

SupremEX® 225XE

A high-quality aerospace grade aluminum alloy (2124A) reinforced with 25 vol.% silicon carbide particles which produces a metal matrix composite (MMC). 225XE is manufactured via a powder metallurgy route using a mechanical alloying process to ensure a homogeneous reinforcement distribution. This provides a refined grain structure enhances mechanical properties. The MMC is heat treatable, offering high strength and modulus for structural applications, and is available in billet, forged and extruded forms. Billet material is available supplied to AMS4355, designation: – 2124A/SiC/25p (3µm).

Typical Physical Properties*

Density g/cm ³ (lb/in ³)	Elastic Modulus GPa (msi)	Specific Stiffness GPa/g/cm ³	Poisson's Ratio
2.88 (0.104)	115 (16.7)	39	0.3

Thermal Conductivity W/m ² K (BTU/hr. ft. °F)	Thermal Expansion ppm/°C (ppm/°F) at 25°C	Solidus °C (°F)	Specific Heat Capacity J/g/°C (BTU/lb/°F)
150 (87)	16.1 (8.9)	548 (1,018)	0.836 (0.200)

Typical Mechanical Properties*

Product Form	Billet			Forged Plate		Extruded Bar (30:1)
Heat Treatment	T4 CWQ [†]	T6 HWQ ^{††}	T6 PGQ [‡]	T4 CWQ [†]	T6 PGQ [‡]	T6 PGQ [‡]
R _{p0.2} MPa (ksi)	470 (68.2)	440 (63.8)	400 (58.0)	440 (63.8)	400 (58.0)	400 (58.0)
R _m MPa (ksi)	570 (82.7)	550 (79.8)	535 (77.6)	610 (88.5)	570 (82.7)	600 (87.0)
Elongation to Failure %	1.8	1.9	2	3-4	3-4	4-5

*Data is for information purposes only; it does not constitute a guarantee.

[†]CWQ refers to "cold water quench."

^{††}HWQ refers to "hot water quench."

[‡]PGQ refers to "poly-glycol quench."

225XE Alloy Advantages

- Weight saving
- High strength
- Increased component stiffness
- High fatigue resistance
- Hardness, wear resistance and low friction characteristics
- Good machinability using conventional techniques
- Homogenous stable microstructure

Forms Available

SupremEX 225XE alloy is available as billet/shaped billet (DPT), forgings, near-net-shape forgings, plate and extrusions.

Disclaimer:

Only the buyer can determine the appropriateness of any processing practice, end-product or application. Materion does not make any warranty regarding its recommendations, the suitability of Materion's product, or its processing suggestions for buyer's end product, application or equipment.

The properties presented on this data sheet are for reference purposes only, intended only to initiate the material selection process. They do not constitute, nor are they intended to constitute, a material specification. Material will be produced to one of the applicable industry standards, if any, listed in the Industry Standards and Specification section.

Actual properties may vary by thickness and/or part number. Please contact your local sales engineer for detailed properties to be used in simulation.

Any properties marked as preliminary are subject to change at any time as the manufacturing process is further refined.

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