
Standard Specification for Aluminum-Zinc Alloy Coated Sheet Steel for Corrugated Steel Pipe

AASHTO Designation: M 289-91 (2021)

Technically Revised: 1991

Reviewed but Not Updated: 2021

Technical Subcommittee: 4b, Flexible and Metallic Pipe



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

- 1.1. This specification covers sheet steel for corrugated steel pipe, which is coated with a 55 percent aluminum-zinc alloy on continuous lines by the hot-dip process. The material is furnished in coils, flat cut lengths, and corrugated cut lengths. The standard corrugations available in cut lengths (pitch by depth) are 68 by 13 mm, 75 by 25 mm, and 125 by 25 mm. Aluminum-zinc alloy coated steel sheet for corrugated pipe is produced in one coating mass only, designated as 210 g/m².
- 1.2. Steel sheets or coils furnished under this specification shall meet the applicable requirements of ASTM A792/A792M unless otherwise specified herein.
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2. REFERENCED DOCUMENTS

- 2.1. *AASHTO Standard:*
- T 65M/T 65, Mass [Weight] of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings
- 2.2. *ASTM Standards:*
- A754/A754M, Standard Test Method for Coating Weight (Mass) of Metallic Coatings on Steel by X-Ray Fluorescence
 - A792/A792M, Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process
 - E8/E8M, Standard Test Methods for Tension Testing of Metallic Materials
 - E376, Standard Practice for Measuring Coating Thickness by Magnetic-Field or Eddy-Current (Electromagnetic) Testing Methods
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3. TERMINOLOGY

- 3.1. In this specification, *manufacturer* refers to the producer of the sheet, *fabricator* refers to the producer of the pipe, and *purchaser* refers to the purchaser of the finished product.
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4. ORDERING INFORMATION

- 4.1. All sheet, both flat and formed, covered by this specification is ordered only to the specified thicknesses listed in Table 4. The thickness of the sheet includes both the base steel and the coating.

- 4.2. Unless otherwise specified in the purchase order, all material furnished to this specification will be chemically treated.
- 4.3. *Orders for material to this specification shall include the following information, as necessary, to adequately describe the desired product:*
- 4.3.1. Name of material (aluminum-zinc alloy coated sheet for corrugated steel pipe, or corrugated aluminum-zinc alloy coated sheet for corrugated steel pipe);
- 4.3.2. Description of corrugations, if corrugated (Section 10);
- 4.3.3. Mass of aluminum-zinc alloy coating (210 g/m²) (Note 1);
- 4.3.4. AASHTO designation number and date of issue;
- 4.3.5. Dimensions: thickness, flat width (if flat) or overall corrugated width (if corrugated), and length (if cut length) (Section 10);
- 4.3.6. Coil size requirements (specify maximum outside diameter (OD), acceptable inside diameter (ID), and maximum mass); and
- 4.3.7. Special requirements.
- 4.4. If a certification by the manufacturer is required, it shall be specified in the purchase order (Section 12).

Note 1—The coating mass should be shown in the order to eliminate possible confusion with coating masses permitted by other specifications.

Note 2—Typical ordering descriptions are as follows:

- Aluminum-zinc alloy coated steel sheet for corrugated steel pipe, 68 by 13 mm corrugated, 210-g/m² coating, 1.63 by 648 by 1524 mm, in accordance with M 289-____.
- Aluminum-zinc alloy coated steel sheet for corrugated steel pipe, 210-g/m² coating, 2.01-by-686-mm coil, 1200-mm max. OD, 600-mm ID, 5445-kg max. coil mass, in accordance with M 289-____.

5. CHEMICAL REQUIREMENTS

- 5.1. *Cast or Heat (formerly Ladle) Analysis*—The base metal cast or heat (formerly ladle) analysis shall conform to the chemical requirements of Table 1.

Table 1—Chemical Composition by Cast Analysis

	Composition, %	Tolerance over the Max Limit by Product Analysis, %
Carbon, max	—	—
Manganese, max	—	—
Phosphorus, max	—	—
Sulfur, max	0.05	+0.01
Silicon, max	—	—
Sum of first five elements, max	0.70	+0.04

Note: Copper bearing steel availability subject to inquiry.