Allegheny Ludlum Altemp® A286 Iron-Base Superalloy, UNS S66286

Subcategory: Ferrous Metal; Iron Base; Metal; Stainless Steel; Superalloy

Key Words: AMS 5525; AMS 5858 (Welding Quality)

Component	Wt. %	Component	Wt. %	Component	Wt. %
Al	0.15	Mn	0.2	S	0.002
B	0.006	Mo	1.25	Si	0.2
C	0.04	Ni	25	Ti	2.1
Cr	14.5	P	0.015	V	0.3
Fe	56				

Material Notes:

Iron content above calculated as remainder.

Allegheny Ludlum Altemp A286 alloy is an iron-base superalloy useful for applications requiring high strength and corrosion resistance up to 704 degrees Celsius and for lower stress applications at high temperatures. Specific uses include jet engine nacelles, parts, and fasteners. Allegheny Ludlum Altemp A286 alloy is a heat and corrosion resistant austenitic iron-base material which can be age hardened o a high strength level. The alloy is also used for low temperature applications requiring a ductile, non-magnetic high strength material at temperatures ranging from above room temperature down to -196 degrees Celsius. The alloy may be used for moderate corrosion applications in aqueous solutions. This alloy can be produced by AOD refining or vacuum induction melting. Vacuum arc or electroslag remelting procedures may be used to further refine the material.

Information provided by Allegheny Ludlum

Physical Properties	Metric	English	Comments
Density	7.92 g/cc	0.286 lb/in³	Solution Treated

Mechanical Properties

Hardness, Rockwell B	85	85	Typical Annealed
Tensile Strength, Ultimate	620 MPa	89900 psi	Solution Treated (Typical)
Tensile Strength, Yield	275 MPa	39900 psi	Solution Treated (Typical)
Elongation at Break	40 %	40 %	Solution Treated (Typical)

Modulus of Elasticity	201 GPa	29200 ksi	Dynamic
Poisson's Ratio	0.3	0.3	
Shear Modulus	77 GPa	11200 ksi	

Electrical Properties

Electrical Resistivity	9.1e-005 ohm-cm	9.1e-005 ohm-cm	
Magnetic Permeability	1.01	1.01	Solution Treated

Thermal Properties

CTE, linear 20°C	16.5 µm/m-°C	9.17 µin/in-°F	20- 93°C
CTE, linear 250°C	17 µm/m-°C	9.44 µin/in-°F	20- 315°C
CTE, linear 500°C	17.6 µm/m-°C	9.78 µin/in-°F	20-538°C
Specific Heat Capacity	0.42 J/g-°C	0.1 BTU/lb-°F	
Thermal Conductivity	15.1 W/m-K	105 BTU-in/hr-ft²-°F	at 150°C
Melting Point	1370 - 1430 °C	2500 - 2610 °F	
Solidus	1370 °C	2500 °F	
Liquidus	1430 °C	2610 °F	
Maximum Service Temperature, Air	816 °C	1500 °F	Continuous service
Maximum Service Temperature, Air	982 °C	1800 °F	Intermittent

Some of the values displayed above may have been converted from their original units and/or rounded in order to display the information in a consistant format. Users requiring more precise data for scientific or engineering calculations can click on the property value to see the original value as well as raw conversions to equivalent units. We advise that you only use the original value or one of its raw conversions in your calculations to minimize rounding error.