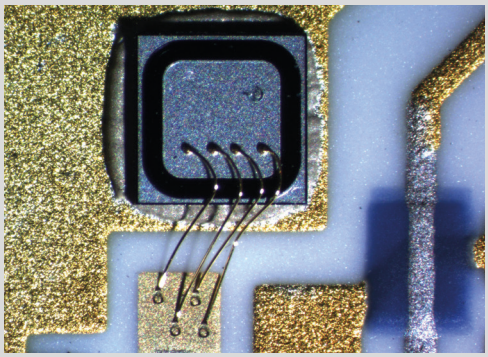
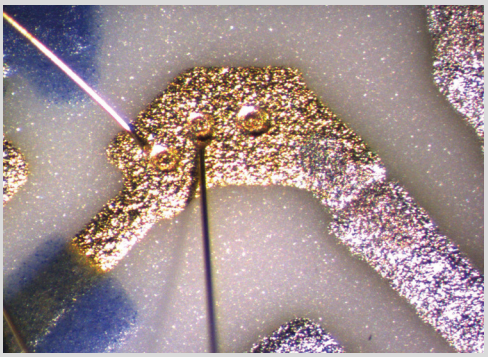
VISCOM
vision technology

Wire Bond Inspection

AOI and AXI Systems for Reliable Inspection of Bond Wires in Electronics Manufacturing



Bent wires



Missing wire on wedge

Bond Connections Reliably Inspected

Inspection of thin and thick wire bond connections as needed

Scalable modular 2D and 3D sensor technology

Combined inspection of bonds and SMD placement

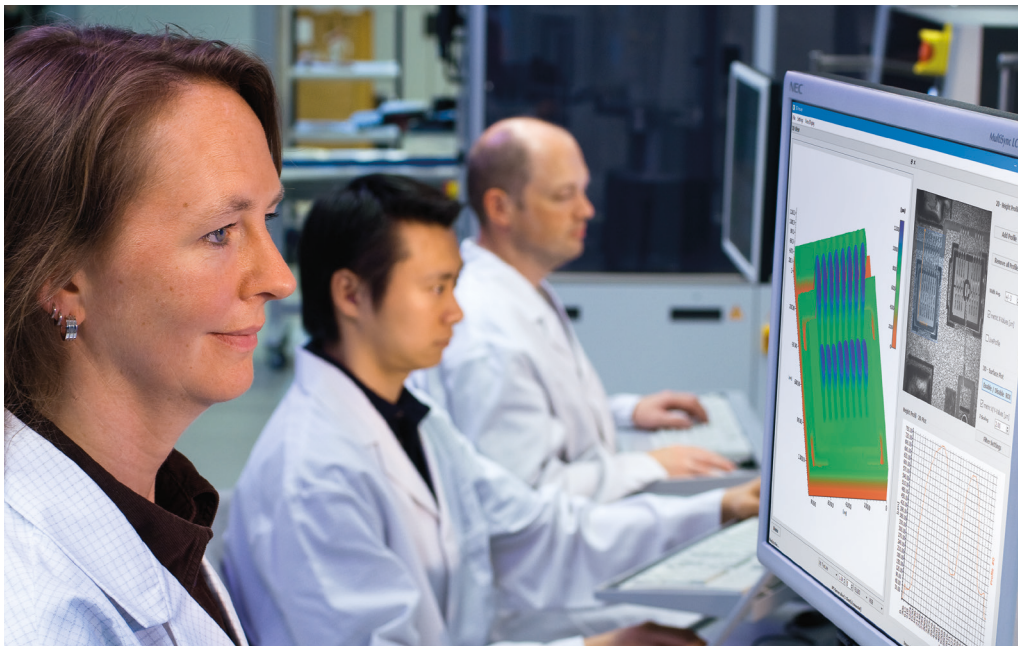
Innovative transport concepts for different substrate materials

In order to check the adhesive integrity of bonds or to detect missing wires on multiple bonds, an electrical test alone is often insufficient. Viscom has the right inspection systems for this and many other tasks. Whether it is ball-wedge, wedge-wedge or security bonds, Viscom offers special algorithms adapted to a reliable inspection of all modern bond processes. Diverse substrates and workpiece carriers can be handled with the corresponding Viscom transport solutions.

Bond sites, wire paths, dies and component position are only a part of the wide inspection scope. Camera heads developed especially for wire bond inspection are available for multiple loop or multi-wire connections and for balls and wedges of different wire thicknesses. It makes no difference whether the connections are of copper, aluminum or gold, or whether ribbon or thick or thin wires are involved.

Customized analysis of the widest range of defect types

Even at wire diameters down to 17 µm, a secure inspection can still be depended on. Damaged components and position deviations are also reliably detected. The standard library from Viscom contains inspection patterns for die, ball-wedge, wedge-wedge and security bonds. The inspection scope can also be individually adapted for further applica-



Wire bond inspection with Viscom SI software

Bonded substrate from power electronics

tions beyond the range of standard defects. Inspection programs can also be created and optimized off-line on a Viscom programming station. The image material of a previously captured video base can be called up for support. Together with a high-power SPC evaluation (statistical process control), the inspection provides the basis for a perfect optimization of the production process.

- **Top image quality**
- **Optimum illumination**
- **Best performance**

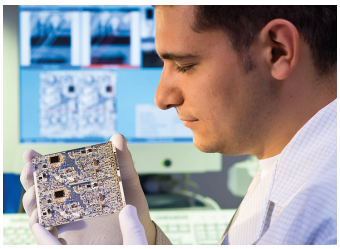
The inspection systems can be optimally configured for an especially good performance where throughput, cycle time and defect detection are concerned. Among the features offered by the camera modules, the resolution and illumination options are particularly significant for wire bond inspection. In addition to this, important height information can be obtained with 3D inspection, which is very effectively applicable in a line cycle. This is increasingly becoming an indispensable quality indicator in today's electronics manufacturing. The corresponding 3D methods can typically be used to precisely measure the bonding wire courses and further reduce pseudo defects for both thick and thin wires.

Systems for every need

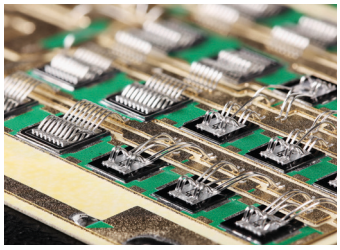
Viscom has offered automatic inspection systems which guarantee reliable optical defect detection on widely differing bonds for many years now. Alongside the S6053BO-V, the X7056-II BO brings a combined solution for automatic X-ray (AXI) and bond inspection.

Individual solutions

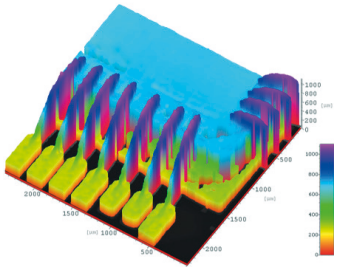
Viscom has been developing and manufacturing its systems in-house for decades; with this extensive experience, there are practically no limits and even individual system solutions can be realized quickly and effectively. One example of this is the multifaceted S2012BO, the space-saving way to inspect bonds. This inspection system can be integrated into existing production systems without any problems. Alternatively, the entire electronics can be installed in a very compact system rack or in the technology of the production system.



Barely visible to the human eye



Wire bond connections



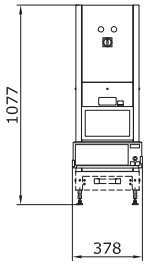
3D inspection of thin wires

The Right Inspection System for Every Wire Bond Inspection

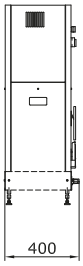
S2012BO – intelligent, customized solutions for customer requirements

- Universal integration solution for individual requirements
- Technology that can also be integrated into an existing production system
- Especially well-suited for fixed applications

Front view



Side view

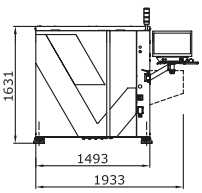


Top view

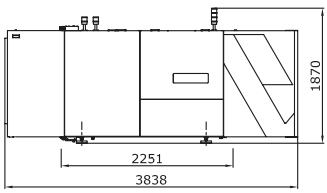
X7056-II BO – additional options with automatic X-ray

- Combined solution for bond AOI and bond AXI in one system
- Versatile selection of bond camera for thick and thin wire
- Maintenance-free closed microfocus X-ray tubes

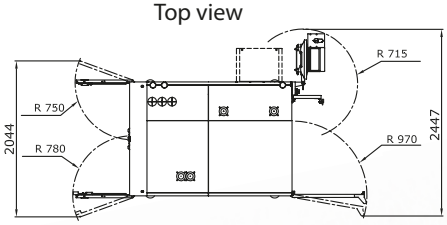
Front view



Side view



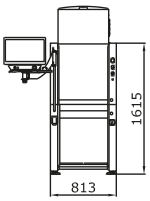
Top view



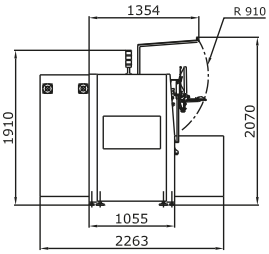
S6053BO-V – systems for automatic optical wire bond inspection with configurable transport

- High-end solution for in-line inspection with transport system
- Compatible with all Viscom bond camera modules
- Especially high precision

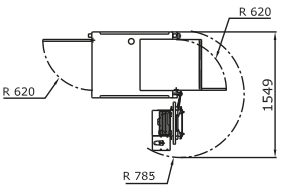
Front view



Side view



Top view



Overview of Camera Systems

Wide selection of economical AOI solutions

Precise, positive inspection down to 17 µm wire diameters

Full compatibility with other Viscom systems

Support with remote diagnosis, hotline and on-site service

	Camera modules:	**XM Bond LR** High-resolution camera module for inspecting thick wires and ribbons with excellent image and illumination quality and large field of view
	Resolution:	7.5 µm/pixel
Applications	**Post-placement**	■
	Ribbon	■
	Thick wire	■
	Thin wire	
Systems	**S2012BO** Universal integration solution	■
	S6053BO-V High-end inspection with configurable transport	■
	X7056-II BO Combined solution for bond AOI and bond AXI	■

	XM Bond HR Universal high-resolution camera module with excellent image and illumination quality and large field of view	**XM Bond 3D Module** Universal high-resolution 3D sensor technology especially for wire bond inspection	**XM Bond VR** High-resolution camera module designed specifically for thin-wire inspection
4.5 µm/pixel	☐	■	☐
	■	■	☐
	■	■	
	■	■	■
	☐	☐	☐
	■	■	■
	■	☐	

■ Standard application

☐ Also well-suited for this application

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