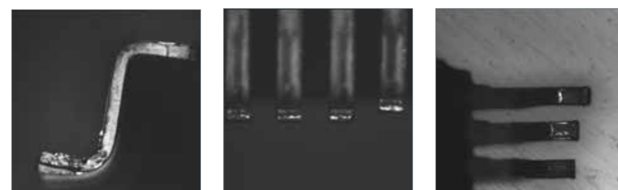
KLA-Tencor

DEFECTS

3D LEAD INSPECTION

The Lead 3D application performs 3D inspection of all Gull Wing components. It can inspect for items such as lead coplanarity, offset, skew, pitch, length, width, span, sweep, slant, terminal dimension, body standoff and foot angle.

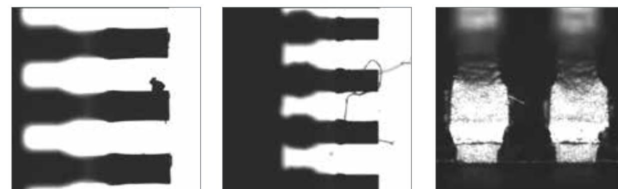


Foot Angle | Coplanarity | Span

Burr/Sliver Inspection

Complete detection of burrs and slivers on and in-between the leads:

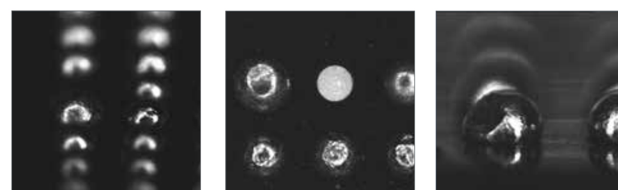
- During the Lead 3D measurement: at lead tip
- At backlight-burr inspection station: along complete lead length
- At frontlight-burr inspection station: on the package edge



Burr Inspection | Backlight-burr | Frontlight-burr

3D BALL INSPECTION

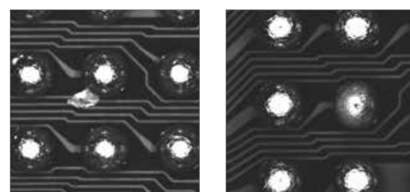
The BGA/CSP ball inspection system inspects BGA and CSP devices for critical items such as coplanarity, ball presence, position, offset, pitch, extra ball, body width, ball damage and discoloured balls.



Coplanarity | Missing Ball | Side Smashed

Between Balls Inspection

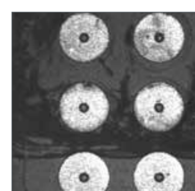
This tool inspects the quality of the substrate between the balls of a BGA or CSP device. It is capable of detecting a large variety of defects like voids, scratches, foreign material, dirt, extra solder or exposed copper.



Between Balls Inspection | Dull Ball

3D LGA INSPECTION

The LGA 3D measurement inspects the correctness of the LGA pad grid by measuring 2D and 3D items such as pad coplanarity, offset, pitch and width.



LGA Defect

DEFECTS

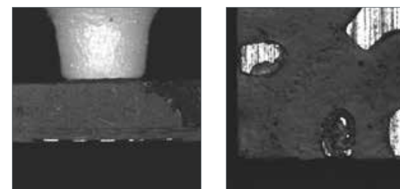
QFN/BCC INSPECTION

This inspection solution performs a full inspection of QFN and BCC devices or other 'leadless' packages. The system looks for contact pad defects (dirt, burr, size, shape, position), sawing defects (broken corners, vertical burr, irregular edges, component size) and package defects (dirt, voids, scratches).

Bleed on Pad | Chipped Edge | Package Cracks or Scratches

Leadless 5-Sided for QFN Components

This inspection tool extends the surface and pad inspection to the five Sides of the device.

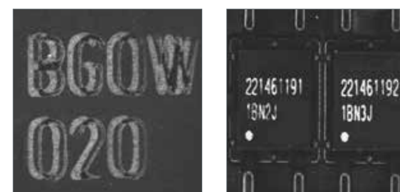


5S Inspection | Missing Pad

TOP AND BOTTOM PACKAGE VISUAL INSPECTION

Mark Inspection

The Mark Inspection application inspects ink or laser marks on any kind of surface.
Marks are inspected both on text level (complete mark) and on character level (mark portion). This option checks for pin1 detection, upside-down marks, scratched marks, blurred or smeared marks, broken or partial characters, quality of ink and laser marks, lot mixing and misaligned or misplaced marks.



Double Marking | Lot Mixing

PVI and aPVI™

Different types of package surfaces can be inspected. These include molded surfaces, exposed silicon or metal surfaces. Even combinations of different materials on the same moulded device can be dealt with. The system looks for voids, scratches, pits, package cracks, incomplete fill, non-homogeneous molding, foreign matter and chips or related defects. By using dynamic explore areas, defects very close to the package edge can be found.

Cracked Die | Broken Corner

KLA-TENCOR SERVICE and SUPPORT

Customer service is an integral part of KLA-Tencor's portfolio that enables our customers to accelerate yield. Our vast customer service organization collaborates with worldwide customers to achieve the required productivity and performance at the lowest cost. K-T Services includes comprehensive contracts, time and materials, spares, asset management, and customer training.

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KLA-Tencor

ICOS® T640

COMPONENT INSPECTION

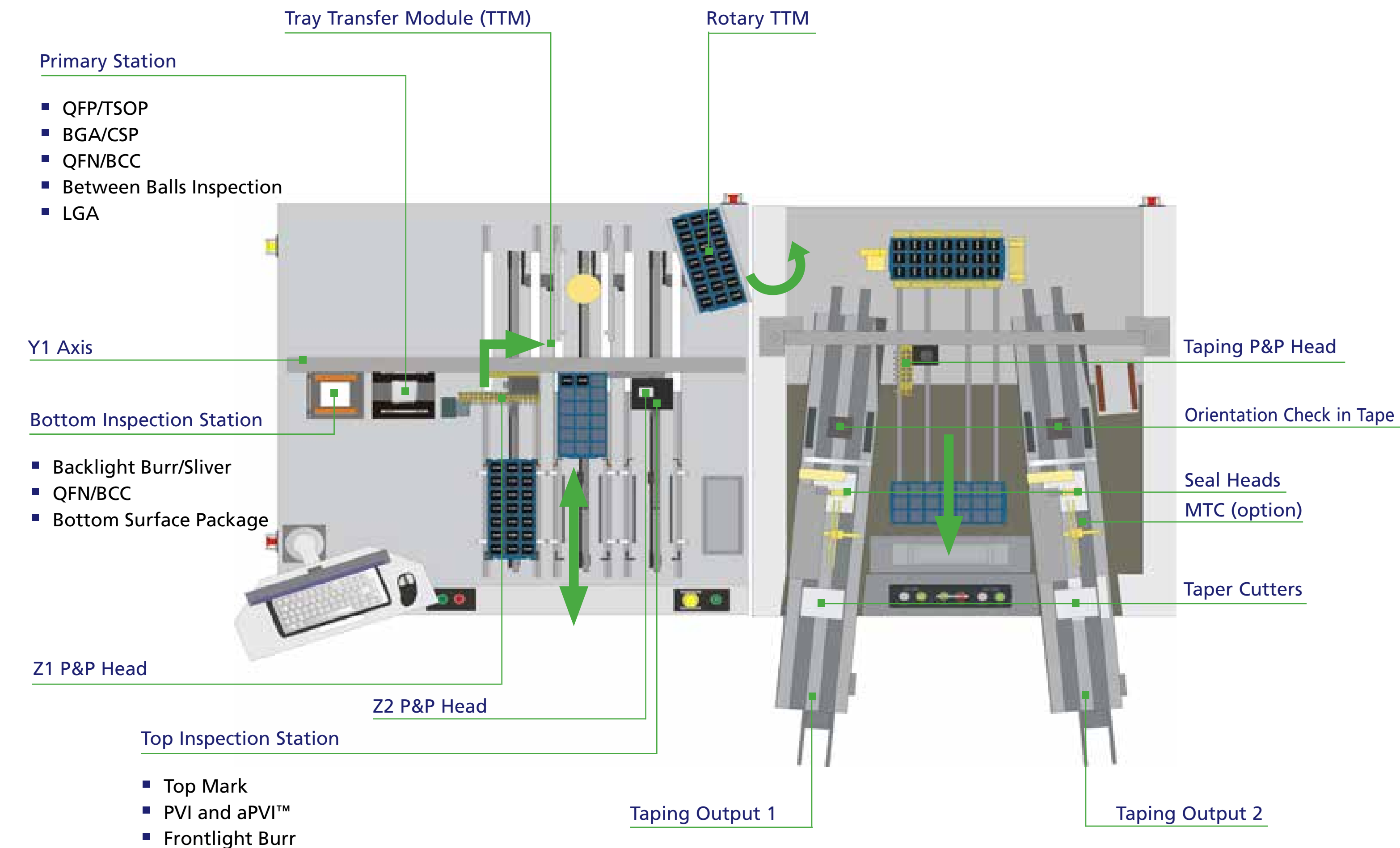
High-Performance Packaged
IC Component Inspection

ICOS T640

FLOOR PLAN

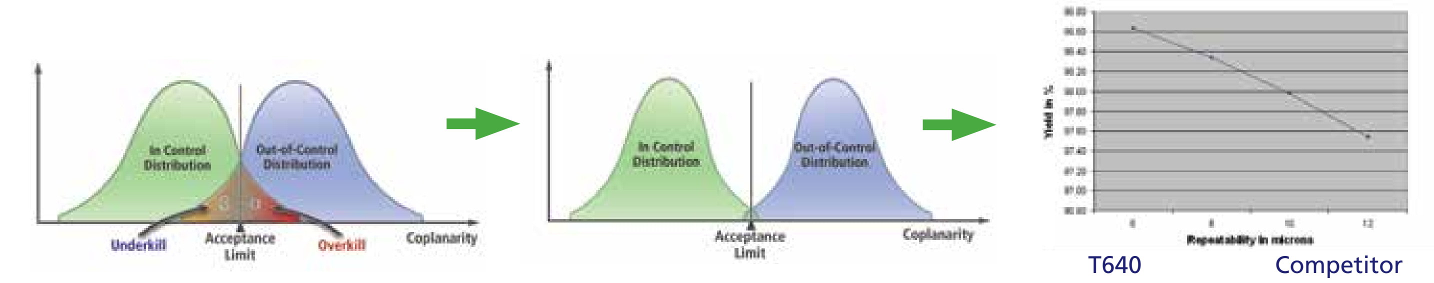
Building on the industry-leading ICOS Component Inspector Series, the ICOS T640 is a fully automated optical inspector of integrated circuit (IC) packages for 3D measurements and package quality. The T640 has the added enhancement of two tapers for increased output — significantly reducing cost of ownership. The system offers superior inspection through 3D metrology, as well as scalability to a wide range of packages and sizes.

T640 Component Inspector



HIGH-PERFORMANCE PACKAGED IC COMPONENT INSPECTION

The T640 offers greater sensitivity which delivers higher yield



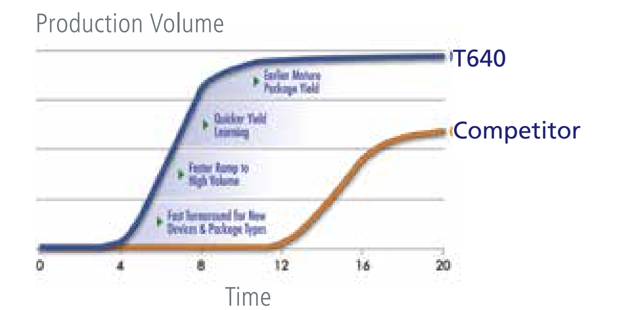
INSPECTION FLEXIBILITY

The T640 offers scalability to a wide range of packages and sizes, offering the largest package inspection range and suite of options available today. The system is uniquely able to handle irregularly shaped and patterned interconnects. A complete portfolio of 2D and 3D inspection capabilities supported by proprietary technology.

With the industry demand of increased units inspected per hour, and a decrease in manual operator intervention, the ICOS T640 meets customers' requirements for a rapid, intuitive, and flexible component inspection tool.

Offering two tapers for output, the ability to handle small devices and a mix of package types, the T640 takes backend IC component inspection to the next level with the added benefit of the fastest changeover time available on the market. All ICOS T640 tools are backed by KLA-Tencor's global, comprehensive service network.

Earlier Time to Market and Faster Production Ramp
Number of Passing Devices Per Tool per Hour



FEATURES

Dual Taper
Dual tapers for fast output to accommodate package changeover faster than prevailing industry methods, which increases units per hour (UPH) and therefore, reduces the total cost of ownership.

14 Nozzle Inspection Handling
The devices are brought to the inspection module with 14 nozzles.

Dynamic Tray Compensation (DTC)
Camera measures the tray dimensions/tolerances and compensates for flex in the tray.

MTC Option
Automatic adjustment of tape width and seal line positions provides fast and accurate changeover.

7 Nozzle Taping
With automatic pitch changeover

Top Inspection In Parallel With Taping Process
Minimizes impact of yield on throughput

aPVI™ Option
Advanced Package Visual Inspection. Find critical defects with highest sensitivity and increased capture rate.

Post Seal Inspection Option
Seal line and through cover inspection of sealed tape.

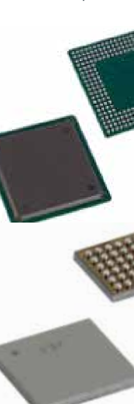
Low Cost of Ownership
The T640 offers higher productivity per machine with its proprietary dual-taper design which allows it to run longer at high speeds without system interrupts, enabling limited operator setup and tool management to maximize manufacturing efficiency. The system's vastly decreased package changeover time with ease of use helps increase system throughput, or units per hour (UPH), and reduces the total cost of ownership.

System Accuracy
The T640 is well-equipped to handle tighter tolerances required by today's market requirements. Advanced inspection is realized through the T640's proprietary 3D metrology technology down to 5 micrometers (μm). The system also offers high-resolution imaging, with improved inspectability of surface defects and micro-cracks down to 40μm.

LARGEST DEVICE RANGE

LEADS
TSFP, QFP

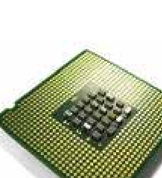
BALLS
BGA, CSP



PADS
QFN, BCC

PINS
PGA

LANDS
LGA



MEMORY CARD
SD, Micro SD