



## Copper rocket launch

Collaborative partnership results in a world first for the space industry

A collaboration between 3T-am, EOS and US-based rocket start-up company, Launcher, has seen a world first in Additive Manufacturing with the production of a copper rocket engine. Revolutionising the way we can apply and use AM, we see a huge opportunity to enhance the performance of space components.

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Max Haot,  
Founder and CEO of Launcher

3T working with

L A U N C H E R



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The Launcher team was already using Additive Manufacturing to build its thrust chamber when we first started working with them, so they already understood the benefits, and limitations, of the process. However, their first test firing was with an Inconel version that they sourced in the US. When they learnt of our ability to build in Copper, they approached us to further develop the concept and exploit the benefits of this material and AM's capabilities.

The use of a CuCrZr alloy enabled the rocket engine to benefit from its high conductivity and efficient cooling, leading to a longer chamber life and reduced costs when compared to conventional manufacturing methods. The copper part was also proven to be 20 times more conductive than the comparable Inconel part, resulting in a coolant temperature of 280°C compared to 153°C for Inconel.

Max Haot, Founder and CEO of Launcher, says "As part of our pursuit to build the highest-performance Additively Manufactured liquid rocket engines, we were always hoping that one day we would be able to manufacture our chamber in copper alloy rather than Inconel but had not come across a service provider with this capability.

Copper alloy is widely accepted as the highest performance material for cooling liquid rocket engines – Inconel is a compromise. When we heard that 3T-am was able to do this, we immediately partnered with them and went from quote to successful test fire in less than eight weeks. The amount of 3D printers that have access to that technology is however very limited; therefore our partnership with 3T-am is key."



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