



ASM Aerospace Specification Metals Inc.



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Aluminum 5052-H34

Subcategory: 5000 Series Aluminum Alloy; Aluminum Alloy; Metal; Nonferrous Metal

Close Analogs:

Composition Notes:

Aluminum content reported is calculated as remainder.

Composition information provided by the Aluminum Association and is not for design.

Key Words: UNS A95052; ISO AlMg2.5; Aluminium 5052-H34; AA5052-H34

| Component | Wt. % | Component | Wt. % | Component | Wt. % |
|-----------|-------------|-------------|-----------|--------------|----------|
| Al | 95.7 - 97.7 | Mg | 2.2 - 2.8 | Other, total | Max 0.15 |
| Cr | 0.15 - 0.35 | Mn | Max 0.1 | Si | Max 0.25 |
| Cu | Max 0.1 | Other, each | Max 0.05 | Zn | Max 0.1 |
| Fe | Max 0.4 | | | | |

Material Notes:

Data points with the AA note have been provided by the Aluminum Association, Inc. and are NOT FOR DESIGN.

| Physical Properties | Metric | English | Comments |
|---------------------|------------------|---------------------------|-------------|
| Density | <u>2.68 g/cc</u> | 0.0968 lb/in ³ | AA; Typical |

Mechanical Properties

| | | | |
|---------------------------|----------------|-----------|--|
| Hardness, Brinell | 68 | 68 | AA; Typical; 500 g load; 10 mm ball |
| Hardness, Knoop | 91 | 91 | Converted from Brinell Hardness Value |
| Hardness, Vickers | 78 | 78 | Converted from Brinell Hardness Value |
| Ultimate Tensile Strength | <u>262 MPa</u> | 38000 psi | AA; Typical |
| Tensile Yield Strength | <u>214 MPa</u> | 31000 psi | AA; Typical |
| Elongation at Break | <u>10 %</u> | 10 % | AA; Typical; 1/16 in. (1.6 mm) Thickness |
| Elongation at Break | <u>14 %</u> | 14 % | AA; Typical; 1/2 in. (12.7 mm) Diameter |

| | | | |
|---------------------------|-----------------|-----------|--|
| Modulus of Elasticity | <u>70.3 GPa</u> | 10200 ksi | AA; Typical; Average of tension and compression. Compression modulus is about 2% greater than tensile modulus. |
| Ultimate Bearing Strength | <u>469 MPa</u> | 68000 psi | Edge distance/pin diameter = 2.0 |
| Bearing Yield Strength | <u>303 MPa</u> | 43900 psi | Edge distance/pin diameter = 2.0 |
| Poisson's Ratio | 0.33 | 0.33 | |
| Fatigue Strength | <u>124 MPa</u> | 18000 psi | AA; 500,000,000 cycles completely reversed stress; RR Moore machine/specimen |
| Machinability | <u>50 %</u> | 50 % | 0-100 Scale of Aluminum Alloys |
| Shear Modulus | <u>25.9 GPa</u> | 3760 ksi | |
| Shear Strength | <u>145 MPa</u> | 21000 psi | AA; Typical |

Electrical Properties

| | | | |
|------------------------|-------------------------|------------------|---------------------|
| Electrical Resistivity | <u>4.99e-006 ohm-cm</u> | 4.99e-006 ohm-cm | AA; Typical at 68°F |
|------------------------|-------------------------|------------------|---------------------|

Thermal Properties

| | | | |
|------------------------|---------------------|-----------------------------------|---|
| CTE, linear 68°F | <u>23.8 μm/m-°C</u> | 13.2 μin/in-°F | AA; Typical; Average over 68-212°F range. |
| CTE, linear 250°C | <u>25.7 μm/m-°C</u> | 14.3 μin/in-°F | Average over the range 20-300°C |
| Specific Heat Capacity | <u>0.88 J/g-°C</u> | 0.21 BTU/lb-°F | Estimated from trends in similar Al alloys. |
| Thermal Conductivity | <u>138 W/m-K</u> | 960 BTU-in/hr-ft ² -°F | AA; Typical at 77°F |
| Melting Point | 607 - 649 °C | 1125 - 1200 °F | AA; Typical range based on typical composition for wrought products 1/4 inch thickness or greater |
| Solidus | <u>607 °C</u> | 1125 °F | AA; Typical |
| Liquidus | <u>649 °C</u> | 1200 °F | AA; Typical |

Processing Properties

| | | | |
|-------------------------|---------------|--------------|-------------------------------------|
| Annealing Temperature | <u>343 °C</u> | 650 °F | holding at temperature not required |
| Hot-Working Temperature | 260 - 510 °C | 500 - 950 °F | |

References for this datasheet.

Some of the values displayed above may have been converted from their original units and/or rounded in order to display the information in a consistent format. Users requiring more precise data for scientific or engineering calculations can click on the property value to see the original value as well as raw conversions to equivalent units. We advise that you only use the original value or one of its raw conversions in your calculations to minimize rounding error.