

# Redefining Precious Metals for Space

## Unlocking the Future of Space Exploration with Precious Metals

In the rapidly evolving field of space exploration, innovation and precision are paramount. The materials we use must withstand conditions required for space while delivering unparalleled performance.

Precious metals, with their unique properties, have become indispensable in this journey. At Cookson Industrial, we are pioneering the use of precious metals in additive manufacturing, opening new opportunities for technology in the Space Sector.

### Why Precious Metals in Space?

Precious metals such as platinum, gold, and palladium are renowned for their exceptional qualities. They are highly resistant to corrosion, can endure extreme temperatures, and we help user's/ applications overcome precious metal weight issues through the use of our special AM techniques and in-house precious metal Dfam (Design for additive manufacturing) knowledge.

### Key Applications:

- **Platinum in Thrusters:** Platinum's high melting point and excellent catalytic properties make it perfect for thrusters, essential for manoeuvring spacecraft.
- **Gold in Satellite Electronics:** Gold's unparalleled conductivity and resistance to tarnish make it an essential material for satellite electronics.
- **Palladium in Hydrogen Storage:** Palladium's unique ability to absorb hydrogen makes it invaluable for fuel cell technology in space missions.
- **Gold and Silver in MLI (Multi-Layer Insulation):** These alloy properties allow reflection of radiating heat from stars in order to protect sensitive equipment. Especially as temperatures on the surface of objects in space fluctuate rapidly depending on the orientation in reference to the sun.

## Additive Manufacturing: The Future of Space Exploration

Additive manufacturing, or 3D printing, is revolutionising the way we design and produce components for space missions. The ability to create complex geometries that were previously impossible with traditional manufacturing techniques opens up new possibilities for innovation.

## Benefits of Precious Metal Additive Manufacturing in Space:

- **Enhanced Design Flexibility:** Complex components, such as thrusters or fuel cells, can be designed with intricate internal structures that optimise performance while minimising weight.
- **Material Efficiency:** Additive manufacturing significantly reduces material waste
- **Superior Performance:** The ability to create custom alloys tailored to specific requirements ensures that the components produced are not only lighter but also stronger and more resilient.

## Cookson Industrial: Your Partner in Aerospace Innovation

At Cookson Industrial, we are at the forefront of integrating precious metals into the next generation of aerospace technology. Our expertise in precious metal powders, combined with advanced additive manufacturing techniques, positions us as a leader in this cutting-edge field.



Together,  
let's push the  
boundaries of  
what's possible  
and take space  
exploration to  
new heights.



Scan QR to learn more about how precious metals and additive manufacturing are shaping the future of space exploration:



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