

Ultra-pure PFA tube and weld fittings

Construction

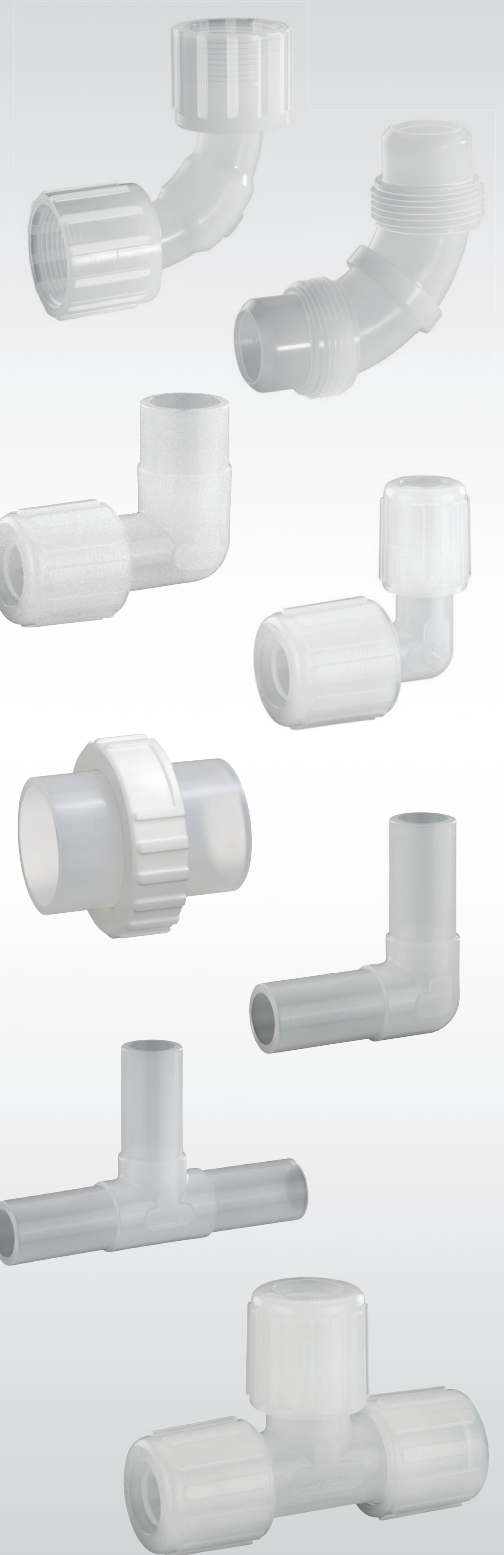
The fitting bodies are made of PFA; the union nuts are made of PFA, PVDF or CPFA. All parts are manufactured in accordance with cleanroom regulations and have maximum chemical resistance.

Properties

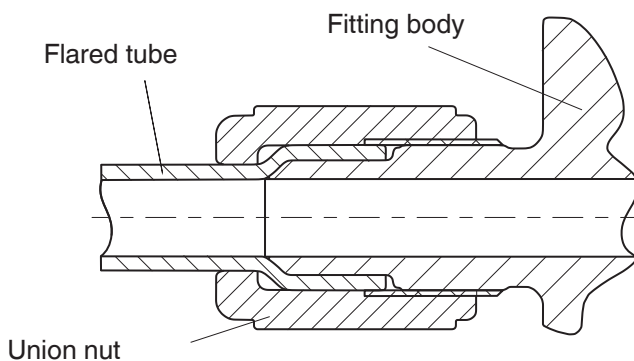
- Tube and weld fittings
- Available in sizes 1/4", 3/8", 1/2", 3/4", 1 1/4", 1 1/2" and 2"

Advantages

- Leak-free application for high-purity media with much smaller dead space
- High reliability, even in case of vibrations
- Simple operation, in part due to side access during installation
- 1000 different versions for the most common connection types
- GEMÜ "SpaceSaver" (space-saving connection options) is also available



Drawings



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FSMC	Straight adapter with SpaceSaver and NPT male thread, PFA		4–16	11
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FMEJ	Elbow adapter with flare connection and JIS male thread, PFA		4–16	20
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Technical data

Working medium

Corrosive, inert, gaseous and liquid media – in particular high purity media – which have no negative impact on the physical and chemical properties of the fitting material.

Note

The following table lists the maximum operating pressures of the various **FlareStar®** union nuts.
(The data for the tubes is also provided as a reference point).

This information is intended to support the project planning process. Please always use the lowest value provided to determine your system's maximum operating pressure.

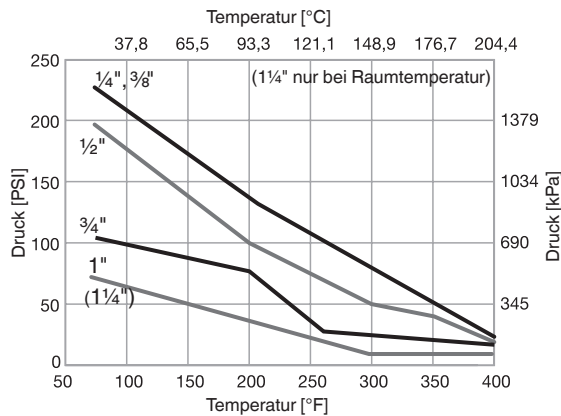
Max. operating pressure [PSI (kPA)]

Size (International code)	Temperature °F (°C)	Union nut			
		PFA tubing	PVDF	PFA	CPFA
1/4" (code 4)	75 (24)	273 (1882)	225 (1551)	225 (1551)	225 (1551)
	200 (93)	136 (938)	133 (917)	133 (917)	133 (917)
	250 (121)	85 (586)	100 (689)	100 (689)	100 (689)
	300 (150)	61 (421)	75 (517)	75 (517)	75 (517)
	350 (175)	36 (248)	N/R	50 (345)	50 (345)
	400 (200)	N/R	N/R	N/R	15 (103)
3/8" (code 6)	75 (24)	234 (1613)	225 (1551)	225 (1551)	225 (1551)
	200 (93)	116 (800)	133 (917)	133 (917)	133 (917)
	250 (121)	73 (503)	100 (689)	100 (689)	100 (689)
	300 (150)	52 (359)	75 (517)	75 (517)	75 (517)
	350 (175)	31 (214)	N/R	50 (345)	50 (345)
	400 (200)	N/R	N/R	N/R	15 (103)
1/2" (code 8)	75 (24)	168 (1158)	190 (1310)	190 (1310)	190 (1310)
	200 (93)	83 (572)	100 (689)	100 (689)	100 (689)
	250 (121)	52 (359)	75 (517)	75 (517)	75 (517)
	300 (150)	37 (255)	50 (345)	50 (345)	50 (345)
	350 (175)	22 (152)	N/R	40 (276)	40 (276)
	400 (200)	N/R	N/R	N/R	15 (103)
3/4" (code 12)	75 (24)	107 (738)	110 (758)	110 (758)	110 (758)
	200 (93)	53 (365)	76 (524)	76 (524)	76 (524)
	250 (121)	33 (228)	35 (241)	35 (241)	35 (241)
	300 (150)	24 (165)	27 (186)	27 (186)	27 (186)
	350 (175)	14 (96)	N/R	20 (138)	20 (138)
	400 (200)	N/R	N/R	N/R	15 (103)
1" (code 16)	75 (24)	77 (531)	75 (517)	75 (517)	75 (517)
	200 (93)	38 (262)	40 (276)	40 (276)	40 (276)
	250 (121)	24 (165)	28 (193)	28 (193)	28 (193)
	300 (150)	17 (117)	15 (103)	15 (103)	15 (103)
	350 (175)	10 (69)	N/R	15 (103)	15 (103)
	400 (200)	N/R	N/R	N/R	15 (103)
1 1/4" (code 20)	75 (24)	80 (552)	80 (552)	On request	On request

N/R = Not recommended

Technical data

Pressure/temperature diagram



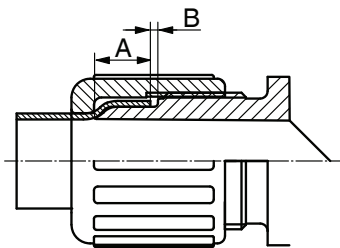
Note

The diagram and measured values relate to water at ambient temperature, standard tubing (wall thickness at 1/4"-0.047", for the remaining sizes: 0.062") and the PFA components.

Caution:

There is an underlying safety factor of 1.5 for the listed values.

Dimensions (tolerances)



Tolerances

- The **CleanStar**® plastic parts are manufactured in line with DIN 16901-140.
- SpaceSaver flare connections may have tolerances of ± 2.5 mm per connection across the entire length.
- The maximum gap (B) between the tubing end and the thread end should be between 2 mm and 3.8 mm. The gap may increase after several installation processes or longer application times.
- It is not possible to provide information about tolerances for weld connections, as they can vary significantly depending on the welding techniques and equipment used.

Overlap dimensions and thread sizes on flare connections

Tube size	Thread designation	Standard	A mm (inch)
1/4"	1/2"-20-UNF	ANSI B 1.1	7.0 (0.27")
3/8"	5/8"-20-UN	ANSI B 1.1	10.0 (0.39")
1/2"	3/4"-20-UNEF	ANSI B 1.1	12.0 (0.47")
3/4"	1"-20-UNEF	ANSI B 1.1	14.0 (0.55")
1"	1 7/16"-12-UN	ANSI B 1.1	14.0 (0.55")
1 1/4"	1 3/4"-8-UN	ANSI B 1.1	18.0 (0.71")

Order data

Order example	F	MC	75	12 8	30	HP
F* for FlareStar ® fitting	F					
MC* Information about fitting type (e.g. "MC" for male connector)		MC				
75** Union nut material: PVDF (code 75) PFA (code 77) CPFA (code 73)			75			
12 8 Connection type*** size (type)				12 8		
30 Fitting body material: PVDF (code 20) PFA (code 30) PTFE (code 26)					30	
HP High purity						HP

* Fitting type designation: See table of contents on pages 2 and 3

** With PVDF union nut = code 75 (standard), with PFA union nut = code 77, with CPFA union nut = code 73

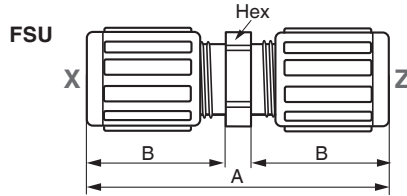
*** Connection type: For tube to pipe connectors, the first digit stands for the size of the tube-side connection and the second digit stands for the size of the pipe union.

Note

Refer to the following dimension tables for complete order numbers and availabilities.

FlareStar® straight fittings

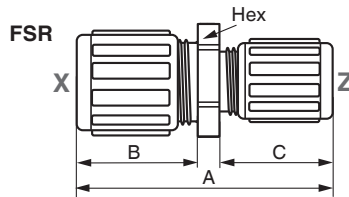
Dimensions mm (inch)



Straight union, flare, PFA							Union nut material selection		
Order no.	Tube size		Smallest ID ¹	A	B	Hex	PFA	PVDF	CPFA
	X	Z					Code 77	Code 75	Code 73
FSU ** 4 4 30 HP	1/4"	1/4"	3.30 (0.13")	66.8 (2.63")	29.9 (1.17")	10/16"	X	X	X
FSU ** 6 6 30 HP	3/8"	3/8"	6.35 (0.25")	68.5 (2.70")	30.8 (1.22")	13/16"	X	X	X
FSU ** 8 8 30 HP	1/2"	1/2"	9.65 (0.38")	75.8 (2.98")	34.4 (1.35")	15/16"	X	X	X
FSU ** 12 12 30 HP	3/4"	3/4"	16.00 (0.63")	82.8 (3.88")	37.9 (1.49")	1 3/16"	X	X	X
FSU ** 16 16 30 HP	1"	1"	22.10 (0.87")	98.6 (3.88")	45.8 (1.80")	1 7/16"	X	X	X
FSU ** 20 20 30 HP	1 1/4"	1 1/4"	27.80 (1.09")	127.4 (5.02")	-	-	X	X	X
FSU ** 4 Z4 30 HP	1/4"	1/4"S ²	3.81 (0.15")	70.10 (2.76")	29.46 (1.16")	11/16"	X	-	-
FSU ** 6 Z6 30 HP	3/8"	3/8"S ²	6.35 (0.25")	74.42 (2.93")	32.26 (1.27")	13/16"	X	-	-
FSU ** 8 Z8 30 HP	1/2"	1/2"S ²	9.65 (0.38")	77.98 (3.07")	34.54 (1.36")	15/16"	X	-	-
FSU ** 12 Z12 30 HP	3/4"	3/4"S ²	16.00 (0.63")	86.61 (3.41")	38.61 (1.52")	1 3/16"	X	-	-
FSU ** 16 Z16 30 HP	1"	1"S ²	22.35 (0.88")	102.62 (4.04")	43.94 (1.73")	1 7/16"	X	-	-

** = Union nut material code

¹ ID = Inside diameter, ² S = SpaceSaver

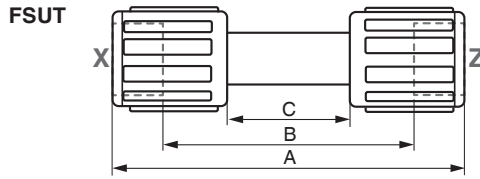


Straight union reducer with flare connection, PFA							Union nut material selection			
Order no.	Tube size		Smallest ID ¹	A	B	C	Hex	PFA	PVDF	CPFA
	X	Z						Code 77	Code 75	Code 73
FSR ** 6 4 30 HP	3/8"	1/4"	3.30 (0.13")	67.80 (2.67")	30.90 (1.22")	29.90 (1.17")	13/16"	X	X	X
FSR ** 8 4 30 HP	1/2"	1/4"	3.30 (0.13")	71.30 (2.81")	34.40 (1.35")	29.90 (1.17")	15/16"	X	X	X
FSR ** 8 6 30 HP	1/2"	3/8"	6.35 (0.25")	72.30 (2.85")	34.40 (1.35")	30.90 (1.22")	15/16"	X	X	X
FSR ** 12 4 30 HP	3/4"	1/4"	3.30 (0.13")	72.80 (2.87")	36.40 (1.43")	29.40 (1.15")	13/16"	X	X	X
FSR ** 12 6 30 HP	3/4"	3/8"	6.35 (0.25")	75.80 (2.98")	37.90 (1.49")	30.90 (1.22")	13/16"	X	X	X
FSR ** 12 8 30 HP	3/4"	1/2"	9.65 (0.38")	78.80 (3.10")	37.40 (1.47")	34.40 (1.35")	1 3/16"	X	X	X
FSR ** 16 8 30 HP	1"	1/2"	9.65 (0.38")	85.85 (3.38")	43.94 (1.73")	34.54 (1.36")	1 7/16"	X	-	-
FSR ** 16 12 30 HP	1"	3/4"	16.00 (0.63")	90.70 (3.57")	45.80 (1.80")	37.90 (1.49")	1 7/16"	X	X	X
FSR ** 20 16 30 HP	1 1/4"	1"	21.10 (0.87")	114.20 (4.50")	50.00 (1.97")	47.50 (1.87")	-	X	X	X

** = Union nut material code

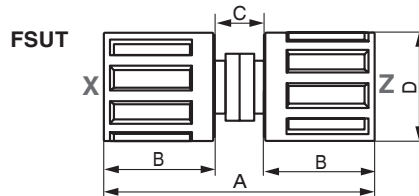
¹ ID = Inside diameter

Dimensions mm (inch)



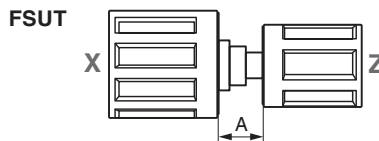
Straight union with SpaceSaver, PFA					
Order no.	Tube size	Smallest ID ¹	A	B	C
Standard length					
FSUT ** X8 Z8 N 30 HP	1/2"S ²	9.65 (0.38")	134.00 (5.28")	114.00 (4.49")	80.00 (3.15")
FSUT ** X12 Z12 N 30 HP	3/4"S ²	16.00 (0.63")	135.80 (5.35")	114.00 (4.49")	75.00 (2.95")
Medium length					
FSUT ** X8 Z8 J 30 HP	1/2"S ²	9.65 (0.38")	85.00 (3.35")	65.00 (2.56")	31.00 (1.22")
FSUT ** X12 Z12 J 30 HP	3/4"S ²	16.00 (0.63")	86.80 (3.42")	65.00 (2.56")	26.00 (1.02")
Minimum length					
FSUT ** X8 Z8 M 30 HP	1/2"S ²	9.65 (0.38")	73.00 (2.87")	53.00 (2.09")	19.00 (0.75")
FSUT ** X12 Z12 M 30 HP	3/4"S ²	16.00 (0.63")	74.80 (2.95")	53.00 (2.09")	14.00 (0.55")
FSUT ** X16 Z16 M 30 HP	1"S ²	22.10 (0.87")	106.40 (4.19")	65.00 (2.56")	25.00 (0.99")
FSUT ** X20 Z20 M 30 HP	1 1/4"S ²	27.90 (1.10")	105.00 (4.13")	60.00 (2.36")	10.00 (0.39")

** = Union nut material code
¹ ID = Inside diameter, ² S = SpaceSaver



Straight union with SpaceSaver, PFA							Union nut material selection		
Order no.	Tube size	Smallest ID ¹	A	B	C	D	PFA	PVDF	CPFA
							Code 77	Code 75	Code 73
FSUT ** X4 Z4 30 HP	1/4"S ²	3.80 (0.15")	60.96 (2.40")	24.89 (0.98")	11.18 (0.44")	19.81 (0.78")	X	-	-
FSUT ** X6 Z6 30 HP	3/8"S ²	6.40 (0.25")	65.53 (2.58")	26.92 (1.06")	11.68 (0.46")	23.11 (0.91")	X	-	-
FSUT ** X8 Z8 30 HP	1/2"S ²	9.70 (0.38")	68.58 (2.70")	28.19 (1.11")	12.19 (0.48")	26.16 (1.03")	X	-	-
FSUT ** X12 Z12 30 HP	3/4"S ²	16.00 (0.63")	76.78 (3.02")	32.26 (1.27")	12.19 (0.48")	34.29 (1.35")	X	-	-
FSUT ** X16 Z16 30 HP	1"S ²	22.40 (0.88")	86.36 (3.40")	38.35 (1.51")	9.65 (0.38")	46.23 (1.82")	X	-	-

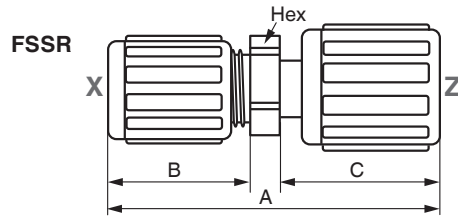
** = Union nut material code
¹ ID = Inside diameter, ² S = SpaceSaver



Straight union reducer with SpaceSaver, PFA					Union nut material selection		
Order no.	Tube size		Smallest ID ¹	A	PFA	PVDF	CPFA
					Code 77	Code 75	Code 73
FSUT ** X6 Z4 30 HP	3/8"S ²	1/4"S ²	3.80 (0.15")	9.14 (0.36")	X	-	-
FSUT ** X8 Z4 30 HP	1/2"S ²	1/4"S ²	3.80 (0.15")	11.68 (0.46")	X	-	-
FSUT ** X8 Z6 30 HP	1/2"S ²	3/8"S ²	6.40 (0.25")	8.13 (0.32")	X	-	-
FSUT ** X12 Z4 30 HP	3/4"S ²	1/4"S ²	3.80 (0.15")	11.18 (0.44")	X	-	-
FSUT ** X12 Z6 30 HP	3/4"S ²	3/8"S ²	6.40 (0.15")	10.67 (0.42")	X	-	-
FSUT ** X12 Z8 30 HP	3/4"S ²	1/2"S ²	9.70 (0.38")	10.16 (0.40")	X	-	-
FSUT ** X16 Z4 30 HP	1"S ²	1/4"S ²	3.80 (0.15")	10.92 (0.43")	X	-	-
FSUT ** X16 Z6 30 HP	1"S ²	3/8"S ²	6.40 (0.15")	10.16 (0.40")	X	-	-
FSUT ** X16 Z8 30 HP	1"S ²	1/2"S ²	9.70 (0.38")	9.65 (0.38")	X	-	-
FSUT ** X16 Z12 30 HP	1"S ²	3/4"S ²	16.00 (0.63")	9.40 (0.37")	X	-	-

** = Union nut material code
¹ ID = Inside diameter, ² S = SpaceSaver

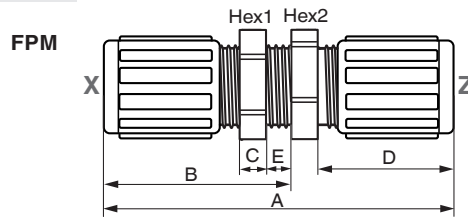
Dimensions mm (inch)



Straight union reducer with flare connection and SpaceSaver, PFA								Union nut material selection		
Order no.	Tube size		Smallest ID ¹	A	B	C	Hex	PFA	PVDF	CPFA
	X	Z						Code 77	Code 75	Code 73
FSSR ** 4 Z6 30 HP	1/4"	3/8"S ²	3.30 (0.13")	69.80 (2.74")	28.90 (1.13")	33.90 (1.33")	11/16"	X	X	X
FSSR ** 4 Z8 30 HP	1/4"	1/2"S ²	3.30 (0.13")	71.40 (2.80")	28.90 (1.13")	35.50 (1.39")	11/16"	X	X	X
FSSR ** 4 Z12 30 HP	1/4"	3/4"S ²	3.30 (0.13")	78.80 (3.10")	28.90 (1.13")	42.90 (1.68")	15/16"	X	X	X
FSSR ** 6 Z4 30 HP	3/8"	1/4"S ²	3.18 (0.15")	73.15 (2.88")	33.78 (1.33")	-	13/16"	X	-	-
FSSR ** 6 Z 8 30 HP	3/8"	1/2"S ²	6.35 (0.25")	73.20 (2.88")	30.90 (1.21")	35.30 (1.38")	13/16"	X	X	X
FSSR ** 6 Z12 30 HP	3/8"	3/4"S ²	6.35 (0.25")	81.90 (3.22")	32.00 (1.25")	42.90 (1.68")	15/16"	X	X	X
FSSR ** 8 Z6 30 HP	1/2"	3/8"S ²	6.35 (0.25")	76.96 (3.03")	35.05 (1.38")	-	15/16"	X	-	-
FSSR ** 8 Z12 30 HP	1/2"	3/4"S ²	9.65 (0.38")	83.30 (3.27")	33.40 (1.31")	42.90 (1.68")	15/16"	X	X	X
FSSR ** 12 Z8 30 HP	3/4"	1/2"S ²	9.65 (0.38")	82.04 (3.23")	36.07 (1.42")	-	1 3/16"	X	-	-
FSSR ** 12 Z16 30 HP	3/4"	1"S ²	16.00 (0.63")	96.30 (3.79")	37.40 (1.47")	51.90 (2.04")	1 3/16"	X	X	X
FSSR ** 16 Z8 30 HP	1"	1/2"S ²	9.65 (0.38")	87.38 (3.44")	36.07 (1.42")	-	1 7/16"	X	-	-
FSSR ** 16 Z12 30 HP	1"	3/4"S ²	16.00 (0.63")	92.96 (3.66")	40.64 (1.60")	-	1 7/16"	X	-	-
FSSR ** 16 Z20 30 HP	1"	1 1/4"S ²	22.10 (0.87")	111.50 (4.38")	45.00 (1.77")	59.50 (2.34")	1 7/16"	X	X	X

** = Union nut material code

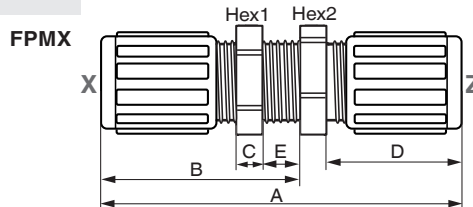
¹ ID = Inside diameter, ² S = SpaceSaver



Panel mount union with flare connection, PFA										Union nut material selection		
Order no.	Tube size	Smallest ID ¹	A	B	C	D	E max.	Hex1	Hex2	PFA	PVDF	CPFA
										Code 77	Code 75	Code 73
FPM ** 4 4 30 HP	1/4"	3.30 (0.13")	80.1 (3.15")	43.2 (1.70")	7.0 (0.28")	29.9 (1.17")	9.3 (0.37")	1 1/16"	1 1/16"	X	X	X
FPM ** 6 6 30 HP	3/8"	6.35 (0.25")	82.4 (3.24")	44.5 (1.75")	7.0 (0.28")	30.9 (1.21")	9.5 (0.37")	1 5/16"	1 3/16"	X	X	X
FPM ** 8 8 30 HP	1/2"	9.65 (0.63")	89.3 (3.52")	34.4 (1.35")	7.0 (0.28")	47.9 (1.88")	9.0 (0.35")	1 1/16"	1 5/16"	X	X	X
FPM ** 12 12 30 HP	3/4"	16.00 (0.63")	98.3 (3.87")	38.9 (1.53")	7.0 (0.28")	52.4 (2.06")	9.5 (0.37")	1 5/16"	1 3/16"	X	X	X
FPM ** 16 16 30 HP	1"	22.10 (0.87")	112.0 (4.41")	45.8 (1.80")	7.0 (0.28")	59.2 (2.33")	9.7 (0.38")	1 3/4"	1 7/16"	X	X	X

** = Union nut material code

¹ ID = Inside diameter

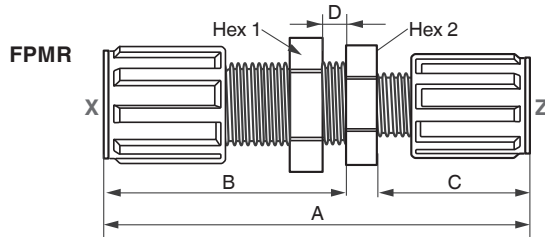


Panel mount union with flare connection (long version), PFA										Union nut material selection		
Order no.	Tube size	Smallest ID ¹	A	B	C	D	E max.	Hex1	Hex2	PFA	PVDF	CPFA
										Code 77	Code 75	Code 73
FPMX ** 4 4 30 HP	1/4"	3.30 (0.13")	85.8 (3.37")	48.9 (1.92")	7.0 (0.28")	29.9 (1.17")	13.3 (0.52")	1 1/16"	1 1/16"	X	X	X
FPMX ** 6 6 30 HP	3/8"	6.35 (0.25")	87.9 (3.46")	50.0 (1.96")	7.0 (0.28")	30.90 (1.21")	14.8 (0.58")	1 5/16"	1 3/16"	X	X	X
FPMX ** 8 8 30 HP	1/2"	9.69 (0.38")	95.3 (3.75")	53.9 (2.12")	7.0 (0.28")	34.40 (1.35")	14.8 (0.58")	1 1/16"	1 5/16"	X	X	X
FPMX ** 12 12 30 HP	3/4"	16.00 (0.63")	103.8 (4.08")	57.9 (2.27")	7.0 (0.28")	37.90 (1.49")	15.6 (0.61")	1 5/16"	1 3/16"	X	X	X
FPMX ** 16 16 30 HP	1"	22.10 (0.87")	117.5 (4.62")	64.7 (2.54")	7.0 (0.28")	45.80 (1.80")	14.4 (0.56")	1 3/4"	1 7/16"	X	X	X

** = Union nut material code

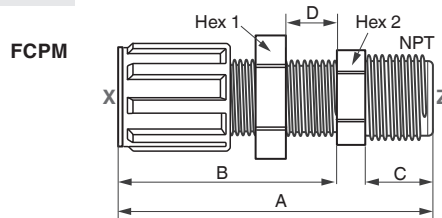
¹ ID = Inside diameter

Dimensions mm (inch)



Panel mount reducer with flare connection, PFA										Union nut material selection		
Order no.	Tube size		Smallest ID ¹	A	B	C	D max.	Hex1	Hex2	PFA	PVDF	CPFA
	X	Z								Code 77	Code 75	Code 73
FPMR ** 6 4 30 HP	3/8"	1/4"	3.8 (0.15")	88.90 (3.50")	51.56 (2.03")	29.97 (1.18")	12.7 (0.50")	15/16"	13/16"	X	-	-
FPMR ** 8 4 30 HP	1/2"	1/4"	3.8 (0.15")	92.20 (3.63")	54.86 (2.16")	29.97 (1.18")	12.7 (0.50")	1 1/16"	15/16"	X	-	-
FPMR ** 8 6 30 HP	1/2"	3/8"	6.4 (0.25")	94.74 (3.73")	54.86 (2.16")	32.51 (1.28")	12.7 (0.50")	1 1/16"	15/16"	X	-	-
FPMR ** 12 6 30 HP	3/4"	3/8"	6.4 (0.25")	97.79 (3.85")	57.91 (2.28")	32.51 (1.28")	12.7 (0.50")	1 5/16"	1 3/16"	X	-	-
FPMR ** 12 8 30 HP	3/4"	1/2"	9.7 (0.38")	101.09 (3.98")	57.91 (2.28")	35.05 (1.38")	12.7 (0.50")	1 5/16"	1 3/16"	X	-	-
FPMR ** 16 12 30 HP	1"	3/4"	16.0 (0.63")	109.47 (4.31")	64.01 (2.52")	38.10 (1.50")	12.7 (0.50")	1 3/4"	1 5/8"	X	-	-

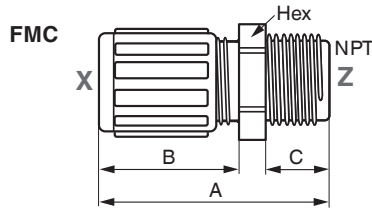
** = Union nut material code
¹ ID = Inside diameter



Panel mount adapter with flare connection and NPT male thread, PFA											Union nut material selection		
Order no.	Tube size		NPT male thread Z	Smallest ID ¹	A	B	C	D max.	Hex1	Hex2	PFA	PVDF	CPFA
	X	Z									Code 77	Code 75	Code 73
FCPM ** 4 2 30 HP	1/4"	1/8"	1/8"	3.8 (0.15")	71.12 (2.80")	49.78 (1.96")	13.97 (0.55")	12.70 (0.50")	3/4"	11/16"	X	-	-
FCPM ** 4 4 30 HP	1/4"	1/4"	1/4"	3.8 (0.15")	71.12 (2.80")	49.78 (1.96")	13.97 (0.55")	12.70 (0.50")	3/4"	11/16"	X	-	-
FCPM ** 6 6 30 HP	3/8"	3/8"	3/8"	6.4 (0.25")	72.90 (2.87")	51.56 (2.03")	13.97 (0.55")	12.70 (0.50")	15/16"	13/16"	X	-	-
FCPM ** 8 4 30 HP	1/2"	1/4"	1/4"	9.7 (0.38")	75.95 (2.99")	54.86 (2.16")	13.97 (0.55")	12.70 (0.50")	1 1/16"	15/16"	X	-	-
FCPM ** 8 8 30 HP	1/2"	1/2"	1/2"	9.7 (0.38")	78.99 (3.11")	54.86 (2.16")	16.76 (0.66")	12.70 (0.50")	1 1/16"	15/16"	X	-	-
FCPM ** 12 12 30 HP	3/4"	3/4"	3/4"	16.0 (0.63")	82.30 (3.24")	57.91 (2.28")	17.02 (0.67")	12.70 (0.50")	1 5/16"	1 3/16"	X	-	-
FCPM ** 16 16 30 HP	1"	1"	1"	22.4 (0.88")	92.96 (3.66")	64.01 (2.52")	21.59 (0.85")	12.70 (0.50")	1 3/4"	1 5/8"	X	-	-

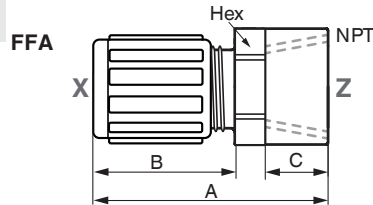
** = Union nut material code
¹ ID = Inside diameter

Dimensions mm (inch)



Straight adapter with flare connection and NPT male thread, PFA								Union nut material selection		
Order no.	Tube size X	NPT male thread Z	Smallest ID ¹	A	B	C	Hex	PFA	PVDF	CPFA
								Code 77	Code 75	Code 73
FMC ** 4 2 30 HP	1/4"	1/8"	3.30 (0.13")	50.40 (1.98")	29.40 (1.16")	14.00 (0.55")	5/8"	X	X	X
FMC ** 4 4 30 HP	1/4"	1/4"	3.30 (0.13")	49.90 (1.96")	28.90 (1.14")	14.00 (0.55")	5/8"	X	X	X
FMC ** 4 6 30 HP	1/4"	3/8"	3.81 (0.15")	50.80 (2.00")	29.46 (1.16")	13.97 (0.55")	11/16"	X	-	-
FMC ** 4 8 30 HP	1/4"	1/2"	3.81 (0.15")	53.85 (2.12")	29.46 (1.16")	16.76 (0.66")	13/16"	X	-	-
FMC ** 6 4 30 HP	3/8"	1/4"	6.35 (0.25")	51.80 (2.04")	30.50 (1.20")	14.30 (0.56")	15/16"	X	X	X
FMC ** 6 6 30 HP	3/8"	3/8"	6.35 (0.25")	52.20 (2.06")	30.90 (1.22")	14.30 (0.56")	15/16"	X	X	X
FMC ** 6 8 30 HP	3/8"	1/2"	6.35 (0.25")	54.50 (2.15")	30.90 (1.22")	17.00 (0.66")	15/16"	X	X	X
FMC ** 6 12 30 HP	3/8"	3/4"	6.35 (0.25")	56.39 (2.22")	32.26 (1.27")	16.76 (0.66")	1 3/16"	X	-	-
FMC ** 6 16 30 HP	3/8"	1"	6.35 (0.25")	60.71 (2.39")	32.26 (1.27")	21.59 (0.85")	1 7/16"	X	-	-
FMC ** 8 4 30 HP	1/2"	1/4"	5.84 (0.23")	54.90 (2.16")	33.90 (1.33")	14.00 (0.55")	15/16"	X	X	X
FMC ** 8 6 30 HP	1/2"	3/8"	7.85 (0.31")	55.20 (2.17")	33.40 (1.31")	13.80 (0.54")	15/16"	X	X	X
FMC ** 8 8 30 HP	1/2"	1/2"	9.65 (0.38")	57.90 (2.28")	33.10 (1.31")	16.80 (0.66")	15/16"	X	X	X
FMC ** 8 12 30 HP	1/2"	3/4"	9.65 (0.38")	58.93 (2.32")	34.54 (1.36")	16.76 (0.66")	1 3/16"	X	-	-
FMC ** 8 16 30 HP	1/2"	1"	9.65 (0.38")	63.75 (2.51")	34.54 (1.36")	21.84 (0.86")	1 7/16"	X	-	-
FMC ** 12 6 30 HP	3/4"	3/8"	9.65 (0.38")	60.20 (2.37")	38.61 (1.52")	14.22 (0.56")	15/16"	X	-	-
FMC ** 12 8 30 HP	3/4"	1/2"	10.90 (0.43")	62.50 (2.46")	37.90 (1.49")	17.60 (0.69")	1 3/16"	X	X	X
FMC ** 12 12 30 HP	3/4"	3/4"	15.75 (0.62")	62.50 (2.46")	37.90 (1.49")	17.60 (0.69")	1 3/16"	X	X	X
FMC ** 12 16 30 HP	3/4"	1"	16.00 (0.63")	67.56 (2.66")	38.61 (1.52")	21.59 (0.85")	1 7/16"	X	-	-
FMC ** 16 8 30 HP	1"	1/2"	12.80 (0.51")	68.33 (2.69")	43.94 (1.73")	17.02 (0.67")	1 7/16"	X	-	-
FMC ** 16 12 30 HP	1"	3/4"	15.75 (0.62")	69.00 (2.72")	45.00 (1.77")	17.00 (0.66")	1 7/16"	X	X	X
FMC ** 16 16 30 HP	1"	1"	15.75 (0.62")	74.40 (2.93")	45.80 (1.80")	21.60 (0.85")	1 7/16"	X	X	X
FMC ** 20 16 30 HP	1 1/4"	1"	27.90 (1.09")	89.20 (3.51")	50.20 (1.98")	21.60 (0.85")		X	X	X

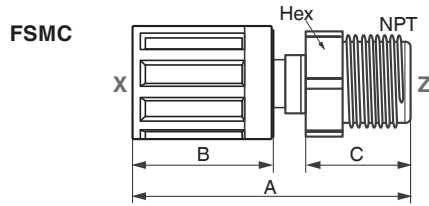
** = Union nut material code
¹ ID = Inside diameter



Straight adapter with flare connection and NPT female thread, PFA								Union nut material selection		
Order no.	Tube size X	NPT female thread Z	Smallest ID ¹	A	B	C	Hex	PFA	PVDF	CPFA
								Code 77	Code 75	Code 73
FFA ** 4 4 30 HP	1/4"	1/4"	3.30 (0.13")	51.90 (2.04")	28.90 (1.13")	16.00 (0.63")	3/4"	X	X	X
FFA ** 4 6 30 HP	1/4"	3/8"	3.30 (0.13")	51.90 (2.04")	28.90 (1.13")	16.00 (0.63")	1 5/16"	X	X	X
FFA ** 4 8 30 HP	1/4"	1/2"	3.30 (0.13")	51.90 (2.04")	28.90 (1.13")	16.00 (0.63")	1 3/16"	X	X	X
FFA ** 6 4 30 HP	3/8"	1/4"	6.40 (0.25")	55.00 (2.16")	32.00 (1.26")	16.00 (0.63")	3/4"	X	X	X
FFA ** 6 6 30 HP	3/8"	3/8"	6.40 (0.25")	55.00 (2.16")	32.00 (1.26")	16.00 (0.63")	1 5/16"	X	X	X
FFA ** 6 8 30 HP	3/8"	1/2"	6.40 (0.25")	55.00 (2.16")	32.00 (1.26")	16.00 (0.63")	1"	X	X	X
FFA ** 8 4 30 HP	1/2"	1/4"	9.03 (0.35")	58.40 (2.30")	35.40 (1.39")	16.00 (0.63")	3/4"	X	X	X
FFA ** 8 6 30 HP	1/2"	3/8"	9.55 (0.38")	58.30 (2.30")	35.30 (1.39")	16.00 (0.63")	15/16"	X	X	X
FFA ** 8 8 30 HP	1/2"	1/2"	9.03 (0.35")	58.40 (2.30")	35.40 (1.39")	16.00 (0.63")	1 1/8"	X	X	X
FFA ** 8 12 30 HP	1/2"	3/4"	9.55 (0.38")	59.30 (2.33")	35.30 (1.39")	17.00 (0.66")	1 3/16"	X	X	X
FFA ** 12 8 30 HP	3/4"	1/2"	15.36 (0.60")	61.40 (2.42")	37.40 (1.47")	17.00 (0.66")	1 3/16"	X	X	X
FFA ** 12 12 30 HP	3/4"	3/4"	15.36 (0.60")	61.40 (2.42")	37.40 (1.47")	17.00 (0.66")	1 3/16"	X	X	X
FFA ** 12 16 30 HP	3/4"	1"	16.00 (0.63")	67.56 (2.66")	38.61 (1.52")	21.59 (0.85")	1 5/8"	X	X	X
FFA ** 16 16 30 HP	1"	1"	22.25 (0.86")	73.10 (2.88")	45.60 (1.80")	20.00 (0.79")	1 5/8"	X	X	X

** = Union nut material code
¹ ID = Inside diameter

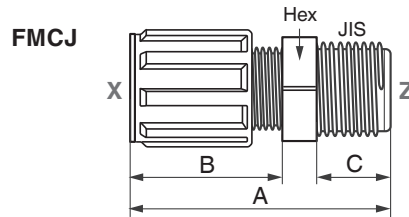
Dimensions mm (inch)



Straight adapter with SpaceSaver and NPT male thread, PFA								Union nut material selection		
Order no.	Tube size X	NPT male thread Z	Smallest ID ¹	A	B	C	Hex	PFA	PVDF	CPFA
								Code 77	Code 75	Code 73
FSMC ** X4 4 30 HP	1/4"S ²	1/4"	3.80 (0.15")	54.10 (2.13")	32.77 (1.29")	13.97 (0.55")	5/8"	X	-	-
FSMC ** X4 6 30 HP	1/4"S ²	3/8"	3.80 (0.15")	54.10 (2.13")	32.77 (1.29")	13.97 (0.55")	13/16"	X	-	-
FSMC ** X6 6 30 HP	3/8"S ²	3/8"	6.40 (0.25")	56.13 (2.21")	34.80 (1.37")	13.97 (0.55")	13/16"	X	-	-
FSMC ** X8 6 30 HP	1/2"S ²	3/8"	9.70 (0.38")	57.40 (2.26")	36.07 (1.42")	13.97 (0.55")	13/16"	X	-	-
FSMC ** X8 8 30 HP	1/2"S ²	1/2"	9.70 (0.38")	60.20 (2.37")	36.07 (1.42")	16.76 (0.66")	15/16"	X	-	-
FSMC ** X12 8 30 HP	3/4"S ²	1/2"	14.00 (0.55")	65.02 (2.56")	40.64 (1.60")	16.76 (0.66")	1 3/16"	X	-	-
FSMC ** X12 12 30 HP	3/4"S ²	3/4"	16.00 (0.63")	65.28 (2.57")	40.64 (1.60")	17.02 (0.67")	1 3/16"	X	-	-
FSMC ** X12 16 30 HP	3/4"S ²	1"	16.00 (0.63")	65.28 (2.57")	40.64 (1.60")	17.02 (0.67")	1 3/16"	X	-	-

** = Union nut material code

¹ ID = Inside diameter, S² = SpaceSaver

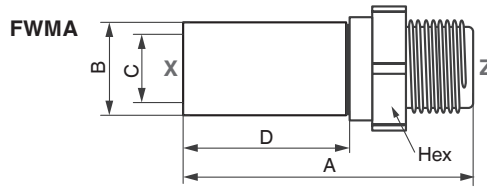


Straight adapter with flare connection and JIS male thread, PFA								Union nut material selection		
Order no.	Tube size X	JIS male thread Z	Smallest ID ¹	A	B	C	Hex	PFA	PVDF	CPFA
								Code 77	Code 75	Code 73
FMCJ ** 4 4 30 HP	1/4"	1/4"	3.80 (0.15")	51.31 (2.02")	29.97 (1.18")	13.97 (0.55")	5/8"	X	-	-
FMCJ ** 4 6 30 HP	1/4"	3/8"	3.80 (0.15")	51.31 (2.02")	29.97 (1.18")	13.97 (0.55")	11/16"	X	-	-
FMCJ ** 4 8 30 HP	1/4"	1/2"	3.80 (0.15")	54.10 (2.13")	29.97 (1.18")	16.76 (0.66")	15/16"	X	-	-
FMCJ ** 6 4 30 HP	3/8"	1/4"	6.40 (0.25")	53.85 (2.12")	32.51 (1.28")	13.97 (0.55")	13/16"	X	-	-
FMCJ ** 6 6 30 HP	3/8"	3/8"	6.40 (0.25")	53.85 (2.12")	32.51 (1.28")	13.97 (0.55")	13/16"	X	-	-
FMCJ ** 6 8 30 HP	3/8"	1/2"	6.40 (0.25")	56.64 (2.23")	32.51 (1.28")	16.76 (0.66")	15/16"	X	-	-
FMCJ ** 8 4 30 HP	1/2"	1/4"	9.70 (0.38")	56.39 (2.22")	35.05 (1.38")	13.97 (0.55")	15/16"	X	-	-
FMCJ ** 8 6 30 HP	1/2"	3/8"	9.70 (0.38")	56.39 (2.22")	35.05 (1.38")	13.97 (0.55")	15/16"	X	-	-
FMCJ ** 8 8 30 HP	1/2"	1/2"	9.70 (0.38")	59.18 (2.33")	35.05 (1.38")	16.76 (0.66")	15/16"	X	-	-
FMCJ ** 8 12 30 HP	1/2"	3/4"	9.70 (0.38")	59.44 (2.34")	35.05 (1.38")	17.02 (0.67")	1 3/16"	X	-	-
FMCJ ** 12 8 30 HP	3/4"	1/2"	14.00 (0.55")	62.23 (2.45")	38.10 (1.50")	16.76 (0.66")	1 3/16"	X	-	-
FMCJ ** 12 12 30 HP	3/4"	3/4"	16.00 (0.63")	62.48 (2.46")	38.10 (1.50")	17.02 (0.67")	1 3/16"	X	-	-
FMCJ ** 12 16 30 HP	3/4"	1"	16.00 (0.63")	67.06 (2.64")	38.10 (1.50")	21.59 (0.85")	1 7/16"	X	-	-
FMCJ ** 16 12 30 HP	1"	3/4"	16.80 (0.66")	68.07 (2.68")	43.69 (1.72")	17.02 (0.67")	1 7/16"	X	-	-
FMCJ ** 16 16 30 HP	1"	1"	22.40 (0.88")	72.64 (2.86")	43.69 (1.72")	21.59 (0.85")	1 7/16"	X	-	-

** = Union nut material code

¹ ID = Inside diameter

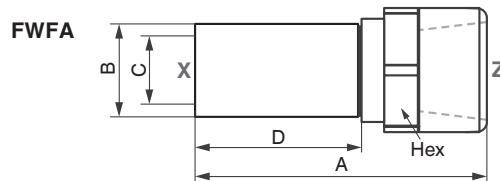
Dimensions mm (inch)



Straight adapter with butt weld spigot and NPT male thread, PFA

Order no.	Pipe X	NPT male thread Z	Smallest ID ¹	A	B	C	D	Hex
FWMA 4 4 30 HP	1/4"	1/4"	7.1 (0.28")	45.21 (1.78")	13.72 (0.54")	8.89 (0.35")	19.05 (0.75")	5/8"
FWMA 8 6 30 HP	1/2"	3/8"	9.1 (0.36")	65.02 (2.56")	21.34 (0.84")	15.49 (0.61")	37.85 (1.49")	1"
FWMA 8 8 30 HP	1/2"	1/2"	13.0 (0.51")	67.56 (2.66")	21.34 (0.84")	15.49 (0.61")	37.85 (1.49")	1"
FWMA 12 8 30 HP	3/4"	1/2"	13.0 (0.51")	67.56 (2.66")	26.67 (1.05")	20.57 (0.81")	37.85 (1.49")	1 3/16"
FWMA 12 12 30 HP	3/4"	3/4"	16.8 (0.66")	68.07 (2.68")	26.67 (1.05")	20.57 (0.81")	37.85 (1.49")	1 3/16"
FWMA 16 16 30 HP	1"	1"	23.9 (0.94")	72.39 (2.85")	33.53 (1.32")	26.16 (1.03")	37.85 (1.49")	1 7/16"

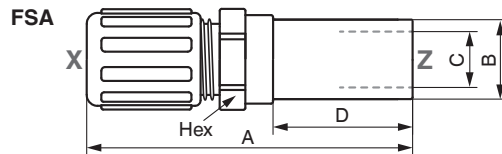
¹ ID = Inside diameter



Straight adapter with butt weld spigot and NPT female thread, PFA

Order no.	Pipe X	NPT female thread Z	Smallest ID ¹	A	B	C	D	Hex
FWFA 4 4 30 HP	1/4"	1/4"	8.6 (0.34")	47.24 (1.86")	13.72 (0.54")	8.89 (0.35")	19.05 (0.75")	3/4"
FWFA 8 6 30 HP	1/2"	3/8"	9.1 (0.36")	63.25 (2.49")	21.34 (0.84")	8.89 (0.35")	37.85 (1.49")	15/16"
FWFA 8 8 30 HP	1/2"	1/2"	13.0 (0.51")	66.04 (2.60")	21.34 (0.84")	15.49 (0.61")	37.85 (1.49")	1 1/8"
FWFA 12 12 30 HP	3/4"	3/4"	20.1 (0.79")	66.04 (2.60")	26.67 (1.05")	20.57 (0.81")	37.85 (1.49")	1 7/16"
FWFA 16 16 30 HP	1"	1"	25.2 (0.99")	65.28 (2.57")	33.53 (1.32")	26.16 (1.03")	37.85 (1.49")	1 7/8"

¹ ID = Inside diameter



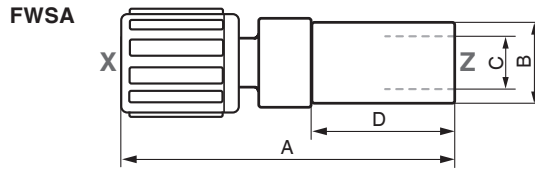
Straight adapter with flare connection and butt weld spigot, PFA

Order no.	Tube size X	Pipe size Z	Smallest ID ¹	A	B	C	D	Hex	Union nut material selection		
									PFA	PVDF	CPFA
									Code 77	Code 75	Code 73
FSA ** 4 4 30 HP	1/4"	1/4"	3.20 (0.13")	50.70 (2.00")	13.70 (0.54")	9.00 (0.35")	14.00 (0.55")	11/16"	X	X	X
FSA ** 4 8 30 HP	1/4"	1/2"	3.30 (0.13")	81.40 (3.20")	21.30 (0.84")	15.80 (0.62")	38.00 (1.50")	1 5/16"	X	X	X
FSA ** 4 12 30 HP	1/4"	3/4"	3.30 (0.13")	81.40 (3.20")	26.70 (1.05")	20.90 (0.82")	38.00 (1.50")	1 3/16"	X	X	X
FSA ** 6 4 30 HP	3/8"	1/4"	6.38 (0.25")	52.90 (2.08")	13.70 (0.54")	9.00 (0.35")	14.00 (0.55")	13/16"	X	X	X
FSA ** 6 8 30 HP	3/8"	1/2"	6.35 (0.25")	84.50 (3.33")	21.30 (0.84")	15.80 (0.62")	38.00 (1.50")	1 5/16"	X	X	X
FSA ** 6 12 30 HP	3/8"	3/4"	6.35 (0.25")	84.50 (3.33")	26.70 (1.05")	20.90 (0.82")	38.00 (1.50")	1 3/16"	X	X	X
FSA ** 8 8 30 HP	1/2"	1/2"	9.65 (0.38")	85.90 (3.38")	21.30 (0.84")	15.80 (0.62")	38.00 (1.50")	15/16"	X	X	X
FSA ** 8 12 30 HP	1/2"	3/4"	9.55 (0.38")	86.60 (3.41")	26.70 (1.05")	20.50 (0.81")	37.80 (1.49")	1 3/16"	X	X	X
FSA ** 8 16 30 HP	1/2"	1"	9.55 (0.38")	67.30 (2.65")	33.40 (1.31")	26.30 (1.04")	18.50 (0.73")	1 7/16"	X	X	X
FSA ** 12 8 30 HP	3/4"	1/2"	16.00 (0.63")	86.90 (3.42")	21.30 (0.84")	15.80 (0.62")	38.00 (1.50")	1 3/16"	X	X	X
FSA ** 12 12 30 HP	3/4"	3/4"	16.00 (0.63")	89.90 (3.54")	26.70 (1.05")	20.90 (0.82")	38.00 (1.50")	1 3/16"	X	X	X
FSA ** 12 16 30 HP	3/4"	1"	15.90 (0.63")	90.10 (3.54")	33.40 (1.31")	26.30 (1.04")	38.00 (1.50")	1 7/16"	X	X	X
FSA ** 16 12 30 HP	1"	3/4"	16.00 (0.63")	97.50 (3.84")	26.70 (1.05")	20.90 (0.82")	38.00 (1.50")	1 7/16"	X	X	X
FSA ** 16 16 30 HP	1"	1"	22.10 (0.87")	97.50 (3.84")	33.40 (1.31")	26.30 (1.04")	38.00 (1.50")	1 7/16"	X	X	X
FSA ** 20 16 30 HP	1 1/4"	1"	25.40 (1.00")	105.20 (4.14")	33.40 (1.31")	26.30 (1.04")	38.00 (1.50")		X	X	X

** = Union nut material code

¹ ID = Inside diameter

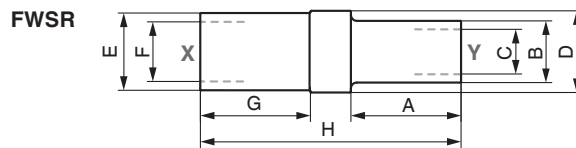
Dimensions mm (inch)



Straight adapter with SpaceSaver and butt weld spigot, PFA								Union nut material selection		
Order no.	Tube size X	Pipe size Z	Smallest ID ¹	A	B	C	D	PFA	PVDF	CPFA
								Code 77	Code 75	Code 73
FWSA ** X4 4 30 HP	1/4"S ²	1/4"	3.20 (0.13")	59.20 (2.33")	13.70 (0.54")	9.00 (0.35")	12.50 (0.49")	X	X	X
FWSA ** X6 4 30 HP	3/8"S ²	1/4"	6.38 (0.25")	60.90 (2.40")	9.55 (0.38")	6.38 (0.25")	25.00 (0.98")	X	X	X
FWSA ** X6 8 30 HP	3/8"S ²	1/2"	6.38 (0.25")	65.90 (2.60")	21.30 (0.84")	15.40 (0.61")	19.00 (0.75")	X	X	X
FWSA ** X8 8 30 HP	1/2"S ²	1/2"	9.65 (0.38")	87.50 (3.44")	21.30 (0.84")	15.80 (0.62")	38.00 (1.50")	X	X	X
FWSA ** X8 12 30 HP	1/2"S ²	3/4"	9.55 (0.38")	86.60 (3.41")	26.70 (1.05")	20.50 (0.81")	38.10 (1.50")	X	X	X
FWSA ** X12 8 30 HP	3/4"S ²	1/2"	15.40 (0.61")	93.90 (3.70")	21.30 (0.84")	15.40 (0.61")	38.00 (1.50")	X	X	X
FWSA ** X12 12 30 HP	3/4"S ²	3/4"	15.90 (0.63")	93.90 (3.70")	26.70 (1.05")	20.50 (0.81")	38.00 (1.50")	X	X	X
FWSA ** X12 16 30 HP	3/4"S ²	1"	15.90 (0.63")	73.90 (2.91")	33.40 (1.31")	26.30 (1.04")	19.00 (0.75")	X	X	X
FWSA ** X16 12 30 HP	1"S ²	3/4"	20.50 (0.80")	102.90 (4.05")	26.70 (1.05")	20.50 (0.81")	38.00 (1.50")	X	X	X
FWSA ** X16 16 30 HP	1"S ²	1"	22.10 (0.87")	103.90 (4.09")	33.40 (1.31")	26.60 (1.04")	38.00 (1.50")	X	X	X
FWSA ** X20 16 30 HP	1 1/4"S ²	1"	26.30 (1.04")	97.50 (3.84")	33.40 (1.31")	26.30 (1.04")	19.00 (0.75")	X	X	X

** = Union nut material code

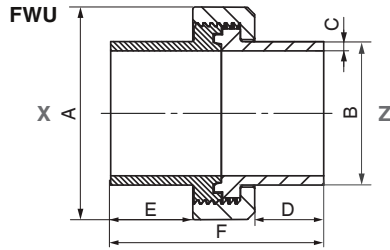
¹ ID = Inside diameter, ² S = SpaceSaver



Straight union reducer with butt weld spigot, PFA							
Order no.	Pipe size		Smallest ID ¹	A	B	C	D
	X	Z					
FWSR 8 4 30 HP	1/2"	1/4"	9.00 (0.35")	14.00 (0.55")	13.70 (0.54")	9.00 (0.35")	24.00 (0.94")
FWSR 12 4 30 HP	3/4"	1/4"	9.00 (0.35")	14.00 (0.55")	13.70 (0.54")	9.00 (0.35")	28.20 (1.11")
FWSR 12 8 30 HP	3/4"	1/2"	15.40 (0.60")	38.00 (1.50")	21.30 (0.84")	15.80 (0.62")	28.60 (1.12")
FWSR 16 4 30 HP	1"	1/4"	9.00 (0.35")	33.00 (1.29")	13.70 (0.54")	9.20 (0.36")	35.60 (1.40")
FWSR 16 8 30 HP	1"	1/2"	15.40 (0.60")	38.00 (1.50")	21.30 (0.84")	15.80 (0.62")	35.60 (1.40")
FWSR 16 12 30 HP	1"	3/4"	20.60 (0.81")	38.00 (1.50")	26.70 (1.05")	20.90 (0.82")	35.60 (1.40")
FWSR 32 8 30 HP	2"	1/2"	15.40 (0.60")	38.00 (1.50")	21.30 (0.84")	15.40 (0.61")	65.00 (2.56")
FWSR 32 12 30 HP	2"	3/4"	20.60 (0.81")	38.10 (1.50")	26.70 (1.05")	20.50 (0.81")	65.00 (2.56")
FWSR 32 16 30 HP	2"	1"	26.30 (1.04")	38.10 (1.50")	33.40 (1.31")	26.30 (1.04")	65.00 (2.56")
FWSR 32 24 30 HP	2"	1 1/2"	40.90 (1.61")	25.97 (1.02")	48.30 (1.90")	40.90 (1.61")	60.30 (2.37")
Order no.	Pipe size		Smallest ID ¹	E	F	G	H
	X	Z					
FWSR 8 4 30 HP	1/2"	1/4"	9.00 (0.35")	21.30 (0.84")	15.40 (0.61")	38.10 (1.50")	64.80 (2.55")
FWSR 12 4 30 HP	3/4"	1/4"	9.00 (0.35")	26.70 (1.05")	20.50 (0.81")	38.10 (1.50")	64.80 (2.55")
FWSR 12 8 30 HP	3/4"	1/2"	15.40 (0.60")	26.70 (1.05")	20.90 (0.82")	38.00 (1.50")	90.00 (3.54")
FWSR 16 4 30 HP	1"	1/4"	9.00 (0.35")	33.40 (1.31")	26.60 (1.04")	38.00 (1.50")	85.00 (3.34")
FWSR 16 8 30 HP	1"	1/2"	15.40 (0.60")	33.40 (1.31")	26.60 (1.04")	38.00 (1.50")	90.00 (3.54")
FWSR 16 12 30 HP	1"	3/4"	20.60 (0.81")	33.40 (1.31")	26.60 (1.04")	38.00 (1.50")	90.00 (3.54")
FWSR 32 8 30 HP	2"	1/2"	15.40 (0.60")	60.30 (2.37")	52.10 (2.05")	38.00 (1.50")	111.00 (4.37")
FWSR 32 12 30 HP	2"	3/4"	20.60 (0.81")	60.30 (2.37")	52.10 (2.05")	38.10 (1.50")	111.30 (4.38")
FWSR 32 16 30 HP	2"	1"	26.30 (1.04")	60.30 (2.37")	52.10 (2.05")	38.10 (1.50")	111.30 (4.38")
FWSR 32 24 30 HP	2"	1 1/2"	40.90 (1.61")	60.30 (2.37")	52.50 (2.07")	15.47 (0.61")	65.00 (2.56")

¹ ID = Inside diameter

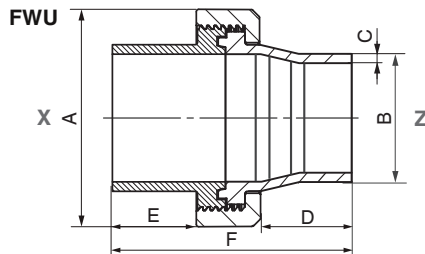
Dimensions mm (inch)



O-ring free union, PFA

Order no.	Pipe size	Smallest ID ¹	A	B	C	D	E	F
FWU 20 24 24 30 HP	1 1/2"	40.5 (1.6")	76.6 (3.0")	48.3 (1.9")	3.9 (0.15")	29.0 (1.14")	34.0 (1.34")	89.4 (3.52")
FWU 20 32 32 30 HP	2"	52.1 (2.05")	89.5 (3.52")	60.3 (2.37")	3.9 (0.15")	29.0 (1.14")	34.0 (1.34")	89.4 (3.52")
FWU 27 24 24 30 HP	1 1/2"	40.5 (1.6")	76.6 (3.0")	48.3 (1.9")	3.9 (0.15")	29.0 (1.14")	34.0 (1.34")	89.4 (3.52")
FWU 27 32 32 30 HP	2"	52.1 (2.05")	89.5 (3.52")	60.3 (2.37")	3.9 (0.15")	29.0 (1.14")	34.0 (1.34")	89.4 (3.52")

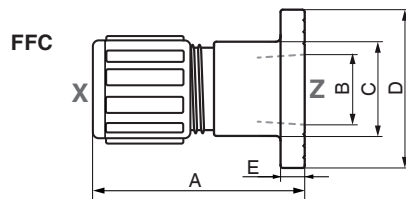
¹ ID = Inside diameter



O-ring free union, reducer, PFA

Order no.	Pipe size		Smallest ID ¹	A	B	C	D	E	F
	X	Z							
FWU 20 32 24 30 HP	2"	1 1/2"	52.1 (2.05")	89.5 (3.52")	48.3 (1.9")	3.7 (0.15")	47.5 (1.87")	34.0 (1.34")	108.8 (4.28")
FWU 27 32 24 30 HP	2"	1 1/2"	52.1 (2.05")	89.5 (3.52")	48.3 (1.9")	3.7 (0.15")	47.5 (1.87")	34.0 (1.34")	108.8 (4.28")

¹ ID = Inside diameter



Straight adapter with flare connection and DIN flange sleeve, PTFE

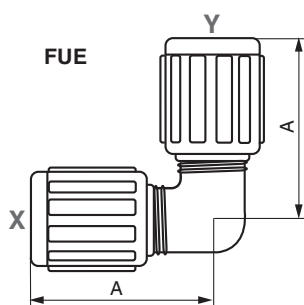
Order no.	Tube size X	DIN flange sleeve Z	Smallest ID ¹	A	B	C	D	E	Union nut material selection		
									PFA	PVDF	CPFA
									Code 77	Code 75	Code 73
FFC ** 16 25 26 HP	1"	DN 25	22.10 (0.87")	86.00 (3.39")	28.00 (1.10")	41.00 (1.61")	68.00 (2.67")	10.00 (0.39")	X	X	X
FFC ** 16 40 26 HP	1"	DN 40	22.25 (0.88")	91.10 (3.59")	45.00 (1.77")	61.00 (2.40")	88.00 (3.46")	12.00 (0.47")	X	X	X
FFC ** 16 50 26 HP	1"	DN 50	22.25 (0.88")	102.10 (4.02")	57.00 (2.24")	76.00 (2.99")	102.00 (4.02")	14.00 (0.55")	X	X	X

** = Union nut material code

¹ ID = Inside diameter

Dimensions mm (inch)

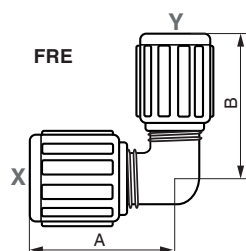
FlareStar® elbow fittings



Union elbow with flare connection, PFA				Union nut material selection		
Order no.	Tube size	Smallest ID ¹	A	PFA	PVDF	CPFA
				Code 77	Code 75	Code 73
FUE ** 4 4 30 HP	1/4"	3.30 (0.13")	40.30 (1.59")	X	X	X
FUE ** 6 6 30 HP	3/8"	6.35 (0.25")	45.50 (1.75")	X	X	X
FUE ** 8 8 30 HP	1/2"	9.65 (0.38")	46.40 (1.83")	X	X	X
FUE ** 12 12 30 HP	3/4"	16.00 (0.63")	53.20 (2.09")	X	X	X
FUE ** 16 16 30 HP	1"	22.10 (0.87")	68.90 (2.71")	X	X	X
FUE ** 20 20 30 HP	1 1/4"	27.90 (1.09")	86.20 (3.39")	X	X	X

** = Union nut material code

¹ ID = Inside diameter

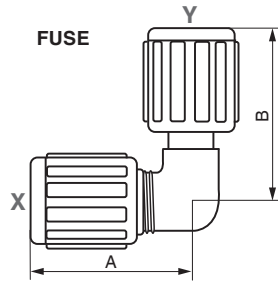


Reducer elbow with flare connection, PFA						Union nut material selection		
Order no.	Tube size		Smallest ID ¹	A	B	PFA	PVDF	CPFA
	X	Y				Code 77	Code 75	Code 73
FRE ** 6 4 30 HP	3/8"	1/4"	3.30 (0.13")	40.50 (1.59")	43.90 (1.73")	X	X	X
FRE ** 8 4 30 HP	1/2"	1/4"	3.81 (0.15")	46.74 (1.87")	42.16 (1.66")	X	-	-
FRE ** 8 6 30 HP	1/2"	3/8"	6.35 (0.25")	44.90 (1.77")	45.90 (1.81")	X	X	X
FRE ** 12 6 30 HP	3/4"	3/8"	6.35 (0.25")	56.80 (2.24")	48.70 (1.92")	X	X	X
FRE ** 12 8 30 HP	3/4"	1/2"	9.65 (0.38")	50.90 (2.00")	50.90 (2.00")	X	X	X
FRE ** 16 8 30 HP	1"	1/2"	9.65 (0.38")	68.58 (2.70")	51.56 (2.03")	X	-	-
FRE ** 16 12 30 HP	1"	3/4"	16.00 (0.63")	69.40 (2.73")	62.70 (2.47")	X	X	X
FRE ** 20 16 30 HP	1 1/4"	1"	22.10 (0.87")	85.20 (3.35")	70.00 (2.76")	X	X	X

** = Union nut material code

¹ ID = Inside diameter

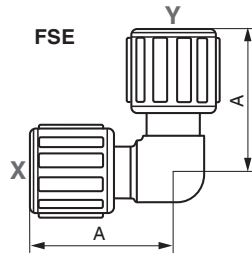
Dimensions mm (inch)



Union elbow with flare connection and SpaceSaver, PFA						Union nut material selection		
Order no.	Tube size		Smallest ID ¹	A	B	PFA	PVDF	CPFA
	X	Y				Code 77	Code 75	Code 73
FUSE ** 4 Y4 30 HP	1/4"	1/4"S ²	3.81 (0.15")	41.91 (1.65")	41.66 (1.64")	X	-	-
FUSE ** 6 Y6 30 HP	3/8"	3/8"S ²	6.35 (0.25")	45.50 (1.75")	46.20 (1.82")	X	X	X
FUSE ** 8 Y8 30 HP	1/2"	1/2"S ²	9.65 (0.38")	46.90 (1.84")	48.90 (1.93")	X	X	X
FUSE ** 12 Y12 30 HP	3/4"	3/4"S ²	16.00 (0.63")	55.90 (2.20")	58.90 (2.32")	X	X	X
FUSE ** 16 Y16 30 HP	1"	1"S ²	22.10 (0.87")	69.00 (2.71")	78.30 (3.08")	X	X	X
FUSE ** 20 Y20 30 HP	1 1/4"	1 1/4"S ²	27.90 (1.09")	81.20 (3.19")	83.50 (3.29")	X	X	X

** = Union nut material code

¹ ID = Inside diameter, ² S = SpaceSaver

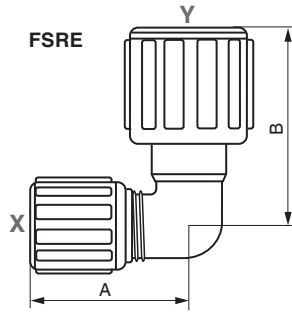


Union elbow with SpaceSaver, PFA				Union nut material selection		
Order no.	Tube size	Smallest ID ¹	A	PFA	PVDF	CPFA
				Code 77	Code 75	Code 73
FSE ** X4 Y4 30 HP	1/4"S ²	3.30 (0.13")	40.20 (1.58")	X	X	X
FSE ** X6 Y6 30 HP	3/8"S ²	6.35 (0.25")	43.90 (1.73")	X	X	X
FSE ** X8 Y8 30 HP	1/2"S ²	9.65 (0.38")	49.00 (1.93")	X	X	X
FSE ** X12 Y12 30 HP	3/4"S ²	16.00 (0.63")	57.90 (2.28")	X	X	X
FSE ** X16 Y16 30 HP	1"S ²	22.10 (0.87")	69.90 (2.75")	X	X	X
FSE ** X20 Y20 30 HP	1 1/4"S ²	27.90 (1.09")	88.50 (3.48")	X	X	X

** = Union nut material code

¹ ID = Inside diameter, ² S = SpaceSaver

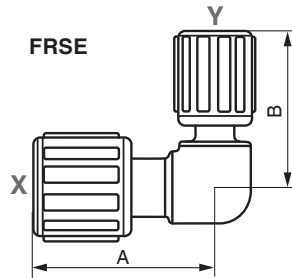
Dimensions mm (inch)



Reducer elbow with flare connection and SpaceSaver, PFA						Union nut material selection		
Order no.	Tube size		Smallest ID ¹	A	B	PFA	PVDF	CPFA
	X	Y				Code 77	Code 75	Code 73
FSRE ** 4 Y6 30 HP	1/4"	3/8" ^{S2}	3.30 (0.13")	40.90 (1.61")	43.90 (1.73")	X	X	X
FSRE ** 4 Y8 30 HP	1/4"	1/2" ^{S2}	3.30 (0.13")	40.90 (1.61")	49.00 (1.93")	X	X	X
FSRE ** 6 Y4 30 HP	3/8"	1/4" ^{S2}	3.30 (0.13")	44.50 (1.75")	40.20 (1.58")	X	X	X
FSRE ** 6 Y8 30 HP	3/8"	1/2" ^{S2}	6.35 (0.25")	44.50 (1.75")	49.00 (1.93")	X	X	X
FSRE ** 6 Y12 30 HP	3/8"	3/4" ^{S2}	6.35 (0.25")	44.50 (1.75")	57.90 (2.28")	X	X	X
FSRE ** 8 Y6 30 HP	1/2"	3/8" ^{S2}	6.35 (0.25")	45.90 (1.81")	43.90 (1.73")	X	X	X
FSRE ** 8 Y12 30 HP	1/2"	3/4" ^{S2}	9.65 (0.38")	45.90 (1.81")	57.90 (2.28")	X	X	X
FSRE ** 8 Y16 30 HP	1/2"	1" ^{S2}	9.65 (0.38")	45.90 (1.81")	69.90 (2.75")	X	X	X
FSRE ** 12 Y16 30 HP	3/4"	1" ^{S2}	16.00 (0.63")	52.90 (2.08")	69.90 (2.75")	X	X	X
FSRE ** 16 Y12 30 HP	1"	3/4" ^{S2}	16.00 (0.63")	61.00 (2.40")	57.90 (2.28")	X	X	X
FSRE ** 16 Y20 30 HP	1"	1 1/4" ^{S2}	22.10 (0.87")	70.00 (2.76")	88.50 (3.48")	X	X	X
FSRE ** 20 Y16 30 HP	1 1/4"	1" ^{S2}	22.10 (0.87")	70.20 (2.76")	94.90 (3.74")	X	X	X

** = Union nut material code

¹ ID = Inside diameter, ² S = SpaceSaver

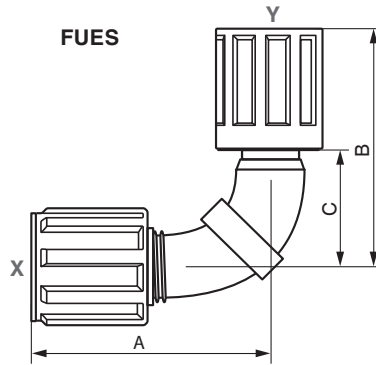


Reducer elbow with SpaceSaver						Union nut material selection		
Order no.	Tube size		Smallest ID ¹	A	B	PFA	PVDF	CPFA
	X	Y				Code 77	Code 75	Code 73
FRSE ** X6 Y4 30 HP	3/8" ^{S2}	1/4" ^{S2}	3.20 (0.13")	44.10 (1.74")	42.20 (1.66")	X	X	X
FRSE ** X8 Y6 30 HP	1/2" ^{S2}	3/8" ^{S2}	6.38 (0.25")	49.00 (1.93")	47.40 (1.87")	X	X	X
FRSE ** X12 Y8 30 HP	3/4" ^{S2}	1/2" ^{S2}	9.65 (0.38")	57.90 (2.27")	50.50 (1.98")	X	X	X
FRSE ** X16 Y12 30 HP	1" ^{S2}	3/4" ^{S2}	16.00 (0.63")	69.90 (2.75")	60.90 (2.39")	X	X	X
FRSE ** X20 Y16 30 HP	1 1/4" ^{S2}	1" ^{S2}	22.10 (0.87")	88.50 (3.48")	74.90 (2.94")	X	X	X

** = Union nut material code

¹ ID = Inside diameter, ² S = SpaceSaver

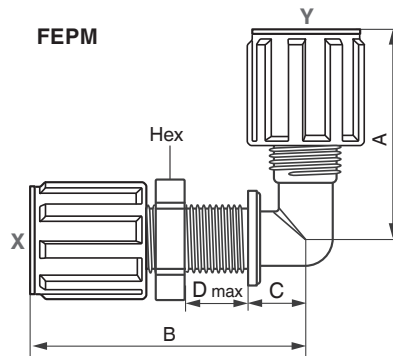
Dimensions mm (inch)



Union elbow sweep with flare connection and/or SpaceSaver, PFA							Union nut material selection		
Order no.	Tube size		Smallest ID ¹	A	B	C	PFA	PVDF	CPFA
							Code 77	Code 75	Code 73
FUES ** 4 4 30 HP	1/4"	1/4"	3.80 (0.15")	41.15 (1.62")	41.15 (1.62")	-	X	-	-
FUES ** 6 6 30 HP	3/8"	3/8"	6.40 (0.25")	46.48 (1.83")	46.48 (1.83")	-	X	-	-
FUES ** 8 8 30 HP	1/2"	1/2"	9.70 (0.38")	52.07 (2.05")	52.07 (2.05")	-	X	-	-
FUES ** 12 12 30 HP	3/4"	3/4"	16.00 (0.63")	59.18 (2.33")	59.18 (2.33")	-	X	-	-
FUES ** 16 16 30 HP	1"	1"	22.40 (0.88")	70.61 (2.78")	70.61 (2.78")	-	X	-	-
FUES ** 4 Y4 30 HP	1/4"	1/4"S ²	3.80 (0.15")	41.15 (1.62")	45.21 (1.78")	20.07 (0.79")	X	-	-
FUES ** 6 Y6 30 HP	3/8"	3/8"S ²	6.40 (0.25")	46.48 (1.83")	50.04 (1.97")	23.62 (0.93")	X	-	-
FUES ** 8 Y8 30 HP	1/2"	1/2"S ²	9.70 (0.38")	52.07 (2.05")	54.61 (2.15")	26.67 (1.05")	X	-	-
FUES ** 12 Y12 30 HP	3/4"	3/4"S ²	16.00 (0.63")	59.18 (2.33")	65.02 (2.56")	33.27 (1.31")	X	-	-
FUES ** 16 Y16 30 HP	1"	1"S ²	22.40 (0.88")	70.61 (2.78")	81.79 (3.22")	43.69 (1.72")	X	-	-
FUES ** X4 Y4 30 HP	1/4"S ²	1/4"S ²	3.80 (0.15")	45.21 (1.78")	45.21 (1.78")	20.07 (0.79")	X	-	-
FUES ** X6 Y6 30 HP	3/8"S ²	3/8"S ²	6.40 (0.25")	50.04 (1.97")	50.04 (1.97")	23.62 (0.93")	X	-	-
FUES ** X8 Y8 30 HP	1/2"S ²	1/2"S ²	9.70 (0.38")	54.61 (2.15")	54.61 (2.15")	26.67 (1.05")	X	-	-
FUES ** X12 Y12 30 HP	3/4"S ²	3/4"S ²	16.00 (0.63")	65.02 (2.56")	65.02 (2.56")	33.27 (1.31")	X	-	-
FUES ** X16 Y16 30 HP	1"S ²	1"S ²	22.40 (0.88")	81.79 (3.22")	81.79 (3.22")	43.69 (1.72")	X	-	-

** = Union nut material code

¹ ID = Inside diameter, ² S = SpaceSaver

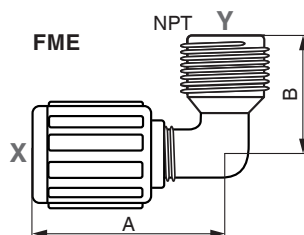


Panel mount union elbow with flare connection, PFA										Union nut material selection		
Order no.	Tube size		Smallest ID ¹	A	B	C	D	Hex	Min. hole dia.	PFA	PVDF	CPFA
										Code 77	Code 75	Code 73
FEPM ** 4 4 30 HP	1/4"	1/4"	3.80 (0.15")	42.16 (1.66")	46.99 (1.85")	12.95 (0.51")	12.70 (0.50")	3/4"	12.70	X	-	-
FEPM ** 6 6 30 HP	3/8"	3/8"	6.40 (0.25")	44.96 (1.77")	49.78 (1.96")	12.95 (0.51")	12.70 (0.50")	15/16"	15.90	X	-	-
FEPM ** 8 8 30 HP	1/2"	1/2"	9.70 (0.38")	47.75 (1.88")	49.28 (1.94")	16.76 (0.66")	12.70 (0.50")	1 1/16"	19.10	X	-	-
FEPM ** 12 12 30 HP	3/4"	3/4"	16.00 (0.63")	56.13 (2.21")	56.13 (2.21")	21.34 (0.84")	12.70 (0.50")	1 5/16"	25.40	X	-	-

** = Union nut material code

¹ ID = Inside diameter

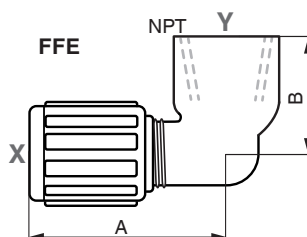
Dimensions mm (inch)



Elbow adapter with flare connection and NPT male thread, PFA						Union nut material selection		
Order no.	Tube size X	NPT male thread Y	Smallest ID ¹	A	B	PFA	PVDF	CPFA
						Code 77	Code 75	Code 73
FME ** 4 4 30 HP	1/4"	1/4"	3.30 (0.13")	40.90 (1.61")	28.50 (1.12")	X	X	X
FME ** 4 8 30 HP	1/4"	1/2"	3.81 (0.15")	42.16 (1.66")	29.72 (1.17")	X	-	-
FME ** 6 4 30 HP	3/8"	1/4"	6.00 (0.23")	44.00 (1.73")	28.50 (1.12")	X	X	X
FME ** 6 6 30 HP	3/8"	3/8"	6.35 (0.25")	44.00 (1.73")	28.50 (1.12")	X	X	X
FME ** 6 8 30 HP	3/8"	1/2"	6.35 (0.25")	44.50 (1.75")	31.50 (1.24")	X	X	X
FME ** 6 12 30 HP	3/8"	3/4"	6.35 (0.25")	49.50 (1.95")	36.15 (1.42")	X	X	X
FME ** 8 6 30 HP	1/2"	3/8"	9.65 (0.38")	46.40 (1.83")	28.50 (1.12")	X	X	X
FME ** 8 8 30 HP	1/2"	1/2"	9.65 (0.38")	46.40 (1.83")	31.50 (1.24")	X	X	X
FME ** 8 12 30 HP	1/2"	3/4"	9.65 (0.38")	50.90 (2.00")	36.00 (1.42")	X	X	X
FME ** 12 8 30 HP	3/4"	1/2"	10.80 (0.43")	54.90 (2.16")	36.50 (1.44")	X	X	X
FME ** 12 12 30 HP	3/4"	3/4"	16.00 (0.63")	54.90 (2.16")	35.00 (1.38")	X	X	X
FME ** 12 16 30 HP	3/4"	1"	16.00 (0.63")	56.13 (0.63")	45.72 (1.80")	X	-	-
FME ** 16 12 30 HP	1"	3/4"	16.76 (0.66")	68.58 (2.70")	41.66 (1.64")	X	-	-
FME ** 16 16 30 HP	1"	1"	22.10 (0.87")	69.00 (2.72")	45.70 (1.80")	X	X	X

** = Union nut material code

¹ ID = Inside diameter

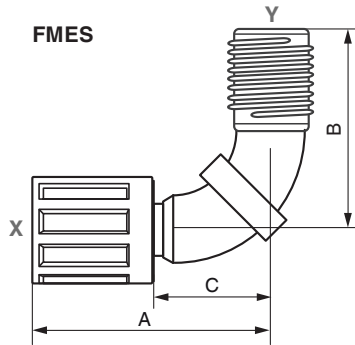


Female elbow with flare connection and NPT female thread						Union nut material selection		
Order no.	Tube size X	NPT female thread Y	Smallest ID ¹	A	B	PFA	PVDF	CPFA
						Code 77	Code 75	Code 73
FFE ** 4 2 30 HP	1/4"	1/8"	3.80 (0.15")	44.96 (1.77")	20.57 (0.81")	X	-	-
FFE ** 4 4 30 HP	1/4"	1/4"	3.80 (0.15")	44.96 (1.77")	23.88 (0.94")	X	-	-
FFE ** 4 6 30 HP	1/4"	3/8"	3.80 (0.15")	44.96 (1.77")	25.40 (1.00")	X	-	-
FFE ** 4 8 30 HP	1/4"	1/2"	3.80 (0.15")	45.97 (1.81")	31.24 (1.23")	X	-	-
FFE ** 6 4 30 HP	3/8"	1/4"	6.40 (0.25")	48.01 (1.89")	23.88 (0.94")	X	-	-
FFE ** 6 6 30 HP	3/8"	3/8"	6.40 (0.25")	48.01 (1.89")	25.40 (1.00")	X	-	-
FFE ** 6 8 30 HP	3/8"	1/2"	6.40 (0.25")	48.01 (1.89")	31.24 (1.23")	X	-	-
FFE ** 8 4 30 HP	1/2"	1/4"	9.10 (0.36")	50.55 (1.99")	24.38 (0.96")	X	-	-
FFE ** 8 6 30 HP	1/2"	3/8"	9.70 (0.38")	50.55 (1.99")	25.40 (1.00")	X	-	-
FFE ** 8 8 30 HP	1/2"	1/2"	9.56 (0.38")	50.90 (2.00")	31.00 (1.22")	X	X	X
FFE ** 8 12 30 HP	1/2"	3/4"	9.70 (0.38")	51.82 (2.04")	38.86 (1.53")	X	-	-
FFE ** 12 8 30 HP	3/4"	1/2"	13.72 (0.54")	56.39 (2.22")	36.58 (1.44")	X	-	-
FFE ** 12 12 30 HP	3/4"	3/4"	16.00 (0.63")	56.64 (2.23")	38.86 (1.53")	X	-	-
FFE ** 16 16 30 HP	1"	1"	22.40 (0.88")	68.58 (2.70")	40.64 (1.60")	X	-	-

** = Union nut material code

¹ ID = Inside diameter

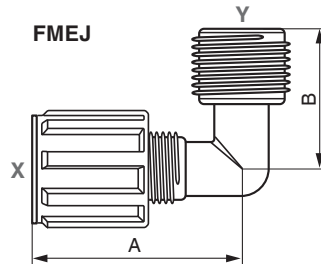
Dimensions mm (inch)



Elbow sweep adapter with flare connection or SpaceSaver and NPT							Union nut material selection		
Order no.	Tube size X	NPT male thread Y	Smallest ID ¹	A	B	C	PFA	PVDF	CPA
							Code 77	Code 75	Code 73
FMES ** 4 4 30 HP	1/4"	1/4"	3.80 (0.15")	41.15 (1.62")	30.48 (1.20")	-	X	X	X
FMES ** 6 6 30 HP	3/8"	3/8"	6.40 (0.25")	46.48 (1.83")	33.53 (1.32")	-	X	X	X
FMES ** 8 8 30 HP	1/2"	1/2"	9.70 (0.38")	52.07 (2.05")	39.37 (1.55")	-	X	X	X
FMES ** 12 12 30 HP	3/4"	3/4"	16.00 (0.63")	59.18 (2.33")	44.70 (1.76")	-	X	X	X
FMES ** 16 16 30 HP	1"	1"	22.40 (0.88")	70.61 (2.78")	57.40 (2.26")	-	X	X	X
FMES ** X4 4 30 HP	1/4"S ²	1/4"	3.80 (0.15")	30.48 (1.20")	45.21 (1.78")	20.07 (0.79")	X	X	X
FMES ** X6 6 30 HP	3/8"S ²	3/8"	6.40 (0.25")	33.53 (1.32")	50.04 (1.97")	23.62 (0.93")	X	X	X
FMES ** X8 8 30 HP	1/2"S ²	1/2"	9.70 (0.38")	39.37 (1.55")	54.61 (2.15")	26.67 (1.05")	X	X	X
FMES ** X12 12 30 HP	3/4"S ²	3/4"	16.00 (0.63")	44.70 (1.76")	65.02 (2.56")	33.27 (1.31")	X	X	X
FMES ** X16 16 30 HP	1"S ²	1"	22.40 (0.88")	57.40 (2.26")	81.79 (3.22")	43.69 (1.72")	X	X	X

** = Union nut material code

¹ ID = Inside diameter, ² S = SpaceSaver

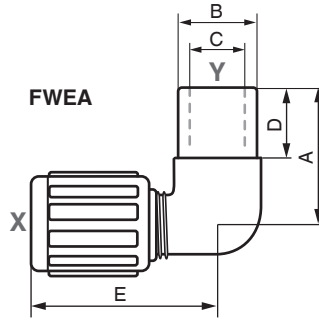


Elbow adapter with flare connection and JIS male thread, PFA						Union nut material selection		
Order no.	Tube size X	JIS male thread Y	Smallest ID ¹	A	B	PFA	PVDF	CPA
						Code 77	Code 75	Code 73
FMEJ ** 4 6 30 HP	1/4"	3/8"	3.80 (0.15")	41.91 (1.65")	27.18 (1.07")	X	X	X
FMEJ ** 6 4 30 HP	3/8"	1/4"	6.40 (0.25")	44.70 (1.76")	27.18 (1.07")	X	X	X
FMEJ ** 6 6 30 HP	3/8"	3/8"	6.40 (0.25")	44.70 (1.76")	27.18 (1.07")	X	X	X
FMEJ ** 6 8 30 HP	3/8"	1/2"	6.40 (0.25")	44.70 (1.76")	29.97 (1.18")	X	X	X
FMEJ ** 8 4 30 HP	1/2"	1/4"	6.40 (0.25")	47.24 (1.86")	27.18 (1.07")	X	X	X
FMEJ ** 8 6 30 HP	1/2"	3/8"	9.70 (0.38")	47.24 (1.86")	27.18 (1.07")	X	X	X
FMEJ ** 8 8 30 HP	1/2"	1/2"	9.70 (0.38")	47.24 (1.86")	29.97 (1.18")	X	X	X
FMEJ ** 8 12 30 HP	1/2"	3/4"	9.70 (0.38")	47.24 (1.86")	34.54 (1.36")	X	X	X
FMEJ ** 12 8 30 HP	3/4"	1/2"	13.50 (0.53")	55.37 (2.18")	34.80 (1.37")	X	X	X
FMEJ ** 12 12 30 HP	3/4"	3/4"	16.00 (0.63")	55.37 (2.18")	34.80 (1.37")	X	X	X
FMEJ ** 12 16 30 HP	3/4"	1"	16.00 (0.63")	55.37 (2.18")	45.72 (1.80")	X	X	X
FMEJ ** 16 12 30 HP	1"	3/4"	16.80 (0.66")	68.58 (2.70")	41.66 (1.64")	X	X	X
FMEJ ** 16 16 30 HP	1"	1"	22.10 (0.87")	68.58 (2.70")	45.72 (1.80")	X	X	X

** = Union nut material code

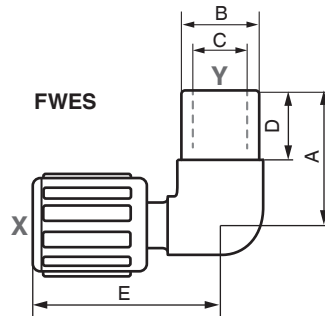
¹ ID = Inside diameter

Dimensions mm (inch)



Elbow adapter with flare connection and butt weld spigot, PFA									Union nut material selection		
Order no.	Tube size X	Pipe size Y	Smallest ID ¹	A	B	C	D	E	PFA	PVDF	CPFA
									Code 77	Code 75	Code 73
FWEA ** 4 4 30 HP	1/4"	1/4"	3.20 (0.13")	27.40 (1.08")	13.70 (0.54")	9.00 (0.35")	14.50 (0.57")	40.70 (1.60")	X	X	X
FWEA ** 4 8 30 HP	1/4"	1/2"	3.20 (0.13")	36.60 (1.44")	21.30 (0.84")	15.40 (0.61")	19.00 (0.75")	44.70 (1.76")	X	X	X
FWEA ** 5 4 12 30 HP	1/4"	3/4"	3.20 (0.13")	36.60 (1.44")	26.70 (1.05")	20.50 (0.81")	19.00 (0.75")	47.70 (1.88")	X	X	X
FWEA ** 6 8 30 HP	3/8"	1/2"	6.38 (0.25")	36.60 (1.44")	21.30 (0.84")	15.40 (0.61")	19.00 (0.75")	47.90 (1.89")	X	-	-
FWEA ** 6 12 30 HP	3/8"	3/4"	6.38 (0.25")	43.20 (1.70")	26.70 (1.05")	20.50 (0.81")	18.90 (0.75")	55.40 (2.18")	X	X	X
FWEA ** 8 8 30 HP	1/2"	1/2"	9.65 (0.38")	37.00 (1.45")	21.30 (0.84")	15.80 (0.62")	19.00 (0.75")	49.90 (1.96")	X	X	X
FWEA ** 8 12 30 HP	1/2"	3/4"	9.55 (0.38")	36.60 (1.44")	26.70 (1.05")	20.50 (0.81")	19.00 (0.75")	53.30 (2.10")	X	X	X
FWEA ** 8 16 30 HP	1/2"	1"	9.55 (0.38")	43.40 (1.71")	33.40 (1.31")	26.30 (1.04")	19.00 (0.75")	57.90 (2.28")	X	X	X
FWEA ** 12 8 30 HP	3/4"	1/2"	15.70 (0.62")	43.40 (1.71")	21.30 (0.84")	15.60 (0.61")	19.00 (0.75")	55.20 (2.17")	X	X	X
FWEA ** 12 12 30 HP	3/4"	3/4"	16.00 (0.63")	43.00 (1.69")	26.70 (1.05")	20.90 (0.82")	19.00 (0.75")	61.90 (2.43")	X	X	X
FWEA ** 12 16 30 HP	3/4"	1"	15.90 (0.63")	42.80 (1.69")	33.40 (1.31")	26.30 (1.04")	18.70 (0.74")	62.00 (2.44")	X	X	X
FWEA ** 16 12 30 HP	1"	3/4"	15.90 (0.63")	43.40 (1.71")	26.70 (1.05")	20.50 (0.81")	19.00 (0.75")	68.10 (2.68")	X	-	-
FWEA ** 16 16 30 HP	1"	1"	22.10 (0.87")	43.00 (1.69")	33.40 (1.31")	26.60 (1.04")	19.00 (0.75")	67.00 (2.64")	X	X	X

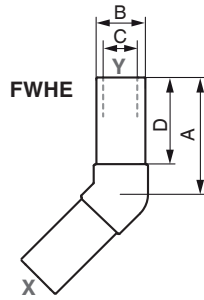
** = Union nut material code
¹ ID = Inside diameter



Elbow adapter with SpaceSaver and butt weld spigot, PFA									Union nut material selection		
Order no.	Tube size X	Pipe size Y	Smallest ID ¹	A	B	C	D	E	PFA	PVDF	CPFA
									Code 77	Code 75	Code 73
FWES ** X4 4 30 HP	1/4" ^{S2}	1/4"	3.20 (0.13")	32.00 (1.26")	13.70 (0.54")	9.00 (0.35")	19.00 (0.75")	41.20 (1.62")	X	X	X
FWES ** X4 8 30 HP	1/4" ^{S2}	1/2"	3.20 (0.13")	32.30 (1.27")	21.30 (0.84")	15.40 (0.61")	19.00 (0.75")	46.20 (1.82")	X	X	X
FWES ** X6 8 30 HP	3/8" ^{S2}	1/2"	6.38 (0.25")	32.00 (1.26")	21.30 (0.84")	15.40 (0.61")	19.00 (0.75")	47.90 (1.89")	X	X	X
FWES ** X8 8 30 HP	1/2" ^{S2}	1/2"	9.65 (0.38")	37.00 (1.45")	21.30 (0.83")	15.80 (0.62")	19.00 (0.75")	53.30 (2.09")	X	X	X
FWES ** X8 12 30 HP	1/2" ^{S2}	3/4"	9.55 (0.38")	36.60 (1.44")	26.70 (1.05")	20.50 (0.81")	19.00 (0.75")	53.00 (2.09")	X	X	X
FWES ** X12 8 30 HP	3/4" ^{S2}	1/2"	15.40 (0.61")	43.20 (1.70")	21.30 (0.84")	15.40 (0.61")	19.00 (0.75")	61.90 (2.44")	X	X	X
FWES ** X12 12 30 HP	3/4" ^{S2}	3/4"	16.00 (0.63")	43.00 (1.69")	26.70 (1.05")	20.90 (0.82")	19.00 (0.75")	63.90 (2.51")	X	X	X
FWES ** X12 16 30 HP	3/4" ^{S2}	1"	15.90 (0.63")	42.80 (1.69")	33.40 (1.31")	26.30 (1.04")	19.00 (0.75")	63.90 (2.52")	X	X	X
FWES ** X16 12 30 HP	1" ^{S2}	3/4"	19.00 (0.75")	50.80 (2.00")	26.70 (1.05")	20.50 (0.81")	19.00 (0.75")	80.00 (3.15")	X	-	-
FWES ** X16 16 30 HP	1" ^{S2}	1"	22.10 (0.87")	43.00 (1.69")	33.40 (1.31")	26.60 (1.04")	19.00 (0.75")	76.90 (3.02")	X	X	X

** = Union nut material code
¹ ID = Inside diameter, ² S = SpaceSaver

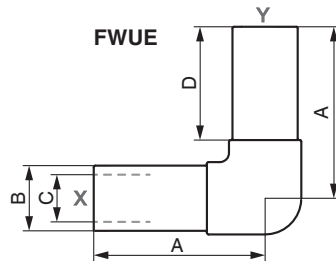
Dimensions mm (inch)



Union elbow with butt weld spigot, PFA

Order no.	Pipe size	Smallest ID ¹	A	B	C	D
FWHE 4 4 30 HP	1/4"	9.00 (0.35")	24.00 (0.94")	13.70 (0.54")	9.00 (0.35")	14.00 (0.55")
FWHE 8 8 30 HP	1/2"	15.40 (0.60")	51.00 (2.00")	21.30 (0.84")	15.80 (0.62")	38.00 (1.50")
FWHE 12 12 30 HP	3/4"	20.60 (0.81")	51.00 (2.00")	26.70 (1.05")	20.90 (0.82")	38.00 (1.50")
FWHE 16 16 30 HP	1"	26.30 (1.04")	51.00 (2.00")	33.40 (1.31")	26.60 (1.04")	38.00 (1.50")
FWHE 32 32 30 HP	2"	52.10 (2.05")	64.00 (2.51")	60.30 (2.37")	52.10 (2.05")	38.00 (1.50")

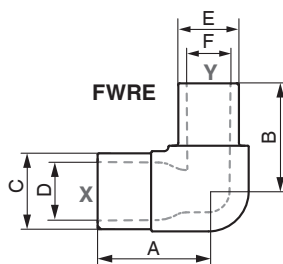
¹ ID = Inside diameter



Union elbow with butt weld spigot, PFA

Order no.	Pipe size	Smallest ID ¹	A	B	C	D
FWUE 4 4 30 HP	1/4"	9.00 (0.35")	27.40 (1.08")	13.70 (0.54")	9.00 (0.35")	14.00 (0.55")
FWUE 8 8 30 HP	1/2"	15.40 (0.60")	56.00 (2.20")	21.30 (0.84")	15.80 (0.62")	37.00 (1.45")
FWUE 12 12 30 HP	3/4"	20.60 (0.81")	60.00 (2.30")	26.70 (1.05")	20.90 (0.82")	38.00 (1.50")
FWUE 16 16 30 HP	1"	26.30 (1.04")	62.00 (2.44")	33.40 (1.31")	26.60 (1.04")	38.00 (1.50")
FWUE 32 32 30 HP	2"	52.10 (2.05")	83.80 (3.30")	60.30 (2.37")	52.10 (2.05")	38.10 (1.50")

¹ ID = Inside diameter

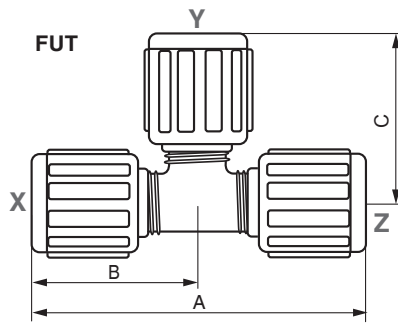


Reducer elbow with butt weld spigot, PFA

Order no.	Pipe size		Smallest ID ¹	A	B	C	D	E	F
	X	Y							
FWRE 8 4 30 HP	1/2"	1/4"	9.0 (0.35")	38.0 (1.49")	38.0 (1.49")	21.3 (0.84")	15.8 (0.62")	13.7 (0.54")	9.2 (0.36")
FWRE 12 8 30 HP	3/4"	1/2"	15.4 (0.60")	39.0 (1.53")	38.0 (1.49")	26.7 (1.05")	20.9 (0.82")	21.3 (0.84")	15.8 (0.62")
FWRE 16 8 30 HP	1"	1/2"	15.4 (0.60")	43.0 (1.69")	43.0 (1.69")	33.4 (1.31")	26.6 (1.04")	21.3 (0.84")	15.8 (0.62")
FWRE 16 12 30 HP	1"	3/4"	20.6 (0.81")	43.0 (1.69")	43.0 (1.69")	33.4 (1.31")	26.6 (1.04")	26.7 (1.05")	20.9 (0.82")

¹ ID = Inside diameter

Dimensions mm (inch)



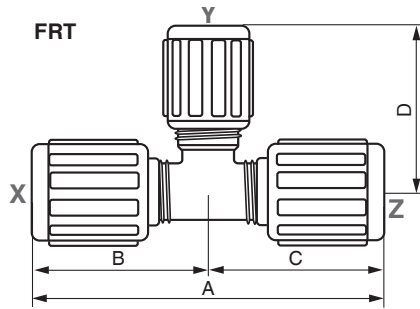
Union tee with flare connection, PFA

Order no.	Tube size	Smallest ID ¹	A	B	C	Union nut material selection		
						PFA Code 77	PVDF Code 75	CPFA Code 73
FUT ** 4 4 4 30 HP	1/4"	3.30 (0.13")	79.80 (3.14")	39.90 (1.57")	40.30 (1.59")	X	X	X
FUT ** 6 6 6 30 HP	3/8"	6.35 (0.25")	89.00 (3.50")	44.50 (1.75")	44.50 (1.75")	X	X	X
FUT ** 8 8 8 30 HP	1/2"	9.65 (0.38")	92.80 (3.65")	46.40 (1.83")	46.40 (1.83")	X	X	X
FUT ** 12 12 12 30 HP	3/4"	16.00 (0.63")	106.40 (4.18")	53.20 (2.09")	53.20 (2.09")	X	X	X
FUT ** 16 16 16 30 HP	1"	22.10 (0.87")	139.00 (5.47")	69.50 (2.74")	69.50 (2.74")	X	X	X
FUT ** 20 20 20 30 HP	1 1/4"	27.90 (1.10")	171.40 (6.75")	85.70 (3.37")	87.20 (3.43")	X	X	X

** = Union nut material code

¹ ID = Inside diameter

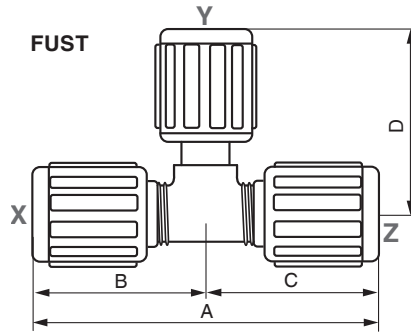
Dimensions mm (inch)



Union reducer tee with flare connection, PFA									Union nut material selection		
Order no.	Tube size			Smallest ID ¹	A	B	C	D	PFA	PVDF	CPFA
	X	Y	Z						Code 77	Code 75	Code 73
FRT ** 6 4 4 30 HP	3/8"	1/4"	1/4"	3.81 (0.15")	86.87 (3.42")	44.70 (1.76")	42.16 (1.66")	42.16 (1.66")	X	-	-
FRT ** 6 4 6 30 HP	3/8"	1/4"	3/8"	3.30 (0.13")	87.00 (3.43")	43.50 (1.71")	43.50 (1.71")	40.40 (1.59")	X	X	X
FRT ** 6 6 4 30 HP	3/8"	3/8"	1/4"	3.30 (0.13")	84.70 (3.33")	44.40 (1.74")	40.30 (1.58")	44.40 (1.75")	X	X	X
FRT ** 6 8 6 30 HP	3/8"	1/2"	3/8"	6.35 (0.25")	89.41 (3.52")	44.70 (1.76")	44.70 (1.76")	47.50 (1.87")	X	-	-
FRT ** 6 12 6 30 HP	3/8"	3/4"	3/8"	6.35 (0.25")	93.00 (3.66")	46.50 (1.83")	46.50 (1.83")	49.90 (1.96")	X	X	X
FRT ** 8 4 4 30 HP	1/2"	1/4"	1/4"	3.81 (0.15")	89.66 (3.53")	47.50 (1.87")	42.16 (1.66")	42.16 (1.66")	X	-	-
FRT ** 8 4 8 30 HP	1/2"	1/4"	1/2"	3.30 (0.13")	93.80 (3.69")	46.90 (1.84")	46.90 (1.84")	40.30 (1.59")	X	X	X
FRT ** 8 6 6 30 HP	1/2"	3/8"	3/8"	6.35 (0.25")	90.40 (3.56")	46.40 (1.82")	44.00 (1.73")	44.50 (1.75")	X	X	X
FRT ** 8 8 8 30 HP	1/2"	3/8"	1/2"	6.35 (0.25")	93.80 (3.69")	46.90 (1.84")	46.90 (1.84")	44.50 (1.75")	X	X	X
FRT ** 8 8 4 30 HP	1/2"	1/2"	1/4"	3.81 (0.15")	89.66 (3.53")	47.50 (1.87")	42.16 (1.66")	47.50 (1.87")	X	-	-
FRT ** 8 8 6 30 HP	1/2"	1/2"	3/8"	9.65 (0.38")	92.20 (3.63")	47.50 (1.87")	44.70 (1.76")	47.50 (1.87")	X	-	-
FRT ** 8 12 8 30 HP	1/2"	3/4"	1/2"	9.65 (0.38")	94.49 (3.72")	47.24 (1.86")	47.24 (1.86")	56.39 (2.22")	X	-	-
FRT ** 12 4 12 30 HP	3/4"	1/4"	3/4"	3.30 (0.13")	111.80 (4.40")	55.90 (2.20")	55.90 (2.20")	43.90 (1.73")	X	X	X
FRT ** 12 6 12 30 HP	3/4"	3/8"	3/4"	6.35 (0.25")	112.78 (4.44")	56.39 (2.22")	56.39 (2.22")	44.70 (1.76")	X	-	-
FRT ** 12 8 4 30 HP	3/4"	1/2"	1/4"	3.30 (0.13")	99.80 (3.93")	54.90 (2.16")	44.90 (1.76")	50.90 (2.00")	X	X	X
FRT ** 12 8 8 30 HP	3/4"	1/2"	1/2"	9.65 (0.38")	105.80 (4.17")	54.90 (2.16")	50.00 (1.97")	50.90 (2.00")	X	X	X
FRT ** 12 12 6 30 HP	3/4"	3/4"	3/8"	6.35 (0.25")	101.09 (3.98")	56.39 (2.22")	44.70 (1.76")	56.39 (2.22")	X	-	-
FRT ** 12 12 8 30 HP	3/4"	3/4"	1/2"	9.65 (0.38")	106.80 (4.20")	55.90 (2.20")	50.90 (2.00")	56.10 (2.20")	X	X	X
FRT ** 12 8 12 30 HP	3/4"	1/2"	3/4"	9.65 (0.38")	106.40 (4.18")	53.20 (2.09")	53.20 (2.09")	50.90 (2.00")	X	X	X
FRT ** 12 16 12 30 HP	3/4"	1"	3/4"	16.00 (0.63")	112.78 (4.44")	56.39 (2.22")	56.39 (2.22")	68.58 (2.70")	X	-	-
FRT ** 16 8 16 30 HP	1"	1/2"	1"	9.65 (0.38")	135.00 (5.31")	67.50 (2.65")	67.50 (2.65")	61.40 (2.42")	X	X	X
FRT ** 16 12 16 30 HP	1"	3/4"	1"	16.00 (0.63")	137.80 (5.42")	68.90 (2.71")	68.90 (2.71")	62.40 (2.46")	X	X	X
FRT ** 16 4 16 30 HP	1"	1/4"	1"	3.81 (0.15")	137.16 (5.40")	68.58 (2.70")	68.58 (2.70")	51.31 (2.02")	X	-	-
FRT ** 16 6 16 30 HP	1"	3/8"	1"	6.35 (0.25")	137.16 (5.40")	68.58 (2.70")	68.58 (2.70")	54.10 (2.13")	X	-	-
FRT ** 16 12 12 30 HP	1"	3/4"	3/4"	16.00 (0.63")	124.97 (4.92")	68.58 (2.70")	56.39 (2.22")	56.39 (2.22")	X	-	-
FRT ** 16 16 8 30 HP	1"	1"	1/2"	9.65 (0.38")	124.97 (4.92")	68.58 (2.70")	56.39 (2.22")	68.58 (2.70")	X	-	-
FRT ** 16 16 12 30 HP	1"	1"	3/4"	16.00 (0.63")	124.97 (4.92")	68.58 (2.70")	56.39 (2.22")	68.58 (2.70")	X	-	-
FRT ** 20 16 20 30 HP	1 1/4"	1"	1 1/4"	22.10 (0.87")	171.40 (6.75")	85.70 (3.37")	85.7 (3.37")	70.00 (2.76")	X	X	X
FRT ** 16 16 6 30 HP	1"	1"	3/8"	6.35 (0.25")	121.45 (4.78")	68.58 (2.70")	52.58 (2.07")	68.58 (2.70")	X	-	-

** = Union nut material code
¹ ID = Inside diameter

Dimensions mm (inch)

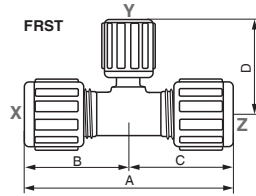


Union tee with flare connection and SpaceSaver, PFA									Union nut material selection		
Order no.	Tube size			Smallest ID ¹	A	B	C	D	PFA	PVDF	CPFA
	X	Y	Z						Code 77	Code 75	Code 73
FUST ** 4 4 Z4 30 HP	1/4"	1/4"	1/4" ^{S2}	3.80 (0.15")	83.57 (3.29")	41.91 (1.65")	41.66 (1.64")	41.91 (1.65")	X	-	-
FUST ** 4 Y4 4 30 HP	1/4"	1/4" ^{S2}	1/4"	3.80 (0.15")	83.82 (3.30")	41.91 (1.65")	41.91 (1.65")	41.66 (1.64")	X	-	-
FUST ** 4 Y4 Z4 30 HP	1/4"	1/4" ^{S2}	1/4" ^{S2}	3.30 (0.13")	84.10 (3.31")	40.90 (1.61")	43.20 (1.70")	43.20 (1.70")	X	X	X
FUST ** X4 4 Z4 30 HP	1/4" ^{S2}	1/4"	1/4" ^{S2}	3.80 (0.15")	83.31 (3.28")	41.66 (1.64")	41.66 (1.64")	41.91 (1.65")	X	-	-
FUST ** X4 Y4 Z4 30 HP	1/4" ^{S2}	1/4" ^{S2}	1/4" ^{S2}	3.30 (0.13")	86.40 (3.40")	43.20 (1.70")	43.20 (1.70")	43.20 (1.70")	X	X	X
FUST ** 6 6 Z6 30 HP	3/8"	3/8"	3/8" ^{S2}	6.35 (0.25")	93.40 (3.68")	44.50 (1.75")	48.90 (1.92")	44.50 (1.75")	X	X	X
FUST ** 6 Y6 6 30 HP	3/8"	3/8" ^{S2}	3/8"	6.35 (0.25")	89.00 (3.50")	44.50 (1.75")	44.50 (1.75")	43.90 (1.73")	X	X	X
FUST ** 6 Y6 Z6 30 HP	3/8"	3/8" ^{S2}	3/8" ^{S2}	6.35 (0.25")	88.40 (3.48")	44.45 (1.75")	43.90 (1.72")	43.90 (1.72")	X	X	X
FUST ** X6 6 Z6 30 HP	3/8" ^{S2}	3/8"	3/8" ^{S2}	6.35 (0.25")	87.88 (3.46")	43.94 (1.73")	43.94 (1.73")	44.70 (1.76")	X	-	-
FUST ** X6 Y6 Z6 30 HP	3/8" ^{S2}	3/8" ^{S2}	3/8" ^{S2}	6.35 (0.25")	87.80 (3.46")	43.90 (1.72")	43.90 (1.72")	43.90 (1.72")	X	X	X
FUST ** 8 8 Z8 30 HP	1/2"	1/2"	1/2" ^{S2}	9.65 (0.38")	95.90 (3.78")	45.90 (1.80")	50.00 (1.96")	46.40 (1.83")	X	X	X
FUST ** 8 Y8 8 30 HP	1/2"	1/2" ^{S2}	1/2"	9.65 (0.38")	93.80 (3.69")	46.90 (1.84")	46.90 (1.84")	48.80 (1.92")	X	X	X
FUST ** 8 Y8 Z8 30 HP	1/2"	1/2" ^{S2}	1/2" ^{S2}	9.65 (0.38")	94.90 (3.73")	45.50 (1.78")	49.00 (1.92")	49.00 (1.92")	X	X	X
FUST ** X8 8 Z8 30 HP	1/2" ^{S2}	1/2"	1/2" ^{S2}	9.65 (0.38")	94.00 (3.70")	47.00 (1.85")	47.00 (1.85")	46.40 (1.83")	X	X	X
FUST ** X8 Y8 Z8 30 HP	1/2" ^{S2}	1/2" ^{S2}	1/2" ^{S2}	9.65 (0.38")	98.00 (3.85")	49.00 (1.92")	49.00 (1.92")	49.00 (1.92")	X	X	X
FUST ** 12 12 Z12 30 HP	3/4"	3/4"	3/4" ^{S2}	16.00 (0.63")	115.30 (4.54")	56.00 (2.20")	59.30 (2.33")	55.90 (2.20")	X	X	X
FUST ** 12 Y12 12 30 HP	3/4"	3/4" ^{S2}	3/4"	16.00 (0.63")	111.80 (4.40")	55.90 (2.20")	55.90 (2.20")	59.40 (2.33")	X	X	X
FUST ** 12 Y12 Z12 30 HP	3/4"	3/4" ^{S2}	3/4" ^{S2}	16.00 (0.63")	110.80 (4.36")	52.90 (2.08")	57.90 (2.27")	57.90 (2.27")	X	X	X
FUST ** X12 12 Z12 30 HP	3/4" ^{S2}	3/4"	3/4" ^{S2}	16.00 (0.63")	117.80 (4.64")	58.90 (2.31")	58.90 (2.31")	55.90 (2.20")	X	X	X
FUST ** X12 Y12 Z12 30 HP	3/4" ^{S2}	3/4" ^{S2}	3/4" ^{S2}	16.00 (0.63")	115.80 (4.55")	57.90 (2.27")	58.90 (2.31")	57.90 (2.27")	X	X	X
FUST ** 16 16 Z16 30 HP	1"	1"	1" ^{S2}	22.10 (0.87")	143.40 (5.65")	69.50 (2.74")	73.90 (2.90")	69.50 (2.74")	X	X	X
FUST ** 16 Y16 16 30 HP	1"	1" ^{S2}	1"	22.10 (0.87")	138.00 (5.43")	69.00 (2.71")	69.00 (2.71")	69.90 (2.75")	X	X	X
FUST ** 16 Y16 Z16 30 HP	1"	1" ^{S2}	1" ^{S2}	22.10 (0.87")	138.90 (5.47")	69.00 (2.71")	69.90 (2.75")	69.90 (2.75")	X	X	X
FUST ** X16 16 Z16 30 HP	1" ^{S2}	1"	1" ^{S2}	22.10 (0.87")	148.80 (5.86")	74.40 (2.92")	74.80 (2.92")	69.50 (2.74")	X	X	X
FUST ** X16 Y16 Z16 30 HP	1" ^{S2}	1" ^{S2}	1" ^{S2}	22.10 (0.87")	139.80 (5.50")	69.90 (2.75")	69.90 (2.75")	69.90 (2.75")	X	X	X
FUST ** X20 20 Z20 30 HP	1 1/4" ^{S2}	1 1/4"	1 1/4" ^{S2}	27.90 (1.10")	157.48 (6.20")	78.74 (3.10")	78.74 (3.10")	75.18 (2.96")	X	-	-

** = Union nut material code

¹ ID = Inside diameter, ² S = SpaceSaver

Dimensions mm (inch)

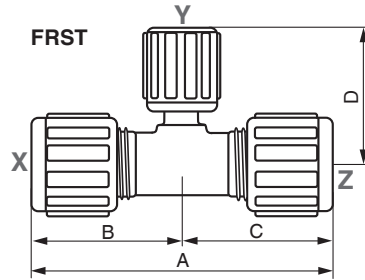


Union reducer tee with flare connection and SpaceSaver, PFA									Union nut material selection		
Order no.	Tube size			Smallest ID ¹	A	B	C	D	PFA	PVDF	CPFA
	X	Y	Z						Code 77	Code 75	Code 73
FRST ** 4 Y6 4 30 HP	1/4"	3/8"S ²	1/4"	3.80 (0.15")	83.82 (3.30")	41.91 (1.65")	41.91 (1.65")	43.94 (1.73")	X	-	-
FRST ** X4 6 Z4 30 HP	1/4"S ²	3/8"	1/4"S ²	3.80 (0.15")	83.31 (3.28")	41.66 (1.64")	41.66 (1.64")	44.70 (1.76")	X	X	X
FRST ** X4 Y6 Z4 30 HP	1/4"S ²	3/8"S ²	1/4"S ²	3.80 (0.15")	83.31 (3.28")	41.66 (1.64")	41.66 (1.64")	43.94 (1.73")	X	X	X
FRST ** 4 8 Z8 30 HP	1/4"	1/2"	1/2"S ²	3.80 (0.15")	88.90 (3.50")	41.91 (1.65")	46.99 (1.85")	47.24 (1.86")	X	-	-
FRST ** 6 4 Z6 30 HP	3/8"	1/4"	3/8"S ²	3.80 (0.15")	88.65 (3.49")	44.70 (1.76")	43.94 (1.73")	41.91 (1.65")	X	-	-
FRST ** 6 Y4 6 30 HP	3/8"	1/4"S ²	3/8"	3.30 (0.13")	89.00 (3.50")	44.50 (1.75")	44.50 (1.75")	43.20 (1.70")	X	X	X
FRST ** 6 Y4 Z6 30 HP	3/8"	1/4"S ²	3/8"S ²	3.80 (0.15")	88.39 (3.48")	44.45 (1.75")	43.94 (1.73")	41.66 (1.64")	X	-	-
FRST ** X6 Y8 Z4 30 HP	3/8"S ²	1/2"S ²	1/4"S ²	3.80 (0.15")	85.60 (3.37")	43.94 (1.73")	41.66 (1.64")	46.74 (1.84")	X	X	X
FRST ** 6 Y8 6 30 HP	3/8"	1/2"S ²	3/8"	3.80 (0.15")	88.90 (3.50")	44.45 (1.75")	44.45 (1.75")	41.66 (1.64")	X	X	X
FRST ** X6 8 Z6 30 HP	3/8"S ²	1/2"	3/8"S ²	6.40 (0.25")	87.88 (3.46")	43.94 (1.73")	43.94 (1.73")	47.24 (1.86")	X	X	X
FRST ** 8 12 Z12 30 HP	3/8"	3/4"	3/4"S ²	6.40 (0.25")	98.81 (3.89")	44.70 (1.76")	54.10 (2.13")	55.37 (2.18")	X	X	X
FRST ** 8 4 Z8 30 HP	1/2"	1/4"	1/2"S ²	3.80 (0.15")	94.23 (3.71")	47.24 (1.86")	46.99 (1.85")	41.91 (1.65")	X	-	-
FRST ** 8 Y4 8 30 HP	1/2"	1/4"S ²	1/2"	3.80 (0.15")	94.49 (3.72")	47.24 (1.86")	47.24 (1.86")	41.66 (1.64")	X	-	-
FRST ** X8 6 Z6 30 HP	1/2"S ²	3/8"	3/8"S ²	6.40 (0.25")	90.93 (3.58")	46.99 (1.85")	43.94 (1.73")	44.70 (1.76")	X	-	-
FRST ** 8 6 Z8 30 HP	1/2"	3/8"	1/2"S ²	6.40 (0.25")	94.23 (3.71")	47.24 (1.86")	46.99 (1.85")	44.70 (1.76")	X	-	-
FRST ** 8 Y6 8 30 HP	1/2"	3/8"S ²	1/2"	6.35 (0.25")	91.80 (3.61")	45.90 (1.80")	45.90 (1.80")	43.90 (1.73")	X	X	X
FRST ** 8 Y6 Z8 30 HP	1/2"	3/8"S ²	1/2"S ²	6.40 (0.25")	94.23 (3.71")	47.24 (1.86")	46.99 (1.85")	43.90 (1.73")	X	X	X
FRST ** X8 8 Z4 30 HP	1/2"S ²	1/2"	1/4"S ²	3.80 (0.15")	88.65 (3.49")	46.99 (1.85")	41.66 (1.64")	47.24 (1.86")	X	-	-
FRST ** X8 Y8 Z4 30 HP	1/2"S ²	1/2"S ²	1/4"S ²	3.80 (0.15")	88.39 (3.48")	46.74 (1.84")	41.66 (1.64")	46.74 (1.84")	X	-	-
FRST ** 8 8 Z6 30 HP	1/2"	1/2"	3/8"S ²	6.40 (0.25")	91.19 (3.59")	47.24 (1.86")	43.94 (1.73")	47.24 (1.86")	X	-	-
FRST ** 8 Y12 8 30 HP	1/2"	3/4"S ²	1/2"	9.70 (0.38")	94.49 (3.72")	47.24 (1.86")	47.24 (1.86")	54.10 (2.13")	X	-	-
FRST ** 8 Y12 Z12 30 HP	1/2"	3/4"S ²	3/4"S ²	9.70 (0.38")	101.35 (3.99")	47.24 (1.86")	54.10 (2.13")	54.10 (2.13")	X	-	-
FRST ** X8 12 Z8 30 HP	1/2"S ²	3/4"	1/2"S ²	9.70 (0.38")	93.98 (3.70")	46.99 (1.85")	46.99 (1.85")	55.37 (2.18")	X	-	-
FRST ** X8 Y12 Z8 30 HP	1/2"S ²	3/4"S ²	1/2"S ²	9.70 (0.38")	93.47 (3.68")	46.74 (1.84")	46.74 (1.84")	54.10 (2.13")	X	-	-
FRST ** 12 Y4 12 30 HP	3/4"	1/4"S ²	3/4"	3.80 (0.15")	110.74 (4.36")	55.37 (2.18")	55.45 (2.18")	41.66 (1.64")	X	-	-
FRST ** X12 4 Z12 30 HP	3/4"S ²	1/4"	3/4"S ²	3.80 (0.15")	108.20 (4.26")	54.10 (2.13")	54.10 (2.13")	41.91 (1.65")	X	-	-
FRST ** 12 6 Z12 30 HP	3/4"	3/8"	3/4"S ²	6.40 (0.25")	109.47 (4.31")	55.37 (2.18")	54.10 (2.13")	44.70 (1.76")	X	X	X
FRST ** 12 Y6 12 30 HP	3/4"	3/8"S ²	3/4"	6.40 (0.25")	110.74 (4.36")	55.37 (2.18")	55.37 (2.18")	43.94 (1.73")	X	-	-
FRST ** X12 6 Z12 30 HP	3/4"S ²	3/8"	3/4"S ²	6.35 (0.38")	115.80 (4.55")	57.90 (2.27")	57.90 (2.27")	48.50 (1.90")	X	X	X
FRST ** X12 Y6 Z12 30 HP	3/4"S ²	3/8"S ²	3/4"S ²	6.40 (0.25")	108.20 (4.26")	54.10 (2.13")	54.10 (2.13")	43.94 (1.73")	X	-	-
FRST ** 12 Y8 8 30 HP	3/4"	1/2"S ²	1/2"	9.70 (0.38")	102.62 (4.04")	55.37 (2.18")	47.24 (1.86")	46.99 (1.85")	X	-	-
FRST ** 12 8 Z12 30 HP	3/4"	1/2"	3/4"S ²	9.70 (0.38")	109.47 (4.31")	55.37 (2.18")	54.10 (2.13")	47.24 (1.86")	X	-	-
FRST ** 12 Y8 12 30 HP	3/4"	1/2"S ²	3/4"	6.35 (0.25")	111.80 (4.40")	55.90 (2.20")	55.90 (2.20")	49.40 (1.94")	X	X	X
FRST ** 12 Y8 Z12 30 HP	3/4"	1/2"S ²	3/4"S ²	9.70 (0.38")	109.47 (4.31")	55.37 (2.18")	54.10 (2.13")	46.74 (1.84")	X	-	-
FRST ** X12 8 Z12 30 HP	3/4"S ²	1/2"	3/4"S ²	9.70 (0.38")	108.20 (4.26")	54.10 (2.13")	54.10 (2.13")	47.24 (1.86")	X	-	-
FRST ** X12 Y8 Z12 30 HP	3/4"S ²	1/2"S ²	3/4"S ²	9.70 (0.38")	107.44 (4.23")	54.10 (2.13")	54.10 (2.13")	46.74 (1.84")	X	-	-
FRST ** 12 12 Z8 30 HP	3/4"	3/4"	1/2"S ²	9.70 (0.38")	103.12 (4.06")	56.39 (2.22")	46.74 (1.84")	56.39 (2.22")	X	-	-
FRST ** 12 Y12 8 30 HP	3/4"	3/4"S ²	1/2"	9.70 (0.38")	102.62 (4.04")	55.37 (2.18")	47.24 (1.86")	54.10 (2.13")	X	-	-
FRST ** 12 Y12 Z8 30 HP	3/4"	3/4"S ²	1/2"S ²	9.70 (0.38")	102.11 (4.02")	55.37 (2.18")	46.74 (1.84")	54.10 (2.13")	X	-	-
FRST ** X12 Y12 Z8 30 HP	3/4"S ²	3/4"S ²	1/2"S ²	9.70 (0.38")	100.84 (3.97")	54.10 (2.13")	46.74 (1.84")	54.10 (2.13")	X	-	-
FRST ** 12 Y16 12 30 HP	3/4"	1"S ²	3/4"	16.00 (0.63")	110.74 (4.36")	55.37 (2.18")	55.37 (2.18")	70.36 (2.77")	X	-	-
FRST ** 16 Y8 16 30 HP	1"	1/2"S ²	1"	9.65 (0.38")	138.00 (5.43")	69.00 (2.71")	69.00 (2.71")	53.00 (2.09")	X	X	X
FRST ** X16 8 Z16 30 HP	1"S ²	1/2"	1"S ²	9.70 (0.38")	140.72 (5.54")	70.36 (2.77")	70.36 (2.77")	56.39 (2.22")	X	-	-
FRST ** X16 12 Z16 30 HP	1"S ²	3/4"	1"S ²	15.90 (0.63")	140.72 (5.54")	70.36 (2.77")	70.36 (2.77")	55.37 (2.18")	X	-	-
FRST ** 16 12 Z16 30 HP	1"	3/4"	1"S ²	16.00 (0.63")	138.94 (5.47")	68.58 (2.70")	70.36 (2.77")	55.37 (2.18")	X	-	-
FRST ** 16 Y12 16 30 HP	1"	3/4"S ²	1"	16.00 (0.63")	138.00 (5.43")	69.00 (2.71")	69.00 (2.71")	60.90 (2.40")	X	X	X
FRST ** 16 Y12 Z16 30 HP	1"	3/4"S ²	1"S ²	15.90 (0.63")	138.50 (5.45")	68.60 (2.70")	69.90 (2.75")	60.90 (2.40")	X	X	X
FRST ** 16 Y16 Z12 30 HP	1"	1"S ²	3/4"S ²	16.00 (0.63")	122.68 (4.83")	68.58 (2.70")	54.10 (2.13")	70.36 (2.77")	X	-	-
FRST ** 20 Y16 Z20 30 HP	1 1/4"	1"S ²	1 1/4"S ²	22.10 (0.87")	174.20 (6.85")	85.70 (3.37")	88.50 (3.48")	76.90 (3.02")	X	X	X

** = Union nut material code

¹ ID = Inside diameter, ² S = SpaceSaver

Dimensions mm (inch)

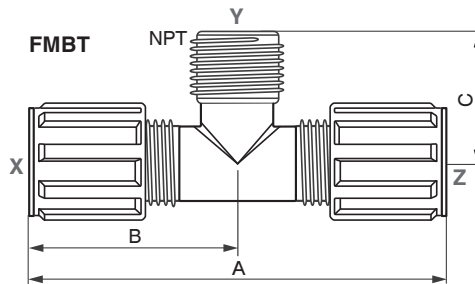


Union reducer tee with flare connection and SpaceSaver, PFA

Order no.	Tube size			Smallest ID ¹	A	B	C	D
	X	Y	Z					
FRST ** 16 Y8 16 30 HP	1"	1/2" ^S	1"	9.65 (0.38")	138.00 (5.43")	69.00 (2.71")	69.00 (2.71")	53.00 (2.09")
FRST ** X16 8 Z16 30 HP	1" ^S	1/2"	1" ^S	9.70 (0.38")	140.72 (5.54")	70.36 (2.77")	70.36 (2.77")	56.39 (2.22")
FRST ** X16 12 Z16 30 HP	1" ^S	3/4"	1" ^S	15.90 (0.63")	140.72 (5.54")	70.36 (2.77")	70.36 (2.77")	55.37 (2.18")
FRST ** 16 12 Z16 30 HP	1"	3/4"	1" ^S	16.00 (0.63")	138.94 (5.47")	68.58 (2.70")	70.36 (2.77")	55.37 (2.18")
FRST ** 16 Y12 16 30 HP	1"	3/4" ^S	1"	16.00 (0.63")	138.00 (5.43")	69.00 (2.71")	69.00 (2.71")	60.90 (2.40")
FRST ** 16 Y12 Z16 30 HP	1"	3/4" ^S	1" ^S	15.90 (0.63")	138.50 (5.45")	68.60 (2.70")	69.90 (2.75")	60.90 (2.40")
FRST ** 16 Y16 Z12 30 HP	1"	1" ^S	3/4" ^S	16.00 (0.63")	122.68 (4.83")	68.58 (2.70")	54.10 (2.13")	70.36 (2.77")
FRST ** 20 Y16 Z20 30 HP	1 1/4"	1" ^S	1 1/4" ^S	22.10 (0.87")	174.20 (6.85")	85.70 (3.37")	88.50 (3.48")	76.90 (3.02")

** = Union nut material code

¹ ID = Inside diameter, ² S = SpaceSaver



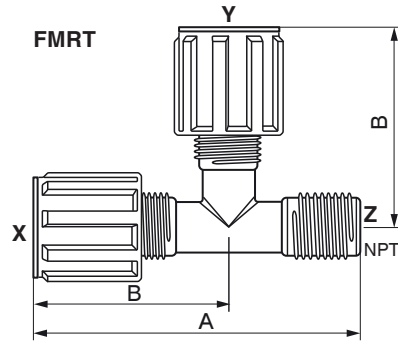
Union reducer tee with flare connection and NPT male thread on Y, PFA

Order no.	Tube size X	NPT thread Y	Tube size Z	Smallest ID ¹	A	B	C	Union nut material selection		
								PFA	PVDF	CPFA
								Code 77	Code 75	Code 73
FMBT ** 4 2 4 30 HP	1/4"	1/8"	1/4"	3.80 (0.15")	84.33 (3.32")	42.16 (1.66")	27.18 (1.07")	X	-	-
FMBT ** 4 4 4 30 HP	1/4"	1/4"	1/4"	3.80 (0.15")	83.82 (3.30")	41.91 (1.65")	27.18 (1.07")	X	-	-
FMBT ** 4 8 4 30 HP	1/4"	1/2"	1/4"	3.80 (0.15")	83.82 (3.30")	41.91 (1.65")	29.97 (1.18")	X	-	-
FMBT ** 6 4 4 30 HP	3/8"	1/4"	1/4"	3.80 (0.15")	86.36 (3.40")	44.45 (1.75")	27.18 (1.07")	X	-	-
FMBT ** 6 4 6 30 HP	3/8"	1/4"	3/8"	6.40 (0.25")	88.90 (3.50")	44.45 (1.75")	27.18 (1.07")	X	-	-
FMBT ** 6 6 4 30 HP	3/8"	3/8"	1/4"	3.80 (0.15")	86.36 (3.40")	44.45 (1.75")	27.18 (1.07")	X	-	-
FMBT ** 6 6 6 30 HP	3/8"	3/8"	3/8"	6.40 (0.25")	88.65 (3.49")	44.45 (1.75")	29.97 (1.18")	X	-	-
FMBT ** 6 8 6 30 HP	3/8"	1/2"	3/8"	6.40 (0.25")	88.90 (3.50")	44.45 (1.75")	29.97 (1.18")	X	-	-
FMBT ** 8 4 8 30 HP	1/2"	1/4"	1/2"	6.40 (0.25")	93.47 (3.68")	46.74 (1.84")	27.18 (1.07")	X	-	-
FMBT ** 8 6 6 30 HP	1/2"	3/8"	3/8"	6.40 (0.25")	91.19 (3.59")	46.74 (1.84")	27.18 (1.07")	X	-	-
FMBT ** 8 6 8 30 HP	1/2"	3/8"	1/2"	9.70 (0.38")	93.47 (3.68")	46.74 (1.84")	27.18 (1.07")	X	-	-
FMBT ** 8 8 4 30 HP	1/2"	1/2"	1/4"	3.80 (0.15")	97.28 (3.83")	46.74 (1.84")	27.18 (1.07")	X	-	-
FMBT ** 8 8 6 30 HP	1/2"	1/2"	3/8"	6.40 (0.25")	91.19 (3.59")	46.74 (1.84")	29.97 (1.18")	X	-	-
FMBT ** 8 8 8 30 HP	1/2"	1/2"	1/2"	9.70 (0.38")	93.47 (3.68")	46.74 (1.84")	29.97 (1.18")	X	-	-
FMBT ** 8 12 8 30 HP	1/2"	3/4"	1/2"	9.70 (0.38")	93.47 (3.68")	46.74 (1.84")	34.80 (1.37")	X	-	-
FMBT ** 12 4 12 30 HP	3/4"	1/4"	1/4"	6.40 (0.25")	110.74 (4.36")	55.37 (2.18")	32.26 (1.27")	X	-	-
FMBT ** 12 8 12 30 HP	3/4"	1/2"	3/4"	12.50 (0.49")	110.74 (4.36")	55.37 (2.18")	29.97 (1.18")	X	-	-
FMBT ** 12 12 12 30 HP	3/4"	3/4"	3/4"	16.00 (0.63")	110.74 (4.36")	55.37 (2.18")	34.80 (1.37")	X	-	-
FMBT ** 16 4 16 30 HP	1"	1/4"	1"	6.40 (0.25")	137.16 (5.40")	68.58 (2.70")	39.62 (1.56")	X	-	-
FMBT ** 16 16 16 30 HP	1"	1"	1"	22.40 (0.88")	137.16 (5.40")	68.58 (2.70")	45.72 (1.80")	X	-	-

** = Union nut material code

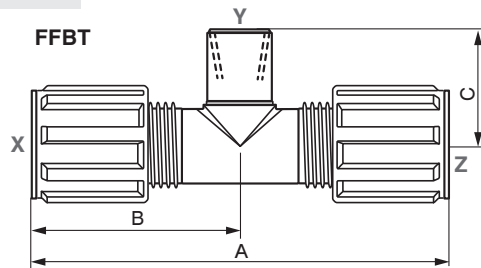
¹ ID = Inside diameter

Dimensions mm (inch)



Union reducer tee with flare connection and NPT male thread on Z, PFA							Union nut material selection		
Order no.	Tube size		NPT thread Z	Smallest ID ¹	A	B	PFA	PVDF	CPFA
	X	Y					Code 77	Code 75	Code 73
FMRT ** 4 4 2 30 HP	1/4"	1/4"	1/8"	3.80 (0.15")	68.83 (2.71")	41.91 (1.65")	X	-	-
FMRT ** 4 4 4 30 HP	1/4"	1/4"	1/4"	3.80 (0.15")	68.83 (2.71")	41.91 (1.65")	X	-	-
FMRT ** 4 4 6 30 HP	1/4"	1/4"	3/8"	3.80 (0.15")	68.83 (2.71")	44.45 (1.75")	X	-	-
FMRT ** 6 6 2 30 HP	3/8"	3/8"	1/8"	4.30 (0.17")	71.88 (2.83")	44.70 (1.76")	X	-	-
FMRT ** 6 6 4 30 HP	3/8"	3/8"	1/4"	6.40 (0.25")	71.88 (2.83")	44.70 (1.76")	X	-	-
FMRT ** 6 6 6 30 HP	3/8"	3/8"	3/8"	6.40 (0.25")	71.12 (2.80")	43.94 (1.73")	X	-	-
FMRT ** 6 6 8 30 HP	3/8"	3/8"	1/2"	6.40 (0.25")	71.88 (2.83")	44.70 (1.76")	X	-	-
FMRT ** 8 8 6 30 HP	1/2"	1/2"	3/8"	9.70 (0.38")	73.91 (2.91")	46.74 (1.84")	X	-	-
FMRT ** 8 8 8 30 HP	1/2"	1/2"	1/2"	9.70 (0.38")	76.71 (3.02")	46.74 (1.84")	X	-	-
FMRT ** 12 12 6 30 HP	3/4"	3/4"	3/8"	9.70 (0.38")	82.55 (3.25")	55.37 (2.18")	X	-	-
FMRT ** 12 12 8 30 HP	3/4"	3/4"	1/2"	12.50 (0.49")	85.34 (3.36")	55.37 (2.18")	X	-	-
FMRT ** 12 12 12 30 HP	3/4"	3/4"	3/4"	16.00 (0.63")	90.17 (3.55")	55.37 (2.18")	X	-	-
FMRT ** 16 16 16 30 HP	1"	1"	1"	22.40 (0.88")	114.30 (4.50")	68.58 (2.70")	X	-	-

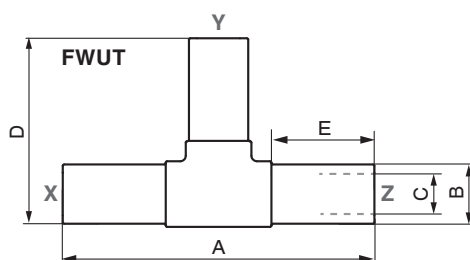
** = Union nut material code
¹ ID = Inside diameter



Union tee with flare connection and NPT female thread on Y, PFA								Union nut material selection		
Order no.	Tube size X	NPT thread Y	Tube size Z	Smallest ID ¹	A	B	C	PFA	PVDF	CPFA
								Code 77	Code 75	Code 73
FFBT ** 16 4 16 30 HP	1"	1/4"	1"	6.40 (0.25")	137.16 (5.40")	68.58 (2.70")	36.32 (1.43")	X	-	-
FFBT ** 16 8 16 30 HP	1"	1/2"	1"	12.50 (0.49")	137.16 (5.40")	68.58 (2.70")	35.05 (1.38")	X	-	-

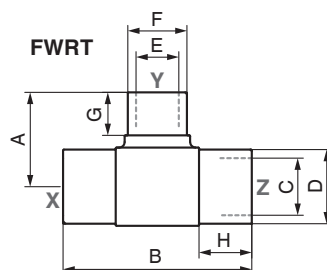
** = Union nut material code
¹ ID = Inside diameter

Dimensions mm (inch)



Union tee with butt weld spigot, PFA

Order no.	Pipe size	Smallest ID ¹	A	B	C	D	E
FWUT 4 4 4 30 HP	1/4"	9.00 (0.35")	54.90 (2.16")	13.70 (0.54")	9.00 (0.35")	34.25 (1.35")	14.00 (0.55")
FWUT 8 8 8 30 HP	1/2"	15.40 (0.60")	112.00 (4.40")	21.30 (0.84")	15.40 (0.60")	66.65 (2.62")	37.00 (1.45")
FWUT 12 12 12 30 HP	3/4"	20.60 (0.81")	116.00 (4.56")	26.70 (1.05")	20.60 (0.81")	69.35 (2.73")	38.00 (1.49")
FWUT 16 16 16 30 HP	1"	26.30 (1.04")	124.00 (4.88")	33.40 (1.31")	26.30 (1.04")	78.70 (3.10")	38.00 (1.49")
FWUT 32 32 32 30 HP	2"	52.10 (2.05")	167.00 (6.60")	60.30 (2.37")	52.10 (2.05")	113.95 (4.49")	38.10 (1.50")



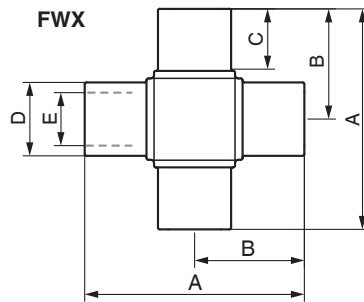
Union reducer tee with butt weld spigot, PFA

Order no.	Pipe size			Smallest ID ¹	A	B	C	D
	X	Y	Z					
FWRT 8 4 8 30 HP	1/2"	1/4"	1/2"	9.00 (0.35")	37.30 (1.47")	74.70 (2.94")	15.40 (0.61")	21.30 (0.84")
FWRT 8 8 4 30 HP	1/2"	1/2"	1/4"	9.00 (0.35")	31.80 (1.25")	61.00 (2.40")	9.00 (0.35")	13.70 (0.54")
FWRT 12 4 12 30 HP	3/4"	1/4"	3/4"	9.00 (0.35")	34.30 (1.35")	68.60 (2.70")	20.50 (0.81")	26.70 (1.05")
FWRT 12 8 12 30 HP	3/4"	1/2"	3/4"	15.40 (0.60")	34.00 (1.33")	69.00 (2.67")	20.90 (0.82")	26.70 (1.05")
FWRT 12 12 4 30 HP	3/4"	3/4"	1/4"	9.00 (0.35")	34.30 (1.35")	68.60 (2.70")	9.00 (0.35")	13.70 (0.54")
FWRT 12 12 8 30 HP	3/4"	3/4"	1/2"	15.40 (0.61")	34.00 (1.36")	69.00 (2.72")	15.40 (0.61")	21.30 (0.84")
FWRT 16 8 16 30 HP	1"	1/2"	1"	15.40 (0.60")	43.00 (1.69")	86.00 (3.38")	26.30 (1.04")	33.40 (1.31")
FWRT 16 16 8 30 HP	1"	1"	1/2"	15.40 (0.60")	38.00 (1.49")	75.00 (2.95")	15.80 (0.62")	21.30 (0.83")
FWRT 16 12 16 30 HP	1"	3/4"	1"	20.60 (0.81")	43.00 (1.69")	86.00 (3.38")	26.30 (1.04")	33.40 (1.31")
FWRT 16 16 4 30 HP	1"	1"	1/4"	8.90 (0.35")	38.00 (1.50")	76.50 (3.01")	8.90 (0.35")	13.70 (0.54")
FWRT 16 16 12 30 HP	1"	1"	3/4"	20.50 (0.81")	38.00 (1.50")	76.50 (3.01")	20.50 (0.81")	26.70 (1.05")

Order no.	Pipe size			Smallest ID ¹	E	F	G	H
	X	Y	Z					
FWRT 8 4 8 30 HP	1/2"	1/4"	1/2"	9.00 (0.35")	9.00 (0.35")	13.70 (0.54")	19.00 (0.75")	19.00 (0.75")
FWRT 8 8 4 30 HP	1/2"	1/2"	1/4"	9.00 (0.35")	15.40 (0.61")	21.30 (0.84")	14.20 (0.56")	14.00 (0.55")
FWRT 12 4 12 30 HP	3/4"	1/4"	3/4"	9.00 (0.35")	9.00 (0.35")	13.70 (0.54")	14.00 (0.55")	19.00 (0.75")
FWRT 12 8 12 30 HP	3/4"	1/2"	3/4"	15.40 (0.60")	15.80 (0.62")	21.30 (0.84")	15.50 (0.61")	19.00 (0.75")
FWRT 12 12 4 30 HP	3/4"	3/4"	1/4"	9.00 (0.35")	20.60 (0.81")	26.70 (1.05")	14.00 (0.55")	14.00 (0.55")
FWRT 12 12 8 30 HP	3/4"	3/4"	1/2"	15.40 (0.61")	20.60 (0.81")	26.70 (1.05")	14.00 (0.55")	14.00 (0.55")
FWRT 16 8 16 30 HP	1"	1/2"	1"	15.40 (0.60")	15.80 (0.62")	21.30 (0.84")	19.00 (0.75")	19.00 (0.75")
FWRT 16 16 8 30 HP	1"	1"	1/2"	15.40 (0.60")	26.30 (1.04")	33.40 (1.31")	14.00 (0.55")	14.00 (0.55")
FWRT 16 12 16 30 HP	1"	3/4"	1"	20.60 (0.81")	20.90 (0.82")	26.70 (1.05")	19.00 (0.75")	19.00 (0.75")
FWRT 16 16 4 30 HP	1"	1"	1/4"	8.90 (0.35")	26.30 (1.04")	33.40 (1.31")	14.00 (0.55")	19.00 (0.75")
FWRT 16 16 12 30 HP	1"	1"	3/4"	20.50 (0.81")	26.30 (1.04")	33.40 (1.31")	14.00 (0.55")	14.00 (0.55")

FlareStar® cross piece

Dimensions mm (inch)

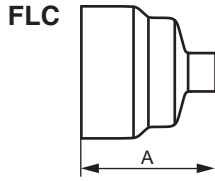


Cross piece with butt weld spigot

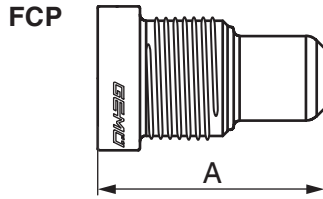
Order no.	Pipe size	Smallest ID ¹	A	B	C	D	E
FWX 8 8 8 30 HP	1/2"	15.4 (0.60")	64.0 (2.51")	32.0 (1.25")	18.0 (0.70")	21.3 (0.84")	15.8 (0.62")
FWX 12 12 12 30 HP	3/4"	20.6 (0.81")	74.0 (2.91")	37.0 (1.45")	19.0 (0.74")	26.7 (1.05")	20.9 (0.82")
FWX 16 16 16 30 HP	1"	26.3 (1.04")	86.0 (3.38")	43.0 (1.69")	19.0 (0.74")	33.4 (1.31")	26.6 (1.04")

¹ ID = Inside diameter

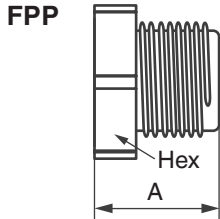
Dimensions mm (inch)



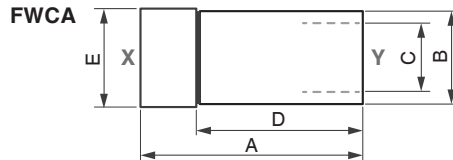
Cap, PFA		
Order no.	Tube size	A
FLC 4 30 HP	1/4"	16.50 (0.65")
FLC 6 30 HP	3/8"	21.50 (0.85")
FLC 8 30 HP	1/2"	22.60 (0.89")
FLC 12 30 HP	3/4"	23.60 (0.93")
FLC 16 30 HP	1"	32.00 (1.26")
FLC 20 30 HP	1 1/4"	35.00 (1.38")



Plug, PFA			
Order no.	Tube size	A	HEX
FCP 4 30 HP	1/4"	32.00 (1.26")	11/16"
FCP 6 30 HP	3/8"	34.50 (1.36")	13/16"
FCP 8 30 HP	1/2"	37.50 (1.48")	15/16"
FCP 12 30 HP	3/4"	38.50 (1.52")	1 3/16"
FCP 16 30 HP	1"	46.00 (1.81")	1 7/16"

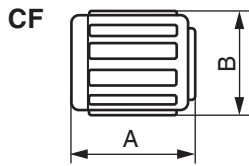


Plugs for pipe with NPT male thread, PFA			
Order no.	Male thread	A	Hex
FPP 2 30 HP	1/8"	20.32 (0.80")	1/2"
FPP 4 30 HP	1/4"	21.59 (0.85")	5/8"
FPP 6 30 HP	3/8"	21.59 (0.85")	11/16"
FPP 8 30 HP	1/2"	24.38 (0.96")	13/16"
FPP 12 30 HP	3/4"	24.38 (0.96")	1 3/16"
FPP 16 30 HP	1"	28.96 (1.14")	1 7/16"



Cap, PFA						
Order no.	Pipe	A	B	C	D	E
FWCA 4 4 30 HP	1/4"	19.05 (0.75")	13.72 (0.54")	8.58 (0.35")	13.97 (0.55")	15.75 (0.62")
FWCA 8 8 30 HP	1/2"	37.85 (1.49")	21.34 (0.84")	14.95 (0.61")	37.85 (1.49")	22.86 (0.90")
FWCA 12 12 30 HP	3/4"	37.85 (1.49")	26.67 (1.05")	19.85 (0.81")	37.85 (1.49")	28.19 (1.11")
FWCA 16 16 30 HP	1"	37.85 (1.49")	33.53 (1.32")	25.24 (1.03")	37.85 (1.49")	36.32 (1.43")

Dimensions mm (inch)



Union nut					Union nut material selection		
Order no.	Tube size	DN	A	B	PFA	PVDF	CPFA
					Code 77	Code 75	Code 73
CF ** 4 HP	1/4"	4	27.00 (1.06")	20.50 (0.80")	X	X	X
CF ** 6 HP	3/8"	6	27.50 (1.08")	23.80 (0.93")	X	X	X
CF ** 8 HP	1/2"	10	31.00 (1.22")	27.00 (1.06")	X	X	X
CF ** 12 HP	3/4"	15	32.50 (1.28")	34.50 (1.35")	X	X	X
CF ** 16 HP	1"	20	41.00 (1.61")	46.00 (1.91")	X	X	X
CF ** 20 HP	1 1/4"	25	47.50 (1.87")	57.50 (2.26")	X	X	X

** = Union nut material code



Service tool for tightening FlareStar union nuts		
Order no.	Tube size	DN
CF STF Z 4 6 HP	1/4"-3/8"	4-6
CF STF Z 8 12 HP	1/2"-3/4"	10-15
CF STF Z 1 6 HP	1"	20
CF STF Z 2 0 HP	1 1/4"	25



Flaring mandrel		
Order no.	Tube size	DN
1098 4Z 01	1/4"	4
1098 6Z 01	3/8"	6
1098 8Z 01	1/2"	10
1098 12Z 01	3/4"	15
1098 16Z 01	1"	20
1098 20Z 01	1 1/4"	25