

WHY METAL 3D PRINTING?

A look at metals and applications

3D printed metals are used everyday by businesses to improve their products and bottom line. Common use cases for 3D printing metal include rapid iterations of functional prototypes, urgent replacement of critical components, and initial production runs for planned mass production products. More advanced use cases include customized products and highly optimized designs.

Metal AM (3D printing) allows users to:

- 1) Improve supply chain options for faster lead time, shorter assembly time, better time to market
- 2) Increase product value through performance improvement, multi-function integration, and customizable surfaces

For more information, contact us at:
Info@HummingbirdAdditive.com
www.HummingbirdAdditive.com

FOUR COMMON METAL FAMILIES

AL CU TI NI

Lightweighting and thermal conduction are the primary benefits of aluminum alloys

High thermal and electrical conductivity are the primary benefits of copper and its alloys

Mechanical strength and corrosion resistance are the primary benefits of titanium alloys

High strength at high temperatures are the primary benefits of nickel super alloys

BENEFITS OF METAL



Broad Operating Temperatures

Metals can be used in both extremely hot and cryogenic environments



High Strength & Ductility

Metals have a good balance of strength and ductility compared to polymers and ceramics



High Thermal Conductivity

Metals can have high thermal conductivity allowing for more rapid heating and cooling functionality



Electro-magnetics

The inherent electro-magnetic properties of some metals enable them to be used in shielding applications



Did you know?

Over 60% of metal AM products are made from Nickel, Titanium, and Aluminum

Source: www.grandviewresearch.com

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