

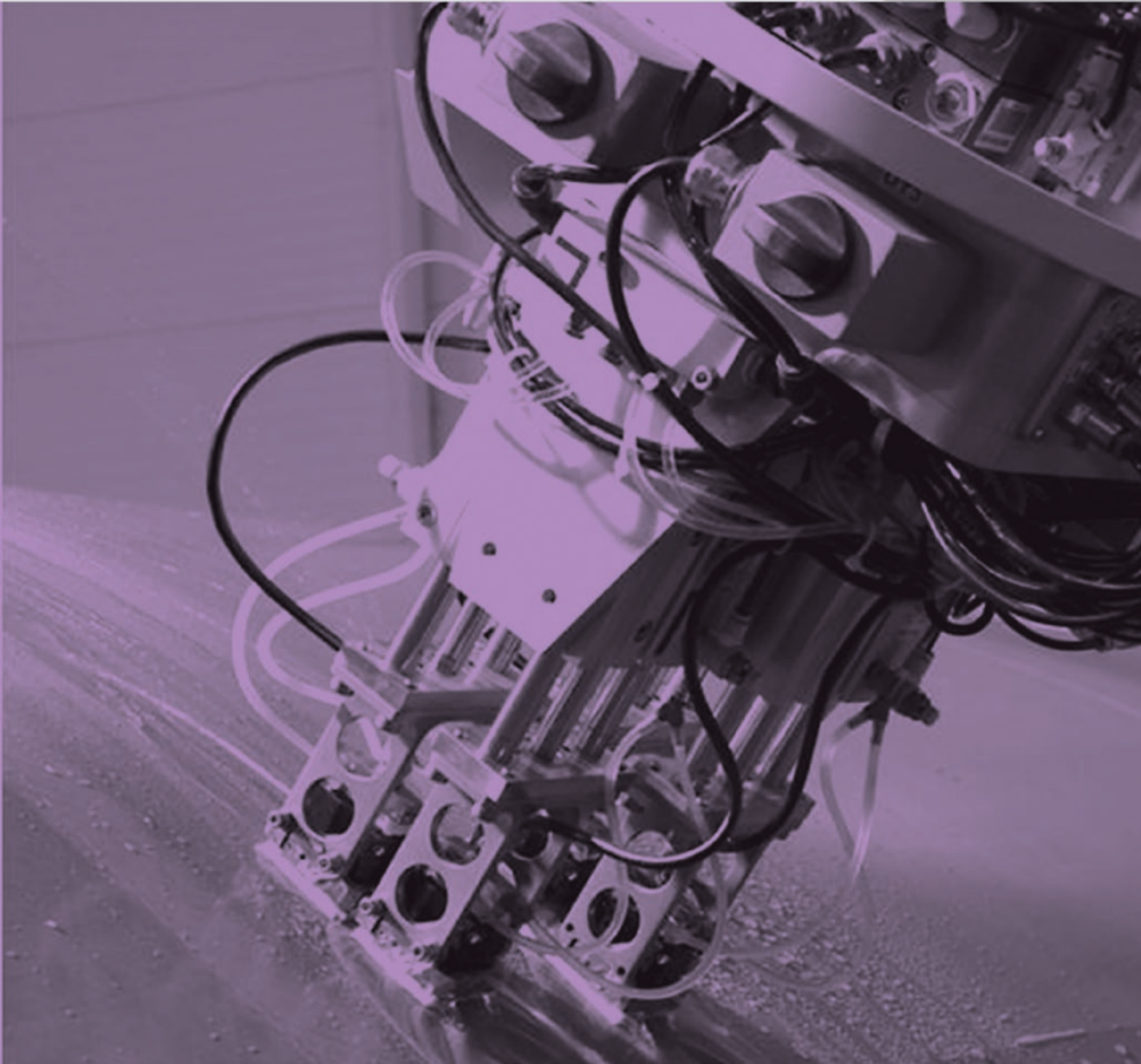
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Ultrasonic Inspection
Technologies

INSPECTION MODULES

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INSPECTION MODULES



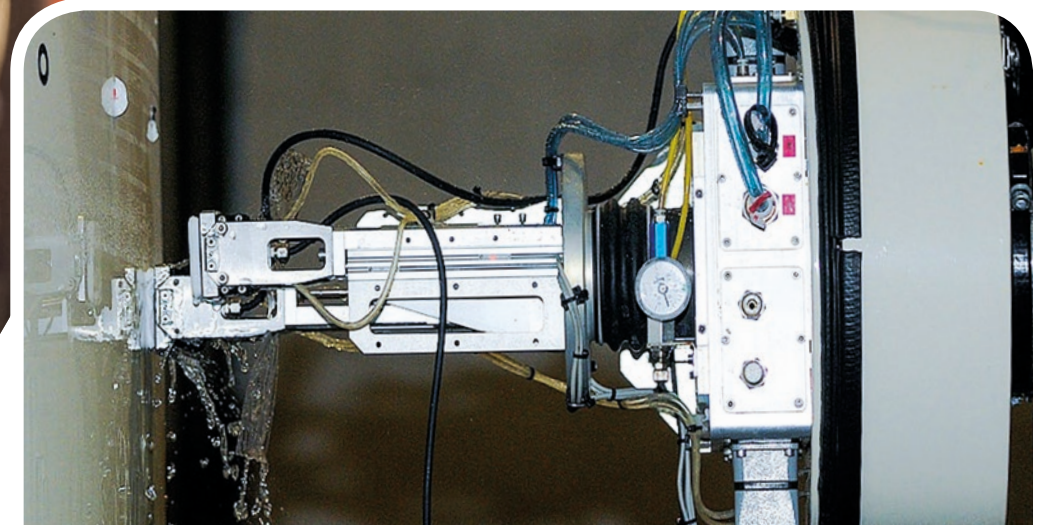
OVERVIEW

THROUGH TRANSMISSION (TTU)

- Intended for carbon Fiber inspection parts for both, gantry or robot based NDT machines.
- Wide range of components with complex geometries.
- PA-TTU Technology for very high productivity.
- Automatic Tool Changer availability.

PULSE ECHO (PE)

- Intended for carbon Fiber inspection parts for both, gantry or robot based NDT machines.
- Conventional and Phased-Array techniques with local or total immersion.
- Wide range of PE Modules for inspection of multiple typologies of components and geometries.
- Automatic Tool Changer availability.



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TTU MODULES

- Equiped for any frequency probes, including bifrequency.
- Water output diameter from 4.0 mm. To 9.0 mm.
- Easy and fast probe exchange.
- Adjustable nozzle direction.
- All TTU Modules are equipped with anti-collision system.
- Design of the TTU Modules allows to inspect concavities of very complex components with short inner diameters.
- TTU Phase Array Modules available.

HIGH PRODUCTIVITY TTU MODULES

- Using Phase Array TTU Modules (PA-TTU) with 32 elements, with inspection area of 18 mm and dinamic range of 55 dB.
- Using bifrequency conventional probes.



INSPECTION MODULES

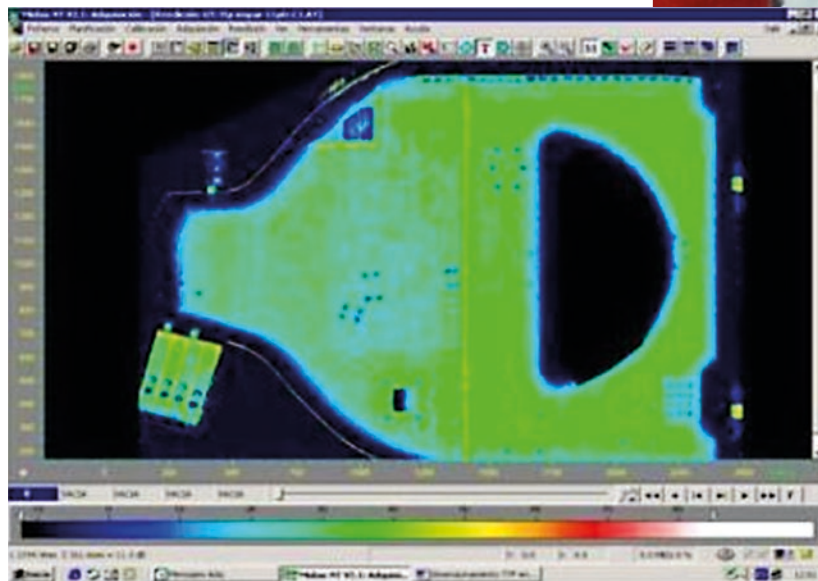
YOKES FOR TTU MODULES

- For simpler geometries or cylindrical shaped parts, TTU Modules can be assembled on different size yokes.
- Yokes can be made in Carbon Fiber or aluminium, depending on the Modules requirements.
- Very high rigidity with lower weight.
- Can be designed for parts until 1.700 mm. high.
- Adjustable nozzle direction.
- **Yokes for special applications can be also designed, built and put into operation with the same performances than the standard ones.**



TTU MODULES: SUMMARY

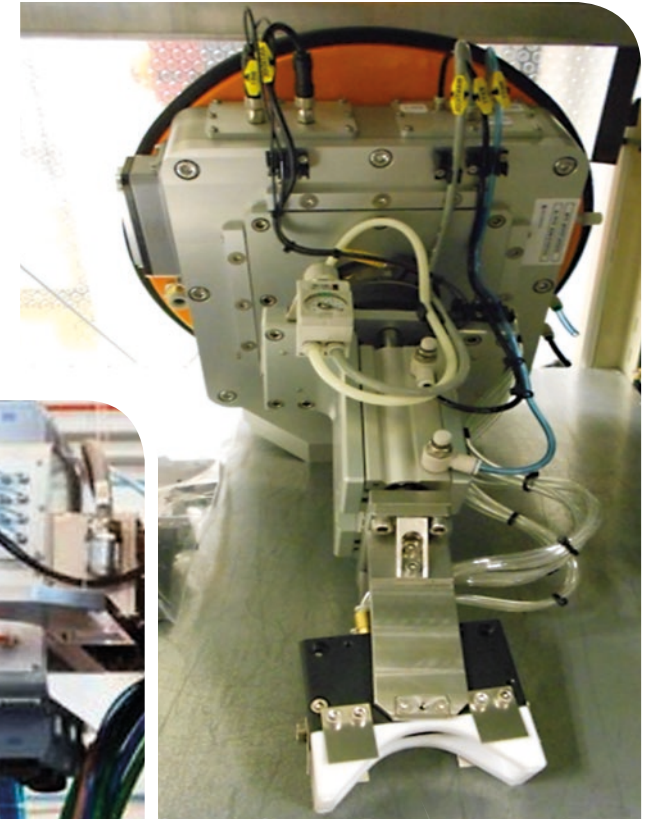
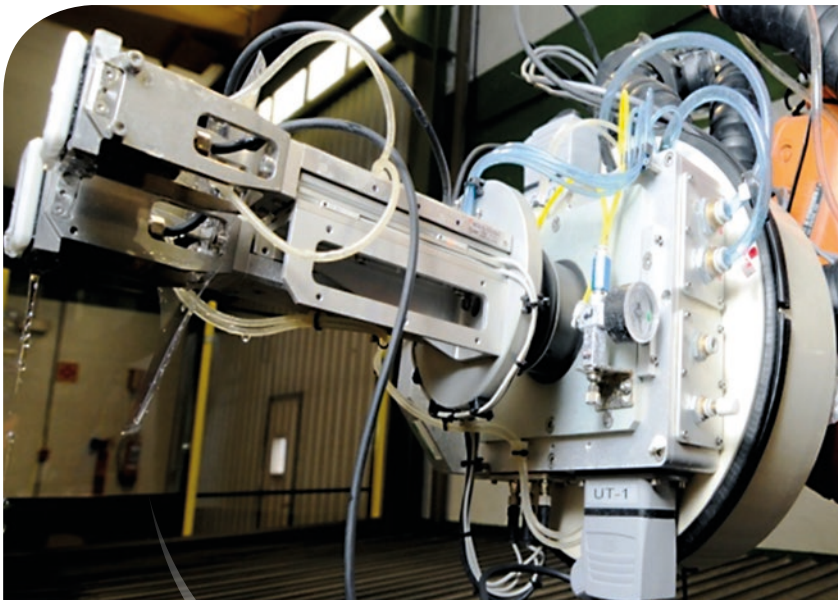
- Complex parts.
- Phase Array TTU technique available.
- Bifrequency TTU Modules.
- Usage of yokes for simpler parts and cylindrical shaped.
- Aluminium & Carbor Fiber yokes.
- Specific yokes design for special applications.
- Automatic tool changer.



INSPECTION MODULES

PE PRODUCT FEATURES

- Local immersion using probe holders with specific sole delays.
- Phase array technique (4 x 32, 2 x 64 or 1 x 128 elements).
- Independent coupling for each probe.
- Exact fitting to very complex part surfaces.
- Inspection of inner radius from 5 mm to 20 mm, and angle between adjacent surfaces from 80° to 100°.
- Inspection of external radius starting from 5 mm, and any angle between adjacent surfaces.
- PE modules also for inspection of "T" & "Ω" stringers and spars.
- All modules include safety devices (overpressure, collision...)



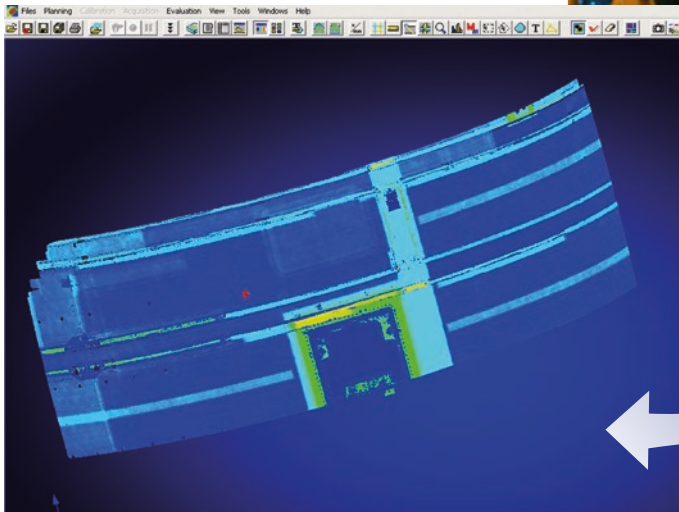
One single PE module is able to inspect different areas of the same component

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PE MODULES: SUMMARY

- Complex parts.
- Phase Array techniques.
- Local immersion.
- Skin inspection.
- Stringer & spar inspection.
- High Accuracy.



PE-MODULE: STANDARD FEATURES

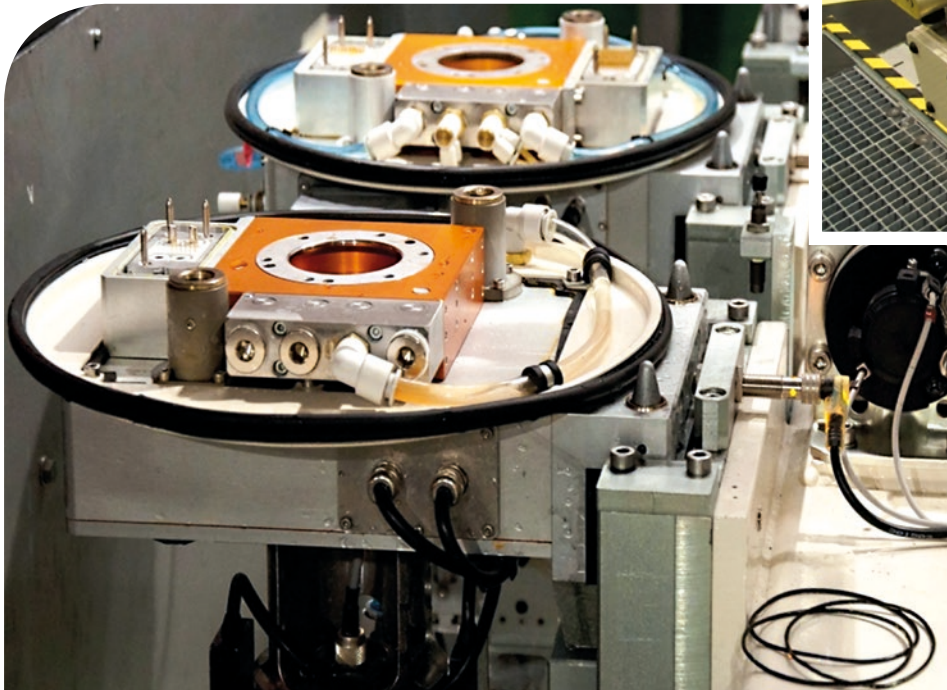
Phased array technique (elements)	4 x 32 2 x 64 1 x 128
Local immersion using probe holders with specific sole delays	✓
Very low weight	Aluminium plastic
Exact fitting to very complex part surfaces	✓
Pneumatic coupling	✓
Overpressure sensor (over the part to be inspected)	✓
Collision sensors	✓

PE-MODULE: SPECIFIC FEATURES

Inspection of inner radius from 5 mm to 20 mm, and angle between adjacent surfaces from 80° to 100°.	✓
Inspection of external radius starting from 5 mm, and any angle between adjacent surfaces.	✓
PE modules also for inspection of "T" & "I" stringers and spars.	✓

HIGH AUTOMATION CAPABILITIES

- Easy installation using automatic tool changer and its associated stand.
- Stand able to contain up to 5 different modules.
- Automatic tool changer and stand are able to detect module presence.



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