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

INNOVATION IN THICKNESS MEASUREMENT FOR AIRCRAFTS

BERNARDO ORDÓÑEZ - TECHNICAL SALES MANAGER LATIN AMERICA
Coming soon: Middle-East • China
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
Our Pillars to enable your performance end-to-end:

- We Inspect your assets
- We Advise studies, qualifications, procedures & audits
- We Train your staff to NDT methods
- We Develop NDT tools to boost your productivity
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.
An aircraft is subject to many extreme environmental conditions, sometimes leading to corrosion...
THEN...

Corrective action: blend-out of the surface

Thickness measurement on a 10*10mm or 5*5mm grid (according to regulations)
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!
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
HOW DOES IT WORK?

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

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

TESTIA
AN AIRBUS COMPANY

... THANK YOU