
Standard Specification for Steel Welded Wire Reinforcement, Deformed, for Concrete

AASHTO Designation: M 221M/M 221-09 (2013)

Technical Section: 4f, Metals

ASTM Designation: A497/A497M-07



**American Association of State Highway and Transportation Officials
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1. SCOPE

- 1.1. This specification covers welded wire reinforcement made from cold-worked drawn or rolled deformed wire, or a combination of deformed and nondeformed wires, to be used for the reinforcement of concrete.
- Note 1**—Welded wire for concrete reinforcement has been described by various terms: welded wire fabric (WWF), fabric, and mesh. The wire reinforcement industry prefers the term “welded wire reinforcement” (WWR) as being more representative of the range of products being manufactured. Therefore, the term “welded wire fabric” has been replaced with the term “welded wire reinforcement” in this specification and in related specifications.
- 1.2. This specification is applicable for orders in either SI units (M 221M) or in inch-pound units (M 221). SI units and inch-pound units are not necessarily equivalent. Inch-pound units are shown in brackets in the text for clarity, but they are the applicable values when the material is ordered to M 221. Combining values from the two systems may result in nonconformance with the standard.

2. REFERENCED DOCUMENTS

- 2.1. *AASHTO Standards:*
M 32M/M 32, Steel Wire, Plain, for Concrete Reinforcement
M 225M/M 225, Steel Wire, Deformed, for Concrete Reinforcement
- 2.2. *ASTM Standard:*
A700-05, Standard Practices for Packaging, Marking, and Loading Methods for Steel Products for Shipment (withdrawn 2014)
- 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)

3. TERMINOLOGY

3.1. *Description of Terms Specific to This Standard:*

- 3.1.1. *convoluted wire*—when wire for welded wire reinforcement is shaped into a sinusoidal wave shape, it is commonly referred to as “convoluted wire.” The wire is used in the manufacture of cages for certain applications of concrete pipe reinforcing. Only nondeformed wire is normally subject to convolution.
- 3.1.2. *welded wire reinforcement*—as used within the scope and intent of this specification, welded wire reinforcement designates a material composed of cold-worked steel wire, fabricated into sheets or rolls by the process of electric-resistance welding. The finished material shall consist essentially of a series of longitudinal and transverse wires arranged substantially at right angles to each other and welded together at points of intersection.

4. ORDERING INFORMATION

4.1. *Orders for material to this specification should include the following information:*

- 4.1.1. Quantity (mass or square area);
- 4.1.2. Name of material (deformed welded wire reinforcement for concrete reinforcement);
- 4.1.3. Wire spacing and sizes;
- 4.1.4. Minimum yield strength if Supplement S1 of M 225M/M 225 applies; and minimum yield strength if wire conforming to M 32M/M 32 is to be used and Supplement S1 of M 32M/M 32 applies;
- 4.1.5. Exclusion of oversteeling, if required (Section 9.4.1);
- 4.1.6. Length and width of sheets or rolls;
- 4.1.7. Packaging (Section 16); and
- 4.1.8. AASHTO designation and year of issue.

Note 2—A typical ordering description is as follows: 930 m² welded deformed wire reinforcement for concrete reinforcement, 150 by 300-D6 by D2 in flat sheets 2.4 m wide by 6.1 m long, in secured lifts, to M 221M-____. [10,000 ft² welded deformed wire reinforcement for concrete reinforcement, 6 by 12-D6 by D2 in flat sheets 96 in. wide by 240 in. long, in secured lifts, to M 221-____.]

5. MATERIALS

- 5.1. The wire used in the manufacture of welded wire reinforcement shall conform to M 225M/M 225 and its Supplement S1, if so ordered, either solely or in combination with wire conforming to M 32M/M 32 and its Supplement S1.
- 5.2. Welded wire reinforcement shall be furnished either in flat sheets, or in rolls, as specified by the purchaser.