

# Alloy OA-A11: Redefining High-Strength Aluminum for Additive Manufacturing

## Extraordinary Mechanical Performance

**502 MPa**

### Ultimate Tensile Strength

Achievement of 67% higher tensile strength than baseline quaternary alloys in as-printed conditions.  
Yield Strength: 387 MPa (OA-A11).

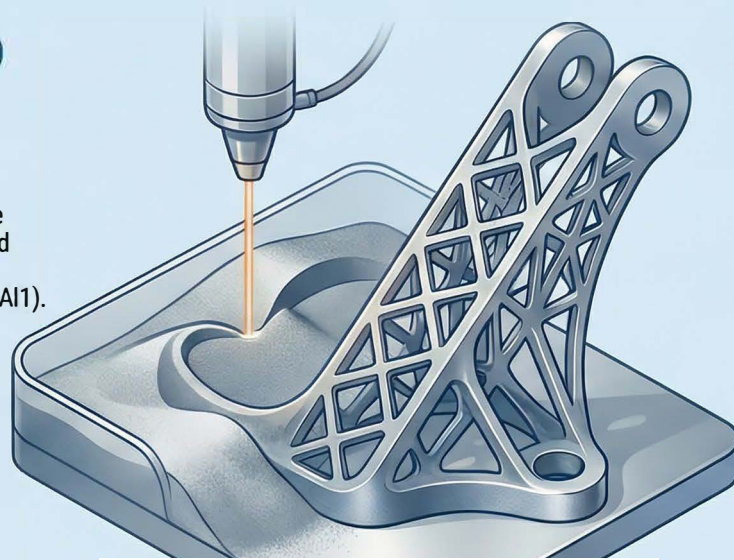


Alloy OA-A11  
(As-Printed)

**300 MPa**



Quaternary Alloy  
(As-Printed)



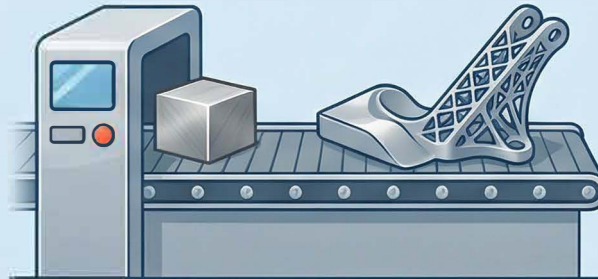
### Multimodal Strengthening Mechanism

Addition of 0.5% Mn activates bimodal particle strengthening and solid solution effects.



### Eliminates Post-Process Heat Treatment

Reaches ultrahigh strength immediately after printing, saving significant time and manufacturing costs.



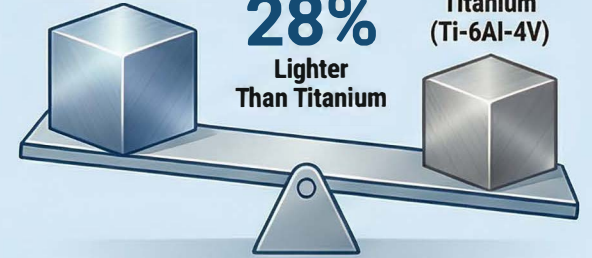
## Architectural Freedom & Lightweighting

Alloy OA-A11

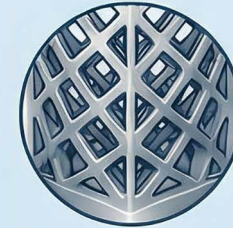
**28%**

Lighter  
Than Titanium

Titanium  
(Ti-6Al-4V)



Offers higher specific strength than Ti-6Al-4V while maintaining significantly lower density (2.82 g/cm<sup>3</sup> vs 2.73 g/cm<sup>3</sup> for AA3003-H112).



### Micro-Lattice Complexity

Enables crack-free printing of complex thin-plate lattice structures under 1mm thick.



### 99.3% Theoretical Density

Demonstrates superior printability and low defect rates across a wide processing window.