

AC-Alsic

Overview

Metal Matrix Composite of SiC (silicon carbide) and aluminum. Its mechanical strength (especially rigidity / Young's modulus) is particularly high, and its density is as light as aluminum, so it is characterized by extremely high specific rigidity (light weight and high rigidity).



Feature

- High rigidity with 1.8 times Young's modulus, reduced thermal expansion to 2/3, and improved thermal conductivity compared to aluminum (A5052)
- The specific rigidity is 2.8 times higher and the thermal conductivity is 3 times higher compared to cast iron (FC250).
- Suppresses deformation and distortion caused by differences in thermal expansion.
- Thermal expansion coefficient close to that of stainless steel and carbon steel.
- Lower thermal expansion than aluminum and higher thermal conductivity than cast iron.
- Products are also available as ingots for gravity casting or gravity cast products (gravity and lost wax).

Application

- Heat sinks, low thermal expansion machine parts

Lighter and harder than Albolon, contributing to energy saving and improved operating time of equipment and machinery.

Data

Material	Our Metal Matrix Composites				General materials	
	AC-Alsic (SiC30%/ 70%)	AC-Alsic (SiC70%/ Al30%)	AC-Albolon	AC-Alox	FC250	A5052
Density (g/cm ³)	2.78	3.0	2.8	3.2	7.3	2.7
Young's modulus (GPa)	125	260	120	150	120	68
Specific stiffness (Gpa-g/cm)	45	87	43	47	16	25
Coefficient of thermal expansion (ppm/K)	14.4	7	12	11~14	12	23.6
Thermal conductivity (W/m·K)	150	160	81	90	50	140
Electrical resistivity (Ω cm)	—	4.78×10 ⁻⁵	1.90×10 ⁻⁵	—	—	—

***The above data is for reference only it does not represent guaranteed values.**

