ICC-ES PMG Product Certificate

PMG-1038

Effective Date: November 2024

This listing is subject to re-examination in one year.

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CSI: DIVISION: 22 00 00 — Plumbing
Section: 22 11 16 — Domestic Water Piping
Section: 22 11 00 — Facility Water Distribution

Product certification system:

The ICC-ES product certification system includes testing samples taken from the market or supplier's stock, or a combination of both, to verify compliance with applicable codes and standards. The system also involves factory inspections, and assessment and surveillance of the supplier's quality system.

Products: Viega LLC's PureFlow® Plumbing System: Viega PureFlow PEX, and Viega Barrier cross-linked polyethylene (PEX) tubing, PureFlow Press fitting, PureFlow Crimp fittings, PureFlow Press Polymer fittings and manifolds, PureFlow Crimp PolyAlloy fittings and manifold, MiniBloc™ zoning manifold and ManaBloc® Parallel Water Distribution System used in potable hot- and cold-water distribution systems.

Listee: Viega LLC
585 Interlocken Blvd.
Broomfield, CO 80021
www.viega.us

Compliance with the following codes:

2024, 2021, 2018, 2015, 2012, and 2009 *International Plumbing Code*® (IPC)
2024, 2021, 2018, 2015, 2012 and 2009 *International Residential Code*® (IRC)
2024, 2021, 2018, 2015, 2012 and 2009 *Uniform Plumbing Code*® (UPC)*
2024, 2021, 2018, 2015, 2012 and 2009 National Standard Plumbing Code (NSPC)*
2022, 2019, 2016, 2013 and 2010 *California Plumbing Code* (CPC)
2023, 2020 and 2017 *City of Los Angeles Plumbing Code*
2023, 2021, 2017 and 2007 *Code of Massachusetts Regulation 248 CMR 10.00: Uniform State Plumbing Code*

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Compliance with the following standards:

ASTM F876- 2024a, Standard Specification for Crosslinked Polyethylene (PEX) Tubing
ASTM F877-2024, Standard Specification for Crosslinked Polyethylene (PEX) Plastic Hot- and Cold-Water Distribution Systems
ASTM F3253-2024, Standard Specification for Crosslinked Polyethylene (PEX) Tubing with Oxygen Barrier for Hot- and Cold-Water Hydronic Distribution Systems
ASTM F3347-2023, Standard Specification for Metal Press Insert Fittings with Factory Assembled Stainless Steel Press Sleeve for SDR9 Cross-linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) Tubing

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ASTM F3348-23a, Standard Specification for Plastic Press Insert Fittings with Factory Assembled Stainless Steel Press Sleeve for SDR9 Cross-linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) Tubing
ASTM F1807- 2023, Standard Specification for Metal Insert Fittings Utilizing a Copper Crimp Ring for SDR9 Cross-linked Polyethylene (PEX) Tubing and SDR 9 Polyethylene of Raised Temperature (PE-RT) Tubing
ASTM F2159-2023a, Standard Specification for Plastic Insert Fittings Utilizing a Copper Crimp Ring for SDR9 Cross-linked Polyethylene (PEX) Tubing and SDR 9 Polyethylene of Raised Temperature (PE-RT) Tubing
AWWA C904-2022: Cross-linked Polyethylene (PEX) Pressure Pipe, ½ in. (12 mm) through 3 in. (76 mm), for Water Service
ASTM E84-2024, Standard Test Method for Surface Burning Characteristics of Building Materials
NSF/ANSI 14-2023, Plastic Piping Systems Components and Related Materials
NSF/ANSI/CAN 61-2023, Drinking Water System Components - Health Effects
NSF/ANSI 359-2022, Valves for Crosslinked Polyethylene (PEX) Water Distribution Tubing
NSF/ANSI/CAN 372-2022, Drinking Water System Components – Lead Content
UL/ANSI 263 (14th Edition), Safety Fire Tests for Building Construction and Materials
CAN/ULC S101(6th Edition), Standard Methods of Fire Endurance Tests for Building Construction and Materials
CAN/ULC S102.2 (8th Edition), Standard Methods for Test for Surface Burning Characteristics of Building Materials and Assemblies
UL 2846, Fire Test of Plastic Water Distribution Plumbing Pipe for Visible Flame and Smoke Characteristics (Ed. 1)
ICC-ES LC1004-2010, PMG Listing Criteria for PP, PEX, PEX-AL-PEX, and PP-AL-PP Piping, Tube and Fittings Used In Radiant Heating and Water Supply Systems

Identification:

Tubing: The Viega LLC PureFlow® Plumbing System tubing components of Viega PureFlow PEX, and Viega Barrier tubing covered by this listing must be labelled at minimum intervals of 5 feet (1524 mm) with the manufacturer's name and/or trademark (Viega), product name (Viega PureFlow PEX, or Viega Barrier), nominal tubing size, potable water designation, standard dimension ratio (SDR 9), material designation (PEX 1006 or 5306), pressure rating [160 psi at 73°F, 100 psi at 180°F], ASTM F876/F877, AWWA C904 and ASTM F3253 designation, and the ICC-ES PMG listing mark.

Fittings and Valves: The Viega LLC PureFlow® Plumbing System fitting components consist of PureFlow Press fittings, PureFlow Crimp fittings, PureFlow Press Polymer fitting, PureFlow Press Polymer valves, PureFlow Press Polymer manifolds, PureFlow Crimp PolyAlloy fittings, PureFlow Crimp PolyAlloy manifolds, MiniBloc™ zoning manifold and the ManaBloc® Parallel Water Distribution System. Fitting components covered by this listing must be labeled with the Viega trademark, potable water designation, nominal size, production code, and ASTM F877 ASTM F3347 and ASTM F3348 designation. The PureFlow Crimp fittings covered by this listing must be marked per the appropriate marking sections of the applicable standard (ASTM F1807 or F2159). Packages of fittings must bear the Viega LLC name, product name, part number and the ICC-ES PMG listing mark. The MiniBloc™ zoning manifold and the ManaBloc® Parallel Water Distribution System are illustrated in Figure 5 and 6.

Installation:

General: Viega LLC tubing, and fittings must be manufactured, identified and installed in accordance with this listing, the applicable code and the manufacturer's published installation instructions. Manufacturer's published installation instructions must be furnished to the code official. Installation must conform to the requirements of the applicable code and is subject to approval by the code official having jurisdiction.

Water Distribution: Horizontally laid pipe must be secured in such a manner that temperature-induced expansion and contraction are accommodated. In jurisdictions enforcing the IAPMO UPC, PureFlow tubing must not be installed within the first 18 inches (457 mm) of piping connected to a water heater.

Inspection of Water Distribution Piping: Installed tubing must be pressure-tested and inspected as required by Chapter 3 of the IPC, Chapter 25 of the IRC or Chapter 1 of the UPC.

Clearances from heat-producing equipment must be in accordance with Chapter 5 of the *International Fuel Gas Code*®, Chapter 13 of the IRC or Chapter 8 of the UMC, as applicable.

Return-air Plenums: Combustible piping may be installed in areas required to be of noncombustible construction. The Viega PureFlow PEX, and Viega Barrier cross-linked polyethylene (PEX) tubing products were tested to ASTM E84, UL 263, ULC S101 and ULC S102 and were found to have a flame-spread index (FS) rating of not more than 25 and a smoke-developed index (SD) rating of not more than 50 when tested. The Viega PureFlow PEX, and Viega Barrier cross-linked polyethylene (PEX) tubing products have been evaluated for installation in either horizontal or vertical orientations in return-air plenums. Ratings apply when tubing is field insulated with fiberglass insulation meeting the following requirements: ASTM E84 Listed and having a Flame Spread Index of <25 and a Smoke Developed Index of <50, a Wall thickness of not less than ½" and there shall be no exposed tubing. Tubing may contain fittings which shall also be fully encased in insulation.

The Viega PureFlow PEX, and Viega Barrier cross-linked polyethylene (PEX) tubing products were tested to UL 2846 and found to have a Flame Propagation < 15, Peak Optical Density 0.845, Average Optical Density 0.125. Ratings apply when all areas of exposed Viega pipe between PEX Pipe supports is to be encased with fiberglass insulation (3MAPOM2x1/2). Piping is to be clamped with standard support clamps following Viega installation instructions.

Models:

Tubing:

General: Viega PureFlow PEX, and Viega Barrier tubing products are manufactured from cross-linked polyethylene (PEX) materials satisfying NSF 61, as well as ASTM F876, F877, AWWA C904 and F3253. Viega LLC tube and fitting products are pressure-rated for 100 psi (689 kPa) at 180°F (82°C), for a standard dimension ratio of 9. The standard dimension ratio is the ratio of tube outside diameter to the wall thickness and is constant for all Viega LLC tube sizes.

Viega PureFlow PEX is a monowall tube that is available in red, white, blue or black colors. All Viega PureFlow tubing is available in $^{3}/_{8}$-, ½-, ¾-, 1-, $1^{1}/_{4}$-, $1^{1}/_{2}$-, and 2-inch (9.5, 12.7, 19.1, 25.4, 31.7, 38.1, and 50.8 mm) nominal diameter sizes in coils ranging from 100 to 1000 feet (30.5 m to 305 m) in length, and in straight lengths of 20 feet (6.1 m).

Viega Barrier is black with a red stripe and is composed of four layers: PEX, an adhesive layer, an oxygen barrier layer, and a black layer that sports the red stripe. Viega Barrier is available in $^{5}/_{16}$-, $^{3}/_{8}$-, ½-, $^{5}/_{8}$-, ¾-, 1-, $1^{1}/_{4}$-, $1^{1}/_{2}$-, and 2-inch (7.9, 9.5, 12.7, 15.9, 19.1, 25.4, 31.7, 38.1, and 50.8 mm) nominal diameter sizes in coils ranging from 100 to 4000 feet (30.5 m to 1220 m) in length, and in straight lengths of 20 feet (6.1 m).

Fittings:

The PureFlow® fitting system composed of PureFlow Press can be used for Viega PureFlow PEX, and Viega Barrier tubing. The PureFlow Press fittings are ZL bronze, insert-type with a factory attached stainless steel press sleeve Viega Press fittings are also compatible with the Viega MiniBloc™ zoning manifold and ManaBloc® parallel water distribution system. The fittings are illustrated in Figure 1.

The PureFlow Press Polymer fittings are insert-type with factory an attached stainless steel press sleeve. The fittings must be installed in the end of the tubing by installation of the stainless-steel press sleeve over the tubing. The stainless-steel press sleeve must then be pressed onto the tube and fitting with a proprietary ratchet-style tool or an electro-hydraulic press tool that is approved by Viega LLC. The tools only release from the fitting once the full compression is exerted. When used with the tubing noted above, PureFlow® Press Polymer fittings comply with the ASTM F 877, F3347 and F3348. Viega PureFlow Press Polymer fittings are also compatible with the Viega ManaBloc® parallel water distribution system and Viega MiniBloc™ zoning manifold. The fittings and manifolds are illustrated in Figure 1 and 2.

The PureFlow® Crimp fittings and PolyAlloy manifolds are only for use with Viega PureFlow tubing in nominal diameters up to 1 inch (25.4 mm). The fittings are ZL brass, copper alloy or PolyAlloy, insert-type using an external copper crimp ring. The fitting is installed in the end of the tubing by installation of the copper crimp ring over the end of the tubing and insertion of the barbed fitting. The copper ring

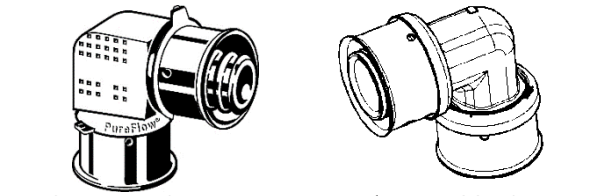
is then crimped onto the tubing and fitting within 1/8 inch to ¼ inch of the end of the tubing, with an ASTM F1807 / ASTM F2159 compliant crimp tool. The fittings are illustrated in Figure 3 and 4.

All fitting systems must be attached to tubing in strict accordance with Viega LLC PureFlow® installation instructions.

The PureFlow® Press valves are only for use with Viega PureFlow tubing in nominal diameters up to 2 inches (50.8 mm). The valves are made of lead-free brass and must be installed at the end of the tubing by installation of the stainless-steel press sleeve over the tubing. The stainless-steel press sleeve must then be pressed onto the tube and fitting with a proprietary ratchet-style tool or an electro-hydraulic press tool that is approved by Viega LLC. The tools only release from the fitting once the full compression is exerted.

Conditions of Listing:

1. The tubing must be maintained at the proposed operating pressure during placement of concrete cover for a hydronic piping system.
2. The tubing installation must be pressure-tested for leaks in the presence of the code official or the official's designated representative.
3. When installation is in fire-resistive assemblies, evidence of compliance with IBC Section 712 (penetrations) must be provided to the code official.
4. The tubing must not be used as a source of electrical ground.
5. The minimum cold free-bending radius is eight times the outside diameter, or five times the outside diameter with use of a bend support supplied by Viega LLC. The outside diameter is the nominal diameter plus 1/8 inch (3.2 mm).
6. All systems must be installed in accordance with the manufacturer's installation instructions, which are provided with the product. Installation must conform to relevant requirements of the referenced codes and is subject to approval by the code official. Manufacturer's instructions must be furnished to the code official upon request.
7. The cross-linked polyethylene tubing, polymer fittings, polymer manifolds, ManaBlocs® and the metal press fittings are all under a quality control program with surveillance inspections by ICC-ES.



ZERO LEAD BRONZE PureFlow PRESS POLYMER

FIGURE 1—VIEGA PureFlow PRESS FITTINGS

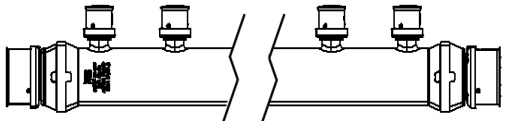


FIGURE 2—VIEGA PureFlow PRESS POLYMER MANIFOLD

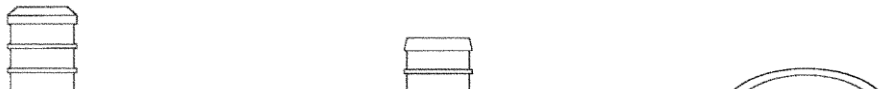


FIGURE 3—VIEGA PureFlow CRIMP FITTINGS

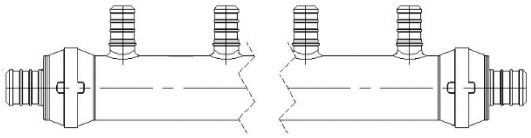


FIGURE 4—VIEGA POLYALLOY MANIFOLD

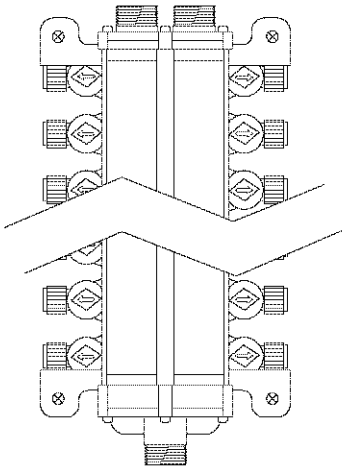


FIGURE 5— ManaBloc® PARALLEL WATER DISTRIBUTION SYSTEM

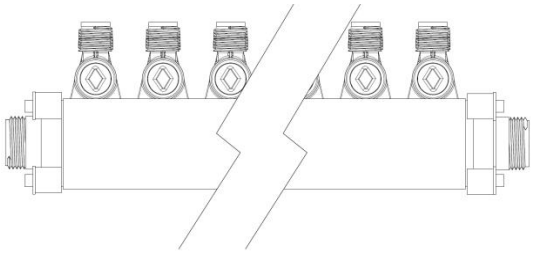


FIGURE 6—MiniBloc™ ZONING MANIFOLD