



Standard Specification for Steel Sheet, Electrolytic Zinc-Coated, for Light Coating Weight [Mass] Applications¹

This standard is issued under the fixed designation A 591/A 591M; 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 zinc coatings produced by electro-deposition for light coating weight [mass] applications on steel sheet. This product is available in four zinc-coating designations which are listed in Table 1. For electrolytic zinc-coated steel sheet with coating masses heavier than described in this specification, see Specification A 879.

1.2 This product is intended for applications requiring some degree of corrosion resistance with or without requirements for formability, strength, paintability, or a combination thereof. The coating is used to provide some enhancement in corrosion performance as compared to an uncoated product. It is not intended to withstand outdoor exposure without chemical treating and painting.

1.3 The steel sheet used as the substrate shall be as described in one of the following specifications, as specified in the order: A 366/A 366M, A 569/A 569M, A 570/A 570M, A 606, A 607, A 611, A 620/A 620M, A 622/A 622M, A 659/A 659M, A 715, A 794, A 812/A 812M, A 963/A 963M, and A 969/A 969M.

1.3.1 This coating process has essentially no effect on the base metal mechanical properties and can be used on any grade or quality of hot or cold-rolled steel sheet.

1.4 For purposes 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.

1.5 The values stated in either inch-pound or SI units are to be regarded separately 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.

2. Referenced Documents

2.1 ASTM Standards:

A 90/A 90M Test Method for Weight [Mass] of Coating on

¹ This specification is under the jurisdiction of ASTM Committee A-5 on Metallic Coated Iron and Steel Products and is the direct responsibility of Subcommittee A05.11 on Sheet Specifications.

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**TABLE 1 Coating Class and Minimum Coating Limits Coating
Minimum Requirements Per Side**

Inch-Pound Units			
Coating Designation	Coating Name	Weight, oz/ft. ²	Thickness, mils.
10Z	Flash	0.01	0.017
20Z	Intermediate	0.02	0.034
40Z	Full	0.04	0.068
80Z	Double	0.08	0.136
SI Units			
Coating Designation	Coating Name	Mass, g/m ²	Thickness, μm
03G	Flash	3	0.42
06G	Intermediate	6	0.84
12G	Full	12	1.68
24G	Double	24	3.36

Iron and Steel Articles with Zinc or Zinc-Alloy Coatings²
A 366/A 366M Specification for Commercial Steel (CS) Sheet, Carbon, (0.15 Maximum Percent) Cold-Rolled³

A 568/A 568M Specification for Steel, Sheet, Carbon and High Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for³

A 569/A 569M Specification for Steel, Carbon (0.15 Maximum, Percent), Hot-Rolled Sheet and Strip Commercial³

A 570/A 570M Specification for Steel, Sheet and Strip, Carbon, Hot-Rolled, Structural Steel³

A 606 Specification for Steel, Sheet and Strip, High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled with Improved Atmospheric Corrosion Resistance³

A 607 Specification for Steel, Sheet and Strip, High-Strength, Low-Alloy, Columbium or Vanadium, or Both, Hot-Rolled and Cold-Rolled³

A 611 Specification for Structural Steel (SS), Sheet, Carbon, Cold-Rolled³

A 620/A 620M Specification for Drawing Steel (DS), Sheet, Carbon, Cold-Rolled³

A 622/A 622M Specification for Drawing Steel (DS), Sheet, and Strip, Carbon, Hot-Rolled³

A 659/A 659M Specification for Commercial Steel (CS), Sheet and Strip, Carbon (0.16 maximum to 0.25 Maximum

² Annual Book of ASTM Standards, Vol 01.06.

³ Annual Book of ASTM Standards, Vol 01.03.