

Aluminum MMC Surface Resolution



As of 01/2017



As of 02/2018

► A2024-RAM2 (high strength and ductile aluminum)

Product Information

Elementum 3D's 2024 Aluminum Metal-Matrix Composite (MMC) with two percent ceramic provides excellent strength, good ductility along with the wear resistance of ceramic reinforcing phases. A2024-RAM2 is suitable for many applications and is an outstanding additive material solution for structural components. It is heat treatable like wrought 2024 aluminum

Physical and Chemical Properties

Material composition: Proprietary A2024 w/2% ceramic

Theoretical maximum density: 2.81 g/cc

Relative density: > 99.5%

Ultimate tensile strength: Approx. 72 ksi (496 MPa)^{1,2}

Yield strength: Approx. 58 ksi (400 MPa)^{1,2}

Elongation: ~ 10%^{1,2}

Hardness: 82 ±2 HRB²

Modulus of elasticity: Approx. 79 GPa^{3,2}

Thermal conductivity: Pending

Deposition rate: 7.8 mm³/s

Surface roughness as built:

Upskin - Ra 5.6 µm, Ra 0.22 x 10⁻³ inch

Downskin - Pending



Piston head - as printed.



Timing wheel - glass bead blasted.

All stated values are approximate values. All details given above are our current knowledge and experience, and are dependent on the equipment, parameters and operating conditions. The data provided in this document is subject to change and only intended as general information on a material set that is continually improving and developing. The data does not provide a sufficient basis for engineering parts. All samples were produced on an EOS M290. All tensile tests were performed at third party certified test labs such as Westmoreland Mechanical Testing & Research.

Please contact us at jacob@elementum3d.com for additional information.

¹ASTM E8, ²heat treated state, ³ASTM E494-15