

FostaPEX High Density Cross-linked Polyethylene (PEX)

Scope

This material specification designates the requirements for Viega FostaPEX multilayer pressure pipe for hot and cold water distribution tubing and hydronic radiant heating applications. All FostaPEX tubing has a fully dimensioned inner PEX core to the copper tube size dimension (CTS), SDR-9 wall thickness and meets the respective requirements of ASTM Standard F876 and F877.

Materials

The multi-layered construction of the FostaPEX tubing is made from one full dimensional inner PEX core with an aluminum and outer PE layer surrounding it. This construction allows the inner layer alone to meet all temperature and pressure requirements of the system. Using the prep tool to remove the outer layers allows the use of the standard PureFlow PEX Press fitting system.

Marking and Certification

All FostaPEX tubing is marked with the name Viega as the manufacturer, nominal size, plastic tubing material designation code PEX 5006, Chlorine resistance rating NSF-pw (CL5), design pressure and temperature ratings, relevant ASTM standards, manufacturing date and production code, as well as the NSF-pw stamps indicating third-party certification by NSF International for meeting and exceeding performance and toxicological standards, as well as achieving the highest chlorine resistance rating in the PEX industry. NSF conducts random on-site inspections of Viega manufacturing facilities and independently tests FostaPEX tubing for compliance with physical, performance and toxicological standards. FostaPEX is also certified to meet the Uniform Plumbing Code, IAPMO UPC®, CSA (Canadian Standards Association) B137.5, the ICC (International Code Council) Evaluation Service, and HUD (Housing and Urban Development).

Recommended Uses

FostaPEX tubing is intended and recommended for use in hot and cold potable water distribution systems and hydronic radiant heating and cooling systems. Like ViegaPEX Barrier, which has a barrier layer that resists the passage of oxygen through the wall of the tubing, the aluminum layer in FostaPEX offers even higher resistance to oxygen permeation in radiant heating applications. FostaPEX tubing can also be used in water service applications and is virtually impermeable to any soil contaminants. Design temperature and pressure ratings for FostaPEX are 160 psi @ 73°F, 100 psi @ 180°F, and 80 psi @ 200°F. For information on the suitability for other hot and cold water applications not listed here, consult with your Viega representative.

Handling and Installation

FostaPEX cross-linked polyethylene tubing is tough yet flexible. The aluminum layer allows tubing to be bent into position and remain in position when released. However, use of these materials in hot and cold water distribution systems must be in accordance with good plumbing practices, applicable code requirements, and current installation practices available from Viega. FostaPEX is manufactured to meet written national standards. Contact a Viega representative or the applicable code enforcement bureau for information about approvals for specific applications.

Property	ASTM Test Method	Typical Values	
		English Units	SI Units
Density	D 792	–	0.944 g/cc
Melt Index ¹ (190° C/2.16 kg)	D 1238	–	8.5g/10 min
Coefficient of Linear Thermal Expansion @ 68° F	D 696	1.3x10 ⁻⁵ in/in/°F	2.4x10 ⁻⁵ mm/mm/°C
Hydrostatic Design Basis @ 73°F (23°C)	D 2837	1250 psi	8.6 MPa
Hydrostatic Design Basis @ 180°F (82°C)	D 2837	800 psi	5.5 MPa

1. Before Cross-linking

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Quality Assurance

When the product is marked with the ASTM F876 designation, it affirms that the product was manufactured, inspected, sampled and tested in accordance with these specifications and has been found to meet the specified requirements.

Certifications

NSF-pw - Tested for health effects to ANSI/NSF standard 61 and performance to ANSI/NSF standard 14.

PEX 5006 - Tested and listed to the NSF-pw (CL5) Chlorine resistance rating for an end use condition of 100% @ 140°F per ASTM F876, which is the highest Chlorine resistance rating available through ASTM. When the product is marked with the PEX 5006 NSF-pw (CL5) designation, it affirms the product is approved for use in continuous domestic hot water circulation systems with up to 140°F water temperatures.



- **IAPMO Certified**



- **ICC ES-PMG™ 1038/1015**
plumbing and heating systems



- **NSF certified to CSA B137.5**
(Canadian Standards Association)

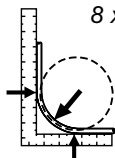


- **Certified to ASTM E84 and CAN/ULC S102.2 FS/SD (25/50)**
(U.S. & Canadian plenum rating)

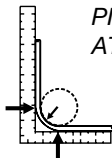
HUD (Housing and Urban Development) - MR 1276

Minimum Bend Radius

CORRECT:
8 x O.D.



INCORRECT:
PIPE FLATTENS
AT THE BEND



Note: FostaPEX tubing may be bent to a minimum of 3.5 x O.D. with use of a Viega pipe bender.

Minimum Burst Pressure (PSI) Per ASTM F876/F877

SIZE	73°F (23°C)	180°F (82°C)
1/2"	480	215
5/8"	475	200
3/4"	475	210
1"	475	210

Thermal Conductivity

SIZE	BTU/h/ft/°F	W(m.°C)
1/2"	.484	.838
5/8"	.516	.892
3/4"	.547	.946
1"	.711	1.230

SDR-9 PEX Tubing ASTM F876/F877/CTS-OD SDR-9

Stock Code	Tubing Size	Wall O.D.	Nom. Thickness	I.D.	Weight Per Ft	Volume(Gal.) Per 100 Ft
35 020	1/2"	0.625±.004	0.070+.010	0.475	.0600	0.92
35 030	5/8"	0.750±.004	0.083+.010	0.574	.0900	1.34
35 040	3/4"	0.875±.004	0.097+.010	0.671	.1200	1.82
35 060	1"	1.125±.005	0.125+.013	0.863	.2000	3.04

NOTE: Dimensions are in English units. Tolerances shown are ASTM requirements. Viega FostaPEX is manufactured within these specifications. (These dimensions do not reflect the outer aluminum and PE layers.)

Pressure Drop Table Expressed as PSI/ft. Pressure Drop

GPM	1/2"	SIZE 5/8"	3/4"	1"
1	.016	.007	.003	.001
1.5	.034	.014	.006	.002
2.2	.069	.034	.013	.004
2.5	.087	.043	.016	.005
3	.122	.050	.023	.007
3.5	.162	.080	.030	.009
4	.208*	.100	.039	.011
5	.314	.154	.059	.017
6	.440	.181	.082	.024
7	.586	.287	.109	.032
8		.368	.140	.041
9		.457	.174*	.051
10		.556	.211	.062
11			.252	.074
12			.296	.087
13			.343	.101
14				.116
15				.132*
16				.148
17				.166
18				.184
19				.204
20				.224
21				.245
22				.267

EXAMPLE: To calculate the pressure drop of a 1/2" line, 40 ft. long, with a 3 gpm flow rate, calculate .122 psi x 40 ft. = 4.9 psi pressure drop. Most plumbing codes require 8 psi residual pressure at the fixture. Refer to your local code requirements.

*Indicates 8 fps maximum velocity required by some plumbing codes.

NOTE: Maximum flow for each size based on 12 FPS velocity.

PSI x 2.307 = head loss.

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