

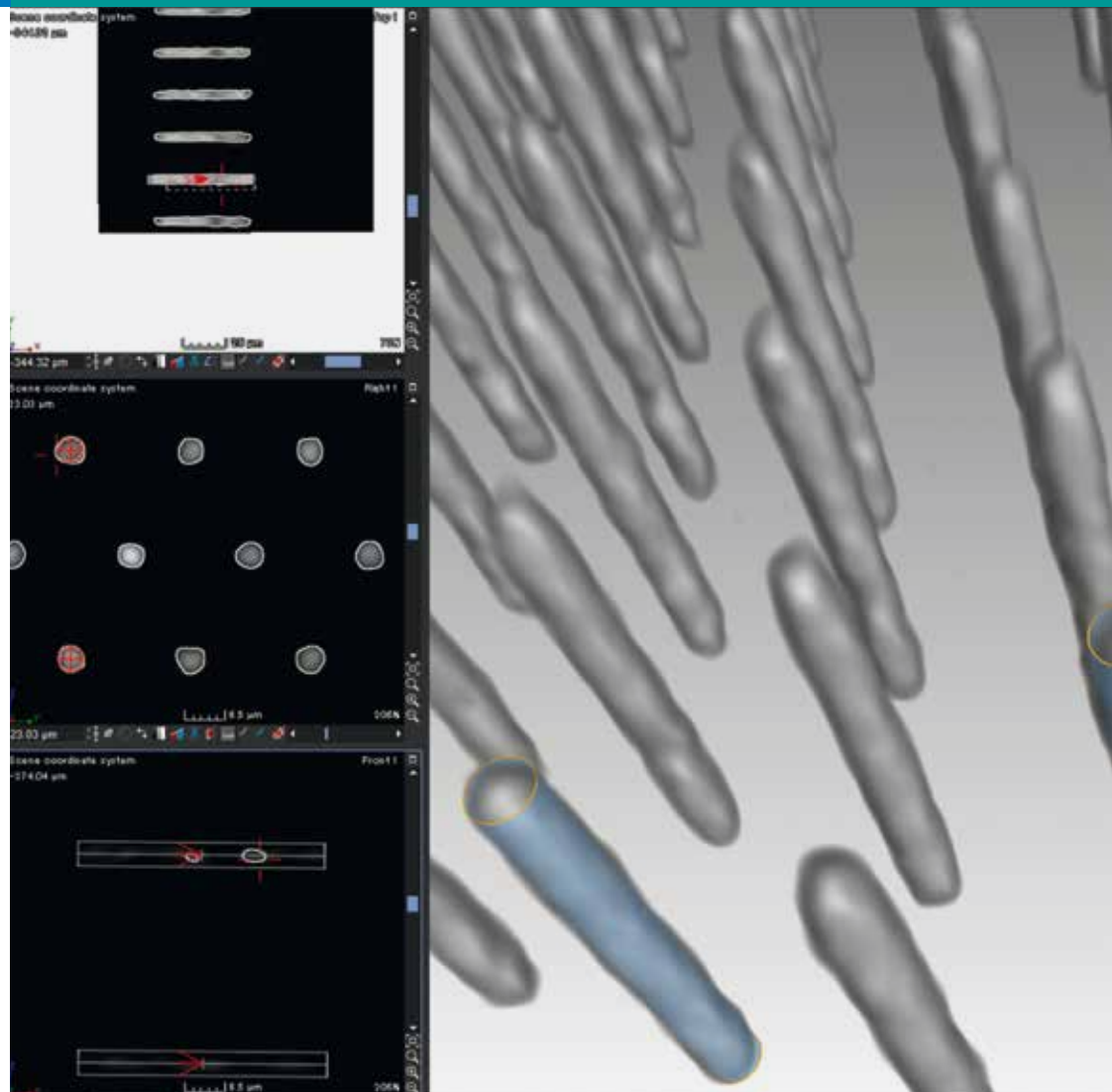
YXLON FF70 CL

World's best resolution 3D X-ray system for fully automated verification of wafer defects

- High-speed 3D AXI brings about a revolution in the semiconductor process management
- Most precise measurements of defect dimensions at wafer level
- Best reliable and reproducible check of process conditions and defect parameters
- Leading-edge simple and easy operation with fully automated wafer handling and testing process



YXLON
Technology with Passion



The very best automated X-ray test and inspection solutions

Semiconductor manufacturing requires automated, high-quality, reliable, fast and non-destructive inspection and analysis for optimum production as flaws can be found on the wafer, on a substrate, in a strip in the sub-assembly or in the final device. The new YXLON FF70 CL X-ray inspection system has been specifically developed to enable the very best automated analysis of the smallest and most demanding features within these samples. The result: impressively precise and reproducible test and inspection excellence.

The FF70 CL uses 2D and 3D X-ray techniques that are based on the renowned strengths of Yxlon's technology and innovation: the open micro-focus X-ray sources with high-

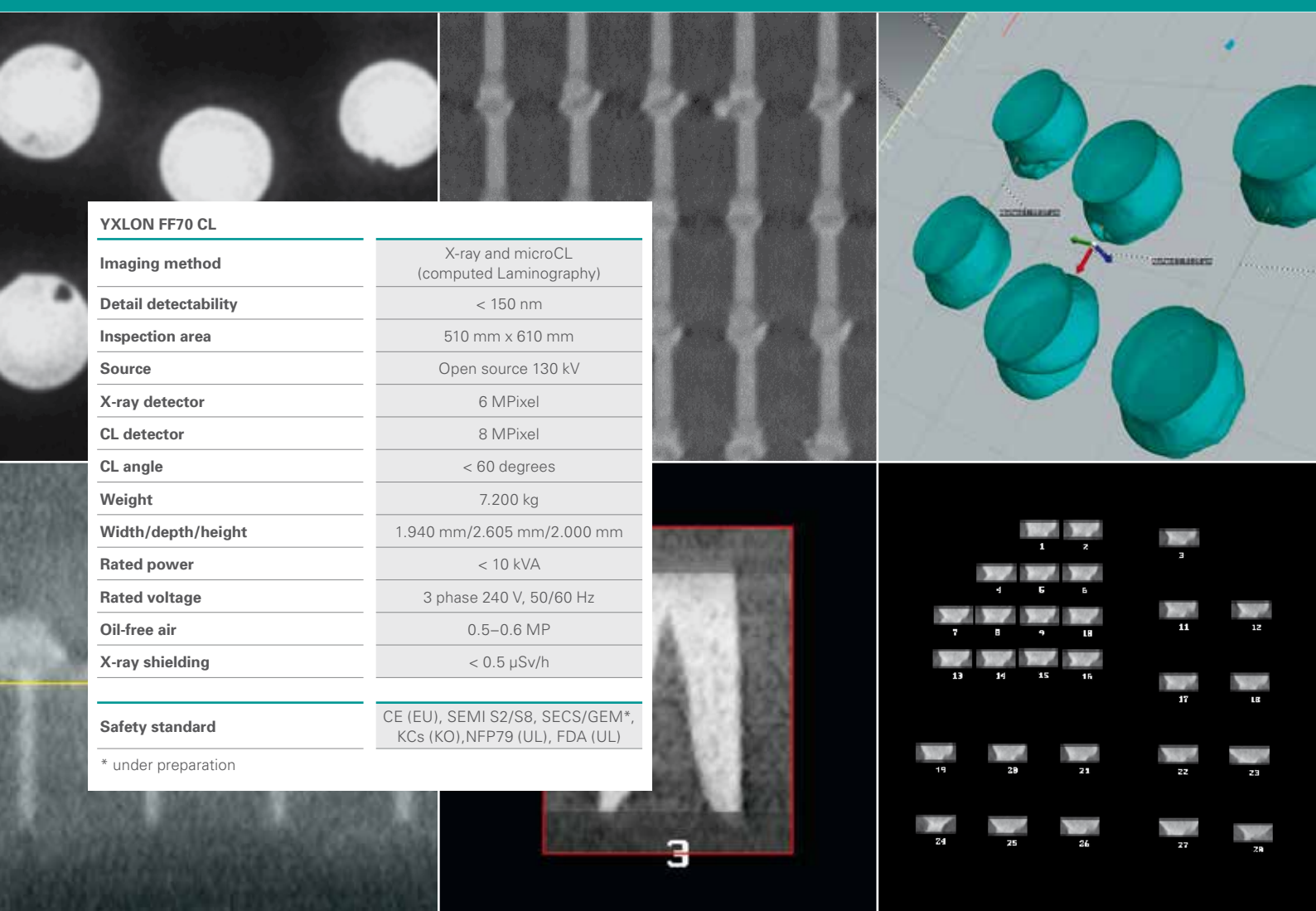
power targets, the latest generation of optimized high-resolution X-ray detectors with long service life and a high-precision, fully automated manipulation system. Together, these make the FF70 CL the perfect solution for automatically analyzing bumps and filled vias to find non-wetted bumps, voiding and misalignments in these most challenging features. As the market leader for X-ray and CT inspection systems in the electronics industry, Yxlon is constantly innovating and providing solutions precisely where they are needed. The YXLON FF70 CL continues this tradition to ensure that the semiconductor industry is completely supported for today's and tomorrow's manufacturing challenges. This includes access to our world-class, interlinked, global

service network with eight regional service centers and more than 50 local customer support partners to ensure that our highly trained and qualified team are ready to help straight away – quickly and efficiently – to minimize downtime.

Applications for the FF70 CL

Solder bump and filled via analysis for:

- Micro-Bumps/C4s, TSVs, Micro-Vias and Cu-Pillars in today's advanced packaging including:
- 3D, FOWLP, WLFP, WL-CSP and their sub-assemblies



YXLON FF70 CL	
Imaging method	X-ray and microCL (computed Laminography)
Detail detectability	< 150 nm
Inspection area	510 mm x 610 mm
Source	Open source 130 kV
X-ray detector	6 MPixel
CL detector	8 MPixel
CL angle	< 60 degrees
Weight	7.200 kg
Width/depth/height	1.940 mm/2.605 mm/2.000 mm
Rated power	< 10 kVA
Rated voltage	3 phase 240 V, 50/60 Hz
Oil-free air	0.5–0.6 MP
X-ray shielding	< 0.5 µSv/h
Safety standard	CE (EU), SEMI S2/S8, SECS/GEM*, KCs (KO), NFP79 (UL), FDA (UL)

* under preparation



**Our experience is
the key to your success**



The perfect solution for high-volume, automated and reliable semiconductor joint analysis

The YXLON FF70 CL is distinguished by its large inspection area of 510 x 610 mm and the extreme detail detectability of <150 nm, making it ideal for automatically and non-destructively analyzing solder bumps and filled vias in advanced wafer level packaging and 3D stacking. The innovative vacuum mechanism of the system manipulator holds the sample securely and precisely during analysis and counteracts the effects of sample warpage. The FF70 CL provides 2D (top-down) with a high-performance flat-panel and 3D (CL-Computed Laminography) automated analysis using a high-resolution Image Intensifier within a special manipulation assembly for its inclined rotations.

The latest generation of nano-focus X-ray tubes creates 2D and 3D images that can reveal and measure the smallest voids and features. This enables the YXLON FF70 CL to analyze the most demanding advanced semiconductor challenges. A user-friendly and intuitive graphical user interface (GUI) allows the easy creation of automated, multi-point and multi-functional analysis inspection programs. Measurement repeatability over time is ensured by automatic, continuously monitoring background calibration tests over all aspects of the system.

System properties at a glance:

- Automated high-throughput analysis with the best reproducibility and reliability of the results
- Simple creation of automated, multi-point and multi-functional analysis inspection programs allowing rapid change between sample and measurement tasks
- Continuous background monitoring and optimization to ensure measurement repeatability and accuracy
- Fast and reproducible accuracy of all measurements

Your benefits for semiconductor production

- Improved quality monitoring – inspect more locations at better resolution to identify failures that otherwise could be missed
- Significant cost reduction through better test coverage leading to improved yield
- Reliable and reproducible check of consistency of process and defect parameters at any time
- This innovative automated analysis solution is easy to use, optimizing cost of operation



FF65 IL



FF65 CL



FF70 CL

Feature	FF65 IL	FF65 CL	FF70 CL
Top Down Inspection Coverage	350 x 350 mm	400 x 296 mm [515 x 500 mm]*	515 x 610 mm
PCT Inspection Coverage	350 x 350 mm	400 x 292 mm [495 x 480 mm]*	475 x 570 mm
Max. Sample Size	350 x 350 mm	400 x 300 mm [515 x 610 mm]*	515 x 610 mm
Min. Sample Size	80 x 50 mm	30 x 30 mm [30 x 30 mm]*	30 x 30 mm
Sample Holder	Automatically adjustable conveyor	Standard jig [Carbon-fiber vacuum jig]*	Carbon-fiber vacuum jig
Warpage Allowance	3 mm	2 mm	Vacuum jig
Max. Sample Weight	2 kg	2 kg	2 kg

*optional

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