



Standard Specification for Sintered Brass Structural Parts¹

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^{ε1} NOTE—Keywords were added editorially in October 1995.

1. Scope

1.1 This specification covers sintered metal powder structural parts made of one copper-zinc-lead powder composition of two types depending on density.

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

NOTE 1—Definitions of powder metallurgy terms can be found in Terminology B 243 and additional useful information is available in the Related Material section of Vol 02.05 of the *Annual Book of ASTM Standards*

2. Referenced Documents

2.1 ASTM Standards:

B 243 Terminology of Powder Metallurgy²

B 328 Test Method for Density, Oil Content, and Interconnected Porosity of Sintered Powder Metal Structural Parts and Oil-Impregnated Bearings²

E 478 Test Methods for Chemical Analysis of Copper Alloys³

3. Ordering Information

3.1 Orders for parts under this specification shall include the following information:

3.1.1 Dimensions (see Section 8),

3.1.2 Chemical Composition (see Section 5 and Table 1),

3.1.3 Density, Type (see 6.1 and Table 2),

3.1.4 Porosity (see 6.2),

3.1.5 Mechanical Requirements (see Section 7), and

3.1.6 Certification (see Section 13).

4. Materials and Manufacture

4.1 Structural parts shall be made by molding and sintering metal powders by repressing and resintering, if necessary, to produce finished parts conforming to the requirements of this specification.

5. Chemical Composition

5.1 Orders for parts shall conform to the requirements of Table 1.

5.2 The chemical analysis shall be made in accordance

with Test Methods E 478 or any other standard method agreed upon between the manufacturer and the purchaser.

6. Physical Properties

6.1 Density:

6.1.1 If the density does not vary more than 0.3 g/cm³ from one section of the structural part to any other section, the overall density shall fall within the limits prescribed in Table 2.

6.1.2 If the density varies more than 0.3 g/cm³ from one section of the part to any other, the manufacturer and the purchaser shall agree upon the critical section of the part where the stresses are highest. The density of this critical section, rather than the average density, shall fall within the limits prescribed in Table 2.

6.1.3 Density shall be determined in accordance with Test Method B 328.

6.2 Porosity:

6.2.1 When specified, the interconnecting porosity shall be not less than 7 volume % for Type 1 brass. Type II brass has insufficient interconnecting porosity to justify establishing a specification.

6.2.2 The porosity shall be determined in accordance with Test Method B 328.

7. Mechanical Properties

7.1 The manufacturer and the purchaser shall agree on qualification tests for the determination of mechanical properties.

7.2 These tests shall be performed on production parts.

7.3 The tests shall be determined after consideration of the function of the part.

7.4 The limits and sampling plan shall be agreed upon between the manufacturer and the purchaser.

7.5 All shipments of parts subsequent to the establishment of testing conditions shall conform to the limits agreed upon.

NOTE 2—The mechanical properties in tension and compression that may be expected from standard specimens molded to size are given in the Appendix to this specification.

8. Permissible Variations in Dimensions

8.1 Permissible variations in dimensions shall be within the limits specified on the drawings describing the structural parts accompanying the order or shall be within the limits specified in the order.

9. Workmanship, Finish, and Appearance

9.1 Structural parts shall be uniform in composition.

¹ This specification is under the jurisdiction of ASTM Committee B-9 on Metal Powders and Metal Powder Products and is the direct responsibility of Subcommittee B09.05 on Structural Parts.

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² *Annual Book of ASTM Standards*, Vol 02.05.

³ *Annual Book of ASTM Standards*, Vol 03.05.