

# PrimeLock® Elbow Adapter, MNPT

*A premium PFA fitting for high-purity and corrosive chemical applications*

Entegris has supplied innovative connection technology into the high-purity chemical handling markets for over 30 years. Our PrimeLock® fittings (available in sizes from 1/4" to 1") are clean, robust, and very easy to assemble. With audible and visual indicators, users can quickly verify the proper makeup of the connection. Heat is not required to assemble this fitting, saving time and money.

PrimeLock fittings perform effectively in the most demanding chemical applications at both ambient and elevated temperatures. The ultraclean design provides enhanced reliability within your system, with an all-PFA wetted construction. PrimeLock fittings are fully tested using our stringent testing and qualification methodology. This extremely robust, clean fitting is the most reliable connection technology on the market.

## APPLICATIONS

- High-purity, corrosive chemical handling
- Semiconductor applications
  - Photolithography
  - Bulk chemical delivery
  - CMP
  - Wet etch and clean
  - High-temperature cleaning processes
- Solar, LED, flat panel display
- Excellent performance with low surface tension chemistries



*PrimeLock elbow adapter, MNPT, available in sizes up to 1"*

## FEATURES & BENEFITS

<b>Ease of assembly</b>	Provides consistent and repeatable fitting makeup
<b>All wetted PFA components</b>	Offers broad chemical compatibility
<b>Robust thread design</b>	No cross-threading, quick makeup, increased sealing force
<b>Unique seal design</b>	Nonwetted insert reduces entrapment, leak points, and flow interruptions
<b>No heat required to flare tubing</b>	Saves time and money; reduces operator variability
<b>Connection verification ring</b>	Audible and visual indication of proper fitting makeup
<b>Capable of elevated temperature ratings, all sizes</b>	Simplifies product selection and is compatible with high-temperature chemical processes
<b>Innovative dual-wrench design for 1 1/2" or 40 mm nuts</b>	Make it easier to assemble fittings, saving time and money

## SPECIFICATIONS

		1/4" - 1 1/4" Sizes	1 1/2" and 40 mm Sizes
<b>Materials</b>	Body, insert, nut	PFA	PFA
	Connection verification ring	ETFE	ETFE
<b>Operating conditions*</b>	Media pressure	827 kPa (120 psig) @ 21°C (70°F)	689 kPa (100 psig) @ 21°C (70°F)
		276 kPa (40 psig) @ 200°C (392°F)	276 kPa (40 psig) @ 150°C (302°F)
	Temperature range (fluid)	-18° to 200°C (0°– 392°F)	-18° to 150°C (0°– 302°F)
<b>Compliant</b>		RoHS	RoHS

\*1 1/4" PrimeLock "SpaceSaver" connections are rated to 586 kPa (85 psig) @ 100°C (212°F).

### Applicable PFA Tube Dimensions

OD	OD Tolerance	Wall Thickness	Wall Thickness Tolerance
1/4" (6.35 mm)	±0.004" (±0.10 mm)	0.047" (±1.19 mm)	±0.004" (±0.10 mm)
3/8" (9.52 mm)	±0.004" (±0.10 mm)	0.062" (±1.57 mm)	±0.005" (±0.13 mm)
1/2" (12.70 mm)	±0.005" (±0.13 mm)	0.062" (±1.57 mm)	±0.005" (±0.13 mm)
3/4" (19.05 mm)	±0.005" (±0.13 mm)	0.062" (±1.57 mm)	±0.005" (±0.13 mm)
1" (25.40 mm)	±0.005" (±0.13 mm)	0.062" (±1.57 mm)	±0.005" (±0.13 mm)
1 1/4" (31.75 mm)	±0.007" (±0.18 mm)	0.075" (±1.90 mm)	±0.007" (±0.18 mm)
1 1/2" (38.10 mm) and 40 mm	±0.007" (±0.18 mm)	0.086" (±2.18 mm)	±0.007" (±0.18 mm)

### Pipe Thread (NPT) Assembly Procedure

1. Apply PTFE tape or paste sealant to MNPT threads starting one thread back from end of fitting.
  - When using tape, tightly wrap in direction of threads to conform tape to thread shape.
  - a. Use 3-1/2 to 4 wraps of tape when assembling PFA threads to PFA material.
  - b. Use 4 to 5 wraps of tape when assembling PFA threads to a material other than PFA.

2. Thread the fitting onto the mating component until hand tight.

3. Using a wrench, tighten fitting about 4 turns past hand tight.

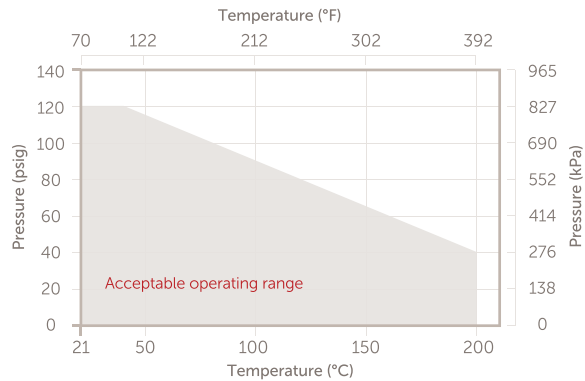
PTFE tape = 1/2" wide for all NPT fittings

**Note:** PTFE tape is not recommended for use in a gaseous application.

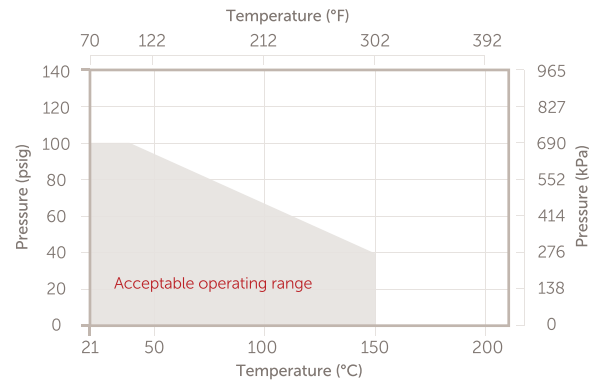
Torque	
1/16"	5.0 in•lb (0.57 N•m)
1/8"	7.0 in•lb (0.79 N•m)
1/4"	16 in•lb (1.81 N•m)
3/8"	23 in•lb (2.60 N•m)
1/2"	30 in•lb (3.39 N•m)
3/4"	54 in•lb (6.10 N•m)
1"	78 in•lb (8.81 N•m)

## PERFORMANCE DATA

PrimeLock Fittings Sizes 1/4" – 1 1/4"  
Pressure vs. Temperature Rating



PrimeLock Fitting Sizes 1 1/2" and 40 mm  
Pressure vs. Temperature Rating



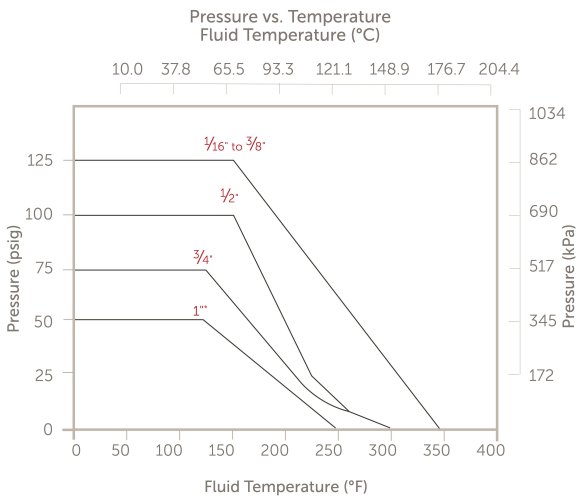
**Note:** 1 1/4" PrimeLock "SpaceSaver" connections are rated to 586 kPa (85 psig) @ 100°C (212°F).

### Fittings Reliability Test Results

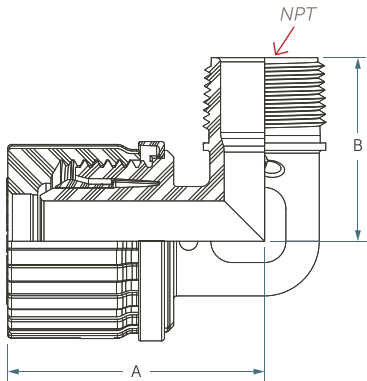
Test Type	Test Conditions	Acceptance Criteria	Results
Burst pressure	Media pressure increased until leak occurs	No external leakage prior to tube rupturing	PASS No external leakage
Cyclic pressure leak test	1/4"-1 1/4": 1241 kPa (180 psig) water @ 23°C (73°F)	No external leakage after 1 million cycles @ 1.5 x rated pressure	PASS No external leakage
	1 1/2" and 40 mm: 1034 kPa (150 psig) water @ 23°C (73°F)		
	1/4"-1 1/4": 414 kPa (60 psig) hydraulic oil @ 200°C (392°F)	No external leakage after 1 million cycles @ 1.5 x rated pressure	PASS No external leakage
	1 1/2" and 40 mm: 414 kPa (60 PSIG) hydraulic oil @ 150°C (302°F)		
High pressure leak test	Submerge fitting Apply nitrogen pressure equaling 80% of the tube burst pressure	No external leakage allowed	PASS No external leakage
Tube pull out test	Apply tensile load to tube/fitting until tube separates from fitting	1/4" (178 N) 40 lbf 3/8" (400 N) 90 lbf 1/2" (534 N) 120 lbf 3/4" (890 N) 200 lbf 1" (1112 N) 250 lbf 1 1/4" (1557 N) 350 lbf 1 1/2" and 40 mm (1779 N) 400 lbf	PASS
Chemical testing	Sulfuric acid Fluorosurfactant Copper sulfate 25% TMAH	No external leakage after 2 million cycles	PASS PASS PASS PASS

PERFORMANCE DATA

NPT Threadable Pipe Fittings



DIMENSIONS



Part Number	Leg 1	Leg 2	Orifice	Dimensions	
				A	B
PE-4K4NM-3	1/4" PrimeLock	1/4" MNPT	0.16" (4.1 mm)	1.42" (36.1 mm)	1.17" (29.7 mm)
PE-6K4NM-3	3/8" PrimeLock	1/4" MNPT	0.25" (6.4 mm)	1.64" (41.7 mm)	1.17" (29.7 mm)
PE-8K6NM-3	1/2" PrimeLock	3/8" MNPT	0.37" (9.4 mm)	1.89" (48.0 mm)	1.27" (32.3 mm)
PE-8K8NM-3	1/2" PrimeLock	1/2" MNPT	0.37" (9.4 mm)	1.89" (48.0 mm)	1.39" (35.3 mm)
PE-12K8NM-3	3/4" PrimeLock	1/2" MNPT	0.37" (9.4 mm)	2.38" (60.5 mm)	1.61" (40.9 mm)
PE-12K12NM-3	3/4" PrimeLock	3/4" MNPT	0.62" (15.7 mm)	2.38" (60.5 mm)	1.61" (40.9 mm)
PE-16K16NM-3	1" PrimeLock	1" MNPT	0.87" (22.1 mm)	2.77" (70.4 mm)	1.98" (50.3 mm)

## ORDERING INFORMATION

PART NUMBER	LEG 1	LEG 2
PE-12K12NM-3	3/4" PrimeLock®	3/4" MNPT
PE-12K8NM-3	3/4" PrimeLock®	1/2" MNPT
PE-16K16NM-3	1" PrimeLock®	1" MNPT
PE-4K4NM-3	1/4" PrimeLock®	1/4" MNPT
PE-6K4NM-3	3/8" PrimeLock®	1/4" MNPT
PE-8K12NM-3	1/2" PrimeLock®	3/4" MNPT
PE-8K4NM-3	1/2" PrimeLock®	1/4" MNPT
PE-8K6NM-3	1/2" PrimeLock®	3/8" MNPT
PE-8K8NM-3	1/2" PrimeLock®	1/2" MNPT

## FOR MORE INFORMATION

Please call your Regional Customer Service Center today to learn what Entegris can do for you. Visit [entegris.com](http://entegris.com) and select the [Contact Us](#) link to find the customer service center nearest you.

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Corporate Headquarters  
129 Concord  
Billerica, MA 01821  
USA

Customer Service  
Tel +1 952 556 4181  
Fax +1 952 556 8022  
Toll Free 800 394 4083

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