
Standard Specification for Steel Wire, Plain, for Concrete Reinforcement

AASHTO Designation: M 32M/M 32-09 (2013)

Technical Section: 4f, Metals

ASTM Designation: A82/A82M-07



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1. SCOPE

- 1.1. This specification covers cold-drawn steel wire, as drawn or galvanized, to be used as such or in fabricated form, for the reinforcement of concrete, in sizes not less than 2.03 mm [0.080 in.] nominal diameter.
- 1.2. Supplement S1 describes high-strength wire, which shall be furnished when specifically ordered. It shall be permissible to furnish high-strength wire in place of regular wire if mutually agreed to by the purchaser and the manufacturer.
- 1.3. 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 nonconformance with the standard. (The inch-pound units are shown in brackets except in Table 6.)

2. REFERENCED DOCUMENTS

- 2.1. *AASHTO Standards:*
- M 55M/M 55, Steel Welded Wire Reinforcement, Plain, for Concrete
 - T 244, Mechanical Testing of Steel Products
- 2.2. *ASTM Standards:*
- A641/A641M, Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire
 - A700, Standard Guide for Packaging, Marking, and Loading Methods for Steel Products for Shipment
 - E83, Standard Practice for Verification and Classification of Extensometer Systems
- 2.3. *Military Standard:*
- MIL-STD-129, Marking for Shipment and Storage
- 2.4. *Federal Standard:*
- Fed. Std. No. 123, Marking for Shipments (Civil Agencies)
- 2.5. *Other Standard:*
- ACI 318, Building Code Requirements for Structural Concrete

3. ORDERING INFORMATION

3.1. It shall be the responsibility of the purchaser to specify all requirements that are necessary for the manufacture and delivery of the wire under this specification. Such requirements to be considered include, but are not limited to, the following:

- 3.1.1. Quantity (mass) [weight],
- 3.1.2. Name of material (cold-drawn steel wire for concrete reinforcement),
- 3.1.3. Wire size number (see Section 8),
- 3.1.4. Yield strength measurement (see Sections 5.1 and 11.3),
- 3.1.5. Packaging (see Section 15),
- 3.1.6. AASHTO designation and year of issue, and
- 3.1.7. Special requirements, if any (see Supplement S1).

Note 1—A typical ordering description is as follows: 50 000 kg [100,000 lb] cold-drawn steel wire for concrete reinforcement, size No. W5 in 800 kg [2000 lb] secured coils, to M 32M/M 32-____.

4. MATERIALS AND MANUFACTURE

- 4.1. The steel shall be made by one or more of the following processes: open hearth, electric furnace, or basic oxygen.
- 4.2. The wire shall be cold drawn from rods that have been hot rolled from billets.
- 4.3. Unless otherwise specified, the wire shall be supplied uncoated. When specified as galvanized, it shall be galvanized at finish size.

5. MECHANICAL PROPERTY REQUIREMENTS

- 5.1. *Tension Tests:*
 - 5.1.1. When tested as described in T 244, the material, except as specified in Section 5.1.2, shall conform to the tensile property requirements in Table 1, based on nominal area of wire.

Table 1—Tension Test Requirements

Tensile strength, min MPa [ksi]	550 [80]
Yield strength, min MPa [ksi]	485 [70]
Reduction of area, min %	30 ^a

^a For material testing over 690 MPa [100 ksi] tensile strength, the reduction of area shall be not less than 25 percent.