



Standard Specification for Composite Ribbed Steel Pipe, Precoated and Polyethylene Lined for Gravity Flow Sanitary Sewers, Storm Sewers, and Other Special Applications¹

This standard is issued under the fixed designation A 978/A 978M; 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 (ε) indicates an editorial change since the last revision or reappraisal.

1. Scope

1.1 This specification covers composite ribbed steel pipe, precoated and polyethylene lined intended for use for gravity flow sanitary sewers, storm sewers, and other special applications such as water transmission pipe, rehabilitation pipe, slip line pipe, and irrigation pipe where extra corrosion and abrasion resistance are required. The steel sheet used in the fabrication of the pipe has a polymer coating over a metallic coating of zinc on both sides. In addition, as the pipe is being fabricated, the ribs are filled with polyethylene and then a polyethylene liner is extruded onto the interior surface.

1.2 The exterior polymer precoating provides extra protection of the steel against soilside corrosion, in addition to that provided by the metallic coating, and also provides a dielectric barrier for cathodic protection. The interior polymer precoating provides an adhesive layer between the galvanized steel and the polyethylene lining. The applied lining provides internal protection against corrosion, erosion, and abrasion. By filling the rib which has a deltoid shape (smaller at the opening in the pipe wall than at the bottom of the rib), the polyethylene is mechanically connected to the pipe wall and the polyethylene liner is then thermally bonded to the filled rib.

1.3 This specification does not include requirements for bedding, backfill, or the relationship between earth cover load and sheet thickness of the pipe. Experience has shown that the successful performance of this product depends upon the proper selection of sheet thickness, type of bedding and backfill, controlled manufacture in the plant, and care in the installation. The installation procedure is described in Practice A 798.

1.4 This specification is applicable to orders in either inch-pound units as A 978, or in SI units as A 978M. Inch-pound units and SI units are not necessarily equivalent. SI units are shown in brackets in the text for clarity, but they are the applicable values when the material is ordered to A 978M.

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:

- A 90/A 90M Test Method for Weight (Mass) of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coating²
- A 153/A 153M Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware²
- A 307 Specification for Carbon Steel Bolts and Studs, 60 000 psi Tensile Strength³
- A 563 Specification for Carbon and Alloy Steel Nuts³
- A 563M Specification for Carbon and Alloy Steel Nuts [Metric]³
- A 742/A 742M Specification for Steel Sheet Metallic Coated and Polymer Precoated for Corrugated Steel Pipe²
- A 780 Practice for Repair of Damaged and Uncoated Areas of Hot Dip Galvanized Coatings²
- A 796 Practice for Structural Design of Corrugated Steel Pipe, Pipe-Arches, and Arches for Storm and Sanitary Sewers and Other Applications²
- A 798 Practice for Installing Factory-Made Corrugated Steel Pipe for Sewers and Other Applications²
- A 902 Terminology Relating to Metallic Coated Steel Products²
- A 926 Test Method for Comparing the Abrasion Resistance of Coating Materials for Corrugated Metal Pipe²
- A 929/A 929M Specification for Steel Sheet, Metallic-Coated by the Hot-Dip Process for Corrugated Steel Pipe²
- B 633 Specification for Electrodeposited Coatings of Zinc on Iron and Steel⁴
- B 695 Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel⁴
- C 443 Specification for Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets⁵
- C 443M Specification for Joints for Circular Concrete

¹ This specification is under the jurisdiction of ASTM Committee A-5 on Metallic Coated Iron and Steel Products and is the direct responsibility of Subcommittee A05.17 on Corrugated Steel Pipe Specification.

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² Annual Book of ASTM Standards, Vol 01.06.

³ Annual Book of ASTM Standards, Vol 15.08.

⁴ Annual Book of ASTM Standards, Vol 02.05.

⁵ Annual Book of ASTM Standards, Vol 04.05.