1 System Data Sheet

PureFlow Crimp

Viega PureFlow Crimp fittings are available in ECO Brass and polymer materials with excellent chlorine- and corrosion resistant properties.

PureFlow Crimp fittings are available in sizes ⅜", ½", ¾" and 1" in elbows, tees, adapters, couplings, PolyAlloy manifolds, and valves.

Components

- Eco Brass fittings use zero-lead alloy
- PolyAlloy fittings use performance-grade polymer (Acudel® and Radel® R)
- Copper crimp rings

Operating Parameters

- Operating Temperature: 180°F max (potable)
- Operating Pressure: 160 psi max at 73°F
  100 psi max at 180°F
- Test Pressure: Recommended: 100 psi
  Maximum: 160 psi

Listings and Certifications

- ASTM E84
- ASTM F1807
- ASTM F2159
- CAN/ULC S101/S102.2
- CSA B137.5
- HUD MR-1276
- ICC-ES PMG 1038/1015
- NSF-pw 372

Compliant With

- International Mechanical Code (IMC)
- International Plumbing Code (IPC)
- International Residential Code (IRC)
- National Fire Protection Association - 13D (NFPA)
- National Standard Plumbing Code (NSPC)
- Uniform Mechanical Code (UMC)
- Uniform Plumbing Code (UPC)
- Housing for Urban Development (HUD)
- Canadian Standards Association (CSA)
- National Plumbing Code of Canada (NPCC)
- National Building Code of Canada (NBCC)

Approved Applications

- Hot and cold potable water
- Rainwater/gray water

For more specific information on applications for PureFlow systems, contact Viega Technical Services at 1-800-976-9819.

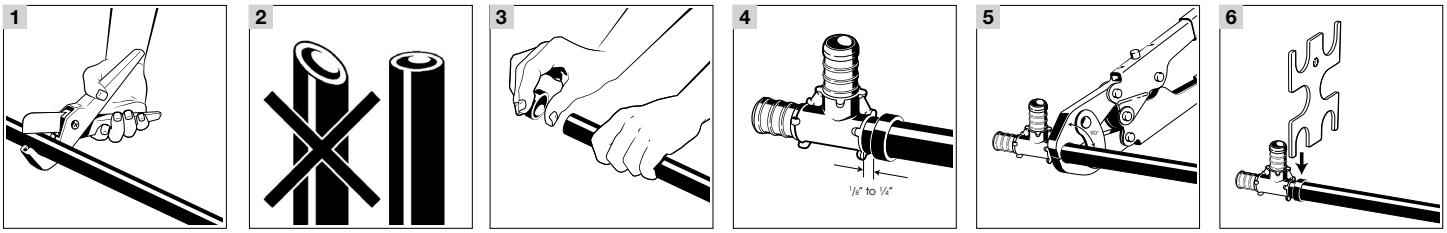
Viega's PureFlow systems meet or exceed all requirements of ASTM F876/877 and are approved for installations above and below ground.

Recommended Tools

- Viega PureFlow Crimp Hand Tools (⅜" to 1")

2 Product Instructions

PureFlow Crimp Connections



Making Viega PureFlow Crimp Connections

1 The tubing should be cut squarely and evenly without burrs. Uneven, jagged or irregular cuts will produce unsatisfactory connections.

2 The diagram shows a correctly cut tube compared with an incorrectly cut tube.

3 Slide the crimp ring onto the tubing and insert the fitting into the tube to the shoulder or tube stop.

4 Position the ring ⅛" to ¼" from the end of the tubing.

5 The ring must be attached straight. Center the crimping tool jaws exactly over the ring. Keep the tool at 90° and close the handles completely.

CAUTION!
Do not crimp twice!

6 When checking crimp connections with a caliper (GO/NO GO gauge), push the gauge STRAIGHT DOWN over the crimped ring. NEVER slide the gauge in from the side. Do not attempt to gauge the crimp at the jaw overlap area. The overlap area is indicated by a slight removal of the blackening treatment. A **crimp is acceptable** if the GO gauge fits the ring and the NO GO does not. A **crimp is unacceptable** if the GO gauge does not fit the ring or the NO GO gauge does fit. An incorrect crimp must be cut out of the tubing and replaced. If you check the crimp connections with a micrometer or caliper, use the dimensions shown in the table.

Crimp outside diameters should fall within the dimensions listed in the table below when measured with a micrometer or caliper.

Crimp Diameter Dimensions

Ring Size (in)	Minimum (in)	Maximum (in)
⅜	0.58	0.60
½	0.70	0.72
¾	0.95	0.96
1	1.18	1.19

3 Engineering Specifications
PureFlow System

Part 1: General

1.1 Summary
This specification covers branch and main, parallel water distribution systems (ManaBloc), cross-linked polyethylene tubing, and fittings using PureFlow press and PureFlow crimp technology for hot and cold water distribution systems. The system is assembled when the fitting barb is inserted fully into the tubing and either a stainless press sleeve or copper crimp ring is pressed/crimped over the tubing and fitting using the appropriate tool to create a leak proof permanent joint.

1.2 References
ANSI/UL 263: Fire test of building construction and materials.
Standard methods of fire endurance tests of building construction and materials.
ASTM E84: surface burning characteristics of building materials
ASTM F1807: specification for metal insert fittings utilizing a copper crimp ring for SDR9 cross-linked polyethylene (PEX) tubing
ASTM F2023: test method for evaluating the oxidative resistance of cross-linked (PEX) tubing and systems to hot chlorinated water.
ASTM F2159: specification for plastic insert fittings utilizing a copper crimp ring for SDR9 cross-linked polyethylene (PEX) tubing
ASTM F3347: Standard Specification for Metal Press Insert Fittings with Factory Assembled Stainless Steel Press Sleeve for SDR9 Cross-linked Polyethylene (PEX) Tubing
ASTM F3348: Standard Specification for Plastic Press Insert Fittings with Factory Assembled Stainless Steel Press Sleeve for SDR9 Cross-linked Polyethylene (PEX) Tubing
ASTM F876: specification for cross-linked polyethylene (PEX) tubing
ASTM F877: specification for cross-linked polyethylene (PEX) plastic hot and cold water distribution systems.
AWWA C904: cross-linked polyethylene (PEX) pressure pipe, ½ in. (12 mm) through 3 in. (76 mm), for water service.
CAN/ULC S102.2: standard method of testing for surface burning characteristics of flooring, floor covering and miscellaneous materials and assemblies.
CSA CAN/CSA B137.5: cross-linked polyethylene (PEX) tubing systems for pressure applications.
cULus - UL 1821: listing for multipurpose residential fire sprinkler systems (Viega Pureflow PEX black with PureFlow press bronze and polymer fittings in sizes ¾ to 2)
IAPMO Uniform Mechanical Code
IAPMO Uniform Plumbing Code
ICC International Mechanical Code
ICC International Plumbing Code
NAPHCC National Standard Plumbing Code
NSF 14: plastic piping component and related materials
NSF 61: drinking water system components – health effects

1.3 Quality Assurance
A. The installer shall be a qualified installer, licensed within the jurisdiction, and familiar with the installation of cross-linked polyethylene (PEX) tubing systems.
B. The installation of cross-linked polyethylene (PEX) tubing for hot and cold water distribution systems shall conform to the requirements of the ICC International Plumbing Code or IAPMO Uniform Plumbing Code.

1.4 Delivery, Storage, And Handling

A. The cross-linked polyethylene (PEX) tubing shall be shipped to the job site on truck or in such a manner to protect the tubing. The cross-linked polyethylene fittings and manifolds shall not be handled roughly during shipment. The tubing and fittings shall be unloaded with reasonable care.
B. Cross-linked polyethylene plastic tubing and fittings shall be stored in a flat, dry, well ventilated location, not exposed to direct sunlight. Normal care in handling shall be exercised to avoid abuse of the tubing. The tubing and fittings shall not be thrown or dropped on the ground, walked on, or dragged.

1.5 Project Conditions

A. The location of a manifold with valves shall be accessible and in an area not subject to freezing. Proper support of the manifold shall be provided.
B. PEX tubing should not be left exposed in direct sunlight for extended periods of time – short periods not to exceed 6 months are permissible.
C. Plastic manifolds and fittings should not be left exposed in direct sunlight for extended periods of time — short periods not to exceed 15 days are permissible.

1.6 Warranty

A. The tubing and fittings manufacturer shall warrant that the tubing and fittings are free from defects and conform to the designated standard. The warranty shall only be applicable to tubing and fittings installed in accordance with the manufacturer's installation instructions.
B. The manufacturer of the tubing and fittings shall not be responsible for improper use, handling, or installation of the products.

Part 2: Products

2.1 Manufacturer

Viega LLC
585 Interlocken Blvd.
Broomfield CO, 80021
Phone: (800) 976-9819
www.viega.us

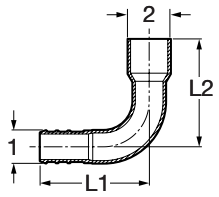
2.2 Material

A. Tubing Standard: Viega PureFlow PEX high-density cross-linked polyethylene tubing shall be manufactured to the requirements of ASTM F876 and meet the standard grade hydrostatic pressure ratings from Plastic Pipe Institute in accordance with TR-4/03. The following three standard grade ratings are required:
   - 200 degrees F (93 degrees C) at 80 psig (551 kPa)
   - 180 degrees F (82 degrees C) at 100 psig (689 kPa)
   - 73.4 degrees F (23 degrees C) at 160 psig (1102 kPa)

   1. Chlorine testing: According to ASTM F876 shall meet or exceed the following end use condition.
      a. End use conditions of : 100% @ 140°F. Per PEX 5306 (CL5).
   2. UV testing: According to ASTM F876 PEX tubing products shall meet or exceed the following exposure limits.
      a. Viega PureFlow PEX 6 months.

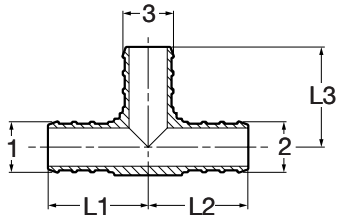
B. Fitting Standard: PureFlow Press fittings shall be manufactured from UNS, C87700, C87710 Bronze or Radel R® polymer, meeting the requirements of ASTM F877 and ASTM F3347 (metallic) or ASTM F3348 (polymer) tested as a system with Viega PureFlow PEX tubing. The PureFlow Press sleeve shall be manufactured out of a 304 grade or better stainless steel and have three view holes (attached sleeve) to ensure proper PEX tubing insertion. The attached sleeve fitting will incorporate a tool locator ring that shall be in place while making a proper press connection. The PureFlow Press connection shall be made with a Viega supplied ratcheting PureFlow Press hand tool or PureFlow Press power tool.

Viega PureFlow Crimp 90° Elbow Zero Lead Copper Crimp x FTG - Model V5020



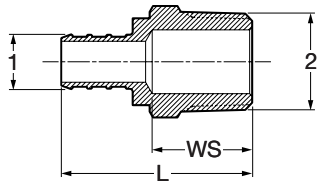
Part No.	Size (in) 1 2	L1 (in)	L2 (in)
44302	⅜ x ½ FTG	1.65	1.56
44320	½ x ½ FTG	1.44	1.49
44340	¾ x ¾ FTG	1.94	1.87

Viega PureFlow Crimp Tee Zero Lead Brass - Model V5018ZL



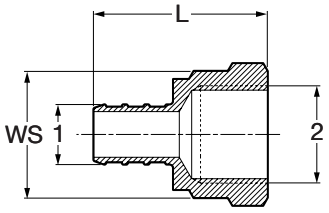
Part No.	Size (in) 1 2 3	L1 (in)	L2 (in)	L3 (in)
46500	⅜ x ⅜ x ⅜	0.89	0.89	0.88
46520	½ x ½ x ½	0.95	0.95	0.88
46524	½ x ½ x ¾	1.07	1.07	1.01
46540	¾ x ¾ x ¾	1.07	1.07	1.00
46433	¾ x ½ x ½	1.20	1.20	1.10
46435	¾ x ½ x ¾	1.07	1.12	1.01
46443	¾ x ¾ x ½	1.07	1.07	1.01
46445	¾ x ¾ x 1	1.21	1.21	1.25
46544	¾ x 1 x ¾	1.20	1.39	1.10
46545	¾ x 1 x 1	1.21	1.39	1.28
46553	1 x 1 x ½	1.39	1.39	1.10
46554	1 x 1 x ¾	1.39	1.39	1.10
46560	1 x 1 x 1	1.36	1.36	1.36

Viega PureFlow Crimp Adapter Zero Lead Brass Crimp x MPT - Model V5011ZL



Part No.	Size (in) 1 2	L (in)	WS (in)
46302	⅜ x ½ MPT	1.63	0.88
46321	½ x ½ MPT	1.65	0.88
46324	½ x ¾ MPT	1.84	1.06
46342	¾ x ½ MPT	1.68	0.88
46340	¾ x ¾ MPT	1.84	1.06
46446	¾ x 1 MPT	2.07	1.38
46361	1 x ¾ MPT	2.02	1.06
46366	1 x 1 MPT	2.25	1.38

Viega PureFlow Crimp Adapter Zero Lead Brass Crimp x FPT - Model V5012ZL



Part No.	Size (in) 1 2	L (in)	WS (in)
46323	⅜ x ½ FPT	1.62	1.00
46333	½ x ½ FPT	1.62	1.00
46334	½ x ¾ FPT	1.67	1.25
46344	¾ x ¾ FPT	1.67	1.25
46345	¾ x 1 FPT	1.89	1.50
46355	1 x 1 FPT	2.07	1.50