

# COMPACT

Microfocus X-ray Inspection

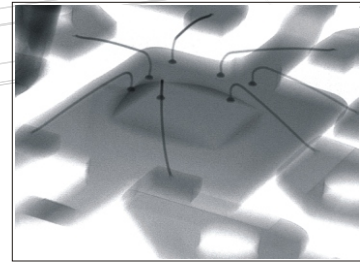


# COMPACT

A versatile microfocus x-ray analysis tool for both manual and programmed inspection of electronic components and PCB assemblies. The Compact has been developed in direct response to customers requirements using the latest materials technology and X-Tek's 20 years of experience in the design and manufacture of x-ray apparatus.

## Maximum Magnification - 5000x

An ultra thin output window design enables the sample to be placed safely within 250 microns of the focal spot giving up to 5000X system magnification. Thanks to the unique pyramid transmission x-ray target of the Xi source, the magnification of detail on large substrates and PCBs remains at an impressive level even at steep viewing angles.

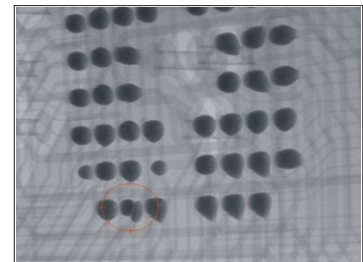


Bond Wires

## High Resolution - Micron Level Features

A tightly controlled microfocus x-ray spot and the latest CCD imager technology ensure that the Compact produces sharp images of micron level features even in the most challenging samples.

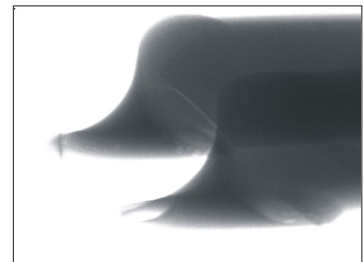
The single pole electron lens is computer controlled to ensure that the image remains in focus at all kV settings and the target does not burn when using high power.



Flip Chip

## High Penetration - 100kV

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 de-mountable unit allows views at steep angles through solder joints and heatsinks without ever running out of energy.

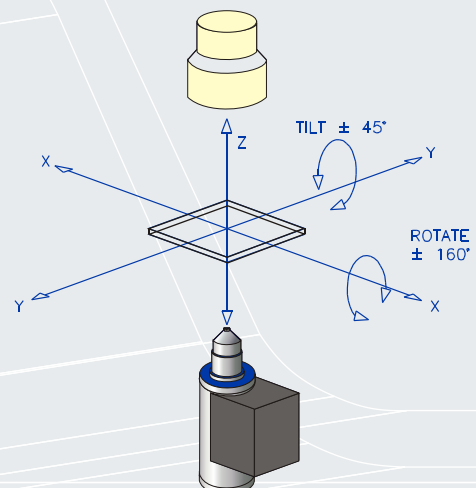


Ceramic Capacitor

## Viewing From Any Angle

The substantial carbon fibre tray moves under manual or program control at up to 60mm/sec in both X and Y directions making the Compact highly suitable for batch inspection of smaller components and assemblies. Trays, loaded with samples placed in custom fixturing, can be snapped in and inspected using a built in library of machine vision functions linked together in quick and easy to compile routines.

The Compact becomes the obvious choice for solder joint inspection on PCB assemblies by replacing the tray with a custom sample fixture and enabling two precision programmable rotation axes. Single and double sided assemblies up to 280mm x 280mm can be inspected producing sharp high magnification images from virtually 360 degrees around the PCB.



5 Axis Manipulation

## Advanced Ergonomics

The Compact 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.

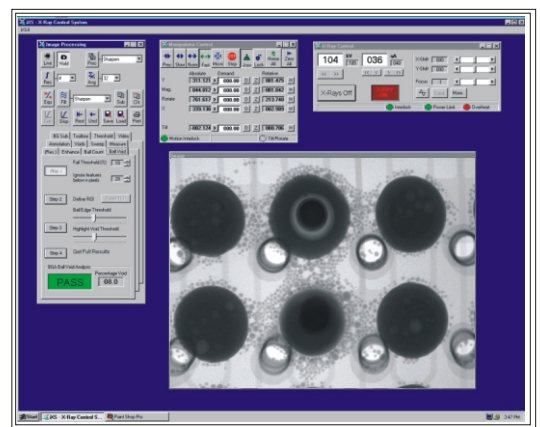


## Integrated iXS Software

The Compact incorporates the most advanced image capture and analysis software. It runs under Windows 2000 on the latest specification processing hardware. The resultant data can be saved or exported directly to MS Word, Excel and any other COM compliant package. 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.

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



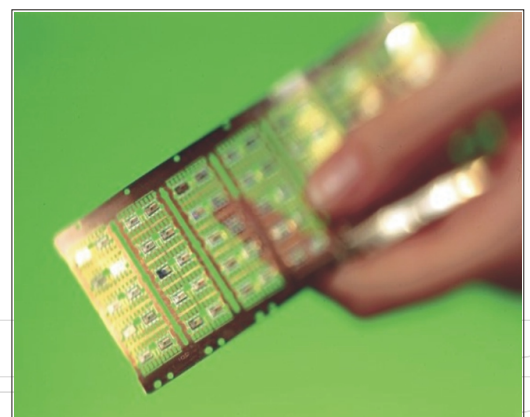
## Footprint Efficient

The Xi source releases more of the Compact's volume for sample manipulation, providing a generous scan area in a system with a footprint of less than one metre square.

## 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.

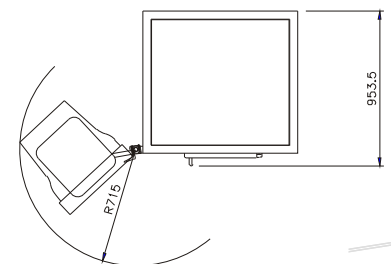
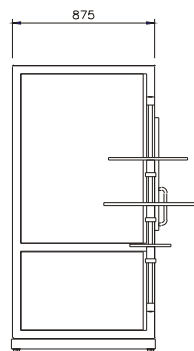
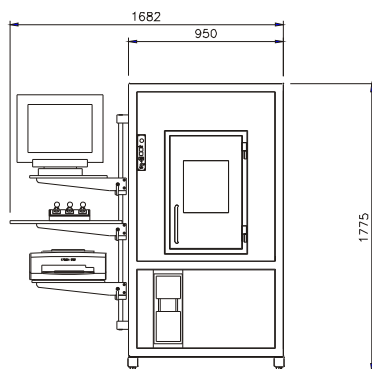
By introducing a patented zero maintenance cable-less HT generator, the preventative maintenance has been dramatically reduced making the long term cost of ownership considerably lower than a sealed tube based system.



## Compact Specification

<b>GENERAL:</b>	
Configuration:	Vertical x-ray axis, cabinet system
Geometric Magnification:	Up to 2000X
System Magnification:	Up to 5000X
Feature Recognition:	Better than 1 micron
<b>X-RAY SOURCE:</b>	
Type:	Vacuum de-mountable microfocus
Output:	0-100kV, 0-200 $\mu$ A
Electron Beam Power:	10W (5 micron)
Target Type:	In-Line transmission 5 micron
Target Material:	Tungsten (Other materials optional)
Source cooling:	Air cooled
Controller:	iXS programmable
<b>SAMPLE MANIPULATOR:</b>	
Linear Axes:	3 axis (X,Y,Z) carbon fibre tray (325mm x 300mm)
Rotational Axes:	90 degrees tilt, 320 degrees rotation
Sample load capacity:	2kg (0.5kg with rotational axes)
Manual control:	Non contact proportional joy sticks
Programmable control:	All axes fully programmable. 0.001mm increment
<b>IMAGING SYSTEM:</b>	
Image intensifier:	150mm, (100, 100/150, optional)
Camera:	760 x 580 pixel 8 bit
<b>RADIATION CABINET:</b>	
Radiation leakage:	Less than 1 $\mu$ S/hr at surface of cabinet
Weight:	Approx 1,000kg
<b>CONTROL SYSTEM:</b>	
Processor:	Industrial PC, CDRW, ZIP, FDD
Operating system:	Windows 2000
Programmable functions:	X-Ray, Sample Position, Image Capture and Analysis
Special functions:	Die Attach Void, BGA Toolbox, Wire Sweep
Programming Language:	Teach and Learn, Visual Basic Script

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