



Standard Specification for Textured Stainless Steel Sheet [Metric]¹

This standard is issued under the fixed designation A947M; 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 stainless steel, textured sheets, especially for use in electronic packaging applications, for example, cabinet, rack, enclosure, and shelf constructions for telecommunication, computer, and data-processing equipment.

1.2 This specification applies to all finished flat-rolled stainless products specified by standards organizations such as International Standards Organization (ISO), American Society for Testing and Materials (ASTM), European Committee for Standardization (CEN), German Institute for Standardization (DIN), and others participating in a global standards harmonization effort.

1.3 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

2. Referenced Documents

2.1 ASTM Standards:²

A240/A240M Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications

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 Guide for Packaging, Marking, and Loading Methods for Steel Products for Shipment

A751 Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products

B117 Practice for Operating Salt Spray (Fog) Apparatus

B193 Test Method for Resistivity of Electrical Conductor Materials

D257 Test Methods for DC Resistance or Conductance of Insulating Materials

D523 Test Method for Specular Gloss

2.2 ISO Standards:³

ISO 1462 Accelerated Corrosion Tests and Evaluation of Results

ISO 6892 Metallic Materials Tensile Testing

2.3 IEC Standard:⁴

IEC 68 Environmental Testing

2.4 CEN Standard:⁵

EN 10002/1 Metallic Materials Tensile Testing

2.5 DIN Standards:⁶

DIN 17441 Stainless Steel Technical Delivery Conditions for Stainless Cold Rolled Steel

DIN 50021-SS Spray Test with Different Sodium Chloride Solutions

DIN 50980 Evaluation of Corrosion Tests

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *textured*—a three-dimensional design pattern, regardless of the specific production-process approach.

4. Ordering Information

4.1 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:

4.1.1 *Quantity*—Number of sheets or weight.

4.1.2 Dimensions of sheet (thickness (texture included), width, and length). See **Tables 1-5** and **Section 9** for preferred sizes and tolerances.

4.1.3 ASTM designation and date of issue.

4.1.4 Name and type of material.

4.1.5 Surface condition of the nontextured surface. See Specification **A480/A480M** or **DIN 17441** Table 8.

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 **A01.17** on Flat-Rolled and Wrought Stainless Steel.

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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.

³ Available from International Organization for Standardization (ISO), 1 rue de Varembe, Case postale 56, CH-1211, Geneva 20, Switzerland.

⁴ Available from International Electrotechnical Commission (IEC), 3 rue de Varembe, Case postale 131, CH-1211, Geneva 20, Switzerland.

⁵ Available from European Committee for Standardization (CEN), Rue Brederode 2, B 1000 Bruxelles.

⁶ Available from German Institute for Standardization (DIN), Burggrafenstrasse 6, 1000 Berlin 30.

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

TABLE 1 Permissible Deviations in Thickness^A

Preferred Nominal Thickness	Applicable Thickness		Permissible Thickness Variations for Nominal Sheet Widths ≥ 10 ≤ 1600
	$\geq$	$\leq$	
0.40	0.4	0.5	0.04
0.50; 0.60	0.5	0.7	0.05
0.70; 0.80; 0.90; 1.00	0.7	1.1	0.06
1.20	1.1	1.5	0.08
1.50; 2.00	1.5	2.5	0.1
2.50; 3.00	2.5	3.5	0.12
3.50; 4.00	3.5	4.5	0.14
4.50; 5.00; 6.00	4.5	6.0	0.15

^A In reference to preferred sheet thicknesses. Dimensions stated are in millimetres.

TABLE 2 Permissible Deviations for Nominal Widths^A

Nominal Thickness		Permissible Deviation at Nominal Width			
$\geq$	$\leq$	≤ 100	≥ 100 to ≤ 300	≥ 300 to ≤ 700	≥ 700 to ≤ 1600
0.40	1.00	0.5	0.8	1.0	1.5
1.00	1.75	0.7	1.0	1.5	1.5
1.75	3.00	1.0	1.5	1.5	2.0
3.00	6.00	...	...	2.0	2.0

^A Dimensions stated are in millimetres.

TABLE 3 Permissible Deviations for Nominal Length^A

Nominal "L"	Permissible Deviation for Nominal Length
≤ 2000	5
> 2000	$0.0025 \times \text{Length}$

^A Dimensions stated are in millimetres.

TABLE 4 Permissible Deviations on Flatness^A

Nominal Thickness	Total Deviation, %	
	Relating to Length D/L	Relating to Width D/W
0.40	2.00	0.4
2.00	4.00	0.3
4.00	6.00	0.1

^A Dimensions stated are in millimetres.

4.1.6 Textured identification reference number. See **Table 6**.

4.1.7 Type and thickness of protective liner, if required by the purchaser.

4.1.8 Marking requirements. Reference: Practices **A700**.

NOTE 1—A typical ordering description is as follows: 500 sheets, 1.00 by 1200 by 2500 mm; Specification **A240/A240M**, Type 430; Surface Finish Texture ID: S-F-O, 6-1, 3-6-170-3; 100 sheet maximum/skid, textured side up. Each skid marked with purchase order number, applicable ASTM standard, and date of shipment.

5. Materials and Manufacture

5.1 The textured side or sides of the sheet shall be produced in such a manner that guarantees repeatability of the pattern over time. See **6.2**.

TABLE 5 Permissible Deviations on Squareness^A

Nominal Length		Squareness Tolerances at Nominal Width Ratio of AA/BB Dimension	
$\geq$	$\leq$	≤ 1000	≥ 1000 to ≤ 1600
...	2000	6	7
2000	3000	7	7
3000	3500	7	8
3500	5000	8	10
5000	6000	12	12

^A Dimensions stated are in millimetres.

TABLE 6 Textured Reference Identification

Pattern orientation	Note 1
Pattern appearance	Note 2
Height of pattern	Note 3
Size of pattern	Note 4
Type of pattern	Note 5
Pattern repetition configuration	Note 6
Pattern effect on far side of sheet	Note 7
Example of typical ordering description:	

S-F-O,6-1,3-6-170-3		
Note 1:	S (Straight)	Pattern oriented with flow line of rolling process.
	A (Angular)	Pattern oriented 45° to flow line of rolling process.
	O (Other)	Optional pattern orientation.
Note 2:	F (Fine)	If the number of pattern repetitions under Note 6 exceeds 100.
	C (Coarse)	If the number of pattern repetitions under Note 6 is less than 100.
Note 3:	Height of pattern in millimetres.	
Note 4:	Size of individual pattern. (Largest individual pattern dimension in millimetres; length, width, diagonal, and so forth.)	
Note 5:	Type of pattern:	
	No. 0 round	No. 7 trapezoidal
	No. 1 square	No. 8 lines
	No. 2 rectangular	No. 9 points
	No. 3 triangular	No. 10 letters
	No. 4 hex	No. 11 numbers
	No. 5 octal	No. 12 bricks
	No. 6 oblong	No. 13 star
		No. 14 arrow
		No. 15 snowflake
		No. 16 teardrop
		No. 17 combination
		No. 18 shapeless
		No. 19 irregular shape
		No. 20 others not defined
Note 6:	Number of largest individual pattern repetitions within a 20-mm · 20-mm area of the stainless steel sheet. (Partial pattern repetition included.)	
Note 7:	A two-sided pattern under this specification displays the same pattern on both sides of the sheet. This pattern is usually reserved for material thicknesses of 2.5 mm and thicker.	
	No. 1 Two-sided pattern.	
	No. 2 One-sided pattern. No visible marks from an one-sided pattern, when viewed with the unaided eye from a distance of 1 m.	
	No. 3 One-sided pattern. Shadings and reflections as a result from the pattern process on the opposite side of the sheet shall be acceptable.	
	No. 4 One-sided pattern. Measurable deformation, caused by the pattern on the opposite side of the sheet shall be acceptable.	

5.2 Manufacture process of textured material under this specification shall follow industry practices.

6. Texture of Sheet

6.1 The texture of any sheet delivered under this specification shall meet the provisions outlined in **Table 6** and Section **13**.