

ALUMINUM ALLOYS



Category:

High strength, high modulus, high temperature,
precision instruments and optics

Aluminum-Silicon alloy AI-MS31

Aluminum alloy AI-MS31 is a high temperature Aluminum-Silicon alloy with high strength at high temperatures and low thermal expansion. It shows very good thermal stability even after long term exposure at high temperatures. Good wear resistance and a high elastic modulus are additional features of AI-MS31.

General properties

- High strength at high temperatures
- Excellent fatigue strength at elevated temperatures
- Higher modulus than standard alloys
- Low coefficient of thermal expansion
- Good wear resistance

Chemical Composition: Al-Si30-Ni-Fe-Mg-Ni

Mechanical properties

Alloy	Unit	AI-MS31	A4032	A2618
Chemical composition	-	Al-Si30-Cu-Fe-Mg-Ni	Al-Si12-Cu1-Mg1-Ni1	Al-Cu2.3-Mg1.6-Fe1-Ni1
Density	g/cm ³	2,60	2,68	2,76
Rm, 20°C	MPa	445	340	440
Rm, 100°C	MPa	415	320	435
Rm, 150°C	MPa	390	290	400
Rm, 200°C	MPa	355	230	340
Rm, 250°C	MPa	245	275	240
Rm, 300°C	MPa	150	105	150
Fatigue resistance, 250°C	MPa	105	78	90
Coefficient of thermal exp.	10 ⁻⁶	15,1	21	23,2
Thermal conductivity	W/mK	135	135	140
Elastic modulus	GPa	95	78	74

Applications

- Pistons
- High temperature Structural parts
- Brake Calipers
- Automotive Engine parts
- Precision and optical instruments

Delivery form

- Bars up to 400mm dia.
- Blocks.