



**Designation: A 153/A 153M – 02**

American Association State Highway  
and Transportation Officials Standard  
AASHTO No. M232

## **Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware<sup>1</sup>**

This standard is issued under the fixed designation A 153/A 153M; 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 reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

*This standard has been approved for use by agencies of the Department of Defense.*

### **1. Scope**

1.1 This specification covers zinc coatings applied by the hot-dip process on iron and steel hardware.

1.2 This specification is intended to be applicable to hardware items that are centrifuged or otherwise handled to remove excess galvanizing bath metal (free zinc). Coating thickness grade requirements reflect this.

1.3 This specification is applicable to orders in either inch-pound units (as A 153) or in SI units (as A 153M). Inch-pound units and SI units are not necessarily exact equivalents. Within the text of this specification and where appropriate, SI units are shown in parentheses. Each system shall be used independently of the other without combining values in any way. In the case of orders in SI units, all testing and inspection shall be done using the metric equivalent of the test or inspection method as appropriate. In the case of orders in SI units, such shall be stated to the galvanizer when the order is placed.

1.4 *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 of Coating on Zinc-Coated (Galvanized) Iron or Steel Articles<sup>2</sup>

A 143 Practice for Safeguarding Against Embrittlement of Hot-Dip Galvanized Structural Steel Products and Procedure for Detecting Embrittlement<sup>2</sup>

A 385 Practice for Providing High-Quality Zinc Coatings (Hot-Dip)<sup>2</sup>

A 780 Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings<sup>2</sup>

A 902 Terminology Relating to Metallic Coated Steel Products<sup>2</sup>

B 6 Specification for Zinc (Slab Zinc)<sup>3</sup>

B 487 Test Method for Measurement of Metal and Oxide Coating Thicknesses by Microscopical Examination of a Cross Section<sup>4</sup>

B 602 Test Method for Attribute Sampling of Metallic and Inorganic Coatings<sup>4</sup>

E 376 Practice for Measuring Coating Thickness by Magnetic-Field or Eddy-Current (Electromagnetic) Test Methods<sup>5</sup>

F 1470 Guide for Fastener Sampling for Specified Mechanical Properties and Performance Inspection<sup>6</sup>

F 1789 Terminology for F16 Mechanical Fasteners<sup>6</sup>

### **3. Terminology**

#### **3.1 Definitions:**

3.1.1 The following terms and definitions are specific to this specification. Terminology A 902 contains other terms and definitions relating to metallic-coated steel products. Terminology F 1789 contains other terms and definitions relating to mechanical fasteners.

#### **3.2 Definitions of Terms Specific to This Standard:**

3.2.1 *average coating thickness, n*—the average of the specimen coating thickness values for the samples in an inspection lot.

3.2.2 *bare spots, n*—uncoated areas on the surface of the steel part that contain no measurable zinc coating.

3.2.3 *dross inclusions, n*—the iron/zinc intermetallics present in a galvanized coating in a form other than the layer growth of the coating.

3.2.4 *individual measurement, n*—the reading from a magnetic thickness gauge of a single coating spot thickness, or the

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee A05 on Metallic-Coated Iron and Steel Products and is the direct responsibility of Subcommittee A05.13 on Structural Shapes and Hardware Specifications.

Current edition approved December 10, 2002. Published February 2003. Originally approved in 1933. Last previous edition approved in 2001 as A 153/A 153M – 01a.

<sup>2</sup> *Annual Book of ASTM Standards*, Vol 01.06.

<sup>3</sup> *Annual Book of ASTM Standards*, Vol 02.04.

<sup>4</sup> *Annual Book of ASTM Standards*, Vol 02.05.

<sup>5</sup> *Annual Book of ASTM Standards*, Vol 03.03.

<sup>6</sup> *Annual Book of ASTM Standards*, Vol 01.08.