

Aluminum alloys

Category:

High strength, low density



Aluminum-Silicon alloy AI-MD20

Aluminum alloy AI-MD20 is a new high strength low density Aluminum-Silicon alloy processed via spray forming. AI-MD20 is featured with high strength, low density, high modulus and excellent elevated temperature resistance.

General properties

- High strength
- Higher modulus than standard alloys
- Lower density than standard alloys
- Lower density than standard alloys
- High fatigue strength at elevated temperatures

Comparison with Standard alloys A4032, A2017

- Advantages:**
- 8% higher stiffness, A4032
 - 14% higher stiffness, A2017
 - 11% higher strength, A4032
 - Same strength, A2017
 - 5% lower density, A4032
 - 9% lower density, A2017
 - Higher fatigue at high temp.
- Disadvantages:**
- Lower ductility

Chemical Composition: Al-Cu-Si-Mg

Mechanical properties

	UTS	YS	Elong.	Modulus
AI-MD4	MPa	MPa	%	GPa
Rt	420	390	0,3	84
100°C	350	330	1,0	77
200°C	275	260	1,7	70

Physical data

Density: 2.53 g/cm³
CTE: 18x10⁻⁶
Thermal conductivity: 120 W/mK

Applications

- Pistons
- Structural parts
- Brake Calipers
- Automotive Engine parts

Delivery form

- Bars
- Billets up to 120 mm dia.
- Plates