

X7056RS

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



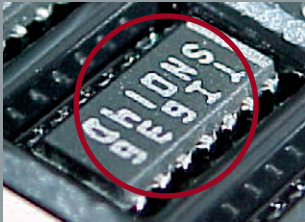
AOI/AXI

With XM 3D & FPD!

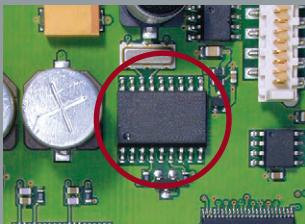
Leading Edge Inspection Technology

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

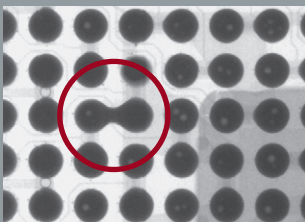
AOI – AXI compared:



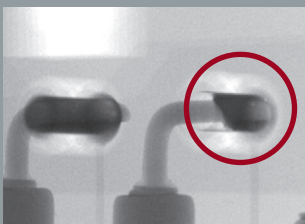
Only recognizable with
AOI: OCR application



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

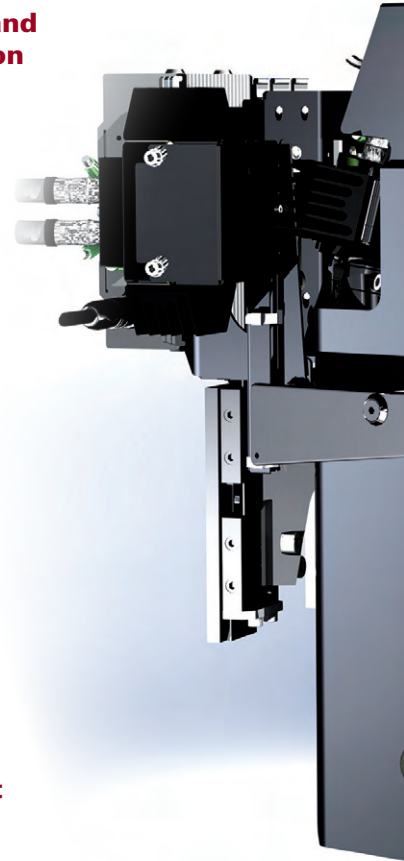
**Compact housing dimensions:
only 1.3 m (X7056RS)
or 1.7 m (X7056RL) wide**

**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

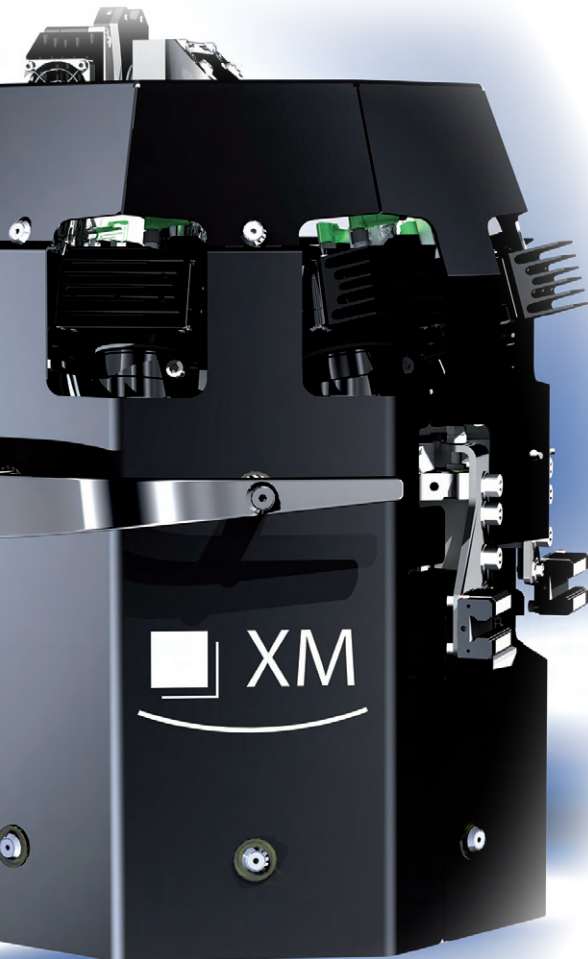
The core of X-ray technology—a high performance closed **microfocus X-ray tube**—provides selectable resolutions from 5 up to 20 μm per pixel for X-ray inspections. Depending on the application, flat panel detectors (FPD) or image intensifiers are used for the 3D, 2.5D or 2D X-ray techniques.

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 μm /pixel at full image field depth. In addition, the inspection system provides the option of **color evaluation**.

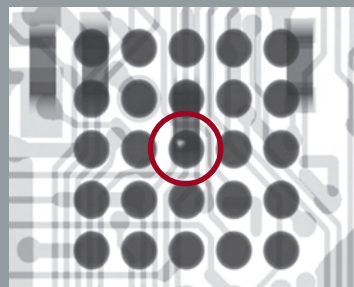
With its **simultaneous optical and X-ray inspection**, the high-performance combo system sets a new standard in quality assurance. Through this simultaneous inspection **very fast inspection** and **minimum handling times** are achieved. The system is **fully modular**, so it can be used as a combined 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.

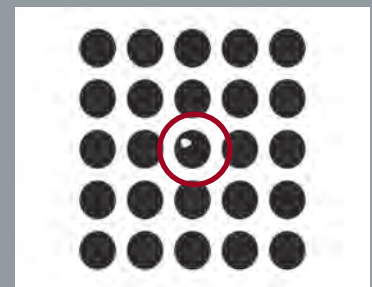
For this system too, the unique **Viscom Quality Uplink** for effective process control as well as a wide range of proprietary **Viscom analysis algorithms** are available, such as those for BGAs, FlipChips or surface soldering (voiding calculation).



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

Variants

AXI

AOI/AXI

Inspection concept	2D AXI	3D AXI	2D AXI + AOI	3D AXI + AOI
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X-ray technology

X-ray tube	Closed X-ray tube
High voltage	60–130 kV
Tube current	50–300 μ A
Detector	Viscom 2D, 2.5D and 3D detector, 12-bit grayscale depth Flat panel detector, 14-bit grayscale depth
Resolution	Image intensifier: 5, 7, 10 μ m/pixel, FPD: 8, 10, 20 μ m/pixel, switchable
Z-axis adjustment	Powered Z-axis tube adjustment
X-ray cabinet	In compliance with the German X-ray Regulations (RöV) regarding fully protected devices. Leakage radiation < 1 μ Sv/h

Camera technology

Orthogonal camera module XM

Field of view	40 mm x 40 mm (1.6" x 1.6")
Resolution	16 μ m (standard), 8 μ m (high) switchable with OnDemandHR
Number of mega pixel cameras	1

Angled view camera module XM

Resolution	16 μ m (standard)
Number of megapixel cameras	4/8 (optional)

XM 3D camera technology

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

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

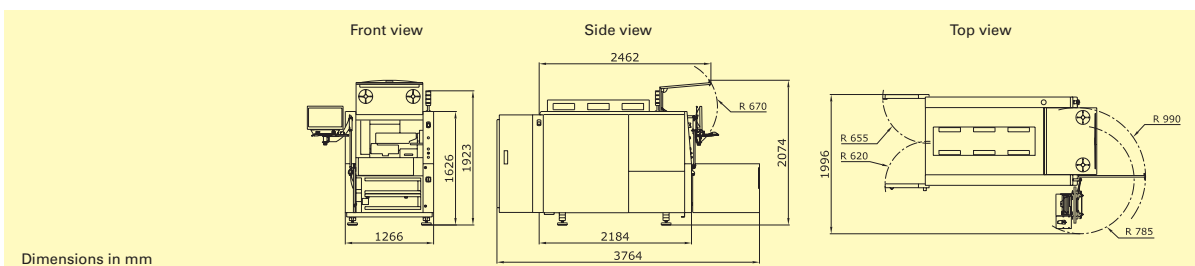
PCB dimensions*	X7056RS: 450 mm x 350 mm (18" x 13.8") (L x W) X7056RL: 610 mm x 508 mm (24" x 20") (L x W)
Transport height	850–980 mm \pm 20 mm (33.5"–38.6" \pm 0.8")
Width adjustment	Automatic
Handling unit	Gantry system with maintenance-free high speed drives
Dual track operation	Optional with external PCB modules
PCB clamping	During inspection
PCB edge clearance	3 mm (0.1")
Upper transport clearance	Up to 35 mm (1.4") (FPD: 20 mm/0.8")
Lower transport clearance	55 mm (2.2")

Inspection speed

AOI	30–50 cm ² /s, no handling time
AXI	Depends on application

Other system data

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 (5511 lbs) X7056RL: approx. 3600 kg (7936 lbs)



Headquarters:

Viscom AG
Carl-Buderus-Straße 9–15 · 30455 Hanover · Germany
Tel.: +49 511 94996-0 · Fax: +49 511 94996-900
info@viscom.com · www.viscom.com

Visit our website to find international subsidiaries and representatives in Europe, USA and Asia:

www.viscom.com

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