AC-Albolon

■Overview

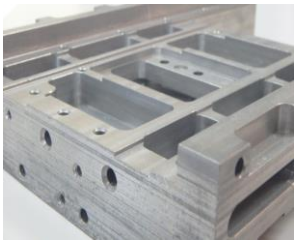
- A Metal Matrix Composite of ceramics and aluminum
- A new material that combines the ”lightness” of aluminum with the ”strength” as cast iron
- **Excellent machinability with carbide tools to be processed into complex shapes.**

■Features

- Light weight equivalent to aluminum
- Tensile strength, Young’s modulus, and coefficient of thermal expansion comparable to cast iron
- Possible to make the system smaller and reduce costs by reducing the weight of the parts while maintaining the strength of the materials that are optimal for rotating bodies and high-speed drive parts.
- Excellent vibration damping

■Application

Reflow positioning jig



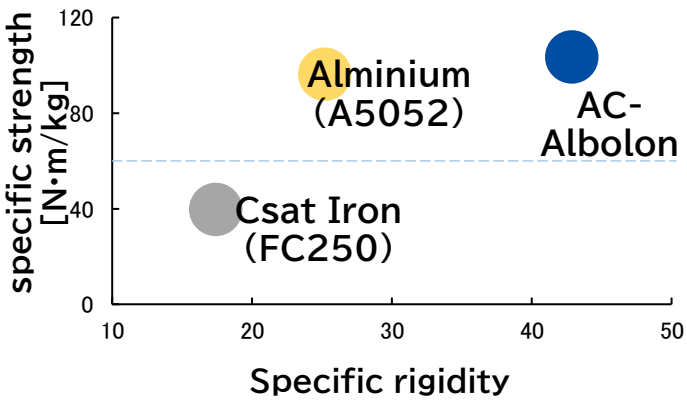
Parts for electronic device manufacturing equipment

Movable scroll for compressor

■Data

Physical properties	AC-Albolon	CI FC250	Alminium A5052
Density (g/cm3)	2.8	7.3	2.7
Tensile strength (MPa)	290	290	260
Young's modulus (GPa)	350	530	—
Young's modulus (GPa)	120	127	68
Coefficient of thermal expansion (ppm/K)	12	12	23.8
Thermal conductivity (W/m･K)	0.92	0.54	0.9
Thermal conductivity (W/m･K)	77	50	137

Comparison of specific strength and specific rigidity



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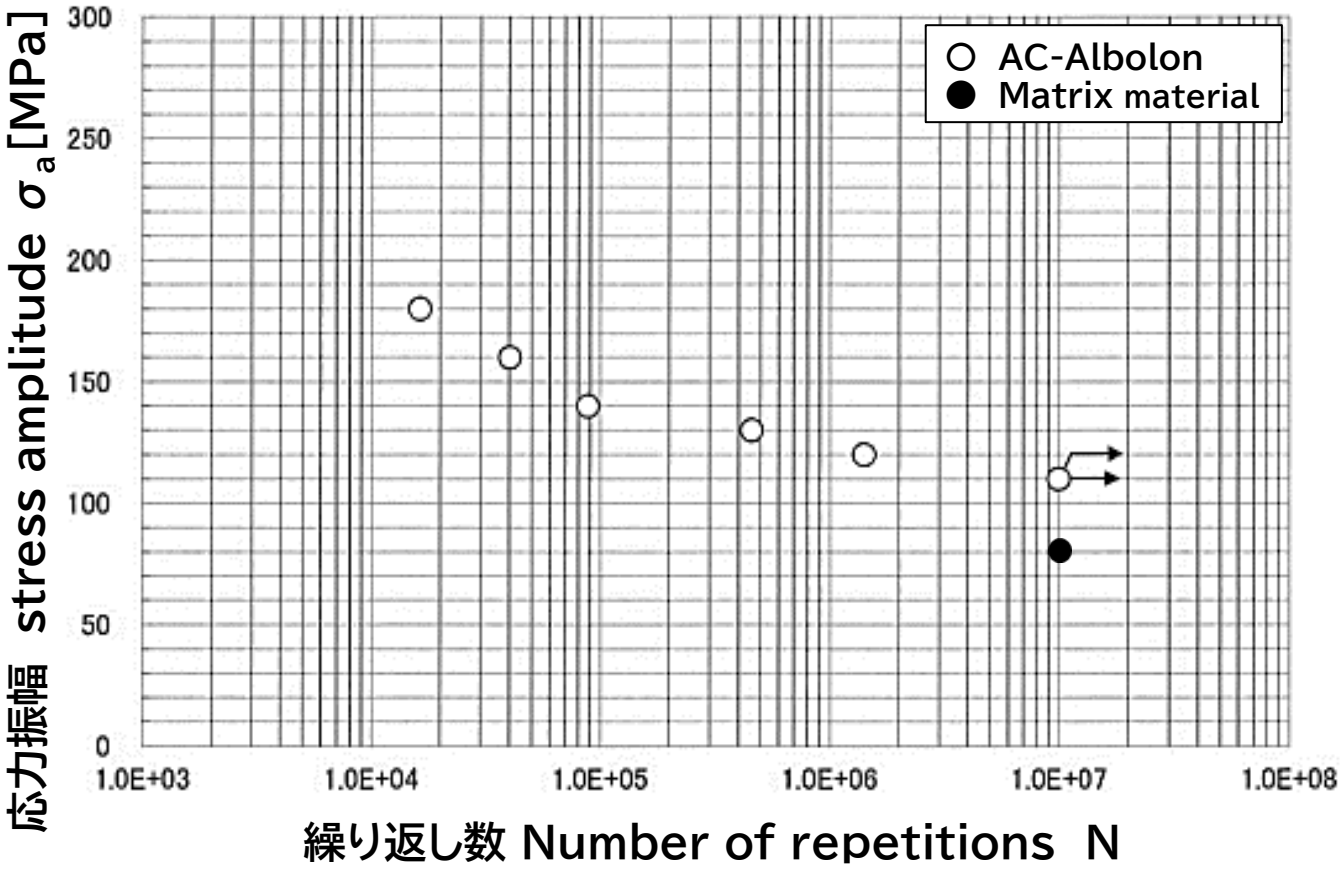
Comparison of fatigue properties between AC-Alboron and general materials

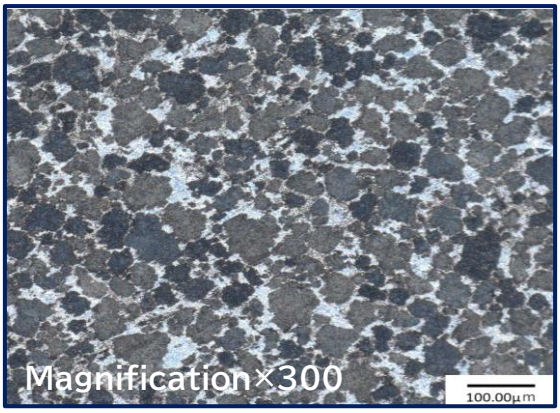


The fatigue strength of AC-Albolon (no damage after 107 cycles; n=2) is 110MPa, It is higher than 90MPa of the matrix material.

Physical properties

	AC-Albolon
matrix material	Aluminum alloy
reinforcement material	Aluminum borate
Reinforcement material volume ratio [%]	40
Density [g/cm³]	2.8
Tensile strength [MPa]	290
Bending strength [MPa]	370
Young's modulus [GPa]	120
Specific heat [J/(kg・K)]	1.0
Thermal conductivity [W/m・K]	77.0
Coefficient of thermal expansion [ppm/K]	12

Structure photograph (w/metallurgical microscope)



Japanese Patent Number

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