

Metal Gasket Face Seal Fittings

FR Series



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FITOK
Valves and Fittings

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Contents

Glands - G		03
Bodies - CM, CMB, CF, U, UB, BU, BW, RU, RA, RB, LM, LU, TTT, C		07
Welded Glands - WG		12
Nuts - N, MN, BC		13
Plugs - PG		14
Caps - CP		14
High-Flow Connections - G, CW, BW, LU, TTT, N, MN		15
Gaskets - GT		17
Flow Restrictors		17

Features

- ⦿ Metal-to-metal seal provides perfect leak-tight service from critical vacuum to high pressure
- ⦿ FR female threads are silver plated
- ⦿ Test port at nut for easy leak testing
- ⦿ All seal faces and male threads are protected with plastic caps
- ⦿ Precision manufactured gasket for maximum performance
- ⦿ Every gland and body is stamped with size, material and heat code
- ⦿ Standard surface finish is a roughness average of 10 µin. (0.25 µm) Ra.
With 5 µin. (0.13 µm) Ra surface finish is available

Technical Data

- ⦿ Sizes range from 1/16" to 1" and 6 mm to 18 mm.
- ⦿ Thread Specifications:

Thread Type	Reference Specification
NPT	ASME B1.20.1, SAE AS71051
Unified (SAE)	ASME B1.1, SAE J475

- ⦿ Working Pressure:
 - Catalog working pressure is calculated in accordance with ANSI/ASME B31.3. To determine working pressure in accordance with ANSI/ASME B31.1, multiply by 0.94.
 - Working pressure ratings are affected by the gasket material at room temperature.

- ⦿ Working Temperature:

Component	Material	Working Temperature
Fittings	316 stainless steel	1000°F (538°C)
	316L stainless steel	
	316L VAR stainless steel	
Gaskets	316L stainless steel	400°F (204°C)
	Copper	
	Nickel	600°F (316°C)

Standard Materials of Construction

Material	Bar Stock	Forging	Designator
Fitting Material			
316 stainless steel	ASTM A276,	ASME SA182,	SS
316L stainless steel	ASME SA479	ASTM A314	6L
316L VAR stainless steel	SEMI F20		6LV
Gasket Material			
316L stainless steel	ASTM A240		6L
Copper	ASTM B152		CU
Nickel	ASTM B162		NI

Materials traceable, certification available upon request

Testing

FR fitting is tested with helium at a maximum leak rate of 4×10^{-9} std cm³/s.

Ordering Information

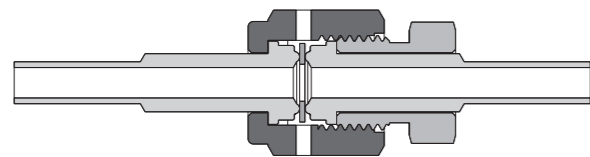
- ⦿ Dimensions are for reference only and are subject to change.
- ⦿ Each component should be ordered separately.
- ⦿ Add the material designator as a prefix, technology grade as a suffix to the basic ordering number to get the complete ordering number.
- ⦿ Standard Process Specification
 - FC-01 standard cleaning and packaging, Is applied to all the fittings for general industrial procedure. No suffix is required. Example: **6L-G-FR2-TB2**.
- ⦿ Ultrahigh-purity Process Specification
 - FC-03 ultrahigh-purity cleaning and packaging, Assembly and packaging in class 100 clean circumstances. Wetted surfaces are finished to 5 μin. (0.13 μm) Ra. add - F3 as a suffix to the basic ordering number. Example: **6LV-G-FR8-TB8-6-F3**.

Remark:

- ① Ultrahigh-purity process is only available for 316L and 316L VAR stainless steel fittings.
- ② 316L stainless steel and nickel gasket default technology grade is ultrahigh-purity process specification. No suffix is required. Example: 6L-GT-FR4.

Installation Instructions

1. Assemble the gland, nut, gasket and male nut as below, finger tighten the nut.

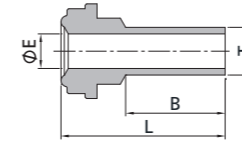


2. For 316L stainless steel and nickel gasket material, tighten the nut 1/8 turn with a wrench while holding the male nut or body of the fitting steady. Tighten the nut 1/4 turn for copper gasket.

Cautions:

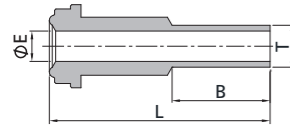
- ⦿ Over-tightening will damage the sealing beads and possibly cause system leakage.
- ⦿ The old gasket must be replaced by the new gasket for each assembly.
- ⦿ Tungsten Inert Gas Welding (TIG) is recommended.
- ⦿ Always use proper thread sealants on tapered pipe threads.
- ⦿ Do not loosen or tighten fittings when system is pressurized.

Glands



FR Gland to Short Fractional Tube Butt Weld									
FR Size (in.)	T-Tube O.D. (in.)	Nominal Wall Thickness (in.)	Basic Ordering Number	Dimension, in. (mm)			Working Pressure, psig (bar)		
				L	B	E	6L	CU	NI
1/8	1/8	0.028	-G-FR2-TB2-12S	1.08 (27.4)	0.75 (19.1)	0.06 (1.5)	8500 (586)	6800 (468)	8500 (586)
1/4	1/8	0.028	-G-FR4-TB2-12S	1.10 (27.9)	0.75 (19.1)	0.06 (1.5)	5100 (351)	5100 (351)	5100 (351)
1/4	1/4	0.035	-G-FR4-TB4-4S	0.60 (15.2)	0.25 (6.4)	0.18 (4.6)	5100 (351)	5100 (351)	5100 (351)
1/4	1/4	0.035	-G-FR4-TB4-6S	0.72 (18.3)	0.38 (9.6)	0.18 (4.6)	5100 (351)	5100 (351)	5100 (351)
1/4	1/4	0.035	-G-FR4-TB4-12S	1.10 (27.9)	0.75 (19.1)	0.18 (4.6)	5100 (351)	5100 (351)	5100 (351)
1/2	1/4	0.035	-G-FR8-TB4-12S	1.12 (28.4)	0.75 (19.1)	0.18 (4.6)	4300 (296)	2800 (192)	3500 (241)
1/2	3/8	0.035	-G-FR8-TB6-4S	0.62 (15.7)	0.25 (6.4)	0.31 (7.9)	3300 (227)	2600 (179)	3300 (227)
1/2	3/8	0.035	-G-FR8-TB6-12S	1.12 (28.4)	0.75 (19.1)	0.31 (7.9)	3300 (227)	2600 (179)	3300 (227)
1/2	1/2	0.049	-G-FR8-TB8-4S	0.62 (15.7)	0.25 (6.4)	0.40 (10.2)	3500 (241)	2800 (192)	3500 (241)
1/2	1/2	0.049	-G-FR8-TB8-6S	0.74 (18.8)	0.38 (9.6)	0.40 (10.2)	3500 (241)	2800 (192)	3500 (241)
1/2	1/2	0.049	-G-FR8-TB8-12S	1.12 (28.4)	0.75 (19.1)	0.40 (10.2)	3500 (241)	2800 (192)	3500 (241)

FR Gland to Short Metric Tube Butt Weld									
FR Size (in.)	T-Tube O.D. (mm)	Nominal Wall Thickness (mm)	Basic Ordering Number	Dimension, mm (in.)			Working Pressure, bar (psig)		
				L	B	E	6L	CU	NI
1/4	6	1.0	-G-FR4-MTB6-12S	29.5 (1.16)	19.1 (0.75)	4.0 (0.16)	468 (6800)	372 (5400)	468 (6800)
1/4	8	1.0	-G-FR4-MTB8-12S	29.5 (1.16)	19.1 (0.75)	6.0 (0.24)	337 (4900)	337 (4900)	337 (4900)
1/2	10	1.0	-G-FR8-MTB10-12S	29.5 (1.16)	19.1 (0.75)	8.0 (0.31)	241 (3500)	192 (2800)	241 (3500)
1/2	12	1.0	-G-FR8-MTB12-12S	29.5 (1.16)	19.1 (0.75)	10.0 (0.39)	213 (3100)	165 (2400)	213 (3100)
3/4	18	1.5	-G-FR12-MTB18-12S	31.0 (1.22)	19.1 (0.75)	15.0 (0.59)	206 (3000)	165 (2400)	206 (3000)

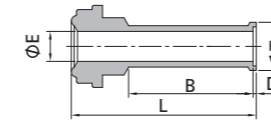


FR Gland to Long Fractional Tube Butt Weld									
FR Size (in.)	T-Tube O.D. (in.)	Nominal Wall Thickness (in.)	Basic Ordering Number	Dimension, in. (mm)			Working Pressure, psig (bar)		
				L	B	E	6L	CU	NI
1/8	1/8	0.028	-G-FR2-TB2-12	1.42 (36.1)	0.75 (19.1)	0.06 (1.5)	8500 (586)	6800 (468)	8500 (586)
1/4	1/4	0.035	-G-FR4-TB4-4	1.20 (30.5)	0.25 (6.4)	0.18 (4.6)	5100 (351)	5100 (351)	5100 (351)
1/4	1/4	0.035	-G-FR4-TB4-1.31	1.31 (33.3)	0.36 (9.1)	0.18 (4.6)	5100 (351)	5100 (351)	5100 (351)
1/4	1/4	0.035	-G-FR4-TB4-6	1.32 (33.5)	0.38 (9.6)	0.18 (4.6)	5100 (351)	5100 (351)	5100 (351)
1/4	1/4	0.035	-G-FR4-TB4-12	1.70 (43.2)	0.75 (19.1)	0.18 (4.6)	5100 (351)	5100 (351)	5100 (351)
1/2	1/4	0.035	-G-FR8-TB4-12	1.80 (45.7)	0.75 (19.1)	0.18 (4.6)	4300 (296)	2800 (192)	3500 (241)
1/2	3/8	0.035	-G-FR8-TB6-4	1.29 (32.8)	0.25 (6.4)	0.31 (7.9)	3300 (227)	2600 (179)	3300 (227)
1/2	3/8	0.035	-G-FR8-TB6-12	1.79 (45.5)	0.75 (19.1)	0.31 (7.9)	3300 (227)	2600 (179)	3300 (227)
1/2	1/2	0.049	-G-FR8-TB8-4	1.29 (32.8)	0.25 (6.4)	0.40 (10.2)	3500 (241)	2800 (192)	3500 (241)
1/2	1/2	0.049	-G-FR8-TB8-6	1.41 (35.8)	0.38 (9.6)	0.40 (10.2)	3500 (241)	2800 (192)	3500 (241)
1/2	1/2	0.049	-G-FR8-TB8-12	1.79 (45.5)	0.75 (19.1)	0.40 (10.2)	3500 (241)	2800 (192)	3500 (241)
3/4	3/4	0.049	-G-FR12-TB12-12	2.03 (51.6)	0.75 (19.1)	0.65 (16.5)	2400 (165)	1900 (130)	2400 (165)
1	1	0.065	-G-FR16-TB16-12	2.32 (58.9)	0.75 (19.1)	0.87 (22.1)	2400 (165)	1900 (130)	2400 (165)

FR Gland to Long Metric Tube Butt Weld									
FR Size (in.)	T-Tube O.D. (mm)	Nominal Wall Thickness (mm)	Basic Ordering Number	Dimension, mm (in.)			Working Pressure, bar (psig)		
				L	B	E	6L	CU	NI
1/4	6	1.0	-G-FR4-MTB6-12	43.2 (1.70)	19.1 (0.75)	4.0 (0.16)	468 (6800)	372 (5400)	468 (6800)
1/4	8	1.0	-G-FR4-MTB8-12	43.2 (1.70)	19.1 (0.75)	6.0 (0.24)	337 (4900)	337 (4900)	337 (4900)
1/2	10	1.0	-G-FR8-MTB10-12	45.5 (1.79)	19.1 (0.75)	8.0 (0.31)	241 (3500)	192 (2800)	241 (3500)
1/2	12	1.0	-G-FR8-MTB12-12	45.5 (1.79)	19.1 (0.75)	10.0 (0.39)	213 (3100)	165 (2400)	213 (3100)
3/4	18	1.5	-G-FR12-MTB18-12	51.6 (2.03)	19.1 (0.75)	15.0 (0.59)	207 (3000)	165 (2400)	207 (3000)

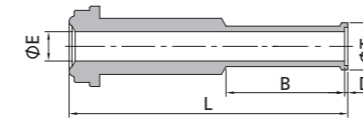
The suffix -4, -6, -12 indicate the length of Dim. B, eg. SS-G-FR8-TB6-4, -4 means Dim B=4/16"*25.4=6.4 mm.

Glands



Short Fractional Automatic Tube Butt Weld											
FR Size (in.)	T-Tube O.D. (in.)	Nominal Wall Thickness (in.)	Basic Ordering Number	Dimension, in. (mm)					Working Pressure, psig (bar)		
				L	B	D	E	Tx	6L	CU	NI
1/4	1/4	0.035	-AG-FR4-TB4-12S	1.12 (28.4)	0.75 (19.1)	0.02 (0.5)	0.18 (4.6)	0.29 (7.4)	5100 (351)	5100 (351)	5100 (351)
1/2	3/8	0.035	-AG-FR8-TB6-12S	1.15 (29.2)	0.75 (19.1)	0.03 (0.8)	0.31 (7.9)	0.41 (10.4)	3300 (227)	2600 (179)	3300 (227)
1/2	1/2	0.049	-AG-FR8-TB8-12S	1.16 (29.5)	0.75 (19.1)	0.04 (1.0)	0.40 (10.2)	0.55 (14.0)	3500 (241)	2800 (192)	3500 (241)

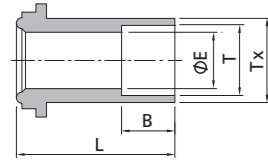
Short Metric Automatic Tube Butt Weld											
FR Size (in.)	T-Tube O.D. (mm)	Nominal Wall Thickness (mm)	Basic Ordering Number	Dimension, mm (in.)					Working Pressure, bar (psig)		
				L	B	D	E	Tx	6L	CU	NI
1/4	6	1.0	-AG-FR4-MTB6-12S	30.0 (1.18)	19.1 (0.75)	0.5 (0.02)	4.0 (0.16)	6.8 (0.27)	468 (6800)	372 (5400)	468 (6800)
1/4	8	1.0	-AG-FR4-MTB8-12S	30.2 (1.19)	19.1 (0.75)	0.8 (0.03)	6.0 (0.24)	8.9 (0.35)	337 (4900)	337 (4900)	337 (4900)
1/2	10	1.0	-AG-FR8-MTB10-12S	31.0 (1.22)	19.1 (0.75)	0.8 (0.03)	8.0 (0.31)	10.9 (0.43)	241 (3500)	192 (2800)	241 (3500)
1/2	12	1.0	-AG-FR8-MTB12-12S	30.5 (1.20)	19.1 (0.75)	1.0 (0.04)	10.0 (0.39)	13.2 (0.52)	213 (3100)	165 (2400)	213 (3100)



Long Fractional Automatic Tube Butt Weld											
FR Size (in.)	T-Tube O.D. (in.)	Nominal Wall Thickness (in.)	Basic Ordering Number	Dimension, in. (mm)					Working Pressure, psig (bar)		
				L	B	D	E	Tx	6L	CU	NI
1/4	1/4	0.035	-AG-FR4-TB4-12	1.72 (43.7)	0.75 (19.1)	0.02 (0.5)	0.18 (4.6)	0.29 (7.4)	5100 (351)	5100 (351)	5100 (351)
1/2	1/4	0.035	-AG-FR8-TB4-12	1.82 (46.2)	0.75 (19.1)	0.02 (0.5)	0.18 (4.6)	0.29 (7.4)	3500 (241)	2800 (192)	3500 (241)
1/2	3/8	0.035	-AG-FR8-TB6-12	1.82 (46.2)	0.75 (19.1)	0.03 (0.8)	0.31 (7.9)	0.41 (10.4)	3300 (227)	2600 (179)	3300 (227)
1/2	1/2	0.049	-AG-FR8-TB8-12	1.83 (46.5)	0.75 (19.1)	0.04 (1.0)	0.40 (10.2)	0.55 (14.0)	3500 (241)	2800 (192)	3500 (241)
3/4	3/4	0.049	-AG-FR12-TB12-12	2.07 (52.6)	0.75 (19.1)	0.04 (1.0)	0.65 (16.5)	0.80 (20.3)	2400 (165)	2400 (165)	2400 (165)
1	1	0.065	-AG-FR16-TB16-16	2.57 (65.3)	0.96 (24.4)	0.04 (1.0)	0.87 (22.1)	1.06 (26.9)	2400 (165)	1900 (130)	2400 (165)

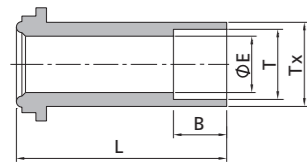
Long Metric Automatic Tube Butt Weld											
FR Size (in.)	T-Tube O.D. (mm)	Nominal Wall Thickness (mm)	Basic Ordering Number	Dimension, mm (in.)					Working Pressure, bar (psig)		
				L	B	D	E	Tx	6L	CU	NI
1/4	6	1.0	-AG-FR4-MTB6-12	43.7 (1.72)	19.1 (0.75)	0.5 (0.02)	4.0 (0.16)	6.8 (0.27)	468 (6800)	372 (5400)	468 (6800)
1/2	12	1.0	-AG-FR8-MTB12-12	46.5 (1.83)	19.1 (0.75)	1.0 (0.04)	10.0 (0.39)	13.2 (0.52)	213 (3100)	165 (2400)	213 (3100)
3/4	18	1.5	-AG-FR12-MTB18-12	52.6 (2.07)	19.1 (0.75)	1.0 (0.04)	15.0 (0.59)	19.3 (0.76)	206 (3000)	165 (2400)	206 (3000)

Glands



FR Gland to Short Tube Socket Weld

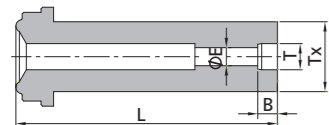
FR Size (in.)	T-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)				Working Pressure, psig (bar)		
			L	B	E	Tx	6L	CU	NI
1/4	1/4	-G-FR4-TS4-0.50	0.50 (12.7)	0.28(7.1)	0.18(4.6)	0.35(8.9)	5500 (378)	5500 (378)	5500 (378)
1/4	1/4	-G-FR4-TS4-0.75	0.75 (19.1)	0.28(7.1)	0.18(4.6)	0.35(8.9)	5500 (378)	5500 (378)	5500 (378)



FR Gland to Tube Socket Weld

FR Size (in.)	T-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)				Working Pressure, psig (bar)		
			L	B	E	Tx	6L	CU	NI
1/8	1/16	-G-FR2-TS1	0.70 (17.8)	0.10 (2.5)	0.05 (1.3)	0.13 (3.3)	9000 (620)	7200 (496)	9000 (620)
1/8	1/8	-G-FR2-TS2	0.70 (17.8)	0.10 (2.5)	0.09 (2.3)	0.20 (5.1)	7100 (489)	7100 (489)	7100 (489)
1/4	1/4	-G-FR4-TS4	1.31 (33.3)	0.28 (7.1)	0.18 (4.6)	0.35 (8.9)	5500 (378)	5500 (378)	5500 (378)
1/2	3/8	-G-FR8-TS6	1.50 (38.1)	0.31 (7.9)	0.28 (7.1)	0.60 (15.2)	4300 (296)	2800 (192)	3500 (241)
1/2	1/2	-G-FR8-TS8	1.50 (38.1)	0.38 (9.7)	0.40 (10.2)	0.60 (15.2)	3000 (206)	2400 (165)	3000 (206)
3/4	3/4	-G-FR12-TS12	2.00 (50.8)	0.44 (11.2)	0.62 (15.7)	0.88 (22.4)	2800 (192)	2200 (151)	2800 (192)
1	1	-G-FR16-TS16	2.22 (56.4)	0.62 (15.7)	0.87 (22.1)	1.19 (30.2)	3000 (206)	1900 (130)	2400 (165)

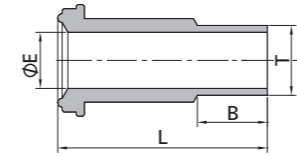
Reducing Socket Weld



Reducing Socket Weld

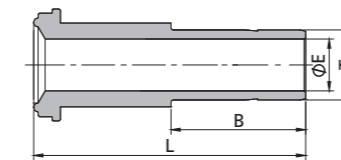
FR Size (in.)	T-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)				Working Pressure, psig (bar)		
			L	B	E	Tx	6L	CU	NI
1/4	1/8	-G-FR4-RTS2	1.31 (33.3)	0.10 (2.5)	0.09 (2.3)	0.35 (8.9)	8000(551)	8000(551)	8000(551)
1/2	1/4	-G-FR8-RTS4	1.50 (38.1)	0.28 (7.1)	0.18 (4.6)	0.60 (15.2)	3500(241)	3500(241)	3500(241)

Glands



FR Gland to Male Weld

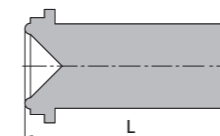
FR Size (in.)	T-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)			Working Pressure, psig (bar)		
			L	B	E	6L	CU	NI
1/8	1/8	-G-FR2-TB2	0.70 (17.8)	0.28 (7.1)	0.06 (1.5)	11200 (772)	7200 (496)	9000 (620)
1/4	1/8	-G-FR4-TB2	1.31 (33.3)	0.28 (7.1)	0.06 (1.5)	10000 (690)	6400 (440)	8000 (551)
1/4	1/4	-G-FR4-TB4	1.31 (33.3)	0.41 (10.4)	0.12 (3.0)	10000 (690)	6400 (440)	8000 (551)
1/2	1/4	-G-FR8-TB4	1.50 (38.1)	0.41 (10.4)	0.12 (3.0)	4300 (296)	2800 (192)	3500 (241)
1/2	3/8	-G-FR8-TB6	1.50 (38.1)	0.41 (10.4)	0.28 (7.1)	4300 (296)	2800 (192)	3500 (241)
1/2	1/2	-G-FR8-TB8	1.50 (38.1)	0.50 (12.7)	0.40 (10.2)	3500 (241)	3500 (241)	3500 (241)
3/4	3/4	-G-FR12-TB12	2.00 (50.8)	0.62 (15.7)	0.53 (13.5)	3700 (254)	2400 (165)	3000 (206)
1	1	-G-FR16-TB16	2.22 (56.4)	0.81 (20.6)	0.75 (19.1)	3000 (206)	1900 (130)	2400 (165)



FR Gland to Tube Port

FR Size (in.)	T-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)			Working Pressure, psig (bar)		
			L	B	E	6L	CU	NI
1/4	1/4	-G-FR4-FT4	1.62 (41.0)	0.64 (16.2)	0.17(4.3)	10000 (690)	6400 (440)	8000 (551)
1/2	3/8	-G-FR8-FT6	1.81 (46.0)	0.70 (17.8)	0.27(6.9)	4300 (296)	2800 (192)	3500 (241)
1/2	1/2	-G-FR8-FT8	1.94 (49.3)	0.96 (24.4)	0.37(9.4)	4300 (296)	2800 (192)	3500 (241)

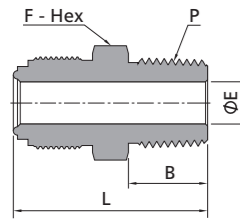
Glands



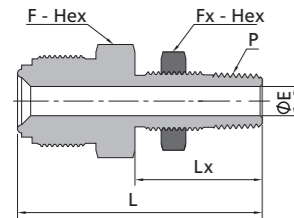
Blind Gland

FR Size (in.)	Basic Ordering Number	Dimension, in. (mm)
		L
1/8	-G-FR2-B	0.70 (17.8)
1/4	-G-FR4-B	1.31 (33.3)
1/2	-G-FR8-B	1.50 (38.1)
3/4	-G-FR12-B	2.00 (50.8)
1	-G-FR16-B	2.22 (56.4)

Bodies

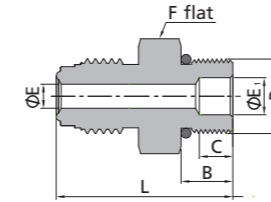


FR Body to Male NPT									
FR Size (in.)	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)				Working Pressure, psig (bar)		
			L	B	E	F	6L	CU	NI
1/8	1/16	-CM-FR2-NS1	1.07 (27.2)	0.38 (9.7)	0.09 (2.3)	3/8 (9.5)	9000 (620)	7200 (496)	9000 (620)
1/8	1/8	-CM-FR2-NS2	1.07 (27.2)	0.38 (9.7)	0.09 (2.3)	7/16 (11.1)	9000 (620)	7200 (496)	9000 (620)
1/4	1/8	-CM-FR4-NS2	1.31 (33.3)	0.38 (9.7)	0.18 (4.6)	5/8 (15.9)	10000 (690)	6400 (440)	8000 (551)
1/4	1/4	-CM-FR4-NS4	1.49 (37.8)	0.56 (14.2)	0.18 (4.6)	5/8 (15.9)	10000 (690)	6400 (440)	8000 (551)
1/2	1/4	-CM-FR8-NS4	1.65 (41.9)	0.56 (14.2)	0.28 (7.1)	15/16 (23.8)	4300 (296)	2800 (192)	3500 (241)
1/2	3/8	-CM-FR8-NS6	1.65 (41.9)	0.56 (14.2)	0.38 (9.7)	15/16 (23.8)	4300 (296)	2800 (192)	3500 (241)
1/2	1/2	-CM-FR8-NS8	1.84 (46.7)	0.75 (19.1)	0.40 (10.2)	15/16 (23.8)	4300 (296)	2800 (192)	3500 (241)
3/4	3/4	-CM-FR12-NS12	2.19 (55.6)	0.75 (19.1)	0.62 (15.7)	1 5/16 (33.3)	3700 (254)	2400 (165)	3000 (206)
1	1	-CM-FR16-NS16	2.47 (62.7)	0.94 (23.9)	0.87 (22.1)	1 5/8 (41.3)	3000 (206)	1900 (130)	2400 (165)



FR Body to Bulkhead Male Connector												
FR Size (in.)	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)					Panel Hole Size in. (mm)	Max. Panel Thickness in. (mm)	Working Pressure, psig (bar)		
			L	Lx	E	F	Fx			6L	CU	NI
1/4	1/4	-CMB-FR4-NS4	2.21 (56.1)	1.24 (31.5)	0.28 (7.1)	13/16 (20.6)	13/16 (20.6)	21/32 (16.7)	0.38 (9.7)	8000 (551)	6400 (440)	8000 (551)
1/2	1/4	-CMB-FR8-NS4	2.34 (59.4)	1.24 (31.5)	0.28 (7.1)	15/16 (23.8)	13/16 (20.6)	21/32 (16.7)	0.38 (9.7)	4370 (301)	2800 (192)	3500 (241)

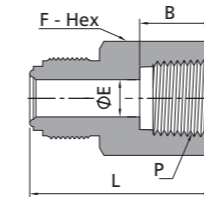
FR Body to SAE/MS Thread



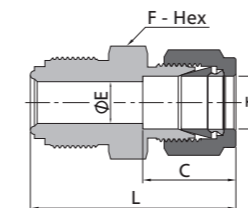
FR Body to SAE/MS Thread												
FR Size (in.)	P-SAE/MS Thread Size	Uniform O-Ring ^① Size	Basic Ordering Number	Dimension, in. (mm)						Working Pressure, psig (bar)		
				L	B	C	E	E1	F	6L	CU	NI
1/4	9/16-18	906	-CM-FR4-ST9	1.33 (33.8)	0.39 (9.9)	0.25 (6.4)	0.18 (4.6)	0.28 (7.1)	3/4 (19.1)	4500 (310)	4500 (310)	4500 (310)
1/2	9/16-18	906	-CM-FR8-ST9	1.48 (37.6)	0.39 (9.9)	-	0.28 (7.1)	0.28 (7.1)	15/16 (23.8)	3500 (241)	2800 (192)	3500 (241)
1/2	7/8-14	910	-CM-FR8-ST14	1.66 (42.2)	0.50 (12.7)	0.40 (10.2)	0.28 (7.1)	0.59 (15.0)	1 (25.4)	3500 (241)	2800 (192)	3500 (241)

① Fluorocarbon FKM is standard, other materials are available.

Bodies



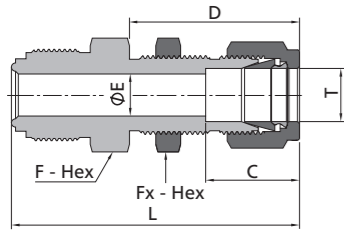
FR Body to Female NPT									
FR Size (in.)	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)				Working Pressure, psig (bar)		
			L	B	E	F	6L	CU	NI
1/8	1/16	-CF-FR2-NS1	1.10 (27.9)	0.39 (9.9)	0.09 (2.3)	7/16 (11.1)	6700 (461)	6700 (461)	6700 (461)
1/8	1/8	-CF-FR2-NS2	1.19 (30.2)	0.41 (10.4)	0.09 (2.3)	9/16 (14.3)	6500 (447)	6500 (447)	6500 (447)
1/4	1/8	-CF-FR4-NS2	1.41 (35.8)	0.41 (10.4)	0.18 (4.6)	5/8 (15.9)	8000 (551)	6400 (440)	8000 (551)
1/4	1/4	-CF-FR4-NS4	1.54 (39.1)	0.59 (15.0)	0.18 (4.6)	3/4 (19.1)	6600 (454)	5200 (358)	6600 (454)
1/2	3/8	-CF-FR8-NS6	1.76 (44.7)	0.59 (15.0)	0.40 (10.2)	15/16 (23.8)	4300 (296)	2800 (192)	3500 (241)
1/2	1/2	-CF-FR8-NS8	1.99 (50.5)	0.78 (19.8)	0.40 (10.2)	1 1/16 (27.0)	4300 (296)	2800 (192)	3500 (241)
3/4	3/4	-CF-FR12-NS12	2.36 (59.9)	0.81 (20.6)	0.62 (15.7)	1 5/16 (33.3)	3700 (254)	2400 (165)	3000 (207)
1	1	-CF-FR16-NS16	2.51 (63.8)	1.00 (25.4)	0.87 (22.1)	1 5/8 (41.3)	3000 (207)	1900 (130)	2400 (165)



FR Body to Tube Fitting									
FR Size (in.)	T-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)				Working Pressure, psig (bar)		
			L ^①	C	E	F	6L	CU	NI
1/4	1/8	-U-FR4-FL2	1.53 (38.9)	0.50 (12.7)	0.09 (2.3)	5/8 (15.9)	10000 (690)	6400 (440)	8000 (551)
1/4	1/4	-U-FR4-FL4	1.62 (41.1)	0.60 (15.2)	0.18 (4.6)	5/8 (15.9)	10000 (690)	6400 (440)	8000 (551)
1/2	3/8	-U-FR8-FL6	1.84 (46.7)	0.66 (16.8)	0.28 (7.1)	15/16 (23.8)	4300 (296)	2800 (192)	3500 (241)
1/2	1/2	-U-FR8-FL8	1.95 (49.5)	0.90 (22.9)	0.40 (10.2)	15/16 (23.8)	4300 (296)	2800 (192)	3500 (241)

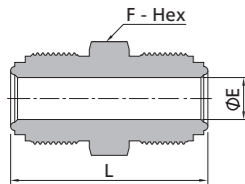
① Dimension L is typical finger-tight.

Bodies

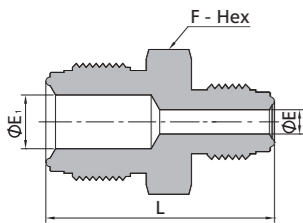


FR Body to Bulkhead Tube Fitting Union													
FR Size (in.)	T-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)						Panel Hole Size in. (mm)	Max. Panel Thickness in. (mm)	Working Pressure, psig (bar)		
			L ^①	C	D	E	F	Fx			6L	CU	NI
1/4	1/4	-UB-FR4-FL4	2.25(57.2)	0.60(15.2)	1.32(33.5)	0.18(4.6)	5/8(15.9)	5/8(15.9)	15/32(11.9)	0.40(10.2)	10000(690)	6400(440)	8000(551)
1/4	1/4	-UB-FR4-FL4-1.88	1.88(47.8)	0.60(15.2)	1.05(26.7)	0.18(4.6)	5/8(15.9)	5/8(15.9)	15/32(11.9)	0.13(3.3)	10000(690)	6400(440)	8000(551)
1/2	3/8	-UB-FR8-FL6	2.54(64.5)	0.66(16.8)	1.45(36.8)	0.28(7.1)	15/16(23.8)	3/4(19.1)	19/32(15.0)	0.44(11.2)	4300(296)	2800(192)	3500(241)
1/2	1/2	-UB-FR8-FL8	2.74(69.6)	0.90(22.9)	1.65(41.9)	0.40(10.2)	15/16(23.8)	15/16(23.8)	25/32(19.8)	0.50(12.7)	4300(296)	2800(192)	3500(241)

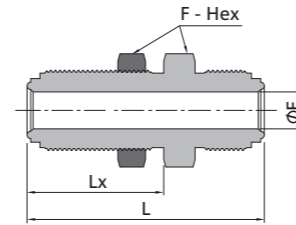
① Dimension L is typical finger-tight.



Union Body								
FR Size (in.)	FR Size (in.)	Basic Ordering Number	Dimension, in. (mm)			Working Pressure, psig (bar)		
			L	E	F	6L	CU	NI
1/8	1/8	-U-FR2	1.13 (28.7)	0.09 (2.3)	3/8 (9.5)	11200 (772)	7200 (496)	9000 (620)
1/4	1/4	-U-FR4	1.55 (39.4)	0.18 (4.6)	5/8 (15.9)	10000 (690)	6400 (440)	8000 (551)
1/2	1/2	-U-FR8	1.84 (46.7)	0.40 (10.2)	15/16 (23.8)	4300 (296)	2800 (192)	3500 (241)
3/4	3/4	-U-FR12	2.44 (62.0)	0.62 (15.7)	1 5/16 (33.3)	3700 (254)	2400 (165)	3000 (207)
1	1	-U-FR16	2.59 (65.8)	0.87 (22.1)	1 5/8 (41.3)	3000 (207)	1900 (130)	2400 (165)

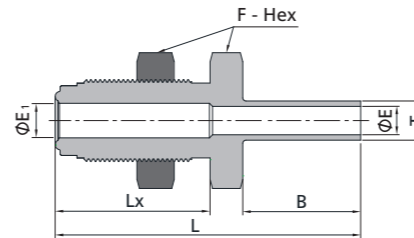


Reducing Union									
FR Size (in.)	FR Size (in.)	Basic Ordering Number	Dimension, in. (mm)				Working Pressure, psig (bar)		
			L	E	E ₁	F	6L	CU	NI
1/4	1/8	-U-FR4-FR2	1.37 (34.8)	0.09 (2.3)	0.18 (4.6)	5/8 (15.9)	10000 (690)	6400 (440)	8000 (551)
1/2	1/4	-U-FR8-FR4	1.71 (43.4)	0.18 (4.6)	0.40 (10.2)	5/16 (23.8)	4300 (296)	2800 (192)	3500 (241)

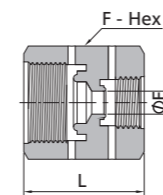


Bulkhead Union Body										
FR Size (in.)	Basic Ordering Number	Dimension, in. (mm)				Panel Hole Drill Size in. (mm)	Max. Panel Thickness in. (mm)	Working Pressure, psig (bar)		
		L	Lx	E	F			6L	CU	NI
1/4	-BU-FR4-1.82	1.82 (46.2)	0.99 (25.1)	0.18 (4.6)	3/4 (19.1)	19/32 (15.0)	0.13 (3.3)	10000 (690)	6400 (440)	8000 (551)
1/4	-BU-FR4	2.23 (56.6)	1.30 (33.3)	0.18 (4.6)	3/4 (19.1)	19/32 (15.0)	0.44 (11.2)	10000 (690)	6400 (440)	8000 (551)
1/2	-BU-FR8-2.14	2.14 (54.4)	1.11 (28.2)	0.40 (10.2)	1 1/16 (27.0)	29/32 (23.1)	0.13 (3.3)	4300 (296)	2800 (192)	3500 (241)
1/2	-BU-FR8	2.57 (65.3)	1.48 (37.6)	0.40 (10.2)	1 1/16 (27.0)	29/32 (23.1)	0.50 (12.7)	4300 (296)	2800 (192)	3500 (241)

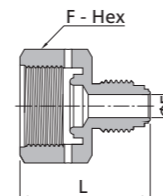
Bodies



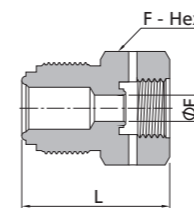
FR Bulkhead Body to Tube Butt Weld													
FR Size (in.)	T-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)					Panel Hole Drill Size in. (mm)	Max. Panel Thickness in. (mm)	Working Pressure, psig (bar)			
			L	Lx	B	E	E ₁			F	6L	CU	NI
1/4	1/4	-BW-FR4-TB4-1.95	1.95(49.5)	0.99(25.1)	0.75(19.1)	0.18(4.6)	0.22(5.6)	0.75(19.1)	19/32(15.1)	0.13(3.3)	5100(351)	5100(351)	5100(351)
1/4	1/4	-BW-FR4-TB4	2.36(59.9)	1.30(33.0)	0.75(19.1)	0.18(4.6)	0.22(5.6)	0.75(19.1)	19/32(15.1)	0.44(11.2)	5100(351)	5100(351)	5100(351)



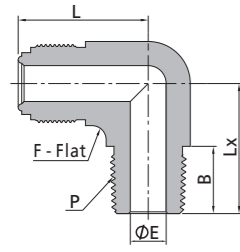
Female Reducing Union								
FR Size (in.)	FR Size (in.)	Basic Ordering Number	Dimension, in. (mm)			Working Pressure, psig (bar)		
			L	E	F	6L	CU	NI
1/4	1/8	-RU-FR4-FR2	1.16 (29.5)	0.13 (3.3)	3/4 (19.1)	10000 (690)	6400 (440)	8000 (551)
1/2	1/4	-RU-FR8-FR4	1.41 (35.8)	0.25 (6.4)	1 1/16 (27.0)	4300 (296)	2800 (192)	3500 (241)



Reducing Adapter								
FR Size (in.)	FR Size (in.)	Basic Ordering Number	Dimension, in. (mm)			Working Pressure, psig (bar)		
			L	E	F	6L	CU	NI
1/4	1/8	-RA-FR4-FR2	1.19 (30.2)	0.09 (2.3)	3/4 (19.1)	10000 (690)	6400 (440)	8000 (551)
1/2	1/4	-RA-FR8-FR4	1.41 (35.8)	0.18 (4.6)	1 1/16 (27.0)	4300 (296)	2800 (192)	3500 (241)

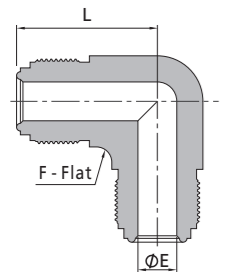


Reducing Bushing								
FR Size (in.)	FR Size (in.)	Basic Ordering Number	Dimension, in. (mm)			Working Pressure, psig (bar)		
			L	E	F	6L	CU	NI
1/4	1/8	-RB-FR4-FR2	1.06 (26.9)	0.13 (3.3)	5/8 (15.9)	10000 (690)	6400 (440)	8000 (551)
1/2	1/4	-RB-FR8-FR4	1.41 (35.8)	0.25 (6.4)	15/16 (23.8)	4300 (296)	2800 (192)	3500 (241)

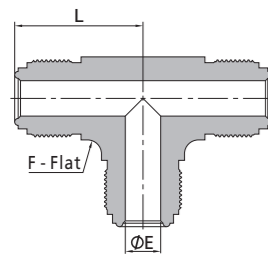


FR Body to Male NPT Elbow										
FR Size (in.)	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)					Working Pressure, psig (bar)		
			L	Lx	B	E	F	6L	CU	NI
1/4	1/8	-LM-FR4-NS2	1.07 (27.2)	0.87 (22.1)	0.38 (9.6)	0.18 (4.6)	1/2 (12.7)	10000 (690)	6400 (440)	8000 (551)
1/4	1/4	-LM-FR4-NS4	1.07 (27.2)	1.05 (26.7)	0.56 (14.2)	0.18 (4.6)	1/2 (12.7)	8000 (551)	8000 (551)	8000 (551)
1/2	3/8	-LM-FR8-NS6	1.45 (36.8)	1.26 (32.0)	0.56 (14.2)	0.40 (10.2)	13/16 (20.6)	4300 (296)	2800 (192)	3500 (241)
1/2	1/2	-LM-FR8-NS8	1.45 (36.8)	1.45 (36.8)	0.75 (19.1)	0.40 (10.2)	13/16 (20.6)	4300 (296)	2800 (192)	3500 (241)

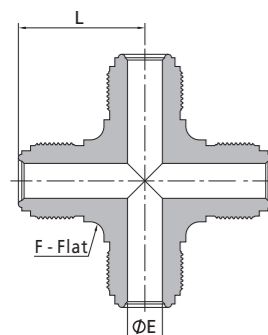
Bodies



FR Body Union Elbow							
FR Size (in.)	Basic Ordering Number	Dimension, in. (mm)			Working Pressure, psig (bar)		
		L	E	F	6L	CU	NI
1/8	-LU-FR2	0.89 (22.6)	0.09 (2.3)	7/16 (11.1)	11200 (772)	7200 (496)	9000 (620)
1/4	-LU-FR4	1.07 (27.2)	0.18 (4.6)	1/2 (12.7)	10000 (690)	6400 (440)	8000 (551)
1/2	-LU-FR8	1.45 (36.8)	0.40 (10.2)	13/16 (20.6)	4300 (296)	2800 (192)	3500 (241)
3/4	-LU-FR12	1.92 (48.8)	0.62 (15.7)	1 1/4 (31.8)	3700 (254)	2400 (165)	3000 (207)
1	-LU-FR16	2.00 (50.8)	0.87 (22.1)	1 11/16 (42.9)	3000 (207)	1900 (130)	2400 (165)

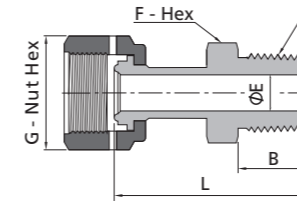


FR Body Union Tee							
FR Size (in.)	Basic Ordering Number	Dimension, in. (mm)			Working Pressure, psig (bar)		
		L	E	F	6L	CU	NI
1/8	-TTT-FR2	0.89 (22.6)	0.09 (2.3)	7/16 (11.1)	11200 (772)	7200 (496)	9000 (620)
1/4	-TTT-FR4	1.07 (27.2)	0.18 (4.6)	1/2 (12.7)	10000 (690)	6400 (440)	8000 (551)
1/2	-TTT-FR8	1.45 (36.8)	0.40 (10.2)	13/16 (20.6)	4300 (296)	2800 (192)	3500 (241)
3/4	-TTT-FR12	1.92 (48.8)	0.62 (15.7)	1 1/4 (31.8)	3700 (254)	2400 (165)	3000 (207)
1	-TTT-FR16	2.00 (50.8)	0.87 (22.1)	1 11/16 (42.9)	3000 (207)	1900 (130)	2400 (165)

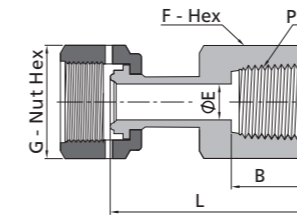


FR Body Union Cross							
FR Size (in.)	Basic Ordering Number	Dimension, in. (mm)			Working Pressure, psig (bar)		
		L	E	F	6L	CU	NI
1/8	-C-FR2	0.89(22.6)	0.09(2.3)	7/16 (11.1)	11200 (772)	7200 (496)	9000 (620)
1/4	-C-FR4	1.07(27.2)	0.18(4.6)	1/2 (12.7)	10000 (690)	6400 (440)	8000 (551)
1/2	-C-FR8	1.45(36.8)	0.40(10.2)	13/16 (20.6)	4300 (296)	2800 (192)	3500 (241)
3/4	-C-FR12	1.92(48.8)	0.62(15.7)	1 1/4 (31.8)	3700 (254)	2400 (165)	3000 (207)
1	-C-FR16	2.00(50.8)	0.87(22.1)	1 11/16 (42.9)	3000 (207)	1900 (130)	2400 (165)

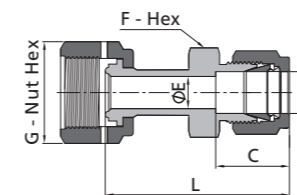
Welded Glands



FR Welded Gland to Male NPT										
FR Size (in.)	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)					Working Pressure, psig (bar)		
			L	B	E	G	F	6L	CU	NI
1/4	1/8	-WG-FR4-NS2	1.58 (40.1)	0.38 (9.7)	0.18 (4.6)	3/4 (19.1)	7/16 (11.1)	8000 (551)	6400 (446)	8000 (551)
1/4	1/4	-WG-FR4-NS4	1.79 (45.5)	0.56 (14.2)	0.18 (4.6)	3/4 (19.1)	9/16 (14.3)	8000 (551)	6400 (446)	8000 (551)
1/2	3/8	-WG-FR8-NS6	1.89 (48.0)	0.56 (14.2)	0.40 (10.2)	1 1/16 (27.0)	11/16 (17.5)	4300 (296)	2800 (192)	3500 (241)
1/2	1/2	-WG-FR8-NS8	2.09 (53.1)	0.75 (19.1)	0.40 (10.2)	1 1/16 (27.0)	7/8 (22.2)	4300 (296)	2800 (192)	3500 (241)

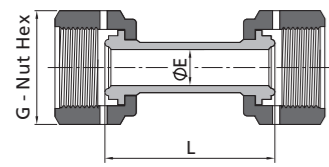


FR Welded Gland to Female NPT										
FR Size (in.)	P-NPT Size	Basic Ordering Number	Dimension, in. (mm)					Working Pressure, psig (bar)		
			L	B	E	G	F	6L	CU	NI
1/4	1/4	-WG-FR4-FNS4	1.77 (45.0)	0.59 (15.0)	0.18 (4.6)	3/4 (19.1)	3/4 (19.1)	6600 (454)	5200 (458)	6600 (454)
1/2	3/8	-WG-FR8-FNS6	1.95 (49.5)	0.59 (15.0)	0.40 (10.2)	1 1/16 (27.0)	7/8 (22.2)	4300 (296)	2800 (192)	3500 (241)
1/2	1/2	-WG-FR8-FNS8	2.18 (55.4)	0.78 (19.8)	0.40 (10.2)	1 1/16 (27.0)	1 1/16 (27.0)	4300 (296)	2800 (192)	3500 (241)



FR Welded Gland to Tube Fitting										
FR Size (in.)	T-Tube O.D. (in.)	Basic Ordering Number	Dimension, in. (mm)					Working Pressure, psig (bar)		
			L ^①	C	E	G	F	6L	CU	NI
1/4	1/4	-WG-FR4-FL4	1.94 (49.3)	0.60 (15.2)	0.18 (4.6)	3/4 (19.1)	1/2 (12.7)	8000 (551)	6400 (440)	8000 (551)
1/4	3/8	-WG-FR4-FL6	1.97 (50.0)	0.66 (16.8)	0.18 (4.6)	3/4 (19.1)	5/8 (15.9)	6500 (447)	5200 (358)	6500 (447)
1/2	1/2	-WG-FR8-FL8	2.23 (56.6)	0.90 (22.9)	0.40 (10.2)	1 1/16 (27.0)	13/16 (20.6)	4300 (296)	2800 (192)	3500 (241)

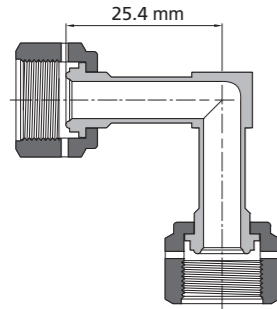
① Dimension L is typical finger-tight.



FR Welded Gland Union							
FR Size (in.)	Basic Ordering Number	Dimension, in. (mm)			Working Pressure, psig (bar)		
		L	E	G	6L	CU	NI
1/4	-WG-FR4	1.71 (43.4)	0.18 (4.6)	3/4 (19.1)	8000 (551)	6400 (440)	8000 (551)
1/2	-WG-FR8	1.84 (46.7)	0.40 (10.2)	1 1/16 (27.0)	4300 (296)	2800 (192)	3500 (241)

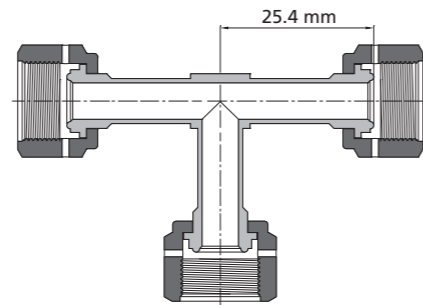
Female Elbow

Basic ordering number: **-LWG-FR4**

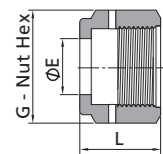


Female Tee

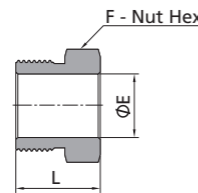
Basic ordering number: **-TWG-FR4**



Nuts

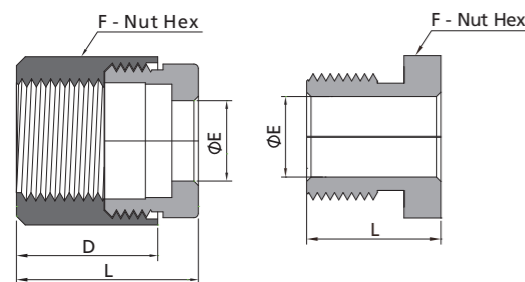


Female Nut					
FR Size (in.)	Basic Ordering Number	Dimension, in. (mm)			
		L	E	G	
1/8	-N-FR2	0.53 (13.5)	0.21 (5.3)	7/16 (11.1)	
1/4	-N-FR4	0.81 (20.6)	0.36 (9.1)	3/4 (19.1)	
1/2	-N-FR8	0.88 (22.4)	0.61 (15.5)	1 1/16 (27.0)	
5/8	-N-FR10	0.88 (22.4)	0.74 (18.8)	1 3/16 (30.2)	
3/4	-N-FR12	1.12 (28.4)	0.89 (22.6)	1 1/2 (38.1)	
1	-N-FR16	1.34 (34.0)	1.20 (30.5)	1 3/4 (44.5)	

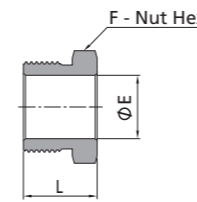


Male Nut					
FR Size (in.)	Basic Ordering Number	Dimension, in. (mm)			
		L	E	F	
1/8	-MN-FR2	0.50 (12.7)	0.21 (5.3)	3/8 (9.5)	
1/4	-MN-FR4	0.71 (18.0)	0.36 (9.1)	5/8 (15.9)	
1/2	-MN-FR8	0.81 (20.6)	0.61 (15.5)	15/16 (23.8)	
5/8	-MN-FR10	0.81 (20.6)	0.74 (18.8)	1 1/16 (27.0)	
3/4	-MN-FR12	1.00 (25.4)	0.89 (22.6)	1 5/16 (33.3)	
1	-MN-FR16	1.19 (30.2)	1.20 (30.5)	1 5/8 (41.3)	

Split-Nut Assemblies



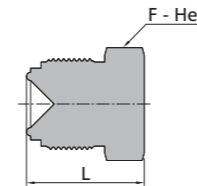
Split-Nut Assemblies						
FR Size (in.)	Split Nut Type	Basic Ordering Number	Dimension, in. (mm)			
			L	E	F	D
1/4	Female	-N-FR4-SN	0.81 (20.6)	0.36 (9.1)	3/4 (19.1)	0.63 (16.0)
1/4	Male	-MN-FR4-SN	0.60 (15.2)	0.36 (9.1)	5/8 (15.9)	-



Short Male Nut					
FR Size (in.)	Basic Ordering Number	Dimension, in. (mm)			
		L	E	F	
1/4	-MN-FR4-0.54	0.54 (13.7)	0.36 (9.1)	5/8 (15.9)	
1/4	-MN-FR4-0.65	0.65 (16.5)	0.36 (9.1)	5/8 (15.9)	

For use with short gland

Plugs



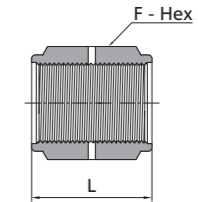
Plug				
FR Size (in.)	Basic Ordering Number	Dimension, in. (mm)		
		L	F	
1/8	-PG-FR2	0.68 (17.3)	3/8 (9.5)	
1/4	-PG-FR4	0.92 (23.4)	5/8 (15.9)	
1/2	-PG-FR8	1.08 (27.4)	15/16 (23.8)	
3/4	-PG-FR12	1.43 (36.3)	1 5/16 (33.3)	
1	-PG-FR16	1.52 (38.6)	1 5/8 (41.3)	

Plug with Lanyard

Lanyard material is 304 satinless steel.
Lanyard length is 15.2 cm.

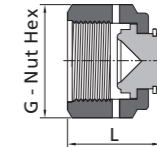


Plug with Lanyard				
FR Size (in.)	Basic Ordering Number	Dimension, in. (mm)		
		L	F	
1/4	-PG-FR4-BP	0.92 (23.4)	5/8 (15.9)	
1/2	-PG-FR8-BP	1.08 (27.4)	15/16 (23.8)	



Coupling				
FR Size (in.)	Basic Ordering Number	Dimension, in. (mm)		
		L	F	
1/8	-BC-FR2	0.66 (16.8)	7/16 (11.1)	
1/4	-BC-FR4	1.19 (30.2)	3/4 (19.1)	
1/2	-BC-FR8	1.31 (33.3)	1 1/16 (27.0)	
3/4	-BC-FR12	1.68 (42.7)	1 1/2 (38.1)	
1	-BC-FR16	2.04 (51.8)	1 3/4 (44.5)	

Caps



Cap				
FR Size (in.)	Basic Ordering Number	Dimension, in. (mm)		
		L	G	
1/8	-CP-FR2	0.63 (16.0)	7/16 (11.1)	
1/4	-CP-FR4	0.94 (23.9)	3/4 (19.1)	
1/2	-CP-FR8	1.01 (25.6)	1 1/16 (27.0)	
3/4	-CP-FR12	1.29 (32.8)	1 1/2 (38.1)	
1	-CP-FR16	1.54 (39.1)	1 3/4 (44.5)	

Cap with Lanyard

Lanyard material is 304 satinless steel.
Lanyard length is 15.2 cm.

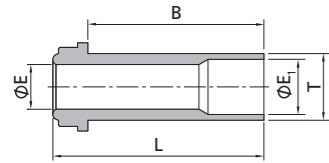


Cap with Lanyard				
FR Size (in.)	Basic Ordering Number	Dimension, in. (mm)		
		L	G	
1/4	-CP-FR4-BP	0.94 (23.9)	3/4 (19.1)	
1/2	-CP-FR8-BP	1.01 (25.6)	1 1/16 (27.0)	

High-Flow Connections—"H" Type FR

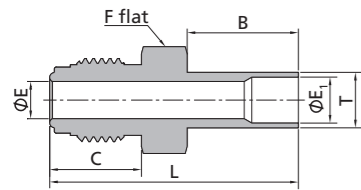
© For uniform flow, use 1/4" side-load retainer style gasket.

Glands

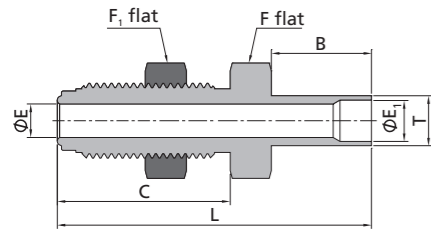


Tube Butt Weld				Dimension, in. (mm)				Working Pressure, psig (bar)		
FR Size (in.)	T-Tube O.D. (in.)	Nominal Wall Thickness (in.)	Basic Ordering Number	L	B	E	E ₁	6L	CU	NI
				1/4	3/8	0.035	-G-HFR4-TB6-15.2	0.60 (15.2)	0.41 (10.4)	0.25 (6.4)
1/4	3/8	0.035	-G-HFR4-TB6-30.2	1.19 (30.2)	1.00 (25.4)	0.25 (6.4)	0.31 (7.9)	3300 (227)	3300 (227)	3300 (227)
1/4	3/8	0.035	-G-HFR4-TB6-33.3	1.31 (33.3)	1.12 (28.4)	0.25 (6.4)	0.31 (7.9)	3300 (227)	3300 (227)	3300 (227)

Bodies

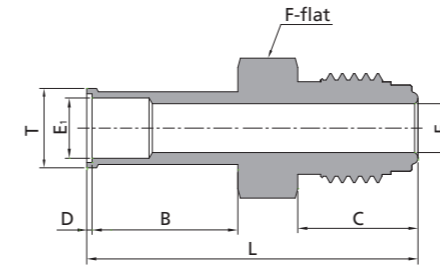


Tube Butt Weld				Dimension, in. (mm)					Working Pressure, psig (bar)		
FR Size (in.)	T-Tube O.D. (in.)	Basic Ordering Number	L	B	C	E	E ₁	F	6L	CU	NI
			1/4	3/8	-CW-HFR4-TB6	1.68 (42.7)	0.75 (19.1)	0.62 (15.7)	0.25 (6.4)	0.31 (7.9)	5/8 (15.9)

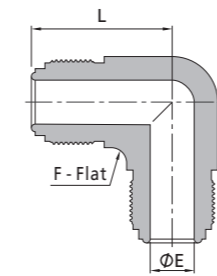


Bulkhead connector				Dimension, in. (mm)						Panel Hole Dia		Working Pressure, psig (bar)		
FR Size (in.)	T-Tube O.D. (in.)	Basic Ordering Number	L	B	C	E	E ₁	F	F ₁	Max Panel Thickness Hole Dia	6L	CU	NI	
			1/4	3/8	-BW-HFR4-TB6	2.36(59.9)	0.75(19.1)	1.30(33.0)	0.31(7.9)		0.25(6.4)	3/4(19.1)	3/4(19.1)	19/32(15.0)

Automatic Tube Weld

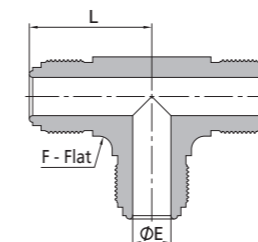


Automatic Tube Weld				Dimension, in. (mm)							Working Pressure, psig (bar)		
FR Size (in.)	Tube Size (in.)	Basic Ordering Number	L	B	C	D	E	E ₁	F	T	6L	CU	NI
			1/4	3/8	-AW-HFR4-TB6	1.71(43.4)	0.75(19.1)	0.62(15.7)	0.03(0.8)	0.25(6.4)	0.31(7.9)	5/8(15.9)	0.41(10.4)



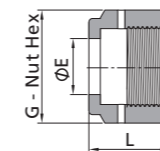
Union Elbow		Dimension, in. (mm)			Working Pressure, psig (bar)		
FR Size (in.)	Basic Ordering Number	L	E	F	6L	CU	NI
		1/4	-LU-HFR4	1.07 (27.2)	0.25 (6.4)	1/2 (12.7)	10 000 (690)

Bodies

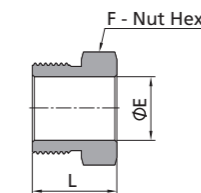


Union Tee		Dimension, in. (mm)			Working Pressure, psig (bar)		
FR Size (in.)	Basic Ordering Number	L	E	F	6L	CU	NI
		1/4	-TTT-HFR4	1.07 (27.2)	0.25 (6.4)	1/2 (12.7)	10 000 (690)

Nuts



Female		Dimension, in. (mm)		
FR Size (in.)	Basic Ordering Number	L	E	G
		1/4	-N-HFR4-9.9	0.81 (20.6)
1/4	-N-HFR4-11.7	0.81 (20.6)	0.46 (11.7)	3/4 (19.1)



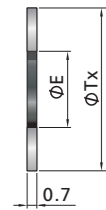
Male		Dimension, in. (mm)		
FR Size (in.)	Basic Ordering Number	L	E	F
		1/4	-MN-HFR4	0.71 (18.0)

Gaskets

- Nickel and Copper gasket retainer assemblies use a 316L stainless steel retainer.
- Copper gaskets are unplated.
- Side-load retainer style gaskets are not available in copper.
- Blind (undrilled) gaskets are available in nonretained and retainer assembly styles, add-B as a suffix to the ordering number. Example: **-GT-FR4-UP-B**.

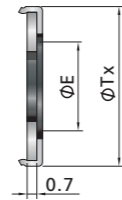
Silver Plated

Cannot be used in a gasket retainer assembly.



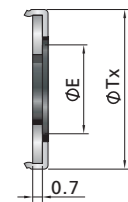
Nonretained			
FR Size (in.)	Basic Ordering Number	Dimension, in. (mm)	
		Tx	E
1/8	-GT-FR2	0.26 (6.6)	0.09 (2.3)
1/4	-GT-FR4	0.47 (11.9)	0.22 (5.6)
1/2	-GT-FR8	0.78 (19.8)	0.44 (11.2)
5/8	-GT-FR10	0.91 (23.1)	0.58 (14.7)
3/4	-GT-FR12	1.14 (29.0)	0.66 (16.8)
1	-GT-FR16	1.40 (35.6)	0.89 (22.6)

Unplated (UP)



Gaskets Retainer Assembly			
FR Size (in.)	Basic Ordering Number	Dimension, mm	
		Tx	E
1/4	-GT-FR4-A-UP	0.50 (12.7)	0.24 (6.1)
1/2	-GT-FR8-A-UP	0.79 (20.1)	0.44 (11.2)
3/4	-GT-FR12-A-UP	1.14 (29.0)	0.66 (16.8)
1	-GT-FR16-A-UP	1.40 (35.6)	0.89 (22.6)

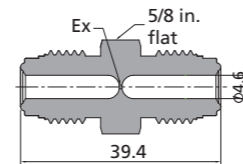
Retainer and gasket must be used as an assembly.



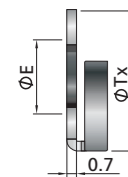
Gasket Retainer Assembly			
FR Size (in.)	Basic Ordering Number	Dimension, in. (mm)	
		Tx	E
1/4	-GT-FR4-A	0.50 (12.7)	0.24 (6.1)
1/2	-GT-FR8-A	0.79 (20.1)	0.44 (11.2)
3/4	-GT-FR12-A	1.14 (29.0)	0.66 (16.8)
1	-GT-FR16-A	1.40 (35.6)	0.89 (22.6)

Flow Restrictors

Working pressure 10000 psig (690 bar)

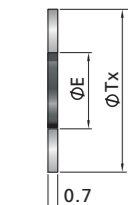


Unplated (UP)



Side-load retainer			
FR Size (in.)	Basic Ordering Number	Dimension, in. (mm)	
		Tx	E
1/4	-GT-FR4-AS-UP	0.45 (11.4)	0.24 (6.1)
1/2	-GT-FR8-AS-UP	0.75 (19.1)	0.43 (11.0)

Unplated (UP)



Nonretained			
FR Size (in.)	Basic Ordering Number	Dimension, in. (mm)	
		Tx	E
1/8	-GT-FR2-UP	0.26 (6.6)	0.09 (2.3)
1/4	-GT-FR4-UP	0.47 (11.9)	0.22 (5.6)
1/2	-GT-FR8-UP	0.78 (19.8)	0.44 (11.2)
5/8	-GT-FR10-UP	0.91 (23.1)	0.58 (14.7)
3/4	-GT-FR12-UP	1.14 (29.0)	0.66 (16.8)
1	-GT-FR16-UP	1.40 (35.6)	0.89 (22.6)

FR Body to Male NPT

Ex, in. (mm)	Ordering Number
0.015 (0.381)	6LV-R-FR4-015
0.017 (0.432)	6LV-R-FR4-017
0.020 (0.508)	6LV-R-FR4-020
0.023 (0.584)	6LV-R-FR4-023
0.025 (0.635)	6LV-R-FR4-025
0.026 (0.660)	6LV-R-FR4-026
0.027 (0.686)	6LV-R-FR4-027
0.030 (0.762)	6LV-R-FR4-030
0.035 (0.889)	6LV-R-FR4-035
0.040 (1.016)	6LV-R-FR4-040
0.045 (1.143)	6LV-R-FR4-045
0.050 (1.270)	6LV-R-FR4-050
0.055 (1.397)	6LV-R-FR4-055
0.060 (1.529)	6LV-R-FR4-060
0.065 (1.651)	6LV-R-FR4-065
0.070 (1.778)	6LV-R-FR4-070
0.075 (1.905)	6LV-R-FR4-075
0.080 (2.032)	6LV-R-FR4-080
0.085 (2.159)	6LV-R-FR4-085
0.090 (2.286)	6LV-R-FR4-090
0.093 (2.362)	6LV-R-FR4-093
0.095 (2.413)	6LV-R-FR4-095
0.100 (2.540)	6LV-R-FR4-100