SURFACE VEHICLE RECOMMENDED PRACTICE

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Standard Sheet Steel Thickness and Tolerances

RATIONALE

This technical report is being stabilized because it covers technology, products, or processes which are mature and not likely to change in the foreseeable future.

STABILIZED NOTICE

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1. ***Scope—***This SAE Recommended Practice provides an orderly series for designating the thickness of unocated and coated hot-rolled and cold-rolled sheet and strip. This document also provides methods for specifying thickness tolerances.

1.1 Requirements of industry permit leeway in the choice of thickness in some instances, but it is recognized that for many applications, particularly the tonnage requirements of the mass production industries, thickness is normally determined by critical engineering design or manufacturing considerations. However, for general applications or where requirements permit some latitude in the selection of thickness, the preferred thickness given in Table 1 will facilitate interchangeability of different metals in design, reduce inventory, and increase the availability in warehouse stocks of thicknesses commonly required for general applications.

1.2 All of the thicknesses listed are not necessarily produced in all metals and grades. Producers or distributors must be consulted to determine availability of a particular thickness for a given metal product.

2. ***References***

2.1 **Applicable Publications—**The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

2.1.1 ASTM PUBLICATIONS—Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM A 463-88—Steel Sheet, Cold-Rolled, Aluminum-Coated, Type 1 and Type 2
ASTM A 568-91—Steel Sheet, Carbon and High Strength, Low Alloy, Hot-Rolled and Cold-Rolled
ASTM A 591-91—Sheet Steel, Electrolytic Zinc-Coated, for Light Coating Mass Applications
ASTM A 635-91—Steel Sheet and Strip, Heavy-Thickness Coils, Carbon, Hot-Rolled
ASTM A 792-85—Steel Sheet, Aluminum-Zinc Alloy-Coated by the Hot-Dip Process
ASTM A 924-94—Steel Sheet, Metallic Coated by the Hot Dip Process

2.2 Related Publications—The following publications are provided for information purposes only and are not a required part of this document.

2.2.1 SAE PUBLICATIONS—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J1562—Selection of Zinc and Zinc-Alloy (Hot Dipped an Electrodeposited) Coated Steel Sheet
SAE J2329—Categorization and Properties of Low Carbon Automotive Sheet Steels
SAE J2340—Categorization and Properties of Dent Resistant, High Strength, and Ultra High Strength Automotive Sheet Steels

2.2.2 ASTM PUBLICATIONS——Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM A 525-91—Steel Sheet, Zinc Coated (Galvanized) by the Hot Dip Process
ASTM A 653-94—Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot Dip Process
ASTM A 879-92—Steel Sheet, Zinc Coated by the Electrolytic Process for Applications Requiring Designation of the Coating Mass on Each Surface
ASTM A 917-93—Steel Sheet, Coated by the Electrolytic Process for Applications Requiring Designation of the Coating Mass on Each Surface

2.2.3 ISO AND ANSI PUBLICATIONS—Available from ANSI, 11 West 42nd Street, New York, NY 10036-8002.

ISO 3574—Cold-reduced carbon steel sheet of commercial and drawing qualities
ANSI Z1.1
ANSI B32.3-1977

3. Specifying Thickness

3.1 Method I—Ordering to Minimum Thickness—This is the preferred method used today and is the most common because it provides the design engineer with a minimum thickness for design calculations and a specification system where they 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 as shown in Table 1.

3.2 Method II—Ordering to Nominal Thickness—Sheet steel can be ordered to specified nominal thickness with the tolerances shown in Table 1 being half over and half under the specified nominal thickness.

3.3 Location of Thickness Measurement—The specified thickness range will be maintained throughout the coil or sheet at all points not less than 25 mm from the edge.

4. Recommended Thickness and Thickness Tolerances

4.1 Recommended thickness and thickness tolerances for steel sheet for automotive applications are shown in Table 1. Thickness and tolerances for sizes or applications other than shown in Table 1 are covered by appropriate ASTM standards for each product.

TABLE 1—(METRIC)—PREFERRED THICKNESS AND THICKNESS TOLERANCES OF UNCOATED OR COATED STEEL SHEET WITH COLD-ROLLED OR HOT-ROLLED SUBSTRATES IN WIDTHS TO 1850 mm

Preferred Specified Thickness in mm	Total Thickness Tolerance - mm Cold-Rolled Substrate Uncoated and/or Electrogalvanized Coated Carbon Steel, HSS, HSLA, and Stainless Steel	Total Thickness Tolerance - mm Cold-Rolled Substrate Hot Dip Zinc, Aluminum Aluminum-Zinc, and Terne Coated Carbon Steel, HSS, HSLA, and Stainless Steel	Total Thickness Tolerance - mm Hot-Rolled Substrate Uncoated and Hot Dip and Electrogalvanized, Aluminum and Aluminum-Zinc Coated Carbon Steel	Total Thickness Tolerance - mm Hot-Rolled Substrate Uncoated and Hot Dip and Electrogalvanized, Aluminum and Aluminum-Zinc Coated HSS and HSLA Steel
0.50	0.06	0.10		
0.55	0.08	0.10		
0.60	0.08	0.10		
0.65	0.08	0.10		
0.70	0.08	0.10		
0.75	0.08	0.10		
0.80	0.08	0.10		
0.85	0.08	0.10		
0.90	0.08	0.10		
0.95	0.08	0.10		
1.00	0.08	0.10	0.08	0.10
1.05	0.10	0.12	0.10	0.12
1.10	0.10	0.12	0.10	0.12
1.20	0.10	0.12	0.10	0.12
1.40	0.10	0.12	0.10	0.12
1.50	0.10	0.12	0.10	0.12
1.60	0.12	0.14	0.14	0.16
1.70	0.12	0.14	0.18	0.20
1.80	0.12	0.14	0.22	0.26
1.90	0.12	0.14	0.22	0.26
2.00	0.12	0.20	0.22	0.26
2.10	0.12	0.20	0.26	0.30
2.20	0.12	0.20	0.26	0.30
2.30	0.12	0.20	0.26	0.30
2.40	0.12	0.20	0.26	0.30
2.50	0.12	0.20	0.26	0.30
2.60	0.14	0.22	0.30	0.38
2.80	0.14	0.22	0.30	0.38
3.00	0.14	0.22	0.30	0.38
3.20	0.14	0.22	0.30	0.38
3.40	0.14	0.22	0.30	0.38
3.50	0.14	0.22	0.30	0.38
3.60	0.14	0.22	0.30	0.38
3.80		0.22	0.30	0.38