



PRESS RELEASE

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 Photo: X2.5 AXI System

X2.5 – Automatic high-speed x-ray with programmable angle shot capability

Dachau/Munich, Germany – 9 November 2007: The X2.5 expands the MatriX Technologies AXI product line to include a high-speed x-ray system with programmable angle shot capability. The X2.5 is especially suitable for automatic solder joint inspection of double-sided PCBs with high throughput. The oblique view with variable angle control from 0 to 45 degrees enables, for example, qualified automatic inspection of critical bump solder joints (BGA hardball) or filling level checking of PTH/THT solder joints for connectors. With a combination of X2.5 angle shot capability and MatriX Slice-Filter Technology (SFT) for hidden or overlapped joints, the X2.5 can guarantee 100% test coverage of double-sided PCBs.

The most important technical innovations with the 5-axis system are the use of a new high resolution wide beam x-ray source that realises a useful radiation cone of up to 100 degrees and the use of digital flat-panel technology as x-ray detector.

The minimal x-ray focal spot of 5 μ and use of the latest CMOS flat panel technology with a pixel resolution of up to 25 μ guarantee – depending on the level of magnification – object resolutions in the 5-10 μ m range.

With the X2.5, CMOS detectors with a surface of up to 120 x 120mm can be used together with a precise x-y axis system and can realise continuous angle shots up to 45 degrees with simultaneous 0-360 degree flexible rotation. The test object (PCB) remains in a horizontal position on an x-y table during the inspection. This high-speed linear drive table can position the object with an accuracy level of up to < +/- 5 μ and maximum accelerations of up to 1G. Thus, test speeds of up to 4 x-ray images/second including input and processing can be achieved.

The maximum object / inspection area in vertical transmission mode with 455x405mm and a maximum shot angle of 45 degrees is still 405 x 355mm.

Loading/unloading of the in-line capable X2.5 throughput system is carried out by a conveyor system with automatic width adjust. The input and output bands are configured as a conveyor lift system so that in addition to fast load-

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ing/unloading maximum usage of the table processing path despite a still compact system size (1800 x 1600mm) is achieved.

Prior to the actual inspection algorithm processing, the automatic inspection software MIPS offers the possibility of exact positioning via fiducial points and automatically calibrates the selected field of sizes (FOV) and the programmed and pre-selected x-ray capability. Changing between FOV size and x-ray capability takes place "on the fly" so that each inspection object area can be inspected with its optimal x-ray parameters.

CAD data processing of board layouts with automatic inspection process control is standard. An extensive inspection algorithm library offers high quality, fully automatic test runs – not only for the standard SMD solder joint quality spectrum (IPC-standard), but also for special requirements such as high quality hardball BGA analysis, super-flat QFN solder joints or void inspection for performance components. With Automatic Tree Classification (ATC), analysis and defect detection are fully automatic. Inspection rule generation is also automatic and works on the basis of a customer-specific process data library combined with standard IPC/Q data specifications.

Product traceability with 1D/2D barcode processing for serial numbers and/or product types are integrable – for extended failure analysis an external verification station (MIPS_Verify) is offered that depicts x-ray defect images, defect position and defect type for final verification / subsequent processing. The relevant measurement data is buffered via barcode ident and an inspection database.

With high test speeds and object resolutions of up to 5-10 μ , the X2.5 system is especially suitable for throughput-intensive automatic inspection control in electronics manufacturing. However, it also offers all the processes necessary for prototypes and sample processing, e.g. manual / teach mode in the case of nonexistent CAD data.

About MatriX Technologies GmbH:

MatriX Technologies is a global supplier of innovative solutions for x-ray inspection and non-destructive testing (NDT). The MatriX systems are based on leading-edge x-ray and vision technology and ensure the fulfilment of customers' quality requirements. The MatriX Technologies product portfolio encompasses real-time failure analysis, including standardised systems for manual and automatic x-ray inspection, as well as customised, fully integrated inspection solutions with a broad range of x-ray applications. The MatriX client base includes leading manufacturers in the electronics and automotive industries. (Additional information at www.m-xt.com)

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