

Magnesium Elektron Elektron® 43 Magnesium Wrought Alloy

Category : Metal , Nonferrous Metal , Magnesium Alloy

Material Notes:

High strength wrought Mg alloy available as rolled plate, forging feedstock, and extrusions. It is a wrought evolution of the casting alloy Elektron WE43. Elektron 43 uses zirconium grain refining and has successfully undergone flammability tests by the FAA for use in aircraft seat frames. It develops maximum strength in the T5 condition.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Magnesium-Elektron-Elektron-43-Magnesium-Wrought-Alloy.php

Physical Properties	Metric	English	Comments
Density	1.84 g/cc	0.0665 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	70 - 90	70 - 90	
Tensile Strength	296 MPa	43000 psi	Extruded Bar - Transverse
	331 MPa	48000 psi	Extruded Bar - Longitudinal
	345 MPa	50000 psi	Rolled Plate
	@Thickness 1.02 - 38.1 mm	@Thickness 0.0400 - 1.50 in	
	345 MPa	50000 psi	Rolled Plate
	@Thickness 38.13 - 76.2 mm	@Thickness 1.501 - 3.00 in	
Tensile Strength, Yield	179 MPa	26000 psi	Extruded Bar - Transverse
	@Strain 0.200 %	@Strain 0.200 %	
	214 MPa	31000 psi	Extruded Bar - Longitudinal
	@Strain 0.200 %	@Strain 0.200 %	
	255 MPa	37000 psi	Rolled Plate
	@Strain 0.200 %, Thickness 38.13 - 76.2 mm	@Strain 0.200 %, Thickness 1.501 - 3.00 in	
	276 MPa	40000 psi	Rolled Plate
	@Strain 0.200 %, Thickness 1.02 - 38.1 mm	@Strain 0.200 %, Thickness 0.0400 - 1.50 in	
Elongation at Break	11 %	11 %	Extruded Bar - Transverse
	14 %	14 %	Extruded Bar - Longitudinal

Mechanical Properties	Metric	English	Comments
	@Thickness 1.02 - 38.1 mm	@Thickness 0.0400 - 1.50 in	Rolled Plate
	14 %	14 %	
	@Thickness 38.13 - 76.2 mm	@Thickness 1.501 - 3.00 in	Rolled Plate
Modulus of Elasticity	44.0 GPa	6380 ksi	
Poissons Ratio	0.27	0.27	
Fatigue Strength	186 MPa @# of Cycles 5.00e+7	27000 psi @# of Cycles 5.00e+7	Axial; R = 0.1; Extruded Bar; ASTM E466
Shear Modulus	17.3 GPa	2510 ksi	Calculated

Thermal Properties	Metric	English	Comments
CTE, linear	26.7 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	14.8 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	
	26.7 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	14.8 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	
Specific Heat Capacity	0.966 J/g- $^\circ\text{C}$	0.231 BTU/lb- $^\circ\text{F}$	
Thermal Conductivity	51.3 W/m-K	356 BTU-in/hr-ft ² - $^\circ\text{F}$	
Melting Point	540 - 640 $^\circ\text{C}$	1000 - 1180 $^\circ\text{F}$	
Solidus	540 $^\circ\text{C}$	1000 $^\circ\text{F}$	
Liquidus	640 $^\circ\text{C}$	1180 $^\circ\text{F}$	
Maximum Service Temperature, Air	249 $^\circ\text{C}$	480 $^\circ\text{F}$	

Component Elements Properties	Metric	English	Comments
Magnesium, Mg	92 - 93.8 %	92 - 93.8 %	as balance
Rare Earths	2.3 - 3.5 %	2.3 - 3.5 %	
Yttrium, Y	3.7 - 4.3 %	3.7 - 4.3 %	
Zirconium, Zr	≥ 0.20 %	≥ 0.20 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.0000148 ohm-cm	0.0000148 ohm-cm	

Descriptive Properties	Value	Comments
Damping Index	0.09	

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