

## Radiographic Non-Destructive Testing, NDT

DELTA offers ultra-high resolution real-time X-ray testing services focussed on high-end interconnection technology in the semiconductor and electronics assembly industry

### NANOME/X, X-ray system

The new NANOME/X, nanofocus X-ray system from PHOENIX/X-RAY demonstrates superior performance with resolution obtainable down in nano-scale range.

The system uses a newly developed nanofocus transmission X-ray tube, and real-time imaging can be done in two different ways. The “standard” way is by using an image intensifier and digital camera image chain. Alternatively high contrast imaging is possible by using a 16-bit digital diode detector array as the way of direct digital imaging.

The full system, including the X-ray tube, CNC-type manipulator and the image chains are all PC-controlled which makes the system easy, accurate and fast to operate.

### Typical NDT issues

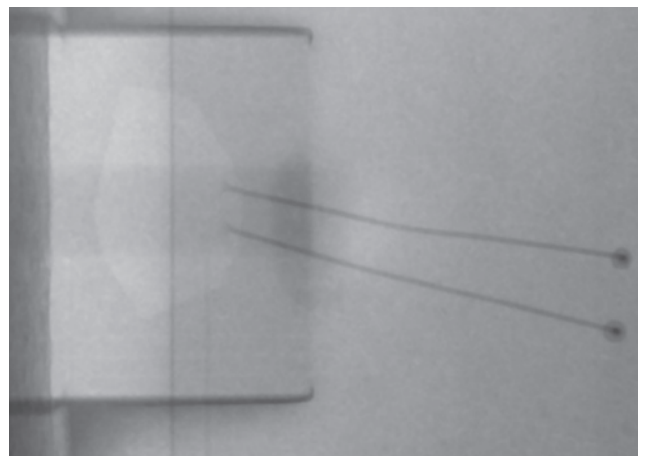
- Incoming inspection, semiconductor packaging quality concerns, wire bonding, die attach and package mould integrity
- Pre-destructive testing device characterisation in relation to test reject and field failure analysis
- NDT qualification of high-reel and high-end components, due to product, customer and/or project specific requirements
- Workmanship evaluation related to interconnection technology in electronics assembly
- Component and materials defects identification like crack and void formation, foreign particles and geometry or function distortion

### Performance

- Total magnification: Up to 13,300x
- Geometric magnification: Up to 2,130x
- Detail detectability: 200-300 nm
- Manipulator: x-y-z, rotation, 0-70 degree oblique view
- Maximum sample size: 680 mm x 635 mm
- Sample weight: 5 kg maximum



NANOMEX



X-ray view of wire bond, housing with thick metal base plate.

### Target X/Target Master, option

Our ultra-high resolution X-ray instrumentation is equipped with a Target X, Struers DK unit which offers very accurate sample fixture and orientation possibilities.

Together with the semi-automatic Target Master, Struers DK grinding/polishing machine this makes precision sample cross

sectioning possible and reliable even in the case of samples having hidden target line.

Typical applications involve precision cross sectioning of advanced semiconductor packages, internal wire bonds and flip-chip interconnects.

### Target X, Target grip, Target Master and automatic grinding/polishing agent unit set-up, used for precision sample cross sectioning with hidden target line.



Target Master



Target Master



Target X



Automatic grinding & polishing unit set-up

**DELTA**  
 Venlighedsvej 4  
 2970 Hørsholm  
 Denmark  
 Tel. +45 72 19 40 00  
 asic@delta.dk  
 asic.madebydelta.com

### For further information please contact

Yavuz Köse yak@delta.dk  
 Helle Rønsberg hr@delta.dk  
 Daniel Bøjle dab@delta.dk