



X-ray computed tomography scanner (XRT)

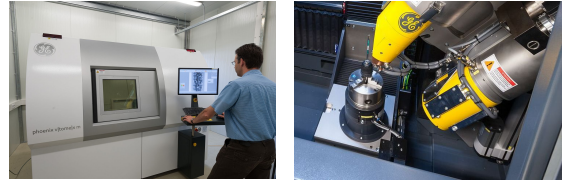
<https://labfacilities.wur.nl/SearchDetail.aspx?deviceid=1259293f-5d27-4bf6-a56f-23d74542fb73>

Brand

General Electric (GE)

Type

Phoenix V[tome]x m240



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Organisation

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Description

X-ray tomography (XRT) or micro-computer tomography (CT) is a technique to measure non-invasively and non-destructively the three-dimensional (3D) structure of an object with a spatial resolution smaller than 1 m and in a time scale of minutes.

The scanner is equipped with two different x-ray sources which makes it suited for a broad range of applications, like e.g. food products, plants, seeds, fibres, wood, paper, rocks, soil, etc.

Technical Details

- Unique dual X-ray tube configuration for high power CT as well as high resolution nanoCT, equipped with internal cooling for long time stability
- 240 kV/320 W microfocuss CT system suitable for high absorbing materials having a pixel size down to 3 m
- 180 kV / 15 W nanofocuss X-ray tube with a pixel size down to 1 m
- Focus-object-distance from 5 mm to 600 mm
- Maximum 3D scanning field of view up to Ø 300mm x 400 mm
- Maximum sample weight of 50 kg
- Granite-based precision 4-axes manipulator for long-term stability
- 2D X-ray imaging possible
- 3D computed tomography possible

Applications

The XRT is suitable to measure the 3D structure with high spatial resolution of a broad range of product ranging from small (<mm-sized) low dense materials to large high dense (up to 40 cm, 50 kg) materials within minutes. It is therefore suitable for an enormous broad range of applications.

Examples of application areas are:

- Solid and semi-solid foods like foams, emulsions, meat(replacers), cheese, bread, cereals, etc.
- Dynamical behaviour (stability in time) of above mentioned food systems
- Colloidal particles in foods like fibres, starch granules, emulsion droplets, etc.
- Root growth of plants in the soil
- Soil morphology and soil macro fauna
- Insects, fish, feathers, birds and other small animals
- Plants, seeds, fibres, wood, paper
- Rock morphology
- Composite materials
- 3D metrology

Complementary Techniques

There is ample expertise and computer equipment available to analyse the volumetric 3D making it possible to relate structure and functionality. Based on this expertise and available software, it is also possible to analyse 3D data in general.