



**PRIMELOCK® FITTINGS**

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



Now available  
in 1 1/2" size

# enabling clean, consistent leak-free connections

## Overview

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 1/2") 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 Entegris' 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 fittings

## Features and Benefits

Features	Benefits
Ease of assembly	Consistent and repeatable fitting makeup
All wetted components are PFA	Broad chemical compatibility
Robust thread design	No cross-threading, quick makeup, increased sealing force
Unique seal design	Nonwetted insert reduces entrapment, leak points and flow interruptions
No heat required to flare tubing	Saves time and money; reduces operator variability
Connection verification ring	Audible and visual indication of proper fitting makeup
Capable of elevated temperature ratings, all sizes	Simplifies product selection
	Compatible with high-temperature chemical processes
Dual-wrench design for 1 1/2" nuts	Innovative design makes it easier to assemble fittings, saving time and money

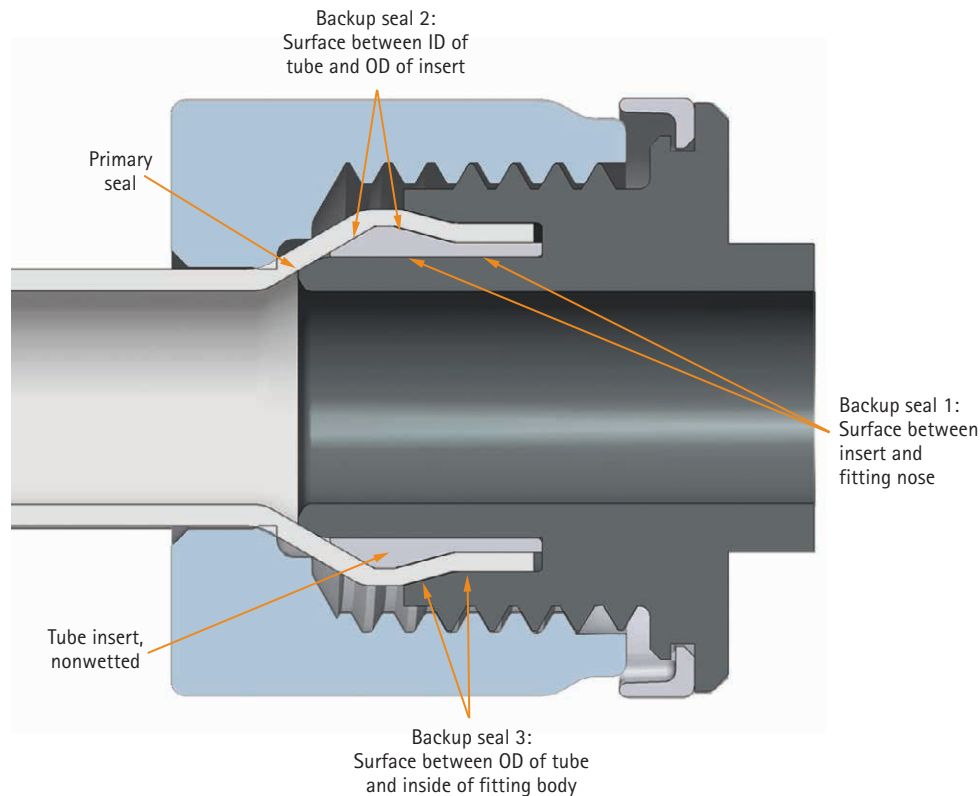
## Specifications

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

### 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)	±0.007" (±0.18 mm)	0.086" (2.18 mm)	±0.007" (±0.18 mm)

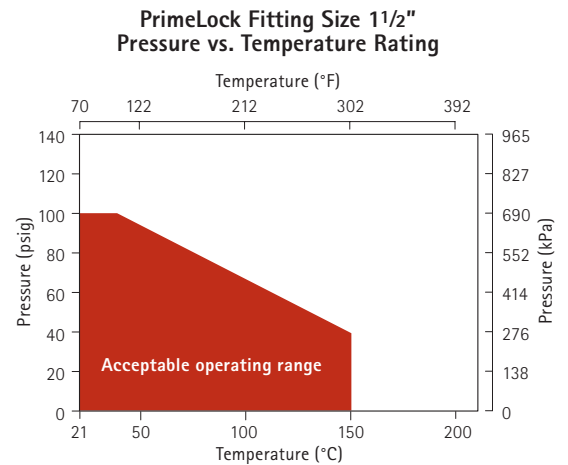
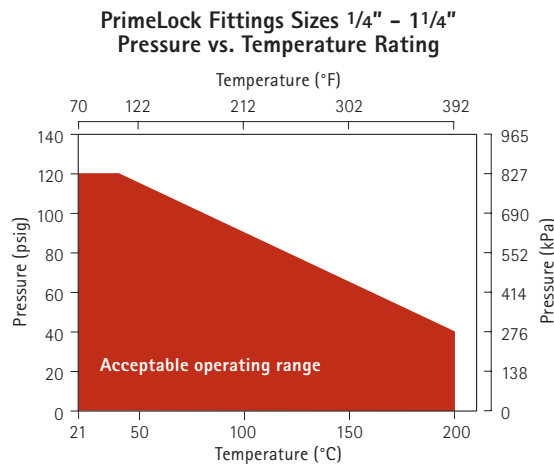
## PrimeLock Cross-section: Three Backup Seals



## Fittings Reliability Test Results

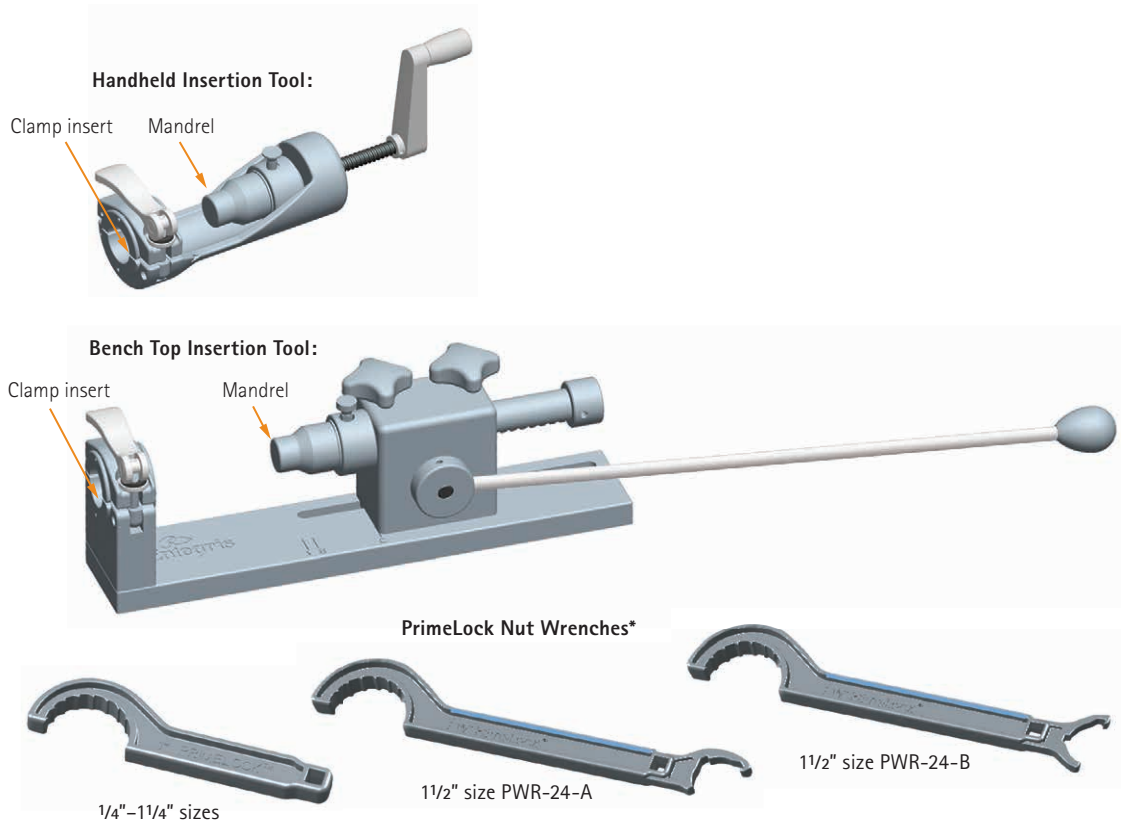
Test Type	Test Conditions	Acceptance Criteria	Results
Burst pressure	Media pressure increased until leak occurs	No external leakage prior to tube rupturing	PASS No external leakage
Cyclic pressure leak test	1/4"-1 1/4": 1241 kPa (180 psig) water @ 23°C (73°F)	No external leakage after 1 million cycles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

## Performance Data



Note: Consult factory for applications outside these pressure ranges.

## Insert Installation Tools



### Ordering Information— Tools and Kits

Part Number	Tool	Description
PHND-TOOL	Handheld insertion tool, 1/4"-1" sizes	Tool only, requires mandrel kit and clamp insert kit
PHND-TOOL-L2	Handheld insertion tool, 1 1/4" and 1 1/2" sizes	Tool only, components sold separately
PBNCH-TOOL	Bench top insertion tool, 1/4"-1" sizes	Tool only, requires mandrel kit and clamp insert kit
PBNCH-TOOL-L2	Bench top insertion tool, 1 1/4" and 1 1/2" sizes	Tool only, components sold separately
PMND-KIT	Mandrel kit**	Holds the insert in place during installation 1/4", 3/8", 1/2", 3/4", 1"
PMND-KIT-B	Mandrel kit** – directional sleeve	3/8" – 1"
PCLMP-KIT	Clamp insert kit**	Holds the tube in place during installation 1/4", 3/8", 1/2", 3/4", 1"
PCLMP-R-KIT	Clamp insert kit** – EPDM-lined	1/4" – 1"
PHMND-KIT	Hot-air mandrel kit***	1/2", 3/4", 1"
PMTMND-KIT	Minimum tube union mandrel kit**	Allows fabrication of minimum length tube unions 1/4", 3/8", 1/2", 3/4", 1"
PWR-KIT	PrimeLock nut wrench kit*	1/4", 3/8", 1/2", 3/4", 1", 1 1/4", 1 1/2" wrenches
01-1015292	Component case	Organizes mandrels, clamp inserts and wrenches in individual compartments, 1/4"-1" size only

\*Two PWR-24-A or PWR-24-B or combination thereof are required to assemble 1 1/2" size fittings.

\*\*Kit does not include 1 1/4" or 1 1/2" sizes; part numbers sold separately.

\*\*\*Inserts can be installed using a mandrel and a hot air gun when space restrictions prevent the use of handheld and bench top insertion tools.

## Ordering Information

## INDIVIDUAL TOOL COMPONENTS

Part Number	Tool	Description	Part Number	Tool	Description
PMND-4	Mandrel	1/4"	PWR-4	Wrench	1/4"
PMND-6	Mandrel	3/8"	PWR-6	Wrench	3/8"
PMND-8	Mandrel	1/2"	PWR-8	Wrench	1/2"
PMND-12	Mandrel	3/4"	PWR-12	Wrench	3/4"
PMND-16	Mandrel	1"	PWR-16	Wrench	1"
PMND-20	Mandrel	1 1/4"	PWR-20	Wrench	1 1/4"
PMND-24	Mandrel	1 1/2"	PWR-24-A	Wrench***	1 1/2"
PMND-6-B	Mandrel – directional sleeve*	3/8"	PWR-24-B	Wrench***	1 1/2"
PMND-8-B	Mandrel – directional sleeve*	1/2"	PWR-24-SET	Wrench – PWR-24-A and PWR-24-B	1 1/2"
PMND-12-B	Mandrel – directional sleeve*	3/4"			
PMND-16-B	Mandrel – directional sleeve*	1"			
PMND-20-B	Mandrel – directional sleeve*	1 1/4"			
PMND-24-B	Mandrel – directional sleeve*	1 1/2"			
PMTMND-4	Minimum tube union mandrel	1/4"			
PMTMND-6	Minimum tube union mandrel	3/8"			
PMTMND-8	Minimum tube union mandrel	1/2"			
PMTMND-12	Minimum tube union mandrel	3/4"			
PMTMND-16	Minimum tube union mandrel	1"			
PMTMND-20	Minimum tube union mandrel	1 1/4"			
PMTMND-24	Minimum tube union mandrel	1 1/2"			
PCLMP-4	Clamp insert	1/4"			
PCLMP-6	Clamp insert	3/8"			
PCLMP-8	Clamp insert	1/2"			
PCLMP-12	Clamp insert	3/4"			
PCLMP-16	Clamp insert	1"			
PCLMP-20	Clamp insert	1 1/4"			
PCLMP-24	Clamp insert	1 1/2"			
PCLMP-4-R	Clamp insert – EPDM lined**	1/4"			
PCLMP-6-R	Clamp insert – EPDM lined**	3/8"			
PCLMP-8-R	Clamp insert – EPDM lined**	1/2"			
PCLMP-12-R	Clamp insert – EPDM lined**	3/4"			
PCLMP-16-R	Clamp insert – EPDM lined**	1"			
PCLMP-20-R	Clamp insert – EPDM lined**	1 1/4"			
PCLMP-24-R	Clamp insert – EPDM lined**	1 1/2"			
PHMND-8	Hot-air mandrel	1/2"			
PHMND-12	Hot-air mandrel	3/4"			
PHMND-16	Hot-air mandrel	1"			

## PFA INSERTS

Part Number (10 per pack)	Description
PINS-4-SET10	1/4"
PINS-6-SET10	3/8"
PINS-8-SET10	1/2"
PINS-12-SET10	3/4"
PINS-16-SET10	1"
PINS-20-SET10	1 1/4"
PINS-24-SET10	1 1/2"

\*Prevents backward installation of insert.

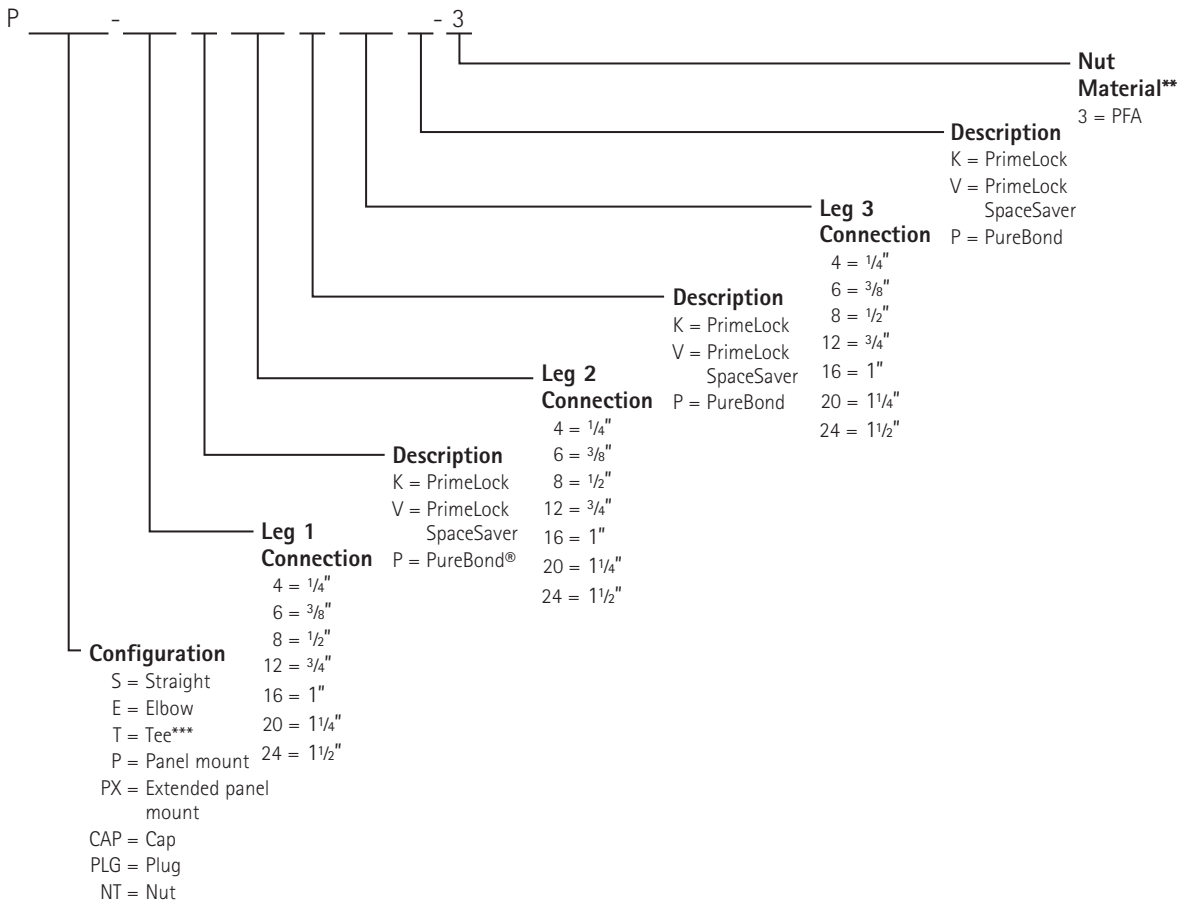
\*\*Eliminates clamp marks on tubing.

\*\*\*Two PWR-24-A or PWR-24-B or combination thereof are required to assemble 1 1/2" size fittings.

# Ordering Information

## PrimeLock Fittings

### Part Number\*



\*Part number exception: When selecting the same size and configuration for a fitting with multiple legs, the part number is shortened to a single size description.

Examples:

PT-12K12K12K-3 = PT-12K-3

PE-8V8V-3 = PE-8V-3

\*\*PrimeLock only available in PFA material.

\*\*\*Tee fitting leg orientation.



## For More Information

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

## Terms and Conditions of Sale

All purchases are subject to Entegris' Terms and Conditions of Sale. To view and print this information, *visit [www.entegris.com](http://www.entegris.com)* and select the Legal Notices link from the footer.

Entegris® the Entegris Rings Design®, Creating a Material Advantage®, PureBond® and PrimeLock® are registered trademarks of Entegris, Inc.

---

### ENTEGRIS, INC.

Corporate Headquarters | 129 Concord Road | Billerica, MA 01821 USA  
Customer Service Tel. +1 952 556 4181 | Customer Service Fax +1 952 556 8022  
In North America 800 394 4083 | [www.entegris.com](http://www.entegris.com)