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Used in USDOE-NE Standards

Standard Specification for Nickel-Chromium-Iron Alloys (UNS N06600, N06601, N06603, N06690, N06693, N06025, N06045, and N06696) and Nickel-Chromium-Cobalt-Molybdenum Alloy (UNS N06617) Plate, Sheet, and Strip[1]

This standard is issued under the fixed designation B168; 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[2] covers rolled nickel-chromium-iron alloys (UNS N06600, N06601, N06603, N06690, N06693, N06025, N06045, and N06696)* and nickel-chromium-cobalt-molybdenum alloy (UNS N06617) plate, sheet, and strip.

1.2 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are for information only.

1.3 The following precautionary caveat pertains only to the test methods portion, Section 12, of this specification: *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 become familiar with all hazards including those identified in the appropriate Material Safety Data Sheet (MSDS) for this product/material as provided by the manufacturer, to establish appropriate safety and health practices, and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*[3]

B166 Specification for Nickel-Chromium-Iron Alloys (UNS N06600, N06601, N06603, N06690, N06693, N06025, N06045, and N06696)* and Nickel-Chromium-Cobalt-Molybdenum Alloy (UNS N06617) Rod, Bar, and Wire

B880 Specification for General Requirements for Chemical Check Analysis Limits for Nickel, Nickel Alloys and Cobalt Alloys

E8 Test Methods for Tension Testing of Metallic Materials

E10 Test Method for Brinell Hardness of Metallic Materials

E18 Test Methods for Rockwell Hardness of Metallic Materials

E29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

E38 Methods for Chemical Analysis of Nickel-Chromium and Nickel-Chromium-Iron Alloys[4]

E112 Test Methods for Determining Average Grain Size

E140 Hardness Conversion Tables for Metals Relationship Among Brinell Hardness, Vickers Hardness, Rockwell Hardness, Superficial Hardness, Knoop Hardness, and Scleroscope Hardness

E527 Practice for Numbering Metals and Alloys in the Unified Numbering System (UNS)

E1473 Test Methods for Chemical Analysis of Nickel, Cobalt, and High-Temperature Alloys

F155 Test Method for Temper of Strip and Sheet Metals for Electronic Devices (Spring-Back Method)[4]

2.2 *Federal Standards:* [5]

Fed. Std. No. 102 Preservation, Packaging and Packing Levels

Fed. Std. No. 123 Marking for Shipment (Civil Agencies)

Fed. Std. No. 182 Continuous Identification Marking of Nickel and Nickel-Base Alloys

2.3 *Military Standard:*[5]

MIL-STD-129 Marking for Shipment and Storage

[1] This specification is under the jurisdiction of ASTM Committee B02 on Nonferrous Metals and Alloys and is the direct responsibility of Subcommittee B02.07 on Refined Nickel and Cobalt and Their Alloys.

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[2] For ASME Boiler and Pressure Code applications, see related Specification SB-168 in Section II of that Code.

* New designation established in accordance with Practice E527 and SAE J1086, Practice for Numbering Metals and Alloys (UNS).

[3] 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.

[4] Withdrawn. The last approved version of this historical standard is referenced on www.astm.org.

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

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

TABLE 1 Product Description

Product	Thickness, in. (mm)	Width, in. (mm)
Hot-rolled plate[A]	3⁄16 and over (Table 5 and Table 6)	(Table 8)[B]
Hot-rolled sheet[A]	0.018 to 0.250 (0.46 to 6.4), incl (Table 7)	(Table 10)
Cold-rolled sheet[C]	0.018 to 0.250 (0.46 to 6.4), incl (Table 7)	(Table 10)
Cold-rolled strip[C]	0.005 to 0.250 (0.13 to 6.4), incl (Table 7)	(Table 10)

[A] Material 3⁄16 to ¼ in. (4.8 to 6.4 mm), incl, in thickness may be furnished as sheet or plate provided the material meets the specification requirements for the condition ordered.
[B] Hot-rolled plate, in widths 10 in. (254 mm) and under, may be furnished as hot-finished rectangles with sheared or cut edges in accordance with Specification B166, provided the mechanical property requirements of this specification are met.
[C] Material under 48 in. (1219 mm) in width may be furnished as sheet or strip provided the material meets the specification requirements for the condition ordered.

3. Terminology

3.1 *Descriptions of Terms Specific to This Standard*—The terms given in Table 1 shall apply.

4. Ordering Information

4.1 It is the responsibility of the purchaser to specify all requirements that are necessary for the safe and satisfactory performance of material ordered under this specification. Examples of such requirements include, but are not limited to, the following:

4.1.1 *Alloy* —Name or UNS number (see Table 2),

4.1.2 *ASTM designation*, including year of issue,

4.1.3 *Condition*—See 6.1 and 6.2 and Appendix X1,

4.1.4 *Finish*—Appendix X1,

4.1.5 *Dimensions*—Thickness, width, and length,

4.1.6 *Quantity*,

4.1.7 *Optional Requirements*:

4.1.7.1 *Sheet and Strip*—Whether to be furnished in coil, in cut straight lengths, or in random straight lengths,

4.1.7.2 *Strip*—Whether to be furnished with commercial slit edge, square edge, or round edge,

4.1.7.3 *Plate*—Whether to be furnished specially flattened (see 7.7.2); also how plate is to be cut (see 7.2.1 and 7.3.2),

4.1.8 *Certification*—State if certification or a report of test results is required (Section 15),

4.1.9 *Samples for Product (Check) Analysis*—Whether samples for product (check) analysis should be furnished (see 5.2), and

4.1.10 *Purchaser Inspection*—If the purchaser wishes to witness tests or inspection of material at the place of manufacture, the purchase order must so state indicating which tests or inspections are to be witnessed (Section 13).

5. Chemical Composition

5.1 The material shall conform to the requirements as to chemical composition prescribed in Table 2.

5.2 If a product (check) analysis is performed by the purchaser, the material shall conform to the product (check) analysis variations prescribed in Specification B880.

6. Mechanical Properties and Other Requirements

6.1 *Mechanical Properties*—The material shall conform to the mechanical properties prescribed in Table 3.

6.2 *Deep Drawing and Spinning Quality Sheet and Strip*—The material shall conform to the grain size and hardness requirements as prescribed in Table 4.

6.2.1 The mechanical properties of Table 3 do not apply to deep drawing and spinning quality sheet and strip.

7. Dimensions and Permissible Variations

7.1 *Thickness and Weight*:

7.1.1 *Plate*—For plate up to 2 in. (50.8 mm), inclusive, in thickness, the permissible variation under the specified thickness and permissible excess in overweight shall not exceed the amounts prescribed in Table 5.

7.1.1.1 For use with Table 5, plate shall be assumed to weigh 0.304 lb/in.^{3}(8.415 g/cm^3).

7.1.2 *Plate*—For plate over 2 in. (50.8 mm) in thickness, the permissible variations over the specified thickness shall not exceed the amounts prescribed in Table 6.

7.1.3 *Sheet and Strip*—The permissible variations in thickness of sheet and strip shall be as prescribed in Table 7. The thickness of strip and sheet shall be measured with the micrometer spindle ⅜ in. (9.5 mm) or more from either edge for material 1 in. (25.4 mm) or over in width and at any place on the strip under 1 in. in width.

7.2 *Width or Diameter*:

7.2.1 *Plate*—The permissible variations in width of rectangular plates and diameter of circular plates shall be as prescribed in Table 8 and Table 9.

7.2.2 *Sheet and Strip*—The permissible variations in width for sheet and strip shall be as prescribed in Table 10.

7.3 *Length*:

7.3.1 Sheet and strip of all sizes may be ordered to cut lengths, in which case a variation of ⅛ in. (3.2 mm) over the specified length shall be permitted.

7.3.2 Permissible variations in length of rectangular plate shall be as prescribed in Table 11.

7.4 *Straightness*:

7.4.1 The edgewise curvature (depth of chord) of flat sheet, strip, and plate shall not exceed 0.05 in. multiplied by the length in feet (0.04 mm multiplied by the length in centimetres).

7.4.2 Straightness for coiled material is subject to agreement between the manufacturer and the purchaser.

7.5 *Edges*:

7.5.1 When finished edges of strip are specified in the contract or order, the following descriptions shall apply:

7.5.1.1 Square-edge strip shall be supplied with finished edges, with sharp, square corners, without bevel or rounding.

TABLE 2 Chemical Requirements

Element	Composition Limits, %								
	Alloy N06600	Alloy N06601	Alloy N06617	Alloy N06690	Alloy N06693	Alloy N06025	Alloy N06045	Alloy N06603	Alloy N06696
Nickel	72.0 min	58.0–63.0	44.5 min	58.0 min	remainder[A]	remainder[A]	45.0 min	remainder[A]	remainder[A]
Chromium	14.0–17.0	21.0–25.0	20.0–24.0	27.0–31.0	27.0–31.0	24.0–26.0	26.0–29.0	24.0–26.0	28.0–32.0
Cobalt	...	...	10.0–15.0	...		...	...	...	...
Molybdenum	...	...	8.0–10.0	...	...	...	...	...	1.0–3.0
Niobium	...	...	...	...	0.5–2.5	...	...	...	...
Iron	6.0–10.0	remainder[A]	3.0 max	7.0–11.0	2.5–6.0	8.0–11.0	21.0–25.0	8.0–11.0	2.0–6.0
Manganese	1.0 max	1.0 max	1.0 max	0.5 max	1.0 max	0.15 max	1.0 max	0.15 max	1.0 max
Aluminum	...	1.0–1.7	0.8–1.5	...	2.5–4.0	1.8-2.4	...	2.4-3.0	...
Carbon	0.15 max	0.10 max	0.05–0.15	0.05 max	0.15 max	0.15–0.25	0.05–0.12	0.20-0.40	0.15 max
Copper	0.5 max	1.0 max	0.5 max	0.5 max	0.5 max	0.1 max	0.3 max	0.50 max	1.5–3.0
Silicon	0.5 max	0.5 max	1.0 max	0.5 max	0.5 max	0.5 max	2.5-3.0	0.50 max	1.0–2.5
Sulfur	0.015 max	0.015 max	0.015 max	0.015 max	0.01 max	0.010 max	0.010 max	0.010 max	0.010 max
Titanium	...	...	0.6 max	...	1.0 max	0.1–0.2		0.01-0.25	1.0 max
Phosphorus	...	...	...	...		0.020 max	0.020 max	0.020 max	...
Zirconium	...	...	...	...		0.01–0.10		0.01–0.10	...
Yttrium	...	...	..	...		0.05–0.12		0.01–0.15	...
Boron	...	...	0.006 max	...		...	...	...	...
Nitrogen	...	...	...	...		...	...	...	...
Cerium	...	...	...	...		...	0.03–0.09	...	...

[A] Element shall be determined arithmetically by difference.

TABLE 3 Mechanical Properties for Plate, Sheet, and Strip (All Thicknesses and Sizes Unless Otherwise Indicated)

Condition (Temper)	Tensile Strength, min, psi (MPa)	Yield Strength[A] (0.2 % offset), min, psi (MPa)	Elongation in 2 in. or 50 mm (or 4*D*), min,%	Rockwell Hardness[B,C]
Hot-Rolled Plate				
UNS N06600:				
Annealed	80 000 (550)	35 000 (240)	30	...
As-rolled[D,E]	85 000 (586)	35 000 (240)	30	...
UNS N06601:				
Annealed	80 000 (550)	30 000 (205)	30	...
UNS N06603:				
Annealed	94 000 (650)	43 000 (300)	25	...
UNS N06617:				
Annealed	95 000 (655)	35 000 (240)	35	...
UNS N06690:				
Annealed	85 000 (586)	35 000 (240)	30	...
As-rolled[D,E]	85 000 (586)	35 000 (240)	30	...
Annealed[F]	75 000 (514)	30 000 (206)	30	...
UNS N06693				
Annealed	100 000 (690)	50 000 (345)	30	...
UNS N06025				
Annealed	98 000 (680)	39 000 (270)	30	...
UNS N06045				
Annealed	90 000 (620)	35 000 (240)	35	...
Hot-Rolled Sheet				
UNS N06600:				
Annealed	80 000 (550)	35 000 (240)	30	...
UNS N06601:				
Annealed	80 000 (550)	30 000 (205)	30	...
UNS N06603:				
Annealed	94 000 (650)	43 000 (300)	25	...
UNS N06617:				
Annealed	95 000 (655)	35 000 (240)	30	...
UNS N06690:				
Annealed	85 000 (586)	35 000 (240)	30	...
UNS N06693				
Annealed	100 000 (690)	50 000 (345)	30	...
UNS N06025				
Annealed	98 000 (680)	39 000 (270)	30	...
UNS N06045				
Annealed	90 000 (620)	35 000 (240)	35	...
Cold-Rolled Plate				
UNS N06603				
Annealed	94 000 (650)	43 000 (300)	25	...
UNS N06025				
Annealed	98 000 (680)	39 000 (270)	30	...
UNS N06045				
Annealed	90 000 (620)	35 000 (240)	35	...
Cold-Rolled Sheet				
UNS N06600:				
Annealed	80 000 (550)[G]	35 000 (240)	30[G]	...
Hard	125 000 (860)[G]	90 000 (620)	2[G]	...
UNS N06601:				
Annealed	80 000 (550)[G]	30 000 (205)	30[G]	...
UNS N06603:				
Annealed	94 000 (650)	43 000 (300)	25[G]	...
UNS N06617:				
Annealed	95 000 (655)[G]	35 000 (240)	25[G]	...
UNS N06690:				
Annealed	85 000 (586)[G]	35 000 (240)	30[G]	...
Hard	125 000 (860)[G]	90 000 (620)	2[G]	...
UNS N06693				
Annealed	100 000 (690)	50 000 (345)	30	...
UNS N06025				
Annealed	98 000 (680)	39 000 (270)	30	...
UNS N06045				
Annealed	90 000 (620)	35 000 (240)	35	...
Cold-Rolled Strip				
UNS N06600:				
Annealed	80 000 (550)[G]	35 000 (240)	30[G]	...
Skin-hard	...	...	...	B85 to B88

TABLE 3 *Continued*

Condition (Temper)	Tensile Strength, min, psi (MPa)	Yield Strength[A] (0.2 % offset), min, psi (MPa)	Elongation in 2 in. or 50 mm (or 4*D*), min,%	Rockwell Hardness[B,C]
Quarter-hard	...	...	...	B88 to B94
Half-hard	...	...	...	B93 to B98
Three-quarter-hard	...	...	...	B97 to C25
Hard	125 000 (860)[G]	90 000 (620)	2[G]	...
Spring	...	...	...	C30 min
UNS N06601:				
Annealed	80 000 (550)[G]	30 000 (205)	30[G]	...
UNS N06603:				
Annealed	94 000 (650)	43 000 (300)	25[G]	...
UNS N06617:				
Annealed	95 000 (655)[G]	35 000 (240)	30[G]	...
UNS N06690:				
Annealed	85 000 (586)[G]	35 000 (240)	30[G]	...
Skin-hard	...	...	...	B85 to B88
Quarter-hard	...	...	...	B88 to B94
Half-hard	...	...	...	B93 to B98
Three-quarter-hard	...	...	...	B97 to C25
Hard	125 000 (860)[G]	90 000 (620)	2[G]	...
Spring	...	...	...	C30 min
UNS N06693				
Annealed	100 000 (690)	50 000 (345)	30	...
UNS N06025				
Annealed	98 000 (680)	39 000 (270)	30	...
UNS N06045				
Annealed	90 000 (620)	35 000 (240)	35	...
UNS N06696				
Annealed	85 000 (586)	35 000 (240)	30	...

[A] Yield strength requirements do not apply to material under 0.020 in. (0.51 mm) in thickness.
[B] For Rockwell or equivalent hardness conversions, see Hardness Conversion Tables E140.
[C] Caution should be served in using the Rockwell test on thin material, as the results may be affected by specimen thickness. For thicknesses under 0.050 in. (1.3 mm), the use of the Rockwell superficial or the Vickers hardness test is suggested.
[D] As-rolled plate may be given a stress relieving heat treatment subsequent to final rolling.
[E] As-rolled plate specified "suitable for hot forming" shall be furnished from heats of known good hot-malleability characteristics (see X1.2.2). There are no applicable tensile or hardness requirements for such material.
[F] Annealed at 1850°F (1010°C) minimum.
[G] Not applicable for thickness under 0.010 in. (0.25 mm).

TABLE 4 Grain Size and Hardness for Cold-Rolled, Deep-Drawing, and Spinning-Quality Sheet and Strip

Thickness, in. (mm)	Calculated Diameter of Average Grain Section, max, in. (mm)	Corresponding ASTM MicroGrain Size No.	Rockwell B[A,B] Hardness, max
Sheet (56 in. (1.42 m) Wide and Under)			
0.050 (1.3) and less	0.0030 (0.075)	4.5	86
Over 0.050 to 0.250 (1.3 to 6.4), incl	0.0043 (0.110)	3.5	86
Strip (12 in. (305 mm) Wide and Under)[C]			
0.005[D] to 0.010 (0.13 to 0.25), incl	0.0009 (0.022)	8[E]	88[E]
Over 0.010 to 0.125 (0.25 to 3.2), incl	0.0030 (0.075)	4.5	86

[A] For Rockwell or equivalent hardness conversions, see Hardness Conversion Tables E140.
[B] Caution should be observed in using the Rockwell test on thin material, as the results may be affected by specimen thickness. For thicknesses under 0.050 in. (1.3 mm), the use of the Rockwell superficial or the Vickers hardness test is suggested.
[C] Sheet requirements (above) apply to strip thicknessess over 0.125 in. (3.2 mm), and for all thicknessess of strip over 12 in. (305 mm) in width.
[D] For ductility evaluations for strip under 0.005 in. (0.13 mm) in thickness, the springback test, such as described in Test Method F155, is often used and the manufacturer should be consulted.
[E] Accurate grain size and hardness determinations are difficult to make on strip under 0.005 in. (0.13 mm) in thickness and are not recommended.

TABLE 5 Permissible Variations in Thickness and Overweight of Rectangular Plates

NOTE 1—All plates shall be ordered to thickness and not to weight per square foot (cm). No plates shall vary more than 0.01 in. (0.3 mm) under the thickness ordered, and the overweight of each lot[A] in each shipment shall not exceed the amount in the table. Spot grinding is permitted to remove surface imperfections, such spots not to exceed 0.01 in. under the specified thickness.

Specified Thickness, in. (mm)	Permissible Excess in Average Weight[B,C] per Square Foot of Plates for Widths Given in Inches (Millimetres) Expressed in Percentage of Nominal Weights									
	Under 48 (1220)	48 to 60 (1220 to 1520), excl	60 to 72 (1520 to 1830), excl	72 to 84 (1830 to 2130), excl	84 to 96 (2130 to 2440), excl	96 to 108 (2440 to 2740), excl	108 to 120 (2740 to 3050), excl	120 to 132 (3050 to 3350), excl	132 to 144 (3350 to 3660), excl	144 to 160 (3660 to 4070), excl
3/16 to 5/16 (4.8 to 7.9), excl	9.0	10.5	12.0	13.5	15.0	16.5	18.0	...	...	...
5/16 to 3/8 (7.9 to 9.5), excl	7.5	9.0	10.5	12.0	13.5	15.0	16.5	18.0	...	...
3/8 to 7/16 (9.5 to 11.1),excl	7.0	7.5	9.0	10.5	12.0	13.5	15.0	16.5	18.0	19.5
7/16 to 1/2 (11.1 to 12.7), excl	6.0	7.0	7.5	9.0	10.5	12.0	13.5	15.0	16.5	18.0
1/2 to 5/8 (12.7 to 15.9), excl	5.0	6.0	7.0	7.5	9.0	10.5	12.0	13.5	15.0	16.5
5/8 to 3/4 (15.9 to 19.1), excl	4.5	5.5	6.0	7.0	7.5	9.0	10.5	12.0	13.5	15.0
3/4 to 1 (19.1 to 25.4), excl	4.0	4.5	5.5	6.0	7.0	7.5	9.0	10.5	12.0	13.5
1 to 2 (25.4 to 50.8), incl	4.0	4.0	4.5	5.5	6.0	7.0	7.5	9.0	10.5	12.0

[A] The term "lot" applied to this table means all of the plates of each group width and each group thickness.
[B] The permissible overweight for lots of circular and sketch plates shall be 25 % greater than the amounts given in this table.
[C] The weight of individual plates shall not exceed the nominal weight by more than 1 1/4 times the amount given in the table and Footnote *B*.

TABLE 6 Permissible Variations in Thickness for Rectangular Plates Over 2 in. (51 mm) in Thickness

NOTE 1—Permissible variation under specified thickness, 0.01 in. (0.3 mm)

Specified Thickness, in. (mm)	Permissible Variations, in. (mm), over Specified Thickness for Widths Given, in. (mm)					
	To 36 (915), excl	36 to 60 (915 to 1520), excl	60 to 84 (1520 to 2130), excl	84 to 120 (2130 to 3050), excl	120 to 132 (3050 to 3350), excl	132 (3350) and over
Over 2 to 3 (51 to 76), excl	1/16 (1.6)	3/32 (2.4)	7/64 (2.8)	1/8 (3.2)	1/8 (3.2)	9/64 (3.6)
3 to 4 (76 to 102), incl	5/64 (2.0)	3/32 (2.4)	7/64 (2.8)	1/8 (3.2)	1/8 (3.2)	9/64 (3.6)

TABLE 7 Permissible Variations in Thickness of Sheet and Strip
(Permissible Variations, Plus and Minus, in Thickness, in. (mm), for Widths Given in in. (mm))

Specified Thickness, in. (mm)	Sheet[A]			
	Hot-Rolled		Cold-Rolled	
	48 (1220) and Under	Over 48 to 60 (1220 to 1520), incl	48 (1220) and Under	Over 48 to 60 (1220 to 1520), incl
0.018 to 0.025 (0.5 to 0.6), incl	0.003 (0.08)	0.004 (0.10)	0.002 (0.05)	0.003 (0.08)
Over 0.025 to 0.034 (0.6 to 0.9), incl	0.004 (0.10)	0.005 (0.13)	0.003 (0.08)	0.004 (0.10)
Over 0.034 to 0.043 (0.9 to 1.1), incl	0.005 (0.13)	0.006 (0.15)	0.004 (0.10)	0.005 (0.13)
Over 0.043 to 0.056 (1.1 to 1.4), incl	0.005 (0.13)	0.006 (0.15)	0.004 (0.10)	0.005 (0.13)
Over 0.056 to 0.070 (1.4 to 1.8), incl	0.006 (0.15)	0.007 (0.18)	0.005 (0.13)	0.006 (0.15)
Over 0.070 to 0.078 (1.8 to 1.9), incl	0.007 (0.18)	0.008 (0.20)	0.006 (0.15)	0.007 (0.18)
Over 0.078 to 0.093 (1.9 to 2.4), incl	0.008 (0.20)	0.009 (0.23)	0.007 (0.18)	0.008 (0.20)
Over 0.093 to 0.109 (2.4 to 2.8), incl	0.009 (0.23)	0.010 (0.25)	0.007 (0.18)	0.009 (0.23)
Over 0.109 to 0.125 (2.8 to 3.2), incl	0.010 (0.25)	0.012 (0.31)	0.008 (0.20)	0.010 (0.25)
Over 0.125 to 0.140 (3.2 to 3.6), incl	0.012 (0.31)	0.014 (0.36)	0.008 (0.20)	0.010 (0.25)
Over 0.140 to 0.171 (3.6 to 4.3), incl	0.014 (0.36)	0.016 (0.41)	0.009 (0.23)	0.012 (0.31)
Over 0.171 to 0.187 (4.3 to 4.8), incl	0.015 (0.38)	0.017 (0.43)	0.010 (0.25)	0.013 (0.33)
Over 0.187 to 0.218 (4.8 to 5.5), incl	0.017 (0.43)	0.019 (0.48)	0.011 (0.28)	0.015 (0.38)
Over 0.218 to 0.234 (5.5 to 5.9), incl	0.018 (0.46)	0.020 (0.51)	0.012 (0.31)	0.016 (0.41)
Over 0.234 to 0.250 (5.9 to 6.4), incl	0.020 (0.51)	0.022 (0.56)	0.013 (0.33)	0.018 (0.46)

Cold-Rolled Strip[A,B]

Specified Thickness, in. (mm)	Widths 12 in. (305 mm) and under, plus and minus
Up to 0.050 (1.27), incl	0.0015 (0.038)
Over 0.050 to 0.093 (1.27 to 2.39), incl	0.0025 (0.063)
Over 0.093 to 0.125 (2.39 to 3.18), incl	0.004 (0.11)

[A] Measured 3/8 in. (9.5 mm) or more from either edge except for strip under 1 in. (25.4 mm) in width which is measured at any place.
[B] Standard sheet tolerances apply for thicknesses over 0.125 in. (3.2 mm) and for all thicknesses of strip over 12 in. (305 mm) wide.

7.5.1.2 Round-edge strip shall be supplied with finished edges, semicircular in form, the diameter of the circle forming the edge being equal to the strip thickness.

7.5.1.3 When no description of any required form of strip edge is given, it shall be understood that edges such as those resulting from slitting or shearing will be acceptable.