



AEROSPACE MATERIAL SPECIFICATION	AMS6354™	REV. G
	Issued 1954-05 Revised 2016-09 Reaffirmed 2021-09 Superseding AMS6354F	
Steel, Sheet, Strip, and Plate 0.75Si - 0.62Cr - 0.20Mo - 0.10Zr (0.10 - 0.17C) (Composition similar to UNS K11914)		

RATIONALE

AMS6354G is a Five-Year Review and update of this specification that revises average grain size determination (3.3.1), requires agreement on mechanical property values for material outside the specification size range (3.3.2.1) and revises reporting (4.4).

1. SCOPE

1.1 Form

This specification covers a low-alloy steel in the form of sheet, strip, and plate 4.00 inches (101.6 mm) and under in thickness.

1.2 Application

These products have been used typically for parts requiring strength up to 1000 °F (538 °C), but usage is not limited to such applications.

2. APPLICABLE DOCUMENTS

The issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been cancelled and no superseding document has been specified, the last published issue of that document shall apply.

2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

AMS2252	Tolerances Low-Alloy Steel Sheet, Strip, and Plate
AMS2259	Chemical Check Analysis Limits Wrought Low-Alloy and Carbon Steels
AMS2370	Quality Assurance Sampling and Testing Carbon and Low-Alloy Steel Wrought Products and Forging Stock
ARP1917	Clarification of Terms Used in Aerospace Metals Specifications

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For more information on this standard, visit
<https://www.sae.org/standards/content/AMS6354G/>

2.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM A370 Mechanical Testing of Steel Products

ASTM E112 Determining Average Grain Size

ASTM E290 Bend Testing of Material for Ductility

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

3. TECHNICAL REQUIREMENTS

3.1 Composition

Shall conform to the percentages by weight shown in Table 1, determined by wet chemical methods in accordance with ASTM E350, by spectrochemical methods, or by other analytical methods acceptable to purchaser.

Table 1 - Composition

Element	min	max
Carbon	0.10	0.17
Manganese	0.50	0.80
Silicon	0.60	0.90
Phosphorus	--	0.025
Sulfur	--	0.035
Chromium	0.50	0.75
Molybdenum	0.15	0.25
Zirconium	0.05	0.10
Nickel	--	0.25
Copper	--	0.35

3.1.1 Aluminum, vanadium and columbium are optional grain refining elements and need not be determined or reported unless used to satisfy the average grain size requirements of 3.3.1.2.

3.1.2 Check Analysis

Composition variations shall meet the applicable requirements of AMS2259.

3.2 Condition

The product shall be supplied in the following condition:

3.2.1 Sheet and Strip

Hot rolled, or cold rolled and annealed, and descaled.

3.2.2 Plate

Hot rolled and descaled.

3.3 Properties

The product shall conform to the following requirements; tensile testing shall be performed in accordance with ASTM A370:

3.3.1 Average Grain Size

Average grain size shall be determined by either 3.3.1.1 or 3.3.1.2.

3.3.1.1 Shall be ASTM No. 5 or finer, determined in accordance with ASTM E112.

3.3.1.2 The product of a heat shall be considered to have an ASTM No. 5 or finer austenitic grain size if one or more of the following are determined by heat analysis (see 8.5):

3.3.1.2.1 A total aluminum content of 0.020 to 0.050%.

3.3.1.2.2 An acid soluble aluminum content of 0.015 to 0.050%.

3.3.1.2.3 A vanadium content of 0.02 to 0.08%.

3.3.1.2.4 A columbium content of 0.02 to 0.05%.

3.3.2 Tensile Properties

Shall be as shown in Table 2.

Table 2A - Minimum tensile properties, inch/pound units

Nominal Thickness Inches	Tensile Strength ksi	Yield Strength at 0.2% Offset ksi	Elongation in 2 Inches or 4D %
Up to 0.50, incl	70	50	22
Over 0.50 to 1.00, incl	65	43	22
Over 1.00 to 2.00, incl	63	40	22
Over 2.00 to 4.00, incl	60	38	22

Table 2B - Minimum tensile properties, SI units

Nominal Thickness Millimeters	Tensile Strength MPa	Yield Strength at 0.2% Offset MPa	Elongation in 50.8 mm or 4D %
Up to 12.7, incl	483	345	22
Over 12.7 to 25.4, incl	448	296	22
Over 25.4 to 50.8, incl	434	276	22
Over 50.8 to 101.6, incl	414	262	22

3.3.2.1 Mechanical property requirements for product outside the range covered by 1.1 shall be agreed upon between purchaser and producer.

3.3.3 Bending

Product 0.749 inch (19.02 mm) and under in nominal thickness shall be tested in accordance with ASTM E290 using a sample prepared nominally 0.75 inch (19.0 mm) in width with its axis of bending parallel to the direction of rolling and shall withstand without cracking when bending at room temperature through the angle and bend radius shown in Table 3. In case of dispute, the results of tests using the guided bend test of ASTM E290 shall govern.

Table 3 - Bend requirements

Nominal Thickness Inch	Nominal Thickness Millimeters	Bend Angle Degrees	Bend Radius t = nominal thickness
Up to 0.249, incl	Up to 6.32, incl	180	1/2t
Over 0.249 to 0.749, incl	Over 6.32 to 19.02, incl	90	1/2t

3.4 Quality

The product, as received by purchaser, shall be uniform in quality and condition, sound, and free from foreign materials and from imperfections detrimental to usage of the product.

3.5 Tolerances

Shall conform to all applicable requirements of AMS2252.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for Inspection

The producer of the product shall supply all samples for producer's tests and shall be responsible for the performance of all required tests. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the product conforms to specified requirements.

4.2 Classification of Tests

4.2.1 Acceptance Tests

Composition (3.1), condition (3.2), average grain size (3.3.1), tensile properties (3.3.2), bending (3.3.3), and tolerances (3.5) are acceptance tests and shall be performed on each heat or lot as applicable. If grain refining elements (3.3.1.2) are not present, the ASTM E112 grain size test (3.3.1.1) shall be conducted on each lot.

4.2.2 Periodic Tests

If grain refining elements (3.3.1.2) are present, the ASTM E112 grain size test (3.3.1.1) shall be conducted on a periodic basis and shall be performed at a frequency selected by the producer (not to exceed one year) unless frequency of testing is specified by purchaser.

4.3 Sampling and Testing

Shall be in accordance with AMS2370.

4.4 Reports

4.4.1 The producer of the product shall furnish with each shipment a report showing producer identity, country where the metal was melted (e.g., final melt in the case of metal processed by multiple melting operations), the results of tests for composition of each heat and for average grain size if measured, tensile properties and bending of each lot, and stating that the product conforms to the other technical requirements. This report shall include the purchase order number, heat and lot numbers, AMS6354G, size, product form, and quantity. If the grain size requirement of 3.3.1 is met by the aluminum, vanadium and/or columbium content, the aluminum, vanadium and/or columbium content shall be reported and a statement that the chemistry satisfies the grain size requirement shall be included.

4.4.2 When the product size is outside the range covered by 1.1, the report shall contain a statement to that effect.

4.5 Resampling and Retesting

Shall be in accordance with AMS2370.