

X7056RS

In-Line X-ray and Optical Inspection for Electronic Assemblies



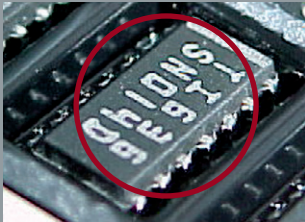
3D AOI/AXI

With XM 3D & FPD

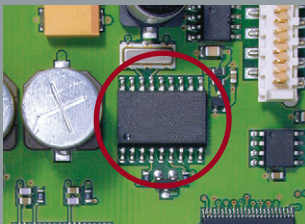
Leading Edge Inspection Technology

Optical and simultaneous
2D, 2.5D and
3D X-ray inspection

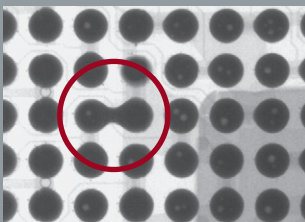
AOI – AXI compared:



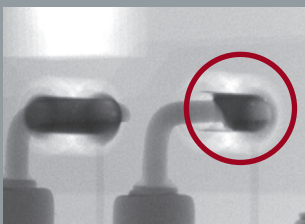
Only recognizable with
AOI: OCR application



Only recognizable with
AOI: SOIC polarity



Only recognizable with
AXI: BGA bridge



Only recognizable with
AXI: defect in THT
connection

**Simultaneous optical and
X-ray inspection**

**3D X-ray inspection
with resolutions from
5 up to 20 μm per pixel**

**High performance, tomosynthesis-
based 3D X-ray back calculation**

**Optical inspection
with up to 8 μm resolution**

Short handling time

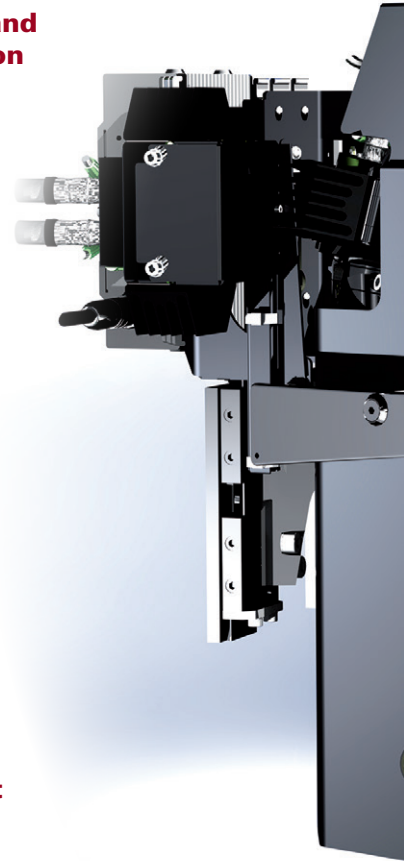
**Compact housing dimensions:
only 1.3 m (X7056RS)
or 1.7 m (X7056RL) wide**

**Worldwide competent service:
on site, hotline and remote support**

**Customer support section
on Viscom's website**

**Reduce false alarms
with AXI OnDemandHR**

New electronic products are arriving to the market today at increasingly rapid cycles. Time allowed for development and modeling is getting shorter, as demands for top quality rise. The automatic optical inspection (AOI) of printed circuit boards is accepted worldwide. Manufacturers with miniaturized components such as BGAs, μ BGAs, CSPs and FlipChips require a positive and cost-effective quality inspection process that also locates concealed defects – with extensive inspection depth and high throughput.



X7056RS with XM camera technology – the new AXI standard, fast and flexible

The core of X-ray technology – a high performance closed **microfocus X-ray tube** – provides selectable resolutions from 5 up to 20 μm per pixel for X-ray inspections.

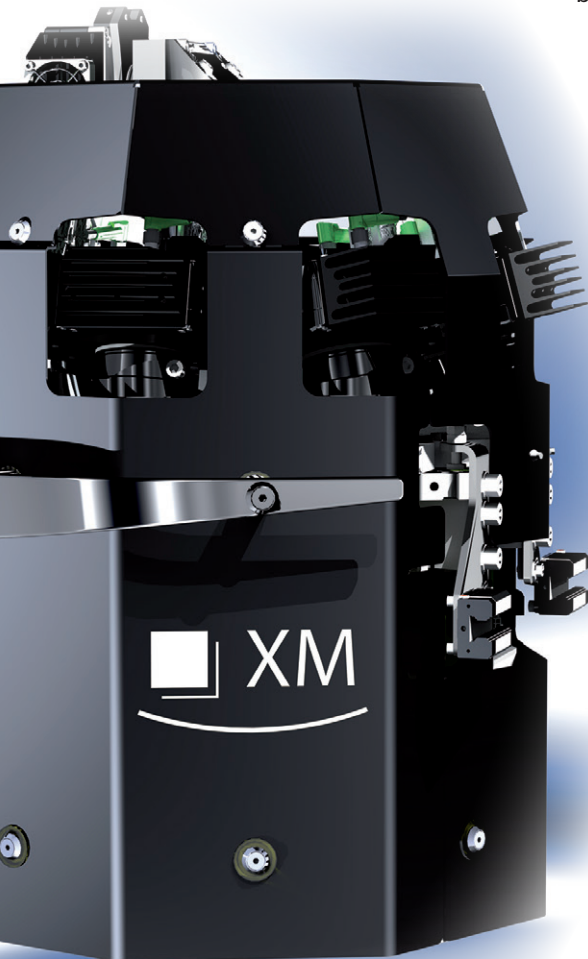
The 3D results are based on tomosynthesis and facilitate an **outstanding image quality** and **optimum contrasts**. Thus, complex overlap on printed circuit boards populated on both sides can be resolved and easy-to-analyze features generated.

Through integration of the AOI – with XM 3D or 8M camera technology – this system also offers the high inspection depth of the Viscom AOI systems with comparable throughput. With the **OnDemandHR function**, the AOI resolution for orthogonal analysis can be flexibly switched to as high as 8 $\mu\text{m}/\text{pixel}$ at full image field depth. In addition, the inspection system provides the option of **color evaluation**.

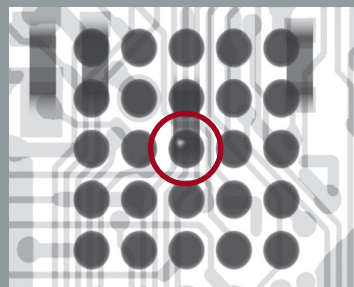
With its **simultaneous optical and X-ray inspection**, the high-performance combo system sets a new standard in quality assurance. Through this simultaneous inspection **very fast inspection** and **minimum handling times** are achieved. The system is **fully modular**, so it can be used as a combined system or as a pure AXI system. These different inspection concepts display the ultimate in flexibility that can be directly employed to customer requirements.

EasyPro presents a user interface that is concise and convenient in both AOI mode and X-ray operation. Program generation and optimization can be conducted quickly and easily, and is compatible with existing Viscom systems. As an option, high performance **SPC software with a variety of filtering functions** is available for process control and optimization.

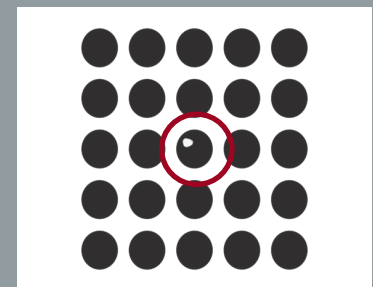
For this system too, the unique **Viscom Quality Uplink** for effective process control as well as a wide range of proprietary **Viscom analysis algorithms** are available, such as those for BGAs, FlipChips or surface soldering (voiding calculation).



2D X-ray – 3D X-ray compared:



2D image of a BGA:
Structures from the rear side
are present in the image



3D image of a BGA:
Sectioned image without
interfering structures

Technical Specifications

X7056RS/X7056RL AXI/AOI+AXI

X-ray technology

X-ray tube	Closed X-ray tube
High voltage	60 - 130 kV
Tube current	50 - 300 µA
Detector	Flat panel detector (FPD), 14-bit grayscale depth
Resolution	8, 10, 20 µm/pixel, switchable
Z-axis adjustment	Powered z-axis tube adjustment
X-ray cabinet	Designed to meet requirements for fully protected devices in accordance with German Radiation Protection Act (StrlSchG) and German Radiation Protection Ordinance (StrlSchV). Radiation leakage rate < 1 µSv/h

Camera technology

XM module – orthogonal camera

Field of view	40 mm x 40 mm (1.6" x 1.6")
Resolution	8 µm
Number of megapixel cameras	1

XM module – angled view cameras

Resolution	16 µm (standard)
Number of megapixel cameras	4 (8, optional)

XM 3D camera technology

Range	Up to 30 mm (1.2")
Z-resolution	0.5 µm

XMplus/8M camera technology (optional)

Software

User interface	Viscom EasyPro/vVision-ready
Verification station	Viscom HARAN
SPC	Viscom SPC (statistical process control), open interface (optional)
Remote diagnosis	Viscom SRC (software remote control) (optional)
Off-line programming	Viscom PST34 (external programming station) (optional)
Systematic defect analysis and continuous system monitoring	Viscom PDC (ProcessDataControl), TCM (TechnicalChainManagement)

System computer

Operating system	Windows®
Processor	Intel® Core™ i7

PCB handling

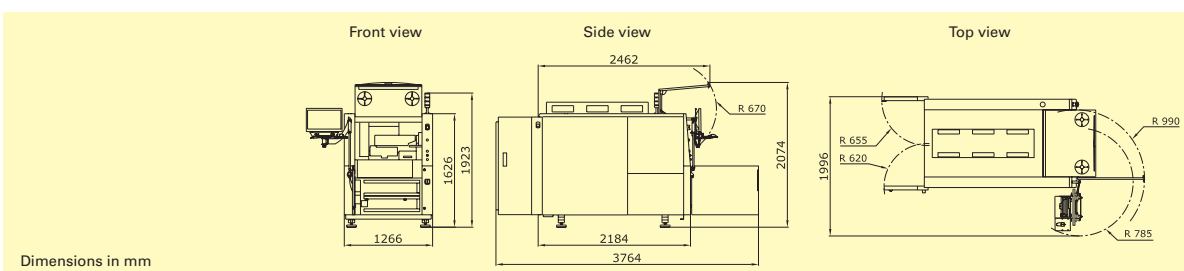
PCB dimensions*	X7056RS: up to 450 mm x 350 mm (17.7" x 13.8") (L x W) X7056RL: 610 mm x 508 mm (24" x 20") (L x W)
Transport height	850 - 980 mm ± 20 mm (33.5" - 38.6" ± 0.8")
Width adjustment	Automatic
Dual track operation	Optional with external PCB modules
PCB clamping	During inspection
PCB edge clearance	3 mm (0.1")
Upper transport clearance	Up to 35 mm (1.4"); FPD with 8 µm resolution: 20 mm (0.8")
Lower transport clearance	55 mm (2.2")

Inspection speed

AOI	30 - 50 cm ² /s
AXI	Depends on application

Other system data

Positioning/handling unit	Synchronous linear motors
Interfaces	SMEMA, SV70, customer specific
Power requirements	400 V (other voltages on request), 3P/N/PE, 8 A
System dimensions	X7056RS: approx. 1266 x 1626 x 2184 mm (49.8" x 64" x 86") (W x H x D) X7056RL: approx. 1738 x 1626 x 3166 mm (68.4" x 64" x 124.6") (W x H x D)
Line integration dimensions	X7056RS: + 25 mm (1"), X7056RL: + 25 mm (1")
Weight	X7056RS: approx. 2500 kg (5512 lbs) X7056RL: approx. 3600 kg (7936 lbs)



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www.viscom.com

*3D X-ray inspection: dimensional restrictions may occur
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