Designation: A 650/A 650M – 03

Standard Specification for Tin Mill Products, Black Plate, Double Reduced[1]

This standard is issued under the fixed designation A 650/A 650M; 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.

1. Scope*

1.1 This specification covers double-reduced black plate, produced from low-carbon cold-reduced steel, furnished in coils and cut sizes, for use predominantly in the manufacture of containers. The product may be specified "as rolled," without the removal of the rolling solution, and with no additional surface or oiling treatment. It may also be specified "cleaned" with the rolling solution removed, with or without surface treatment and oiling. This product is normally supplied with trimmed edges.

1.2 This specification is applicable to orders in either inch-pound units (as A 650) which is supplied in thicknesses 0.0050 in. to 0.0113 in. or SI units [as A 650M] which is supplied in thicknesses from 0.127 to 0.287 mm.

1.3 The values stated in either inch-pound or SI units are to be regarded as standard. Within the text, the SI units are shown in brackets. The values stated in each system are not exact equivalents; therefore, each system must be used independently of the other. Combining values from the two systems may result in nonconformance with this specification.

2. Referenced Documents

2.1 *ASTM Standards:*[2]

A 623 Specification for Tin Mill Products, General Requirements

A 623M Specification for Tin Mill Products, General Requirements [Metric]

3. Ordering Information

3.1 Orders for material under this specification shall include the following information, as required and applicable, to adequately describe the desired materials.

3.1.1 Name of material (double-reduced black plate),

3.1.1.1 As rolled, with the rolling solution not removed,

3.1.1.2 Cleaned, with the rolling solution removed, not reoiled,

3.1.1.3 Cleaned and oiled, with the rolling solution removed and reoiled,

3.1.1.4 Cleaned, chemically treated and oiled, with the rolling solution removed, chemically treated and reoiled.

3.1.2 Thickness (see Specification A 623 [Specification A 623M]),

3.1.3 Width,

3.1.4 Length, for cut sizes only,

3.1.5 Rolling direction must be specified by underlining the slit (rolling width) for cut sizes (see 4.1),

3.1.6 Steel type (see Specification A 623 [Specification A 623M]),

3.1.7 Mechanical designation requirements (see Specification A 623 [Specification A 623M]),

3.1.8 Intended application,

3.1.9 Quantity, in base boxes [SITAS] (see Note 5),

3.1.10 On coils, specify minimum or range of acceptable inside diameters. The standard inside diameter is approximately 16 in. if ordered to Specification A 650 [410 mm if ordered to Specification A 650M]. Coils should be specified to a maximum coil weight if ordered to Specification A 650 [mass if ordered to Specification A 650M] or maximum outside diameter,

3.1.11 Packaging,

3.1.12 Special requirements where applicable, and

3.1.13 ASTM specification number and year of issue (A 650/A 650M – 88).

NOTE 1—A typical ordering description is as follows: 1200 base boxes double-reduced black plate, cleaned and oiled, 60-lb base weight, 33 1/16 in. by coil, MR, DR8 CA, for 401 by 411 can bodies to ASTM Specification A 650/A 650M - XX. [250 SITAS, double-reduced black plate, cleaned and oiled, 0.17 mm thickness, 840 mm by coil, MR, DR8 CA, for 99 mm can bodies to ASTM Specification A 650/A 650M.]

NOTE 2—A typical ordering description for cut sizes is as follows: 500 base boxes, double-reduced black plate, cleaned and oiled, 60-lb base weight MR, DR8 CA, 7C, 28 by 33 1/16 in., for 401 by 411 can bodies in accordance with Specification A 650/A 650M - XX. [100 SITAS, double-reduced black plate, cleaned and oiled, MR, DR8 CA, 7C, 0.28 mm thickness, 781 by 773 mm, for 401 by 411 can bodies in accordance with Specification A 650M/A 650M - XX.]

NOTE 3—The production of coils does not afford the same opportunity for inspection, grading, and sorting as does the production of cut sizes. Accordingly, appropriate processing and quality control procedures are

[1] This specification is under the jurisdiction of ASTM Committee A01 on Steel, Stainless Steel, and Related Alloys and is the direct responsibility of Subcommittee A01.20 on Tin Mill Products.

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[2] 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.

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

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required by the purchaser to obtain optimum utilization of the material. Cut sizes are line-inspected visually and mechanically during production. Sheets having surface imperfections that will not interfere with their utilization are included.

NOTE 4—Double-reduced black plate is highly susceptible to rusting and must be properly handled during transit and storage.

NOTE 5—In inch-pound units, double-reduced black plate is supplied on an area basis expressed in base boxes. In coils, the number of base boxes is computed from the measured length and the specified width. The theoretical weight of a coil is computed by multiplying the number of base boxes in a coil by the specified base weight. In cut lengths, the number of base boxes is computed from the specified length and width dimensions and sheet count. The theoretical weight of a bundle is computed by multiplying the number of base boxes in the bundle by the specified base weight.

[In SI units, double-reduced black plate is supplied on an area basis expressed in SITAS. In coils, the number of SITAS is computed from the measured length and the specified width. In cut sizes, the number of SITAS is computed from the specified length and width dimensions and sheet count. For calculating mass, the density of steel for tin mill products is 7850 kg/m^3 (see Specification A 623M).]

4. Rolling Direction

4.1 Double-reduced black plate is relatively brittle and has very distinct directional properties. The rolling direction must be specified on cut lengths and will be indicated by underlining the slit (rolling width) dimension. To minimize the flange-cracking hazard when the product is used for can bodies, the rolling direction must be around the circumference of the can.

5. Surface Finish

5.1 *Base Metal Finish*—Double-reduced black plate is produced with a ground roll finish.

5.1.1 *7C*—A smooth finish with grit lines. The surface roughness will range from 6 to 25 µin. Ra [0.152 to 0.635 µm Ra]. This is the standard finish for tin mill products.

6. General Requirements for Delivery

6.1 Material furnished under this specification shall conform to the applicable requirements of the current edition of Specification A 623 [Specification A 623M] unless otherwise provided herein.

SUMMARY OF CHANGES

Committee A01 has identified the location of selected changes to this standard since the last issue (A 650/A 650M - 98) that may impact the use of this standard.

A 650/A 650M - 03:

(*1*) Decrease minimum ordered thickness from 0.0055 in. to 0.0050 in. [0.140 mm to 0.127 mm] in paragraph 1.2 to be consistent with the minimum thickness of like products for A 626/A 626M and A 657/A 657M.

(*2*) Change metric decimal thickness from two significant figures to three significant figures in paragraph 1.2.

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