



wipro 3D



DEFENCE

Component
Sensor Housing


Material
AlSi10Mg

The defense industry is among the earliest adopters of Additive Manufacturing along with the Aerospace industry. In a myriad of applications State run defense agencies and private defense organizations are using AM in highly critical projects for missiles, fighter jets, customized equipment, handheld weapons, drones, respiratory gear, and much more.

The defense logistics and product acquisition processes are already in the process of transformation with the help of relatively small and tactical AM centers deployed in army, naval and air force establishments. Perhaps the most impactful application of AM could be portable in-field AM centers deployed near conflict zones.



— ABOUT THE PROJECT



The Sensor Housing is a critical component of a fighter jet response system with intricate design features such as a 0.7 mm wall thickness and 1.2 mm inner channel diameter. It houses highly sensitive and intertwined fiber optic cables which are connected to radar tracking sensors.


— AM COMPETENCIES USED

A series of well-planned operations were incorporated into the realization strategy. Special media was used to get a highly fine finish on the inner surface of the channels.

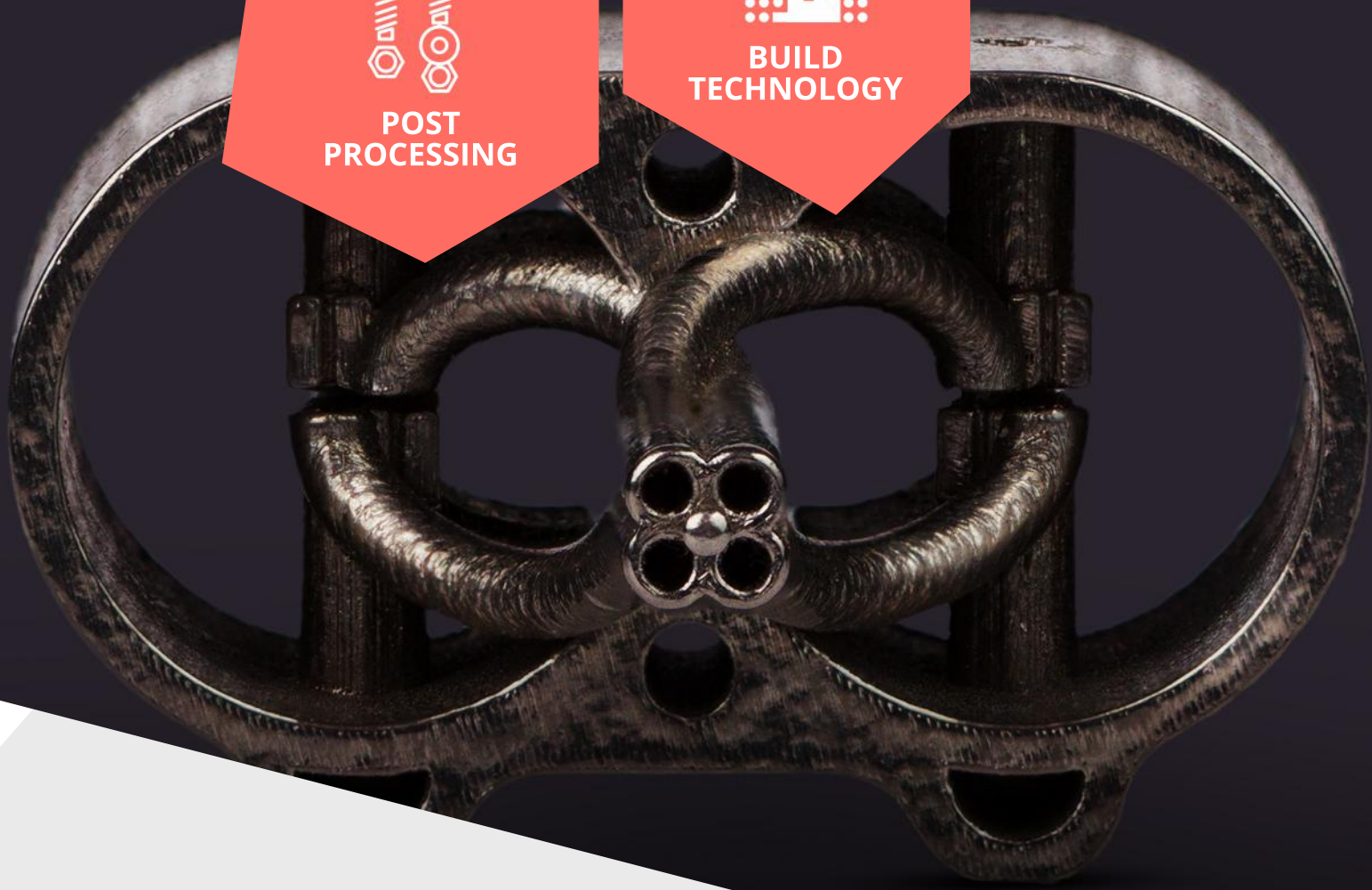
The Sensor Housing has a complex geometry with entwined channels and with certain features very critical to the functionality of the component. Build parameters and Orientation were optimized to ensure a monolithic component.



**POST
PROCESSING**



**BUILD
TECHNOLOGY**



The Sensor Housing undergoes harsh vibratory conditions during flight. Potential failure of the component due to vibration has been mitigated by the integrated design.



**IMPROVED
PERFORMANCE**



TIME-TO-REALIZE



**ADDITIVE
DESIGN &
ENGINEERING**

The Sensor Housing was originally made as 7 discrete pieces which were integrated into a monolithic.

Originally, multiple welding and brazing operations were involved adding to the manufacturing duration. Wipro 3D realized the housing in 2 days.

About Wipro 3D

Wipro 3D is an AS9100 Certified metal AM solutions and services provider, serving Aerospace, Space, Defense, Industrial, Heavy Engineering, Automotive, Energy, Nuclear & Healthcare sectors. Our solutions include AM Consulting, Additive Engineering & Design Offerings, Manufacturing Services, Research & Development based solutions right unto Design - Deployment and Operation of captive metal AM centers.

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