VDMA

NATO OTAN

NCAGE Code: 9BT1H

OMNI3D

PRINT LARGE FUNCTIONAL PARTS

THE FUTURE OF AEROSPACE POWERED BY 3D PRINTING

A MODERN SOLUTION FOR AEROSPACE CHALLENGES

OMNI3D

THE AEROSPACE IMPERATIVE: SPEED, WEIGHT AND EFFICIENCY

- Tight production schedules demanding **faster turnaround** times.
- **Light weighting** crucial parts for fuel efficiency and performance.
- Complex geometries requiring **innovative fabrication** methods.
- Increasing pressure to **reduce production costs** and material waste.

Defense/Aerospace

OMNI3D

Manufacturing | Functional End-Use Parts

Łukasiewicz
Instytut Lotnictwa

FAIRINGS FOR THE ILR-33 BURSZTYN SUBORBITAL ROCKET BOOSTERS

APPLICATION

Fairings for rocket auxiliary fuel tanks

CHALLENGE

- Needed lightweight, aerodynamic, and durable fairings.
- Components had to house and protect sensitive electronics.
- Traditional methods couldn’t meet design or time demands.

SOLUTION

- **Omni TECH** used to print with **carbon-fiber-reinforced nylon**.
- Reduced weight and improved aerodynamics.
- Enabled complex, integrated design with no assembly.
- Faster production met strict aerospace requirements.

Defense/Aerospace

OMNI3D

Manufacturing | Low Volume Manufacturing

SAFRAN HELICOPTER ENGINES

CABLE SEPARATOR SYSTEM

APPLICATION
Element of the cable separation system in a helicopter

WEIGHT
201 g

MATERIAL
PEKK-CF

DIMENSIONS
260x520mm

SOLUTION

- Increased lightweiight
- Large-format printing for full-size parts.
- Controlled chamber temperature for reliable results.
- Fast, cost-effective prototyping for industrial use.
- High-performance polymer with exceptional mechanical, thermal, and chemical resistance properties

Defense/Aerospace

OMNI3D

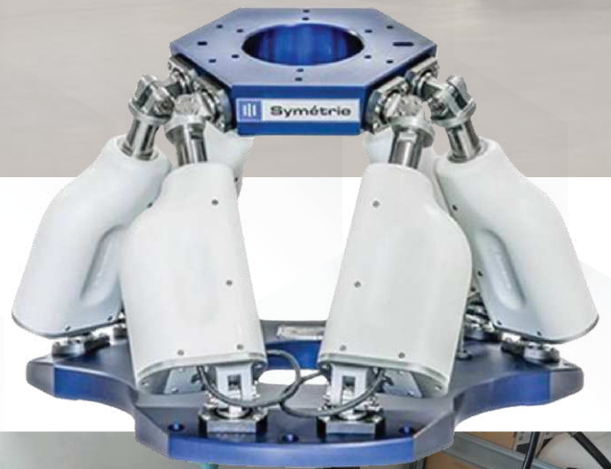
Maintenance | Replacement Part

Symétrie

PRODUCTION OF HEXAPOD COMPONENTS

APPLICATION
Components for Precision Positioning and Motion Systems

MATERIAL
CF-PA12

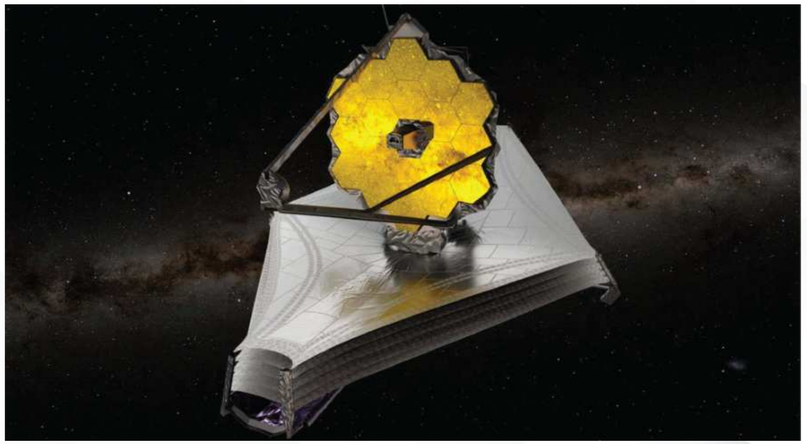


CHALLENGE

- Faced supply chain delays and rising production demands.
- Depended on external suppliers for key components.
- Needed large, complex parts with high precision.

SOLUTION

- Adopted Omni TECH printer with CF-PA12 filament.
- In-house production of trays, spacers, and PCB covers.
- Cut lead times from weeks to hours.
- Used PLA for rapid prototyping and design validation.



Defense/Aerospace

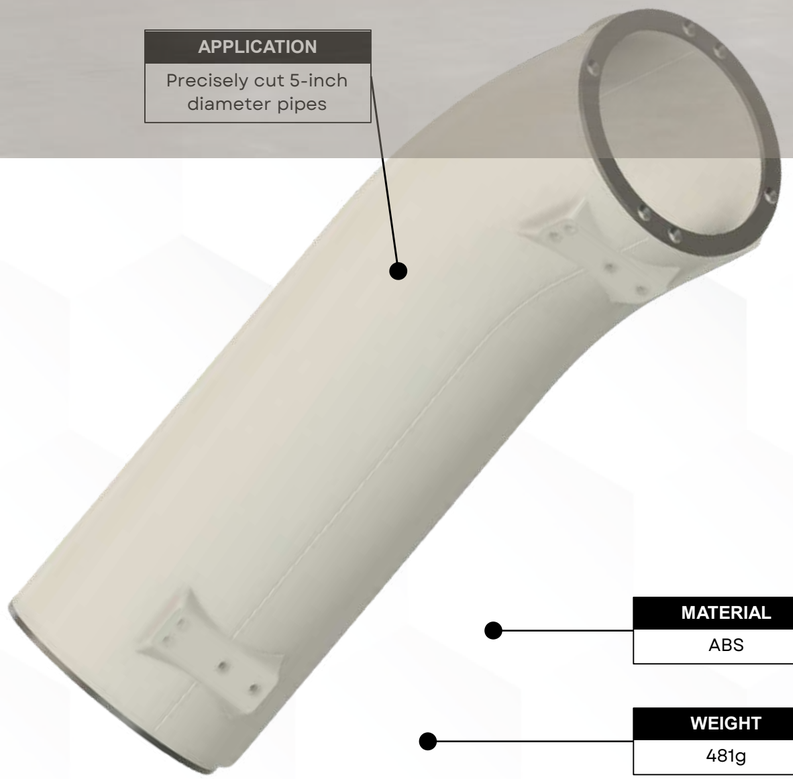
OMNI3D

Quality Assurance | Jig & Fixture

Collins Aerospace

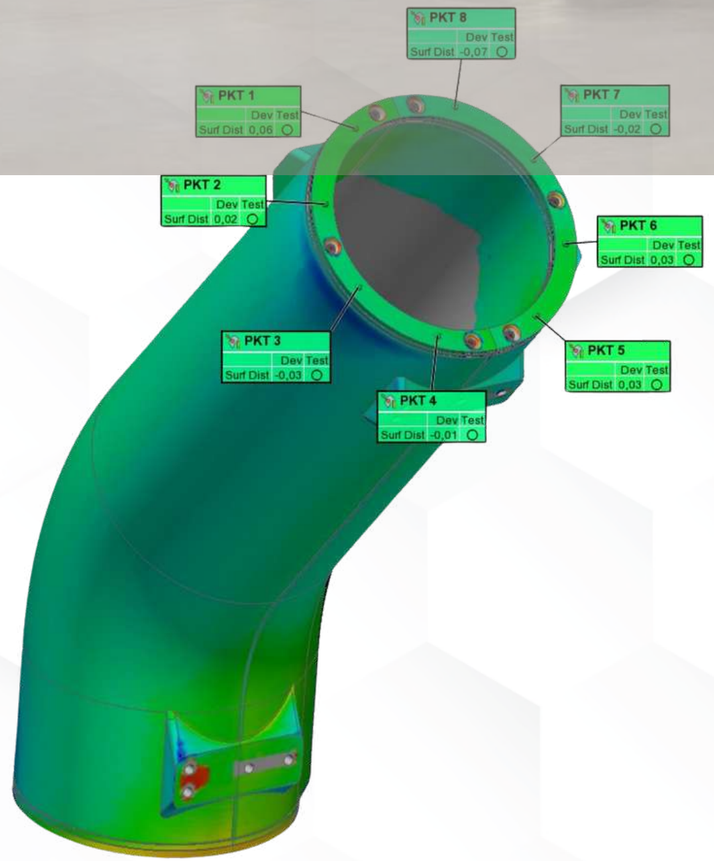
PRECISION CUTTING JIG

APPLICATION
Precisely cut 5-inch diameter pipes



MATERIAL
ABS

WEIGHT
481g



CHALLENGE

- Traditional metal jigs were heavy, imprecise, and bent over time.
- High production costs and long lead times.
- Handling and transport inefficiencies affected workflows.

SOLUTION

- Developed a 2kg 3D-printed jig with metal end caps.
- Improved precision, repeatability, and ergonomics.
- Reduced costs by ~80% vs. traditional methods.
- Faster delivery, supporting high manufacturing standards.

Industry

OMNi3D

Maintenance | Replacement Part

METAL SHEET BENDING KNIFE

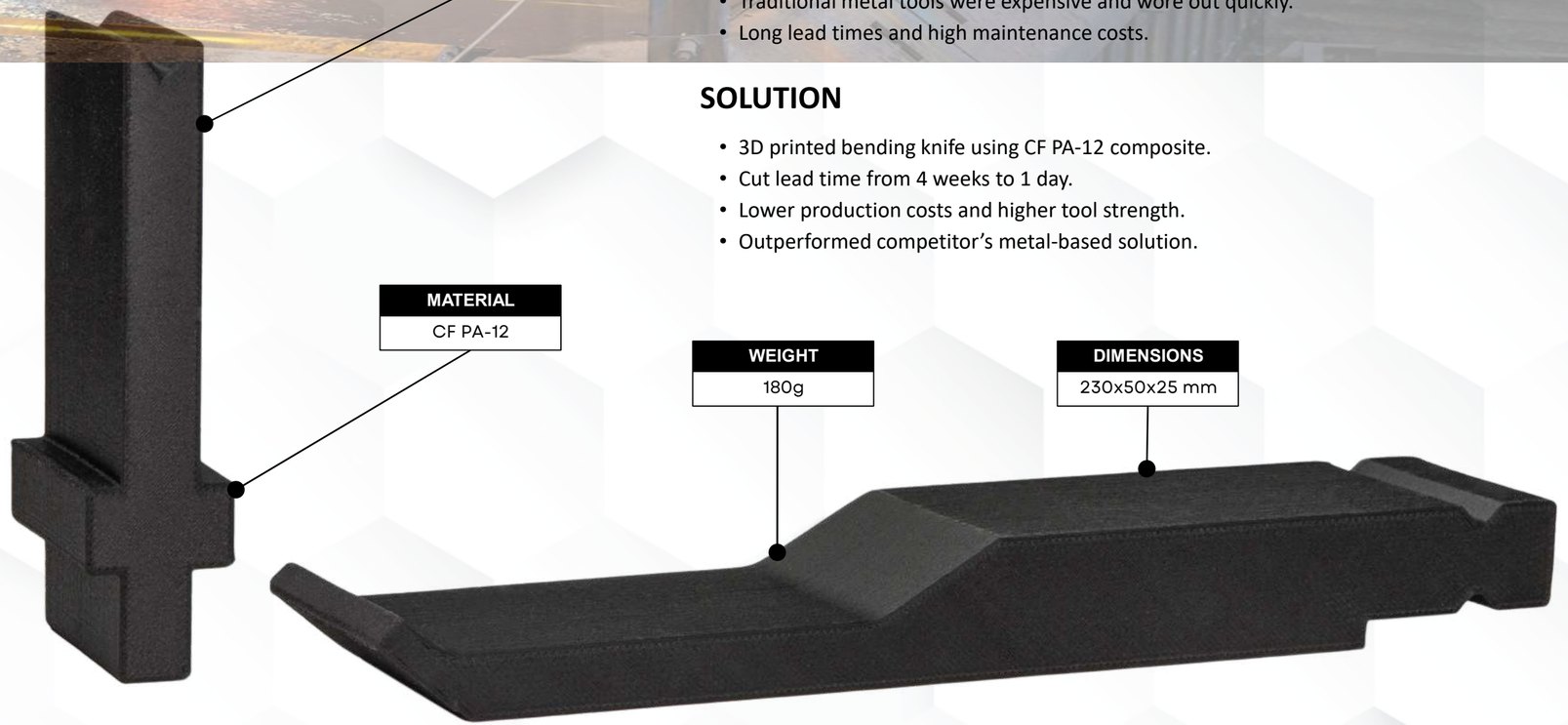
eba

APPLICATION
Metal sheet bending knife tool

MATERIAL
CF PA-12

WEIGHT
180g

DIMENSIONS
230x50x25 mm



CHALLENGE

- Needed a strong, cost-effective sheet metal bending tool.
- Traditional metal tools were expensive and wore out quickly.
- Long lead times and high maintenance costs.

SOLUTION

- 3D printed bending knife using CF PA-12 composite.
- Cut lead time from 4 weeks to 1 day.
- Lower production costs and higher tool strength.
- Outperformed competitor’s metal-based solution.

Industry

OMNI3D

Maintenance | Metal Part Replacement

VACUUM PUMP ROTOR

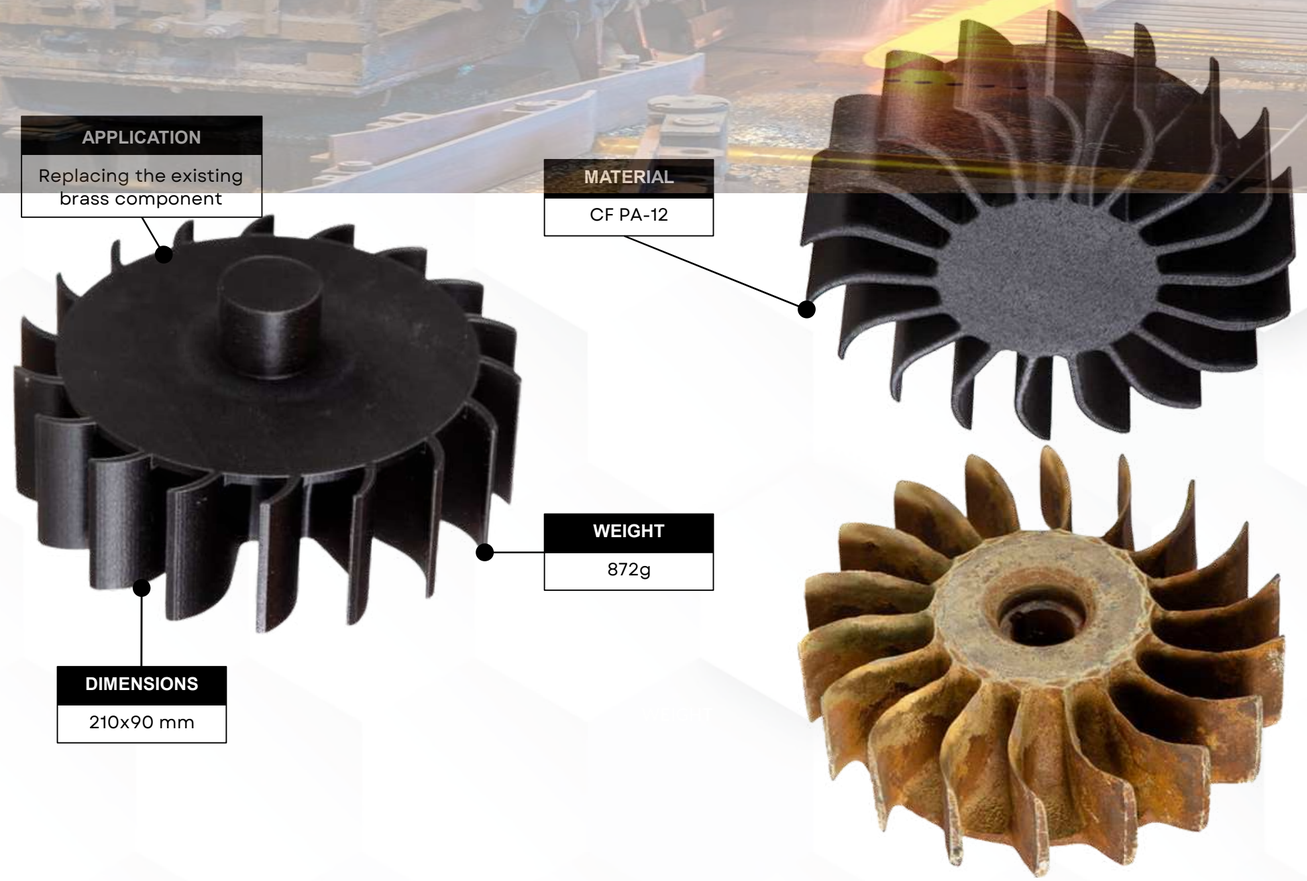
LUK-PLAST s.c.

APPLICATION
Replacing the existing brass component

MATERIAL
CF PA-12

WEIGHT
872g

DIMENSIONS
210x90 mm



CHALLENGE

- Brass vacuum pump rotors wore out quickly under harsh conditions.
- High temperatures, chemicals, and 1400 rpm caused frequent failures.
- Resulted in high maintenance costs and system downtime.

SOLUTION

- Designed a 3D-printed rotor mount using the Omni PRO printer.
- Printed in heated chamber (up to 140°C) for durability.
- Resistant to chemicals, heat, and mechanical stress.
- Extended part lifespan, reduced downtime and maintenance.

Industry

Manufacturing | Low Volume Manufacturing

REMOTE CONTROL HOUSINGS

APPLICATION
Replacing remote control housing

WEIGHT
546 g + 493 g

DIMENSIONS
400x170x50 mm

MATERIAL
ABS + ABS CARBON

CHALLENGE

- **Ergonomics:** high strength, size, and weight requirements.
- **Reduced** traditional manufacturing **leadtime and cost** for prototyping and low-volume production.

SOLUTION

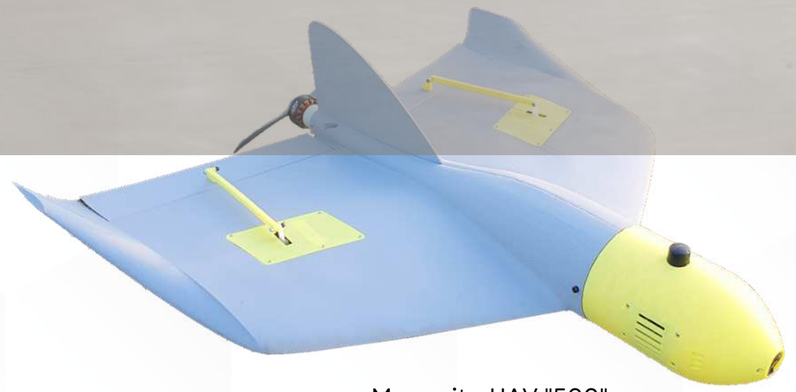
- Used Omni TECH printer and ABS material.
- Large-format printing for full-size parts.
- Controlled chamber temperature for reliable results.
- Fast, cost-effective prototyping for industrial use.

Defense/Aerospace

OMNI3D

Manufacturing | Low Volume Manufacturing

ADVANCED UAV DRONES



Mosquito UAV "500"

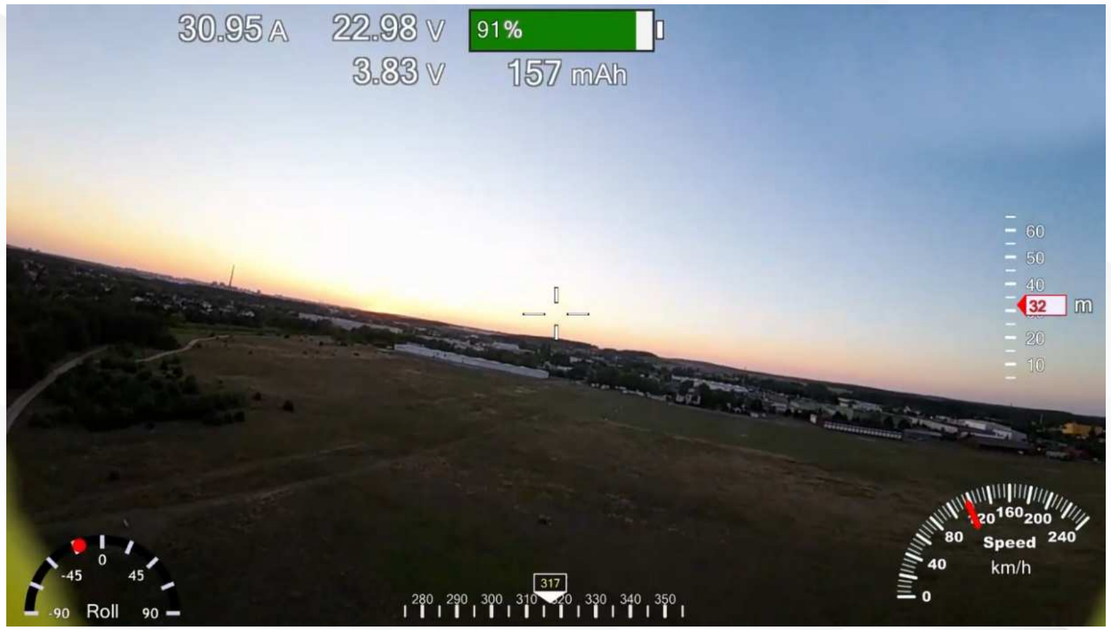
Mosquito UAV "1500"

CHALLENGE

- UAVs are critical for reconnaissance and intel.
- Attack UAVs used against ground and aerial targets.
- Frequent part failures reduce fleet operability.

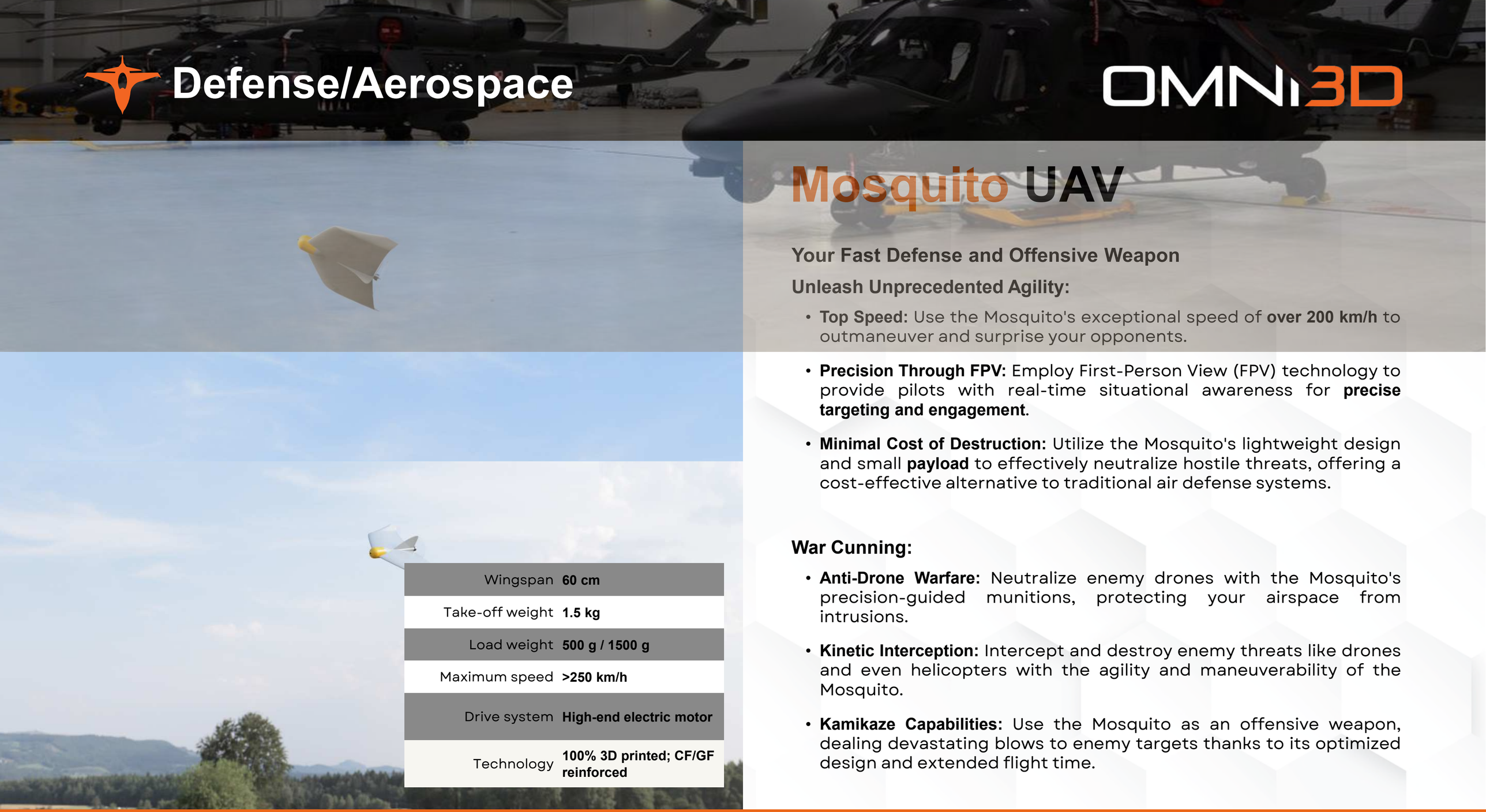
SOLUTION

- 3D printing enabled fast replacement and mission-specific parts.
- Used lightweight materials for better efficiency and flight time.
- Improved maneuverability and battlefield effectiveness.



Defense/Aerospace

OMNI3D



Mosquito UAV

Your Fast Defense and Offensive Weapon

Unleash Unprecedented Agility:

- **Top Speed:** Use the Mosquito's exceptional speed of **over 200 km/h** to outmaneuver and surprise your opponents.
- **Precision Through FPV:** Employ First-Person View (FPV) technology to provide pilots with real-time situational awareness for **precise targeting and engagement**.
- **Minimal Cost of Destruction:** Utilize the Mosquito's lightweight design and small **payload** to effectively neutralize hostile threats, offering a cost-effective alternative to traditional air defense systems.

Wingspan	**60 cm**
Take-off weight	**1.5 kg**
Load weight	**500 g / 1500 g**
Maximum speed	**>250 km/h**
Drive system	**High-end electric motor**
Technology	**100% 3D printed; CF/GF reinforced**

War Cunning:

- **Anti-Drone Warfare:** Neutralize enemy drones with the Mosquito's precision-guided munitions, protecting your airspace from intrusions.
- **Kinetic Interception:** Intercept and destroy enemy threats like drones and even helicopters with the agility and maneuverability of the Mosquito.
- **Kamikaze Capabilities:** Use the Mosquito as an offensive weapon, dealing devastating blows to enemy targets thanks to its optimized design and extended flight time.

MATERIAL EXTRUSION TECHNOLOGY

OMNI3D

POWERING AEROSPACE INNOVATION

- **Material Extrusion:** **Replace metal parts** by layering molten thermoplastic filament for efficient, cost-effective printing.
- **Large build volume:** Printing large aerospace components in one piece, **minimizing assembly and complexity**.
- **Wide range of materials:** From high-strength engineering polymers to **high-performance materials**, including ULTEM, PEI, PEKK, PEKKCF.
- **Design freedom:** Creating **intricate aerodynamics geometries** unattainable with traditional methods.

TAILORING MATERIALS for Aerospace Excellence

Open system solutions.
Omni3D provides full technical support to **adopt the optimal material for your applications** and performance requirement, including composite materials such as Carbon Fiber or Glass Fiber.

Polyamide (PA)
High strength, excellent impact resistance and lightweight properties for structural components.

Polyaryletherketone (PAEK)
Material family combining excellent mechanical, chemical and thermal properties.

Polyetherimide (PEI)
Exceptional heat resistance and flame retardancy for demanding applications.

Polyphenylsulfone (PPSF)
Superior chemical resistance and dimensional stability for fuel system components.

MATERIAL EXTRUSION PRODUCT LINE

Omni3D industrial 3D printers are in use **by Fortune 500 customers**

Omni3D material extrusion complete solution includes 3D printers, dryers, filaments and washers.

OMNI PRO HT

Strong parts, resistant to extreme temperatures or chemical agents, with exacting industry certifications

OMNI PRO

Strong, high-stress, high temperature, chemically resistant parts for a wide range of industries

OMNI TECH

Workhorse with an excellent output in the widest range of engineering materials

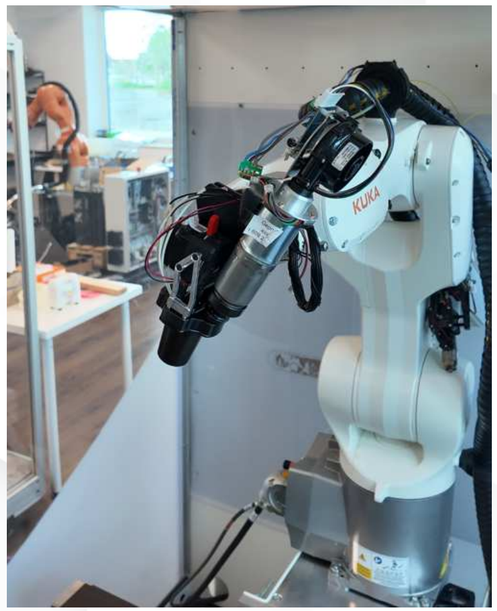
OMNI NOVA

Workhorse for companies with restricted connectivity protocols

OMNI LITE

Entry-level industrial machine for big 3D printed parts

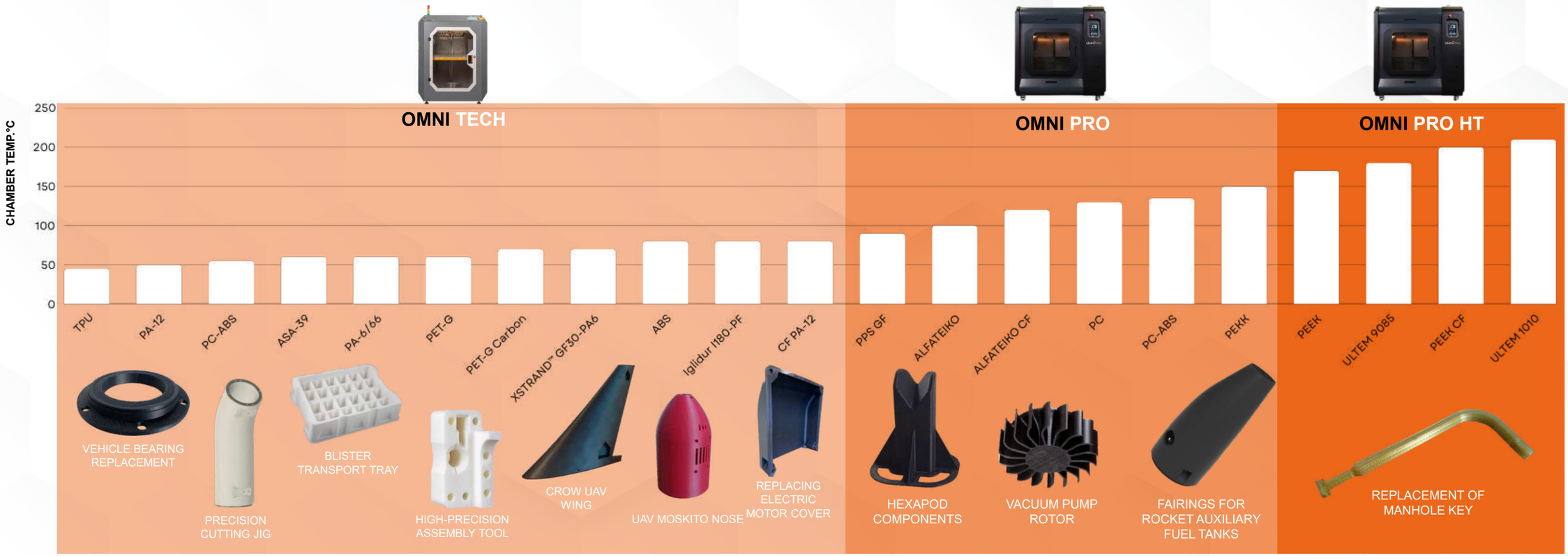
OMNI7X, continuous fiber module and disruptive AI solution



COMING SOON

EXPANDING MATERIAL HORIZONS FOR DIVERSE APPLICATIONS

Omni3D solutions' offer the perfect solution for any specific applications thanks to the widest range of materials.
Omni3D material portfolio features a broader spectrum of engineering polymers including, **ESD materials** suitable for dissipating static charges**, CF-reinforced materials**, **PAs**, **elastomers** and **high-performance polymers** such as PEEK, PEKK, ULTEM, PEKK-CF.



***PEEK and ULTEM (PEI)**: High-Performance Alternatives to Metal.
PEEK and ULTEM are advanced thermoplastics known for exceptional heat resistance, chemical stability, and mechanical strength. These materials enable the creation of 3D printed parts that can replace metal components in demanding applications, offering advantages in weight, cost, and corrosion resistance.

ABOUT US

Omni3D is a leading European manufacturer of **large industrial heated chambers 3D Printers** with a mission to unlock the future of digital production with its proprietary cutting-edge 3D printing technology to reduce high production and maintenance costs.

Our commitment to NATO: NCAGE-Listed
As a trusted European supplier to NATO, we adhere to the highest quality and security standards.

Cutting-edge technology
Equipped with industry-grade components, dual direct drive, liquid cooling, and heated chambers for exceptional performance and reliability.

Wide range of materials
Our open-system approach allows you to work with any polymer, from engineering-grade materials to high-performance polymers.

Expert support & training
Our experienced team provides comprehensive training, technical support, and engineering services to ensure your success.

Proven Track Record
With a global footprint and installations in **over 50 Fortune 500 companies**, we have a proven track record of delivering results.

Innovation
We continuously invest in **research and development** to bring you the latest advancements in 3D printing technology.

Quality and Reliability
Our products are built to the highest standards, ensuring optimal **performance and longevity**.

Customer Focus
We are dedicated to providing exceptional pre-sale **customer service, training, and support**.

PARTNER TO LEADING COMPANIES IN:

OMNI3D

AEROSPACE

AIRBUS

LEONARDO

Collins Aerospace
A United Technologies Company

Symétrie

Łukasiewicz
Instytut Lotnictwa

SAFRAN
HELICOPTER ENGINES

DEFENSE

BAE SYSTEMS

NAVAL GROUP

NITRO CHEM

MANUFACTURING

SKF

MAHLE

SAMSUNG

SAFRAN
AEROSPACE · DEFENCE · SECURITY

Whirlpool

FLEXLINK
a coesia company

John Cockerill

eba

AUTOMOTIVE

VOLKSWAGEN

LOTUS

IVECO

HONDA

OPEL

AUTOCLIMA
QUALITY & COMFORT

Vicim
Innovative mouldings

OMNI3D

PRINT LARGE FUNCTIONAL PARTS

Thank you for your time and attention.

Paweł Robak
CEO
pr@omni3d.net

ISO 9001:2015 Certified
(Quality Management)

NATO OTAN
NCAGE CODE: 9BT1H

European Union
European Regional Development Fund