



## ► R80-RAM1 (High Temperature Strength)

### Product Information

Elementum 3D's R80-RAM is an aerospace and specialty AM nickel alloy that features a combination of high strength and good corrosion resistance.

### Physical and Chemical Properties

Material composition: Proprietary Rene 80 w/1% RAM

Printed density: 8.13g/cc

Relative density: > 99.5%

Hardness: 37 HRC

Deposition rate: 4.8 mm<sup>3</sup>/sec

Elevated Temperature Testing:

Testing temperature		Ultimate tensile Strength		Yield strength		Modulus of elasticity		Elongation
°C	°F	MPa	ksi	MPa	ksi	GPa	Msi	%
<b>25</b>	<b>77</b>	<sup>[1]</sup> <b>1313</b>	<b>194</b>	<sup>[1]</sup> <b>1154</b>	<b>167</b>	<sup>[1]</sup> <b>215</b>	<b>31.2</b>	<b>4.1</b>
760	1400	<sup>[2]</sup> 1009	146	<sup>[2]</sup> 807	117	<sup>[2]</sup> 148	21.0	8.6
870	1598	<sup>[2]</sup> 607	88	<sup>[2]</sup> 516	75	<sup>[2]</sup> 108	15.6	3.1
980	1796	<sup>[2]</sup> 397	58	<sup>[2]</sup> 297	43	<sup>[2]</sup> 116	16.9	2.6

Heat Treatment: HIP: 1200°C @ 15 ksi for 2 hours; Solution: 1080°C for hours Air or Argon Quench  
Age: 850°C 16 hours Air or Argon Quench

All stated values are from heat treated samples.

<sup>[1]</sup>ASTM E8, <sup>[2]</sup>ASTM E21.

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 PES, a third-party certified test lab.

Please contact us at [jacob@elementum3d.com](mailto:jacob@elementum3d.com) for additional information.