

PRODUCT CATALOG

Metal Gasket Face Seal Fittings

Glands | Bodies | Welded Assemblies | High-Flow Connections



Product Index

Click any product type to jump to its catalog section

SECTION	CATALOG PAGE	SECTION	CATALOG PAGE
Technical Data	01	FR Body to Male NPT Elbow	10
Female Nuts	02	FR Body to Tube Fitting	10
Male Nuts	02	FR Body to Bulkhead Tube Fitting	11
Glands	02	FR Welded Gland to Male NPT	11
Blind Gland	05	FR Welded Gland to Female NPT	11
Union Body	06	FR Welded Gland to Tube Fitting	12
Reducing Union Body	06	FR Welded Gland Union	12
Bulkhead Union Body	06	Female Elbows	12
Bulkhead Body to Tube Butt Weld	07	Female Tees	12
Female Reducing Union	07	Plugs	13
Reducing Adapter	07	Caps	13
Reducing Bushing	07	Gaskets	13
Union Elbow Body	08	High-Flow Connections	14
Union Tee Body	08	HFR Gland to Tube Butt Weld	14
Union Cross Body	08	HFR Body to Tube Butt Weld	15
FR Body to Male NPT	09	HFR Bulkhead Body to Tube Butt Weld	15
FR Body to Bulkhead Male NPT	09	HFR Body to Automatic Tube Weld	15
FR Body to SAE/MS Thread	09	HFR Body Union Elbow	16
FR Body to Female NPT	10	HFR Body Union Tee	16

Navigation: use the optimized catalog index, PDF bookmarks, or the INDEX button on each page.

Page numbers follow the original printed catalog pagination.

High Purity Face Seal Fittings

Features

- Metal-to-metal seal to provide perfect leak-tight service for working conditions from critical vacuum to high pressure.
- Precision manufactured gasket to ensure best performance.
- Test port at nut for easy leak testing.
- Silver-plated female threads.
- Standard surface roughness finished to an average of Ra 10 μ in. (0.25 μ m) or electropolished to Ra 5 μ in. (0.13 μ m) optional.
- All seal faces and male threads protected with plastic caps.
- Sizes range from 1/16" to 1" and 6 mm to 18 mm.

Weld End Tube O.D. and Wall Thickness

Tube O.D. (in.)	Wall Thickness(in.)		Tube O.D. (mm.)	Wall Thickness(mm)
1/8	0.028		6	1.0
1/4	0.035		8	1.0
3/8	0.035		10	1.0
1/2	0.049		12	1.0
3/4	0.049		18	1.0
1	0.065			
1.1/2	0.065			
2	0.065			

Working Pressure

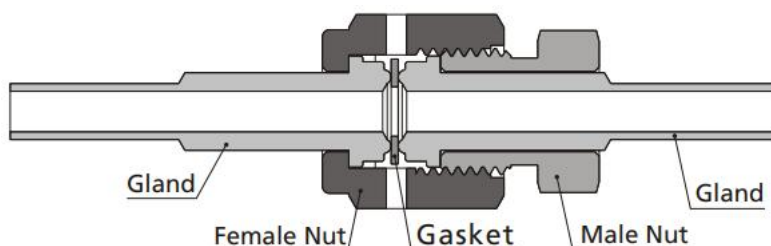
Working pressures are calculated according to ASME B31.3 and B31.1 at ambient temperature.

Working Temperature

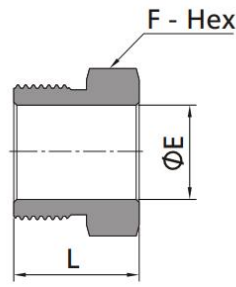
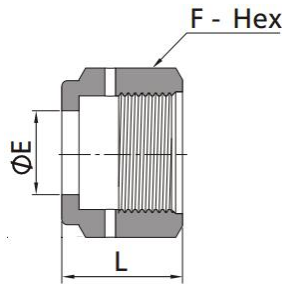
Component	Material	Max. Temperature
Fittings	SS 316	1000 °F (538 °C)
	SS 316L	
Gaskets	SS 316L	1000 °F (538 °C)
	Copper	400 °F (204 °C)
	Nickel	600 °F (316 °C)

Installation Instructions

1. Assemble the gland, nut, gasket and male nut as below. Finger tight the nut.
2. For fittings with 316L SS and nickel gaskets, tighten the nut 1/8 turn with a wrench while holding the male nut or the body steady. Tighten the nut 1/4 turn for those with copper gaskets.

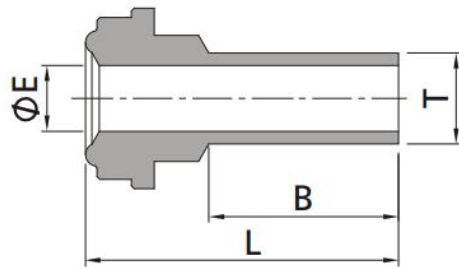


Nuts

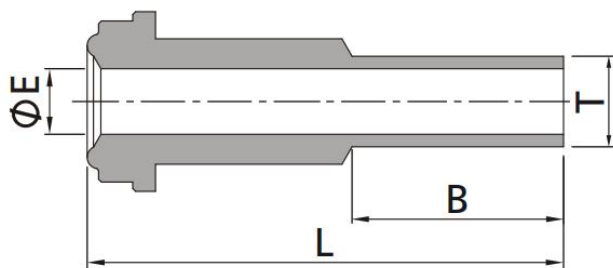


Female Nuts					Male Nuts				
Basic Ordering NO.	Size (in.)	Dimensions in.(mm)			Basic Ordering NO.	Size (in.)	Dimensions in.(mm)		
		F	E	L			F	E	L
-FN-FT2	1/8	7/16 (11.1)	0.21 (5.3)	0.53 (13.5)	-MN-FT2	1/8	3/8 (9.5)	0.21 (5.3)	0.50 (12.7)
-FN-FT4	1/4	3/4 (19.1)	0.36 (9.1)	0.81 (20.6)	-MN-FT4	1/4	5/8 (15.9)	0.36 (9.1)	0.71 (18.0)
-FN-FT8	1/2	1.1/16 (27.0)	0.61 (15.5)	0.88 (22.4)	-MN-FT8	1/2	15/16 (23.8)	0.61 (15.5)	0.81 (20.6)
-FN-FT10	5/8	1.3/16 (30.2)	0.74 (18.8)	0.88 (22.4)	-MN-FT10	5/8	1.1/16 (27.0)	0.74 (18.8)	0.81 (20.6)
-FN-FT12	3/4	1.1/2 (38.1)	0.89 (22.6)	1.12 (28.4)	-MN-FT12	3/4	1.5/16 (33.3)	0.89 (22.6)	1.00 (25.4)
-FN-FT16	1	1.3/4 (44.5)	1.20 (30.5)	1.34 (34.0)	-MN-FT16	1	1 5/8 (41.3)	1.20 (30.5)	1.19 (30.2)

Glands



FR Gland to Short Fractional Tube Butt Weld							
Basic Ordering NO.	FR Size (in.)	T-Tube OD(in.)	Nominal Wall Thickness(In.)	Dimensions in.(mm)			Working Pressure psig (bar)
				B	E	L	
-G-FR2-FT2-12	1/8	1/8	0.028	0.75 (19.1)	0.07 (1.8)	1.08 (27.4)	8500 (586)
-G-FR4-FT2-12	1/4	1/8	0.028	0.75 (19.1)	0.07 (1.8)	1.10 (27.9)	5100 (352)
-G-FR4-FT4-4	1/4	1/4	0.035	0.25 (6.4)	0.18 (4.6)	0.60 (15.2)	5100 (352)
-G-FR4-FT4-6	1/4	1/4	0.035	0.38 (9.6)	0.18 (4.6)	0.72 (18.3)	5100 (352)
-G-FR4-FT4-12	1/4	1/4	0.035	0.75 (19.1)	0.18 (4.6)	1.10 (27.9)	5100 (352)
-G-FR8-FT4-12	1/2	1/4	0.035	0.75 (19.1)	0.18 (4.6)	1.12 (28.4)	4300 (296)
-G-FR8-FT6-4	1/2	3/8	0.035	0.25 (6.4)	0.31 (7.9)	0.62 (15.7)	3300 (227)
-G-FR8-FT6-12	1/2	3/8	0.035	0.75 (19.1)	0.31 (7.9)	1.12 (28.4)	3300 (227)
-G-FR8-FT8-4	1/2	1/2	0.049	0.25 (6.4)	0.40 (10.2)	0.62 (15.7)	3500 (241)
-G-FR8-FT8-6	1/2	1/2	0.049	0.38 (9.6)	0.40 (10.2)	0.74 (18.8)	3500 (241)
-G-FR8-FT8-12	1/2	1/2	0.049	0.75 (19.1)	0.40 (10.2)	1.12 (28.4)	3500 (241)
FR Gland to Short Metric Tube Butt Weld							
Basic Ordering NO.	FR Size (in.)	T-Tube OD(mm)	Nominal Wall Thickness(mm)	Dimensions mm(in.)			Working Pressure Bar(psig)
				B	E	L	
-G-FR4-MT6-12	1/4	6	1	19.1 (0.75)	4.0 (0.16)	29.5 (1.16)	468 (6800)
-G-FR4-MT8-12	1/4	8	1	19.1 (0.75)	6.0 (0.24)	29.5 (1.16)	337 (4900)
-G-FR8-MT10-12	1/2	10	1	19.1 (0.75)	8.0 (0.31)	29.5 (1.16)	241 (3500)
-G-FR8-MT12-12	1/2	12	1	19.1 (0.75)	10.0 (0.39)	29.5 (1.16)	213 (3100)
-G-FR12-MT18-12	3/4	18	1.5	19.1 (0.75)	15.0 (0.59)	31.0 (1.22)	206 (3000)

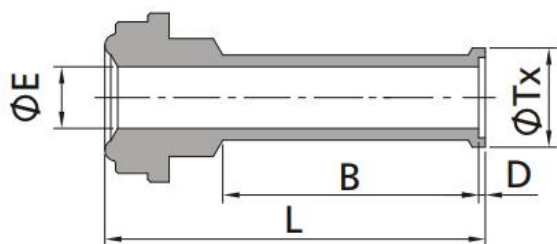


FR Gland to Long Fractional Tube Butt Weld

Basic Ordering NO.	FR Size (in.)	T-Tube OD(in.)	Nominal Wall Thickness(In.)	Dimensions in.(mm)			Working Pressure psig (bar)
				B	E	L	
-G-FR2-FT2-12L	1/8	1/8	0.028	0.75 (19.1)	0.07 (1.8)	1.42 (36.1)	8500 (586)
-G-FR4-FT4-4L	1/4	1/4	0.035	0.25 (6.4)	0.18 (4.6)	1.20 (30.5)	5100 (352)
-G-FR4-FT4-6L	1/4	1/4	0.035	0.38 (9.6)	0.18 (4.6)	1.32 (33.5)	5100 (352)
-G-FR4-FT4-12L	1/4	1/4	0.035	0.75 (19.1)	0.18 (4.6)	1.70 (43.2)	5100 (352)
-G-FR8-FT4-12L	1/2	1/4	0.035	0.75 (19.1)	0.18 (4.6)	1.80 (45.7)	4300 (296)
-G-FR8-FT6-4L	1/2	3/8	0.035	0.25 (6.4)	0.31 (7.9)	1.29 (32.8)	3300 (227)
-G-FR8-FT6-12L	1/2	3/8	0.035	0.75 (19.1)	0.31 (7.9)	1.79 (45.5)	3300 (227)
-G-FR8-FT8-4L	1/2	1/2	0.049	0.25 (6.4)	0.40 (10.2)	1.29 (32.8)	3500 (241)
-G-FR8-FT8-6L	1/2	1/2	0.049	0.38 (9.6)	0.40 (10.2)	1.41 (35.8)	3500 (241)
-G-FR8-FT8-12L	1/2	1/2	0.049	0.75 (19.1)	0.40 (10.2)	1.79 (45.5)	3500 (241)
-G-FR12-FT12-12L	3/4	3/4	0.049	0.75 (19.1)	0.65 (16.5)	2.03 (51.6)	2400 (165)
-G-FR16-FT16-12L	1	1	0.065	0.75 (19.1)	0.87 (22.1)	2.32 (58.9)	2400 (165)

FR Gland to Long Metric Tube Butt Weld

Basic Ordering NO.	FR Size (in.)	T-Tube OD(mm)	Nominal Wall Thickness(mm)	Dimensions mm(in.)			Working Pressure Bar(psig)
				B	E	L	
-G-FR4-MT6-12L	1/4	6	1	19.1 (0.75)	4.0 (0.16)	43.2 (1.7)	468 (6800)
-G-FR4-MT8-12L	1/4	8	1	19.1 (0.75)	6.0 (0.24)	43.2 (1.7)	337 (4900)
-G-FR8-MT10-12L	1/2	10	1	19.1 (0.75)	8.0 (0.31)	45.5 (1.79)	241 (3500)
-G-FR8-MT12-12L	1/2	12	1	19.1 (0.75)	10.0 (0.39)	45.5 (1.79)	213 (3100)
-G-FR12-MT18-12L	3/4	18	1.5	19.1 (0.75)	15.0 (0.59)	51.6 (2.03)	206 (3000)

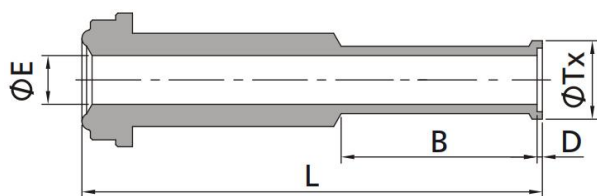


FR Gland to Short Fractional Automatic Tube Butt Weld

Basic Ordering NO.	FR Size (in.)	T-Tube OD(in.)	Nominal Wall Thickness(In.)	Dimensions in.(mm)					Working Pressure psig (bar)
				B	D	E	L	Tx	
-G-FR4-AT4-12	1/4	1/4	0.035	0.75 (19.1)	0.02 (0.5)	0.18 (4.6)	1.12 (28.4)	0.29 (7.4)	5100 (352)
-G-FR8-AT6-12	1/2	3/8	0.035	0.75 (19.1)	0.03 (0.8)	0.31 (7.9)	1.15 (29.2)	0.41 (10.4)	3300 (227)
-G-FR8-AT8-4	1/2	1/2	0.049	0.25 (6.4)	0.04 (1.0)	0.40 (10.2)	1.16 (29.5)	0.55 (14.0)	3500 (241)

FR Gland to Short Metric Automatic Tube Butt Weld

Basic Ordering NO.	FR Size (in.)	T-Tube OD(mm)	Nominal Wall Thickness(mm)	Dimensions in.(mm)					Working Pressure psig (bar)
				B	D	E	L	Tx	
-G-FR4-AT6-12	1/4	6	1	19.1 (0.75)	0.5 (0.02)	4.0 (0.16)	30.0 (1.18)	6.8 (0.27)	468 (6800)
-G-FR4-AT8-12	1/4	8	1	19.1 (0.75)	0.8 (0.03)	6.0 (0.24)	30.2 (1.19)	8.9 (0.35)	337 (4900)
-G-FR8-AT10-12	1/2	10	1	19.1 (0.75)	0.8 (0.03)	8.0 (0.31)	31.0 (1.22)	10.9 (0.43)	241 (3500)
-G-FR8-AT12-12	1/2	12	1	19.1 (0.75)	1.0 (0.04)	10.0 (0.39)	30.5 (1.20)	13.2 (0.52)	213 (3100)

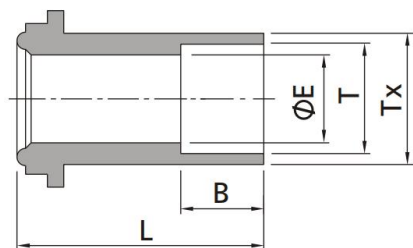


FR Gland to Short Fractional Automatic Tube Butt Weld

Basic Ordering NO.	FR Size (in.)	T-Tube OD(in.)	Nominal Wall Thickness(In.)	Dimensions in.(mm)					Working Pressure psig (bar)
				B	D	E	L	Tx	
-G-FR4-AT4-12L	1/4	1/4	0.035	0.75 (19.1)	0.02 (0.5)	0.18 (4.6)	1.72 (43.7)	0.29 (7.4)	5100 (352)
-G-FR8-AT4-12L	1/2	1/4	0.035	0.75 (19.1)	0.02 (0.5)	0.18 (4.6)	1.82 (46.2)	0.29 (7.4)	3500 (241)
-G-FR8-AT6-12L	1/2	3/8	0.035	0.75 (19.1)	0.03 (0.8)	0.31 (7.9)	1.82 (46.2)	0.41 (10.4)	3300 (227)
-G-FR8-AT8-12L	1/2	1/2	0.049	0.75 (19.1)	0.04 (1.0)	0.40 (10.2)	1.83 (46.5)	0.55 (14.0)	3500 (241)
-G-FR12-AT12-12L	3/4	3/4	0.049	0.75 (19.1)	0.04 (1.0)	0.65 (16.5)	2.07 (52.6)	0.80 (20.3)	2400 (165)
-G-FR16-AT16-12L	1	1	0.065	0.96(24.4)	0.04 (1.0)	0.87 (22.1)	2.57 (65.3)	1.06(26.9)	2400 (165)

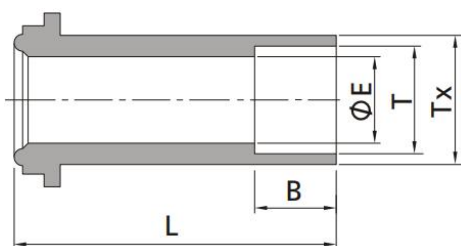
FR Gland to Short Metric Automatic Tube Butt Weld

Basic Ordering NO.	FR Size (in.)	T-Tube OD(mm)	Nominal Wall Thickness(mm)	Dimensions in.(mm)					Working Pressure psig (bar)
				B	D	E	L	Tx	
-G-FR4-AT6-12L	1/4	6	1	19.1 (0.75)	0.5 (0.02)	4.0 (0.16)	43.7 (1.72)	6.8 (0.27)	468 (6800)
-G-FR8-AT12-12L	1/2	12	1	19.1 (0.75)	1.0 (0.04)	10.0 (0.39)	46.5 (1.83)	13.2 (0.52)	213 (3100)
-G-FR12-AT18-12L	3/4	18	1.5	19.1 (0.75)	1.0 (0.04)	15.0 (0.59)	51.6 (2.03)	19.3 (0.76)	206 (3000)



FR Gland to Short Fractional Tube Socket Weld

Basic Ordering NO.	FR Size (in.)	T-Tube U-OD(in.)	Dimensions in.(mm)				Working Pressure psig (bar)
			B	E	L	Tx	
-G-FR4-FST4	1/4	1/4	0.28 (7.1)	0.18 (4.6)	0.50 (12.7)	0.35 (8.9)	5100 (352)
-G-FR4-FST4	1/4	1/4	0.28 (7.1)	0.18 (4.6)	0.75 (19.1)	0.35 (8.9)	5100 (352)



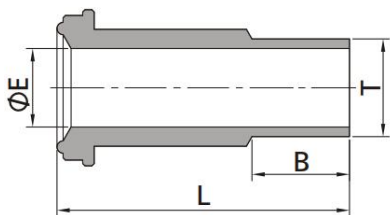
FR Gland to Long Fractional Tube Socket Weld

Basic Ordering NO.	FR Size (in.)	T-Tube OD(in.)	Dimensions in.(mm)				Working Pressure psig (bar)
			B	E	L	Tx	
-G-FR2-FST2-L	1/8	1/8	0.10 (2.5)	0.09 (2.3)	0.70 (17.8)	0.20 (5.1)	7100 (489)
-G-FR4-FST4-L	1/4	1/4	0.28 (7.1)	0.18 (4.6)	1.31 (33.3)	0.35 (8.9)	5500 (378)
-G-FR8-FST6-L	1/2	3/8	0.31 (7.9)	0.28 (7.1)	1.50 (38.1)	0.60 (15.2)	4300 (296)
-G-FR8-FST8-L	1/2	1/2	0.38 (9.7)	0.40 (10.2)	1.50 (38.1)	0.60 (15.2)	3000 (206)
-G-FR10-FST10-L	5/8	5/8	0.41 (10.4)	0.50 (12.7)	1.56 (39.6)	0.72 (18.3)	2800 (192)
-G-FR12-FST12-L	3/4	3/4	0.44 (11.2)	0.65 (16.5)	2.00 (50.8)	0.88 (22.4)	2800 (192)
-G-FR16-FST16-L	1	1	0.62 (15.7)	0.87 (22.1)	2.22 (56.4)	1.19 (30.2)	3000 (206)



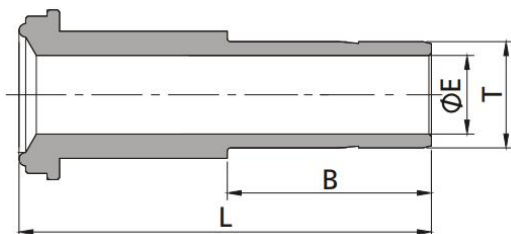
FR Gland to Reducing Socket Weld

Basic Ordering NO.	FR Size (in.)	V-Tube W-OD(in.)	Dimensions in.(mm)				Working Pressure psig (bar)
			B	E	L	Tx	
-G-FR4-RST2	1/4	1/8	0.10 (2.5)	0.09 (2.3)	1.31 (33.3)	0.35 (8.9)	8000 (550)
-G-FR8-RST4	1/2	1/4	0.28 (7.1)	0.18 (4.6)	1.50 (38.1)	0.60 (15.2)	3500 (241)



FR Gland to Male Weld

Basic Ordering NO.	FR Size (in.)	T-Tube OD(in.)	Dimensions in.(mm)			Working Pressure psig (bar)
			B	E	L	
-G-FR2-FMT2	1/8	1/8	0.28 (7.1)	0.07 (1.8)	0.70 (17.8)	11200 (772)
-G-FR4-FMT2	1/4	1/8	0.28 (7.1)	0.07 (1.8)	1.31 (33.3)	10000 (690)
-G-FR4-FMT4	1/4	1/4	0.41 (10.4)	0.12 (3.0)	1.31 (33.3)	10000 (690)
-G-FR8-FMT4	1/2	1/4	0.41 (10.4)	0.12 (3.0)	1.50 (38.1)	4300 (296)
-G-FR8-FMT6	1/2	3/8	0.41 (10.4)	0.28 (7.1)	1.50 (38.1)	4300 (296)
-G-FR8-FMT8	1/2	1/2	0.50 (12.7)	0.40 (10.2)	1.50 (38.1)	3500 (241)
-G-FR12-FMT12	3/4	3/4	0.62 (15.7)	0.53 (13.5)	2.00 (50.8)	3700 (254)
-G-FR16-FMT16	1	1	0.81 (20.6)	0.75 (19.1)	2.22 (56.4)	3000 (206)



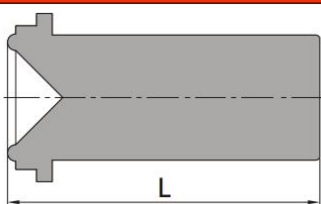
FR Gland to Tube Port

Basic Ordering NO.	FR Size (in.)	T-Tube OD(in.)	Dimensions in.(mm)			Working Pressure psig (bar)
			B	E	L	
-G-FR4-TP4	1/4	1/4	0.64 (16.2)	0.17 (4.3)	1.62 (41.0)	10000 (690))
-G-FR8-TP6	1/2	3/8	0.70 (17.8)	0.27 (6.9)	1.81 (46.0)	4300 (296)
-G-FR8-TP8	1/2	1/2	0.96 (24.4)	0.37 (9.4)	1.94 (49.3)	4300 (296)

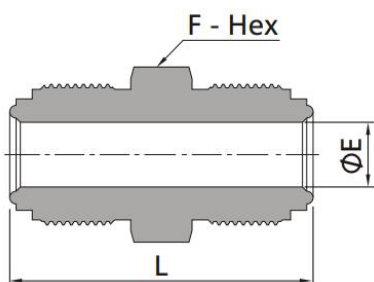
Blind Gland

Fractiona FR Blind Gland

Basic Ordering NO.	FR Size (in.)	Dimensions in.(mm)
		L
-BG-FR2	1/8	0.70 (17.8)
-BG-FR4	1/4	1.31 (33.3)
-BG-FR8	1/2	1.50 (38.1)
-BG-FR12	3/4	2.00 (50.8)
-BG-FR16	1	2.22 (56.4)

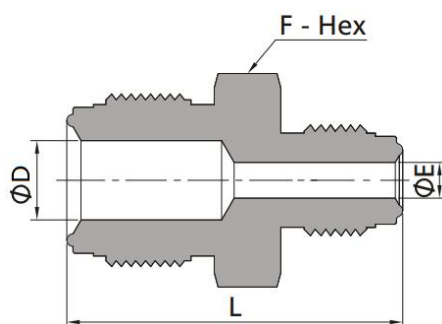


Bodies



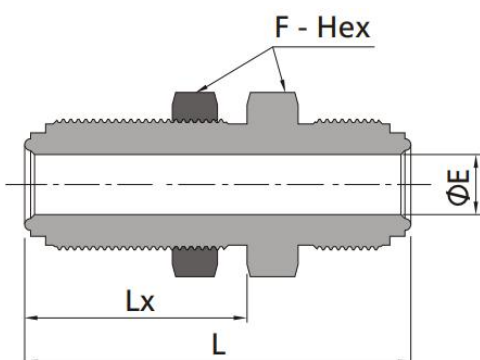
Union Body

Basic Ordering NO.	FR Size (in.)	Dimensions in.(mm)			Working Pressure psig (bar)
		F	E	L	
-U-FR2	1/8	3/8 (9.5)	0.09 (2.3)	1.13 (28.7)	11200 (772)
-U-FR4	1/4	5/8 (15.9)	0.18 (4.6)	1.55 (39.4)	10000 (690)
-U-FR8	1/2	15/16 (23.8)	0.40 (10.2)	1.84 (46.7)	4300 (296)
-U-FR12	3/4	1 5/16 (33.3)	0.62 (15.7)	2.44 (62.0)	3700 (254)
-U-FR16	1	1 5/8 (41.3)	0.87 (22.1)	2.59 (65.8)	3000 (206)



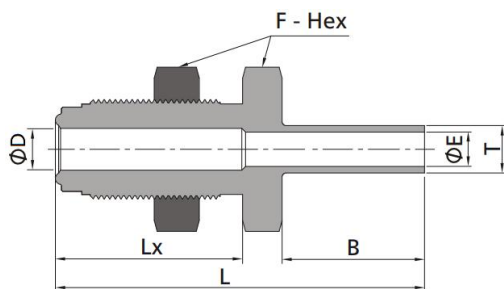
Reducing Union Body

Basic Ordering NO.	FR Size (in.)	FR Size (in.)	Dimensions in.(mm)				Working Pressure psig (bar)
			F	D	E	L	
-RU-FR4-FR2	1/4	1/8	5/8 (15.9)	0.18 (4.6)	0.09 (2.3)	1.37 (34.8)	10000 (690)
-RU-FR8-FR4	1/2	1/4	15/16 (23.8)	0.40 (10.2)	0.18 (4.6)	1.71 (43.4)	4300 (296)
-RU-FR12-FR8	3/4	1/2	1 5/16 (33.3)	0.62 (15.7)	0.40 (10.2)	2.13 (54.1)	3700 (254)
-RU-FR16-FR12	1	3/4	1 5/8 (41.3)	0.87 (22.1)	0.62 (15.7)	2.50 (63.5)	3000 (206)



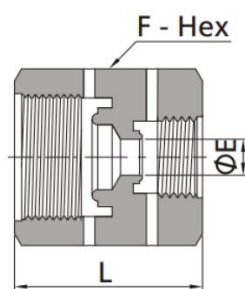
Bulkhead Union Body

Basic Ordering NO.	FR Size (in.)	Dimensions in.(mm)				Panel Hole in. (mm)	Working Pressure psig (bar)
		F	L	Lx	E		
-BU-FR4	1/4	3/4 (19.1)	1.82 (46.2)	0.99 (25.1)	0.18 (4.6)	19/32 (15.0)	10000 (690)
-BU-FR4-L	1/4	3/4 (19.1)	2.23 (56.6)	1.30 (33.0)	0.18 (4.6)	19/32 (15.0)	4300 (296)
-BU-FR8	1/2	1 1/16 (27.0)	2.14 (54.4)	1.11 (28.2)	0.40 (10.2)	29/32(23.1)	3700 (254)
-BU-FR8-L	1/2	1 1/16 (27.0)	2.57 (65.3)	1.48 (37.6)	0.40 (10.2)	29/32(23.1)	3000 (206)



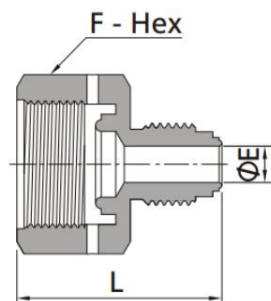
Bulkhead Body to Tube Butt Weld

Basic Ordering NO.	FR Size (in.)	Dimensions in.(mm)						Panel Hole in. (mm)	Working Pressure psig (bar)
		F	L	Lx	B	D	E		
-BBW-FR4-FT4	1/4	3/4(19.1)	1.95(49.5)	0.99(25.1)	0.75(19.1)	0.18(4.6)	0.22(5.6)	19/32(15.0)	5100(352)
-BBW-FR4-FT4-L	1/4	3/4(19.1)	2.36(59.9)	1.30(33.0)	0.75(19.1)	0.18(4.6)	0.22(5.6)	19/32(15.0)	5100(352)



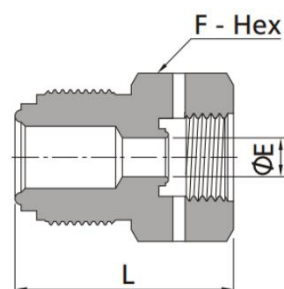
Female Reducing Union

Basic Ordering NO.	FR Size (in.)	FR Size (in.)	Dimensions in.(mm)			Working Pressure psig (bar)
			F	L	E	
-FRU-FR4-FT2	1/4	1/8	3/4 (19.1)	1.16 (29.5)	0.22 (5.6)	10000 (690)
-FRU-FR8-FT4	1/2	1/4	1 1/16 (27.0)	1.41 (35.8)	0.22 (5.6)	4300 (296)



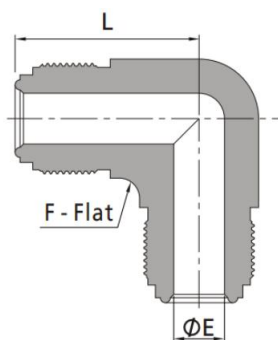
Reducing Adapter

Basic Ordering NO.	FR Size (in.)	FR Size (in.)	Dimensions in.(mm)			Working Pressure psig (bar)
			F	L	E	
-RA-FR4-FT2	1/4	1/8	3/4 (19.1)	1.19 (30.2)	0.09 (2.3)	10000 (690)
-RA-FR8-FT4	1/2	1/4	1 1/16 (27.0)	1.41 (35.8)	0.18 (4.6)	4300 (296)

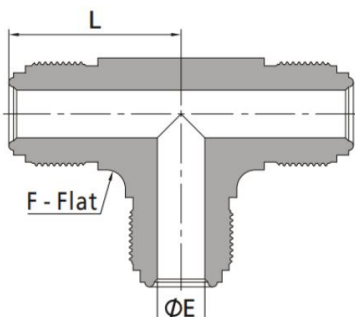


Reducing Bushing

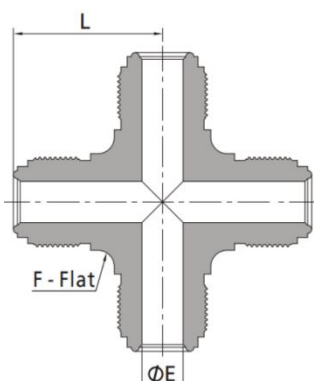
Basic Ordering NO.	FR Size (in.)	FR Size (in.)	Dimensions in.(mm)			Working Pressure psig (bar)
			F	L	E	
-RB-FR4-FT2	1/4	1/8	5/8 (15.9)	1.06 (26.9)	0.13 (3.3)	10000 (690)
-RB-FR8-FT4	1/2	1/4	15/16 (23.8)	1.41 (35.8)	0.25 (6.4)	4300 (296)



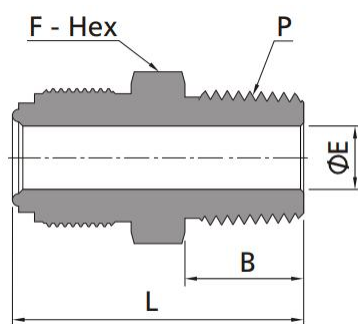
Union Elbow Body					
Basic Ordering NO.	FR Size (in.)	Dimensions in.(mm)			Working Pressure psig (bar)
		F	E	L	
-UE-FR2	1/8	7/16 (11.1)	0.09 (2.3)	0.89 (22.6)	11200 (772)
-UE-FR4	1/4	1/2 (12.7)	0.18 (4.6)	1.07 (27.2)	10000 (690)
-UE-FR8	1/2	13/16 (20.6)	0.40 (10.2)	1.45 (36.8)	4300 (296)
-UE-FR12	3/4	1 1/4 (31.8)	0.62 (15.7)	1.92 (48.8)	3700 (254)
-UE-FR16	1	1 11/16 (42.9)	0.87 (22.1)	2.00 (50.8)	3000 (206)



Union Tee Body					
Basic Ordering NO.	FR Size (in.)	Dimensions in.(mm)			Working Pressure psig (bar)
		F	E	L	
-UT-FR2	1/8	7/16 (11.1)	0.09 (2.3)	0.89 (22.6)	11200 (772)
-UT-FR4	1/4	1/2 (12.7)	0.18 (4.6)	1.07 (27.2)	10000 (690)
-UT-FR8	1/2	13/16 (20.6)	0.40 (10.2)	1.45 (36.8)	4300 (296)
-UT-FR12	3/4	1 1/4 (31.8)	0.62 (15.7)	1.92 (48.8)	3700 (254)
-UT-FR16	1	1 11/16 (42.9)	0.87 (22.1)	2.00 (50.8)	3000 (206)

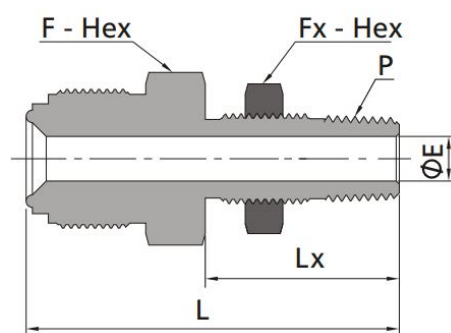


Union Cross Body					
Basic Ordering NO.	FR Size (in.)	Dimensions in.(mm)			Working Pressure psig (bar)
		F	E	L	
-UC-FR2	1/8	7/16 (11.1)	0.09 (2.3)	0.89 (22.6)	11200 (772)
-UC-FR4	1/4	1/2 (12.7)	0.18 (4.6)	1.07 (27.2)	10000 (690)
-UC-FR8	1/2	13/16 (20.6)	0.40 (10.2)	1.45 (36.8)	4300 (296)
-UC-FR12	3/4	1 1/4 (31.8)	0.62 (15.7)	1.92 (48.8)	3700 (254)
-UC-FR16	1	1 11/16 (42.9)	0.87 (22.1)	2.00 (50.8)	3000 (206)



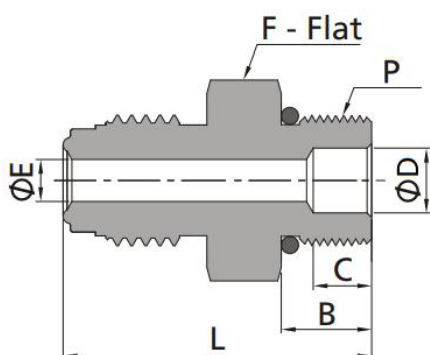
FR Body to Male NPT

Basic Ordering NO.	FR Size (in.)	P NPT	Dimensions in.(mm)				Working Pressure psig (bar)
			F	B	E	L	
-MC-FR2-MN1	1/8	1/16	3/8 (9.5)	0.38 (9.7)	0.09 (2.3)	1.07 (27.2)	9000 (620)
-MC-FR2-MN2	1/8	1/8	7/16 (11.1)	0.38 (9.7)	0.09 (2.3)	1.07 (27.2)	9000 (620)
-MC-FR4-MN2	1/4	1/8	5/8 (15.9)	0.38 (9.7)	0.18 (4.6)	1.31 (33.3)	10000 (690)
-MC-FR4-MN4	1/4	1/4	5/8 (15.9)	0.56 (14.2)	0.18 (4.6)	1.49 (37.8)	10000 (690)
-MC-FR8-MN4	1/2	1/4	15/16 (23.8)	0.56 (14.2)	0.28 (7.1)	1.65 (41.9)	4300 (296)
-MC-FR8-MN6	1/2	3/8	15/16 (23.8)	0.56 (14.2)	0.38 (9.7)	1.65 (41.9)	4300 (296)
-MC-FR8-MN8	1/2	1/2	15/16 (23.8)	0.75 (19.1)	0.40 (10.2)	1.84 (46.7)	4300 (296)
-MC-FR12-MN12	3/4	3/4	1 5/16 (33.3)	0.75 (19.1)	0.62 (15.7)	2.19 (55.6)	3700 (254)
-MC-FR16-MN16	1	1	1 5/8 (41.3)	0.94 (23.9)	0.87 (22.1)	2.47 (62.7)	3000 (206)



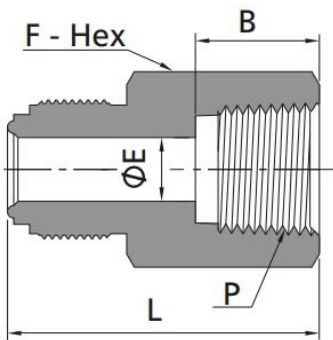
FR Body to Bulkhead Male NPT

Basic Ordering NO.	FR Size (in.)	P NPT	Dimensions in.(mm)					Panel Hole in. (mm)	Working Pressure psig (bar)
			F	Fx	L	Lx	E		
-BMC-FR4-MN4	1/4	1/4	13/16 (20.6)	13/16 (20.6)	2.21 (56.1)	1.24 (31.5)	0.28 (7.1)	21/32 (16.7)	8000 (551)
-BMC-FR8-MN4	1/2	1/4	15/16 (23.8)	13/16 (20.6)	2.34 (59.4)	1.24 (31.5)	0.28 (7.1)	21/32 (16.7)	4370 (301)



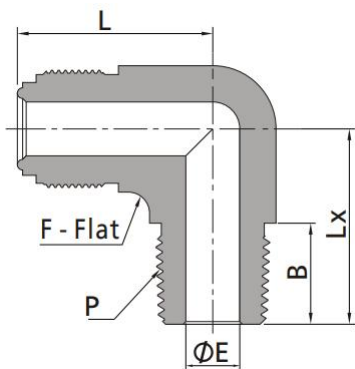
FR Body to SAE/MS Thread

Basic Ordering NO.	FR Size (in.)	P SAE	Dimensions in.(mm)						Working Pressure psig (bar)
			F	L	B	C	D	E	
-MC-FR4-ST9	1/4	9/16-18	3/4 (19.1)	1.33 (33.8)	0.39 (9.9)	0.25 (6.4)	0.18 (4.6)	0.28 (7.1)	4500 (310)
-MC-FR8-ST9	1/2	9/16-18	15/16 (23.8)	1.48 (37.6)	0.39 (9.9)	0.25 (6.4)	/	0.28 (7.1)	3500 (241)
-MC-FR8-ST14	1/2	7/8-14	1 (25.4)	1.66 (42.2)	0.50 (12.7)	1.24 (31.5)	0.40 (10.2)	0.59 (15.0)	3500 (241)



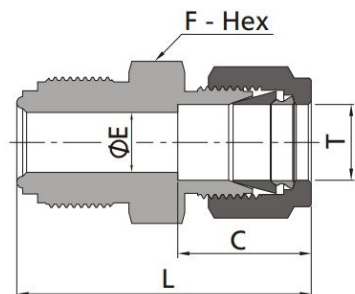
FR Body to Female NPT

Basic Ordering NO.	FR Size (in.)	P NPT	Dimensions in.(mm)				Working Pressure psig (bar)
			F	B	E	L	
-FC-FR2-FN1	1/8	1/16	7/16 (11.1)	0.39 (9.9)	0.09 (2.3)	1.10 (27.9)	6700 (461)
-FC-FR2-FN2	1/8	1/8	9/16 (14.3)	0.41 (10.4)	0.09 (2.3)	1.19 (30.2)	6500 (447)
-FC-FR4-FN2	1/4	1/8	5/8 (15.9)	0.41 (10.4)	0.18 (4.6)	1.41 (35.8)	8000 (551)
-FC-FR4-FN4	1/4	1/4	3/4 (19.1)	0.59 (15.0)	0.18 (4.6)	1.54 (39.1)	66000 (454)
-FC-FR8-FN6	1/2	3/8	15/16 (23.8)	0.59 (15.0)	0.40 (10.2)	1.76 (44.7)	4300 (296)
-FC-FR8-FN8	1/2	1/2	1 1/16 (27.0)	0.78 (19.8)	0.40 (10.2)	1.99 (50.5)	4300 (296)
-FC-FR12-FN12	3/4	3/4	1 5/16 (33.3)	0.81 (20.6)	0.62 (15.7)	2.36 (59.9)	3700 (254)
-FC-FR16-FN16	1	1	1 5/8 (41.3)	1.00 (25.4)	0.87 (22.1)	2.51 (63.8)	3000 (206)



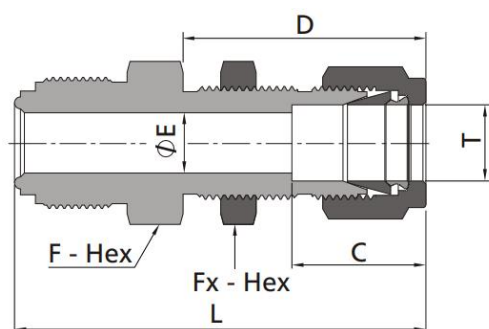
FR Body to Male NPT Elbow

Basic Ordering NO.	FR Size (in.)	P NPT	Dimensions in.(mm)					Working Pressure psig (bar)
			F	B	E	L	Lx	
-ME-FR4-MN2	1/4	1/8	1/2 (12.7)	0.38 (9.7)	0.18 (4.6)	1.07 (27.2)	0.87 (22.1)	10000 (690)
-ME-FR4-MN4	1/4	1/4	3/4 (19.1)	0.56 (14.2)	0.18 (4.6)	1.07 (27.2)	1.05 (26.7)	8000 (551)
-ME-FR8-MN6	1/2	3/8	13/16 (20.6)	0.56 (14.2)	0.40 (10.2)	1.45 (36.8)	1.26 (32.0)	4300 (296)
-ME-FR8-MN8	1/2	1/2	13/16 (20.6)	0.75 (19.1)	0.40 (10.2)	1.45 (36.8)	1.45 (36.8)	4300 (296)



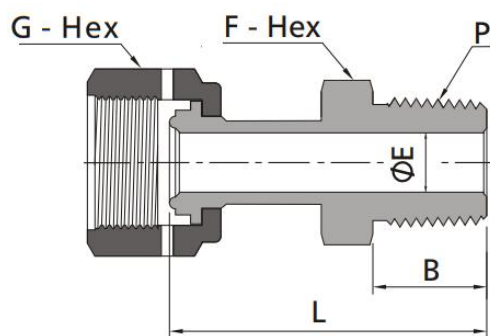
FR Body to Tube Fitting

Basic Ordering NO.	FR Size (in.)	T-Tube O.D. (in.)	Dimensions in.(mm)				Working Pressure psig (bar)
			F	C	E	L	
-FU-FR4-FT2	1/4	1/8	5/8 (15.9)	0.50 (12.7)	0.18 (4.6)	1.53 (38.9)	10000 (690)
-FU-FR4-FT4	1/4	1/4	5/8 (15.9)	0.60 (15.2)	0.18 (4.6)	1.62 (41.1)	10000 (690)
-FU-FR8-FT6	1/2	3/8	15/16 (23.8)	0.66 (16.8)	0.40 (10.2)	1.84 (46.7)	4300 (296)
-FU-FR8-FT8	1/2	1/2	15/16 (23.8)	0.90 (22.9)	0.40 (10.2)	1.95 (49.5)	4300 (296)



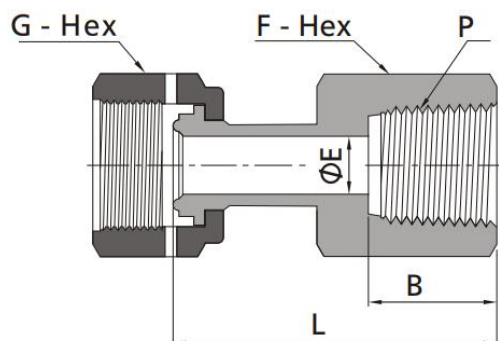
FR Body to Bulkhead Tube Fitting

Basic Ordering NO.	FR Size (in.)	T-Tube O.D. (in.)	Dimensions in.(mm)						Panel Hole in. (mm)	Working Pressure psig (bar)
			F	Fx	C	D	E	L		
-FBU-FR4-FT4	1/4	1/4	5/8 (15.9)	5/8 (15.9)	0.50 (12.7)	1.05 (26.7)	0.18 (4.6)	2.25 (57.2)	15/32 (11.9)	10000 (690)
-FBU-FR4-FT4-L	1/4	1/4	5/8 (15.9)	5/8 (15.9)	0.60 (15.2)	1.32 (33.5)	0.18 (4.6)	1.88 (47.8)	15/32 (11.9)	10000 (690)
-FBU-FR8-FT6	1/2	3/8	15/16 (23.8)	3/4 (19.1)	0.66 (16.8)	1.45 (36.8)	0.40 (10.2)	2.54 (64.5)	19/32 (15.0)	4300 (296)
-FBU-FR8-FT8	1/2	1/2	15/16 (23.8)	15/16 (23.8)	0.90 (22.9)	1.65 (41.9)	0.40 (10.2)	2.74 (69.6)	25/32 (19.8)	4300 (296)



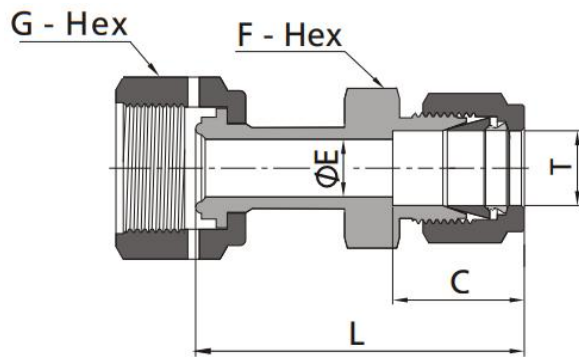
FR Welded Gland to Male NPT

Basic Ordering NO.	FR Size (in.)	P NPT	Dimensions in.(mm)					Working Pressure psig (bar)
			F	G	B	E	L	
-FGM-FR4-MN2	1/4	1/8	7/16 (11.1)	3/4 (19.1)	0.38 (9.7)	0.18 (4.6)	1.58 (40.1)	8000 (551)
-FGM-FR4-MN4	1/4	1/4	9/16 (14.3)	3/4 (19.1)	0.56 (14.2)	0.18 (4.6)	1.79 (45.5)	8000 (551)
-FGM-FR8-MN6	1/2	3/8	11/16 (17.5)	1 1/16 (27)	0.56 (14.2)	0.40 (10.2)	1.89 (48.0)	4300 (296)
-FGM-FR8-MN8	1/2	1/2	7/8 (22.2)	1 1/16 (27)	0.75 (19.1)	0.40 (10.2)	2.09 (53.1)	4300 (296)

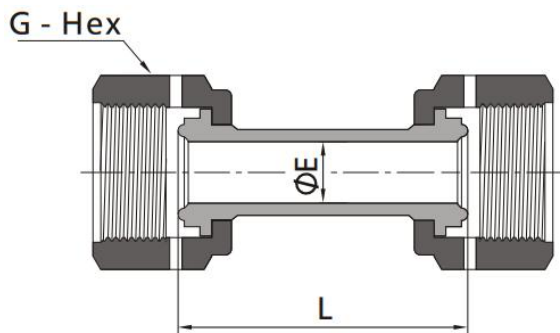


FR Welded Gland to Female NPT

Basic Ordering NO.	FR Size (in.)	P NPT	Dimensions in.(mm)					Working Pressure psig (bar)
			F	G	B	E	L	
-FGF-FR4-FN4	1/4	1/4	3/4 (19.1)	3/4 (19.1)	0.59 (15.0)	0.18 (4.6)	1.77 (45.0)	6600 (454)
-FGF-FR8-FN6	1/2	3/8	7/8 (22.2)	1 1/16 (27)	0.59 (15.0)	0.40 (10.2)	1.95 (49.5)	4300 (296)
-FGF-FR8-FN8	1/2	1/2	1 1/16 (27)	1 1/16 (27)	0.78 (19.8)	0.40 (10.2)	2.18 (55.4)	4300 (296)



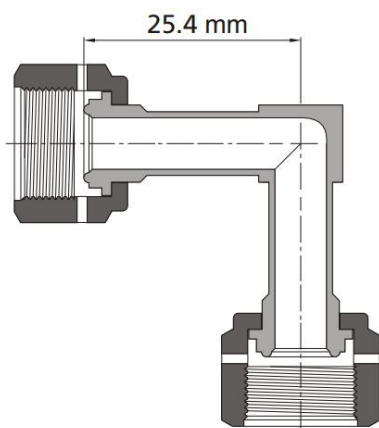
FR Welded Gland to Tube Fitting							
Basic Ordering NO.	FR Size (in.)	T-Tube O.D. (in.)	Dimensions in.(mm)				Working Pressure psig (bar)
			F	C	E	L	
-FWU-FR4-FT4	1/4	1/4	1/2 (12.7)	0.60 (15.2)	0.18 (4.6)	1.94 (49.3)	8000 (551)
-FWU-FR4-FT6	1/4	3/8	5/8 (15.9)	0.66 (16.8)	0.18 (4.6)	1.97 (50.0)	6500 (447)
-FWU-FR8-FT8	1/2	1/2	13/16 (20.6)	0.90 (22.9)	0.40 (10.2)	2.23 (56.6)	4300 (296)



FR Welded Gland Union					
Basic Ordering NO.	FR Size (in.)	Dimensions in.(mm)			Working Pressure psig (bar)
		F	E	L	
-FGU-FR4	1/4	3/4 (19.1)	0.18 (4.6)	1.71 (43.4)	8000 (551)
-FGU-FR8	1/2	1 1/16 (27.0)	0.40 (10.2)	1.84 (46.7)	4300 (296)

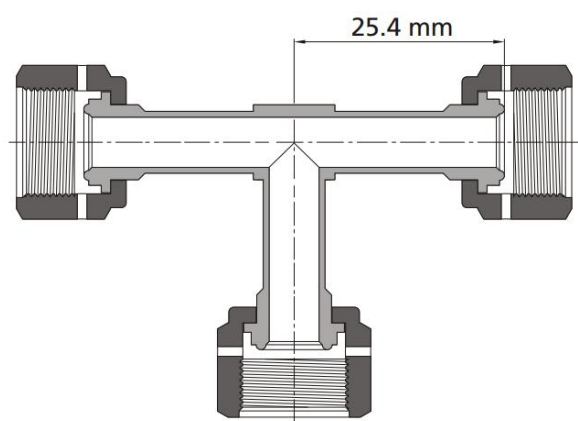
Female Elbows

Basic ordering number: -FGL-FR4



Female Tees

Basic ordering number: -FGT-FR4



Plug & Cap

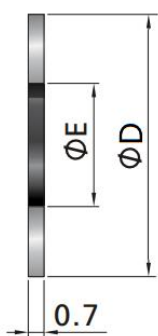


Plug				Cap			
Basic Ordering NO.	Size (in.)	Dimensions in.(mm)		Basic Ordering NO.	Size (in.)	Dimensions in.(mm)	
		F	L			F	L
-PG-FR2	1/8	3/8 (9.5)	0.68 (17.3)	-CP-FR2	1/8	7/16 (11.1)	0.63 (16.0)
-PG-FR4	1/4	5/8 (15.9)	0.92 (23.4)	-CP-FR4	1/4	3/4 (19.1)	0.94 (23.9)
-PG-FR8	1/2	15/16 (23.8)	1.08 (27.4)	-CP-FR8	1/2	1.1/16 (27.0)	1.01 (25.6)
-PG-FR12	3/4	1.5/16 (33.3)	1.43 (36.3)	-CP-FR12	3/4	1.1/2 (38.1)	1.29 (32.8)
-PG-FR16	1	1.5/8 (41.3)	1.52 (38.6)	-CP-FR16	1	1.3/4 (44.5)	1.54 (39.1)

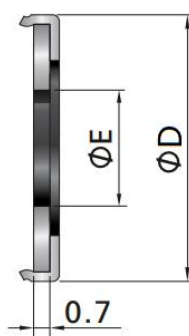
Gaskets

- Copper gaskets are unplated and with FC-02 Special Cleaning and Packaging.
- Unplated SS gaskets and nickel gaskets are electropolished and with FC-03 Ultra High Purity Process Specification.
- For silver-plated 316 SS or nickel gaskets, delete the suffix "-UP" from the ordering number, and the products are processed with FC-02 Special Cleaning and Packaging.
- For 316L SS, nickel EP gaskets, the maximum allowable leak rate is 4×10^{-11} std cm³/s.
- For silver-plated 316L SS, silver-plated nickel and copper gaskets, the maximum allowable leak rate is 4×10^{-9} std cm³/s.

Nonretained

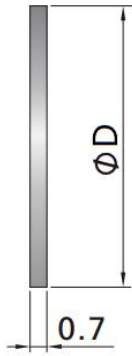


Gasket Retainer Assemblies

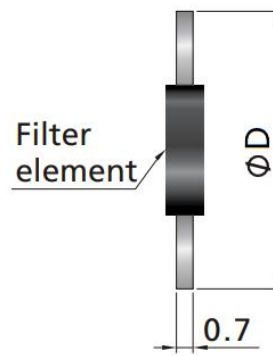


Basic Ordering NO.	Size (in.)	Dimensions in.(mm)		Basic Ordering NO.	Size (in.)	Dimensions in.(mm)	
		D	E			D	E
-GKN-FR2	1/8	0.26 (6.6)	0.09 (2.3)				
-GKN-FR4	1/4	0.47 (11.9)	0.22 (5.6)	-GRA-FR4	1/4	0.50 (12.7)	0.24 (6.1)
-GKN-FR8	1/2	0.78 (19.8)	0.44 (11.2)	-GRA-FR8	1/2	0.79 (20.1)	0.44 (11.2)
-GKN-FR10	5/8	0.91 (23.1)	0.58 (14.7)				
-GKN-FR12	3/4	1.14 (29.0)	0.66 (16.8)	-GRA-FR12	3/4	1.14 (29.0)	0.66 (16.8)
-GKN-FR16	1	1.40 (35.6)	0.89 (22.6)	-GR-FR16	1	1.40 (35.6)	0.89 (22.6)

Blind Gaskets



Snubber Gaskets

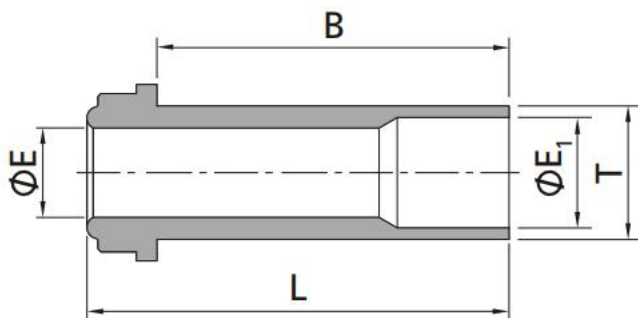


Basic Ordering NO.	Size (in.)	Dimensions in.(mm)	Basic Ordering NO.	Size (in.)	Dimensions in.(mm)
		D			D
-GKN-FR2	1/8	0.26 (6.6)			
-GKN-FR4	1/4	0.47 (11.9)	-GRA-FR4	1/4	0.50 (12.7)
-GKN-FR8	1/2	0.78 (19.8)	-GRA-FR8	1/2	0.79 (20.1)
-GKN-FR10	5/8	0.91 (23.1)			
-GKN-FR12	3/4	1.14 (29.0)	-GRA-FR12	3/4	1.14 (29.0)
-GKN-FR16	1	1.40 (35.6)	-GR-FR16	1	1.40 (35.6)

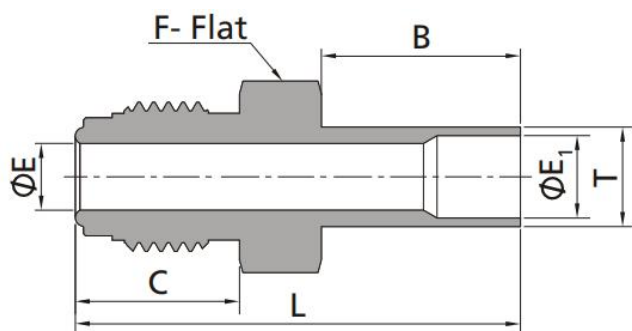
High-Flow Connections

High-Flow connections with high flow capacity are compatible with regular FR connections.

Gasket retainer assemblies are recommended to minimize flow resistance.

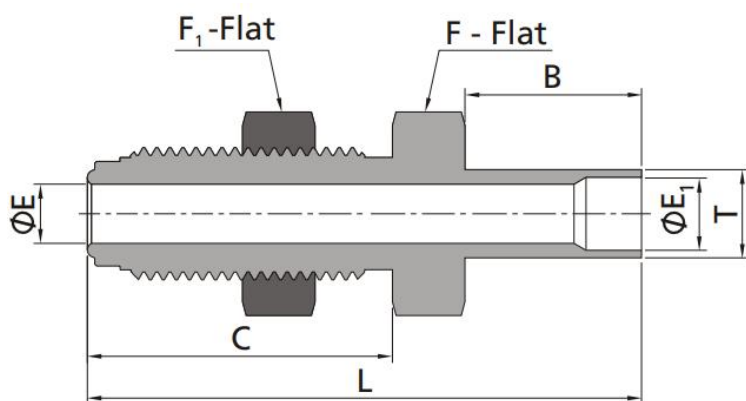


HFR Gland to Tube Bolt Weld								
Basic Ordering NO.	FR Size (in.)	T-Tube O.D.(in.)	Wall Thickness	Dimensions in.(mm)				Working Pressure psig (bar)
				E	E1	L	B	
-HFG-FR4-BW6-0.06	1/4	3/8	0.035	0.25 (6.35)	0.31 (7.9)	0.60 (15.2)	0.41 (10.4)	3300 (227)
-HFG-FR4-BW6-1.19	1/4	3/8	0.035	0.25 (6.35)	0.31 (7.9)	1.19 (30.2)	1.00 (25.4)	3300 (227)
-HFG-FR4-BW6-1.31	1/4	3/8	0.035	0.25 (6.35)	0.31 (7.9)	1.31 (33.3)	1.12 (28.4)	3300 (227)



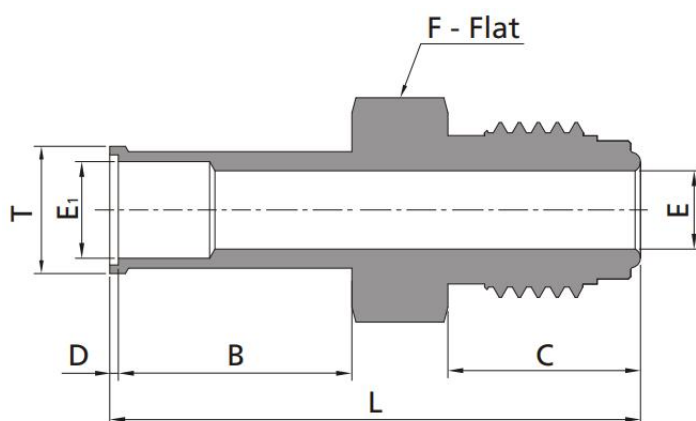
HFR Body to Tube Bult Weld

Basic Ordering NO.	FR Size (in.)	U-Tube O.D.(in.)	Dimensions in.(mm)						Working Pressure psig (bar)
			F	L	B	C	E	E1	
-HFB-FR4-BW6	1/4	3/8	5/8 (15.9)	1.68 (42.7)	0.75 (19.1)	0.62 (15.7)	0.25 (6.4)	0.31 (7.9)	3300 (227)



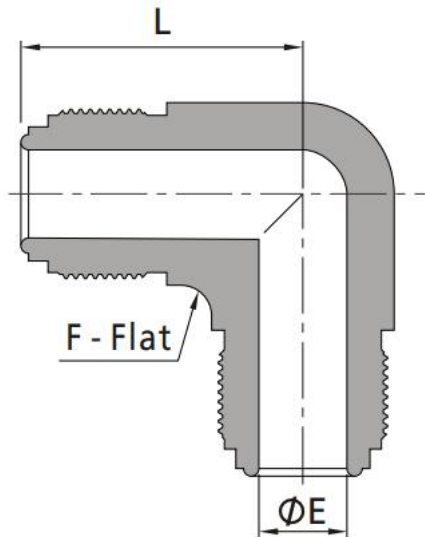
HFR Bulkhead Body to Tube Bult Weld

Basic Ordering NO.	FR Size (in.)	V-Tube O.D.(in.)	Dimensions in.(mm)						Panel Hole	Working Pressure psig (bar)
			F=F1	L	B	C	E	E1		
-HBK-FR4-BW6	1/4	3/8	3/4 (19.1)	2.36 (59.9)	0.75 (19.1)	1.30 (33.0)	0.31 (7.9)	0.25 (6.4)	19/32 (15.0)	3300 (227)

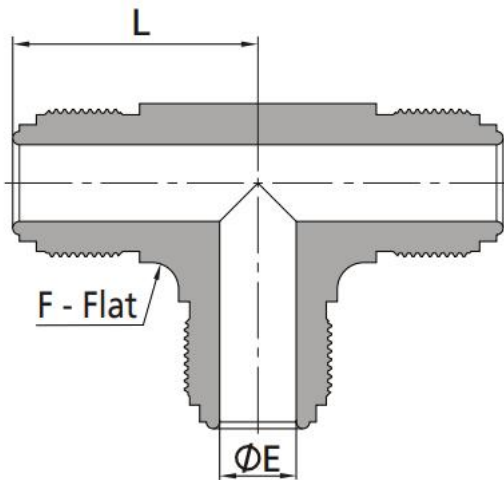


HFR Body to Automatic Tube Weld

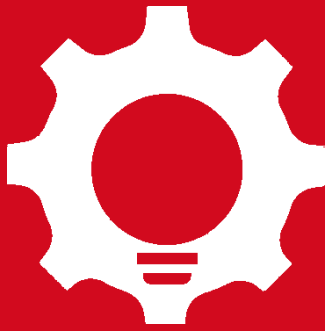
Basic Ordering NO.	FR Size (in.)	W-Tube O.D.(in.)	Dimensions in.(mm)							Working Pressure psig (bar)
			F	L	B	C	E	E1	T	
-HFA-FR4-BW6	1/4	3/8	5/8 (15.9)	1.71 (43.4)	0.75 (19.1)	0.62 (15.7)	0.25 (6.4)	0.31 (7.9)	0.41 (10.4)	3300 (227)



HFR Body Union Elbow					
Basic Ordering NO.	FR Size (in.)	Dimensions in.(mm)			Working Pressure psig (bar)
		F	L	E	
-HFU-FR4	1/4	1/2 (12.7)	1.07 (27.2)	0.25 (6.4)	10000 (689)



HFR Body Union Tee					
Basic Ordering NO.	FR Size (in.)	Dimensions in.(mm)			Working Pressure psig (bar)
		F	L	E	
-HFT-FR4	1/4	1/2 (12.7)	1.07 (27.2)	0.25 (6.4)	10000 (689)



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