GE
Inspection Technologies

Seifert x|cube series

Versatile 2D and 3D X-ray system built for speed.

gemeasurement.com/x-ray

x|plore production CT line

Make important production decisions faster.

GE is revolutionizing 2D and 3D X-ray inspection for non-destructive testing (NDT). By combining powerful X-ray inspection systems with advanced industrial CT technology, we have created a family of solutions to make scanning more reliable and productive.

The Seifert x|cube series delivers highly automated 2D inspections with the flexibility to inspect a wide variety of parts. This adaptable system enables reliable, repeatable, and efficient X-ray inspections across all areas of industry, such as aerospace and automotive castings, as well as additive manufactured parts.

Both the x|cube Compact and the x|cube XL ensure fast, easy, and effective non-destructive testing (NDT) that will take your inspections to the next level. With a new, easy-to-use design, highly dynamic GE detectors that display the finest contrast images, and optional 3D Computed Tomography capabilities, you can detect hidden defects early-on and make important production decisions faster than ever.

Inspect a greater range at a higher speed.

The x|cube series enables greater flexibility across all areas of industry, right on the factory floor. It helps you conduct reliable and thorough evaluations in any step of your process—from production and incoming inspection, to failure analysis, to research and development.

These systems use the latest technological innovations to accommodate a wide variety of parts from different production lines at the fastest speeds possible. High throughputs for unrivaled image quality complies with industry standards like ASTM and DICONDE to conform image management—helping you safely improve efficiency, increase uptime, lower costs, enhance productivity, and maintain quality across operations.

Applications:

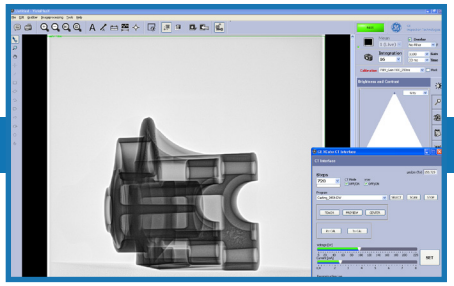
- Light metal castings
- Plastics / composites
- Special alloys
- Ceramics
- Steel components
- Additive manufactured parts

Determine the shape, position, and size of defects.

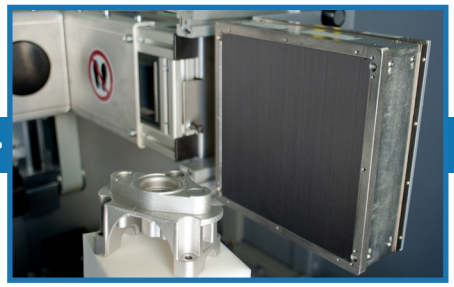
The x|cube system extends beyond 2D X-ray inspection with a full computed tomography (CT) option. CT enables this versatile system to perform 3D analysis and process control with volume data from virtual, non-destructive slicing of parts in instances when traditional 2D radioscopy is unable to provide clear results.

The CT feature is easy to set up and use, allowing you to improve detection and classification. With the ability to feature detailed 3D inspections, such as quantitative porosity analysis or the ability to nondestructively measure internal wall thickness, you can reduce your rejection rates and increase the accuracy of failure detection—right on the production floor.

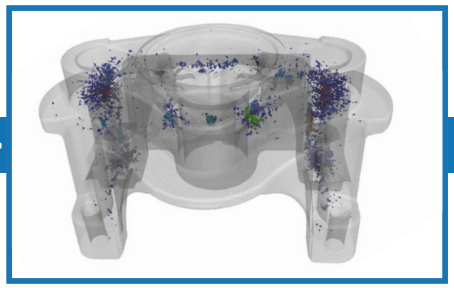
How 3D CT inspections work:



With the GE intuitive software it takes just a few clicks to set up the CT scan.



While the workpiece rotates in the X-ray beam, the extremely fast GE flat panel detector captures a series of 2D radiographic images.



The reconstructed volume is automatically opened for the 3D analysis and enables, e.g., any virtual sections and quantitative pore analyses.

x|plore production CT line

Inspect faster, more easily, and with greater flexibility.

Increase productivity and reliability with immediate operational availability, fast servo drives, and intuitive user guidance. With an x|touch® panel for easy teach-and-learn functionality, you can also set up inspection routines within seconds. By combining a safety cage to prevent collisions, VISTAPLUS software for real-time, top-quality images, and optimized Flash!Filters™ images for fast and reliable visual inspections, as well as optional automatic defect recognition (ADR)—your ROI will go unmatched.

The new x|cube series goes even further to streamline your operations with new and improved versatile features like:

- A durable design to protect against harsh environments
- Strengthened safety with an additional door bumper
- Improved serviceability
- Part manipulator with automated moveout, higher payload
- Variety of high-dynamic detectors in different sizes and resolutions
- Software assistance tools to support reliable inspection

FAST

Keep up with growing demands while still achieving the highest result quality with fast set-up, short cycle times, and reliable inspection tools like Flash!Filters™, Semi-ADR, and ASTM tools.

EASY

Reduce human error and influence, while increasing repeatability and reproducibility. With easy teach-and-learn inspection routines, part-specific inspection routines for 2D radioscopy and 3D CT scans, and software features like ASTM reference image catalogues, Semi-ADR, and Flash!Filter™ tools, operators are able to make reliable inspection decisions.

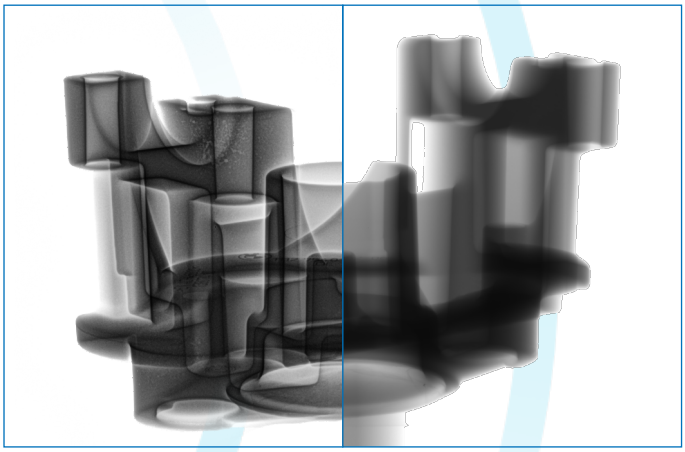
FLEXIBILE

Meet a wide inspection range with a variety of different system sizes, while extending system life with software, CT, and detector upgrades.

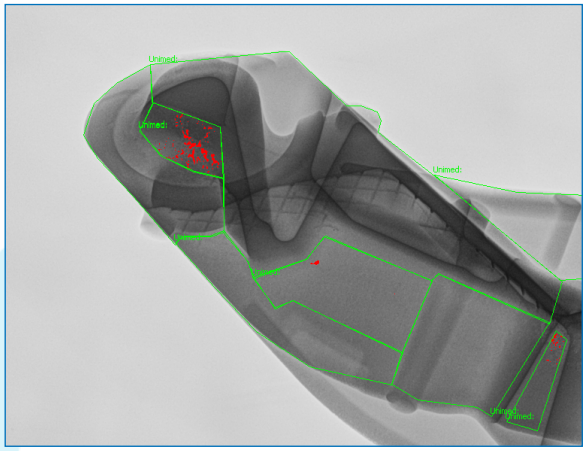
Meet industry standards without compromising quality.

The world of manufacturing is evolving faster than ever, and to keep up with shifting inspection guidelines, end-users need flexible solutions. With software tools that can be upgraded based on customer requirements, and detectors that can be selected and changed for growing demands, the x|cube ensures that the quality of your production can continue to meet industry standards.

Flash!Filters™ optimized | Conventional radiography



Semi-ADR feature



See more with Flash!Filters™

The x|cube utilizes GE's groundbreaking Flash!Filter™ technology that gives you incomparable inspection results optimized for human eyes. This clearer imagery minimizes failure detection time, while increasing failure detection rate in both casting and welding inspections.

Ensure compliance with international NDE standards

Meet even the most stringent industry standards. Equipped with optional semi-automatic defect recognition (ADR), the x|cube can efficiently evaluate casting defect sizes. You can connect to GE Rhythm software right from your x|cube for DICONDE compliant digital image analysis and data management—including descriptions of all necessary syntax, attributes, and data elements.

General specifications.

Seifert x|cube	Compact			XL	
Energy (max.)	160 kV	225 kV	320 kV	160 kV	225 kV
Max. sample size (Ø x height in mm)	600 x 900 **	600 x 900 **	600 x 900 **	800 x 1500**	800 x 1500**
Max. loading part height (mm)	1150	1150	930	1585	1585
Max. sample weight	150 kg *	15 0 kg *	300 kg *	100 kg *	100 kg *
Cabinet dimensions (L x W x H in mm)	2650 x 2155 x 2360	2650 x 2155 x 2360	2540 x 2230 x 2400	2850 x 2155 x 2885	2850 x 2155 x 2885
Cabinet weight approx.	5350 kg	5350 kg	10.500 kg	6600 kg	6600 kg
Control panel weight approx.	350 kg				
Manipulation Travel					
Max. horizontal motion across the X-ray beam	650 mm		660 mm	850 mm	
Max. external loading/ unloading position	90 mm		150 mm	90 mm	
Max. horizontal motion magnification axis	850 mm		620 mm	1050 mm	
Focus detector distance (FDD), depends on detector tyape	800-1000 mm		800-1150 mm	1000 - 1200 mm	
Max. vertical motion	900 mm		950 mm	1500 mm	
Max. tilt of the C arm	± 45°				
Max. sample rotation	n x 360°				
2D software	Integrated image optimization system VISTAPLUS supports live image display and real-time capabilities with dedicated detectors				
System control	x|touch panel operation allows for fast and easy set-up of inspection routines by teach-and-learn procedures				
Control / Drives	Hardware PLC for PC independent/Fanuc servo drives				
Detector options	Selection of various digital flat panel detectors, including temperature-stabilized highly dynamic GE DXR 250RT digital detector for real-time inspection and very fast CT scans, the GE DXR 500 L detector for particularly high-resolution applications, and the DXR 250 for a large active area				
Flash!Filters™ option	Proprietary live image optimization technology for easier visual defect detection in castings or weldings				
Tube options	Various mini and macro focuses, as well as various high-power X-ray tubes				
Software options	EZ Compare with ASTM reference image catalogue, semi-ADR for semi automatic defect recognition (pass/fail final decision by operator), Rhythm Export Module with DICONDE file export to GE Rhythm Platform, and automatic ASTM image quality evaluation				
Computed tomography add-on	CT package contains all the required hardware and software components for combined 2D/3D operation with GE detectors				
CT scan range	Max. 160 mm Ø x 160 mm height at DXR 250RT 8"x8" detector				
Min. voxel size	Up to 100 µm, depending on the sample size and detector pixel pitch				
Connection values / capacity	3N PE 400/230V 50/60 Hz, 35 A (160+225 kV), 50 A (320 kV), TN-S or TN-CS network / up to approx. 16 kVA***				
Earthing	Separate earthing for X-ray device and high-voltage generator (< 2 Ω) with at least 6 mm²				
Means of transport	Complete X-ray protection cabinet with fork lift truck / Control panel (on pallet) with fork lift truck				
Ambient conditions (in accordance with IEC 60 601-1)	Ambient temperature +10° C to +40° C, air pressure 700 hPa to 1060 hPa humidity during operation 25 to 85% non-condensing				
Compliant with national and international standards	ISO 9001; VDE 0100; UVV; DIN EN 60204 (VDE 0113); VBG; German Radiation Control Act (RöV) of 1987 (with amendments in the current version); DIN EN ISO 13849-1; CFR 1020.40; DIN 54113-1				
Radiation protection	The radiation safety cabinet is a full protective installation without type approval according to the German RöV. French NFC 74 100 and the US Performance Standard 21 CFR Subchapter J are coming soon. For operation, other official licenses may be necessary.				

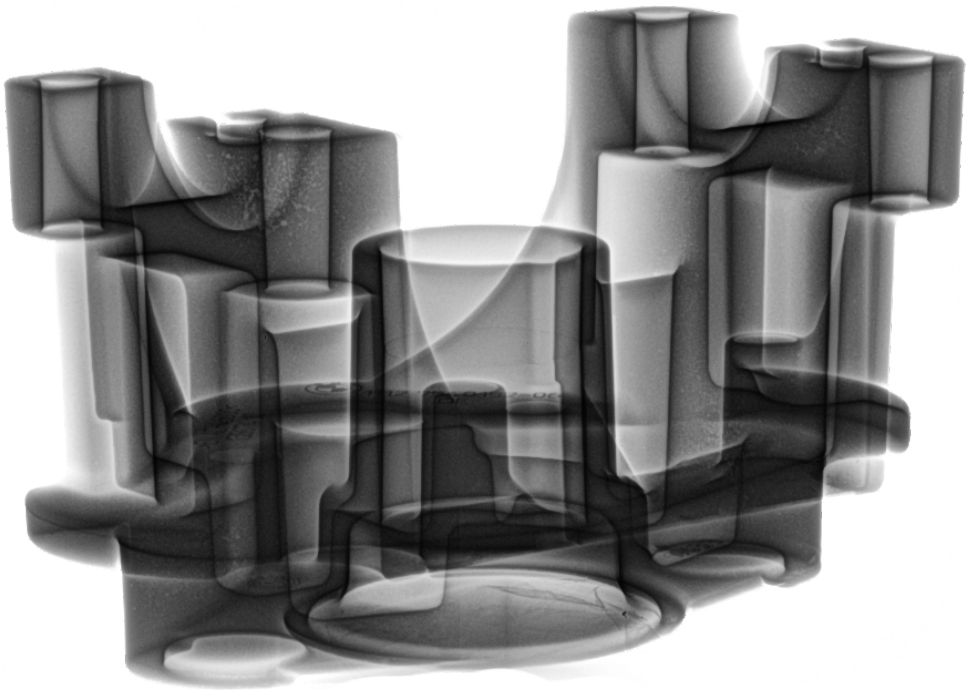
* Depends on the loading position.
** Longer workpieces are possible, this involves the workpiece being reloaded and inspected.
*** Depends on the applied X-ray tube

Note: The inspection volume that can be X-rayed varies according to the total wall thickness and the material density.

A partnership for improved performance.

The seifert x|cube series is just one example of how GE is revolutionizing digital inspection to make manufacturing processes more efficient. With our entire X-ray and CT product family, a variety of optional innovations, and expert service, we are committed to enhancing precision, automation, and productivity for your operations.

gemeasurement.com/x-ray



GE Sensing & Inspection Technologies

GmbH
Bogenstr. 41
22926 Ahrensburg / Germany
Tel.: +49 4102 807 0
Fax: +49 4102 807 277
E-mail: xray.info@ge.com

GE Sensing & Inspection Technologies

11988 Tramway Dr.
Cincinnati, OH 45241 / USA
Tel.: 1 844 991 0474
E-mail: phoenix-usa@ge.com

GEIT-30006EN (04/2018)