ASTI
Semiconductor Technologies & Instruments

Hexa *Maxx*

Tray Based Scanner for Leaded/Leadless, Ball Array Packages & Large Form Factor Packages

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A member of ASTI

Hexa *Maxx*

2D/3D High Speed Scanner for Large Form Factor Packages

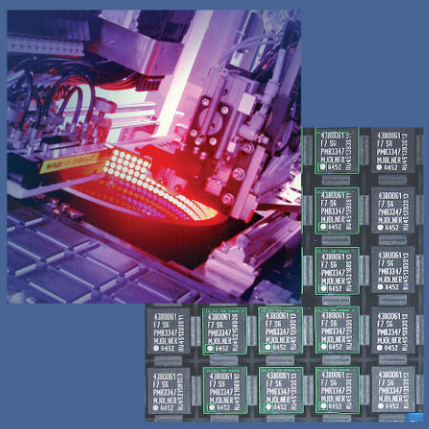
The Hexa *Maxx* is the latest addition to the highly successful Integra Hexa family. It provides the most comprehensive quality assurance solution for detection of backend process induced defects for all ball array, peripheral leaded / leadless and large form factor packages.

The highly modular design concept allows flexibility for various options like - Dual taper, auxiliary tray input, top and bottom surface inspection, side surface inspection etc. Simple and repeatable conversions also make the Hexa *Maxx* perfectly suited for customers with high mix, small lot size production environment.

STI's proprietary vision solution encompasses pioneering technology in areas such as optics design, lighting control, and software algorithm. Coupled with advanced automation features, the Hexa *Maxx* offers a diverse menu of inspection and output options configurable to match all package requirements.

Tray Scanner

System configured as an inspection tool for tray scanning function. Besides our patented 3D On-The-Fly (OTF) vision engine, a comprehensive range of package visual inspection functions can be provided by the Top and Bottom inspection stations. Auto placement of initial known good device tray and reject management feature ensures output trays are fully populated with known good devices.



Large FOV

The Hexa *Maxx* is equipped with a wide-angle capability of acquiring very large field of view (FOV) images at high and uniform resolution. With this feature, multiple device images can be captured with per picture take, resulting in a quantum leap in UPH. Noteworthy is the enhanced image details without compromising the throughput.

Dual Taper Advantage

The dual taper is designed to complement high taping speeds of 12k UPH. It allows uninterrupted machine operation during material changeover resulting in drastically increased productivity. Post Seal inspection completes the extensive quality assurance solution provided in the Hexa *Maxx*.

True 3D On-The Fly (OTF) Inspection Metrology

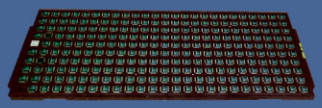
Cutting edge technology in our patented 3D OTF module provides TRUE 3D measurements for all devices. Using advanced laser and camera metrology techniques, even "ultra small" ball coplanarity and device warpage can be measured consistently with precision.

The power in *Maxx's* vision engine

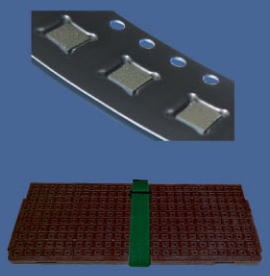
The Hexa ***Maxx*** offers a multitude of inspection options that sets it apart from it's competitors. True 2D and 3D inspections are performed without inducing inspection related latency, perfectly matching machine throughput.

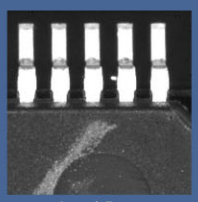
Inspection application files stored in the device recipe allows for quick and easy duplication of inspection results. Coupled with our innovative Hi-Flex kit design, conversions are extremely simple and repeatable.

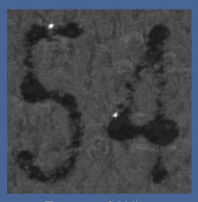
Focused On Inspection



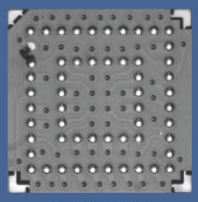
True 3D OTF Inspection
Bottom Side Package Inspection
Side Surface Inspection
Top Side Package Inspection
In-Pocket Inspection
Post Seal Inspection
5-Side Inspection

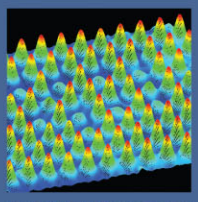


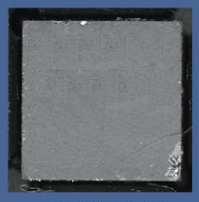

Lead Burr


Exposed Wire


Micro Crack


Ball Quality


True 3D Measurement


Edge Chipping

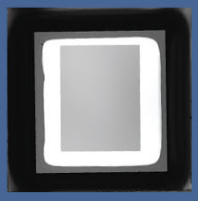
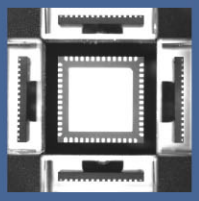
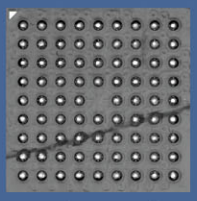


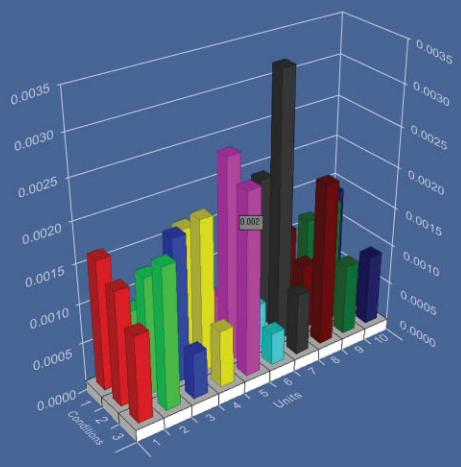
Image Sensor

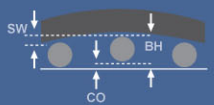

5-Side


BGA Substrate Defects

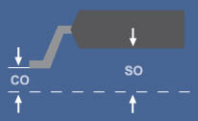
- Suitable for all EOL packages
- Powerful auto teach algorithm
- Sub pixel defect detection and measurement
- Automated accuracy check
- Side surface inspection
- True ball height
- 3D for ultra small balls of 20µm ball height
- Flexible pad inspection
- OCR and 2D Matrix capable
- Micro crack detection
- Lead burr inspection
- Exposed wire inspection
- Image sensor inspection
- Resin bleed and mold flash inspection
- In-Pocket inspection

User friendly and intelligent GUI ensures ease of set up for high mix, low volume production. A wide range of data reports are available for process control and performance analysis.

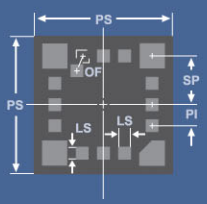




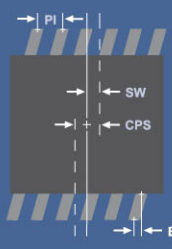
CO = COPLANARITY
BH = BALL HEIGHT
SW = SUBSTRARE WARPAGE



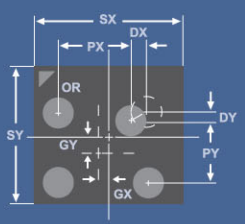
CO = COPLANARITY
SO = STAND OFF



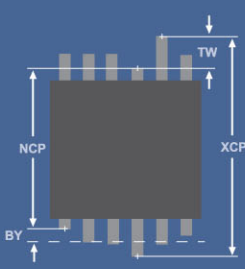
OF = OFFSET
SP = SPAN
PI = PITCH
LS = LEAD SIZE
PS = PKG. SIZE



PI = PITCH
BX = BENT X
SW = SWEEP
CPS = CROSS PKG. SWEEP



DX / DY = DISPLACEMENT X / Y
PX / PY = PITCH X / Y
GX / GY = GRID TO PKG. OFFSET X / Y
SX / SY = PKG. SIZE X / Y
OR = ORIENTATION



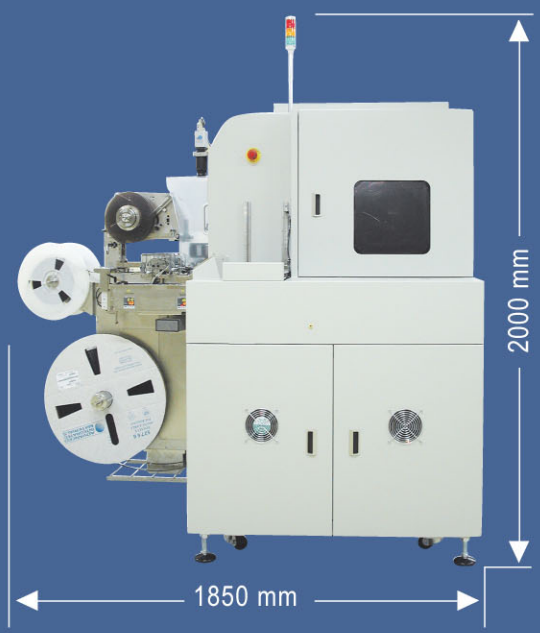
BY = BENT Y (Per Pin To Norminal)
TW = TWEEZE
NCP = MIN. CROSS PKG.
XCP = MAX. CROSS PKG.

Hexa *Maxx* Specifications

Specifications	Description
Package Types	Peripheral Leaded Packages: eg. TSOP type I & II, QFP
	Standard & non-standard matrix array packages: eg. BGA, BOC
	Leadless Packages: eg. LCC, MLF
Package Size	3x3mm to 60x60mm
UPH	Up to 50,000
Tape & Reel	12-56mm Tape Width Jumbo Reel capability Auto Tape Cutter Heat/Pressure Seal
Options	Auxiliary Tray Input Dual Taping Module Factory Networking (SECS/GEM) Native language display Real-time Statistical Process Control Orientation Corrector 5-Side Inspection
User Interface	Windows platform with GUI Full machine diagnostics capability
FACILITIES	
Air Supply	5 bar
AC Power Supply	110V / 230VAC

Inspection	Details
True 3D Measurement	Coplanarity Standoff Warpage Ball Height Encapsulation Standoff Substrate Twist
2D Measurement	Size (Diameter, Length, Width) Pitch True Position Bent Sweep Tweeze Cross Package/Tip to Tip Package Size Package To Grid Offset Parallelism/Orthogonalism of package edge Span Pad Tip to Pkg Edge
PVI (Top & Bottom Surface Inspection)	Void Crack Scratch Edge and Corner Chip Contamination Resin Bleed Incomplete Fill Exposed Wire BGA Substrate Defects Flange Defects Sawn Defects Lead Burr Ball Quality
Side Surface Inspection	Side Void Side Crack 'Z' Burr Exposed Metal
Symbol Inspection	Mixed, Broken, Crossed, Rotated, Offset, Orientation, No Symbol
OCR	Multiple Font OCR
2D Matrix	ECC 200 Standard

Layout



HexaMaxx

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