



High Performance Cryogenic Orbit Transfer Stage

Mjölfnir's FFSC has the highest specific power of any chemical rocket thermodynamic cycle.

Key benefits

The high-performance engine enables the design of a small and lightweight Orbital Transfer Stage (OTS) due to both its performance and the high bulk density of LOX/LNG fuel, which is over twice that of LOX/LH2 fuels. This level of performance and dense propellants allow delivery of a reliable, long-life, light-weight, and low-cost OTS with key performance parameters:

- Powered by a high performance full-flow staged combustion engine.
- Throttleable from 30% to 100% thrust.
- Autogenous pressurization with unlimited zero-g restarts.
- Access to all cislunar orbits.

Applications

NASA

Mjölfnir has the potential to be an expendable NASA OTS evolving into a lunar lander and a fully re-usable OTS. From LEO a 3,000 lb gross OTS can deploy a 400 lb payload to GEO and over 200 lbs to any location in cislunar space, including Earth escape velocity.

Military

A 3,000 lb OTS also has potential military applications by enabling responsive military space domain awareness throughout cislunar space.

Commercial

The OTS has a small form factor optimized for launch inside the fairing of venture class vehicles.

The Mjölfnir engine will be available for OTS, lunar lander or related capabilities in 2024.

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