

# XD7600NT<sub>100</sub>

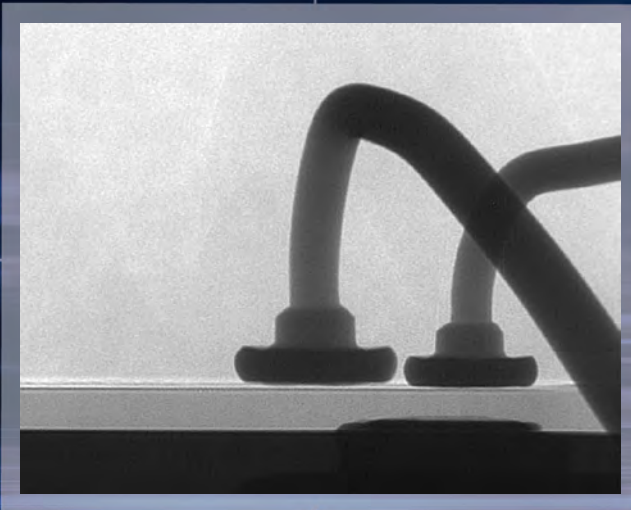
XiDAT 2.0 X-ray Inspection System

Genuine 100nm  
Feature Recognition

Up to 10W Tube Power  
at Sub-micron Feature  
Recognition

AXiS – Unique Image  
Stabilisation System

70° Isocentric Angular Views



**dage**  
A NORDSON COMPANY



# XD7600NT<sub>100</sub>

X-ray Integrated Digital Acquisition Technology

'The most technologically advanced X-ray system on the market'

The Dage XD7600NT<sub>100</sub> provides genuine X-ray feature recognition down to 100nm (0.1 microns) and up to 10W of tube power with oblique angle views of up to 70°, always effortlessly available at the highest magnifications, without any danger of in-system collision

This breakthrough performance is **only** available using Dage's technologically advanced and unique 'sealed-transmissive' NT X-ray tube technology. Yet it still has the ease of use for which Dage systems have been universally acclaimed, making this superior functionality readily useable for the most demanding X-ray inspection tasks within R & D and failure analysis applications

Dage X-ray systems provide

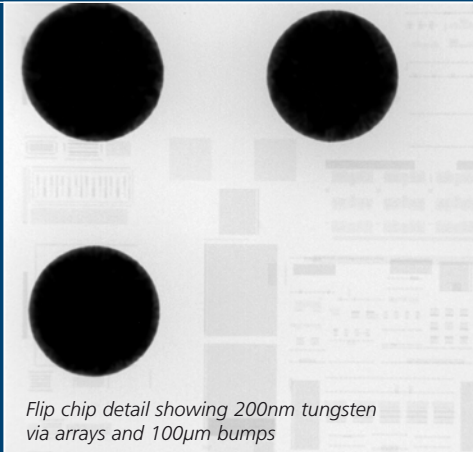
- The easiest to use X-ray systems in the industry
- No complicated joystick controls
- Intuitive Point-and-Click operation
- Oblique angle views without compromising the high magnification
- Collision-free sample movement
- Dage Image Wizard
- Real-time digital X-ray inspection

Standard on the XD7600NT<sub>100</sub>

- Unique Dage NT<sub>100</sub> sealed-transmissive X-ray tube providing feature recognition down to 100nm (0.1 microns)
- Up to 10W tube power at sub-micron feature recognition
- Enhanced resolution X-ray images from the next generation XiDAT 2.0 imaging chain
- 16-bit image processing with live images at 30fps
- 2 Mpixel images with > 65,000 greyscale levels
- 24" widescreen monitor presenting the full X-ray image at full size resolution
- 20" secondary monitor for enhanced software functionality or extended desktop use

## XD7600NT<sub>100</sub> FEATURES:

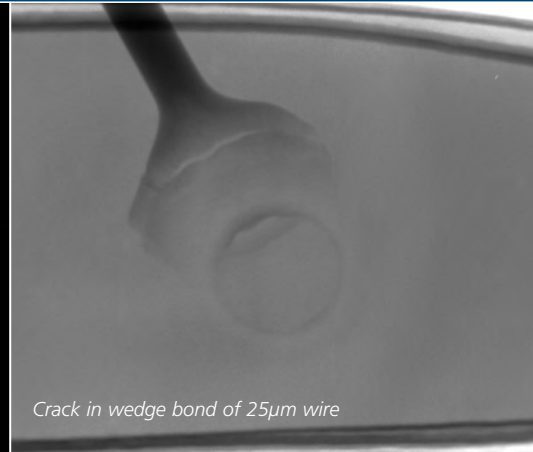
- Genuine 100nm (0.1 micron) feature recognition
- Revolutionary, unique 'filament-free' Dage NT<sub>100</sub> sealed-transmissive X-ray tube
- Guaranteed minimum tube operating lifetime
- Up to 10W tube power
- AXiS – Active X-ray Image Stabilisation
- XiDAT 2.0 imaging chain
- Up to 70° oblique angle views over the entire inspection area
- 24" widescreen digital LCD monitor
- 20" digital LCD secondary monitor
- Enhanced automated inspection routines
- Automated BGA, die-void and wire sweep measurements
- Comprehensive data logging and reporting facilities
- Uninterrupted rotating live oblique views 360° around any point in the sample
- Windows XP operating system
- CT option available



Flip chip detail showing 200nm tungsten vias arrays and 100µm bumps



CT image of stacked and bonded PCBs



Crack in wedge bond of 25µm wire

Achieving the best X-ray image quality for current and future needs within the semiconductor and PCB industries has challenged Dage to continue to consider and improve all aspects of the X-ray inspection system.

Initially, our research and development focus resulted in the hugely successful and well established range of XiDAT digital X-ray systems that, together with the subsequent upgrade to XiDAT 2.0, have become the benchmark in the industry for providing the best X-ray image quality, as standard. Achieving stunning greyscale resolution with 2Mpixel images and all without any compromise to system operation and functionality provides the optimum analytical capabilities through improved image quality and all available in less time.

At the heart of this revolution in X-ray inspection has been the development of Dage's unique **NT** type of X-ray tube. This completely different 'sealed-transmissive' X-ray tube type, the first totally new X-ray tube type in the industry for many years, supersedes and out-performs the closed and open tube types that are available in earlier systems. As feature and pitch sizes continue to diminish in the electronics industry, the

sealed-transmissive X-ray tube type is the only way to genuinely improve X-ray image resolution but still offer the necessary high magnification and a fit and forget lifetime of many thousands of hours of X-ray operation.

For more than 4 years, this Dage **NT** tube technology has successfully proven itself in the field in the Dage XD7600NT<sub>250</sub> X-ray system offering 250nm feature recognition and 3W of power. However, to ensure that Dage can provide its customers with the most future-proof X-ray system for the new demands of the electronics industry, such as the increased use of copper wire, smaller wafer bumps, thicker boards and enhanced CT operation, further development of this tried and tested technology now allows us to offer the Dage NT<sub>100</sub> sealed-transmissive X-ray tube. With its 100nm (0.1 micron) feature recognition and up to 10W of power, it is the key to the world-beating Dage NT<sub>100</sub> X-ray inspection system. At such exceptional levels of resolution and magnification, any vibrational interference can affect the image quality. To counteract this, the XD7600NT<sub>100</sub> incorporates **AXIS** as standard. This active image stabilisation control, through air suspension, results in vibrational isolation down to 4 Hz.

All the features within the Dage XD7600NT<sub>100</sub> have been developed and integrated together to provide superb image quality and low cost of ownership that can be maintained for the most demanding of applications.

**When you need the best, the XD7600NT<sub>100</sub> provides it. Always. As standard.**

To further enhance the viewing capabilities of the XD7600NT<sub>100</sub>, a CT option is available as an upgrade providing:

- Real time CT model manipulation
- Ability to make 2D X-ray micro-sections through any plane within the CT model
- Image manipulation – rotate, pan and zoom
- Ultra-quick 512<sup>3</sup> voxel default CT reconstructions with 1024<sup>3</sup> available
- Rapid switching between 2D and 3D analysis
- Ultra fast image reconstruction times

Please consult the CT brochure for further specification details.



## XD7600NT<sub>100</sub> | Specifications

Specifications	XD7600NT <sub>100</sub>
System footprint (W x D x H)	1450mm x 1700mm x 1970 mm
Gross weight	1950 kg
Minimum feature recognition	100nm (0.1 microns)
Tube voltage	30 – 160 kV from 'filament-free' X-ray tube
Tube power / Feature recognition	4W / 100nm (50 – 160kV) from 5W – 9W / 950nm (60 – 100 kV) 10W / 950 nm (110 – 160 kV)
Maximum board size	20" x 17.5" (508 x 444 mm)
Maximum inspection area	18" x 16" (458 x 407 mm)
Maximum sample weight	5 kg
Facilities requirements	Power: Single phase, 200 – 230 Vac, 16 A Max.  Air: 4–6 bar clean, dry for anti-vibration control
Oblique angle view	0 – 70° for any view, 360 degrees around any position over entire inspection area
System magnification (geometric)	Up to 12000 X (2000 X)
System monitor	24" widescreen digital LCD flat panel (1920 x 1200 pixels) displaying at full resolution the XiDAT 2.0 X-ray images of 1600 x 1200 pixels
Secondary monitor	20" digital LCD flat panel (1600 x 1200 pixels)
Safety	X-ray leakage < 1 µSv/hr
CT	Option – Please consult CT brochure for details

### GLOBAL PRESENCE, GLOBAL SUPPORT, LOCAL CARE

With 6 direct offices and representatives world wide, Dage can support you locally as well as internationally. Please contact your nearest Dage office if you require any further information or would like a demonstration of our XD7600NT<sub>100</sub> system.

Our website: [www.dage-group.com](http://www.dage-group.com) will also give additional details on Dage and its range of products as well as the contact details for your local Dage representative.

For additional information please contact:

#### China

Tel: +86 512 6665 2008  
email: [cheekeong@dage-group.com](mailto:cheekeong@dage-group.com)

#### Germany

Tel: +49 7021 950690  
email: [dage@dage.de](mailto:dage@dage.de)

#### Japan

Tel: +81 432 995851  
email: [info\\_mail@arctek.com](mailto:info_mail@arctek.com)

#### Singapore

Tel: +65 655 27533  
email: [dageplc@dage-group.com](mailto:dageplc@dage-group.com)

#### UK

Tel: +44 1296 317800  
email: [dpi-sales@dage-group.com](mailto:dpi-sales@dage-group.com)

#### USA

Tel: +1 510 683 3930  
email: [sales@dage-group.com](mailto:sales@dage-group.com)



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Specifications subject to change without prior notice.