EN – Edition 01

X-ray Solutions for Casting

A comprehensive portfolio for challenging environments

VCxray
by VisiConsult

Wide range of casting inspection solutions

The perfect answer to every requirement

ECO C

ECO R

Basic solutions ready for the factory floor

PRO C

PRO FI

PRO FI Giga

Manual big parts inspection | Universal high-speed machine | Big next generation castings

	ECO C	ECO R	PRO C	PRO FI	PRO FI Giga
SPEED	●●●○○	●●●●●	●●●●○	●●●●●	●●●●●
FLEXIBILITY	●●●●○	●●●●○	●●●●●	●●●●●	●●●●○
ACCURACY	●●●○○	●●●●○	●●●●○	●●●●○	●●●●○
ROBUSTNESS	●●●●●	●●●●●	●●●●●	●●●●●	●●●●○
SAMPLE SIZE	●●●○○	●●●○○	●●●●○	●●●●○	●●●●●

ECO C

Robust design for demanding environments

This universal X-ray inspection cabinet is **equipped with a C-arm** and has a large inspection envelope, as well as full CNC capability for automated inspection sequences.

As with all ECO line systems, the **ECO C** has a the best cost-benefit ratio due to its standardization, while the X-ray source and detectors are still configurable.

An easy and fast installation is ensured due to the compact design that includes forklift pockets.

As soon as the system arrives, the operator can start to inspect because the training requirements are low, and the software is user-friendly.

	ECO C.225	ECO C.320	ECO C.450
CABINET DIMENSIONS*	2600 x 2250 x 2450 mm	2850 x 2650 x 2600 mm	3150 x 2600 x 2700 mm
INSPECTION ENVELOPE	Ø 700 x 1200 mm	Ø 700 x 1200 mm	Ø 700 x 1200 mm
TILT AXIS (RX)**	+/-45° max.	+/-45° max.	+/-45° max.
MAGNIFICATION VALUE RANGE	1.22 x-4.65 x	1.22 x-4.65 x	1.22 x-4.65 x
MAX. PART WEIGHT	150 kg	150 kg	150 kg
ENERGY	225 kV	320 kV	450 kV

*All dimensions are nominal and may vary depending on system configuration
**Tilt may be reduced in the upper and lower positions depending on the system configuration

Optional **external loading position** for ergonomic operation

SIMPLE

Easy operation principle and low training requirements

RELIABLE

Standard system configuration - options available

EFFICIENT

Ideal for manual or semiautomatic inspection applications

ECONOMIC

Excellent cost benefit ratio for economic quality control

ECO R

Robust design for demanding environments

The **ECO R** is **equipped with a robot inside** the cabinet. The robot is equipped **with a C-arm** that carries the X-Ray tube and detector.

A universal loading table allows rapid part exchange, where single parts, as well as several parts, can be inspected at the same time.

The table is loaded from the outside of the cabinet either manually or by a second robot to achieve a fully automated system.

The **ECO R** is available with 160 or 225 kV, and comes with **Automatic Defect Recognition (ADR)**.

	ECO R.160	ECO R.225
CABINET DIMENSIONS*	4300 x 2300 x 2500 mm	4300 x 2300 x 2500 mm
INSPECTION ENVELOPE	Between 700 x 400 x 1150 mm - 200 x 400 x 1800mm	
TILT AXIS (RX)**	+/-35° max.	+/-35° max.
MAGNIFICATION VALUE RANGE	1.1 x- 2 x	1.1 x- 2 x
MAX. PART WEIGHT	Max 30kg	Max 30kg
ENERGY	160 kV	225 kV

*All dimensions are nominal and may vary depending on system configuration
**Tilt may be reduced in the upper and lower positions depending on the system configuration

Possible to load manually or by robot

RAPID

High throughput optimization enables speed

RELIABLE

Flexible system configuration – Options available

EFFICIENT

Loading by robot or operator possible

PROVEN

Equipped with reliable industrial robot (Standard: ABB)

PRO C

Manual large parts inspection

Sophisticated inspection with future flexibility: The **PRO C** line is one of our **most popular X-ray solutions for medium to large sized parts**, and its robustness is a tribute to its German engineering and production. This 7+ axis, 2-piece C-arm manipulator concept can be configured in a variety of ways – enabling the user the flexibility to inspect a wide variety of parts. The core of the system is VCxray's x.OS software ecosystem, and technologies like Computed Tomography (CT) and Automatic Defect Recognition (ADR) are especially effective due to the precise motion control and programming capabilities. Both the standard and XL versions of these cabinets are available in 225, 320, and 450kV versions.

	PRO C.225	PRO C.320	PRO C.450
CABINET DIMENSIONS*	2515x2825x2730 mm	2515x2825x2730 mm	2515x2825x2730 mm
INSPECTION ENVELOPE	Ø 650 x 900 mm	Ø 650 x 900 mm	Ø 650 x 900 mm
TILT AXIS (RX)**	+/-30° max.	+/-30° max.	+/-30° max.
MAGNIFICATION VALUE RANGE	1.3 - 3.1	1.3 - 3.1	1.3 - 3.1
MAX. PART WEIGHT	600 kg	600 kg	600 kg
ENERGY	225 kV	320 kV	450 kV

*All dimensions are nominal and may vary depending on system configuration
**Tilt may be reduced in the upper and lower positions depending on the system configuration

Make it an XL!
More space for bigger parts, ***Ø 950 x 1500 mm***

COMFORTABLE

Most versatile for all applications – including automated DR, CT, and ADR options

SOPHISTICATED

Highest levels of optimization in a standard system

OPTIMIZED

Powered by x.OS software platform for optimal performance

FLEXIBLE

Built for 24/7 operation with advanced controls and software tools

PRO FI

Universal high-speed machine

Our workhorse for the **rapid inspection of small to large sized casting parts**. The flexible part table allows the inspection of several smaller parts at the same time or the inspection of a single casting. It offers unmatched flexibility due to fast changeover times by simply swapping out the part table.

The manipulator is highly versatile and allows easy creation of new inspection programs without requiring programming knowledge.

The system can be used manually via joysticks or in fully automatic program mode. An open interface offers versatile integration options into robotic loading cells or manufacturing lines.

The **PRO FI** is equipped with our **state of the art VC.acquire software platform** and offers an easy to use Automatic Defect Recognition (ADR) functionality.

	PRO FI.160	PRO FI.225
CABINET DIMENSIONS * (LxWxH)	4784 x 3982 x 2874 mm	4784 x 3982 x 2874 mm
INSPECTION ENVELOPE (LxWxH)	1600 x 1000 x 500 mm	1600 x 1000 x 500 mm
TILT AXIS (RX)**	+/-30° max.	+/-30° max.
MAGNIFICATION VALUE RANGE	1.3 - 3.1	1.3 - 3.1
MAX. PART WEIGHT	50 kg	50 kg
ENERGY	160 kV	225 kV

*All dimensions are nominal and may vary depending on system configuration
**Tilt may be reduced in the upper and lower positions depending on the system configuration

MAX EFFICIENCY

Faster analysis of a large amount of data, reducing inspection time.

MAX RELIABILITY

Typical configuration for casting inspection, the PRO FI.225 is equipped with ADR as standard

MAX FLEXIBILITY

Universal inspection machine for all kinds of casting

MAX SAFETY

Consistent results, detection of smaller and harder-to-see defects

PRO FI Giga

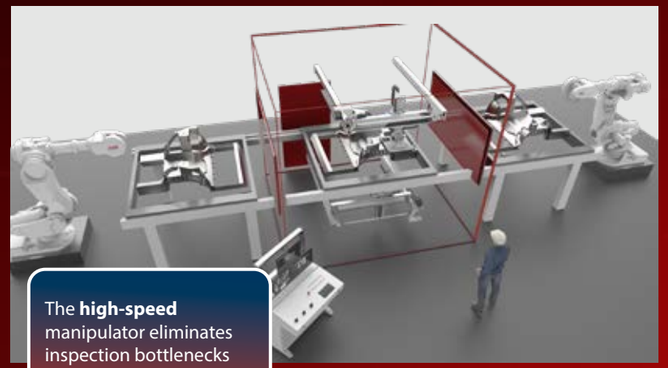
Next Generation Extra-large Castings

The castings world is shifting to a new level: The rise of next-generation parts like giga castings and battery trays is posing a challenge to manufacturing and inspection processes. VCxray by VisiConsult has developed an XL version of our PRO FI.

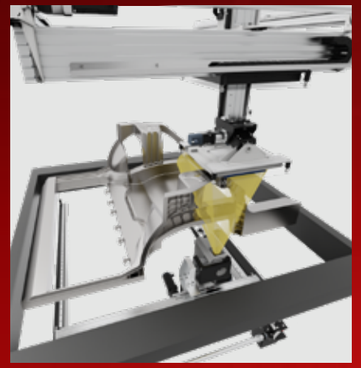
The **PRO FI Giga** is a unique system that **can be highly customized to the needs of the customers.** It **offers different loading concepts, from vertical to horizontal, and a high degree of automation.** This allows the system to be directly integrated into manufacturing lines or automation cells.

The high-speed manipulator ensures that the x-ray inspection can be performed in line with the cycle time of the manufacturing line. This eliminates the inspection process as a bottle neck, compared to inspection in a large manual cabinet. Our Automated Defect Recognition (ADR) software fully automatically finds and measures all defects, leading to a truly automated process.

This system is available with up to 225kV.



The **high-speed** manipulator eliminates inspection bottlenecks



MAX SIZE

Inspect even the biggest casting parts with ease - the smart manipulator and automation concept ensure smooth inspection process

MAX EFFICIENCY

Faster analysis of a large amount of data, reducing inspection time, just 1.5 seconds per view

MAX RELIABILITY

Like all VCxray systems, the PRO FI Giga is equipped with ADR as standard

MAX FLEXIBILITY

Universal inspection machine for all kinds of castings

diondo d systems

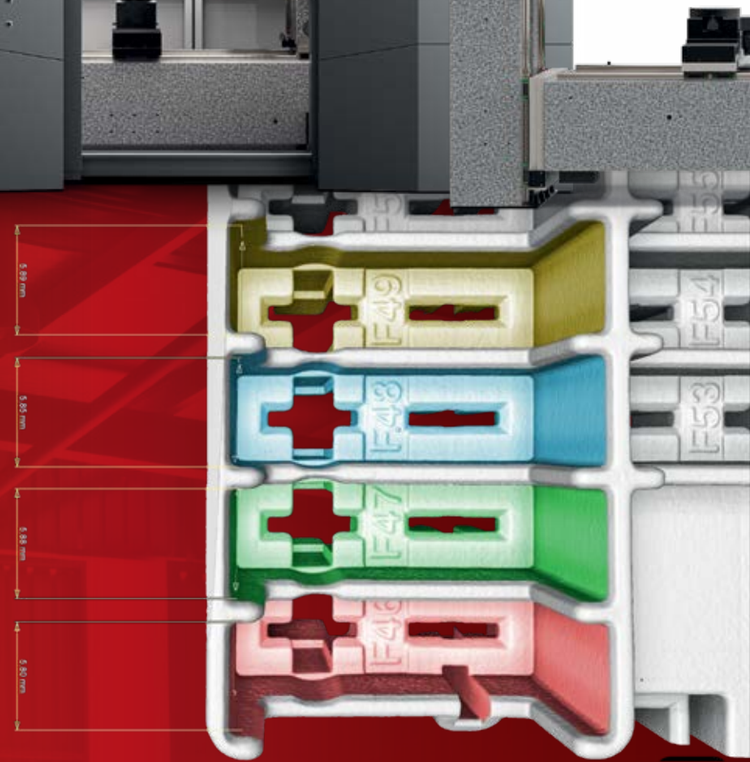
High performance casting CT

Our **diondo d** is professional solution for your testing and measuring needs. All systems are based on high-precision granite manipulators to guarantee accurate measuring results and to achieve highest resolutions.

Unlike many other systems, the x-ray source and detector are also mounted on a granite base. Thus, you benefit from first-class thermostability, which is essential for precise serial inspection tasks as well as stable long-term imaging.

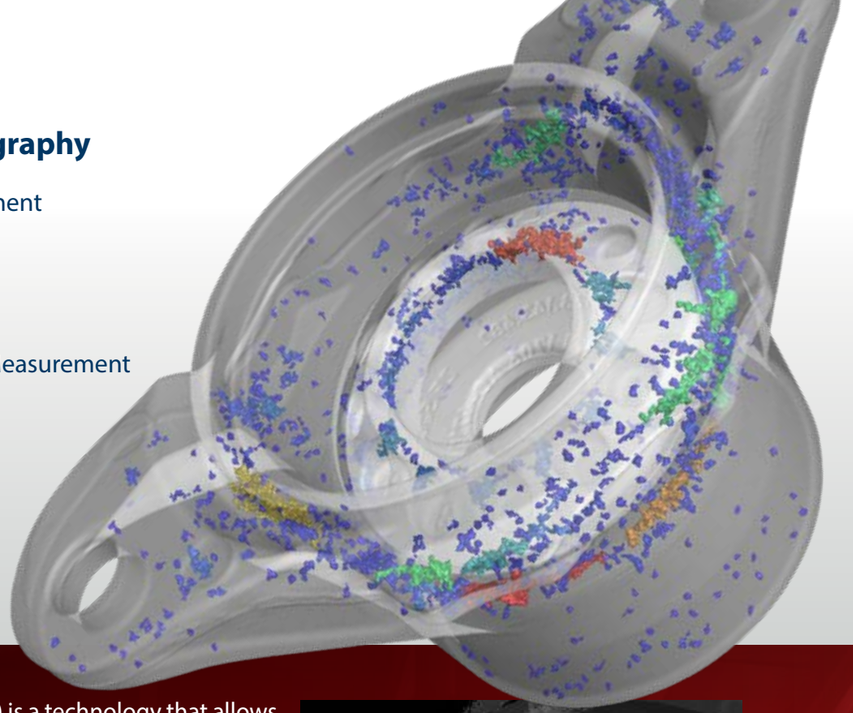
Our professional software solutions are designed for productivity and ease of use, incorporating a full suite of advanced features: Multiple Offset CT, Dual-Helix CT, Multiline CT, diScatter, Consistency Check, Metrology.

- **A Multitude of Combinations,** to suit your specific testing requirements.
- **Coordinate Measuring Technology,** for highest demands in accordance with VDI/VDE 2630-1.3.
- **Granite Manipulator,** with up to 9 motorized axes for maximum flexibility.
- Easy metrological accreditation



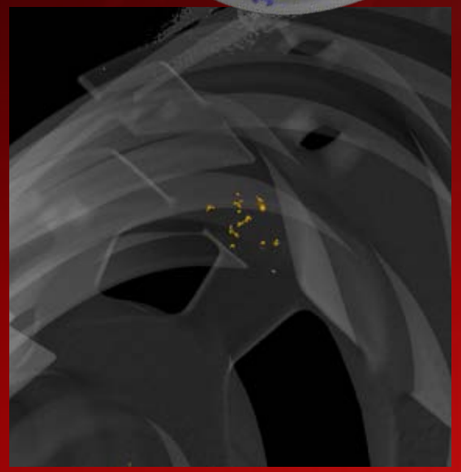
➤ Computed Tomography

- ✓ Dimensional Measurement and Reporting
- ✓ Assembly Verification and Visualization
- ✓ External and Internal Measurement
- ✓ Form Analysis
- ✓ Defect Detection
- ✓ Fiber Flow Analysis
- ✓ Failure Analysis



Computed Tomography (CT) is a technology that allows 3D reconstruction of test parts.This allows advanced analyses of the error shape, position and distribution.

Often, classic digital radiography (DR) cannot deliver accurate depth information of defects in x-ray images. As it is a purely two-dimensional technology, anomalies can be detected but the depth and location of these discoveries can often not be accurately determined. Nevertheless, in some applications it is a big difference if the error is close to the surface or deep inside the part. Another interesting metric is the exact defect-volume, which is impossible to determine in 2D images. Depending on the application, various acquisition speeds, trajectory paths and even reconstruction techniques can be utilized.

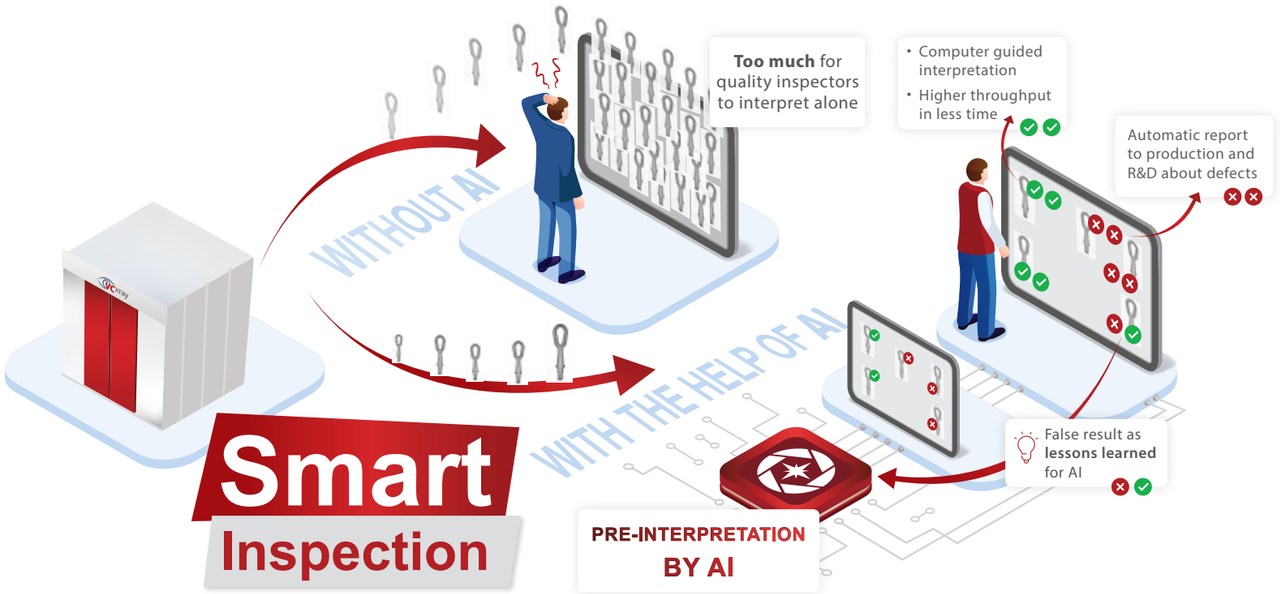


Best customer experience

Ohm & Häner *Metal Work (Germany)*

> Only **VCxray** was able to offer us a system solution for large, heavy gearbox castings. Commissioning took place very quickly. We could trust this top company all round and ordered another system straight away.

VCxray is proud about another happy customer. The German family owned business **Ohm & Häner** is a leading supplier for safety relevant casting parts. Listen to Dr. Ohm's words in our short reference clip and get inspired by the efficient innspetion workflow.



➤ Automated Defect Recognition (ADR)

- ✓ All systems are ADR capable
- ✓ Allows to detect defects like porosities
- ✓ Including an ADR offline programming toolbox
- ✓ Evaluation criteria like defect size, defects per area, distance between defects etc. can be defined

➤ Smart Inspection with AI in NDT

The main task of AI in NDT applications is machine learning (ML), which means training algorithms to reliably solve complex pattern recognition tasks such as detecting a porosity. This requires a significant amount of labeled training data.

If you are interested in our AI pilot program, **COMPASS,** please contact us. We are looking forward to present you our first results.

Automatic detection of defects through advanced image processing or Artificial Intelligence (AI) algorithms can offer significant savings. **VisiConsult** has over 25 years of experience in this field and has a comprehensive in-house developed ADR toolbox. It fulfills international quality standards like ASTM, as well as the demanding company standards in the automotive industry. Typical ADR applications include the detection of porosities, inclusions and cracks, as well as geometric measurements and feature recognition. It is possible to define specific ROIs to check many metrics like density, distance, size, occurrence per area and many more tools that can be dynamically defined – even via machine learning. The best ADR solution for your application may require traditional algorithms OR perhaps an AI solution will work – we can help you determine this.

- ✓ Enhanced Efficiency - Significantly increase inspection throughput by automating indication detection.
- ✓ Accuracy and Consistency - Reduce human error and provide more consistent results through assisted measurements.
- ✓ Get insights - Automatically compile powerful defect statistics and POD documentation.
- ✓ Business continuity - Eliminate bottlenecks in inspection and mitigate labor constraints.

Efficiency increase: **60%**

Time for an ADR decision: **0.2 seconds**

Contact us: **info@vc-xray.com**

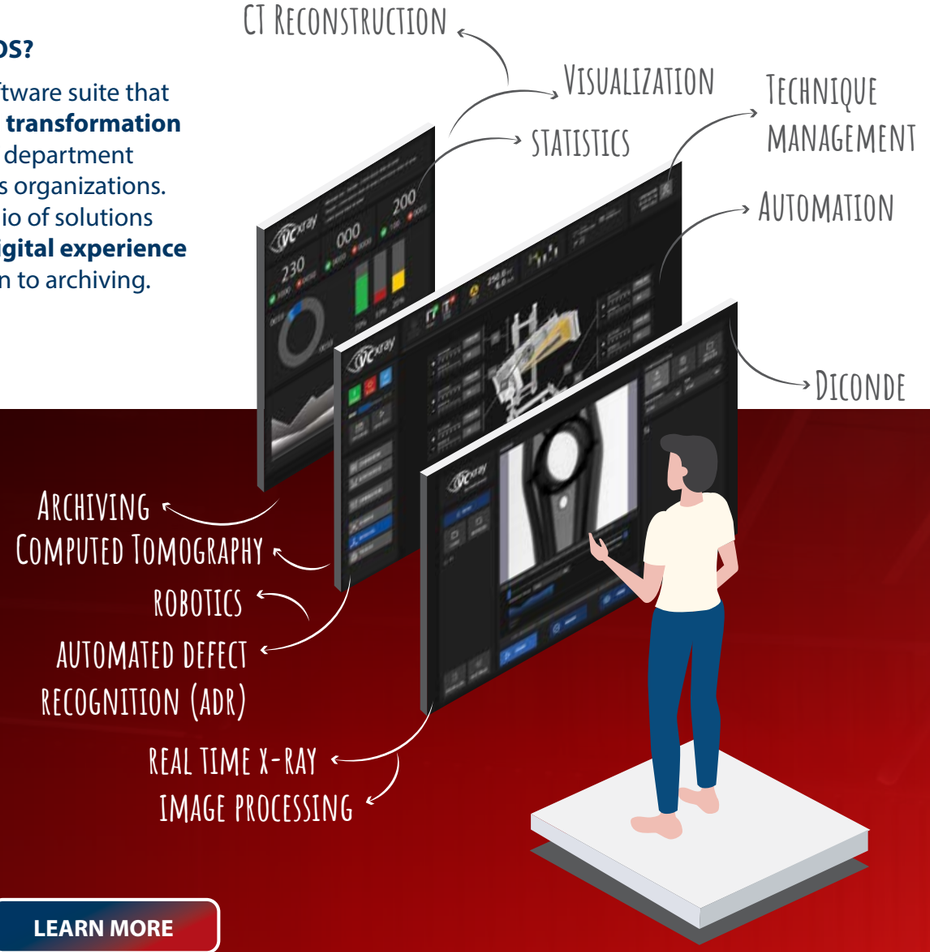
Get your live demo now!

x.OS - X-ray Operating Suite

The software platform for maximum reliability

What is the x.OS?

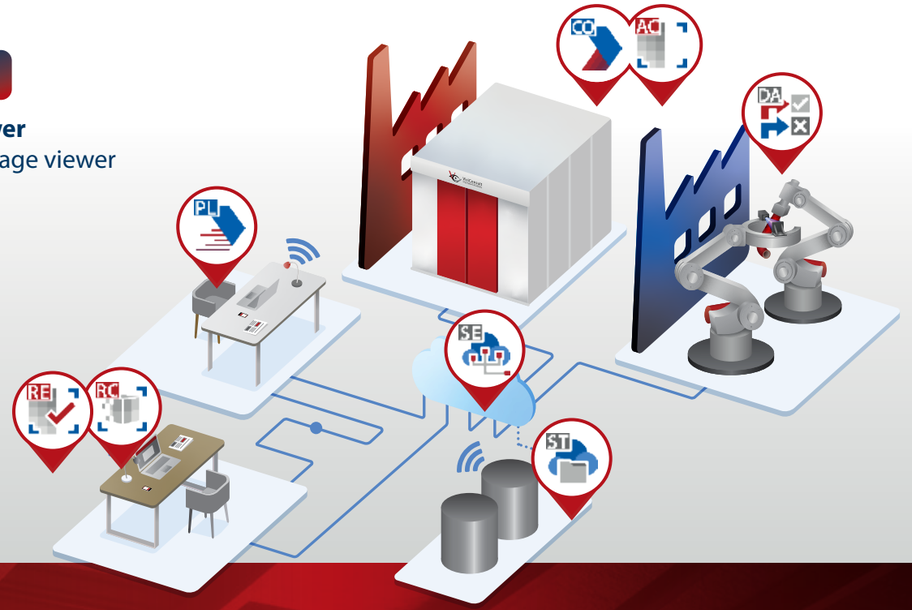
The leading software suite that enables **digital transformation** within the NDT department and even across organizations. A broad portfolio of solutions allows a fully **digital experience** from acquisition to archiving.



LEARN MORE

FREE APP

VC.viewer
X-ray image viewer



VC.control
System control and automation software

VC.planner
Offline programming solution for systems and techniques
Limited availability!

VC.acquire
Image acquisition and enhancement software

VC.review
Image review and post-processing software

VC.recomanager
CT-scan reconstruction and management software

VC.server
Central management and connectivity server

VC.storage
Long-term storage and X-ray image archive

VC.dashboard
Visualized status real-time visualization of inspection status

VCxray Inspection Services is a division of VisiConsult, a global market leader and innovative specialist in industrial X-ray technology. As a full-service provider, the division offers inspection services and consulting in the field of 2D X-ray and computed tomography (CT), among other things.

In doing so, customers can access VisiConsult's expertise and resources worldwide. With its own high-quality X-ray systems and experienced experts, VCxray Inspection Services provides its customers' inspection and quality managers with comprehensive and relevant information on the quality of inspected components through non-destructive testing.

No X-ray system or not capacity?
Contact us today and let us inspect your parts!

XaaS

The **XaaS model** combines the flexibility of the inspection services with the availability of your own system. You benefit from the advantages of a modern digital X-ray system at your site and you only pay for the number of inspections you actually perform. In addition to the evaluation, we are also happy to take care of the reporting for you via the cloud. Furthermore, depending on the contract model, an hour-based own use of the XaaS system is possible.

X-ray as a Service (XaaS)

- No investment in hardware required and completely off-balance sheet
- All costs are fully variable and can be easily scaled up or down
- Included maintenance and support prevent unexpected costs
- Immediate return on investment and savings are guaranteed
- No qualified testing personnel required by customer
- Inspection decision by VCxray
- Improved efficiency of the inspection process
- Continuous monitoring of part quality through VC.dashboard

by VisiConsult

Regional headquarters

EMEA
Stockelsdorf, Germany
Tel: +49 451 290 286 0

Americas
Atlanta, US
Tel: +1 888 972 9821

APAC
Pune, India
Tel: +91 124 4048273

info@vc-xray.com
www.vc-xray.com