

## AMC® 4632 ALLOY

AMC 4632 is a high-quality hypereutectic aluminum-silicon alloy. This alloy is manufactured by a proprietary powder metallurgy method that refines the microstructure and provides enhanced mechanical properties. AMC 4632 is used to replace conventional aluminum alloys such as AA4032 and AA2618 in a range of components from automotive to aerospace. When using this alloy to replace existing materials, it aids in weight reduction and improves stability at elevated temperatures. AMC 4632 is available in billet, forged and extruded forms.

### AMC 4632 ADVANTAGES

- Weight-saving
- Increased component stiffness
- High fatigue resistance
- Low CTE compared to conventional aluminum alloys
- Hardness, wear resistance and low friction characteristics
- Good machinability using conventional techniques
- Homogenous stable microstructure

### PRODUCT FORMS

- Billet/shaped HIP consolidated forms
- Forged plate
- Extrusions
- Rolled plate

### APPLICATIONS

- Automotive
- Aerospace
- Replacement for conventional Al-Si alloy with low CTE requirements
- Replacement for conventional Al-Si alloy with higher modulus requirement

## Typical Physical Properties

Elastic Modulus	Specific Stiffness	Poisson's Ratio	Density	Thermal Expansion Coefficient (20-100°C)	Thermal Conductivity (25°C)	Melting Point (Solidus)	Specific Heat Capacity
13,600 ksi 94 GPa	140 msi/lb/in <sup>3</sup> 36 GPa/g/cm <sup>3</sup>	0.3	0.097 lb/in <sup>3</sup> 2.7 g/cm <sup>3</sup>	9.5 x 10 <sup>-6</sup> in/in °F 17.1 x 10 <sup>-6</sup> m/m °C	82 BTU/hr ft °F 141 W/m °C	1018°F 548°C	0.20 BTU/lb °F 0.84 J/g °C

## Typical Mechanical Properties

Product Form	Heat Treatment	R <sub>p0.2</sub> Mpa (ksi)	R <sub>m</sub> MPa (ksi)	Elongation to Failure
Billet	T6 CWQ	390 (57)	440 (64)	1
Forged plate	T6 CWQ	380 (55)	430 (62)	2
Extrusion	T1	172 (25)	255 (37)	5

Data is for information purposes only; it does not constitute a guarantee. CWQ refers to Cold Water Quench.

#### Disclaimer:

Only the buyer can determine the appropriateness of any processing practice, end-product or application. Materion does not make any warranty regarding its recommendations, the suitability of Materion's product, or its processing suggestions for buyer's end product, application or equipment.

The properties presented on this data sheet are for reference purposes only, intended only to initiate the material selection process. They do not constitute, nor are they intended to constitute, a material specification. Material will be produced to one of the applicable industry standards, if any, listed in the Industry Standards and Specification section.

Actual properties may vary by thickness and/or part number. Please contact your local sales engineer for detailed properties to be used in simulation.

Any properties marked as preliminary are subject to change at any time as the manufacturing process is further refined.

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