Metal Technology

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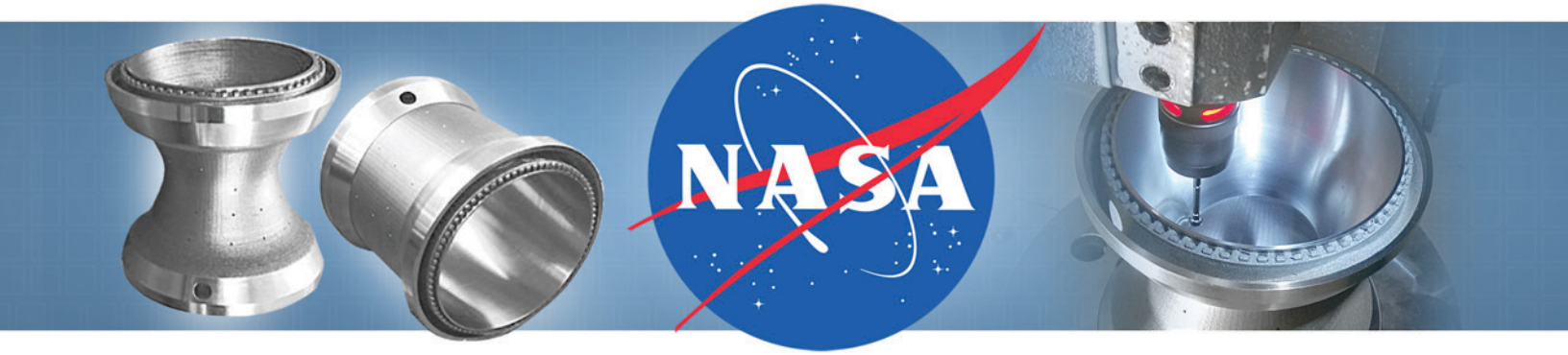

MTI PARTNERS WITH NASA TO 3D PRINT ROCKET CHAMBER & NOZZLE FOR JOHNSON SPACE CENTER

Metal Technology (MTI) is collaborating with NASA Johnson Space Center (JSC) to develop the next generation of rocket engines.

Few organizations are as busy integrating 3D metal printing into their engineering and design work as NASA. NASA currently has multiple business units working their own projects as part of an effort to leverage best practices using digital manufacturing methods, including 3D metal Printing.

Teams of propulsion engineers and scientists are working to integrate new features or consolidate multiple parts through the use of additive manufacturing methods.

Features such as conformal channels for regenerative cooling or other geometry not constrained by traditional manufacturing techniques holds the promise of increasing performance and/or reducing weight.

Additionally, total part count-reduction can have a significant economic impact on cost and reliability.

Additive manufacturing (3D printing) has a clear business case for space flight development. As such, MTI has embraced the technology and is now being called upon to produce components for the customers they have served with traditional manufacturing techniques for over thirty years.

MTI has produced two such components for the engineering team at NASA JSC out of Inconel 718 alloy. The material is robust enough to withstand extreme heat and corrosive environments without losing its rigidity or becoming brittle. “The Project provided amazing dialogue and collaboration between the NASA and MTI development teams and the results were excellent” said Gary Cosmer, Chief Executive Officer for Metal Technology (MTI).

The collaboration effort yielded components that will need to withstand temperatures well above the melting point of the material. This, of course, would be impossible without engineered cooling. That’s where 3D Printing shines. Recirculating gases can be channeled throughout the component by invisible channels that are literally built into the component, 60 micron layers at a time.

Keeping in mind that the end game is to reduce cost and weight while increasing performance, these targets are important milestones for NASA as it reaches out further into space.

MTI is no stranger to space related projects and has also produced forgings for the Orion capsule, which will travel upon NASA’s Space Launch System designed for missions to Mars and beyond. Perhaps MTI will print parts for those missions as well. That’s the plan.

> ABOUT METAL TECHNOLOGY (MTI)

With more than forty years’ experience applying innovative, proprietary technologies, Metal Technology (MTI) is making possible the use of difficult alloys for a wider range of applications with greater efficiency, versatility, and reliability. Alloys include Tantalum, Niobium, Zirconium, Titanium, Tungsten, Iconel, and Molybdenum. MTI uses specialized deep-draw, spinning, forging, machining, EDM, and additive manufacturing to deliver superior products according to your exacting specifications.

TANTALUM NIOBIUM ZIRCONIUM VANADIUM TITANIUM TUNGSTEN NICKEL INCONEL COPPER

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