



Designation: B 360 – 95

AMERICAN SOCIETY FOR TESTING AND MATERIALS
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Standard Specification for Hard-Drawn Copper Capillary Tube for Restrictor Applications¹

This standard is issued under the fixed designation B 360; 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.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope *

1.1 This specification establishes the requirements for seamless capillary tube made from Copper Alloy UNS² Nos. C10800, C12000, or C12200.

1.2 This tube is commonly supplied in straight lengths intended for restrictor applications such as metering lines for liquids and gases where close control over smoothness and diameter of the bore is required to insure uniform flow characteristics between tubes.

1.3 The values stated in inch pound units are the standard. Metric values in parentheses are for information only.

1.4 The following safety hazard caveat pertains only to the test method described in Section 19.3.3 (Cleanness Test) of this specification: *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.*

2. Referenced Documents

2.1 ASTM Standards:

B 251 Specification for General Requirements for Wrought Seamless Copper and Copper-Alloy Tube³

B 577 Test Methods for Hydrogen Embrittlement of Copper³

B 601 Practice for Temper Designation for Copper and Copper Alloys—Wrought and Cast³

E 3 Practice for Preparation of Metallographic Specimens⁴

E 8 Test Methods for Tension Testing of Metallic Specimens⁴

E 53 Test Method for Chemical Analysis of Copper⁵

E 62 Test Methods for Chemical Analysis of Copper and

Copper Alloys (Photometric Methods)⁵

E 255 Practice for Sampling Copper and Copper Alloys for the Determination of Chemical Composition⁵

E 527 Practice for Numbering Metals and Alloys (UNS)⁶

2.2 *ASHRAE Standard:*

No. 28-88 Method for Testing Capillary Tubes⁷

3. Terminology

3.1 Definition:

3.1.1 *tube, capillary, n*—a tube of small inside diameter with an inside surface of highest quality and conforming to close-diameter tolerances.

3.1.2 The tube is subject to special tests to insure precision and uniformity of bore and is specially cleaned and packed.

4. Ordering Information

4.1 The contract or purchase order for product under this specification should include the following information:

4.1.1 ASTM designation and year of issue (for example, B360 – XX),

4.1.2 Copper Alloy UNS No. (for example, C10800, Section 15 and 3),

4.1.3 Dimensions: inside and outside diameter (Table 1),

4.1.4 Air Flow requirements,

4.1.5 Quantity, total length, number of pieces or total weight of each size,

4.1.6 Length per piece of each size, and

4.1.7 When material is purchased for agencies of the U.S. Government.

4.2 The following options are available and should be specified in the contract or purchase order when required:

4.2.1 Heat Identification or traceability details,

4.2.2 Embrittlement test,

4.2.3 Certification, and

4.2.4 Mill test report.

5. Material and Manufacture

5.1 Material:

⁵ *Annual Book of ASTM Standards*, Vol 01.01.

⁷ Available from the American Society of Heating, Refrigeration, and Air-Conditioning Engineers, Inc., 1791 Tullie Circle NE, Atlanta, GA 30329.

¹ This specification is under the jurisdiction of ASTM Committee B-5 on Copper and Copper Alloys and is the direct responsibility of Subcommittee B05.04 on Pipe and Tube.

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² Refer to Practice E 527 for an explanation of the Unified Numbering System (UNS).

³ *Annual Book of ASTM Standards*, Vol 02.01.

⁴ *Annual Book of ASTM Standards*, Vol 03.01.

⁵ *Annual Book of ASTM Standards*, Vol 03.05.