



AEROSPACE MATERIAL SPECIFICATION

AMS6386™**REV. D**

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Noncurrent	2000-06
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Stabilized	2016-06

Superseding AMS6386C

Steel Sheet and Plate
Low Alloy, Heat Treated
90,000 psi (621 MPa) and 100,000 psi (690 MPa) Yield Strength

RATIONALE

AMS6386D is stabilized as mature technology.

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Documents

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1. SCOPE:

1.1 Form:

This specification covers high-strength, low-alloy steels in the form of sheet and plate up to 4.000 in. (101.60 mm) in nominal thickness.

1.2 Application:

Primarily for large structural parts requiring a good combination of strength, formability, and weldability without subsequent heat treatment.

2. APPLICABLE DOCUMENTS:

The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications (AMS) shall apply. The applicable issue of other documents shall be as specified in AMS 2350.

2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifications:

AMS 2252	Tolerances, Alloy Steel Sheet, Strip, and Plate
AMS 2259	Chemical Check Analysis Limits, Wrought Low-Alloy and Carbon Steels
AMS 2350	Standards and Test Methods
AMS 2370	Quality Assurance Sampling of Carbon and Low-Alloy Steels, Wrought Products Except Forgings and Forging Stock

2.2 ASTM Publications:

Available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

ASTM A370	Mechanical Testing of Steel Products
ASTM E350	Chemical Analysis of Carbon Steel, Low-Alloy Steel, Silicon Electrical Steel, Ingot Iron, and Wrought Iron

2.3 Government Publications:

Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

2.3.1 Federal Standards:

Federal Test Method Standard No. 151 - Metals, Test Methods

3. TECHNICAL REQUIREMENTS:

3.1 Composition:

Shall conform to the percentages by weight shown in Table I for any one of the several compositions specified therein for the indicated thicknesses, determined by wet chemical methods in accordance with ASTM E350, by spectrographic methods in accordance with Federal Test Method Standard No. 151, Method 112, or by other approved analytical methods.

3.1.1 Check Analysis: Composition variations shall meet the applicable requirements of AMS 2259.

3.2 Condition:

Hardened, tempered, and descaled.

3.3 Properties:

The product shall conform to the following requirements; hardness, tensile, bend, and impact testing shall be performed in accordance with ASTM A370:

3.3.1 Tensile Properties: Shall be as specified in Table II.

TABLE II

Nominal Thickness Inches	Tensile Strength psi		Yield Strength at 0.2% Offset psi, min	Elongation in 2 in. or 4D %, min
	min	max		
Up to 2.500, incl	110,000	130,000	100,000	18
Over 2.500 to 4.000, incl	100,000	130,000	90,000	17

TABLE II (SI)

Nominal Thickness Millimetres	Tensile Strength MPa		Yield Strength at 0.2% Offset MPa, min	Elongation in 50.8 mm. or 4D %, min
	min	max		
Up to 63.50, incl	758	896	690	18
Over 63.50 to 101.60, incl	690	896	621	17

3.3.1.1 For product under 0.312 in. (7.92 mm) in nominal thickness, the elongation requirement shall be reduced by 1.25% for each decrease of 0.031 in. (0.79 mm) of nominal thickness under 0.312 in. (7.92 mm). This reduction in elongation requirement shall not exceed 3%.