



# Alcoa Specialty Alloys: AT237 High Thermal Conductivity

**Higher conductivity to manage heat and better castability to shape E&E applications**

The rapid development of the E&E industry is increasing the requirements for heat dissipation while integration and miniaturization trends demand lightweight and easy-to-cast materials. AT237 is a high thermal conductivity alloy, which has been developed to manage heat in E&E applications, allowing extension of the product life and increased efficiency while improving safety. A higher thermal conductivity allows the building of smaller modules with higher power density.

AT237 can be used for high-pressure die casting (HPDC), delivering outstanding thermal conductivity while providing good castability and fluidity to achieve thin walls, small parts and complex shapes. AT237 alloy delivers a cost-competitive solution while enhancing optimal recyclability for end-of-life products.

Heat sink E&E | Connectors | Lamp radiator  
Heat sink 5G network | Antenna | Router  
E-motor case | PV inverter case | Battery boxes

# Conduct the heat away to improve efficiency

AT237 is a high thermal conductivity, high-pressure die casting (HPDC) alloy that provides outstanding thermal conductivity combined with optimal castability and fluidity to achieve complex application shapes.

- Outstanding thermal conductivity, higher than competitive materials in as-cast state.
- Very good castability and fluidity, suitable for HPDC to enhance thin walls, small parts and complex shapes.
- High corrosion resistance.
- Cost-competitiveness and optimal recyclability for end-of-life products.

## AT237 High Thermal Conductivity Technical Data

### CHEMICAL COMPOSITION \*(all in wt%. Single values indicate maximum content)

Si	Fe	Mn	Mg	Ti	Sr	Others Each	Others Total
7.0-11.0	<0.8	<0.05	<0.05	<0.05	<0.02	<0.02	0.1

\*Special treatment to enhance conductivity

### THERMAL CONDUCTIVITY PROPERTIES

Alcoa AT237 High Thermal Conductivity alloy shows improved thermal conductivity when compared to competitive alloys\*\*.

Alcoa*	Competitor 1	Competitor 2	Competitor 3
180-220	>160	140-165	160-200

\*Thermal Conductivity measured according to ASTM E1461 at different temperatures (W/m°C).

\*\*Competitive high thermal conductivity alloys available in the market.

### PHYSICAL PROPERTIES (TYPICAL VALUES)

Density (g/cm <sup>3</sup> )	Young's Modulus (GPa)	Coeff. Of Thermal Expansion (CTE) 20-300°C (µm/m/K)	Thermal Conductivity [W/(mK)]	Solidification Range (°C)
2.67-2.69	70-74	20-21.5	180-220	610-575

### OTHER PROPERTIES

- Very good corrosion resistance and machinability.



To know more about the full range of Alcoa special alloys applications, scan the QR Code.

You can also use the link in your Internet browser:  
<https://www.alcoa.com/global/en/what-we-do/aluminum/cast-products/foundry-aluminum-alloys.asp>