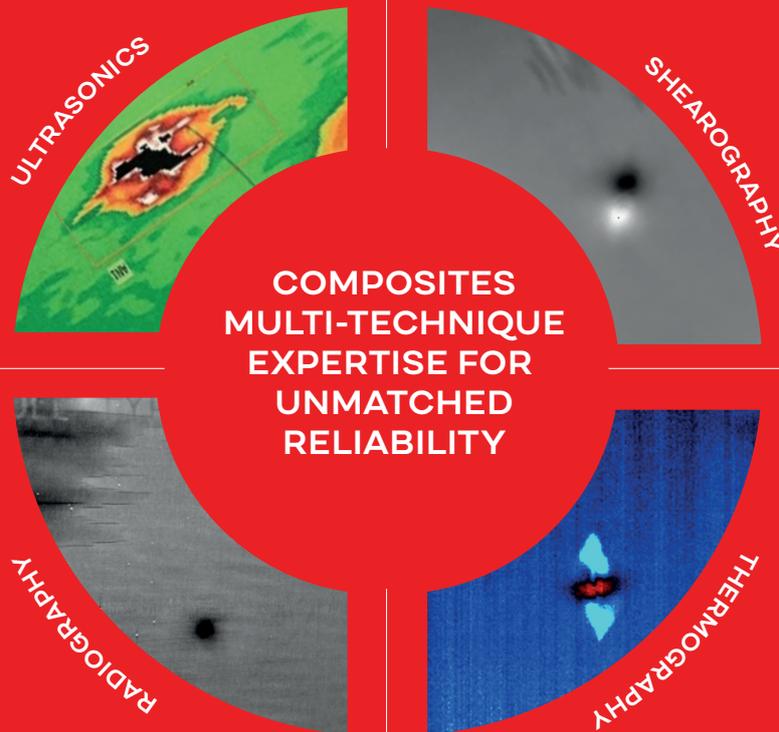




COMPOSITES NDT LABORATORY



- ✓ Multi-technique expertise
- ✓ Inspection of large-sized structures
- ✓ Advanced Robotization

At MPP, we combine the four most advanced Non-Destructive Testing (NDT) techniques to deliver the highest level of precision and reliability for **high added value composites**.



Why Choose MPP?

High-level accreditations: EN9100 & Nadcap

Specific customer certifications: Partners with leading aerospace and defense manufacturers

Unique testing capabilities: Advanced NDT technologies

Expertise in composite inspection: 4 complementary methods (UT - RT - ST - IRT)

Robotic and full-field methods: Fast and reliable inspections

Productivity optimization: Reduced inspection time and smooth integration into the production flow

Reliability and traceability: Repeatable measurements and detailed reports compliant with client audits

Our 4 Composite Inspection Methods and Their Complementarity

Method	Advantages	Limitations	Ideal Applications
Ultrasonics	Highly precise Detects delaminations and porosities	Sensitive to geometry, requires coupling Low inspection rate	Wings, thick structures Accurate defect characterization
Thermography	Full-field, non-contact, fast (~ 1 min/m ²) Detects delaminations, cracks, porosity	Less effective on highly conductive materials	Thin composite skins, honeycomb structures
Shearography	Full-field, non-contact, fast (~ 3 min/m ²) Detects cohesion defects, disbonds, kissing bonds	Depth penetration, environment sensitivity	Fuselage panels, radomes, sandwich panels, honeycomb structures
Radiography	Complete internal visualization, non-intrusive	Requires safety precautions, not sensitive to delaminations Access to both sides, cost	Honeycomb structures, sandwich panels Thick composite skins

Example of Method Complementarity

Inspection of an Aerospace Composite Panel

- + **Thermography:** Rapid screening to identify suspect areas
- + **Shearography:** Localization of disbonds and internal stresses
- + **Ultrasonics:** Precise detection of defect size and depth
- + **Radiography:** Confirmation and detailed internal analysis

By combining these methods, we ensure a reliable and comprehensive diagnosis, reducing non-conformities and minimizing the risk of scrap and rework.



Our Unique Testing Capabilities for high added value composites

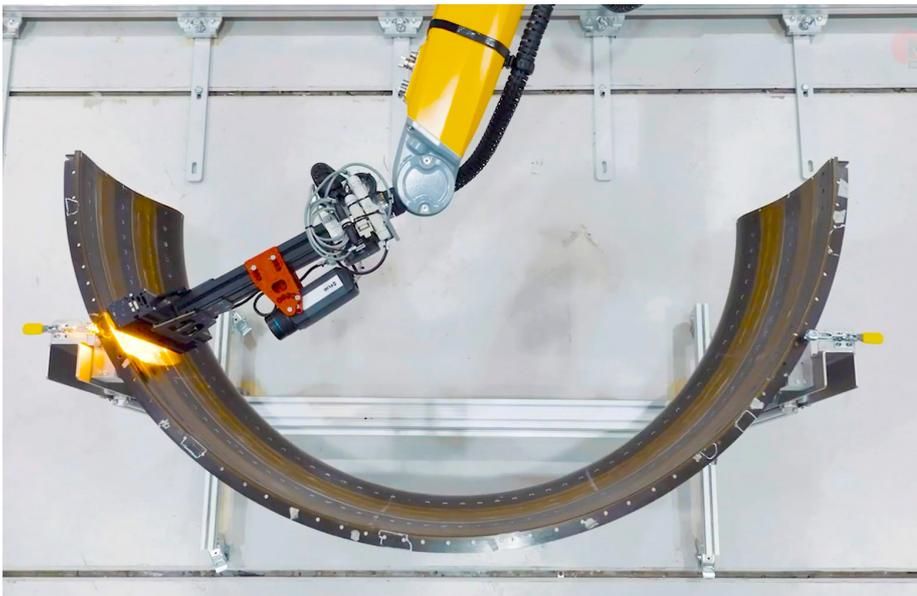
MPP provides a laboratory equipped with state-of-the-art technology to inspect **100% of the surface** of composite parts with high precision. Our solutions ensure early defect detection, guaranteeing the **safety** and **compliance** of inspected structures.

Our Advanced Facilities :

- X-ray installation (6m x 4m): Inspection of large structures without disassembly
- Robot on a linear axis (5m, shearography + thermography): Fast control adapted to complex geometries
- UT phased array system: High precision for internal analysis, ensuring fine defect detection

The Advantage of Full-Field and Non-Contact Robotic Methods

- **Faster inspections:** Reduced inspection time and improved efficiency without disrupting production
- 100% surface coverage, **100% defect detection**
- Adaptation to **complex structures** through robotics
- Increased **reliability** and **repeatability**
- Traceability of inspections for compliance and client audits



Use Case: Inspection of an aircraft structural part

By utilizing a robot equipped with thermography and shearography, MPP enables efficient inspection of large aerospace structures, ensuring both compliance and productivity.

Objective: Full inspection of a CFRP composite part of large size and complex geometry. The structure is composed of a thin skin reinforced with stringers.

Solution: Combination of UT for stringers with IRT for thin skin.

Multi-technique difference: Faster and reliable inspection.

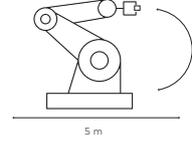


Digital radiography testing : X-Ray cabin (X-Ris Dxbox RT) - X-Ray bunker (X-Ris)

- X-Ray cabin: 0.8 m x 0.8 m x 0.8 m: up to 320 kV
- X-Ray bunker: 6 m x 4 m x 3 m: up to 225 kV
- CT scan up to 450 kV

Shearography and Thermography Testing – Large-sized & complex shaped parts

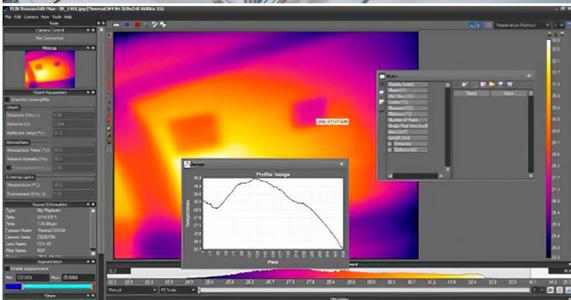
- 6-axis robot (TX2-160) on linear axis of 5 m
- Robotic arm with :
 - Thermography camera: FLIR T865 – 300 kP - f = 42mm (10°)
 - Shearography camera: Optrion Definder - 300 mW - 5 MP



Ultrasonic Testing

- Olympus Omniscan SX 16:64 PR Phased Array Flaw Detector
- Precise flaw detection & characterization
- Detailed insights into the nature and location of defects

Manufacturing of composite NDT reference standards



Contact Us for Tailored Expertise



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