



Designation: A700 – 14

# Standard Guide for Packaging, Marking, and Loading Methods for Steel Products for Shipment<sup>1</sup>

This standard is issued under the fixed designation A700; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reappraisal.

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

## 1. Scope\*

1.1 This guide covers the packaging, marking, and loading of steel products for shipment. Assuming proper handling in transit, this guide is intended to assist shippers in packaging and loading steel products to arrive at their destination safely and in good condition. It is also intended that this guide may be used for attaining uniformity, simplicity, sufficiency, and economy in the shipment of steel products.

1.2 This guide applies to semi-finished steel products, bars, structural shapes and sheet piling, rods, wire and wire products, tubular products, plates, sheets, and strips, tin mill products, and castings.

1.3 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

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:<sup>2</sup>

- D996 Terminology of Packaging and Distribution Environments
- D3950 Specification for Strapping, Nonmetallic (and Joining Methods)
- D3953 Specification for Strapping, Flat Steel and Seals

<sup>1</sup> This guide is under the jurisdiction of ASTM Committee A01 on Steel, Stainless Steel and Related Alloys and are the direct responsibility of Subcommittee A01.94 on U.S. Government Requirements for Steel Mill and Foundry Products.

Current edition approved Nov. 1, 2014. Published November 2014. Originally approved in 1994. Last previous edition approved in 2005 as A700 – 05 which was withdrawn January 2014 and reinstated in November 2014. DOI: 10.1520/A0700-14.

<sup>2</sup> For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

D4169 Practice for Performance Testing of Shipping Containers and Systems

D4649 Guide for Selection and Use of Stretch Wrap Films

D4675 Guide for Selection and Use of Flat Strapping Materials<sup>1</sup>

D5728 Practices for Securement of Cargo in Intermodal and Unimodal Surface Transport

### 2.2 Other Standards (most current revisions):

Uniform Freight Classification Code, Rule 41, Section 9<sup>3</sup>

National Motor Freight Classification 100–L, Item 222, Section 7<sup>4</sup>

ISTA, International Safe Transit Association, Pre-Shipment Test Procedure<sup>5</sup>

Association of American Railroads (AAR/TTCI) Closed Car Loading Methods and Open Top Loading Rules<sup>6</sup>

IMO/ILO/UN ECE Guidelines for Packing or Cargo Transport Units (CTUs)<sup>7</sup>

Driver's Handbook on Cargo Securement<sup>8</sup>

## 3. General Provisions

3.1 *Marking*—Manufacturers and users may follow the marking methods for individual steel products so described and illustrated herein. It is the responsibility of the purchaser to provide the producer with his requirements concerning protective wrapping materials.

3.2 *Packaging*—Parties responsible for the packaging, loading and load securement should be familiar with and use the packaging terminology found in Terminology D996.

<sup>3</sup> Available from National Railroad Freight Classification, Uniform Classification Committee, 222 South Riverside Plaza, Chicago, IL 60606.

<sup>4</sup> Available from National Motor Freight Traffic Association, Inc. (NMFTA), 1001 N. Fairfax St., Suite 600, Alexandria, VA 22314, http://www.nmfta.org.

<sup>5</sup> Available from International Safe Transit Association (ISTA), 1400 Abbot Road, Suite 160, East Lansing, MI 48823-1900, http://www.itsa.org.

<sup>6</sup> Available from Association of American Railroads, Transportation Technology Center, Inc. (AAR/TTCI), 55500 DOT Rd., Pueblo, CO 81001, http://www.aar.com.

<sup>7</sup> Available from International Maritime Organization (IMO), Publishing Service, 4 Albert Embankment, London, SE1 7SR, United Kingdom, http://www.imo.org.

<sup>8</sup> Available from Federal Motor Carrier Safety Administration (FMCSA), 1200 New Jersey Avenue, SE, Suite W60-300, Washington, DC 20590, http://www.fmcsa.dot.gov.

\*A Summary of Changes section appears at the end of this standard

3.2.1 *Packaging and Load Securement Standards*—Shippers should refer to and comply with the governing standards and regulations applicable to the mode of transportation to be used for their specific shipments. These include, but are not limited to, Practices **D5728**, Guide **D4649**, Guide **D4675**, as well as, documents referenced in 2.2: Uniform Freight Classification Code, Rule 41, Section 9, National Motor Freight Classification 100–L, Item 222, Section 7, Association of American Railroads (AAR/TTCI) Closed Car Loading Methods and Open Top Loading Rules, IMO/ILO/UN ECE Guidelines for Packing or Cargo Transport Units (CTUs), and the Driver’s Handbook on Cargo Securement.

3.2.2 *Package and Loading Securement Methods*—Packaging and load securement methods should be developed and tested according to established protocols such as Practice **D4169** and ISTA, International Safe Transit Association, Pre-Shipment Test Procedure.

3.2.3 *Packaging Material Standards*—Shippers and packagers of steel products should specify materials that comply with applicable specifications such as Specification **D3950** and **D3953**.

3.2.4 **Safety Warning**—Failure to use proper packaging and load securement methods and materials may result in property damage, serious injury or death. Satisfactory past experience with methods and materials in itself is not sufficient to assure safety. In addition to understanding and complying with applicable standards, shippers should consult with suppliers of packaging and load securement materials to determine the best methods.

### 3.3 *Package Identification:*

3.3.1 All marking shall be legible and of a size consistent with the space available to be marked. All tags shall be securely affixed to the package to prevent loss in transit. Tags shall be of a size to show clearly all of the information needed, and shall be able to withstand reasonable exposure to the elements.

3.3.2 *Marking Metal Surfaces*—Unless otherwise specified, metal surfaces shall be marked with either permanent ink or paint.

3.3.3 *Marking Containers*—All materials used for marking containers shall be resistant to the elements.

3.4 *Weight and Count*—When steel products are invoiced on mill scale weights and such weights are checked after shipment, variations from invoice weights up to 1 % are normally expected due to differences in the kind, type, and location of the scales. When invoiced on weights determined by a scale at the mill, where there are large quantities of one size or thickness, or where the number of pieces in a lift or bundle is needed to be shown on the identification tags and shipping papers, the count is considered approximate and the weight is the more accurate. When steel products are invoiced on theoretical weights, the invoice weights are based on the number of pieces or lineal feet shipped.

3.5 *Packaging Lists or Tally*—Furnished as needed. Such lists are compiled as accurately as practicable, subject to confirmation by the official shipping notice or invoice.

## 4. Semi-Finished Steel Products

### 4.1 *Product Grades:*

4.1.1 Carbon, alloy, and stainless steel ingots, blooms, billets, and slabs.

4.1.2 Carbon steel skelp in coils.

### 4.2 *Marking:*

4.2.1 It is normal practice to stamp or paint the heat number on each piece shipped loose and to show the heat number on a tag attached to each secured lift of smaller size billets. The ordered size and weight may be painted on at least one piece of each size when shipped loose or on at least one piece of each secured lift. Each skelp coil is tagged or marked with the heat number and the size.

4.2.2 *Color Marking*—There is no generally recognized color code for identification of steel grades. When specified, color marking to denote grade is applied. In such cases a dash of color on one end of loose pieces is sufficient. In the case of secured lifts of smaller sizes, the grade is shown on a tag attached to the lift or by a dash of one color on one end of the lift.

## 5. Hot-Rolled Bars and Bar-Size Shapes

### 5.1 *Product Grades:*

5.1.1 Carbon, alloy, and stainless steel bars, and bar-size shapes.

5.1.2 Concrete reinforcing bars.

### 5.2 *Marking:*

5.2.1 *Carbon, Alloy, and Stainless Steel Bars, and Bar-Size Shapes:*

5.2.1.1 It is normal practice to identify each lift or coil with a tag containing the following information:

- (1) Manufacturer’s name, brand, or trademark,
- (2) Size,
- (3) ASTM designation (year date is not needed),
- (4) Heat number,
- (5) Weight (except coils),
- (6) Purchaser’s name, and
- (7) Purchaser’s order number.

5.2.1.2 *Die Stamping of Carbon Steel Bars*—The ultimate uses of the products do not usually need die stamping. Therefore, this method of marking for other than mill identification needs additional labor and handling.

5.2.1.3 *Die Stamping of Alloy and Stainless Steel Bars*—When specified, heat numbers or symbols are stamped on one end or on the surface near the end of rounds, squares, hexagons, and octagons 2 in. (51 mm) and larger, and on flats 2 in. in width or 2 in. or over in thickness.

5.2.1.4 The above described marking is practicable on smaller sizes down to a minimum of 1 in. (25 mm) in thickness and 1 in. in width for flats, and not less than 1 in. in thickness or diameter for other bars, but because of its precise nature, such marking delays normal production.

5.2.1.5 Stamping of sizes under 1 in. is not practicable. These sizes are secured in lifts and tagged to show heat numbers or symbols.