

# Magnesium alloys

## Category:

Very high strength  
Very high modulus



## Magnesium-alloy Mg-AZ91-SiC

Magnesium alloy Mg-AZ91-SiC is a high strength, high modulus Magnesium alloy with Silicon-Carbide reinforcement. The processing route is via modified squeeze casting. The particle size is 3-5µm. Because of the small particle size the properties are controlled by the matrix alloy. Mg-AZ91-SiC shows high strength and an elastic modulus tailor made to the limit of the specific elastic modulus of 40 GPa/Density.

### General properties

- High strength
- High modulus

### Comparison with alloy AMC-225, AZ91

- Advantages:**
- Higher strength, AZ91
  - Lower density, AMC-225
  - Higher modulus, AZ91
  - Same ductility, AMC-225
- Disadvantages:**
- Same machining difficulties than AMC-225

**Chemical Composition:** Mg-AZ91+50% SiC (3-5µm)

### Mechanical properties

	<b>UTS</b>	<b>YS</b>	<b>Elong.</b>	<b>E-Modulus</b>
	MPa	MPa	%	GPa
<b>Mg-AZ91-SiC</b>	503	426	1,4	102

### Physical data

Density: 2.59 g/cm<sup>3</sup>  
CTE: 16x10<sup>-6</sup>

### Applications

- Structural parts
- Automotive application
- Replacement of AMC-225, AZ91, A2017
- Uprights, Brackets

### Delivery form

- Billets