

Product Data Sheet - Beralcast® 363

This alloy provides an ideal solution for weight, stiffness and thermal critical applications in aerospace, defense and commercial markets. BeAl-363 is a metal matrix composite which consists of 65% Be (by weight) and 35% Al. BeAl-363 is used primarily for high-strength/high-elastic modulus precision cast structural applications. This alloy is 22% less dense than Al-356 and is 3.5 times as stiff.

Physical and Chemical Properties:

Property Description	Units	Beralcast® 363
Density	g/cm ³ @ 25°C	2.16
	lb/in ³ @ 77°F	0.078
Melting Point (Liquidus)	°C	1,150
	°F	2,102
Coefficient of Thermal Expansion	µm/m (ppm) @ 25°C	12.7
	µin/in (ppm) @ 77°F	7.9
Specific Heat	J/Kg-°K @ 20°C	1250.0
	Btu/lb-°F @68°F	0.30
Thermal Conductivity	W/m-°K @ 25°C	105.5
	Btu/h-ft-°F @ 77°F	61.0
Modulus of Elasticity in Tension	Gpa @ 25°C	202.0
	Mpsi @ 77°F	29.3
Specific Stiffness (Modulus/Density)	Gpa-cm ³ /g @ 25°C	93.5
	Mpsi-in ³ /lbs @ 77°F	375.6
Poissons Ratio		0.20
Yield Strength	Mpa @ 25°C	213.7
	Ksi @ 77°F	31.0
Ultimate Tensile Strength	Mpa @ 25°C	289.6
	Ksi @ 77°F	42.0
Specific Strength (UTS/Density)	Mpa-cm ³ /g @ 25°C	134.1
	Ksi-in ³ /lbs @ 77°F	538.5
Elongation 2.54 cm (1 in) Gage	% @ 25°C	3.0
	% @ 77°F	3.0
Axial Fatigue (R=-1.0) 10⁷ Cycles	Mpa @ 25°C	117.2
	Ksi @ 77°F	17.0

Composition by Weight Percent:

Element	Min.	Max.
Beryllium	61.1	68.6
Aluminum	Remainder	Remainder
Silicon	N/A	0.50
Silver	2.65	3.35
Cobalt	0.65	1.35
Germanium	0.55	0.95
Iron	N/A	0.20

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