MATERION

Data Sheet

AyontEX™ 17 AlSi Alloy

Materion's AyontEX 17 AlSi Alloy is a high-quality hypereutectic aluminum-silicon alloy comprised of aerospace-grade aluminum alloy (6063) reinforced with silicon particles. AyontEX 17 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 direct CTE match to copper alloys (16.9 ppm/°C) and is heat treatable, offering controlled thermal expansion and high conductivity for lightweight thermal management and high stability structures. It provides superior machinability and manufacturability versus competitive materials.

AyontEX 17 is available in a variety of shapes including billet and bar.

AyontEX 17 Advantages:

- Lightweight CTE match to Cu alloys
- High specific stiffness and thermal conductivity
- Good machinability using conventional techniques
- Low CTE versus conventional Al alloys
- Increased modulus versus conventional Al alloys
- Refined, homogenous and stable microstructure

Typical Physical Properties

Density g/cm³ (lb./in³)	Elastic Modulus GPa (msi)	Specific Stiffness GPa/g/cm³	Poisson's Ratio	Thermal Conductivity @ RT W/mK (BTU/hr.ft.°F)	Thermal Expansion @ RT-100°C ppm/°C (ppm/°F)	Solidus °C (°F)	Specific Heat Capacity J/g/°C (BTU/lb./°F)
2.60 (0.094)	87 (12.6)	33	0.3	170 (98.3)	16.9 (9.4)	570 (1058)	0.88 (0.21)

Typical Mechanical Properties

Material	Product Form	Heat Treatment	$R_{p0.2}$ MPa (ksi)	R_m MPa (ksi)	Elongation to Failure %
AyontEX 17	Billet	T6 CWQ*	300 (43.5)	355 (51.5)	1.5
		T6 PGQ*	260 (37.7)	325 (47.1)	2.0
		T1 or T7	170 (24.6)	240 (34.8)	3.0

*CWQ refers to Cold Water Quench, PGQ refers to Poly-Glycol Quench

Additional Information

Additional technical information on AyontEX 17 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.

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