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Sheet Steel Thickness and Profile— SAE J1058

SAE Information Report
Approved February 1976

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SHEET STEEL THICKNESS AND PROFILE—SAE J1058

SAE Information Report

Report of Iron and Steel Technical Committee approved February 1976.

1. Scope—This report provides information regarding methods for specifying thickness of sheet steel and how thickness tolerances apply. This report also explains the profile of as-rolled sheet steel.

2. Specifying Thickness

2.1 Method I—Ordered to Minimum Thickness—This is the most common method used today because it provides the design engineer with a specification system where he can select a minimum thickness without regard to tolerance due to ordered width. When material is ordered to minimum thickness, the tolerance is all plus and can be determined by doubling the tabular values shown in the ASTM A568—Carbon Sheet Steel thickness tolerances tables. An example of this method is as follows: 0.031 in (7.9 mm) x 36.5 in (930 mm) coil. Using Table 23 (Cold Rolled Sheet), attached, tolerance would be plus 0.006 in (0.15 mm).

2.2 Method II—Ordered to Nominal Thickness—Sheet steel can be ordered to a specified nominal thickness, with the tolerances being plus and minus as shown in the ASTM A568, Table 23 (Cold Rolled Sheet—thickness tolerances). An example of this method is shown below.

0.034 in (8.6 mm) x 36.5 in (930 mm)

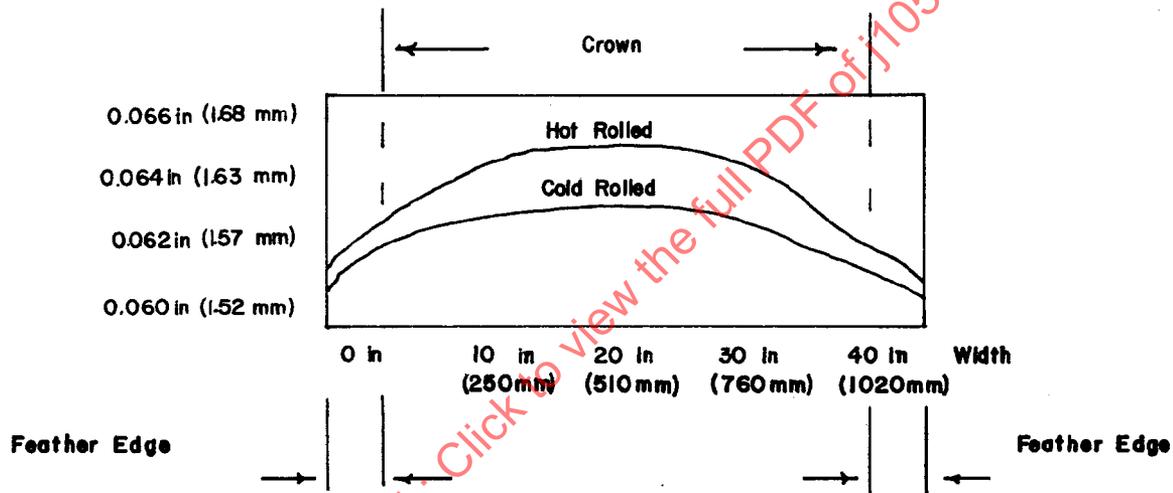
Tolerance would be plus and minus 0.003 in (0.08 mm).

3. Defining Profile

3.1 Feather Edge¹—Feather edge is generally understood to be the thickness deviation between a location $\frac{3}{8}$ in (9.5 mm) from the mill trimmed edge of sheet steel and a position 1 in (25 mm) to 2 in (50 mm) in from the mill trimmed edge.

3.2 Crown¹—Crown is generally understood to be the difference in thickness between a point $\frac{3}{8}$ in (9.5 mm) in from the mill trimmed edge and the center area of the sheet across the width as rolled. A more correct interpretation of crown would be the difference in thickness 1 in (25 mm) to 2 in (50 mm) in from the mill trimmed edge and the thickness at the center of the sheet width as rolled.

¹To illustrate the phenomenon of feather edge and crown, profiles of typical hot rolled and cold rolled sheet are illustrated below. Actually, however, no such "classic profile" exists.



THICKNESS TOLERANCES FOR WIDTH AND THICKNESSES OVER AND UNDER, in. (mm)

Specified Width, Inches (mm)	Specified Thickness, in. (mm)					
	0.1419 (3.60 mm) 0.0972 (2.47 mm)	0.0971 (2.47 mm) 0.0710 (1.80 mm)	0.0709 (1.80 mm) 0.0568 (1.44 mm)	0.0567 (1.44 mm) 0.0389 (0.99 mm)	0.0388 (0.98 mm) 0.0195 (0.50 mm)	0.0194 (0.49 mm) 0.0142 (0.36 mm)
Over 12 (300 mm) to 15 (380 mm) incl.	0.005 (0.13 mm)	0.005 (0.13 mm)	0.005 (0.13 mm)	0.004 (0.10 mm)	0.003 (0.08 mm)	0.002 (0.05 mm)
Over 15 (380 mm) to 72 (1830 mm) incl.	0.006 (0.15 mm)	0.005 (0.13 mm)	0.005 (0.13 mm)	0.004 (0.10 mm)	0.003 (0.08 mm)	0.002 (0.05 mm)
Over 72 (1830 mm)	0.007 (0.18 mm)	0.006 (0.15 mm)	0.005 (0.13 mm)	0.004 (0.10 mm)	0.003 (0.08 mm)	NA

NOTE 1: Thickness is measured at any point across the width not less than $\frac{3}{8}$ in (9.5 mm) from a side edge.

NOTE 2: Regardless of whether thickness tolerance is specified equally or unequally, over and under, the total tolerance should be equal to twice the tabular tolerances.