

## 4340 MOD Alloy Steel - AMS 6417 - AMS 6419 - UNS K44220

These chemistry modifications provide an Alloy Steel with very good fatigue strength, ductility, impact strength and fracture toughness. 300M is widely used for Aircraft Landing Gear.

4340 Alloy Steel modified with the addition of Vanadium and higher Silicon. Carbon Content in AMS 6417 Carbon content is 0.37% to 0.43%. Specifications AMS 6419 requires 0.40% – 0.45% C and AMS 6256 0.40% - 0.44%C. Service Steel Aerospace stocks material with restricted carbon content to certify chemistry to these various specifications.

This grade is available as a consumable electrode vacuum remelted product. This insures a steel of the highest quality with excellent transverse ductility and toughness at high strength levels. It also insures the non-metallic cleanliness of this alloy meeting AMS 2300, thus making it most suitable for the fabrication of parts subjected to magnetic particle inspection.

### Chemical Composition:

Symbol	Element	Min %	Max %
C	Carbon	0.38%	0.43%
Mn	Manganese	0.65%	0.90%
Si	Silicon	1.45%	1.80%
P	Phosphorus		0.010%
S	Sulfur		0.008%
Cr	Chromium	0.70%	0.95%
Ni	Nickel	1.65%	2.00%
Mo	Molybdenum	0.30%	0.50%
V	Vanadium	0.05%	0.10%
Cu	Copper		0.35%

Carbon Content Note: Both AMS 6257 and AMS 6419 require minimum 0.40% Carbon content

### Minimum Transverse Tensile Properties per AMS 6417:

Cross-section Area	Tensile Strength	Yield Strength 0.2% Offset	Avg. Reduction of Area	Individual Reduction of Area
Up to 100 in2, incl	270 ksi	220 ksi	30%	25% min
Over 100 in2 to 144 in2, incl	270 ksi	220 ksi	25%	20% min
Over 144 in2 to 225 in2, incl	270 ksi	220 ksi	20%	15% min
Over 225 in2	270 ksi	220 ksi	15%	10% min

**4340 Mod Alloy Steel Applications:**

This grade is used high strength structural applications with sections 3.5” in and under in cross-section thickness for through-hardness requiring minimum Rockwell C hardness 52 HRC that are subject to exacting magnetic particle inspection standards. Applications include:

- Aircraft Landing Gear
- Airframe Parts, such as Flap Tracks
- Missile Components
- Motorsport Applications

**HEAT TREATMENT**

Normalize-1700°F

Austenitize-1600°F

Quench-Oil,140 F maximum

Temper-500°/600° F for 270,000 psi strength level

**Common Trade Names:**

Lescalloy 300M Vac-Arc

4340 Modified

434M

300M CEVM

**Common Specifications:**

AMS 6417 (Replaces MIL-S-83135)

AMS 6419

AMS 6257 (Replaces MIL-S-8844 REV D CLASS 3)

AMS 2300 Premium Aircraft Quality Cleanliness

BMS 7-26

BE1036

CE-0896

C-05-1190

DMS 1935  
GM1012  
MTL 1201  
S155  
MAT 137  
SAE 434M  
IGQ 41-11  
LAT 1.9042  
ZFNL 9207  
ASTM A646