ROBOTIC CT

radalytica®

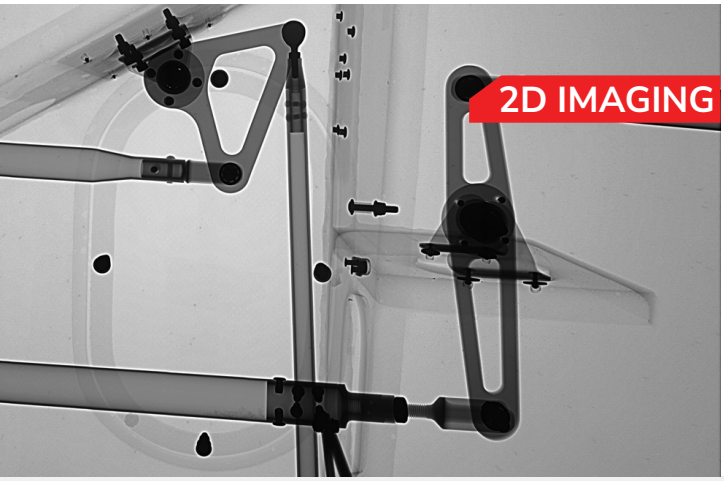
One machine rules them all !

STOP GUESSING, START IMAGING

NON-DESTRUCTIVE INSPECTION OF LARGE STRUCTURES

Discover versatile photon-counting technology for material-sensitive, noiseless and precise scanning through a robotic CT

VARIETY OF METHODS

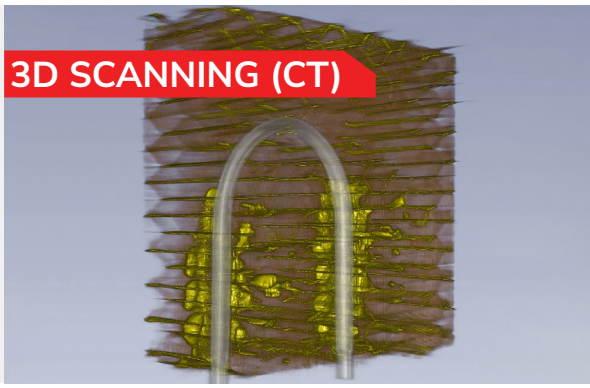


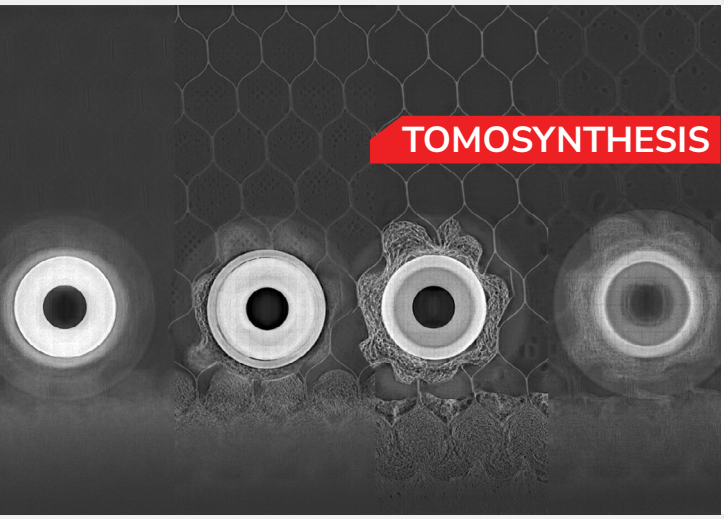
NO DISMANTLING OR CUTTING

Our state-of-the-art technology uses imaging methods previously used only in the laboratory to extend the possibilities of advanced nondestructive inspection in the industry. It brings new opportunities **to image a selected region of interest in large structures.**

FROM LARGE AREA 2D X-RAY IMAGING TO 3D CT

The robotic imaging platform combines several imaging modalities and integrates the newest range of sensors, so-called photon-counting detectors (PCD). They offer cutting-edge image quality and also open **new types of imaging approaches.** The picture shows that we can decompose material in this reconstructed image, so glue, metal pipe, and composite are visible.



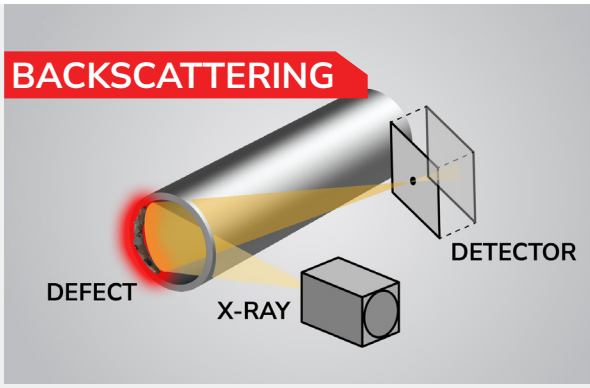


FOCUSED X-RAYS (IF NO CT IS POSSIBLE)

The overwhelming amount of data acquired from each sample allows many ways to process the image. Robots allow focusing X-ray images to a selected depth, **improving image readability and, hence, flaw detection.** Scan reveals, for example, the location of the insert and potting compound both in-plane and in-depth.

DO YOU HAVE JUST SINGLE-SIDE ACCESS?

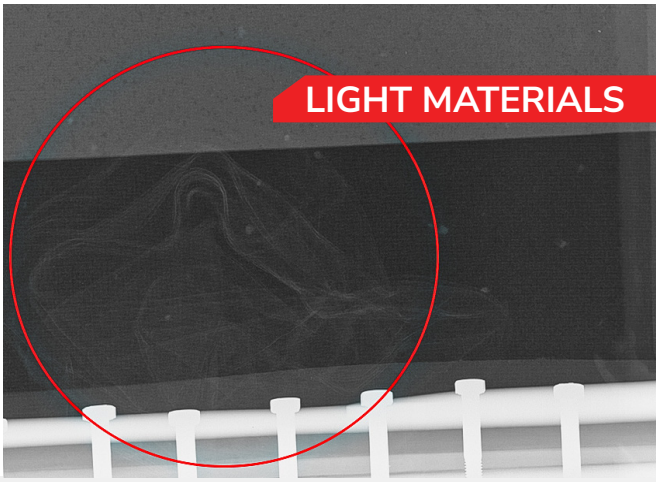
Backscattering is a **novel method to obtain 3D information** on composite parts with access only from one side, the X-ray tube and detector are both on the same side of the sample. For instance, the material reduction of pipes or corrosion under insulation can be inspected.

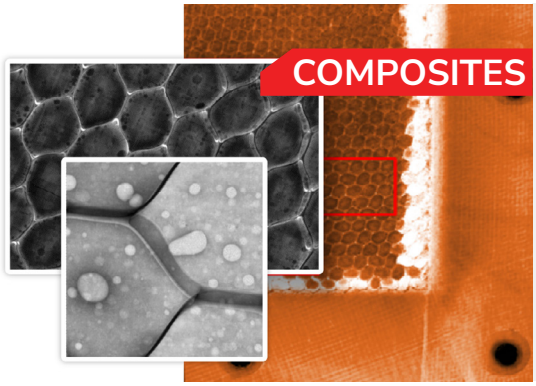


VARIETY OF MATERIALS

DETECT FOREIGN OBJECTS

The exceptional sensitivity and dynamic range of photon counting detectors make them helpful in imaging low X-ray-attenuating objects, such as tissue. This precision is particularly beneficial in foreign object detection, where even the softest materials, such as paper tissue, are revealed in the hard-reached parts.



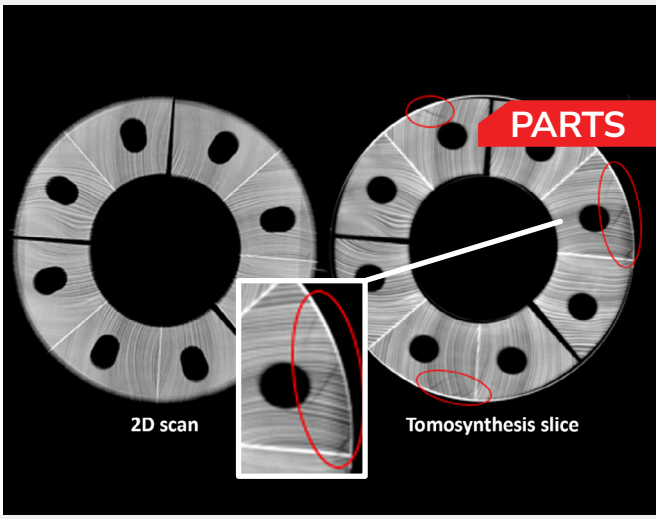


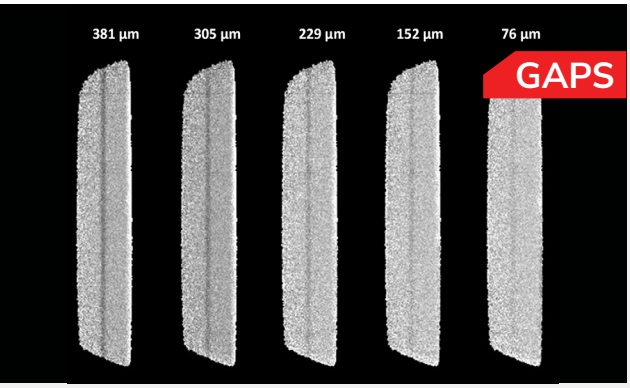
FIND FLAWS IN LIGHT MATERIALS

The single-photon X-ray imaging technology significantly enhances NDT capabilities for composite materials. That makes detecting defects, impurities, or cracks extremely easy.

INSPECT COMPLEX STRUCTURES EASILY

2D X-ray image reveals internal structures combined into a single “shadow” where defects can disappear in the complexity of the structure; cracks are not visible. Tomosynthesis provides sufficient depth resolution to separate structures in depth; defects are much more detectable, and cracks become visible.





DETECT GAPS BETWEEN COMPOSITES

In cases where full CT is impossible, regular transmission X-ray imaging has difficulty identifying gaps between large flat panels (e.g. composite panels). However, the backscattering approach reveals these gaps easily, as shown in the picture when measuring gap sizes between composite sheets.

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Our detectors in action with RadalyX robotic CT

The major advantage of the system is its portability. It can be moved anywhere to the object that needs inspection. It conducts a high-resolution inspection in situ.

The RadalyX system uses photon-counting imaging detectors produced by Radalytica's sister company, ADVACAM. A new generation of fully digital detectors with high sensitivity and a resolution of 55 micrometers brings two significant advantages: high contrast with sharp images and spectral information of X-rays. This allows material-specific information to be displayed in colors.

Example of detector suitable for imaging applications

WidePIX L 1x10

Readout Chip:	Medipix3
Readout Speed:	Up to 80 fps
Count Rate:	Up to 250 million hits/mm²/s
Number of Pixels:	655 360
Dual Threshold:	Yes
Threshold Step Resolution:	0.1 keV
Spectral Imaging:	Yes
Temp. stabilizing:	Required
Pixel Pitch:	55 µm
Time-Delayed-Integration:	Yes, hardware triggered

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