AF Tomography Center

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Location & Environment

C/55 Km 25 de Abrera a Manresa
Manresa 08241 (Barcelona)

Definition

- Equipment to do non destructive analysis through the industrial radiography.

- X-Ray CT allows the exact 3D location and provides information on **size and volum** of these defects

Optimize the production process parameters to ensure increased quality

Equipment

The 450kV give us the capacity to penetrate different kind of density materials.
From plastic to Iron

Phoenix v|tome|x c scatter|correct

Max Voltage Power: 450 kV @700W/1500W

Focal Spot: 0,4mm (max Current 1500µA) / 1.0mm (max Current 3300µA)

Detail Detectability: 87-139 µm = 0,087 mm – 0,139 mm

Max 3D scan área d x h / weight: 250 x 1000 mm / up to 50kg
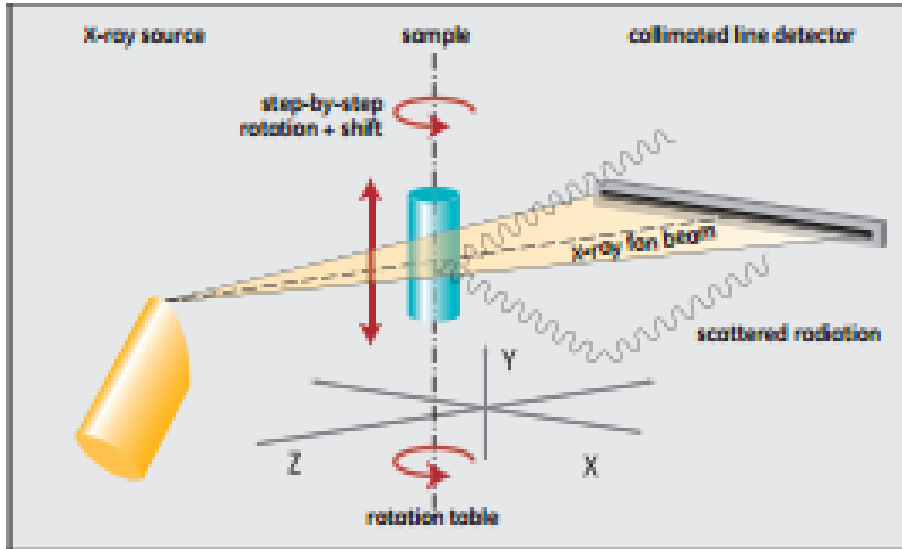
Technology

Lineal Detector

Last detectors.
The Precision is limited by the distance between slides.
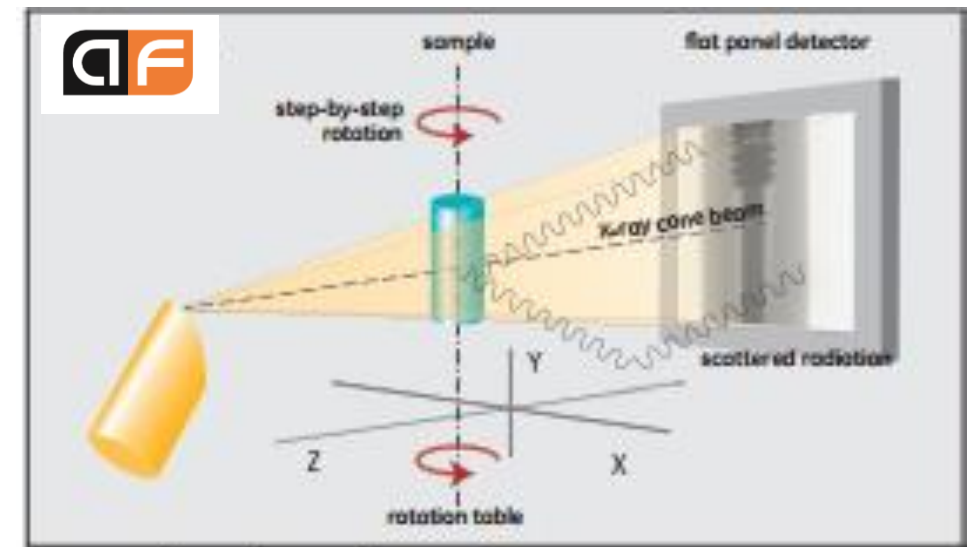**Projections in 360° and in y axe (depending the precision)**

Flat Panel Detector

New detectors.
The precision is limited by Voxel Size (pixel in 3d).
The voxel is between 0,087mm-0,139mm depending the magnification (near / far from detector)
Projections in 360º. Same precision in all axes.

Scatter artifact reduced slice-by-slice **fan beam CT**

Conventional **cone beam CT** with scattered radiation hitting the detector

Difference between X ray CT vs X ray

	X RAY CT	X RAY
N° Projections	MORE THAN 1000 PROJECTIONS IN 360°	1 PROJECTION
What is **generated**?	VOLUM (3D)	IMAGE (2D)
Can measure **mm²** ?	YES	YES BUT NOT EQUALLY
Can Quantify **mm³**?	YES	NO, DON'T HAVE Z AXE
Exact **position**	YES	NO, DON'T HAVE Z AXE
Results		
Reverse Engineering (volumen → CAD)	YES	NO
Detect according **P201 & P202**	YES	NO
Comparison Volume / CAD	YES	NO
….		

Software

- VGSTUDIO MAX 3.2*

    -**Enhanced porosity inclusion**

    -**Nominal/Actual Comparison Module**

    -**Wall thickness analysis Analysis Module**

    -**Coordinate measurement Module**

*We can assure to have a good results and analyze the parts with all the modules until a density material similar as aluminum.

However we are capable to penetrate high density materials as iron due to 450kV of energy.
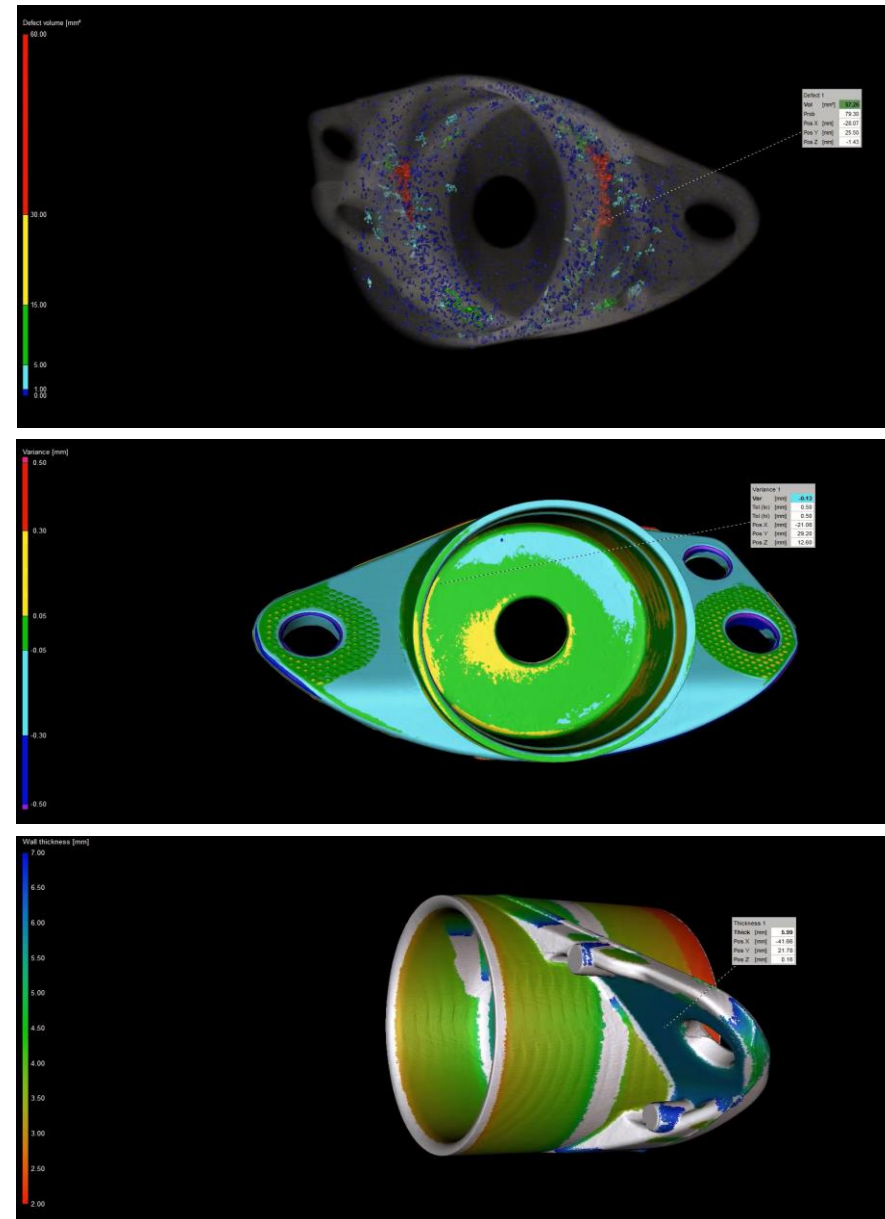
Enhanced Porosity Inclusion

-Locate pore, holes and inclusions and get information of these defects.

-Parameters of each defect as: diameter, volume, Surface, compactness, sphericity, pos x/y/z.

-Defect according P201 and P202 for aluminum casting.

-Histogram of defect distribution (X volume, Y count)

-Defect Volume ratio of the sample (porosity/Total Volume)

Nominal/Actual Comparison

-Comparison manufactured parts with Cad, Mesh or other manufactured part.

-Compute deviations along Surface normal of nominal object, visualize results and check tolerances.

-Plot of the min/max deviation

Wall thickness Analysis

-Localize areas with an insufficient or excessive wall thickness.

-Check tolerances of minimum, maximum, mean, deviation.

-Report with all the annotations

Coordinate measurement

-Measurement on voxel, mesh and Cad Data

-Geometrical Dimensioning

-Tolerancing and registration results to determine your quality.

Service

- **Results in 72h** ✓

- **Tariff Prices*** ✓

- **Reverse Engineering** ✓

- **Analysis according customer specifications** ✓

- **Detail detectability 0,087mm-0,139mm** ✓

- **Reconstructive video** ✓

(*)Depending on the material and the type of analysis

News

The 5th of July 2018, AF Tomography center opened the doors to the employees from Condals Group. We gave the opportunity to scan a fun personal object to check the internal status. The most original object would win a report with the results and its reconstructive video. The winner was **Francesc Ricart** whose hobby is climbing. He wanted to check the internal status of the material before using it.

The attached photo is the reconstructive video Snip
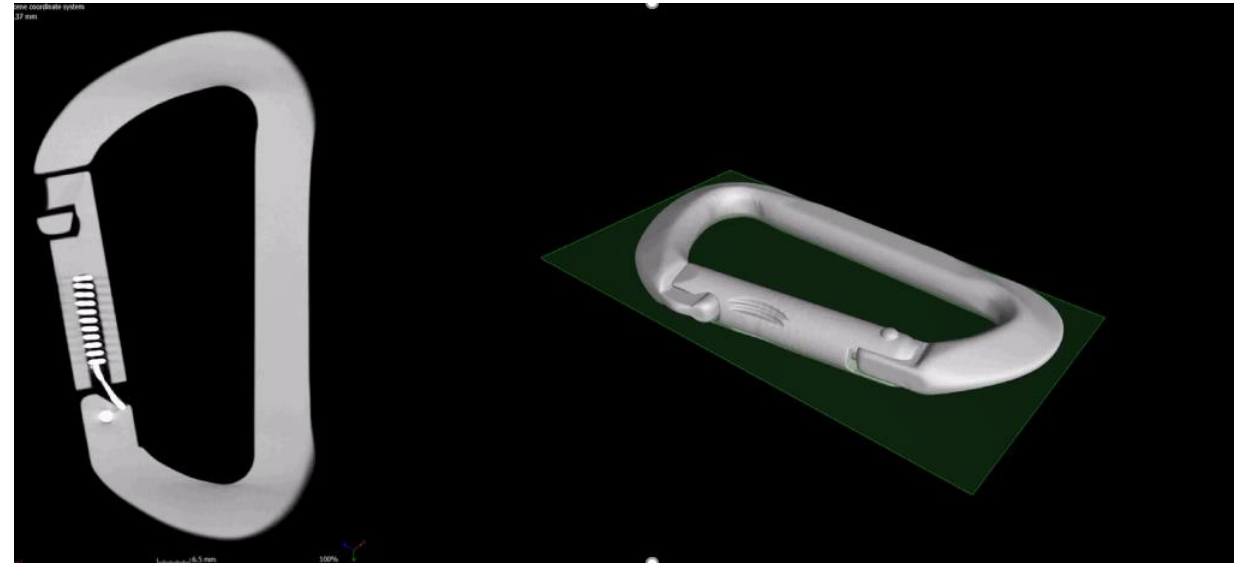
Feel free to contact us
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