

# PFA Tube Fittings and PFA Tubing



- Temperatures from 70 to 400°F (20 to 204°C)
- Working pressures up to 275 psig (18.9 bar)
- Tube fitting sizes from 1/8 to 1/2 in.; tubing sizes from 1/8 to 1 in. and 6 to 12 mm

### Features

- Audible click ensures tubing is inserted properly.
- Visual indication of proper pull-up:
  - no gap between body hex and hex nut
  - hex flat alignment.
- Smooth, molded internal wetted surfaces reduce potential for system contamination.
- Grooved tubing allows for higher working pressure.
- Wrench make-up avoids the potentially unsafe practices of hand make-up and disassembly.

### Materials

- Fittings—Molded PFA/ASTM D3307 Type I
- Tubing—PFA/ASTM D3307 Type II

### Pressure-Temperature Ratings

Pressure ratings are for Swagelok® PFA tube fittings used with properly grooved Swagelok PFA tubing and for Swagelok PFA tubing used with metal Swagelok tube fittings. It is not necessary to groove tubing for use with metal fittings.

### Fractional Tube Fittings and Tubing

Tubing Wall in.	Fittings and Tubing					Tubing	
	0.030	0.047	0.062				
Size, in.	1/8	1/4	1/4	3/8	1/2	3/4	1
Temperature °F (°C)	Working Pressure psig (bar)						
70 (20)	275 (18.9)	200 (13.7)	275 (18.9)	180 (12.4)	125 (8.6)	83 (5.7)	61 (4.2)
100 (37)	245 (16.8)	180 (12.4)	245 (16.8)	155 (10.6)	115 (7.9)	73 (5.0)	54 (3.7)
200 (93)	145 (9.9)	110 (7.5)	145 (9.9)	93 (6.4)	68 (4.6)	43 (2.9)	32 (2.2)
300 (148)	87 (5.9)	64 (4.4)	87 (5.9)	48 (3.3)	32 (2.2)	19 (1.3)	13 (0.89)
400 (204)	47 (3.2)	34 (2.3)	47 (3.2)	11 (0.75)	11 (0.75)	5.0 (0.34)	3.0 (0.20)

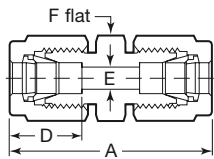
### Metric Tubing

Tubing Wall mm	1				1.5			
	6	8	10	12	6	8	10	12
Size, mm	6	8	10	12	6	8	10	12
Temperature °C (°F)	Working Pressure bar (psig)							
20 (70)	12 (174)	8.9 (129)	7.0 (101)	5.7 (82)	19 (275)	14 (203)	11 (159)	8.9 (129)
50 (122)	9.7 (140)	7.1 (103)	5.5 (79)	4.6 (66)	15 (217)	11 (159)	8.7 (126)	7.1 (103)
100 (212)	6.1 (88)	4.4 (63)	3.4 (49)	2.8 (40)	9.5 (137)	6.9 (100)	5.3 (76)	4.4 (63)
150 (302)	3.8 (55)	2.5 (36)	1.8 (26)	1.4 (20)	5.9 (85)	4.0 (58)	2.9 (42)	2.2 (31)
200 (392)	2.2 (31)	1.3 (18)	0.8 (11)	0.6 (8.7)	3.4 (49)	2.0 (29)	1.3 (18)	0.9 (13)

### Ordering Information and Dimensions

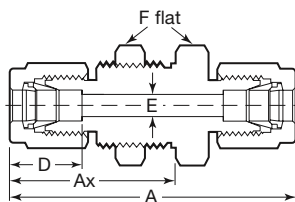
Dimensions, in inches (millimeters), are for reference only and are subject to change. Dimensions shown with Swagelok nuts finger-tight. E dimensions refer to the minimum opening.

#### Unions



Tube Size in.	Ordering Number	Dimensions, in. (mm)			
		A	D	E	F
1/8	PFA-220-6	1.45 (36.8)	0.50 (12.7)	0.09 (2.3)	1/2
1/4	PFA-420-6	1.70 (43.2)	0.60 (15.2)	0.19 (4.8)	5/8
3/8	PFA-620-6	1.80 (45.7)	0.67 (17.0)	0.28 (7.1)	13/16
1/2	PFA-820-6	2.05 (52.1)	0.90 (22.9)	0.41 (10.4)	1

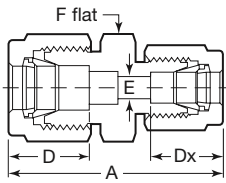
#### Bulkhead Unions



Tube Size in.	Ordering Number	Dimensions, in. (mm)				
		A	Ax	D	E	F
1/4	PFA-420-61	2.42 (61.5)	1.41 (35.8)	0.60 (15.2)	0.19 (4.8)	7/8

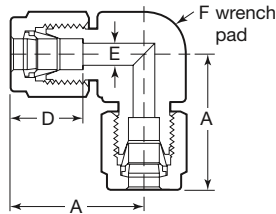
Panel hole size is 0.70 in. (17.8 mm); maximum panel thickness is 0.44 in. (11.2 mm).

### Reducing Unions



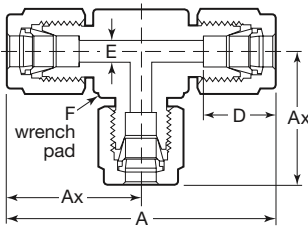
Tube Size in.	Ordering Number	Dimensions, in. (mm)				
		A	D	Dx	E	F
3/8 to 1/4	PFA-620-6-4	1.77 (45.0)	0.67 (17.0)	0.60 (15.2)	0.19 (4.8)	13/16
1/2 to 1/4	PFA-820-6-4	1.91 (48.5)	0.90 (22.9)	0.60 (15.2)	0.19 (4.8)	1
1/2 to 3/8	PFA-820-6-6	1.94 (49.3)	0.90 (22.9)	0.67 (17.0)	0.28 (7.1)	1

### Union Elbows



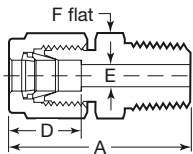
Tube Size in.	Ordering Number	Dimensions, in. (mm)			
		A	D	E	F
1/8	PFA-220-9	0.91 (23.1)	0.50 (12.7)	0.09 (2.3)	1/2
1/4	PFA-420-9	1.13 (28.7)	0.60 (15.2)	0.19 (4.8)	5/8
3/8	PFA-620-9	1.23 (31.2)	0.67 (17.0)	0.28 (7.1)	13/16
1/2	PFA-820-9	1.45 (36.8)	0.90 (22.9)	0.41 (10.4)	1

### Union Tees



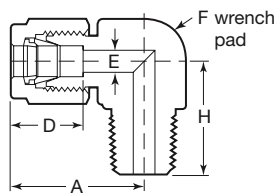
Tube Size in.	Ordering Number	Dimensions, in. (mm)				
		A	Ax	D	E	F
1/8	PFA-220-3	1.82 (46.2)	0.91 (23.1)	0.50 (12.7)	0.09 (2.3)	1/2
1/4	PFA-420-3	2.26 (57.4)	1.13 (28.7)	0.60 (15.2)	0.19 (4.8)	5/8
3/8	PFA-620-3	2.46 (62.5)	1.23 (31.2)	0.67 (17.0)	0.28 (7.1)	13/16
1/2	PFA-820-3	2.90 (73.7)	1.45 (36.8)	0.90 (22.9)	0.41 (10.4)	1

### Male Connectors



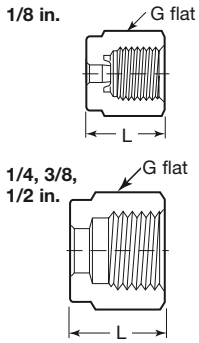
Tube Size in.	Pipe Size in.	Ordering Number	Dimensions, in. (mm)			
			A	D	E	F
1/8	1/8	PFA-220-1-2	1.21 (30.7)	0.50 (12.7)	0.09 (2.3)	1/2
1/4	1/8	PFA-420-1-2	1.36 (34.5)	0.60 (15.2)	0.19 (4.8)	5/8
	1/4	PFA-420-1-4	1.54 (39.1)			
3/8	1/4	PFA-620-1-4	1.60 (40.6)	0.67 (17.0)	0.28 (7.1)	13/16
	3/8	PFA-620-1-6				
1/2	3/8	PFA-820-1-6	1.74 (44.2)	0.90 (22.9)	0.41 (10.4)	1
	1/2	PFA-820-1-8				

### Male Elbows



Tube Size in.	Pipe Size in.	Ordering Number	Dimensions, in. (mm)				
			A	D	E	F	H
1/8	1/8	PFA-220-2-2	0.91 (23.1)	0.50 (12.7)	0.09 (2.3)	1/2	0.67 (17.0)
1/4	1/8	PFA-420-2-2	1.13 (28.7)	0.60 (15.2)	0.19 (4.8)	5/8	0.78 (19.8)
	1/4	PFA-420-2-4					0.96 (24.4)
3/8	1/4	PFA-620-2-4	1.23 (31.2)	0.67 (17.0)	0.28 (7.1)	13/16	1.03 (26.2)
	3/8	PFA-620-2-6					
1/2	3/8	PFA-820-2-6	1.45 (36.8)	0.90 (22.9)	0.41 (10.4)	1	1.14 (29.0)
	1/2	PFA-820-2-8					1.33 (33.8)

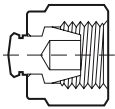
## Nuts



Tube Size in.	Ordering Number	Dimensions in. (mm)	
		G	L
1/8	PFA-222-1 <sup>①</sup>	1/2	0.57 (14.5)
1/4	PFA-422-1	5/8	0.65 (16.5)
3/8	PFA-622-1	13/16	0.68 (17.3)
1/2	PFA-822-1	1	0.79 (20.1)

① 1/8 in. back ferrule integral with nut.

## Plugs



Tube Size in.	Ordering Number
1/8	PFA-220-P
1/4	PFA-420-P
3/8	PFA-620-P
1/2	PFA-820-P

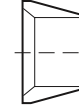
## Back Ferrules



Tube Size in.	Ordering Number <sup>①</sup>
1/4	PFA-424-1
3/8	PFA-624-1
1/2	PFA-824-1

① 1/8 in. back ferrule integral with nut.

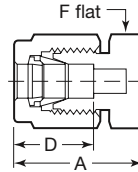
## Front Ferrules



Tube Size in.	Ordering Number
1/8	T-203-1 <sup>①</sup>
1/4	PFA-423-1
3/8	PFA-623-1
1/2	PFA-823-1

① PTFE material.

## Caps



Tube Size in.	Ordering Number	Dimensions, in. (mm)		
		A	D	F
1/8	PFA-220-C	0.83 (21.1)	0.50 (12.7)	1/2
1/4	PFA-420-C	0.98 (24.9)	0.60 (15.2)	5/8
3/8	PFA-620-C	1.04 (26.4)	0.67 (17.0)	13/16
1/2	PFA-820-C	1.18 (30.0)	0.90 (22.9)	1

## PFA Tubing

Nominal Size	Ordering Number	Nominal Wall Thickness	Length
<b>Dimensions</b>		<b>in.</b>	<b>ft (m)</b>
1/8	PFA-T2-030-100	0.030	100 (30.5)
	PFA-T2-030-500		500 (152)
1/4	PFA-T4-047-100	0.047	100 (30.5)
	PFA-T4-062-100	0.062	
3/8	PFA-T6-062-50	0.062	50 (15.2)
	PFA-T6-062-100		100 (30.5)
1/2	PFA-T8-062-50	0.062	50 (15.2)
	PFA-T8-062-100		100 (30.5)
3/4	PFA-T12-062-50	0.062	50 (15.2)
1	PFA-T16-062-50	0.062	50 (15.2)
<b>Dimensions</b>		<b>mm</b>	<b>m (ft)</b>
6	PFA-T6M-1M-30M	1.0	30 (98.4)
	PFA-T6M-1.5M-30M	1.5	
8	PFA-T8M-1M-30M	1.0	
	PFA-T8M-1.5M-30M	1.5	
10	PFA-T10M-1M-30M	1.0	
	PFA-T10M-1.5M-30M	1.5	
12	PFA-T12M-1M-30M	1.0	
	PFA-T12M-1.5M-30M	1.5	

High-purity PFA tubing with low extractables is available in other wall thicknesses, sizes, and lengths. Contact your authorized Swagelok sales and service representative.

## Accessories

### Groove Cutters

Groove PFA tubing for use with Swagelok PFA tube fittings.



For 1/4, 3/8, and 1/2 in. tubing



For 1/8 in. tubing

Tube Size in.	Ordering Number
1/8	MS-GC-2
1/4	MS-GC-4
3/8	MS-GC-6
1/2	MS-GC-8

## Installation

**⚠ PFA tubing MUST be grooved for use with PFA tube fittings. Use the Swagelok groove cutter tool.**

1. Insert grooved PFA tubing into the Swagelok PFA tube fitting until a clicking sound is heard.
2. While holding fitting body steady, tighten the blue nut until there is no gap between the nut and body hexes.
3. Continue tightening until the nut and body hexes are aligned.



### Safe Product Selection

**When selecting a product, the total system design must be considered to ensure safe, trouble-free performance. Function, material compatibility, adequate ratings, proper installation, operation, and maintenance are the responsibilities of the system designer and user.**

**Caution: Do not mix or interchange parts with those of other manufacturers.**

## Warranty Information

Swagelok products are backed by The Swagelok Limited Lifetime Warranty. For a copy, visit [swagelok.com](http://swagelok.com) or contact your authorized Swagelok representative.