

ELEKTRON 43 PLATES



ELEKTRON 43 BENEFITS

Flame Resistant

Non-burning
Lightweight

33% lighter than aluminum

75% lighter than steel

Free machining

40% faster than Al 6061
96% faster than Al 7075

High Strength

Creep Resistant

ELEKTRON 43 APPLICATIONS

- Aerospace / Aircraft
- Defense
- Motorsport / Automotive
- Space / Satellites
- Electrical Housing
- High-performance Equipment
- Lightweighting



SURFACE TREATMENT

The surface protection of Elektron 43 is dependent on the service conditions where the material will be operating. In dry conditions, with limited exposure to moisture, Elektron 43 can be left bare or lightly oiled. A protective coating solution should be given to application in more demanding environments. Elektron 43 can be protected by a variety of coatings that include chromating, anodizing, plating, e-coat, paint, and plasma electrolytic oxidation (PEO). It is recommended to prepare the magnesium surface by cleaning and pre-treatment (conversion coating) using traditional non-ferrous methods prior to paint. There are commercially available non-chromate pre-treatments that result in good adhesion of the paint system. For further guidance on surface protection, contact Vulcan Metals Specialty Products.



Elektron 43 meets these specifications: AMS 4371

Domestically Made | DFARS Compliant | RoHS Compliant | Frank Dodd Act Compliant

Vulcan Metals Specialty Products

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MINIMUM TENSILE PROPERTIES

INCH/POUND UNITS

Nominal Thickness inches	Tensile Strength ksi	Yield Strength at 0.2% Offset ksi	Elongation in 4D %
1.00 to 1.50 incl.	44	33	12
Over 1.50 to 6.0 incl.	47	30	6

MINIMUM TENSILE PROPERTIES

SI UNITS

Nominal Thickness inches	Tensile Strength ksi	Yield Strength at 0.2% Offset ksi	Elongation in 4D %
25.4 to 38.1 incl.	303	228	12
Over 38.1 to 152.4 incl.	324	207	6

CHEMICAL COMPOSITION

Yttrium	3.7 – 4.3%
Rare Earths	2.3 – 3.5%
Zirconium	0.2% min
Magnesium	Balance

PHYSICAL PROPERTIES

Density	0.068 lbs/in ³ (1.83 g/cm ³)
Coefficient of Thermal Expansion	4.7 x 10 ⁻⁶ /°F (25.6 x 10 ⁻⁶ /K)
Specific Heat	0.24 Btu/lb/°F (993 J/kg/K)
Thermal Conductivity	33.3 Btu/hr/ft ² /°F (57.6 W/m ² /K)
Modulus of Elasticity	44 GPa
Poissons Ratio	0.295
Melting Range	1004 – 1184°F (540 – 640° C)

MACHINING

Magnesium machines faster than any other known metal. Machining magnesium is limited only to the speed of the cutting tool. Studies have shown that magnesium machines 40% faster than 6000 series aluminum and up to 96% faster than 7000 series aluminum, employing the use of large feed rates and greater depths of cut. Magnesium uses 55% less power than what is required to machine aluminum and behaves like wood with well-broken chips that do not accumulate on the tooling.

Extremely fine and smooth surfaces can be achieved and 5 to 10 times longer tool life can be expected.



FLAME RESISTANT

Elektron 43 is a flame-resistant alloy. It meets the flammability requirements set out in the FAA's Aircraft Materials Fire Test Handbook DOT/FAA/AR-00/12 for commercial aircraft. The unique alloy content of Elektron 43 provides it with an aluminum-like flammability resistance when in bulk form.

This flame resistance is the result of a robust, protective surface oxide that forms, making E43 the alloy of choice for applications requiring both lightweight and high strength in demanding environments.