Led by experience. Driven by curiosity.

FF20 CT

Highest resolution inspection of fine parts in science & research.

comet
yxlon

Comet Yxlon – this is who we are.

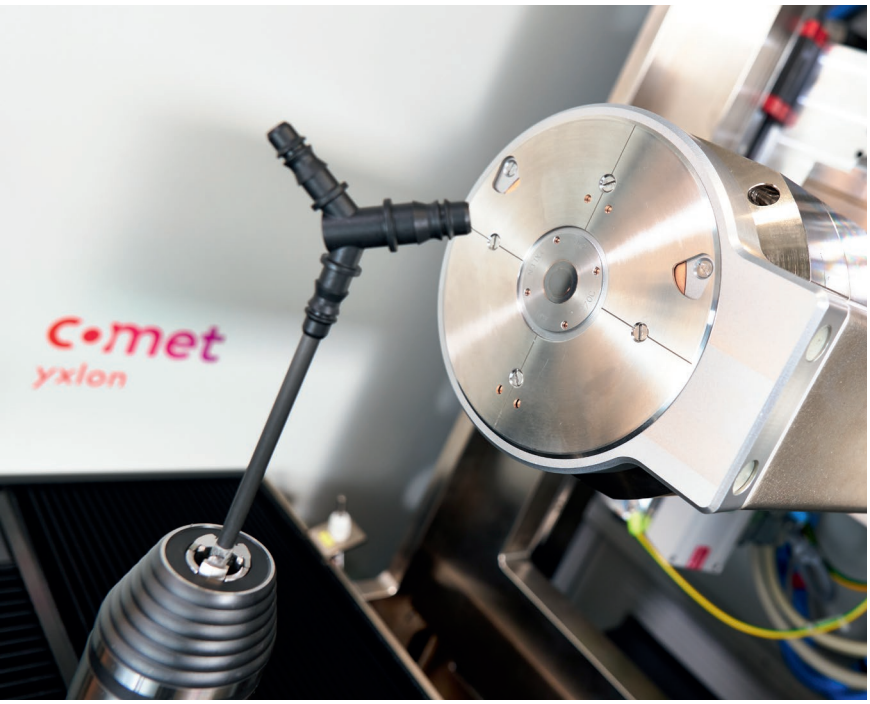
Comet Yxlon designs and manufactures high-end X-ray and CT system solutions for industrial environments – based on customer-centric product development. We're proud to be part of Comet, the globally leading Swiss technology company with a focus on plasma control and X-ray technology.

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 goals – let's talk about it!



The FF20 CT's 190 kV nano-focus transmission tube delivers high detail visibility.

Your benefits with the FF20 CT:

- Accurate material analyses in lab applications
- 2D detail visibility of down to 150 nm with 190 kV transmission tube
- New VistaX software packages for best-in-class image quality and speed
- Precise manipulation and temperature stability
- Intuitive Geminy user interface
- Metrology version available

High energy. Maximum precision.

The FF20 CT is the expert micro-CT system for inspections of very fine parts and internal structures in the electronics industry, material science and many other research areas.

Which items can be inspected with the FF20 CT?

- Electronic components incl. SMD
- Semiconductor packages
- Battery cells
- Injection molded plastics
- Products involving new materials or manufacturing methods, e.g. AM components, fiber-reinforced plastics
- Microsystems (MEMS, MOEMS)
- Medical objects, e.g. cannulas
- Geological, paleontological and biological samples

Which applications is it designed for?

- Quality assurance, material analysis, material research
- Failure and structure analysis
- Assembly checking
- Inspection of small serial productions
- Process control
- Digitization
- Segmentation

190 kV transmission tube

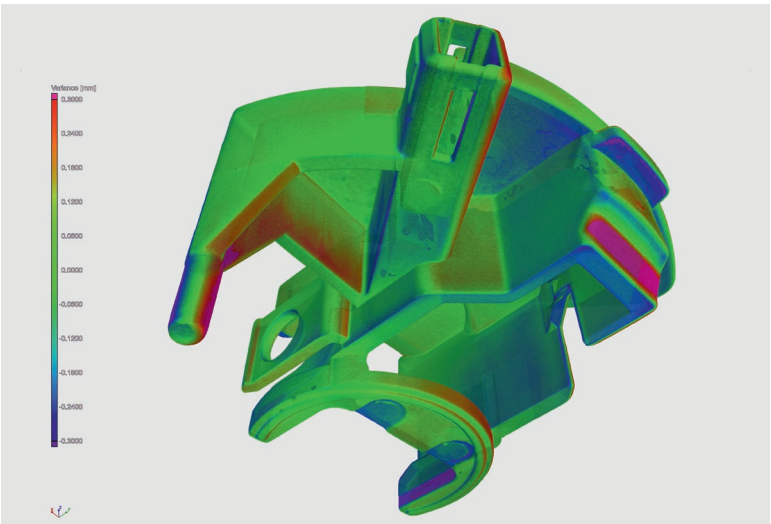
The 190 kV nano-focus transmission tube of the FF20 CT achieves a detail visibility in radioscopy (2D) of down to 150 nm. While its water-cooled target and coils allow for quick temperature balance and highest focal spot stability, four modes enable the optimal adjustment of the focal spot size in relation to power.

Granite-based manipulator

The granite-based manipulator of the FF20 CT system guarantees temperature stability and smallest thermal expansion for maximum precision and accuracy. It features six axes with a high-precision Heidenhain encoder for utmost versatility of applications.

Choice of detectors for larger FOV (field of view)

With an active area of up to 430 x 430 mm the recommended flat-panel detector 4343 CT offers a generous field of view. The CsI scintillator guarantees maximum contrast sensitivity and a high spatial resolution with a pixel pitch of 150 µm and a matrix of 2,880 x 2,880 pixel.



Wall thickness analysis with highest accuracy: the FF20 CT Metrology.

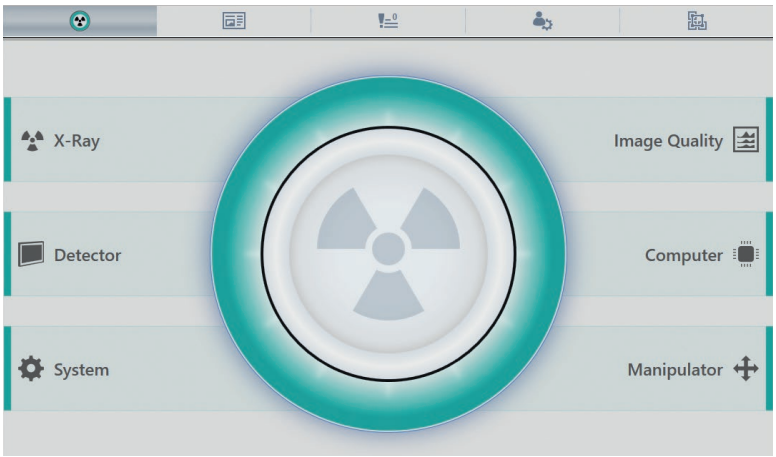
The FF20 CT Metrology.

With its ability to capture nearly unlimited measuring points in one CT scan decoupled from the measurement evaluation, the metrology version of the FF20 CT takes accuracy to the next level. Seamless defect analysis and nominal-actual comparison save time and reduce correction loops. Smart fan control enables the stabilization of the interior temperature, making the FF20 CT Metrology compliant with temperature range regulations defined by VDI 2627.

Easy operation. Ultimate flexibility.

Our Geminy software helps users perform inspections as easily as possible – and boasts some 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.



Geminy's Healthmonitor shows the current system condition.

Collision protection

The intuitive SmartGuard takes collision protection to the next level. Benefit from highest magnifications without risking damage to part or system by following the exact outline of your part.

Helical scan trajectories

- HeliExtend – to avoid cone-beam artifacts
- HeliExtend Dual – combined offset and helical CT scan for very large parts

Scan extensions

- 1.8 times horizontal field-of-view extension
- Vertical field-of-view extension
- Combination of horizontal and vertical field-of-view extensions

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.

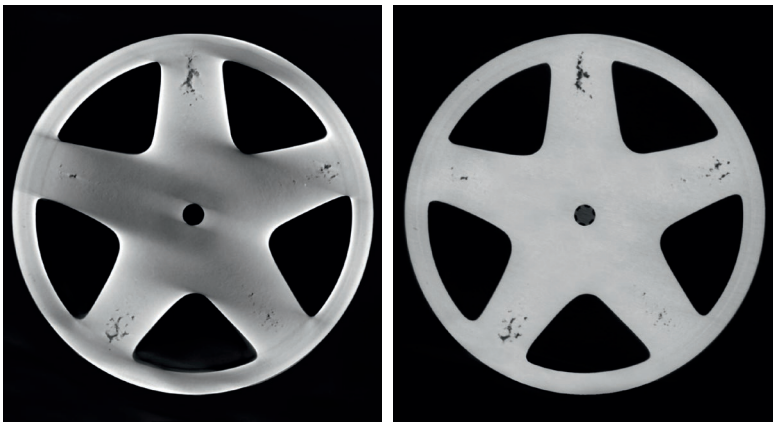
Beam hardening correction (BHC)

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

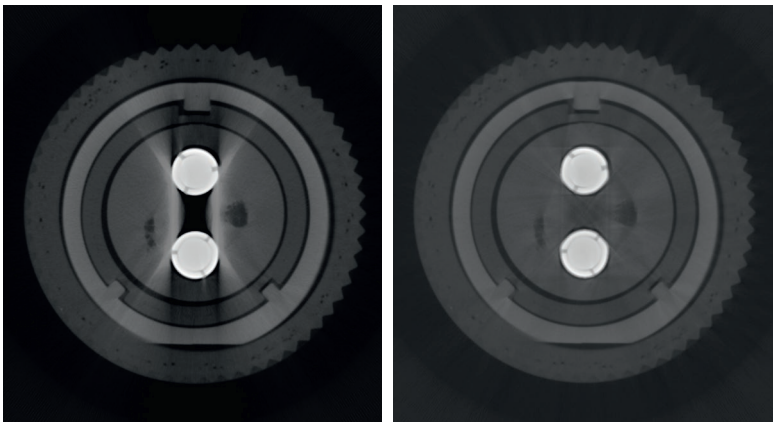
Metal artifact reduction (MAR)

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

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).

VistaX.
See better. Faster. More.

Opening new horizons: With best-in-class image quality and unprecedented speed, VistaX significantly increases productivity. The powerful CT software solution comes in different feature packages.

Vista.

The best-in-class entry-level package contains these features:

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.

FlexCenter

Your ROI is not in the center of the turntable? FlexCenter provides a flexible rotation axis – no need for part repositioning.

VistaX.

See finest details in unrivaled resolution: In addition to all features of the Vista package, VistaX also comprises ZoomScan.

ZoomScan

Increase your resolution by up to ten times* compared to QualityScan. Just combine SmartGuard with the revolutionary ZoomScan feature, and the system follows your part's exact outline. Additionally activate the SpeedMode to increase scan speed by up to three times*.

VistaX Pro.

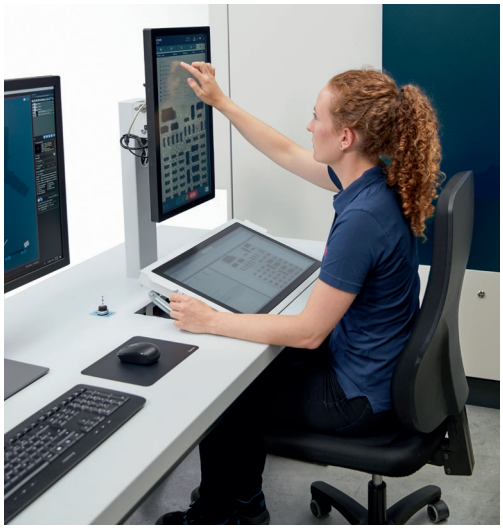
Setting new standards in productivity: In addition to all VistaX features, VistaX Pro also contains LayerScan.

LayerScan

The Comet Yxlon computed laminography solution is the most efficient technology for highest resolution slice images of flat parts without the need for 360° rotations. Furthermore, it accelerates the scan speed by up to five times*.

* Achieved magnification and acceleration of scan times depend on the geometry of the part.

Ergonomic. Intuitive. Accessible.



In the FF20 CT, software and hardware work hand in hand to make system operation as easy as possible. The clean layout of the operator desk with tiltable touchscreens allows users to stay focused on the inspection task. The height of the desk can be adjusted, facilitating operation from a sitting or standing position. Healthmonitor and push messages keep the user informed about system status and inspection progress at all times.

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!

FF20 CT in numbers.

Inspection parts

Max. part size (Ø x H)	280 x 700 mm[1)]
Max. inspection envelope 2D (W x H)	280 x 430 mm
Max. part weight	17 kg

X-ray source

	FXT-190.61
Tube type	nanofocus, open
Energy range	20 - 160 / 190 kV[2)]
Max. power	80 W
Max. target power	15 W
Focal spot size	<1 µm
Spatial resolution[3)]	0.6 µm
Features	TXI[4)], multifocus, cooled

Detector

	Flat-panel detector 4343 CT
Active area	432 x 432 mm
Pixel matrix	2,880 x 2,880 px
Pixel pitch	150 µ
Max. frame rate	30 Hz

Manipulation

Focus-detector distance (FDD)	up to 790 mm

Cabinet / System

Dimensions (W x D x H)	2,380 x 945 x 2,180 mm (w/o levelling wedges)
Weight	~ 3,400 kg
Loading door clearance (W x H)	600 x 790 mm
Mains connection	3-phase 230 / 400 V AC ±10 %, 50 / 60 Hz, zero, ground; transformator available
Max. power consumption	1.9 kVA

Option

	FF20 CT Metrology
Features	as above, but without virtual rotation axis FlexCenter
Air conditioning inside cabinet	yes, temperature range referring to VDI 2627 measuring room quality class 3
Systems ambient conditions	measuring room quality class 4
Measuring accuracy MPE SD[5)]	3.9 µm + L/75 [L = mm]

[1)] Collision-protected by manual definition of cylinder. [2)] For local requirements, FF20 CT energy range may be limited via hardware to max. 160 kV. [3)] Measured with JIMA RT RC-02B or HiCo micro-chart test specimen. Acceptance Criteria CNR*MTF > 5 %; MTF > 5 %; CNR > 0.5 . [4)] TXI = true X-ray intensity – controls real output dose for constant intensity. [5)] Referring to VDI / VDE 2630 part 1.3. Measured as deviation of sphere distance in tomographic static mode (TS) with std. circular scan. Values valid only for FF20 CT Metrology under compliance with conditions described. More details on request.

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