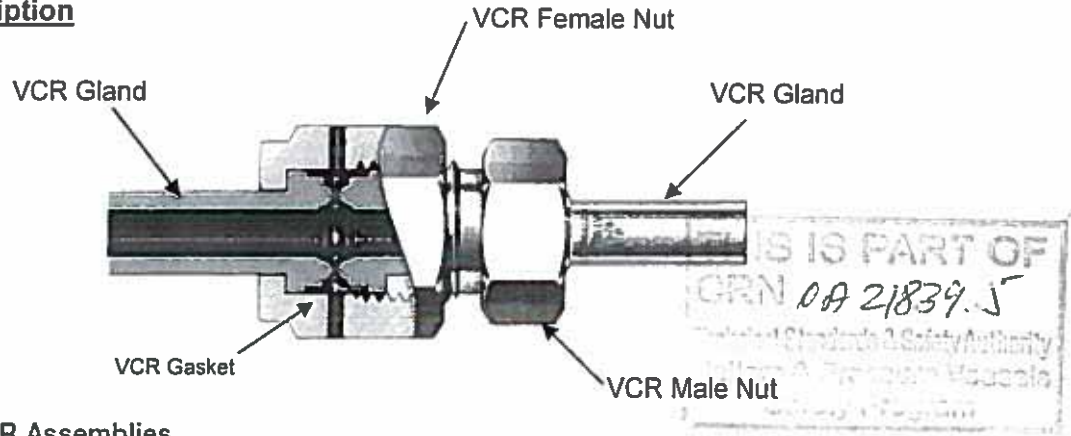


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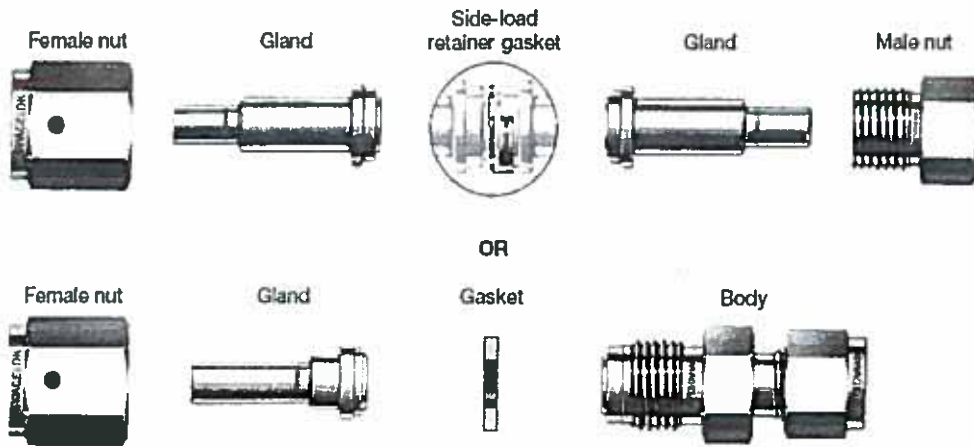
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Product Description



Typical VCR Assemblies










- High Flow VCR (HVCR) is only offered in the 1/4 in. size. The only difference from the 1/4 in. VCR is a larger inside diameter.

Configurations

VCR/HVCR Glands	
VCR/HVCR Male Bodies	
VCR/HVCR Shapes (Elbows, Tees, and Crosses)	
VCR Female Bodies	
VCR Split Nuts	


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Gland end connections

Part Description	Sizes
Long Tube Butt Weld Short Tube Butt Weld	 1/16 in. - 1 in.
Short Automatic Tube Butt Weld Long Automatic Tube Butt Weld	 1/4 in. - 1 in.
Socket Weld Short Socket Weld	 1/8 in. - 1 in.
Reducing Socket Weld	 1/8 in. and 1/4 in.
Male Tube Weld	 1/8 in. - 1 in.
Tube Adapter	 1/8 in. to 1 in.
High-Flow VCR Gland End	 3/8 in. Tube Butt Weld

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 Safety Authority
 for Pressure Vessels






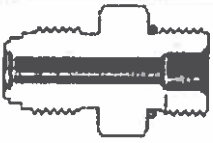

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Body Types

Part Description	Sizes
Tube Fitting	 1/16 in – 1 in
Tube Fitting Bulkhead Connector	 1/8 in – 16MM
Female NPT	 1/16 in – 1 in.
Male NPT	 1/16 in. – 1 in.
Male NPT Bulkhead	 1/4 in.
Straight Thread O-ring Seal Male Connector	 9/16-18, 7/8-14
Tube Butt Weld Bulkhead Connector	



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Product Options:

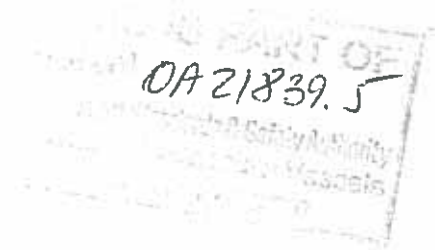
Some of the product options listed below affect the pressure-temperature ratings shown in the Summary Table above, but in all cases the ratings are less than those shown in the above table.

- Gasket Options
 - Nickel
 - Copper
 - Teflon
 - Blind Gaskets
 - Snubber Gaskets

- Pressure Bearing Component Material Options (allowable variations of 316 material) that may affect high temperature rating
 - 316L
 - 316LV (VAR)
 - 316LVV (VIMVAR)

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

- Protective Caps
- Gasket Retainer Assemblies
- Caps and Plugs with Lanyards
- Flow Restrictors
- Fitting and Valve Locking Devices
- Side Load Installation Tool and Tray
- "Bore-through" fitting through holes



Quality System

The Swagelok Company quality system complies with the requirements of ISO 9001:2015. Swagelok Company maintains BSI Certificate of 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:

- VCR Metal Gasket Face Seal Fittings Product Catalog MS 01-24, 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 Company A.G. (European Technology Center) St. GallerstraBe 84 Lachen, Switzerland 8853 Switzerland
Swagelok Limited Ballafletcher Road Tromode IM4 4RA Isle of Man	



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Standards & Safety Authority

Vessels

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