

IAPMO IGC 407-2024



PUBLIC REVIEW DRAFT

Industry Standard for
**Stub Out Fittings with Various End
Connections**



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IAPMO Standard

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Preface

This is the 1st edition of IAPMO IGC 407, Stub Out Pipes with Various End Connections.

This Standard was developed by the IAPMO Standards Review Committee (SRC) in accordance with the policies and procedures regulating IAPMO industry standards development, Policy S-001, Standards Development Process. This Standard was approved as an IAPMO Industry Standard on Month Day, 2024.

Notes:

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- (2) *The use of IAPMO Standards is completely voluntary; their existence does not in any respect preclude anyone, whether he has approved the standards or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not conforming to the standards.*
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- (4) *During its development, this Standard was made available for public review, thus providing an opportunity for additional input from stakeholders from industry, academia, regulatory agencies, and the public at large. Upon closing of public review, all comments received were duly considered and resolved by the IAPMO Standards Review Committee.*
- (5) *This Standard was developed in accordance with the principles of consensus, which is defined as substantial agreement; consensus implies much more than a simple majority, but not necessarily unanimity. It is consistent with this definition that a member of the IAPMO Standards Review Committee might not be in full agreement with all sections of this Standard.*
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- (7) *IAPMO Standards are subject to periodic review and suggestions for their improvement will be referred to the IAPMO Standards Review Committee. To submit a proposal for change to this Standard, you may send the following information to the International Association of Plumbing and Mechanical Officials, Attention Standards Department, at standards@IAPMOstandards.org or, alternatively, at 4755 East Philadelphia Street, Ontario, California, 91761, and include "Proposal for change" in the subject line:*
 - (a) *standard designation (number);*
 - (b) *relevant section, table, or figure number, as applicable;*
 - (c) *wording of the proposed change, tracking the changes between the original and the proposed wording;*
and
 - (d) *rationale for the change.*
- (8) *Requests for interpretation should be clear and unambiguous. To submit a request for interpretation of this Standard, you may send the following information to the International Association of Plumbing and Mechanical Officials, Attention Standards Department, at standards@IAPMOstandards.org or, alternatively, at 4755 East Philadelphia Street, Ontario, California, 91761, and include "Request for interpretation" in the subject line:*
 - (a) *the edition of the standard for which the interpretation is being requested;*
 - (b) *the definition of the problem, making reference to the specific section and, when appropriate, an illustrative sketch explaining the question;*
 - (c) *an explanation of circumstances surrounding the actual field conditions; and*
 - (d) *the request for interpretation phrased in such a way that a "yes" or "no" answer will address the issue.*
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- (12) Proposals for amendments to this Standard will be processed in accordance with the standards-writing procedures of IAPMO industry standards development, Policy S-001, Standards Development Process.*

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IAPMO IGC 407–2024

Stub Out Fittings with Various End Connections

1 Scope

1.1 Scope

This Standard covers stub out fittings with various end connections and specifies requirements for materials, physical characteristics, performance testing, and markings.

1.2 Alternative Materials

The requirements of this Standard are not intended to prevent the use of alternative materials or methods of construction provided such alternatives meet the intent and requirements of this Standard.

1.3 Terminology

In this Standard,

- (a) “shall” is used to express a requirement, i.e., a provision that the user is obliged to satisfy to comply with the Standard;
- (b) “should” is used to express a recommendation, but not a requirement;
- (c) “may” is used to express an option or something permissible within the scope of the Standard; and
- (d) “can” is used to express a possibility or a capability.

1.4 Units of Measurement

SI units are the primary units of record in global commerce. In this Standard, imperial units are shown in parentheses. The values stated in each measurement system are equivalent in application, but each unit system is to be used independently.

2 Reference Publications

This Standard refers to the following publications, and where such reference is made, it shall be to the current edition of those publications, including all amendments published thereto.

ASME International (American Society of Mechanical Engineers)

ASME B1.20.1

Pipe Threads, General Purpose, Inch

ASME B16.22

Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings

ASTM International (American Society for Testing and Materials)

ASTM B88

Standard Specification for Seamless Copper Water Tube

ASTM D2466

Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40

ASTM D2846

Standard Specification for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Hot- and Cold-Water Distribution Systems

ASTM F1807

Standard Specification for Metal Insert Fittings Utilizing a Copper Crimp Ring, or Alternate Stainless Steel Clamps, for SDR9 Cross-linked Polyethylene (PEX) Tubing and SDR9 Polyethylene of Raised Temperature (PE-RT) Tubing

ASTM F1960/ CSA B137.5

Standard Specification for Cold Expansion Fittings with PEX Reinforcing Rings for Use with Cross-linked Polyethylene (PEX) and Polyethylene of Raised Temperature (PE-RT) Tubing

ASTM F3347

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

NSF

NSF/ANSI/CAN 14

Plastics Piping System Components and Related Materials

NSF/ANSI/CAN 61

Drinking Water System Components – Health Affects

NSF/ANSI/CAN 372

Drinking Water System Components – Lead Content

3 Definitions

The following definition shall apply in this Standard:

Stub out fitting — a fitting that allows a portion of exposed pipe after installation to make a future connection to a device or fixture. Stub out fittings may convey supply water or accommodate drainage.

4 General Requirements

4.1 Materials and Toxicity

4.1.1 Copper Stub Out Fittings

Copper tube used to manufacture copper stub out fittings shall comply with ASTM B88.

4.1.2 Plastic Stub Out Fittings

Plastic stub out fittings shall comply with NSF 14.

4.1.3 Toxicity

Stub out fittings intended for use in potable water systems shall, comply with the applicable requirements of NSF/ANSI 61; and not contain a weighted average lead content more than 0.25% when evaluated in accordance with NSF/ANSI 372.

4.2 Minimum Operating Pressure and Temperature

Stub out fittings shall operate at a minimum pressure of 689 kPa (100 psi) at 82 °C (180°F).

4.3 End Connections

4.3.1 Threaded

Stub out fittings intended for threaded connections shall comply with ASME B1.20.1.

4.3.2 Solder Joint

Stub out fittings intended for solder-joint connections shall comply with ASME B16.22.

4.3.3 PEX and PE-RT Crimp

Stub out fittings intended for crimp style PEX and PE-RT connections shall comply with ASTM F1807.

4.3.4 PEX and PE-RT Cold Expansion

Stub out fittings intended for cold expansion style PEX and PE-RT connections shall comply with ASTM F1960.

4.3.5 PEX and PE-RT with Stainless Steel Press Sleeve

Stub out fittings with factory-assembled stainless steel press sleeves intended for PEX connections shall comply with ASTM F3347.

4.3.6 Poly (Vinyl Chloride)

Stub out fittings intended for PVC connections shall comply with ASTM D2466.

4.3.7 Chlorinated Poly (Vinyl Chloride)

Stub out fittings intended for CPVC connections shall comply with ASTM D2846.

5 Testing Requirements**5.1 Hydrostatic Pressure Test****5.1.1 Test Procedure**

- (a) Assemble the stub out fitting to its intended end connection per the manufacturer's instructions. The assembly must facilitate a means to produce a sealed loop that can bleed entrapped air.
- (b) Fill the assembly with the manufacturer's maximum rated temperature water or 82 °C (180°F), whichever is greater. Bleed any entrapped air. The test apparatus shall have a means to circulate and maintain the heated water's temperature. Alternately, the test apparatus shall be placed in a heated environmental chamber capable of maintaining the heated water's temperature for the duration of the testing.
- (c) Pressurize the assembly to 689 ± 14 kPa (100 ± 2 psi) and hold for one hour.

5.1.2 Performance

Any leakage during the test shall be cause for rejection.

5.2 End Connection Type Specific Testing

5.2.1 Stub out fittings intended for solder-joint connections shall comply with the testing requirements of ASME B16.22.

5.2.2 Stub out fittings intended for crimp style PEX and PE-RT connections shall comply with the testing requirements of ASTM F1807.

5.2.3 Stub out fittings intended for cold expansion style PEX and PE-RT connections shall comply with the testing requirements of ASTM F1960.

5.2.4 Stub out fittings with factory-assembled stainless steel press sleeves intended for PEX connections shall comply with the testing requirements of ASTM F3347.

5.2.5 Stub out fittings intended for PVC connections shall comply with the testing requirements of ASTM D2466.

5.2.6 Stub out fittings intended for CPVC connections shall comply with the testing requirements of ASTM D2846.

6 Markings and Installation Instructions

6.1 Markings

6.1.1 Stub out fittings complying with this Standard shall be marked with the manufacturer's name or trademark.

6.1.2 The model number or designation shall be marked on the stub out fitting or on the packaging and the accompanying literature.

6.2 Visibility

Markings shall be permanent, legible, and visible after installation.

6.3 Installation Instructions

The manufacturer shall provide installation instructions.



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