tecnatom

TAURUS

ROBOT-BASED ULTRASONIC INSPECTION SYSTEMS

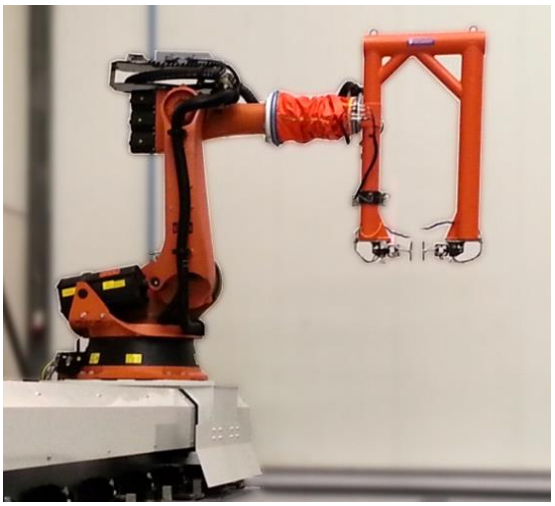
An automatic system designed for the ultrasonic inspection of aeronautical components using water jet through-transmission and/or pulse-echo phased-array techniques.

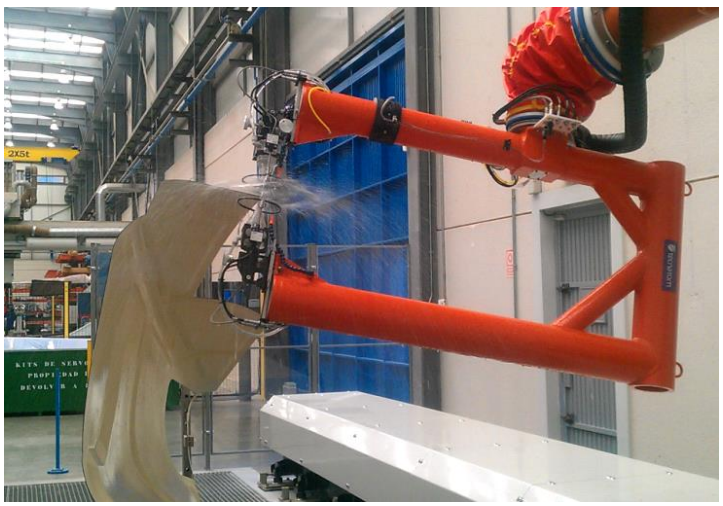
The system can assure coverage of the complete part including geometrical features such as surfaces with double curvature, edges, cut-outs, radii, T or Ω stringers. In addition, the system can be equipped with other advanced functionalities such as a defect marker or a teaching laser scanner. These inspection modules can be easily mounted on the machine using an automatic tool changer and its associated stand.

Depending on the parts geometry to be inspected, the machine configuration can vary from a robot moving on a linear track to a twin robotic system, as shown below:

TAURUS - Robot over linear track

For parts with a simple geometry (almost flat or single curvature) and small or medium dimensions, water-jet through transmission technique can be applied using a U-shape yoke mounted on the robot twist. The inspection by simultaneous pulse-echo technique through the water-jet is also incorporated.



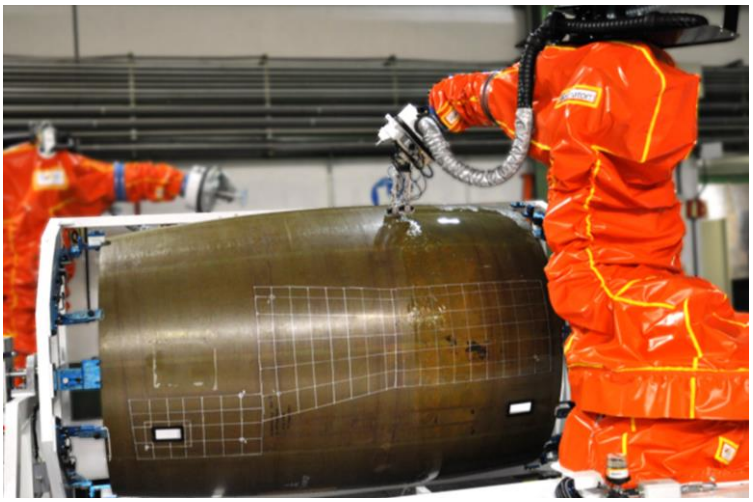
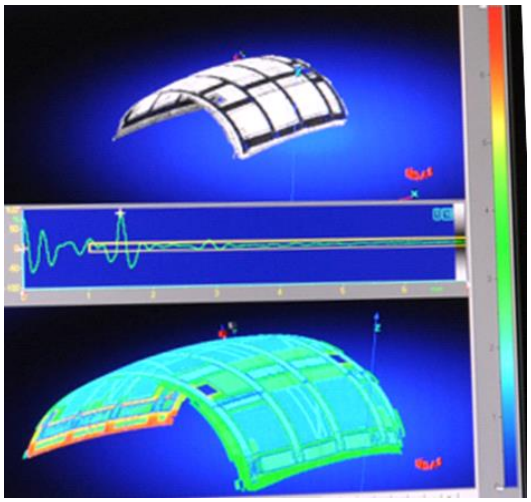


Pulse-echo in local immersion, with up to 128 elements in Phased-array, is performed by a single robot for complex geometries providing high productivity rates.

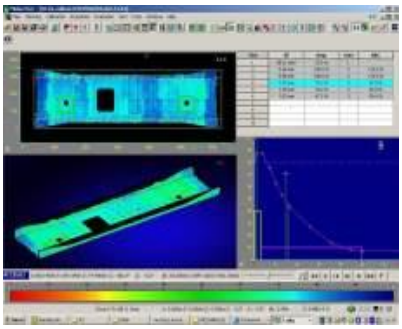
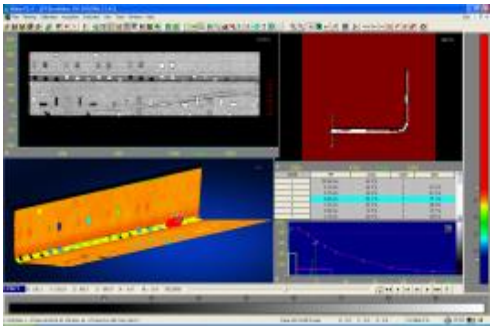
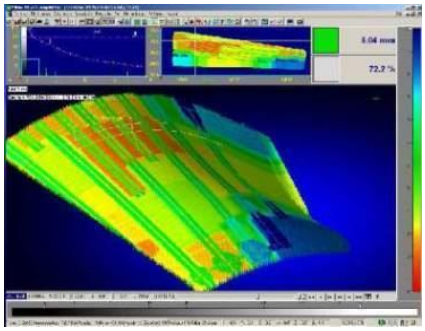
TAURUS TWIN - Twin robotic system

For parts with complex geometry (double curvature) and large dimensions, two robots working in a cooperating mode are proposed to apply **through transmission** technique.



In twin robotic configuration, **local immersion pulse-echo inspection can be performed simultaneously in two different parts**, using both robots independently. A wide range of specific inspection modules and tool changer can be included within the scope to support future needs of production increase or new parts geometry.

Scope Of Supply

- Mechanical system architecture can be adapted depending on the Customer inspection requirements: **Robot over linear track** or **Twin robotic system**
- Ultrasonic systems:
  - **SONIA-F1** with 8 channels and double UT pulsers, logarithmic for through transmission and linear for pulse-echo exams.
  - **SONIA Multi** with 128 channels for Phased-array pulse-echo techniques applications
- Set of **end-effectors** adapted to different materials (laminates and honeycomb) and geometries (skin, Ω and T-shaped stringers, spars, radii areas…) and their associated transducers, including dual frequency probes.
- Additional devices, such as **FALCOM 3D** laser teaching system
- **GENTRAY SW** for scan path trajectories generation.
- SW for off-line simulation purposes.
- **INSPECTVIEW** Operation console for control and ultrasonic acquisition and evaluation.
- Water circulation and treatment station.
- Other accessories and services: Documentation, Installation, Training and 1-year warranty.

Available Options

- Extension of number of channels
- Automatic exchanger of modules and devices.
- Tank for PE total immersion technique
- Turntable for the inspection of revolutionary parts

Main Advantages

- **Flexible**, being capable of scanning a wide range of products with complex geometries.
- **Productive,** optimising inspection times by means of high inspection speed and the use of Phased Array technology
- **Scalable,** incorporating different solutions to progressively increase its performance. This approach allows laminating the required investment.
- **Multi-Technique**, able to perform through transmission and pulse echo inspection over parts.
- **Integrated**, a unified environment for the complete inspection process: teaching/probing, scan path generation, post-processing, 3D simulation, complete system control, acquisition, evaluation and reporting
- **Proven**, based on TECNATOM proprietary technology and supplied to many customers worldwide
- **Maintainable**, built with high quality industrial components of renowned global suppliers

Customers with Robotic Systems

AIRBUS
АэроКомпозит Закрытое Акционерное Общество
sonaca GROUP
SPIRIT AEROSYSTEMS
BOMBARDIER
Songwol
경남테크노파크 Gyeongnam Technopark
ALESTIS AEROSPACE
Alenia Aermacchi A Finmeccanica Company
PREMIUM AEROTEC
哈飞空客
SOFITEC
EMBRAER
DAHER-SOCATA
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