

DATA SHEET



LATROBE SPECIALTY
STEEL COMPANY

Latrobe, PA 15650-0031 USA

LESCALLOY[®] 300M VAC-ARC[®] HIGH STRENGTH ALLOY STEEL

Typical Composition	C	Mn	Si	Ni	Cr	Mo	V
	0.42	0.75	1.65	1.80	0.80	0.40	0.07

GENERAL CHARACTERISTICS

LESCALLOY 300M VAC-ARC steel is a modified 4340 steel with added silicon allowing for use of a higher tempering temperature. The steel has high hardenability and strength with good ductility and toughness in heavy sections. It is used primarily in the 270/300 ksi (1862/2068) tensile strength range for aircraft landing gears, flap tracks and other structural applications. Vacuum arc remelting (VAR) is used to provide optimum cleanliness and preferred ingot structure.

PHYSICAL PROPERTIES

Density: 0.283 lb/in³ (7.84 g/cm³)

Thermal Conductivity: 260.0 Btu-in/hr-ft·°F (37.49 W/m·K)

Specific Heat: 0.107 Btu/lb·°F (448J/kg·K)

Mean Coefficient of Thermal Expansion 0-200°F (-17.8-93°C): 6.3x10⁻⁶ in/in·°F (11.34x10⁻⁶ mm/mm·°C)

WORKABILITY

Forging: Forge at 1950-2250°F (1066-1232°C) using a minimum forging temperature of approximately 1700F (927°C).

Weldability: This steel can be welded by gas or arc fusion methods.

Machinability: For optimum machinability, Lescalloy 300M Vac-Arc steel should be normalized and tempered. Approximately 1200°F (649°C) is suggested for the temper. Hardness: Typically HBW 241-285.

HEAT TREATMENT

Normalize: 1700°F (927°C), 1 hour, air cool

Austenitize: 1600°F (871°C), 1 hour, oil quench

Temper: 500-600°F (260-316°F), four hours, air cool

LESCALLOY[®] 300M VAC-ARC[®]

MECHANICAL PROPERTY DATA

TYPICAL TRANSVERSE MECHANICAL PROPERTIES WITH 575°F (302°C) TEMPER

Size Tested		Specimen Size	U.T.S.		0.2% Y.S.		Elongation (%)	R of A (%)
in	mm		ksi	MPa	ksi	MPa		
26 - 28	660 - 711	0.252	286	1972	240	1655	11	37
22	559	0.505	288	1986	245	1689	8.5	31
22	559	0.252	288	1986	242	1669	10	35
≤12	305	0.505	287	1979	244	1682	10	33
≤12	305	0.252	288	1986	242	1669	11	39

FRACTURE TOUGHNESS PER ASTM E 399

At nominal strength levels, the ASTM E 399 plane-strain fracture toughness is typically 60-70 ksi $\sqrt{\text{in}}$. (66-77 MPa $\sqrt{\text{m}}$).

JOMINY END QUENCH HARDENABILITY

	Distance from Quenched End (1/16 inch)									
	2	4	6	8	10	12	14	16	18	21
Rockwell C	59.0	58.5	58.5	58.0	58.0	57.5	57.5	57.5	57.5	57.5

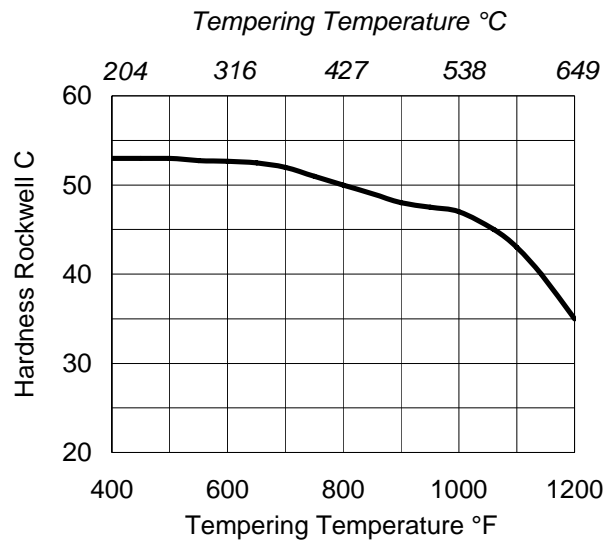
SPECIFICATIONS

The following industry specifications are offered for general familiarization and should not be considered a complete listing.

AMS 6257 (Replaces MIL-S-8844 Class 3)
 AMS 6417
 AMS 6419
 BMS 7-26 (Boeing)
 BE1036 (Bendix)
 CE-0896 (Bendix)
 C-05-1190 (Lockheed)
 DMS1935 (McDonnell-Douglas)
 GM1012 (Grumman)
 MIL-S-83135
 MTL 1201 (Messier-Dowty)

TEMPERING CURVE

Austenitized 1600°F (871°C), Oil Quench
 Tempered Twice 2+2 hours



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