



THIRD WAVE SYSTEMS

MODELING TECHNOLOGY · MACHINING SOLUTIONS

F-35: Phase III and Faster Delivery

The Background

Under the direction of a NAVAIR Phase II.5 SBIR program, Nex-Tech Aerospace was selected to partner with Third Wave Systems to optimize the machining process of a complex F-35 airframe component. The titanium article required a large volume of material removal (95%), and had high production yields and a stable existing machining process.

The Part

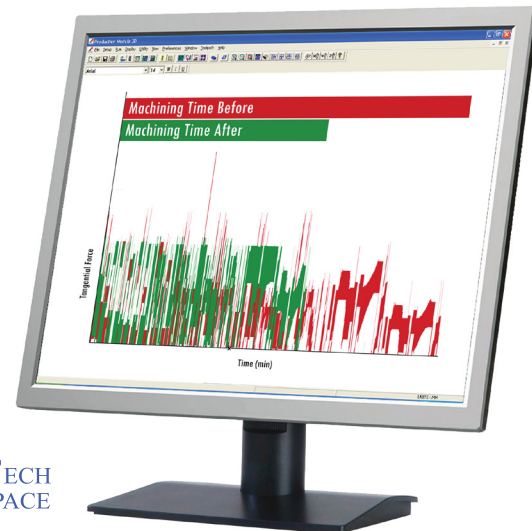
Component workpiece material is a 7.5 x 9 x 28 inch block of Titanium-6Al-4V with a starting weight of 321 pounds. After 242 cubic inches of material is removed, the finished part weighs 13 pounds.

The Approach

- ▶ Machining time reduced by 25% for applicable operations.
- ▶ TWS engineers train Nex-Tech NC programmers and engineers on Production Module capabilities.
- ▶ Nex-Tech staff use Production Module to optimize machining of component using a load-leveling approach: spikes reduced, low forces raised.
- ▶ TWS and Nex-Tech conduct machining trial of six individual setups and toolpaths to establish confidence in Production Module results.

The Results

- ▶ Machining time reduced by 25% for applicable operations.
- ▶ Component inspected and approved for shipment to prime contractor.
- ▶ Production Module software purchased by Nex-Tech for application to components for a variety of military and commercial platforms.



Third Wave Systems is the premier provider of validated material physics-based modeling solutions and services. The physics-based machining simulation software products and services are used to optimize machining processes, giving engineers access to more information than trial-and-error tests and allowing them to make better decisions. Third Wave Systems' modeling products and services are used by progressive companies to dramatically reduce costs of machined components, accelerate design cycles, improve part quality and get to market faster.

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