



Designation: **A1060/A1060M – 11<sup>ε1</sup> A1060/A1060M – 14**

## Standard Specification for Zinc-Coated (Galvanized) Steel Welded Wire Reinforcement, Plain and Deformed, for Concrete<sup>1</sup>

This standard is issued under the fixed designation A1060/A1060M; 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 reappraisal. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reappraisal.

<sup>ε1</sup> NOTE—The table footnote in Table 2 was editorially added in April 2012.

### 1. Scope\*

1.1 This specification covers zinc-coated steel welded wire reinforcement, plain and deformed, or a combination of deformed and plain wires, for reinforcement of concrete, in sizes not less than 0.080 in. [2.03 mm] and over nominal diameter for plain wire and 0.113 in. [2.87 mm] and over for deformed wire.

1.2 This specification is intended to be applicable to cold-worked wire, drawn or rolled, plain or deformed, coated in a continuous process.

1.3 An alternative to a continuous coating process of wire before fabrication is a hot-dip process, where the welded wire reinforcement is immersed in a bath of molten zinc.

NOTE 1—Data on the corrosion resistance of galvanized steels in concrete are limited. The user is cautioned that the laboratory testing performed on this material has been insufficient and may not accurately reflect the performance of the material when embedded in concrete as reinforcement.

1.4 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

1.5 *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 establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

### 2. Referenced Documents

#### 2.1 ASTM Standards:<sup>2</sup>

~~A82/A82M Specification for Steel Wire, Plain, for Concrete Reinforcement (Withdrawn 2013)<sup>3</sup>~~

~~A90/A90M Test Method for Weight [Mass] of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings~~

~~A185/A185M Specification for Steel Welded Wire Reinforcement, Plain, for Concrete (Withdrawn 2013)<sup>3</sup>~~

~~A496/A496M Specification for Steel Wire, Deformed, for Concrete Reinforcement (Withdrawn 2013)<sup>3</sup>~~

~~A497/A497M Specification for Steel Welded Wire Reinforcement, Deformed, for Concrete (Withdrawn 2013)<sup>3</sup>~~

~~A700 Practices for Packaging, Marking, and Loading Methods for Steel Products for Shipment (Withdrawn 2014)<sup>3</sup>~~

~~A780 Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings~~

~~A1064/A1064M Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete~~

~~B6 Specification for Zinc~~

~~B487 Test Method for Measurement of Metal and Oxide Coating Thickness by Microscopical Examination of Cross Section~~

~~E376 Practice for Measuring Coating Thickness by Magnetic-Field or Eddy-Current (Electromagnetic) Testing Methods~~

#### 2.2 Military Standard:<sup>4</sup>

~~MIL-STD-129 Marking for Shipment and Storage~~

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee A01 on Steel, Stainless Steel and Related Alloys and is the direct responsibility of Subcommittee A01.05 on Steel Reinforcement.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>3</sup> The last approved version of this historical standard is referenced on www.astm.org.

<sup>4</sup> Available from U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401, http://www.access.gpo.gov.

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

2.3 *Federal Standard*.<sup>4</sup>

Fed. Std. No. 123 Marking for Shipments (Civil Agencies)

**3. Terminology**

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *continuous coating, n—of metallic coated steel products*, the process of uninterrupted passage of long lengths of steel products, usually steel sheet, tube, pipe, or wire, through the various processing steps such as cleaning and coating.

**4. Ordering Information**

4.1 It shall be the responsibility of the purchaser to specify all requirements that are necessary for material ordered to this specification. Such requirements may include but are not limited to the following:

- 4.1.1 Quantity (weight [mass] or square area),
- 4.1.2 Name of material (galvanized welded wire reinforcement),
- 4.1.3 Wire spacing and sizes,
- 4.1.4 Conforms to ~~Specifications~~ Specification A185/A185M, A497/A497M, or A1064/A1064M.
- 4.1.5 ASTM designation and year of issue,
- 4.1.6 Minimum yield strength if Supplement S1 of ~~Specifications~~ Specification A82/A82M, A496/A496M, or A1064/A1064M applies,
- 4.1.7 Length and width of sheets or rolls,
- 4.1.8 Required zinc coating weight [mass] (coated before fabrication) or zinc coating thickness (coated after fabrication), and
- 4.1.9 Packaging (see Section 13).

**5. General Requirements**

5.1 The wire used in the manufacture of welded wire reinforcement shall conform to either ~~Specifications~~ Specification A82/A82M, A496/A496M, or A1064/A1064M with optional Supplement S1. After galvanizing, the welded wire shall meet the required mechanical properties of either ~~Specifications~~ Specification A82/A82M, A496/A496M, or A1064/A1064M, whichever is selected, except for the bend test requirements as prescribed in Table 1 of this specification.

NOTE 2—~~Specifications A82/A82M, A185/A185M, A496/A496M, and A497/A497M~~ have been replaced by Specification A1064/A1064M.

- 5.2 Welded wire reinforcement shall be furnished either in flat sheets, or in rolls, as specified by the purchaser.
- 5.3 The zinc used for coating shall be any grade that conforms to Specification B6.

**6. Galvanizing**

6.1 *Mass [Weight] Thickness of Coating and Test:*

6.1.1 This specification includes six classes of coating weight [mass] when the welded wire reinforcement is coated before fabrication and four coating thickness grades when the welded wire reinforcement is coated after fabrication. The weight [mass] of zinc coating is based on the measured diameter of the wire when the stripping method is performed and the nominal diameter for all other methods, and shall conform to the requirements shown in Table 2 or Table 3. Individual results not more than 10 % below the minimum values specified in Table 2 or Table 3 are allowed if the average of at least two samples from the same coil are equal to or greater than the minimum, individual results shall be not less than 1.08 oz/ft<sup>2</sup> [330 g/m<sup>2</sup>].

6.1.1.1 When the product is coated before fabrication in a continuous coating process, coating weights are given in Table 2 for various zinc coating classes.

NOTE 2—Zinc coated wire produced as “regular coating” shall have the full surface covered with zinc, but there is no specified minimum weight of coating.

**TABLE 1 Mandrel Diameters for Test for Adherence of Zinc Coating Inch-Pound Units [SI Units]**

Wire Diameter	Mandrel Diameters of Coating Classes and Grades		
	Regular and Class 1	Class 3 or A, 4, B, 5, and C	Grade 50, 60, 65, and 80
Under 0.148 [3.70]	1D <sup>A</sup>	3D	3D
0.148 [3.70] to 0.500 [12.7]	2D	4D	4D
over 0.500 [12.7]	3D	5D	5D

<sup>A</sup> D = nominal wire diameter being tested.