



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

This standard is issued under the fixed designation B 828; 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 B 32.

1.6 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are for information purposes only.

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.

2. Referenced Documents

2.1 ASTM Standards:

B 32 Specification for Solder Metal²

B 68 Specification for Seamless Copper Tube, Bright Annealed³

B 68M Specification for Seamless Copper Tube, Bright Annealed [Metric]³

B 75 Specification for Seamless Copper Tube³

B 75M Specification for Seamless Copper Tube [Metric]³

B 88 Specification for Seamless Copper Water Tube³

B 88M Specification for Seamless Copper Water Tube [Metric]³

B 280 Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service³

B 306 Specification for Copper Drainage Tube (DWV)³

B 447 Specification for Welded Copper Tube³

B 640 Specification for Welded Copper and Copper Alloy Tube for Air Conditioning and Refrigeration Service³

B 641 Specification for Seamless and Welded Copper Distribution Tube (Type D)⁴

B 716 Specification for Welded Copper Water Tube⁵

B 716M Specification for Welded Copper Water Tube [Metric]⁵

B 813 Specification for Liquid and Paste Fluxes for Soldering Applications of Copper and Copper Alloy Tube³

B 846 Terminology for Copper and Copper Alloys³

2.2 Other Documents:

ASME B31.5 Refrigeration Piping⁶

ASME B31.9 Building Services Piping⁶

ASME B16.18 Cast Copper Alloy Solder Joint Pressure Fittings⁶

ASME B16.22 Wrought Copper and Copper Alloy Solder Joint Pressure Fittings⁶

ASME B16.23 Cast Copper Alloy Solder Joint Drainage Fittings—DWV⁶

ASME B16.29 Wrought Copper and Copper Alloy Solder Joint Drainage Fittings—DWV⁶

ANSI/ASC Z49.1 Safety in Welding and Cutting⁷

3. Terminology

3.1 For terms related to copper and copper alloys, refer to Terminology B 846 for terms specific to this practice.

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 Annual Book of ASTM Standards, Vol 02.04.

³ Annual Book of ASTM Standards, Vol 02.01.

⁴ Discontinued—see 1996 Annual Book of ASTM Standards, Vol 02.01.

⁵ Discontinued—see 1993 Annual Book of ASTM Standards, Vol 02.01.

⁶ Available from American Society of Mechanical Engineers (ASME), ASME International Headquarters, Three Park Ave., New York, NY 10016-5990.

⁷ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036.