Designation: A 682/A 682M – 05

Standard Specification for Steel, Strip, High-Carbon, Cold-Rolled, General Requirements For[1]

This standard is issued under the fixed designation A 682/A 682M; 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 covers the general requirements for cold-rolled carbon spring steel strip in coils or cut lengths. Strip is classified as product that is 0.3000 in. (7.6 mm) or less in thickness and over ½ to 23 15⁄16 in. (12.5 to 600 mm) in width, inclusive. Strip tolerance products may be available in widths wider than 23 15⁄16 in. (600 mm) by agreement between purchaser and supplier; however, such products are technically classified as cold-rolled sheet.

1.2 The maximum of the specified carbon range is over 0.25 % to 1.35 %, inclusive.

1.3 The above shall apply to the cold-rolled carbon spring steel strip furnished under each of the following specifications issued by ASTM:

Title of Specification	ASTM Designation
Steel, Strip, High Carbon, Cold Rolled	A 684/A 684M

1.4 The tolerances in this specification are different than those in Specification A 568/A 568M and Specification A 109/A 109M.

1.5 For the purpose of determining conformance with this specification, values shall be rounded to the nearest unit in the right hand place of figures used in expressing the limiting values in accordance with the rounding method of Practice E 29.

1.6 The metric portions of the tables herein list permissible variations in dimensions and mass (see Note 1) in SI (metric) units. The values listed are not exact conversions of the values listed in the inch-pound tables but instead are rounded or rationalized values. Conformance to SI tolerances is mandatory when the "M" specification is used.

NOTE 1—The term *weight* is used when inch-pound units are the standard. However, under SI the preferred term in *mass*.

1.7 The values stated in either inch-pound units 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 will result in nonconformance with the specification.

1.8 This specification is expressed in both inch-pound units and SI units. However, unless the order specifies the applicable "M" specification designation (SI units), the material shall be furnished to inch-pound units.

2. Referenced Documents

2.1 *ASTM Standards:* [2]

A 109/ A 109M Specification for Steel, Strip, Carbon (0.25 Maximum Percent), Cold-Rolled

A 370 Test Methods and Definitions for Mechanical Testing of Steel Products

A 568/ A 568M Specification for Steel, Sheet, Carbon, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for

A 684/A 684M Specification for Steel, Strip, High-Carbon, Cold-Rolled

A 700 Practices for Packaging, Marking, and Loading Methods for Steel Products for Domestic Shipment

A 751 Test Methods, Practices, and Terminology for Chemical Analysis of Steel Products

A 941 Terminology Relating to Steel, Stainless Steel, Related Alloys, and Ferroalloys

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

E 527 Practice for Numbering Metals and Alloys (UNS)

2.2 *Federal Standards:*[3]

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

Fed. Std. No. 183 Continuous Identification Marking of Iron and Steel Products

2.3 *Military Standards:*[3]

MIL-STD-129 Marking for Shipping and Storage

[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 A01.19 on Steel Sheet and Strip.

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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 Standardization Documents Order Desk, DODSSP, Bldg. 4, Section D, 700 Robbins Ave., Philadelphia, PA 19111-5098.

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

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MIL-STD-163 Steel Mill Products Preparation for Shipment and Storage

2.4 *SAE Standard:*[4]

J 1086 Recommended Practice for Numbering Metals and Alloys (UNS)

3. Terminology

3.1 *Definitions:*

3.1.1 *burr*—metal displaced beyond the plane of the surface by slitting or shearing.

3.1.2 *decarburization*—refer to Terminology A 941.

3.1.3 *lot*—quantity of material of the same type, size, and finish produced at one time from the same cast or heat, and heat treated in the same heat-treatment cycle.

4. General Requirements for Delivery

4.1 The requirements of the purchase order, the individual material specification, and this general specification shall govern in the sequence stated.

4.2 Products covered by this specification are produced to decimal thickness only, and decimal thickness tolerances apply.

5. Materials and Manufacture

5.1 *Melting Practice*—The steel shall be made by either the open-hearth, basic-oxygen, or electric-furnace process. It is normally produced as a fully killed steel. Elements such as aluminum may be added in sufficient amounts to control the austenitic grain size.

5.2 *Cold Working Procedure*:

5.2.1 Prior to cold rolling, the hot-rolled strip shall be descaled by chemical or mechanical means.

5.2.2 The strip shall be cold rolled by reducing to thickness at room temperature (that is, below the recrystallization temperature).

6. Chemical Composition

6.1 *Limits*:

6.1.1 When carbon steel strip is specified to chemical composition, the compositions are commonly prepared using the ranges and limits shown in Table 1. The elements comprising the desired chemical composition are specified in one of three ways:

6.1.1.1 By a maximum limit,

6.1.1.2 By a minimum limit, or

6.1.1.3 By minimum and maximum limits, termed the "range." By common usage, the range is the arithmetical difference between the two limits (for example, 0.60 to 0.71 is 0.11 range).

6.1.2 Steel grade numbers indicating chemical composition commonly produced to this specification are shown in Table 2 and may be used. Table 3 shows requirements for additional elements.

6.1.3 Additional elements may be present. Limits on such elements are by agreement between purchaser and supplier.

TABLE 1 Heat (Formerly Ladle) Analysis Limits and Ranges

Element	Standard Chemical Limits and Ranges, Limit or Max of Specified Range	Range, %
Carbon[A]	over 0.25 to 0.30, incl	0.06
	over 0.30 to 0.40, incl	0.07
	over 0.40 to 0.60, incl	0.08
	over 0.60 to 0.80, incl	0.11
	over 0.80 to 1.35, incl	0.14
Manganese	to 0.50, incl	0.20
	over 0.50 to 1.15, incl	0.30
	over 1.15 to 1.65, incl	0.35
Phosphorous	to 0.08, incl	0.03
	over 0.08 to 0.15, incl	0.05
Sulfur	to 0.08, incl	0.03
	over 0.08 to 0.15, incl	0.05
	over 0.15 to 0.23, incl	0.07
	over 0.23 to 0.33, incl	0.10
Silicon	to 0.20, incl	0.10
	over 0.20 to 0.30, incl	0.15
	over 0.30 to 0.60, incl	0.30

[A] The carbon ranges shown in the column headed "Range" apply when the specified maximum limit for manganese does not exceed 1.00 %. When the maximum manganese limit exceeds 1.00 %, add 0.01 to the carbon ranges shown above.

6.1.3.1 Any additional elements specified shall be included in the report of heat analysis.

6.2 *Heat (Formerly Ladle) Analysis*:

6.2.1 An analysis of each heat of steel shall be made by the manufacturer to determine the percentage of elements specified or restricted by the applicable specification.

6.2.2 When requested, heat analysis for elements listed or required shall be reported to the purchaser or to his representative. Each of the elements listed in Tables 2 and 3 and additional elements agreed upon by the purchaser and the supplier shall be included in the report of heat analysis. When the amount of copper, nickel, chromium, or molybdenum is less than 0.02 %, the analysis may be reported as <0.02 %. When the amount of vanadium, columbium, or titanium is less than 0.008 %, the analysis may be reported as <0.008 %. the reported heat analysis shall conform to the chemical composition requirements of the appropriate grade in Table 2, if used, the additional elements in Table 3, and the limits of any other elements agreed upon by the purchaser and supplier.

6.3 *Product Analysis (Formerly Check Analysis)*—Product analysis is the chemical analysis of the semi-finished product form. The strip may be subjected to product analysis by the purchaser either for the purpose of verifying that the chemical composition is within specified limits for each element, including applicable tolerance for product analysis, or to determine variations in compositions within a cast or heat. The results of analyses taken from different pieces within a heat may differ from each other and from the cast analysis. The chemical composition thus determined shall not vary from the limits specified by more than the amounts shown in Table 4, but the several determinations of any element in any cast may not vary both above and below the specified range.

6.4 *Methods of Analysis*—Test Methods, Practices, and Terminology A 751 shall be used for referee purposes.

[4] Available from Society of Automotive Engineers (SAE), 400 Commonwealth Dr., Warrendale, PA 15096-0001.

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TABLE 2 Heat (Formerly Ladle) Analysis Chemical Composition, %

UNS Designation[A]	Steel Grade	Carbon	Manganese	Phosphorus, max	Sulfur, max	Silicon[B]
G10300	1030	0.28 to 0.34	0.60 to 0.90	0.030	0.035	0.15 to 0.30
G10350	1035	0.32 to 0.38	0.60 to 0.90	0.030	0.035	0.15 to 0.30
G10400	1040	0.37 to 0.44	0.60 to 0.90	0.030	0.035	0.15 to 0.30
G10450	1045	0.43 to 0.50	0.60 to 0.90	0.030	0.035	0.15 to 0.30
G10500	1050	0.48 to 0.55	0.60 to 0.90	0.030	0.035	0.15 to 0.30
G10550	1055	0.50 to 0.60	0.60 to 0.90	0.030	0.035	0.15 to 0.30
G10600	1060	0.55 to 0.65	0.60 to 0.90	0.030	0.035	0.15 to 0.30
G10640	1064	0.60 to 0.70	0.50 to 0.80	0.030	0.035	0.15 to 0.30
G10650	1065	0.60 to 0.70	0.60 to 0.90	0.030	0.035	0.15 to 0.30
G10700	1070	0.65 to 0.75	0.60 to 0.90	0.030	0.035	0.15 to 0.30
G10740	1074	0.70 to 0.80	0.50 to 0.80	0.030	0.035	0.15 to 0.30
G10800	1080	0.75 to 0.88	0.60 to 0.90	0.030	0.035	0.15 to 0.30
G10850	1085	0.80 to 0.93	0.70 to 1.00	0.030	0.035	0.15 to 0.30
G10860	1086	0.80 to 0.93	0.30 to 0.50	0.030	0.035	0.15 to 0.30
G10950	1095	0.90 to 1.03	0.30 to 0.50	0.030	0.035	0.15 to 0.30

[A] New designation established in accordance with Practice E 527 and SAE J 1086.
[B] When agreed by purchaser and supplier, other silicon ranges are permissible.

TABLE 3 Additional Chemical Composition Requirements—Heat Analysis

Element	Composition—Weight %
Aluminum[A]	. . .
Copper, max[B]	0.30
Nickel, max[B]	0.30
Chromium, max[B,C]	0.25
Molybdenum, max[B]	0.10
Vanadium[A]	. . .
Columbium[A]	. . .
Titanium[A]	. . .

[A] Where an ellipsis (. . .) appears in this table, there is no specified limit, but the analysis shall be reported.
[B] The sum of copper, nickel, chromium, and molybdenum shall not exceed 0.80 % on heat analysis. When one or more of these elements is specified, the sum does not apply, in which case only the individual limits on the remaining elements will apply.
[C] When the chromium is specified or added for antigraphitization, the maximum shall be 1.40 wt. %

TABLE 4 Permissible Variations from Specified Cast or Heat (Formerly Ladle) Analysis Ranges and Limits

Element	Limit or Max of Specification, %	Variations Over Max Limit or Under Min Limit	
		Under Min Limit	Over Max Limit
Carbon	over 0.25 to 0.40, incl	0.03	0.04
	over 0.40 to 0.80, incl	0.03	0.05
	over 0.80	0.03	0.06
Manganese	to 0.60, incl	0.03	0.03
	over 0.60 to 1.15, incl	0.04	0.04
	over 1.15 to 1.65, incl	0.05	0.05
Phosphorus	. . .	. . .	0.01
Sulfur	. . .	. . .	0.01
Silicon	to 0.30, incl	0.02	0.03
	over 0.30 to 0.60	0.05	0.05

7. Metallurgical Structure

7.1 *Grain Size*:

7.1.1 Unless otherwise specified, the steel strip shall be manfactured to a fine grain (austenitic and ferritic) practice.

7.2 *Decarburization*:

7.2.1 When specified, the steel strip shall have a maximum permissible depth of complete plus partial decarburization of 0.001 in. or 1.5 % of the thickness of the strip, whichever is greater, except that strip less than 0.011 in. thick shall show no complete decarburization.

8. Mechanical Requirements

8.1 The mechanical property requirements, number of specimens, and test locations and specimen orientation shall be in accordance with the applicable product specification.

8.2 Unless otherwise specified in the applicable product specification, test specimens must be prepared in accordance with Test Methods and Definitions A 370.

8.3 Mechanical tests shall be conducted in accordance with Test Methods and Definitions A 370.

9. Dimensions, Mass, and Permissible Variations

9.1 The thickness, width, camber, and length tolerances shall conform to the requirements specified in Tables 5-10.

9.2 *Flatness*—It is not practical to formulate flatness tolerances for cold-rolled carbon spring steel strip to represent the range of widths and thicknesses in coils and cut lengths.

10. Finish and Edges

10.1 *Surface*—The surface requirements shall be as specified in the product specifications.

10.2 *Edges*—Cold-rolled carbon spring steel strip shall be supplied with one of the following edges as specified:

10.2.1 *No. 1*—A prepared edge of a specified contour (round or square) that is produced when a very accurate width is required or when an edge condition suitable for electroplating is required, or both.

10.2.2 *No. 2*—A natural mill edge carried through the cold rolling from the hot-rolled strip without additional processing of the edge.

10.2.3 *No. 3*—An approximately square edge produced by slitting on which the burr is not eliminated. This is produced when the edge condition is not a critical requirement for the finished part. Normal coiling or piling does not provide a definite positioning of the slitting burr.

10.2.4 *No. 4*—An approximately rounded edge. This edge is produced when the width tolerance and edge condition are not as exacting as for No. 1 edges.

10.2.5 *No. 5*—An approximately square edge produced from slit edge material on which the burr is eliminated.

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TABLE 5 Thickness Tolerances of Cold-Rolled Carbon Steel Strip[A,B,C]

Inch-Pound Units (in.)			
Thickness Tolerances (Plus or Minus, in.)			
Nominal Gage (in.)	Over ½ to less than 12 wide	12 to less than 18	18 to 23 15/16
0.251-0.300	0.0030	0.0035	0.0040
0.160-0.250	0.0025	0.0032	0.0036
0.125-0.1599	0.0022	0.0028	0.0032
0.070-0.1249	0.0018	0.0022	0.0028
0.040-0.0699	0.0014	0.0018	0.0024
0.030-0.0399	0.0012	0.0015	0.0020
0.020-0.0299	0.0010	0.0013	0.0015
0.015-0.0199	0.0008	0.0010	0.0012
0.010-0.0149	0.0005	0.0008	0.0010
<0.010	0.0003	0.0006	0.0008
SI Units (mm)			
Thickness Tolerances (Plus or Minus, mm)			
Nominal Gage (mm)	Over 12.7 to less than 300	300 to less than 450	450 to 600
6.40-7.50	0.080	0.090	0.100
4.00-6.39	0.065	0.080	0.090
3.20-3.99	0.055	0.070	0.080
1.80-3.19	0.045	0.055	0.070
1.00-1.79	0.035	0.045	0.060
0.75-0.99	0.030	0.030	0.050
0.50-0.74	0.025	0.035	0.040
0.38-0.49	0.020	0.025	0.030
0.25-0.37	0.013	0.020	0.025
<0.25	0.007	0.015	0.020

[A] Measured 3/8 in. or more in from edge; and on narrower than 1 in., at any place between edges.
[B] Measured 10 mm or more in from edge; and on narrower than 25 mm, at any place between edges.
[C] Number 3 edge strip with thickness tolerance guaranteed at less than 3/8 in. (10 mm) from the slit edge, is available by agreement between consumer and strip manufacturer.

TABLE 6 Width Tolerances for Edge Numbers 1, 4, 5, and 6 of Cold-Rolled Carbon-Steel Strip

Inch-Pound Units					
Edge Number	Specified Width, in.[A]		Specified Thickness, in.[B]		Width Tolerance, Plus and Minus, in.[C]
	Over	Through	min	max	
1	½	¾	. . .	0.0938	0.005
1	¾	5	. . .	0.125	0.005
4	½	1	0.025	0.1875	0.015
4	1	2	0.025	0.2499	0.025
4	2	4	0.035	0.2499	0.047
4	4	6	0.047	0.2499	0.047
5	½	¾	. . .	0.0938	0.005
5	¾	5	. . .	0.125	0.005
5	5	9	0.008	0.125	0.010
5	9	20	0.015	0.105	0.010
5	20	23 15/16	0.023	0.080	0.015
6	½	1	0.025	0.1875	0.015
6	1	2	0.025	0.2499	0.025
6	2	4	0.035	0.2499	0.047
6	4	6	0.047	0.2499	0.047
SI Units					
Edge No.	Specified Width, mm[A]		Specified Thickness, mm[B]		Width Tolerance, Plus and Minus, mm[C]
	Over	Through	min	max	
1	12.5	200	. . .	3.0	0.13
4	. . .	25	0.6	5.0	0.38
4	25	50	0.6	6.0	0.65
4	50	150	1.0	6.0	1.20
5	. . .	100	. . .	3.0	0.13
5	100	500	0.4	3.0	0.25
5	500	600	0.6	2.0	0.38
6	. . .	25	0.6	5.0	0.38
6	25	50	0.6	6.0	0.65
6	50	150	1.0	6.0	1.20

[A] Specified width must be within ranges stated for specified edge number.
[B] Specified thickness must be within ranges stated for specified width.
[C] When edge, width and thickness are not defined by this table, tolerances are by agreement between producer and supplier.

10.2.6 *No. 6*—An approximately square edge. This edge is produced when the width tolerance and edge condition are not as exacting as for No. 1 edges.

10.2.7 *Skived Edges*—Custom-shaped edges produced by mechanical edge shaving with special tooling.

11. Workmanship

11.1 The steel shall have a workmanlike appearance and shall not have defects of a nature or degree for the grade and quality ordered that will be detrimental to the fabrication of the finished part.

11.2 Coils may contain some abnormalities that render a portion of the coil unusable since the inspection of coils does not afford the same opportunity to remove portions containing imperfections as is the case with cut lengths.

12. Number of Tests and Retests

12.1 The difficulties in obtaining truly representative samples of strip without destroying the usefulness of the coil account for the generally accepted practice of allowing retests for mechanical properties and surface examination. Two additional samples are secured from each end of the coil from which the original sample was taken. A portion of the coil may be discarded prior to cutting the samples for retest. If any of the retests fail to comply with the requirements, the coil shall be rejected.

13. Rework and Retreatment

13.1 Lots rejected for failure to meet the specified requirements may be resubmitted for test provided the manufacturer has reworked the lots as necessary to correct the deficiency or has removed the nonconforming material.

14. Inspection

14.1 The manufacturer shall afford the purchaser's inspector all reasonable facilities necessary to satisfy him that the material is being produced and furnished in accordance with this specification. Mill inspection by the purchaser shall not interfere unnecessarily with the manufacturer's operations. Unless otherwise agreed to, all tests and inspections, except product analysis, shall be made at the place of production.

15. Rejection and Rehearing

15.1 Unless otherwise specified, any rejection based on tests made in accordance with this specification shall be reported to the purchaser within a reasonable time.

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TABLE 7 Width Tolerances for Edge Number 2 of Cold-Rolled Carbon-Steel Strip

Inch Pound Units		
Specified Width, in.		Width Tolerance, Plus and
Over	Through	Minus, in.
½	2	1/32
2	5	3/64
5	10	5/64
10	15	3/32
15	20	⅛
20	23 15/16	5/32
SI Units		
Specified Width, mm		Width Tolerance, mm
Over	Through	Plus and Minus
12.5	50	0.8
50	100	1.2
100	200	1.6
200	400	2.5
400	500	3.0
500	600	4.0

15.2 Material that shows injurious defects subsequent to its acceptance at the purchaser's works shall be rejected and the manufacturer shall be notified. The material must be adequately protected and correctly identified in order that the manufacturer may make a proper investigation. In case of dissatisfaction with the results of the test, the manufacturer may make claims for a rehearing.

16. Certification and Reports

16.1 When test reports are required by the purchaser, the supplier shall report the results of all tests required by this specification and any additional tests required by the material specification or the purchase order, or both.

16.2 When certification is required by the purchase order, the supplier shall furnish a certification that the material has been manufactured and tested in accordance with the requirements of this specification and the applicable material specification.

16.3 A signature is not required on test reports. However, the document shall clearly identify the organization submitting the document. Notwithstanding the absence of a signature, the organization submitting the document is responsible for the content of the document.

16.4 When test reports are required, it is acceptable for the supplier to report test data from the original manufacturer, provided such data is not rendered invalid by the stripmaking process.

16.5 A Material Test Report, Certificate of Inspection, or similar document printed from or used in electronic form from an electronic data interchange (EDI) transmission shall be regarded as having the same validity as a counterpart printed in the certifier's facility. The content of the EDI transmitted document must meet the requirements of the invoked ASTM standard(s) and conform to any existing EDI agreement between the purchaser and the supplier. Notwithstanding the absence of a signature, the organization submitting the EDI transmission is responsible for the context of the report.

NOTE 2—The industry definition as invoked here is: EDI is the computer to computer exchange of business information in an agreed upon standard format such as ANSI ASC X12.

17. Marking

17.1 Unless otherwise specified, the material shall be identified by having the manufacturer's name or mark, ASTM designation, weight, purchase order number, and material identification legibly stenciled on top of each lift or shown on a tag attached to each coil or shipping unit.

17.2 When specified in the contract or order, and for direct procurement by or direct shipment to the Government, marking for shipment, in addition to requirements specified in the contract or order, shall be in accordance with MIL-STD-129 for military agencies and in accordance with Fed. Std. No. 123 for civil agencies.

17.3 For U.S. Government procurement by the Defense Supply Agency, strip material shall be continuously marked for identification in accordance with Fed. Std. No. 183.

17.4 Bar coding is acceptable as a supplementary identification method. Bar coding should be consistent with the Automotive Industry Action Group (AIAG) standard prepared by the primary metals subcommittee of the AIAG bar code project team.

18. Packaging

18.1 Unless otherwise specified, the strip shall be packaged and loaded in accordance with Practices A 700.

18.2 When Level A is specified in the contract or order and for direct procurement by or direct shipment to the U.S. Government, preservation, packaging, and packing shall be in accordance with the Level A requirements of MIL-STD-163.

18.3 When coils are ordered it is customary to specify a minimum or range of inside diameter and maximum outside diameter and a maximum coil weight, if required. The ability of manufacturers to meet the maximum coil weights depends upon individual mill equipment. When required, minimum coil weights are subject to negotiation.

19. Keywords

19.1 cold rolled strip; high carbon; steel; strip

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TABLE 8 Width Tolerances for Edge Number 3 (Slit), Cold-Rolled Carbon Spring Steel Strip

Inch-Pound Units						
Specified Thickness in.		Width Tolerance, Plus and Minus, in. For Specified Width, in.[A]				
Over	Through	Over ½ Through 6	Over 6 Through 9	Over 9 Through 12	Over 12 Through 20	Over 20 Through 23 15/16
. . .	0.016	0.005	0.005	0.010	0.016	0.020
0.016	0.068	0.005	0.005	0.010	0.016	0.020
0.068	0.099	0.008	0.010	0.010	0.016	0.020
0.099	0.160	0.010	0.016	0.016	0.020	0.020
0.160	0.300	0.016	0.020	0.020	0.031	0.031

SI Units						
Specified Thickness mm		Width Tolerance, Plus and Minus, mm For Specified Width, mm[A]				
Over	Through	Through 100	Over 100 Through 200	Over 200 Through 300	Over 300 Through 450	Over 450 Through 600
. . .	1.5	0.13	0.13	0.25	0.40	0.50
1.5	2.5	0.20	0.25	0.25	0.40	0.50
2.5	4.5	0.25	0.40	0.40	0.50	0.50
4.5	7.5	0.40	0.50	0.50	0.80	0.80

[A] Width is measured from the shear surface of the slit edge and not from the break.

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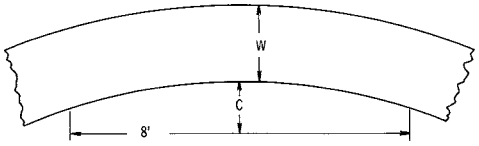
TABLE 9 Camber Tolerances of Cold-Rolled Carbon Steel Strip

Inch-Pound Units

NOTE 1—Camber is the greatest deviation of a side edge from a straight line, the measurement being taken on the concave side with a straight edge.

NOTE 2—Camber tolerances as shown in the table are for any 8 ft. of length. For strip length under 8 ft. camber tolerance shall be subject to negotiation.

NOTE 3—When the camber tolerances shown in Table 8 are not suitable for a particular purpose, cold-rolled strip is sometimes machine straightened.



W = width of strip, in.
C = camber in.

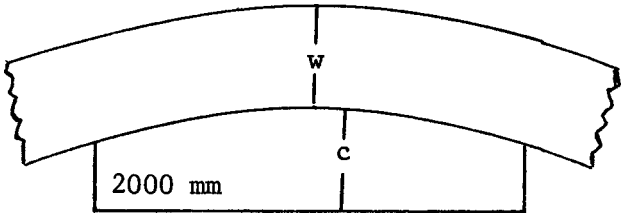
Specified Width, in.		Camber Tolerance, in.
Over	Through	
½	1½	½
1½	23 15/16	¼

SI Units

NOTE 1—Camber is the greatest deviation of a side edge from a straight line, the measurement being taken on the concave side with a straight edge.

NOTE 2—Camber tolerances as shown in the table are for any 2000 mm length. For strip length under 2000 mm, camber tolerance shall be subject to negotiation.

NOTE 3—When the camber tolerances shown in Table 8 are not suitable for a particular purpose, cold-rolled strip is sometimes machine straightened.



W = Width of strip, mm
C = Camber, mm

Over	Width, mm	Standard Camber Tolerance, mm
	Through	
. . .	50	10
50	600	5

TABLE 10 Length Tolerances of Cold-Rolled Carbon Steel Strip

Inch-Pound Units

Specified Width; in.		Length Tolerance, Plus Only, in. for Specified Length, in.		
Over	Through	From 24 Through 60	Over 60 Through 120	Over 120 Through 240
½	12	¼	½	¾
12	23 15/16	½	¾	1

SI Units

Specified Width, mm		Length Tolerance, Plus Only, mm for Specified Length, mm		
Over	Through	From 600 Through 1500	Over 1500 Through 3000	Over 3000
. . .	300	10	15	25
300	600	15	20	25

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SUMMARY OF CHANGES

Committee A01 has identified the location of selected changes made to this standard since the last issue, A 682/A 682M – 02, that may impact the use of this standard. (Approved Dec. 1, 2005.)

(*1*) Revised the P and S limits in Table 2.

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