



3D VISION INSPECTION

All seeing & detecting
HANMI 3D vision inspection system

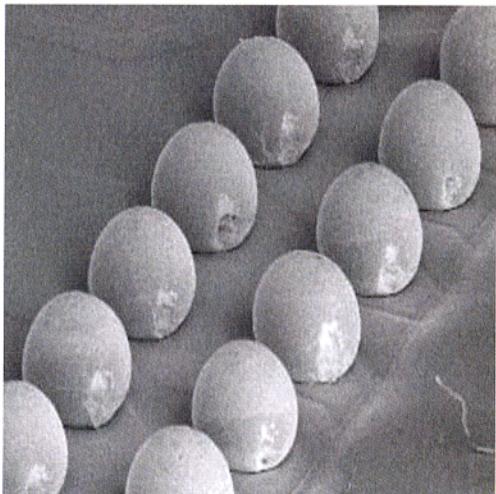


HANMI 3D VISION INSPECTION is designed with the latest innovations in vision PMP technology and field proven handler reliability for all types of packages to meet customers' needs : **high productivity, precise inspection, high accuracy, various inspection items, intelligent reject sorting function, easy-to-use user interface and quick change-over.**

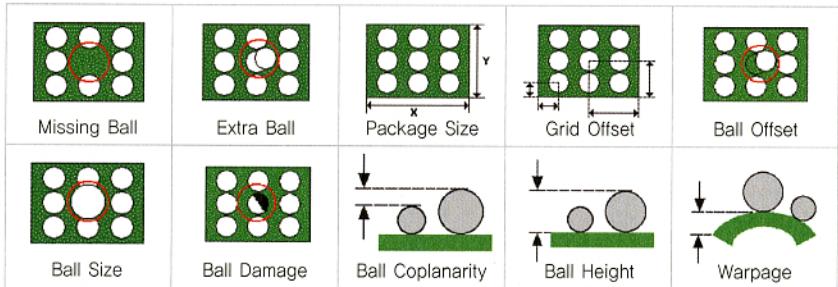


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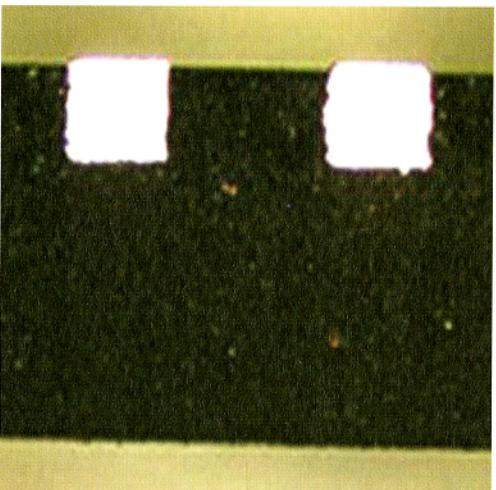
Most Advanced Inspection for BGA Package



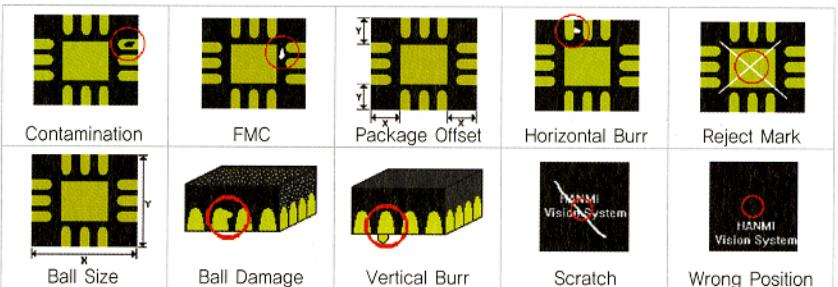
- Precise measurement & inspection for ball inspection
- Solution for ball coplanarity, ball height, & warpage with PMP technology



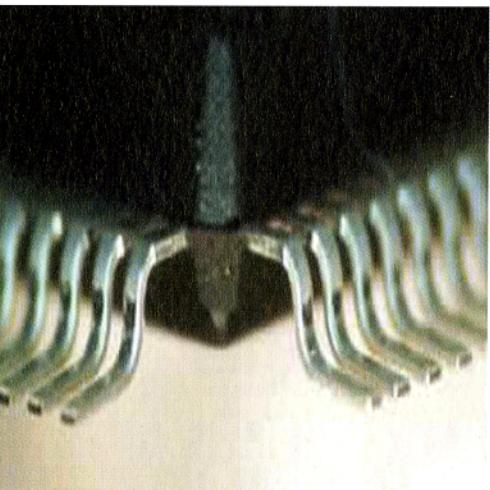
High Accuracy Inspection for QFN Package



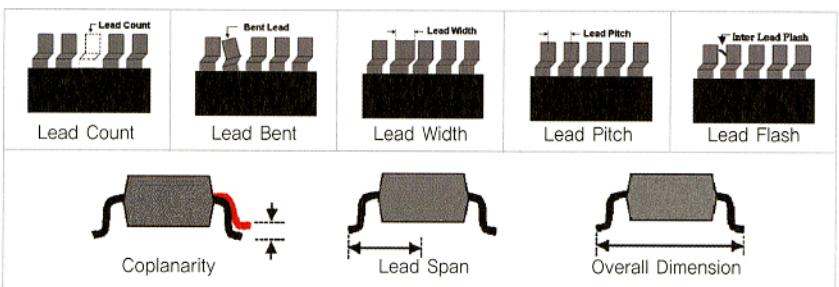
- High speed inspection for QFN surface condition
- Enable to inspect side inspection for lead Quality (lead smear, vertical burr)



Most Precise Measurement for LEADED Package



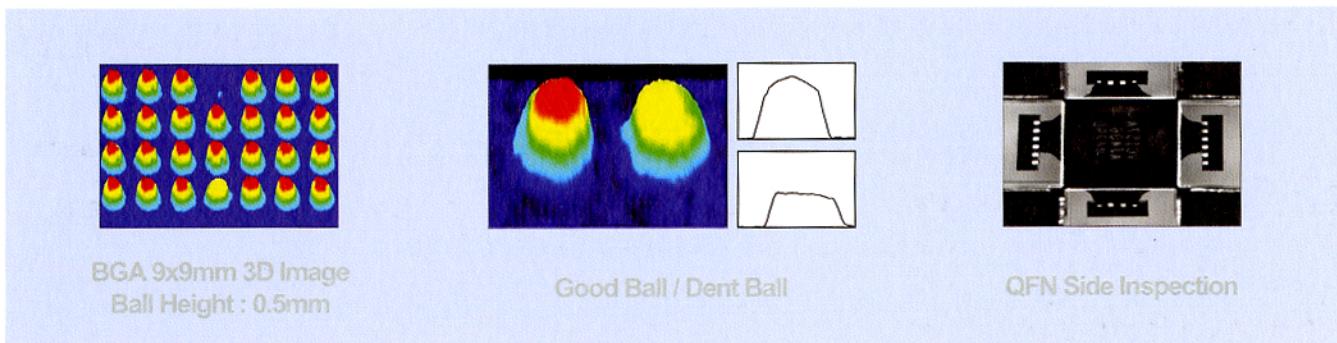
- Various lead quality inspection
- Solution for lead coplanarity, lead burr



3D Vision Features

■ Latest Innovation in Vision Inspection Technology

- True 3D inspection in **PMP** (Phase Measurement Profilometry) technology
- 3-Dimensional mapping function
- High throughput for 100% inspection
- Best inspection accuracy by actual volume scanning on objects (not by brightness control)
- Solution for warpage & coplanarity inspection



■ Package Side Inspection (optional)

- Enable to inspect package cutting surface through additional side inspection module (QFN, QLP, MLP, MLF, LFCSP, Camera Module...)

■ What's the Advantages of HANMI PMP technology

- Various inspection items & advantages for 3D configuration

3D Method	HANMI - PMP	Line Laser	Stereo
3D Data	Full Area	Ball & Lead only	Ball & Lead 1 Point
3D Configuration	2D / 3D with 1 Camera	2D / 3D with 3 Camera	2D / 3D with 2 Camera
3D Inspection Item	BGA : ball height, coplanarity Lead : lead coplanarity, stand-off Package : warpage, void/chip out	BGA : ball height, coplanarity. Lead : lead coplanarity, stand-off offPackage : warpage	BGA : ball coplanarity Lead : lead coplanarity, stand-off

Handler (System) Features

■ High Productivity

- **UPH : 50,000** (based on 540 units)
- High speed servo mechanical robot system

■ Field Proven Machine Reliability

- World's No.1 'Pick & Place' type package handling to secure high reliability and productivity simultaneously

MTBF	168 hours	MTBA	2 hours
MTTR	30 minutes	MTTA	3 minutes

■ High Accuracy & Precise Handling

- Package handling accuracy : +/- 2 μ m
- Minimum package size : 3x3 or less (both QFN & BGA in tray)
- Solution for machine vibration

■ Machine Flexibility & Quick Change-Over

- Various off-loading options (tray, tube or tape & reel)
- Multi-reject sorting function
- Capability to handle all types of semiconductor packages
- Extremely easy & quick change-over : max. 10 minutes
- Universal picker applied

■ Advanced Operation System (MMI)

- Automatic image save & statistic process control (SPC)
- PC based easy-to-use & real-time graphical user interface
- Detail maintenance guide on LCD Touch screen monitor



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