

Face Seal Fittings

VVR Series

General Information



Materials

Material	Ordering Number Designator	Specification
Glands, Bodies, and Nuts		
316L stainless steel	Standard	Bar stock: ASME SA479, ASTM A276 Forgings: ASME A182
316L secondary remelt stainless steel	-SLV	Bar stock: ASME SA479, ASTM A276 Forgings: ASME A182
Gaskets		
Nickel	-NI	ASTM B162
316L stainless steel	Standard	ASTM A240, ASTM A167

* The product is fabricated in compliance with the VS001A process specification

Dimensions

- Dimensions are for reference only and may change without prior notice
- The D1 dimension refers to the smallest nominal inside diameter of the part

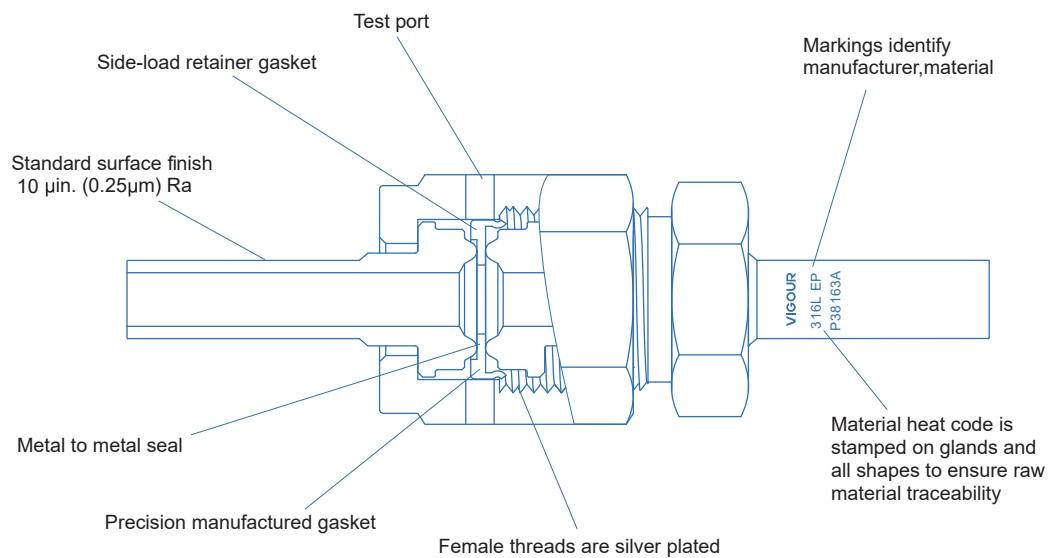
Pressure Ratings

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

Components	Material	Temperature, °F (°C)
Fittings	316L stainless steel	1000 (537)
	316L secondary remelt stainless steel	1000 (537)
Gaskets	316L stainless steel	1000 (537)
	Nickel	600 (315)

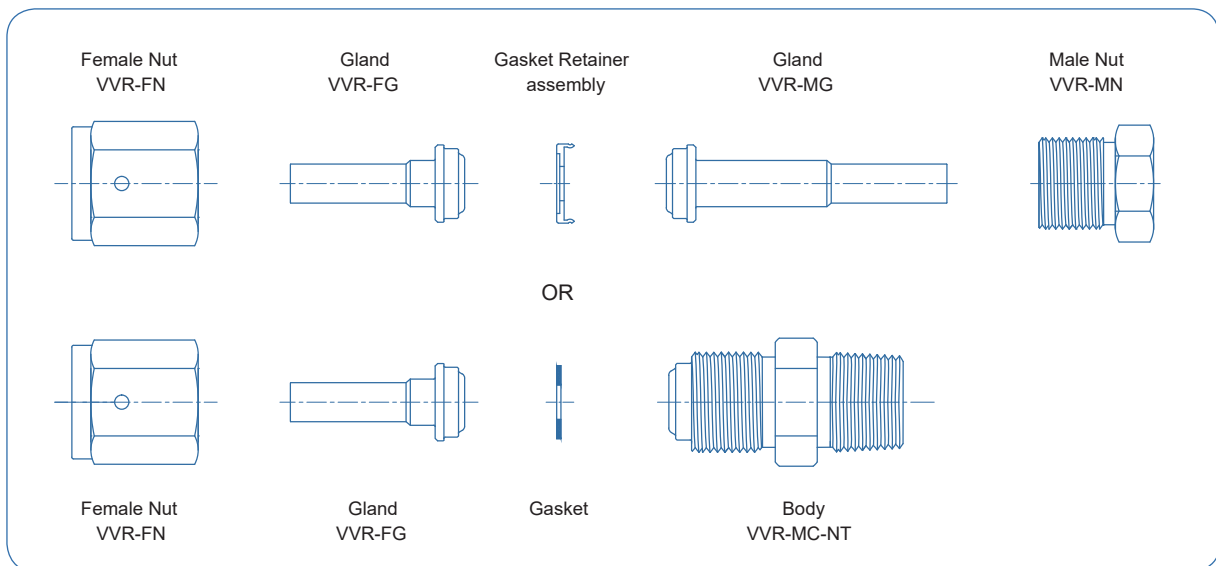
Testing

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



Typical VFS Assemblies

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

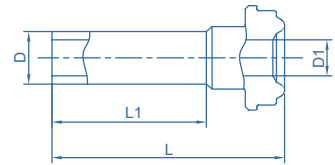


Face Seal Fittings

VVR Series

Glands

Short Tube Butt Weld



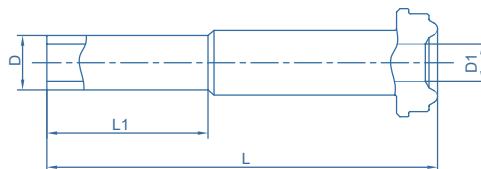
D Tube OD in.	Wall Thickness in.	VFS Size in.	Material	Ordering Number	Dimensions, in.(mm)			Working Pressure psig (bar)
					L1	D1	L	
1/8	0.028	1/8	316L	VVR-FG2-TB2 ①	0.75	0.07	1.08	8500
			316L secondary remelt	VVR-FG2-TB2-SLV ①	(19.1)	(1.8)	(27.4)	(585)
1/4	0.035	1/4	316L	VVR-FG4-TB4	0.75	0.18	1.10	5100
			316L secondary remelt	VVR-FG4-TB4-SLV	(19.1)	(4.6)	(27.9)	(351)
1/4	0.035	1/4	316L	VVR-FG4-TB4-L18	0.38	0.18	0.72	5100
			316L secondary remelt	VVR-FG4-TB4-L18-SLV	(9.6)	(4.6)	(18.3)	(351)
1/4	0.035	1/4	316L	VVR-FG4-TB4-L15	0.25	0.18	0.60	5100
			316L secondary remelt	VVR-FG4-TB4-L15-SLV	(6.4)	(4.6)	(15.2)	(351)
1/4	0.035	1/2	316L	VVR-FG8-TB4	0.75	0.18	1.12	4300
			316L secondary remelt	VVR-FG8-TB4-SLV	(19.1)	(4.6)	(28.4)	(296)
1/4	0.035	1/2	316L	VVR-FG8-TB4-L15	0.25	0.18	0.62	4300
			316L secondary remelt	VVR-FG8-TB4-L15-SLV	(19.1)	(4.6)	(15.7)	(296)
1/4	0.035	1/2	316L	VVR-FG8-TB4-L19	0.75	0.18	0.76	4300
			316L secondary remelt	VVR-FG8-TB4-L19-SLV	(19.1)	(4.6)	(19.4)	(296)
3/8	0.035	1/2	316L	VVR-FG8-TB6	0.75	0.31	1.12	3300
			316L secondary remelt	VVR-FG8-TB6-SLV	(19.1)	(7.9)	(28.4)	(227)
3/8	0.035	1/2	316L	VVR-FG8-TB6-L15	0.25	0.31	0.62	3300
			316L secondary remelt	VVR-FG8-TB6-L15-SLV	(6.4)	(7.9)	(15.7)	(227)
1/2	0.049	1/2	316L	VVR-FG8-TB8	0.75	0.40	1.12	3700
			316L secondary remelt	VVR-FG8-TB8-SLV	(19.1)	(10.2)	(28.4)	(254)
1/2	0.049	1/2	316L	VVR-FG8-TB8-L18	0.38	0.40	0.74	3700
			316L secondary remelt	VVR-FG8-TB8-L18-SLV	(9.6)	(10.2)	(18.8)	(254)
1/2	0.049	1/2	316L	VVR-FG8-TB8-L15	0.25	0.40	0.62	3700
			316L secondary remelt	VVR-FG8-TB8-L15-SLV	(6.4)	(10.2)	(15.7)	(254)
3/4	0.065	3/4	316L	VVR-FG12-TB12	0.81	0.62	1.25	2400
			316L secondary remelt	VVR-FG12-TB12-SLV	(20.6)	(15.7)	(32)	(165)
1	0.065	1	316L	VVR-FG16-TB16	0.75	0.87	1.51	1900
			316L secondary remelt	VVR-FG16-TB16-SLV	(19.1)	(22.1)	(38.6)	(130)

① not design for gasket retainer assembly

To order fittings manufactured for Surface Finish Ra(Average) < 0.4 add BA to the ordering number.
Example: VVR-FG4-TB4-BA

Glands

Long Tube Butt Weld



D Tube OD in.	Wall Thickness in.	VFS Size in.	Material	Ordering Number	Dimensions, in.(mm)			Working Pressure psig (bar)
					L1	D1	L	
1/8	0.028	1/8	316L	VVR-MG2-TB2 ①	0.75	0.07	1.42	8500
			316L secondary remelt	VVR-MG2-TB2-SLV ①	(19.1)	(1.8)	(36.1)	(585)
1/4	0.035	1/4	316L	VVR-MG4-TB4	0.75	0.18	1.70	5100
			316L secondary remelt	VVR-MG4-TB4-SLV	(19.1)	(4.6)	(43.2)	(351)
1/4	0.035	1/4	316L	VVR-MG4-TB4-L33	0.38	0.18	1.32	5100
			316L secondary remelt	VVR-MG4-TB4-L33-SLV	(9.6)	(4.6)	(33.5)	(351)
1/4	0.035	1/4	316L	VVR-MG4-TB4-L30	0.25	0.18	1.20	5100
			316L secondary remelt	VVR-MG4-TB4-L30-SLV	(6.4)	(4.6)	(30.5)	(351)
1/4	0.035	1/2	316L	VVR-MG8-TB4	0.75	0.18	1.79	4300
			316L secondary remelt	VVR-MG8-TB4-SLV	(19.1)	(4.6)	(45.5)	(296)
1/4	0.035	1/2	316L	VVR-MG8-TB4-L32	0.75	0.18	1.28	4300
			316L secondary remelt	VVR-MG8-TB4-L32-SLV	(19.1)	(4.6)	(32.7)	(296)
1/4	0.035	1/2	316L	VVR-MG8-TB4-L37	0.75	0.18	1.47	4300
			316L secondary remelt	VVR-MG8-TB4-L37-SLV	(19.1)	(4.6)	(37.4)	(296)
3/8	0.035	1/2	316L	VVR-MG8-TB6	0.75	0.31	1.79	3300
			316L secondary remelt	VVR-MG8-TB6-SLV	(19.1)	(7.9)	(45.5)	(227)
3/8	0.035	1/2	316L	VVR-MG8-TB6-L32	0.25	0.31	1.29	3300
			316L secondary remelt	VVR-MG8-TB6-L32-SLV	(6.4)	(7.9)	(32.8)	(227)
1/2	0.049	1/2	316L	VVR-MG8-TB8	0.75	0.40	1.79	3500
			316L secondary remelt	VVR-MG8-TB8-SLV	(19.1)	(10.2)	(45.5)	(241)
1/2	0.049	1/2	316L	VVR-MG8-TB8-L35	0.38	0.40	1.41	3500
			316L secondary remelt	VVR-MG8-TB8-L35-SLV	(9.6)	(10.2)	(35.8)	(241)
1/2	0.049	1/2	316L	VVR-MG8-TB8-L32	0.25	0.40	1.29	3500
			316L secondary remelt	VVR-MG8-TB8-L32-SLV	(6.4)	(10.2)	(32.8)	(241)
3/4	0.065	3/4	316L	VVR-MG12-TB12	0.75	0.65	2.03	2400
			316L secondary remelt	VVR-MG12-TB12-SLV	(19.1)	(16.5)	(51.6)	(165)
1	0.065	1	316L	VVR-MG16-TB16	0.75	0.87	2.32	2400
			316L secondary remelt	VVR-MG16-TB16-SLV	(19.1)	(22.1)	(58.9)	(165)

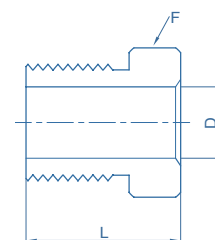
① not design for gasket retainer assembly

To order fittings manufactured for Surface Finish Ra(Average)<0.4 add BA to the ordering number.
Example: VVR-MG4-TB4-BA

Face Seal Fittings

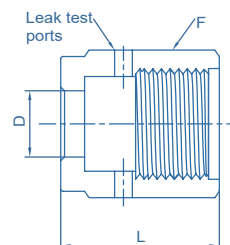
VVR Series

Male Nut



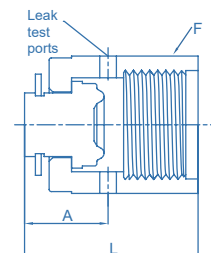
VFS Size in.	Ordering Number	Material	F Hex Flat	Dimensions, in.(mm)	
				L	D
1/8	VVR-MN2	316L	3/8	0.50 (12.7)	0.21 (5.3)
1/4	VVR-MN4		5/8	0.71 (18.0)	0.36 (9.1)
1/2	VVR-MN8		15/16	0.81 (20.6)	0.61 (15.5)
3/4	VVR-MN12		1-5/16	1.00 (25.4)	0.89 (22.6)
1	VVR-MN16		1-5/8	1.19 (30.2)	1.20 (30.5)

Female Nut



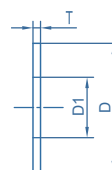
VFS Size in.	Ordering Number	Material	F Hex Flat	Dimensions, in.(mm)	
				L	D
1/8	VVR-FN2	316L	7/16	0.53 (13.5)	0.21 (5.3)
1/4	VVR-FN4		3/4	0.81 (20.6)	0.36 (9.1)
1/2	VVR-FN8		1-1/16	0.88 (22.4)	0.61 (15.5)
3/4	VVR-FN12		1-1/2	1.12 (28.4)	0.89 (22.6)
1	VVR-FN16		1-3/4	1.34 (34.0)	1.20 (30.5)

Cap



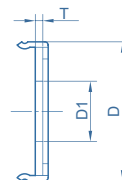
VFS Size in.	Ordering Number	Material	F Hex Flat	Dimensions, in.(mm)	
				L	A
1/8	VVR-C2	316L	7/16	0.63 (16.0)	0.30 (7.6)
1/4	VVR-C4		3/4	0.94 (23.9)	0.44 (11.2)
1/2	VVR-C8		1-1/16	1.01 (25.6)	0.45 (11.4)
3/4	VVR-C12		1-1/2	1.29 (32.8)	0.54 (13.7)
1	VVR-C16		1-3/4	1.54 (39.1)	0.63 (16.0)

Gaskets



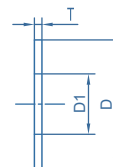
VFS Size in.	Ordering Number	Material	Dimensions, in.(mm)		
			D1	T	D
1/8	VVR-GK-G2	316L	0.09 (2.3)	0.028 (0.7)	0.26 (6.6)
	VVR-GK-G2-NI	Nickel			
1/4	VVR-GK-G4	316L	0.22 (5.6)	0.028 (0.7)	0.47 (11.9)
	VVR-GK-G4-NI	Nickel			
	VVR-GK-G4-12.7	316L	0.22 (5.6)	0.028 (0.7)	0.50 (12.7)
	VVR-GK-G4-12.7-NI	Nickel			
1/2	VVR-GK-G8	316L	0.44 (11.2)	0.028 (0.7)	0.78 (19.8)
	VVR-GK-G8-NI	Nickel			
3/4	VVR-GK-G12	316L	0.66 (16.8)	0.028 (0.7)	1.14 (29.0)
	VVR-GK-G12-NI	Nickel			
1	VVR-GK-G16	316L	0.89 (22.6)	0.028 (0.7)	1.40 (35.6)
	VVR-GK-G16-NI	Nickel			

Gasket Retainer Assembly



VFS Size in.	Ordering Number	Material	Dimensions, in.(mm)		
			D1	T	D
1/4	VVR-GKR-G4	316L	0.24 (6.1)	0.028 (0.7)	0.50 (12.7)
	VVR-GKR-G4-NI	Nickel			
1/2	VVR-GKR-G8	316L	0.44 (11.2)	0.028 (0.7)	0.79 (20.1)
	VVR-GKR-G8-NI	Nickel			
3/4	VVR-GKR-G12	316L	0.66 (16.8)	0.028 (0.7)	1.14 (29.0)
	VVR-GKR-G12-NI	Nickel			
1	VVR-GKR-G16	316L	0.89 (22.6)	0.028 (0.7)	1.40 (35.6)
	VVR-GKR-G16-NI	Nickel			

Filter Gaskets



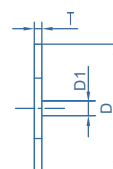
VFS Size in.	Ordering Number	Material	Dimensions, in.(mm)		
			D1	T	D
1/4	VVR-GKF-G4	316L	0.22 (5.6)	0.028 (0.7)	0.47 (11.9)
	VVR-GKRF-G4				
1/2	VVR-GKF-G8	316L	0.44 (11.2)	0.028 (0.7)	0.78 (19.8)
	VVR-GKRF-G8				

* Element Nominal Pore Size (Option) : 0.5µm / 2µm / 5µm / 10µm / 20µm / 60µm
Ordering Example: VVR-GKF-G4-0.5

Face Seal Fittings

VVR Series

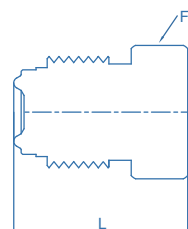
Flow-limiting Gaskets



VFS Size in.	Ordering Number	Material	Dimensions, in.(mm)		
			D1	T	D
1/8	VVR-GK-G2-DM-*	316L	*	0.028 (0.7)	0.26 (6.6)
	VVR-GK-G2-NI-DM-*	Nickel			
1/4	VVR-GK-G4-DM-*	316L	*	0.028 (0.7)	0.47 (11.9)
	VVR-GK-G4-NI-DM-*	Nickel			
	VVR-GK-G4-12.7-DM-*	316L			0.50 (12.7)
	VVR-GK-G4-12.7-NI-DM-*	Nickel			
1/2	VVR-GK-G8-DM-*	316L	*	0.028 (0.7)	0.78 (19.8)
	VVR-GK-G8-NI-DM-*	Nickel			
3/4	VVR-GK-G12-DM-*	316L	*	0.028 (0.7)	1.14 (29.0)
	VVR-GK-G12-NI-DM-*	Nickel			
1	VVR-GK-G16-DM-*	316L	*	0.028 (0.7)	1.40 (35.6)
	VVR-GK-G16-NI-DM-*	Nickel			

* Please consult the manufacturer for gasket size.

Plug

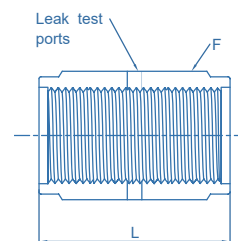


VFS Size in.	Ordering Number	Material	Dimensions, in.(mm)	
			F Hex Flat	L
1/8	VVR-P2 ^①	316L	3/8	0.68 (17.3)
1/4	VVR-P4 ^②		5/8	0.92 (23.4)
1/2	VVR-P8		15/16	1.08 (27.4)
3/4	VVR-P12		1-5/16	1.43 (36.3)
1	VVR-P16		1-5/8	1.52 (38.6)

① Not designed for gasket retainer assembly.

② Also available as a rotatable plug.
Ordering number: VVR-P8-R

Coupling

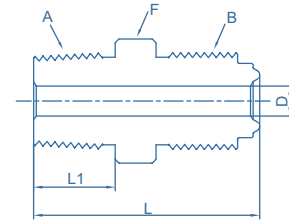


VFS Size in.	Material	Ordering Number	Dimensions, in.(mm)	
			L	F
1/8	316L	VVR-FU2	0.66 (16.8)	7/16
1/4		VVR-FU4	1.19 (30.2)	3/4
1/2		VVR-FU8	1.31 (33.3)	1-1/16
3/4		VVR-FU12	1.68 (42.7)	1-1/2
1		VVR-FU16	2.04 (51.8)	1-3/4

Dimensions are for reference only and may change without prior notice.

The product is fabricated in compliance with the VS001A process specification.

Male NPT Connectors ^①

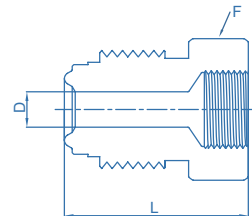


A NPT Size in.	B VFS Size in.	Material	Ordering Number	Dimensions, in.(mm)				Working Pressure psig (bar)	
				L	L1	D	F	NI	SS
1/16	1/8	316L	VVR-MC2-M1 ^①	1.07 (27.2)	0.38 (9.6)	0.09 (2.3) ^③	3/8	9000 (620)	9000 (620)
1/8	1/8		VVR-MC2-M2 ^②	1.07 (27.2)	0.38 (9.6)	0.09 (2.3) ^③	7/16	9000 (620)	9000 (620)
1/8	1/4		VVR-MC4-M2	1.31 (33.3)	0.38 (9.6)	0.18 (4.6)	5/8	10000 (689)	6400 (440)
1/4	1/4		VVR-MC4-M4	1.49 (37.8)	0.56 (14.2)	0.18 (4.6)	5/8	10000 (689)	6400 (440)
1/4	1/2		VVR-MC8-M4	1.65 (41.9)	0.56 (14.2)	0.28 (7.1) ^③	15/16	4300 (296)	2800 (192)
3/8	1/2		VVR-MC8-M6	1.65 (41.9)	0.56 (14.2)	0.38 (9.6)	15/16	4300 (296)	2800 (192)
1/2	1/2		VVR-MC8-M8	1.84 (46.7)	0.75 (19.1)	0.4 (10.2)	15/16	4300 (296)	2800 (192)
3/4	3/4		VVR-MC12-M12	2.19 (55.6)	0.75 (19.1)	0.62 (15.7)	1-5/16	3700 (254)	2400 (165)
1	1		VVR-MC16-M16	2.47 (62.7)	0.94 (23.9)	0.87 (22.1)	1-5/8	2400 (165)	3000 (206)

- ① VFS 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 May contain internal diameter transitions

To order fittings manufactured for Surface finish Ra(Average)<0.4 add BA to the ordering number.
Example: VVR-MC4-M4-BA

Female NPT Connectors ^①



NPT Size in.	VFS Size in.	Material	Ordering Number	Dimensions, in.(mm)			Working Pressure psig (bar)	
				L	D	F flat	NI	SS
1/16	1/8	316L	VVR-MC2-F1 ^①	1.10 (27.9)	0.09 (2.3)	7/16	6700 (461)	6700 (461)
1/8	1/8		VVR-MC2-F2 ^②	1.19 (30.2)	0.09 (2.3)	9/16	6500 (447)	6500 (447)
1/8	1/4		VVR-MC4-F2	1.41 (35.8)	0.18 (4.6)	5/8	8000 (551)	8000 (551)
1/4	1/4		VVR-MC4-F4	1.54 (39.1)	0.18 (4.6)	3/4	6600 (454)	6600 (454)
3/8	1/2		VVR-MC8-F6	1.76 (44.7)	0.40 (10.2)	15/16	3500 (241)	4300 (296)
1/2	1/2		VVR-MC8-F8	1.99 (50.5)	0.40 (10.2)	1-1/16	3500 (241)	4300 (296)
3/4	3/4		VVR-MC12-F12	2.36 (59.9)	0.62 (15.7)	1-5/16	3000 (206)	3700 (254)
1	1		VVR-MC16-F16	2.51 (63.8)	0.87 (22.1)	1-5/8	2400 (165)	3000 (206)

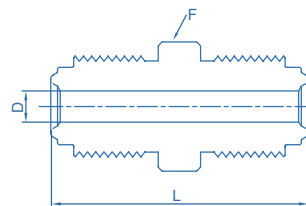
- ① VFS components with fixed threads must remain stationary during installation.
These fitting connections should be assembled only to glands with rotating male or female threaded nuts.
② Not designed for gasket retainer assembly

To order fittings manufactured for Surface finish Ra(Average)<0.4 add BA to the ordering number.
Example: VVR-MC4-F4-BA

Face Seal Fittings

VVR Series

Male Union^①



VFS Size in.	Material	Ordering Number	Dimensions, in.(mm)			Working Pressure psig (bar)	
			L	D	F	NI	SS
1/8	316L	VVR-MU2 ^②	1.13 (28.7)	0.09 (2.3)	3/8	9000 (620)	11200 (771)
1/4		VVR-MU4	1.55 (39.4)	0.18 (4.6)	5/8	8000 (551)	10000 (689)
1/2		VVR-MU8	1.84 (46.7)	0.40 (10.2)	15/16	3500 (241)	4300 (296)
3/4		VVR-MU12	2.44 (62.0)	0.62 (15.7)	1-5/16	3000 (206)	3700 (254)
1		VVR-MU16	2.59 (65.8)	0.87 (22.1)	1-5/8	2400 (165)	3000 (206)

① VFS components with fixed threads must remain stationary during installation.

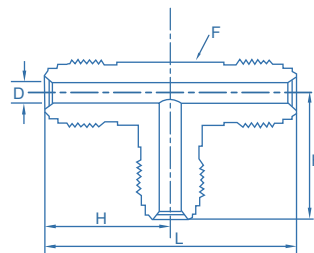
These fitting connections should be assembled only to glands with rotating male or female threaded nuts.

② Not designed for gasket retainer assembly

To order fittings manufactured for Surface finish Ra(Average)<0.4 add BA to the ordering number.

Example: VVR-MU4-BA

Male Union Tee



VFS Size in.	Material	Ordering Number	Dimensions, in.(mm)				Working Pressure psig (bar)	
			L	D	F	H	NI	SS
1/8	316L	VVR-MUT-2	1.78 (45.2)	0.09 (2.3)	7/16	0.89 (22.6)	9000 (620)	11200 (771)
1/4		VVR-MUT-4	2.14 (54.4)	0.18 (4.6)	1/2	1.07 (27.2)	8000 (551)	10000 (689)
1/2		VVR-MUT-8	2.90 (73.7)	0.40 (10.2)	13/16	1.45 (36.8)	3500 (241)	4300 (296)
3/4		VVR-MUT-12	3.84 (97.5)	0.62 (15.7)	1-1/4	1.92 (48.8)	3000 (206)	3700 (254)
1		VVR-MUT-16	4.00 (102)	0.87 (22.1)	1-11/16	2.00 (50.8)	2400 (165)	3000 (206)

To order fittings manufactured for Surface finish Ra(Average)<0.4 add BA to the ordering number.

Example: VVR-MUT-4-BA

Fitting Lock Device

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



Size in.	Material	Ordering Number
1/4	316L	VVR-FLD-4
1/2	316L	VVR-FLD-8



Size in.	Material	Matching product	Ordering Number
1/4	316L	VDV32	VVR-FLD-DV32-4
		VDV33	VVR-FLD-DV33-4
1/2	316L	VDV32	VVR-FLD-DV32-8