



Designation: B 129 – 02

## Standard Specification for Cartridge Brass Cartridge Case Cups<sup>1</sup>

This standard is issued under the fixed designation B 129; 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 approval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope \*

1.1 This specification establishes the requirements for annealed cartridge brass cups produced of Copper Alloy UNS No. C26000 for processing into cartridge cases of the following types:

1.1.1 *Type I*, for small arms cartridge case cups, and

1.1.2 *Type II*, for artillery cartridge case cups.

1.2 The values stated in inch-pound units are the standard, except for grain size, which is given in SI units. Values in parentheses are for information only.

### 2. Referenced Documents

2.1 *ASTM Standards*:

B 601 Classification for Temper Designations for Copper and Copper Alloys—Wrought and Cast<sup>2</sup>

B 846 Terminology for Copper and Copper Alloys<sup>2</sup>

E 3 Guide for Preparation of Metallographic Specimens<sup>3</sup>

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications<sup>4</sup>

E 112 Test Methods for Determining Average Grain Size<sup>3</sup>

E 255 Practice for Sampling Copper and Copper Alloys for Determination of Chemical Composition<sup>5</sup>

E 478 Test Methods for Chemical Analysis of Copper Alloys<sup>5</sup>

### 3. Terminology

3.1 For definitions of terms related to copper and copper alloys, refer to Terminology B 846.

3.2 *Definitions of Terms Specific to This Standard*:

3.2.1 *blank (blanking), n*—a piece of metal removed from sheet or strip, intended for subsequent fabrication such as cupping and drawing.

3.2.2 *cup (cupping), n*—a shallow cylindrical shell closed at one end, normally intended for further fabrication, formed from a blank.

### 4. Ordering Information

4.1 Orders of product under this specification should include the following information:

4.1.1 ASTM designation and year of issue,

4.1.2 Type (Section 1),

4.1.3 Grain size (Section 7),

4.1.4 Dimensions and tolerances (see 8.1),

4.1.5 Drawing number to which order applies (see 8.1), and

4.1.6 When the material is purchased for agencies of the U.S. Government, (see Supplementary Requirements section).

### 5. Material and Manufacture

5.1 *Material*:

5.1.1 The material of manufacture shall be annealed plate, sheet, strip, or disks of wrought Alloy UNS No. C26000 processed to produce even-topped cups.

5.2 *Manufacture*:

5.2.1 The material shall be blanked and cupped to meet the cup dimensions specified, and subsequently annealed. The annealed cups shall be pickled, washed, and dried.

### 6. Chemical Composition

6.1 The product shall conform to the requirements prescribed in Table 1.

6.2 Composition limits may be established and analysis required for unnamed elements by agreement between manufacturer and purchaser.

6.3 Either copper or zinc may be taken as the difference between the sum of all elements analyzed and 100 %. Copper, when determined by the difference, must conform to the requirements of Table 1. When all elements in Table 1 are analyzed, their sum shall be 99.7 % min.

### 7. Grain Size of Annealed Tempers

7.1 Unless there is a prior agreement between the purchaser and supplier, the grain size for 0.30, 0.45, and 0.50 calibers will be produced to the grain size requirements specified in Table 2.

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee B05 on Copper and Copper Alloys and is the direct responsibility of Subcommittee B05.01 on Plate, Sheet, and Strip.

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<sup>2</sup> *Annual Book of ASTM Standards*, Vol 02.01.

<sup>3</sup> *Annual Book of ASTM Standards*, Vol 03.01.

<sup>4</sup> *Annual Book of ASTM Standards*, Vol 14.02.

<sup>5</sup> *Annual Book of ASTM Standards*, Vol 03.05.

\*A Summary of Changes section appears at the end of this standard.

**TABLE 1 Chemical Requirements**

Copper Alloy UNS No. C26000		
Element	Composition, %	
Copper	68.5–71.5	
Lead, max	0.07	
Iron, max	0.05	
Bismuth, max	0.006	
Zinc	remainder	

**TABLE 2 Grain Size Requirements on Sidewall<sup>A</sup>**

Type	Caliber	Temper Designation <sup>B</sup>	Diameter of Average Grain Size, mm	
			min	max
I	0.30 and 0.45	OS080	0.045	0.120
		OS110	0.065	0.150
II	Grain size subject to agreement by the manufacturer and the purchaser			

<sup>A</sup> Approximately midway of the length of the sidewall.

<sup>B</sup> Standard designations are defined in Practice B 601.

7.1.1 Grain size ranges other than those specified in Table 2 shall be established by agreement between manufacturer and purchaser.

7.1.2 Grain size ranges for other cups shall be established by agreement between manufacturer and purchaser.

**8. Dimensions, Mass, and Permissible Variations**

8.1 All dimensions and tolerances of cups shall be as indicated on the drawings furnished with the purchase order or contract.

**9. Workmanship, Finish, and Appearance**

9.1 The cups shall be uniform in quality and shall be free of oil, grease, oxidation, stains, scale, chips, acid, dirt or grit, dented or bent edges, laminations, slivers, laps, cracks, deep scratches, wrinkles, or other injurious defects which would interfere with the purpose for which the cups are intended. The cups, subsequent to annealing, shall be pickled, washed, and dried.

**10. Sampling**

10.1 The lot size, portion size, and selection of pieces shall be as follows:

10.1.1 Lot Size—40 000 lb (18 144 kg) or fraction thereof.

10.1.2 Portion Size:

10.1.2.1 For grain size—15 cups for Type I, or 2 cups for Type II.

10.1.2.2 For determination of dimensions—200 cups.

10.1.2.3 For the visual inspection—2000 cups.

10.1.3 Samples for chemical analysis are to be taken in accordance with Practice E 255.

**11. Number of Tests and Retests**

11.1 Specimens taken from each sample piece selected in accordance with 10.1.2.1 shall be tested for conformance to the grain size requirement.

11.2 Retests:

11.2.1 If the chemical analysis fails to conform to the specified limits, analysis shall be made on a composite sample,

prepared from the pieces selected from each portion involved, consisting of either 15 cups from Type I or two cups from Type II. The results of this retest shall comply with the specified requirements.

11.2.2 Failure of more than two samples of Type I cups to comply to the grain size requirements shall be cause for rejection of the lot. If two samples fail to comply a retest shall be permitted on a sample double that of the original sample. Each of the specimens so retested shall meet the specified requirements.

11.2.3 Failure of the two samples of Type II cups to comply to the grain size requirements shall be cause for rejection of the lot. If one sample fails, a retest shall be permitted on a sample double that of the original sample. Each of the specimens so retested shall meet the specified requirements.

**12. Specimen Preparation**

12.1 For grain size measurements, either tangential grinding and polishing, or cutting, mounting, and polishing methods may be used to reach the zone (Fig. 1).

12.1.1 The test specimen shall be prepared in accordance with Practice E 3.

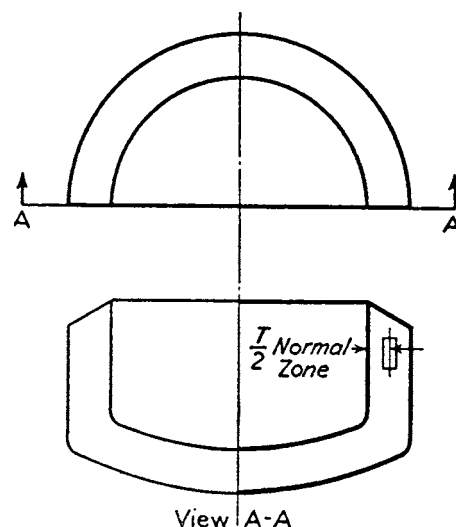
12.2 Specimens for chemical analysis shall be prepared in accordance with Practice E 255.

**13. Test Methods**

13.1 The properties and chemical compositions enumerated in this specification shall, in case of disagreement, be determined in accordance with the following ASTM methods:

Test	ASTM Designation
Chemical analysis	E 478
Grain size	E 3, E112

13.2 The test method(s) used for determination of element(s) required by contractual or purchase order agreement shall be as agreed upon between the manufacturer and the purchaser.



**FIG. 1 Location of Areas to be Examined for Grain Size in Cartridge Case Cups**