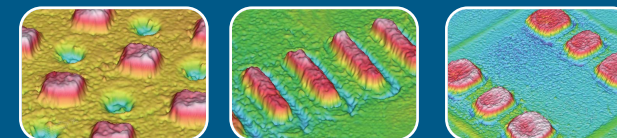


Specifications

		HS60	HS60L	
Functionality	Measuring Principle	Laser Optical Triangulation		
	Paste Type Supported	All (Pb or Pb Free)		
	Board Type Supported	All colors and All pad finishes		
	Offline Teaching	GerberWorks		
	SPC & Process Monitoring	SPCworks		
	System Diagnosis	SPImanager		
Measurement	Camera System	High frame rate C-MOS sensor, 18x18 μ m pixel resolution		
	Scan Resolution	20 μ m		
	Lateral Resolution	18 μ m		
	Height Resolution	0.2 μ m		
	Max. Paste Height	1000 μ m		
	Max. Paste Size	20 x 20 mm		
	Min. Paste Size	200 x 200 μ m		
	Min. Paste Pitch	150 μ m		
	Inspection Type	Height, Area, Volume, Offset, Bridge		
Inspection Performance	Inspection Speed	High Resolution	30 sq.cm/sec	
		High Speed	60 sq.cm/sec	
	Load, Unload Time	1 sec		
	Height Repeatability	3 Sigma < 1.5 μ m, on a certification target		
	Area Repeatability	3 Sigma < 3%, on a certification target		
	Volume Repeatability	3 Sigma < 3%, on a certification target		
	Height Accuracy	3 μ m, on a certification target		
	Gage R&R	Less than 10 %		
	Board Specification	Maximum Board Size	390 x 260 mm	550 x 510 mm
		Minimum Board Size	50 x 50 mm	
Maximum Board Weight		1.0 kg	1.3 kg	
Maximum Board Warp		\pm 5 mm		
Board Thickness		0.4 to 4 mm		
Board Edge Clearance (Top/Bottom)		2.5 / 3 mm		
Underside Clearance		25 mm		
Topside Clearance		25 mm	15 mm	
Dimensions (W x D x H)		900 x 1000 x 1450 mm	1060 x 1285 x 1450 mm	
System Dimensions	Weight	750 kg	1000 kg	
	Conveyor Speed Range	300 - 500 mm/sec		
	Conveyor Height	890 - 940 mm		
	Flow Direction	Left \rightarrow Right or Right \rightarrow Left		
	Conveyor Reference Side	Selectable when ordering		
	Hardware System	Conveyor System	1 conveyors	
		X-Y-Z robot	Sensor head move in X-Y-Z Axis	
		Computer	Pentium IV 3.0GHz, 4GB Memory	
		Operating System	MS-Windows XP Professional	
Display		17" LCD		
Input		Mouse, Keyboard		
Enclosure		Conforms to CE regulations		
Supplies		AC 220V, 5 kgf/sq.cm		
Interface		Data Input Type	Gerber (RS-274X)	
	Board Interface	SMEMA		
	Barcode (option)	1D, 2D		

SPI HS60™

3D solder paste inspection System



PARMI

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PARMI

SPI HS60

SPI HS60

The most reliable and accurate 3D data

Our innovative 3D laser triangulation sensor, the RSC™ profiles real shape of features and also provides highly robust 3D data against considerable variations of PCB color and finishing condition, solder material, paste shape, and warpage.

This highest quality of 3D data backs up top level performance of SPI HS60 system concerning about the reliability and accuracy. This high performance is due to PARMi's unique signal processing technology that is implemented as hardware logic.

The utmost inspection speed

By virtue of the affordable profiling speed of the 3D sensor, the SPI HS60 system provides 100% whole pads inspection in even fast assembly lines.

The lateral resolution is set at 18 μ m along the Y axis direction and the scan resolution along the X axis is set at 20 μ m. This provides the system enables to inspect an area of 60cm² per second. This utmost inspection speed with best quality 3D data differentiates the SPI HS60 system from other systems and leads the SPI HS60 system to the top level.

Authentic inspection and measurement with no false call

Our intelligent vision algorithm applied to the high quality 3D data detects every kind of solder paste defects. The measurable items are height, area, volume, and positional offset that deviate from tolerance limits. And also the algorithm detects bridged pads in a very reliable manner.

The remarkable design concept such as rotating the laser sheet against the scan direction and maintaining the small angle between laser sheet beam and camera optical axis for negligible shadow effect secure much better performance for repeatability and accuracy.

Even for small CSPs and fine pitch QFPs, the Gage R&R is much less than 10% for both height and volume data.

Fast job change and easy operation

The inspection job change consists of two stages. First stage is making a teaching file. Teaching process using Gerberworks™ takes normally less than a half hour even in the case of complex PCBs. The Gerberworks inputs the industry standard RS-274X format file to prepare a hierarchy of information on a pad, component, and array board level that are used during a PCB inspection. For the component level measurement and analysis, some CAD and BOM files can be imported. Teaching process using Gerberworks is done off-line. And machine setting such as tolerance setting, that is second stage, only requires 10 minutes. This extremely short job change time save customer's valuable time.

The user interface of inspection program SPIworks™ is based on the voice of able field engineers, therefore it features intuition and easiness to field engineers. And the UI also provides diverse and useful functions for printing process monitoring and analysis.

- X-bar & Variance chart
- Measured data list
- 3D Shape viewer
- Defect Image List
- Offset graph

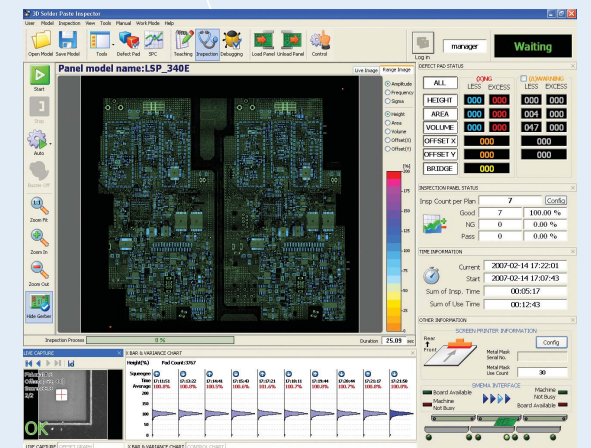
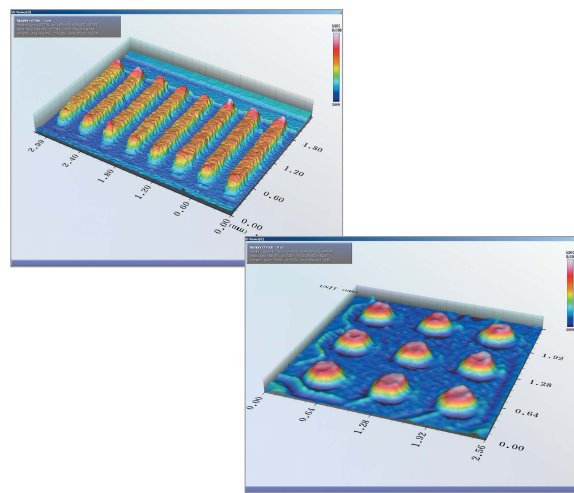
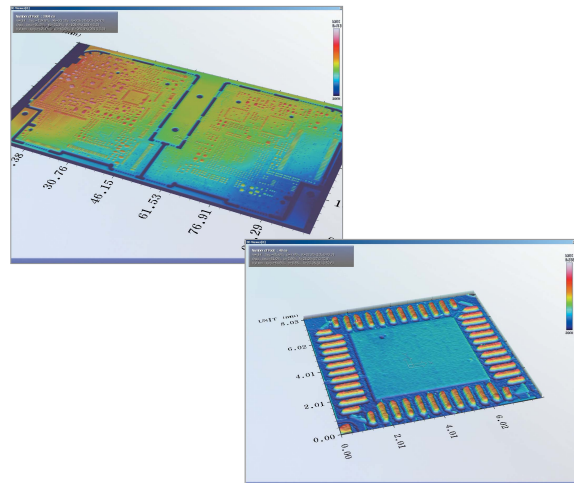
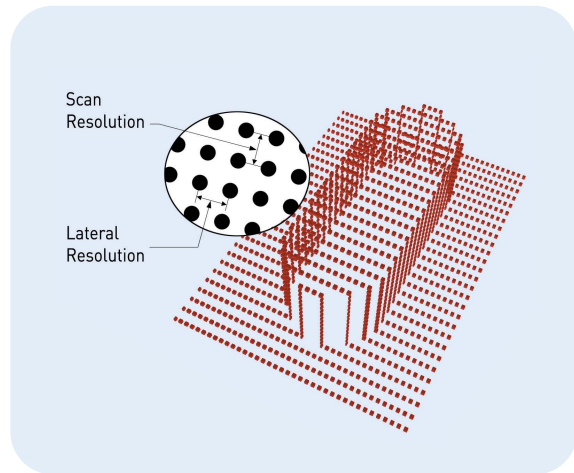
Clear and prompt insight into printing process

Not only to detect defect, but also to help customer to control printing process is another important role of the inspection system. Besides the independent SPC program SPCworks, the SPCworks embeds very intuitive SPC functions for field operator's prompt treatment on screen printer.

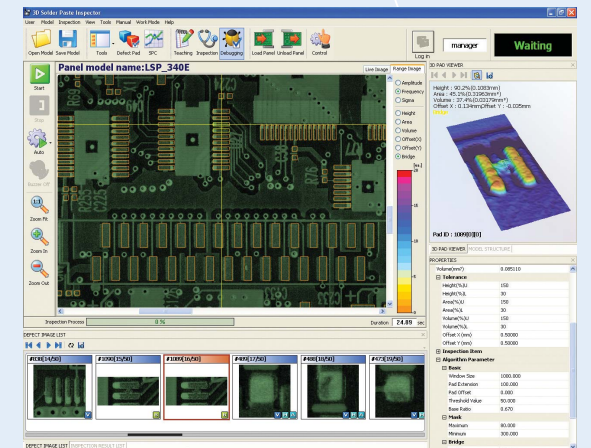
Coloring amplitude of measured data, sigma values, and defect frequencies on every pad in the main viewer gives operators get prompt insight into printing process. And also the X-bar & variance chart let operator monitor and understand entire printing process with ease. Operator's correct treatment could prevent defect and secure quality of printing process. We know that it is PARMi's unique and elegant attitude to move one more step toward valuable and useful machine for customers.

Defect verification and review

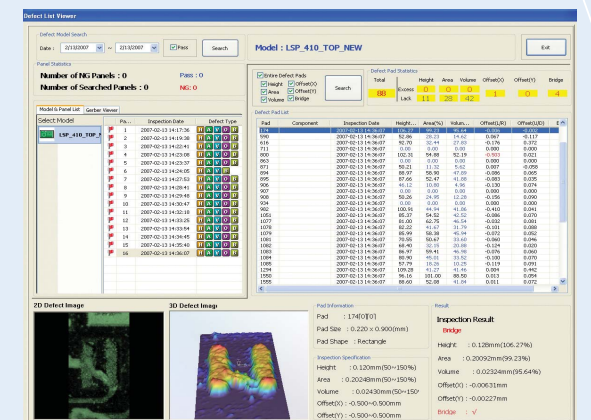
The detected defects are possible to be identified by Defect Analyzer such as details of defect panels, measured data of defect pads, 2D and 3D images of defect pastes. Moreover, defect analysis work can be easily done by configuring defect analysis conditions to list only wanted defect items.



UI of Inspection Mode



UI of Analysis Mode



UI of Defect Analyzer