

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

Dimensions

- Dimensions are for reference only and are subject to change.
- The D1 dimension refers to the smallest nominal inside diameter of the part.

Pressure Ratings

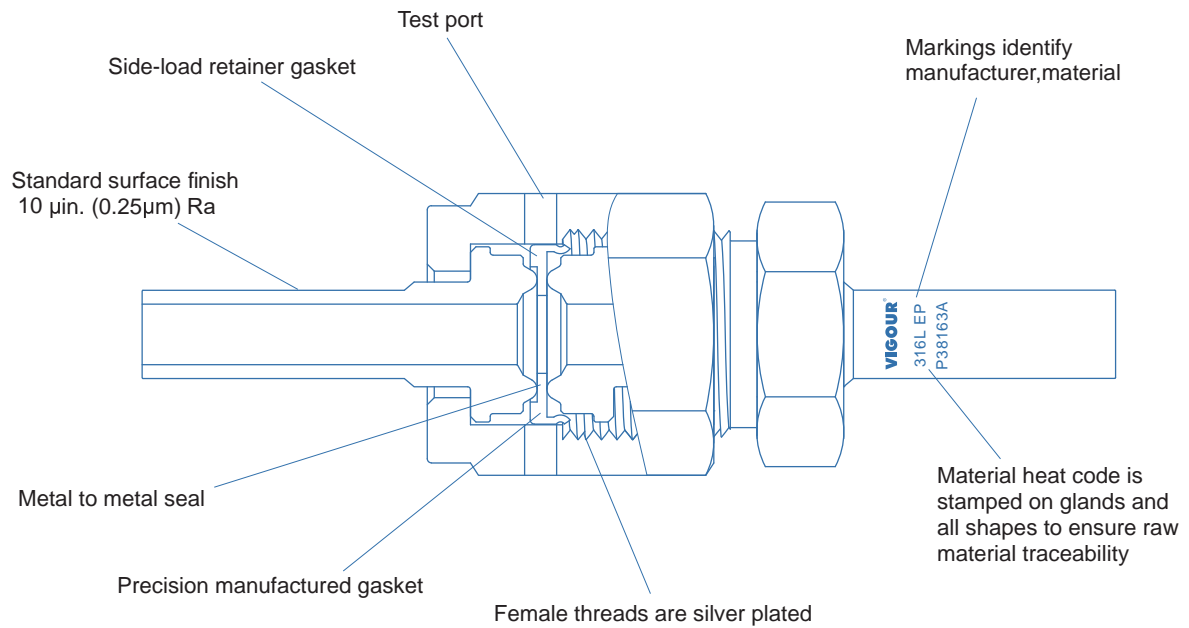
- Ratings are based upon tests conducted using VFS assemblies.
- All ratings comply with calculations per ANSI Code for Pressure Piping B31.3.
- To determine pressure ratings in accordance with ANSI B31.3, multiply psig rating by 0.94.
- Ratings determined at ambient temperature.

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

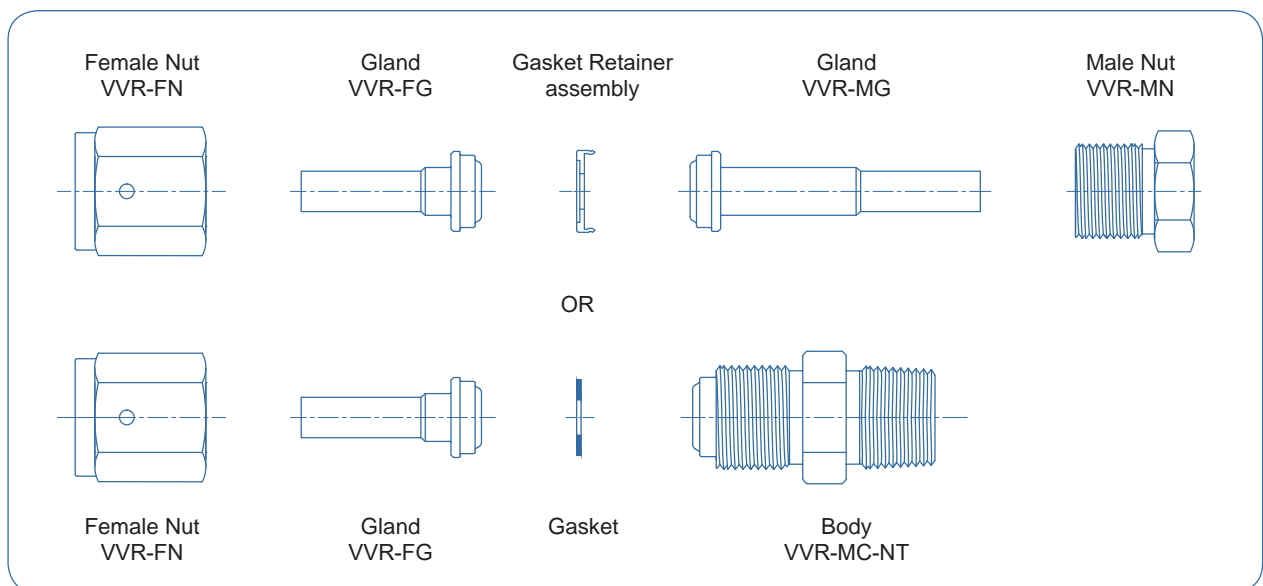
The VFS assembly with silver plating has been helium leak tested to a rate of 4×10^{-9} mbar l/s He and the unplated gasket to a rate of 4×10^{-11} mbar l/s He without leakage.





Typical VFS Assemblies

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

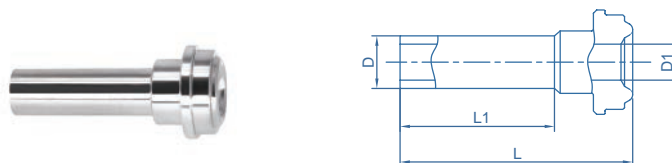


Face Seal Fittings VVR Series

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We offer solutions regarding your ideas!

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	0.25	0.18	1.10	5100
			316L secondary remelt	VVR-FG4-TB4-SLV	(6.4)	(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	0.75	0.18	0.60	5100
			316L secondary remelt	VVR-FG4-TB4-L15-SLV	(19.1)	(4.6)	(15.2)	(351)
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	0.049	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)

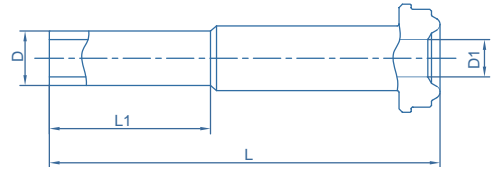
① not design for gasket retainer assembly

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

Dimensions are for reference only
and are subject to change without prior notice



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)
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	0.049	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

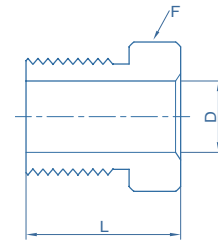
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Example: VVR-MG4-TB4-BA

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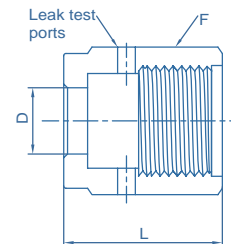
Face Seal Fittings VVR Series

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

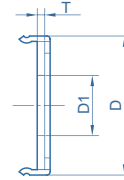


VFS Size in.	Ordering Number	Material	F Hex Flat	Dimensions, in.(mm)	
				L	D
1/8	VVR-FN2	316L	7/16	0.53 (13.5)	0.21 (5.3)
1/4	VVR-FN4		3/4	0.81 (20.6)	0.36 (9.1)
1/2	VVR-FN8		1-1/16	0.88 (22.4)	0.61 (15.5)
3/4	VVR-FN12		1-1/2	1.12 (28.4)	0.89 (22.6)
1	VVR-FN16		1-3/4	1.34 (34.0)	1.20 (30.5)

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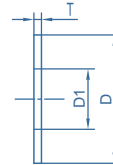


Gasket Retainer Assembly



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			

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			
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			

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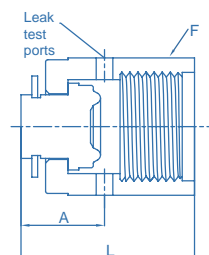


Face Seal Fittings VVR Series

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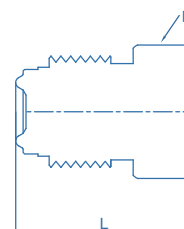
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We offer solutions regarding your ideas!

Cap



VFS Size in.	Ordering Number	Material	Dimensions, in.(mm)		
			F Hex Flat	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)

Plug



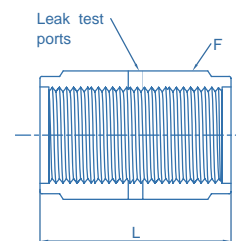
VFS Size in.	Ordering Number	Material	Dimensions, in.(mm)	
			F Hex Flat	L
1/8	VVR-P2 ①	316L	3/8	0.68 (17.3)
1/4	VVR-P4 ②		5/8	0.92 (23.4)
1/2	VVR-P8		15/16	1.08 (27.4)
3/4	VVR-P12		1-5/16	1.43 (36.3)
1	VVR-P16		1-5/8	1.52 (38.6)

① Not designed for gasket retainer assembly.

② Also available as a rotatable plug.

Ordering number: VVR-P8-R

Coupling

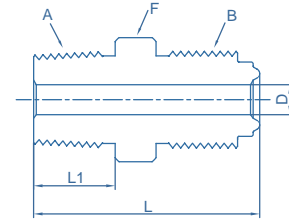


VFS Size in.	Material	Ordering Number	Dimensions, in.(mm)	
			L	F
1/8	316L	VVR-FU2	0.66 (16.8)	7/16
1/4		VVR-FU4	1.19 (30.2)	3/4
1/2		VVR-FU8	1.31 (33.3)	1-1/16
3/4		VVR-FU12	1.68 (42.7)	1-1/2
1		VVR-FU16	2.04 (51.8)	1-3/4

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Male NPT Connectors ①

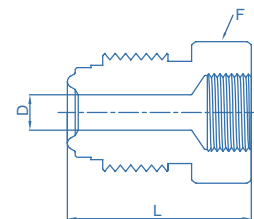


A NPT Size in.	B VFS Size in.	Material	Ordering Number	Dimensions, in.(mm)				Working Pressure psig (bar)	
				L	L1	D	F	NI	SS
1/16	1/8	316L	VVR-MC1-M1 ①	1.07 (27.2)	0.38 (9.6)	0.09 (2.3) ③	3/8	9000 (620)	9000 (620)
1/8	1/8		VVR-MC2-M2 ②	1.07 (27.2)	0.38 (9.6)	0.09 (2.3) ③	7/16	9000 (620)	9000 (620)
1/8	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-FC2-F1 ①	1.10 (27.9)	0.09 (2.3)	7/16	6700 (461)	6700 (461)
1/8	1/8		VVR-FC2-F2 ②	1.19 (30.2)	0.09 (2.3)	9/16	6500 (447)	6500 (447)
1/8	1/4		VVR-FC4-F2	1.41 (35.8)	0.18 (4.6)	5/8	8000 (551)	8000 (551)
1/4	1/4		VVR-FC4-F4	1.54 (39.1)	0.18 (4.6)	3/4	6600 (454)	6600 (454)
3/8	1/2		VVR-FC8-F6	1.76 (44.7)	0.40 (10.2)	15/16	3500 (241)	4300 (296)
1/2	1/2		VVR-FC8-F8	1.99 (50.5)	0.40 (10.2)	1-1/16	3500 (241)	4300 (296)
3/4	3/4		VVR-FC12-F12	2.36 (59.9)	0.62 (15.7)	1-5/16	3000 (206)	3700 (254)
1	1		VVR-FC16-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-FC4-F4-BA

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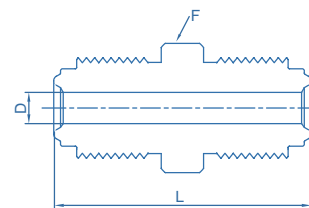


Face Seal Fittings VVR Series

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Wir bieten Lösungen für Ihre Ideen!
We offer solutions regarding your ideas!

Male Union ①

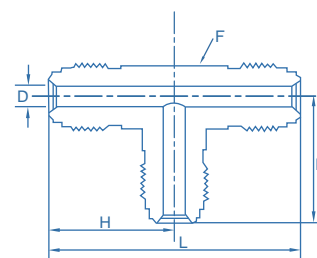


VFS Size in.	Material	Ordering Number	Dimensions, in.(mm)			Working Pressure psig (bar)	
			L	D	F	NI	SS
1/8	316L	VVR-MU2 ②	1.13 (28.7)	0.09 (2.3)	3/8	9000 (620)	11200 (771)
1/4		VVR-MU4	1.55 (39.4)	0.18 (4.6)	5/8	8000 (551)	10000 (689)
1/2		VVR-MU8	1.84 (46.7)	0.40 (10.2)	15/16	3500 (241)	4300 (296)
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

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