

TECHNICAL STANDARDS & SAFETY AUTHORITY
345 CARLINGVIEW DRIVE
TORONTO ON M9W 6N9

Date: March 16, 2020
Account #: 35231
Journal #: 75436

Attn: TANYA FRANCIS

Re: Application for Design Registration

The design, as detailed in your, CRN# 0A21839.5, for a Fitting is accepted for registration as follows:

Registered To: SWAGELOK COMPANY **CRN:** 0A21839.51

Drawing #: Scope of Registration

Drawing Revision: N/A

Conditions Of Registration:

This design was registered based on a technical review performed by the province of initial registration in accordance with the Association of Chief Inspectors policy on reciprocal recognition of design review.

Scope of Registration: SEE STAMPED ATTACHMENT A AND B

Reviewer's Notes:

As required by CSA B51 4.2.1, this registration expires on 04-Oct-2029. This CRN is valid until the expiry date as long as the Manufacturer maintains a valid quality control program verified by an acceptable third-party agency until that date. Should the certification of the quality control program lapse before the expiry date, this registration shall become void. Any additional conditions of registration stated in TSSA CRN# 0A21839.5 registration shall apply to BC registration.

Contact me if you have any questions. The invoice for registration will be forwarded under separate cover.

Janina Mihailescu

janina.mihailescu@technicalsaftybc.ca
Design Administration

cc:



Technical Standards and Safety Authority
 345 Carlingview Drive
 Toronto, Ontario M9W 6N9
 www.tssa.org

Show facsimile of manufacturer's logo or trademark, as it will appear on the fitting, in the space below

Swagelok

STATUTORY DECLARATION

Registration of Fittings

I, Joel Feldman, Vice President of Engineering

(Name and Position, e.g. President, Plant Manager, Chief Engineer)

of Swagelok Company

(Name of Manufacturer)

Located at 29500 Solon Road, Solon, Ohio 44139 USA

(Plant Address)

(440) 248-4600

(Telephone No.)

(440) 349-5970

(Fax No.)

do solemnly declare that the fittings listed hereunder, which are subject to the **Technical Standards and Safety Act**, Boilers and Pressure Vessels Regulation, comply with all of the requirements of ASME B31.1 for unlisted components, and ASME B31.3 for unlisted components

(Title of recognized North American Standard)

which specifies the dimensions, materials of construction, pressure/temperature ratings, identification marking the fittings and service;

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, material of construction, pressure/temperature ratings and the basis for such ratings, the marking of the fitting for identification and service.

I further declare that the manufacture of these fittings is controlled by a quality system meeting the requirements of ISO 9001:2015 which has been verified by the following authority, BSI

The items covered by this declaration, for which I seek registration, are category A. Fittings type fittings. In support of this application, the following information and/or test data are attached as follows:

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

(drawings, calculations, test reports, etc.)

Declared before me at Solon in the state of Ohio

the 10th day of June AD 20 19.

Commissioner for Oaths:

Brenda Hammel
 (Printed name)

Brenda Hammel
 (Signature)

Joel C. Feldman
 (Signature of Declarer)

FOR OFFICE USE ONLY

To the best of my knowledge and belief, the application meets the requirements of the **Technical Standards and Safety Act**, Boilers and Pressure Vessels Regulation, and CSA Standard B51 and is accepted for registration in Category A

Technical Standards and Safety Authority

Boilers and Pressure Vessels Safety Program

OFFICE REGISTERED

CRN: 0A21839.5

C.R.N.: 0A21839.5

Registered by: [Signature]

Signed: [Signature]

Dated: October 4, 2015

Date: October 4, 2015

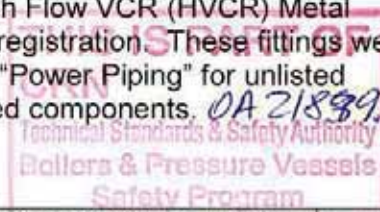
NOTE: This registration expires on: October 4, 2029 scope of registration: Attachment A

*Information provided in this application is releasable under the Freedom of Information and Privacy and B Protection Act and may be disclosed upon request.



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. *OA 21889.5*



Summary Table

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)	
-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	6800-5100 psig	2990-2240 psig	
			Automatic Tube Weld 1/4", 6-8mm			
			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	
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:

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

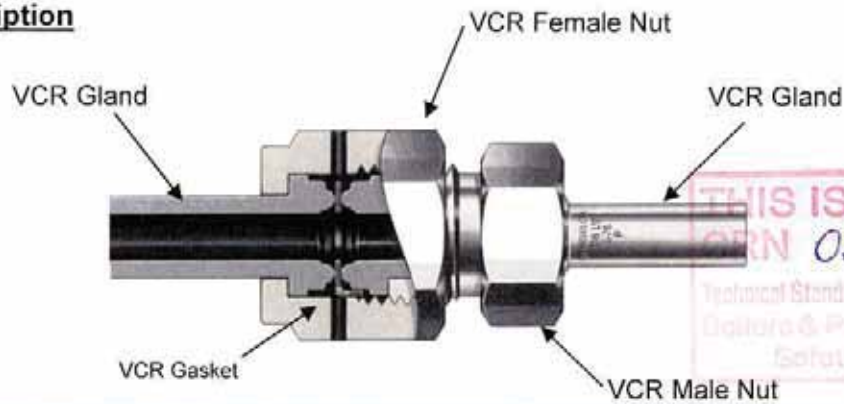
Summary Table (cont'd)

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	
-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	
-16 VCR (1")		Gland, Body	Tube Butt Weld 1" Automatic Tube Weld 1"	2400 psig	1050 psig	
			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

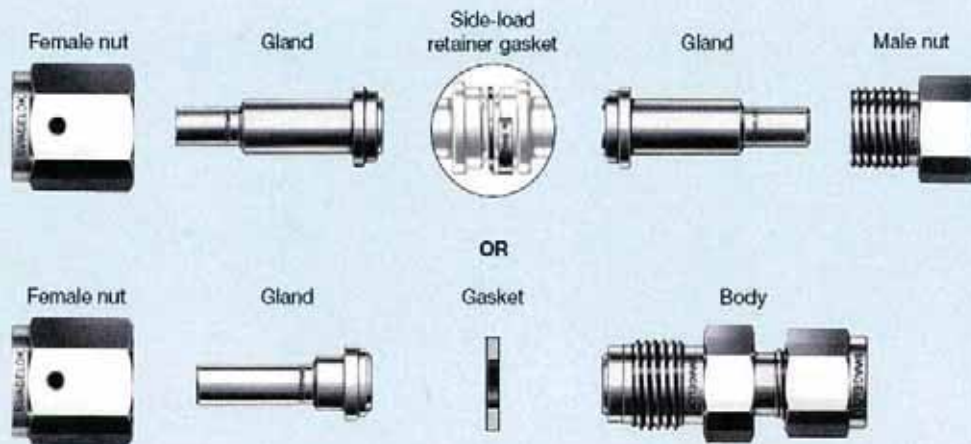


Product Description





THIS IS PART OF
 CORN 0A21839.5
 Technical Standards & Safety Authority
 Ductile & Pressure Vessels
 Safety Program

Typical VCR Assemblies










- o 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	 

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

THIS IS PART OF
 CRN *QA 21839.5*
 Technical Standards & Safety Authority
 Boilers & Pressure Vessels
 Safety Program

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	 1/4 in.

THIS IS PART OF
 CRN 0A 21839.5
 Technical Standards & Safety Authority
 Gullers & Pressure Vessels
 Safety Program

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 Limited Ballafletcher Road Tromode IM4 4RA Isle of Man

