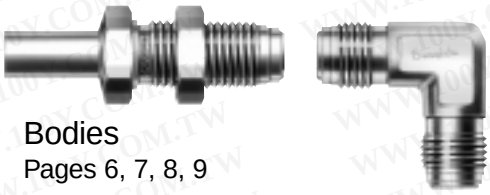
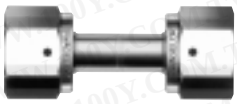
Swagelok®

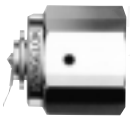
VCR® Metal Gasket Face Seal Fittings

- 1/8 to 1 in. and 6 to 18 mm sizes
- high-purity stainless steels

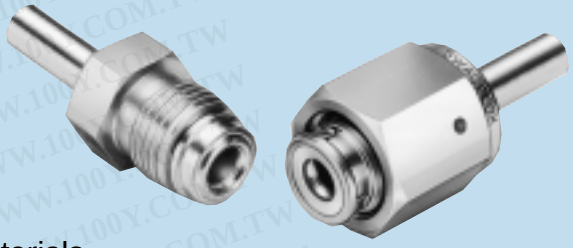
Index







General Information



Materials

Material	Ordering Number Designator	Applicable Specification
Glands, Bodies and Nuts		
316 stainless steel	SS	barstock: ASME SA479, ASTM A276 forgings: ASME SA182, ASTM A314
316L stainless steel	316L	barstock: ASME SA479 ASTM A276 forgings: ASTM A182
316L VAR (Vacuum Arc Remelt) stainless steel	6LV	barstock: ASME SA479, ASTM A276 forgings: ASTM A182
Gaskets		
nickel	NI	ASTM B162
316 stainless steel	SS	ASTM A240, ASTM A167
copper	CU	ASTM B152

Plating

VCR female nuts are silver plated and lubricated. Avoid chemical processes used for cleaning, electropolishing and passivation that will remove plating. If the plating is damaged or removed, thread galling will occur, damaging fitting components and preventing a proper seal.

Dimensions

- Dimensions are in inches and (mm) — for reference only, subject to change.
- E dimension references the smallest nominal inside diameter of the part.

Pressure Ratings

- Ratings are based upon tests conducted using VCR assemblies.
- All ratings comply with calculations per ANSI Code for Pressure Piping B31.3.
- To determine pressure ratings in accordance with ANSI B31.1, multiply psig rating by 0.94.
- Ratings determined at ambient temperature.

Temperature Ratings

Components	Material	Temperature	
		°F	°C
Fittings	316 stainless steel	1000	537
	316L stainless steel	1000	537
	316LV stainless steel	1000	537
Gaskets	316 stainless steel	1000	537
	nickel	600	315
	copper	400	204

Testing

The VCR assembly with silver plating has been helium leak tested to a rate of 4×10^{-9} std cm^3/s and the unplated gasket to a rate of 4×10^{-11} std cm^3/s without leakage.

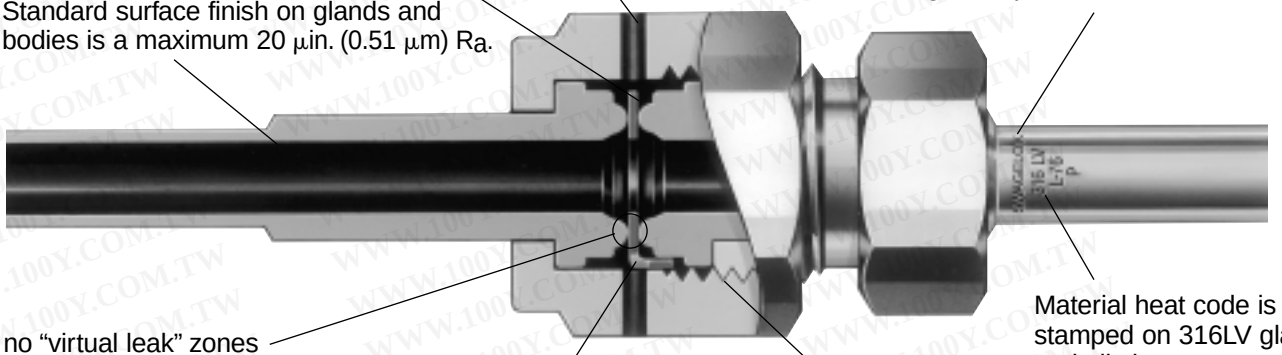
Ultra-High-Purity

A variety of VCR face seal glands and bodies are available with controlled surface finishes, electropolished, and specially cleaned to meet Ultra-High-Purity system requirements. For more information see Swagelok® Specification SC-01.

Ordering Information

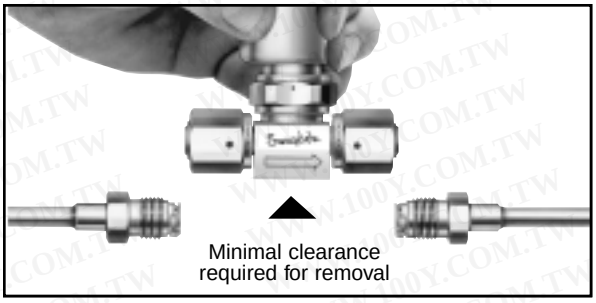
To order fittings manufactured according to Swagelok Specification SC-01 use the following designator code as a suffix to the Ordering Number.
Example: 6LV-4-VCR-3-4TB7P

Designator	Surface Finish	
	Average	Maximum
P	5 µin. (0.13 µm)	10 µin. (0.25 µm)



VCR components offer the high purity of a metal-to-metal seal, providing leak-free service from critical vacuum to positive pressure.

The seal on a VCR assembly is made when the gasket is compressed by two highly polished beads during the engagement of a male nut or body hex and a female nut.

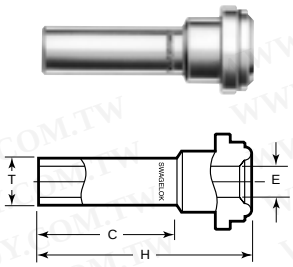


Typical VCR Assemblies

VCR assemblies are made up of four or five basic components.

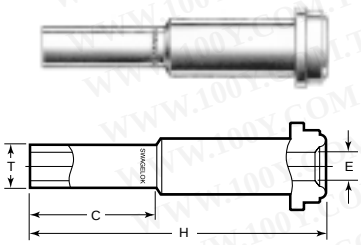
Glands

Short tube butt weld



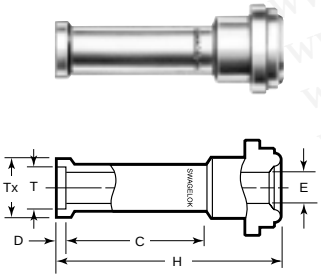
T Tube OD	Ordering Number	C		E		H		Nominal Wall Thickness	Working Pressure	
		in.	mm	in.	mm	in.	mm		psig	bar
fractional										
⅛	6LV-2-VCR-3S-2TB7⑤	0.75	19.1	0.06	1.5	1.080	27.4	0.028	8500④	580④
¼	6LV-4-VCR-3S-4TB2①	0.25	6.4	0.18	4.6	0.600	15.2	0.035	5100	350
¼	6LV-4-VCR-3S-4TB3	0.38	9.6	0.18	4.6	0.720	18.3	0.035	5100	350
¼	6LV-4-VCR-3S-4TB7①	0.75	19.1	0.18	4.6	1.100	27.9	0.035	5100	350
¼	6LV-8-VCR-3S-4TB7	0.75	19.1	0.18	4.6	1.120	28.4	0.035	3500③④	240③④
⅜	6LV-8-VCR-3S-6TB2	0.25	6.4	0.31	7.9	0.620	15.7	0.035	3300④	220④
⅜	6LV-8-VCR-3S-6TB7①	0.75	19.1	0.31	7.9	1.120	28.4	0.035	3300④	220④
½	6LV-8-VCR-3S-8TB2	0.25	6.4	0.40	10.2	0.620	15.7	0.049	3500④	240④
½	6LV-8-VCR-3S-8TB3	0.38	9.6	0.40	10.2	0.740	18.8	0.049	3500④	240④
½	6LV-8-VCR-3S-8TB7①	0.75	19.1	0.40	10.2	1.120	28.4	0.049	3500④	240④
metric										
6 mm	6LV-4-VCR-3S-6MTB7	0.75	19.1	0.16	4.0	1.160	29.5	1.0 mm	6800④	460④
8 mm	316L-4-VCR-3S-8MTB7	0.75	19.1	0.24	6.0	1.160	29.5	1.0 mm	4900	330
10 mm	316L-8-VCR-3S-10MTB7	0.75	19.1	0.31	8.0	1.160	29.5	1.0 mm	3500④	240④
12 mm	316L-8-VCR-3S-12MTB7	0.75	19.1	0.39	10.0	1.160	29.5	1.0 mm	3100④	210④
18 mm	316L-12-VCR-3S-18MTB7	0.75	19.1	0.59	15.0	1.220	31.0	1.5 mm	3000④	200④

Long tube butt weld



T Tube OD	Ordering Number	C		E		H		Nominal Wall Thickness	Working Pressure	
		in.	mm	in.	mm	in.	mm		psig	bar
fractional										
⅛	6LV-2-VCR-3-2TB7⑤	0.75	19.1	0.06②	1.5②	1.420	36.1	0.028	8500④	580④
¼	6LV-4-VCR-3-4TB2	0.25	6.4	0.18	4.6	1.200	30.5	0.035	5100	350
¼	6LV-4-VCR-3-02205	0.36	9.1	0.18	4.6	1.310	33.3	0.035	5100	350
¼	6LV-4-VCR-3-4TB3	0.38	9.6	0.18	4.6	1.320	33.5	0.035	5100	350
¼	6LV-4-VCR-3-4TB7①	0.75	19.1	0.18	4.6	1.700	43.2	0.035	5100	350
¼	6LV-8-VCR-3-4TB7	0.75	19.1	0.18	4.6	1.800	45.7	0.035	3500③④	240③④
⅜	6LV-8-VCR-3-6TB2	0.25	6.4	0.31	7.9	1.290	32.8	0.035	3300④	220④
⅜	6LV-8-VCR-3-6TB7	0.75	19.1	0.31	7.9	1.790	45.5	0.035	3300④	220④
½	6LV-8-VCR-3-8TB2	0.25	6.4	0.40	10.2	1.290	32.8	0.049	3500④	240④
½	6LV-8-VCR-3-8TB3	0.38	9.6	0.40	10.2	1.410	35.8	0.049	3500④	240④
½	6LV-8-VCR-3-8TB7	0.75	19.1	0.40	10.2	1.790	45.5	0.049	3500④	240④
¾	6LV-12-VCR-3-12TB7	0.75	19.1	0.65	16.5	2.030	51.6	0.049	2400	160
1	6LV-16-VCR-3-16TB7	0.75	19.1	0.87	22.1	2.320	58.9	0.065	2400④	160④
metric										
6 mm	6LV-4-VCR-3-6MTB7	0.75	19.1	0.16	4.0	1.700	43.2	1.0 mm	6800④	460④
8 mm	316L-4-VCR-3-8MTB7	0.75	19.1	0.24	6.0	1.700	43.2	1.0 mm	4900	330
10 mm	316L-8-VCR-3-10MTB7	0.75	19.1	0.31	8.0	1.790	45.5	1.0 mm	3500④	240④
12 mm	316L-8-VCR-3-12MTB7	0.75	19.1	0.39	10.0	1.790	45.5	1.0 mm	3100④	210④
18 mm	316L-12-VCR-3-18MTB7	0.75	19.1	0.59	15.0	2.030	51.6	1.5 mm	3000④	200④

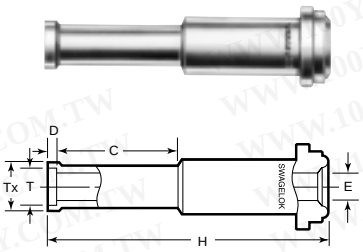
Short automatic tube butt weld



T Tube Size	Ordering Number	C		D		E		H		Tx		Nominal Wall Thickness	Working Pressure	
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm		psig	bar
fractional														
¼	316L-4-VCR-3AS	0.75	19.1	0.02	0.5	0.18	4.6	1.12	28.4	0.29	7.4	0.035	5100	350
½	316L-8-VCR-3AS	0.75	19.1	0.04	1.0	0.40	10.2	1.16	29.5	0.55	14.0	0.049	3500④	240④
⅜	316L-8-VCR-3AS6	0.75	19.1	0.03	0.8	0.31	7.9	1.15	29.2	0.41	10.4	0.035	3300④	220④
metric														
6 mm	316L-4-VCR-3-6MAS	0.75	19.1	0.02	0.5	0.16	4.0	1.18	30.0	0.27	6.8	1.0 mm	6800④	460④
8 mm	316L-4-VCR-3-8MAS	0.75	19.1	0.03	0.8	0.24	6.0	1.19	30.2	0.35	8.9	1.0 mm	4900	330
10 mm	316L-8-VCR-3-10MAS	0.75	19.1	0.03	0.8	0.31	8.0	1.22	31.0	0.43	10.9	1.0 mm	3500④	240④
12 mm	316L-8-VCR-3-12MAS	0.75	19.1	0.04	1.0	0.39	10.0	1.20	30.5	0.52	13.2	1.0 mm	3100④	210④

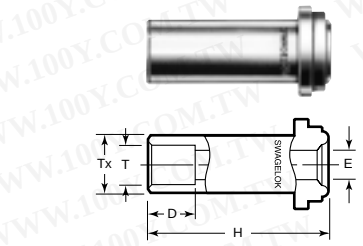
① Also available in alloy C-22 (HC22) material.
② May contain internal diameter transitions.
③ When using a stainless steel gasket assembly, the pressure rating for the VCR end is 25 % higher than the listed working pressure.
④ When using a copper gasket assembly, the pressure rating for the VCR end is 20 % less than the listed working pressure.
⑤ Not designed for gasket retainer assembly.

Long automatic tube butt weld



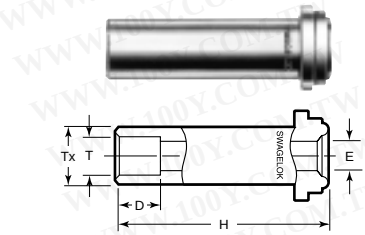
T Tube Size	Ordering Number	C		D		E		H		Tx		Nominal Wall Thickness	Working Pressure	
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm		psig	bar
fractional														
¼	316L-4-VCR-3A	0.75	19.1	0.02	0.5	0.18	4.6	1.72	43.7	0.29	7.4	0.035	5100	350
¼	316L-8-VCR-3A4	0.75	19.1	0.02	0.5	0.18	4.6	1.82	46.2	0.29	7.4	0.035	3500⑥	240⑥
⅜	316L-8-VCR-3A6	0.75	19.1	0.03	0.8	0.31	7.9	1.82	46.2	0.41	10.4	0.035	3300⑥	220⑥
½	316L-8-VCR-3A	0.75	19.1	0.04	1.0	0.40	10.2	1.83	46.5	0.55	14.0	0.049	3500⑥	240⑥
¾	316L-12-VCR-3A	0.75	19.1	0.04	1.0	0.65	16.5	2.07	52.6	0.80	20.3	0.049	2400	160
1	316L-16-VCR-3A	0.96	24.4	0.04	1.0	0.87	22.1	2.57	65.3	1.06	26.9	0.065	2400⑥	160⑥
metric														
6 mm	316L-4-VCR-3-6MA	0.75	19.1	0.02	0.5	0.16	4.0	1.72	43.7	0.27	6.8	1.0 mm	6800⑥	460⑥
12 mm	316L-8-VCR-3-12MA	0.75	19.1	0.04	1.0	0.39	10.0	1.83	46.5	0.52	13.2	1.0 mm	3100⑥	210⑥
18 mm	316L-12-VCR-3-18MA	0.75	19.1	0.04	1.0	0.59	15.0	2.07	52.6	0.76	19.3	1.5 mm	3000⑥	200⑥

Short socket weld



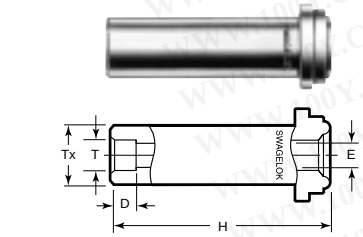
T Tube Socket	Ordering Number	D		E		H		Tx		Working Pressure	
		in.	mm	in.	mm	in.	mm	in.	mm	psig	bar
fractional											
¼	SS-4-VCR-3-.50LG	0.28	7.1	0.18	4.6	0.50	12.7	0.35	8.9	5500	370
¼	SS-4-VCR-3-.75LG	0.28	7.1	0.18	4.6	0.75	19.1	0.35	8.9	5500	370

Socket weld



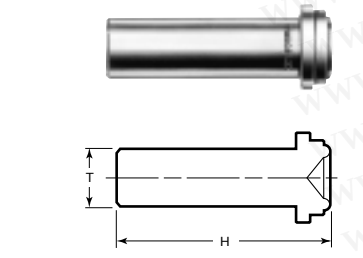
T Tube Socket	Ordering Number	D		E		H		Tx		Working Pressure	
		in.	mm	in.	mm	in.	mm	in.	mm	psig	bar
fractional											
1/16	SS-1-VCR-3①②	0.10	2.5	0.05	1.3	0.70	17.8	0.13	3.3	9000⑥	620⑥
⅛	SS-2-VCR-3②	0.10	2.5	0.09	2.3	0.70	17.8	0.20	5.1	7100	480
¼	SS-4-VCR-3⑥	0.28	7.1	0.18	4.6	1.31	33.3	0.35	8.9	5500	370
⅜	SS-6-VCR-3③	0.31	7.9	0.28	7.1	1.50	38.1	0.60	15.2	3500④⑥	240④⑥
½	SS-8-VCR-3	0.38	9.6	0.40	10.2	1.50	38.1	0.60	15.2	3000⑥	200⑥
¾	SS-12-VCR-3	0.44	11.2	0.62	15.7	2.00	50.8	0.88	22.4	2800⑥	190⑥
1	SS-16-VCR-3	0.62	15.7	0.87	22.1	2.22	56.4	1.19	30.2	2400④⑥	160④⑥

Reducing socket weld



T Tube Socket	Ordering Number	D		E		H		Tx		Working Pressure④⑥	
		in.	mm	in.	mm	in.	mm	in.	mm	psig	bar
fractional											
⅛	SS-4-VCR-3-2TSW②	0.10	2.5	0.09⑤	2.3⑤	1.31	33.3	0.35	8.9	8000	550
¼	SS-8-VCR-3-4TSW	0.28	7.1	0.18	4.6	1.50	38.1	0.60	15.2	3500	240

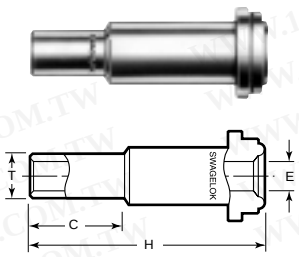
Blind (undrilled) gland



T Tube Socket	Ordering Number	H	
		in.	mm
fractional			
⅛	SS-2-VCR-3-BL②	0.70	17.8
¼	SS-4-VCR-3-BL	1.31	33.3
½	SS-8-VCR-3-BL	1.50	38.1
¾	SS-12-VCR-3-BL	2.00	50.8
1	SS-16-VCR-3-BL	2.22	56.4

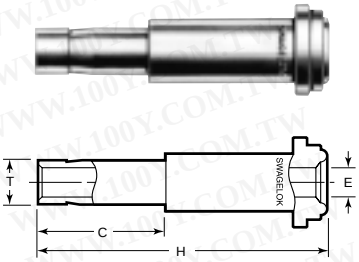
① Uses SS-2-VCR-1 and SS-2-VCR-4 nuts.
② Not designed for gasket retainer assembly.
③ Uses SS-8-VCR-1 and SS-8-VCR-4 nuts.
④ When using a stainless steel gasket assembly, the pressure rating for the VCR end is 25 % higher than the listed working pressure.
⑤ May contain internal diameter transitions.
⑥ When using a copper gasket assembly, the pressure rating for the VCR end is 20 % less than the listed working pressure.

Glands



Male weld

T Tube OD	Ordering Number	C		E		H		Working Pressure⑥	
		in.	mm	in.	mm	in.	mm	psig	bar
fractional									
⅛	SS-2-VCR-3-2MTW③	0.28	7.1	0.06①	1.5①	0.70	17.8	9000⑤	620⑤
⅛	SS-4-VCR-3-2MTW	0.28	7.1	0.06①	1.5①	1.31	33.3	8000⑤	550⑤
¼	SS-4-VCR-3-4MTW	0.41	10.4	0.12	3.0	1.31	33.3	8000⑤	550⑤
¼	SS-8-VCR-3-4MTW	0.41	10.4	0.12	3.0	1.50	38.1	3500⑤	240⑤
⅜	SS-8-VCR-3-6MTW	0.41	10.4	0.28	7.1	1.50	38.1	3500⑤	240⑤
½	SS-8-VCR-3-8MTW	0.50	12.7	0.40	10.2	1.50	38.1	3500	240
¾	SS-12-VCR-3-12MTW	0.62	15.7	0.53	13.5	2.00	50.8	3000⑤	200⑤
1	SS-16-VCR-3-16MTW	0.81	20.6	0.75	19.1	2.22	56.4	2400⑤	160⑤

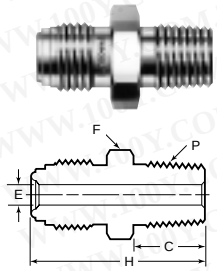


Tube adapter

T Tube OD	Ordering Number	C		E		H		Working Pressure⑤⑥	
		in.	mm	in.	mm	in.	mm	psig	bar
fractional									
¼	SS-4-VCR-3-4TA	0.64	16.2	0.17	4.3	1.62	41.0	8000	550
⅜	SS-8-VCR-3-6TA	0.70	17.8	0.27①	6.8①	1.81	46.0	3500	240
½	SS-8-VCR-3-8TA	0.96	24.4	0.37	9.4	1.94	49.3	3500	240

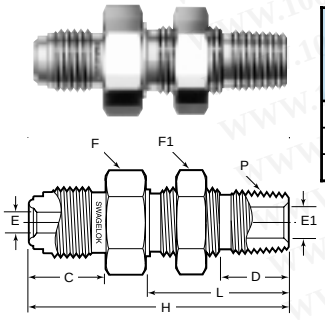
Note: VCR Tube Adapter Glands are to be used only in Swagelok tube fittings.

Bodies



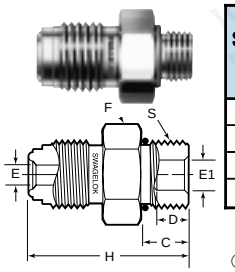
Male NPT connector②

P Male NPT Size	Ordering Number	C		E		F Hex Flat	H		Working Pressure⑥	
		in.	mm	in.	mm		in.	mm	psig	bar
fractional										
1/16	SS-2-VCR-1-1③	0.38	9.6	0.09①	2.3①	⅜	1.07	27.2	9000	620
⅛	SS-2-VCR-1-2③	0.38	9.6	0.09①	2.3①	7/16	1.07	27.2	9000	620
⅛	SS-4-VCR-1-2	0.38	9.6	0.18	4.6	⅝	1.31	33.3	8000⑤	550⑤
¼	SS-4-VCR-1-4	0.56	14.2	0.18	4.6	⅝	1.49	37.8	8000⑤	550⑤
⅜	SS-8-VCR-1-6	0.56	14.2	0.38	9.6	15/16	1.65	41.9	3500⑤	240⑤
½	SS-8-VCR-1-8	0.75	19.1	0.40	10.2	15/16	1.84	46.7	3500⑤	240⑤
¾	SS-12-VCR-1-12	0.75	19.1	0.62	15.7	1 5/16	2.19	55.6	3000⑤	200⑤
1	SS-16-VCR-1-16	0.94	23.9	0.87	22.1	1 ⅝	2.47	62.7	2400⑤	160⑤



Male bulkhead connector②

P Male NPT Size	Ordering Number	C		D		E		E1		F Hex Flat	F1 Hex Flat	H		L		Panel Hole Size	Max. Panel Thick-ness	Working Pressure⑥	
		in.	mm	in.	mm	in.	mm	in.	mm			in.	mm	in.	mm			psig	bar
fractional																			
¼	SS-4-VCR-A1-4M	0.62	15.7	0.56	14.2	0.18	4.6	0.28	7.1	13/16	13/16	2.21	56.1	1.24	31.5	21/32	0.38	8000	550
¼	SS-8-VCR-A1-4M	0.75	19.1	0.56	14.2	0.40	10.2	0.28	7.1	15/16	13/16	2.34	59.4	1.24	31.5	21/32	0.38	3500⑤	240⑤

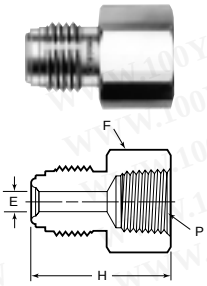


Straight thread o-ring seal male connector②④

S Straight Thread Size	Ordering Number	C		D		E		E1		F Hex Flat	H		Uniform O-ring Size	Working Pressure	
		in.	mm	in.	mm	in.	mm	in.	mm		in.	mm		psig	bar
fractional															
9/16-18	SS-4-VCR-1-00032	0.39	9.9	0.25	6.4	0.18	4.6	0.28	7.1	¾	1.33	33.8	fluorocarbon 906	4500	310
⅞-14	SS-8-VCR-1-00176	0.50	12.7	0.40	10.2	0.28	7.1	0.59	15.0	1	1.66	42.2	fluorocarbon 910	3500⑥	240⑥
9/16-18	SS-8-VCR-1-01081	0.39	9.9	n/a	n/a	0.28	7.1	0.28	7.1	15/16	1.48	37.6	fluorocarbon 906	3500⑥	240⑥

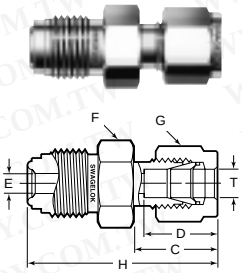
① May contain internal diameter transitions.
② VCR components with fixed threads must remain stationary during installation. These fitting connections should be assembled only to glands with rotating male or female threaded nuts.
③ Not designed for gasket retainer assembly.
④ O-rings – fluorocarbon FKM standard, other materials available. Note: O-rings are assembled with a silicone vacuum grease.
⑤ When using a stainless steel gasket assembly, the pressure rating for the VCR end is 25 % higher than the listed working pressure.
⑥ When using a copper gasket assembly, the pressure rating for the VCR is 20 % less than the listed working pressure.

Female NPT connector ①



P Female NPT Size	Ordering Number	E		F Hex Flat	H		Working Pressure	
		in.	mm		in.	mm	psig	bar
fractional								
1/16	SS-2-VCR-7-1②	0.09	2.3	7/16	1.10	27.9	6700	460
1/8	SS-2-VCR-7-2②	0.09	2.3	9/16	1.19	30.2	6500	440
1/8	SS-4-VCR-7-2	0.18	4.6	5/8	1.41	35.8	8000⑤	550⑤
1/4	SS-4-VCR-7-4	0.18	4.6	3/4	1.54	39.1	6600⑤	450⑤
3/8	SS-8-VCR-7-6	0.40	10.2	15/16	1.76	44.7	3500③⑤	240③⑤
1/2	SS-8-VCR-7-8	0.40	10.2	1 1/16	1.99	50.5	3500③⑤	240③⑤
3/4	SS-12-VCR-7-12	0.62	15.7	1 5/16	2.36	59.9	3000③⑤	200③⑤
1	SS-16-VCR-7-16	0.87	22.1	1 5/8	2.51	63.8	2400③⑤	160③⑤

Swagelok tube fitting connector ①

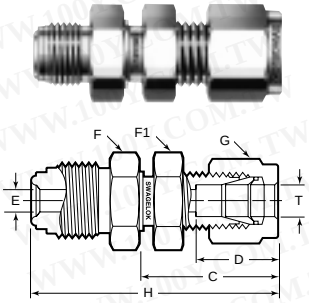


T Tube O.D.	Ordering Number	C		D		E		F Hex Flat	G Hex Flat	H		Working Pressure③⑤	
		in.	mm	in.	mm	in.	mm			in.	mm	psig	bar
fractional													
1/8	SS-4-VCR-6-200	0.60	15.2	0.50	12.7	.09④	2.3④	5/8	7/16	1.53	38.9	8000	550
1/4	SS-4-VCR-6-400	0.70	17.8	0.60	15.2	.18	4.6	5/8	9/16	1.62	41.1	8000	550
3/8	SS-8-VCR-6-600	0.76	19.3	0.66	16.8	.28④	7.1④	15/16	11/16	1.84	46.7	3500	240
1/2	SS-8-VCR-6-810	0.86	21.8	0.90	22.9	.40	10.2	15/16	7/8	1.95	49.5	3500	240

Dimensions – C, D, H, are typical finger-tight.
Note: Swagelok nuts and ferrules are provided assembled, as shown.

For tubing maximum pressure ratings for use with Swagelok tube fittings, see the *Tubing Data Sheet* in the *Technical Information* subsection of your Swagelok Product Binder.

Swagelok tube fitting bulkhead connector ①

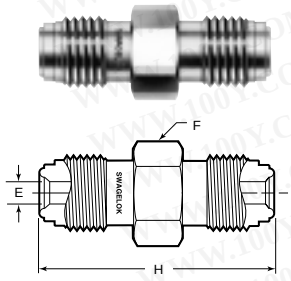


T Tube O.D.	Ordering Number	C		D		E		F Hex Flat	F1 Hex Flat	G Hex Flat	H		Panel Hole Size	Max. Panel Thick-ness	Working Pressure③⑤	
		in.	mm	in.	mm	in.	mm				in.	mm			psig	bar
fractional																
1/4	SS-4-VCR-A1-400	1.32	33.5	0.60	15.2	0.18	4.6	5/8	5/8	9/16	2.25	57.2	15/32	0.40	8000	550
1/4	SS-4-VCR-A1S-400	1.05	26.7	0.60	15.2	0.18	4.6	5/8	5/8	9/16	1.88	47.8	15/32	0.13	8000	550
3/8	SS-8-VCR-A1-600	1.45	36.8	0.66	16.8	0.28	7.1	15/16	3/4	11/16	2.54	64.5	19/32	0.44	3500	240
1/2	SS-8-VCR-A1-810	1.65	41.9	0.90	22.9	0.40	10.2	15/16	15/16	7/8	2.74	69.6	25/32	0.50	3500	240

Dimensions – C, D, H, are typical finger-tight.
Note: Swagelok nuts and ferrules are provided assembled, as shown.

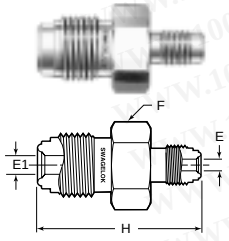
For tubing maximum pressure ratings for use with Swagelok tube fittings, see the *Tubing Data Sheet* in the *Technical Information* subsection of your Swagelok Product Binder.

Double male union ①



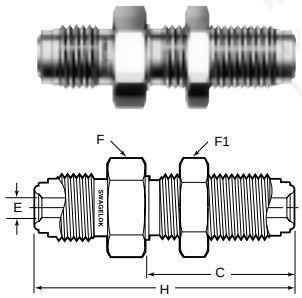
Ordering Number	E		F Hex Flat	H		Working Pressure③⑤	
	in.	mm		in.	mm	psig	bar
SS-2-VCR-6-DM②	0.09	2.3	3/8	1.13	28.7	9000	620
SS-4-VCR-6-DM	0.18	4.6	5/8	1.55	39.4	8000	550
SS-8-VCR-6-DM	0.40	10.2	15/16	1.84	46.7	3500	240
SS-12-VCR-6-DM	0.62	15.7	1 5/16	2.44	62.0	3000	200
SS-16-VCR-6-DM	0.87	22.1	1 5/8	2.59	65.8	2400	160

Double male reducing union ①



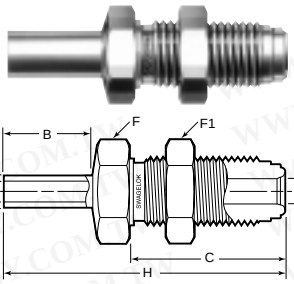
Ordering Number	E②		E1		F Hex Flat	H		Working Pressure③⑤	
	in.	mm	in.	mm		in.	mm	psig	bar
SS-4-VCR-6-DM-2	0.09	2.3	0.18	4.6	5/8	1.37	34.8	8000	550
SS-8-VCR-6-DM-4	0.18	4.6	0.40	10.2	15/16	1.71	43.4	3500	240

Bulkhead union ①



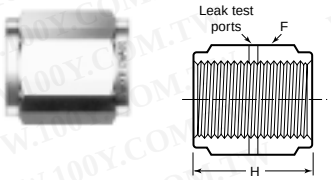
Ordering Number	C		E		F Hex Flat	F1 Hex Flat	H		Panel Hole Size	Max. Panel Thick-ness	Working Pressure③⑤	
	in.	mm	in.	mm			in.	mm			psig	bar
SS-4-VCR-61	1.30	33.0	0.18	4.6	3/4	3/4	2.23	56.6	19/32	0.44	8000	550
SS-4-VCR-61S	0.99	25.1	0.18	4.6	3/4	3/4	1.82	46.2	19/32	0.13	8000	550
SS-8-VCR-61	1.48	37.6	0.40	10.2	1 1/16	1 1/16	2.57	65.3	29/32	0.50	3500	240
SS-8-VCR-61S	1.11	28.2	0.40	10.2	1 1/16	1 1/16	2.14	54.4	29/32	0.13	3500	240

① VCR components with fixed threads must remain stationary during normal installation. These fitting connections should be assembled only to glands with rotating male or female threaded nuts.
② Not designed for gasket retainer assembly.
③ When using a stainless steel gasket assembly, the pressure rating for the VCR end is 25 % higher than the listed working pressure.
④ May contain internal diameter transitions.
⑤ When using a copper gasket assembly, the pressure rating for the VCR end is 20 % less than the listed working pressure.



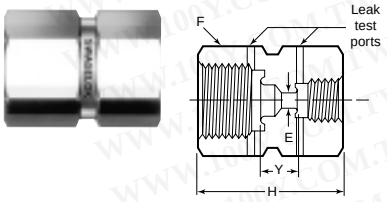
Tube butt weld bulkhead connector ①

T Tube OD Size	Ordering Number	B		C		E		E1		F Hex Flat	F1 Hex Flat	H		Panel Hole Size	Max. Panel Thick-ness	Working Pressure	
		in.	mm	in.	mm	in.	mm	in.	mm			in.	mm			psig	bar
fractional																	
¼	6LV-4-VCR-61-4TB7	0.75	19.1	1.30	33.0	0.18	4.6	0.22	5.6	¾	¾	2.36	59.9	19/32	0.44	5100	350
¼	6LV-4-VCR-61S-4TB7	0.75	19.1	0.99	25.1	0.18	4.6	0.22	5.6	¾	¾	1.95	49.5	19/32	0.13	5100	350



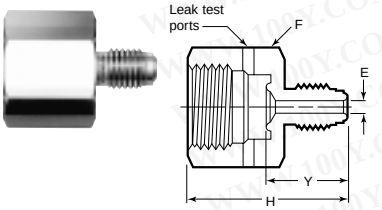
Coupling

Ordering Number	F Hex Flat	H	
		in.	mm
SS-2-VCR-CG	7/16	0.66	16.8
SS-4-VCR-CG	¾	1.19	30.2
SS-8-VCR-CG	1 1/16	1.31	33.3
SS-12-VCR-CG	1 ½	1.68	42.7
SS-16-VCR-CG	1 ¾	2.04	51.8



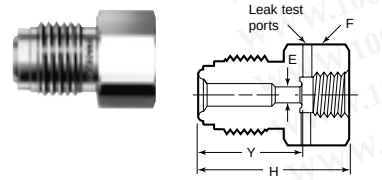
Double female reducing union ①

Ordering Number	E		F Hex Flat	H		Y		Working Pressure②③	
	in.	mm		in.	mm	in.	mm	psig	bar
SS-4-VCR-6-DF-2	0.13	3.3	¾	1.16	29.5	0.36	9.1	8000	550
SS-8-VCR-6-DF-4	0.25	6.4	1 1/16	1.41	35.8	0.35	8.9	3500	240



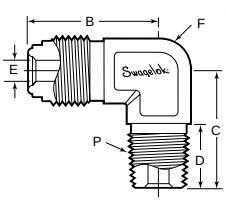
Reducing adapter ①

Ordering Number	E		F Hex Flat	H		Y		Working Pressure②③	
	in.	mm		in.	mm	in.	mm	psig	bar
SS-2-VCR-7-4VCRF④	0.09	2.3	¾	1.19	30.2	0.69	17.5	8000	550
SS-4-VCR-7-8VCRF	0.18	4.6	1 1/16	1.41	35.8	0.85	21.6	3500	240



Reducing bushing ①

Ordering Number	E		F Hex Flat	H		Y		Working Pressure②③	
	in.	mm		in.	mm	in.	mm	psig	bar
SS-4-VCR-7-2VCRF	0.13	3.3	5/8	1.06	26.9	0.76	19.3	8000	550
SS-8-VCR-7-4VCRF	0.25	6.4	15/16	1.41	35.8	0.91	23.1	3500	240



VCR to male NPT elbow ①

P Male NPT Size	Ordering Number	B		C		D		E		F Wrench Flat	Working Pressure③	
		in.	mm	in.	mm	in.	mm	in.	mm		psig	bar
fractional												
⅛	SS-4-VCR-2-2	1.07	27.2	0.87	22.1	0.38	9.6	0.18	4.6	½	8000②	550②
¼	SS-4-VCR-2-4	1.07	27.2	1.05	26.7	0.56	14.2	0.18	4.6	½	8000	550
⅜	SS-8-VCR-2-6	1.45	36.8	1.26	32.0	0.56	14.2	0.40	10.2	13/16	3500②	240②
½	SS-8-VCR-2-8	1.45	36.8	1.45	36.8	0.75	19.1	0.40	10.2	13/16	3500②	240②

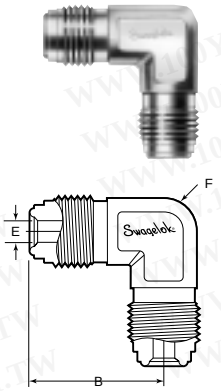
① VCR components with fixed threads must remain stationary during installation. These fitting connections should be assembled only to glands with rotating male or female threaded nuts.

② When using a stainless steel assembly, the pressure rating for the VCR end is 25 % higher than the listed working pressure.

③ When using a copper gasket assembly, the pressure rating for the VCR end is 20 % less than the listed working pressure.

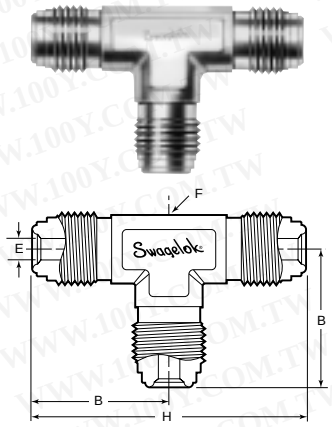
④ Not designed for gasket retainer assembly.

Union elbow ①



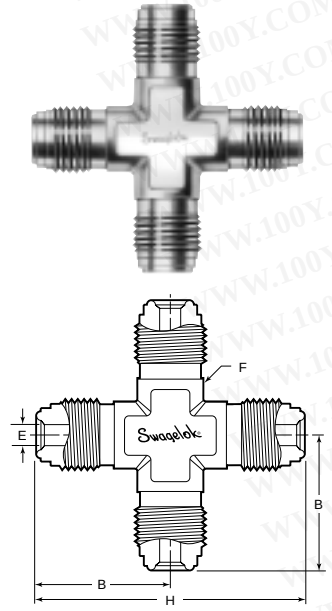
Ordering Number	B		E		F Wrench Flat	Working Pressure③④	
	in.	mm	in.	mm		psig	bar
SS-2-VCR-9②	0.89	22.6	0.09	2.3	7/16	9000	620
SS-4-VCR-9	1.07	27.2	0.18	4.6	1/2	8000	550
SS-8-VCR-9	1.45	36.8	0.40	10.2	13/16	3500	240
SS-12-VCR-9	1.92	48.8	0.62	15.7	1 1/4	3000	200
SS-16-VCR-9	2.00	50.8	0.87	22.1	1 11/16	2400	160

Union tee ①



Ordering Number	B		E		H		F Wrench Flat	Working Pressure③④	
	in.	mm	in.	mm	in.	mm		psig	bar
SS-2-VCR-T②	0.89	22.6	0.09	2.3	1.78	45.2	7/16	9000	620
SS-4-VCR-T	1.07	27.2	0.18	4.6	2.14	54.4	1/2	8000	550
SS-8-VCR-T	1.45	36.8	0.40	10.2	2.90	73.7	13/16	3500	240
SS-12-VCR-T	1.92	48.8	0.62	15.7	3.84	97.5	1 1/4	3000	200
SS-16-VCR-T	2.00	50.8	0.87	22.1	4.00	101.6	1 11/16	2400	160

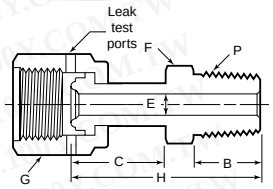
Union cross ①



Ordering Number	B		E		H		F Wrench Flat	Working Pressure③④	
	in.	mm	in.	mm	in.	mm		psig	bar
SS-2-VCR-CS②	0.89	22.6	0.09	2.3	1.78	45.2	7/16	9000	620
SS-4-VCR-CS	1.07	27.2	0.18	4.6	2.14	54.4	1/2	8000	550
SS-8-VCR-CS	1.45	36.8	0.40	10.2	2.90	73.7	13/16	3500	240
SS-12-VCR-CS	1.92	48.8	0.62	15.7	3.84	97.5	1 1/4	3000	200
SS-16-VCR-CS	2.00	50.8	0.87	22.1	4.00	101.6	1 11/16	2400	160

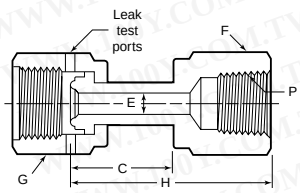
① VCR components with fixed threads must remain stationary during installation. These fitting connections should be assembled only to glands with rotating male or female threaded nuts.
② Not designed for gasket retainer assembly.
③ When using a stainless steel gasket assembly, the pressure rating for the VCR end is 25 % higher than the listed working pressure.
④ When using a copper gasket assembly, the pressure rating for the VCR end is 20 % less than the listed working pressure.

Welded Assemblies



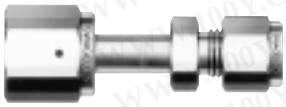
Male NPT connector

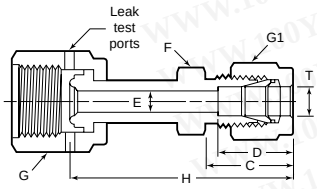
P Male NPT Size	Ordering Number	B		C		E		F Hex Flat	G Hex Flat	H		Working Pressure②	
		in.	mm	in.	mm	in.	mm			in.	mm	psig	bar
fractional													
⅛	SS-4-WVCR-1-2	0.38	9.6	0.95	24.1	0.18	4.6	7/16	¾	1.58	40.1	8000	550
¼	SS-4-WVCR-1-4	0.56	14.2	0.92	23.4	0.18	4.6	9/16	¾	1.79	45.5	8000	550
⅜	SS-8-WVCR-1-6	0.56	14.2	1.00	25.4	0.40	10.2	11/16	1 1/16	1.89	48.0	3500①	240①
½	SS-8-WVCR-1-8	0.75	19.1	1.01	25.6	0.40	10.2	⅞	1 1/16	2.09	53.1	3500①	240①



Female NPT connector

P Female NPT Size	Ordering Number	C		E		F Hex Flat	G Hex Flat	H		Working Pressure②	
		in.	mm	in.	mm			in.	mm	psig	bar
fractional											
¼	SS-4-WVCR-7-4	0.92	23.4	0.18	4.6	¾	¾	1.77	45.0	6600	450
⅜	SS-8-WVCR-7-6	1.06	26.9	0.40	10.2	⅞	1 1/16	1.95	49.5	3500①	240①
½	SS-8-WVCR-7-8	1.04	26.4	0.40	10.2	1 1/16	1 1/16	2.18	55.4	3500①	240①



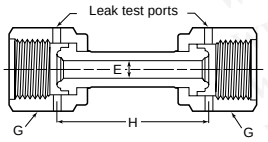


Swagelok tube fitting connector

T Tube O.D.	Ordering Number	C		D		E		F Hex Flat	G Hex Flat	G1 Hex Flat	H		Working Pressure②	
		in.	mm	in.	mm	in.	mm				in.	mm	psig	bar
fractional														
¼	SS-4-WVCR-6-400	0.70	17.8	0.60	15.2	0.18	4.6	½	¾	9/16	1.94	49.3	8000①	550①
⅜	SS-4-WVCR-6-600	0.76	19.3	0.66	16.8	0.18	4.6	⅝	¾	11/16	1.97	50.0	6500	440
½	SS-8-WVCR-6-810	0.86	21.8	0.90	22.9	0.40	10.2	13/16	1 1/16	1 ⅞	2.23	56.6	3500①	240①

Dimensions – C, D, H, are typical finger-tight.
Note: Swagelok nuts and ferrules are provided assembled, as shown.

For tubing maximum pressure ratings for use with Swagelok tube fittings, see *Tubing Data Sheet* in the *Technical Information* subsection of your Swagelok Product Binder.



Rotating female union

Ordering Number	E		G Hex Flat	H		Working Pressure①②	
	in.	mm		in.	mm	psig	bar
SS-4-WVCR-6-DF	0.18	4.6	¾	1.71	43.4	8000	550
SS-8-WVCR-6-DF	0.40	10.2	1 1/16	1.84	46.7	3500	240

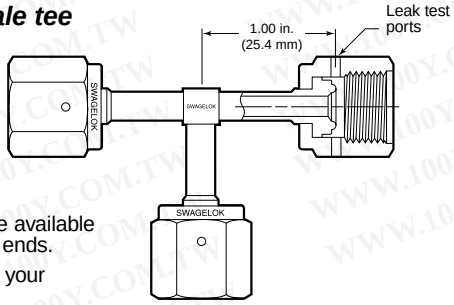
Female elbow

Elbows, Crosses and Tees are available with welded male and female ends.

For more information, contact your Swagelok representative.

ORDERING NUMBER
6LV-4-WVCR-9-DF

Female tee



ORDERING NUMBER
6LV-4-WVCR-T-FFF

① When using a stainless steel gasket assembly, the pressure rating for the VCR end is 25 % higher than the listed working pressure.
② When using a copper gasket assembly, the pressure rating for the VCR end is 20 % less than the listed working pressure.

Gaskets

Ordering Information

Specify gasket material by using the appropriate Prefix Designator to the Basic Ordering Number.

Material	Prefix Designator	Example
nickel	**NI**	NI-4-VCR-2-VS
316 stainless steel	**SS**	SS-4-VCR-2-VS
copper①	**CU**	CU-4-VCR-2

Note: Nickel and copper gasket retainer assemblies utilize a 316 stainless steel retainer.

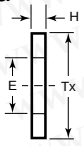
① Copper gaskets are unplated. However, to order, use **CU** as a prefix to the silver plated gasket Basic Ordering Number. Example: **CU**-4-VCR-2

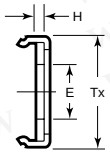
Blind (undrilled) gaskets are available in non-retained and retainer assembly styles.

To order, use **-BL** as a suffix to the Basic Ordering Number.
Example: SS-4-VCR-2-VS**-BL**

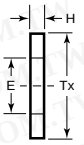
Note: Blind gaskets have a maximum differential pressure rating (DP) of 100 psi (6.8 bar).

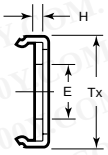
Silver Plated

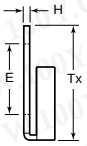




Unplated (VS)







Non-retained style

Can be used with any style VCR gland. Cannot be used in a gasket retainer assembly.

Basic Ordering Number	E		H		Tx	
	in.	mm	in.	mm	in.	mm
-2-VCR-2	0.09	2.3	0.020	0.5	0.26	6.6
-4-VCR-2	0.22	5.6	0.026	0.7	0.47	11.9
-8-VCR-2	0.44	11.2	0.026	0.7	0.78	19.8
-12-VCR-2	0.66	16.8	0.026	0.7	1.14	29.0
-16-VCR-2	0.89	22.6	0.026	0.7	1.40	35.6

Gasket retainer assembly

Retainer and gasket must be used as an assembly.

Basic Ordering Number	E		H		Tx	
	in.	mm	in.	mm	in.	mm
-4-VCR-2-GR	0.24	6.1	0.026	0.7	0.50	12.7
-8-VCR-2-GR	0.44	11.2	0.026	0.7	0.79	20.1
-12-VCR-2-GR	0.66	16.8	0.026	0.7	1.14	29.0
-16-VCR-2-GR	0.89	22.6	0.026	0.7	1.40	35.6

Non-retained style

Basic Ordering Number	E		H		Tx	
	in.	mm	in.	mm	in.	mm
-2-VCR-2-VS	0.09	2.3	0.028	0.7	0.26	6.6
-4-VCR-2-VS	0.22	5.6	0.028	0.7	0.47	11.9
-8-VCR-2-VS	0.44	11.2	0.028	0.7	0.78	19.8
-12-VCR-2-VS	0.66	16.8	0.028	0.7	1.14	29.0
-16-VCR-2-VS	0.89	22.6	0.028	0.7	1.40	35.6

Gasket retainer assembly

Basic Ordering Number	E		H		Tx	
	in.	mm	in.	mm	in.	mm
-4-VCR-2-GR-VS	0.24	6.1	0.028	0.7	0.50	12.7
-8-VCR-2-GR-VS	0.44	11.2	0.028	0.7	0.79	20.1
-12-VCR-2-GR-VS	0.66	16.8	0.028	0.7	1.14	29.0
-16-VCR-2-GR-VS	0.89	22.6	0.028	0.7	1.40	35.6

Side-load retainer style

Ordering Number	E		H		Tx	
	in.	mm	in.	mm	in.	mm
NI-4-VCR-2-ZC-VS (individually bagged)	0.24	6.1	0.028	0.7	0.45	11.4

Optional installation tool and tray

(for use only with side-load retainer style gaskets)

	Ordering Number
Installation Tool	MS-4-VCR-ZC-TL
Tray (includes 30 gaskets)	NI-4-VCR-2-ZCT-VS

Side-Load Installation Tool and Tray

Tool
- makes gasket handling easy, preserves cleanliness
- enables gasket installation where space is limited
- is used to easily remove gasket from storage tray

Material: polyether sulfone (PES)

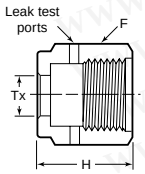
Tray (includes 30 gaskets)
- keeps gaskets secure
- keeps gaskets aligned for easy removal with side-load gasket tool
- cleaned and packaged in accordance with Swagelok Specification SC-01.

Material: (tray) polypropylene 5

(lid) clear polycarbonate 7

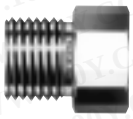
Nuts, Caps, and Plugs

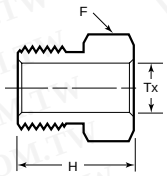
Female nut



Ordering Number	F Hex Flat	H		Tx	
		in.	mm	in.	mm
SS-2-VCR-1	7/16	0.53	13.5	0.21	5.3
SS-4-VCR-1	3/4	0.81	20.6	0.36	9.1
SS-8-VCR-1	1 1/16	0.88	22.4	0.61	15.5
SS-12-VCR-1	1 1/2	1.12	28.4	0.89	22.6
SS-16-VCR-1	1 3/4	1.34	34.0	1.20	30.5

Male nut

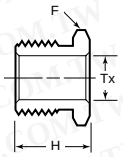




Ordering Number	F Hex Flat	H		Tx	
		in.	mm	in.	mm
SS-2-VCR-4	3/8	0.50	12.7	0.21	5.3
SS-4-VCR-4①	5/8	0.71	18.0	0.36	9.1
SS-8-VCR-4	15/16	0.81	20.6	0.61	15.5
SS-12-VCR-4	1 5/16	1.00	25.4	0.89	22.6
SS-16-VCR-4	1 5/8	1.19	30.2	1.20	30.5

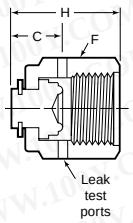
Short male nut

(for use with short gland)



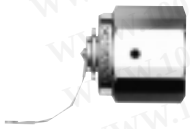
Ordering Number	F Hex Flat	H		Tx	
		in.	mm	in.	mm
SS-4-VCR-4-.54NC	5/8	0.54	13.7	0.36	9.1
SS-4-VCR-4-.65NC	5/8	0.65	16.5	0.36	9.1

Cap



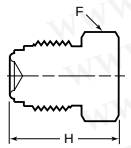
Ordering Number	C		F Hex Flat	H	
	in.	mm		in.	mm
SS-4-VCR-CP	0.44	11.2	3/4	0.94	23.9
SS-8-VCR-CP	0.45	11.4	1 1/16	1.01	25.6
SS-12-VCR-CP	0.54	13.7	1 1/2	1.29	32.8
SS-16-VCR-CP	0.63	16.0	1 3/4	1.54	39.1

Cap with lanyard



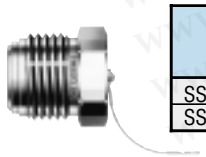
Ordering Number③	C		F Hex Flat	H		Lanyard Length	
	in.	mm		in.	mm	in.	mm
SS-4-VCR-CP-BP	0.44	11.2	3/4	0.94	23.9	6	152.4
SS-8-VCR-CP-BP	0.45	11.4	1 1/16	1.01	25.6	6	152.4

Plug



Ordering Number	F Hex Flat	H	
		in.	mm
SS-2-VCR-P④	3/8	0.68	17.3
SS-4-VCR-P②	5/8	0.92	23.4
SS-8-VCR-P	15/16	1.08	27.4
SS-12-VCR-P	1 5/16	1.43	36.3
SS-16-VCR-P	1 5/8	1.52	38.6

Plug with lanyard



Ordering Number③	F Hex Flat	H		Lanyard Length	
		in.	mm	in.	mm
SS-4-VCR-BP	5/8	0.92	23.4	6	152.4
SS-8-VCR-BP	15/16	1.08	27.4	6	152.4

Protective shipping cap

Ordering Number
304-4-VCR-SC
304-8-VCR-SC
304-12-VCR-SC
304-16-VCR-SC

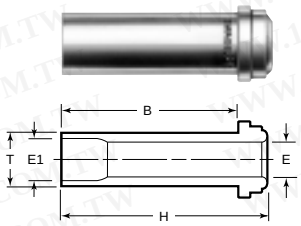
Made of 304 stainless steel and supplied as bead protection during shipping for a variety of VCR face seal fittings processed to Swagelok specification SC-01.

① A taper at the hex end allows the nut to move around 90° tube bends.
② Also available as a Rotatable Plug. Ordering Number: SS-4-VCR-RP.
③ Lanyards are manufactured from 302 stainless steel material.
④ Not designed for gasket retainer assembly.

High-Flow Connections – "H" Type VCR

Note: "H" Type VCR connections are compatible with 1/4 in. VCR connections and are designed for use with Swagelok high-flow diaphragm valves. For uniform flow, use 1/4 in. side-load retainer style gasket. Example: NI-4-VCR-2-ZC-VS.

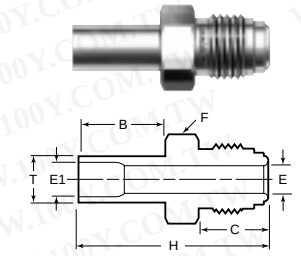
Glands



Tube butt weld

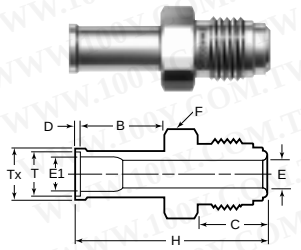
T Tube OD	Ordering Number	B		E		E1		H		Nominal Wall Thickness	Working Pressure	
		in.	mm	in.	mm	in.	mm	in.	mm		psig	bar
fractional												
3/8	6LV-4-HVCR-3-.60SR	0.41	10.4	0.25	6.4	0.31	7.9	0.60	15.2	0.035	3300	220
3/8	6LV-4-HVCR-3-1.19SR	1.00	25.4	0.25	6.4	0.31	7.9	1.19	30.2	0.035	3300	220
3/8	6LV-4-HVCR-3-1.31SR	1.12	28.4	0.25	6.4	0.31	7.9	1.31	33.3	0.035	3300	220

Bodies



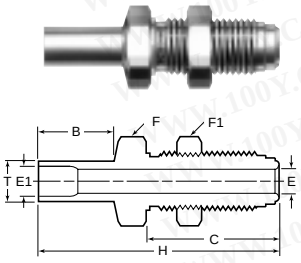
Tube butt weld

T Tube OD	Ordering Number	B		C		E		E1		F Hex Flat	H		Working Pressure	
		in.	mm	in.	mm	in.	mm	in.	mm		in.	mm	psig	bar
fractional														
3/8	6LV-4-HVCR-1-6TB7	0.75	19.1	0.62	15.7	0.25	6.4	0.31	7.9	5/8	1.68	42.7	3300	220



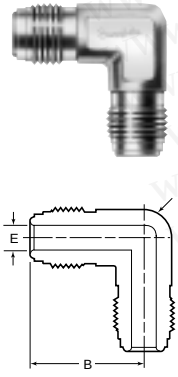
Automatic tube weld

T Tube OD	Ordering Number	B		C		D		E		E1		F Hex Flat	H		Tx		Working Pressure	
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm		in.	mm	in.	mm	psig	bar
fractional																		
3/8	316L-4-HVCR-1A6	0.75	19.1	0.62	15.7	0.03	0.8	0.25	6.4	0.31	7.9	5/8	1.71	43.4	0.41	10.4	3300	220



Bulkhead connector

T Tube OD	Ordering Number	B		C		E		E1		F Hex Flat	F1 Hex Flat	H		Panel Hole Size	Max. Panel Thick-ness	Working Pressure	
		in.	mm	in.	mm	in.	mm	in.	mm			in.	mm			psig	bar
fractional																	
3/8	316L-4-HVCR-61-6TB7	0.75	19.1	1.30	33.0	0.25	6.4	0.31	7.9	3/4	3/4	2.36	59.9	19/32	0.44	3300	220

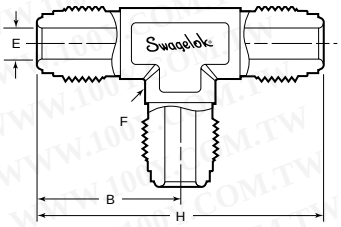


Union elbow

Ordering Number	B		E		F Wrench Flat	Working Pressure①②	
	in.	mm	in.	mm		psig	bar
SS-4-HVCR-9	1.07	27.2	0.25	6.4	1/2	8000	550

① When using a stainless steel gasket assembly, the pressure rating of this fitting is 25 % higher than the listed working pressure.
② When using a copper gasket assembly, the pressure rating for the VCR end is 20 % less than the listed working pressure.

High-Flow Connections – "H" Type VCR

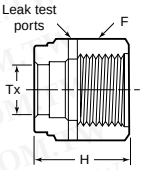


Union tee

Ordering Number	B		E		H		F Wrench Flat	Working Pressure①②	
	in.	mm	in.	mm	in.	mm		psig	bar
SS-4-HVCR-T	1.07	27.2	0.25	6.4	2.14	54.4	½	8000	550

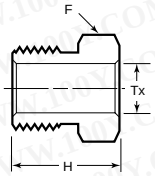
① When using a stainless steel gasket assembly, the pressure rating of this fitting is 25 % higher than the listed working pressure.
② When using a copper gasket assembly, the pressure rating for the VCR end is 20 % less than the listed working pressure.

Nuts



Female

Ordering Number	F Hex Flat	H		Tx	
		in.	mm	in.	mm
SS-4-HVCR-1SR	¾	0.81	20.6	0.39	9.9



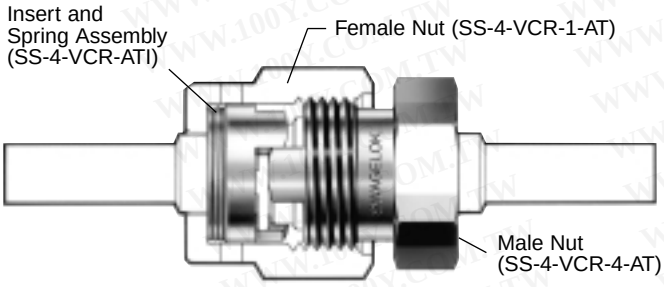
Male

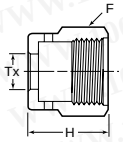
Ordering Number	F Hex Flat	H		Tx	
		in.	mm	in.	mm
SS-4-HVCR-4SR	⅝	0.71	18.0	0.39	9.9

Anti-Twist Design Components

minimize rotation between female nut and gland. These anti-twist components can be used with straight 1/4 in. VCR glands. The anti-twist insert must be used inside the anti-twist female nut.

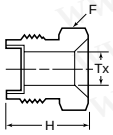
Use only anti-twist nuts when making this connection.





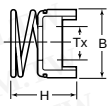
Female nut

Ordering Number	F Hex Flat	H		Tx	
	in.	in.	mm	in.	mm
SS-4-VCR-1-AT	13⁄16	0.81	20.6	0.36	9.1



Male nut

Ordering Number	F Hex Flat	H		Tx	
	in.	in.	mm	in.	mm
SS-4-VCR-4-AT	¾	0.84	21.3	0.36	9.1



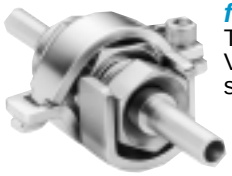
Insert and spring assembly

Ordering Number	B		H		Tx	
	in.	mm	in.	mm	in.	mm
SS-4-VCR-ATI	0.62	15.7	0.56	14.2	0.36	9.1

Note: spring material is 302 stainless steel

Lock and Tag Devices

To help prevent unintentional disassembly of VCR connections. Additionally both devices include a wire hole to allow for a tag to support identification and quality verification programs.



fitting lock device

This device is intended for use on Swagelok VCR metal gasket face seal assemblies with standard male and female nuts.

Size	Ordering Numbers
¼ in.	SS-4-VCR-FLC
½ in.	SS-8-VCR-FLC

fitting lock device for valves

This device is intended for use on Swagelok valves with integrally machined male VCR metal gasket face seal end connections.

Size	Ordering Numbers
¼ in.	SS-4-VCR-VLC
½ in.	SS-8-VCR-VLC

Handling

Damage to the sealing beads may affect the fitting performance. A protective cap is placed on a variety of VCR sealing beads to prevent nicks or scratches. Keep this cap in place during storage and handling and only remove prior to assembly.

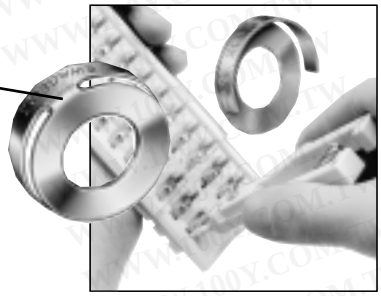
Caution:

VCR components with fixed threads must remain stationary during installation. Do not allow the sealing beads to rotate against the gasket.

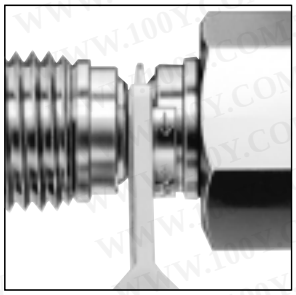
Assembly:

Side-load retainer style …using tool and tray

Step 1



While squeezing handles of tool, place jaws around ***gasket*** with tab centered between tool jaws. ***Do not place jaws around retainer.*** Relax the handles to secure the gasket and remove from tray.



From the side of the VCR fitting, guide the gasket retainer over retainer diameter of the fitting until gasket is seated. Squeeze handles and remove the tool.

proceed to Step 2

…by Hand

Step 1

Grasp the gasket by the retainer.

From the side of the VCR fitting, guide the gasket retainer over retainer diameter of the fitting until gasket is seated.

proceed to Step 2

Retainer assembly

Step 1

When using a gasket retainer assembly, axially press the assembly onto the gland as shown. The retainer assembly will locate the gasket over the bead and hold it in place. Be careful not to scratch or nick the bead as this may affect fitting performance.

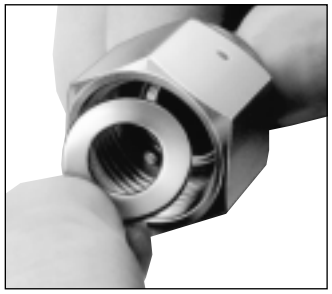
proceed to Step 2

Non-retained style

Step 1

When using a non-retained style gasket, place it into the female nut. No special positioning is needed, because the gasket is self-aligning.

proceed to Step 2

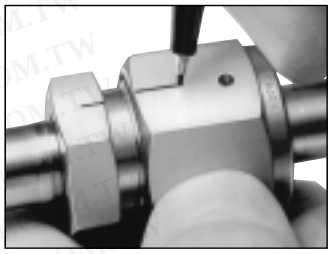


Step 2

To assemble the connection, hold the male nut or body hex stationary. Tighten the female nut finger-tight.

Step 3

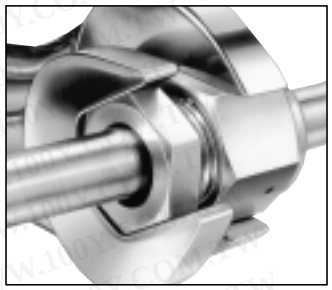
Mark both the female nut and the male nut or body hex.



Step 4

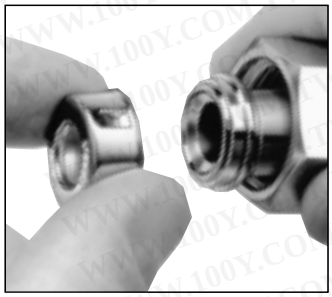
Hold the male nut or body hex stationary with a backup wrench. Tighten the female nut 1/8 turn past finger-tight for 316 stainless steel and nickel gaskets or 1/4 turn past finger-tight for copper gaskets.

Caution: Excessive over-tightening will damage the sealing beads and possibly cause system leakage.



Disassembly

Removing VCR components in an assembled system requires minimal clearance. To disassemble a VCR connection, hold the male nut or body hex stationary with a backup wrench and loosen the female nut. After removing the components, be sure to protect the sealing beads with protective caps or gasket retainer assemblies.



Removing Side-Load Gasket Using Tool

- Disassemble connection.
- Squeeze handles of tool, place jaws around the gasket with tab centered between tool jaws.
- Relax handles to grip gasket and remove from fitting diameter.

Retightening

To maintain system reliability, install a new gasket on each remake. Simply follow the assembly instructions listed.

Swagelok Welding Systems

The orbital welding systems that provide precise gas tungsten arc welds (GTAW) for use with VCR metal gasket face seal fittings, as well as a variety of other valves and fittings manufactured by Swagelok.

Safe Product Selection
When selecting a component, the total system design must be considered to ensure safe, trouble-free performance. Function, material compatibility, adequate ratings, proper installation, operation, and maintenance are the responsibilities of the system designer and user.

Caution: do not mix or interchange parts with those of other manufacturers.

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