

Magnesium Elektron Elektron® 21 Magnesium Casting Alloy

Category : Metal , Nonferrous Metal , Magnesium Alloy

Material Notes:

Fully heat treatable alloy for use up to 400°F. Excellent corrosion resistance and castability. Cast products possess a fine-grained microstructure and pressure tightness. Easily machined. Usual Mg surface treatments may be applied. Uses include motorsports and aerospace.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Magnesium-Elektron-Elektron-21-Magnesium-Casting-Alloy.php

Physical Properties	Metric	English	Comments
Density	1.82 g/cc	0.0658 lb/in ³	

Mechanical Properties	Metric	English	Comments
Hardness, Brinell	65 - 75	65 - 75	
Tensile Strength	>= 248 MPa	>= 36000 psi	Minimum design value
	179 MPa	26000 psi	Typical
	@Temperature 260 °C	@Temperature 500 °F	
	241 MPa	35000 psi	Typical
	@Temperature 191 °C	@Temperature 375 °F	
	262 MPa	38000 psi	Typical
	@Temperature 121 °C	@Temperature 250 °F	
	270 MPa	39200 psi	Typical
	@Temperature -35.0 °C	@Temperature -31.0 °F	
	280 MPa	40600 psi	
	@Temperature 22.2 °C	@Temperature 72.0 °F	
Tensile Strength, Yield	145 MPa	21000 psi	Typical
	@Strain 0.200 %, Temperature 260 °C	@Strain 0.200 %, Temperature 500 °F	
	>= 145 MPa	>= 21000 psi	Minimum design value
	@Strain 0.200 %, Temperature 22.2 °C	@Strain 0.200 %, Temperature 72.0 °F	
	159 MPa	23000 psi	Typical
	@Strain 0.200 %, Temperature 191 °C	@Strain 0.200 %, Temperature 375 °F	

Mechanical Properties	165 MPa Metric	24000 psi English	Comments Typical
	@Strain 0.200 %, Temperature 121 °C	@Strain 0.200 %, Temperature 250 °F	
	170 MPa	24700 psi	Typical
	@Strain 0.200 %, Temperature 22.2 °C	@Strain 0.200 %, Temperature 72.0 °F	
Elongation at Break	>= 2.0 %	>= 2.0 %	Minimum design value
	5.0 %	5.0 %	Typical
	7.0 %	7.0 %	Typical
	@Temperature -35.0 °C	@Temperature -31.0 °F	
Creep Strength	82.7 MPa	12000 psi	0.1% creep strain
	@Temperature 204 °C, Time 1.98e+6 sec	@Temperature 400 °F, Time 550 hour	
	96.5 MPa	14000 psi	0.1% creep strain
	@Temperature 204 °C, Time 360000 sec	@Temperature 400 °F, Time 100 hour	
	117 MPa	17000 psi	0.1% creep strain
	@Temperature 204 °C, Time 234000 sec	@Temperature 400 °F, Time 65.0 hour	
Modulus of Elasticity	44.1 GPa	6400 ksi	
Compressive Yield Strength	168 MPa	24400 psi	Typical
	@Strain 0.200 %	@Strain 0.200 %	
Compressive Strength	367 MPa	53200 psi	Typical
Poissons Ratio	0.27	0.27	
Fatigue Strength	115 - 120 MPa	16700 - 17400 psi	Push-Pull; R = 0.1
	@# of Cycles 5.00e+7	@# of Cycles 5.00e+7	
Fracture Toughness	14.9 MPa-m ^{1/2}	13.6 ksi-in ^{1/2}	K _{IC}
Shear Modulus	17.4 GPa	2520 ksi	Calculated
Shear Strength	172 MPa	25000 psi	
Charpy Impact	1.7 J	1.3 ft-lb	Notched
	@Temperature -35.0 °C	@Temperature -31.0 °F	

Thermal Properties	Metric	English	Comments
--------------------	--------	---------	----------

CTE linear Thermal Properties	26.6 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$ Metric	14.8 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$ English	Comments
Specific Heat Capacity	1.00 J/g- $^\circ\text{C}$	0.240 BTU/lb- $^\circ\text{F}$	
Thermal Conductivity	116 W/m-K	804 BTU-in/hr-ft ² - $^\circ\text{F}$	
Melting Point	545.0 - 640.0 $^\circ\text{C}$	1013 - 1184 $^\circ\text{F}$	
Solidus	545.0 $^\circ\text{C}$	1013 $^\circ\text{F}$	
Liquidus	640.0 $^\circ\text{C}$	1184 $^\circ\text{F}$	
Maximum Service Temperature, Air	204 $^\circ\text{C}$	400 $^\circ\text{F}$	

Component Elements Properties	Metric	English	Comments
Gadolinium, Gd	1.0 - 1.7 %	1.0 - 1.7 %	
Magnesium, Mg	94.7 - 96.2 %	94.7 - 96.2 %	as balance; includes saturation of Zr
Neodymium, Nd	2.6 - 3.1 %	2.6 - 3.1 %	
Zinc, Zn	0.20 - 0.50 %	0.20 - 0.50 %	

Electrical Properties	Metric	English	Comments
Electrical Resistivity	0.00000946 ohm-cm	0.00000946 ohm-cm	

Processing Properties	Metric	English	Comments
Solution Temperature	520 $^\circ\text{C}$ @Time 28800 sec	968 $^\circ\text{F}$ @Time 8.00 hour	Follow with hot quench and aging
Aging Temperature	200 $^\circ\text{C}$ @Time 57600 sec	392 $^\circ\text{F}$ @Time 16.0 hour	Follow with air cool

Descriptive Properties	Value	Comments
Corrosion Resistance	10 - 30 mpy	ASTM B117 salt spray

Contact Songhan Plastic Technology Co.,Ltd.

Website : www.lookpolymers.com

Email : sales@lookpolymers.com

Tel : +86 021-51131842

Mobile : +86 13061808058

Skype : lookpolymers

Address : United North Road 215,Fengxian District, Shanghai City,China