

# AMS 6349 (4140)

## Technical Datasheet



Service. Quality. Value.

### Chromium-Molybdenum Alloy Steel Bar

#### Typical Applications

Intended for general use for parts with sections ½" or less in thickness at time of heat treatment which require a through-hardening steel capable of developing hardness as high as Rockwell "C" 50; also for fittings and forgings of greater hardness or variation in thickness at proportionately lower hardnesses. It is frequently used in applications in which 8640 (MIL-S-6049) is specified.

#### Product Description

This chromium-molybdenum alloy is a deep hardening steel used where strength and impact toughness are required. It has high fatigue strength making it suitable for critical stressed applications at normal as well as elevated temperatures. For increased resistance to wear and abrasion, it may be nitrided. This grade is a quality product melted under the best of steelmaking practices for aircraft quality steels. It is vacuum degassed to meet the magnetic particle inspection standards of AMS 2301.

Supplied in the normalised and cold finished, hot finished and normalised or normalised and cold finished condition. The density of this material is typically 7.85kg/dm<sup>3</sup>.

#### Machinability

65% based on AISI 1212 is 100% machinability.

#### Corrosion Resistance

Low resistance to corrosion.

#### Weldability

Fair.

#### Production Tolerances

Manufacturing limits are as stated in the Table AMS 2251. For further assistance please contact our Sales Dept / Laboratory.

#### Related Specifications

- SAE 4140
- UNS G41400

#### Cut to Size Sawn blanks

Cut to Length + 1.0mm - NIL

#### Chemical Composition (weight %)

	C	Mn	Si	P	S	Cr	Mo
Min	0.38	0.75	0.20			0.80	0.15
Max	0.43	1.00	0.35	0.025	0.025	1.10	0.25

#### Mechanical Properties

##### Ultimate Tensile Strength

861.8 MPa (Max)

**Hardness:** Relates to normalised and cold finished bars 12.70mm and under. Bars over 12.70mm hot finished and normalised or normalised and cold finished hardness 229HB. Product ordered normalised and cold finished shall have hardness not higher than 241 HB.

**Hardenability:** Shall be J6/16inch (9.5mm) = 50HRC min. and J9/16inch (14mm) = 44HRC min. determined on the standard end-quench test specimen in accordance with ASTM A 255 except that the steel shall be normalised at 1700 degsF+/-10 (927 degsC+/-6) and the test specimen austenised at 1550 degsF +/-10 (843degsC+/-6).

#### Technical Assistance

Our knowledgeable staff backed up by our resident team of qualified metallurgists and engineers, will be pleased to assist further on any technical topic.

##### UK Service Centres:

Smiths Belfast 02895 908 897  
Smiths Biggleswade 01767 604 704  
Smiths Birmingham 0121 728 4940  
Smiths Bristol 0117 971 2800  
Smiths Chelmsford 01245 466 664  
Smiths Gateshead 0191 469 5428  
Smiths Horsham 01403 261 981

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##### Quality & Testing:



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