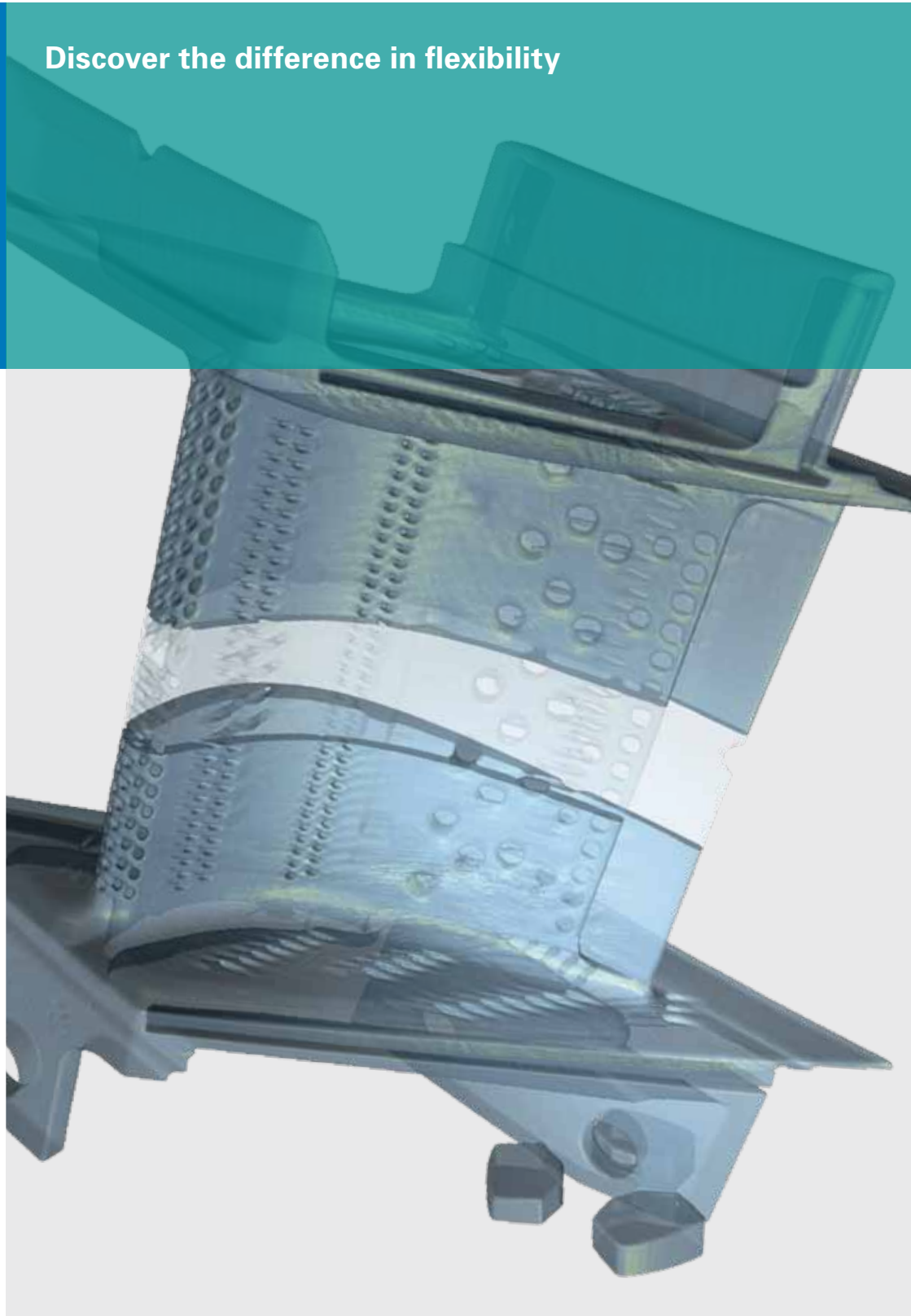


# Y.CT Modular

Scalable, high-power and high-resolution computed tomography (CT) inspection system for a maximum application range

Discover the difference in flexibility



# 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 long 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, we provide you with reliable 3D components analyses and accurate dimensional measurements. Are you doing research in the field of geology, archeology or material science and engineering? Do you need to inspect cultural artifacts? YXLON's computed tomography

(CT) excellence also supports you in your scientific and art-related testing.

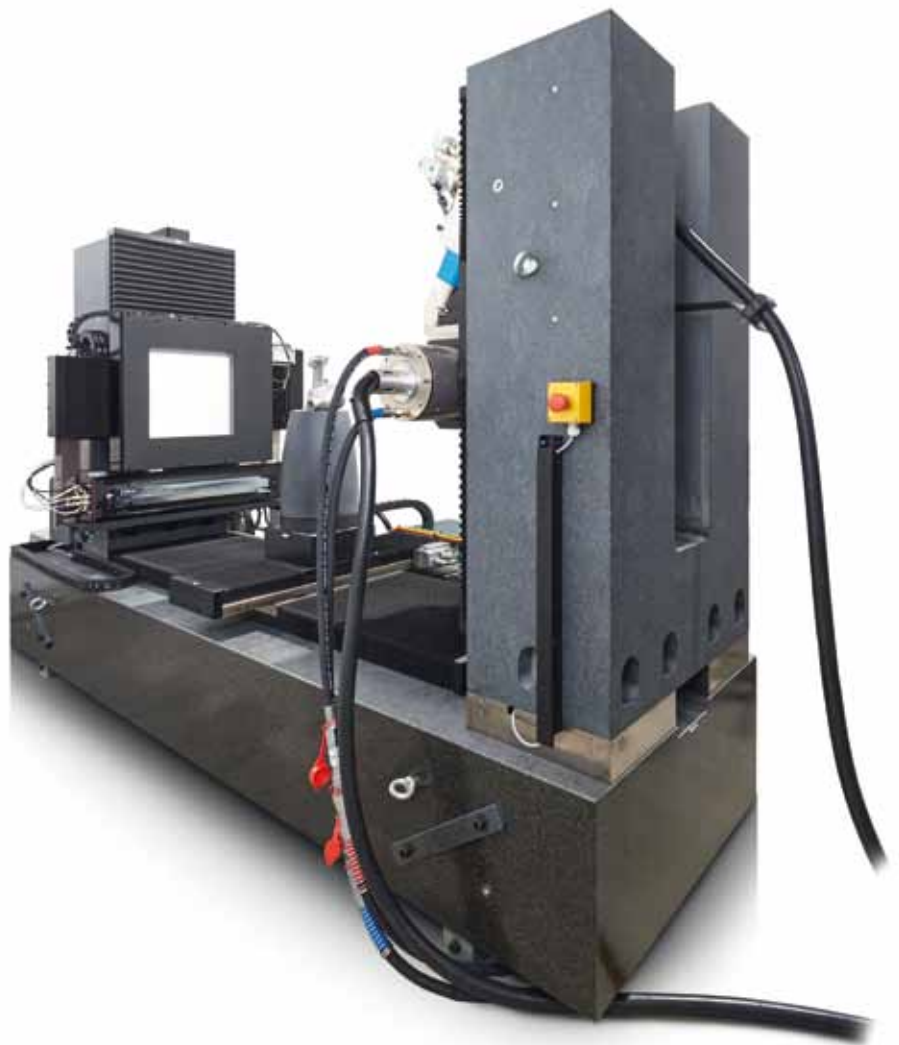
Because YXLON CT solutions are tried and tested premium systems, they blend smoothly into your processes, guaranteeing a fast workflow and high uptime. Our CT product range equips you with relevant information regarding the interior and exterior structures of your items in one data set. This way, you reduce your inspection time, allowing you to concentrate on your core business.

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 CT systems?

- Analysis of porosities and inclusions
- Dimensional measurement
- Analysis of composite materials (carbon / glass fiber reinforced plastic)
- Assembly or structural analysis
- Wall thickness measurements
- Nominal / actual comparison
- Examination of historical art and archeological objects
- Investigation of geological samples

*Cylinder head*



## Cover the widest inspection range

Is your application spectrum very diverse? Are you looking for an all-round CT inspection system to do scans of very small to large test items? Opt for maximum flexibility and upgradeability with Y.CT Modular. Configure your system with up to two tubes and two types of detectors according to your exact inspection requirements.

A double detector, double tube array allows you to test an extraordinary spectrum ranging from measuring small electromechanical components to the analysis of large cast parts or even big cultural artifacts. You'll benefit from the specific workflow-enhancing advantages of both fan-beam and cone-beam CT. Helical CT omits the need for image stitching and creates more accuracy for tall parts.

The new laminography technique precisely displays details which can't be distinguished in 2D industrial X-ray images. Laminography can broaden your application range, i.e. you can X-ray flat parts like car doors and circuit boards with permanently high resolution. Y.CT Modular's various slices function can improve and speed up the testing process while maintaining image quality.

YXLON's software tool box automatically reduces ring artifacts in your CT scans right at the source. You can also use various state-of-the-art reconstruction algorithms. Plus, the detector calibration process helps ensure consistent image quality. Moreover, increase your efficiency by testing a higher combination of parts in one run with Y.CT Modular.

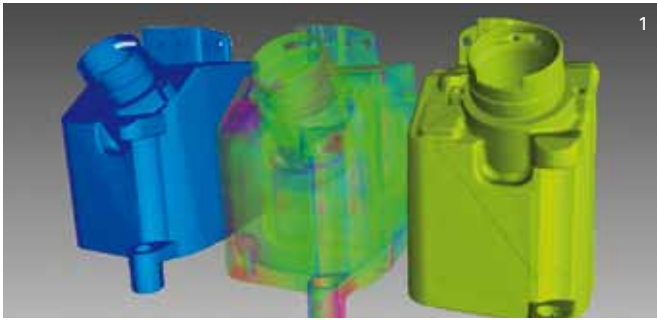
### Y.CT Modular key benefits

- Laminography to easily inspect large, flat parts like car doors
- Helical CT to avoid stitching and create homogenous images
- Intelligent image enhancement tool box for increased detail visibility
- CT with different parameters for different inspection item areas to increase efficiency

# Detect what matters

Y.CT Modular's multiple tube/detector combinations provide you with a maximum variety of applications – from high-resolution microfocus CT to 600 kV inspections.

*Glass fiber sample*



1



2



3

- 1 Actual vs. nominal comparison with CAD data
- 2 YXLON line detector array and flat-panel detector
- 3 Microfocus and high-power X-ray tubes

## Create your custom-designed system

Count on the high penetration power of the 600 kV X-ray tube and on the magnification capabilities of the micro-focus X-ray tube. These are complemented by YXLON's extremely durable detectors which have been chosen for your specific applications.

A further building block that contributes to Y.CT Modular's premium performance is the granite manipulator which makes your system very precise, durable, warp-resistant and temperature-independent. Precision is also the

key word for YXLON's exclusive performance specifications that result in superior image quality.

The scalable approach of Y.CT Modular applies to hardware and software alike. Choose the algorithms which reflect your application requirements. Select workflow-enhancing software tools like beam hardening and ring artifact reductions, automated center determination and different scan modes.

### Which items and materials are especially suitable for Y.CT Modular?

- Heavy metal castings
- Aluminum and steel components
- Cylinder heads, engine blocks and transmission housings
- Fiber-reinforced composites
- Plastic injection molded parts
- Mechatronic modules
- Small aluminum cast parts
- Historical art and archeological objects
- Geological samples

# 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.Updates** – keep your system state of the art
- **Y.Academy** – have your operators trained



# Check out these facts and figures

## Y.CT Modular

System principles			
Inspection modes		Cone-beam CT, Fan-beam CT, Helical CT, Laminography	
Manipulation		7 axes, granite based	
<b>X-ray components</b>			
<b>Tube 1</b>	Y.TU450-D11 / Y.TU600-D02	<b>Detector 1</b>	YXLON Line Detector Array <sup>1)</sup>
<b>Maximum energy</b>	450 kV / 600 kV	<b>Active area</b>	598 mm
<b>Maximum power</b>	0.7 kW / 1.5 kW	<b>Pixel pitch</b>	254 µm
<b>Focal spot 450 kV</b>	0.4 mm / 1.0 mm	<b>Pixel matrix</b>	2,356
<b>Focal spot 600 kV</b>	0.7 mm / 2.0 mm	<b>Frame rate</b>	100 fps (maximum)
<b>Tube 2</b>	FXE 225.48	<b>Detector 2</b>	YXLON XRD 1620 / XRD 1621 <sup>2)</sup>
<b>Maximum energy</b>	225 kV	<b>Active area</b>	400 mm x 400 mm
<b>Maximum power</b>	~ 320 W <sup>3)</sup>	<b>Pixel pitch</b>	200 µm
<b>Focal spot</b>	≤ 4 µm <sup>4)</sup>	<b>Active matrix</b>	2048 x 2048
<b>TXI</b>	yes <sup>3)</sup>	<b>Frame rate</b>	3.75 fps - 7.5 fps / 15 fps - 30 fps

1) Temperature stabilized

2) Selected detectors acc. to specific YXLON pixel specification - ASTM E2597 compliant

3) TXI = True X-Ray Indicator - controls real output dose for constant intensity

4) Acc. JIMA wire visibility at minimum focus size

Inspection item			
Maximum part size (Ø x h)		830 mm x 1,250 mm	
Turntable diameter		300 mm	
Maximum part weight		100 kg	

CT parameters				
<b>Configurations</b>	<b>Y.FXE with Flat Panel Detector</b>	<b>Y.TU with Flat Panel Detector</b>	<b>Y.TU with Flat Panel Detector</b>	
<b>Focus Detector Distance (FDD)</b>	740 mm - 1,640 mm	1,090 mm - 1,990 mm	1,140 mm - 2,040 mm	
<b>Focus Object Distance (FOD)</b>	8.75 mm - 1,250 mm	312 mm - 1,562 mm	312 mm - 1,562 mm	
<b>Maximum Magnification</b>	> 187 <sup>5)</sup>	> 4 <sup>6)</sup>	> 4 <sup>6)</sup>	
<b>Minimum Voxel Size<sup>7)</sup></b>	down to 820 nm	down to 24 µm	down to 35 µm	
<b>CT Field of view - standard (Ø x h)</b>	330 mm x 330 mm		460 mm x 700 mm	
<b>CT Field of view - extended (Ø x h)</b>	540 mm x 1000 mm	540 mm x 730 mm	830 mm x 700 mm	

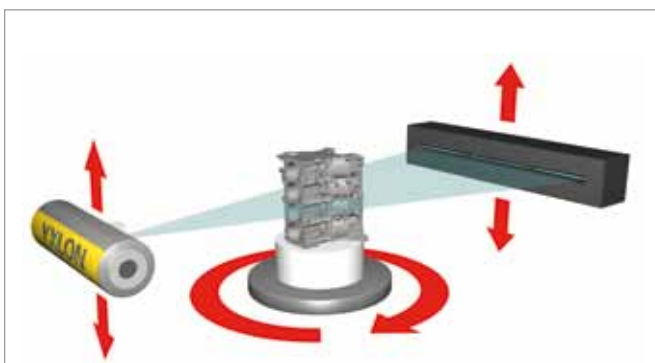
5) Calculated value assuming center of rotation 2 mm from x-ray tube surface

6) Higher magnifications may be geometrical possible but not recommended with this tube type

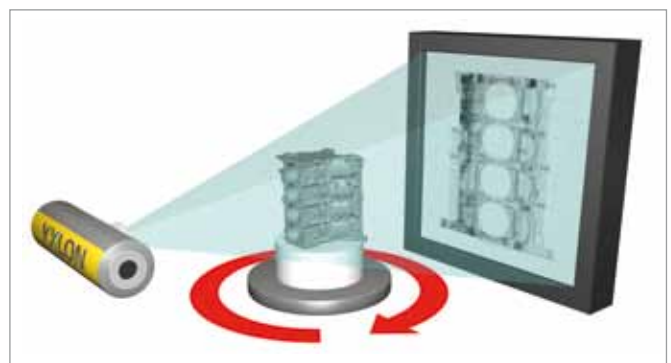
7) Theoretical values determined by geometry and reconstruction parameters

Enclosure / System			
Enclosure size (W x H x D)		4,300 mm x 2,300 mm x 2,800 mm	
CT system weight, approx.		9,000 kg	
Enclosure weight, approx.		19,000 kg	

Typical values are for standard system design and are approximate. Customization may affect these values. Other configurations on request.



Principle of fan-beam CT: Rotation of part is followed by a vertical movement. This sequence is repeated until the desired area is scanned.



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

**Find the system  
that suits you best**



	Y.CT Compact	Y.CT Precision	Y.CT Modular
Part size	+	++	+++
Material density	++	+	+++
Part weight	+	+	++
Detail visibility	++	+++	+++
2D (digital radiography)	N/A	✓	✓
Laminography	N/A	✓	✓
Helical scan	N/A	✓	✓

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.

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Technology with Passion

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