



CSI: DIVISION: 22 00 00—PLUMBING  
Section: 22 11 16—Domestic Water Piping  
DIVISION: 23 00 00—HEATING, VENTILATING AND AIR-CONDITIONING (HVAC)  
Section: 23 21 13—Hydronic Piping

### 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: Sharkbite® PEX Tubing and Speedfit® Fittings

Listee: Reliance Worldwide Corporation  
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### Compliance with the following codes:

2024, 2021, 2018, 2015, 2012 and 2009 *International Plumbing Code*® (IPC)  
2024, 2021, 2018, 2015, 2012 and 2009 *International Mechanical Code*® (IMC)  
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 *Uniform Mechanical Code*® (UMC)\*

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### Compliance with the following standards:

ASSE 1061-2020, Performance Requirement for Push-fit fittings  
ASTM F876-2024, Standard Specification for Crosslinked Polyethylene (PEX) Tubing1  
ASTM F877-2024, Standard Specification for Crosslinked Polyethylene (PEX) Hot- and Cold-Water Distribution Systems  
ASTM F2854-2021, Standard Specification for Push-Fit Crosslinked Polyethylene (PEX) Mechanical Fittings for Crosslinked Polyethylene (PEX) Tubing  
ICC-ES LC1004-2009(editorially revised 2010), PMG Listing Criteria for PP, PEX, PEX-AI-PEX and PP-AL-PP Tube and Fittings used in Radiant Heating and Water Supply Systems  
ICC-ES LC1009-2008(editorially revised 2010), PMG Listing Criteria for Push-fit Fittings for Potable Water Tube and Radiant Heating Systems  
NSF/ANSI 14-2023, Plastics Piping System Components and Related Materials  
NSF/ANSI/CAN 61-2023, Drinking Water System Components - Health Effects

## Identification:

Sharkbite® PEX Tubing is marked every 3 feet (914 mm) with the following:

- The Sharkbite logo (see Figure 1)
- The name “Sharkbite®”
- Nominal tube size
- Material designation (PEX)
- Potable water designation (PW or NSF/ANSI/CAN 61)
- Standard dimension ratio (SDR9)
- Temperature and pressure ratings
- ASTM F876/F877 designation
- ASSE 1061 fitting mark
- Production code
- The ICC-ES evaluation report number (ESR-1931) and/or the ICC-ES PMG listing mark.

Speedfit® Fittings are marked with the following:

- The John Guest logo (see Figure 2)
- Nominal diameter
- Letter designation of fitting manufacturer
- The designations ASTM F877 and CSA B137.5
- The designation ASTM F2854 when space permits (PEI models only)
- Potable Water Designation (PW or NSF61)

Packaging for the fittings is marked with:

- The ICC-ES evaluation report number (ESR-1931) and/or the ICC-ES PMG listing mark.
- The designations ASTM F877, CSA B 137.5 and ASSE 1061.
- The designation ASTM F2854 (PEI models only)

## Installation:

Sharkbite® PEX tubing and push-fit fittings must be installed in accordance with the applicable code and the manufacturer’s published installation instructions. The pipe or tubing is cut to length, and for PEX an insert is fitted into the cut end of the tube. The pipe or tubing is pushed into the fitting up to the stop. The fitting has a cursor line on the outer surface to show the full insertion depth for the tubing.

## Models:

Sharkbite® PEX tubing is a cross-linked polyethylene (PEX) tubing used in radiant heating systems and potable hot- and cold-water distribution systems.

Sharkbite® tubing is manufactured from red, white or blue cross-linked PEX.

The tube is available in nominal diameters of  $\frac{3}{8}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ , 1, 1-1/4, 1-1/2 and 2 inch (12.7, 22.2, 28.6, 34.9, 41.3 and 54 mm), and in coils or in straight lengths up to 20 feet.

Speedfit® Fittings are push-fit fittings designed for use with Speedfit® tubing, copper tube, chlorinated polyvinyl chloride (CPVC) or PEX in accordance with this listing.

Speedfit® fittings are also manufactured from white cross-linked PEX and other materials. See Table 1 for recognized fittings and materials.

The Sharkbite® PEX Tubing and Speedfit® Fitting System satisfies the requirements of ASTM F876, ASTM F877 and NSF 14. All components in contact with potable water satisfy NSF 61. Sharkbite® PEX tube and Speedfit® fitting products are pressure-rated for 100 psi (689 kPa) at 180°F (82°C), and 160 psi (1100kPa) at 73°F (23°C), for a standard dimension ratio of 9. Standard dimension ratio is the ratio of outside diameter to wall thickness and is constant for all tube sizes over  $\frac{1}{2}$  inch (12.7 mm).

Speedfit® push-fit fittings are recognized for use with Sharkbite® PEX tubing, using insert sleeves, in accordance with ASSE 1061, ICC-ES LC-1009/AC311 and ASTM F877 as well as NSF 61. Speedfit® fittings have a collet with stainless steel gripping teeth and a rubber O-ring seal.

Insert fittings are required and are provided in two types:  
 The standard insert sleeve does not have any O-ring seals.  
 The Superseal Insert Sleeve has two O-ring seals.

Speedfit® push-fit fittings are recognized as having satisfied ASSE 1061 for use with copper tubing, chlorinated polyvinyl chloride (CPVC), and PEX tubing (provided the PEX tubing is marked in accordance with the Identification section of this listing). PEI fittings are recognized as having satisfied ASTM F2854 for use with pipe insert only.

TABLE 1— FITTING DESCRIPTIONS

PEX *		PEX *	
PEI0220	1/2" CTS UNION TEE - WHITE	PEI222828	3/4" CTS STEM ELBOW CONNECTOR
PEI0228	3/4" CTS UNION TEE- WHITE	PEI3028A	3/4" x 3/4" x 1/2" CTS REDUCING TEE
PEI0236	1" CTS UNION TEE-WHITE	PEI3028B	3/4" x 1/2" x 1/2" CTS REDUCING TEE
PEI0320	1/2" CTS UNION ELBOW	PEI3028C	1/2" x 1/2" x 3/4" CTS REDUCING TEE
PEI0328	3/4" CTS UNION ELBOW - WHITE	PEI3028D	3/4" x 1/2" x 3/4" CTS REDUCING TEE
PEI0336	1" CTS UNION ELBOW - WHITE	PEI532020	1/2" CTS x 1/2" STEM x 1/2" CTS TEE
PEI0420	1/2" CTS UNION CONNECTOR - WHITE	PEI532820	1/2" CTS x 1/2" STEM x 1/2" CTS TEE
PEI0428	3/4" CTS UNION CONNECTOR - WHITE	PEI532828	3/4" CTS x 3/4" STEM x 3/4" CTS TEE
PEI0436	1" CTS UNION CONNECTOR - WHITE	PEIBTC2034	1/2" CTS x 1/2" NPSM FEMALE STRAIGHT CONNECTOR
PEI062820	3/4" CTS TO 1/2" CTS REDUCER	PEIBTC20C75	1/2" CTS x 7/8" BALLCOCK ELBOW CONNECTOR - 15/16 UNS
PEI063628	1" CTS - 3/4" CTS REDUCER	PEISTC2034	1/2" CTS x 1/2" NPSM FEMALE STRAIGHT CONNECTOR
PEI202820	3/4" CTS - 1/2" CTS REDUCING UNION	PEISTC20C75	1/2" x 7/8" FEMALE BALLCOCK CONNECTOR - 15/16 UNS
PEI203628	1" CTS TO 3/4" CTS REDUCING UNION	1/2SC	1/2" CTS SLIP CONNECTOR
PEI212820	3/4" CTS TO 1/2" CTS REDUCING UNION ELBOW	3/4SC	3/4" CTS SLIP CONNECTOR
PEI222020	1/2" CTS STEM ELBOW CONNECTOR	* PEI products are also available in black. The part number has an "E" suffix	
POLYSULFONE		POLYSULFONE	
NC2723	3/8" x 3/4" NATIONAL HOSE ELB	PSEI3028A	3/4" - 3/4" - 1/2" CTS TEE
PSEI011624	3/8" CTS x 1/2" NPT MALE CONN	PSEI3028B	3/4" - 1/2" - 1/2" CTS TEE
PSEI012024	1/2" CTS X 1/2" NPT STRAIGHT ADAPTOR	PSEI3028C	1/2" - 1/2" - 3/4" CTS TEE
PSEI012026	1/2" CTS X 3/4" NPT STRAIGHT ADAPTOR	PSEI3028D	3/4" - 1/2" - 3/4" CTS TEE
PSEI012824	3/4" CTS x 1/2" NPT MALE CONN	PSEI3036A	1" - 1" - 3/4" CTS TEE
PSEI012826	3/4" CTS X 3/4" NPT STRAIGHT ADAPTOR	PSEI452826	3/4" CTS X 3/4" NPS FEMALE CONNECTOR
PSEI012828	3/4" CTS x 1" NPT MALE CONN	PSEI4616	3/8" CTS END CAP
PSEI013626	1" CTS X 3/4" NPT STRAIGHT ADAPTOR	PSEI4620	1/2" CTS END CAP
PSEI013628	1" CTS X 1" NPT STRAIGHT ADAPTOR	PSEI4628	3/4" CTS END CAP
PSEI0216	3/8" CTS UNION TEE	PSEI4636	1" CTS END CAP
PSEI0220	1/2" CTS UNION TEE	PSEI482024	1/2" CTS X 1/2" NPT FIXED ELBOW CONNECTOR
PSEI0228	3/4" CTS UNION TEE	PSEI482826	3/4" CTS x 3/4" NPT MALE ELBOW
PSEI0236	1" CTS UNION TEE	PSEI502034	1/2" CTS x 1/2" NPSM FEM STEM
PSEI0316	3/8" CTS UNION ELBOW	PSEI502034	1/2" CTS x 1/2" NPSM FEM STEM
PSEI0320	1/2" CTS UNION ELBOW	PSEI532020	1/2" x 1/2" STEM x 1/2" CTS TEE
PSEI0328	3/4" CTS UNION ELBOW	PSEI532820	3/4" x 3/4" STEM x 1/2" CTS TEE
PSEI0336	1" CTS UNION ELBOW	PSEI532828	3/4" x 3/4" STEM x 3/4" CTS TEE
PSEI0416	3/8" CTS UNION CONNECTOR	PSEI533628	1" x 1" STEM x 3/4" CTS TEE
PSEI0420	1/2" CTS UNION CONNECTOR	PSEI6012U9	3/8" OD x 9/16-24 FEMALE
PSEI0428	3/4" CTS UNION CONNECTOR	PSEI601634	3/8" x 1/2" NPS FEM ADAP (BRASS)
PSEI0436	1" CTS UNION CONNECTOR	PSEI602034	1/2" CTS x 1/2" NPS FEM AD (BRASS)
PSEI062016	1/2" CTS - 3/8" CTS REDUCER	PSEI602036	3/4" CTS x 1/2" NPS FEM AD (BRASS)

PSEI062820	1" CTS - 3/4" CTS REDUCER	PSEI602834	1/2" CTS x3/4 NPS FEM AD (BRASS)
PSEI063628	3/4" CTS - 1/2" CTS REDUCER	PSEI602836	3/4" CTS x3/4 NPS FEM AD (BRASS)
PSEI202016	1/2" CTS x 3/8" CTS STR CONN	PSEI603638	1" CTS x1 NPS FEM AD (BRASS)
PSEI202820	3/4" - 1/2" CTS STRAIGHT	PSEI612034	1/2"x1/2 NPS FEM ELB (BRASS)
PSEI203628	1" - 3/4" CTS STRAIGHT	PSEI612836	3/4"x3/4 NPS FEM ELB (BRASS)
PSEI212016	1/2" x 3/8" CTS ELBOW	PSEI621234	3/8" OD x 1/2 NPS FEMALE CONN
PSEI212820	3/4" - 1/2" CTS ELBOW	PSEI6212C75	3/8" OD x 7/8" BALLCOCK CONN
PSEI213628	1" - 3/4" CTS ELBOW	PSEI622036	1/2"x3/4 NPS FEM CON(PLASTIC)
PSEI222020	1/2" CTS STEM ELBOW	PSEI622836	3/4"x3/4 NPS FEM CON(PLASTIC)
PSEI222828	3/4" CTS STEM ELBOW	PSEI623638	1" x 1 NPS FEM CON(PLASTIC)
PSEI223636	1" CTS STEM ELBOW	PSEI632836	3/4"x3/4NPS FEM ELB(PLASTIC)
PSEI3016A	1/2" x 1/2" x 3/8" CTS TEE	*PSEI products are also available in black. The part number has an "E" suffix	
<b>LEAD FREE BRASS PARTS*</b>		<b>LEAD FREE BRASS PARTS*</b>	
MWI011624LF	3/8" X 1/2 NPT BRASS MALE	MWI013626LF	1" X 3/4 NPT BRASS MALE
MWI012024LF	1/2"CTS x 1/2 npt STR. ADAPTOR	MWI013628LF	1" X 1 NPT BRASS MALE
MWI012026LF	1/2" CTS X 3/4 npt STR. ADAPTOR	MWI052024LF	1/2"CTS x 1/2 npt STEM ADAPTOR
MWI012824LF	3/4" X 1/2 NPT BRASS MALE	MWI052826LF	3/4"CTS x 3/4 npt STEM ADAPTOR
MWI012826LF	3/4"CTS x 3/4 npt STR. ADAPTOR	MWI502034LF	1/2"CTS x 1/2 npsm FEMALE ADAPTOR
MWI012828LF	3/4" X 1 NPT BRASS MALE	*MWI products are also available with a black collet. The part number has an "E" suffix	
<b>SUPERSEAL INSERTS</b>		<b>INSERTS</b>	
STSI20	1/2" CTS SUPERSEAL PIPE INSERT	TSI16	3/8" CTS PIPE INSERT
STSI28	3/4" CTS SUPERSEAL PIPE INSERT	TSI20	1/2" CTS PIPE INSERT
STSI36	1" CTS SUPERSEAL PIPE INSERT	TSI28	3/4" CTS PIPE INSERT
		TSI36	1" CTS PIPE INSERT

Conditions of Listing:

1. Horizontally laid pipe must be secured in such a manner that temperature-induced expansion and contraction are accommodated. Mounting brackets and installation hardware are provided by the manufacturer.
2. Details of the design and installation of the radiant heating system must be submitted to the code official for approval. All circuits must be formed from continuous lengths of tubing, from manifold supply to return. No splices are allowed. The system may be installed in either concrete or wood floors. When the system is embedded in concrete floors, a moisture barrier must be laid over a concrete-base slab that has a minimum thickness of 3 1/2 inches (38 mm). Under-floor insulation and reinforcing mesh must be placed on the slab. The tubing is uncoiled and attached to the mesh using soft steel wire or clips. A concrete topping is laid over the tubing. When embedment is in concrete, the installation, including minimum concrete cover, must comply with IBC Chapter 19 or IRC Chapter 5. When the tubing is installed over polystyrene boards, the boards must comply with IBC Chapter 26 or IRC Chapter 3.
3. The tubing must be pressure tested for leaks before installation of covering. The leak test must be witnessed by the code official or the code official's designated representative.
4. When installation is in fire-resistance-rated assemblies, evidence of compliance with IBC Section 712 (penetrations) must be provided to the code official for approval.
5. Sharkbite® PEX tubing and Speedfit® fittings must be protected from exposure to direct sunlight. Tubing and fittings must be protected from physical damage with an oversized flexible corrugated sleeve at structural mass penetrations and when the tube is uncovered. Annular spaces between sleeves and pipes must be filled or tightly caulked in an approved manner.
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. During placement of the cover over the tubing, the tube must be maintained at the greater of 1 1/2 times the working pressure or 100 psi (689.4 kPa), whichever is greater.
8. Clearances from heat-producing equipment must be in accordance with the applicable code.

9. Minimum bending radius of the tube must be six times the outside tube diameter for cold-bent tube. The outside diameter is nominal diameter plus  $\frac{1}{8}$  inch (3.2 mm).
10. Speedfit® push-fit fittings:
  - a. Speedfit® push-fit fittings are limited to use in interior, above-grade installations with operating pressures of 80 psi (551.2 kPa) or less, and where the fittings are not embedded in concrete.
  - b. Pipe or tubing joined by Speedfit® push-fit fittings must not be used to support loads beyond those of the water-filled pipe and fittings.
  - c. PEX tubing must be used only with pipe inserts.
11. Materials used with push-fit fittings:
  - a. Copper tubing must conform to ASTM B88.
  - b. CPVC tubing must conform to ASTM D2846.
  - c. PEX tubing: Use of push-fit fittings is limited to PEX tubing listed as complying with ASTM F876 and ASTM F877 and labeled to indicate use with fittings complying with ASSE 1061.
12. The Sharkbite® PEX Tubing and Speedfit® Fittings are manufactured by Reliance Worldwide Corporation and are under a quality control program with inspections by ICC-ES.



FIGURE 1—SHARKBITE LOGO



FIGURE 2—JOHN GUEST LOGO