

## SupremEX<sup>®</sup> 225CA Alloy

A high-quality aluminum alloy (2124A) reinforced with 25 vol.% silicon carbide particles which produces a metal matrix composite (MMC). 225CA is manufactured via a powder metallurgy route using a mechanical alloying process to ensure a homogeneous distribution of reinforcement. This provides a refined grain structure and enhanced mechanical properties. The 225CA MMC is heat treatable, offering high strength and elastic modulus for structural applications. 225CA is available in a variety of shapes including billet and forgings.

### Typical Physical Properties\*

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

  

Thermal Conductivity W/m <sup>2</sup> 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)
156 (90)	16.3 (9.1)	548 (1,018)	0.829 (0.198)

### Typical Mechanical Properties\*

Product Form	HIPed Billet	Forged
Heat Treatment	T4	T6
R <sub>p0.2</sub> MPa (ksi)	455 (66)	435 (63)
R <sub>m</sub> MPa (ksi)	570 (83)	580 (84)
Elongation to Failure %	1.5	3

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

## 225CA Alloy Advantages

- High fatigue strength and stiffness with low weight
- Lower mass components
- Reduced section thickness
- High hardness and low friction
- Longer wear life
- Reduced need for coatings
- Good machinability using conventional methods and proper tooling
- Lower coefficient of thermal expansion versus aluminum
- Smaller starting clearances
- Better thermal match to high strength materials
- High thermal conductivity
- Faster heat removal
- Less need for active cooling
- Isotropic properties and microstructure

## Forms Available

SupremEX 225CA alloy is available as billet/shaped billet (DPT) and forgings.

### 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.