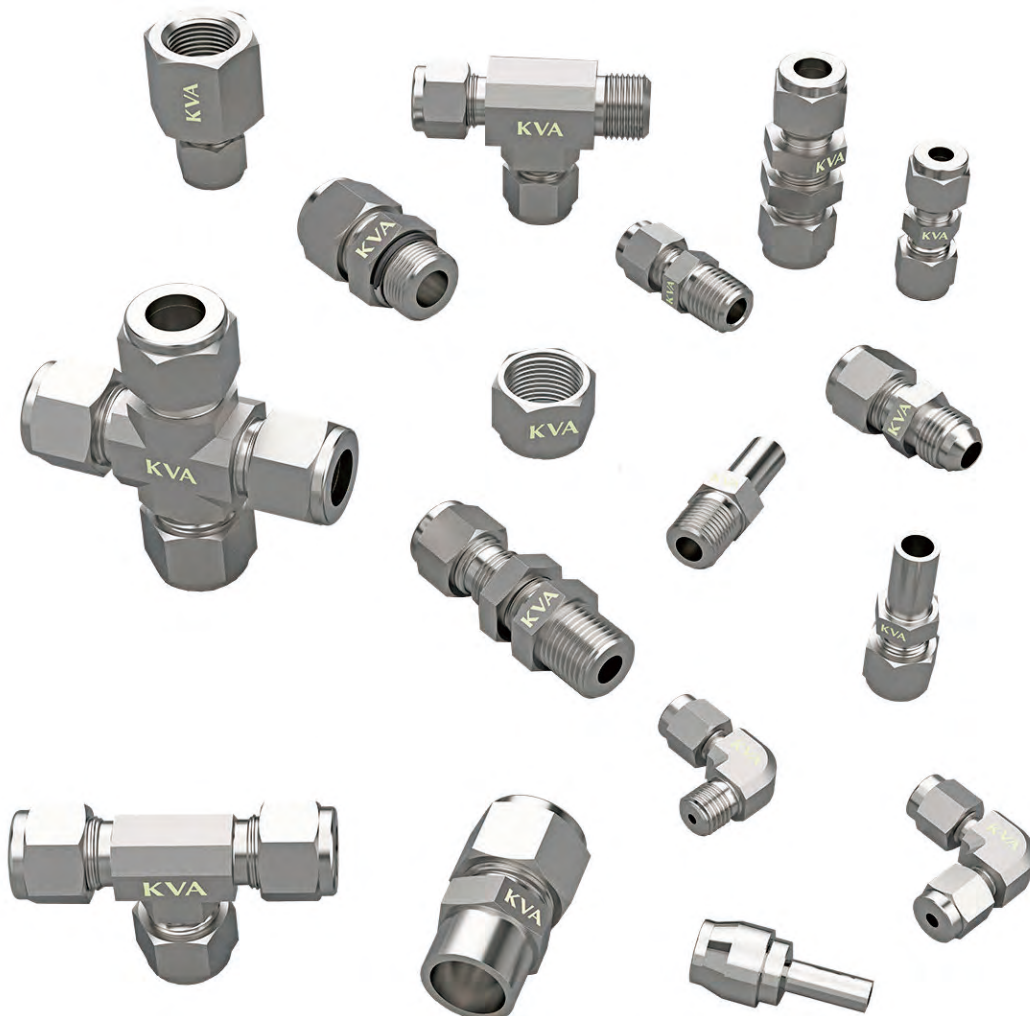




Tube Fittings and Adapter Fittings



- Available in tube sizes from 1/16 to 2 in. and 2 to 50 mm
- Consistent gaugeability upon initial installation
- Wide variety of materials and configurations
- Demonstrated reliability and performance

Tube Fittings and Adapter Fittings

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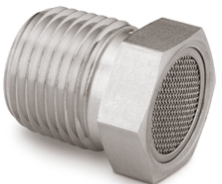
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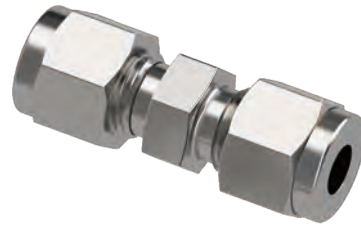
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Features

- Available in tube sizes from 1/16 to 2 in. and 2 to 50 mm.
- Diverse materials and configurations are available.
- Precision machined components ensure perfect deformation of the ferrules and tubing.
- Hardened threads with smooth surface finish avoid galling and help to extend the fitting service life.
- Female nut threads are silver-plated to reduce the friction against the body threads.
- Radius junction design for elbows provides smooth flow path.
- Every fitting is marked with size, material and heat number.
- Fittings are easy to disconnect and retighten.



Materials

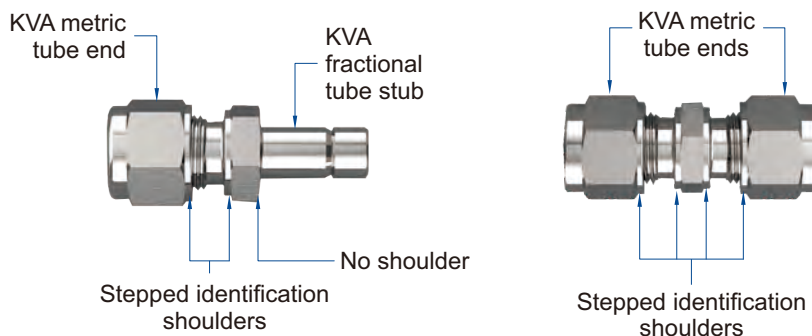
Materials	Designator	Bar Stock	Forging
316 Stainless Steel	6S	ASTM A276, ASTM A479, ASME SA479, EN 1.4401	ASTM A182, ASME SA182, EN 1.4401
316L Stainless Steel	6L	ASTM A276, ASTM A479, ASME SA479, EN 1.4404	ASTM A182, ASME SA182, EN 1.4404
304 Stainless Steel	4S	ASTM A276, ASTM A479, ASME SA479, EN 1.4301	ASTM A182, ASME SA182, EN 1.4301
321 Stainless Steel	1S	ASTM A276, ASTM A479, ASME SA479, EN 1.4541	ASTM A182, ASME SA182, EN 1.4541
316Ti Stainless Steel	6T	ASTM A276, ASTM A479, ASME SA479, EN 1.4571	ASTM A182, ASME SA182, EN 1.4571
904L Stainless Steel	904	ASTM A479	ASTM A182
6-Moly	6M	ASTM A479	ASTM A182
Alloy 20	N20	ASTM B473	ASTM B462
Alloy 400	N400	ASTM B164	ASTM B564, ASME SB564
Alloy 600	N600	ASTM B166, ASME SB166	ASTM B564, ASME SB564
Alloy 625	N625	ASTM B446	ASTM B564, ASME SB564
Alloy 825	N825	ASTM B425	ASTM B564, ASME SB564
Alloy C-276	N276	ASTM B574	ASTM B564
Alloy 2507	2507	ASTM A479	ASTM A182
Alloy 718	N718	ASTM B637	ASTM B637
Titanium (grade 4)	TI	ASTM B348	ASTM B381
Aluminum	AL	ASTM B211	ASTM B247
Brass	BR	ASTM B16, ASTM B453	ASTM B283
Carbon Steel	A105	ASTM A108	ASTM A105
Nylon	PA	ASTM D4066	\
PFA	PFA	\	ASTM D3307 Type I
PTFE	T	ASTM D1710	ASTM D3294

Pressure Rating Basis and Thread Specifications

Thread Type (End Connection)	Pressure Rating Basis	Reference Specification
KVA Tube Fittings (Unified Inch Screw Threads)	KVA tube fitting ends are rated to the working pressure of tubing as listed in KVA Tubing Data, Careful selection of high-quality tubing is important when installing safe, leak-tight systems.	ASME B1.1
NPT	ASME B31.3, Process Piping or pressure testing with a 4:1 design factor based on hydraulic fluid leakage.	ASME B1.20.1, SAE AS71051
ISO/BSPT	ASME B31.3, Process Piping or pressure testing with a 4:1 design factor based on hydraulic fluid leakage.	ISO 7, BS EN 10226-1, JIS B0203
ISO/BSPP	ISO 1179-3, ISO 228-1 Threads with Light-Duty Stud Ends with Sealing by O-ring with Retaining Ring (types G and H) or pressure testing with a 4:1 design factor based on hydraulic fluid leakage.	ISO 228, JIS B0202
ISO/BSPP	ISO 1179-4, ISO 228-1 Threads with Stud Ends for general use only with metal-to-metal sealing (type B) or pressure testing with a 4:1 design factor based on hydraulic fluid leakage.	ISO 228, JIS B0202
ISO/BSP (gauge) (Based on EN 837-1 and 837-3) (KVA RG and RJ fittings)	ASME B31.3, Process Piping or pressure testing with a 4:1 design factor based on hydraulic fluid leakage.	ISO 228, JIS B0202
SAE–Light Duty (Unified Inch Screw Threads)	SAE J1926/3, Connections for General Use and Fluid Power-Ports and Stud Ends with ASME B1.1 Threads and O-ring Sealing-Part 3: Light-Duty (L-Series) Stud Ends or pressure testing with a 4:1 design factor based on hydraulic fluid leakage.	ASME B1.1
SAE–Heavy Duty (Unified Inch Screw Threads)	SAE J1926/2, Connections for General Use and Fluid Power-Ports and Stud Ends with ASME B1.1 Threads and O-ring Sealing-Part 2: Heavy-Duty (S-Series) or pressure testing with a 4:1 design factor based on hydraulic fluid leakage.	ASME B1.1
AN fittings (Unified Inch Screw Threads)	SAE J514, Hydraulic Tube Fittings or pressure testing with a 4:1 design factor based on hydraulic fluid leakage.	ASME B1.1 UNJ, SAE AS8879

Metric KVA Tube Fittings

Metric tube fittings have a stepped shoulder on the body hex. Shaped fittings, such as elbows, crosses, and tees, are stamped MM for metric tubing and have no step on the forging.



Pressure Ratings

NPT/ISO Pipe Pressure Ratings

NPT/ISO Pipe Size in.	316 SS, Carbon Steel, Alloy (600 and C-276)		Brass and Aluminum		Alloy 400		Titanium (grade 4)		Alloy (2507 and 625)		6-Moly		Alloy 825	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
	psig (bar)													
1/16	11 000 (757)	6 700 (461)	5 500 (378)	3 300 (227)	9 900 (682)	6 000 (413)	8 800 (606)	5 300 (365)	15 000 (1 033)	12 900 (888)	14 900 (1 026)	9 000 (620)	12 800 (881)	7 800 (537)
1/8	10 000 (689)	6 500 (447)	5 000 (344)	3 200 (220)	9 000 (620)	5 800 (399)	8 000 (551)	5 200 (358)	15 000 (1 033)	12 500 (861)	13 500 (930)	8 800 (606)	11 600 (799)	7 500 (516)
1/4	8 000 (551)	6 600 (454)	4 000 (275)	3 300 (227)	7 200 (496)	5 900 (406)	6 400 (440)	5 200 (358)	15 000 (1 033)	12 700 (875)	10 800 (744)	8 900 (613)	9 300 (640)	7 600 (523)
3/8	7 800 (537)	5 300 (365)	3 900 (268)	2 600 (179)	7 000 (482)	4 700 (323)	6 200 (427)	4 200 (289)	15 000 (1 033)	10 200 (702)	10 500 (723)	7 100 (489)	9 000 (620)	6 100 (420)
1/2	7 700 (530)	4 900 (337)	3 800 (261)	2 400 (165)	6 900 (475)	4 400 (303)	6 100 (420)	3 900 (268)	14 800 (1 019)	9 400 (647)	10 400 (716)	6 600 (454)	8 900 (613)	5 700 (392)
3/4	7 300 (502)	4 600 (316)	3 600 (248)	2 300 (158)	6 500 (447)	4 100 (282)	5 800 (399)	3 600 (248)	10 000 (689)	8 900 (613)	9 800 (675)	6 200 (427)	8 500 (585)	5 300 (365)
1	5 300 (365)	4 400 (303)	2 600 (179)	2 200 (151)	4 700 (323)	3 900 (268)	4 200 (289)	3 500 (241)	10 000 (689)	8 500 (585)	7 100 (489)	5 900 (406)	6 100 (420)	5 100 (351)
1-1/4	6 000 (413)	5 000 (344)	3 000 (206)	2 500 (172)	5 400 (372)	4 500 (310)	4 800 (330)	4 000 (275)	10 000 (689)	9 600 (661)	8 100 (558)	6 700 (461)	6 900 (475)	5 800 (399)
1-1/2	5 000 (344)	4 600 (316)	2 500 (172)	2 300 (158)	4 500 (310)	4 100 (282)	4 000 (275)	3 600 (248)	9 600 (661)	8 900 (613)	6 700 (461)	6 200 (427)	5 800 (399)	5 300 (365)
2	3 900 (268)	3 900 (268)	1 900 (130)	1 900 (130)	3 500 (241)	3 500 (241)	3 100 (213)	3 100 (213)	7 500 (516)	7 500 (516)	5 200 (358)	5 200 (358)	4 500 (310)	4 500 (310)

- Ratings are based on ASME Code for Pressure Piping B31.3, Process Piping, at ambient temperature.
- To determine pressure ratings in accordance with ASME B31.1, Power Piping:
 - Carbon steel material—multiply by 0.85.
 - Stainless steel and brass material ratings remain the same.

SAE/MS Light Duty Pressure Ratings

SAE/MS Thread Size	SEA Design-ator	316 SS, Carbon Steel, and Alloy (C-276, 2507, 625, 6-Moly, 825, and 600)		Brass and Aluminum		Alloy 400		Titanium (grade 4)			
		Non-Positionable	Positionable	Non-Positionable	Positionable	Non-Positionable	Positionable	Non-Positionable	Positionable		
		psig (bar)									
5/16-24	2	5076 (350)	5076 (350)	2538 (175)	2538 (175)	4568 (315)	4568 (315)	4061 (280)	4061 (280)		
3/8-24	3		4568 (315)		2277 (157)		4104 (283)		3654 (252)		
7/16-20	4		4061 (280)		2030 (140)		3654 (252)		3248 (224)		
1/2-20	5		2175 (150)		4104 (283)		3654 (252)		3654 (252)		
9/16-18	6		1740 (120)		1522 (105)		3263 (225)		2741 (189)	2900 (200)	2436 (168)
3/4-16	8		3625 (250)		3045 (210)		1740 (120)		1522 (105)	3263 (225)	2741 (189)
7/8-14	10	3045 (210)	2538 (175)	1450 (100)	1261 (87)	2741 (189)	2277 (157)	2436 (168)	2030 (140)		
1-1/16-12	12		2538 (175)		1261 (87)		2277 (157)		2436 (168)	2030 (140)	
1-3/16-12	14		2538 (175)		1261 (87)		2277 (157)		2436 (168)	2030 (140)	
1-5/16-12	16	2538 (175)	2030 (140)	1160 (80)	1015 (70)	2277 (157)	1827 (126)	2030 (140)	1624 (112)		
1-5/8-12	20		2030 (140)		1015 (70)		1827 (126)		1624 (112)		
1-7/8-12	24		1522 (105)		754 (52)		1827 (126)		1363 (94)	1624 (112)	1218 (84)
2-1/2-12	32	2030 (140)	1522 (105)	1015 (70)	754 (52)	1827 (126)	1363 (94)	1624 (112)	1218 (84)		

Pressure ratings are based on SAE J1926/3 at ambient temperature.

SAE/MS Heavy Duty Pressure Ratings

SAE/MS Thread Size	SEA Design-ator	316 SS, Carbon Steel, and Alloy (C-276, 2507, 625, 6-Moly, 825, and 600)		Brass and Aluminum		Alloy 400		Titanium (grade 4)	
		Non-Positionable	Positionable	Non-Positionable	Positionable	Non-Positionable	Positionable	Non-Positionable	Positionable
		psig (bar)							
3/8-24	3	9137 (630)	6091 (420)	4568 (315)	3045 (210)	8223 (567)	5482 (378)	7309 (504)	4873 (336)
7/16-20	4								
1/2-20	5								
9/16-18	6								
3/4-16	8								
7/8-14	10								
1-1/16-12	12	6091 (420)	3045 (210)	3045 (210)	2538 (175)	5482 (378)	4568 (315)	4873 (336)	4061 (280)
1-3/16-12	14								
1-5/16-12	16								
1-5/8-12	20	4061 (280)	4061 (280)	2030 (140)	2030 (140)	3654 (252)	3654 (252)	3248 (224)	3248 (224)
1-7/8-12	24		3045 (210)		1522 (105)		2741 (189)		2436 (168)
2-1/2-12	32		3045 (210)		2538 (175)		1522 (105)		1261 (87)

Pressure ratings are based on SAE J1926/2 at ambient temperature.

Male AN (JIC) Fittings Pressure Ratings

Male AN (JIC) Thread Size	Design-ator	316 SS, Carbon Steel, and Alloy (C-276, 2507, 625, 6-Moly, 825, and 600)		Carbon Steel		Brass and Aluminum		Alloy 400		Titanium (grade 4)	
		Straight	Shape	Straight	Shape	Straight	Shape	Straight	Shape	Straight	Shape
		psig (bar)									
7/16-20	4	10 000 (689)	10 000 (689)	4 500 (310)	4 500 (310)	5 000 (345)	5 000 (345)	9 000 (620)	9 000 (620)	8 000 (551)	8 000 (551)
9/16-18	6	8 200 (564)	7 600 (523)	4 000 (275)	4 000 (275)	4 100 (282)	3 800 (262)	7 380 (508)	6 840 (471)	6 560 (452)	6 080 (410)
3/4-16	8										
1-1/16-12	12	7 000 (482)	6 300 (434)	3 000 (210)	3 000 (210)	3 500 (241)	3 150 (217)	6 300 (434)	5 670 (391)	5 600 (386)	5 040 (347)
1-5/16-12	16	5 000 (344)	4 100 (282)	2 500 (170)	2 500 (170)	2 500 (172)	2 500 (172)	4 500 (310)	3 690 (254)	4 000 (276)	3 280 (226)
1-5/8-12	20	2 000 (140)	2 000 (140)	2 000 (140)	2 000 (140)	1 000 (69)	1 000 (69)	1 800 (124)	1 800 (124)	1 600 (110)	1 600 (110)
1-7/8-12	24	1 500 (105)	1 500 (105)	1 500 (105)	1 500 (105)	700 (48)	750 (52)	1 350 (93)	1 350 (93)	1 200 (83)	1 200 (83)
2-1/2-12	32	1 125 (80)	1 125 (80)	1 125 (80)	1 125 (80)	500 (34)	560 (39)	1 010 (70)	1 010 (70)	900 (62)	900 (62)

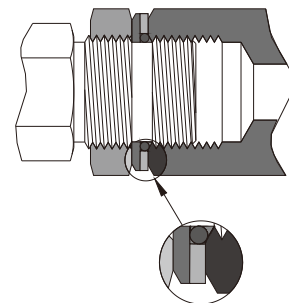
O-Seal Pressure Ratings

Stainless steel and carbon steel O-seal fittings up to 1 in. and 25 mm are rated to 3000 psig (206 bar).

Positionable, ISO/BSP Parallel Thread (RP) Pressure Ratings

ISO/BSP Male Pipe Size	316 SS, Carbon Steel, and Alloy (C-276, 2507, 625, 6-Moly, 825, and 600)	Brass and Aluminum	Alloy 400	Titanium (grade 4)
	psig (bar)			
1/8, 3/16, 1/4, 3/8	4568 (315)	2277 (157)	4140 (283)	3654 (252)
1/2, 3/4, 1	2320 (160)	1160 (80)	2088 (144)	1856 (128)

Pressure ratings are at ambient temperature.



- PP Stud end complies with ISO 1179-3.
- RP port complies with DIN 3852-2 type X.

Pressure Ratings

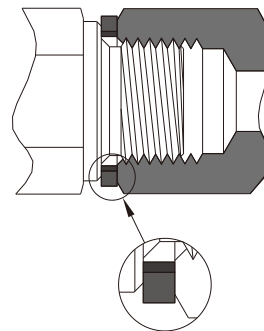
ISO 228/BSP Parallel Thread (RS and RP) Pressure Ratings

Hydraulic pressure ratings are based on ISO 1179 at ambient temperature.

- RS and RP male connectors were tested with RP female connectors.
- RS end connections were tested with bonded RS gaskets.
- RP connections were tested without a gasket.

ISO 228/BSP Parallel Thread (RS) Pressure Ratings

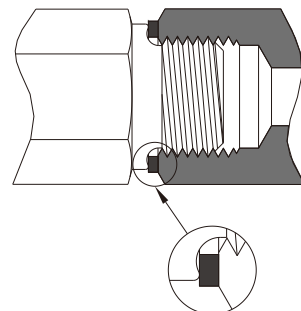
ISO/BSP Male Pipe Size	316 SS, Carbon Steel, and Alloy (C-276, 2507, 625, 6-Moly, 825, and 600)	Brass and Aluminum	Alloy 400	Titanium (grade 4)
	psig (bar)			
1/8, 1/4, 3/8	5800 (400)	2900 (200)	5220 (360)	4640 (320)
1/2	4700 (324)	2350 (162)	4220 (291)	3750 (259)
3/4	3620 (250)	1810 (125)	2260 (225)	2900 (200)
1				
1-1/4	2320 (160)	1160 (80)	2080 (144)	1850 (128)
1-1/2				



- RS stud end complies with DIN 3852-2 type A.
- RP port complies with DIN 3852-2 type X.

ISO 228/BSP Parallel Thread (RP) Pressure Ratings

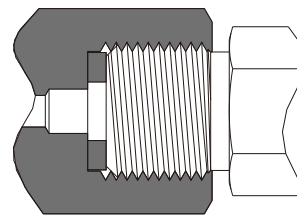
ISO/BSP Male Pipe Size	316 SS, Carbon Steel, and Alloy (C-276, 2507, 625, 6-Moly, 825, and 600)	Brass and Aluminum	Alloy 400	Titanium (grade 4)
	psig (bar)			
1/8, 1/4, 3/8	5800 (400)	2900 (200)	5220 (360)	4640 (320)
1/2	4700 (324)	2350 (162)	4220 (291)	3750 (259)
3/4	2320 (160)	1160 (80)	2080 (144)	1850 (128)
1	1450 (100)	720 (50)	1300 (90)	1160 (80)
1-1/4				
1-1/2				



- RP stud end complies with DIN 3852-2 type B.
- RP port complies with DIN 3852-2 type X.

ISO 228/BSP/JIS Parallel Thread (RG and RJ) Pressure Ratings

ISO/BSP Male Pipe Size	316 SS, Carbon Steel, and Alloy (C-276, 2507, 625, 6-Moly, 825, and 600)	Brass and Aluminum	Alloy 400	Titanium (grade 4)
	psig (bar)			
1/8	5700 (329)	2850 (196)	5110 (352)	4560 (314)
1/4				
3/8				
1/2	3900 (288)	1950 (134)	3490 (240)	3120 (215)



- RG port complies with EN 837-1/3.

Working Temperatures

Thread Ends

The working temperatures of the thread ends may be limited by the Teflon tape or thread sealant , when applicable, the gaskets or O-rings as follows:

Component	Material	Temperatures °F (°C)
RS Gasket	Buna-N	-13 (-25) to 230 (110)
	Fluorocarbon FKM	-5 (-15) to 400 (204)
RP/RG Gasket	Copper	-325 (-198) to 400 (204)
	Stainless Steel	-425 (-254) to 1000 (537)
RG Gasket	PTFE	-65 (-54) to 450 (232)
	Vulcanized Fibre	-76 (-60) to 221 (105)
O-ring	Buna-N	-22 (-30) to 230 (110)
	Fluorocarbon FKM	-4 (-20) to 400 (204)

Cleaning and Packaging, Application-special and Ordering Information

Cleaning and Packing

Fittings need to be cleaned to remove oil, grease, and free particles. For more Information, reference «KVA Cleaning and Packing Process Specification» .

Add the material designator as a prefix, Cleaning, Packaging, and Application-special designator as a suffix to the basic ordering number to get the complete ordering number.

Standard Cleaning and Packaging Process (P1), No suffix.

Special Cleaning and Packaging for oxygen-rich condition (P2), to ensure compliance with product cleanliness requirement as ASTM G93 Level C Add "-P2" as a suffix.

Example: For 1/2" 316 SS Tee with Special Cleaning and Packaging for oxygen-rich condition (P2), the complete ordering No. is 6S-DT-FF8-P2.

Application-special

KVA offers fittings in materials that meet the metallurgical requirements of NACE MR0175/ISO 15156 and MR0103. Refer to NACE MR0175/ISO 15156 Compliant KVA Fittings. Add "-NACE" as a suffix.

Example: For 1/2" 316 SS Tee with Special Cleaning and Packaging for oxygen-rich condition (P2), Accord the requirements of NACE MR0175, the complete ordering No. is 6S-DT-FF8-P2-NACE.

Installation Instructions

KVA Tube Fittings up to 1" or 25 mm

Manual Installation

Initial installation

- Loosen the nut 1/4 turn from finger-tight position.
- Insert tubing into the tube fitting, make sure that the tubing rests firmly on the shoulder of the port.
- Finger-tighten the nut.
- Tighten the nut 1 1/4 turns with wrench while holding the body of the fitting or the valve steady (Fig.1).
For small-sized fittings (1/16", 1/8" and 3/16", 2 mm, 3 mm and 4 mm), tighten the nut 3/4 turn with wrench (Fig.2).

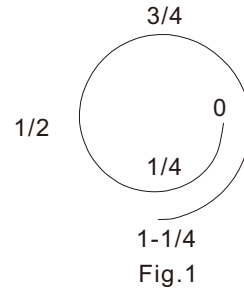


Fig. 1

Re-installation

- Mark the tube at the back of the nut, mark a line along the nut and fitting body flats.
- Insert tubing with preset ferrules into the fitting body until the front ferrule seats.
- Hold the fitting body steady, then rotate the nut with a wrench to the previous pulled-up position as indicated by the marks on the tube and the flats.
- Tighten the nut slightly with wrench.

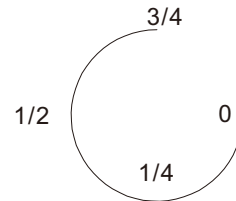


Fig. 2

Installation with Manual Presetting Tool

Initial installation

- Hold the presetting tool steady.
- Install the nut and ferrules onto the presetting tool.
- Insert tubing into the presetting tool, and make sure the tube rests firmly on the shoulder of the presetting tool.
- Finger-tighten the nut.
- Tighten the nut clockwise 1 1/4 turns with wrench (Fig.1); For small-sized fittings (1/16", 1/8" and 3/16", 2 mm, 3 mm and 4 mm), tighten the nut 3/4 turn with wrench (Fig.2).
- Mark the tubing at the back of the nut before disassembling the fitting.
- Loosen the nut and insert the tubing with preset ferrules into the fitting body until the front ferrule seats against the fitting body.
- Hold the fitting body steady, then rotate the nut with a wrench to the previous tightening position as indicated by the mark on the tubing.
- When you feel a significant increase in resistance, further tighten the nut slightly.

Re-installation

- Same as the re-installation steps for manual installation for fittings up to 1" or 25 mm.

Installation with Hydraulic Presetting Tool

Only applicable for tube fittings from 1/2" to 1" and 12 mm to 25 mm.

Initial installation

- Preset the ferrules onto the tubing using KVA Hydraulic Presetting Tool. For details, refer to Instructions of Hydraulic Presetting Tool.
- Install the preset assembly (tubing, nut, front and back ferrules) into the fitting body. Finger tight the nut.
- Further tighten the nut 1/2 turn with a wrench while holding the fitting body steady.

Re-installation

- Same as the re-installation steps for manual installation for fittings up to 1" or 25 mm.

KVA Tube Fittings over 1" or 25 mm

Initial installation

- Preset the ferrules onto the tubing using KVA Hydraulic Presetting Tool. For details, refer to Instructions of Hydraulic Presetting Tool.
- Install the preset assembly (tubing, nut, front and back ferrules) into the fitting body. Finger tight the nut.
- Further tighten the nut 1/2 turn with a wrench while holding the fitting body steady.

Re-installation

- Same as the re-installation steps for manual installation for fittings up to 1" or 25 mm.

Plugs

Initial installation

- Tighten the plug 1/4 turn from finger-tight position with wrench while holding the body of the fitting steady.
For small-sized fittings (1/16", 1/8" and 3/16", 2 mm, 3 mm and 4 mm), tighten the nut 1/8 turn with wrench.

Re-installation

- Tighten the plug slightly with wrench from finger-tight position.

Port Connectors

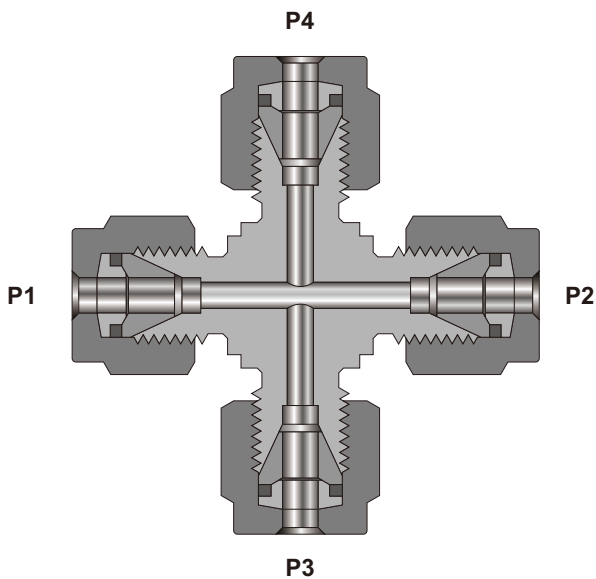
Initial installation

- The initial installation and re-installation for the tube end is the same as those of tube fittings and the non-tube end same as those of the plug.

Cautions

- Do not loosen or tighten fittings when the system is pressurized.
- Make sure that the tubing rests firmly on the shoulder of the port.
- Always leave enough straight length of the tubing for the fittings.
- Always use an insert for extremely soft plastic tubing.
- Material of the metal tubing should be softer than that of the fitting. For example, stainless steel tubing should not be used with brass fittings. When tubing and fittings are made of the same material, the tubing must be fully annealed.
- The allowable working pressure of the tube fitting is rated to the maximum working pressure of the corresponding tubing, which can be found in KVA tubing data sheet. For those which can not be found in KVA tubing data sheet, please contact KVA Group or our authorized distributors for related information.
- Keep the tubing end and surface clean and smooth.
- Always use proper thread sealants on tapered pipe threads. Make sure that its working temperature does not exceed that of the sealants.
- When assembling the tube fitting, hold the body with a wrench and turn the nut instead of holding the nut.
- When installing a valve with tube fitting end, hold the valve body with a wrench and turn the nut.
- When assembling the fitting to a valve with thread, hold the valve body with a wrench and turn the body of the fitting.
- Gap Inspection Gauge is ONLY accurate for initial installation by manual operation.

Port Description

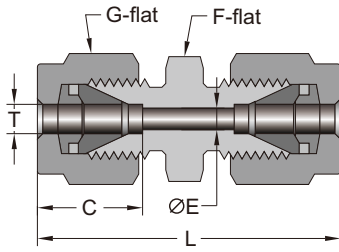


P1, P2, P3 and P4 shall be described in the following orders:

- Ferrule -> Tube -> NPT Thread -> ISO Tapered Thread -> ISO Parallel Thread -> SAE/MS Straight Thread -> 37° Flare -> Pipe Butt Weld -> Fractional Tube Socket Weld -> Others.
- Describe in descending order as per size if the end connection types are the same.
- Describe the end of P1 if all end connections are the same.

Straight Fittings

Unions

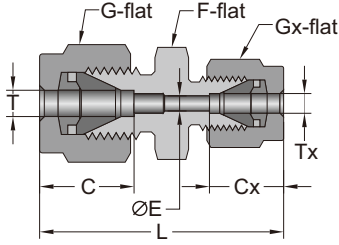


Union

Tube Size T	Basic Ordering Number	Dimensions				
		L	C	G	F	E
Dimensions, in. (mm)						
1/16	-DU-FF1-	0.99 (25.1)	0.34 (8.6)	0.31 (7.9)	0.31 (7.9)	0.05 (1.3)
1/8	-DU-FF2-	1.40 (35.6)	0.50 (12.7)	0.44 (11.1)	0.44 (11.1)	0.09 (2.3)
3/16	-DU-FF3-	1.47 (37.3)	0.54 (13.7)	0.50 (12.7)	0.50 (12.7)	0.12 (3.0)
1/4	-DU-FF4-	1.61 (40.9)	0.60 (15.2)	0.56 (14.3)	0.50 (12.7)	0.19 (4.8)
5/16	-DU-FF5-	1.69 (42.9)	0.64 (16.2)	0.63 (15.9)	0.56 (14.3)	0.25 (6.4)
3/8	-DU-FF6-	1.77 (45.0)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.28 (7.1)
1/2	-DU-FF8-	2.02 (51.3)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.41 (10.4)
5/8	-DU-FF10-	2.05 (52.1)	0.96 (24.4)	1.00 (25.4)	0.94 (23.9)	0.50 (12.7)
3/4	-DU-FF12-	2.11 (53.6)	0.96 (24.4)	1.13 (28.6)	1.06 (27.0)	0.62 (15.7)
7/8	-DU-FF14-	2.19 (55.7)	1.02 (25.9)	1.25 (31.8)	1.19 (30.2)	0.72 (18.3)
1	-DU-FF16-	2.55 (64.8)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.88 (22.4)
1-1/8	-DU-FF18-	3.47 (88.2)	1.44 (36.7)	1.75 (44.5)	1.63 (41.3)	0.97 (24.6)
1-1/4	-DU-FF20-	3.63 (92.2)	1.62 (41.1)	1.87 (47.6)	1.75 (44.5)	1.09 (27.7)
1-1/2	-DU-FF24-	4.25 (108.0)	1.97 (50.0)	2.25 (57.2)	2.13 (54.0)	1.34 (34.0)
Dimensions, mm (in.)						
2	-DU-FM2-	35.6 (1.40)	12.9 (0.51)	12.0 (0.47)	12.0 (0.47)	1.7 (0.07)
3	-DU-FM3-	35.3 (1.39)	12.9 (0.51)	12.0 (0.47)	12.0 (0.47)	2.4 (0.09)
4	-DU-FM4-	37.3 (1.47)	13.7 (0.54)	12.0 (0.47)	12.0 (0.47)	2.4 (0.09)
6	-DU-FM6-	41.0 (1.61)	15.3 (0.60)	14.0 (0.55)	14.0 (0.55)	4.8 (0.19)
8	-DU-FM8-	43.2 (1.70)	16.2 (0.64)	16.0 (0.63)	15.0 (0.59)	6.4 (0.25)
10	-DU-FM10-	46.2 (1.82)	17.2 (0.68)	19.0 (0.75)	18.0 (0.71)	7.9 (0.31)
12	-DU-FM12-	51.2 (2.02)	22.8 (0.90)	22.0 (0.87)	22.0 (0.87)	9.5 (0.37)
14	-DU-FM14-	52.0 (2.05)	24.4 (0.96)	25.0 (0.98)	24.0 (0.94)	11.1 (0.44)
15	-DU-FM15-	52.0 (2.05)	24.4 (0.96)	25.0 (0.98)	24.0 (0.94)	11.9 (0.47)
16	-DU-FM16-	52.0 (2.05)	24.4 (0.96)	25.0 (0.98)	24.0 (0.94)	12.7 (0.50)
18	-DU-FM18-	53.5 (2.11)	24.4 (0.96)	30.0 (1.18)	27.0 (1.06)	15.1 (0.59)
20	-DU-FM20-	55.0 (2.17)	26.0 (1.02)	32.0 (1.26)	30.0 (1.18)	15.9 (0.63)
22	-DU-FM22-	55.0 (2.17)	26.0 (1.02)	32.0 (1.26)	30.0 (1.18)	18.3 (0.72)
25	-DU-FM25-	65.0 (2.56)	31.3 (1.23)	38.0 (1.50)	35.0 (1.38)	21.8 (0.86)
28	-DU-FM28-	85.0 (3.35)	36.6 (1.44)	46.0 (1.81)	41.0 (1.61)	21.8 (0.86)
30	-DU-FM30-	92.7 (3.65)	39.6 (1.56)	50.0 (1.97)	46.0 (1.81)	26.2 (1.03)
32	-DU-FM32-	97.3 (3.83)	42.0 (1.65)	50.0 (1.97)	46.0 (1.81)	28.6 (1.13)
38	-DU-FM38-	113.6 (4.47)	49.4 (1.94)	60.0 (2.36)	55.0 (2.17)	33.7 (1.33)

Straight Fittings

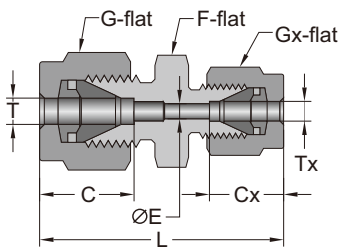
Unions



Reducing Union (Fractional)

Tube Size T	Tube Size Tx	Basic Ordering Number	Dimensions						
			L	C	G	F	E	Cx	Gx
Dimensions, in. (mm)									
1/8	1/16	-FF2-DU-FF1-	1.22 (31.0)	0.50 (12.7)	0.44 (11.1)	0.44 (11.1)	0.05 (1.3)	0.34 (8.6)	0.31 (7.9)
3/16	1/16	-FF3-DU-FF1-	1.27 (32.3)	0.54 (13.7)	0.50 (12.7)	0.50 (12.7)	0.05 (1.3)	0.34 (8.6)	0.31 (7.9)
	1/8	-FF3-DU-FF2-	1.44 (36.6)				0.09 (2.3)	0.50 (12.7)	0.44 (11.1)
1/4	1/16	-FF4-DU-FF1-	1.35 (34.3)	0.60 (15.2)	0.56 (14.3)	0.56 (14.3)	0.05 (1.3)	0.34 (8.6)	0.31 (7.9)
	1/8	-FF4-DU-FF2-	1.52 (38.6)				0.09 (2.3)	0.50 (12.7)	0.44 (11.1)
	3/16	-FF4-DU-FF3-	1.55 (39.4)				0.12 (3.0)	0.54 (13.7)	0.50 (12.7)
5/16	1/8	-FF5-DU-FF2-	1.56 (39.6)	0.64 (16.2)	0.63 (15.9)	0.63 (15.9)	0.09 (2.3)	0.50 (12.7)	0.44 (11.1)
	1/4	-FF5-DU-FF4-	1.66 (42.2)				0.19 (4.8)	0.60 (15.2)	0.56 (14.3)
3/8	1/16	-FF6-DU-FF1-	1.44 (36.6)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.05 (1.3)	0.34 (8.6)	0.31 (7.9)
	1/8	-FF6-DU-FF2-	1.61 (40.9)				0.09 (2.3)	0.50 (12.7)	0.44 (11.1)
	1/4	-FF6-DU-FF4-	1.70 (43.2)				0.19 (4.8)	0.60 (15.2)	0.56 (14.3)
	5/16	-FF6-DU-FF5-	1.74 (38.6)				0.25 (6.4)	0.64 (16.2)	0.63 (15.9)
1/2	1/8	-FF8-DU-FF2-	1.78 (45.2)	0.90 (22.8)	0.87 (22.2)	0.81 (20.6)	0.09 (2.3)	0.50 (12.7)	0.44 (11.1)
	1/4	-FF8-DU-FF4-	1.85 (47.0)				0.19 (4.8)	0.60 (15.2)	0.56 (14.3)
	3/8	-FF8-DU-FF6-	1.91 (48.5)				0.28 (7.1)	0.66 (16.8)	0.69 (17.5)
5/8	3/8	-FF10-DU-FF6-	1.94 (49.3)	0.96 (24.4)	1.00 (25.4)	0.94 (23.9)	0.28 (7.1)	0.66 (16.8)	0.69 (17.5)
	1/2	-FF10-DU-FF8-	2.05 (52.1)				0.41 (10.4)	0.90 (22.8)	0.87 (22.2)
3/4	1/4	-FF12-DU-FF4-	1.94 (49.3)	0.96 (24.4)	1.13 (28.6)	1.06 (27.0)	0.19 (4.8)	0.60 (15.2)	0.56 (14.3)
	3/8	-FF12-DU-FF6-	2.00 (50.8)				0.28 (7.1)	0.66 (16.8)	0.69 (17.5)
	1/2	-FF12-DU-FF8-	2.11 (53.6)				0.41 (10.4)	0.90 (22.8)	0.87 (22.2)
	5/8	-FF12-DU-FF10-	2.11 (53.6)				0.50 (12.7)	0.96 (24.4)	1.00 (25.4)
1	1/2	-FF16-DU-FF8-	2.38 (60.5)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.41 (10.4)	0.90 (22.8)	0.87 (22.2)
	3/4	-FF16-DU-FF12-	2.38 (60.5)				0.62 (15.7)	0.96 (24.4)	1.13 (28.6)

Reducing Union (Metric)

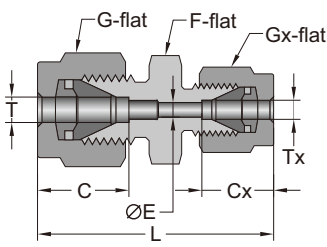


Tube Size T	Tube Size Tx	Basic Ordering Number	Dimensions								
			L	C	G	F	E	Cx	Gx		
Dimensions, mm (in.)											
3	2	-FM3-DU-FM2-	35.3 (1.39)	12.9 (0.51)	12.0 (0.47)	12.0 (0.47)	1.7 (0.07)	12.9 (0.51)	12.0 (0.47)		
6	2	-FM6-DU-FM2-	38.6 (1.52)	15.3 (0.60)	14.0 (0.55)	14.0 (0.55)	1.7 (0.07)	12.9 (0.51)	12.0 (0.47)		
	3	-FM6-DU-FM3-	38.6 (1.52)				2.4 (0.09)				
	4	-FM6-DU-FM4-	39.4 (1.55)					13.7 (0.54)	12.0 (0.47)		
8	6	-FM8-DU-FM6-	42.3 (1.67)	16.3 (0.64)	16.0 (0.63)	15.0 (0.59)	4.8 (0.19)	15.3 (0.60)	14.0 (0.55)		
10	6	-FM10-DU-FM6-	44.5 (1.75)	17.2 (0.68)	19.0 (0.75)	18.0 (0.71)	4.8 (0.19)	15.3 (0.60)	14.0 (0.55)		
	8	-FM10-DU-FM8-	45.1 (1.78)				6.4 (0.25)			16.3 (0.64)	16.0 (0.63)
12	6	-FM12-DU-FM6-	47.0 (1.85)	22.8 (0.90)	22.0 (0.87)	22.0 (0.87)	4.8 (0.19)	15.3 (0.60)	14.0 (0.55)		
	8	-FM12-DU-FM8-	47.8 (1.88)				6.4 (0.25)			16.3 (0.64)	16.0 (0.63)
	10	-FM12-DU-FM10-	48.7 (1.92)				7.9 (0.31)			17.2 (0.68)	19.0 (0.75)
16	10	-FM16-DU-FM10-	49.5 (1.95)	24.4 (0.96)	25.0 (0.98)	24.0 (0.94)	7.9 (0.31)	17.2 (0.68)	19.0 (0.75)		
	12	-FM16-DU-FM12-	52.0 (2.05)				9.5 (0.37)			22.8 (0.90)	22.0 (0.87)
18	12	-FM18-DU-FM12-	53.5 (2.11)	24.4 (0.96)	30.0 (1.18)	27.0 (1.06)	9.5 (0.37)	22.8 (0.90)	22.0 (0.87)		
25	18	-FM25-DU-FM18-	61.0 (2.40)	31.3 (1.23)	38.0 (1.50)	35.0 (1.38)	15.1 (0.59)	24.4 (0.96)	30.0 (1.18)		
	20	-FM25-DU-FM20-	62.3 (2.45)				15.9 (0.63)			26.0 (1.02)	32.0 (1.26)

Straight Fittings

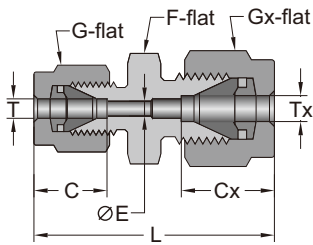
Unions

Reducing Union (Metric)



Tube Size T	Tube Size Tx	Basic Ordering Number	Dimensions									
			L	C	G	F	E	Cx	Gx			
Dimensions, mm (in.)												
30	18	-FM30-DU-FM18-	75.4 (2.97)	39.6 (1.56)	50.0 (1.97)	46.0 (1.81)	15.1 (0.59)	24.4 (0.96)	30.0 (1.18)			
	20	-FM30-DU-FM20-								15.9 (0.63)	26.0 (1.02)	32.0 (1.26)
	25	-FM30-DU-FM25-								21.8 (0.86)	31.3 (1.23)	38.0 (1.50)
32	18	-FM32-DU-FM18-	77.8 (3.06)	42.0 (1.65)	50.0 (1.97)	46.0 (1.81)	15.1 (0.59)	24.4 (0.96)	30.0 (1.18)			
	20	-FM32-DU-FM20-								15.9 (0.63)	26.0 (1.02)	32.0 (1.26)
	25	-FM32-DU-FM25-								21.8 (0.86)	31.3 (1.23)	38.0 (1.50)
38	20	-FM38-DU-FM20-	87.5 (3.44)	49.4 (1.94)	60.0 (2.36)	55.0 (2.17)	15.9 (0.63)	26.0 (1.02)	32.0 (1.26)			
	25	-FM38-DU-FM25-								21.8 (0.86)	31.3 (1.23)	38.0 (1.50)
	30	-FM38-DU-FM30-								104.6 (4.12)	26.2 (1.03)	39.6 (1.56)

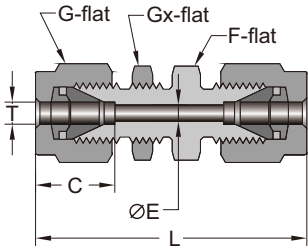
Union (Fractional to Metric)



Tube Size T	Tube Size Tx	Basic Ordering Number	Dimensions									
			L	C	G	F	E	Cx	Gx			
Dimensions, in. (mm)												
1/8	3	-FF2-DU-FM3-	1.39 (35.3)	0.50 (12.7)	0.44 (11.1)	0.47 (12.0)	0.09 (2.3)	0.51 (12.9)	0.47 (12.0)			
	4	-FF2-DU-FM4-	1.44 (36.5)							0.54 (13.7)	0.47 (12.0)	
	6	-FF2-DU-FM6-	1.52 (38.6)							0.60 (15.3)	0.55 (14.0)	0.55 (14.0)
	10	-FF2-DU-FM10-	1.65 (41.8)							0.68 (17.2)	0.71 (18.0)	0.75 (19.0)
1/4	4	-FF4-DU-FM4-	1.55 (39.4)	0.60 (15.2)	0.56 (14.3)	0.55 (14.0)	0.09 (2.3)	0.54 (13.7)	0.47 (12.0)			
	6	-FF4-DU-FM6-	1.62 (41.2)							0.60 (15.3)	0.55 (14.0)	
	8	-FF4-DU-FM8-	1.67 (42.3)							0.64 (16.2)	0.59 (15.0)	0.63 (16.0)
	10	-FF4-DU-FM10-	1.75 (44.5)							0.68 (17.2)	0.71 (18.0)	0.75 (19.0)
5/16	10	-FF5-DU-FM10-	1.78 (45.1)	0.64 (16.2)	0.63 (15.9)	0.71 (18.0)	0.25 (4.6)	0.68 (17.2)	0.75 (19.0)			
	12	-FF5-DU-FM12-	1.88 (47.8)							0.87 (22.0)	0.90 (22.8)	0.87 (22.0)
3/8	6	-FF6-DU-FM6-	1.72 (43.7)	0.66 (16.8)	0.69 (17.5)	0.63 (16.0)	0.19 (4.8)	0.60 (15.3)	0.55 (14.0)			
	8	-FF6-DU-FM8-	1.75 (44.5)							0.25 (4.6)	0.64 (16.2)	0.63 (16.0)
	10	-FF6-DU-FM10-	1.81 (45.9)			0.71 (18.0)				0.68 (17.2)	0.75 (19.0)	
	12	-FF6-DU-FM12-	1.91 (48.4)			0.87 (22.0)				0.90 (22.8)	0.87 (22.0)	
1/2	6	-FF8-DU-FM6-	1.88 (47.8)	0.90 (22.8)	0.87 (22.2)	0.87(22.0)	0.19 (4.8)	0.60 (15.3)	0.55 (14.0)			
	10	-FF8-DU-FM10-	1.93 (48.9)							0.31 (7.9)	0.68 (17.2)	0.75 (19.0)
	12	-FF8-DU-FM12-	2.02 (51.4)							0.37 (9.5)	0.90 (22.8)	0.87 (22.0)
	15	-FF8-DU-FM15-	2.05 (52.0)			0.94 (1.81)				0.96 (24.4)	0.98 (25.0)	
	20	-FF8-DU-FM20-	2.17 (55.0)			1.18 (30.0)				1.02 (26.0)	1.26 (32.0)	
5/8	16	-FF10-DU-FM16-	2.05 (52.0)	0.96 (24.4)	1.00 (25.4)	0.94 (24.0)	0.50 (12.7)	0.96 (24.4)	0.98 (25.0)			
3/4	12	-FF12-DU-FM12-	2.13 (54.2)	0.96 (24.4)	1.13 (28.6)	1.06 (27.0)	0.37 (9.5)	0.90 (22.8)	0.87 (22.0)			
	16	-FF12-DU-FM16-	2.12 (53.9)							0.50 (12.7)	0.96 (24.4)	0.98 (25.0)
	18	-FF12-DU-FM18-	2.11 (53.6)							0.59 (15.1)	0.96 (24.4)	1.18 (30.0)
1	25	-FF16-DU-FM25-	2.65 (67.4)	1.23 (31.2)	1.50 (38.1)	1.38 (35.0)	0.86 (21.8)	1.23 (31.3)	1.50 (38.0)			

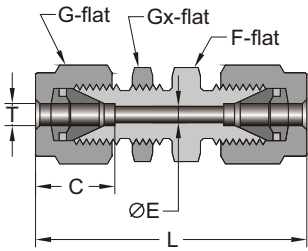
Straight Fittings

Unions



Bulkhead Union (Fractional)

Tube Size T	Basic Ordering Number	Dimensions						Panel Hole Size	Max Panel Thickness
		L	C	G	Gx	F	E		
Dimensions, in. (mm)									
1/16	-DBU-FF1-	1.24 (31.5)	0.34 (8.6)	0.31 (7.9)	0.31 (7.9)	0.31 (7.9)	0.05 (1.3)	0.20 (5.2)	0.12 (3.0)
1/8	-DBU-FF2-	2.02 (51.3)	0.50 (12.7)	0.44 (11.1)	0.50 (12.7)	0.50 (12.7)	0.09 (2.3)	0.33 (8.3)	0.50 (12.7)
3/16	-DBU-FF3-	2.11 (53.6)	0.54 (13.7)	0.50 (12.7)	0.56 (14.3)	0.56 (14.3)	0.12 (3.0)	0.39 (9.9)	
1/4	-DBU-FF4-	2.27 (57.7)	0.60 (15.2)	0.56 (14.3)	0.63 (15.9)	0.63 (15.9)	0.19 (4.8)	0.45 (11.5)	0.40 (10.2)
5/16	-DBU-FF5-	2.39 (60.7)	0.64 (16.2)	0.63 (15.9)	0.69 (17.5)	0.69 (17.5)	0.25 (6.4)	0.52 (13.1)	0.44 (11.2)
3/8	-DBU-FF6-	2.45 (62.2)	0.66 (16.8)	0.69 (17.5)	0.75 (19.1)	0.75 (19.1)	0.28 (7.1)	0.58 (14.7)	
1/2	-DBU-FF8-	2.80 (71.1)	0.90 (22.9)	0.87 (22.2)	0.94 (23.9)	0.94 (23.9)	0.41 (10.4)	0.76 (19.4)	0.50 (12.7)
5/8	-DBU-FF10-	2.86 (72.6)	0.96 (24.4)	1.00 (25.4)	1.06 (27.0)	1.06 (27.0)	0.50 (12.7)	0.89 (22.6)	
3/4	-DBU-FF12-	3.31 (79.0)	0.96 (24.4)	1.13 (28.6)	1.19 (30.2)	1.19 (30.2)	0.62 (15.7)	1.02 (25.8)	0.66 (16.8)
7/8	-DBU-FF14-	3.35 (85.2)	1.02 (25.9)	1.25 (31.8)	1.37 (34.9)	1.37 (34.9)	0.72 (18.3)	1.14 (29.0)	0.75 (19.1)
1	-DBU-FF16-	3.77 (95.8)	1.23 (31.2)	1.50 (38.1)	1.63 (41.3)	1.63 (41.3)	0.88 (22.4)	1.33 (33.7)	
1-1/4	-DBU-FF20-	4.85 (123.2)	1.62 (41.1)	1.87 (47.6)	1.87 (47.6)	1.87 (47.6)	1.09 (27.7)	1.64 (41.7)	
1-1/2	-DBU-FF24-	5.48 (139.2)	1.97 (50.0)	2.25 (57.2)	2.25 (57.2)	2.25 (57.2)	1.34 (34.0)	1.95 (49.6)	

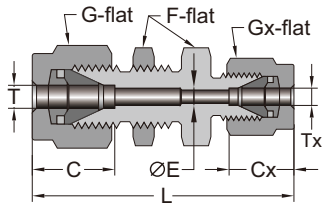


Bulkhead Union (Metric)

Tube Size T	Basic Ordering Number	Dimensions						Panel Hole Size	Max Panel Thickness
		L	C	G	Gx	F	E		
Dimensions, mm (in.)									
3	-DBU-FM3-	51.3 (2.02)	12.9 (0.51)	12.0 (0.47)	14.0 (0.55)	14.0 (0.55)	2.4 (0.09)	8.3 (0.33)	12.7 (0.50)
4	-DBU-FM4-	53.6 (2.11)	13.7 (0.54)	12.0 (0.47)	14.0 (0.55)	14.0 (0.55)	2.4 (0.09)	9.9 (0.39)	
6	-DBU-FM6-	57.7 (2.27)	15.3 (0.60)	14.0 (0.55)	16.0 (0.63)	16.0 (0.63)	4.8 (0.19)	11.5 (0.45)	10.2 (0.40)
8	-DBU-FM8-	61.0 (2.40)	16.2 (0.64)	16.0 (0.63)	18.0 (0.71)	18.0 (0.71)	6.4 (0.25)	13.1 (0.52)	11.2 (0.44)
10	-DBU-FM10-	63.7 (2.51)	17.2 (0.68)	19.0 (0.75)	22.0 (0.87)	22.0 (0.87)	7.9 (0.31)	16.3 (0.64)	
12	-DBU-FM12-	71.0 (2.80)	22.8 (0.90)	22.0 (0.87)	24.0 (0.94)	24.0 (0.94)	9.5 (0.37)	19.5 (0.77)	9.5 (0.37)
14	-DBU-FM14-	72.5 (2.85)	24.4 (0.96)	25.0 (0.98)	27.0 (1.06)	27.0 (1.06)	11.1 (0.44)	22.5 (0.89)	12.7 (0.50)
15	-DBU-FM15-	72.5 (2.85)	24.4 (0.96)	25.0 (0.98)	27.0 (1.06)	27.0 (1.06)	11.9 (0.47)	22.8 (0.90)	
16	-DBU-FM16-	72.5 (2.85)	24.4 (0.96)	25.0 (0.98)	27.0 (1.06)	27.0 (1.06)	12.7 (0.50)	22.8 (0.90)	
18	-DBU-FM18-	78.9 (3.11)	24.4 (0.96)	30.0 (1.18)	30.0 (1.18)	30.0 (1.18)	15.1 (0.59)	26.0 (0.90)	16.8 (0.66)
20	-DBU-FM20-	84.5 (3.33)	26.0 (1.02)	32.0 (1.26)	35.0 (1.38)	35.0 (1.38)	15.9 (0.63)	29.0 (1.14)	19.0 (0.75)
25	-DBU-FM25-	96.0 (3.78)	31.3 (1.23)	38.0 (1.50)	41.0 (1.61)	41.0 (1.61)	21.8 (0.86)	34.0 (1.34)	
30	-DBU-FM30-	124.0 (4.88)	39.6 (1.56)	50.0 (1.97)	50.0 (1.97)	50.0 (1.97)	26.2 (1.03)	40.5 (1.59)	
32	-DBU-FM32-	128.0 (5.04)	42.0 (1.65)	50.0 (1.97)	50.0 (1.97)	50.0 (1.97)	28.6 (1.13)	42.5 (1.67)	
38	-DBU-FM38-	145.0 (5.71)	49.4 (1.94)	60.0 (2.36)	60.0 (2.36)	60.0 (2.36)	33.7 (1.33)	50.5 (1.99)	

Straight Fittings

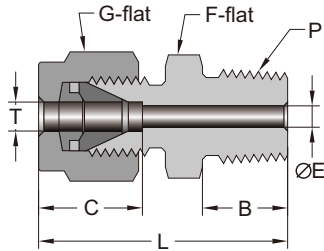
Unions



Bulkhead Reducing Union

Tube Size T	Tube Size Tx	Basic Ordering Number	Dimensions							Panel Hole Size	Max Panel Thickness
			L	C	G	F	E	Cx	Gx		
Dimensions, in. (mm)											
1/4	1/8	-FF4-DBU-FF2-	2.17 (55.1)	0.60 (15.2)	0.56 (14.3)	0.63 (15.9)	0.09 (2.3)	0.50 (12.7)	0.44 (11.5)	0.45 (11.5)	0.40 (10.2)
3/8	1/4	-FF6-DBU-FF4-	2.39 (60.7)	0.66 (16.8)	0.69 (17.5)	0.75 (19.1)	0.19 (4.8)	0.60 (15.3)	0.56 (14.3)	0.58 (14.7)	0.44 (11.2)
1/2	1/4	-FF8-DBU-FF4-	2.63 (66.8)	0.90 (22.9)	0.87 (22.2)	0.94 (23.8)	0.19 (4.8)	0.60 (15.3)	0.56 (14.3)	0.76 (19.4)	0.50 (12.7)
6	3	-FM6-DBU-FM3-	2.17 (55.1)	0.60 (15.3)	0.55 (14.0)	0.63 (16.0)	0.09 (2.3)	0.51 (12.9)	0.47 (12.0)	0.45 (11.5)	0.40 (10.2)
8	6	-FM8-DBU-FM6-	2.37 (60.1)	0.64 (16.2)	0.63 (16.0)	0.71 (18.0)	0.19 (4.8)	0.60 (15.3)	0.55 (14.0)	0.52 (13.1)	0.44 (11.2)
12	8	-FM12-DBU-FM8-	2.66 (67.6)	0.90 (22.8)	0.87 (22.0)	0.94 (24.0)	0.25 (6.4)	0.64 (16.2)	0.63 (16.0)	0.77 (19.5)	0.50 (12.7)
1/4	6	-FF4-DBU-FM6-	2.27 (57.7)	0.60 (15.2)	0.55 (14.0)	0.63 (15.9)	0.19 (4.8)	0.60 (15.3)	0.55 (14.0)	0.45 (11.5)	0.40 (10.2)
6	1/8	-FM6-DBU-FF2-	2.17 (55.1)	0.60 (15.3)	0.55 (14.0)	0.63 (15.9)	0.09 (2.3)	0.50 (12.7)	0.44 (11.1)	0.45 (11.5)	0.40 (10.2)
6	1/4	-FM6-DBU-FF4-	2.27 (57.7)	0.60 (15.3)	0.55 (14.0)	0.63 (15.9)	0.19 (4.8)	0.60 (15.2)	0.56 (14.3)	0.45 (11.5)	0.40 (10.2)

Male Connectors

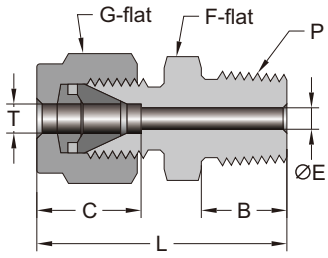


NPT

Tube Size T	NPT Size P	Basic Ordering Number	Dimensions							
			L	B	C	G	F	E		
Dimensions, in. (mm)										
1/16	1/16	-FF1-DU-NT1-	0.94 (23.9)	0.38 (9.7)	0.34 (8.61)	0.31 (7.9)	0.31 (7.9)	0.05 (1.3)		
	1/8	-FF1-DU-NT2-	1.03 (26.2)							
	1/4	-FF1-DU-NT4-	1.22 (31.0)						0.56 (14.3)	
1/8	1/16	-FF2-DU-NT1-	1.17 (29.7)	0.38 (9.7)	0.50 (12.7)	0.44 (11.1)	0.44 (11.1)	0.09 (2.3)		
	1/8	-FF2-DU-NT2-	1.20 (30.5)							
	1/4	-FF2-DU-NT4-	1.40 (35.6)						0.56 (14.3)	
	3/8	-FF2-DU-NT6-	1.41 (35.8)							
	1/2	-FF2-DU-NT8-	1.66 (42.2)							0.75 (19.1)
3/16	1/16	-FF3-DU-NT1-	1.23 (31.2)	0.38 (9.7)	0.54 (13.7)	0.50 (12.7)	0.50 (12.7)	0.12 (3.0)		
	1/8	-FF3-DU-NT2-	1.23 (31.2)							
	1/4	-FF3-DU-NT4-	1.43 (36.3)						0.56 (14.3)	
1/4	1/16	-FF4-DU-NT1-	1.29 (32.8)	0.38 (9.7)	0.60 (15.2)	0.56 (14.3)	0.50 (12.7)	0.19 (4.8)		
	1/8	-FF4-DU-NT2-					0.56 (14.3)			
	1/4	-FF4-DU-NT4-	1.49 (37.8)	0.75 (19.1)			0.69 (17.5)			
	3/8	-FF4-DU-NT6-	1.51 (38.4)				0.87 (22.2)			
	1/2	-FF4-DU-NT8-	1.76 (44.7)				1.06 (27.0)			
	3/4	-FF4-DU-NT12-	1.82 (46.2)							
5/16	1/8	-FF5-DU-NT2-	1.34 (34.0)	0.38 (9.7)	0.64 (16.3)	0.63 (15.9)	0.56 (14.3)	0.19 (4.8)		
	1/4	-FF5-DU-NT4-	1.52 (38.6)				0.56 (14.3)			
	3/8	-FF5-DU-NT6-	1.54 (39.1)						0.69 (17.5)	0.25 (6.4)
	1/2	-FF5-DU-NT8-	1.79 (45.5)						0.87 (22.2)	

Straight Fittings

Male Connectors

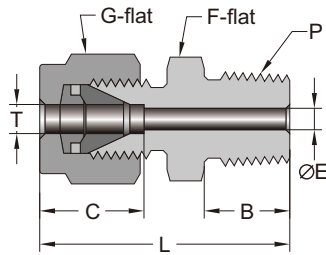


NPT

Tube Size T	NPT Size P	Basic Ordering Number	Dimensions					
			L	B	C	G	F	E
Dimensions, in. (mm)								
3/8	1/8	-FF6-DU-NT2-	1.39 (35.3)	0.38 (9.7)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.19 (4.8)
	1/4	-FF6-DU-NT4-	1.57 (39.9)	0.56 (14.3)			0.69 (17.5)	0.28 (7.1)
	3/8	-FF6-DU-NT6-	1.82 (46.2)	0.75 (19.1)			0.87 (22.2)	
	1/2	-FF6-DU-NT8-					1.06 (27.0)	
	3/4	-FF6-DU-NT12-	1.88 (47.8)	1.37 (34.9)				
	1	-FF6-DU-NT16-	2.14 (54.4)	0.94 (23.9)				
1/2	1/8	-FF8-DU-NT2-	1.53 (38.9)	0.38 (9.7)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.19 (4.8)
	1/4	-FF8-DU-NT4-	1.71 (43.4)	0.56 (14.3)			0.87 (22.2)	0.28 (7.1)
	3/8	-FF8-DU-NT6-	1.93 (49.0)	0.75 (19.1)			0.87 (22.2)	0.41 (10.4)
	1/2	-FF8-DU-NT8-					1.06 (27.0)	
	3/4	-FF8-DU-NT12-	1.99 (50.5)	1.37 (34.9)				
	1	-FF8-DU-NT16-	2.25 (57.2)	0.94 (23.9)				
5/8	1/4	-FF10-DU-NT4-	1.74 (44.2)	0.56 (14.3)	0.96 (24.4)	1.00 (25.4)	0.94 (23.8)	
	3/8	-FF10-DU-NT6-	1.93 (49.0)	0.75 (19.1)			0.94 (23.8)	0.38 (9.7)
	1/2	-FF10-DU-NT8-					1.06 (27.0)	0.47 (11.9)
	3/4	-FF10-DU-NT12-	1.99 (50.5)	1.37 (34.9)			0.50 (12.7)	
3/4	3/8	-FF12-DU-NT6-	1.80 (45.7)	0.56 (14.3)	0.96 (24.4)	1.13 (28.6)	1.06 (27.0)	0.41 (10.4)
	1/2	-FF12-DU-NT8-	1.99 (50.5)	0.75 (19.1)			1.06 (27.0)	0.47 (11.9)
	3/4	-FF12-DU-NT12-					1.37 (34.9)	0.62 (15.7)
	1	-FF12-DU-NT16-	2.25 (57.2)	0.94 (23.9)				
7/8	1/2	-FF14-DU-NT8-	1.99 (50.5)	0.75 (19.1)	1.02 (25.9)	1.25 (31.8)	1.19 (30.2)	0.47 (11.9)
	3/4	-FF14-DU-NT12-	2.25 (57.2)	0.94 (23.9)			1.37 (34.9)	0.62 (15.7)
	1	-FF14-DU-NT16-					0.72 (18.3)	
1	1/2	-FF16-DU-NT8-	2.26 (57.4)	0.75 (19.1)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.47 (11.9)
	3/4	-FF16-DU-NT12-	2.45 (62.2)	0.94 (23.9)			1.37 (34.9)	0.62 (15.7)
	1	-FF16-DU-NT16-					0.88 (22.4)	
1-1/8	1	-FF18-DU-NT16-	2.45 (62.2)	0.94 (23.9)	1.44 (36.7)	1.75 (44.5)	1.63 (41.3)	0.88 (22.4)
1-1/4	1	-FF20-DU-NT16-	3.04 (77.2)	0.94 (23.9)	1.62 (41.1)	1.87 (47.6)	1.75 (44.5)	0.88 (22.4)
	1-1/4	-FF20-DU-NT20-						1.09 (27.7)
1-1/2	1-1/2	-FF24-DU-NT24-	3.50 (88.9)	1.03 (26.2)	1.97 (50.0)	2.25 (57.2)	2.13 (54.0)	1.34 (34.0)
Dimensions, mm (in.)								
2	1/8	-FM2-DU-NT2-	30.5 (1.20)	9.7 (0.38)	12.9 (0.51)	12.0 (0.47)	12.0 (0.47)	1.7 (0.07)
3	1/8	-FM3-DU-NT2-	30.5 (1.20)	9.7 (0.38)	12.9 (0.51)	12.0 (0.47)	12.0 (0.47)	2.4 (0.09)
	1/4	-FM3-DU-NT4-	35.6 (1.40)	14.3 (0.56)			14.0 (0.55)	
4	1/8	-FM4-DU-NT2-	31.2 (1.23)	9.7 (0.38)	13.7 (0.54)	12.0 (0.47)	12.0 (0.47)	2.4 (0.09)
	1/4	-FM4-DU-NT4-	36.3 (1.43)	14.3 (0.56)			14.0 (0.55)	
6	1/8	-FM6-DU-NT2-	32.8 (1.29)	9.7 (0.38)	15.3 (0.60)	14.0 (0.55)	14.0 (0.55)	4.8 (0.19)
	1/4	-FM6-DU-NT4-	37.9 (1.49)	14.3 (0.56)			18.0 (0.71)	
	3/8	-FM6-DU-NT6-	38.4 (1.51)	19.1 (0.75)				
	1/2	-FM6-DU-NT8-	44.7 (1.76)				19.1 (0.75)	
8	1/8	-FM8-DU-NT2-	34.2 (1.35)	9.7 (0.38)	16.2 (0.64)	16.0 (0.63)	15.0 (0.59)	4.8 (0.19)
	1/4	-FM8-DU-NT4-	38.7 (1.52)	14.3 (0.56)			18.0 (0.71)	6.4 (0.25)
	3/8	-FM8-DU-NT6-	39.3 (1.55)					
	1/2	-FM8-DU-NT8-	45.6 (1.80)	19.1 (0.75)				

Straight Fittings

Male Connectors

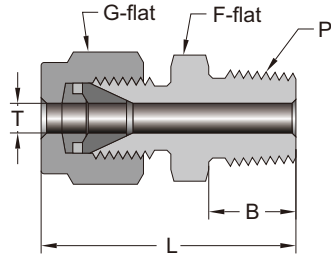


NPT

Tube Size T	NPT Size P	Basic Ordering Number	Dimensions						
			L	B	C	G	F	E	
Dimensions, mm (in.)									
10	1/8	-FM10-DU-NT2-	36.3(1.43)	9.7 (0.38)	17.2 (0.68)	19.0 (0.75)	15.0 (0.59)	4.8 (0.19)	
	1/4	-FM10-DU-NT4-	40.9 (1.61)	14.3 (0.56)			7.1 (0.28)		
	3/8	-FM10-DU-NT6-	45.8 (1.80)	19.1 (0.75)			18.0 (0.71)	7.9 (0.31)	
	1/2	-FM10-DU-NT8-					22.0 (0.87)		
	3/4	-FM10-DU-NT12-					27.0 (1.06)		
	1	-FM10-DU-NT16-					35.0 (1.38)		
12	1/8	-FM12-DU-NT2-	38.8 (1.53)	9.7 (0.38)	22.8 (0.90)	22.0 (0.87)	22.0 (0.87)	4.8 (0.19)	
	1/4	-FM12-DU-NT4-	43.4 (1.71)	14.3 (0.56)			7.1 (0.28)		
	3/8	-FM12-DU-NT6-	49.0 (1.93)	19.1 (0.75)			9.5 (0.37)		
	1/2	-FM12-DU-NT8-					27.0 (1.06)		
	3/4	-FM12-DU-NT12-					50.5 (1.99)		
14	1/8	-FM14-DU-NT2-	39.9 (1.57)	9.7 (0.38)	24.4 (0.96)	25.0 (0.98)	24.0 (0.94)	4.8 (0.19)	
	1/4	-FM14-DU-NT4-	44.1 (1.74)	14.3 (0.56)			7.1 (0.28)		
	3/8	-FM14-DU-NT6-	49.0 (1.93)	19.1 (0.75)			9.5 (0.37)		
	1/2	-FM14-DU-NT8-					27.0 (1.06)		
	3/4	-FM14-DU-NT12-					49.1 (1.93)		
15	1/2	-FM15-DU-NT8-	49.0 (1.93)	19.1 (0.75)	24.4 (0.96)	25.0 (0.98)	24.0 (0.94)	11.9 (0.47)	
	3/4	-FM15-DU-NT12-	50.5 (1.99)	27.0 (1.06)					
	1	-FM15-DU-NT16-	57.1 (2.25)	23.9 (0.94)			35.0 (1.38)		
16	1/4	-FM16-DU-NT4-	44.1 (1.74)	14.3 (0.56)	24.4 (0.96)	25.0 (0.98)	24.0 (0.94)	7.1 (0.28)	
	3/8	-FM16-DU-NT6-	49.0 (1.93)	19.1 (0.75)			9.5 (0.37)		
	1/2	-FM16-DU-NT8-					11.9 (0.47)		
	3/4	-FM16-DU-NT12-					50.5 (1.99)	27.0 (1.06)	12.7 (0.50)
18	3/8	-FM18-DU-NT6-	45.6 (1.80)	14.3 (0.56)	24.4 (0.96)	30.0 (1.18)	27.0 (1.06)	9.5 (0.37)	
	1/2	-FM18-DU-NT8-	50.5 (1.99)	19.1 (0.75)			11.9 (0.47)		
	3/4	-FM18-DU-NT12-					15.1 (0.59)		
20	1/2	-FM20-DU-NT8-	52.3 (2.06)	19.1 (0.75)	26.0 (1.02)	32.0 (1.26)	30.0 (1.18)	11.9 (0.47)	
	3/4	-FM20-DU-NT12-	57.1 (2.25)	23.9 (0.94)			15.9 (0.63)		
	1	-FM20-DU-NT16-					35.0 (1.38)		
22	1/2	-FM22-DU-NT8-	52.3 (2.06)	19.1 (0.75)	26.0 (1.02)	32.0 (1.26)	30.0 (1.18)	11.9 (0.47)	
	3/4	-FM22-DU-NT12-	57.1 (2.25)	23.9 (0.94)			15.9 (0.63)		
	1	-FM22-DU-NT16-					35.0 (1.38)	18.3 (0.72)	
25	1/2	-FM25-DU-NT8-	57.5 (2.26)	19.1 (0.75)	31.3 (1.23)	38.0 (1.50)	35.0 (1.38)	11.9 (0.47)	
	3/4	-FM25-DU-NT12-					62.3 (2.45)	23.9 (0.94)	15.9 (0.63)
	1	-FM25-DU-NT16-							21.8 (0.86)
28	1	-FM28-DU-NT16-	72.4 (2.85)	23.9 (0.94)	36.6 (1.44)	46.0 (1.81)	41.0 (1.61)	21.8 (0.86)	
	1-1/4	-FM28-DU-NT20-	73.1 (2.88)	23.9 (0.94)			46.0 (1.81)		
30	1-1/4	-FM30-DU-NT20-	77.2 (3.04)	23.9 (0.94)	39.6 (1.56)	50.0 (1.97)	46.0 (1.81)	26.2 (1.03)	
32	1-1/4	-FM32-DU-NT20-	79.6 (3.13)	23.9 (0.94)	42.0 (1.65)	50.0 (1.97)	46.0 (1.81)	28.6 (1.13)	
38	1-1/2	-FM38-DU-NT24-	91.6 (3.61)	26.2 (1.03)	49.4 (1.94)	60.0 (2.36)	55.0 (2.17)	33.7 (1.33)	

Straight Fittings

Male Connectors



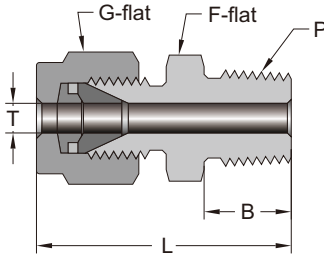
Thermocouple NPT

Tube Size T	NPT Size P	Basic Ordering Number	Dimensions			
			L	B	G	F
Dimensions, in. (mm)						
1/16	1/16	-FF1-DTU-NT1-	0.94 (23.9)	0.38 (9.7)	0.31 (7.9)	0.31 (7.9)
	1/8	-FF1-DTU-NT2-	1.03 (26.2)			0.44 (11.1)
	1/4	-FF1-DTU-NT4-	1.22 (31.0)			0.56 (14.3)
1/8	1/16	-FF2-DTU-NT1-	1.17 (29.7)	0.38 (9.7)	0.44 (11.1)	0.44 (11.1)
	1/8	-FF2-DTU-NT2-	1.20 (30.5)			0.56 (14.3)
	1/4	-FF2-DTU-NT4-	1.40 (35.6)			0.56 (14.3)
3/16	1/8	-FF3-DTU-NT2-	1.23 (31.2)	0.38 (9.7)	0.50 (12.7)	0.44 (11.1)
	1/4	-FF3-DTU-NT4-	1.43 (36.3)			0.56 (14.3)
1/4	1/8	-FF4-DTU-NT2-	1.29 (32.8)	0.56 (14.3)	0.56 (14.3)	0.50 (12.7)
	1/4	-FF4-DTU-NT4-	1.49 (37.8)			0.56 (14.3)
	3/8	-FF4-DTU-NT6-	1.51 (38.4)			0.69 (17.5)
	1/2	-FF4-DTU-NT8-	1.76 (44.7)			0.87 (22.2)
5/16	1/4	-FF5-DTU-NT4-	1.52 (38.6)	0.56 (14.3)	0.63 (15.9)	0.56 (14.3)
3/8	1/4	-FF6-DTU-NT4-	1.57 (39.9)	0.56 (14.3)	0.69 (17.5)	0.63 (15.9)
	3/8	-FF6-DTU-NT6-				0.69 (17.5)
	1/2	-FF6-DTU-NT8-	1.82 (46.2)			0.87 (22.2)
	3/4	-FF6-DTU-NT12-	1.88 (47.8)			1.06 (27.0)
1/2	1/2	-FF8-DTU-NT8-	1.93 (49.0)	0.75 (19.1)	0.87 (22.2)	0.87 (22.2)
	3/4	-FF8-DTU-NT12-	1.99 (50.5)			1.06 (27.0)
5/8	3/4	-FF10-DTU-NT12-	1.99 (50.5)	0.75 (19.1)	1.00 (25.4)	1.06 (27.0)
3/4	3/4	-FF12-DTU-NT12-	1.99 (50.5)	0.75 (19.1)	1.13 (28.6)	1.06 (27.0)
1	1	-FF16-DTU-NT16-	2.45 (62.2)	0.94 (23.9)	1.50 (38.1)	1.37 (34.9)
Dimensions, mm (in.)						
2	1/8	-FM2-DTU-NT2-	30.5 (1.20)	9.7 (0.38)	12.0 (0.47)	12.0 (0.47)
3	1/8	-FM3-DTU-NT2-	30.5 (1.20)	9.7 (0.38)	12.0 (0.47)	12.0 (0.47)
	1/4	-FM3-DTU-NT4-	35.6 (1.40)	14.3 (0.56)		14.0 (0.55)
4	1/8	-FM4-DTU-NT2-	31.2 (1.23)	9.7 (0.38)	12.0 (0.47)	12.0 (0.47)
	1/4	-FM4-DTU-NT4-	36.3 (1.43)	14.3 (0.56)		14.0 (0.55)
6	1/8	-FM6-DTU-NT2-	32.8 (1.29)	9.7 (0.38)	14.0 (0.55)	14.0 (0.55)
	1/4	-FM6-DTU-NT4-	37.9 (1.49)	14.3 (0.56)		18.0 (0.71)
	3/8	-FM6-DTU-NT6-	38.4 (1.51)	14.3 (0.56)		22.0 (0.87)
	1/2	-FM6-DTU-NT8-	44.7 (1.76)	0.75 (19.1)		22.0 (0.87)
8	1/4	-FM8-DTU-NT4-	38.7 (1.52)	14.3 (0.56)	16.0 (0.63)	15.0 (0.59)
	3/8	-FM8-DTU-NT6-	39.3 (1.55)			18.0 (0.71)
	1/2	-FM8-DTU-NT8-	45.6 (1.80)			19.1 (0.75)
10	3/8	-FM10-DTU-NT6-	40.9 (1.61)	14.3 (0.56)	19.0 (0.75)	18.0 (0.71)
	1/2	-FM10-DTU-NT8-	46.5 (1.83)	19.1 (0.75)		22.0 (0.87)
	3/4	-FM10-DTU-NT12-	48.0 (1.89)	19.1 (0.75)		27.0 (1.06)
	1	-FM10-DTU-NT16-	54.6 (2.15)	23.9 (0.94)		35.0 (1.38)
12	3/8	-FM12-DTU-NT6-	43.4 (1.71)	14.3 (0.56)	22.0 (0.87)	22.0 (0.87)
	1/2	-FM12-DTU-NT8-	49.0 (1.93)	19.1 (0.75)		22.0 (0.87)
	3/4	-FM12-DTU-NT12-	50.5 (1.99)	19.1 (0.75)		27.0 (1.06)
14	1/2	-FM14-DTU-NT8-	49.0 (1.93)	19.1 (0.75)	25.0 (0.98)	24.0 (0.94)
	3/4	-FM14-DTU-NT12-	50.5 (1.99)			27.0 (1.06)

Straight Fittings

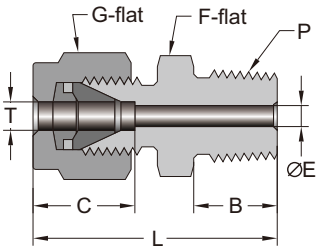
Male Connectors

Thermocouple NPT



Tube Size T	NPT Size P	Basic Ordering Number	Dimensions			
			L	B	G	F
Dimensions, mm (in.)						
15	3/4	-FM15-DTU-NT12-	50.5 (1.99)	19.1 (0.75)	25.0 (0.98)	27.0 (1.06)
	1	-FM15-DTU-NT16-	57.1 (2.25)	23.9 (0.94)		35.0 (1.38)
18	3/4	-FM18-DTU-NT12-	50.5 (1.99)	19.1 (0.75)	30.0 (1.18)	27.0 (1.06)
20	1	-FM20-DTU-NT16-	57.1 (2.25)	23.9 (0.94)	32.0 (1.26)	35.0 (1.38)
22	1	-FM22-DTU-NT16-	57.1 (2.25)	23.9 (0.94)	32.0 (1.26)	35.0 (1.38)

ISO/BSP Tapered Thread (RT)

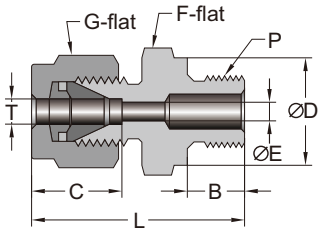


Tube Size T	RT Size P	Basic Ordering Number	Dimensions						
			L	B	C	G	F	E	
Dimensions, in. (mm)									
1/8	1/8	-FF2-DU-RT2-	1.20 (30.5)	0.38 (9.7)	0.50 (12.7)	0.44 (11.1)	0.44 (11.1)	0.09 (2.3)	
	1/4	-FF2-DU-RT4-	1.40 (35.6)	0.56 (14.3)	0.50 (12.7)	0.44 (11.1)	0.56 (14.3)	0.09 (2.3)	
1/4	1/8	-FF4-DU-RT2-	1.29 (32.8)	0.38 (9.7)	0.60 (15.2)	0.56 (14.3)	0.50 (12.7)	0.19 (4.8)	
	1/4	-FF4-DU-RT4-	1.49 (37.8)	0.56 (14.3)			0.56 (14.3)		
	3/8	-FF4-DU-RT6-	1.51 (38.4)	0.69 (17.5)			0.69 (17.5)		
	1/2	-FF4-DU-RT8-	1.76 (44.7)	0.75 (19.1)			0.87 (22.2)		
5/16	1/8	-FF5-DU-RT2-	1.34 (34.0)	0.38 (9.7)	0.64 (16.2)	0.63 (15.9)	0.56 (14.3)	0.19 (4.8)	
	1/4	-FF5-DU-RT4-	1.52 (38.6)	0.56 (14.3)			0.25 (6.4)		
3/8	1/8	-FF6-DU-RT2-	1.39 (35.3)	0.38 (9.7)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.19 (4.8)	
	1/4	-FF6-DU-RT4-	1.57 (39.9)	0.56 (14.3)			0.69 (17.5)	0.28 (7.1)	
	3/8	-FF6-DU-RT6-	1.57 (39.9)	0.75 (19.1)					0.87 (22.2)
	1/2	-FF6-DU-RT8-	1.82 (46.2)	0.75 (19.1)					1.06 (27.0)
	3/4	-FF6-DU-RT12-	1.88 (47.8)	0.75 (19.1)					1.06 (27.0)
1/2	1/4	-FF8-DU-RT4-	1.71 (43.4)	0.56 (14.3)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.28 (7.1)	
	3/8	-FF8-DU-RT6-		0.38 (9.7)					
	1/2	-FF8-DU-RT8-	1.93 (49.0)	0.75 (19.1)			0.87 (22.2)	0.41 (10.4)	
	3/4	-FF8-DU-RT12-	1.99 (50.5)	0.75 (19.1)			1.06 (27.0)		
5/8	1/2	-FF10-DU-RT8-	1.93 (49.0)	0.75 (19.1)	0.96 (24.4)	1.00 (25.4)	0.94 (23.8)	0.47 (11.9)	
3/4	3/4	-FF12-DU-RT12-	1.99 (50.5)	0.75 (19.1)	0.96 (24.4)	1.13 (28.6)	1.06 (27.0)	0.62 (15.7)	
	1	-FF12-DU-RT16-	2.25 (57.2)	0.94 (23.9)			1.37 (34.9)		
1	3/4	-FF16-DU-RT12-	2.26 (57.4)	0.75 (19.1)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.62 (15.7)	
	1	-FF16-DU-RT16-	2.45 (62.2)	0.94 (23.9)			1.37 (34.9)	0.88 (22.4)	

Straight Fittings

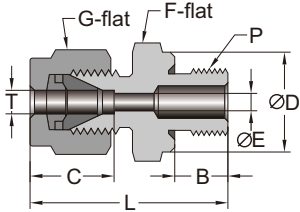
Male Connectors

ISO/BSP Parallel Thread (RS)



Tube Size T	RS Size P	Basic Ordering Number	Dimensions							
			L	B	C	G	F	E	D	
Dimensions, in. (mm)										
1/8	1/8	-FF2-DU-RS2-	1.18 (30.0)	0.28 (7.1)	0.50 (12.7)	0.44 (11.1)	0.56 (14.3)	0.09 (2.3)	0.54 (13.7)	
	1/4	-FF2-DU-RS4-	1.39 (35.3)	0.44 (11.1)	0.50 (12.7)	0.44 (11.1)	0.75 (19.1)	0.09 (2.3)	0.71 (18.0)	
	3/8	-FF2-DU-RS6-	1.43 (36.3)				0.87 (22.2)	0.09 (2.3)	0.86 (21.8)	
1/4	1/8	-FF4-DU-RS2-	1.27 (32.3)	0.28 (7.1)	0.60 (15.2)	0.56 (14.3)	0.56 (14.3)	0.19 (4.8)	0.54 (13.7)	
	1/4	-FF4-DU-RS4-	1.48 (37.6)	0.44 (11.1)			0.75 (19.1)		0.71 (18.0)	
	3/8	-FF4-DU-RS6-	1.53 (38.9)				0.87 (22.2)		0.86 (21.8)	
	1/2	-FF4-DU-RS8-	1.76 (44.7)	0.56 (14.3)			1.06 (27.0)		1.02 (25.9)	
3/8	1/8	-FF6-DU-RS2-	1.49 (37.8)	0.28 (7.1)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.28 (7.1)	0.54 (13.7)	
	1/4	-FF6-DU-RS4-	1.54 (39.1)	0.44 (11.1)			0.75 (19.1)		0.71 (18.0)	
	3/8	-FF6-DU-RS6-	1.59 (40.4)				0.87 (22.2)		0.86 (21.8)	
	1/2	-FF6-DU-RS8-	1.82 (46.2)	0.56 (14.3)			1.06 (27.0)		1.02 (25.9)	
1/2	1/4	-FF8-DU-RS4-	1.68 (42.7)	0.44 (11.1)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.23 (5.9)	0.71 (18.0)	
	3/8	-FF8-DU-RS6-	1.70 (43.2)				0.87 (22.2)		0.86 (21.8)	
	1/2	-FF8-DU-RS8-	1.93 (49.0)				0.56 (14.3)		1.06 (27.0)	1.02 (25.9)
3/4	1/2	-FF12-DU-RS8-	1.93 (49.0)	0.56 (14.3)	0.96 (24.4)	1.13 (28.6)	1.06 (27.0)	0.47 (11.9)	1.02 (25.9)	
	3/4	-FF12-DU-RS12-	2.08 (52.9)	0.62 (15.7)			1.31 (33.3)		0.62 (15.7)	1.26 (32.0)
1	1/2	-FF16-DU-RS8-	2.19 (55.5)	0.56 (14.3)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.47 (11.9)	1.02 (25.9)	
	3/4	-FF16-DU-RS12-	2.27 (57.7)	0.62 (15.7)			1.37 (34.9)		0.63 (16.0)	1.26 (32.0)
	1	-FF16-DU-RS16-	2.36 (59.9)	0.72 (18.3)			1.63 (41.3)		0.78 (19.8)	1.54 (39.1)

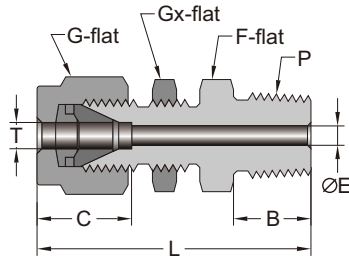
ISO/BSP Parallel Thread (RP)



Tube Size T	RP Size P	Basic Ordering Number	Dimensions						
			L	B	C	G	F	E	D
Dimensions, in. (mm)									
1/8	1/8	-FF2-DU-RP2-	1.18 (30.0)	0.28 (7.1)	0.50 (12.7)	0.44 (11.1)	0.56 (14.3)	0.09 (2.3)	0.54 (13.7)
	1/4	-FF2-DU-RP4-	1.39 (35.3)	0.44 (11.1)	0.50 (12.7)	0.44 (11.1)	0.75 (19.1)	0.09 (2.3)	0.70 (17.8)
1/4	1/8	-FF4-DU-RP2-	1.27 (32.3)	0.28 (7.1)	0.60 (15.2)	0.56 (14.3)	0.56 (14.3)	0.19 (4.8)	0.54 (13.7)
	1/4	-FF4-DU-RP4-	1.48 (37.6)	0.44 (11.1)			0.75 (19.1)		0.70 (17.8)
1/2	3/8	-FF8-DU-RP6-	1.79 (45.5)	0.44 (11.1)	0.90 (22.9)	0.87 (22.2)	0.87 (22.2)	0.31 (7.9)	0.86 (21.8)
	1/2	-FF8-DU-RP8-	1.93 (49.0)	0.56 (14.3)			1.06 (27.0)		1.02 (25.9)
3/4	1/2	-FF12-DU-RP8-	1.93 (49.0)	0.56 (14.3)	0.96 (24.4)	1.13 (28.6)	1.06 (27.0)	0.47 (11.9)	1.02 (25.9)
	3/4	-FF12-DU-RP12-	2.08 (52.9)	0.62 (15.7)			1.31 (33.3)		0.62 (15.7)
1	1	-FF16-DU-RP16-	2.36 (59.9)	0.72 (18.3)	1.23 (31.2)	1.50 (38.1)	1.63 (41.3)	0.78 (19.8)	1.53 (38.8)

Straight Fittings

Male Connectors

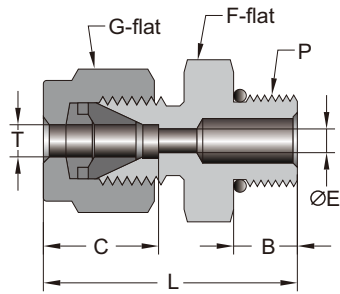


Bulkhead NPT (Fractional)

Tube Size T	NPT Size Tx	Basic Ordering Number	Dimensions							Panel Hole Size	Max Panel Thickness
			L	B	C	E	G	Gx	F		
Dimensions, in. (mm)											
1/16	1/16	-FF1-DBU-NT1-	1.19 (30.2)	0.38 (9.7)	0.34 (8.6)	0.05 (1.3)	0.31 (7.9)	0.31 (7.9)	0.31 (7.9)	0.20 (5.2)	0.25 (6.4)
	1/8	-FF1-DBU-NT2-	1.27 (32.3)						0.44 (11.1)		
1/8	1/8	-FF2-DBU-NT2-	1.83 (46.5)	0.38 (9.7)	0.50 (12.7)	0.09 (2.3)	0.44 (11.1)	0.50 (12.7)	0.50 (12.7)	0.33 (8.3)	0.50 (12.7)
3/16	1/8	-FF3-DBU-NT2-	1.89 (48.0)	0.38 (9.7)	0.54 (13.7)	0.12 (3.0)	0.50 (12.7)	0.56 (14.3)	0.56 (14.3)	0.39 (9.9)	0.50 (12.7)
1/4	1/8	-FF4-DBU-NT2-	1.95 (49.5)	0.38 (9.7)	0.60 (15.2)	0.19 (4.8)	0.56 (14.3)	0.63 (15.9)	0.63 (15.9)	0.45 (11.5)	0.40 (10.2)
	1/4	-FF4-DBU-NT4-	2.13 (54.1)								
	3/8	-FF4-DBU-NT6-	2.16 (54.9)								
	1/2	-FF4-DBU-NT8-	2.37 (60.3)	0.75 (19.1)							
5/16	1/8	-FF5-DBU-NT2-	2.08 (52.9)	0.38 (9.7)	0.64 (16.2)	0.19 (4.8)	0.63 (15.9)	0.69 (17.5)	0.69 (17.5)	0.52 (13.1)	0.44 (11.2)
	1/4	-FF5-DBU-NT4-	2.27 (57.7)	0.56 (14.3)		0.25 (6.4)					
3/8	1/8	-FF6-DBU-NT2-	2.08 (52.9)	0.38 (9.7)	0.66 (16.8)	0.19 (4.8)	0.69 (17.5)	0.75 (19.1)	0.75 (19.1)	0.58 (14.7)	0.44 (11.2)
	1/4	-FF6-DBU-NT4-	2.26 (57.4)	0.56 (14.3)		0.28 (7.1)					
	3/8	-FF6-DBU-NT6-	2.51 (63.8)	0.75 (19.1)							
	1/2	-FF6-DBU-NT8-				0.87 (22.2)					
1/2	1/8	-FF8-DBU-NT2-	2.31 (58.7)	0.38 (9.7)	0.90 (22.9)	0.19 (4.8)	0.87 (22.2)	0.94 (23.8)	0.94 (23.8)	0.76 (19.4)	0.50 (12.7)
	1/4	-FF8-DBU-NT4-	2.23 (56.6)	0.56 (14.3)		0.28 (7.1)					
	3/8	-FF8-DBU-NT6-	2.49 (63.2)			0.75 (19.1)					
	1/2	-FF8-DBU-NT8-	2.71 (68.8)	0.75 (19.1)							
5/8	3/8	-FF10-DBU-NT6-	2.63 (66.7)	0.56 (14.3)	0.96 (24.4)	0.38 (9.7)	1.00 (25.4)	1.06 (27.0)	1.06 (27.0)	0.89 (22.6)	0.59 (15.1)
	1/2	-FF10-DBU-NT8-	2.81 (71.5)	0.75 (19.1)		0.47 (11.9)					
3/4	1/2	-FF12-DBU-NT8-	3.00 (76.2)	0.75 (19.1)	0.96 (24.4)	0.47 (11.9)	1.13 (28.6)	1.19 (30.2)	1.19 (30.2)	1.02 (25.8)	0.66 (16.8)
	3/4	-FF12-DBU-NT12-	3.00 (76.2)			0.62 (15.7)					
7/8	3/4	-FF14-DBU-NT12-	3.31 (84.1)	0.75 (19.1)	1.02 (25.9)	0.62 (15.7)	1.25 (31.8)	1.31 (33.3)	1.31 (33.3)	1.14 (29.0)	0.75 (19.1)
1	3/4	-FF16-DBU-NT12-	3.48 (88.4)	0.75 (19.1)	1.23 (31.2)	0.62 (15.7)	1.50 (38.1)	1.63 (41.3)	1.63 (41.3)	1.33 (33.7)	0.75 (19.1)
	1	-FF16-DBU-NT16-	3.67 (93.2)	0.94 (23.9)		0.88 (22.4)					
Dimensions, mm (in.)											
6	1/8	-FM6-DBU-NT2-	49.6 (1.95)	9.7 (0.38)	15.3 (0.60)	4.8 (0.19)	14.0 (0.55)	16.0 (0.63)	16.0 (0.63)	11.5 (0.45)	10.2 (0.40)
	1/4	-FM6-DBU-NT4-	53.6 (2.11)	14.3 (0.56)		6.4 (0.25)					
8	1/8	-FM8-DBU-NT2-	52.3 (2.06)	9.7 (0.38)	16.2 (0.64)	4.8 (0.19)	16.0 (0.63)	18.0 (0.71)	18.0 (0.71)	13.1 (0.52)	11.2 (0.44)
	1/4	-FM8-DBU-NT4-	56.6 (2.23)	14.3 (0.56)		6.4 (0.25)					
10	1/4	-FM10-DBU-NT4-	58.4 (2.30)	14.3 (0.56)	17.2 (0.68)	7.1 (0.28)	19.0 (0.75)	22.0 (0.87)	22.0 (0.87)	16.3 (0.64)	11.2 (0.44)
	3/8	-FM10-DBU-NT6-				7.9 (0.31)					
	1/2	-FM10-DBU-NT8-				63.1 (2.48)					
12	1/4	-FM12-DBU-NT4-	63.9 (2.52)	14.3 (0.56)	22.8 (0.90)	7.1 (0.28)	22.0 (0.87)	24.0 (0.94)	24.0 (0.94)	19.5 (0.77)	12.7 (0.50)
	3/8	-FM12-DBU-NT6-				9.5 (0.37)					
	1/2	-FM12-DBU-NT8-				68.8 (2.71)					

Straight Fittings

Male Connectors



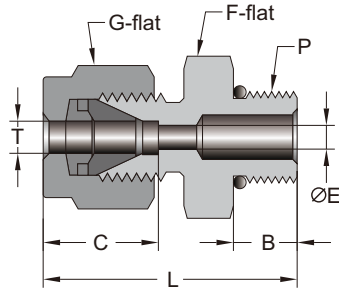
Adapts to SAE J1926/1, ISO 11926-1 and MS 16142 straight thread boss.

SAE/MS Straight Thread (ST)

Tube Size T	ST Size P	Basic Ordering Number	Dimensions					
			L	B	C	G	F	E
Dimensions, in. (mm)								
1/6	5/16-24	-FF1-DU-ST5-	0.92 (23.4)	0.30 (7.6)	0.34 (8.6)	0.31 (7.9)	0.44 (11.1)	0.05 (1.3)
1/8	5/16-24	-FF2-DU-ST5-	1.18 (30.0)	0.30 (7.6)			0.44 (11.1)	
	7/16-20	-FF2-DU-ST7-	1.24 (31.5)	0.36 (9.1)	0.50 (12.7)	0.44 (11.1)	0.56 (14.3)	0.09 (2.3)
	9/16-18	-FF2-DU-ST9-	1.31 (33.3)	0.39 (9.9)			0.69 (17.5)	
3/16	3/8-24	-FF3-DU-ST6-	1.20 (30.5)	0.30 (7.6)	0.54 (13.7)	0.50 (12.7)	0.50 (12.7)	0.12 (3.0)
1/4	5/16-24	-FF4-DU-ST5-	1.27 (32.3)	0.30 (7.6)			0.50 (12.7)	0.12 (3.0)
	7/16-20	-FF4-DU-ST7-	1.34 (34.0)	0.36 (9.1)			0.56 (14.3)	
	9/16-18	-FF4-DU-ST9-	1.40 (35.6)	0.39 (9.9)	0.60 (15.2)	0.56 (14.3)	0.69 (17.5)	0.19 (4.8)
	3/4-16	-FF4-DU-ST12-	1.48 (37.6)	0.44 (11.1)			0.87 (22.2)	
	7/8-14	-FF4-DU-ST14-	1.60 (40.6)	0.50 (12.7)			1.00 (25.4)	
5/16	1/2-20	-FF5-DU-ST8-	1.37 (34.8)	0.36 (9.1)	0.64 (16.2)	0.63 (15.9)	0.63 (15.9)	0.25 (6.4)
3/8	7/16-20	-FF6-DU-ST7-	1.40 (35.6)	0.36 (9.1)			0.63 (15.9)	0.20 (5.1)
	9/16-18	-FF6-DU-ST9-	1.46 (37.1)	0.39 (9.9)	0.66 (16.8)	0.69 (17.5)	0.69 (17.5)	0.28 (7.1)
	3/4-16	-FF6-DU-ST12-	1.54 (39.1)	0.44 (11.1)			0.87 (22.2)	
	7/8-14	-FF6-DU-ST14-	1.66 (42.2)	0.50 (12.7)			1.00 (25.4)	
1/2	9/16-18	-FF8-DU-ST9-	1.54 (39.1)	0.39 (9.9)			0.81 (20.6)	0.28 (7.1)
	3/4-16	-FF8-DU-ST12-	1.65 (41.9)	0.44 (11.1)	0.90 (22.9)	0.87 (22.2)	0.87 (22.2)	0.41 (10.4)
	7/8-14	-FF8-DU-ST14-	1.77 (45.0)	0.50 (12.7)			1.00 (25.4)	
	1-1/16-12	-FF8-DU-ST17-	1.93 (49.0)	0.59 (15.0)			1.25 (31.8)	
5/8	3/4-16	-FF10-DU-ST12-	1.65 (41.9)	0.44 (11.1)	0.96 (24.4)	1.00 (25.4)	0.94 (23.8)	0.42 (10.7)
	7/8-14	-FF10-DU-ST14-	1.78 (45.2)	0.50 (12.7)			1.00 (25.4)	0.50 (12.7)
3/4	3/4-16	-FF12-DU-ST12-	1.81 (46.0)	0.44 (11.1)			1.06 (27.0)	0.42 (10.7)
	1-1/16-12	-FF12-DU-ST17-	1.93 (49.0)	0.59 (15.0)	0.96 (24.4)	1.13 (28.6)	1.25 (31.8)	0.62 (15.7)
	1-5/16-12	-FF12-DU-ST21-	1.96 (49.8)				1.50 (38.1)	0.63 (16.0)
7/8	1-3/16-12	-FF14-DU-ST19-	1.93 (49.0)	0.59 (15.0)	1.02 (25.9)	1.25 (31.8)	1.37 (34.9)	0.72 (18.3)
1	1-1/16-12	-FF16-DU-ST17-	2.10 (53.3)	0.59 (15.0)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.66 (16.8)
	1-5/16-12	-FF16-DU-ST21-	2.14 (54.4)				1.50 (38.1)	0.88 (22.4)
1-1/4	1-5/8-12	-FF20-DU-ST26-	2.69 (68.3)	0.59 (15.0)	1.62 (41.1)	1.87 (47.6)	1.87 (47.6)	1.09 (27.7)
1-1/2	1-7/8-12	-FF24-DU-ST30-	3.06 (77.7)	0.59 (15.0)	1.97 (50.0)	2.25 (57.2)	2.13 (54.0)	1.34 (34.0)
Dimensions, mm (in.)								
6	9/16-18	-FM6-DU-ST9-	35.6 (1.40)	9.9 (0.39)	15.3 (0.60)	14.0 (0.55)	18.0 (0.71)	4.8 (0.19)
10	9/16-18	-FM10-DU-ST9-	37.3 (1.47)	9.9 (0.39)	17.2 (0.68)	19.0 (0.75)	18.0 (0.71)	7.1 (0.28)
	3/4-16	-FM10-DU-ST12-	39.4 (1.55)	11.2 (0.44)			22.0 (0.87)	7.9 (0.31)
12	7/16-20	-FM12-DU-ST7-	40.6 (1.60)	9.1 (0.36)	22.8 (0.90)	22.0 (0.87)	22.0 (0.87)	5.2 (0.20)
	9/16-18	-FM12-DU-ST9-	39.9 (1.57)	9.9 (0.39)			22.0 (0.87)	7.1 (0.28)

Straight Fittings

Male Connectors

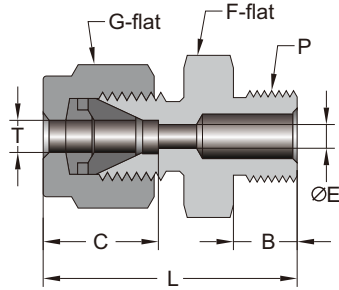


Adapts to SAE J1926/1, ISO 11926-1 and MS 16142 straight thread boss.

Long SAE/MS Straight Thread (LST)

Tube Size T	LST Size P	Basic Ordering Number	Dimensions					
			L	B	C	G	F	E
Dimensions, in. (mm)								
1/4	7/16-20	-FF4-DU-LST7-	2.26 (57.4)	0.36 (9.1)	0.60 (15.2)	0.56 (14.3)	0.56 (14.3)	0.19 (4.8)
1/2	3/4-16	-FF8-DU-LST12-	3.01 (76.5)	0.44 (11.2)	0.90 (22.9)	0.87 (22.2)	0.87 (22.2)	0.41 (10.4)

MS Thread Size

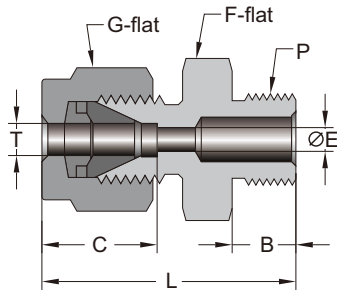


Tube Size T	MS Size P	Basic Ordering Number	Dimensions					
			L	B	C	G	F	E
Dimensions, in. (mm)								
1/16	M5×0.8	-FF1-DU-MS5-	0.86 (21.8)	0.31 (8.0)	0.34 (8.6)	0.31 (7.9)	0.31 (7.9)	0.05 (1.3)
1/8	M14×1.5	-FF2-DU-MS14-	1.37 (34.8)	0.51 (13.0)	0.50 (12.7)	0.44 (11.1)	0.63 (15.9)	0.09 (2.3)
	M16×1.5	-FF2-DU-MS16-	1.41 (35.8)	0.55 (14.0)			0.69 (17.5)	
	M18×1.5	-FF2-DU-MS18-	1.46 (37.2)	0.59 (15.0)			0.75 (19.1)	
	M20×1.5	-FF2-DU-MS20-	1.50 (38.0)	0.63 (16.0)			0.87 (22.2)	
1/4	M14×1.5	-FF4-DU-MS14-	1.45 (36.9)	0.51 (13.0)	0.60 (15.2)	0.56 (14.3)	0.63 (15.9)	0.19 (4.8)
	M16×1.5	-FF4-DU-MS16-	1.50 (38.0)	0.55 (14.0)			0.69 (17.5)	
	M18×1.5	-FF4-DU-MS18-	1.56 (39.5)	0.59 (15.0)			0.75 (19.1)	
	M20×1.5	-FF4-DU-MS20-	1.60 (40.7)	0.63 (16.0)			0.87 (22.2)	
3/8	M10×1.5	-FF6-DU-MS10-	1.43 (36.4)	0.43 (11.0)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.19 (4.8)
	M14×1.5	-FF6-DU-MS14-	1.55 (39.3)	0.51 (13.0)			0.63 (15.9)	
	M16×1.5	-FF6-DU-MS16-	1.56 (39.7)	0.55 (14.0)			0.69 (17.5)	
	M18×1.5	-FF6-DU-MS18-	1.63 (41.5)	0.59 (15.0)			0.75 (19.1)	
	M20×1.5	-FF6-DU-MS20-	1.67 (42.3)	0.63 (16.0)			0.87 (22.2)	
1/2	M16×1.5	-FF8-DU-MS16-	1.70 (43.2)	0.55 (14.0)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.33 (8.4)
	M18×1.5	-FF8-DU-MS18-	1.72 (43.7)	0.59 (15.0)			0.87 (22.2)	0.38 (9.6)
	M20×1.5	-FF8-DU-MS20-	1.77 (44.9)	0.63 (16.0)			0.87 (22.2)	0.41 (10.4)
	M22×1.5	-FF8-DU-MS22-	1.85 (47.0)	0.67 (17.0)			0.94 (23.8)	
Dimensions, mm (in.)								
6	M6×1	-FM6-DU-MS6-	32.4 (1.28)	8.0 (0.31)	15.3 (0.60)	14.0 (0.55)	14.0 (0.55)	2.0 (0.12)
	M8×1	-FM6-DU-MS8-	35.3 (1.39)	9.0 (0.35)				3.0 (0.12)
	M10×1	-FM6-DU-MS10-	34.7 (1.37)	11.0 (0.43)				4.7 (0.19)
	M12×1.5	-FM6-DU-MS12-	36.4 (1.43)	12.0 (0.47)			16.0 (0.63)	4.8 (0.19)
	M14×1.5	-FM6-DU-MS14-	36.5 (1.44)	13.0 (0.51)				
	M16×1.5	-FM6-DU-MS16-	38.4 (1.51)	14.0 (0.55)				
	M18×1.5	-FM6-DU-MS18-	40.0 (1.57)	15.0 (0.59)				
	M20×1.5	-FM6-DU-MS20-	41.7 (1.64)	16.0 (0.63)				
8	M8×1	-FM8-DU-MS8-	34.5 (1.36)	9.0 (0.35)	16.2 (0.64)	16.0 (0.63)	14.0 (0.55)	3.0 (0.12)
	M10×1	-FM8-DU-MS10-	36.6 (1.44)	11.0 (0.43)				4.7 (0.19)
	M12×1.5	-FM8-DU-MS12-	36.6 (1.44)	12.0 (0.47)				6.0 (0.24)
	M14×1.5	-FM8-DU-MS14-	37.7 (1.48)	13.0 (0.51)			16.0 (0.63)	6.4 (0.25)
	M20×1.5	-FM8-DU-MS20-	42.5 (1.67)	16.0 (0.63)				

Straight Fittings

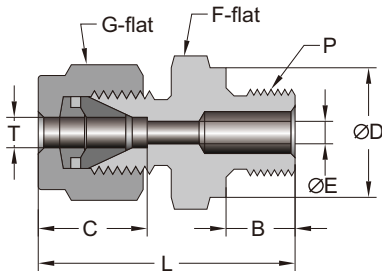
Male Connectors

Metric Thread (MS)



Tube Size T	MS Size P	Basic Ordering Number	Dimensions					
			L	B	C	G	F	E
Dimensions, mm (in.)								
10	M12×1.5	-FM10-DU-MS12-	38.7 (1.52)	12.0 (0.47)	17.2 (0.68)	19.0 (0.75)	18.0 (0.71)	6.0 (0.24)
	M14×1.5	-FM10-DU-MS14-	39.7 (1.56)	13.0 (0.51)				7.2 (0.28)
	M16×1.5	-FM10-DU-MS16-	43.5 (1.71)	16.0 (0.63)				22.0 (0.87)
12	M12×1.5	-FM12-DU-MS12-	41.2 (1.62)	12.0 (0.47)	22.8 (0.90)	22.0 (0.87)	22.0 (0.87)	6.0 (0.24)
	M16×1.5	-FM12-DU-MS16-	43.2 (1.70)	14.0 (0.55)				8.4 (0.33)
	M18×1.5	-FM12-DU-MS18-	44.2 (1.74)	15.0 (0.59)				9.5 (0.37)
	M20×1.5	-FM12-DU-MS20-	45.2 (1.78)	16.0 (0.63)				
14	M14×1.5	-FM14-DU-MS14-	42.5 (1.67)	13.0 (0.51)	24.4 (0.96)	25.0 (0.98)	24.0 (0.94)	7.2 (0.28)
	M16×1.5	-FM14-DU-MS16-	43.9 (1.73)	14.0 (0.55)				8.4 (0.33)
	M20×1.5	-FM14-DU-MS20-	45.1 (1.78)	16.0 (0.63)				10.8 (0.43)
16	M20×1.5	-FM16-DU-MS20-	46.1 (1.81)	16.0 (0.63)	24.4 (0.96)	25.0 (0.98)	24.0 (0.94)	10.8 (0.43)
18	M20×1.5	-FM18-DU-MS20-	47.5 (1.87)	16.0 (0.63)	24.4 (0.96)	30.0 (1.18)	27.0 (1.06)	10.8 (0.43)
	M22×1.5	-FM18-DU-MS22-	48.5 (1.91)	17.0 (0.67)				12.0 (0.47)
20	M20×1.5	-FM20-DU-MS20-	49.5 (1.95)	16.0 (0.63)	26.0 (1.02)	32.0 (1.26)	30.0 (1.18)	10.8 (0.43)
22	M24×1.5	-FM22-DU-MS24-	50.5 (1.99)	17.0 (0.67)	26.0 (1.02)	32.0 (1.26)	30.0 (1.18)	14.4 (0.57)
25	M27×2	-FM25-DU-MS27-	57.0 (2.24)	18.0 (0.71)	31.3 (1.23)	38.0 (1.50)	35.0 (1.38)	16.1 (0.63)

Male Connectors

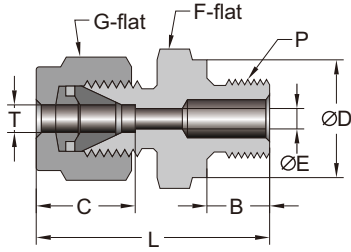


Metric Thread (MRS)

Tube Size T	MRS Size P	Basic Ordering Number	Dimensions						
			L	B	C	G	F	E	D
Dimensions, in. (mm)									
1/8	M14×1.5	-FF2-DU-MRS14-	1.44 (36.7)	0.47 (12.0)	0.50 (12.7)	0.44 (11.1)	0.75 (19.1)	0.09 (2.3)	0.75 (19.0)
	M16×1.5	-FF2-DU-MRS16-	1.48 (37.5)				0.87 (22.2)		0.83 (21.0)
	M18×1.5	-FF2-DU-MRS18-	1.52 (38.5)				0.94 (23.8)		0.91 (23.0)
	M20×1.5	-FF2-DU-MRS20-	1.62 (41.1)				1.00 (25.4)		0.98 (25.0)
1/4	M14×1.5	-FF4-DU-MRS14-	1.50 (38.0)	0.47 (12.0)	0.60 (15.2)	0.56 (14.3)	0.75 (19.1)	0.19 (4.8)	0.75 (19.0)
	M16×1.5	-FF4-DU-MRS16-	1.57 (39.9)				0.87 (22.2)		0.83 (21.0)
	M18×1.5	-FF4-DU-MRS18-	1.61 (40.8)				0.94 (23.8)		0.91 (23.0)
	M20×1.5	-FF4-DU-MRS20-	1.72 (43.6)				1.00 (25.4)		0.98 (25.0)
3/8	M14×1.5	-FF6-DU-MRS14-	1.63 (41.3)	0.47 (12.0)	0.66 (16.8)	0.69 (17.5)	0.75 (19.1)	0.28 (7.1)	0.75 (19.0)
	M16×1.5	-FF6-DU-MRS16-	1.63 (41.3)				0.87 (22.2)		0.83 (21.0)
	M18×1.5	-FF6-DU-MRS18-	1.65 (41.8)				0.94 (23.8)		0.91 (23.0)
	M20×1.5	-FF6-DU-MRS20-	1.78 (45.1)				1.00 (25.4)		0.98 (25.0)

Straight Fittings

Male Connectors

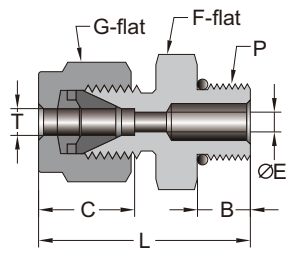


Metric Thread (MRS)

Tube Size T	MRS Size P	Basic Ordering Number	Dimensions						
			L	B	C	G	F	E	D
Dimensions, in. (mm)									
1/2	M16×1.5	-FF8-DU-MRS16-	1.73 (44.0)	0.47 (12.0)	0.90 (22.9)	0.87 (22.2)	0.87 (22.2)	0.35 (9.0)	0.83 (21.0)
	M18×1.5	-FF8-DU-MRS18-	1.73 (44.0)				0.94 (23.8)	0.39 (10.0)	0.91 (23.0)
	M20×1.5	-FF8-DU-MRS20-	1.89 (47.9)	0.55 (14.0)			1.00 (25.4)	0.41 (10.4)	0.98 (25.0)
	M22×1.5	-FF8-DU-MRS22-	1.91 (48.5)				1.06 (27.0)		1.06 (27.0)
Dimensions, mm (in.)									
6	M8×1	-FM6-DU-MRS8-	33.3 (1.31)	8.0 (0.31)	15.3 (0.60)	14.0 (0.55)	14.0 (0.55)	3.0 (0.12)	12.0 (0.47)
	M10×1	-FM6-DU-MRS10-	38.2 (1.50)	12.0 (0.47)			18.0 (0.71)	4.0 (0.16)	14.0 (0.55)
	M12×1.5	-FM6-DU-MRS12-	39.7 (1.56)		22.0 (0.87)	4.8 (0.19)	17.0 (0.67)		
	M14×1.5	-FM6-DU-MRS14-	39.7 (1.56)	22.0 (0.87)	4.8 (0.19)	19.0 (0.75)			
8	M8×1	-FM8-DU-MRS8-	34.1 (1.34)	8.0 (0.31)	16.2 (0.64)	16.0 (0.63)	14.0 (0.55)	3.0 (0.12)	12.0 (0.47)
	M10×1	-FM8-DU-MRS10-					5.0 (0.20)	14.0 (0.55)	
	M12×1.5	-FM8-DU-MRS12-	40.4 (1.59)	12.0 (0.47)	18.0 (0.71)	6.0 (0.24)	17.0 (0.67)		
	M14×1.5	-FM8-DU-MRS14-			19.0 (0.75)	6.4 (0.25)	19.0 (0.75)		
10	M12×1.5	-FM10-DU-MRS12-	40.7 (1.59)	12.0 (0.47)	17.2 (0.68)	19.0 (0.75)	18.0 (0.71)	6.0 (0.24)	17.0 (0.67)
	M14×1.5	-FM10-DU-MRS14-	39.5 (1.56)				19.0 (0.75)	7.9 (0.31)	19.0 (0.75)
12	M16×1.5	-FM12-DU-MRS16-	45.5 (1.79)	12.0 (0.47)	22.8 (0.90)	22.0 (0.87)	22.0 (0.87)	9.0 (0.35)	21.0 (0.83)
	M20×1.5	-FM12-DU-MRS20-	48.0 (1.89)				14.0 (0.55)	25.0 (0.98)	9.5 (0.37)
	M22×1.5	-FM12-DU-MRS22-	47.5 (1.87)	27.0 (1.06)				8.0 (0.31)	27.0 (1.06)
14	M14×1.5	-FM14-DU-MRS14-	44.9 (1.77)	12.0 (0.47)	24.4 (0.96)	25.0 (0.98)	24.0 (0.94)	11.1 (0.44)	19.0 (0.75)
	M20×1.5	-FM14-DU-MRS20-	48.0 (1.89)	14.0 (0.55)			27.0 (1.06)	12.0 (0.47)	25.0 (0.98)
16	M20×1.5	-FM16-DU-MRS20-	48.0 (1.89)	14.0 (0.55)	24.4 (0.96)	25.0 (0.98)	25.0 (0.98)	12.0 (0.47)	25.0 (0.98)
18	M20×1.5	-FM18-DU-MRS20-	48.5 (1.91)	14.0 (0.55)	24.4 (0.96)	30.0 (1.18)	27.0 (1.06)	12.0 (0.47)	25.0 (0.98)
20	M20×1.5	-FM20-DU-MRS20-	50.0 (1.97)	14.0 (0.55)	26.0 (1.02)	32.0 (1.26)	30.0 (1.18)	12.0 (0.47)	25.0 (0.98)
22	M24×1.5	-FM22-DU-MRS24-	50.5 (1.99)	14.0 (0.55)	26.0 (1.02)	32.0 (1.26)	30.0 (1.18)	15.0 (0.59)	28.8 (1.13)
25	M27×2	-FM25-DU-MRS27-	57.5 (2.26)	16.0 (0.63)	31.3 (1.23)	38.0 (1.50)	35.0 (1.38)	16.8 (0.66)	32.0 (1.26)

Straight Fittings

Male Connectors

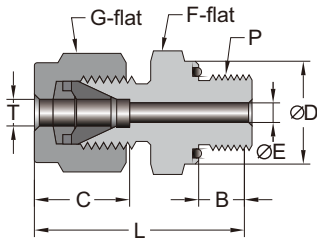


Adapt to straight thread boss of ISO 6149-1.

Metric Thread (MST)

Tube Size T	MST Size P	Basic Ordering Number	Dimensions					
			L	B	C	G	F	E
Dimensions, in. (mm)								
1/4	M14×1.5	-FF4-DU-MST14-	1.39 (35.2)	0.43 (11.0)	0.60 (15.2)	0.56 (14.3)	0.75 (19.1)	0.19 (4.8)
3/8	M14×1.5	-FF6-DU-MST14-	1.44 (36.7)	0.43 (11.0)	0.66 (16.8)	0.69 (17.5)	0.75 (19.1)	0.28 (7.1)
	M20×1.5	-FF6-DU-MST20-	1.62 (41.2)	0.55 (14.0)			1.06 (27.0)	
1/2	M14×1.5	-FF8-DU-MST14-	1.58 (40.2)	0.43 (11.0)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.30 (7.5)
	M20×1.5	-FF8-DU-MST20-	1.73 (44.0)	0.55 (14.0)			1.06 (27.0)	0.41 (10.4)
Dimensions, mm (in.)								
6	M14×1.5	-FM6-DU-MST14-	38.7 (1.52)	11.0 (0.43)	15.3 (0.60)	14.0 (0.55)	19.0 (0.75)	4.8 (0.19)
10	M14×1.5	-FM10-DU-MST14-	40.0 (1.57)	11.0 (0.43)	17.2 (0.68)	19.0 (0.75)	19.0 (0.75)	7.5 (0.30)
	M20×1.5	-FM10-DU-MST20-	41.2 (1.62)	14.0 (0.55)			27.0 (1.06)	7.9 (0.31)
12	M14×1.5	-FM12-DU-MST14-	40.2 (1.58)	11.0 (0.43)	22.8 (0.90)	22.0 (0.87)	22.0 (0.87)	7.5 (0.30)
	M20×1.5	-FM12-DU-MST20-	47.2 (1.86)	14.0 (0.55)			27.0 (1.06)	9.5 (0.37)

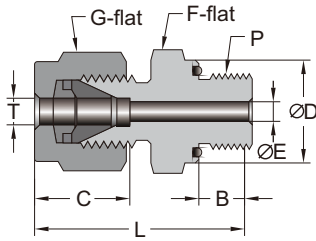
O-Seal (SAE/MS Straight Thread)



Tube Size T	SAE/MS Size P	Basic Ordering Number	Dimensions						
			L	B	C	G	F	E	D
Dimensions, in. (mm)									
1/16	5/16-24	-FF1-DU-OST5-	1.05 (35.2)	0.34 (8.6)	0.34 (8.6)	0.31 (7.9)	0.56 (14.3)	0.05 (1.37)	0.54 (14.0)
1/8	5/16-24	-FF2-DU-OST5-	1.29 (32.8)	0.34 (8.6)	0.50 (12.7)	0.44 (11.1)	0.56 (14.3)	0.09 (2.3)	0.54 (14.0)
3/16	3/8-24	-FF3-DU-OST6-	1.35 (34.3)	0.38 (9.7)	0.54 (13.7)	0.50 (12.7)	0.63 (15.9)	0.12 (3.0)	0.62 (15.7)
1/4	7/16-20	-FF4-DU-OST7-	1.51 (38.4)	0.41 (10.4)	0.60 (15.2)	0.56 (14.3)	0.75 (19.1)	0.19 (4.8)	0.74 (18.8)
5/16	1/2-20	-FF5-DU-OST8-	1.60 (40.6)	0.44 (11.2)	0.64 (16.3)	0.63 (15.9)	0.87 (22.2)	0.25 (6.4)	0.86 (21.8)
3/8	9/16-18	-FF6-DU-OST9-	1.67 (42.4)	0.47 (11.9)	0.66 (16.8)	0.69 (17.5)	0.94 (23.8)	0.28 (7.1)	0.93 (23.6)
1/2	3/4-16	-FF8-DU-OST12-	1.81 (46.0)	0.47 (11.9)	0.90 (22.9)	0.87 (22.2)	1.13 (28.6)	0.41 (10.4)	1.12 (28.4)
3/4	1-1/16-12	-FF12-DU-OST17-	2.06 (52.3)	0.56 (14.2)	0.96 (24.4)	1.13 (28.6)	1.50 (38.1)	0.62 (15.7)	1.49 (37.8)
1	1-5/16-12	-FF16-DU-OST21-	2.29 (58.2)	0.56 (14.2)	1.23 (31.2)	1.50 (38.1)	1.75 (44.5)	0.88 (22.4)	1.74 (44.2)

Straight Fittings

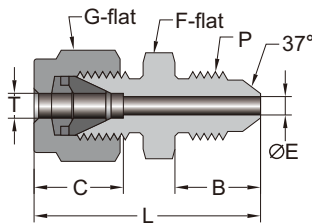
Male Connectors



O-Seal (NPT)

Tube Size T	NPT Size P	Basic Ordering Number	Dimensions						
			L	B	C	G	F	E	D
Dimensions, in. (mm)									
1/8	1/8	-FF2-DU-ONT2-	1.29 (32.8)	0.28 (7.1)	0.34 (8.6)	0.47 (11.9)	0.75 (19.1)	0.09 (2.3)	0.74 (18.8)
1/4	1/8	-FF4-DU-ONT2-	1.38 (35.1)	0.28 (7.1)	0.60 (15.2)	0.56 (14.3)	0.75 (19.1)	0.19 (4.8)	0.74 (18.8)
	1/4	-FF4-DU-ONT4-	1.51 (38.4)	0.38 (9.7)			0.94 (23.8)		0.93 (23.6)
3/8	1/4	-FF6-DU-ONT4-	1.57 (39.9)	0.38 (9.7)	0.66 (16.8)	0.69 (17.5)	0.94 (23.8)	0.28 (7.1)	0.93 (23.6)
	3/8	-FF6-DU-ONT6-	1.63 (41.4)	0.41 (10.4)			1.13 (28.6)		1.12 (28.4)
	1/2	-FF6-DU-ONT8-	1.85 (47.0)	0.53 (13.5)			1.31 (33.3)		1.30 (33.0)
1/2	1/2	-FF8-DU-ONT8-	1.96 (49.8)	0.53 (13.5)	0.90 (22.9)	0.87 (22.2)	1.31 (33.3)	0.41 (10.4)	1.30 (33.0)

Male Connectors

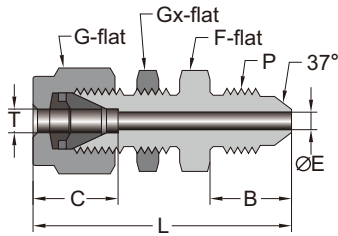


AN (37° Flare)

Tube Size T	AN Flare Size P	Basic Ordering Number	Dimensions					
			L	B	C	G	F	E
Dimensions, in. (mm)								
1/16	1/8	-FF1-DU-AN2-	1.07 (27.2)	0.45 (11.4)	0.34 (8.6)	0.31 (7.9)	0.44 (11.1)	0.05 (1.3)
1/8	1/8	-FF2-DU-AN2-	1.27 (32.3)	0.45 (11.4)	0.50 (12.7)	0.44 (11.1)	0.44 (11.1)	0.06 (1.5)
	1/4	-FF2-DU-AN4-	1.38 (35.1)	0.55 (14.0)			0.50 (12.7)	0.09 (2.3)
3/16	3/16	-FF3-DU-AN3-	1.32 (33.5)	0.48 (12.2)	0.54 (13.7)	0.50 (12.7)	0.44 (11.1)	0.12 (3.0)
1/4	1/4	-FF4-DU-AN4-	1.48 (37.6)	0.55 (14.0)	0.60 (15.2)	0.56 (14.3)	0.50 (12.7)	0.17 (4.3)
5/16	5/16	-FF5-DU-AN5-	1.51 (38.4)	0.55 (14.0)	0.64 (16.2)	0.63 (15.9)	0.50 (12.7)	0.23 (5.8)
3/8	1/4	-FF6-DU-AN4-	1.56 (39.6)	0.55 (14.0)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.17 (4.3)
	3/8	-FF6-DU-AN6-		0.56 (14.1)				0.28 (7.1)
1/2	1/2	-FF8-DU-AN8-	1.81 (46.0)	0.66 (16.7)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.39 (9.9)
5/8	5/8	-FF10-DU-AN10-	1.93 (49.0)	0.76 (19.3)	0.96 (24.5)	1.00 (25.4)	0.94 (23.8)	0.48 (12.3)
3/4	3/4	-FF12-DU-AN12-	2.10 (53.3)	0.86 (21.9)	0.96 (24.5)	1.13 (28.6)	1.13 (28.6)	0.61 (15.5)
1	1	-FF16-DU-AN16-	2.42 (61.5)	0.91 (23.1)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.84 (21.3)

Straight Fittings

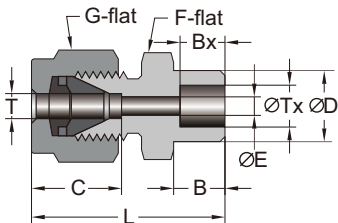
Male Connectors



Bulkhead AN (37° Flare)

Tube Size T	AN Flare Size P	Basic Ordering Number	Dimensions							Panel Hole Size	Max Panel Thickness
			L	B	C	G	Gx	F	E		
Dimensions, in. (mm)											
1/8	1/8	-FF2-DBU-AN2-	1.91 (48.5)	0.45 (11.4)	0.50 (12.7)	0.44 (11.1)	0.50 (12.7)	0.50 (12.7)	0.06 (1.5)	0.33 (8.3)	0.50 (12.7)
	1/4	-FF2-DBU-AN4-	2.04 (51.8)	0.55 (14.0)				0.63 (15.9)	0.09 (2.3)		
3/16	3/16	-FF3-DBU-AN3-	1.98 (50.3)	0.48 (12.2)	0.54 (13.7)	0.50 (12.7)	0.56 (14.3)	0.56 (14.3)	0.12 (3.0)	0.39 (9.9)	0.50 (12.7)
1/4	1/4	-FF4-DBU-AN4-	2.12 (53.8)	0.55 (14.0)	0.60 (15.2)	0.56 (14.3)	0.63 (15.9)	0.63 (15.9)	0.17 (4.3)	0.45 (11.5)	0.40 (10.2)
5/16	5/16	-FF5-DBU-AN5-	2.21 (56.1)	0.55 (14.0)	0.64 (16.2)	0.63 (15.9)	0.69 (17.5)	0.69 (17.5)	0.23 (5.8)	0.52 (13.1)	0.56 (14.3)
3/8	1/4	-FF6-DBU-AN4-	2.25 (57.2)	0.55 (14.0)	0.66 (16.8)	0.69 (17.5)	0.75 (19.1)	0.75 (19.1)	0.17 (4.3)	0.58 (14.7)	0.44 (11.2)
	3/8	-FF6-DBU-AN6-		0.56 (14.1)					0.28 (7.1)		
1/2	1/2	-FF8-DBU-AN8-	2.59 (65.8)	0.66 (16.7)	0.90 (22.9)	0.87 (22.2)	0.94 (23.8)	0.94 (23.8)	0.39 (9.9)	0.76 (19.4)	0.50 (12.7)
5/8	5/8	-FF10-DBU-AN10-	2.74 (69.6)	0.76 (19.3)	0.96 (24.5)	1.00 (25.4)	1.06 (27.0)	1.06 (27.0)	0.48 (12.3)	0.89 (22.6)	0.59 (15.1)
3/4	3/4	-FF12-DBU-AN12-	3.11 (79.0)	0.86 (21.9)	0.96 (24.5)	1.13 (28.6)	1.19 (30.2)	1.19 (30.2)	0.61 (15.5)	1.02 (25.8)	0.66 (16.8)
1	1	-FF16-DBU-AN16-	3.64 (92.5)	0.91 (23.1)	1.23 (31.2)	1.50 (38.1)	1.63 (41.3)	1.63 (41.3)	0.84 (21.3)	1.33 (33.7)	0.75 (19.1)

Weld Connectors

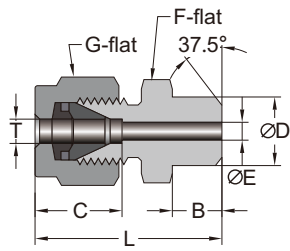


Tube Socket Weld

Tube Size T	Socket Weld Size Tx	Basic Ordering Number	Dimensions							
			L	B	C	G	F	E	Bx	D
Dimensions, in. (mm)										
1/8	1/8	-FF2-DU-TS2-	1.14 (29.0)	0.45 (11.4)	0.50 (12.7)	0.44 (11.1)	0.44 (11.1)	0.09 (2.3)	0.10 (2.5)	0.31 (7.9)
3/16	3/16	-FF3-DU-TS3-	1.17 (29.7)	0.45 (11.4)	0.54 (13.7)	0.50 (12.7)	0.44 (11.1)	0.13 (3.3)	0.19 (4.8)	0.42 (10.7)
1/4	1/4	-FF4-DU-TS4-	1.32 (33.5)	0.55 (14.0)	0.60 (15.2)	0.56 (14.3)	0.50 (12.7)	0.19 (4.8)	0.28 (7.1)	0.48 (12.2)
3/8	3/8	-FF6-DU-TS6-	1.48 (37.6)	0.48 (12.2)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.28 (7.1)	0.31 (7.9)	0.62 (15.7)
1/2	1/2	-FF8-DU-TS8-	1.62 (41.1)	0.55 (14.0)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.41 (10.4)	0.38 (9.7)	0.73 (18.5)
5/8	5/8	-FF10-DU-TS10-	1.65 (41.9)	0.55 (14.0)	0.96 (24.4)	1.00 (25.4)	0.94 (23.9)	0.50 (12.7)	0.41 (10.4)	0.92 (23.4)
3/4	3/4	-FF12-DU-TS12-	1.71 (43.4)	0.55 (14.0)	0.96 (24.4)	1.13 (28.6)	1.06 (27.0)	0.62 (15.7)	0.44 (11.1)	1.05 (26.7)
1	1	-FF16-DU-TS16-	2.07 (52.6)	0.56 (14.1)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.88 (22.4)	0.62 (15.7)	1.36 (34.5)

Straight Fittings

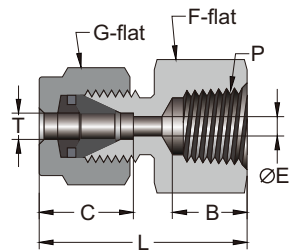
Weld Connectors *Pipe Butt Weld*



The nominal wall thickness of pipe welding ends is SCH80.

Tube Size T	Pipe Size Tx	Basic Ordering Number	Dimensions							
			L	B	C	G	F	E	D	
Dimensions, in. (mm)										
1/8	1/8	-FF2-DU-PB2-	1.20 (30.5)	0.38 (9.7)	0.50 (12.7)	0.44 (11.1)	0.44 (11.1)	0.09 (2.3)	0.41 (10.4)	
3/16	1/8	-FF3-DU-PB2-	1.23 (31.2)	0.38 (9.7)	0.54 (13.7)	0.50 (12.7)	0.44 (11.1)	0.12 (3.0)	0.41 (10.4)	
1/4	1/8	-FF4-DU-PB2-	1.29 (32.8)	0.38 (9.7)	0.60 (15.2)	0.56 (14.3)	0.50 (12.7)	0.19 (4.8)	0.41 (10.4)	
	1/4	-FF4-DU-PB4-	1.49 (37.8)	0.56 (14.1)			0.56 (14.1)		0.54 (13.7)	
5/16	1/8	-FF5-DU-PB2-	1.34 (34.0)	0.38 (9.7)	0.64 (16.2)	0.63 (15.9)	0.56 (14.1)	0.21 (5.3)	0.41 (10.4)	
	1/4	-FF5-DU-PB4-	1.52 (38.6)	0.56 (14.1)				0.25 (6.4)	0.54 (13.7)	
3/8	1/4	-FF6-DU-PB4-	1.57 (39.9)	0.56 (14.1)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.28 (7.1)	0.54 (13.7)	
	3/8	-FF6-DU-PB6-					0.69 (17.5)		0.67 (17.1)	
	1/2	-FF6-DU-PB8-	1.82 (46.2)	0.75 (19.1)			0.87 (22.2)		0.84 (21.3)	
	3/4	-FF6-DU-PB12-	1.88 (47.8)				1.06 (27.0)		1.05 (26.7)	
1/2	3/8	-FF8-DU-PB6-	1.71 (43.4)	0.56 (14.1)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.41 (10.4)	0.67 (17.1)	
	1/2	-FF8-DU-PB8-	1.93 (49.0)	0.75 (19.1)					0.87 (22.2)	0.84 (21.3)
	3/4	-FF8-DU-PB12-	1.99 (50.5)						1.06 (27.0)	1.05 (26.7)
5/8	1/2	-FF10-DU-PB8-	1.93 (49.0)	0.75 (19.1)	0.96 (24.4)	1.00 (25.4)	0.94 (23.8)	0.50 (12.7)	0.84 (21.3)	
3/4	1/2	-FF12-DU-PB8-	1.99 (50.5)	0.75 (19.1)	0.96 (24.4)	1.13 (28.6)	1.06 (27.0)	0.55 (14.0)	0.84 (21.3)	
	3/4	-FF12-DU-PB12-						0.62 (15.7)	1.05 (26.7)	
1	1	-FF16-DU-PB16-	2.45 (62.2)	0.94 (23.9)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.88 (22.4)	1.31 (33.4)	
1-1/4	1-1/4	-FF20-DU-PB20-	3.04 (77.2)	0.94 (23.9)	1.62 (41.1)	1.87 (47.6)	1.75 (44.5)	1.09 (27.7)	1.66 (42.2)	
1-1/2	1-1/2	-FF24-DU-PB24-	3.50 (88.9)	1.03 (26.2)	1.97 (50.0)	2.25 (57.2)	2.13 (54.0)	1.34 (34.0)	1.90 (48.3)	

Female Connectors *NPT*

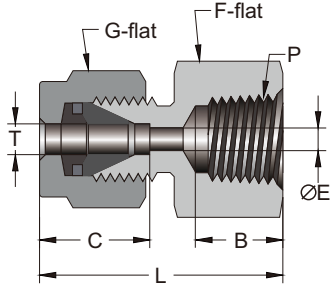


Tube Size T	NPT Size P	Basic Ordering Number	Dimensions					
			L	B	C	G	F	E
Dimensions, in. (mm)								
1/16	1/16	-FF1-DU-FNT1-	0.93 (23.6)	0.39 (9.9)	0.34 (8.6)	0.31 (7.9)	0.44 (11.1)	0.05 (1.3)
	1/8	-FF1-DU-FNT2-	0.96 (24.4)	0.41 (10.4)			0.56 (14.3)	0.05 (1.3)
1/8	1/8	-FF2-DU-FNT2-	1.13 (28.6)	0.41 (10.4)	0.50 (12.7)	0.44 (11.1)	0.56 (14.3)	0.09 (2.3)
	1/4	-FF2-DU-FNT4-	1.32 (33.5)	0.59 (15.0)			0.75 (19.1)	
3/16	1/8	-FF3-DU-FNT2-	1.17 (29.7)	0.41 (10.4)	0.54 (13.7)	0.50 (12.7)	0.56 (14.3)	0.12 (3.0)
1/4	1/8	-FF4-DU-FNT2-	1.23 (31.2)	0.41 (10.4)	0.60 (15.2)	0.56 (14.3)	0.56 (14.3)	0.19 (4.8)
	1/4	-FF4-DU-FNT4-	1.41 (35.8)	0.59 (15.0)			0.75 (19.1)	
	3/8	-FF4-DU-FNT6-	1.48 (37.6)				0.87 (22.2)	
	1/2	-FF4-DU-FNT8-	1.67 (42.4)	0.78 (19.8)			1.06 (27.0)	
5/16	1/8	-FF5-DU-FNT2-	1.26 (32.0)	0.41 (10.4)	0.64 (16.2)	0.63 (15.9)	0.56 (14.3)	0.25 (6.4)
	1/4	-FF5-DU-FNT4-	1.45 (36.8)	0.59 (15.0)			0.75 (19.1)	
3/8	1/8	-FF6-DU-FNT2-	1.29 (32.8)	0.41 (10.4)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.28 (7.1)
	1/4	-FF6-DU-FNT4-	1.48 (37.6)	0.59 (15.0)			0.75 (19.1)	
	3/8	-FF6-DU-FNT6-	1.54 (39.1)				0.87 (22.2)	
	1/2	-FF6-DU-FNT8-	1.73 (43.9)	0.78 (19.8)			1.06 (27.0)	
	3/4	-FF6-DU-FNT12-	1.88 (47.8)	0.81 (20.6)			1.31 (33.3)	

Straight Fittings

Female Connectors

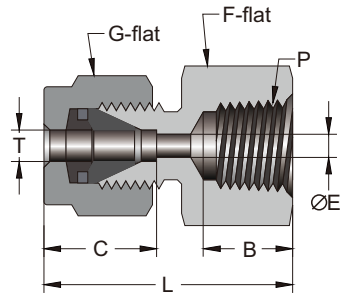
NPT



Tube Size T	NPT Size P	Basic Ordering Number	Dimensions					
			L	B	C	G	F	E
Dimensions, in. (mm)								
1/2	1/4	-FF8-DU-FNT4-	1.59 (40.4)	0.59 (15.0)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.41 (10.4)
	3/8	-FF8-DU-FNT6-	1.65 (41.9)				0.87 (22.2)	
	1/2	-FF8-DU-FNT8-	1.84 (46.7)	0.78 (19.8)			1.06 (27.0)	
	3/4	-FF8-DU-FNT12-	1.90 (48.3)	0.81 (20.6)			1.31 (33.3)	
5/8	3/8	-FF10-DU-FNT6-	1.65 (41.9)	0.59 (15.0)	0.96 (24.4)	1.00 (25.4)	0.94 (23.8)	0.50 (12.7)
	1/2	-FF10-DU-FNT8-	1.84 (46.7)	0.78 (19.8)			1.06 (27.0)	
3/4	1/2	-FF12-DU-FNT8-	1.84 (46.7)	0.78 (19.8)	0.96 (24.4)	1.13 (28.6)	1.06 (27.0)	0.62 (15.7)
	3/4	-FF12-DU-FNT12-	1.90 (48.3)	0.81 (20.6)			1.31 (33.3)	
7/8	3/4	-FF14-DU-FNT12-	1.96 (49.8)	0.81 (20.6)	1.02 (25.9)	1.25 (31.8)	1.31 (33.3)	0.72 (18.3)
1	3/4	-FF16-DU-FNT12-	2.10 (53.3)	0.81 (20.6)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.88 (22.4)
	1	-FF16-DU-FNT16-	2.45 (62.2)	1.00 (25.4)			1.63 (41.3)	
1-1/4	1-1/4	-FF20-DU-FNT20-	2.94 (74.7)	1.00 (25.4)	1.62 (41.1)	1.87 (47.6)	2.13 (54.0)	1.09 (27.7)
1-1/2	1-1/2	-FF24-DU-FNT24-	3.30 (83.8)	1.09 (27.7)	1.97 (50.0)	2.25 (57.2)	2.37 (60.3)	1.34 (34.0)
Dimensions, mm (in.)								
3	1/8	-FM3-DU-FNT2-	28.7 (1.13)	10.4 (0.41)	12.9 (0.51)	12.0 (0.47)	14.0 (0.55)	2.4 (0.09)
	1/4	-FM3-DU-FNT4-	33.5 (1.32)	15.0 (0.59)			19.0 (0.75)	
4	1/8	-FM4-DU-FNT2-	29.7 (1.17)	10.4 (0.41)	15.3 (0.60)	14.0 (0.55)	14.0 (0.55)	2.4 (0.09)
6	1/4	-FM6-DU-FNT4-	35.8 (1.41)	15.0 (0.59)			19.0 (0.75)	
	3/8	-FM6-DU-FNT6-	37.7 (1.48)	19.8 (0.78)	22.0 (0.87)	4.8 (0.19)		
	1/2	-FM6-DU-FNT8-	42.5 (1.67)		27.0 (1.06)			
8	1/8	-FM8-DU-FNT2-	32.1 (1.26)	10.4 (0.41)	16.2 (0.64)	16.0 (0.63)	15.0 (0.59)	6.4 (0.25)
	1/4	-FM8-DU-FNT4-	37.0 (1.46)	15.0 (0.59)			19.0 (0.75)	
	3/8	-FM8-DU-FNT6-	38.5 (1.52)	19.8 (0.78)			22.0 (0.87)	
	1/2	-FM8-DU-FNT8-	43.3 (1.70)				27.0 (1.06)	
10	1/8	-FM10-DU-FNT2-	33.0 (1.30)	10.4 (0.41)	17.2 (0.68)	19.0 (0.75)	18.0 (0.71)	7.9 (0.31)
	1/4	-FM10-DU-FNT4-	37.8 (1.49)	15.0 (0.59)			19.0 (0.75)	
	3/8	-FM10-DU-FNT6-	39.4 (1.55)	19.8 (0.78)			22.0 (0.87)	
	1/2	-FM10-DU-FNT8-	44.2 (1.74)				27.0 (1.06)	
12	1/4	-FM12-DU-FNT4-	40.3 (1.59)	15.0 (0.59)	22.8 (0.90)	22.0 (0.87)	22.0 (0.87)	9.5 (0.37)
	3/8	-FM12-DU-FNT6-	41.9 (1.65)	19.8 (0.78)			27.0 (1.06)	
	1/2	-FM12-DU-FNT8-	46.7 (1.84)				20.6 (0.81)	
	3/4	-FM12-DU-FNT12-	49.1 (1.93)	20.6 (0.81)				
14	3/4	-FM14-DU-FNT12-	49.7 (1.96)	20.6 (0.81)	24.4 (0.96)	25.0 (0.98)	35.0 (1.38)	11.1 (0.44)
15	1/2	-FM15-DU-FNT8-	46.7 (1.84)	19.8 (0.78)	24.4 (0.96)	25.0 (0.98)	27.0 (1.06)	11.9 (0.47)
16	3/8	-FM16-DU-FNT6-	41.9 (1.65)	15.0 (0.59)	24.4 (0.96)	25.0 (0.98)	27.0 (1.06)	12.7 (0.50)
	1/2	-FM16-DU-FNT8-	46.9 (1.85)	19.8 (0.78)				
20	1/2	-FM20-DU-FNT8-	47.9 (1.89)	19.8 (0.78)	26.0 (1.02)	32.0 (1.26)	30.0 (1.18)	15.9 (0.63)
	3/4	-FM20-DU-FNT12-	49.7 (1.96)	20.6 (0.81)			35.0 (1.38)	
22	3/4	-FM22-DU-FNT12-	49.7 (1.96)	20.6 (0.81)	26.0 (1.02)	32.0 (1.26)	35.0 (1.38)	18.3 (0.72)
	1	-FM22-DU-FNT16-	57.9 (2.28)	25.4 (1.00)			41.0 (1.61)	
25	3/4	-FM25-DU-FNT12-	53.4 (2.10)	20.6 (0.81)	31.3 (1.23)	38.0 (1.50)	35.0 (1.38)	21.8 (0.86)
	1	-FM25-DU-FNT16-	62.3 (2.45)	25.4 (1.00)			41.0 (1.61)	

Straight Fittings

Female Connectors



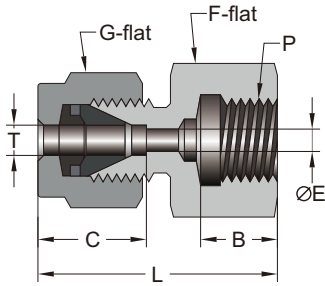
ISO/BSP Tapered Thread (RT)

Tube Size T	RT Size P	Basic Ordering Number	Dimensions					
			L	B	C	G	F	E
Dimensions, in. (mm)								
1/4	1/8	-FF4-DU-FRT2-	1.23 (31.2)	0.41 (10.4)	0.60 (15.2)	0.56 (14.3)	0.56 (14.3)	0.19 (4.8)
	1/4	-FF4-DU-FRT4-	1.41 (35.8)	0.59 (15.0)			0.75 (19.1)	
	3/8	-FF4-DU-FRT6-	1.48 (37.6)				0.87 (22.2)	
	1/2	-FF4-DU-FRT8-	1.67 (42.4)	0.78 (19.8)			1.06 (27.0)	
3/8	1/4	-FF6-DU-FRT4-	1.48 (37.6)	0.59 (15.0)	0.66 (16.8)	0.69 (17.5)	0.75 (19.1)	0.28 (7.1)
	3/8	-FF6-DU-FRT6-	1.54 (39.1)				0.87 (22.2)	
	1/2	-FF6-DU-FRT8-	1.73 (43.9)				1.06 (27.0)	
1/2	1/4	-FF8-DU-FRT4-	1.59 (40.4)	0.59 (15.0)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.41 (10.4)
	3/8	-FF8-DU-FRT6-	1.65 (41.9)				0.87 (22.2)	
	1/2	-FF8-DU-FRT8-	1.84 (46.7)				1.06 (27.0)	
Dimensions, mm (in.)								
3	1/8	-FM3-DU-FRT2-	28.7 (1.13)	10.4 (0.41)	12.9 (0.51)	12.0 (0.47)	14.0 (0.55)	2.4 (0.09)
6	1/8	-FM6-DU-FRT2-	31.3 (1.23)	10.4 (0.41)	15.3 (0.60)	14.0 (0.55)	14.0 (0.55)	4.8 (0.19)
	1/4	-FM6-DU-FRT4-	35.8 (1.41)	15.0 (0.59)			19.0 (0.75)	
	3/8	-FM6-DU-FRT6-	37.9 (1.49)				22.0 (0.87)	
	1/2	-FM6-DU-FRT8-	42.5 (1.67)	19.8 (0.78)			27.0 (1.06)	
8	1/8	-FM8-DU-FRT2-	32.1 (1.26)	10.4 (0.41)	16.2 (0.64)	16.0 (0.63)	15.0 (0.59)	6.4 (0.25)
	1/4	-FM8-DU-FRT4-	37.0 (1.46)	15.0 (0.59)			19.0 (0.75)	
	3/8	-FM8-DU-FRT6-	38.5 (1.52)				22.0 (0.87)	
	1/2	-FM8-DU-FRT8-	43.3 (1.70)	19.8 (0.78)			27.0 (1.06)	
10	1/8	-FM10-DU-FRT2-	33.0 (1.30)	10.4 (0.41)	17.2 (0.68)	19.0 (0.75)	18.0 (0.71)	7.9 (0.31)
	1/4	-FM10-DU-FRT4-	37.8 (1.49)	15.0 (0.59)			19.0 (0.75)	
	3/8	-FM10-DU-FRT6-	39.4 (1.55)				22.0 (0.87)	
	1/2	-FM10-DU-FRT8-	44.2 (1.74)	19.8 (0.78)			27.0 (1.06)	
12	1/8	-FM12-DU-FRT2-	35.5 (1.40)	10.4 (0.41)	22.8 (0.90)	22.0 (0.87)		8.3 (0.33)
	1/4	-FM12-DU-FRT4-	40.3 (1.59)	15.0 (0.59)			22.0 (0.87)	9.5 (0.37)
	3/8	-FM12-DU-FRT6-	41.9 (1.65)				27.0 (1.06)	
	1/2	-FM12-DU-FRT8-	46.7 (1.84)	19.8 (0.78)			35.0 (1.38)	
	3/4	-FM12-DU-FRT12-	49.0 (1.93)	20.6 (0.81)				
15	1/2	-FM15-DU-FRT8-	46.7 (1.84)	19.8 (0.78)	24.4 (0.96)	25.0 (0.98)	27.0 (1.06)	
16	1/2	-FM16-DU-FRT8-	48.4 (1.91)	19.8 (0.78)	24.4 (0.96)	25.0 (0.98)	27.0 (1.06)	12.7 (0.50)
	3/4	-FM16-DU-FRT12-	49.7 (1.96)	20.6 (0.81)			35.0 (1.38)	
20	1/2	-FM20-DU-FRT8-	47.9 (1.89)	19.8 (0.78)	26.0 (1.02)	32.0 (1.26)	30.0 (1.18)	15.9 (0.63)
	3/4	-FM20-DU-FRT12-	49.7 (1.96)	20.6 (0.81)			35.0 (1.38)	
22	3/4	-FM22-DU-FRT12-	49.7 (1.96)	20.6 (0.81)	26.0 (1.02)	32.0 (1.26)	35.0 (1.38)	18.3 (0.72)
	1	-FM22-DU-FRT16-	57.9 (2.28)	25.4 (1.00)			41.0 (1.61)	
25	3/4	-FM25-DU-FRT12-	53.4 (2.10)	20.6 (0.81)	31.3 (1.23)	38.0 (1.50)	35.0 (1.38)	21.8 (0.86)
	1	-FM25-DU-FRT16-	62.3 (2.45)	25.4 (1.00)			41.0 (1.61)	

Straight Fittings

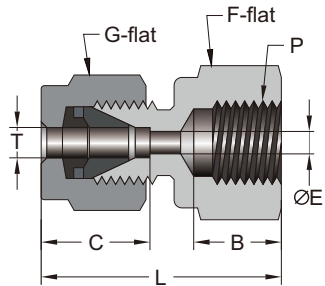
Female Connectors

ISO/BSP Parallel Thread (RJ)



Tube Size T	RJ Size P	Basic Ordering Number	Dimensions					
			L	B	C	G	F	E
Dimensions, in. (mm)								
1/4	1/4	-FF4-DU-FRJ4-	1.48 (37.6)	0.51 (12.9)	0.60 (15.2)	0.56 (14.3)	0.75 (19.1)	0.18 (4.6)
	3/8	-FF4-DU-FRJ6-	1.48 (37.6)	0.62 (15.7)			0.94 (23.8)	0.19 (4.8)
	1/2	-FF4-DU-FRJ8-	1.71 (43.4)	0.74 (18.8)			1.06 (27.0)	
5/16	1/4	-FF5-DU-FRJ4-	1.51 (38.4)	0.51 (12.9)	0.64 (16.2)	0.63 (15.9)	0.75 (19.1)	0.22 (5.6)
	1/2	-FF5-DU-FRJ8-	1.61 (40.9)	0.74 (18.8)			1.06 (27.0)	0.28 (7.1)
3/8	1/4	-FF6-DU-FRJ4-	1.54 (39.1)	0.51 (12.9)	0.66 (16.8)	0.69 (17.5)	0.75 (19.1)	0.22 (5.6)
	3/8	-FF6-DU-FRJ6-	1.52 (38.6)	0.62 (15.7)			0.94 (23.8)	0.25 (6.4)
	1/2	-FF6-DU-FRJ8-	1.65 (41.9)	0.74 (18.8)			1.06 (27.0)	
1/2	1/4	-FF8-DU-FRJ4-	1.65 (41.9)	0.51 (12.9)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.22 (5.6)
	3/8	-FF8-DU-FRJ6-	1.75 (44.5)	0.62 (15.7)			0.94 (23.8)	0.25 (6.4)
	1/2	-FF8-DU-FRJ8-	1.90 (48.3)	0.74 (18.8)			1.06 (27.0)	
Dimensions, mm (in.)								
6	1/4	-FM6-DU-FRJ4-	37.6(1.48)	12.9 (0.51)	15.3 (0.60)	14.0 (0.55)	19.0 (0.75)	4.8 (0.19)
	3/8	-FM6-DU-FRJ6-		15.8 (0.62)			24.0 (0.94)	
	1/2	-FM6-DU-FRJ8-		18.8 (0.74)			27.0 (1.06)	
8	1/4	-FM8-DU-FRJ4-	38.5 (1.52)	12.9 (0.51)	16.2 (0.64)	16.0 (0.63)	19.0 (0.75)	5.5 (0.22)
	3/8	-FM8-DU-FRJ6-	36.2 (1.43)	15.8 (0.62)			24.0 (0.94)	6.5 (0.26)
	1/2	-FM8-DU-FRJ8-	41.0 (1.61)	18.8 (0.74)			27.0 (1.06)	7.0 (0.28)
10	1/4	-FM10-DU-FRJ4-	39.4 (1.55)	12.9 (0.51)	17.2 (0.68)	19.0 (0.75)	19.0 (0.75)	5.5 (0.22)
	3/8	-FM10-DU-FRJ6-	38.8 (1.53)	15.8 (0.62)			24.0 (0.94)	6.5 (0.26)
	1/2	-FM10-DU-FRJ8-	42.1 (1.66)	18.8 (0.74)			27.0 (1.06)	7.0 (0.28)
12	1/4	-FM12-DU-FRJ4-	41.9 (1.65)	12.9 (0.51)	22.8 (0.90)	22.0 (0.87)	22.0 (0.87)	5.5 (0.22)
	3/8	-FM12-DU-FRJ6-	44.4 (1.75)	15.8 (0.62)			24.0 (0.94)	6.5 (0.26)
	1/2	-FM12-DU-FRJ8-	48.2 (1.90)	18.8 (0.74)			27.0 (1.06)	7.0 (0.28)

ISO/BSP Parallel Thread (RP)

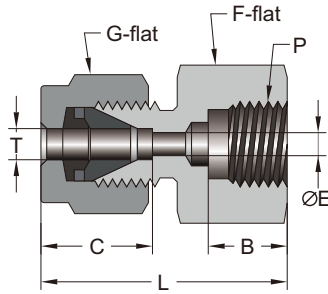


Tube Size T	RP Size P	Basic Ordering Number	Dimensions					
			L	B	C	G	F	E
Dimensions, mm (in.)								
6	1/8	-FM6-DU-FRP2-	33.5 (1.32)	10.5 (0.41)	15.3 (0.60)	14.0 (0.55)	14.0 (0.55)	4.8 (0.19)
	1/4	-FM6-DU-FRP4-	39.4 (1.55)	15.5 (0.61)			19.0 (0.75)	
22	3/4	-FM22-DU-FRP12-	53.5 (2.10)	20.5 (0.81)	26.0 (1.02)	32.0 (1.26)	35.0 (1.38)	18.3 (0.72)
25	1	-FM25-DU-FRP16-	63.9 (2.52)	23.5 (0.93)	31.3 (1.23)	38.0 (1.50)	40.0 (1.57)	21.8 (0.86)

Straight Fittings

Female Connectors

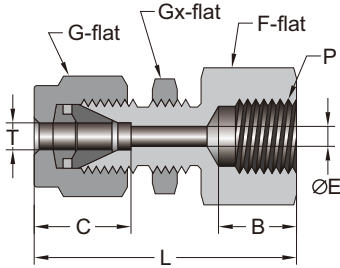
ISO/BSP Parallel Thread (RG, Gauge)



Tube Size T	RG Size P	Basic Ordering Number	Dimensions					
			L	B	C	G	F	E
Dimensions, in. (mm)								
1/8	1/4	-FF2-DU-FRG4-	1.39 (35.3)	0.51 (12.9)	0.50 (12.7)	0.44 (11.1)	0.75 (19.1)	0.09 (2.3)
	3/8	-FF2-DU-FRG6-	1.52 (38.6)	0.56 (14.2)			0.94 (23.8)	
1/4	1/4	-FF4-DU-FRG4-	1.48 (37.6)	0.51 (12.9)	0.60 (15.2)	0.56 (14.3)	0.75 (19.1)	0.19 (4.8)
	3/8	-FF4-DU-FRG6-		0.56 (14.2)			0.94 (23.8)	
	1/2	-FF4-DU-FRG8-	1.71 (43.4)	0.74 (18.8)			1.06 (27.0)	
5/16	1/4	-FF5-DU-FRG4-	1.51 (38.4)	0.51 (12.9)	0.64 (16.2)	0.63 (15.9)	0.75 (19.1)	0.22 (5.6)
	3/8	-FF5-DU-FRG6-	1.45 (36.9)	0.56 (14.2)			0.94 (23.8)	0.25 (6.4)
	1/2	-FF5-DU-FRG8-	1.61 (40.9)	0.74 (18.8)			1.06 (27.0)	0.28 (7.1)
3/8	1/4	-FF6-DU-FRG4-	1.54 (39.1)	0.51 (12.9)	0.50 (12.7)	0.44 (11.1)	0.75 (19.1)	0.22 (5.6)
	3/8	-FF6-DU-FRG6-	1.52 (38.6)	0.56 (14.2)			0.94 (23.8)	0.25 (6.4)
	1/2	-FF6-DU-FRG8-	1.65 (41.9)	0.74 (18.8)			1.06 (27.0)	0.28 (7.1)
1/2	1/4	-FF8-DU-FRG4-	1.65 (41.9)	0.51 (12.9)	0.60 (15.2)	0.56 (14.3)	0.87 (22.2)	0.22 (5.6)
	3/8	-FF8-DU-FRG6-	1.75 (44.5)	0.56 (14.2)			0.94 (23.8)	0.25 (6.4)
	1/2	-FF8-DU-FRG8-	1.90 (48.3)	0.74 (18.8)			1.06 (27.0)	0.28 (7.1)
Dimensions, mm (in.)								
3	1/4	-FM3-DU-FRG4-	35.3 (1.39)	12.9 (0.51)	12.9 (0.51)	12.0 (0.47)	19.0 (0.75)	2.4 (0.09)
6	1/4	-FM6-DU-FRG4-	37.6 (1.48)	12.9 (0.51)	15.3 (0.60)	14.0 (0.55)	19.0 (0.75)	4.8 (0.19)
	3/8	-FM6-DU-FRG6-		14.2 (0.56)			24.0 (0.94)	
	1/2	-FM6-DU-FRG8-		18.8 (0.74)			27.0 (1.06)	
8	1/4	-FM8-DU-FRG4-	38.5 (1.52)	12.9 (0.51)	16.2 (0.64)	16.0 (0.63)	19.0 (0.75)	5.5 (0.22)
	3/8	-FM8-DU-FRG6-	36.2 (1.43)	14.2 (0.56)			24.0 (0.94)	6.4 (0.25)
	1/2	-FM8-DU-FRG8-	41.0 (1.61)	18.8 (0.74)			27.0 (1.06)	6.4 (0.25)
10	1/4	-FM10-DU-FRG4-	39.4 (1.55)	12.9 (0.51)	17.2 (0.68)	19.0 (0.75)	19.0 (0.75)	5.5 (0.22)
	3/8	-FM10-DU-FRG6-	38.8 (1.53)	14.2 (0.56)			24.0 (0.94)	6.4 (0.25)
	1/2	-FM10-DU-FRG8-	42.1 (1.66)	18.8 (0.74)			27.0 (1.06)	7.9 (0.31)
12	1/4	-FM12-DU-FRG4-	41.9 (1.65)	12.9 (0.51)	22.8 (0.90)	22.0 (0.87)	22.0 (0.87)	5.5 (0.22)
	3/8	-FM12-DU-FRG6-	44.4 (1.75)	14.2 (0.56)			24.0 (0.94)	6.4 (0.25)
	1/2	-FM12-DU-FRG8-	48.2 (1.90)	18.8 (0.74)			27.0 (1.06)	7.1 (0.28)
20	1/2	-FM20-DU-FRG8-	54.3 (2.14)	18.8 (0.74)	26.0 (1.02)	32.0 (1.26)	30.0 (1.18)	7.1 (0.28)
22	1/2	-FM22-DU-FRG8-	54.3 (2.14)	18.8 (0.74)	26.0 (1.02)	32.0 (1.26)	30.0 (1.18)	7.1 (0.28)

Straight Fittings

Female Connectors

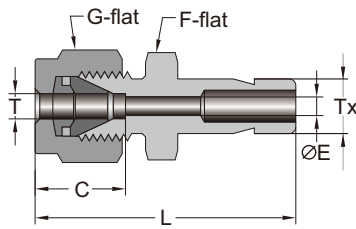


Bulkhead NPT

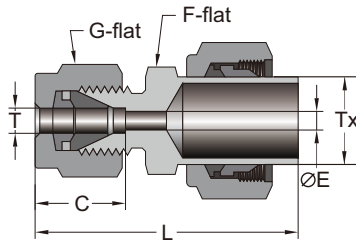
Tube Size T	NPT Size Tx	Basic Ordering Number	Dimensions							Panel Hole Size	Max Panel Thickness
			L	B	C	E	G	Gx	F		
Dimensions, in. (mm)											
1/16	1/16	-FF1-DBU-FNT1-	1.19 (30.2)	0.39 (9.9)	0.34 (8.6)	0.05 (1.3)	0.31 (7.9)	0.31 (7.9)	0.44 (11.1)	0.20 (5.2)	0.13 (3.2)
	1/8	-FF1-DBU-FNT2-	1.20 (30.7)	0.41 (10.4)					0.56 (14.3)		
1/8	1/8	-FF2-DBU-FNT2-	1.76 (44.7)	0.41 (10.4)	0.50 (12.7)	0.09 (2.3)	0.44 (11.1)	0.50 (12.7)	0.56 (14.3)	0.33 (8.3)	0.50 (12.7)
	1/4	-FF2-DBU-FNT4-	1.95 (49.5)	0.59 (15.0)					0.75 (19.1)		
3/16	1/8	-FF3-DBU-FNT2-	1.79 (45.5)	0.41 (10.4)	0.54 (13.7)	0.12 (3.0)	0.50 (12.7)	0.56 (14.3)	0.56 (14.3)	0.39 (9.9)	0.50 (12.7)
1/4	1/8	-FF4-DBU-FNT2-	1.85 (47.0)	0.41 (10.4)	0.60 (15.2)	0.19 (4.8)	0.56 (14.3)	0.63 (15.9)	0.63 (15.9)	0.45 (11.5)	0.40 (10.2)
	1/4	-FF4-DBU-FNT4-	2.04 (51.8)	0.59 (15.0)					0.75 (19.1)		
	3/8	-FF4-DBU-FNT6-	2.10 (53.3)	0.78 (19.8)					0.87 (22.2)		
	1/2	-FF4-DBU-FNT8-	2.29 (58.2)	0.78 (19.8)					1.06 (27.0)		
5/16	1/8	-FF5-DBU-FNT2-	1.96 (49.8)	0.41 (10.4)	0.64 (16.2)	0.25 (6.4)	0.63 (15.9)	0.69 (17.5)	0.69 (17.5)	0.52 (13.1)	0.44 (11.2)
	1/4	-FF5-DBU-FNT4-	2.38 (60.5)	0.59 (15.0)					0.75 (19.1)		
3/8	1/8	-FF6-DBU-FNT2-	1.98 (52.9)	0.41 (10.4)	0.66 (16.8)	0.28 (7.1)	0.69 (17.5)	0.75 (19.1)	0.75 (19.1)	0.58 (14.7)	0.44 (11.2)
	1/4	-FF6-DBU-FNT4-	2.17 (55.1)	0.59 (15.0)					0.87 (22.0)		
	3/8	-FF6-DBU-FNT6-	2.23 (56.6)	0.78 (19.8)					1.06 (27.0)		
	1/2	-FF6-DBU-FNT8-	2.42 (61.7)	0.78 (19.8)					1.31 (33.3)		
	3/4	-FF6-DBU-FNT12-	2.57 (65.3)	0.81 (20.6)							
1/2	1/4	-FF8-DBU-FNT4-	2.37 (60.2)	0.59 (15.0)	0.90 (22.9)	0.41 (10.4)	0.87 (22.2)	0.94 (23.8)	0.94 (23.8)	0.76 (19.4)	0.50 (12.7)
	3/8	-FF8-DBU-FNT6-	2.43 (61.7)	0.78 (19.8)					1.06 (27.0)		
	1/2	-FF8-DBU-FNT8-	2.62 (66.5)	0.78 (19.8)					1.31 (33.3)		
	3/4	-FF8-DBU-FNT12-	2.68 (68.1)	0.81 (20.6)							
5/8	3/8	-FF10-DBU-FNT6-	2.46 (62.5)	0.59 (15.0)	0.96 (24.4)	0.50 (12.7)	1.00 (25.4)	1.06 (27.0)	1.06 (27.0)	0.89 (22.6)	0.59 (15.1)
	1/2	-FF10-DBU-FNT8-	2.65 (67.3)	0.78 (19.8)							
3/4	1/2	-FF12-DBU-FNT8-	2.84 (72.2)	0.78 (19.8)	0.96 (24.4)	0.62 (15.7)	1.13 (28.6)	1.19 (30.2)	1.19 (30.2)	1.02 (25.8)	0.78 (19.8)
	3/4	-FF12-DBU-FNT12-	2.90 (73.7)	0.81 (20.6)					1.31 (33.3)		
7/8	3/4	-FF14-DBU-FNT12-	3.18 (80.8)	0.81 (20.6)	1.02 (25.9)	0.72 (18.3)	1.25 (31.8)	1.31 (33.3)	1.31 (33.3)	1.14 (29.0)	0.94 (23.8)
1	3/4	-FF16-DBU-FNT12-	3.33 (84.7)	0.81 (20.6)	1.23 (31.2)	0.88 (22.4)	1.50 (38.1)	1.63 (41.3)	1.63 (41.3)	1.33 (33.7)	0.94 (23.8)
	1	-FF16-DBU-FNT16-	3.68 (93.5)	1.00 (25.4)							
Dimensions, mm (in.)											
6	1/8	-FM6-DBU-FNT2-	47.2 (1.86)	10.4 (0.41)	15.3 (0.60)	4.8 (0.19)	14.0 (0.55)	16.0 (0.63)	16.0 (0.63)	11.5 (0.45)	10.2 (0.40)
	1/4	-FM6-DBU-FNT4-	51.8 (2.04)	15.0 (0.59)					19.0 (0.75)		
8	1/8	-FM8-DBU-FNT2-	49.6 (1.95)	10.4 (0.41)	16.2 (0.64)	6.4 (0.25)	16.0 (0.63)	18.0 (0.71)	18.0 (0.71)	13.1 (0.52)	11.2 (0.44)
10	1/4	-FM10-DBU-FNT4-	55.2 (2.17)	15.0 (0.59)	17.2 (0.68)	7.9 (0.31)	19.0 (0.75)	22.0 (0.87)	22.0 (0.87)	16.3 (0.64)	11.2 (0.44)
12	3/8	-FM12-DBU-FNT6-	62.9 (2.48)	15.0 (0.59)	22.8 (0.90)	9.5 (0.37)	22.0 (0.87)	24.0 (0.94)	24.0 (0.94)	19.5 (0.77)	12.7 (0.50)
	1/2	-FM12-DBU-FNT8-	66.5 (2.62)	19.8 (0.78)					27.0 (1.06)		

Straight Fittings

Reducers



1 in. and Under



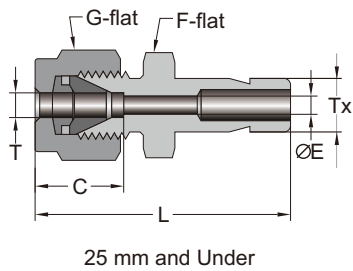
Over 1 in.

Reducer (Fractional)

Tube Size T	Tube Size Tx	Basic Ordering Number	Dimensions				
			L	C	G	F	E
Dimensions, in. (mm)							
1/16	1/8	-FF1-DU-F2T-	1.15 (29.2)	0.34 (8.6)	0.31 (7.9)	0.31 (7.9)	0.05 (1.3)
	3/16	-FF1-DU-F3T-	1.18 (30.0)				
	1/4	-FF1-DU-F4T-	1.24 (31.5)				
1/8	1/16	-FF2-DU-F1T-	1.14 (29.0)	0.50 (12.7)	0.44 (11.1)	0.44 (11.1)	0.03 (0.8)
	1/8	-FF2-DU-F2T-	1.32 (33.5)				0.08 (2.0)
	3/16	-FF2-DU-F3T-	1.35 (34.3)				0.09 (2.3)
	1/4	-FF2-DU-F4T-	1.42 (36.1)				
	3/8	-FF2-DU-F6T-	1.48 (37.6)				
	1/2	-FF2-DU-F8T-	1.74 (44.2)			0.56 (14.3)	
3/16	1/8	-FF3-DU-F2T-	1.37 (34.8)	0.54 (13.7)	0.50 (12.7)	0.44 (11.1)	0.08(2.0)
	1/4	-FF3-DU-F4T-	1.46 (37.1)				0.12 (3.0)
1/4	1/8	-FF4-DU-F2T-	1.45 (36.8)	0.60 (15.2)	0.56 (14.3)	0.50 (12.7)	0.08 (2.0)
	3/16	-FF4-DU-F3T-	1.48 (37.6)				0.12 (3.0)
	1/4	-FF4-DU-F4T-	1.54 (39.1)				0.17 (4.3)
	5/16	-FF4-DU-F5T-	1.57 (39.9)			0.19 (4.8)	
	3/8	-FF4-DU-F6T-	1.60 (40.6)				
	1/2	-FF4-DU-F8T-	1.82 (46.2)				
	5/8	-FF4-DU-F10T-	1.89 (48.0)				
	3/4	-FF4-DU-F12T-	1.88 (47.8)				
5/16	3/8	-FF5-DU-F6T-	1.65 (41.9)	0.64 (16.2)	0.63 (15.9)	0.56 (14.3)	0.25 (6.4)
	1/2	-FF5-DU-F8T-	1.87 (47.5)				
3/8	1/4	-FF6-DU-F4T-	1.63 (41.4)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.17 (4.3)
	3/8	-FF6-DU-F6T-	1.70 (43.2)				0.27 (6.9)
	1/2	-FF6-DU-F8T-	1.91 (48.5)			0.69 (17.5)	0.28 (7.1)
	5/8	-FF6-DU-F10T-	1.98 (50.3)				
	3/4	-FF6-DU-F12T-	1.98 (50.3)				0.81 (20.6)
1/2	1/4	-FF8-DU-F4T-	1.77 (45.0)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.17 (4.3)
	3/8	-FF8-DU-F6T-	1.84 (46.7)				0.27 (6.9)
	1/2	-FF8-DU-F8T-	2.06 (52.3)				0.37 (9.4)
	5/8	-FF8-DU-F10T-	2.12 (53.8)			0.41 (10.4)	
	3/4	-FF8-DU-F12T-	2.12 (53.8)				
	1	-FF8-DU-F16T-	2.37 (60.2)				1.06 (27.0)
5/8	3/4	-FF10-DU-F12T-	2.15 (54.6)	0.96 (24.4)	1.00 (25.4)	0.94 (23.9)	0.50 (12.7)
	7/8	-FF10-DU-F14T-	2.21 (56.1)				
	1	-FF10-DU-F16T-	2.40 (61.0)			1.06 (27.0)	
3/4	3/4	-FF12-DU-F12T-	2.15 (54.6)	0.96 (24.4)	1.13 (28.6)	1.06 (27.0)	0.58 (14.7)
	1	-FF12-DU-F16T-	2.46 (62.5)				0.62 (15.7)
1	1-1/4	-FF16-DU-F20T-	3.17 (80.5)	1.23 (31.2)	1.50 (38.1)	1.63 (41.3)	0.88 (22.4)
	1-1/2	-FF16-DU-F24T-	3.51 (89.2)				
	2	-FF16-DU-F32T-	4.43 (112.5)			2.13 (54.0)	
1-1/4	1-1/2	-FF20-DU-F24T-	4.10 (104.1)	1.62 (41.1)	1.87 (47.6)	1.87 (47.6)	1.09 (27.7)

Straight Fittings

Reducers

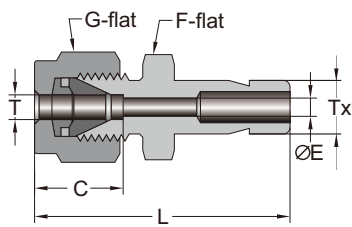


Reducer (Metric)

Tube Size T	Tube Size Tx	Basic Ordering Number	Dimensions					
			L	C	G	F	E	
Dimensions, mm (in.)								
2	3	-FM2-DU-M3T-	33.5 (1.32)	12.9 (0.51)	12.0 (0.47)	12.0 (0.47)	1.7 (0.07)	
3	4	-FM3-DU-M4T-	35.0 (1.38)	12.9 (0.51)	12.0 (0.47)	12.0 (0.47)	2.4 (0.09)	
	6	-FM3-DU-M6T-	36.1 (1.42)					
	10	-FM3-DU-M10T-	38.4 (1.51)					
4	6	-FM4-DU-M6T-	37.1 (1.46)	13.7 (0.54)	12.0 (0.47)	12.0 (0.47)	2.4 (0.09)	
6	3	-FM6-DU-M3T-	36.9 (1.45)	15.3 (0.60)	14.0 (0.55)	14.0 (0.55)	1.9 (0.07)	
	8	-FM6-DU-M8T-	39.9 (1.57)				4.8 (0.19)	
	10	-FM6-DU-M10T-	40.7 (1.60)					
	12	-FM6-DU-M12T-	46.3 (1.82)					
	18	-FM6-DU-M18T-	49.6 (1.95)					22.0 (0.87)
8	6	-FM8-DU-M6T-	40.3 (1.59)	16.2 (0.64)	16.0 (0.63)	15.0 (0.59)	4.1 (0.16)	
	10	-FM8-DU-M10T-	42.0 (1.65)				6.4 (0.25)	
	12	-FM8-DU-M12T-	47.6 (1.87)					
10	6	-FM10-DU-M6T-	42.4 (1.67)	17.2 (0.68)	19.0 (0.75)	18.0 (0.71)	4.1 (0.16)	
	8	-FM10-DU-M8T-	43.4 (1.71)				5.6 (0.22)	
	12	-FM10-DU-M12T-	49.8 (1.96)				7.9 (0.31)	
	15	-FM10-DU-M15T-	51.3 (2.02)					
	18	-FM10-DU-M18T-						
12	6	-FM12-DU-M6T-	44.9 (1.77)	22.8 (0.90)	22.0 (0.87)	22.0 (0.87)	4.1 (10.4)	
	8	-FM12-DU-M8T-	45.9 (1.81)				5.6 (0.22)	
	10	-FM12-DU-M10T-	46.7 (1.84)				7.1 (0.28)	
	16	-FM12-DU-M16T-	53.8 (2.12)				9.5 (0.37)	
	18	-FM12-DU-M18T-						
	20	-FM12-DU-M20T-	56.1 (2.21)					
	22	-FM12-DU-M22T-	62.4 (2.46)					24.0 (0.94)
	25	-FM12-DU-M25T-	62.4 (2.46)				27.0 (1.06)	
16	12	-FM16-DU-M12T-	53.0 (2.09)	24.4 (0.96)	25.0 (0.98)	24.0 (0.94)	8.8 (0.35)	
18	12	-FM18-DU-M12T-	54.6 (2.15)	24.4 (0.96)	30.0 (1.18)	27.0 (1.06)	8.8 (0.35)	
	16	-FM18-DU-M16T-	56.1 (2.21)				12.0 (0.47)	
	20	-FM18-DU-M20T-	57.6 (2.27)				15.1 (0.59)	
	22	-FM18-DU-M22T-						
	25	-FM18-DU-M25T-	62.4 (2.46)					
20	16	-FM20-DU-M16T-	57.9 (2.28)	26.0 (1.02)	32.0 (1.26)	30.0 (1.18)	12.0 (0.47)	
	18	-FM20-DU-M18T-					13.9 (0.55)	
	22	-FM20-DU-M22T-					59.4 (2.34)	15.9 (0.63)
	25	-FM20-DU-M25T-					64.2 (2.53)	15.8 (0.62)
22	18	-FM22-DU-M18T-	57.9 (2.28)	26.0 (1.02)	32.0 (1.26)	30.0 (1.18)	13.9 (0.55)	
	20	-FM22-DU-M20T-					59.4 (2.34)	15.5 (0.61)
	25	-FM22-DU-M25T-					64.2 (2.53)	18.3 (0.72)
25	18	-FM25-DU-M18T-	63.1 (2.48)	31.3 (1.23)	38.0 (1.50)	35.0 (1.38)	13.9 (0.55)	
	20	-FM25-DU-M20T-					64.6 (2.54)	15.5 (0.61)

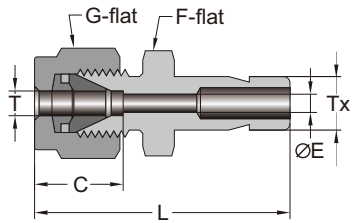
Straight Fittings

Reducers



Reducer (Fractional to Metric)

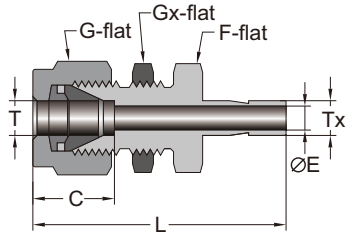
Tube Size T	Tube Size Tx	Basic Ordering Number	Dimensions				
			L	C	G	F	E
Dimensions, in. (mm)							
1/8	6	-FF2-DU-M6T-	1.42 (36.1)	0.50 (12.7)	0.44 (11.1)	0.44 (11.1)	0.09 (2.3)



Reducer (Metric to Fractional)

Tube Size T	Tube Size Tx	Basic Ordering Number	Dimensions				
			L	C	G	F	E
Dimensions, mm (in.)							
2	1/8	-FM2-DU-F2T-	33.5 (1.32)	12.9 (0.51)	12.0 (0.47)	12.0 (0.47)	1.7 (0.07)
3	1/8	-FM3-DU-F2T-	33.5 (1.32)	12.9 (0.51)	12.0 (0.47)	12.0 (0.47)	2.0 (0.08)
	1/4	-FM3-DU-F4T-	36.1 (1.42)				2.4 (0.09)
4	1/4	-FM4-DU-F4T-	37.1 (1.46)	13.7 (0.54)	12.0 (0.47)	12.0 (0.47)	2.4 (0.09)
6	1/8	-FM6-DU-F2T-	36.9 (1.45)	15.3 (0.60)	14.0 (0.55)	14.0 (0.55)	2.0 (0.08)
	1/4	-FM6-DU-F4T-	39.2 (1.54)				4.4 (0.17)
	5/16	-FM6-DU-F5T-	39.9 (1.57)				4.8 (0.19)
	3/8	-FM6-DU-F6T-	40.7 (1.60)				
	1/2	-FM6-DU-F8T-	46.3 (1.82)				
8	1/4	-FM8-DU-F4T-	40.3 (1.59)	16.2 (0.64)	16.0 (0.63)	15.0 (0.59)	4.4 (0.17)
	3/8	-FM8-DU-F6T-	42.0 (1.65)				6.4 (0.25)
	1/2	-FM8-DU-F8T-	47.6 (1.87)				
10	3/8	-FM10-DU-F6T-	44.4 (1.75)	17.2 (0.68)	19.0 (0.75)	18.0 (0.71)	6.8 (0.27)
	1/2	-FM10-DU-F8T-	49.8 (1.96)				7.9 (0.31)
12	1/2	-FM12-DU-F8T-	52.3 (2.06)	22.8 (0.90)	22.0 (0.87)	22.0 (0.87)	9.3 (0.37)
	3/4	-FM12-DU-F12T-	53.8 (2.12)				9.5 (0.37)
18	3/4	-FM18-DU-F12T-	56.1 (2.21)	24.4 (0.96)	30.0 (1.18)	27.0 (1.06)	14.7 (0.58)
	1	-FM18-DU-F16T-	62.4 (2.46)				15.1 (0.59)
25	1	-FM25-DU-F16T-	69.5 (2.74)	31.3 (1.23)	38.0 (1.50)	35.0 (1.38)	20.2 (0.80)

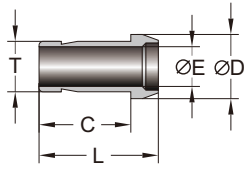
Bulkhead Reducer



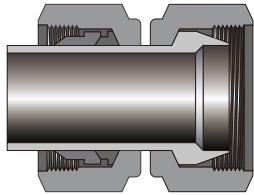
Tube Size T	Tube Size Tx	Basic Ordering Number	Dimensions					
			L	C	G	Gx	F	E
Dimensions, in. (mm)								
1/8	1/8	-FF2-DBU-F2T-	1.95 (49.5)	0.50 (12.7)	0.44 (11.1)	0.50 (12.7)	0.50 (12.7)	0.08 (2.0)
1/4	1/4	-FF4-DBU-F4T-	2.20 (55.9)	0.60 (15.2)	0.56 (14.3)	0.63 (15.9)	0.63 (15.9)	0.17 (4.3)
3/8	3/8	-FF6-DBU-F6T-	2.41 (61.2)	0.66 (16.8)	0.69 (17.5)	0.75 (19.1)	0.75 (19.1)	0.27 (6.9)
1/2	1/2	-FF8-DBU-F8T-	2.87 (72.9)	0.90 (22.9)	0.87 (22.2)	0.94 (23.9)	0.94 (23.9)	0.37 (9.4)
5/8	5/8	-FF10-DBU-F10T-	2.96 (75.2)	0.96 (24.4)	1.00 (25.4)	1.06 (27.0)	1.06 (27.0)	0.47 (11.9)
3/4	3/4	-FF12-DBU-F12T-	3.21 (81.5)	0.96 (24.4)	1.13 (28.6)	1.19 (30.2)	1.19 (30.2)	0.58 (14.7)
1	1	-FF16-DBU-F16T-	3.95 (100.3)	1.23 (31.2)	1.50 (38.1)	1.63 (41.3)	1.63 (41.3)	0.80 (20.3)

Straight Fittings

Reducers



1 in. and Under

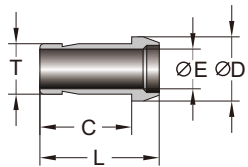


Over 1 in.

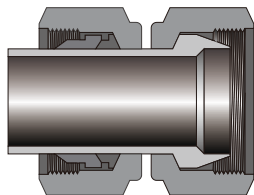
Port Connector (Fractional)

Tube Size T	Basic Ordering Number	Dimensions			
		L	C	D	E
Dimensions, in. (mm)					
1/16	-DPC-F1T-	0.63 (16.0)	0.44 (11.1)	0.13 (3.4)	0.03 (0.8)
1/8	-DPC-F2T-	0.97 (24.7)	0.65 (16.6)	0.24 (6.0)	0.08 (2.0)
1/4	-DPC-F4T-	1.06 (27.0)	0.75 (19.1)	0.36 (9.1)	0.17 (4.3)
5/16	-DPC-F5T-	1.11 (28.3)	0.80 (20.2)	0.43 (10.8)	0.22 (5.6)
3/8	-DPC-F6T-	1.12 (28.5)	0.81 (20.6)	0.48 (12.3)	0.27 (6.8)
1/2	-DPC-F8T-	1.68 (42.6)	1.13 (28.6)	0.61 (15.5)	0.37 (9.4)
5/8	-DPC-F10T-	1.64 (41.7)	1.16 (29.4)	0.74 (18.7)	0.47 (11.9)
3/4	-DPC-F12T-	1.65 (41.9)	1.13 (28.6)	0.87 (22.0)	0.58 (14.7)
1	-DPC-F16T-	2.12 (53.8)	1.43 (36.4)	1.11 (28.3)	0.80 (20.2)
1-1/4	-DPC-F20T-	2.87 (73.0)	2.07 (52.6)	1.54 (39.0)	1.02 (25.8)
1-1/2	-DPC-F24T-	3.48 (88.4)	2.50 (63.6)	1.85 (47.0)	1.24 (31.5)

Port Connector (Metric)



25 mm and Under

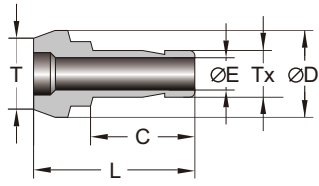


Over 25 mm

Tube Size T	Basic Ordering Number	Dimensions			
		L	C	D	E
Dimensions, mm (in.)					
3	-DPC-M3T-	24.6 (0.97)	16.4 (0.65)	5.9 (0.23)	1.9 (0.07)
6	-DPC-M6T-	27.0 (1.06)	18.7 (0.74)	8.8 (0.35)	4.1 (0.16)
8	-DPC-M8T-	28.7 (1.13)	20.1 (0.79)	10.8 (0.43)	5.6 (0.22)
10	-DPC-M10T-	30.2 (1.19)	20.3 (0.80)	13.0 (0.51)	7.1 (0.28)
12	-DPC-M12T-	37.5 (1.48)	25.9 (1.02)	15.1 (0.59)	8.8 (0.35)
15	-DPC-M15T-	40.4 (1.59)	28.8 (1.13)	18.0 (0.71)	11.2 (0.44)
16	-DPC-M16T-	40.4 (1.59)	27.6 (1.09)	18.8 (0.74)	12.0 (0.47)
18	-DPC-M18T-	40.9 (1.61)	27.6 (1.09)	21.0 (0.83)	13.9 (0.55)
20	-DPC-M20T-	42.6 (1.68)	29.4 (1.16)	23.0 (0.91)	15.5 (0.61)
25	-DPC-M25T-	54.6 (2.15)	37.0 (1.46)	28.0 (1.10)	19.9 (0.78)
28	-DPC-M28T-	66.0 (2.60)	46.9 (1.85)	34.4 (1.35)	22.5 (0.89)
30	-DPC-M30T-	68.6 (2.70)	48.2 (1.90)	37.4 (1.47)	24.3 (0.96)
32	-DPC-M32T-	74.2 (2.92)	52.8 (2.08)	39.4 (1.55)	26.5 (1.04)
38	-DPC-M38T-	87.0 (3.43)	61.7 (2.43)	47.2 (1.86)	31.6 (1.24)

Straight Fittings

Reducers

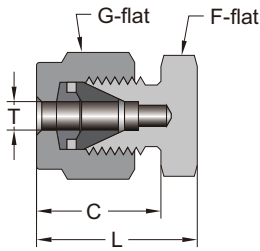


Reducing Port Connector

Tube Size T	Tube Size Tx	Basic Ordering Number	Dimensions			
			L	C	D	E
Dimensions, in. (mm)						
1/8	1/16	-F2T-DPC-F1T-	0.84 (21.3)	0.41 (10.3)	0.24 (6.0)	0.03 (0.8)
1/4	1/16	-F4T-DPC-F1T-	0.81 (20.7)	0.37 (9.3)	0.36 (9.1)	0.03 (0.8)
	1/8	-F4T-DPC-F2T-	1.00 (25.4)	0.56 (14.2)		0.08 (2.0)
3/8	1/8	-F6T-DPC-F2T-	1.01 (25.7)	0.53 (13.5)	0.48 (12.3)	0.08 (2.0)
	1/4	-F6T-DPC-F4T-	1.11 (28.2)	0.66 (16.8)		0.17 (4.3)
1/2	1/4	-F8T-DPC-F4T-	1.34 (34.1)	0.63 (15.9)	0.61 (15.5)	0.17 (4.3)
	3/8	-F8T-DPC-F6T-	1.40 (35.6)	0.70 (17.7)		0.27 (6.8)
3/4	1/2	-F12T-DPC-F8T-	1.65 (41.9)	0.95 (24.1)	0.87 (22.0)	0.37 (9.4)
1	1/2	-F16T-DPC-F8T-	1.69 (42.9)	0.96 (24.4)	1.12 (28.5)	0.37 (9.4)
	3/4	-F16T-DPC-F12T-	1.72 (43.7)	1.03 (26.1)		0.58 (14.7)
Dimensions, mm (in.)						
6	3	-M6T-DPC-M3T-	25.7 (1.01)	13.8 (0.54)	8.8 (0.35)	1.9 (0.07)
8	6	-M8T-DPC-M6T-	27.5 (1.08)	15.7 (0.62)	10.8 (0.43)	4.1 (0.16)
10	6	-M10T-DPC-M6T-	29.2 (1.15)	15.8 (0.62)	13.0 (0.51)	4.1 (0.16)
	8	-M10T-DPC-M8T-	29.5 (1.16)	16.3 (0.64)		5.6 (0.22)
12	6	-M12T-DPC-M6T-	31.2 (1.23)	16.1 (0.63)	15.1 (0.59)	4.1 (0.16)
	8	-M12T-DPC-M8T-	31.4 (1.24)	16.6 (0.65)		5.6 (0.22)
	10	-M12T-DPC-M10T-	32.0 (1.26)	17.4 (0.69)		7.1 (0.28)
16	12	-M16T-DPC-M12T-	39.5 (1.56)	23.2 (0.91)	18.8 (0.74)	8.8 (0.35)
28	25	-M28T-DPC-M25T-	56.5 (2.22)	33.0 (1.30)	34.3 (1.35)	19.9 (0.78)
32	25	-M32T-DPC-M25T-	65.5 (2.58)	33.0 (1.30)	39.4 (1.55)	19.9 (0.78)
38	25	-M38T-DPC-M25T-	71.0 (2.80)	33.0 (1.30)	47.2 (1.86)	19.9 (0.78)

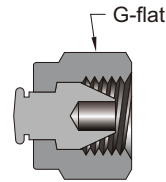
Straight Fittings

Caps and Plugs



Cap

Tube Size T	Basic Ordering Number	Dimensions			
		L	C	G	F
Dimensions, in. (mm)					
1/16	-DCP-FF1-	0.59 (15.0)	0.34 (8.6)	0.31 (7.9)	0.31 (7.9)
1/8	-DCP-FF2-	0.79 (10.1)	0.50 (12.7)	0.44 (11.1)	0.44 (11.1)
3/16	-DCP-FF3-	0.84 (21.3)	0.54 (13.7)	0.50 (12.7)	0.44 (11.1)
1/4	-DCP-FF4-	0.92 (23.4)	0.60 (15.2)	0.56 (14.3)	0.50 (12.7)
5/16	-DCP-FF5-	0.96 (24.4)	0.64 (16.2)	0.63 (15.9)	0.56 (14.3)
3/8	-DCP-FF6-	1.01 (25.7)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)
1/2	-DCP-FF8-	1.15 (29.2)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)
5/8	-DCP-FF10-	1.18 (30.0)	0.96 (24.4)	1.00 (25.4)	0.94 (23.9)
3/4	-DCP-FF12-	1.24 (31.5)	0.96 (24.4)	1.13 (28.6)	1.06 (27.0)
7/8	-DCP-FF14-	1.34 (34.0)	1.02 (25.9)	1.25 (31.8)	1.19 (30.2)
1	-DCP-FF16-	1.51 (38.4)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)
1-1/8	-DCP-FF18-	1.51 (38.4)	1.44 (36.7)	1.75 (44.5)	1.63 (41.3)
1-1/4	-DCP-FF20-	2.10 (53.3)	1.62 (41.1)	1.87 (47.6)	1.75 (44.5)
1-1/2	-DCP-FF24-	2.54 (64.5)	1.97 (50.0)	2.25 (57.2)	2.13 (54.0)
Dimensions, mm (in.)					
2	-DCP-FM2-	20.1 (0.79)	12.9 (0.51)	12.0 (0.47)	12.0 (0.47)
3	-DCP-FM3-	20.1 (0.79)	12.9 (0.51)	12.0 (0.47)	12.0 (0.47)
4	-DCP-FM4-	21.3 (0.84)	13.7 (0.54)	12.0 (0.47)	12.0 (0.47)
6	-DCP-FM6-	23.1 (0.91)	15.3 (0.60)	14.0 (0.55)	14.0 (0.55)
8	-DCP-FM8-	24.5 (0.96)	16.2 (0.64)	16.0 (0.63)	15.0 (0.59)
10	-DCP-FM10-	26.6 (1.05)	17.2 (0.68)	19.0 (0.75)	18.0 (0.71)
12	-DCP-FM12-	29.1 (1.15)	22.8 (0.90)	22.0 (0.87)	22.0 (0.87)
14	-DCP-FM14-	29.9 (1.18)	24.4 (0.96)	25.0 (0.98)	24.0 (0.94)
15	-DCP-FM15-	29.9 (1.18)	24.4 (0.96)	25.0 (0.98)	24.0 (0.94)
16	-DCP-FM16-	29.9 (1.18)	24.4 (0.96)	25.0 (0.98)	24.0 (0.94)
18	-DCP-FM18-	31.4 (1.24)	24.4 (0.96)	30.0 (1.18)	27.0 (1.06)
20	-DCP-FM20-	34.0 (1.34)	26.0 (1.02)	32.0 (1.26)	30.0 (1.18)
22	-DCP-FM22-	34.0 (1.34)	26.0 (1.02)	32.0 (1.26)	30.0 (1.18)
25	-DCP-FM25-	38.5 (1.52)	31.3 (1.23)	38.0 (1.50)	35.0 (1.38)
28	-DCP-FM28-	48.5 (1.91)	36.6 (1.44)	46.0 (1.81)	41.0 (1.61)
30	-DCP-FM30-	53.4 (2.10)	39.6 (1.56)	50.0 (1.97)	46.0 (1.81)
32	-DCP-FM32-	55.8 (2.20)	42.0 (1.65)	50.0 (1.97)	46.0 (1.81)
38	-DCP-FM38-	65.4 (2.57)	49.4 (1.94)	60.0 (2.36)	55.0 (2.17)

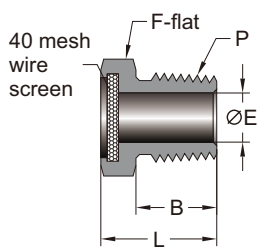


Plug

Tube Size T	Basic Ordering Number	Dimensions
		G
Dimensions, in. (mm)		
1/16	-DP-FF1-	0.31 (7.9)
1/8	-DP-FF2-	0.44 (11.1)
3/16	-DP-FF3-	0.50 (12.7)
1/4	-DP-FF4-	0.56 (14.3)
5/16	-DP-FF5-	0.63 (15.9)
3/8	-DP-FF6-	0.69 (17.5)
1/2	-DP-FF8-	0.87 (22.2)
5/8	-DP-FF10-	1.00 (25.4)
3/4	-DP-FF12-	1.13 (28.6)
7/8	-DP-FF14-	1.25 (31.8)
1	-DP-FF16-	1.50 (38.1)
1-1/8	-DP-FF18-	1.75 (44.5)
1-1/4	-DP-FF20-	1.87 (47.6)
1-1/2	-DP-FF24-	2.25 (57.2)
Dimensions, mm (in.)		
2	-DP-FM2-	12.0 (0.47)
3	-DP-FM3-	12.0 (0.47)
4	-DP-FM4-	12.0 (0.47)
6	-DP-FM6-	14.0 (0.55)
8	-DP-FM8-	16.0 (0.63)
10	-DP-FM10-	19.0 (0.75)
12	-DP-FM12-	22.0 (0.87)
14	-DP-FM14-	25.0 (0.98)
15	-DP-FM15-	25.0 (0.98)
16	-DP-FM16-	25.0 (0.98)
18	-DP-FM18-	30.0 (1.18)
20	-DP-FM20-	32.0 (1.26)
22	-DP-FM22-	32.0 (1.26)
25	-DP-FM25-	38.0 (1.50)
28	-DP-FM28-	46.0 (1.81)
30	-DP-FM30-	50.0 (1.97)
32	-DP-FM32-	50.0 (1.97)
38	-DP-FM38-	60.0 (2.36)

Straight Fittings

Vent Protectors



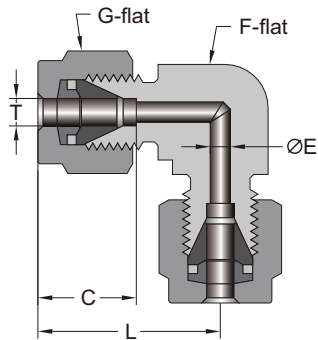
40 mesh 300 series stainless steel wire screen assembly.

Mud Dauber

NPT Size P	Basic Ordering Number	Dimensions			
		L	B	E	F
Dimensions, mm (in.)					
1/8	-DVP-NT2-	0.56 (14.3)	0.38 (9.7)	0.19 (4.8)	0.50 (12.7)
1/4	-DVP-NT4-	0.78 (19.8)	0.56 (14.3)	0.28 (7.1)	0.56 (14.3)
3/8	-DVP-NT6-	0.81 (20.6)	0.56 (14.3)	0.41 (10.4)	0.69 (17.5)
1/2	-DVP-NT8-	1.03 (26.2)	0.75 (19.1)	0.50 (12.7)	0.87 (22.2)
3/4	-DVP-NT12-	1.06 (27.0)	0.76 (19.2)	0.72 (18.3)	1.06 (27.0)
1	-DVP-NT16-	1.37 (34.8)	0.94 (23.9)	0.88 (22.4)	1.37 (34.9)

90° Elbows

Unions

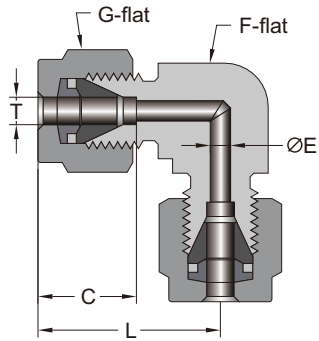


Union

Tube Size T	Basic Ordering Number	Dimensions				
		L	C	G	F	E
Dimensions, in. (mm)						
1/16	-DL-FF1-	0.70 (17.8)	0.34 (8.6)	0.31 (7.9)	0.37 (9.5)	0.05 (1.3)
1/8	-DL-FF2-	0.88 (22.4)	0.50 (12.7)	0.44 (11.1)	0.37 (9.5)	0.09 (2.3)
3/16	-DL-FF3-	1.00 (25.4)	0.54 (13.7)	0.50 (12.7)	0.50 (12.7)	0.12 (3.0)
1/4	-DL-FF4-	1.06 (26.9)	0.60 (15.2)	0.56 (14.3)	0.50 (12.7)	0.19 (4.8)
5/16	-DL-FF5-	1.13 (28.7)	0.64 (16.2)	0.63 (15.9)	0.56 (14.3)	0.25 (6.4)
3/8	-DL-FF6-	1.20 (30.5)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.28 (7.1)
1/2	-DL-FF8-	1.42 (36.1)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.41 (10.4)
5/8	-DL-FF10-	1.50 (38.1)	0.96 (24.4)	1.00 (25.4)	0.94 (23.9)	0.50 (12.7)
3/4	-DL-FF12-	1.57 (39.9)	0.96 (24.4)	1.13 (28.6)	1.06 (27.0)	0.62 (15.7)
7/8	-DL-FF14-	1.76 (44.7)	1.02 (25.9)	1.25 (31.8)	1.37 (34.9)	0.72 (18.3)
1	-DL-FF16-	1.93 (49.0)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.88 (22.4)
1-1/8	-DL-FF18-	2.63 (66.9)	1.44 (36.7)	1.75 (44.5)	1.69 (42.9)	0.97 (24.6)
1-1/4	-DL-FF20-	2.62 (66.5)	1.62 (41.1)	1.87 (47.6)	1.69 (42.9)	1.09 (27.7)
1-1/2	-DL-FF24-	3.07 (78.0)	1.97 (50.0)	2.25 (57.2)	2.00 (50.8)	1.34 (34.0)
Dimensions, mm (in.)						
3	-DL-FM3-	22.3 (0.88)	12.9 (0.51)	12.0 (0.47)	9.5 (0.37)	2.4 (0.09)
4	-DL-FM4-	25.4 (1.00)	13.7 (0.54)	12.0 (0.47)	12.7 (0.50)	2.4 (0.09)
6	-DL-FM6-	27.0 (1.06)	15.3 (0.60)	14.0 (0.55)	12.7 (0.50)	4.8 (0.19)
8	-DL-FM8-	28.8 (1.13)	16.2 (0.64)	16.0 (0.63)	14.3 (0.56)	6.4 (0.25)
10	-DL-FM10-	31.5 (1.24)	17.2 (0.68)	19.0 (0.75)	17.5 (0.69)	7.9 (0.31)
12	-DL-FM12-	36.0 (1.42)	22.8 (0.90)	22.0 (0.87)	20.6 (0.81)	9.5 (0.37)
14	-DL-FM14-	38.0 (1.50)	24.4 (0.96)	25.0 (0.98)	23.8 (0.94)	11.1 (0.44)
15	-DL-FM15-	38.0 (1.50)	24.4 (0.96)	25.0 (0.98)	23.8 (0.94)	11.9 (0.47)
16	-DL-FM16-	38.0 (1.50)	24.4 (0.96)	25.0 (0.98)	23.8 (0.94)	12.7 (0.50)
18	-DL-FM18-	39.8 (1.57)	24.4 (0.96)	30.0 (1.18)	27.0 (1.06)	15.1 (0.59)
20	-DL-FM20-	44.6 (1.76)	26.0 (1.02)	32.0 (1.26)	34.9 (1.37)	15.9 (0.63)
22	-DL-FM22-	44.6 (1.76)	26.0 (1.02)	32.0 (1.26)	34.9 (1.37)	18.3 (0.72)
25	-DL-FM25-	49.1 (1.93)	31.3 (1.23)	38.0 (1.50)	34.9 (1.37)	21.8 (0.86)

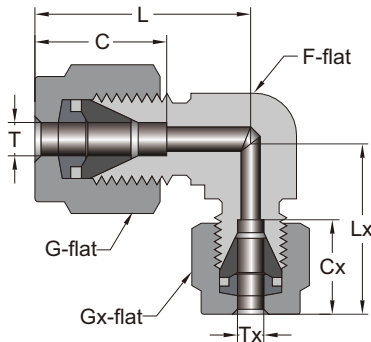
90° Elbows

Unions



Union

Tube Size T	Basic Ordering Number	Dimensions				
		L	C	G	F	E
Dimensions, mm (in.)						
28	-DL-FM28-	64.0 (2.52)	36.6 (1.44)	46.0 (1.81)	42.9 (1.69)	21.8 (0.86)
30	-DL-FM30-	69.9 (2.75)	39.6 (1.56)	50.0 (1.97)	42.9 (1.69)	26.2 (1.03)
32	-DL-FM32-	72.3 (2.85)	42.0 (1.65)	50.0 (1.97)	42.9 (1.69)	28.6 (1.13)
38	-DL-FM38-	84.0 (3.31)	49.4 (1.94)	60.0 (2.36)	50.8 (2.00)	33.7 (1.33)

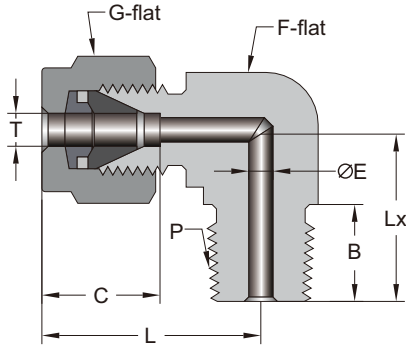


Reducer Union

Tube Size T	Tube Size Tx	Basic Ordering Number	Dimensions							
			L	C	G	F	E	Cx	Gx	Lx
Dimensions, in. (mm)										
3/16	1/8	-FF3-DL-FF2-	1.00 (25.4)	0.54 (13.7)	0.50 (12.7)	0.50 (12.7)	0.09 (2.3)	0.50 (12.7)	0.44 (11.1)	0.97 (24.7)
1/4	1/8	-FF4-DL-FF2-	1.06 (27.0)	0.60 (15.2)	0.56 (14.3)	0.50 (12.7)	0.09 (2.3)	0.50 (12.7)	0.44 (11.1)	1.00 (25.4)
5/16	1/8	-FF5-DL-FF2-	1.17 (29.7)	0.64 (16.2)	0.63 (15.9)	0.56 (14.3)	0.09 (2.3)	0.50 (12.7)	0.44 (11.1)	1.04 (26.4)
	1/4	-FF5-DL-FF4-					0.19 (4.8)	0.60 (15.2)	0.56 (14.3)	1.14 (29.0)
3/8	1/8	-FF6-DL-FF2-	1.20 (30.5)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.09 (2.3)	0.50 (12.7)	0.44 (11.1)	1.04 (26.4)
	1/4	-FF6-DL-FF4-					0.19 (4.8)	0.60 (15.2)	0.56 (14.3)	1.14 (29.0)
	5/16	-FF6-DL-FF5-					0.25 (6.4)	0.64 (16.2)	0.63 (15.9)	1.17 (29.7)
1/2	1/4	-FF8-DL-FF4-	1.42 (36.1)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.19 (4.8)	0.60 (15.2)	0.56 (14.3)	1.27 (32.2)
	5/16	-FF8-DL-FF5-					0.25 (6.4)	0.64 (16.2)	0.63 (15.9)	1.28 (32.5)
	3/8	-FF8-DL-FF6-					0.28 (7.1)	0.66 (16.8)	0.69 (17.5)	1.32 (33.6)
5/8	3/8	-FF10-DL-FF6-	1.50 (38.1)	0.96 (24.4)	1.00 (25.4)	0.94 (23.8)	0.28 (7.1)	0.66 (16.8)	0.69 (17.5)	1.40 (35.6)
	1/2	-FF10-DL-FF8-					0.41 (10.4)	0.90 (22.9)	0.87 (22.2)	1.50 (38.1)
3/4	1/4	-FF12-DL-FF4-	1.57 (39.9)	0.96 (24.4)	1.13 (28.6)	1.06 (27.0)	0.19 (4.8)	0.60 (15.2)	0.56 (14.3)	1.41 (35.9)
	3/8	-FF12-DL-FF6-					0.28 (7.1)	0.66 (16.8)	0.69 (17.5)	1.47 (37.4)
	1/2	-FF12-DL-FF8-					0.41 (10.4)	0.90 (22.9)	0.87 (22.2)	1.57 (39.9)
7/8	1/4	-FF14-DL-FF4-	1.76 (44.7)	1.02 (25.9)	1.25 (31.8)	1.37 (34.9)	0.19 (4.8)	0.60 (15.2)	0.56 (14.3)	1.60 (40.7)
1	1/2	-FF16-DL-FF8-	1.93 (49.0)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.41 (10.4)	0.90 (22.9)	0.87 (22.2)	1.75 (44.4)
	3/4	-FF16-DL-FF12-					0.62 (15.7)	0.96 (24.4)	1.13 (28.6)	1.85 (47.1)
Dimensions, mm (in.)										
8	6	-FM8-DL-FM6-	28.8 (1.13)	16.2 (0.64)	16.0 (0.63)	14.3 (0.56)	4.8 (0.19)	15.3 (0.60)	14.0 (0.55)	27.9 (1.10)
10	8	-FM10-DL-FM8-	31.5 (1.24)	17.2 (0.68)	19.0 (0.75)	17.5 (0.69)	6.4 (0.25)	16.2 (0.64)	16.0 (0.63)	30.5 (1.20)
12	8	-FM12-DL-FM8-	36.0 (1.42)	22.8 (0.90)	22.0 (0.87)	20.6 (0.81)	6.4 (0.25)	16.2 (0.64)	16.0 (0.63)	32.6 (1.28)
14	8	-FM14-DL-FM8-	38.8 (1.53)	24.4 (0.96)	25.0 (0.98)	23.8 (0.94)	6.4 (0.25)	16.2 (0.64)	16.0 (0.63)	34.7 (1.37)
	10	-FM14-DL-FM10-					7.9 (0.31)	17.2 (0.68)	19.0 (0.75)	35.5 (1.40)

90° Elbows

Male Connectors

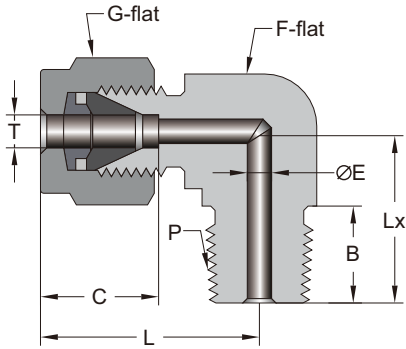


NPT

Tube Size T	NPT Size P	Basic Ordering Number	Dimensions								
			L	C	G	F	E	B	Lx		
Dimensions, in. (mm)											
1/16	1/16	-FF1-DL-NT1-	0.75 (19.1)	0.34 (8.6)	0.31 (7.9)	0.44 (11.1)	0.05 (1.3)	0.38 (9.7)	0.70 (17.8)		
	1/8	-FF1-DL-NT2-									
1/8	1/16	-FF2-DL-NT1-	0.93 (23.6)	0.50 (12.7)	0.44 (11.1)	0.44 (11.1)	0.09 (2.4)	0.38 (9.7)	0.70 (17.8)		
	1/8	-FF2-DL-NT2-									
	1/4	-FF2-DL-NT4-				0.50 (12.7)				0.56 (14.2)	0.92 (23.4)
3/16	1/8	-FF3-DL-NT2-	1.00 (25.4)	0.54 (13.7)	0.50 (12.7)	0.50 (12.7)	0.12 (3.0)	0.38 (9.7)	0.74 (18.8)		
	1/4	-FF3-DL-NT4-						0.56 (14.2)	0.92 (23.4)		
1/4	1/16	-FF4-DL-NT1-	1.06 (26.9)	0.60 (15.2)	0.56 (14.3)	0.50 (12.7)	0.12 (3.0)	0.38 (9.7)	0.74 (18.8)		
	1/8	-FF4-DL-NT2-									
	1/4	-FF4-DL-NT4-				0.19 (4.8)		0.56 (14.2)		0.92 (23.4)	
	3/8	-FF4-DL-NT6-						0.69 (17.5)		1.03 (26.2)	
	1/2	-FF4-DL-NT8-						0.81 (20.6)		0.75 (19.1)	1.30 (33.0)
5/16	1/8	-FF5-DL-NT2-	1.13 (28.7)	0.64 (16.2)	0.63 (15.9)	0.56 (14.3)	0.19 (4.8)	0.38 (9.7)	0.78 (19.8)		
	1/4	-FF5-DL-NT4-								0.25 (6.4)	0.56 (14.2)
	3/8	-FF5-DL-NT6-				0.69 (17.5)					
3/8	1/8	-FF6-DL-NT2-	1.20 (30.5)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.19 (4.8)	0.38 (9.7)	0.82 (20.8)		
	1/4	-FF6-DL-NT4-								0.28 (7.1)	0.56 (14.2)
	3/8	-FF6-DL-NT6-				0.69 (17.5)					
	1/2	-FF6-DL-NT8-				0.81 (20.6)		0.75 (19.1)			1.30 (33.0)
	3/4	-FF6-DL-NT12-				1.06 (27.0)		1.45 (36.8)			
1/2	1/4	-FF8-DL-NT4-	1.42 (36.1)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.28 (7.1)	0.56 (14.2)	1.11 (28.2)		
	3/8	-FF8-DL-NT6-								0.38 (9.7)	
	1/2	-FF8-DL-NT8-				0.41 (10.4)		0.75 (19.1)			1.30 (33.0)
	3/4	-FF8-DL-NT12-								1.06 (27.0)	
5/8	3/8	-FF10-DL-NT6-	1.50 (38.1)	0.96 (24.4)	1.00 (25.4)	0.94 (23.9)	0.38 (9.7)	0.56 (14.2)	1.19 (30.2)		
	1/2	-FF10-DL-NT8-								0.47 (11.9)	0.75 (19.1)
	3/4	-FF10-DL-NT12-				1.06 (27.0)					
3/4	1/2	-FF12-DL-NT8-	1.57 (39.9)	0.96 (24.4)	1.13 (28.6)	1.06 (27.0)	0.47 (11.9)	0.75 (19.1)	1.45 (36.8)		
	3/4	-FF12-DL-NT12-								0.62 (15.7)	
7/8	3/4	-FF14-DL-NT12-	1.76 (44.7)	1.02 (25.9)	1.25 (31.8)	1.37 (34.9)	0.62 (15.7)	0.75 (19.1)	1.64 (41.7)		
1	3/4	-FF16-DL-NT12-	1.93 (49.0)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.62 (15.7)	0.75 (19.1)	1.64 (41.7)		
	1	-FF16-DL-NT16-								0.88 (22.4)	0.94 (23.9)
1-1/4	1-1/4	-FF20-DL-NT20-	2.62 (66.5)	1.62 (41.1)	1.87 (47.6)	1.69 (42.9)	1.09 (27.7)	0.94 (23.9)	2.06 (52.4)		
1-1/2	1-1/2	-FF24-DL-NT24-	3.07 (78.0)	1.97 (50.0)	2.25 (57.2)	2.00 (50.8)	1.34 (34.0)	1.03 (26.2)	2.38 (60.5)		

90° Elbows

Male Connectors

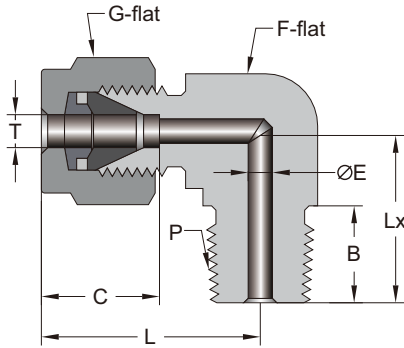


NPT

Tube Size T	NPT Size P	Basic Ordering Number	Dimensions								
			L	C	G	F	E	B	Lx		
Dimensions, mm (in.)											
3	1/8	-FM3-DL-NT2-	23.6 (0.93)	12.9 (0.51)	12.0 (0.47)	11.1 (0.44)	2.4 (0.09)	9.7 (0.38)	17.8 (0.70)		
	1/4	-FM3-DL-NT4-	24.6 (0.97)			12.7 (0.50)		14.3 (0.56)	23.4 (0.92)		
4	1/8	-FM4-DL-NT2-	25.4 (1.00)	13.7 (0.54)	12.0 (0.47)	12.7 (0.50)	2.4 (0.09)	9.7 (0.38)	18.8 (0.74)		
	1/4	-FM4-DL-NT4-						14.3 (0.56)	23.4 (0.92)		
6	1/8	-FM6-DL-NT2-	27.0 (1.06)	15.3 (0.60)	14.0 (0.55)	12.7 (0.50)	4.8 (0.19)	9.7 (0.38)	18.8 (0.74)		
	1/4	-FM6-DL-NT4-	29.8 (1.17)			17.5 (0.69)		14.3 (0.56)	23.4 (0.92)		
	3/8	-FM6-DL-NT6-	31.8 (1.25)			20.6 (0.81)		19.1 (0.75)	33.0 (1.30)		
	1/2	-FM6-DL-NT8-									
8	1/8	-FM8-DL-NT2-	28.8 (1.13)	16.2 (0.64)	16.0 (0.63)	14.3 (0.56)	4.8 (0.19)	9.7 (0.38)	19.8 (0.78)		
	1/4	-FM8-DL-NT4-	30.6 (1.20)			17.5 (0.69)		14.3 (0.56)	24.4 (0.96)		
	3/8	-FM8-DL-NT6-	32.6 (1.28)			20.6 (0.81)		19.1 (0.75)	33.0 (1.30)		
	1/2	-FM8-DL-NT8-									
10	1/8	-FM10-DL-NT2-	31.5 (1.24)	17.2 (0.68)	19.0 (0.75)	17.5 (0.69)	4.8 (0.19)	9.7 (0.38)	21.6 (0.85)		
	1/4	-FM10-DL-NT4-				20.6 (0.81)	7.1 (0.28)	14.3 (0.56)	26.2 (1.03)		
	3/8	-FM10-DL-NT6-				7.9 (0.31)	19.1 (0.75)	33.0 (1.30)			
	1/2	-FM10-DL-NT8-									
12	1/8	-FM12-DL-NT2-	36.0 (1.42)	22.8 (0.90)	22.0 (0.87)	20.6 (0.81)	4.8 (0.19)	9.7 (0.38)	23.6 (0.93)		
	1/4	-FM12-DL-NT4-				7.1 (0.28)	14.3 (0.56)	28.2 (1.11)			
	3/8	-FM12-DL-NT6-				9.5 (0.37)	19.1 (0.75)	33.0 (1.30)			
	1/2	-FM12-DL-NT8-				27.0 (1.06)	36.8 (1.45)				
	3/4	-FM12-DL-NT12-									
15	1/2	-FM15-DL-NT8-	38.0 (1.50)	24.4 (0.96)	25.0 (0.98)	23.8 (0.94)	11.9 (0.47)	19.1 (0.75)	35.1 (1.38)		
16	1/4	-FM16-DL-NT4-	38.0 (1.50)	24.4 (0.96)	25.0 (0.98)	23.8 (0.94)	7.1 (0.28)	14.3 (0.56)	30.2 (1.19)		
	3/8	-FM16-DL-NT6-					9.5 (0.37)				
	1/2	-FM16-DL-NT8-					11.9 (0.47)			19.1 (0.75)	35.1 (1.38)
	3/4	-FM16-DL-NT12-					12.7 (0.50)				
18	1/2	-FM18-DL-NT8-	39.8 (1.57)	24.4 (0.96)	30.0 (1.18)	34.9 (1.37)	11.9 (0.47)	19.1 (0.75)	36.8 (1.45)		
	3/4	-FM18-DL-NT12-					15.1 (0.59)				
20	1/2	-FM20-DL-NT8-	44.6 (1.76)	26.0 (1.02)	32.0 (1.26)	34.9 (1.37)	11.9 (0.47)	19.1 (0.75)	41.7 (1.64)		
	3/4	-FM20-DL-NT12-					15.9 (0.63)				
22	3/4	-FM22-DL-NT12-	44.6 (1.76)	26.0 (1.02)	32.0 (1.26)	34.9 (1.37)	15.9 (0.63)	19.1 (0.75)	41.7 (1.64)		
	1	-FM22-DL-NT16-					18.3 (0.72)			23.9 (0.94)	46.5 (1.83)
25	3/4	-FM25-DL-NT12-	49.1 (1.93)	31.3 (1.23)	38.0 (1.50)	34.9 (1.37)	15.9 (0.63)	19.1 (0.75)	41.7 (1.64)		
	1	-FM25-DL-NT16-					21.8 (0.86)			23.9 (0.94)	46.5 (1.83)

90° Elbows

Male Connectors

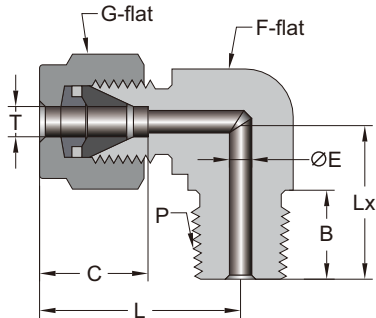


NPT

Tube Size T	NPT Size P	Basic Ordering Number	Dimensions						
			L	C	G	F	E	B	Lx
Dimensions, mm (in.)									
30	1-1/4	-FM30-DL-NT20-	69.9 (2.75)	39.6 (1.56)	50.0 (1.97)	42.9 (1.69)	26.2 (1.03)	23.9 (0.94)	53.1 (2.09)
32	1-1/4	-FM32-DL-NT20-	72.3 (2.85)	42.0 (1.65)	50.0 (1.97)	42.9 (1.69)	27.8 (1.09)	23.9 (0.94)	53.1 (2.09)
38	1-1/2	-FM38-DL-NT24-	84.0 (3.31)	49.4 (1.94)	60.0 (2.36)	50.8 (2.00)	33.7 (1.33)	26.2 (1.03)	60.4 (2.38)

90° Elbows

Male Connectors

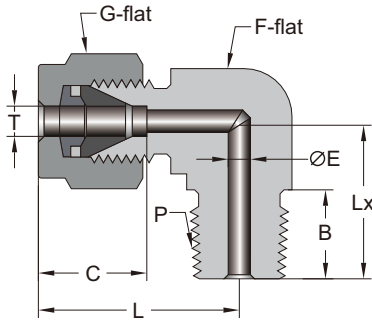


ISO/BSP Tapered Thread (RT)

Tube Size T	RT Size P	Basic Ordering Number	Dimensions						
			L	C	G	F	E	B	Lx
Dimensions, in. (mm)									
1/8	1/8	-FF2-DL-RT2-	0.93 (23.6)	0.50 (12.7)	0.44 (11.1)	0.44 (11.1)	0.09 (2.3)	0.38 (9.7)	0.87 (22.2)
	1/4	-FF2-DL-RT4-	0.97 (24.6)			0.50 (12.7)		0.56 (14.2)	0.92 (23.4)
1/4	1/8	-FF4-DL-RT2-	1.06 (26.9)	0.60 (15.2)	0.56 (14.3)	0.50 (12.7)	0.19 (4.8)	0.38 (9.7)	0.74 (18.8)
	1/4	-FF4-DL-RT4-				0.69 (17.5)		0.56 (14.2)	1.45 (36.8)
	3/8	-FF4-DL-RT6-	1.17 (29.7)			0.81 (20.6)		0.92 (23.4)	
	1/2	-FF4-DL-RT8-	1.25 (31.8)			0.75 (19.1)		1.03 (26.2)	
5/16	1/4	-FF5-DL-RT4-	1.13 (28.7)	0.64 (16.2)	0.63 (15.9)	0.56 (14.3)	0.25 (6.4)	0.56 (14.2)	0.96 (24.4)
3/8	1/8	-FF6-DL-RT2-	1.20 (30.5)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.19 (4.8)	0.38 (9.7)	0.82 (20.8)
	1/4	-FF6-DL-RT4-				0.69 (17.5)		0.56 (14.2)	1.00 (25.4)
	3/8	-FF6-DL-RT6-	1.23 (31.2)			0.28 (7.1)	0.56 (14.2)	1.03 (26.2)	
1/2	3/8	-FF8-DL-RT6-	1.42 (36.1)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.38 (9.7)	0.56 (14.2)	1.11 (28.2)
	1/2	-FF8-DL-RT8-				0.41 (10.4)	0.75 (19.1)	1.30 (33.0)	
3/4	1/2	-FF12-DL-RT8-	1.57 (39.9)	0.96 (24.4)	1.13 (28.6)	1.06 (27.0)	0.37 (9.5)	0.75 (19.1)	1.45 (36.8)
1	1	-FF16-DL-RT16-	1.93 (49.0)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.88 (22.4)	0.94 (23.9)	1.83 (46.5)

90° Elbows

Male Connectors

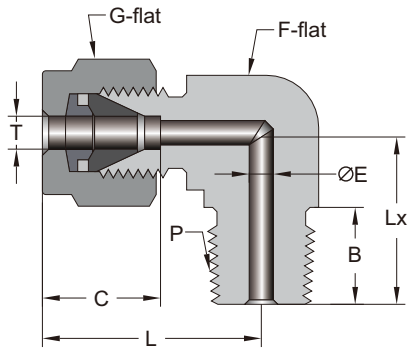


ISO/BSP Tapered Thread (RT)

Tube Size T	RT Size P	Basic Ordering Number	Dimensions										
			L	C	G	F	E	B	Lx				
Dimensions, mm (in.)													
3	1/8	-FM3-DL-RT2-	23.6 (0.93)	12.9 (0.51)	12.0 (0.47)	11.1 (0.44)	2.4 (0.09)	9.7 (0.38)	17.8 (0.70)				
	1/4	-FM3-DL-RT4-	24.6 (0.97)							12.7 (0.50)	14.3 (0.56)	23.4 (0.92)	
4	1/8	-FM4-DL-RT2-	25.4 (1.00)	13.7 (0.54)	12.0 (0.47)	12.7 (0.50)	2.4 (0.09)	9.7 (0.38)	18.8 (0.74)				
	1/4	-FM4-DL-RT4-								14.3 (0.56)	23.4 (0.92)		
6	1/8	-FM6-DL-RT2-	27.0 (1.06)	15.3 (0.60)	14.0 (0.55)	12.7 (0.50)	4.8 (0.19)	14.3 (0.56)	18.8 (0.74)				
	1/4	-FM6-DL-RT4-								17.5 (0.69)	23.4 (0.92)		
	3/8	-FM6-DL-RT6-	29.8 (1.17)			20.6 (0.81)		26.2 (1.03)					
	1/2	-FM6-DL-RT8-	31.8 (1.25)			19.1 (0.75)		33.0 (1.30)					
8	1/8	-FM8-DL-RT2-	28.8 (1.13)	16.2 (0.64)	16.0 (0.63)	14.3 (0.56)	4.8 (0.19)	14.3 (0.56)	19.8 (0.78)				
	1/4	-FM8-DL-RT4-								17.5 (0.69)	24.4 (0.96)		
	3/8	-FM8-DL-RT6-	30.6 (1.20)			20.6 (0.81)		26.2 (1.03)					
	1/2	-FM8-DL-RT8-	32.6 (1.28)			19.1 (0.75)		33.0 (1.30)					
10	1/8	-FM10-DL-RT2-	31.5 (1.24)	17.2 (0.68)	19.0 (0.75)	17.5 (0.69)	4.8 (0.19)	9.7 (0.38)	21.6 (0.85)				
	1/4	-FM10-DL-RT4-								7.1 (0.28)	26.2 (1.03)		
	3/8	-FM10-DL-RT6-	7.9 (0.31)			19.1 (0.75)		33.0 (1.30)					
	1/2	-FM10-DL-RT8-	20.6 (0.81)			9.7 (0.38)		26.2 (1.03)					
12	1/8	-FM12-DL-RT2-	36.0 (1.42)	22.8 (0.90)	22.0 (0.87)	20.6 (0.81)	4.8 (0.19)	14.3 (0.56)	23.6 (0.93)				
	1/4	-FM12-DL-RT4-								7.1 (0.28)	28.2 (1.11)		
	3/8	-FM12-DL-RT6-	9.5 (0.37)			19.1 (0.75)		33.0 (1.30)					
	1/2	-FM12-DL-RT8-	27.0 (1.06)			19.1 (0.75)		36.8 (1.45)					
	3/4	-FM12-DL-RT12-	39.8 (1.57)			27.0 (1.06)		36.8 (1.45)					
14	1/2	-FM14-DL-RT8-	38.0 (1.50)	24.4 (0.96)	25.0 (0.98)	23.8 (0.94)	11.1 (0.44)	19.1 (0.75)	35.1 (1.38)				
15	1/2	-FM15-DL-RT8-	38.0 (1.50)	24.4 (0.96)	25.0 (0.98)	23.8 (0.94)	11.9 (0.47)	19.1 (0.75)	35.1 (1.38)				
		1/4								-FM16-DL-RT4-	7.1 (0.28)	14.3 (0.56)	30.2 (1.19)
		3/8								-FM16-DL-RT6-	9.5 (0.37)	14.3 (0.56)	30.2 (1.19)
		1/2								-FM16-DL-RT8-	11.9 (0.47)	19.1 (0.75)	35.1 (1.38)
16	3/4	-FM16-DL-RT12-	39.8 (1.57)	24.4 (0.96)	25.0 (0.98)	27.0 (1.06)	12.7 (0.50)	19.1 (0.75)	36.8 (1.45)				
		12.7 (0.50)								19.1 (0.75)	36.8 (1.45)		

90° Elbows

Male Connectors

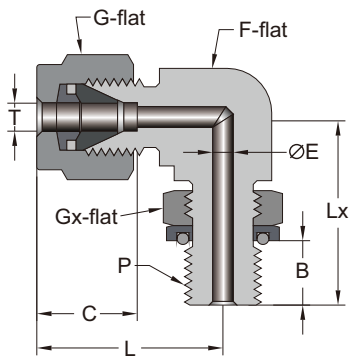


ISO/BSP Tapered Thread (RT)

Tube Size T	RT Size P	Basic Ordering Number	Dimensions						
			L	C	G	F	E	B	Lx
Dimensions, mm (in.)									
18	1/2	-FM18-DL-RT8-	39.8 (1.57)	24.4 (0.96)	30.0 (1.18)	27.0 (1.06)	11.9 (0.47)	19.1 (0.75)	36.8 (1.45)
	3/4	-FM18-DL-RT12-					15.1 (0.59)		
20	1/2	-FM20-DL-RT8-	44.6 (1.76)	26.0 (1.02)	32.0 (1.26)	34.9 (1.37)	11.9 (0.47)	19.1 (0.75)	41.7 (1.64)
	3/4	-FM20-DL-RT12-					15.9 (0.63)		
22	3/4	-FM22-DL-RT12-	44.6 (1.76)	26.0 (1.02)	32.0 (1.26)	34.9 (1.37)	15.9 (0.63)	19.1 (0.75)	41.7 (1.64)
	1	-FM22-DL-RT16-					18.3 (0.72)		
25	3/4	-FM25-DL-RT12-	49.1 (1.93)	31.3 (1.23)	38.0 (1.50)	34.9 (1.37)	15.9 (0.63)	19.1 (0.75)	41.7 (1.64)
	1	-FM25-DL-RT16-					21.8 (0.86)		
28	1	-FM28-DL-RT16-	64.0 (2.52)	36.6 (1.44)	46.0 (1.81)	42.9 (1.69)	21.8 (0.86)	23.9 (0.94)	53.1 (2.09)

90° Elbows

Positionable Male

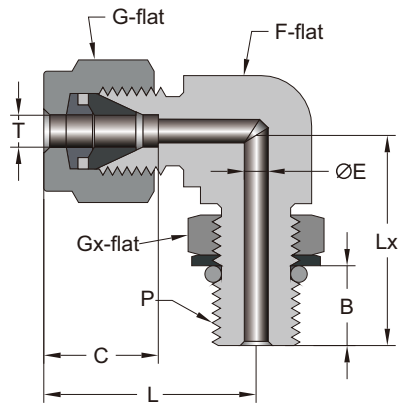


Positionable, ISO/BSP Parallel Thread (RP)

Tube Size T	RP Size P	Basic Ordering Number	Dimensions							
			L	C	G	F	E	B	Lx	Gx
Dimensions, in. (mm)										
1/4	1/8	-FF4-DL-PRP2-	1.06 (26.9)	0.60 (15.2)	0.56 (14.3)	0.50 (12.7)	0.16 (4.1)	0.26 (6.6)	1.04 (26.4)	0.56 (14.3)
	1/4	-FF4-DL-PRP4-	1.14 (29.0)			0.63 (15.9)	0.19 (4.8)	0.35 (9.0)	1.27 (32.3)	0.75 (19.1)
3/8	1/4	-FF6-DL-PRP4-	1.20 (30.5)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.23 (5.8)	0.35 (9.0)	1.27 (32.3)	0.75 (19.1)
	3/8	-FF6-DL-PRP6-	1.31 (33.3)			0.81 (20.6)	0.28 (7.1)	0.37 (9.4)	1.46 (37.1)	0.87 (22.2)
1/2	1/4	-FF8-DL-PRP4-	1.42 (36.1)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.23 (5.8)	0.35 (9.0)	1.38 (35.1)	0.75 (19.1)
	3/8	-FF8-DL-PRP6-				0.31 (7.9)	0.37 (9.4)	1.46 (37.1)	0.87 (22.2)	
	1/2	-FF8-DL-PRP8-				0.94 (23.9)	0.41 (10.4)	0.51 (13.0)	1.71 (43.4)	1.06 (27.0)
5/8	1/2	-FF10-DL-PRP8-	1.50 (38.1)	0.96 (24.4)	1.00 (25.4)	0.94 (23.9)	0.47 (11.9)	0.51 (13.0)	1.71 (43.4)	1.06 (27.0)
3/4	1/2	-FF12-DL-PRP8-	1.57 (39.9)	0.96 (24.4)	1.13 (28.6)	1.06 (27.0)	0.47 (11.9)	0.51 (13.0)	1.78 (45.2)	1.06 (27.0)
	3/4	-FF12-DL-PRP12-					0.62 (15.7)		1.92 (48.8)	1.37 (34.9)
1	3/4	-FF16-DL-PRP12-	1.93 (49.0)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.62 (15.7)	0.51 (13.0)	2.10 (53.3)	1.37 (34.9)
	1	-FF16-DL-PRP16-					0.78 (19.8)	0.52 (13.2)	2.11 (53.6)	1.63 (41.3)
Dimensions, mm (in.)										
6	1/8	-FM6-DL-PRP2-	27.0 (1.06)	15.3 (0.60)	14.0 (0.55)	12.7 (0.50)	4.0 (0.16)	6.6 (0.26)	26.4 (1.04)	14.3 (0.56)
	1/4	-FM6-DL-PRP4-	29.0 (1.14)			15.9 (0.63)	4.8 (0.19)	9.0 (0.35)	32.3 (1.27)	19.1 (0.75)
8	1/8	-FM8-DL-PRP2-	28.8 (1.13)	16.2 (0.64)	16.0 (0.63)	14.3 (0.56)	4.0 (0.16)	6.6 (0.26)	27.4 (1.08)	14.3 (0.56)
	1/4	-FM8-DL-PRP4-	29.9 (1.18)			15.9 (0.63)	5.9 (0.23)	9.0 (0.35)	32.2 (1.27)	19.1 (0.75)
10	1/4	-FM10-DL-PRP4-	33.5 (1.32)	17.2 (0.68)	19.0 (0.75)	20.6 (0.81)	5.9 (0.23)	9.0 (0.35)	35.0 (1.38)	19.1 (0.75)
	3/8	-FM10-DL-PRP6-				7.9 (0.31)	9.4 (0.37)	37.1 (1.46)	22.2 (0.87)	
12	1/4	-FM12-DL-PRP4-	36.0 (1.42)	22.8 (0.90)	22.0 (0.87)	20.6 (0.81)	5.9 (0.23)	9.0 (0.35)	35.0 (1.38)	19.1 (0.75)
	3/8	-FM12-DL-PRP6-					7.9 (0.31)	9.4 (0.37)	37.1 (1.46)	22.2 (0.87)
	1/2	-FM12-DL-PRP8-	38.0 (1.50)			23.8 (0.94)	9.5 (0.37)	13.0 (0.51)	43.4 (1.71)	27.0 (1.06)
	3/4	-FM12-DL-PRP12-	39.8 (1.57)			27.0 (1.06)			48.8 (1.92)	34.9 (1.37)

90° Elbows

Positionable Male



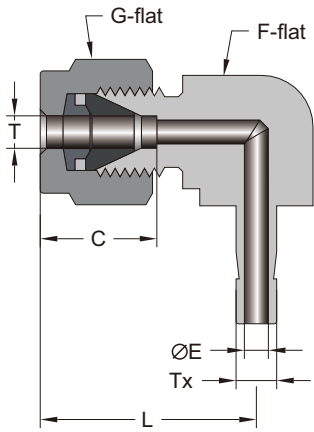
Adapts to SAE J1926/1, ISO 11926-1 and MS 16142 straight thread boss.

SAE/MS Straight Thread (ST)

Tube Size T	ST Size P	Basic Ordering Number	Dimensions							
			L	C	G	F	E	B	Lx	Gx
Dimensions, in. (mm)										
1/4	7/16-20	-FF4-DL-PST7-	1.12 (28.4)	0.60 (15.2)	0.56 (14.3)	0.50 (12.7)	0.19 (4.8)	0.39 (9.9)	1.06 (27.0)	0.56 (14.3)
	9/16-18	-FF4-DL-PST9-	1.20 (30.5)			0.63 (15.9)				0.69 (17.5)
5/16	1/2-20	-FF5-DL-PST8-	1.19 (30.2)	0.64 (16.2)	0.63 (15.9)	0.50 (12.7)	0.23 (5.8)	0.39 (9.9)	1.16 (29.5)	0.63 (15.9)
3/8	7/16-20	-FF6-DL-PST7-	1.31 (33.3)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.28 (7.1)	0.39 (9.9)	1.24 (31.5)	0.56 (14.3)
	9/16-18	-FF6-DL-PST9-	1.26 (32.0)			0.44 (11.2)				0.69 (17.5)
	3/4-16	-FF6-DL-PST12-	1.37 (34.8)			0.50 (12.7)				0.87 (22.2)
1/2	9/16-18	-FF8-DL-PST9-	1.48 (37.6)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.28 (7.1)	0.44 (11.2)	1.48 (37.5)	0.69 (17.5)
	3/4-16	-FF8-DL-PST12-					0.41 (10.4)			0.50 (12.7)
5/8	7/8-14	-FF10-DL-PST14-	1.56 (39.6)	0.96 (24.4)	1.00 (25.4)	0.94 (23.9)	0.50 (12.7)	0.56 (14.3)	1.71 (43.4)	1.00 (25.4)
3/4	1-1/16-12	-FF12-DL-PST17-	1.63 (41.3)	0.96 (24.4)	1.13 (28.6)	1.06 (27.0)	0.62 (15.7)	0.66 (16.8)	1.92 (48.8)	1.25 (31.8)
7/8	1-3/16-12	-FF14-DL-PST19-	1.70 (43.2)	1.02 (25.9)	1.25 (31.8)	1.25 (31.8)	0.72 (18.3)	0.66 (16.8)	1.99 (50.5)	1.37 (34.9)
1	1-5/16-12	-FF16-DL-PST21-	1.99 (50.5)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.88 (22.4)	0.66 (16.8)	2.11 (53.6)	1.50 (38.1)
1-1/4	1-5/8-12	-FF20-DL-PST26-	2.67 (67.8)	1.62 (41.1)	1.87 (47.6)	1.69 (42.9)	1.09 (27.7)	0.66 (16.8)	2.29 (58.2)	1.87 (47.6)
1-1/2	1-7/8-12	-FF24-DL-PST30-	3.07 (78.0)	1.97 (50.0)	2.25 (57.2)	2.00 (50.8)	1.34 (34.0)	0.66 (16.8)	2.38 (60.5)	2.13 (54.0)

90° Elbows

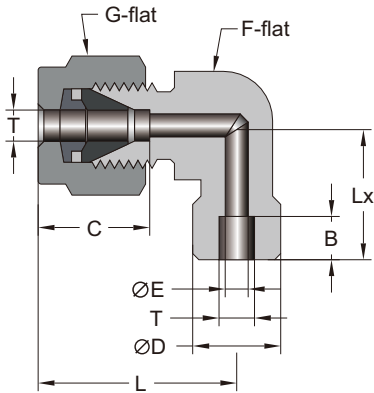
Reducing Elbows



Elbow

Tube Size T	Tube Size Tx	Basic Ordering Number	Dimensions				
			L	C	G	F	E
Dimensions, in. (mm)							
1/4	1/4	-FF4-DL-F4T-	1.06 (27.0)	0.60 (15.2)	0.56 (14.3)	0.50 (12.7)	0.17 (4.3)
3/8	1/4	-FF6-DL-F4T-	1.20 (30.5)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.17 (4.3)
	3/8	-FF6-DL-F6T-					0.27 (6.9)
1/2	3/8	-FF8-DL-F6T-	1.42 (36.0)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.27 (6.9)
	1/2	-FF8-DL-F8T-					0.37 (9.4)
Dimensions, mm (in.)							
6	6	-FM6-DL-M6T-	27.0 (1.06)	15.3 (0.60)	14.0 (0.55)	12.7 (0.50)	4.1 (0.16)
12	12	-FM12-DL-M12T-	38.1 (1.50)	22.8 (0.90)	22.0 (0.87)	22.0 (0.87)	8.8 (0.35)

Weld

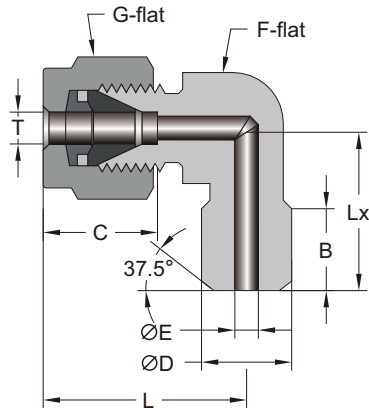


Tube Socket Weld

Tube Size T	Basic Ordering Number	Dimensions							
		L	C	G	F	E	B	D	Lx
Dimensions, in. (mm)									
1/8	-FF2-DL-TS2-	0.66 (16.8)	0.50 (12.7)	0.44 (11.1)	0.37 (9.5)	0.09 (2.3)	0.10 (2.5)	0.43 (11.0)	0.63 (15.9)
3/16	-FF3-DL-TS3-	0.72 (18.3)	0.54 (13.7)	0.50 (12.7)	0.44 (11.1)	0.13 (3.3)	0.19 (4.8)	0.58 (14.7)	0.69 (17.5)
1/4	-FF4-DL-TS4-	1.06 (27.0)	0.60 (15.2)	0.56 (14.3)	0.50 (12.7)	0.19 (4.8)	0.28 (7.1)	0.58 (14.7)	0.77 (19.6)
3/8	-FF6-DL-TS6-	1.20 (30.5)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.28 (7.1)	0.31 (7.9)	0.72 (18.3)	0.91 (23.1)
1/2	-FF8-DL-TS8-	1.42 (36.1)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.41 (10.4)	0.38 (9.7)	0.94 (23.9)	1.02 (25.9)
5/8	-FF10-DL-TS10-	1.56 (39.6)	0.96 (24.4)	1.00 (25.4)	1.06 (27.0)	0.50 (12.7)	0.41 (10.4)	1.08 (27.5)	1.16 (29.5)
3/4	-FF12-DL-TS12-	1.57 (39.9)	0.96 (24.4)	1.13 (28.6)	1.06 (27.0)	0.62 (15.7)	0.44 (11.1)	1.23 (31.2)	1.16 (29.5)
1	-FF16-DL-TS16-	1.93 (49.0)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.88 (22.4)	0.62 (15.7)	1.59 (40.3)	1.45 (36.8)

90° Elbows

Reducing Elbows



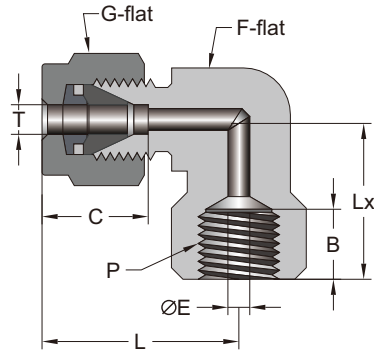
The nominal wall thickness of pipe welding ends is SCH80.

Pipe Butt Weld

Tube Size T	Pipe Size Tx	Basic Ordering Number	Dimensions							
			L	C	G	F	E	B	D	Lx
Dimensions, in. (mm)										
1/8	1/8	-FF2-DL-PB2-	0.92 (23.4)	0.50 (12.7)	0.44 (11.1)	0.44 (11.1)	0.09 (2.3)	0.38 (9.7)	0.41 (11.3)	0.72 (18.3)
3/16	1/8	-FF3-DL-PB2-	1.01 (25.7)	0.54 (13.7)	0.50 (12.7)	0.50 (12.7)	0.12 (3.0)	0.38 (9.7)	0.41 (11.3)	0.74 (18.8)
1/4	1/8	-FF4-DL-PB2-	1.06 (27.0)	0.60 (15.2)	0.56 (14.3)	0.50 (12.7)	0.19 (4.8)	0.38 (9.7)	0.41 (11.3)	0.74 (18.8)
	1/4	-FF4-DL-PB4-						0.56 (14.3)	0.54 (13.7)	0.92 (23.4)
3/8	1/4	-FF6-DL-PB4-	1.20 (30.5)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.28 (7.1)	0.56 (14.3)	0.54 (13.7)	1.00 (25.4)
1/2	3/8	-FF8-DL-PB6-	1.37 (34.8)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.41 (10.4)	0.56 (14.3)	0.67 (17.1)	1.13 (28.6)
	1/2	-FF8-DL-PB8-	1.42 (36.1)					0.75 (19.1)	0.84 (21.3)	1.30 (33.0)
5/8	1/2	-FF10-DL-PB8-	1.43 (36.3)	0.96 (24.4)	1.00 (25.4)	0.94 (23.8)	0.50 (12.7)	0.75 (19.1)	0.84 (21.3)	1.38 (35.1)
3/4	3/4	-FF12-DL-PB12-	1.57 (39.9)	0.96 (24.4)	1.13 (28.6)	1.06 (27.0)	0.62 (15.7)	0.75 (19.1)	1.05 (26.7)	1.45 (36.8)
1	3/4	-FF16-DL-PB12-	1.94 (49.3)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.74 (18.8)	0.75 (19.1)	1.05 (26.7)	1.65 (41.9)
	1	-FF16-DL-PB16-					0.88 (22.4)	0.94 (23.8)	1.31 (33.4)	1.84 (46.7)

90° Elbows

Female

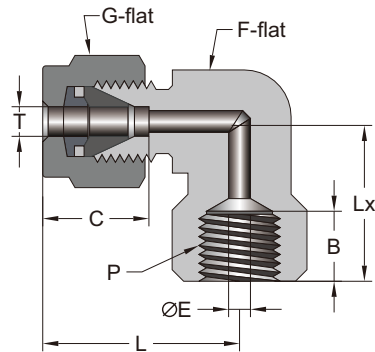


NPT

Tube Size T	NPT Size P	Basic Ordering Number	Dimensions						
			L	C	G	F	B	Lx	E
Dimensions, in. (mm)									
1/16	1/16	-FF1-DL-FNT1-	0.71 (18.0)	0.34 (8.6)	0.31 (7.9)	0.44 (11.1)	0.39 (9.9)	0.56 (14.3)	0.05 (1.3)
	1/8	-FF1-DL-FNT2-	0.81 (20.6)			0.56 (14.3)	0.41 (10.4)	0.75 (19.1)	
1/8	1/8	-FF2-DL-FNT2-	0.97 (24.6)	0.50 (12.7)	0.44 (11.1)	0.50 (12.7)	0.41 (10.4)	0.75 (19.1)	0.09 (2.3)
	1/4	-FF2-DL-FNT4-	1.08 (27.4)			0.69 (17.5)	0.59 (15.0)	0.88 (22.4)	
3/16	1/8	-FF3-DL-FNT2-	1.00 (25.4)	0.54 (13.7)	0.50 (12.7)	0.50 (12.7)	0.41 (10.4)	0.75 (19.1)	0.12 (3.0)
1/4	1/8	-FF4-DL-FNT2-	1.06 (27.0)	0.60 (15.2)	0.56 (14.3)	0.50 (12.7)	0.41 (10.4)	0.75 (19.1)	0.19 (4.8)
	1/4	-FF4-DL-FNT4-	1.17 (29.7)			0.69 (17.5)	0.59 (15.0)	0.88 (22.4)	
	3/8	-FF4-DL-FNT6-	1.25 (31.8)			0.81 (20.6)			
	1/2	-FF4-DL-FNT8-	1.36 (34.5)			1.00 (25.4)	0.78 (19.8)	1.12 (28.4)	
5/16	1/8	-FF5-DL-FNT2-	1.13 (28.7)	0.64 (16.2)	0.63 (15.9)	0.50 (12.7)	0.41 (10.4)	0.75 (19.1)	0.25 (6.4)
	1/4	-FF5-DL-FNT4-	1.20 (30.5)			0.69 (17.5)	0.59 (15.0)	0.88 (22.4)	
3/8	1/8	-FF6-DL-FNT2-	1.20 (30.5)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.41 (10.4)	0.75 (19.1)	0.28 (7.1)
	1/4	-FF6-DL-FNT4-	1.23 (31.2)			0.69 (17.5)	0.59 (15.0)	0.88 (22.4)	
	3/8	-FF6-DL-FNT6-	1.31 (33.3)			0.81 (20.6)			
	1/2	-FF6-DL-FNT8-	1.42 (36.1)			1.00 (25.4)	0.78 (19.8)	1.12 (28.4)	
1/2	1/4	-FF8-DL-FNT4-	1.42 (36.1)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.59 (15.0)	0.88 (22.4)	0.41 (10.4)
	3/8	-FF8-DL-FNT6-	1.53 (38.9)			1.00 (25.4)	0.78 (19.8)	1.12 (28.4)	
	1/2	-FF8-DL-FNT8-	1.53 (38.9)			1.00 (25.4)	0.78 (19.8)	1.12 (28.4)	
5/8	3/8	-FF10-DL-FNT6-	1.50 (38.1)	0.96 (24.4)	1.00 (25.4)	0.94 (23.9)	0.59 (15.0)	0.88 (22.4)	0.50 (12.7)
	1/2	-FF10-DL-FNT8-	1.57 (39.9)			1.06 (27.0)	0.78 (19.8)	1.12 (28.4)	
3/4	1/2	-FF12-DL-FNT8-	1.57 (39.9)	0.96 (24.4)	1.13 (28.6)	1.06 (27.0)	0.78 (19.8)	1.12 (28.4)	0.62 (15.7)
	3/4	-FF12-DL-FNT12-	1.76 (44.7)			1.37 (34.9)	0.81 (20.6)	1.25 (31.8)	
7/8	3/4	-FF14-DL-FNT12-	1.76 (44.7)	1.02 (25.9)	1.25 (31.8)	1.37 (34.9)	0.81 (20.6)	1.25 (31.8)	0.72 (18.3)
1	3/4	-FF16-DL-FNT12-	1.93 (49.0)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.81 (20.6)	1.25 (31.8)	0.88 (22.4)
	1	-FF16-DL-FNT16-	2.11 (53.6)			1.69 (42.9)	1.00 (25.4)	1.50 (38.1)	
Dimensions, mm (in.)									
6	1/8	-FM6-DL-FNT2-	27.0 (1.06)	15.3 (0.60)	14.0 (0.55)	12.7 (0.50)	10.4 (0.41)	19.0 (0.75)	4.8 (0.19)
	1/4	-FM6-DL-FNT4-	29.8 (1.17)			17.5 (0.69)	15.0 (0.59)	22.4 (0.88)	
8	1/8	-FM8-DL-FNT2-	28.8 (1.13)	16.2 (0.64)	16.0 (0.63)	14.3 (0.56)	10.4 (0.41)	19.0 (0.75)	6.4 (0.25)
	1/4	-FM8-DL-FNT4-	30.6 (1.20)			17.5 (0.69)	15.0 (0.59)	22.4 (0.88)	
10	1/4	-FM10-DL-FNT4-	33.5 (1.32)	17.2 (0.68)	19.0 (0.75)	20.6 (0.81)	15.0 (0.59)	22.4 (0.88)	7.9 (0.31)
	3/8	-FM10-DL-FNT6-	33.5 (1.32)			20.6 (0.81)	15.0 (0.59)	22.4 (0.88)	
	1/2	-FM10-DL-FNT8-	36.6 (1.44)			25.4 (1.00)	19.8 (0.78)	28.5 (1.12)	

90° Elbows

Female

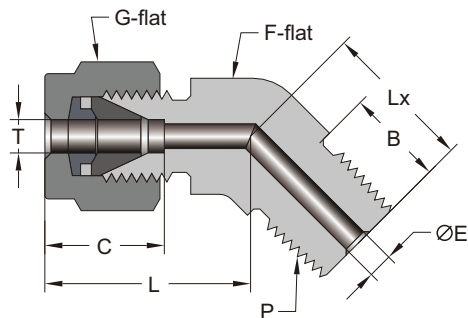


NPT

Tube Size T	NPT Size P	Basic Ordering Number	Dimensions						
			L	C	G	F	B	Lx	E
Dimensions, mm (in.)									
12	1/4	-FM12-DL-FNT4-	36.0 (1.42)			20.6 (0.81)	15.0 (0.59)	22.4 (0.88)	9.5 (0.37)
	3/8	-FM12-DL-FNT6-		22.8 (0.90)	22.0 (0.87)				
	1/2	-FM12-DL-FNT8-	38.8 (1.53)			25.4 (1.00)	19.8 (0.78)	28.5 (1.12)	
16	3/8	-FM16-DL-FNT6-	39.5 (1.56)	24.4 (0.96)	25.0 (0.98)	27.0 (1.06)	15.0 (0.59)	23.6 (0.93)	12.7 (0.50)
	1/2	-FM16-DL-FNT8-					19.8 (0.78)	28.5 (1.12)	

45° Elbows

Male

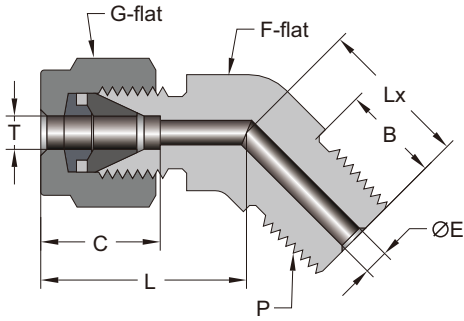


NPT

Tube Size T	NPT Size P	Basic Ordering Number	Dimensions						
			L	C	G	F	B	Lx	E
Dimensions, in. (mm)									
1/16	1/16	-FF1-DV-NT1-	0.82 (20.8)	0.34 (8.6)	0.31 (7.9)	0.44 (11.1)	0.38 (9.7)	0.66 (16.8)	0.05 (1.3)
1/8	1/8	-FF2-DV-NT2-	0.82 (20.8)	0.50 (12.7)	0.44 (11.1)	0.44 (11.1)	0.38 (9.7)	0.66 (16.8)	0.09 (2.3)
3/16	1/8	-FF3-DV-NT2-	0.85 (21.6)	0.54 (13.7)	0.50 (12.7)	0.44 (11.1)	0.38 (9.7)	0.58 (14.7)	0.12 (3.0)
1/4	1/8	-FF4-DV-NT2-	0.97 (24.6)	0.60 (15.2)	0.56 (14.3)	0.50 (12.7)	0.38 (9.7)	0.65 (16.5)	0.19 (4.8)
	1/4	-FF4-DV-NT4-					0.56 (14.3)	0.83 (21.1)	
5/16	1/8	-FF5-DV-NT2-	0.94 (24.0)	0.64 (16.2)	0.63 (15.9)	0.56 (14.3)	0.38 (9.7)	0.66 (16.8)	0.28 (7.1)
3/8	1/8	-FF6-DV-NT2-	1.10 (27.9)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.38 (9.7)	0.72 (18.3)	0.19 (4.8)
	1/4	-FF6-DV-NT4-					0.56 (14.3)	0.90 (22.9)	
	3/8	-FF6-DV-NT6-						0.81 (20.6)	
1/2	3/8	-FF8-DV-NT6-	1.26 (32.0)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.56 (14.3)	0.95 (24.1)	0.38 (9.7)

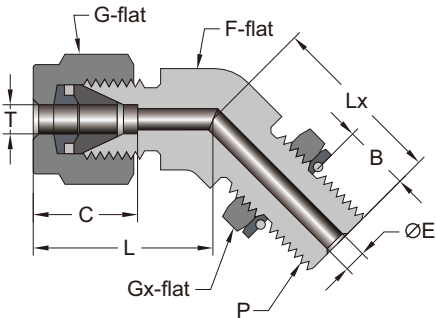
45° Elbows

Male



NPT

Tube Size T	NPT Size P	Basic Ordering Number	Dimensions						
			L	C	G	F	B	Lx	E
Dimensions, in. (mm)									
5/8	1/2	-FF10-FFE-NT8-	1.20 (30.5)	0.96 (24.4)	1.00 (25.4)	0.94 (23.9)	0.75 (19.1)	1.17 (29.7)	0.47 (11.9)
3/4	3/4	-FF12-DV-NT12-	1.34 (34.0)	0.96 (24.4)	1.13 (28.6)	1.06 (27.0)	0.75 (19.1)	1.22 (31.0)	0.62 (15.7)
7/8	3/4	-FF14-DV-NT12-	1.59 (40.4)	1.02 (25.9)	1.25 (31.8)	1.25 (31.8)	0.75 (19.1)	1.27 (32.3)	0.62 (15.7)
1	1	-FF16-DV-NT16-	1.59 (40.4)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.88 (22.4)	1.49 (37.8)	0.88 (22.4)
Dimensions, mm (in.)									
6	1/8	-FM6-DV-NT2-	23.4 (0.92)	15.3 (0.60)	14.0 (0.55)	12.7 (0.50)	9.7 (0.38)	16.8 (0.66)	4.8 (0.19)
	1/4	-FM6-DV-NT4-	23.4 (0.92)				14.2 (0.56)	21.8 (0.86)	
8	1/8	-FM8-DV-NT2-	24.3 (0.96)	16.2 (0.64)	16.0 (0.63)	15.9 (0.63)	9.7 (0.38)	16.8 (0.66)	4.8 (0.19)
10	1/4	-FM10-DV-NT4-	26.6 (1.05)	17.2 (0.68)	19.0 (0.75)	17.5 (0.69)	14.2 (0.56)	24.1 (0.95)	7.9 (0.31)
12	3/8	-FM12-DV-NT6-	29.1 (1.15)	22.8 (0.90)	22.0 (0.87)	20.6 (0.81)	14.2 (0.56)	24.1 (0.95)	9.5 (0.37)
	1/2	-FM12-DV-NT8-	30.7 (1.21)				19.0 (0.75)	29.7 (1.17)	
16	1/2	-FM16-DV-NT8-	30.4 (1.20)	24.4 (0.96)	25.0 (0.98)	23.8 (0.94)	19.0 (0.75)	29.7 (1.17)	11.9 (0.47)



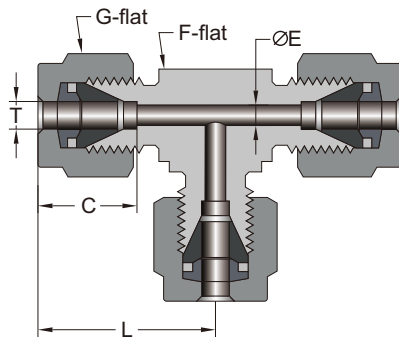
Adapts to SAE J1926/1, ISO 11926-1 and MS 16142 straight thread boss.

Positionable, SAE/MS Straight Thread (ST)

Tube Size T	ST Size P	Basic Ordering Number	Dimensions							
			L	C	G	F	B	Lx	Gx	E
Dimensions, in. (mm)										
1/4	7/16-20	-FF4-DV-PST7-	1.01 (25.7)	0.60 (15.2)	0.56 (14.3)	0.50 (12.7)	0.39 (9.9)	1.01 (25.7)	0.56 (14.3)	0.19 (4.8)
3/8	9/16-18	-FF6-DV-PST9-	1.10 (27.9)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.44 (11.1)	1.11 (28.2)	0.69 (17.5)	0.28 (7.1)
1/2	3/4-16	-FF8-DV-PST12-	1.26 (32.0)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.50 (12.7)	1.27 (32.3)	0.87 (22.2)	0.41 (10.4)
3/4	1-1/16-12	-FF12-DV-PST17-	1.57 (39.9)	0.96 (24.4)	1.13 (28.6)	1.06 (27.0)	0.66 (16.8)	1.86 (47.2)	1.25 (31.8)	0.62 (15.7)
1	1-5/16-12	-FF16-DV-PST21-	1.87 (47.5)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.66 (16.8)	1.99 (50.5)	1.50 (38.1)	0.88 (22.4)

Tees

Unions

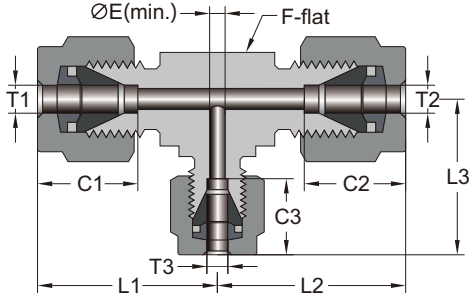


Union

Tube Size T	Basic Ordering Number	Dimensions				
		L	C	G	F	E
Dimensions, in. (mm)						
1/16	-DT-FF1-	0.70 (17.8)	0.34 (8.6)	0.31 (7.9)	0.37 (9.5)	0.05 (1.3)
1/8	-DT-FF2-	0.87 (22.2)	0.50 (12.7)	0.44 (11.1)	0.37 (9.5)	0.09 (2.3)
3/16	-DT-FF3-	0.96 (24.4)	0.54 (13.7)	0.50 (12.7)	0.44 (11.1)	0.12 (3.0)
1/4	-DT-FF4-	1.06 (26.9)	0.60 (15.2)	0.56 (14.3)	0.50 (12.7)	0.19 (4.8)
5/16	-DT-FF5-	1.17 (29.7)	0.64 (16.2)	0.63 (15.9)	0.63 (15.9)	0.25 (6.4)
3/8	-DT-FF6-	1.20 (30.5)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.28 (7.1)
1/2	-DT-FF8-	1.42 (36.1)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.41 (10.4)
5/8	-DT-FF10-	1.53 (38.9)	0.96 (24.4)	1.00 (25.4)	1.00 (25.4)	0.50 (12.7)
3/4	-DT-FF12-	1.57 (39.9)	0.96 (24.4)	1.13 (28.6)	1.06 (27.0)	0.62 (15.7)
7/8	-DT-FF14-	1.76 (44.7)	1.02 (25.9)	1.25 (31.8)	1.37 (34.9)	0.72 (18.3)
1	-DT-FF16-	1.93 (49.0)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.88 (22.4)
1-1/8	-DT-FF18-	2.17 (55.1)	1.44 (36.7)	1.75 (44.5)	1.69 (42.9)	0.97 (24.6)
1-1/4	-DT-FF20-	2.62 (66.5)	1.62 (41.1)	1.87 (47.6)	1.69 (42.9)	1.09 (27.7)
1-1/2	-DT-FF24-	3.07 (78.0)	1.97 (50.0)	2.25 (57.2)	2.00 (50.8)	1.34 (34.0)
Dimensions, mm (in.)						
2	-DT-FM2-	22.3 (0.88)	12.9(0.51)	12.0 (0.47)	9.5 (0.37)	1.7(0.07)
3	-DT-FM3-	22.3 (0.88)	12.9 (0.51)	12.0 (0.47)	9.5 (0.37)	2.4 (0.09)
4	-DT-FM4-	25.4 (1.00)	13.7 (0.54)	12.0 (0.47)	12.7 (0.50)	2.4 (0.09)
6	-DT-FM6-	27.0 (1.06)	15.3 (0.60)	14.0 (0.55)	12.7 (0.50)	4.8 (0.19)
8	-DT-FM8-	29.9(1.18)	16.2 (0.64)	16.0 (0.63)	15.9 (0.63)	6.4 (0.25)
10	-DT-FM10-	31.5 (1.24)	17.2 (0.68)	19.0 (0.75)	17.5 (0.69)	7.9 (0.31)
12	-DT-FM12-	36.0 (1.42)	22.8 (0.90)	22.0 (0.87)	20.6 (0.81)	9.5 (0.37)
14	-DT-FM14-	38.8 (1.53)	24.4 (0.96)	25.0 (0.98)	25.4 (1.00)	11.1 (0.44)
15	-DT-FM15-	38.8 (1.53)	24.4 (0.96)	25.0 (0.98)	25.4 (1.00)	11.9 (0.47)
16	-DT-FM16-	38.8 (1.53)	24.4 (0.96)	25.0 (0.98)	25.4 (1.00)	12.7 (0.50)
18	-DT-FM18-	39.8 (1.57)	24.4 (0.96)	30.0 (1.18)	27.0 (1.06)	15.1 (0.59)
20	-DT-FM20-	44.6 (1.76)	26.0 (1.02)	32.0 (1.26)	34.9 (1.37)	15.9 (0.63)
22	-DT-FM22-	44.6 (1.76)	26.0 (1.02)	32.0 (1.26)	34.9 (1.37)	18.3 (0.72)
25	-DT-FM25-	49.1 (1.93)	31.3 (1.23)	38.0 (1.50)	34.9 (1.37)	21.8 (0.86)
28	-DT-FM28-	64.0 (2.52)	36.6 (1.44)	46.0 (1.81)	42.9 (1.69)	21.8 (0.86)
30	-DT-FM30-	69.9 (2.75)	39.6 (1.56)	50.0 (1.97)	42.9 (1.69)	26.2 (1.03)
32	-DT-FM32-	72.3 (2.85)	42.0 (1.65)	50.0 (1.97)	42.9 (1.69)	28.6 (1.13)
38	-DT-FM38-	84.0 (3.31)	49.4 (1.94)	60.0 (2.36)	50.8 (2.00)	33.7 (1.33)

Tees

Unions

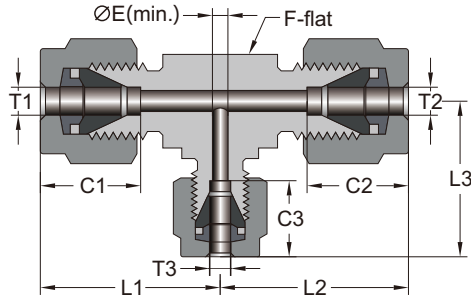


Reducing Union (Fractional)

Tube Size T1	Tube Size T2	Tube Size T3	Basic Ordering Number	Dimensions											
				L1	L2	L3	C1	C2	C3	F	E				
Dimensions, in. (mm)															
1/4	1/4	1/8	-FF4-DT-FF4-FF2-	1.05 (26.7)	1.05 (26.7)	0.31 (7.9)	0.60 (15.2)	0.60 (15.2)	0.50 (12.7)	0.50 (12.7)	0.09 (2.3)				
3/8	1/4	1/4	-FF6-DT-FF4-FF4-	1.20 (30.5)	1.14 (29.0)	1.14 (29.0)	0.66 (16.8)	0.60 (15.2)	0.60 (15.2)	0.63 (15.9)	0.19 (4.8)				
	1/4	3/8	-FF6-DT-FF4-FF6-		1.20 (30.5)	1.20 (30.5)			0.66 (16.8)			0.60 (15.2)			
1/2	3/8	1/4	-FF6-DT-FF6-FF4-	1.42 (36.1)	1.20 (30.5)	1.14 (29.0)	0.90 (22.9)	0.60 (15.2)	0.60 (15.2)	0.81 (20.6)	0.19 (4.8)				
	1/4	1/4	-FF8-DT-FF4-FF4-		1.22 (30.9)	1.22 (30.9)			0.60 (15.2)			0.60 (15.2)			
	1/4	1/2	-FF8-DT-FF4-FF8-		1.25 (31.8)	1.42 (36.1)			0.60 (15.2)			0.90 (22.9)	0.66 (16.8)		
	3/8	3/8	-FF8-DT-FF6-FF6-		1.31 (33.3)	1.31 (33.3)			0.66 (16.8)			0.66 (16.8)	0.66 (16.8)		
	3/8	1/2	-FF8-DT-FF6-FF8-		1.42 (36.1)	1.42 (36.1)			0.66 (16.8)			0.90 (22.9)	0.90 (22.9)		
	1/2	1/4	-FF8-DT-FF8-FF4-		1.42 (36.1)	1.25 (31.8)			0.90 (22.9)			0.60 (15.2)	0.60 (15.2)		
5/8	1/2	3/8	-FF8-DT-FF8-FF6-	1.53 (38.9)	1.42 (36.1)	1.31 (33.3)	0.96 (24.4)	0.66 (16.8)	0.66 (16.8)	1.00 (25.4)	0.28 (7.1)				
	3/8	3/8	-FF10-DT-FF6-FF6-		1.42 (36.1)	1.42 (36.1)			0.66 (16.8)			0.66 (16.8)			
	1/2	1/2	-FF10-DT-FF8-FF8-		1.53 (38.9)	1.53 (38.9)			0.90 (22.9)			0.90 (22.9)	0.90 (22.9)		
	5/8	3/8	-FF10-DT-FF10-FF6-		1.42 (36.1)	1.42 (36.1)			0.96 (24.4)			0.66 (16.8)	0.66 (16.8)		
3/4	5/8	1/2	-FF10-DT-FF10-FF8-	1.56 (39.6)	1.53 (38.9)	1.53 (38.9)	0.96 (24.4)	0.96 (24.4)	0.90 (22.9)	1.06 (27.0)	0.41 (10.4)				
	3/8	3/8	-FF12-DT-FF6-FF6-		1.45 (36.9)	1.45 (36.9)			0.66 (16.8)			0.66 (16.8)			
	1/2	1/2	-FF12-DT-FF8-FF8-		1.56 (39.6)	1.56 (39.6)			0.90 (22.9)			0.90 (22.9)	0.90 (22.9)		
	5/8	5/8	-FF12-DT-FF10-FF10-		1.56 (39.6)	1.56 (39.6)			0.96 (24.4)			0.96 (24.4)	0.96 (24.4)		
	3/4	1/4	-FF12-DT-FF12-FF4-		1.43 (36.5)	1.43 (36.5)			0.60 (15.2)			0.60 (15.2)	0.60 (15.2)		
	3/4	3/8	-FF12-DT-FF12-FF6-		1.45 (36.9)	1.45 (36.9)			0.66 (16.8)			0.66 (16.8)	0.66 (16.8)		
7/8	3/4	1/2	-FF12-DT-FF12-FF8-	1.76 (44.7)	1.56 (39.6)	1.56 (39.6)	1.02 (25.9)	0.96 (24.4)	0.90 (22.9)	1.37 (34.9)	0.41 (10.4)				
	3/4	5/8	-FF12-DT-FF12-FF10-		1.56 (39.6)	1.56 (39.6)			0.96 (24.4)			0.96 (24.4)			
	3/4	3/4	-FF14-DT-FF12-FF12-		1.76 (44.7)	1.76 (44.7)			0.96 (24.4)			0.96 (24.4)	0.96 (24.4)		
1	7/8	1/4	-FF14-DT-FF14-FF4-	1.76 (44.7)	1.76 (44.7)	1.76 (44.7)	1.02 (25.9)	1.02 (25.9)	0.60 (15.2)	1.37 (34.9)	0.19 (4.8)				
	7/8	3/8	-FF14-DT-FF14-FF6-			1.65 (41.9)			1.65 (41.9)			0.66 (16.8)	0.66 (16.8)		
	3/8	3/8	-FF16-DT-FF6-FF6-			1.65 (41.9)			1.65 (41.9)			0.66 (16.8)	0.66 (16.8)		
	1	1/2	1/2	-FF16-DT-FF8-FF8-	1.94 (49.3)	1.76 (44.7)	1.76 (44.7)	1.23 (31.2)	0.90 (22.9)	0.90 (22.9)	1.37 (34.9)	0.41 (10.4)			
		1/2	1	-FF16-DT-FF8-FF16-			1.94 (49.3)			1.94 (49.3)			0.96 (24.4)	1.23 (31.2)	1.23 (31.2)
		3/4	1	-FF16-DT-FF12-FF16-			1.76 (44.7)			1.76 (44.7)			0.96 (24.4)	1.02 (25.9)	1.02 (25.9)
		7/8	7/8	-FF16-DT-FF14-FF14-			1.76 (44.7)			1.76 (44.7)			1.02 (25.9)	1.02 (25.9)	1.02 (25.9)
		1	1/4	-FF16-DT-FF16-FF4-			1.59 (40.4)			1.59 (40.4)			0.60 (15.2)	0.60 (15.2)	0.60 (15.2)
		1	3/8	-FF16-DT-FF16-FF6-			1.65 (41.9)			1.65 (41.9)			0.66 (16.8)	0.66 (16.8)	0.66 (16.8)
		1	1/2	-FF16-DT-FF16-FF8-			1.76 (44.7)			1.76 (44.7)			0.90 (22.9)	0.90 (22.9)	0.90 (22.9)
1	5/8	-FF16-DT-FF16-FF10-	1.76 (44.7)	1.76 (44.7)	0.96 (24.4)	0.96 (24.4)	0.96 (24.4)								
1	3/4	-FF16-DT-FF16-FF12-	1.76 (44.7)	1.76 (44.7)	1.02 (25.9)	1.02 (25.9)	1.02 (25.9)								
1	7/8	-FF16-DT-FF16-FF14-	1.76 (44.7)	1.76 (44.7)	1.02 (25.9)	1.02 (25.9)	1.02 (25.9)								

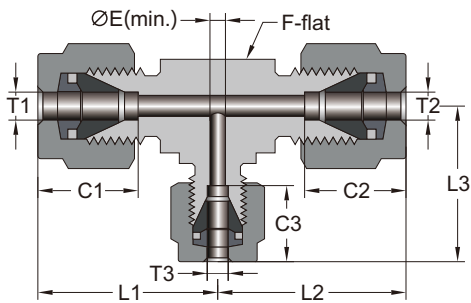
Tees

Unions



Reducing Union (Fractional)

Tube Size T1	Tube Size T2	Tube Size T3	Basic Ordering Number	Dimensions							
				L1	L2	L3	C1	C2	C3	F	E
Dimensions, in. (mm)											
1-1/4	1-1/4	1	-FF20-DT-FF20-FF16-	2.67 (67.8)	2.67 (67.8)	2.17 (55.1)	1.62 (41.2)	1.62 (41.2)	1.23 (31.2)	1.69 (42.9)	0.88 (22.4)
1-1/2	1-1/2	1	-FF24-DT-FF24-FF16-	3.10 (78.7)	3.10 (78.7)	2.36 (60.0)	1.97 (50.0)	1.97 (50.0)	1.23 (31.2)	2.00 (50.8)	0.88 (22.4)

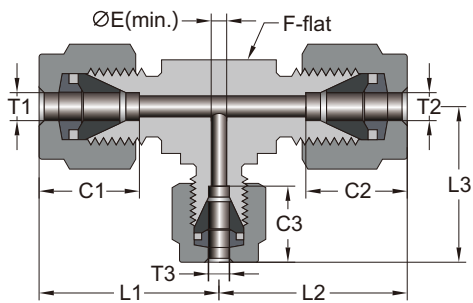


Reducing Union (Metric)

Tube Size T1	Tube Size T2	Tube Size T3	Basic Ordering Number	Dimensions							
				L1	L2	L3	C1	C2	C3	F	E
Dimensions, mm (in.)											
3	3	6	-FM3-DT-FM3-FM6-	24.7 (0.97)	24.7 (0.97)	27.0 (1.06)	12.9 (0.51)	12.9 (0.51)	15.3 (0.60)	12.7 (0.50)	2.4 (0.09)
6	6	3	-FM6-DT-FM6-FM3-	27.0 (1.06)	27.0 (1.06)	24.7 (0.97)	15.3 (0.60)	15.3 (0.60)	12.9 (0.51)	12.7 (0.50)	2.4 (0.09)
	6	8	-FM6-DT-FM6-FM8-	28.0 (1.10)	28.0 (1.10)	28.8 (1.13)			16.2 (0.64)	14.3 (0.56)	4.8 (0.19)
8	8	6	-FM8-DT-FM8-FM6-	30.0 (1.18)	30.0 (1.18)	29.0 (1.14)	16.2 (0.64)	16.2 (0.64)	15.3 (0.60)	15.9 (0.63)	4.8 (0.19)
	8	12	-FM8-DT-FM8-FM12-	35.2 (1.39)	35.2 (1.39)	36.0 (1.42)			22.8 (0.90)	20.6 (0.81)	6.4 (0.25)
10	10	6	-FM10-DT-FM10-FM6-	31.5 (1.24)	31.5 (1.24)	29.9 (1.18)	17.2 (0.68)	17.2 (0.68)	15.3 (0.60)	17.5 (0.69)	4.8 (0.19)
	10	8	-FM10-DT-FM10-FM8-			30.7 (1.21)			16.2 (0.64)		6.4 (0.25)
12	12	6	-FM12-DT-FM12-FM6-	36.0 (1.42)	36.0 (1.42)	31.8 (1.25)	22.8 (0.90)	22.8 (0.90)	15.3 (0.60)	20.6 (0.81)	4.8 (0.19)
	12	8	-FM12-DT-FM12-FM8-			32.0 (1.26)			16.2 (0.64)		6.4 (0.25)
	12	14	-FM12-DT-FM12-FM14-	38.0 (1.50)	38.0 (1.50)	38.0 (1.50)			24.4 (0.96)	25.4 (1.00)	9.5 (0.37)
	12	18	-FM12-DT-FM12-FM18-	39.8 (1.57)	39.8 (1.57)	39.8 (1.57)			24.4 (0.96)	27.0 (1.06)	
14	14	8	-FM14-DT-FM14-FM8-	38.0 (1.50)	38.0 (1.50)	35.5 (1.40)	24.4 (0.96)	24.4 (0.96)	16.2 (0.64)	25.4 (1.00)	6.4 (0.25)
	14	10	-FM14-DT-FM14-FM10-			36.7 (1.44)			17.2 (0.68)		7.9 (0.31)
15	15	12	-FM15-DT-FM15-FM12-	38.8 (1.53)	38.8 (1.53)	38.8 (1.53)	24.4 (0.96)	24.4 (0.96)	22.8 (0.90)	25.4 (1.00)	9.5 (0.37)
16	8	16	-FM16-DT-FM8-FM16-	38.8 (1.53)	35.5 (1.40)	38.8 (1.53)	24.4 (0.96)	24.4 (0.96)	16.2 (0.64)	25.4 (1.00)	6.4 (0.25)
	16	12	-FM16-DT-FM16-FM12-		38.8 (1.53)	38.9 (1.53)			24.4 (0.96)		22.8 (0.90)

Tees

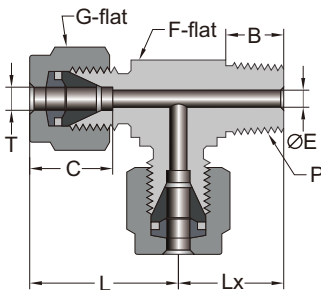
Unions



Reducing Union (Metric)

Tube Size T1	Tube Size T2	Tube Size T3	Basic Ordering Number	Dimensions							
				L1	L2	L3	C1	C2	C3	F	E
Dimensions, mm (in.)											
18	18	8	-FM18-DT-FM18-FM8-	39.8 (1.57)	39.8 (1.57)	39.0 (1.54)	24.4 (0.96)	24.4 (0.96)	16.2 (0.64)	27.0 (1.06)	6.4 (0.25)
	18	10	-FM18-DT-FM18-FM10-			37.4 (1.47)			17.2 (0.68)		7.9 (0.31)
	18	12	-FM18-DT-FM18-FM12-			39.8 (1.57)			22.8 (0.90)		9.5 (0.37)
	18	14	-FM18-DT-FM18-FM14-			24.4 (0.96)			11.1 (0.44)		
20	20	14	-FM20-DT-FM20-FM14-	44.6 (1.76)	44.6 (1.76)	44.6 (1.76)	26.0 (1.02)	26.0 (1.02)	24.4 (0.96)	34.9 (1.37)	11.1 (0.44)
22	22	12	-FM22-DT-FM22-FM12-	44.6 (1.76)	44.6 (1.76)	44.6 (1.76)	26.0 (1.02)	26.0 (1.02)	22.8 (0.90)	34.9 (1.37)	9.5 (0.37)
25	25	12	-FM25-DT-FM25-FM12-	49.1 (1.93)	49.1 (1.93)	44.6 (1.76)	31.3 (1.23)	31.3 (1.23)	22.8 (0.90)	34.9 (1.37)	9.5 (0.37)

Male

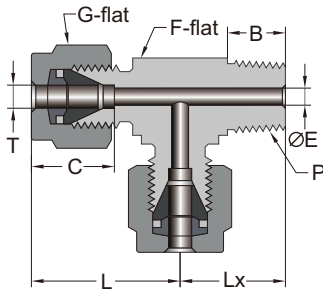


Run, NPT

Tube Size T	NPT Size P	Basic Ordering Number	Dimensions						
			L	B	C	G	F	E	Lx
Dimensions, in. (mm)									
1/8	1/8	-FF2-DT-NT2-FF2-	0.93 (23.6)	0.38 (9.7)	0.50 (12.7)	0.44 (11.1)	0.44 (11.1)	0.09 (2.3)	0.70 (17.8)
	1/4	-FF2-DT-NT4-FF2-	0.97 (24.6)	0.56 (14.3)			0.50 (12.7)		0.92 (23.4)
3/16	1/8	-FF3-DT-NT2-FF3-	0.96 (24.4)	0.38 (9.7)	0.54 (13.7)	0.50 (12.7)	0.44 (11.1)	0.12 (3.0)	0.70 (17.8)
1/4	1/8	-FF4-DT-NT2-FF4-	1.06 (27.0)	0.38 (9.7)	0.60 (15.2)	0.56 (14.3)	0.50 (12.7)	0.19 (4.8)	0.74 (18.8)
	1/4	-FF4-DT-NT4-FF4-		0.56 (14.3)					0.92 (23.4)
5/16	1/8	-FF5-DT-NT2-FF5-	1.17 (29.7)	0.38 (9.7)	0.64 (16.2)	0.63 (15.9)	0.63 (15.9)	0.19 (4.8)	0.82 (20.8)
	1/4	-FF5-DT-NT4-FF5-		0.56 (14.3)					0.25 (6.4)
3/8	1/4	-FF6-DT-NT4-FF6-	1.20 (30.5)	0.56 (14.3)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.28 (7.1)	1.00 (25.4)
	3/8	-FF6-DT-NT6-FF6-	1.31 (33.3)				0.81 (20.6)		1.11 (28.2)

Tees

Male

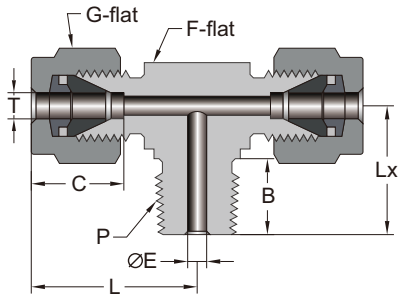


Run, NPT

Tube Size T	NPT Size P	Basic Ordering Number	Dimensions						
			L	B	C	G	F	E	Lx
Dimensions, in. (mm)									
1/2	3/8	-FF8-DT-NT6-FF8-	1.42 (36.1)	0.56 (14.3)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.38 (9.7)	1.11 (28.2)
	1/2	-FF8-DT-NT8-FF8-		0.75 (19.1)				0.41 (10.4)	1.30 (33.0)
5/8	1/2	-FF10-DT-NT8-FF10-	1.50 (38.1)	0.75 (19.1)	0.96 (24.4)	1.00 (25.4)	0.94 (23.8)	0.47 (11.9)	1.41 (35.8)
3/4	3/4	-FF12-DT-NT12-FF12-	1.57 (39.9)	0.75 (19.1)	0.96 (24.4)	1.13 (28.6)	1.06 (27.0)	0.62 (15.7)	1.45 (36.8)
7/8	3/4	-FF14-DT-NT12-FF14-	1.88 (47.8)	0.75 (19.1)	1.02 (25.9)	1.25 (31.8)	1.37 (34.9)	0.62 (15.7)	1.87 (47.5)
1	3/4	-FF16-DT-NT12-FF16-	1.94 (49.3)	0.75 (19.1)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.62 (15.7)	1.87 (47.5)
	1	-FF16-DT-NT16-FF16-		0.94 (23.9)				0.88 (22.4)	1.84 (46.7)
Dimensions, mm (in.)									
6	1/8	-FM6-DT-NT2-FM6-	27.0 (1.06)	9.7 (0.38)	15.3 (0.60)	14.0 (0.55)	12.7 (0.50)	4.8 (0.19)	18.0 (0.71)
	1/4	-FM6-DT-NT4-FM6-		14.3 (0.56)					23.4 (0.92)
8	1/8	-FM8-DT-NT2-FM8-	29.9 (1.18)	9.7 (0.38)	16.2 (0.64)	16.0 (0.63)	15.9 (0.63)	4.8 (0.19)	20.8 (0.82)
	1/4	-FM8-DT-NT4-FM8-		14.3 (0.56)					6.4 (0.25)
10	1/4	-FM10-DT-NT4-FM10-	33.5 (1.32)	14.3 (0.56)	17.2 (0.68)	19.0 (0.75)	20.6 (0.81)	7.1 (0.28)	28.2 (1.11)
	1/2	-FM10-DT-NT8-FM10-		19.1 (0.75)					7.9 (0.31)
12	1/4	-FM12-DT-NT4-FM12-	36.0 (1.42)	14.3 (0.56)	22.8 (0.90)	22.0 (0.87)	20.6 (0.81)	7.1 (0.28)	28.2 (1.11)
	3/8	-FM12-DT-NT6-FM12-		19.1 (0.75)					9.5 (0.37)
	1/2	-FM12-DT-NT8-FM12-							
16	3/8	-FM16-DT-NT6-FM16-	38.0 (1.50)	19.1 (0.75)	24.4 (0.96)	25.0 (0.98)	23.8 (0.94)	11.9 (0.47)	35.0 (1.38)

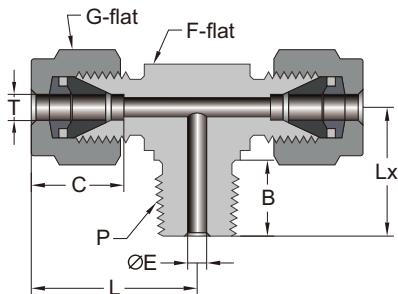
Tees

Male



Branch, NPT (Fractional)

Tube Size T	NPT Size P	Basic Ordering Number	Dimensions						
			L	B	C	G	F	E	Lx
Dimensions, in. (mm)									
1/8	1/8	-FF2-DT-FF2-NT2-	0.93 (23.6)	0.38 (9.7)	0.50 (12.7)	0.44 (11.1)	0.44 (11.1)	0.09 (2.3)	0.70 (17.8)
	1/4	-FF2-DT-FF2-NT4-	0.97 (24.6)	0.56 (14.3)			0.50 (12.7)		0.92 (23.4)
3/16	1/8	-FF3-DT-FF3-NT2-	0.96 (24.4)	0.38 (9.7)	0.54 (13.7)	0.50 (12.7)	0.44 (11.1)	0.12 (3.0)	0.70 (17.8)
1/4	1/8	-FF4-DT-FF4-NT2-	1.06 (27.0)	0.38 (9.7)	0.60 (15.2)	0.56 (14.3)	0.50 (12.7)	0.19 (4.8)	0.74 (18.8)
	1/4	-FF4-DT-FF4-NT4-		0.56 (14.3)					0.92 (23.4)
5/16	1/8	-FF5-DT-FF5-NT2-	1.17 (29.7)	0.38 (9.7)	0.64 (16.2)	0.63 (15.9)	0.63 (15.9)	0.19 (4.8)	0.82 (20.8)
	1/4	-FF5-DT-FF5-NT4-		0.56 (14.3)					1.01 (25.7)
3/8	1/4	-FF6-DT-FF6-NT4-	1.20 (30.5)	0.56 (14.3)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.28 (7.1)	1.00 (25.4)
	3/8	-FF6-DT-FF6-NT6-	1.31 (33.3)				0.81 (20.6)		1.11 (28.2)
1/2	3/8	-FF8-DT-FF8-NT6-	1.42 (36.1)	0.56 (14.3)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.38 (9.7)	1.11 (28.2)
	1/2	-FF8-DT-FF8-NT8-		0.75 (19.1)					1.30 (33.0)
5/8	1/2	-FF10-DT-FF10-NT8-	1.53 (38.9)	0.75 (19.1)	0.96 (24.4)	1.00 (25.4)	1.00 (25.4)	0.47 (11.9)	1.41 (35.8)
3/4	3/4	-FF12-DT-FF12-NT12-	1.57 (39.9)	0.75 (19.1)	0.96 (24.4)	1.13 (28.6)	1.06 (27.0)	0.62 (15.7)	1.45 (36.8)
7/8	3/4	-FF14-DT-FF14-NT12-	1.88 (47.8)	0.75 (19.1)	1.02 (25.9)	1.25 (31.8)	1.37 (34.9)	0.62 (15.7)	1.87 (47.5)
1	3/4	-FF16-DT-FF16-NT12-	1.94 (49.3)	0.75 (19.1)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.62 (15.7)	1.87 (47.5)
	1	-FF16-DT-FF16-NT16-		0.94 (23.9)					1.84 (46.7)

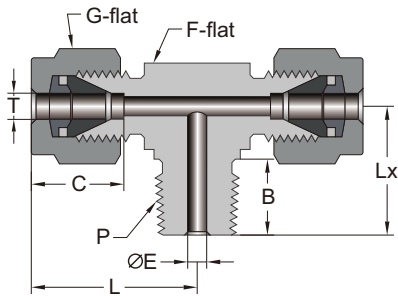


Branch, NPT (Metric)

Tube Size T	NPT Size P	Basic Ordering Number	Dimensions						
			L	B	C	G	F	E	Lx
Dimensions, mm (in.)									
6	1/8	-FM6-DT-FM6-NT2-	27.0 (1.06)	9.7 (0.38)	15.3 (0.60)	14.0 (0.55)	12.7 (0.50)	4.8 (0.19)	18.8 (0.74)
	1/4	-FM6-DT-FM6-NT4-		14.3 (0.56)					23.4 (0.92)
8	1/8	-FM8-DT-FM8-NT2-	29.9 (1.18)	9.7 (0.38)	16.2 (0.64)	16.0 (0.63)	15.9 (0.63)	4.8 (0.19)	20.8 (0.82)
	1/4	-FM8-DT-FM8-NT4-		14.3 (0.56)					25.4 (1.00)

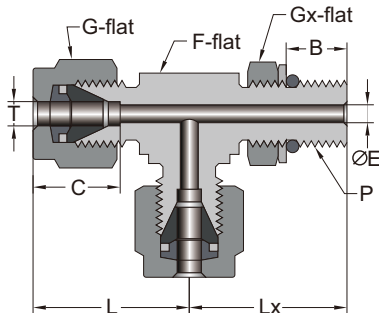
Tees

Male



Branch, NPT (Metric)

Tube Size T	NPT Size P	Basic Ordering Number	Dimensions						
			L	B	C	G	F	E	Lx
Dimensions, mm (in.)									
10	1/4	-FM10-DT-FM10-NT4-	33.5 (1.32)	14.3 (0.56)	17.2 (0.68)	19.0 (0.75)	20.6 (0.81)	7.1 (0.28)	28.2 (1.11)
	3/8	-FM10-DT-FM10-NT6-						7.9 (0.31)	
12	1/4	-FM12-DT-FM12-NT4-	36.0 (1.42)	14.3 (0.56)	22.8 (0.90)	22.0 (0.87)	20.6 (0.81)	7.1 (0.28)	28.2 (1.11)
	3/8	-FM12-DT-FM12-NT6-						9.5 (0.37)	
	1/2	-FM12-DT-FM12-NT8-		19.1 (0.75)				33.0 (1.30)	
16	1/2	-FM16-DT-FM16-NT8-	38.8 (1.53)	19.1 (0.75)	24.4 (0.96)	25.0 (0.98)	25.4 (1.00)	11.9 (0.47)	35.8 (1.41)



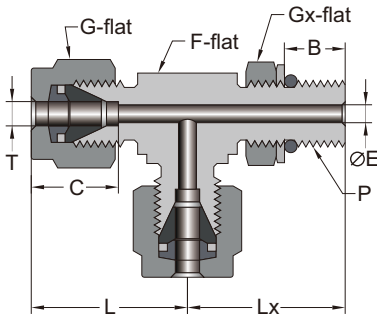
Adapts to SAE J1926/1, ISO 11926-1 and MS 16142 straight thread boss.

Positionable Run, SAE/MS Straight Thread

Tube Size T	SAE/MS Size P	Basic Ordering Number	Dimensions							
			L	B	C	G	F	E	Lx	Gx
Dimensions, in. (mm)										
1/4	7/16-20	-FF4-DT-PST7-FF4-	1.12 (28.5)	0.39 (9.9)	0.60 (15.2)	0.56 (14.3)	0.50 (12.7)	0.19 (4.8)	1.06 (27.0)	0.56 (14.3)
3/8	9/16-18	-FF6-DT-PST9-FF6-	1.26 (32.0)	0.44 (11.1)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.28 (7.1)	1.27 (32.3)	0.69 (17.5)
1/2	3/4-16	-FF8-DT-PST12-FF8-	1.48 (37.6)	0.50 (12.7)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.41 (10.4)	1.49 (37.8)	0.87 (22.2)
3/4	1-1/16-12	-FF12-DT-PST17-FF12-	1.63 (41.4)	0.66 (16.8)	0.96 (24.4)	1.13 (28.6)	1.06 (27.0)	0.62 (15.7)	1.92 (48.8)	1.25 (31.8)
1	1-5/16-12	-FF16-DT-PST21-FF16-	1.99 (50.5)	0.66 (16.8)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.88 (22.4)	2.11 (53.6)	1.50 (38.1)
1-1/4	1-5/8-12	-FF20-DT-PST26-FF20-	2.67 (67.8)	0.66 (16.8)	1.62 (41.1)	1.87 (47.6)	1.69 (42.9)	1.09 (27.7)	2.29 (58.2)	1.87 (47.6)
1-1/2	1-7/8-12	-FF24-DT-PST30-FF24-	3.07 (78.0)	0.66 (16.8)	1.97 (50.0)	2.25 (57.2)	2.00 (50.8)	1.34 (34.0)	2.38 (60.5)	2.13 (54.0)

Tees

Male

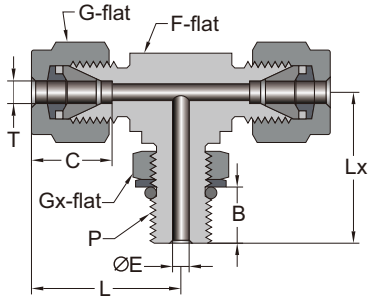


Positionable Run, ISO/BSP Parallel Thread

Tube Size T	ISO/BSP Size P	Basic Ordering Number	Dimensions							
			L	B	C	G	F	E	Lx	Gx
Dimensions, in. (mm)										
1/4	1/8	-FF4-DT-PRP2-FF4-	1.06 (26.9)	0.26 (6.6)	0.60 (15.2)	0.56 (14.3)	0.50 (12.7)	0.16 (4.1)	1.04 (26.4)	0.56 (14.3)
	1/4	-FF4-DT-PRP4-FF4-	1.14 (29.0)	0.35 (9.0)			0.63 (15.9)	0.19 (4.8)		
3/8	1/4	-FF6-DT-PRP4-FF6-	1.20 (30.5)	0.35 (9.0)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.23 (5.8)	1.27 (32.3)	0.75 (19.1)
1/2	3/8	-FF8-DT-PRP6-FF8-	1.42 (36.1)	0.37 (9.4)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.31 (7.9)	1.46 (37.1)	0.87 (22.2)
	1/2	-FF8-DT-PRP8-FF8-	1.50 (38.1)	0.51 (13.0)			0.94 (23.8)	0.41 (10.4)		
5/8	1/2	-FF10-DT-PRP8-FF10-	1.50 (38.1)	0.51 (13.0)	0.96 (24.4)	1.00 (25.4)	0.94 (23.8)	0.47 (11.9)	1.71 (43.4)	1.06 (27.0)
3/4	1/2	-FF12-DT-PRP8-FF12-	1.57 (39.9)	0.51 (13.0)	0.96 (24.4)	1.13 (28.6)	1.06 (27.0)	0.47 (11.9)	1.78 (45.2)	1.06 (27.0)
	3/4	-FF12-DT-PRP12-FF12-						0.62 (15.7)		
1	1	-FF16-DT-PRP16-FF16-	1.93 (49.0)	0.52 (13.2)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.78 (19.8)	2.11 (53.6)	1.63 (41.3)
Dimensions, mm (in.)										
6	1/8	-FM6-DT-PRP2-FM6-	27.0 (1.06)	6.6 (0.26)	15.3 (0.60)	14.0 (0.55)	12.7 (0.50)	4.0 (0.16)	26.4 (1.04)	14.3 (0.56)
	1/4	-FM6-DT-PRP4-FM6-	29.0 (1.14)	9.0 (0.35)			15.9 (0.63)	4.8 (0.19)		
8	1/8	-FM8-DT-PRP2-FM8-	28.8 (1.13)	6.6 (0.26)	16.2 (0.64)	16.0 (0.63)	14.3 (0.56)	4.0 (0.16)	27.5 (1.08)	14.3 (0.56)
	1/4	-FM8-DT-PRP4-FM8-	29.9 (1.18)	9.0 (0.35)			15.9 (0.63)	5.9 (0.23)		
10	1/4	-FM10-DT-PRP4-FM10-	33.5 (1.32)	9.0 (0.35)	17.2 (0.68)	17.2 (0.68)	20.6 (0.81)	5.9 (0.23)	35.1 (1.38)	19.1 (0.75)
12	3/8	-FM12-DT-PRP6-FM12-	36.0 (1.42)	9.4 (0.37)	22.8 (0.90)	22.0 (0.87)	20.6 (0.81)	7.9 (0.31)	37.1 (1.46)	22.2 (0.87)
	1/2	-FM12-DT-PRP8-FM12-	38.0 (1.50)	13.0 (0.51)			23.8 (0.94)	9.5 (0.37)		

Tees

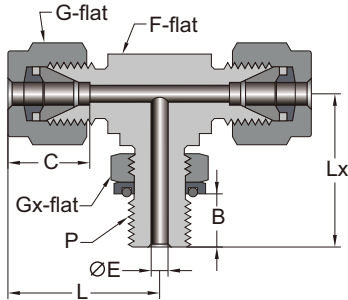
Male



Adapts to SAE J1926/1, ISO 11926-1 and MS 16142 straight thread boss.

Positionable Branch, SAE/MS Straight Thread

Tube Size T	SAE/MS Size P	Basic Ordering Number	Dimensions							
			L	B	C	G	F	E	Lx	Gx
Dimensions, in. (mm)										
1/4	7/16-20	-FF4-DT-FF4-PST7-	1.12 (28.5)	0.39 (9.9)	0.60 (15.2)	0.56 (14.3)	0.50 (12.7)	0.19 (4.8)	1.06 (27.0)	0.56 (14.3)
3/8	9/16-18	-FF6-DT-FF6-PST9-	1.26 (32.0)	0.44 (11.1)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.28 (7.1)	1.27 (32.3)	0.69 (17.5)
1/2	3/4-16	-FF8-DT-FF8-PST12-	1.48 (37.6)	0.50 (12.7)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.41 (10.4)	1.49 (37.8)	0.87 (22.2)
3/4	1-1/16-12	-FF12-DT-FF12-PST17-	1.63 (41.4)	0.66 (16.8)	0.96 (24.4)	1.13 (28.6)	1.06 (27.0)	0.62 (15.7)	1.92 (48.8)	1.25 (31.8)
1	1-5/16-12	-FF16-DT-FF16-PST21-	1.99 (50.5)	0.66 (16.8)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.88 (22.4)	2.11 (53.6)	1.50 (38.1)
1-1/4	1-5/8-12	-FF20-DT-FF20-PST26-	2.67 (67.8)	0.66 (16.8)	1.62 (41.1)	1.87 (47.6)	1.69 (42.9)	1.09 (27.7)	2.29 (58.2)	1.87 (47.6)
1-1/2	1-7/8-12	-FF24-DT-FF24-PST30-	3.07 (78.0)	0.66 (16.8)	1.97 (50.0)	2.25 (57.2)	2.00 (50.8)	1.34 (34.0)	2.38 (60.5)	2.13 (54.0)

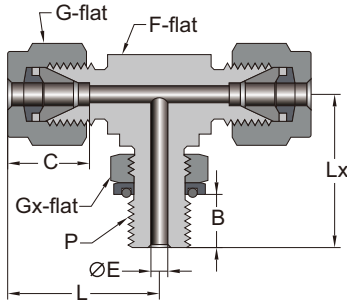


Positionable Branch, ISO/BSP Parallel Thread

Tube Size T	ISO/BSP Size P	Basic Ordering Number	Dimensions							
			L	B	C	G	F	E	Lx	Gx
Dimensions, in. (mm)										
1/4	1/8	-FF4-DT-FF4-PRP2-	1.06 (26.9)	0.26 (6.6)	0.60 (15.2)	0.56 (14.3)	0.50 (12.7)	0.16 (4.1)	1.04 (26.4)	0.56 (14.3)
	1/4	-FF4-DT-FF4-PRP4-	1.14 (29.0)	0.35 (9.0)			0.63 (15.9)	0.19 (4.8)		
3/8	1/4	-FF6-DT-FF6-PRP4-	1.20 (30.5)	0.35 (9.0)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.23 (5.8)	1.27 (32.3)	0.75 (19.1)
1/2	3/8	-FF8-DT-FF8-PRP6-	1.42 (36.1)	0.37 (9.4)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.31 (7.9)	1.46 (37.1)	0.87 (22.2)
	1/2	-FF8-DT-FF8-PRP8-	1.50 (38.1)	0.51 (13.0)			0.94 (23.8)	0.41 (10.4)		
5/8	1/2	-FF10-DT-FF10-PRP8-	1.50 (38.1)	0.51 (13.0)	0.96 (24.4)	1.00 (25.4)	0.94 (23.8)	0.47 (11.9)	1.71 (43.4)	1.06 (27.0)
3/4	1/2	-FF12-DT-FF12-PRP8-	1.57 (39.9)	0.51 (13.0)	0.96 (24.4)	1.13 (28.6)	1.06 (27.0)	0.47 (11.9)	1.78 (45.2)	1.06 (27.0)
	3/4	-FF12-DT-FF12-PRP12-						0.62 (15.7)		
1	1	-FF16-DT-FF16-PRP16-	1.93 (49.0)	0.52 (13.2)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.78 (19.8)	2.11 (53.6)	1.63 (41.3)

Tees

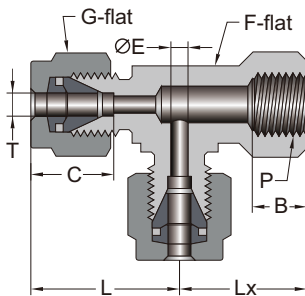
Male



Positionable Branch, ISO/BSP Parallel Thread

Tube Size T	ISO/BSP Size P	Basic Ordering Number	Dimensions							
			L	B	C	G	F	E	Lx	Gx
Dimensions, mm (in.)										
6	1/8	-FM6-DT-FM6-PRP2-	27.0 (1.06)	6.6 (0.26)	15.3 (0.60)	14.0 (0.55)	12.7 (0.50)	4.0 (0.16)	26.4 (1.04)	14.3 (0.56)
	1/4	-FM6-DT-FM6-PRP4-	29.0 (1.14)	9.0 (0.35)			15.9 (0.63)	4.8 (0.19)	32.2 (1.27)	19.1 (0.75)
8	1/8	-FM8-DT-FM8-PRP2-	28.8 (1.13)	6.6 (0.26)	16.2 (0.64)	16.0 (0.63)	14.3 (0.56)	4.0 (0.16)	27.5 (1.08)	14.3 (0.56)
	1/4	-FM8-DT-FM8-PRP4-	29.9 (1.18)	9.0 (0.35)			15.9 (0.63)	5.9 (0.23)	32.2 (1.27)	19.1 (0.75)
10	1/4	-FM10-DT-FM10-PRP4-	33.5 (1.32)	9.0 (0.35)	17.2 (0.68)	19.0 (0.75)	20.6 (0.81)	5.9 (0.23)	35.1 (1.38)	19.1 (0.75)
12	3/8	-FM12-DT-FM12-PRP6-	36.0 (1.42)	9.4 (0.37)	22.8 (0.90)	22.0 (0.87)	20.6 (0.81)	7.9 (0.31)	37.1 (1.46)	22.2 (0.87)
	1/2	-FM12-DT-FM12-PRP8-	38.0 (1.50)	13.0 (0.51)			23.8 (0.94)	9.5 (0.37)	43.5 (1.71)	27.0 (1.06)

Female

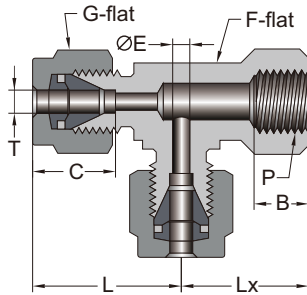


Run, NPT (Fractional)

Tube Size T	NPT Size P	Basic Ordering Number	Dimensions						
			L	C	G	F	B	Lx	E
Dimensions, in. (mm)									
1/8	1/8	-FF2-DT-FNT2-FF2-	0.97 (24.6)	0.50 (12.7)	0.44 (11.1)	0.50 (12.7)	0.41 (10.4)	0.75 (19.1)	0.09 (2.3)
3/16	1/8	-FF3-DT-FNT2-FF3-	1.01 (25.7)	0.54 (13.7)	0.50 (12.7)	0.50 (12.7)	0.41 (10.4)	0.75 (19.1)	0.12 (3.0)
1/4	1/8	-FF4-DT-FNT2-FF4-	1.06 (27.0)	0.60 (15.2)	0.56 (14.3)	0.50 (12.7)	0.41 (10.4)	0.75 (19.1)	0.19 (4.8)
	1/4	-FF4-DT-FNT4-FF4-	1.17 (29.7)			0.69 (17.5)	0.59 (15.0)	0.88 (22.4)	
5/16	1/8	-FF5-DT-FNT2-FF5-	1.17 (29.7)	0.64 (16.2)	0.63 (15.9)	0.63 (15.9)	0.41 (10.4)	0.75 (19.1)	0.25 (6.4)
3/8	1/4	-FF6-DT-FNT4-FF6-	1.23 (31.2)	0.66 (16.8)	0.69 (17.5)	0.69 (17.5)	0.59 (15.0)	0.88 (22.4)	0.28 (7.1)
1/2	1/4	-FF8-DT-FNT4-FF8-	1.42 (36.1)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.59 (15.0)	0.88 (22.4)	0.41 (10.4)
	3/8	-FF8-DT-FNT6-FF8-				1.06 (27.0)	0.78 (19.8)	1.12 (28.4)	
	1/2	-FF8-DT-FNT8-FF8-				1.57 (39.9)	1.06 (27.0)	0.78 (19.8)	
5/8	1/2	-FF10-DT-FNT8-FF10-	1.57 (39.9)	0.96 (24.4)	1.00 (25.4)	1.06 (27.0)	0.78 (19.8)	1.12 (28.4)	0.50 (12.7)
3/4	3/4	-FF12-DT-FNT12-FF12-	1.76 (44.7)	0.96 (24.4)	1.13 (28.6)	1.37 (34.9)	0.81 (20.6)	1.25 (31.8)	0.62 (15.7)

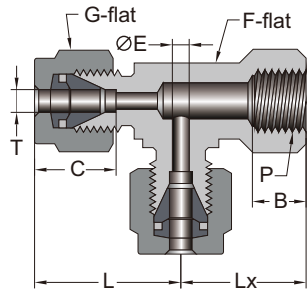
Tees

Female



Run, NPT (Fractional)

Tube Size T	NPT Size P	Basic Ordering Number	Dimensions						
			L	C	G	F	B	Lx	E
Dimensions, in. (mm)									
7/8	1/2	-FF14-DT-FNT8-FF14-	1.76 (44.7)	1.02 (25.9)	1.25 (31.8)	1.37 (34.9)	0.78 (19.8)	1.12 (28.4)	0.62 (15.7)
	3/4	-FF14-DT-FNT12-FF14-					0.81 (20.6)	1.25 (31.8)	0.72 (18.3)
1	3/4	-FF16-DT-FNT12-FF16-	1.93 (49.0)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.81 (20.6)	1.25 (31.8)	0.88 (22.4)
	1	-FF16-DT-FNT16-FF16-	2.11 (53.6)						

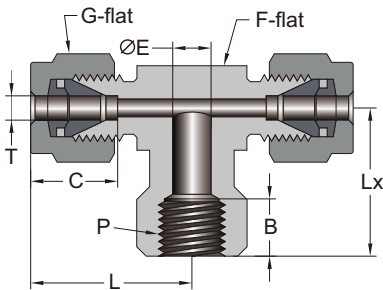


Run, NPT (Metric)

Tube Size T	NPT Size P	Basic Ordering Number	Dimensions						
			L	C	G	F	B	Lx	E
Dimensions, mm (in.)									
6	1/8	-FM6-DT-FNT2-FM6-	27.0 (1.06)	15.3 (0.60)	14.0 (0.55)	12.7 (0.50)	10.4 (0.41)	19.0 (0.75)	4.8 (0.19)
	1/4	-FM6-DT-FNT4-FM6-	29.8 (1.17)			17.5 (0.69)	15.0 (0.59)	22.4 (0.88)	
8	1/8	-FM8-DT-FNT2-FM8-	29.9 (1.18)	16.2 (0.64)	16.0 (0.63)	15.9 (0.63)	10.4 (0.41)	19.0 (0.75)	6.4 (0.25)
	1/4	-FM8-DT-FNT4-FM8-	30.6 (1.20)			17.5 (0.69)	15.0 (0.59)	22.4 (0.88)	
10	1/4	-FM10-DT-FNT4-FM10-	33.5 (1.32)	17.2 (0.68)	19.0 (0.75)	20.6 (0.81)	15.0 (0.59)	22.4 (0.88)	7.9 (0.31)
12	1/4	-FM12-DT-FNT4-FM12-	36.0 (1.42)	22.8 (0.90)	22.0 (0.87)	20.6 (0.81)	15.0 (0.59)	22.4 (0.88)	9.5 (0.37)
	3/8	-FM12-DT-FNT6-FM12-						23.1 (0.91)	
	1/2	-FM12-DT-FNT8-FM12-				38.8 (1.53)	25.4 (1.00)	19.8 (0.78)	
16	1/2	-FM16-DT-FNT8-FM16-	39.8 (1.57)	24.4 (0.96)	25.0 (0.98)	27.0 (1.06)	19.8 (0.78)	28.5 (1.12)	12.7 (0.50)

Tees

Female

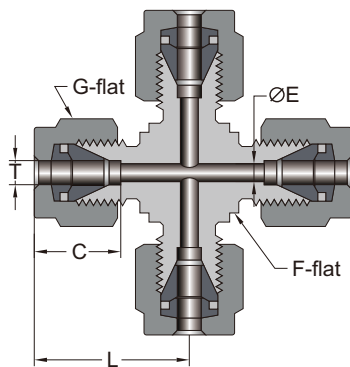


Branch, NPT

Tube Size T	NPT Size P	Basic Ordering Number	Dimensions								
			L	C	G	F	B	Lx	E		
Dimensions, in. (mm)											
1/8	1/8	-FF2-DT-FF2-FNT2-	0.97 (24.6)	0.50 (12.7)	0.44 (11.1)	0.50 (12.7)	0.41 (10.4)	0.75 (19.1)	0.09 (2.3)		
3/16	1/8	-FF3-DT-FF3-FNT2-	1.01 (25.7)	0.54 (13.7)	0.50 (12.7)	0.50 (12.7)	0.41 (10.4)	0.75 (19.1)	0.12 (3.0)		
1/4	1/8	-FF4-DT-FF4-FNT2-	1.06 (27.0)	0.60 (15.2)	0.56 (14.3)	0.50 (12.7)	0.41 (10.4)	0.75 (19.1)	0.19 (4.8)		
	1/4	-FF4-DT-FF4-FNT4-	1.17 (29.7)			0.69 (17.5)	0.59 (15.0)	0.88 (22.4)			
5/16	1/8	-FF5-DT-FF5-FNT2-	1.17 (29.7)	0.64 (16.2)	0.63 (15.9)	0.63 (15.9)	0.41 (10.4)	0.75 (19.1)	0.25 (6.4)		
3/8	1/4	-FF6-DT-FF6-FNT4-	1.23 (31.2)	0.66 (16.8)	0.69 (17.5)	0.69 (17.5)	0.59 (15.0)	0.88 (22.4)	0.28 (7.1)		
	3/8	-FF6-DT-FF6-FNT6-	1.31 (33.3)			0.81 (20.6)	0.59 (15.0)	0.88 (22.4)			
	1/2	-FF6-DT-FF6-FNT8-	1.42 (36.1)			1.00 (25.4)	0.78 (19.8)	1.12 (28.4)			
1/2	1/4	-FF8-DT-FF8-FNT4-	1.42 (36.1)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.59 (15.0)	0.88 (22.4)	0.41 (10.4)		
	3/8	-FF8-DT-FF8-FNT6-	1.53 (38.9)			1.00 (25.4)	0.78 (19.8)	1.12 (28.4)			
	1/2	-FF8-DT-FF8-FNT8-	1.53 (38.9)			1.00 (25.4)	0.78 (19.8)	1.12 (28.4)			
5/8	1/2	-FF10-DT-FF10-FNT8-	1.53 (38.9)	0.96 (24.4)	1.00 (25.4)	1.00 (25.4)	0.78 (19.8)	1.12 (28.4)	0.50 (12.7)		
3/4	3/4	-FF12-DT-FF12-FNT12-	1.76 (44.7)	0.96 (24.4)	1.13 (28.6)	1.37 (34.9)	0.81 (20.6)	1.25 (31.8)	0.62 (15.7)		
7/8	3/4	-FF14-DT-FF14-FNT12-	1.76 (44.7)	1.02 (25.9)	1.25 (31.8)	1.37 (34.9)	0.81 (20.6)	1.25 (31.8)	0.72 (18.3)		
1	3/4	-FF16-DT-FF16-FNT12-	1.93 (49.0)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.81 (20.6)	1.25 (31.8)	0.88 (22.4)		
	1	-FF16-DT-FF16-FNT16-	2.11 (53.6)			1.69 (42.9)	1.00 (25.4)	1.50 (38.1)			
Dimensions, mm (in.)											
6	1/8	-FM6-DT-FM6-FNT2-	27.0 (1.06)	15.3 (0.60)	14.0 (0.55)	12.7 (0.50)	10.4 (0.41)	19.0 (0.75)	4.8 (0.19)		
	1/4	-FM6-DT-FM6-FNT4-	29.8 (1.17)			17.5 (0.69)	15.0 (0.59)	22.4 (0.88)			
8	1/8	-FM8-DT-FM8-FNT2-	29.9 (1.18)	16.2 (0.64)	16.0 (0.63)	15.9 (0.63)	10.4 (0.41)	19.0 (0.75)	6.4 (0.25)		
	1/4	-FM8-DT-FM8-FNT4-	30.6 (1.20)			17.5 (0.69)	15.0 (0.59)	22.4 (0.88)			
10	1/4	-FM10-DT-FM10-FNT4-	33.5 (1.32)	17.2 (0.68)	19.0 (0.75)	20.6 (0.81)	15.0 (0.59)	22.4 (0.88)	7.9 (0.31)		
12	1/8	-FM12-DT-FM12-FNT2-	36.0 (1.42)	22.8 (0.90)	22.0 (0.87)	20.6 (0.81)	10.4 (0.41)	22.4 (0.88)	9.5 (0.37)		
	1/4	-FM12-DT-FM12-FNT4-					15.0 (0.59)				
	3/8	-FM12-DT-FM12-FNT6-					25.4 (1.00)			19.8 (0.78)	28.5 (1.12)
	1/2	-FM12-DT-FM12-FNT8-									
16	1/2	-FM16-DT-FM16-FNT8-	38.8 (1.53)	24.4 (0.96)	25.0 (0.98)	25.4 (1.00)	19.8 (0.78)	28.5 (1.12)	12.7 (0.50)		

Cross

Union

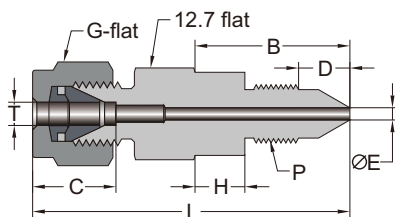


Union

Tube Size T	Basic Ordering Number	Dimensions				
		L	C	G	F	E
Dimensions, in. (mm)						
1/8	-DC-FF2-	0.88 (22.4)	0.50 (12.7)	0.44 (11.1)	0.37 (9.5)	0.09 (2.3)
3/16	-DC-FF3-	0.96 (24.4)	0.54 (13.7)	0.50 (12.7)	0.44 (11.1)	0.12 (3.0)
1/4	-DC-FF4-	1.06 (27.0)	0.60 (15.2)	0.56 (14.3)	0.50 (12.7)	0.19 (4.8)
5/16	-DC-FF5-	1.17 (29.7)	0.64 (16.2)	0.63 (15.9)	0.63 (15.9)	0.25 (6.4)
3/8	-DC-FF6-	1.20 (30.5)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.28 (7.1)
1/2	-DC-FF8-	1.42 (36.1)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.41 (10.4)
5/8	-DC-FF10-	1.53 (38.9)	0.96 (24.4)	1.00 (25.4)	1.00 (25.4)	0.50 (12.7)
3/4	-DC-FF12-	1.57 (39.9)	0.96 (24.4)	1.13 (28.6)	1.06 (27.0)	0.62 (15.7)
7/8	-DC-FF14-	1.76 (44.7)	1.02 (25.9)	1.25 (31.8)	1.37 (34.9)	0.72 (18.3)
1	-DC-FF16-	1.93 (49.0)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.88 (22.4)
Dimensions, mm (in.)						
3	-DC-FM3-	22.3 (0.88)	12.9 (0.51)	12.0 (0.47)	9.5 (0.37)	2.4 (0.09)
4	-DC-FM4-	25.4 (1.00)	13.7 (0.54)	12.0 (0.47)	12.7 (0.50)	2.4 (0.09)
6	-DC-FM6-	27.0 (1.06)	15.3 (0.60)	14.0 (0.55)	12.7 (0.50)	4.8 (0.19)
8	-DC-FM8-	29.9 (1.18)	16.2 (0.64)	16.0 (0.63)	15.9 (0.63)	6.4 (0.25)
10	-DC-FM10-	33.5 (1.32)	17.2 (0.68)	19.0 (0.75)	20.6 (0.81)	7.9 (0.31)
12	-DC-FM12-	36.0 (1.42)	22.8 (0.90)	22.0 (0.87)	20.6 (0.81)	9.5 (0.37)
16	-DC-FM16-	37.0 (1.46)	24.4 (0.96)	25.0 (0.98)	23.8 (0.94)	12.7 (0.50)
18	-DC-FM18-	38.3 (1.51)	24.4 (0.96)	30.0 (1.18)	27.0 (1.06)	15.1 (0.59)
20	-DC-FM20-	44.6 (1.76)	26.0 (1.02)	32.0 (1.26)	34.9 (1.37)	15.9 (0.63)
22	-DC-FM22-	44.7 (1.76)	26.0 (1.02)	32.0 (1.26)	34.9 (1.37)	18.3 (0.72)
25	-DC-FM25-	49.2 (1.94)	31.3 (1.23)	38.0 (1.50)	34.9 (1.37)	21.8 (0.86)

Application-Specific

Calibration Fittings



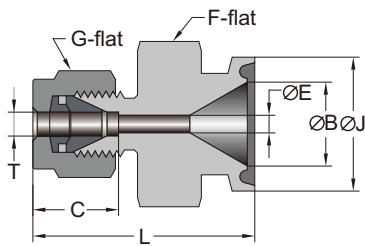
- The calibration fittings can be connected directly with the bleed port of the transmitter so that the calibration process can be simplified.
- Two sizes are available to fit the bleed ports of the transmitters.

Calibration Fittings

Tube Size T	SAE/MS Size P	Basic Ordering Number	Dimensions						
			L	B	C	D	E	G	H
Dimensions, in. (mm)									
1/4	1/4-28	-FF4-DCF-ST4-	1.69 (42.9)	0.78 (19.8)	0.60 (15.2)	0.43 (10.9)	0.06 (1.5)	0.56 (14.3)	\
	5/16-24	-FF4-DCF-ST5-	2.32 (58.9)	1.41 (35.8)	0.60 (15.2)	0.40 (10.2)	0.06 (1.5)	0.56 (14.3)	0.41 (10.4)

Application-Specific

Sanitary Flange Fittings



- The flange ends are dimensioned to meet the ASME BPE Standard.
 - Products are cleaned and packaged according to ASTM G93 Level C.
 - The 1-inch flange sealing surface defaults to Type B. For the Type A selection, add "A" as a suffix to the basic ordering number
- Example: SFG16A.**

Sanitary Flange Fitting

Tube Size T	Flange Size (in.)	Basic Ordering Number	Dimensions						
			L	C	G	F	E	B	J
Dimensions, in. (mm)									
1/4	1/2	-FF4-DU-SFG8-	1.57 (39.9)	0.60 (15.2)	0.56 (14.3)	1.00 (25.4)	0.19 (4.8)	0.37 (9.4)	0.98 (24.9)
	3/4	-FF4-DU-SFG12-						0.62 (15.7)	
	1	-FF4-DU-SFG16-				1.37 (34.9)		0.87 (22.1)	
	1-1/2	-FF4-DU-SFG24-						1.37 (34.9)	
3/8	1/2	-FF6-DU-SFG8-	1.63 (41.4)	0.66 (16.8)	0.69 (17.5)	1.00 (25.4)	0.28 (7.1)	0.37 (9.4)	0.98 (24.9)
	3/4	-FF6-DU-SFG12-						0.62 (15.7)	
	1	-FF6-DU-SFG16-				1.37 (34.9)		0.87 (22.1)	
	1-1/2	-FF6-DU-SFG24-						1.37 (34.9)	
1/2	1/2	-FF8-DU-SFG8-	1.74 (44.2)	0.90 (22.9)	0.87 (22.2)	1.00 (25.4)	0.41 (10.4)	0.37 (9.4)	0.98 (24.9)
	3/4	-FF8-DU-SFG12-						0.62 (15.7)	
	1	-FF8-DU-SFG16-				1.37 (34.9)		0.87 (22.1)	
	1-1/2	-FF8-DU-SFG24-						1.37 (34.9)	
1	1	-FF16-DU-SFG16-	1.91 (48.5)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.87 (22.1)	0.87 (22.1)	1.98 (50.3)
	2	-FF16-DU-SFG32-	2.49 (63.2)			2.75 (69.9)	0.88 (22.4)	1.37 (34.9)	2.52 (64.0)

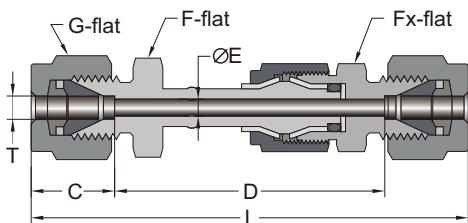
Dielectric Fittings

Materials

- Insulator: Polyamide-imide.
- O-Ring: 70 Durometer FKM.
- Backup Ring: PTFE.

Technical Data

- Electrical Resistance of Insulators at 70°F (20°C): $10 \times 10^6 \Omega$ at 10 V.
- Maximum working pressure: 5000 psig (344 bar) at 70°F (20°C).
- Temperature range: -4 to 200°F (-20 to 93°C).

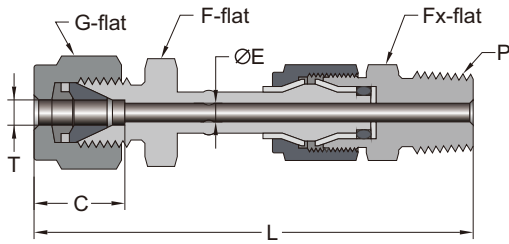


Union

Tube Size T	Basic Ordering Number	Dimensions						
		L	C	G	F	E	D	Fx
Dimensions, in. (mm)								
1/4	-DDF-FF4-	3.77 (95.7)	0.60 (15.2)	0.56 (14.3)	0.50 (12.7)	0.19 (4.8)	2.57 (65.3)	0.81 (20.6)
3/8	-DDF-FF6-	3.92 (99.6)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.28 (7.1)	2.59 (65.8)	
1/2	-DDF-FF8-	4.17 (106.0)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.28 (7.1)	2.37 (60.2)	
Dimensions, mm (in.)								
12	-DDF-FM12-	107.0 (4.21)	22.8 (0.90)	22.0 (0.87)	22.0 (0.87)	7.1 (0.28)	61.7 (2.43)	22.0 (0.87)

Application-Specific

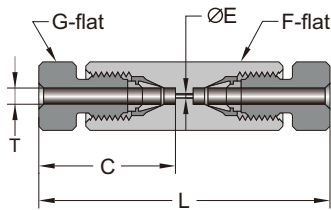
Sanitary Flange Fittings



NPT (Male)

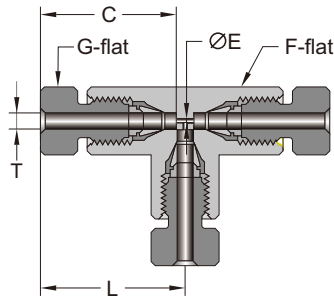
Tube Size T	NPT Size P	Basic Ordering Number	Dimensions					
			L	C	G	F	E	Fx
Dimensions, in. (mm)								
3/8	1/4	-FF6-DDF-NT4-	3.73 (94.7)	0.66 (16.8)	0.69 (17.5)	0.63 (15.9)	0.28 (7.1)	0.87 (22.2)

Chromatograph Fittings



Union

Tube Size T	Basic Ordering Number	Dimensions					Dead Area (cm ³)
		L	C	G	F	E	
Dimensions, in. (mm)							
1/16	-DU-NFF1-	1.26 (32.0)	0.61 (15.5)	0.25 (6.4)	0.25 (6.4)	0.01 (0.3)	6.6×10 ⁻⁵

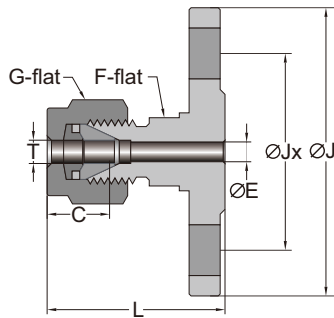


Tee

Tube Size T	Basic Ordering Number	Dimensions					Dead Area (cm ³)
		L	C	G	F	E	
Dimensions, in. (mm)							
1/16	-DT-NFF1-	0.66 (16.8)	0.61 (15.5)	0.25 (6.4)	0.37 (9.5)	0.01 (0.3)	2.8×10 ⁻⁴

Application-Specific

Flange Adapters



- Integrally forged body.
- ASME flanges comply with ASME B16.5.
- DIN flanges comply with DIN 2501/2526.
- GB flanges comply with GB/T 9123.1.
- EN flanges comply with EN 1092-1.
- JIS flanges comply with JIS B 2220.

ASME Flange

Tube Size T	ASME Flange NPS	Class	Basic Ordering Number	Dimensions							
				L	C	G	F	E	J	Jx	
Dimensions, in. (mm)											
1/4	1/2	150	-FF4-DU-FG8-ASME-150-	1.61 (40.9)	0.60 (15.2)	0.56 (14.3)	0.81 (20.6)	0.19 (4.8)	3.50 (88.9)	2.38 (60.5)	
3/8	1/2	300	-FF6-DU-FG8-ASME-300-	1.79 (45.5)	0.66 (16.8)	0.69 (17.5)	0.81 (20.6)	0.28 (7.1)	3.75 (95.3)	2.62 (66.5)	
1/2	1/2	150	-FF8-DU-FG8-ASME-150-	1.78 (45.2)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.41 (10.4)	3.50 (88.9)	2.38 (60.5)	
	1	150	-FF8-DU-FG16-ASME-150-	1.90 (48.3)					4.25 (108.0)	3.12 (79.2)	
	2	150	-FF8-DU-FG32-ASME-150-	2.09 (53.1)					6.00 (152.4)	4.76 (121.0)	
3/4	1	150	-FF12-DU-FG16-ASME-150-	1.98 (50.3)	0.64 (16.2)	0.63 (15.9)	1.25 (31.8)	0.62 (15.7)	4.25 (108.0)	3.12 (79.2)	
1	1	150	-FF16-DU-FG16-ASME-150-	2.38 (60.5)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.88 (22.4)	4.25 (108.0)	3.12 (79.2)	

DIN/GB Flanges (Pressure Class PN 40)

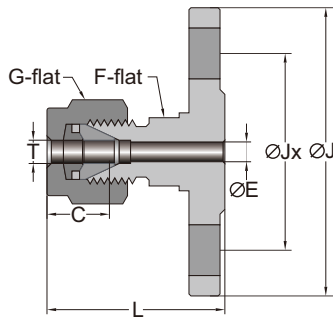
Tube Size T	DIN Flange Size DN	Basic Ordering Number	Dimensions							
			L	C	G	F	E	J	Jx	
Dimensions, mm (in.)										
6	25	-FM6-DU-FG25-DIN-40-	47.5 (1.87)	15.3 (0.60)	14.0 (0.55)	20.0 (0.79)	4.8 (0.19)	115.0 (4.53)	85.0 (3.35)	
12	15	-FM12-DU-FG15-DIN-40-	48.5 (1.91)	22.8 (0.90)	22.0 (0.87)	20.0 (0.79)	9.5 (0.37)	95.0 (3.74)	65.0 (2.56)	
	25	-FM12-DU-FG25-DIN-40-	50.5 (1.99)					115.0 (4.53)	85.0 (3.35)	
	50	-FM12-DU-FG50-DIN-40-	55.3 (2.18)					165.0 (6.50)	125.0 (4.92)	
18	15	-FM18-DU-FG15-DIN-40-	51.8 (2.04)	24.4 (0.96)	30.0 (1.18)	32.0 (1.26)	15.1 (0.59)	95.0 (3.74)	65.0 (2.56)	
	25	-FM18-DU-FG25-DIN-40-	53.8 (2.12)					115.0 (4.53)	85.0 (3.35)	
25	25	-FM25-DU-FG25-DIN-40-	64.0 (2.52)	31.3 (1.23)	38.0 (1.50)	35.0 (1.38)	21.8 (0.86)	115.0 (4.53)	85.0 (3.35)	

EN Flanges (Pressure Class PN 40)

Tube Size T	EN Flange Size DN	Basic Ordering Number	Dimensions							
			L	C	G	F	E	J	Jx	
Dimensions, mm (in.)										
6	25	-FM6-DU-FG25-EN-40-	47.5 (1.87)	15.3 (0.60)	14.0 (0.55)	20.0 (0.79)	4.8 (0.19)	115.0 (4.53)	85.0 (3.35)	
12	15	-FM12-DU-FG15-EN-40-	48.5 (1.91)	22.8 (0.90)	22.0 (0.87)	20.0 (0.79)	9.5 (0.37)	95.0 (3.74)	65.0 (2.56)	
	25	-FM12-DU-FG25-EN-40-	50.5 (1.99)					115.0 (4.53)	85.0 (3.35)	
	50	-FM12-DU-FG50-EN-40-	55.3 (2.18)					165.0 (6.50)	125.0 (4.92)	
18	15	-FM18-DU-FG15-EN-40-	51.8 (2.04)	24.4 (0.96)	30.0 (1.18)	32.0 (1.26)	15.1 (0.59)	95.0 (3.74)	65.0 (2.56)	
	25	-FM18-DU-FG25-EN-40-	53.8 (2.12)					115.0 (4.53)	85.0 (3.35)	
25	25	-FM25-DU-FG25-EN-40-	64.0 (2.52)	31.3 (1.23)	38.0 (1.50)	35.0 (1.38)	21.8 (0.86)	115.0 (4.53)	85.0 (3.35)	

Application-Specific

Flange Adapters

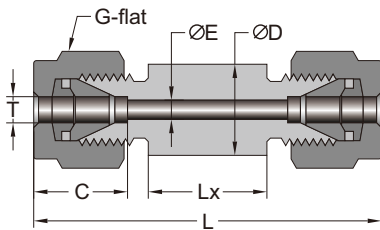


- Integrally forged body.
- ASME flanges comply with ASME B16.5.
- DIN flanges comply with DIN 2501/2526.
- GB flanges comply with GB/T 9123.1.
- EN flanges comply with EN 1092-1.
- JIS flanges comply with JIS B 2220.

JIS Flanges (Pressure Class 10K)

Tube Size T	JIS Flange Size DN	Basic Ordering Number	Dimensions						
			L	C	G	F	E	J	Jx
Dimensions, in. (mm)									
1/4	15	-FF4-DU-FG15-JIS-10K-	1.66 (42.2)	0.60 (15.2)	0.56 (14.3)	0.81 (20.6)	0.19 (4.8)	3.74 (95.0)	2.76 (70.1)
3/8	15	-FF6-DU-FG15-JIS-10K-	1.72 (43.7)	0.66 (16.8)	0.69 (17.5)	0.81 (20.6)	0.28 (7.1)	3.74 (95.0)	2.76 (70.1)
1/2	15	-FF8-DU-FG15-JIS-10K-	1.83 (46.5)	0.90 (22.9)	0.87 (22.2)	0.81 (20.6)	0.41 (10.4)	3.74 (95.0)	2.76 (70.1)
3/4	15	-FF12-DU-FG15-JIS-10K-	1.91 (48.5)	0.96 (24.4)	1.13 (28.6)	1.25 (31.8)	0.62 (15.7)	3.74 (95.0)	2.76 (70.1)
1	25	-FF16-DU-FG25-JIS-10K-	2.40 (61.0)	1.23 (31.2)	1.50 (38.1)	1.37 (34.9)	0.88 (22.4)	4.92 (125.0)	3.54 (90.0)
Dimensions, mm (in.)									
12	15	-FM12-DU-FG15-JIS-10K-	46.5 (1.83)	22.8 (0.90)	22.0 (0.87)	20.0 (0.79)	9.5 (0.37)	95.0 (3.74)	70.1 (2.76)
18	15	-FM18-DU-FG15-JIS-10K-	48.5 (1.91)	24.4 (0.96)	30.0 (1.18)	32.0 (1.26)	15.1 (0.59)	95.0 (3.74)	70.1 (2.76)
25	25	-FM25-DU-FG25-JIS-10K-	61.0 (2.40)	31.3 (1.23)	38.0 (1.50)	35.0 (1.38)	21.8 (0.86)	125.0 (4.92)	90.0 (3.54)

Weld Bulkhead Unions

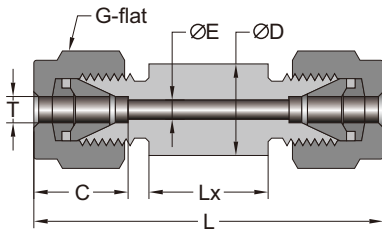


Weld Bulkhead Unions (Fractional)

Tube Size T	Basic Ordering Number	Dimensions					
		L	C	G	D	E	Lx
Dimensions, in. (mm)							
1/8	-DWU-FF2-	3.16 (80.2)	0.50 (12.7)	0.44 (11.1)	0.47 (12.0)	0.09 (2.3)	1.97 (50.0)
3/16	-DWU-FF3-	3.24 (82.2)	0.54 (13.7)	0.50 (12.7)	0.47 (12.0)	0.12 (3.0)	1.97 (50.0)
1/4	-DWU-FF4-	3.35 (85.2)	0.60 (15.2)	0.56 (14.3)	0.55 (14.0)	0.19 (4.8)	1.97 (50.0)
5/16	-DWU-FF5-	3.43 (87.2)	0.64 (16.2)	0.63 (15.9)	0.63 (15.9)	0.25 (6.4)	1.97 (50.0)
3/8	-DWU-FF6-	3.49 (88.6)	0.66 (16.8)	0.69 (17.5)	0.75 (19.1)	0.28 (7.1)	1.97 (50.0)
1/2	-DWU-FF8-	3.69 (93.8)	0.90 (22.9)	0.87 (22.2)	0.91 (23.0)	0.41 (10.4)	1.97 (50.0)
5/8	-DWU-FF10-	3.69 (93.8)	0.96 (24.4)	1.00 (25.4)	1.10 (28.0)	0.50 (12.7)	1.97 (50.0)
3/4	-DWU-FF12-	3.72 (94.4)	0.96 (24.4)	1.13 (28.6)	1.26 (32.0)	0.62 (15.7)	1.97 (50.0)
7/8	-DWU-FF14-	3.72 (94.4)	1.02 (25.9)	1.25 (31.8)	1.26 (32.0)	0.72 (18.3)	1.97 (50.0)
1	-DWU-FF16-	4.06 (103.2)	1.23 (31.2)	1.50 (38.1)	1.38 (35.0)	0.88 (22.4)	1.97 (50.0)
1-1/4	-DWU-FF20-	5.05 (128.2)	1.62 (41.1)	1.87 (47.6)	1.97 (50.0)	1.09 (27.7)	1.97 (50.0)
1-1/2	-DWU-FF24-	5.54 (140.8)	1.97 (50.0)	2.25 (57.2)	2.17 (55.0)	1.34 (34.0)	1.97 (50.0)
2	-DWU-FF32-	6.93 (176.0)	2.67 (67.8)	3.00 (76.2)	3.15 (80.0)	1.81 (46.0)	1.97 (50.0)

Application-Specific

Weld Bulkhead Unions



For specified length, add "-xx" (metric length) as a suffix to the basic ordering number.

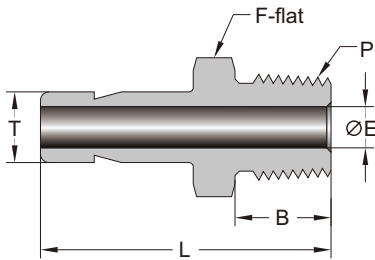
Example: 6L-DWU-FM32-150.

Weld Bulkhead Unions (Metric)

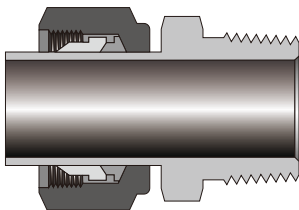
Tube Size T	Basic Ordering Number	Dimensions					
		L	C	G	D	E	Lx
Dimensions, mm (in.)							
3	-DWU-FM3-	80.8 (3.18)	12.9 (0.51)	12.0 (0.47)	12.0 (0.47)	2.4 (0.09)	50.0 (1.97)
4	-DWU-FM4-	82.4 (3.24)	13.7 (0.54)	12.0 (0.47)	12.0 (0.47)	2.4 (0.09)	50.0 (1.97)
6	-DWU-FM6-	86.0 (3.39)	15.3 (0.60)	14.0 (0.55)	12.0 (0.47)	4.8 (0.19)	50.0 (1.97)
8	-DWU-FM8-	87.4 (3.44)	16.2 (0.64)	16.0 (0.63)	16.0 (0.63)	6.4 (0.25)	50.0 (1.97)
10	-DWU-FM10-	89.0 (3.50)	17.2 (0.68)	19.0 (0.75)	19.0 (0.75)	7.9 (0.31)	50.0 (1.97)
12	-DWU-FM12-	94.2 (3.71)	22.8 (0.90)	22.0 (0.87)	23.0 (0.91)	9.5 (0.37)	50.0 (1.97)
15	-DWU-FM15-	93.8 (3.69)	24.4 (0.96)	25.0 (0.98)	25.0 (0.98)	11.9 (0.47)	50.0 (1.97)
16	-DWU-FM16-	94.4 (3.72)	24.4 (0.96)	25.0 (0.98)	28.0 (1.10)	12.7 (0.50)	50.0 (1.97)
18	-DWU-FM18-	94.0 (3.70)	24.4 (0.96)	30.0 (1.18)	28.0 (1.10)	15.1 (0.59)	50.0 (1.97)
20	-DWU-FM20-	94.0 (3.70)	26.0 (1.02)	32.0 (1.26)	32.0 (1.26)	15.9 (0.63)	50.0 (1.97)
22	-DWU-FM22-	94.0 (3.70)	26.0 (1.02)	32.0 (1.26)	32.0 (1.26)	18.3 (0.72)	50.0 (1.97)
25	-DWU-FM25-	103.2 (4.06)	31.3 (1.23)	38.0 (1.50)	38.0 (1.50)	21.8 (0.86)	50.0 (1.97)
28	-DWU-FM28-	123.2 (4.85)	36.6 (1.44)	46.0 (1.81)	45.0 (1.77)	21.8 (0.86)	50.0 (1.97)
32	-DWU-FM32-	133.2 (5.24)	42.0 (1.65)	50.0 (1.97)	50.0 (1.97)	28.6 (1.13)	50.0 (1.97)
38	-DWU-FM38-	146.2 (5.76)	49.4 (1.94)	60.0 (2.36)	60.0 (2.36)	33.7 (1.33)	50.0 (1.97)

Tube Adapters

Male



1 in. and under



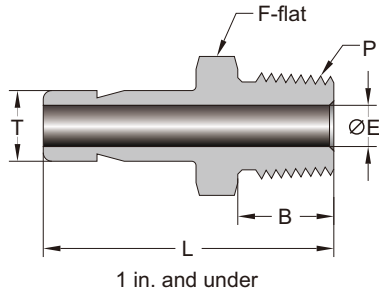
Over 1 in.

NPT

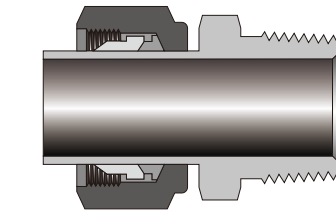
Tube Size T	NPT Size P	Basic Ordering Number	Dimensions			
			L	B	E	F
Dimensions, in. (mm)						
1/16	1/8	-F1T-DU-NT2-	1.00 (25.4)	0.38 (9.7)	0.03 (0.8)	0.44 (11.1)
1/8	1/8	-F2T-DU-NT2-	1.16 (29.5)	0.38 (9.7)	0.08 (2.0)	0.44 (11.1)
	1/4	-F2T-DU-NT4-	1.37 (34.8)	0.56 (14.3)		0.56 (14.3)
3/16	1/8	-F3T-DU-NT2-	1.19 (30.2)	0.38 (9.7)	0.12 (3.0)	0.44 (11.1)
	1/4	-F3T-DU-NT4-	1.40 (35.6)	0.56 (14.3)		0.56 (14.3)
1/4	1/8	-F4T-DU-NT2-	1.25 (31.8)	0.38 (9.7)	0.17 (4.3)	0.44 (11.1)
	1/4	-F4T-DU-NT4-	1.46 (37.1)	0.56 (14.3)		0.56 (14.3)
	3/8	-F4T-DU-NT6-	1.49 (37.8)			0.69 (17.5)
	1/2	-F4T-DU-NT8-	1.71 (43.4)	0.75 (19.1)		0.87 (22.2)
5/16	1/8	-F5T-DU-NT2-	1.29 (32.8)	0.38 (9.7)	0.22 (5.6)	0.44 (11.1)
	1/4	-F5T-DU-NT4-	1.50 (38.1)	0.56 (14.3)		0.56 (14.3)
	3/8	-F5T-DU-NT6-	1.53 (38.9)			0.69 (17.5)
	1/2	-F5T-DU-NT8-	1.74 (44.2)	0.75 (19.1)		0.87 (22.2)
3/8	1/8	-F6T-DU-NT2-	1.32 (33.5)	0.38 (9.7)	0.27 (6.9)	0.44 (11.1)
	1/4	-F6T-DU-NT4-	1.53 (38.9)	0.56 (14.3)		0.56 (14.3)
	3/8	-F6T-DU-NT6-	1.56 (39.6)			0.69 (17.5)
	1/2	-F6T-DU-NT8-	1.78 (45.2)	0.75 (19.1)		0.87 (22.2)

Tube Adapters

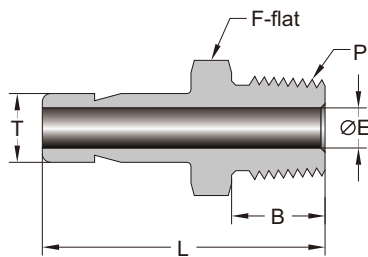
Male



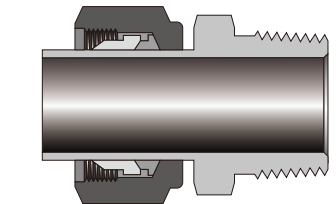
1 in. and under



Over 1 in.



25mm and under



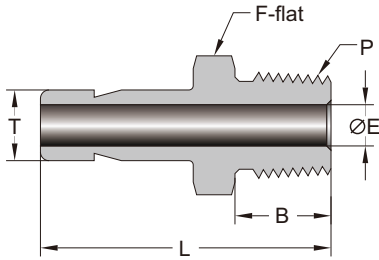
Over 25 mm

NPT

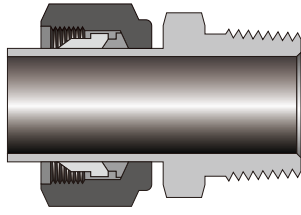
Tube Size T	NPT Size P	Basic Ordering Number	Dimensions			
			L	B	E	F
Dimensions, in. (mm)						
1/2	1/4	-F8T-DU-NT4-	1.75 (44.5)	0.56 (14.3)	0.28 (7.1)	0.56 (14.3)
	3/8	-F8T-DU-NT6-	1.78 (45.2)			0.69 (17.5)
	1/2	-F8T-DU-NT8-	2.00 (50.8)	0.75 (19.1)	0.37 (9.4)	0.87 (22.2)
5/8	1/2	-F10T-DU-NT8-	2.06 (52.3)	0.75 (19.1)	0.47 (11.9)	0.87 (22.2)
3/4	1/2	-F12T-DU-NT8-	2.06 (52.3)	0.75 (19.1)	0.47 (11.9)	0.87 (22.2)
	3/4	-F12T-DU-NT12-	2.06 (52.3)			1.06 (27.0)
	1	-F12T-DU-NT16-	2.41 (61.2)	0.94 (23.9)	0.58 (14.7)	1.37 (34.9)
1	3/4	-F16T-DU-NT12-	2.31 (58.7)	0.75 (19.1)	0.62 (15.7)	1.06 (27.0)
	1	-F16T-DU-NT16-	2.60 (66.0)	0.94 (23.9)	0.80 (20.3)	1.37 (34.9)
1-1/4	1-1/4	-F20T-DU-NT20-	3.16 (80.3)	0.94 (23.9)	1.02 (25.9)	1.75 (44.5)
1-1/2	1-1/2	-F24T-DU-NT24-	3.72 (94.5)	1.03 (26.2)	1.25 (31.8)	2.13 (54.0)
Dimensions, mm (in.)						
3	1/8	-M3T-DU-NT2-	29.4 (1.16)	9.7 (0.38)	1.8 (0.07)	12.0 (0.47)
4	1/8	-M4T-DU-NT2-	29.4 (1.16)	9.7 (0.38)	2.4 (0.09)	12.0 (0.47)
6	1/8	-M6T-DU-NT2-	32.8 (1.29)	9.7 (0.38)	4.1 (0.16)	12.0 (0.47)
	1/4	-M6T-DU-NT4-	38.1 (1.50)			14.0 (0.55)
	3/8	-M6T-DU-NT6-	39.2 (1.54)	14.3 (0.56)		18.0 (0.71)
	1/2	-M6T-DU-NT8-	42.1 (1.66)	19.1 (0.75)		22.0 (0.87)
8	1/4	-M8T-DU-NT4-	39.1 (1.54)	14.3 (0.56)	5.6 (0.22)	14.0 (0.55)
	3/8	-M8T-DU-NT6-	39.9 (1.57)			19.0 (0.75)
10	1/4	-M10T-DU-NT4-	39.9 (1.57)	14.3 (0.56)	7.1 (0.28)	14.0 (0.55)
	3/8	-M10T-DU-NT6-	40.6 (1.60)			18.0 (0.71)
	1/2	-M10T-DU-NT8-	46.2 (1.82)	19.1 (0.75)		22.0 (0.87)
12	1/4	-M12T-DU-NT4-	46.5 (1.83)	14.3 (0.56)	8.8 (0.35)	14.0 (0.55)
	3/8	-M12T-DU-NT6-	46.2 (1.82)			18.0 (0.71)
	1/2	-M12T-DU-NT8-	52.1 (2.05)	19.1 (0.75)		22.0 (0.87)
16	1/2	-M16T-DU-NT8-	50.8 (2.00)	19.1 (0.75)	11.9 (0.47)	22.0 (0.87)
	3/4	-M16T-DU-NT12-	51.6 (2.03)		12.0 (0.47)	27.0 (1.06)
18	1/2	-M18T-DU-NT8-	50.8 (2.00)	19.1 (0.75)	11.9 (0.47)	27.0 (1.06)
	3/4	-M18T-DU-NT12-	51.6 (2.03)		14.0 (0.55)	
20	1/2	-M20T-DU-NT8-	53.3 (2.10)	19.1 (0.75)	11.9 (0.47)	22.0 (0.87)
	3/4	-M20T-DU-NT12-	53.8 (2.12)		15.5 (0.61)	27.0 (1.06)
25	1	-M25T-DU-NT16-	65.9 (2.59)	23.9 (0.94)	19.8 (0.78)	35.0 (1.38)
28	1	-M28T-DU-NT16-	74.7 (2.94)	23.9 (0.94)	22.2 (0.87)	35.0 (1.38)
	1-1/4	-M28T-DU-NT20-	76.2 (3.00)	23.9 (0.94)	22.5 (0.89)	46.0 (1.81)
30	1	-M30T-DU-NT16-	79.2 (3.12)	23.9 (0.94)	22.2 (0.87)	41.0 (1.61)
	1-1/4	-M30T-DU-NT20-	80.0 (3.15)	23.9 (0.94)	24.3 (0.96)	46.0 (1.81)
32	1-1/4	-M32T-DU-NT20-	81.0 (3.19)	23.9 (0.94)	26.5 (1.04)	46.0 (1.81)
38	1-1/2	-M38T-DU-NT24-	92.2 (3.63)	26.2 (1.03)	31.6 (1.24)	55.0 (2.17)

Tube Adapters

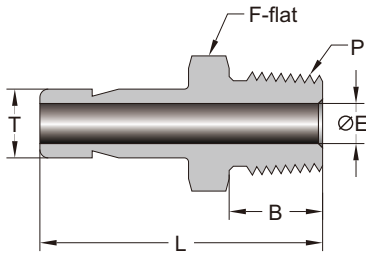
Male



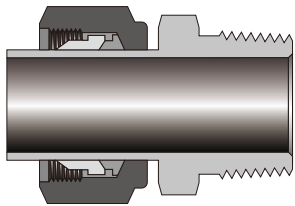
1 in. and under



Over 1 in.



25mm and under



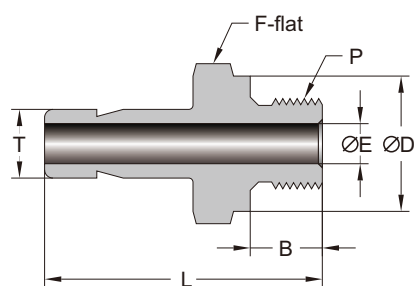
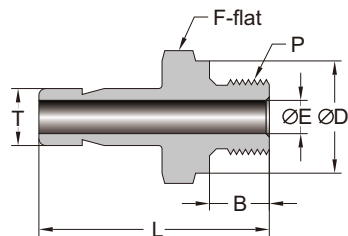
Over 25 mm

ISO/BSP Tapered Thread (RT)

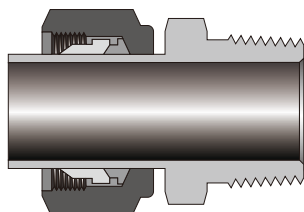
Tube Size T	RT Size P	Basic Ordering Number	Dimensions			
			L	B	E	F
Dimensions, in. (mm)						
1/8	1/8	-F2T-DU-RT2-	1.16 (29.5)	0.38 (9.7)	0.08 (2.0)	0.44 (11.1)
	1/4	-F2T-DU-RT4-	1.37 (34.8)	0.56 (14.3)		0.56 (14.3)
1/4	1/8	-F4T-DU-RT2-	1.25 (31.8)	0.38 (9.7)	0.17 (4.3)	0.44 (11.1)
	1/4	-F4T-DU-RT4-	1.46 (37.1)	0.56 (14.3)		0.56 (14.3)
	3/8	-F4T-DU-RT6-	1.49 (37.8)	0.75 (19.1)		0.69 (17.5)
	1/2	-F4T-DU-RT8-	1.71 (43.4)	0.75 (19.1)		0.87 (22.2)
5/16	1/8	-F5T-DU-RT2-	1.29 (32.8)	0.38 (9.7)	0.19 (4.8)	0.44 (11.1)
	1/4	-F5T-DU-RT4-	1.50 (38.1)	0.56 (14.3)	0.22 (5.6)	0.56 (14.3)
3/8	1/4	-F6T-DU-RT4-	1.53 (38.9)	0.56 (14.3)	0.27 (6.9)	0.56 (14.3)
	3/8	-F6T-DU-RT6-	1.56 (39.6)			0.69 (17.5)
	1/2	-F6T-DU-RT8-	1.78 (45.2)			0.87 (22.2)
1/2	1/4	-F8T-DU-RT4-	1.75 (44.5)	0.56 (14.3)	0.28 (7.1)	0.56 (14.3)
	3/8	-F8T-DU-RT6-	1.78 (45.2)			0.69 (17.5)
	1/2	-F8T-DU-RT8-	2.00 (50.8)		0.75 (19.1)	0.87 (22.2)
5/8	3/8	-F10T-DU-RT6-	2.06 (52.3)	0.75 (19.1)	0.37 (9.4)	0.69 (17.5)
	1/2	-F10T-DU-RT8-	1.91 (48.5)	0.56 (14.3)	0.47 (11.9)	0.87 (22.2)
3/4	3/4	-F12T-DU-RT12-	2.06 (52.3)	0.75 (19.1)	0.58 (14.7)	1.06 (27.0)
1	1	-F16T-DU-RT16-	2.60 (66.0)	0.94 (23.9)	0.80 (20.3)	1.37 (34.9)
Dimensions, mm (in.)						
3	1/8	-M3T-DU-RT2-	29.4 (1.16)	9.7 (0.38)	1.8 (0.07)	12.0 (0.47)
4	1/8	-M4T-DU-RT2-	29.4 (1.16)	9.7 (0.38)	2.4 (0.09)	12.0 (0.47)
6	1/8	-M6T-DU-RT2-	32.8 (1.29)	9.7 (0.38)	4.1 (0.16)	12.0 (0.47)
	1/4	-M6T-DU-RT4-	38.1 (1.50)	14.3 (0.56)		14.0 (0.55)
8	1/4	-M8T-DU-RT4-	39.1 (1.54)	14.3 (0.56)	5.6 (0.22)	14.0 (0.55)
	3/8	-M8T-DU-RT6-	39.9 (1.57)			18.0 (0.71)
10	1/4	-M10T-DU-RT4-	39.9 (1.57)	14.3 (0.56)	7.1 (0.28)	14.0 (0.55)
	3/8	-M10T-DU-RT6-	40.6 (1.60)			18.0 (0.71)
	1/2	-M10T-DU-RT8-	44.5 (1.75)			22.0 (0.87)
12	1/4	-M12T-DU-RT4-	46.5 (1.83)	14.3 (0.56)	7.1 (0.28)	16.0 (0.63)
	3/8	-M12T-DU-RT6-	46.2 (1.82)			18.0 (0.71)
	1/2	-M12T-DU-RT8-	51.8 (2.04)		19.1 (0.75)	22.0 (0.87)
16	1/2	-M16T-DU-RT8-	50.8 (2.00)	19.1 (0.75)	11.9 (0.47)	22.0 (0.87)
18	3/4	-M18T-DU-RT12-	51.6 (2.03)	19.1 (0.75)	14.0 (0.55)	27.0 (1.06)
20	3/4	-M20T-DU-RT12-	52.4 (2.06)	19.1 (0.75)	15.5 (0.61)	27.0 (1.06)
25	1	-M25T-DU-RT16-	65.9 (2.59)	23.9 (0.94)	19.8 (0.78)	35.0 (1.38)
28	1	-M28T-DU-RT16-	74.7 (2.94)	23.9 (0.94)	22.2 (0.87)	35.0 (1.38)
	1-1/4	-M28T-DU-RT20-	76.2 (3.00)	23.9 (0.94)	22.5 (0.89)	46.0 (1.81)
30	1-1/4	-M30T-DU-RT20-	80.0 (3.15)	23.9 (0.94)	24.3 (0.96)	46.0 (1.81)
32	1-1/4	-M32T-DU-RT20-	81.0 (3.19)	23.9 (0.94)	26.5 (1.04)	46.0 (1.81)
38	1-1/2	-M38T-DU-RT24-	92.2 (3.63)	26.2 (1.03)	31.6 (1.24)	55.0 (2.17)

Tube Adapters

Male



25 mm and under



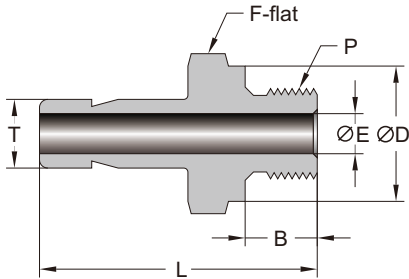
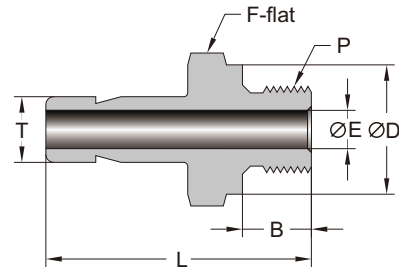
Over 25 mm

ISO/BSP Parallel Thread (RS)

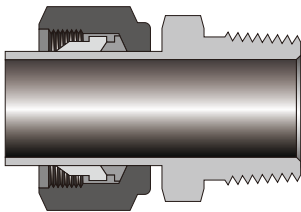
Tube Size T	RS Size P	Basic Ordering Number	Dimensions				
			L	B	E	F	D
Dimensions, in. (mm)							
1/8	1/8	-F2T-DU-RS2-	1.09 (27.7)	0.28 (7.1)	0.08 (2.0)	0.56 (14.3)	0.54 (13.7)
	1/4	-F2T-DU-RS4-	1.31 (33.3)	0.44 (11.1)		0.75 (19.1)	0.70 (17.8)
1/4	1/8	-F4T-DU-RS2-	1.19 (30.2)	0.28 (7.1)	0.16 (4.1)	0.56 (14.3)	0.54 (13.7)
	1/4	-F4T-DU-RS4-	1.50 (38.1)	0.44 (11.1)	0.18 (4.3)	0.75 (19.1)	0.70 (17.8)
3/8	1/8	-F6T-DU-RS2-	1.34 (34.0)	0.28 (7.1)	0.16 (4.1)	0.75 (19.1)	0.54 (13.7)
	1/4	-F6T-DU-RS4-	1.47 (37.3)	0.44 (11.1)	0.25 (6.4)		0.70 (17.8)
	3/8	-F6T-DU-RS6-	1.50 (38.1)		0.27 (6.9)	0.87 (22.2)	0.85 (21.6)
	1/2	-F6T-DU-RS8-	1.69 (42.9)	0.56 (14.3)		1.06 (27.0)	1.02 (25.9)
1/2	1/4	-F8T-DU-RS4-	1.69 (42.9)	0.44 (11.1)	0.25 (6.4)	0.75 (19.1)	0.70 (17.8)
	3/8	-F8T-DU-RS6-	1.72 (43.7)		0.31 (7.9)	0.87 (22.2)	0.85 (21.6)
	1/2	-F8T-DU-RS8-	1.94 (49.3)	0.56 (14.3)	0.37 (9.4)	1.06 (27.0)	1.02 (25.9)
5/8	1/2	-F10T-DU-RS8-	1.97 (50.0)	0.56 (14.3)	0.47 (11.9)	1.06 (27.0)	1.02 (25.9)
3/4	3/4	-F12T-DU-RS12-	2.09 (53.1)	0.63 (16.0)	0.58 (14.7)	1.32 (33.5)	1.26 (32.0)
1	1	-F16T-DU-RS16-	2.49 (63.3)	0.72 (18.3)	0.78 (19.8)	1.63 (41.3)	1.53 (38.9)
Dimensions, mm (in.)							
3	1/8	-M3T-DU-RS2-	31.0 (1.22)	7.1 (0.28)	1.8 (0.07)	14.0 (0.55)	13.7 (0.54)
4	1/8	-M4T-DU-RS2-	31.8 (1.25)	7.1 (0.28)	2.4 (0.09)	14.0 (0.55)	13.7 (0.54)
6	1/8	-M6T-DU-RS2-	34.3 (1.35)	7.1 (0.28)	4.0 (0.16)	14.0 (0.55)	13.7 (0.54)
	1/4	-M6T-DU-RS4-	39.1 (1.54)	11.2 (0.44)	4.1 (0.16)	19.0 (0.75)	17.8 (0.70)
8	1/4	-M8T-DU-RS4-	39.6 (1.56)	11.2 (0.44)	5.6 (0.22)	19.0 (0.75)	17.8 (0.70)
10	1/4	-M10T-DU-RS4-	40.9 (1.61)	11.2 (0.44)	5.9 (0.23)	19.0 (0.75)	17.8 (0.70)
	3/8	-M10T-DU-RS6-	41.7 (1.64)		7.1 (0.28)	22.0 (0.87)	21.6 (0.85)
	1/2	-M10T-DU-RS8-	44.7 (1.76)	14.3 (0.56)		27.0 (1.06)	25.9 (1.02)
12	1/4	-M12T-DU-RS4-	46.7 (1.84)	11.2 (0.44)	5.9 (0.23)	19.0 (0.75)	17.8 (0.70)
	3/8	-M12T-DU-RS6-	47.2 (1.86)		7.9 (0.31)	22.0 (0.87)	21.6 (0.85)
	1/2	-M12T-DU-RS8-	50.5 (1.99)	14.3 (0.56)	8.8 (0.35)	27.0 (1.06)	25.9 (1.02)
16	1/2	-M16T-DU-RS8-	50.8 (2.00)	14.3 (0.56)	11.9 (0.47)	27.0 (1.06)	25.9 (1.02)
18	3/4	-M18T-DU-RS12-	55.9 (2.20)	16.0 (0.63)	13.9 (0.55)	35.0 (1.38)	32.0 (1.26)
20	3/4	-M20T-DU-RS12-	57.0 (2.24)	16.0 (0.63)	15.5 (0.61)	35.0 (1.38)	32.0 (1.26)
25	1	-M25T-DU-RS16-	65.1 (2.56)	18.3 (0.72)	19.8 (0.78)	41.0 (1.61)	38.9 (1.53)
28	1	-M28T-DU-RS16-	71.9 (2.83)	18.3 (0.72)	19.8 (0.78)	41.0 (1.61)	38.9 (1.53)
	1-1/4	-M28T-DU-RS20-	77.0 (3.03)	19.8 (0.78)	22.5 (0.89)	50.0 (1.97)	49.0 (1.93)
30	1-1/4	-M30T-DU-RS20-	80.8 (3.18)	19.8 (0.78)	24.3 (0.96)	50.0 (1.97)	49.0 (1.93)
32	1-1/4	-M32T-DU-RS20-	81.8 (3.22)	19.8 (0.78)	26.5 (1.04)	50.0 (1.97)	49.0 (1.93)
38	1-1/2	-M38T-DU-RS24-	94.5 (3.72)	20.6 (0.81)	31.6 (1.24)	55.0 (2.17)	54.7 (2.15)

Tube Adapters

Male



25 mm and under



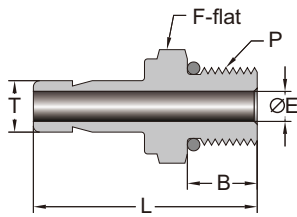
Over 25 mm

ISO/BSP Parallel Thread (RP)

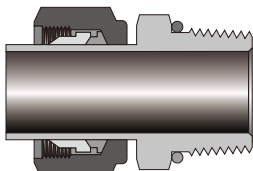
Tube Size T	RP Size P	Basic Ordering Number	Dimensions				
			L	B	E	F	D
Dimensions, in. (mm)							
1/8	1/8	-F2T-DU-RP2-	1.22 (31.0)	0.28 (7.1)	0.08 (2.0)	0.56 (14.3)	0.54 (13.7)
	1/4	-F2T-DU-RP4-	1.41 (35.8)	0.44 (11.1)		0.75 (19.1)	0.70 (17.8)
1/4	1/8	-F4T-DU-RP2-	1.31 (33.3)	0.28 (7.1)	0.16 (4.1)	0.56 (14.3)	0.54 (13.7)
	1/4	-F4T-DU-RP4-	1.50 (38.1)	0.44 (11.1)	0.17 (4.3)	0.75 (19.1)	0.70 (17.8)
3/8	1/8	-F6T-DU-RP2-	1.29 (32.8)	0.28 (7.1)	0.16 (4.1)	0.56 (14.3)	0.54 (13.7)
	1/4	-F6T-DU-RP4-	1.57 (39.9)	0.44 (11.1)	0.23 (5.8)	0.75 (19.1)	0.70 (17.8)
	3/8	-F6T-DU-RP6-	1.60 (40.6)		0.27 (6.9)	0.87 (22.2)	0.85 (21.6)
	1/2	-F6T-DU-RP8-	1.69 (42.9)	0.56 (14.3)	0.28 (7.1)	1.06 (27.0)	1.02 (25.9)
1/2	1/4	-F8T-DU-RP4-	1.79 (45.5)	0.44 (11.1)	0.23 (5.8)	0.75 (19.1)	0.70 (17.8)
	3/8	-F8T-DU-RP6-	1.82 (46.2)		0.31 (7.9)	0.87 (22.2)	0.85 (21.6)
	1/2	-F8T-DU-RP8-	1.94 (49.3)	0.56 (14.3)	0.37 (9.4)	1.06 (27.0)	1.02 (25.9)
5/8	1/2	-F10T-DU-RP8-	1.97 (50.0)	0.56 (14.3)	0.47 (11.9)	1.06 (27.0)	1.02 (25.9)
3/4	3/4	-F12T-DU-RP12-	2.16 (54.9)	0.63 (16.0)	0.58 (14.7)	1.31 (33.3)	1.26 (32.0)
1	1	-F16T-DU-RP16-	2.54 (64.5)	0.72 (18.3)	0.80 (20.3)	1.63 (41.3)	1.53 (38.9)
Dimensions, mm (in.)							
3	1/8	-M3T-DU-RP2-	31.0 (1.22)	7.1 (0.28)	1.8 (0.07)	14.0 (0.55)	13.7 (0.54)
4	1/8	-M4T-DU-RP2-	31.8 (1.25)	7.1 (0.28)	2.0 (0.08)	14.0 (0.55)	13.7 (0.54)
6	1/8	-M6T-DU-RP2-	34.3 (1.35)	7.1 (0.28)	4.0 (0.16)	14.0 (0.55)	13.7 (0.54)
	1/4	-M6T-DU-RP4-	38.1 (1.50)	11.2 (0.44)		19.0 (0.75)	17.8 (0.70)
8	1/4	-M8T-DU-RP4-	38.9 (1.53)	11.2 (0.44)	5.6 (0.22)	19.0 (0.75)	17.8 (0.70)
10	1/4	-M10T-DU-RP4-	38.9 (1.53)	11.2 (0.44)	6.4 (0.25)	19.0 (0.75)	17.8 (0.70)
	3/8	-M10T-DU-RP6-	39.7 (1.56)		7.1 (0.28)	22.0 (0.87)	21.6 (0.85)
	1/2	-M10T-DU-RP8-	42.9 (1.69)	14.3 (0.56)		27.0 (1.06)	25.9 (1.02)
12	1/4	-M12T-DU-RP4-	43.7 (1.72)	11.2 (0.44)	6.4 (0.25)	19.0 (0.75)	17.8 (0.70)
	3/8	-M12T-DU-RP6-	44.5 (1.75)		7.9 (0.31)	22.0 (0.87)	21.6 (0.85)
	1/2	-M12T-DU-RP8-	49.2 (1.94)	14.3 (0.56)	9.1 (0.36)	27.0 (1.06)	25.9 (1.02)
16	1/2	-M16T-DU-RP8-	50.8 (2.00)	14.3 (0.56)	11.9 (0.47)	27.0 (1.06)	25.9 (1.02)
18	3/4	-M18T-DU-RP12-	53.2 (2.09)	16.0 (0.63)	14.0 (0.55)	33.0 (1.30)	32.0 (1.26)
20	3/4	-M20T-DU-RP12-	54.0 (2.13)	16.0 (0.63)	15.5 (0.61)	33.0 (1.30)	32.0 (1.26)
25	1	-M25T-DU-RP16-	65.1 (2.56)	18.3 (0.72)	19.8 (0.78)	41.0 (1.61)	38.9 (1.53)
28	1	-M28T-DU-RP16-	72.7 (2.86)	18.3 (0.72)	19.8 (0.78)	41.0 (1.61)	38.9 (1.53)
	1-1/4	-M28T-DU-RP20-	77.3 (3.04)	19.8 (0.78)	22.5 (0.89)	50.0 (1.97)	49.0 (1.93)
30	1-1/4	-M30T-DU-RP20-	80.8 (3.18)	19.8 (0.78)	24.3 (0.96)	50.0 (1.97)	49.0 (1.93)
32	1-1/4	-M32T-DU-RP20-	82.1 (3.23)	19.8 (0.78)	26.5 (1.04)	50.0 (1.97)	49.0 (1.93)
38	1-1/2	-M38T-DU-RP24-	94.5 (3.72)	20.6 (0.81)	31.6 (1.24)	55.0 (2.17)	54.7 (2.15)

Tube Adapters

Male



1 in. and under



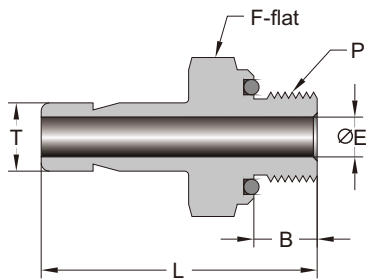
Over 1 in.

Adapts to SAE J1926/1, ISO 11926-1 and MS 16142 straight thread boss.

SAE/MS Straight Thread (ST)

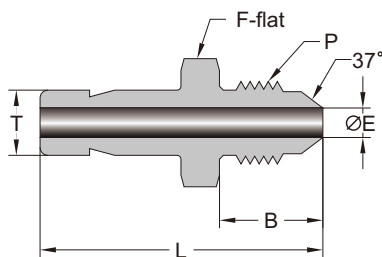
Tube Size T	ST Size P	Basic Ordering Number	Dimensions			
			L	B	E	F
Dimensions, in. (mm)						
1/8	5/16-24	-F2T-DU-ST5-	1.20 (30.5)	0.30 (7.6)	0.08 (2.0)	0.44 (11.1)
1/4	7/16-20	-F4T-DU-ST7-	1.39 (35.3)	0.36 (9.1)	0.17 (4.3)	0.56 (14.3)
3/8	7/16-20	-F6T-DU-ST7-	1.46 (37.1)	0.36 (9.1)	0.27 (6.9)	0.56 (14.3)
	9/16-18	-F6T-DU-ST9-	1.52 (38.6)	0.39 (9.9)		0.69 (17.5)
	3/4-16	-F6T-DU-ST12-	1.60 (40.6)	0.44 (11.2)	0.87 (22.2)	
1/2	9/16-18	-F8T-DU-ST9-	1.74 (44.2)	0.39 (9.9)	0.28 (7.1)	0.69 (17.5)
	3/4-16	-F8T-DU-ST12-	1.82 (46.2)	0.44 (11.2)	0.37 (9.4)	0.87 (22.2)
5/8	7/8-14	-F10T-DU-ST14-	1.94 (49.3)	0.50 (12.7)	0.47 (11.9)	1.00 (25.4)
3/4	1-1/16-12	-F12T-DU-ST17-	2.10 (53.3)	0.59 (15.0)	0.58 (14.7)	1.25 (31.8)
1	1-5/16-12	-F16T-DU-ST21-	2.41 (61.2)	0.59 (15.0)	0.80 (20.3)	1.50 (38.1)
1-1/4	1-5/8-12	-F20T-DU-ST26-	2.81 (71.4)	0.59 (15.0)	1.02 (25.9)	1.87 (47.6)
1-1/2	1-7/8-12	-F24T-DU-ST30-	3.28 (83.3)	0.59 (15.0)	1.25 (31.8)	2.13 (54.0)

O-Seal (SAE/MS Straight Thread)



Tube Size T	SAE/MS Size P	Basic Ordering Number	Dimensions			
			L	B	E	F
Dimensions, in. (mm)						
1/8	5/16-24	-F2T-DU-OST5-	1.28 (32.5)	0.34 (8.6)	0.08 (2.0)	0.56 (14.3)
3/16	3/8-24	-F3T-DU-OST6-	1.38 (35.1)	0.38 (9.7)	0.12 (3.0)	0.63 (15.9)
1/4	7/16-20	-F4T-DU-OST7-	1.54 (39.1)	0.41 (10.4)	0.17 (4.3)	0.75 (19.1)
5/16	1/2-20	-F5T-DU-OST8-	1.64 (41.7)	0.44 (11.2)	0.22 (5.6)	0.87 (22.2)
3/8	9/16-18	-F6T-DU-OST9-	1.70 (43.2)	0.47 (11.9)	0.27 (6.9)	0.94 (23.8)
1/2	3/4-16	-F8T-DU-OST12-	1.95 (49.5)	0.47 (11.9)	0.37 (9.4)	1.13 (28.6)

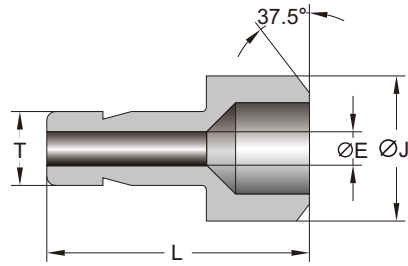
AN (37° Flare)



Tube Size T	AN Flare Size P	Basic Ordering Number	Dimensions			
			L	B	E	F
Dimensions, in. (mm)						
1/4	1/4	-F4T-DU-AN4-	1.46 (37.1)	0.55 (14.0)	0.17 (4.3)	0.50 (12.7)
3/8	1/4	-F6T-DU-AN4-	1.53 (38.9)	0.55 (14.0)	0.17 (4.3)	0.50 (12.7)
	3/8	-F6T-DU-AN6-	1.56 (39.6)	0.56 (14.2)	0.27 (6.9)	0.63 (15.9)
1/2	1/2	-F8T-DU-AN8-	1.91 (48.5)	0.66 (16.8)	0.37 (9.4)	0.81 (20.6)
3/4	3/4	-F12T-DU-AN12-	2.21 (56.1)	0.86 (21.8)	0.58 (14.7)	1.13 (28.6)
1	1	-F16T-DU-AN16-	2.58 (65.5)	0.91 (23.1)	0.80 (20.3)	1.37 (34.9)

Tube Adapters

Pipe Butt Weld

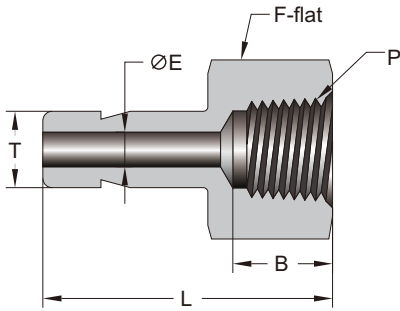


The nominal wall thickness of pipe welding ends is SCH80.

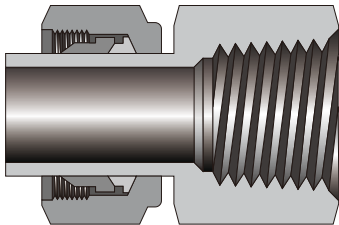
Pipe Butt Weld

Tube Size T	Pipe Size	Basic Ordering Number	Dimensions		
			L	J	E
Dimensions, in. (mm)					
1/4	1/4	-F4T-DU-PB4-	1.14 (29.0)	0.54 (13.7)	0.17 (4.3)
3/8	1/2	-F6T-DU-PB8-	1.46 (37.1)	0.84 (21.3)	0.27 (6.9)
1/2	1/2	-F8T-DU-PB8-	1.66 (42.2)	0.84 (21.3)	0.37 (9.4)
	3/4	-F8T-DU-PB12-	1.68 (42.7)	1.05 (26.7)	0.37 (9.4)
3/4	3/4	-F12T-DU-PB12-	1.87 (47.5)	1.05 (26.7)	0.58 (14.7)

Female



1 in. and under



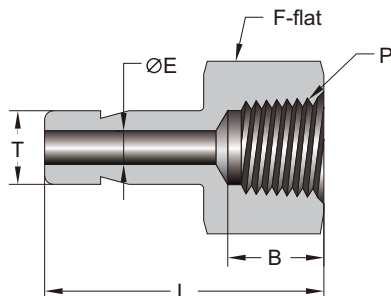
Over 1 in.

NPT (Fractional)

Tube Size T	NPT Size P	Basic Ordering Number	Dimensions			
			L	B	E	F
Dimensions, in. (mm)						
1/16	1/8	-F1T-DU-FNT2-	1.07 (27.2)	0.41 (10.4)	0.03 (0.8)	0.56 (14.3)
1/8	1/8	-F2T-DU-FNT2-	1.24 (31.5)	0.41 (10.4)	0.08 (2.0)	0.56 (14.3)
	1/4	-F2T-DU-FNT4-	1.39 (35.3)	0.59 (15.0)		0.75 (19.1)
3/16	1/8	-F3T-DU-FNT2-	1.25 (31.8)	0.41 (10.4)	0.11 (2.9)	0.56 (14.3)
	1/4	-F3T-DU-FNT4-	1.41 (35.8)	0.59 (15.0)	0.12 (3.0)	0.75 (19.1)
1/4	1/8	-F4T-DU-FNT2-	1.30 (33.0)	0.41 (10.4)	0.17 (4.3)	0.56 (14.3)
	1/4	-F4T-DU-FNT4-	1.46 (37.1)	0.59 (15.0)		0.75 (19.1)
	3/8	-F4T-DU-FNT6-	1.55 (39.4)	0.78 (19.8)		0.87 (22.2)
	1/2	-F4T-DU-FNT8-	1.79 (45.5)	0.78 (19.8)		1.06 (27.0)
5/16	1/8	-F5T-DU-FNT2-	1.34 (34.0)	0.41 (10.4)	0.22 (5.6)	0.56 (14.3)
	1/4	-F5T-DU-FNT4-	1.48 (37.6)	0.59 (15.0)		0.75 (19.1)
	3/8	-F5T-DU-FNT6-	1.59 (40.4)	0.78 (19.8)		0.87 (22.2)
3/8	1/8	-F6T-DU-FNT2-	1.35 (34.3)	0.41 (10.4)	0.27 (6.9)	0.56 (14.3)
	1/4	-F6T-DU-FNT4-	1.50 (38.1)	0.59 (15.0)		0.75 (19.1)
	3/8	-F6T-DU-FNT6-	1.59 (40.4)	0.78 (19.8)		0.87 (22.2)
	1/2	-F6T-DU-FNT8-	1.84 (46.7)	0.78 (19.8)		1.06 (27.0)
1/2	1/8	-F8T-DU-FNT4-	1.71 (43.4)	0.59 (15.0)	0.37 (9.4)	0.75 (19.1)
	3/8	-F8T-DU-FNT6-	1.79 (45.5)			0.87 (22.2)
	1/2	-F8T-DU-FNT8-	2.04 (51.8)			1.06 (27.0)
5/8	3/8	-F10T-DU-FNT6-	1.86 (47.2)	0.59 (15.0)	0.47 (11.9)	0.87 (22.2)
	1/2	-F10T-DU-FNT8-	2.09 (53.1)	0.78 (19.8)		1.06 (27.0)
3/4	1/2	-F12T-DU-FNT8-	2.08 (52.8)	0.78 (19.8)	0.58 (14.7)	1.06 (27.0)
	3/4	-F12T-DU-FNT12-	2.16 (54.9)	0.81 (20.6)		1.31 (33.3)
	1	-F12T-DU-FNT16-	2.30 (58.4)	1.00 (25.4)		1.63 (41.3)
7/8	3/4	-F14T-DU-FNT12-	2.22 (56.4)	0.81 (20.6)	0.69 (17.5)	1.31 (33.3)
	1	-F16T-DU-FNT12-	2.39 (60.7)	0.81 (20.6)	0.80 (20.3)	1.31 (33.3)
1	1	-F16T-DU-FNT16-	2.53 (64.3)	1.00 (25.4)		1.63 (41.3)
1-1/4	1-1/4	-F20T-DU-FNT20-	3.06 (77.7)	1.00 (25.4)	1.02 (25.9)	2.13 (54.0)
1-1/2	1-1/2	-F24T-DU-FNT24-	3.50 (88.9)	1.09 (27.7)	1.25 (31.8)	2.37 (60.3)

Tube Adapters

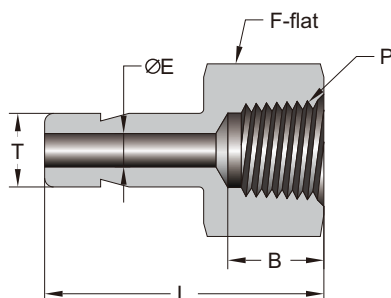
Female



NPT (Metric)

Tube Size T	NPT Size P	Basic Ordering Number	Dimensions			
			L	B	E	F
Dimensions, mm (in.)						
3	1/8	-M3T-DU-FNT2-	28.8 (1.13)	10.4 (0.41)	1.3 (0.05)	14.0 (0.55)
4	1/8	-M4T-DU-FNT2-	33.3 (1.31)	10.4 (0.41)	2.4 (0.09)	14.0 (0.55)
6	1/8	-M6T-DU-FNT2-	32.5 (1.28)	10.4 (0.41)	4.1 (0.16)	14.0 (0.55)
	1/4	-M6T-DU-FNT4-	37.1 (1.46)	15.0 (0.59)		19.0 (0.75)
8	1/8	-M8T-DU-FNT2-	35.1 (1.38)	10.4 (0.41)	5.6 (0.22)	14.0 (0.55)
	1/4	-M8T-DU-FNT4-	37.6 (1.48)	15.0 (0.59)		19.0 (0.75)
	3/8	-M8T-DU-FNT6-	36.5 (1.44)			22.0 (0.87)
10	1/4	-M10T-DU-FNT4-	38.1 (1.50)	15.0 (0.59)	7.1 (0.28)	19.0 (0.75)
	3/8	-M10T-DU-FNT6-	40.1 (1.58)			22.0 (0.87)
	1/2	-M10T-DU-FNT8-	46.5 (1.83)			27.0 (1.06)
12	1/4	-M12T-DU-FNT4-	43.7 (1.72)	15.0 (0.59)	8.8 (0.35)	19.0 (0.75)
	3/8	-M12T-DU-FNT6-	42.9 (1.69)			22.0 (0.87)
	1/2	-M12T-DU-FNT8-	52.3 (2.06)			27.0 (1.06)
16	1/2	-M16T-DU-FNT8-	49.2 (1.94)	19.8 (0.78)	12.0 (0.47)	27.0 (1.06)
18	3/4	-M18T-DU-FNT12-	52.4 (2.06)	20.6 (0.81)	14.0 (0.55)	32.0 (1.26)
20	1/2	-M20T-DU-FNT8-	50.0 (1.97)	19.8 (0.78)	15.5 (0.61)	27.0 (1.06)
	3/4	-M20T-DU-FNT12-	57.2 (2.25)	20.6 (0.81)		35.0 (1.38)
25	1	-M25T-DU-FNT16-	66.7 (2.63)	25.4 (1.00)	19.8 (0.78)	41.0 (1.61)

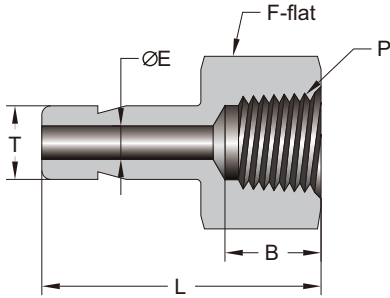
ISO/BSP Tapered Thread (FRT)



Tube Size T	FRT Size P	Basic Ordering Number	Dimensions			
			L	B	E	F
Dimensions, in. (mm)						
1/4	1/8	-F4T-DU-FRT2-	1.30 (33.0)	0.41 (10.4)	0.17 (4.3)	0.56 (14.3)
	1/4	-F4T-DU-FRT4-	1.45 (36.8)	0.59 (15.0)		0.75 (19.1)
3/8	1/4	-F6T-DU-FRT4-	1.50 (38.1)	0.59 (15.0)	0.27 (6.9)	0.75 (19.1)
	3/8	-F6T-DU-FRT6-	1.59 (40.4)			0.87 (22.2)
1/2	1/4	-F8T-DU-FRT4-	1.71 (43.4)	0.59 (15.0)	0.37 (9.4)	0.75 (19.1)
	3/8	-F8T-DU-FRT6-	1.80 (45.7)			0.87 (22.2)
	1/2	-F8T-DU-FRT8-	2.05 (52.1)			1.06 (27.0)
Dimensions, mm (in.)						
3	1/8	-M3T-DU-FRT2-	28.8 (1.13)	10.4 (0.41)	1.8 (0.07)	14.0 (0.55)
4	1/8	-M4T-DU-FRT2-	28.6 (1.13)	10.4 (0.41)	2.4 (0.09)	14.0 (0.55)
6	1/8	-M6T-DU-FRT2-	33.0 (1.30)	10.4 (0.41)	4.1 (0.16)	14.0 (0.55)
8	1/4	-M8T-DU-FRT4-	37.6 (1.48)	15.0 (0.59)	5.6 (0.22)	19.0 (0.75)
10	1/4	-M10T-DU-FRT4-	38.1 (1.50)	15.0 (0.59)	7.1 (0.28)	19.0 (0.75)
	3/8	-M10T-DU-FRT6-	36.5 (1.44)			22.0 (0.87)
	1/2	-M10T-DU-FRT8-	41.3 (1.63)			27.0 (1.06)
12	1/4	-M12T-DU-FRT4-	43.7 (1.72)	15.0 (0.59)	8.8 (0.35)	19.0 (0.75)
	3/8	-M12T-DU-FRT6-	43.7 (1.72)			22.0 (0.87)
	1/2	-M12T-DU-FRT8-	46.8 (1.84)			27.0 (1.06)
16	1/2	-M16T-DU-FRT8-	48.4 (1.91)	19.8 (0.78)	12.0 (0.47)	27.0 (1.06)

Tube Adapters

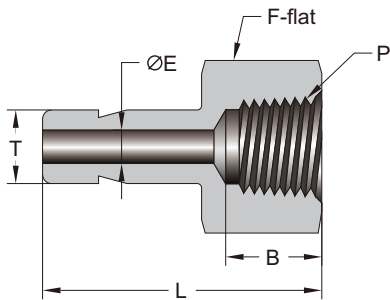
Female



ISO/BSP Tapered Thread (FRT)

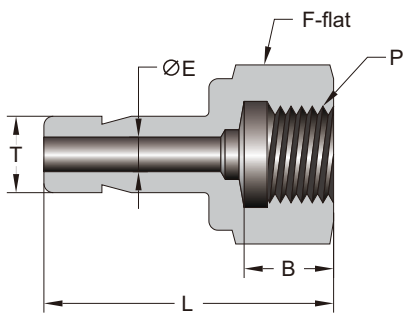
Tube Size T	FRT Size P	Basic Ordering Number	Dimensions			
			L	B	E	F
Dimensions, mm (in.)						
18	3/4	-M18T-DU-FRT12-	52.4 (2.06)	20.6 (0.81)	14.0 (0.55)	32.0 (1.26)
20	3/4	-M20T-DU-FRT12-	52.4 (2.06)	20.6 (0.81)	15.5 (0.61)	32.0 (1.26)
25	1	-M25T-DU-FRT16-	66.7 (2.63)	25.4 (1.00)	19.8 (0.78)	41.0 (1.61)

ISO/BSP Parallel Thread (RP)



Tube Size T	RP Size P	Basic Ordering Number	Dimensions			
			L	B	E	F
Dimensions, in. (mm)						
1/8	1/8	-F2T-DU-FRP2-	1.17 (29.7)	0.40 (10.2)	0.08 (2.0)	0.56 (14.3)
1/4	1/8	-F4T-DU-FRP2-	1.25 (31.8)	0.40 (10.2)	0.17 (4.3)	0.56 (14.3)
	1/4	-F4T-DU-FRP4-	1.50 (38.1)	0.61 (15.5)		0.75 (19.1)
3/8	1/4	-F6T-DU-FRP4-	1.55 (39.4)	0.61 (15.5)	0.27 (6.9)	0.75 (19.1)
	3/8	-F6T-DU-FRP6-	1.57 (39.9)	0.60 (15.2)		0.94 (23.8)
1/2	3/8	-F8T-DU-FRP6-	1.78 (45.2)	0.60 (15.2)	0.38 (9.7)	0.94 (23.8)
	1/2	-F8T-DU-FRP8-	1.95 (49.5)	0.73 (18.5)		1.06 (27.0)
Dimensions, mm. (in)						
6	1/8	-M6T-DU-FRP2-	32.0 (1.26)	10.2 (0.40)	4.1 (0.16)	14.0 (0.55)
	1/4	-M6T-DU-FRP4-	37.8 (1.49)	15.2 (0.60)	4.1 (0.16)	19.0 (0.75)
12	1/2	-M12T-DU-FRP8-	49.8 (1.96)	18.8 (0.74)	8.8 (0.35)	27.0 (1.06)

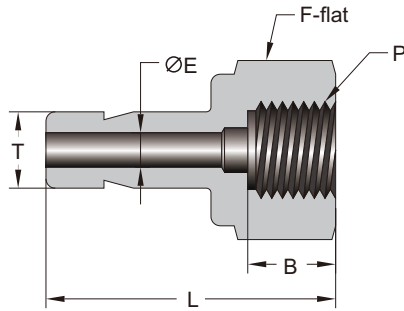
ISO/BSP Parallel Thread (RJ)



Tube Size T	RJ Size P	Basic Ordering Number	Dimensions			
			L	B	E	F
Dimensions, in. (mm)						
1/4	1/4	-F4T-DU-FRJ4-	1.39 (35.3)	0.51 (12.9)	0.17 (4.3)	0.75 (19.1)
3/8	3/8	-F6T-DU-FRJ6-	1.55 (39.4)	0.62 (15.8)	0.26 (6.6)	0.94 (23.8)
1/2	1/2	-F8T-DU-FRJ8-	1.94 (49.3)	0.74 (18.8)	0.28 (7.1)	1.06 (27.0)
Dimensions, mm (in.)						
6	1/4	-M6T-DU-FRJ4-	35.3 (1.39)	12.9 (0.50)	4.1 (0.16)	19.0 (0.75)
	3/8	-M6T-DU-FRJ6-	38.6 (1.52)	15.8 (0.62)		24.0 (0.94)
	1/2	-M6T-DU-FRJ8-	42.9 (1.69)	18.8 (0.74)		27.0 (1.06)
8	1/4	-M8T-DU-FRJ4-	33.0 (1.30)	12.9 (0.50)	5.6 (0.22)	19.0 (0.75)
	3/8	-M8T-DU-FRJ6-	39.4 (1.55)	15.8 (0.62)		24.0 (0.94)
	1/2	-M8T-DU-FRJ8-	43.7 (1.72)	18.8 (0.74)		27.0 (1.06)
10	1/4	-M10T-DU-FRJ4-	34.5 (1.36)	12.9 (0.50)	7.1 (0.28)	19.0 (0.75)
	3/8	-M10T-DU-FRJ6-	36.1 (1.42)	15.8 (0.62)		24.0 (0.94)
	1/2	-M10T-DU-FRJ8-	41.1 (1.62)	18.8 (0.74)		27.0 (1.06)
12	1/4	-M12T-DU-FRJ4-	40.1 (1.58)	12.9 (0.50)	7.0 (0.28)	19.0 (0.75)
	3/8	-M12T-DU-FRJ6-	44.7 (1.76)	15.8 (0.62)		24.0 (0.94)
	1/2	-M12T-DU-FRJ8-	48.8 (1.92)	18.8 (0.74)		27.0 (1.06)

Tube Adapters

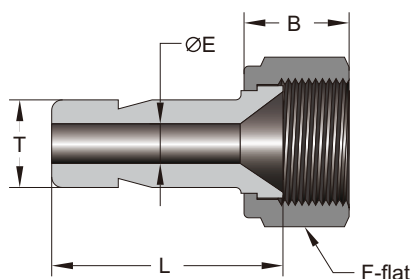
Female



ISO/BSP Parallel Thread (RG, Gauge)

Tube Size T	RG Gauge Size P	Basic Ordering Number	Dimensions			
			L	B	E	F
Dimensions, in. (mm)						
1/4	1/4	-F4T-DU-FRG4-	1.39 (35.3)	0.51 (12.9)	0.17 (4.3)	0.75 (19.1)
3/8	3/8	-F6T-DU-FRG6-	1.55 (39.4)	0.56 (14.3)	0.26 (6.6)	0.94 (23.8)
1/2	1/2	-F8T-DU-FRG8-	1.80 (45.7)	0.74 (18.8)	0.28 (7.1)	1.06 (27.0)
Dimensions, mm (in.)						
3	1/8	-M3T-DU-FRG2-	28.6 (1.13)	9.8 (0.39)	1.9 (0.07)	14.0 (0.55)
	1/4	-M3T-DU-FRG4-	33.5 (1.32)	12.9 (0.50)		19.0 (0.75)
4	1/8	-M4T-DU-FRG2-	29.4 (1.16)	9.8 (0.39)	2.4 (0.09)	14.0 (0.55)
6	1/8	-M6T-DU-FRG2-	29.1 (1.15)	9.8 (0.39)	4.1 (0.16)	14.0 (0.55)
	1/4	-M6T-DU-FRG4-	35.3 (1.39)	12.9 (0.50)		19.0 (0.75)
	3/8	-M6T-DU-FRG6-	38.4 (1.51)	14.2 (0.56)		24.0 (0.94)
	1/2	-M6T-DU-FRG8-	42.9 (1.69)	18.8 (0.74)		27.0 (1.06)
8	1/4	-M8T-DU-FRG4-	33.0 (1.30)	12.9 (0.50)	5.5 (0.22)	19.0 (0.75)
	3/8	-M8T-DU-FRG6-	38.9 (1.53)	14.2 (0.56)	5.6 (0.22)	24.0 (0.94)
	1/2	-M8T-DU-FRG8-	43.7 (1.72)	18.8 (0.74)		27.0 (1.06)
10	1/4	-M10T-DU-FRG4-	34.5 (1.36)	12.9 (0.50)	5.5 (0.22)	19.0 (0.75)
	3/8	-M10T-DU-FRG6-	36.1 (1.42)	14.2 (0.56)	6.5 (0.26)	24.0 (0.94)
	1/2	-M10T-DU-FRG8-	41.1 (1.62)	18.8 (0.74)	7.1 (0.28)	27.0 (1.06)
12	1/4	-M12T-DU-FRG4-	40.1 (1.58)	12.9 (0.50)	5.5 (0.22)	19.0 (0.75)
	3/8	-M12T-DU-FRG6-	44.7 (1.76)	14.2 (0.56)	6.5 (0.26)	24.0 (0.94)
	1/2	-M12T-DU-FRG8-	48.8 (1.92)	18.8 (0.74)	7.0 (0.28)	27.0 (1.06)
16	1/2	-M16T-DU-FRG8-	49.0 (1.93)	18.8 (0.74)	7.0 (0.28)	27.0 (1.06)
18	1/2	-M18T-DU-FRG8-	49.3 (1.94)	18.8 (0.74)	7.0 (0.28)	27.0 (1.06)

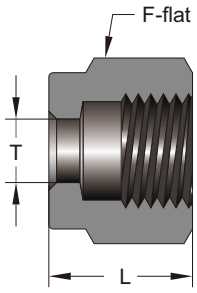
AN (37° Flare)



Tube Size T	AN Flare Size P	Basic Ordering Number	Dimensions			
			L	B	E	F
Dimensions, in. (mm)						
1/8	1/8	-F2T-DU-FAN2-	0.88 (22.4)	0.55 (14.0)	0.08 (2.0)	0.37 (9.5)
	1/4	-F2T-DU-FAN4-		0.62 (15.8)	0.09 (2.4)	0.56 (14.3)
1/4	1/4	-F4T-DU-FAN4-	0.96 (24.4)	0.62 (15.8)	0.16 (4.0)	0.56 (14.3)
3/8	3/8	-F6T-DU-FAN6-	0.98 (24.9)	0.73 (18.5)	0.27 (6.8)	0.75 (19.1)
1/2	1/2	-F8T-DU-FAN8-	1.42 (36.1)	0.85 (21.6)	0.37 (9.4)	0.87 (22.2)
3/4	3/4	-F12T-DU-FAN12-	1.49 (37.8)	1.03 (26.2)	0.58 (14.7)	1.25 (31.8)

Replacement Parts

Nuts



Female (Fractional)

Tube Size T	Basic Ordering Number	Dimensions	
		L	G
Dimensions, in. (mm)			
1/16	-DN-FF1-	0.31 (7.9)	0.31 (7.9)
1/8	-DN-FF2-	0.47 (11.9)	0.44 (11.1)
3/16	-DN-FF3-	0.47 (11.9)	0.50 (12.7)
1/4	-DN-FF4-	0.50 (12.7)	0.56 (14.3)
5/16	-DN-FF5-	0.53 (13.5)	0.63 (15.9)
3/8	-DN-FF6-	0.56 (14.3)	0.69 (17.5)
1/2	-DN-FF8-	0.69 (17.5)	0.87 (22.2)
5/8	-DN-FF10-	0.69 (17.5)	1.00 (25.4)
3/4	-DN-FF12-	0.69 (17.5)	1.13 (28.6)
7/8	-DN-FF14-	0.69 (17.5)	1.25 (31.8)
1	-DN-FF16-	0.81 (20.6)	1.50 (38.1)
1-1/8	-DN-FF18-	1.21 (30.8)	1.75 (44.5)
1-1/4	-DN-FF20-	1.25 (31.8)	1.87 (47.6)
1-1/2	-DN-FF24-	1.50 (38.1)	2.25 (57.2)

Female (Metric)

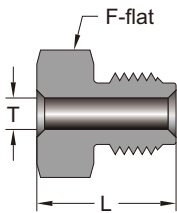
Tube Size T	Basic Ordering Number	Dimensions	
		L	G
Dimensions, mm (in.)			
2	-DN-FM2-	11.9 (0.47)	12.0 (0.47)
3	-DN-FM3-	11.9 (0.47)	12.0 (0.47)
4	-DN-FM4-	11.9 (0.47)	12.0 (0.47)
6	-DN-FM6-	12.7 (0.50)	14.0 (0.55)
8	-DN-FM8-	13.5 (0.53)	16.0 (0.63)
10	-DN-FM10-	15.1 (0.59)	19.0 (0.75)
12	-DN-FM12-	17.4 (0.69)	22.0 (0.87)
14	-DN-FM14-	17.4 (0.69)	25.0 (0.98)
15	-DN-FM15-	17.4 (0.69)	25.0 (0.98)
16	-DN-FM16-	17.4 (0.69)	25.0 (0.98)
18	-DN-FM18-	17.4 (0.69)	30.0 (1.18)
20	-DN-FM20-	17.4 (0.69)	32.0 (1.26)
22	-DN-FM22-	17.4 (0.69)	32.0 (1.26)
25	-DN-FM25-	20.6 (0.81)	38.0 (1.50)
28	-DN-FM28-	30.6 (1.20)	46.0 (1.81)
30	-DN-FM30-	32.7 (1.29)	50.0 (1.97)
32	-DN-FM32-	34.4 (1.35)	50.0 (1.97)
38	-DN-FM38-	40.6 (1.60)	60.0 (2.36)



Knurled Nuts

To order a knurled nut replace the "DN" with "DKN". **Example: 6L-DKN-FF6.**

Male (Fractional)



Tube Size T	Basic Ordering Number	Dimensions	
		L	G
Dimensions, in. (mm)			
1/16	-DMN-FF1-	0.38 (9.7)	0.25 (6.4)
1/8	-DMN-FF2-	0.53 (13.5)	0.37 (9.5)
1/4	-DMN-FF4-	0.62 (15.7)	0.50 (12.7)
1/2	-DMN-FF8-	0.87 (22.1)	0.94 (23.8)

Male (Metric)

Tube Size T	Basic Ordering Number	Dimensions	
		L	G
Dimensions, mm (in.)			
3	-DMN-FM3-	13.5 (0.53)	10.0 (0.39)
6	-DMN-FM6-	15.7 (0.62)	14.0 (0.55)
10	-DMN-FM10-	22.1 (0.87)	22.0 (0.87)
12	-DMN-FM12-	22.1 (0.87)	22.0 (0.87)

Replacement Parts

Nuts

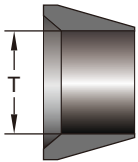


Bulkhead Locknuts (Fractional)

Tube Size T	Basic Ordering Number	Tube Size T	Basic Ordering Number
1/16	-DBN-FF1-	5/8	-DBN-FF10-
1/8	-DBN-FF2-	3/4	-DBN-FF12-
3/16	-DBN-FF3-	7/8	-DBN-FF14-
1/4	-DBN-FF4-	1	-DBN-FF16-
5/16	-DBN-FF5-	1-1/4	-DBN-FF20-
3/8	-DBN-FF6-	1-1/2	-DBN-FF24-
1/2	-DBN-FF8-		

Bulkhead Locknuts (Metric)

Tube Size T	Basic Ordering Number	Tube Size T	Basic Ordering Number
3	-DBN-FM3-	20	-DBN-FM20-
4	-DBN-FM4-	22	-DBN-FM22-
6	-DBN-FM6-	25	-DBN-FM25-
8	-DBN-FM8-	28	-DBN-FM28-
10	-DBN-FM10-	30	-DBN-FM30-
12	-DBN-FM12-	32	-DBN-FM32-
14	-DBN-FM14-	38	-DBN-FM38-
18	-DBN-FM18-		



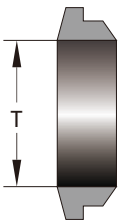
Front Ferrule (Fractional)

Tube Size T	Basic Ordering Number	Tube Size T	Basic Ordering Number
1/16	-DF-FF1-	5/8	-DF-FF10-
1/8	-DF-FF2-	3/4	-DF-FF12-
3/16	-DF-FF3-	7/8	-DF-FF14-
1/4	-DF-FF4-	1	-DF-FF16-
5/16	-DF-FF5-	1-1/8	-DF-FF18-
3/8	-DF-FF6-	1-1/4	-DF-FF20-
1/2	-DF-FF8-	1-1/2	-DF-FF24-

Front Ferrule (Metric)

Tube Size T	Basic Ordering Number	Tube Size T	Basic Ordering Number
2	-DF-FM2-	16	-DF-FM16-
3	-DF-FM3-	18	-DF-FM18-
4	-DF-FM4-	20	-DF-FM20-
6	-DF-FM6-	22	-DF-FM22-
8	-DF-FM8-	25	-DF-FM25-
10	-DF-FM10-	28	-DF-FM28-
12	-DF-FM12-	30	-DF-FM30-
14	-DF-FM14-	32	-DF-FM32-
15	-DF-FM15-	38	-DF-FM38-

Back Ferrules



Back Ferrule (Fractional)

Tube Size T	Basic Ordering Number	Tube Size T	Basic Ordering Number
1/16	-DRF-FF1-	5/8	-DRF-FF10-
1/8	-DRF-FF2-	3/4	-DRF-FF12-
3/16	-DRF-FF3-	7/8	-DRF-FF14-
1/4	-DRF-FF4-	1	-DRF-FF16-
5/16	-DRF-FF5-	1-1/8	-DRF-FF18-
3/8	-DRF-FF6-	1-1/4	-DRF-FF20-
1/2	-DRF-FF8-	1-1/2	-DRF-FF24-

Back Ferrule (Metric)

Tube Size T	Basic Ordering Number	Tube Size T	Basic Ordering Number
2	-DRF-FM2-	16	-DRF-FM16-
3	-DRF-FM3-	18	-DRF-FM18-
4	-DRF-FM4-	20	-DRF-FM20-
6	-DRF-FM6-	22	-DRF-FM22-
8	-DRF-FM8-	25	-DRF-FM25-
10	-DRF-FM10-	28	-DRF-FM28-
12	-DRF-FM12-	30	-DRF-FM30-
14	-DRF-FM14-	32	-DRF-FM32-
15	-DRF-FM15-	38	-DRF-FM38-

Replacement Parts

Nut-Ferrule Set



The nut-ferrule set contains 1 nut, 1 front ferrule and 1 back ferrule.

Fractional

Tube Size T	Basic Ordering Number	Tube Size T	Basic Ordering Number
1/16	-DNS-FF1-	3/8	-DNS-FF6-
1/8	-DNS-FF2-	1/2	-DNS-FF8-
3/16	-DNS-FF3-	5/8	-DNS-FF10-
1/4	-DNS-FF4-	3/4	-DNS-FF12-
5/16	-DNS-FF5-		

Metric

Tube Size T	Basic Ordering Number	Tube Size T	Basic Ordering Number
2	-DNS-FM2-	12	-DNS-FM12-
3	-DNS-FM3-	14	-DNS-FM14-
4	-DNS-FM4-	15	-DNS-FM15-
6	-DNS-FM6-	16	-DNS-FM16-
8	-DNS-FM8-	18	-DNS-FM18-
10	-DNS-FM10-		



Please order nut-ferrule set in multiples of 5.

Ferrule Set



The ferrule set contains 1 front ferrule and 1 back ferrule.

Fractional

Tube Size T	Basic Ordering Number	Tube Size T	Basic Ordering Number
1/16	-DFS-FF1-	3/8	-DFS-FF6-
1/8	-DFS-FF2-	1/2	-DFS-FF8-
3/16	-DFS-FF3-	5/8	-DFS-FF10-
1/4	-DFS-FF4-	3/4	-DFS-FF12-
5/16	-DFS-FF5-		

Metric

Tube Size T	Basic Ordering Number	Tube Size T	Basic Ordering Number
2	-DFS-FM2-	12	-DFS-FM12-
3	-DFS-FM3-	14	-DFS-FM14-
4	-DFS-FM4-	15	-DFS-FM15-
6	-DFS-FM6-	16	-DFS-FM16-
8	-DFS-FM8-	18	-DFS-FM18-
10	-DFS-FM10-		

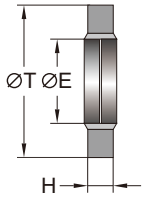


Please order ferrule set in multiples of 10.

Replacement Parts

ISO/BSP Parallel Gaskets

Steel and Stainless Steel (RS Fitting)

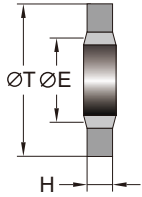


ISO/BSP Parallel Thread Size	Basic Ordering Number	Dimensions		
		T	E	H
Dimensions, in. (mm)				
1/8	-RS-2-	0.63 (16.0)	0.41 (10.4)	0.08 (2.0)
1/4	-RS-4-	0.81 (20.6)	0.54 (13.7)	
3/8	-RS-6-	0.94 (23.9)	0.68 (17.3)	
1/2	-RS-8-	1.13 (28.7)	0.85 (21.6)	0.10 (2.5)
3/4	-RS-12-	1.38 (35.1)	1.06 (26.9)	
1	-RS-16-	1.69 (42.9)	1.33 (33.8)	

Steel and Stainless Steel (RS Fitting)

Metric Thread Size	Basic Ordering Number	Dimensions		
		T	E	H
Dimensions, mm (in.)				
M8×1	-RS-MS8-	13.0 (0.51)	8.7 (0.34)	1.0 (0.04)
M10×1	-RS-MS10-	16.0 (0.63)	10.7 (0.42)	1.5 (0.06)
M12×1.5	-RS-MS12-	18.0 (0.71)	12.7 (0.50)	
M14×1.5	-RS-MS14-	22.0 (0.87)	14.7 (0.58)	
M16×1.5	-RS-MS16-	24.0 (0.94)	16.7 (0.66)	
M18×1.5	-RS-MS18-	26.0 (1.02)	18.7 (0.74)	
M20×1.5	-RS-MS20-	28.0 (1.10)	20.7 (0.81)	2.0 (0.08)
M22×1.5	-RS-MS22-	30.0 (1.18)	22.7 (0.89)	
M24×1.5	-RS-MS24-	32.0 (1.26)	24.7 (0.97)	
M27×2	-RS-MS27-	36.0 (1.42)	27.7 (1.09)	
M30×2	-RS-MS30-	39.0 (1.54)	30.7 (1.21)	
M33×2	-RS-MS33-	42.0 (1.65)	33.7 (1.33)	2.5 (0.10)
M36×2	-RS-MS36-	48.0 (1.89)	37.0 (1.46)	
M39×2	-RS-MS39-	51.0 (2.00)	40.0 (1.57)	
M42×2	-RS-MS42-	54.0 (2.13)	43.2 (1.70)	3.0 (0.12)
M45×2	-RS-MS45-	57.0 (2.24)	46.0 (1.81)	
M48×2	-RS-MS48-	60.0 (2.36)	49.0 (1.93)	

Steel and Stainless Steel (RSD Fitting)



ISO/BSP Parallel Thread Size	Basic Ordering Number	Dimensions		
		T	E	H
Dimensions, in. (mm)				
1/8	-RSD-2-	0.58 (14.7)	0.41 (10.4)	0.05 (1.25)
1/4	-RSD-4-	0.74 (18.7)	0.55 (13.9)	
3/8	-RSD-6-	0.89 (22.7)	0.69 (17.4)	
1/2	-RSD-8-	1.05 (26.7)	0.85 (21.6)	0.08 (2.0)
3/4	-RSD-12-	1.28 (32.5)	1.07 (27.3)	
1	-RSD-16-	1.56 (39.5)	1.35 (34.2)	

- The RS and RSD gaskets provide a seal with male ISO parallel threads.
- The gasket consists of a fluorocarbon FKM or Buna inner ring bonded to a carbon steel or stainless steel outer ring.

Ordering Information

Add the material designator as a prefix to the basic ordering number to get the complete ordering number.

Ring		Designator
Outer	Inner	
Stainless Steel	FKM	SSF
Carbon Steel	FKM	CSF
	Buna-N	CSN

Example:

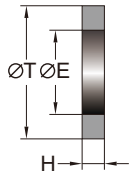
- A RS gasket with a Buna-N inner ring bonded to carbon steel outer ring provides a seal with 1/4 male ISO parallel thread, the complete ordering number is **CSN-RS-4**.
- A RSD gasket with a FKM inner ring bonded to stainless steel outer ring provides a seal with 1/4 male ISO parallel thread, the complete ordering number is **SSF-RSD-4**.

The RS and RSD gaskets can be used with RS fitting only.

Replacement Parts

ISO/BSP Parallel Gaskets

RP Gasket



ISO/BSP Parallel Thread Size	Basic Ordering Number	Dimensions		
		T	E	H
Dimensions, in. (mm)				
1/8	-RP-2-	0.59 (15.0)	0.39 (9.9)	0.04 (1.0)
1/4	-RP-4-	0.75 (19.1)	0.52 (13.2)	0.06 (1.5)
3/8	-RP-6-	0.91 (23.1)	0.66 (16.8)	
1/2	-RP-8-	1.06 (26.9)	0.83 (21.1)	0.08 (2.0)
3/4	-RP-12-	1.30 (33.0)	1.05 (26.7)	
1	-RP-16-	1.58 (40.1)	1.31 (33.2)	

Ordering Information

Add the material designator as a prefix to the basic ordering number to get the complete ordering number.

Material	Designator
Copper	CU
316L Stainless Steel	6L

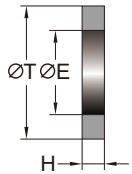
Example:

A RP gasket with 316L stainless steel provides a seal with 1/4 male ISO parallel thread, the complete ordering number is 6L-RP-4.

RP Gasket

Metric Thread Size	Basic Ordering Number	Dimensions		
		T	E	H
Dimensions, mm (in.)				
M8×1	-RP-MS8-	13.2 (0.52)	8.2 (0.32)	1.5 (0.06)
M10×1	-RP-MS10-	15.2 (0.60)	10.2 (0.40)	
M12×1.5	-RP-MS12-	18.2 (0.72)	12.2 (0.48)	2.0 (0.08)
M14×1.5	-RP-MS14-	20.2 (0.80)	14.2 (0.56)	
M16×1.5	-RP-MS16-	22.2 (0.87)	16.2 (0.64)	
M18×1.5	-RP-MS18-	24.2 (0.95)	18.2 (0.72)	
M20×1.5	-RP-MS20-	26.2 (1.03)	20.2 (0.80)	
M22×1.5	-RP-MS22-	28.2 (1.11)	22.2 (0.87)	
M24×1.5	-RP-MS24-	30.2 (1.19)	24.2 (0.95)	2.5 (0.10)
M27×2	-RP-MS27-	33.3 (1.31)	27.2 (1.07)	
M30×2	-RP-MS30-	37.3 (1.47)	30.2 (1.19)	
M33×2	-RP-MS33-	40.3 (1.59)	33.2 (1.31)	
M36×2	-RP-MS36-	43.3 (1.70)	36.2 (1.43)	
M39×2	-RP-MS39-	47.3 (1.86)	39.2 (1.54)	
M42×2	-RP-MS42-	50.3 (1.98)	42.2 (1.66)	
M45×2	-RP-MS45-	53.3 (2.10)	45.2 (1.78)	
M48×2	-RP-MS48-	56.3 (2.22)	48.2 (1.90)	

RG Gasket



ISO/BSP Parallel Thread Size	Basic Ordering Number	Dimensions		
		T	E	H
Dimensions, in. (mm)				
1/4	-RG-4-	0.42 (10.7)	0.30 (7.6)	0.07 (1.8)
3/8	-RG-6-	0.56 (14.2)	0.34 (8.6)	0.09 (2.3)
1/2	-RG-8-	0.70 (17.8)	0.36 (9.1)	0.10 (2.5)

The RG gasket provides a seal on pressuregauges equipped with male ISO parallel threads.

Ordering Information

Add the material designator as a prefix to the basic ordering number to get the complete ordering number.

Material	Designator
Copper	CU
316L Stainless Steel	6L
Vulcanized Fibre	QB
PTFE	T

Example:

A RG gasket with PTFE provides a seal with 1/4 male ISO parallel thread, the complete ordering number is T-RG-4.

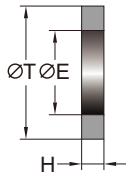
RG Gasket

Metric Thread Size	Basic Ordering Number	Dimensions		
		T	E	H
Dimensions, in. (mm)				
M10×1	-RG-MS10-	8.3 (0.33)	3.3 (0.13)	1.5 (0.06)
M12×1.5	-RG-MS12-	9.7 (0.38)	5.4 (0.21)	2.0 (0.08)
M14×1.5	-RG-MS14-	11.7 (0.46)	6.4 (0.25)	
M16×1.5	-RG-MS16-	13.7 (0.54)	8.4 (0.33)	
M18×1.5	-RG-MS18-	15.7 (0.62)	10.0 (0.39)	
M20×1.5	-RG-MS20-	17.6 (0.69)	11.4 (0.45)	
M22×1.5	-RG-MS22-	19.6 (0.77)	13.4 (0.53)	
M24×1.5	-RG-MS24-	21.6 (0.85)	14.8 (0.58)	2.5 (0.10)
M27×2	-RG-MS27-	24.0 (0.95)	16.9 (0.67)	
M30×2	-RG-MS30-	27.0 (1.06)	19.5 (0.77)	
M33×2	-RG-MS33-	30.0 (1.18)	21.5 (0.85)	
M36×2	-RG-MS36-	33.0 (1.30)	23.5 (0.93)	
M39×2	-RG-MS39-	36.0 (1.42)	24.5 (0.96)	
M42×2	-RG-MS42-	38.9 (1.53)	29.5 (1.16)	
M45×2	-RG-MS45-	41.9 (1.64)	30.0 (1.18)	
M48×2	-RG-MS48-	44.9 (1.77)	32.5 (1.28)	

Replacement Parts

ISO/BSP Parallel Gaskets

RJ Gasket



ISO/BSP Parallel Thread Size	Basic Ordering Number	Dimensions		
		T	E	H
Dimensions, in. (mm)				
1/4	-RJ-4-	0.43 (10.9)	0.22 (5.6)	0.04 (1.0)
3/8	-RJ-6-	0.55 (13.9)		
1/2	-RJ-8-	0.70 (17.8)		

The RJ gasket provides a seal on Japanese pressure gauges equipped with male ISO parallel threads.

Ordering Information

Add the material designator as a prefix to the basic ordering number to get the complete ordering number.

Material	Designator
Copper	CU
316L Stainless Steel	6L
Vulcanized Fibre	QB
PTFE	T

Example:

A RJ gasket with Vulcanized Fibre provides a seal with 1/4 male ISO parallel thread, the complete ordering number is QB-RJ-4.

O-Rings

SAE/MS Straight Threads



SAE/MS Threads Size	Basic Ordering Number	Material
5/16-24	V9-902	Fluorocarbon FKM (SHORE A 90)
3/8-24	V9-903	
7/16-20	V9-904	
1/2-20	V9-905	
9/16-18	V9-906	
3/4-16	V9-908	
7/8-14	V9-910	
1-1/16-12	V9-912	
1-3/16-12	V9-914	
1-5/16-12	V9-916	
1-5/8-12	V9-920	
1-7/8-12	V9-924	

O-Rings for Fittings with O-Seal Pipe Threads

SAE/MS Threads Size	Basic Ordering Number	Material
1/8	N7-013	Buna-N (SHORE A 70)
1/4	N7-113	
3/8	N7-116	
1/2	N7-118	

O-Rings for Positionable Fittings with ISO Parallel Threads

SAE/MS Threads Size	Basic Ordering Number	Material
1/8	V9-502	Fluorocarbon FKM (SHORE A 90)
1/4	V9-111	
3/8	V9-113	
1/2	V9-508	
3/4	V9-119	
1	V9-217	

O-Rings for Fittings with O-Seal Straight Threads

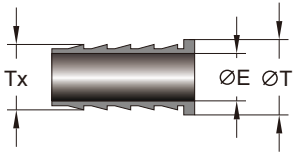
SAE/MS Threads Size	Basic Ordering Number	Material
5/16-24	N7-011	Buna-N (SHORE A 70)
3/8-24	N7-012	
7/16-20	N7-013	
1/2-20	N7-112	
9/16-18	N7-113	
3/4-16	N7-116	
1-1/16-12	N7-121	
1-5/16-12	N7-125	

O-Rings for Fittings with Metric Threads

SAE/MS Threads Size	Basic Ordering Number	Material
M14×1.5	N9-MS14	Buna-N (SHORE A 90)
M20×1.5	N9-MS20	

Tools and Accessories

Inserts for Soft Plastic Tubing



Insert for soft plastic tubing is used to protect soft plastic tubing used with tube fittings. To determine the correct size of the insert for soft plastic tubing, the outside and inside diameter of the soft plastic tubing should be determined first.

Inserts for Soft Plastic Tubing

Tube OD T	Tube ID Tx	Basic Ordering Number	E
Dimensions, in. (mm)			
3/16	1/8	-IS-3-2-	0.09 (2.3)
1/4	1/8	-IS-4-2-	0.09 (2.3)
	0.17	-IS-4-017-	0.11 (2.8)
5/16	3/16	-IS-4-3-	0.14 (3.5)
	1/8	-IS-5-2-	0.09 (2.3)
	3/16	-IS-5-3-	0.12 (3.0)
3/8	1/4	-IS-5-4-	0.19 (4.8)
	3/16	-IS-6-3-	0.12 (3.0)
1/2	1/4	-IS-6-4-	0.19 (4.8)
	3/8	-IS-8-4-	0.19 (4.8)
5/8	3/8	-IS-8-6-	0.31 (7.9)
	1/2	-IS-10-6-	0.31 (7.9)
3/4	1/2	-IS-10-8-	0.44 (11.1)
	5/8	-IS-12-8-	0.44 (11.1)
1	3/4	-IS-12-10-	0.56 (14.2)
1	3/4	-IS-16-12-	0.69 (17.5)
Dimensions, mm (in.)			
6	4	-IS-6M-4M-	2.8 (0.11)
8	6	-IS-8M-6M-	4.4 (0.17)
10	8	-IS-10M-8M-	6.4 (0.25)
12	8	-IS-12M-8M-	6.4 (0.25)
	10	-IS-12M-10M-	8.3 (0.33)

Ordering Information

Add the material designator as a prefix to the basic ordering number to get the complete ordering number.

Material	Designator
316 Stainless Steel	6S
Brass	BR
Alloy 400	N400

Example: N400-IS-3-2.