



**Summary of Substantive Changes
between the 2018 and 2018a editions of
ASTM F1807, Metal Insert Fittings Utilizing a Copper Crimp Ring for
SDR9 Cross-linked Polyethylene (PEX) Tubing and
SDR9 Polyethylene of Raised Temperature (PE-RT) Tubing**

Presented to the IAPMO Standards Review Committee on March 11, 2019

General: The change to this standard should not have an impact on currently listed products. The substantive changes are:

- Expanded the scope to include PEX tubing with oxygen barrier compliant with ASTM F3253 (see Sections 1.1, 4.1, 6.6 and 9.1).
- Added UNS C65680 alloy for machined brass and forged brass fittings (see Sections 5.1.3 and 5.1.4).

Section 1, Scope: Expanded the scope to include PEX tubing with Oxygen Barrier compliant with ASTM F3253 as follows:

1. Scope

1.1 This specification covers metal insert fittings and copper crimp rings for use with cross-linked polyethylene (PEX) tubing in 3/8, 1/2, 5/8, 3/4, 1, 1 1/4, 1 1/2, and 2 in. nominal diameters that meet the requirements for Specification F876 or [F3253](#) and for use with polyethylene of raised temperature (PE-RT) tubing in 3/8, 1/2, 5/8, 3/4 and 1 in. and 1 1/4 in. nominal diameters that meet the requirements of Specifications F2623 and F2769.

These fittings are intended for use in 100 psi (689.5 kPa) cold and hot-water distribution systems operating at temperatures up to, and including, 180 °F (82 °C). In addition, the fittings covered by this specification are intended for use in, but not limited to, residential and commercial systems, reclaimed water, fire protection, municipal water service lines, radiant heating and cooling systems, hydronic distribution systems, snow and ice melting systems, geothermal ground loops, district heating, turf conditioning, compressed air distribution and building services pipe. The requirements for materials, workmanship, dimensions, and markings to be used on the fittings and rings are also included.

Section 2, Referenced documents: ASTM F3253 was added as a referenced document as follows:

2.1 ASTM Standards

[F3253 Specification for Crosslinked Polyethylene \(PEX\) Tubing with Oxygen Barrier for Hot- and Cold-Water Hydronic Distribution Systems](#)

Section 4, Classification: Added the reference to ASTM F3253 as follows:

4.1 This specification covers one class of fittings and copper crimp rings suitable for use with PEX tubing that meet the requirements of Specification F876 or [F3253](#), or with PE-RT tubing that meet the requirements of Specifications F2623 and F2769 or a combination thereof.



Section 5, Materials and Manufacture: Added an additional alloy designation UNS C65680, for both machined and forged brass fittings as follows:

5.1.3 Machined Brass—Machined brass fittings shall be made from material meeting the requirements one of the following listed below:

<i>Specification</i>	<i>Alloy Designation</i>
<i>Specification B16/B16M</i>	<i>UNS C36000</i>
<i>Specification B124/B124M</i>	<i>UNS C46500, C48600, C65680, C87700</i>
<i>Specification B140/B140M</i>	<i>UNS 31400</i>
<i>Specification B371/B371M</i>	<i>UNS C69300</i>
<i>Standard EN 12164</i>	<i>CW614N</i>
<i>Specification B453/B453M</i>	<i>UNS 35300</i>
<i>Specification B927/B927M</i>	<i>UNS 27450, C27451</i>
<i>Specification B967/B967M</i>	<i>UNS C49260, C49340</i>

5.1.4 Forged Brass—Forged brass fittings shall be made from material meeting the requirements of Specification B283/B283M, Copper Alloy UNS Nos. C27450, C27451, C27453, C35330, C36500, C37700, C46400, C48600, C49260, C49340, [C65680](#), C69300 or C87700.

Section 6, General Requirements: Added reference to ASTM F3253 PEX tubing as follows:

6.6 General—All performance tests shall be performed on assemblies of fittings, crimp rings, and PEX tubing or PE-RT tubing. Fittings and crimp rings shall meet the material and dimensional requirements of this specification. PEX tubing shall meet the requirements of Specification F876 or [F3253](#). PE-RT tubing shall meet the requirements of Specifications F2623 and F2769 or a combination thereof. Assembly of test specimens shall be in accordance with 9.1.1. Use separate sets of assemblies for each performance test requirement.

Section 9, Assembly: Added reference to ASTM F3253 PEX tubing as follows:

9.1 Crimp Joints—Insert fittings shall be joined to PEX tubing or PE-RT tubing by the compression of a copper crimp ring around the outer circumference of the tubing, forcing the tubing material into annular spaces formed by ribs on the fitting. Insert fittings and crimp rings shall meet the dimensional and material requirements of this standard. PEX tubing shall meet the requirements of Specification F876 or [F3253](#). PE-RT tubing shall meet the requirements Specifications F2623 and F2769 or a combination thereof. The dimensions and out-of-roundness of the crimp ring, after it has been crimped, shall be in accordance with Table 1.