TESTIA
AN AIRBUS COMPANY
Invisible Testing. Visible Innovation.

" The essential is invisible to the eye. "
A. De St. Exupéry – Aviation Pioneer

NDT
NONDESTRUCTIVE
TESTING FORUM

INNOVATION IN THICKNESS MEASUREMENT FOR AIRCRAFTS

BERNARDO ORDÓÑEZ – TECHNICAL SALES MANAGER LATIN AMERICA

AIRBUS

100% AFFILIATE
SINCE 1991

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FRANCE | GERMANY | SPAIN | UNITED KINGDOM | WORLDWIDE ENTITIES

México • Canada • Singapore

Coming soon: Middle-East • China

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INSPECTION AND TESTING ARE PART OF THE SAFETY CHAIN THROUGHOUT THE PRODUCT'S LIFECYCLE

MATERIALS ▸ ELEMENTARY PARTS ▸ ASSEMBLY ▸ IN-SERVICE ▸ END OF LIFE

TESTIA IS YOUR PARTNER ALL ALONG THIS VALUE CHAIN

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We Inspect
your assets
We Advise
studies, qualifications,
procedures & audits
OUR PILLARS
TO ENABLE YOUR
PERFORMANCE
END-TO-END
We Train
your staff to NDT methods
We Develop
NDT tools to boost
your productivity
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WHAT IS TODAY ABOUT?

How new inspection technologies can bring safety to the next level reducing cost?

Issue:

Thickness measurement over the aircraft body is a key process to assure the functional condition of the structure and, in consequence, the integrity of the unit.

However, thickness measurement demands:

- **Aircraft downtime, hangar time, setup time**
- **Inspectors time and human factor dependence**

WHAT IS TODAY ABOUT?

How new inspection technologies can bring safety to the next level reducing cost?

Solution:

Automation and digitalization are a big trend in today's industry, in a world where every system talks and provides data, optimizing resources and reducing human factor dependence.

ENVIROMENT CAN BE TOUGH FOR AIRPLANES…

SAND

FLUIDS

HUMIDITY

HEAT

An aircraft is subject to many extreme environmental conditions, sometimes leading to corrosion…

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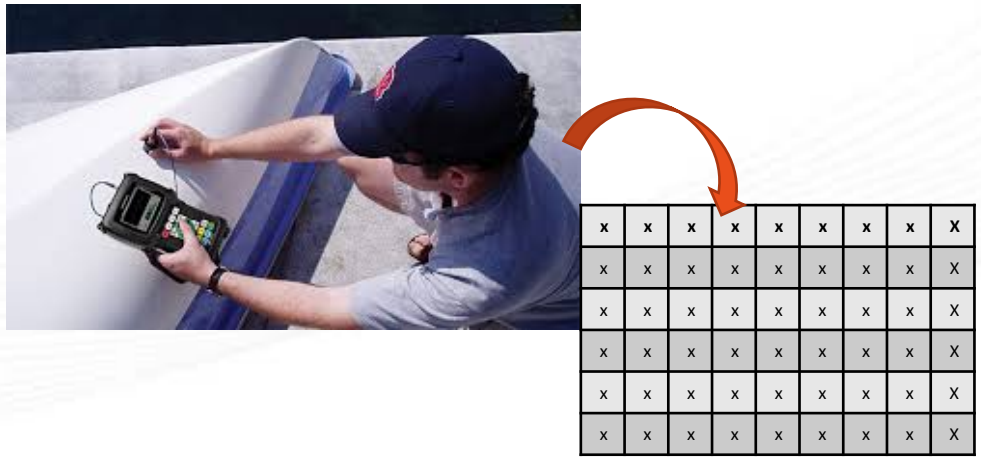
THEN…

Corrective action: blend-out of the surface



Thickness measurement on a 10*10mm or 5*5mm grid (according to regulations)

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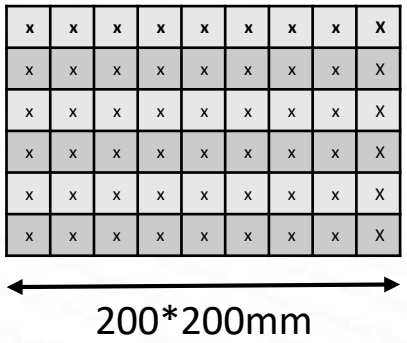
CURRENT METHOD TO PERFORM INSPECTION

- Human factor:
  - 2 inspectors
  - Thickness measurement time (20 sec at least per spot)
  - Data process and reporting time (1 to 2 hours per event)
  - Human element dependence

- Related costs:
  - Aircraft downtime
  - Hangar occupancy
  - Setup and inspection time

- Related risks:
  - Aircraft damage during setup and/or during inspection
  - Inherent to human factor

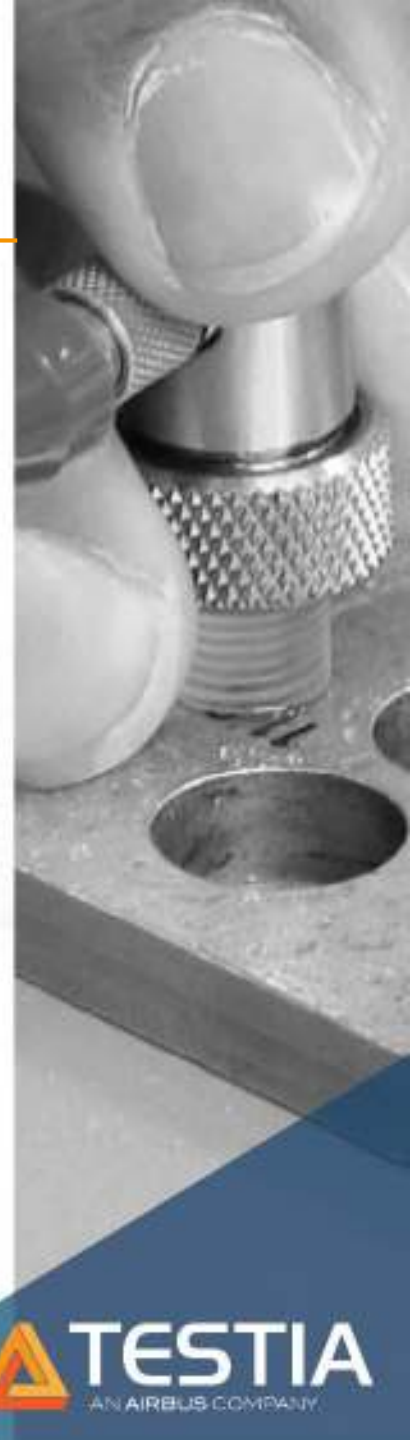
ROOM FOR IMPROVEMENT?



- For a 200*200mm zone, the 10*10mm grid will require 400 measures.
- If each measure takes a minimum of 20 seconds to take and write, a total of 800 seconds is required, or 2.2 hours.
- With risk of mistakes and low added value from the expert's time

This is why we created the ThicknessTool which divides the inspection time by 20!

For this example we would go from 2.2 hours to 7 minutes!



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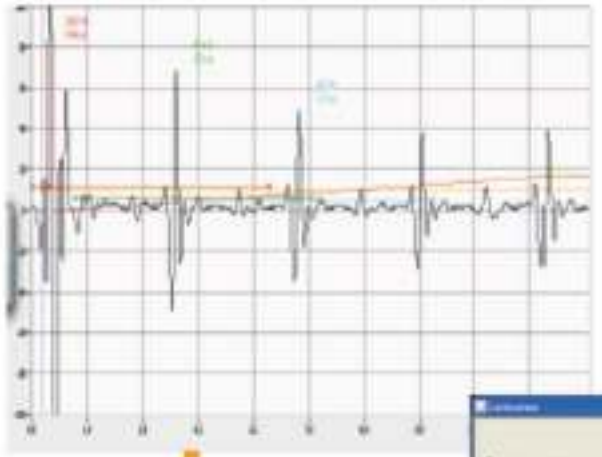
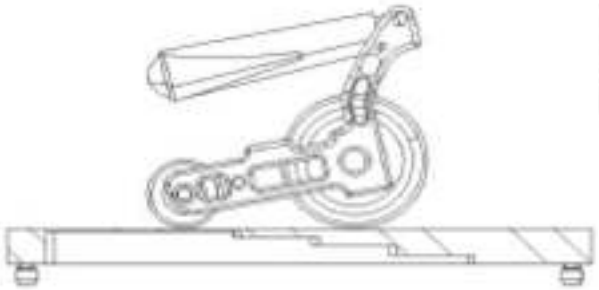
HOW DOES IT WORK?

With a 32-elements roller probe (instead of one crystal element) and an automatic acquisition software.

1. Calibrate on the reference block and trace your guiding lines

CALIBRATION ON REFERENCE BLOCK





✓The accuracy of ThicknessTool is approved in a range of 2mm to 20mm thickness. Reference blocks for fuselage skin and wing skin panels inspection are provided and included in the ThicknessTool kit suitcase together with all needed means.

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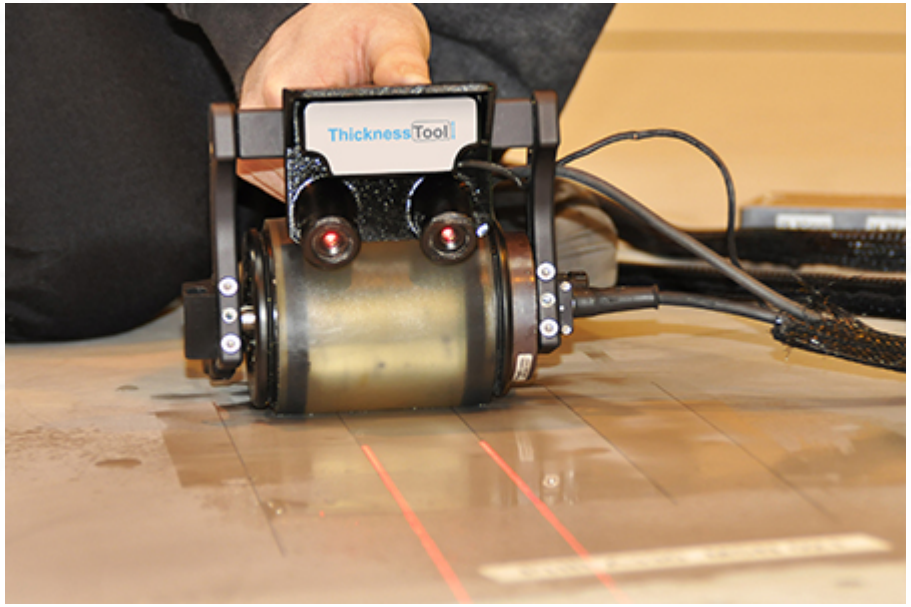
2. Roll the probe over the surface, following the guidelines with the help of the lasers and take all the measures at once



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HOW DOES IT WORK?

With a 32-elements roller probe (instead of one crystal element) and an automatic acquisition software.

3. Get automatically the reports in the expected format

AUTOMATIC REPORTING

✓Finally, the measurement report is available in a few seconds with the Time Of Flight C-scan and table with 10mm x 10mm grid resolution.

✓The ThicknessTool allows a decrease of the inspection times at arounds 20 times, including reporting.

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HOW DOES IT WORK?

THICKNESSTOOL MAIN ADVANTAGES

- Reduction over human factor dependence
- NDT inspectors focused over value added activities
- Reduction of downtime for the aircraft
- Process optimization

SOME ADDITIONAL OPTIMIZING TOOLS

MoiréView

- Instant measure of **dent size**
- Both Go-NoGo & precise tool
- Software generating 3D dent

Scratch/LineView

- **Quickly measure a scratch**
- Depth from 0.02-5.5 mm
- USB export function

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SOME ADDITIONAL OPTIMIZING TOOLS

CladTool

- **Go-NoGo for clad detection**
- After blend out or impact
- Used by a B1 mechanics

SmartUE1

- **NDT expert swiss army knife**
- 8 tools in 1 (UT, ET, conductivity…)
- Windows (word, excel) reports

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WE...

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... THANK YOU