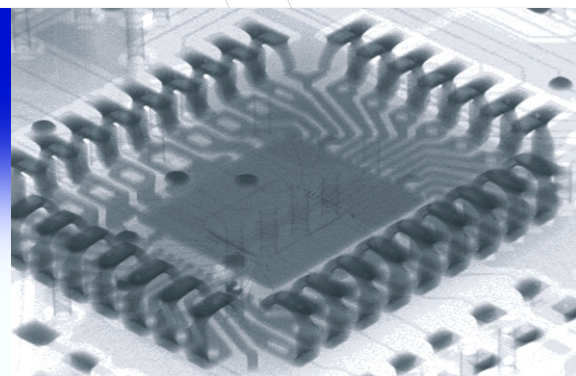
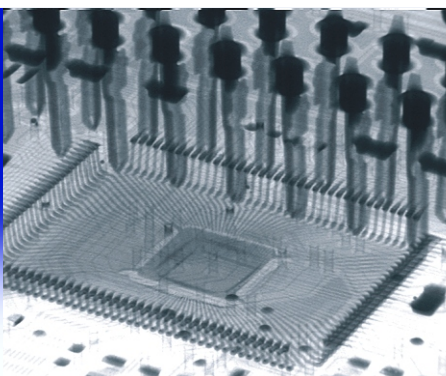


REVOLUTION
Microfocus X-ray Inspection

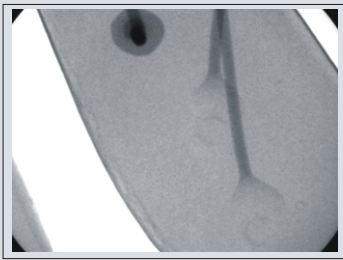


REVOLUTION

The Revolution has been developed utilising X-Tek's 20 years experience in the application and development of microfocus x-ray technology. The system provides the highest resolution and magnification possible within a compact system and is ideally suited to Production Lines and Failure Analysis laboratories. The Revolution is a versatile tool that allows an operator to easily make use of the system's manual and programmable inspection capabilities.

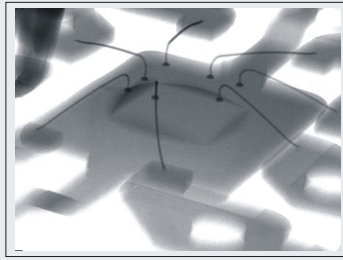
Max Magnification - 6000x

The transmission target design fitted to the Revolution's X-ray source has an ultra thin output window that enables samples to be safely placed within 250 microns of the focal spot providing up to 6000x system magnification.



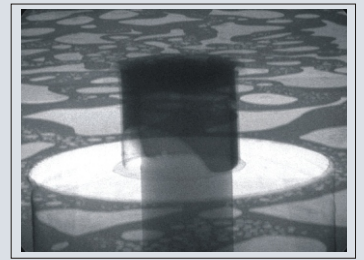
High Resolution - Micron Level Features

A tightly controlled microfocus x-ray spot and the latest digital imaging technology ensure that the Revolution produces sharp images of micron level features even in the most challenging samples. The advanced electromagnetic lens is computer controlled to ensure that the image remains in focus at all kV settings and the target does not burn when using high power.



High Penetration - 160kV

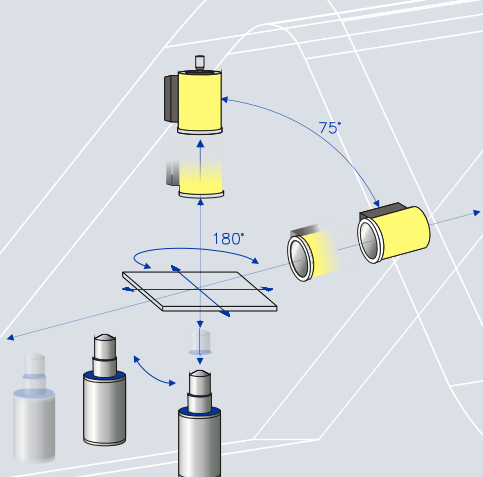
The patented X-Tek Xi "Open Tube" x-ray source is smaller than any other design and allows x-ray images of fine detail in thick and dense samples to be seen with ease. This high energy vacuum demountable unit allows views at steep angles through solder joints and heatsinks without ever running out of energy.



True Concentric Imaging

The operator chooses a region of interest (ROI) to inspect and positions it in the centre of the screen. Under any combination of rotate, tilt and magnification, the ROI remains completely locked into the centre of the field of view.

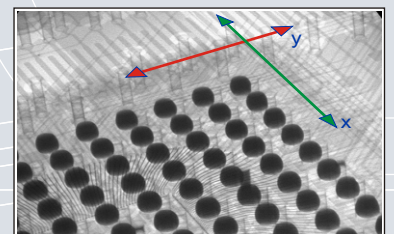
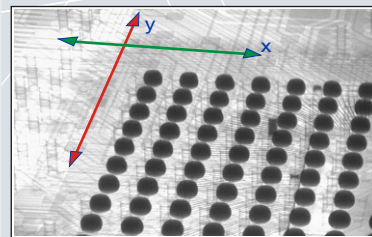
The true concentric imaging feature operates over the entire scan area of the manipulator. The ROI stays locked in, regardless of the sample's position on the manipulator table, ideal for inspecting around single or multiple BGA balls.



True Parallel Tracking For BGA Applications

A combination of tilt and rotate is required to give the best unobstructed view of BGA balls. The next step is to scan along the rows to inspect for failures. With standard manipulators, this necessitates the simultaneous operation of 3 axes - requiring considerable skill on behalf of the operator.

X-Tek's true parallel tracking maintains the X and Y axes parallel to the BGA, allowing the rows to be scanned using a single X or Y axis. This feature is enabled as part of the advanced system control concept.



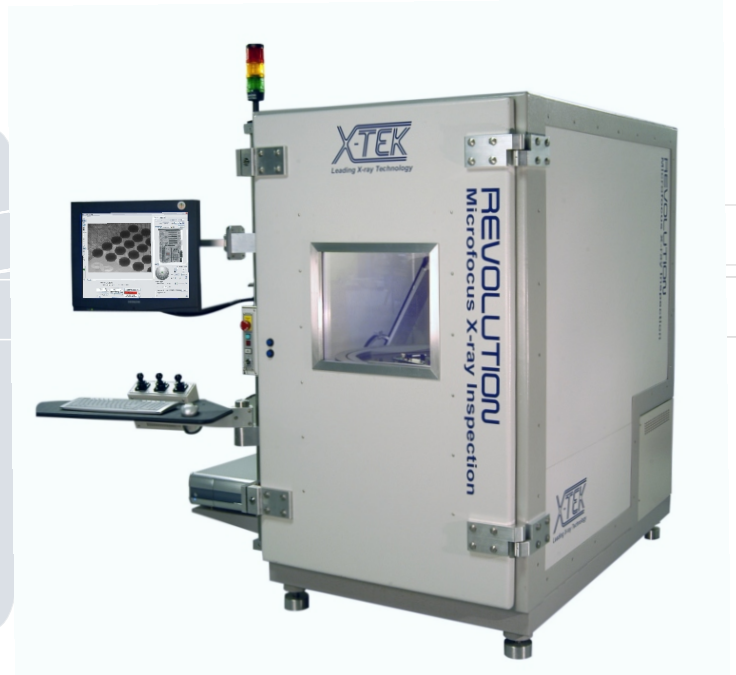
Advanced Ergonomics

The Revolution has been designed for ease of use without compromising performance.

Fully adjustable shelves ensure that all system controls are at the operator's fingertips whether standing or sitting, independent of the person's height.

The Windows control screen is laid out logically with all regularly used functions in view on single click buttons while movement of the precision joysticks gives a direct and logical response from both sample manipulator and x-ray image.

The system is highly intuitive to operate and as a result, operator training time is significantly reduced.

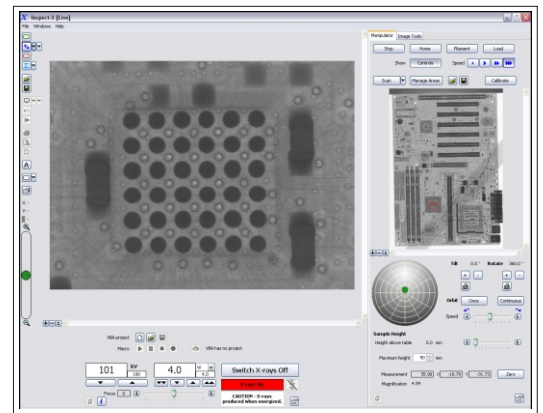


Integrated Inspect-X Software

The Revolution incorporates the most advanced image capture and analysis software. It runs under Windows XP Pro on the latest specification processing hardware. The resultant data can be saved or exported directly any COM compliant package eg MS Word, Excel, Access and SPC systems. Photo quality printouts can be made on a range of inkjet, laser or thermal printers.

Processing hardware and software are both controlled in-house so that advances in technology can be passed on to the user without delay.

Inspect-X includes special functions for inspection of semiconductor package voids, wire bonding and BGA solder bumps. It also makes use of Microsoft VBA as a scripting/macro language, allowing rapid software customisation to suit specific inspection requirements.



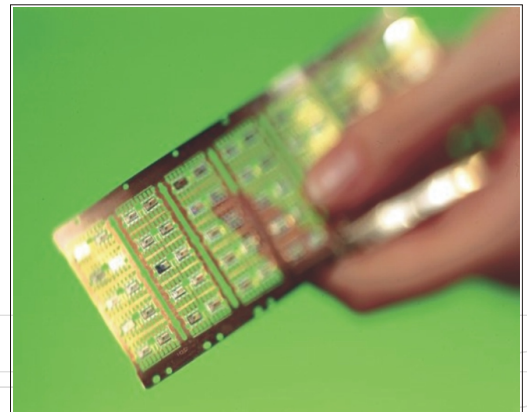
Footprint Efficient

The Xi source releases more of the Revolution's volume for sample manipulation, providing a generous 400x400mm (16"x16") scan area in a system with a footprint of only two square metres.

Low Ownership Cost

X-Tek's open x-ray tube development has driven down the size, weight and cost of the system whilst maintaining superior quality and performance.

By introducing a patented zero maintenance cable-less HT generator, the preventative maintenance has been dramatically reduced making the long term cost of ownership considerably lower than any comparable system.



Revolution Specification



General:

Configuration: Vertical x-ray axis with up to 75° oblique angle view.
Geometric Magnification: up to 2400 x
System Magnification: Up to 6000 x
Feature Recognition: Down to 1 micron
FID: 600mm
Distance from focal spot to sample: 0.5mm minimum, 1.5mm with sample tray.

X-Ray Source:

Type: 160 kV de-mountable (open type) x-ray source, transmission target.
Output: 0-160kV, 0- 500µA
Electron beam power: 20W (2 Micron)
Target: 2 micron focal spot (20 Watts defocused).
Target Material: Tungsten on aluminium or beryllium
Source Cooling: Self contained water cooled
Controller: Inspect-X programmable

Sample Manipulator:

Linear axes: 5 axis, variable speed, programmable manipulator with detachable carbon fibre tray. Control is by manual joysticks, new Xmap scan or InspectX automated routines.
Rotational: 360 degrees, continuous rotation possible.
Sample tray size: 550mm Dia.
Maximum Sample Size (UUI): 400mm x 400mm (upto 510mm reduced width)
X-Ray/Imaging Axis Tilt: 0 to 75 degrees from vertical
Axis speeds; X & Y 60mm/s, Z 40mm/s, Tilt 20 degrees per second
Rotate 15 degrees per second
Tray: Clip on carbon fibre tray, other customised formats available
Tray Capacity: 5 kg, evenly distributed

Imaging:

Image intensifier: Standard Single field 100mm x-ray image intensifier with aluminium input window
Dual-field 150/100mm VHR Intensifier option
Camera: 8 bit analogue camera
High resolution 10 or 12 bit Digital video camera option

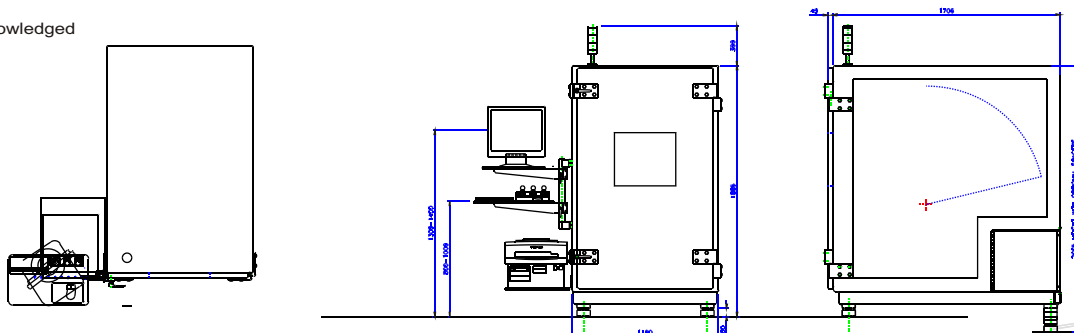
Cabinet:

Frame: Epoxy coated steel frame/panels and lead lined x-ray enclosure with integrated feet.
Control Console: Adjustable tri-shelf for monitor, controls and printer
Operator Access: Access door at the front of Cabinet with fully extendable mechanism for all main internal system components. Additional access mechanism to the left hand rear of the cabinet allowing full access to the services tray.
X-ray Shielding: Radiation protection better than 1µSv/hr at maximum power
Weight: Approx 3500kg

Control System:

Processor: Industrial PC, CDRW, FDD, Network ready
Operating system: Windows XP Pro
Programmable functions: X-ray control, sample position, image capture and analysis
Special functions: X-Ray Image Map
Scripting Language: VBA, 'Teach and Learn' recording

All Trademarks acknowledged



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