



Designation: B 150 – 98^{€2}

Standard Specification for Aluminum Bronze Rod, Bar, and Shapes¹

This standard is issued under the fixed designation B 150; 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 (€) 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 NOTE—Table 1 was editorially corrected in September 1999.

1. Scope *

1.1 This specification covers aluminum bronze rod, bar and shapes for Copper Alloys UNS Nos. C60600, C61300, C61400, C61900, C62300, C62400, C63000, C63020, C63200, C64200, and C64210.²

NOTE 1—Material for hot forging is described in Specification B 124.

NOTE 2—A complete metric companion, Specification B 150M, has been developed, therefore no metric equivalents are presented in this specification.

NOTE 3—**Warning:** Mercury is a definite health hazard in use and in disposal.

2. Referenced Documents

2.1 The following documents of the issue in effect on date of material purchase form a part of this specification to the extent referenced herein.

2.2 ASTM Standards:

B 124 Specification for Copper and Copper Alloy Forging Rod, Bar and Shapes³

B 154 Test Method for Mercurous Nitrate Test for Copper and Copper Alloys³

B 249 Specification for General Requirements for Wrought Copper and Copper Alloy Rod, Bar and Shapes³

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

E 18 Test Methods for Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials⁴

E 53 Test Methods for Chemical Analysis of Copper⁵

E 54 Test Methods for Chemical Analysis of Special Brasses and Bronzes⁵

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, Bars, Wire, Shapes, and Forgings.

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² Refer to Practice E 527 for a description 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.

E 62 Test Methods for Chemical Analysis of Copper and Copper Alloys (Photometric Methods)⁵

E 118 Test Methods for Chemical Analysis of Copper—Chromium Alloys⁵

E 478 Test Methods for Chemical Analysis of Copper Alloys⁵

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

3. Ordering Information

3.1 Material ordered to this specification should contain information listed in the “Ordering Information” Section of Specification B 249, plus the following information:

3.1.1 When Alloy C63020 is specified, the tolerance for diameter, thickness, width and length shall be part of the purchase order and shall be agreed upon between the supplier and the purchaser,

3.1.2 State if the material is to be used in welding applications,

3.1.3 Quantity, total weight, footage or number of pieces for each size,

3.1.4 Certification, when required,

3.1.5 Mill test reports, when required, and

3.1.6 *Shapes*—The dimensional tolerances shall be as agreed upon between the manufacturer and the purchaser and shall be specified.

4. General Requirements

4.1 Material shall conform to the applicable requirements of the current edition of Specification B 249 except where expressly stated herein.

4.2 *Copper Alloy UNS C63020*—Rod and Bar shall be heat-treated to 26 Rockwell hardness (C scale) (HRC) minimum as follows:

4.2.1 Heat to 1550°/1650°F for 2 h minimum and quenched in water.

4.2.2 Temper at 900°/1000°F for 2 h minimum and air cool to room temperature.

4.3 *Copper Alloy UNS C63200*—Rod and Bar shall be heat-treated as follows:

⁶ Annual Book of ASTM Standards, Vol 01.01.

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



TABLE 1 Tensile Requirements

Temper Designation		Diameter or Distance Between Parallel Surfaces, in.	Tensile Strength, min ksi ^A	Yield Strength, min ksi ^A , at 0.5 % Extension Under Load	Elongation in 4 × Diameter or Thickness of Specimen min, % ^B
Standard	Former				
Copper Alloy UNS No. C60600					
HR50	drawn and stress relieved	<i>rod and bar:</i>			
		0.5 and under	80	40	30
		over 0.5 to 1.0 incl	75	35	30
		over 1.0 to 2.0 incl	70	32	30
		over 2.0 to 3.0	70	30	30
Copper Alloy UNS No. C61300					
HR50	drawn and stress relieved	<i>rod (round only):</i>			
		½ and under	80	50	30
		over ½ to 1, incl	75	45	30
		over 1 to 2.0 incl	72	40	30
		over 2 to 3, incl	70	35	30
HR50	drawn and stress relieved	<i>rod (hexagonal and octagonal) and bar:</i>			
		½ and under	80	40	30
		over ½ to 1, incl	75	35	30
		over 1 to 2, incl	70	32	30
Copper Alloy UNS No. C61400					
HR50	drawn and stress relieved	<i>rod (round only):</i>			
		½ and under	80	40	30
		over ½ to 1, incl	75	35	30
		over 1 to 2, incl	70	32	30
		over 2 to 3, incl	70	30	30
Copper Alloy UNS No. C61900					
HR50	drawn and stress relieved	<i>rod (round only):</i>			
		½ and under	90	50	15
		over ½ to 1, incl	88	44	15
		over 1 to 2, incl	85	40	20
		over 2 to 3, incl	78	37	25
M20	as hot rolled	over 3	75	30	20
M20 M30 O20 O25 O30 HR50	as hot rolled as hot extruded hot forged and annealed hot rolled and annealed hot extruded and annealed drawn and stress relieved	<i>shapes, all sizes</i>	75	30	20
Copper Alloy UNS No. C62300					
HR50	drawn and stress relieved	<i>rod (round only):</i>			
		½ and under	90	50	12
		over ½ to 1, incl	88	44	15
		over 1 to 2, incl	84	40	15
		over 2 to 3, incl	76	37	20
M20 M30 O20 O25 O30 HR50	as hot rolled as hot extruded hot forged and annealed hot rolled and annealed hot extruded and annealed drawn and stress relieved	over 3	75	30	20
HR50	drawn and stress relieved	<i>rod (hexagonal and octagonal) and bar:</i>			
		1 and under	80	35	15
		over 1 to 2, incl	78	32	15
		over 2	75	30	20
M20 M20 M30 O20 O25 O30 HR50	as hot rolled as hot rolled as hot extruded hot forged and annealed hot rolled and annealed hot extruded and annealed drawn and stress relieved	<i>shapes, all sizes</i>	75	30	20