

# ICC-ES Evaluation Report

**ESR-1458**

Reissued April 1, 2011

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**DIVISION: 22 00 00—Plumbing**  
**Section: 22 11 16—Domestic Water Piping****REPORT HOLDER:****VICTAULIC COMPANY**  
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[www.victaulic.com](http://www.victaulic.com)**EVALUATION SUBJECT:****PERMALYNX PUSH-FIT FITTINGS FOR COPPER TUBING****1.0 EVALUATION SCOPE****Compliance with the following codes:**

- 2009 *International Plumbing Code*® (IPC)
- 2009 *International Residential Code*® (IRC)
- 2009 *International Mechanical Code*® (IMC)

**Properties evaluated:**

- Temperature and pressure ratings
- Use with potable water distribution systems

**2.0 USES**

The PermaLynx push-fit fittings are plumbing fittings used to connect sections of rigid copper tubing for use above ground in radiant heating systems and potable hot- and cold-water distribution systems.

**3.0 DESCRIPTION**

The PermaLynx push-fit fittings are manufactured from ASME B16.22 copper alloy and comply with ASSE 1061 and NSF 61. The fitting opening intended for push-fit connection has an EPDM sealing ring and a stainless steel gripping ring. The fittings range in size from 1/2 inch to 1 1/2 inches in diameter (13 mm to 38 mm). Threaded ends of fittings comply with ASME B1.20.1 as tapered pipe threads. The fittings covered by this report are shown in Table 1.

**4.0 INSTALLATION****4.1 General:**

PermaLynx Push-fit fittings described in this report must be installed in accordance with the manufacturer's published installation instructions, the applicable code and this report. Where differences exist, this report governs.

Installation is limited to seamless rigid copper tubing complying with ASTM B 88. Prior to installation of the fitting, the end of the copper tubing must be inspected to ensure that it is cut square and is not dented, oval or have flat spots. The end of the tubing must be reamed on the inside to ensure proper flow, and chamfered on the outside to remove any burrs that might damage the EPDM seal of the PermaLynx fitting. The tubing must be sanded clean to a distance equal to the fitting's installation depth and must be marked to indicate the proper insertion depth of the tubing into the fitting. The tubing must be lubricated with non-petroleum-based lubricant or a lubricant that does not contain soap or detergent that includes chlorides. The tubing is inserted into the fitting, to the required depth, while maintaining direct alignment between the tubing and the fitting.

**4.2 Inspection and Testing:**

**4.2.1 Water Distribution:** The potable water distribution system utilizing the PermaLynx Push-fit fittings must be pressure-tested and inspected in accordance with IPC Section 312.5 or IRC Section P2503.7, as applicable.

**4.2.2 Radiant Heating Systems:** The radiant heating system must be pressure-tested for leaks before installation of the covering, as noted in Section 1208 of the IMC or Section M2103.4 of the IRC, as applicable.

**5.0 CONDITIONS OF USE**

The PermaLynx push-fit fittings described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1** The PermaLynx push-fit fittings must be manufactured, identified and installed in accordance with this report, the applicable code and the manufacturer's published installation instructions. In the event of a conflict between the published installation instructions and this report, this report governs.
- 5.2** PermaLynx fittings are limited to interior, above-grade installations where the fittings are not embedded in concrete.
- 5.3** Installation of PermaLynx fittings is limited to seamless rigid copper tubing as noted in Section 4.1.
- 5.4** PermaLynx fittings and connected tubing must not be used to support loads beyond that of the water-filled pipe and fittings.
- 5.5** The PermaLynx Push-fit fittings are manufactured in Allentown, Pennsylvania, under a quality control program with inspections by CSA International (AA-659).

6.0 EVIDENCE SUBMITTED

- 6.1 Data in accordance with the ICC-ES PMG Listing Criteria for Push-fit Fittings for Potable Water Tube and Radiant Heating Systems (LC1009), dated April 2008 (editorially revised April 2010).
- 6.2 Data in accordance with Section 3.2 of LC1009, on testing with copper tubing in accordance with ASSE 1061-06 (Performance Requirements for Removable and Nonremovable Push-fit Fittings).

7.0 IDENTIFICATION

PermaLynx Push-fit fittings are labeled with the product name (PermaLynx), nominal size, potable water mark (NSF 61), logo of the third-party inspection agency (CSA International) and the evaluation report number (ESR-1458). Packages of fittings bear the Victaulic name, product name, manufacturer's designation, the name of the third-party inspection agency (CSA International) and the evaluation report number (ESR-1458).

TABLE 1

SIZE	DESCRIPTION	END CONFIGURATION	FIGURE NUMBER
$\frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{4}, 1\frac{1}{2}$	Coupling	PL x PL	PL-600
$\frac{3}{4} \times \frac{1}{2}, 1 \times \frac{3}{4}, 1 \times \frac{1}{2}, 1\frac{1}{4} \times 1, 1\frac{1}{4} \times \frac{3}{4}, 1\frac{1}{2} \times 1\frac{1}{4}, 1\frac{1}{2} \times 1$	Coupling	PL x PL	PL-600R
$\frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{4}, 1\frac{1}{2}$	Threaded Adapter	PL x F	PL-603
$\frac{1}{2} \times \frac{3}{4}, \frac{3}{4} \times \frac{1}{2}, 1 \times \frac{3}{4}$	Threaded Adapter	PL x F	PL-603R
$\frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{4}, 1\frac{1}{2}$	Threaded Adapter	PL x M	PL-604
$\frac{1}{2} \times \frac{3}{4}, \frac{3}{4} \times \frac{1}{2}$	Threaded Adapter	PL x M	PL-604R
$\frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{4}, 1\frac{1}{2}$	45° Elbow	PL x PL	PL-606
$\frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{4}, 1\frac{1}{2}$	90° Elbow	PL x PL	PL-607
$\frac{3}{4} \times \frac{1}{2}$	90° Elbow	PL x PL	PL-607R
$\frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{4}, 1\frac{1}{2}$	Tee	PL x PL x PL	PL-611
$\frac{1}{2} \times \frac{1}{2} \times \frac{3}{4}, \frac{3}{4} \times \frac{3}{4} \times 1$	Tee	PL x PL x PL	PL-611BH
$\frac{3}{4} \times \frac{1}{2} \times \frac{3}{4}, \frac{3}{4} \times \frac{1}{2} \times \frac{1}{2}$	Tee	PL x PL x PL	PL-611RR
$\frac{3}{4} \times \frac{3}{4} \times \frac{1}{2}, 1 \times 1 \times \frac{3}{4}, 1 \times 1 \times \frac{1}{2}, 1\frac{1}{4} \times 1\frac{1}{4} \times 1, 1\frac{1}{4} \times 1\frac{1}{4} \times \frac{3}{4}, 1\frac{1}{4} \times 1\frac{1}{4} \times \frac{1}{2}, 1\frac{1}{2} \times 1\frac{1}{2} \times 1\frac{1}{4}, 1\frac{1}{2} \times 1\frac{1}{2} \times 1, 1\frac{1}{2} \times 1\frac{1}{2} \times \frac{3}{4}, 1\frac{1}{2} \times 1\frac{1}{2} \times \frac{1}{2}$	Tee	PL x PL x PL	PL-611R
$\frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{4}, 1\frac{1}{2}$	Cap	PL	PL-617
$\frac{1}{2} \times \frac{3}{4}, \frac{3}{4} \times 1, \frac{1}{2} \times 1$	Coupling	PL x FTG	PL-600-2R
$\frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{4}, 1\frac{1}{2}$	45° Elbow	PL x FTG	PL-606-2
$\frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{4}, 1\frac{1}{2}$	90° Elbow	PL x FTG	PL-607-2
$\frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{4}, 1\frac{1}{2}$	Long Turn 90° Elbow	PL x PL	PL-607LT
$\frac{1}{2}, \frac{3}{4}, 1$	90° Elbow	PL x F	PL-707-3
$\frac{1}{2}, \frac{3}{4}$	Drop 90° Elbow	PL x F	PL-707-3-5
$\frac{1}{2}, \frac{3}{4}, 1$	90° Elbow	PL x M	PL-707-4
$\frac{1}{2}, \frac{3}{4}, 1$	Tee	PL x PL x F	PL-712
$\frac{1}{2}, \frac{3}{4}, 1, 1\frac{1}{4}, 1\frac{1}{2}$	Union	PL x PL	PL-733
$\frac{1}{2}, \frac{3}{4}, 1$	Union	PL x F	PL-733-3
$\frac{1}{2}, \frac{3}{4}, 1$	Union	PL x M	PL-733-4
$1, 1\frac{1}{4}, 1\frac{1}{2}$	Flange	PL x Flange	PL-771
$\frac{1}{2}$	Drop Ear Elbow	PL x PL	PL-707-5
$\frac{1}{2}$	Drop Ear Elbow w/ Stub	PL x Stub	PL-707-5S

For SI: 1 inch = 25.4 mm.