
Standard Specification for Corrugated Sheet Steel Beams for Highway Guardrail

AASHTO Designation: M 180-18

Technical Subcommittee: 4d, Safety Devices

Release: Group 2 (June)



**American Association of State Highway and Transportation Officials
444 North Capitol Street N.W., Suite 249
Washington, D.C. 20001**

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1. SCOPE

- 1.1. This specification covers corrugated sheet steel prepared for use as beams in highway guardrails.
- 1.2. The values stated in SI units are to be regarded as the standard.

2. REFERENCED DOCUMENTS

2.1. *AASHTO Standards:*

- M 111M/M 111, Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
- M 232M/M 232, Zinc Coating (Hot-Dip) on Iron and Steel Hardware
- T 65M/T 65, Mass [Weight] of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings

2.2. *ASTM Standards:*

- A307, Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 psi Tensile Strength
- A563M, Standard Specification for Carbon and Alloy Steel Nuts (Metric)
- A653/A653M, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
- A924/A924M, Standard Specification for General Requirements for Steel Sheet, Metallic Coated by the Hot-Dip Process
- A1046/A1046M, Standard Specification for Steel Sheet, Zinc-Aluminum-Magnesium Alloy-Coated by the Hot-Dip Process
- B6, Standard Specification for Zinc
- B695, Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel
- E376, Standard Practice for Measuring Coating Thickness by Magnetic-Field or Eddy-Current (Electromagnetic) Testing Methods
- F568M, Standard Specification for Carbon and Alloy Steel Externally Threaded Metric Fasteners (withdrawn 2012)

2.3. *ANSI Standards:*

- B1.13M, Metric Screw Threads D M Profile
- B18.2.4.1M, Hex Nuts, Style 1, Metric
- B18.2.4.6M, Hex Nuts, Heavy, Metric

- 2.4. *Federal Standard:*
■ TT-P-641, Type II Zinc Dust Primer for Steel or Galvanized Metal Surfaces

- 2.5. *Military Standard:*
■ DOD-P-21035, Paint, High Zinc Dust Content, Galvanizing Repair (Metric)

3. CLASSIFICATION

- 3.1. *Six types and two classes of guardrail are provided as follows:*

- 3.1.1. *Types:*

Type I—Zinc-coated, 550 g/m² (1.80 oz/ft²) total both sides coating weight (mass) minimum single-spot.

Type II—Zinc-coated, 1100 g/m² (3.60 oz/ft²) total both sides coating weight (mass) minimum single-spot.

Type III—Beams to be painted.

Type IV—Beams of corrosion-resistant steel.

Type V—Zinc-6 percent aluminum-3 percent magnesium alloy coated, 245 g/m² (0.80 oz/ft²) total both sides coating weight (mass) minimum single-spot.

Type VI—Zinc-6 percent aluminum-3 percent magnesium alloy coated, 305 g/m² (1.00 oz/ft²) total both sides coating weight (mass) minimum single-spot.

- 3.1.2. *Classes:*

Class A—Base metal nominal thickness—2.67 mm (0.105 in.).

Class B—Base metal nominal thickness—3.43 mm (0.135 in.).

4. ORDERING INFORMATION

- 4.1. *Orders for guardrail under this specification shall include the following information, as required, to adequately describe the desired material:*

- 4.1.1. Quantity (linear meter or number of pieces),
- 4.1.2. Class of guardrail,
- 4.1.3. Type of guardrail,
- 4.1.4. Effective length of beam section 3.8 or 7.6 m (12.5 ft or 25.0 ft),
- 4.1.5. Shape (W-beam or thrie beam), and
- 4.1.6. Exceptions to this specification or special requirements, if any.

5. BASIS OF ACCEPTANCE

- 5.1. All material shall be subject to inspection and sampling at the fabricating plant, warehouse, or after delivery to the site of construction.
- 5.2. *Acceptance by Sampling:*