AEROSPACE

Case Study:
Auxiliary Power Unit Combustor Case

PRECISION BUILT. WELD-FREE STRENGTH. AEROSPACE READY.



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Where Strength Takes Flight: The FlowformingPlus™ Advantage

CHALLENGE

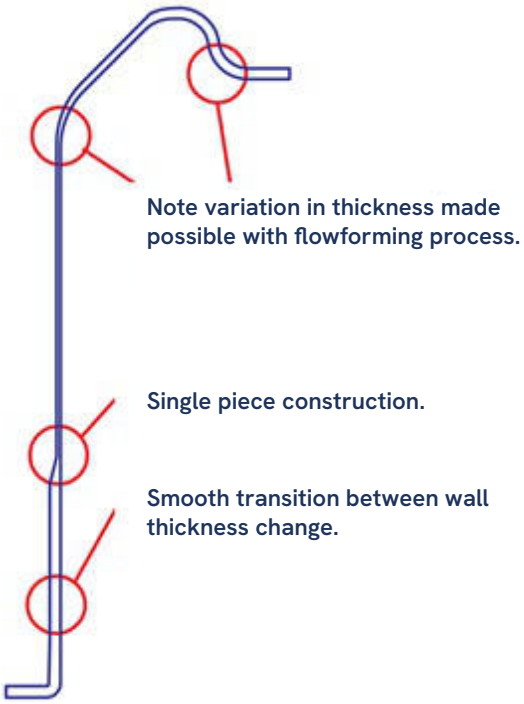
A leading aerospace manufacturer needed a combustor case for an auxiliary power unit (APU)—a critical component that supplies power before the main engines start. The design required strict weight reduction, structural integrity, and precision tolerances, but forming the part using Inconel 625, a high-strength, corrosion-resistant alloy, presented significant challenges. The material is notoriously difficult to shape using traditional forming methods, and the part required multiple wall thicknesses and tight ID tolerances while maintaining a seamless construction to eliminate weld-related testing.



BEFORE

- 4 pieces
- 3 welds
- Numerous secondary and finishing operations.

AFTER



SOLUTION

PMF's FlowformingPlus™ technology provided the solution. By engaging PMF early in the design phase, the customer achieved a one-piece, high-precision component that met all aerospace performance requirements while reducing material waste and secondary machining operations. Unlike conventional metal forming, FlowformingPlus™ ensured exceptional dimensional accuracy, improved process efficiency, and lower production costs without compromising structural performance.

RESULT

The final combustor casing was lighter, stronger, and more cost-efficient, meeting all aerospace safety and performance requirements. NADCAP-accredited testing was performed in-house, ensuring compliance with strict industry standards. By eliminating welds, reducing excess material, and optimizing production, PMF delivered a high-performance, next-generation solution for aerospace applications.

Benefits of Flowforming

Seamless, One-Piece Design
Eliminates welds, reducing failure risks.

Precision Engineering
Meets strict aerospace tolerances with CNC accuracy.

Cost-Efficient Production
Less material waste, fewer machining steps.

Stronger, Lighter Components
Ideal for aerospace weight reduction.

Optimized Manufacturing Process
Streamlined production with minimal post-processing.



MATERIAL & SPECS

Application
Aerospace – Auxiliary Power Unit (APU) Housing

Material
Inconel 625 – High-strength, corrosion-resistant alloy.

Process
FlowformingPlus™ – High-precision cold forming.

Tolerances
Tight ID control for wall thickness, roundness, and straightness.

Testing
NADCAP-accredited in-house verification.

LAUNCH YOUR AEROSPACE DESIGNS TO NEW HEIGHTS

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