



Designation: A793 – 96(Reapproved 2009)

## Standard Specification for Rolled Floor Plate, Stainless Steel<sup>1</sup>

This standard is issued under the fixed designation A793; 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 ( $\epsilon$ ) 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 stainless steel floor plates  $\frac{1}{2}$  in. and under for use in galley spaces, washrooms, engine rooms, and machinery spaces, and for ladder treads, gun platforms, and deck treads. For these uses, Patterns A, B, and C are considered interchangeable (see Fig. 1, Fig. 2, and Fig. 3).

1.2 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.

### 2. Referenced Documents

#### 2.1 ASTM Standards:<sup>2</sup>

A340 Terminology of Symbols and Definitions Relating to Magnetic Testing

A370 Test Methods and Definitions for Mechanical Testing of Steel Products

A480/A480M Specification for General Requirements for Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet, and Strip

A700 Practices for Packaging, Marking, and Loading Methods for Steel Products for Shipment

#### 2.2 Military Standards:

MIL-I-17214 Indicator, Permeability; Low Mu (Go-NoGo)<sup>3</sup>

MIL-STD-163 Preservation of Steel Products for Domestic Shipment (Storage and Overseas Shipment)<sup>3</sup>

### 3. Ordering Information

3.1 It is the responsibility of the purchaser to specify all requirements that are necessary for material ordered under this

specification. Such requirements may include, but are not limited to, the following:

3.1.1 Quantity—number of pieces,

3.1.2 Dimensions (thickness, width, and length, see Table 1),

3.1.3 Name of material (stainless steel floor plate),

3.1.4 Grade (see Table 2),

3.1.5 Flat back or hollow back (See Table 1),

3.1.6 Surface finish (see Specification A480/A480M),

3.1.7 Special requirements, such as magnetic permeability test (see 6.3),

3.1.8 ASTM designation and date of issue,

3.1.9 Preparation for delivery, if different from Specification A480/A480M, and

3.1.10 Marking requirements, if different from Specification A480/A480M.

NOTE 1—A typical ordering description is as follows: 100 pieces, stainless steel floor plates, 0.1875 by 60 by 120 in., Type 304 (S30400), ASTM 793 – XX.

### 4. Materials and Manufacture

4.1 The steel floor plate material shall conform to the requirements of one of the grades listed in Table 2.

4.2 Annealing shall be the last heat treatment to which the material is subjected by the manufacturer.

4.3 The stainless steel floor plate shall be of the following patterns, at the option of the manufacturer:

4.3.1 Pattern A—Angular (see Fig. 1).

4.3.2 Pattern B—Angular (see Fig. 2).

4.3.3 Pattern C—Angular (see Fig. 3).

### 5. Chemical Composition

5.1 The heat chemical composition shall be reported to the purchaser, or his representative, and shall conform to the requirements for the specified grade as listed in Table 2.

5.2 For the purpose of chemical analysis, a lot shall consist of all floor plates and sheets made from the same heat. In case the material cannot be identified by melt or heat, a lot shall consist of not more than 25 tons (22.7 Mg) of floor plates and sheets offered for delivery at the same time.

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee A01 on Steel, Stainless Steel and Related Alloys and is the direct responsibility of Subcommittee A01.17 on Flat-Rolled and Wrought Stainless Steel.

Current edition approved May 1, 2009. Published June 2009. Originally approved in 1981. Last previous edition approved in 2001 as A793 – 96 (2001). DOI: 10.1520/A0793-96R09.

<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.

<sup>3</sup> Available from Standardization Documents Order Desk, DODSSP, Bldg. 4, Section D, 700 Robbins Ave., Philadelphia, PA 19111-5098, http://www.dodssp.daps.mil.

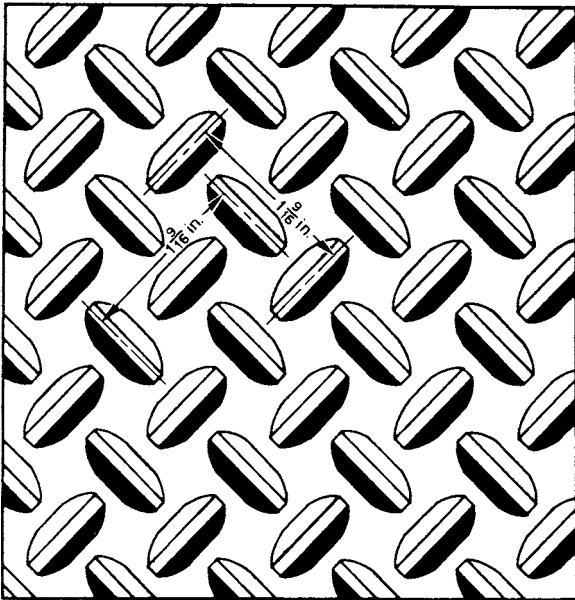


FIG. 1 Pattern A (percent of reduction, 61 %)

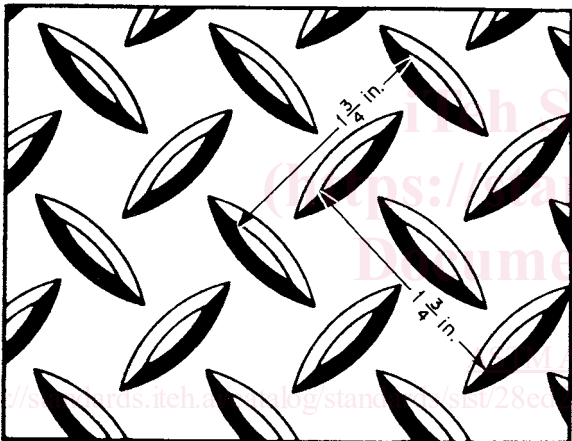


FIG. 2 Pattern B (original of raised figures approximately 1 3/4 in., percent of reduction 61 %)

5.3 One sample of suitable size shall be selected from each lot identified by heat. When the material cannot be identified by melt or heat, five separate samples from each lot shall be selected. Samples may be taken from bend test specimens representative of the lot. The chemical compositions thus determined shall conform to the expanded tolerances for product analysis shown in Table 2 of Specification A480/A480M. If any sample fails to conform, this shall be cause for rejection of the lot represented by the sample.

## 6. Mechanical Properties

6.1 *Lot Size*—A lot shall consist of all floor plates of the same thickness made from the same heat. In case the material cannot be identified by melt, a lot shall consist of not more than 25 tons (22.7 Mg) of floor plates of the same thickness.

### 6.2 Bend Test:

6.2.1 From each lot, two longitudinal cold bend test specimens, 18 in. long by 2 in. wide (457 by 51 mm), shall be

selected. When a lot cannot be identified by melt, five longitudinal cold bend test specimens, 18 in. long by 2 in. wide, shall be selected. Each of the specimens shall be taken from a different plate.

6.2.2 The specimens shall be bent cold, with the figures in the inside of the bend test specimens, through an angle of 180° flat on itself. The raised figures shall not be removed and the material shall not fracture nor develop cracks or flaws when subjected to the cold bend test. In the case of failure of any of the bend test specimens to conform, this shall be cause for rejection of the lot represented by the sample (see Test Methods and Definitions A370).

### 6.3 Magnetic Permeability Test:

6.3.1 When magnetic permeability is specified, a lot shall consist of all floor plates of the same thickness made from the same melt. In case the material cannot be identified by melt, a lot shall consist of not more than 25 tons (22.7 Mg) of floor plates of the same thickness.

6.3.2 Specimen for magnetic permeability test shall be a minimum of 1 3/16 in. wide by 2 in. by not more than 1/2 in. thick (30 by 50 by 13 mm). The samples shall be large enough that any cold work induced by cutting the sample from the master plate shall not affect the magnetic permeability test. The sample shall be tested in the as mill annealed condition.

6.3.3 The magnetic permeability shall not exceed 1.20 when the magnetic permeability indicator of MIL-I-17214 is used. In case of failure of the specimen to comply, this shall be cause for rejection of the lot represented by the sample (see Terminology A340).

## 7. Permissible Variations in Dimensions

7.1 Dimensions, weights, and special characteristics of Patterns A, B, and C shall be as specified in Table 1. The stainless steel floor plates shall have raised figures on one surface of the floor plate. The reverse side shall be flat, except that the portion below the raised figure on plates having a nominal weight below 5.25 lb/ft<sup>2</sup> (25.5 kg/m<sup>2</sup>) may be hollow.

7.2 Plates shall not exceed the respective weight specified in Table 1 by more than 8 %.

7.3 Variations over the specified width and length shall not exceed the amounts permitted in Table 3. Variations under the specified width and length shall not exceed 1/4 in. (6.3 mm).

7.4 The thickness of the floor plates shall conform to the requirements of Table 1 and shall be measured at least 3/8 in. (9.5 mm) from the edge of the plate exclusive of the raised figures.

7.5 *Camber Tolerances*—The camber tolerance for like raised figures of rolled floor plates shall be determined by the following equation:

$$\text{Camber tolerance, in.} = \frac{3/8 \times \text{number of feet of length}}{5}$$

NOTE 2—Length shall be taken as the direction along which the camber is to be measured.

7.6 Floor plates of stainless steel shall have figures not less than 5/8 in. (15.9 mm) nor more than 1 1/2 in. (38.1 mm) long at the base. The figures shall have a uniform pitch from center