



Standard Specification for Zinc and Zinc Alloy Wire for Thermal Spraying (Metallizing)¹

This standard is issued under the fixed designation B 833; 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 covers zinc and zinc alloy wire used in depositing zinc coatings by thermal spraying (metallizing). Zinc and zinc alloy wire provided under this specification is intended for use in oxy-fuel and electric arc thermal spraying equipment. Applications for zinc thermal spraying include electric circuitry and corrosion protection of iron and steel.

1.2 The values stated in SI units are to be regarded as the standard. The values in parentheses are for information only.

1.3 *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 become familiar with all hazards including those identified in the appropriate Material Data Sheet for this product/material as provided by the manufacturer, to establish appropriate safety and health practices, and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

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

B 6 Specification for Zinc²

B 899 Terminology Relating to Non-ferrous Metals and Alloys²

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications³

E 536 Test Method for Chemical Analysis of Zinc and Zinc Alloys⁴

E 527 Practice for Numbering Metals and Alloys (UNS)⁵

2.2 *ANSI/AWS Standard:*

ANSI/AWS A5.33 Specification for Solid and Ceramic Wires and Ceramic Rods for Thermal Spraying⁶

¹ This specification is under the jurisdiction of ASTM Committee B02 on Nonferrous Metals and Alloys and is the direct responsibility of Subcommittee B02.04 on Zinc and Cadmium.

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² *Annual Book of ASTM Standards*, Vol 02.04.

³ *Annual Book of ASTM Standards*, Vol 14.02.

⁴ *Annual Book of ASTM Standards*, Vol 03.06.

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

⁶ Available from the American Welding Society, 550 N.W. LeJeune Road, Miami, FL 33126.

3. Terminology

3.1 Terms shall be defined in accordance with Terminology B 899.

4. Ordering Information

4.1 In order to make the application of this specification complete, the purchaser shall supply the following information to the seller in the purchase order or other governing documents:

4.1.1 Name, designation, and date of issue of this specification,

4.1.2 Quantity (mass(weight) in kilograms (pounds)),

4.1.3 Diameter (see Table 1),

4.1.4 Acceptance tests if other than specified (see Section 10),

4.1.5 Certification (see Section 11),

4.1.6 Packaging and packing materials (see Section 12), and

4.1.7 Supplementary requirements, if applicable.

5. Materials and Manufacture

5.1 The zinc used to manufacture the wire shall conform to the requirements for High Grade Zinc (Z15001) or Special High Grade Zinc (Z13001) as specified in Specification B 6.

6. Chemical Composition

6.1 The wire shall conform to the requirements prescribed in Table 2.

7. Physical Properties and Mechanical Properties

7.1 Appendix X1 shows typical physical properties for zinc and zinc alloy wire and does not constitute a part of this specification but is provided for informational purposes only.

7.2 Appendix X2 shows typical mechanical properties for zinc and zinc alloy wire and does not constitute a part of this specification but is provided for informational purposes only.

7.2.1 Mechanical properties are important so the wire can be fed into a thermal spray gun without breaking or jamming.

7.2.2 Mechanical properties of zinc and zinc alloy wire will vary depending upon the wire diameter and processing factors.

8. Dimensions, Weights, and Permissible Variations

8.1 The wire shall conform to the sizes, tolerances, and weights per unit length listed in Table 1.