

## Latrobe Lescalloy® 6305 VAC-ARC ; High Strength Alloy Steel

Category : Metal , Ferrous Metal , Alloy Steel , Carbon Steel , High Carbon Steel

### Material Notes:

LESCALLOY 6305 VAC-ARC steel is a modified 4140 steel with higher molybdenum and a vanadium addition. The alloy steel is generally used in the 160/180,000 psi tensile strength range obtained with an 1100°F temper where good toughness is critical, such as jet engine shafts. It is produced by the consumable electrode vacuum arc remelting process to provide optimum cleanliness and preferred ingot structure. Information Provided by Timken Latrobe Steel. Timken sold Latrobe in December 2006. They are now Latrobe Specialty Steels Co.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Latrobe-Lescalloy-6305-VAC-ARC-High-Strength-Alloy-Steel.php](http://www.lookpolymers.com/polymer_Latrobe-Lescalloy-6305-VAC-ARC-High-Strength-Alloy-Steel.php)

Physical Properties	Metric	English	Comments
Density	7.83 g/cc	0.283 lb/in <sup>3</sup>	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell C	30	30	1300°F Temper
	45	45	600°F Temper
Tensile Strength, Ultimate	972 MPa	141000 psi	13"x11", 700°F
	1100 MPa	160000 psi	13"x11", RT
	958 MPa @Thickness 50.8 mm, Temperature 371 °C	139000 psi @Thickness 2.00 in, Temperature 700 °F	
Tensile Strength, Yield	1130 MPa @Thickness 50.8 mm, Temperature 21.1 °C	164000 psi @Thickness 2.00 in, Temperature 70.0 °F	
	938 MPa @Strain 0.200 %	136000 psi @Strain 0.200 %	13"x11", RT
	765 MPa @Strain 0.200 %, Temperature 371 °C	111000 psi @Strain 0.200 %, Temperature 700 °F	
	800 MPa @Strain 0.200 %, Temperature 371 °C	116000 psi @Strain 0.200 %, Temperature 700 °F	13"x11"
	958 MPa @Strain 0.200 %, Temperature 21.1 °C	139000 psi @Strain 0.200 %, Temperature 70.0 °F	

Mechanical Properties	765 MPa Metric	111000 psi English	Comments
	@Strain 0.200 %, Thickness 50.8 mm	@Strain 0.200 %, Thickness 2.00 in	
	958 MPa	139000 psi	
	@Strain 0.200 %, Thickness 50.8 mm	@Strain 0.200 %, Thickness 2.00 in	
Elongation at Break	15 %	15 %	13"x11", RT
	30 %	30 %	13"x11", 700Å°F
	16.2 %	16.2 %	
	@Thickness 50.8 mm, Temperature 21.1 Å°C	@Thickness 2.00 in, Temperature 70.0 Å°F	
	22.3 %	22.3 %	
	@Thickness 50.8 mm, Temperature 371 Å°C	@Thickness 2.00 in, Temperature 700 Å°F	
Reduction of Area	51.2 %	51.2 %	13"x11", RT
	72.6 %	72.6 %	13"x11"
	@Temperature 371 Å°C	@Temperature 700 Å°F	
	53.3 %	53.3 %	
	@Thickness 50.8 mm, Temperature 21.1 Å°C	@Thickness 2.00 in, Temperature 70.0 Å°F	
	75.2 %	75.2 %	
	@Thickness 50.8 mm, Temperature 371 Å°C	@Thickness 2.00 in, Temperature 700 Å°F	

Thermal Properties	Metric	English	Comments
CTE, linear	11.34 Åµm/m-Å°C	6.300 Åµin/in-Å°F	
	@Temperature -17.8 - 93.0 Å°C	@Temperature -0.0400 - 199 Å°F	
Specific Heat Capacity	0.460 J/g-Å°C	0.110 BTU/lb-Å°F	
Thermal Conductivity	37.5 W/m-K	260 BTU-in/hr-ftÅ²-Å°F	

Component Elements Properties	Metric	English	Comments
Carbon, C	0.44 %	0.44 %	
Chromium, Cr	0.95 %	0.95 %	
Iron, Fe	97.03 %	97.03 %	

Component Elements Properties	Metric	English	Comments
Molybdenum, Mo	0.50 %	0.50 %	
Silicon, Si	0.25 %	0.25 %	
Vanadium, V	0.28 %	0.28 %	

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