



## FLARETEK® PFA 90° SWEEP ELBOWS

*Dramatically reduces pressure drop  
and increases flow through your system*

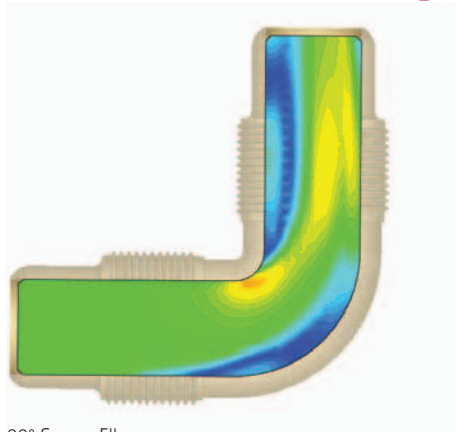


## Improved Flow Capacity

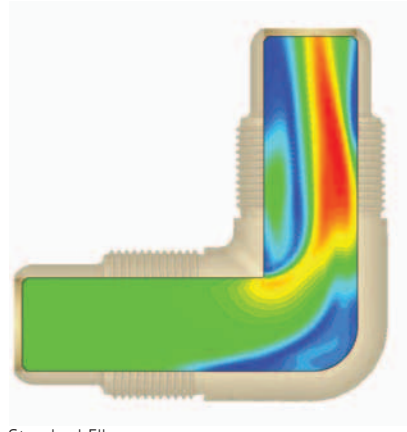
As the leader in materials integrity management for the semiconductor industry and manufacturer of the original PFA Flaretek® flare fitting, Entegris continues to lead the way in flare-style fitting innovation. We have taken our industry leading Flaretek® flare fitting platform and improved the

flow capability by removing the sharp corners in the 90° elbow, creating a distinctive 90° sweep elbow made from high-purity PFA (patented). This highly innovative fitting helps you achieve your goal of increased flow efficiency through your system.

## Reduced Pressure Drop, Increased Flow



90° Sweep Elbow



Standard Elbow

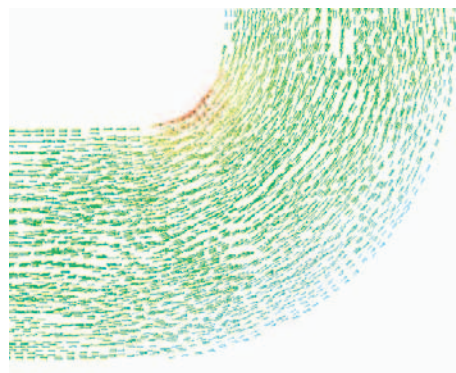


*Computational Fluid Dynamics (CFD) flow pattern comparison at 5 gpm.*

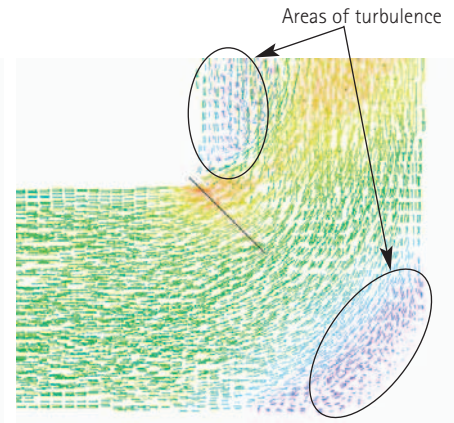
By removing the sharp inside corner and optimizing the outer radius of the new sweep elbow design, we have eliminated dead spots and successfully decreased pressure loss through the fitting as flow changes direction.

The Computational Fluid Dynamics (CFD) software analysis shows a 56% increase in flow and 60% lower pressure drop through the same size fitting at 5 gpm. Eliminating the sharp corner also reduces the shear rate of slurries.

## Significantly Less Turbulence



90° Sweep Elbow



Standard Elbow



*Flow pattern comparison magnified.*

Moving away from the sharp corner of the standard elbow design, Entegris was able to significantly reduce turbulence as the fluid rounds the corner in the sweep elbow, improving flow dynamics. As

the CFD software illustrates, contrary to the traditional elbow with sharp corners, the sweep elbow design has even flow through the fitting with minimal turbulence.

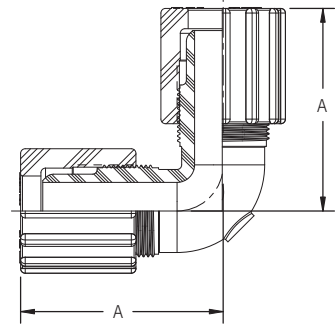
# Ordering Information

## Flaretek® PFA

### 90° Sweep Elbow Union

Part Number*	OD Tube Size	Orifice	Dimension A
USE8FN-1	1/2"	0.38" (9.7 mm)	1.85" (47.0 mm)
USE12FN-1	3/4"	0.63" (16.0 mm)	2.20" (55.9 mm)
USE16FN-1	1"	0.88" (22.4 mm)	2.85" (72.4 mm)

\*Also available in PFA (-3) and CPFA (-6) nuts.

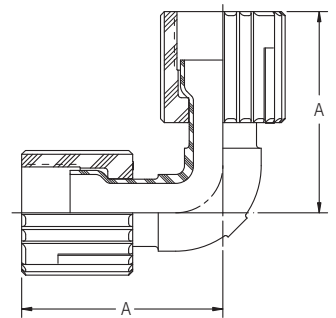


### 90° Sweep Elbow Union, "SpaceSaver", PFA Plus

Part Number*†	OD Tube Size	Orifice	Dimension A
USE8TFN-3X	1/2"	0.38" (9.7 mm)	1.82" (46.2 mm)
USE12TFN-3X	3/4"	0.63" (16.0 mm)	2.23" (56.6 mm)
USE16TFN-3X	1"	0.88" (22.4 mm)	2.99" (75.9 mm)

\*Also available in PVDF (-1X) nuts.

†Fitting also available in PFA material. To order, replace "-3X" with "-1" for PVDF nuts, "-3" for PFA nuts or "-6" for CPFA nuts.

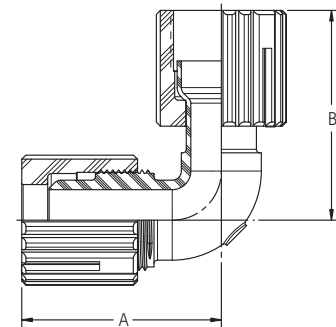


### 90° Sweep Elbow Adapter, "SpaceSaver", PFA Plus

Part Number*†	OD Tube Size	Orifice	Dimension A	Dimension B
SE8-8TFN-3X	1/2"	0.38" (9.7 mm)	1.85" (47.0 mm)	1.82" (46.2 mm)
SE12-12TFN-3X	3/4"	0.63" (16.0 mm)	2.20" (55.9 mm)	2.23" (56.6 mm)
SE16-16TFN-3X	1"	0.88" (22.4 mm)	2.85" (72.4 mm)	2.99" (75.9 mm)

\*Also available in PVDF (-1X) nuts.

†Fitting also available in PFA material. To order, replace "-3X" with "-1" for PVDF nuts, "-3" for PFA nuts or "-6" for CPFA nuts.

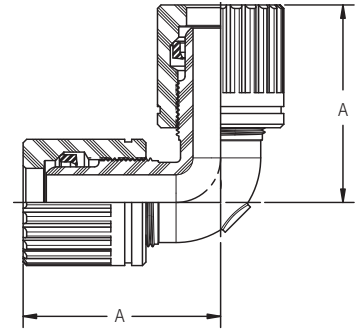


## FlareLock® II PFA

### 90° Sweep Elbow Union

Part Number*	OD Tube Size	Orifice	Dimension A
USE8FN-II	1/2"	0.38" (9.7 mm)	1.86" (47.2 mm)
USE12FN-II	3/4"	0.63" (16.0 mm)	2.22" (56.4 mm)
USE16FN-II	1"	0.88" (22.4 mm)	2.81" (71.4 mm)

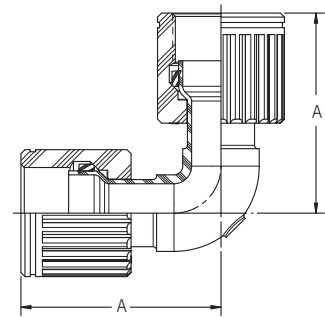
\*Nut and split locking ring are PFA material.



### 90° Sweep Elbow Union, "SpaceSaver"

Part Number*	OD Tube Size	Orifice	Dimension A
USE8TFN-II	1/2"	0.38" (9.7 mm)	1.84" (46.7 mm)
USE12TFN-II	3/4"	0.63" (16.0 mm)	2.32" (58.9 mm)
USE16TFN-II	1"	0.88" (22.4 mm)	2.98" (75.7 mm)

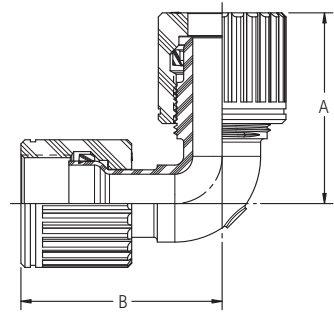
\*Nut and split locking ring are PFA material.



### 90° Sweep Elbow Adapter, "SpaceSaver"

Part Number*	OD Tube Size	Orifice	Dimension A	Dimension B
SE8-8TFN-II	1/2"	0.38" (9.7 mm)	1.86" (47.2 mm)	1.84" (46.7 mm)
SE12-12TFN-II	3/4"	0.63" (16.0 mm)	2.22" (56.4 mm)	2.32" (58.9 mm)
SE16-16TFN-II	1"	0.88" (22.4 mm)	2.83" (71.9 mm)	2.98" (75.7 mm)

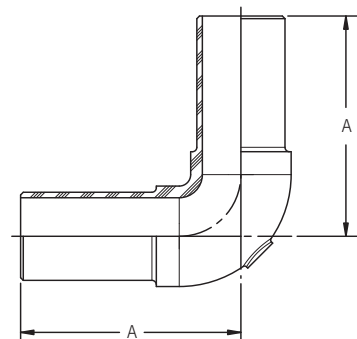
\*Nut and split locking ring are PFA material.



## PureBond® PFA

### Welded Tube 90° Sweep Elbow Union, PFA Plus

Part Number	OD Tube Size	Orifice	Dimension A
USE8W-X	1/2"	0.38" (9.7 mm)	1.56" (39.6 mm)
USE12W-X	3/4"	0.63" (16.0 mm)	2.86" (72.6 mm)
USE16W-X	1"	0.88" (22.4 mm)	2.50" (63.5 mm)



## Features and Benefits

Features	Benefits
Sweep elbow design	<ul style="list-style-type: none"><li>• Lower pressure drop</li><li>• Increased flow</li><li>• Reduced shear rate of slurries</li><li>• Reduced dead volume</li><li>• Decreased turbulence</li><li>• Even flow through system</li></ul>
Standard flare design	<ul style="list-style-type: none"><li>• Allows direct replacement of standard 90° elbows providing fast and easy fluid handling system upgrades</li></ul>
Flaretek® flare fitting	<ul style="list-style-type: none"><li>• Cleanest connection technology available</li><li>• Industry proven connection</li><li>• Reliable</li></ul>
"SpaceSaver" connections available	<ul style="list-style-type: none"><li>• Eliminates connections, reducing overall system footprint and lowering costs</li></ul>
PureBond® welded tube connections available	<ul style="list-style-type: none"><li>• Eliminates threaded connections and creates a leak-free, permanently joined tubing system</li></ul>
PFA material	<ul style="list-style-type: none"><li>• High purity</li><li>• Chemically resistant</li><li>• PFA Plus material provides chemical resistance with fluorinated surfactants</li></ul>

# Maximum Pressure Capabilities

## 1/2" Flaretek® Tube Fitting Connections

Temperature °F (°C)	PVDF Nut PSI (kPa)	PFA Nut PSI (kPa)	CPFA Nut PSI (kPa)	FlareLock® II Nut PSI (kPa)
75 (24)	190 (1310)	190 (1310)	190 (1310)	190 (1310)
200 (93)	100 (689)	100 (689)	100 (689)	105 (724)
250 (121)	75 (517)	75 (517)	75 (517)	82 (565)
300 (150)	50 (345)	50 (345)	50 (345)	58 (400)
350 (175)	N/R	40 (276)	40 (276)	55 (379)
400 (200)	N/R	N/R	15 (103)	35 (241)

N/R = Not rated

## 3/4" Flaretek® Tube Fitting Connections

Temperature °F (°C)	PVDF Nut PSI (kPa)	PFA Nut PSI (kPa)	CPFA Nut PSI (kPa)	FlareLock® II Nut PSI (kPa)
75 (24)	110 (758)	110 (758)	110 (758)	140 (965)
200 (93)	76 (524)	76 (524)	76 (524)	100 (689)
250 (121)	35 (241)	35 (241)	35 (241)	47 (324)
300 (150)	27 (186)	27 (186)	27 (186)	40 (276)
350 (175)	N/R	20 (138)	20 (138)	34 (234)
400 (200)	N/R	N/R	15 (103)	27 (186)

N/R = Not rated

## 1" Flaretek® Tube Fitting Connections

Temperature °F (°C)	PVDF Nut PSI (kPa)	PFA Nut PSI (kPa)	CPFA Nut PSI (kPa)	FlareLock® II Nut PSI (kPa)
75 (24)	75 (517)	75 (517)	75 (517)	90 (620)
200 (93)	40 (276)	40 (276)	40 (276)	50 (345)
250 (121)	28 (193)	28 (193)	28 (193)	34 (234)
300 (150)	15 (103)	15 (103)	17 (117)	20 (138)
350 (175)	N/R	15 (103)	15 (103)	17 (117)
400 (200)	N/R	N/R	15 (103)	15 (103)

N/R = Not rated

For PureBond® welded tube fitting pressure capabilities, please contact your local Entegris distributor or Entegris, Inc.

## For More Information

To learn how to improve the flow dynamics in your system using Flaretek® Sweep Elbow fittings, contact your local Entegris distributor or Entegris, Inc.

To review our complete line of fluid handling product solutions see Entegris' *Fluid Handling Products* catalog, visit Entegris' Web site at [www.entegrisfluidhandling.com](http://www.entegrisfluidhandling.com) or contact Entegris Customer Service for your free Fluid Handling Products catalog on CD-ROM.

## Terms and Conditions of Sale

All purchases are subject to Entegris' "Terms and Conditions of Sale."

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