

FUTURE SPACE TRANSPORTATION FLPP SPRING SESSION 2026



ESA FLPP

COMPANY INFORMATION



Company: GKN Aerospace Sweden AB

Location: Sweden

Founded: 1930

Employees: >2,500

Mission: GKN Aerospace > Engines We design, develop and manufacture advanced engine components for civil and defence aircraft, as well as space launchers and industrial gas turbines. Committed to sustainability and lifecycle optimisation, we cover all aspects of engine care – from component repair solutions to full engine overhauls – with unmatched turnaround times.

The Launcher Engines business is European centre of excellence for rocket engine nozzle extensions and turbines.



ACTIVITY

Project name: Additive Manufacturing for launcher engine applications

Objective: To support future European launcher engines with technologies and design solutions that contribute to cheaper and faster design, manufacturing and demonstration. Focus is on the development of additive manufacturing (AM) and support processes, leveraging GKN Aerospace's heritage in AM industrialisation and insertion.

Applications:

- Large-Scale Additive Manufacturing
- Laser Powder Bed Fusion (LPBF)

TECHNOLOGY AND INNOVATION

What we developed: Industrialized Laser DED wire processes (Ti- and Ni-base alloys) for high volume commercial aero engine parts in combination with fabrication technologies for most cost-effective results. Industrialized LPBF processes (Ti- and Ni-base alloys) for high precision parts.

Unique features:

Smart fabrication solutions using the most cost effective combination of AM processes, castings and forgings.

KEY RESULTS

Large-scale Additive Manufacturing

- **Laser DED wire:** Demonstration of feasibility to manufacture Ni-alloy “blanks” for ring forging replacement. Enables considerable reduction in lead time for material acquisition.
- **Polymer 3D-printing:** Demonstration of printing and use of polymer fixtures for NE manufacturing. Enables flexible design and faster acquisition.

Laser Powder Bed Fusion

- **Prometheus turbine:** Demonstration of design and manufacturing capability of full LPBF turbine (rotor and manifold) through engine testing. Enables lead time and cost reduction through Design for AM and function. Commercial aeroengines: LBPF Vanes replacing casted vanes.
- **Sub-scale NE:** Demonstration of Design for AM capability of one-piece NE, including inlet, outlet and internal cooling channels. Successful powder removal process. Enables fast-to-test and design iteration.

NEXT STEPS AND MARKET READINESS

Roadmap:

TLBPF: Development for large-scale NE using GKN Aerospace’s additive fabrication know-how. Rotating parts with excellent surface finish removing post processing operations.

DED: High-speed DED with powder for faster deposition

Post-processing: In particular for complex AM geometries where surface improvement is needed.

Opportunities: Collaboration with Primes

Target Launch: TBD

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Large-scale Additive Manufacturing

Laser DED wire



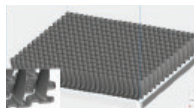
Large-scale Additive Manufacturing

Polymer 3D-printing



Laser Powder Bed Fusion

Commercial aeroengines



Laser Powder Bed Fusion

Sub-scale NE

