Designation: B 455 – 96

# Standard Specification for Copper-Zinc-Lead Alloy (Leaded-Brass) Extruded Shapes[1]

This standard is issued under the fixed designation B 455; 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 specification establishes the requirements for extruded leaded-brass angles, channels, and other architectural shapes of solid cross section produced in Copper Alloy UNS Nos. C38000 and C38500.

1.1.1 Pipe, tube, or other hollow section products are not included in this specification.

1.2 The values stated in inch-pound units are the standard. SI values given in parentheses are for information only.

## 2. Referenced Documents

2.1 *ASTM Standards:*

B 249 Specification for General Requirements for Wrought Copper and Copper Alloy Rod, Bar, Shapes, and Forgings[2]

B 601 Practice for Temper Designations for Copper and Copper Alloys—Wrought and Cast[2]

E 8 Test Methods for Tension Testing of Metallic Materials[3]

E 54 Test Methods for Chemical Analysis of Special Brasses and Bronzes[4]

E 478 Test Methods for Chemical Analysis for Copper Alloys[4]

## 3. Ordering Information

3.1 Orders for materials shall include the following information:

3.1.1 ASTM designation and year of issue (for example, B 455 – 96),

3.1.2 Copper alloy UNS No. designation (for example, C38000),

3.1.3 Temper (Section 5),

3.1.4 Form, dimensions, and tolerances (Section 7), and

3.1.5 Quantity; total weight or number of pieces for each form, temper, size, and copper alloy.

3.2 The following options are available in this specification and shall be included in the contract or purchase order when required:

3.2.1 Intended end use or application,

3.2.2 Heat identification or traceability details (Specification B 249),

3.2.3 Certification (Specification B 249), and

3.2.4 Mill Test report (Specification B 249).

## 4. Chemical Composition

4.1 The material shall conform to the requirements specified in Table 1 for the copper alloy UNS No. designated in the ordering information.

4.1.1 These composition limits do not preclude the presence of unnamed elements. When required, limits shall be established and analysis required for unnamed elements by agreement between the manufacturer and the purchaser.

4.2 For copper alloys in which zinc is specified as the remainder, either copper or zinc is permitted to be taken as the difference between the sum of results for all elements analyzed and 100 %. When copper is so determined, that difference value shall conform to the requirements given in Table 1.

4.3 When all elements specified in Table 1 are determined for the copper alloy UNS No. designated in the ordering information, the sum of the results shall be 99.5 % minimum.

## 5. Temper

5.1 The temper of the product furnished to this specification, and as defined in Practice B 601, shall be M20 (as hot extruded).

## 6. Mechanical Property Requirements

6.1 *Tensile Strength Requirements*:

6.1.1 The product furnished shall conform to the requirements of Table 2 when tested in accordance with Test Methods E 8.

6.1.2 The tension test results shall be the basis for purchaser acceptance or rejection based upon mechanical properties.

6.1.2.1 When product is intended for strictly decorative purposes and so stated in the purchase order or contract, it is permitted under this specification for the mechanical property requirements to be waived by the purchaser.

6.2 *Rockwell Hardness*:

6.2.1 A Rockwell hardness test offers a quick and convenient method of checking general conformity to temper and tensile requirements. For assistance in testing, the minimum Rockwell B hardness of M30 (as hot-extruded) temper shapes

[1] This specification is under the jurisdiction of ASTM Committee B-5 on Copper and Copper Alloys and is the direct responsibility of Subcommittee B05.02 on Rod, Bar, Wire, Shapes, and Forgings.

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[2] *Annual Book of ASTM Standards*, Vol 02.01.

[3] *Annual Book of ASTM Standards*, Vol 03.01.

[4] *Annual Book of ASTM Standards*, Vol 03.05.

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