

# AyontEX 13 AlSi Alloy

Materion's AyontEX™ 13 aluminum-silicon alloy is a high-quality hypereutectic aluminum-silicon alloy comprised of aerospace-grade aluminum alloy (6063) reinforced with silicon particles. AyontEX 13 is manufactured via powder metallurgy using a mechanical alloying process to ensure a homogeneous reinforcement distribution, providing a refined grain structure and enhanced mechanical properties.

This lightweight alloy provides a CTE match to nickel plating (13 ppm/°C) and high specific stiffness for lightweight, high-stability structures, including reflective optics. AyontEX 13 alloy provides superior machinability and manufacturability versus materials with similar mechanical properties.

## AyontEX 13 AlSi Alloy Advantages:

- CTE match to Ni plating
- High specific stiffness and thermal conductivity
- Good machinability using high-speed machining techniques
- Low density and CTE versus conventional Al alloys
- Increased modulus compared to conventional Al alloys
- Refined, homogeneous and stable microstructure

## 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	Thermal Conductivity @ RT W/m <sup>2</sup> K (BTU/hr.ft. <sup>2</sup> .°F)	Thermal Expansion @ 0-100°C ppm/°C (ppm/°F)	Solidus °C (°F)	Specific Heat Capacity J/g/°C (BTU/lb./°F)
2.54 (0.092)	103 (14.9)	41	0.3	134 (77.5)	13.3 (7.4)	570 (1058)	0.85 (0.2)

## Typical Mechanical Properties

Material	Product Form	Heat Treatment	R <sub>p0.2</sub> MPa (ksi)	R <sub>m</sub> MPa (ksi)
AyontEX 13 Alloy	Billet	T6 Cold Water Quench	340 (49.3)	345 (50.0)
		T6 Poly-Glycol Quench	325 (47.1)	345 (50.0)
		T1 or T7	300 (43.5)	325 (47.1)

## Additional Information

Additional technical information on AyontEX 13 alloy may be obtained by calling the Customer Technical Service Department at +1.800.375.4205. For pricing and availability, call +1.800.521.8800. Outside of the United States, call +1.216.383.6800.

### 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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