



## FEINFOCUS

High Volume X-Ray Inspection

**FEINFOCUS TIGER**

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## Technical Information



**Thorough Component Inspection for Multi-Layer Boards**  
**Designed to meet the rigorous needs of the computer, automotive, telecom, military and aerospace, medical device, and storage markets, the award-winning FEINFOCUS TIGER X-Ray Inspection System ensures that only the highest quality assemblies leave the production floor.**

The system offers sophisticated oblique angle views for thorough component inspection of multi-layer boards, including standard BGA components and interconnects, as well as fine-pitch area array devices ( $\mu$ BGAs and flip chips), high-density interconnects, hybrids, and encapsulated components. The FEINFOCUS TIGER System offers geometric magnification up to 636 x, with a total magnification up to 2,800 x. A large sample tray area of up to 24" x 24" (610 mm x 610 mm) accommodates larger boards and flip chip assemblies. Additional features include FEINFOCUS' proprietary True X-Ray Intensity (TXI) control and Auto Isocentric Motion (AIM) technology.

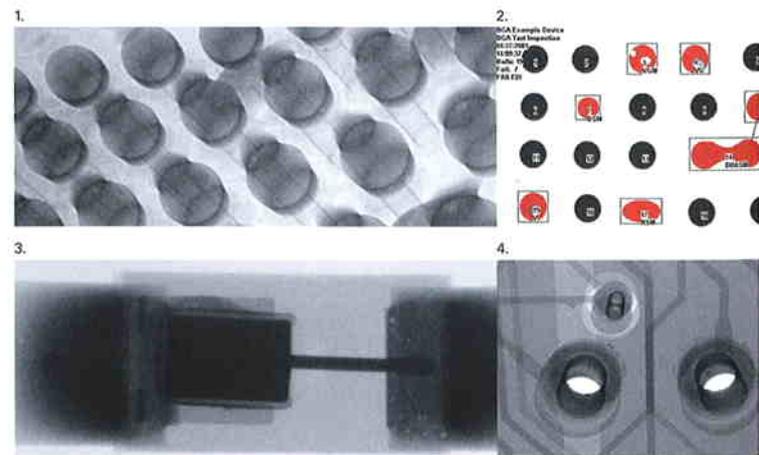
#### About the Business Unit FEINFOCUS

COMET's Business Unit FEINFOCUS is an award-winning leading manufacturer and supplier of high-resolution X-Ray Inspection Solutions, with more than 2,000 system installations worldwide. As the pioneer of Microfocus, Nanofocus, and Multifocus X-Ray Inspection Solutions, we are at the forefront of product innovation in X-Ray Inspection, including True X-Ray Intensity (TXI) control and AIM technology. FEINFOCUS offers X-Ray Sources and radiation-shielded X-Ray equipment, as well as full in-house services, such as failure analysis and component defect detection. We also provide enhanced on-site customer training and system demonstration, and are renowned for our global commitment to customer support.

#### Advanced Inspection Solutions Ensure High Quality

The trend among PCB manufacturers goes toward small and compact assemblies incorporating additional layers. Shrinking geometries require inspection of the component at multiple angles with the highest magnification. Quality control and process analysis of these production lines have never been more important, and manufacturers are demanding inspection that ensure high quality. The FEINFOCUS TIGER is the ideal solution, as the 2D X-Ray Inspection System offers a view into the 3rd dimension via oblique viewing at virtually any desired angle. The image intensifier manipulator rotates a full 360° and tilts up to 60° to view complex assemblies in real-time. The system also offers a precise additional three-axis manipulation of the sample. Open tube X-Ray technology allows for inspection of X-Y feature sizes below 500 nm. Enhanced image chain options are also available, such as a high bit depth scientific grade camera and 16 bit image processing system.

The unique combination of these advanced inspection techniques ensures a comprehensive inspection process.



1. Lead-free BGA in oblique view 2. Automatic color-coded BGA void detection.  
 3. Capacitor with lead-free tin/copper joints and voiding. 4. Oblique viewing of via holes.

### User-Friendly Solution

The FEINFOCUS TIGER represents a significant advancement in user-friendly operation. For maximum efficiency, FEINFOCUS' proprietary AIM technology keeps the region of interest clear and within the field of view, regardless of the level of magnification and tilt/rotation angle, without user adjustment of the sample.

The FEINFOCUS TIGER offers superior 100% automatic 'collision-free' inspection. This feature protects the sample from damage during the inspection process, allowing for maximum operator flexibility.

### Innovative, Unique Design

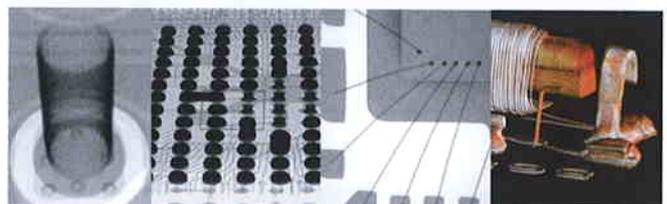
The FEINFOCUS TIGER is ideal for any 24/7 production environment, as the unique and ergonomic design of the system requires minimal floorspace. The system features convenient front service access for easy maintenance. The superior anti-collision capability eliminates the need for distracting viewing windows. The automatic sliding door and easily accessible X-Ray on/off feature allow for safe and efficient sample loading. All information is displayed through the FEINFOCUS Graphical User Interface (FGUI) on the flat screen, which is adjustable according to the operator's preference.

- Easy-to-use X-Ray Inspection System
- Anti-collision design for damage-free inspection
- Oblique viewing with highest magnification up to 2,800 x
- Tilt (60°) and rotate (360°) detector for inspection at virtually any angle
- Optional Multifocus X-Ray Tube (MFT) offering 3 different operating modes:
  - Microfocus ( $\mu$ f) for Microfocus applications
  - Nanofocus (nf) for Sub-micron applications
  - High Power (HP) for the inspection of denser materials
- Detail detectability down to < 500 nm
- Max. inspection area up to 24" x 24" (610 mm x 610 mm)
- Optional digital 16 bit real-time image processing with more than 65,000 gray-scales
- Optional high-resolution Scientific Grade Camera (SGC) configuration
- FEINFOCUS exclusive Auto Isocentric Motion (AIM) technology means never losing the region of interest

- True X-Ray Intensity (TXI) technology for constantly 'controlled' output resulting in sharp, consistent X-Ray images for every inspection
- Optional automatic BGA and void calculation and AVI recording
- Full CNC capabilities for X-Ray, manipulation and image processing (e.g. semi automation)
- Virtually unlimited X-Ray tube lifetime due to open tube design
- Easy service access
- Ergonomic, user-friendly controls on clutter-free console
- Radiation safety < 1  $\mu$ SV/h

### Award-Winning Technical Services

COMET customers benefit from a worldwide network of Technical Services. The system capabilities can grow with the customer's requirements based on a versatile system design and a variety of upgrade kits. FEINFOCUS' 2D and 3D X-Ray Inspection Services can be used to extend the customer's X-Ray capacities or capabilities. For optimum price-performance ratio, X-Ray Inspection Services can be used until you require a dedicated system.



COMET is a successful international technology company in the growth markets security, inspection, electronics, and communication. As an expert in the field of applied physics, COMET provides a complete and highly flexible offer of components, modules, systems and services from one source.

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COMET – The X-perts for security, inspection, electronics and communication



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