

**GEO
TEK**

X-RAY CORE IMAGING AND CT

AFFORDABLE, PRACTICAL AND BUILT SPECIFICALLY FOR
GEOSCIENCE APPLICATIONS



IF CORE'S WORTH TAKING, IT'S WORTH LOGGING

2D X-RAY RADIOGRAPHY AND 3D X-RAY CT IMAGING SYSTEMS FOR **GEOSCIENCE APPLICATIONS**

Geotek design and manufacture a full range of cabinet-based digital 2D and 3D X-ray imaging systems for a variety of geoscience markets including: Oil and Gas, Marine/ Onshore Geology, Palaeoclimate, Geotechnical etc. Each of our X-ray platforms is designed for mobility, affordability, practicality, footprint, and diameter and type of core required to be scanned. As a result, there is a state-of-the-art Geotek X-ray system for your geoscience application.

GEOTEK X-RAY IMAGING PRODUCT RANGE:

XCT - STANDARD X-RAY CT

Compact 2D and 3D X-ray imaging system perfect for whole or split cores in plastic or aluminium liners.

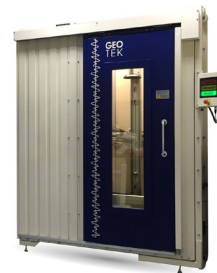


RXCT - ROTATING X-RAY CT

The most flexible and capable 2D and 3D X-ray imaging system with a rotating source and detector.

VXCT - VERTICAL X-RAY CT

A small footprint vertical 2D and 3D X-ray CT product where samples are scanned vertically and rotated on a heavy duty stage.

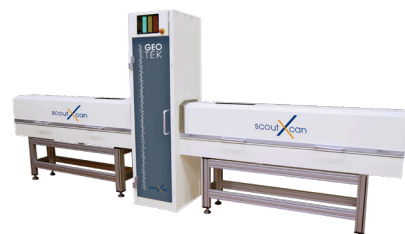


plugXcan - CORE PLUG X-RAY CT

A high throughput dedicated core plug and sidewall core X-ray CT system.

scoutXcan - 2D X-RAY SCANNER

An affordable multi-angle 2D X-ray radiography and pseudo-3D laminography system for geological samples.



scoutXcan : MULTI-ANGLE DIGITAL 2D X-RAY RADIOGRAPHY AND LAMINOGRAPHY

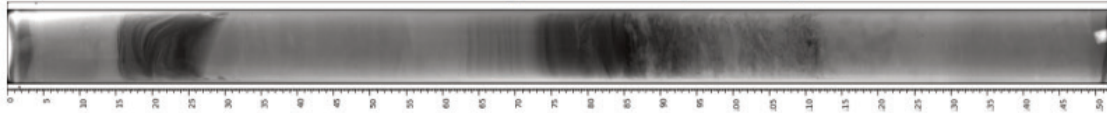


Image 1

An affordable multi-angle 2D X-ray radiography and pseudo-3D laminography system for geological samples. Automated digital image acquisition of the full width and length of whole or split cores in plastic or aluminium liners. Cores are securely held by bluetooth-controlled motorised arms that translate and rotate the samples past a closed 130 kV X-ray source and flat panel detector.

Image 2

Radiograph core slab



Laminograph core slab

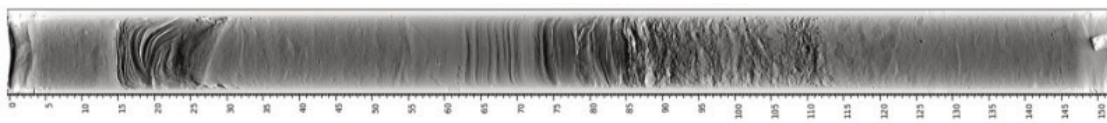


Image 1: Unwrapped circumferential from ScoutXcan using laminography. **Image 2:** 2D Radiograph and Laminograph from ScoutXcan



ScoutXcan is delivered with easy to use software for the creation of 2D radiographs, unwrapped circumferential images from whole cores (Image 1), and 2D laminography images at multiple steps (Image 2).

PSEUDO 3D DATA FROM LAMINOGRAPHY

Laminography is a fantastic, affordable, lower data intensity alternative to a full 3D CT scan. It's a radiographic X-ray technique that creates a sequence of 2D 'slabs' at increasing depths cross-core. Features within each 2D slabs or 'laminograph' are brought into focus at different depths enhancing sedimentary structures, and provide additional 3D information. This technique is also used to create circumferential images without the need for CT (Image 1).

SPECIFICATIONS

X-ray source: 65 W Thermo Kevex Microfocus

Voltage Range: 45 kV to 130 kV

X-ray Spot Size Range: 22 μ m to 100 μ m

Detector: 1920 x 1536 pixel flat panel detector

Image Resolution Range: 35 μ m to 300 μ m

Size: 4950 mm x 620 mm x 1980 mm (L x W x H)

Utilities: 100V to 240V, single phase, 50-60 hz

Cores Dimensions: Diameter - 50 mm to 150 mm, Length - up to 1.5 m in length



**Dedicated high throughput and high resolution
CORE PLUG and SIDEWALL CORE X-RAY CT SYSTEM**

A high throughput dedicated core plug and sidewall core X-ray CT system. Up to 100 core plugs or sidewall cores can be scanned per day with a cubic voxel resolution of c. 80 microns. PlugXcan utilises a long lifetime closed 130 kV X-ray source, a large flat panel detector, and motorised object positioning to optimise resolution between 40 μm and 250 μm . Multiple core plugs (up to 8) are securely mounted using a Geotek "QuickFix" holder for stable and automated scanning.



PlugXcan Benefits and Applications

SPECIFICATIONS

X-ray source: 65 W Thermo Kevex Microfocus

Voltage Range: 45 kV to 130 kV

X-ray Spot Size Range: 22 μm to 100 μm

Image Resolution Range: 40 μm to 250 μm

Typical Resolution: c. 80 μm for 1.5" core plugs

Size: 1457 mm x 767 mm x 1982 mm (L x W x H)

Utilities: 100V to 240V, single phase, 50-60 hz

Cores Dimensions: Diameter - 1" to 3", Length - up to 6" in length

Weight: c. 1500 kg

Cooling: None

Output: 16-bit Tiff stack with automated report generation

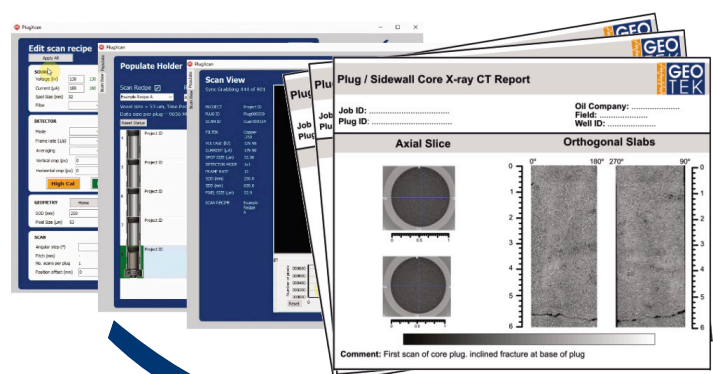
Core Loading: Geotek QuickFix holders

Rotation accuracy: 0.002 degrees

Rotation Method: Vertical core rotation

- Fast (2-3 minutes per plug) scanning to enable scanning of all core plugs/sidewall cores
- Superior image resolution and sensitivity compared to medical CT data for core plugs/sidewall cores

Produce CT Deliverables Faster with PlugXcan



Medical CT
300 μm x 625 μm

plugXcan
100 μm x 100 μm

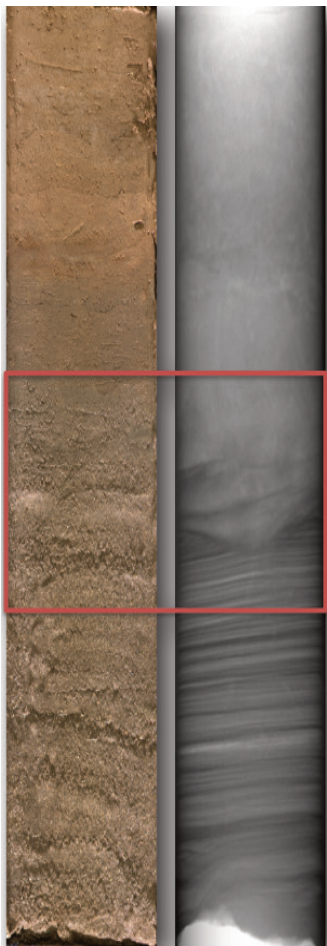


XCT: STANDARD X-RAY CT SYSTEM

A versatile and compact 2D and 3D X-ray imaging system perfect for whole or split cores in plastic or aluminium liners. Core are translated and rotated past a long lifetime closed X-ray source and flat panel detector. The XCT system uses bluetooth-controlled motorised arms with a variety of adapters to hold cores securely. Furthermore, the X-ray source and detector positions are adjustable for optimisation of image quality and resolution for each core size. The space-efficient design of the XCT allows the instrument to share space in a crowded laboratory, or fit inside a 20' container lab for onshore or offshore field projects.



X-ray Imaging provides crucial information on the natural and artificial of unconsolidated sediment and lithified rock cores that may be missed through visual observation alone.



- XCT can be installed into laboratories without a lead-lined room
- XCT is capable of 2D radiography, laminography and 3D X-ray CT
- XCT can acquire X-ray images of whole cores without splitting/cutting cores
- XCT has stable horizontal geometry for split core X-ray imaging
- XCT provides automated scanning without the need to splice images together manually
- XCT has flexible resolution for different core sizes between 30 μm and 300 μm

SPECIFICATIONS

X-ray source: 65 W Thermo Kevex Microfocus

Voltage Range: 45 kV to 130 kV

X-ray Spot Size Range: 22 μm to 100 μm

Detector: 1920 x 1536 pixel flat panel detector

Image Resolution Range: 50 μm to 300 μm

Size: 4950 mm x 620 mm x 1980 mm (L x W x H)

Weight: c. 1500 kg

Utilities: 100V to 240V, single phase, 50-60 hz

Cooling: None

Cores Dimensions: Diameter - 5 cm to 15 cm, Length - up to 1.5 m in length

Output: 16-bit Tiffs for 2D deliverables and 16-bit Tiff stack with automated report generation for CT deliverables

Core Loading: Bluetooth-controlled Push-Me-Pull-You motorised arms

Rotation accuracy: 0.002 degrees

Rotation Method: Horizontal core rotation

CT Reconstruction: Cone beam with volume stitching

RXCT: ROTATING X-RAY CT SYSTEM

The RXCT is Geotek's most flexible and capable 2D and 3D X-ray imaging system. The system is fitted with a rotating source and detector gantry and is the ideal instrument for fractured or fragile cores that cannot be rotated but where CT data are required. Cores are securely held using a variety of adapters specifically designed for geological samples and translated past the source and detector using bluetooth-controlled motorised arms.

SPECIFICATIONS

X-ray source: 65 W Thermo Kevex Microfocus

Voltage Range: 45 kV to 130 kV

X-ray Spot Size Range: 22 μm to 100 μm

Detector: 1920 x 1536 pixel flat panel detector

Image Resolution Range: 50 μm to 300 μm

Size: 5156 mm x 1950 mm x 2100 mm (L x W x H)

Weight: c. 2,200 kg

Utilities: 100V to 240V, single phase, 50-60 hz

Cooling: None

Cores Dimensions: Diameter - 5 cm to 15 cm, Length - up to 1.5 m in length

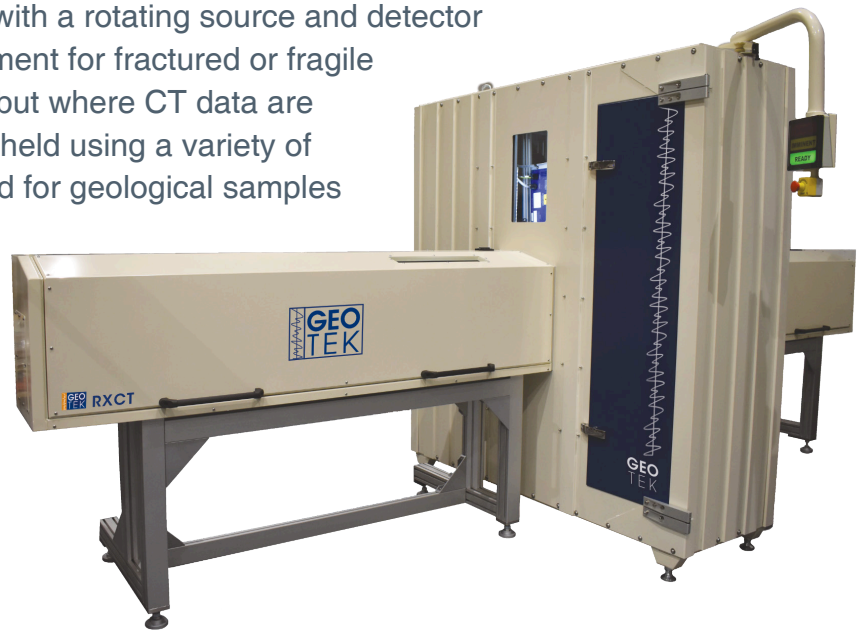
Output: 16-bit Tiffs for 2D deliverables and 16-bit Tiff stack with automated report generation for CT deliverables

Core Loading: Bluetooth-controlled Push-Me-Pull-You motorised arms

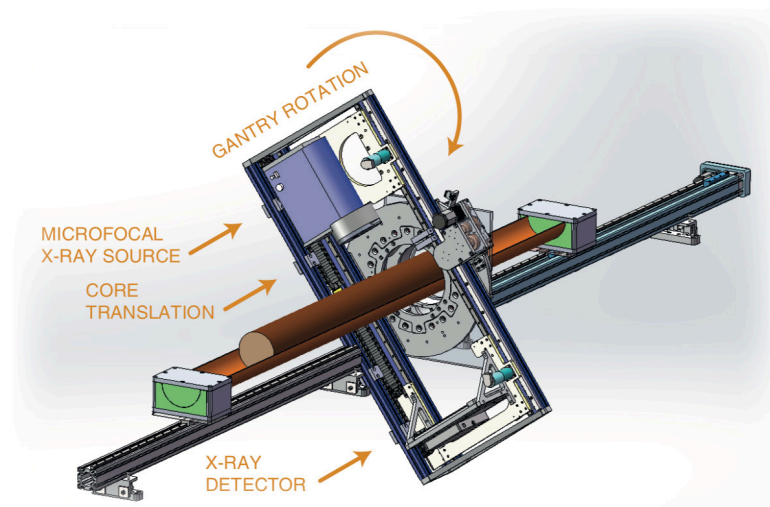
Rotation accuracy: 0.002 degrees

Rotation Method: Horizontal core with rotating X-ray source and detector

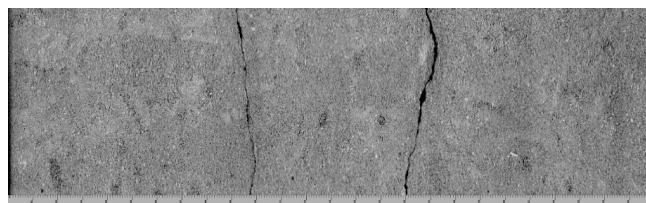
CT Reconstruction: Cone beam with volume stitching



ACQUIRE 2D X-RAY SCANS AND 3D X-RAY CT VOLUMES



- The RXCT is the solution to whole core scanning without the cost, poor resolution, complexity, size, and infrastructure required for a medical-style CT system.
- Designed with a unique rotating X-ray source and detector gantry for whole core scanning of lined rock cores, fractured material, and unconsolidated sediments.



Loose Oolite 1.5" core with two fractures scanned on the RXCT at c.35 micron resolution

VXCT: VERTICAL X-RAY CT SYSTEM

SPACE-SAVING DESIGN WITH ALL THE FUNCTIONALITY

A small footprint vertical 2D and 3D X-ray CT product where geological samples are securely mounted vertically and rotated on a heavy duty stage. A three-axis geometrical movement of the source, object, and detector creates an adaptable environment for set-up for variety of core sizes and types.

- High stability and highest resolution from any Geotek X-ray CT system
- Space-saving compact system with the ability to log whole core samples up to 1.5m, and with reinforced precision stage for heavy and large samples
- Cores are rotated and can be viewed through a lead glass window for **sample inspection during scanning**
- Flexible adapters for easy location of core samples or hand specimens onto the stage for consistent geometry
- One system solution for whole core, core plugs and sidewall cores
- Vertical arrangement perfect for X-ray imaging of seabed marine sediment cores



SPECIFICATIONS

X-ray source: 65 W Thermo Kevex Microfocus

Voltage Range: 45 kV to 130 kV

X-ray Spot Size Range: 22 μ m to 100 μ m

Detector: 1920 x 1536 pixel flat panel detector

Image Resolution Range: 25 μ m to 300 μ m

Size: 1930 mm x 700 mm x 2510 mm (L x W x H)

Weight: c. 2,200 kg

Utilities: 100V to 240V, single phase, 50-60 hz

Cooling: None

Cores Dimensions: Diameter - 5 cm to 15 cm,
Length - up to 1.5 m in length

Output: 16-bit Tiffs for 2D deliverables and 16-bit Tiff stack with automated report generation for CT deliverables

Core Loading: Vertically held with centralising core cones on a heavy duty stage

Rotation accuracy: 0.002 degrees

Rotation Method: Vertical core rotation

CT Reconstruction: Cone beam with volume stitching

MOBILE SYSTEMS

X-RAY CAPABILITY IN THE FIELD



Geotek's core logging equipment is designed to be mobile and versatile to suit a range of project environments both offshore and onshore.

We can install an XCT system into a standard 20ft or 40ft container. Geotek mobile X-ray container labs are self-contained working environments that can be quickly deployed to the desired location for near-real time data acquisition.

SUPPORT

Geotek offer Gold and Silver service and support packages for our X-ray CT product line. The Geotek team incorporates a range of engineers, software developers and geoscientists who can provide both instrument and application support to our customers.

	SILVER	GOLD
Telephone and online support for application and instrument queries	✓	✓
Online diagnostic support	✓	✓
Latest software upgrades	✓	✓
30% Discount on labour and consumable parts	✓	
Labour and consumable parts included		✓
Annual service or repair visit		✓



PURCHASE



LEASE



SERVICE

The Geotek X-ray CT systems are available for purchase, lease or service. Please contact us for more information.



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