



Standard Practice for Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings¹

This standard is issued under the fixed designation B828; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope*

1.1 This practice describes a procedure for making capillary joints by soldering of copper and copper alloy tube and fittings.

1.2 This procedure is applicable to pressurized systems such as plumbing, heating, air conditioning, refrigeration, mechanical, fire sprinkler, and other similar systems. ASME B31.5 and B31.9 reference the techniques used for satisfactory joint preparation. It is also used in the assembly of nonpressurized systems such as drainage, waste, and vent.

1.3 It is not applicable to the assembly of electrical or electronic systems.

1.4 Tube and fittings are manufactured within certain tolerances to provide for the small variations in dimensions associated with manufacturing practice. Applicable specifications are listed in [Appendix X1](#).

1.5 A variety of solders are available that will produce sound, leak-tight joints. Choice of solder will depend upon the type of application and on local codes. For potable water systems, only lead-free solders shall be used, some of which are described in Specification [B32](#).

1.6 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.7 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.* For hazard statements, see the warning statements in [6.4.1](#), [6.6.1](#), and [6.6.3](#).

¹ This practice is under the jurisdiction of ASTM Committee [B05](#) on Copper and Copper Alloys and is the direct responsibility of Subcommittee [B05.04](#) on Pipe and Tube.

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2. Referenced Documents

2.1 ASTM Standards:²

[B32](#) Specification for Solder Metal

[B68/B68M](#) Specification for Seamless Copper Tube, Bright Annealed

[B75/B75M](#) Specification for Seamless Copper Tube

[B88](#) Specification for Seamless Copper Water Tube

[B88M](#) Specification for Seamless Copper Water Tube (Metric)

[B280](#) Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service

[B306](#) Specification for Copper Drainage Tube (DWV)

[B447](#) Specification for Welded Copper Tube

[B640](#) Specification for Welded Copper Tube for Air Conditioning and Refrigeration Service

[B641](#) Specification for Seamless and Welded Copper Distribution Tube (Type D) (Withdrawn 1996)³

[B716](#) Specification for Welded Copper Water Tube (Withdrawn 1994)³

[B716M](#) Specification for Welded Copper Water Tube (Metric) (Withdrawn 1994)³

[B813](#) Specification for Liquid and Paste Fluxes for Soldering of Copper and Copper Alloy Tube

[B846](#) Terminology for Copper and Copper Alloys

2.2 ASME Documents:⁴

[ASME B31.5](#) Refrigeration Piping

[ASME B31.9](#) Building Services Piping

[ASME B16.18](#) Cast Copper Alloy Solder Joint Pressure Fittings

[ASME B16.22](#) Wrought Copper and Copper Alloy Solder Joint Pressure Fittings

[ASME B16.23](#) Cast Copper Alloy Solder Joint Drainage Fittings—DWV

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ The last approved version of this historical standard is referenced on www.astm.org.

⁴ Available from American Society of Mechanical Engineers (ASME), ASME International Headquarters, Two Park Ave., New York, NY 10016-5990, <http://www.asme.org>.