

## X8060 NDT

Universal  
2-D/3-D X-ray Inspection



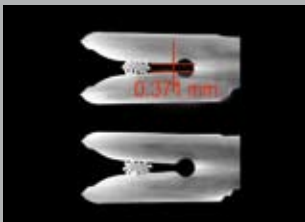
**MXI+ $\mu$ CT**

# X-ray Inspection for Larger Inspection

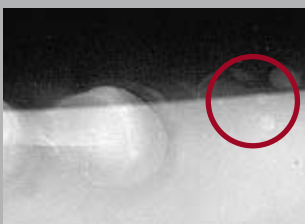
## Semi-Automatic X-ray Inspection in 2-D and 3-D Modes



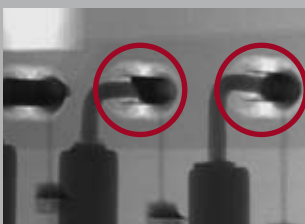
Clamping joints,  
3-D volume reconstruction



Clamping joints, 3-D slice  
reconstruction with  
distance measurement



Defective aluminium  
weld seam



Defective THT solder joints

**2-D and 3-D inspection  
without mechanical conversion**

**Designed for larger, heavier  
inspection objects**

**Precision manipulator with  
up to 8 CNC-capable axes**

**High magnification with  
angled radiation**

**Convenient, direct positioning  
by clicking on optical  
overview image**

**Fast, accurate 2-D measurement  
process independent  
of magnification**

**Microfocus computed tomography  
( $\mu$ CT) for volume reconstruction**

**Independent, real-time image pro-  
cessing with Viscom analysis tools**

**Realistic 3-D volume model  
with measurement in  
all spatial directions**

**Excellent image quality through  
high-contrast resolution with flat-panel  
detectors or other image chains**

*X-ray inspection delivers information about the interior of a 3-D inspection object. Even in 2-D mode, quick, highly magnified views of the third dimension are possible. But with the help of modern computed tomography, the 3-D mode allows the reconstruction of complete volumetric models, allowing non-destructive slices to be made or measurements taken in any direction.*

*This flexibility makes the X8060 NDT a valuable inspection tool for various industrial applications. Typical defects recognized by this non-destructive process are tears, bridges, pores, voids, foreign bodies, form deviations, incorrect positioning, misalignment, or inhomogeneous material transitions.*



## X8060 NDT – the flexible $\mu$ CT-system

The X8060 NDT was developed for **destruction-free inspection** in industrial and scientific settings. The **typical application areas** of the X8060 NDT are characterized by the system's ability to handle not only large or heavy inspection objects, but also to inspect the smallest parts, with the highest magnification.

Optional **microfocus computed tomography ( $\mu$ CT)** enables 3-D inspection and visualization of the inspection object. Along with the spatial assignment of production defects and material flaws, individual slices or section images can also be visualized with this process. Due to its exceptional spatial display capabilities, the  $\mu$ CT improves defect localization and enables direct measurement within the volumetric model.

The system's **8-axis manipulator** opens up entirely new possibilities for angled radiation with high magnification. The structure of hidden solder joints in electronic assemblies, such as with BGAs, is revealed, and larger inspection objects can be inspected with the same system. These multiple application possibilities save costs and increase system utilization. A **real-time image processing system** provides all image refinements without time lag, allowing the operator to concentrate fully on the inspection task.

The core of the X8060 NDT's X-ray technology is a high-capacity, open **microfocus X-ray tube**, designed to provide highest flexibility, outstanding image quality and stable in-line operation. Its user-friendly design guarantees a practically unlimited service life and quick, easy maintenance, minimizing costs.

Viscom specializes in automatic inspection. A wide selection of **Viscom's own analysis tools** are also available for the X8060 NDT.



$\mu$ CT: Microfocus computed tomography of a turbine rotor



Optical view



3-D volume reconstruction



Non-destructive 3-D slice through a casting defect



2-D X-ray image, casting defects

# Technical Specifications

X8060-16 | X8060-20 | X8060-22 | X8060-25

## X-ray technology

X-ray tube	Open all-metal Viscom tube, series XT9000 with reflection or transmission target			
High voltage	10 - 160 kV	10 - 200 kV	10 - 225 kV	10 - 250 kV
Tube current	5 - 1000 $\mu$ A or 5 - 3000 $\mu$ A			
Target load	Max. 40 W/500 W			
Focal point size	< 5 $\mu$ m / < 2 $\mu$ m			
Detail recognition	< 2 $\mu$ m / < 1 $\mu$ m			
Magnification	Direct geometric magnification without collimator > 4000 x			
Image intensifier	6" or 9" image intensifier with real-time MP camera (12 bit) or high-resolution digital flat panel detectors (12/14/16 bit)			
Option	0 - 60° angled view with digital flat panel detector			
X-ray cabinet	Fully protected device according to R6V (German X-ray regulations) from 30 April 2003 and US Standard 21 CFR § 1020-40 and additional international standards. Radiation leakage rate < 1 $\mu$ Sv/h			

## Software

User interface	Viscom XMC
Option	BGA analysis BGA-S Pore analysis software (void calculation) ACA-S THT analysis software THT-S Wire sweep analysis software WSA-S $\mu$ CT module for all available detectors listed above

## System computer

Operating system	Windows®
Processor	PENTIUM® processing technology
Connection	LAN
Monitor	19" TFT display

## Sample handling

Manipulator	4 axes (X, Y, Z and rotation n x 360°)
Horizontal X/Y-axis	Travel range: 610 x 460 mm (24.0" x 18.1")
Vertical Z-axis	Travel range: 800 mm (31.5")
Detector axis (option)	60° pivoting, variable detector distance, travel range: 700 mm (27.6")
Tilt axis	$\pm$ 60° option
Max. sample size X/Y	660 x 510 mm (26.0" x 20.1") (L x W)
Max. sample weight	30 kg (66 lbs), with option tilt axis 10 kg (22 lbs)
Test piece change	Pneumatic front window
Option	Pneumatic front slide door
CT axis	Standard

## Inspection speed

Variable

## Other system data

Power requirements	230/400 VAC; 3 P, N, PE; 16 A; 50/60 Hz; 3 kVA; compressed air 6 - 8 bar (90 psi) (oil-free)
System dimensions	2210 x 1970 x 1890 mm (87.0" x 77.6" x 74.4") (W x D x H)
Weight	Approx. 4000 kg (8818 lbs)
Environmental conditions	Temperature: 10 - 35°C (50 - 95°F), relative humidity: 20 - 80 % non-condensed

