Quick Turn Tooling & Part

Introduction

ST Engineering MRAS showcased its agility in aerospace manufacturing by reducing the time from concept to part production to under three months. This rapid turnaround was achieved utilizing in-house capabilities, advanced technologies, and composite manufacturing excellence.

Project Background

The customer needed faster solutions, and when external quick-turn tools were unavailable, MRAS innovated internally.

Challenges

- Aggressive project timelines demanding rapid turnaround.
- Lack of quick-turn tooling options from external suppliers.
- Close part tolerance expectations.

Innovative Solutions

Advanced Technologies:

- Additive Manufacturing: In-sourced equipment accelerated the process, reducing tooling costs and improving time-to-market.
- Digital Thread: In-house capabilities enabled rapid design iterations through a "digital tooling stream," providing complete control over tooling changes.

Composite Manufacturing:

- Customer-specified prepreg for part production.
- Additive manufacturing materials selected for autoclave capability.
- The agile development method shortened development time, reduced costs, and allowed for rapid adjustments to meet customer requirements.

Why ST Engineering?

- In-house capabilities ensure a deep understanding of process limitations and requirements.
- Ability to meet high tolerance expectations even with 3D-printed tooling.
- Responsive to last-minute certification changes with minimal cost impact.

Conclusion

MRAS redefined aerospace development timelines, challenging the industry standard of 18 months with a rapid, cost-effective process. This is agile composite manufacturing excellence at its best.