

micromex – the high performance X-ray inspection solution

At an excellent price-performance ratio, the micromex combines high-resolution 2D X-ray technology and computed tomography in one system while offering innovative features. The versatile, easy-to-use micromex offers outstanding image quality and can be used in failure analysis labs as well as on the production floor. It is equipped with phoenix|x-ray's proprietary image processing software (optional available with the powerful algorithm toolbox Xe²), for the automated inspection of PCB assemblies offering higher defect coverage while improving production efficiency. The micromex with the new x|act package is the system of choice to ensure meeting actual and future zero defect requirements.

Winner of the Euro Asia Industry Award



Setting new standards

- ▶ 180 kV / 20 W high-power submicron tube
- ▶ 2-Megapixel digital image chain
- ▶ 24" TFT monitor

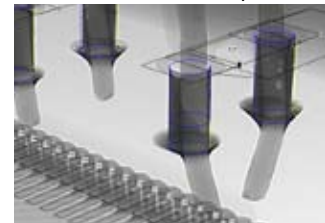
- ▶ x|act software package: easy and fast CAD based programming for high-resolution automated X-ray inspection (μ AXI) with high magnification and repeatability
- ▶ Outstanding ease-of-use
- ▶ Detail detectability down to 0.5 μ m
- ▶ Optical zoom up to 23 320x
- ▶ Active temperature-stabilized digital DXR detector with 30 fps for brilliant live images
- ▶ Oblique views at angles between 0 and 70 degrees
- ▶ Combined 2D/3D CT operation



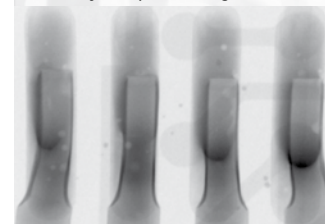
Ceramic SMD IC



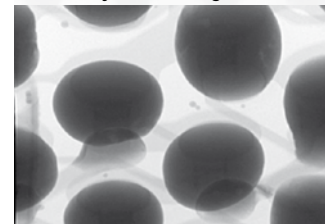
Automated BGA inspection



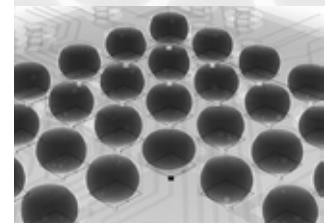
THT solder joints, partial filling and voids



QFP solder joints, missing meniscus



Non-wetted BGA



BGA in ovhm with CAD overlay

x|act – CAD based high-resolution μ AXI for maximum defect coverage

As a solution for μ AXI with extreme high defect coverage, phoenix|x-ray provides its high precision off-line μ AXI system micromelx including the unique x|act software package for fast and easy offline CAD programming. Outstanding precision and repeatability, small views with resolutions of only a few micrometers, 360° rotation and oblique viewing up to 70° ensures meeting highest quality standards. Besides the automated X-ray inspection, the μ AXI system can be used for manual failure analysis or 3D computed tomography as well.

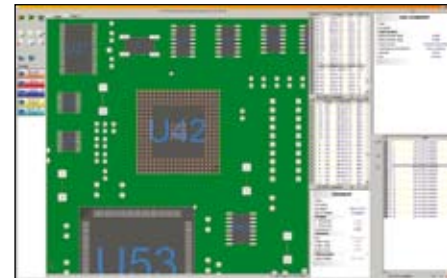
Inline or offline inspection?

With common in-line AXI, the inspection depth is normally determined by the throughput of the SMT line. Principally, X-ray inspection takes much more time than optical AOI, and the higher the defect coverage, the more inspection time is required. For zero defect production, inspection with small fields of view with micrometer resolution, 360° rotation and oblique viewing up to 70° is essential. To ensure these higher defect coverage requirements, μ AXI has to be performed beside the production line.

Efficient CAD programming

minimized setup time

- ▶ Import of CAD-data
- ▶ Easy pad-based offline programming
- ▶ Optimized inspection strategies for different pad types
- ▶ Automated generation of inspection views
- ▶ Full programm portability for all x|act compatible phoenix|x-ray systems



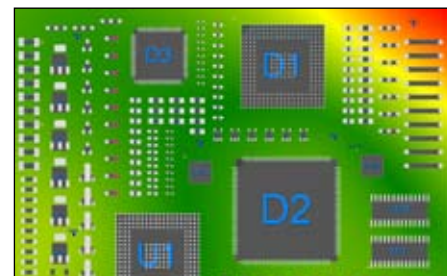
Easy CAD programming

3D auto-referencing

optimized positioning accuracy

Automated measurement and compensation of height differences and distortions:

- ▶ High precision CNC manipulation
- ▶ Local 3D height and distortion referencing by X-ray
- ▶ Automated correction of image chain distortion
- ▶ Positioning accuracy even at oblique viewing and rotation ensures highest defect coverage

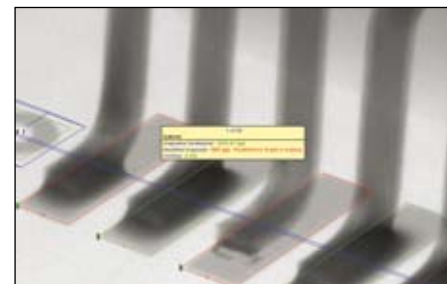


Visualization of board distortion

Live 3D CAD overlay

highest magnification in oblique view

- ▶ Live overlay of CAD-data and test results even in ovhm
- ▶ Pad ID available at any time
- ▶ Inspection results and images include correct pad numbering for easy rework
- ▶ Easy pad identification even in manual inspection



Live CAD overlay with inspection results