Y.Cheetah

Microfocus and nanofocus X-ray inspection systems
for PCBA and semiconductor industries

Explore the Art of Detection

YXLON
Technology with Passion

Our specialty:
The Art of Detection.

Developing outstanding X-ray inspection processes is high art – and the task of the avant-garde. Now the avant-garde has a name: YXLON.

As the world's leading creator of industrial X-ray systems, YXLON is uniquely qualified to raise the inspection process to unprecedented levels of quality. The increasing complexity of the electrical and electronic components we inspect is matched by the reliability of Y.Cheetah – and the brilliance of the images we produce. Made in Germany to the highest possible standards, our work delivers precisely what our clients require: accuracy, flexibility, simplicity, and speed.

A close partner of the electronics industry, we continue to innovate where it matters most. Even the most critical observers agree: Produced by tried-and-tested technologies and pioneering microfocus solutions like FeinFocus, our images are world-class.

A comprehensive global network of no less than eight service centers and 50 service partners is the foundation of our innovative and modular service solutions. From Asia to Africa and America to Europe, highly qualified service personnel are on call to help YXLON clients – quickly, efficiently, and at minimum cost.
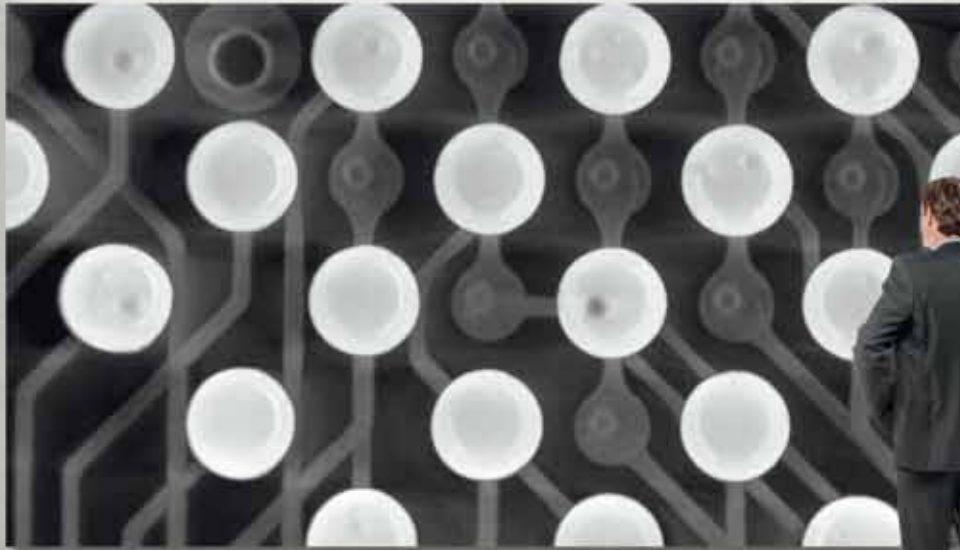
Our philosophy:
The best image in shortest time.

The Y.Cheetah microfocus and nanofocus X-ray inspection system was created to achieve a simple goal: the very best image in the shortest time. The result is sheer visual brilliance. Y.Cheetah harnesses the combined power of several YXLON innovations – FeinFocus X-ray tube technology; High Power Target technology; a finely calibrated, long-life flat-panel detector and a manipulator with cushioned bearings. The variety of sample tables ensure that it can generate 2D and 3D images in extremely high resolution.

In addition to imaging excellence, Y.Cheetah operators can look forward to simple, user-friendly controls and FGUI – Feinfocus Graphical User Interface – software, not to mention the myriad benefits of comprehensive automation. One-click solutions make manual inspections effortless, while Easy Teach-In makes it simple to program the automated procedures that guide the operator swiftly through inspections – and deliver repeatable and reliable results. Other key features ensure thorough inspection processes as well as easily understandable readouts.
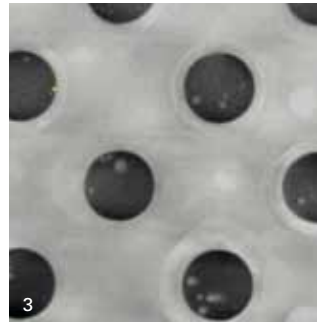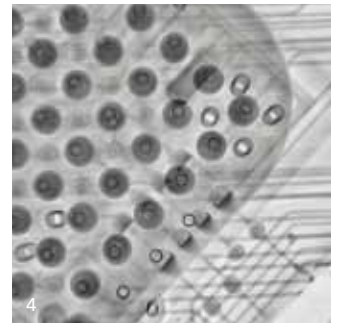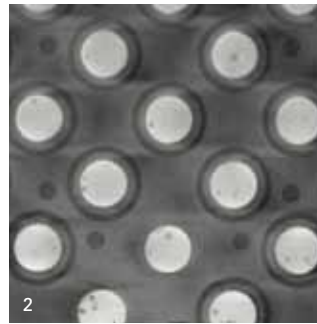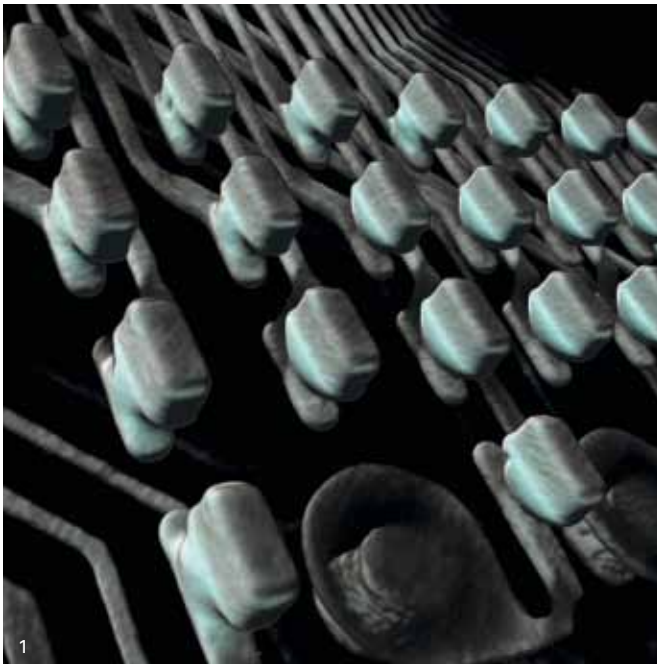
Application
- Printed circuit boards
- Electronic and mechanical modules
- Electromechanical components and plugs
- Semiconductor packaging and interconnects
- Sensors
- MEMS and MOEMS

Our signature:
User-friendly high tech.

The 3.9 version of Y.Cheetah includes several
new features that make inspection processes
even simpler and more efficient.

1 Copper pillars –
   μCT size up to 30 μm
2 BGA – μ3Ds semicon
3 BGA VC – μ3Ds semicon
4 BGA – eHDR
   (X-ray image ⌀ 500 μm)

One click. Multiple effects.

One-click solutions make it easy to perform the advanced manipulations required for fast and reliable X-ray inspection. For example, Click & Center, Frame & Zoom, or PowerDrive. Even Zoom+ – which guarantees constant-intensity magnification without tube adjustments or software interpolation – can be carried out with a simple click.

Enhanced technologies.

Easy operation is worth little without results of the required standard. Which is why YXLON upgraded a number of trademark Y.Cheetah features – while ensuring that it remains the best device in its class:

■ Extended BGA Inspection
   Select and index individual balls, either manually or using automatic grid detection. A user wizard guides the operator step-by-step through the workflow.

■ Extended ADR Interface
   Y.Cheetah software can be tailored to individual requirements, with operators free to define their own specific analysis. This also includes customized algorithms.

■ AXI Barcode Management
   Now every inspection sample can be traced separately via barcode. Which means every result in the final report can be traced as well.

■ AVI Recorder
   With the integrated AVI recorder, operators can produce a live documentation of the inspection process.

Upgrade to CT.

Y.Cheetah can be upgraded for CT with the optional microCT module. This enables CT for industrial quality assurance, with in-depth 3D examination of inspection items via virtual cross sections and layers. With its user-friendly Y QuickScan® module, it delivers 3D images and virtual slices within a minute.

Our technique:
Faster and more precise.

In addition to enhancements to established features, Y.Cheetah operators also benefit from three completely new technologies.

eHDR-Inspect

Highest product quality is a major competitive advantage in electronics. Developed especially for the electronics market, our eHDR filter highlights critical structures with just one click. It detects even the slightest variances and no defect will be missed – thanks to enhanced 16-bit illustration of grayscale values.

micro3D slices SMT

A cost-effective inspection is one of the main factors when it comes to reducing overall product costs. By using laminography slicing technology, the nondestructive inspection of larger or double-sided boards as well as multilayer chips is possible and substantial cost savings will be achieved. Even better, these slice-by-slice images can be analyzed automatically – as easily and quickly as a 2D image.

Multi Area Void Calculation (MAVC)

Today's soldering connections are getting more and more complex. That leads to high risk of missing solder joints which could result in ultimate product failures. The MAVC helps detect voids in complex soldering designs. With just four parameters to adjust, setup is quick, simple, and cost-efficient.
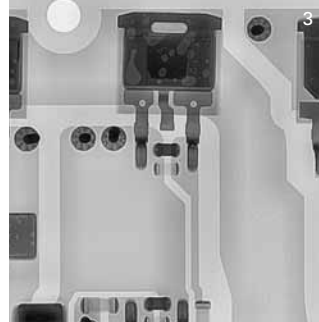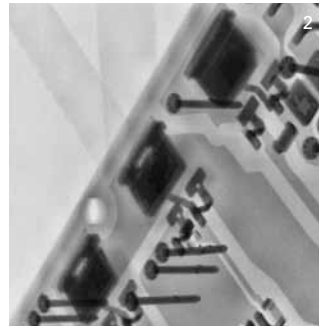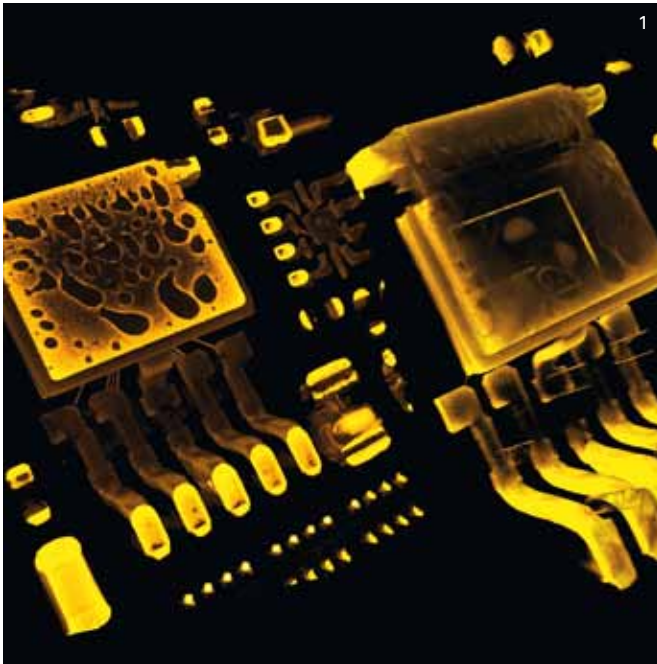
1 Double-sided power device
- µ3D slices - 3 min. scan time
2 Stacked power devices -
oblique view
3 Stacked power devices -
top-down view
4 Stacked power devices - µ3Ds
mavc on section slice

Our record: Brilliance by numbers.

General Product Features

Time to first image (typ.)	~ 10 s
Reconfiguration time (typ.)	< 60 s
µCT scan time (min.)	> 7 s
µCT reconstruction time (min.)	~ 60 s
micro3Ds scan time (min.)	~ 20 s
micro3Ds reconstruction time (min.)	~ 20 s
Access for sample loading [mm]	large autom. door (690 x 650 mm)
Visual interfaces	large window (520 x 370 mm), large 24″ monitor (adjustable)
Zoom+	yes
PowerDrive	yes
Power boost factor	33 x
Image stabilization	air suspension

X-Ray Tube

Tube type	open X-ray tube
Target	transmissive
Target material	Tungsten
Voltage range	25–160 kV
Current range	0.01–1.0 mA
Max. tube power	64 W
Max. target power	15 W
Detail detectability	<1 µm
X-ray intensity control	TXI

Manipulation

Manipulation control via	mouse or joystick
Inspection area (max.)	460 mm x 410 mm (18″ x 16″)
Sample size (max.)	800 mm x 500 mm (31″ x 19″)
Sample tray axes	X, Y
Oblique viewing	+/-70° (140°)
CNC	yes

Image Chain

Geometric magnification (max.)	2,000 x
Total magnification (max.)	17,500 x

Physical Dimensions

Width / depth / height [mm]	~ 1,650 / 1,400 / 1,850
Weight	~2,200 kg

Find the system that suits you best
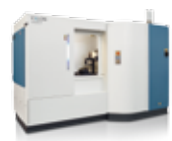
	Y.Cougar Basic	Y.Cougar	Y.Cheetah	Y.Cheetah µHD	FF 20CT	FF 35CT
Part size	+	+	++	++	+++	++++
Material density	++	++	++	++	+++	++++
Part weight	+	+	++	++	+++	++++
Detail detectibility	+	+	+	++	+++	++++
Vertical beam inspection	+++	+++	+++	+++		
Horizontal beam inspection					+++	+++
Stone-based manipulation					+++	+++
Real-time imaging	++++	++++	++++	++++	++	++
Micro CT		++*	+++*	+++*	++++	++++
Micro 3D slices		++*	+++*	+++*		
Micro Helical CT					+++*	++++*
Virtual ROI CT					+++*	+++*
Smart GUI	+++	+++	+++	+++	++++	++++

*optional

Would you like to learn more about our systems? Interested in a test inspection?
Please don't hesitate to contact us by phone or email. We look forward to hearing from you!

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