Led by experience. Driven by curiosity.

UX50

Faster, most flexible inspection of dense and large parts.

comet
yxlon

Comet Yxlon – this is who we are.

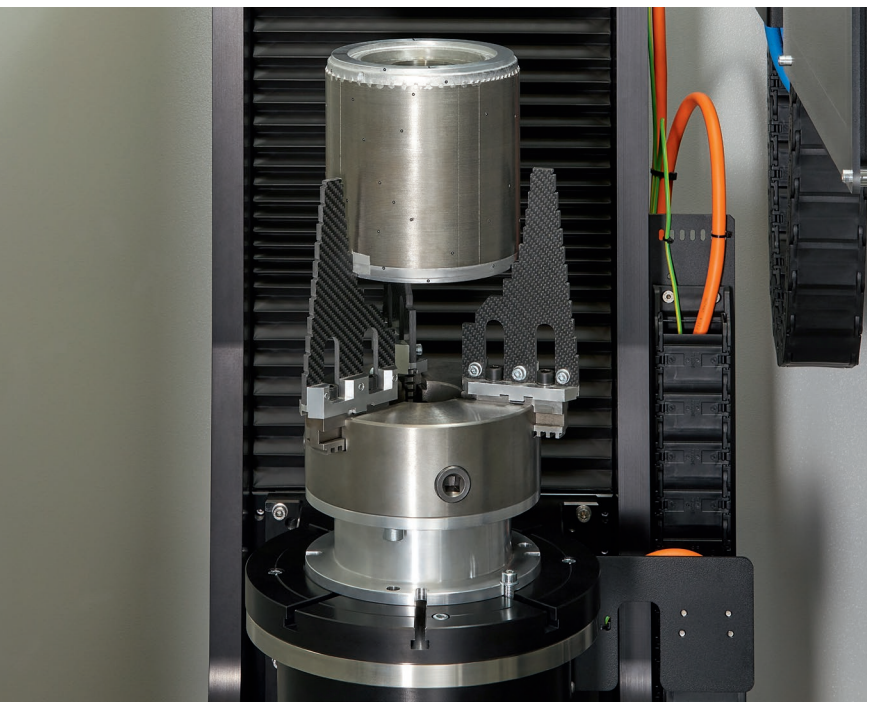
Comet Yxlon designs and manufactures high-end X-ray and CT system solutions for industrial environments – based on customer-centric product development. We're proud to be part of Comet, the globally leading Swiss technology company with a focus on plasma control and X-ray technology.

Led by experience.
Driven by curiosity.

Deeper insights.

Looking beyond the surface is our core competency at Comet Yxlon – but not only in a technical way.

Zooming in on your industry, applications and business challenges allows us to develop innovative and relevant solutions that help you shape future markets. Faster time to market? Avoiding production downtimes? The perfect image with the highest resolution, as fast and easy as possible? Whatever your goal – let's talk about it!



Carbon part holder for testing small, dense parts at high energies.

Your benefits with the UX50:

- Wide application range due to 450 kV X-ray tube and large inspection envelope
- Choice of line and / or flat-panel detector for maximum flexibility
- Benchmark image quality in 2D and 3D
- Simple creation of inspection sequences
- Automated detector calibration and image sharpness measurements (ASTM E1695)

Compact design. Huge possibilities.

With its large inspection envelope, various field-of-view extensions and a powerful 450 kV X-ray tube, the UX50 takes the inspection of complex, dense parts to the next level.

UX50 with evaluation station and optional fan for a laboratory environment or with air conditioning for an industrial environment (IP54).

Massive motor blocks, larger steel parts, or complex e-mobility components – the UX50 CT system scans even the most challenging items in record time.

Maximum flexibility

Apart from sheer power, flexibility is its strong suit: fast switching between line and flat-panel detector, intuitive operation with our user interface Geminy, and a comprehensive set of image processing tools make the UX50 fit for a virtually unlimited range of X-ray and CT applications in the industrial environment.

One system, two detectors

With the UX50, the choice is yours: do you prefer the CTScan 3, a Line Detector Array (LDA) designed and produced by Comet Yxlon, which is highly efficient at high energies? Will you go for the versatile Y.Panel 4343 N next-generation digital flat-panel detector with high resolution? Or do you decide for a configuration including both? Switching between the image chain components in one sequence is easy: going from a 2D flat-panel overview scan to a LDA scan for higher detail visibility will only take seconds.

Which items can be inspected with the UX50?

Components made of aluminum, steel and superalloys
Mechatronic assemblies
Electromobility drive components and batteries
Geological samples
Fossils for paleontological research

Joysticks enable easy part manipulation during fluoroscopic examination.

2D live images: fluoroscopic testing

Fluoroscopic examinations are possible due to the manipulation of the test part using joysticks and the sideways movement of the flat-panel detector. With the touch of a button, you can benefit from numerous digital 2D live-image filters, automatic 2D inspection reports, the possibility of predefined 2D inspection sequences, and the documentation of inspection decisions.

A future-proof investment

Simply choose the image chain that meets your current requirements and budget. If your range of applications increases, single detector configurations can be upgraded on-site. In addition, our Geminy user interface will provide regular updates including new features.

Geminy.

Getting the most out of your UX50.

Our Geminy software helps users perform inspections as easily as possible – and boasts highly potent CT techniques for maximum image quality and diverse field-of-view extensions.

As the single user interface for all workflows, Geminy uses automation, wizards and presets to guide users of different skill levels smoothly through the inspection process. In addition, its powerful CT techniques facilitate the optimum part size spectrum, speed, and image quality.

Special techniques for cone-beam CT with the DDA

- HeliExtend – to avoid cone-beam artifacts
- Horizontal and vertical field-of-view extension
- Combination of horizontal and multiple vertical field-of-view extensions

Special techniques for fan-beam CT with the LDA

- Horizontal field-of-view extension, a Comet Yxlon patent unique in the market
- Determination of regions of interest (ROI) to be scanned with different line pitches with effect on image quality and speed

VistaX. See better. Faster. More.

Opening new horizons: With best in class image quality and unprecedented speed. VistaX significantly increases productivity. UX50 comes with a dedicated feature package: Vista

QuickScan / QualityScan

Choose a mode according to your requirements: Use QuickScan for a revealing overview or QualityScan for high-resolution in-depth analysis.

SpeedMode

Achieve up to three times faster scans for parts of a flat geometry than with the classic QualityScan while keeping image detail resolution. The acceleration of scan times depend on the geometry of the part.

Image quality optimizations.

ScatterFix 2.0

The innovative ScatterFix 2.0 functionality developed by Comet Yxlon reduces scatter radiation to improve the quality of the CT data, e.g. for optimized surface determination.

Beam hardening correction (BHC)

It allows the correction of unwanted gray-value gradients in otherwise homogeneous materials, e.g. in order to reliably carry out a pore analysis.

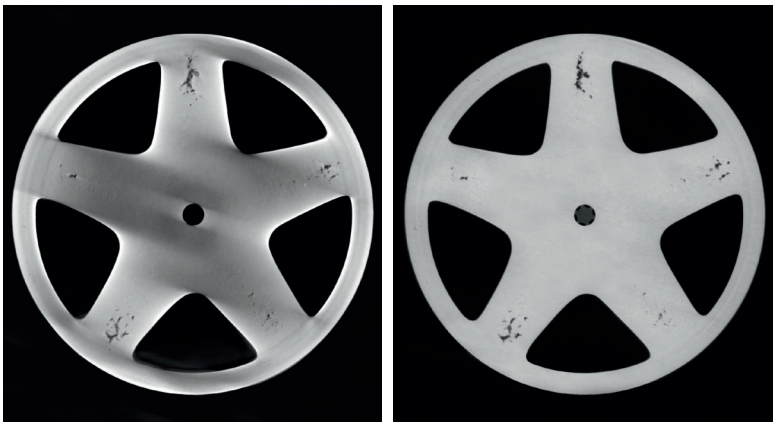
Metal artifact reduction (MAR)

With complex components consisting of plastics and metals, MAR significantly reduces the interfering effects causing the less dense material to 'disappear'.

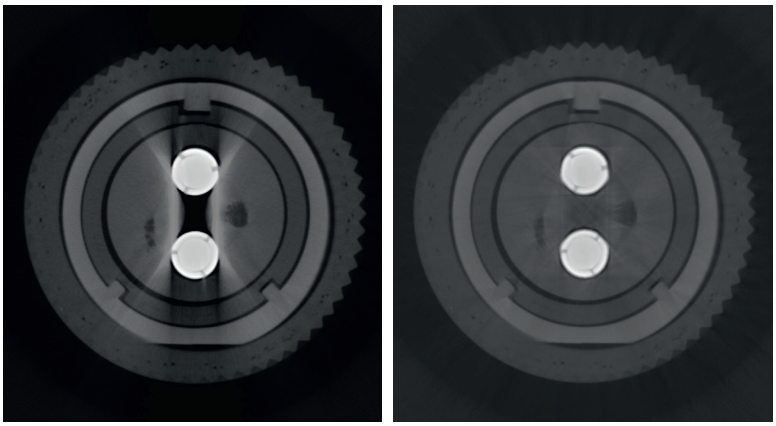
LDA collimator for reduced scatter radiation

To support the Comet Yxlon CTScan3 line detector, we developed the first ever collimator for an LDA. It reduces scatter radiation already during the fan-beam scan.

Improving image quality: Cone-beam CT without (left) and with ScatterFix 2.0 (right).



Eliminating unwanted gray-value gradients: Cone-beam CT without (left) and with Beam Hardening Correction (right).



Reducing interferences: Cone-beam CT without (left) and with Metal Artifact Reduction (right).

Most sophisticated technology. Maximum efficiency.

Automated calibration sequences

In conjunction with the calibration specimens included in the scope of delivery, fully automated sequences provide fast determination of the system's geometry. For the CTScan 3 line detector a fully automatic step-wedge detector calibration is available.

Multi-part inspection for maximum efficiency.

At a glance: system performance

Operators can quickly analyze the system's condition with one look at the Healthmonitor. In addition, performance checks can be executed easily with our automatic workflows. To document the condition of the CT system for an audit, automated reports with all details of the system settings e.g. ASTM E1695 are generated.

Keeping track with part ID and part type

Thanks to track & trace capabilities the ID/serial number of parts can be added to the inspection data and reports manually or via barcode scanner.

Simply share: Automated Data Transfer

Save time and effort in providing 2D and 3D inspection data like images and reports by activating the Automated Data Transfer. Via a defined interface, selected data can be automatically sent from the test system to the customer network for further processing.

Multi-part inspection

The optional multi-part holder allows you to save time by loading several parts at the same time and inspecting them in one inspection sequence. The inspection decision for each part is clearly shown in the Geminy GUI.

A detailed look at the inner workings of the UX50

1 X-ray warning lamp (LED)

2 Temperature-stabilized, high-efficiency Comet Yxlon CTScan3 line detector with tungsten collimator and brass housing

3 Large flat-panel detector, which can be moved horizontally for a CT scan with field-of-view extension or a 2D fluoroscopic inspection (motorized)

4 One-click switching between line detector and flat-panel detector (motorized); automatic transfer of detector and geometry calibration data

5 Powerful 450 kV minifocus tube with variable collimators to reduce scatter radiation

6 Object manipulator for fast, motor-driven vertical movement of the test part

7 Turntable attachment, suitable for fixing specific part holders and Comet Yxlon calibration specimens

8 Air-conditioned, dust-protected control cabinet

9 Pushbuttons for the safe positioning of the inspection object with door open

10 Fast motorized cabinet door

11 Manual axis for setting the geometric magnification in three positions

12 Height-adjustable control panel for comfortable working in a sitting or standing position

13 Intuitive Geminy user interface for easy operation

Not shown: optional loading crane and various options of the CT evaluation station

Our supportive Life Cycle Service.

At Comet Yxlon, service is not an add-on, but an integral part of every product. We support you through the entire life cycle of your system – for easy operation and extended product life.

Offline applications, at-line scenarios, or in-line implementation – Comet Yxlon supplies tailored service solutions for a wide range of production environments. Whether you are an X-ray beginner or a CT expert, whether you need introductory training or a performance upgrade: Our service team is here to support you.

1. Getting you started

Our professional Comet Yxlon field service technicians or certified service providers will ease your way into working with your new inspection system.

- Bringing the system to life: installation & commissioning
- Power on: introductory training by Comet Yxlon Academy
- Correct measurements from the start: SmartCalibration
- Cost transparency from the beginning: flat fee service rates

2. Running things smoothly

Is there an issue? No problem. Our skilled service technician team helps with troubleshooting, maintenance, and part exchange for easy operation.

- High efficiency thanks to remote control and VisualAssist
- Professional phone support and on-site visits
- Preventive maintenance and SmartExchange
- High-end system monitoring with SmartCalibration

3. Enhancing performance

With our upgrades and conversion kits, your Comet Yxlon system remains in top-notch condition and keeps its value as market demands change.

- System release upgrades, feature & performance upgrades
- Component upgrades
- System software upgrades
- Advanced Academy training

Tailor-made Service Level Agreements

Our Service Level Agreements are based on different performance factors, e.g.

ServicePass – for fast reaction times and seamless maintenance

SmartPass – focusing on the highest possible system availability

LifeCyclePass – the all-inclusive premium contract for guaranteed life-cycle-costs

Please contact us to learn more about the specifics of our different service contracts!

UX50 in numbers.

Inspection parts	Line detector CTScan 3-780	Flat-panel detector 4343 N	Line & flat-panel detector
Max. part size (Ø x H)[1]	600 x 850 mm	600 x 850 mm	600 x 850 mm
Live-image field of view for fluoroscopy (2D)[2, 3]	–	520 x 850 mm	510 x 850 mm
Max. inspection envelope 3D (Ø x H)[2]	660 x 800 mm	570 x 850 mm	650 x 800 mm 560 x 850 mm
Max. part weight	100 kg	100 kg	100 kg

X-ray source	Y.TU 450-D11
Tube type	minifocus, sealed
Energy range	20 - 450 kV
Max. power	700 / 1,500 W
Focal spot size[4]	0.4 / 1.0 mm
Spatial resolution CT[5, 6]	2.0 lp / mm (CTScan3-780); 2.8 lp / mm (flat-panel detector 4343N)

Detector	Line detector CTScan 3-780	Flat-panel detector 4343 N
Active area	780 mm	432 x 432 mm[7]
Pixel matrix	3,072 px	2,880 x 2,880 px[7]
Pixel pitch	254 µm	150 µm
Max. frame rate	1 - 100 Hz	15 / 30 / 45 / 60 Hz

Manipulation	Line detector	Flat-panel detector	Line & flat-panel detector
Focus-detector distance (FDD)	1,370 mm	1,320 mm	1,265 mm
Turntable (Ø)	600 mm	600 mm	600 mm
Switch detector	N/A	N/A	approx. 10 sec.

Cabinet / System	
Dimensions (W x D x H)	2,620 x 2,585 x 2,775 mm / 2,620 x 1,945 x 2,560 mm[8, 9]
Weight	~ 12,000 kg
Loading door clearance (W x H)	~ 630 x 1,750 mm
Mains connection	400 V ±10 %, 50 / 60 Hz, 3 phases, neutral, grounding
Max. power consumption	6 kVa

[1] Maximum part dimensions that can be manipulated over full height. [2] All values are approximate. [3] Statical, without rotation of the test part. [4] For minifocus X-ray tubes, the focal spot size is determined according to EN12543. [5] Based on ASTM E1695. [6] Optimizations available for CT scans with flat panel-detector. [7] Due to the manufacturer's recommendation, 15 pixels are not used at the edges. [8] Dimensions and weight without control unit and external components. [9] Operation / transport

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