

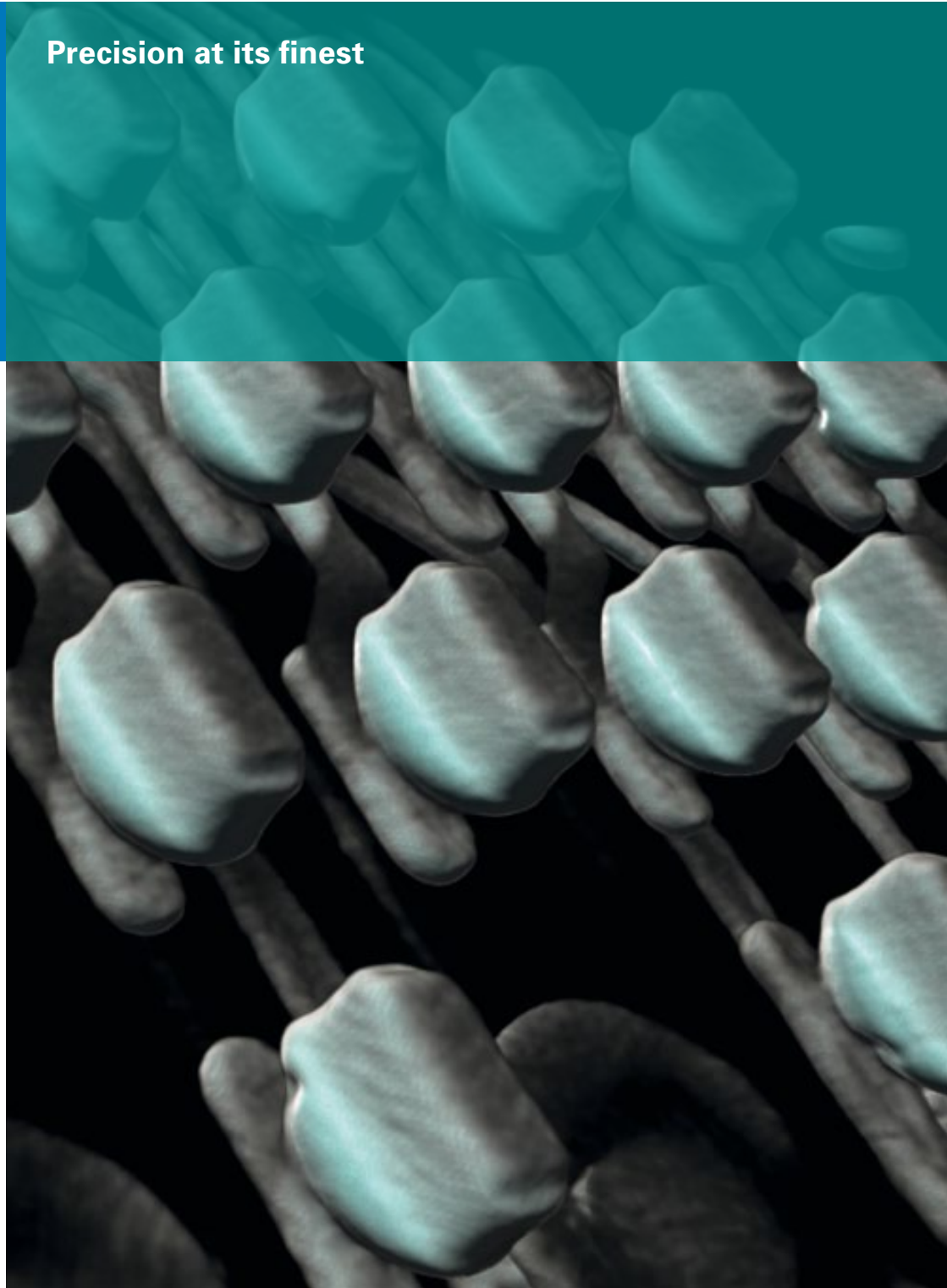
YXLON FF20 CT

High-resolution computed tomography (CT)
inspection system for fine parts

Precision at its finest



YXLON
Technology with Passion



Explore the art of detection

As a world leader in non-destructive X-ray testing YXLON has mastered the art of detection. Based on our extensive experience in designing tailor-made X-ray and CT solutions, we help our customers achieve excellent results during their scientific research and development projects as well as production inspection procedures. Making the invisible visible – that's what we call the art of detection.

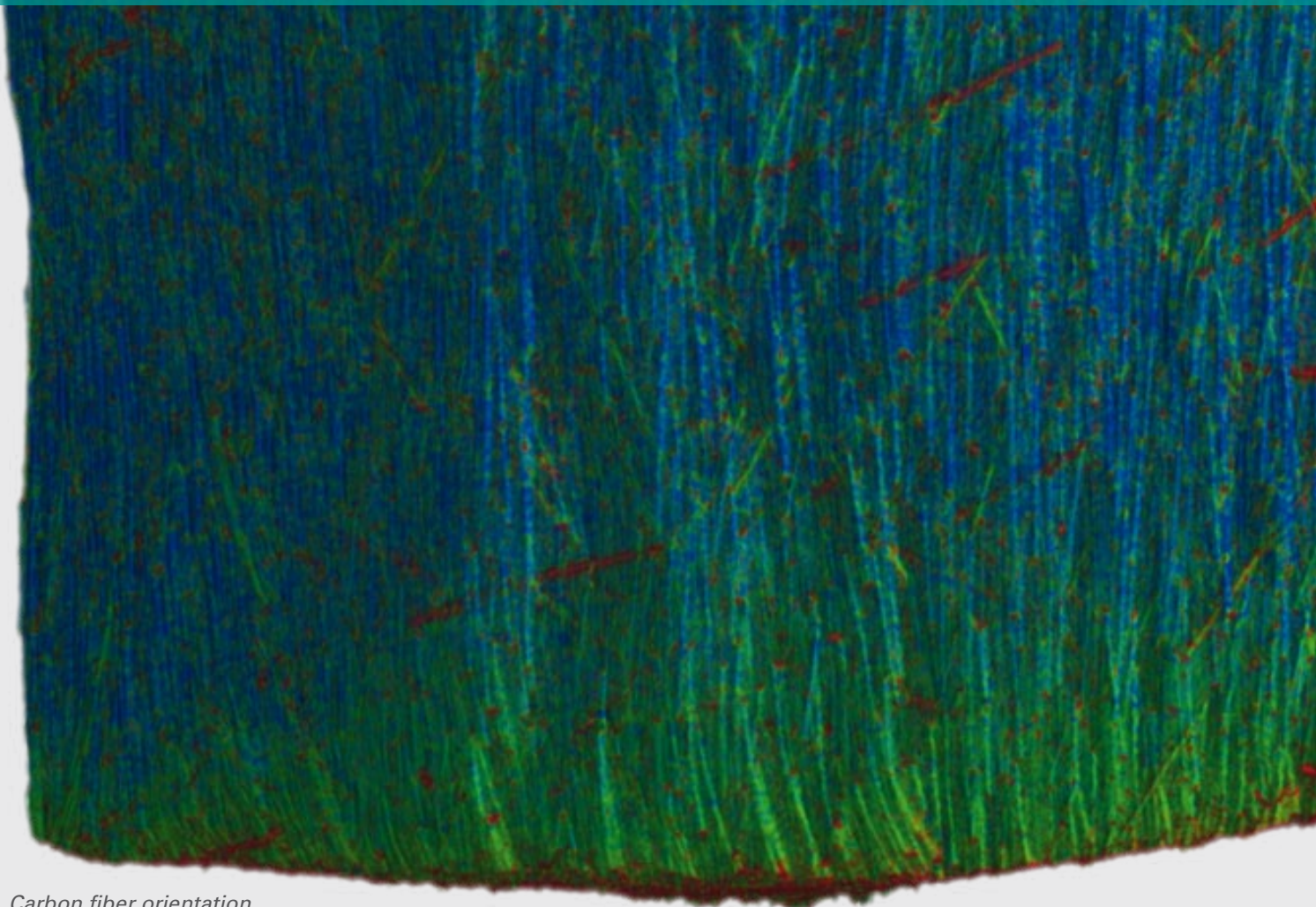
No matter what industry you're in, you'll get precise 3D insights thanks to our smart CT systems. The diversified YXLON CT portfolio covers the widest variety of sizes and materials, with the

FF20 CT focusing on very small parts. YXLON CT solutions are tried and tested premium systems. They blend smoothly into your processes, guaranteeing a fast and intuitive workflow and high uptime. Our CT product range equips you with relevant information regarding the interior and exterior structures of your items enabling you to do all kinds of measurements and analyses.

Additionally, the worldwide YXLON service network is an important factor to be taken into account when evaluating the YXLON CT price-performance ratio – one that appeals to quality managers, operations personnel, and purchasers alike.

Where do you use YXLON FF20 CT?

- Research and development (R&D)
- Failure analysis (F/A)
- Process control
- Combined DR-CT inspection
- Defect and material analysis
- Dimensional measurement
- Small series inspection



Carbon fiber orientation



Experience seamless CT inspection workflow

Do you want to improve the material testing procedures in your R&D department? Do you want to optimize your process control and small series inspection? Discover the precision of the FF20 CT with its touchscreen Geminy user interface, intelligent automation and high-performance features.

FF20 CT is ideal for fine parts inspection in the automotive, electronics, aviation and material science industries where accurate results are paramount in order to comply with high safety and quality requirements.

FF20 CT supports your ability to carry out your tasks easily since it provides smart inspection processes with its newly designed Geminy graphical user inter-

face. Use the intuitive touchscreen to easily combine 2D and 3D inspections in one sequence, and graphically create your individual imaging chain via drag and drop icons.

Various automated functions also help you save time. IntelliGuard, the automatic collision protection allows for carefree manipulation. The system health status and the important values trend indicator let you keep track of the testing routine.

Remote monitoring with push messages is another process simplifier, since you can check the system from a distance. Plus, to efficiently manage the daily inspection schedule you can assign different user levels that range from the unskilled operator to the experienced expert.

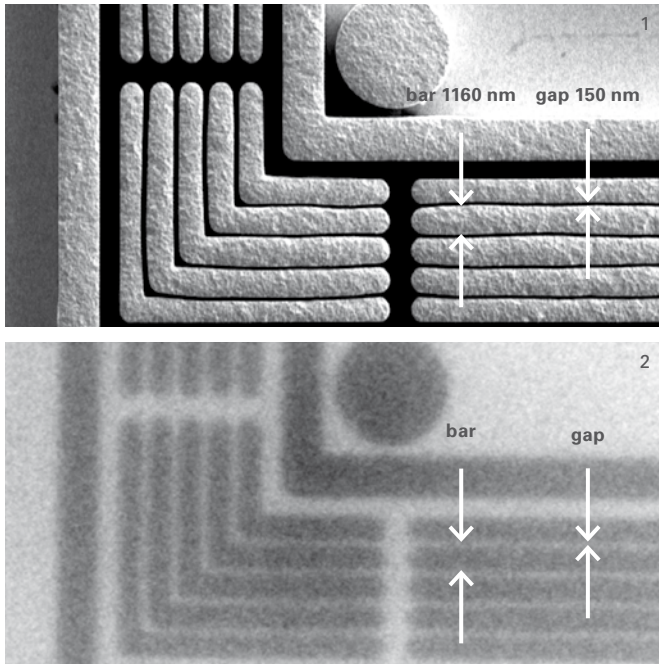
YXLON FF20 CT key benefits

- Intuitive touchscreen operation with new Geminy user interface
- Revolutionary inspection sequence creation using icons
- Flexible ROI selection thanks to off-center virtual rotation axis
- Time saving with remote monitoring including push messages
- Expanded inspection envelope with horizontal field of view extension
- Increased versatility via motorized focus-detector distance

Detect what matters

With YXLON FF20 CT you'll opt for comfortable and extremely precise fine parts CT inspection in your labs and R&D. Experience the new intuitive Gemini touchscreen user interface and the exceeding precision enabled by the new watercooled 190 kV nanofocus transmission tube.

Defect analysis of connection bond wire 20 μm to die



- 1 SEM (Scanning Electron Microscope) image shows the exact dimensions of the test pattern.
- 2 150 nm gap clearly visible in the X-ray image
- 3 Remote monitoring
- 4 Health monitor, consolidated view

Achieve accurate results with high spatial resolution

Experience the precise performance of FF20 CT for defect and material analyses, CT metrology and more applications. Inspect a wide range of materials and sizes. Avoid repositioning of inspection items with FlexCenter, the real ROI scan that enables a virtual rotation axis.

Instead of stitching different areas of a tested object, you can use ScanExtend, the YXLON Helical CT, to automatically compose a single accurate image. In addition, supreme image quality is supported by ring artifact and beam hardening correction. The motorized focus-detector distance also facilitates the premium inspection level of FF20 CT.

The power of the FF20 CT is founded on rock solid components such as the water-cooled 190 kV Feinfocus nanofocus transmission tube with a detail detectability down to 150 nm (2D), and the granite base manipulator.

The X-ray tube's high spatial resolution is the basis for demanding metrology applications. With computed tomography, you can even measure characteristics which cannot be determined with tactile or optical instruments. Hence, the FF20 CT is the perfect solution for tasks like initial sampling, reverse engineering, production accompanying quality control, and more, resulting in increased productivity.

Which items and materials are especially suitable for YXLON FF20 CT?

- Electronic components like SMD
- Semiconductor packaging
- Probes of new materials (e.g. metal, plastics, CFRP)
- Microsystems, MEMS, MOEMS
- Medical devices like hollow needles

Maximize your uptime

What are your specific service requirements? We offer a wide range of service modules and packages tailored to your needs.

Our highly qualified global service team is committed to providing excellent service to our customers worldwide. With our eight global service centers and the specialized staff of our 50 service partners we always ensure a rapid response time wherever and whenever you need it.

Your benefits include:

- High system availability
- Low inspection costs per part
- Best inspection quality
- Continuous operational safety

We align our organization and all service activities to comply with your requirements. With our innovative and modular service solutions you can count on true added value throughout the entire life cycle of your system.

We support you in limiting your CT inspection costs to a minimum. At the same time, your systems operate safely while obtaining optimum inspection results.

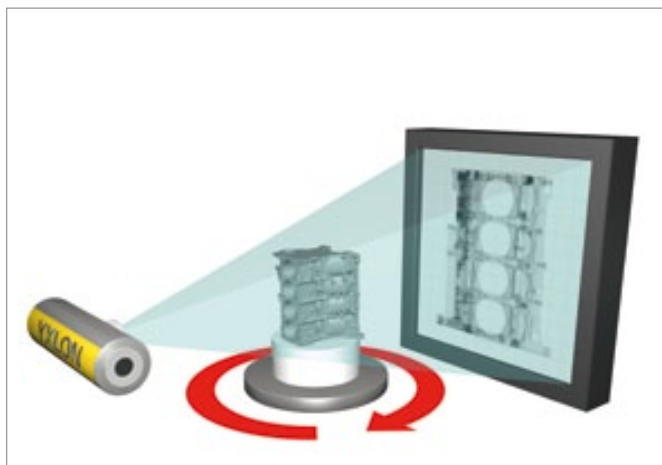
YXLON Life Cycle Service – more than the best image

- **Y.ServicePass** – increase your system availability
- **Y.WarrantyPass** – keep your costs predictable with an extended warranty
- **Y.SpareParts** – operate your system at peak performance with YXLON spares
- **Y.Exchange** – minimize your system downtime by direct exchange of original components
- **Y.Updates** – keep your system state of the art
- **Y.Academy** – train your operators

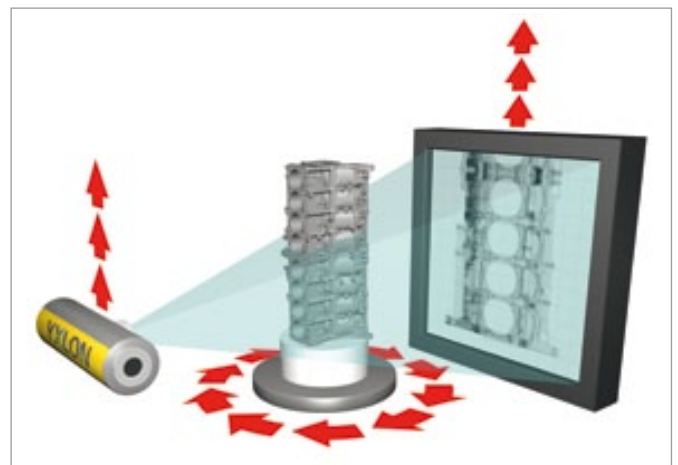


Check out these facts

| CT Modes | QuickScan®, QualityScan, Offset Scan, HeliExtend, FlexCenter | |
|---|--|-------------------|
| X-ray Components | | |
| Tube | Y.FXT 190.61 | |
| Maximum energy | 190 kV | |
| Maximum power | 80 W | |
| Detail visibility | ≤ 150 nm ¹⁾ | |
| TXI | yes ²⁾ | |
| Watercooled (target and internal coils) | yes | |
| 1) With YXLON IQI for 2D at minimum focal spot size 2) TXI = True X-Ray intensity - controls real output dose for constant intensity | | |
| Inspection Item | | |
| Maximum part size (Ø x h) | 150 mm x 300 mm | |
| Maximum part weight⁴⁾ | 20 kg | |
| 4) Inspection item placed centrally on turntable resp. partholder | | |
| Manipulator Data | | |
| FDD (Focus Detector Distance)⁵⁾ | ~ 200 mm - 760 mm | |
| FOD⁵⁾ | ~ 0 - 550 mm | |
| Beam – hub vertical axis⁵⁾ | ~ 300 mm | |
| Object – transversal axis⁵⁾ | ~ +/- 120 mm | |
| Motorized door | ✓ | |
| 5) Values are average and depending on detector and tube configuration. Details see technical description. | | |
| Cabinet / System | | |
| Dimensions approx. (width x height x depth) | 2,400 mm x 2,220 mm x 950 mm | |
| Weight | ~ 3,400 kg | |
| Inspection envelope⁸⁾ | 150 mm x 300 mm | |
| Vibration damper | active | |
| 8) YXLON's envelope definition: every area of envelope represented by central beam on center of detector. | | |
| Detector³⁾ | | |
| Active area | YXLON Panel 2530 249 mm x 302 mm | |
| Pixel pitch | 139 µm | |
| Pixel matrix | 1,792 x 2,176 | |
| Frame rate | up to 30 fps | |
| Detector (alternative) | | |
| Active area | YXLON Panel 1515 UHS 146 mm x 146 mm | |
| Pixel pitch | 127 µm | |
| Pixel matrix | 1,152 x 1,152 | |
| Frame rate | up to 58 fps | |
| 3) Qualified acc. ASTM 2597 | | |
| CT Parameters | | |
| CT field of view (Ø x h) – filtered back-projection ("Feldkamp")⁶⁾ | ~ 150 mm - 170 mm | |
| CT field of view (Ø x h) – filtered back-projection ("Feldkamp" – hor. extended with ScanExtend)⁶⁾ | ~ 150 mm - 135 mm | |
| CT field of view (Ø x h) – HeliExtend⁶⁾ | ~ 150 mm - 300 mm | |
| 6) Values valid with YXLON Panel 2530. | | |
| Accuracy | | |
| MPE_{SD}⁷⁾ | 3,9 µm + L/75 [L=mm] | |
| 7) Measured as deviation of sphere distance referring to VDI 2630-1.3. Only valid with metrology package. Details on request. | | |
| Operator Desk | | |
| Dimensions approx. | Width | 1,800 mm |
| | Height | 700 mm - 1,200 mm |
| | Depth | 800 mm |
| Weight | ~ 175 kg | |
| Monitor | 2, capacitive touch, 1920 x 1080 pixel | |






Principle of cone-beam CT: The 3D model comprises almost all information acquired by the detector during the rotation.



Principle of HeliExtend: With stepwise rotation of the sample and stepwise vertical manipulation of the X-ray tube and the flat-panel detector all information for precise 3D volumes of long parts are obtained.

**Find the system
that suits you best**

| |  |  |  |
|--------------------------|---|---|--|
| | FF20 CT | FF35 CT single tube | FF35 CT dual tube |
| Part size | ++ | +++ | +++ |
| Material density | ++ | +++ | +++ |
| Part weight | + | ++/+++* | ++/+++* |
| Detail visibility | +++ | ++ | +++ |
| Combined 2D and 3D | ✓ | ✓ | ✓ |
| HeliExtend | ✓ | ✓ | ✓ |
| FlexiCenter | ✓ | ✓ | ✓ |
| Powered by YXLON Gemini® | ✓ | ✓ | ✓ |

Would you like to learn more about our systems? Interested in a test inspection? Please contact us by phone or e-mail. We look forward to hearing from you.

YXLON
Technology with Passion

GERMANY – HEADQUARTERS

YXLON International GmbH
Essener Bogen 15
22419 Hamburg
Germany
T: +49 40 527 29-0

www.yxlon.com

CHINA

YXLON X-ray Equipment Trading Co., Ltd.
1C1809 Web Time Center
Room A309, Building 2,
17 Zhongguancun South Ave.
Beijing 100081, P.R. China
T: +86 10 8857 9581
F: +86 10 8857 9580

USA

**YXLON Sales & Service Location
COMET Technologies USA Inc.**
5675 Hudson Industrial Parkway
Hudson, OH 44236
USA
T: +1 234-284-7849

JAPAN

YXLON International KK
New Stage Yokohama Bldg.,
1st Floor
1-1-32 Shinurashima-cho
Kanagawa-ku
Yokohama, 221-0031
Japan
T: +81 45 450 1730