

CKD

3D Solder Paste Inspection Machine

VP-01G

“Achieve Your Goals with CKD”

Most Reliable Quality Assurance

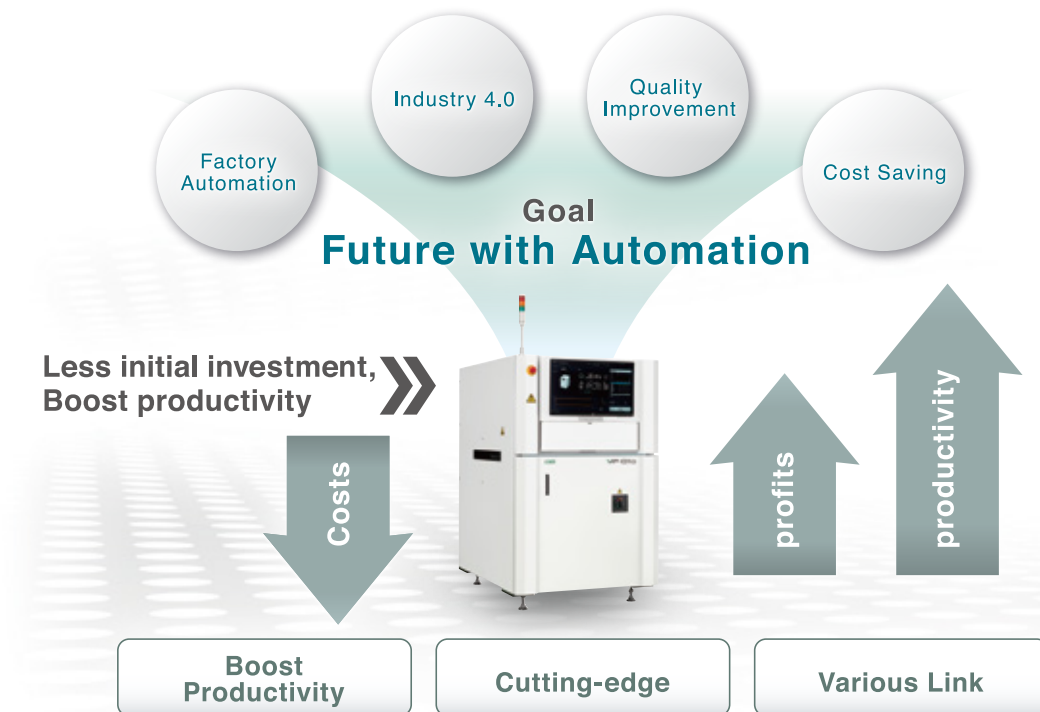
- ▶ Cutting-edge Technologies
- ▶ Boost Productivity
- ▶ Various Link Functions



CKD Corporation
CC-1559A

VP-01G

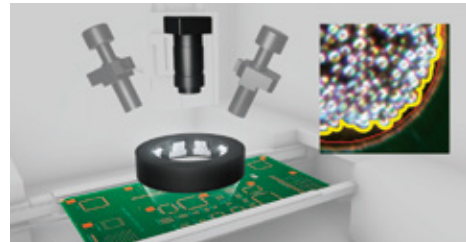
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Cutting-edge Technologies

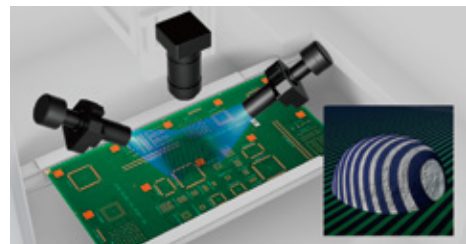
Ring Light

An outline of solder paste is extracted through the use of a 360° ring light source that projects against inspection objects (solder paste). This method of inspection isolates solder paste on a Printed Circuit Board (PCB) and performs three-dimensional measurements to achieve more reliable inspections.



3D Projectors

A camera captures solder paste images with a stripe pattern light using 3D projectors that are positioned diagonally and faced downwards. Depending on the height of the solder paste, the stripe pattern light will shift according to the relative height. Through the principles of triangulation, the height is calculated based on the stripe pattern light shift.



Z axis Auto-Focus Function

The amount of PCB warping is measured in each field of view and the inspection camera automatically compensates for the distance between the camera and the surface of the PCB. This function enables users to perform inspections without the influence of PCB warping.

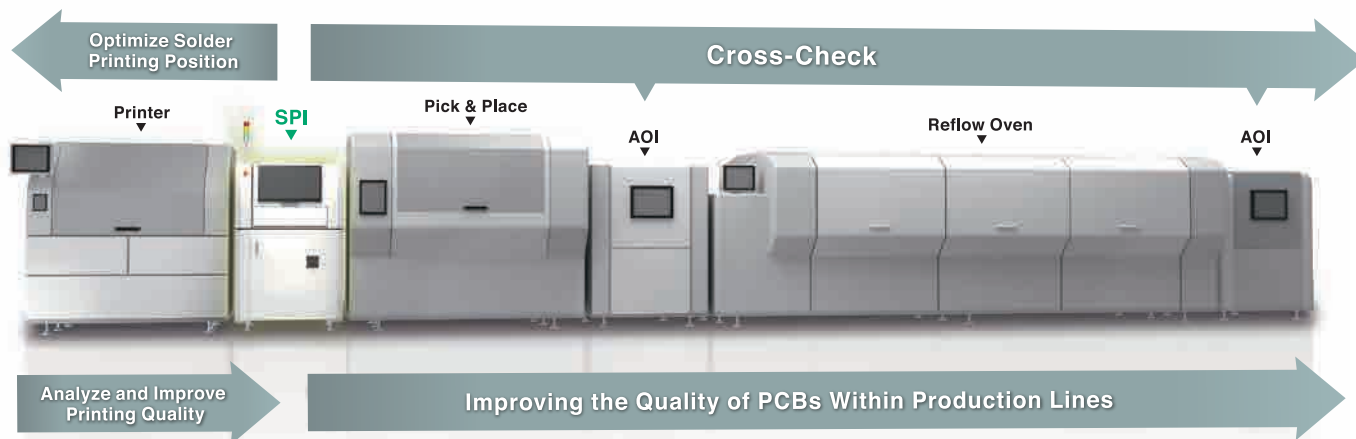


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Various Link Functions

Smart SMT Style

Solder paste inspection machines (SPI) can analyze and optimize printing conditions.



70%

About 70% of all defects in Surface Mount Technology (SMT) lines are said to occur in the printing process.

The VP-01G prevents printing defects by detecting faults and optimizing printing conditions.

For Factory Automation

1 Auto Program Launch

Contribute to a significant increase in operating rate

2 Closed Loop

Improve quality in cooperation with previous and next machines

3 Bad Mark Communication

Share defect information and reduce loss cost

4 AOI Link

Narrow down the true cause of defects by cross-check

For Quality & Productivity

1 SPC

Help the improvement of quality by analyzing the trend of production status

2 X-bar R / X-bar S Display

Visualize the production status in real time

3 Line Quality Management

Prevent the outflow of defective products by process control using X-bar and CP/CPK

4 Log Information Output

The output file can be used for the function of linking with external applications.

Boost Productivity

A Wide Variety of Requests in PCB Inspection

Foreign Material
Solder paste scatter, PCB cut dust, thread waste and cleaning paper dust are occurred on PCB.




PCB Color
Produce a wide variety of PCB. Inspection is not stable due to the color of the PCB.



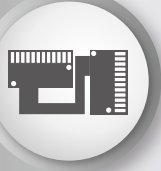
Glue
3D Inspection for glue is desirable as the amount of applied glue is not stable.



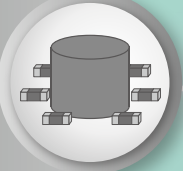
PCB Warpage
Printing is not stable due to the PCB warpage.



Flexible PCB
Amount of solder paste on flexible PCB needs to be inspected accurately.



Mixed-size Parts
Inspection time becomes long when selecting the machine model in accordance with fine parts.

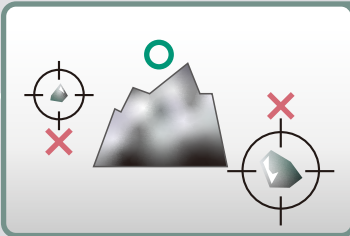


High-density Mounting PCB
Inspection time is long for high-density mounting PCB with 100,000 pads or more.



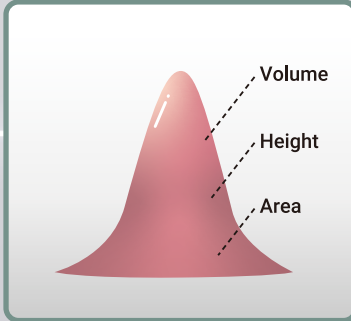
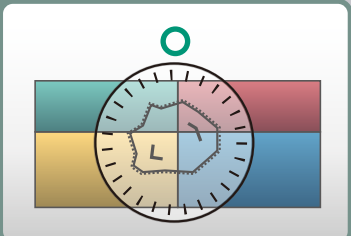
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All Satisfied by the Function of VP-01G



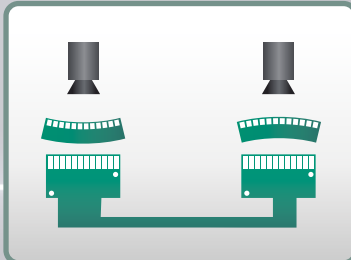
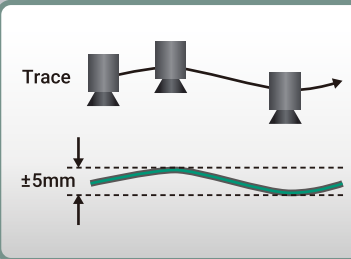
Foreign Material
The presence or absence of foreign materials can be detected while simultaneously inspecting the solder paste.

PCB Color
CKD's unique RGB light source system enables stable inspection regardless of the PCB color.



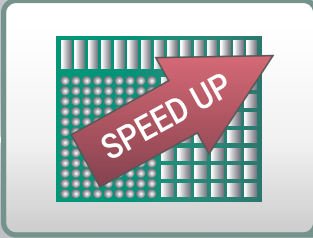
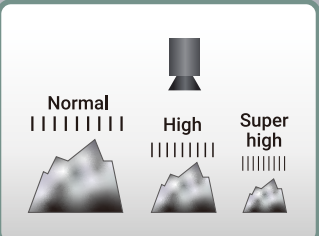
Glue
The amount of applied glue can be measured stably in 3D.

PCB Warpage
Board warpage up to ± 5 mm is supported and inspected stably.



Flexible PCB
The inspection camera can follow and inspect the wavy PCB which is peculiar to flexible PCB.

Mixed-size Parts
High productivity can be achieved with optimal inspection and measurement by using multi-resolution switching function for large and small mixed-mounting parts.



High-density Mounting PCB
Inspection speed has been improved for high-density mounting PCB with large number of pads, compared to older models. In addition, new 10 μ m/5 μ m resolution setting has been added to the lineup in order to support fine parts.

Standard Specifications

Basic Specification	Dimensions (W x D x H)	938 × 1,191 × 1,480mm			
	Conveyor Height	900 ±20mm			
	PCB Size	50 x 50 - 510 × 510mm (L size)			
	Min. PCB Edge Clearance	4 mm			
	PCB Clearance (Top/Bottom)	Top 5mm, Bottom 30mm			
	PCB Thickness	0.3 - 5.0mm			
	PCB Weight	Less than 5kg			
	Machine Weight	600kg			
	Power Supply	Single phase AC200V - 240V ±10% 50/60Hz ±1Hz			
	Power consumption	Max. 1KVA			
	Pneumatic Supply	0.3 - 0.4Mpa (4kgf/cm ²)			
VP Inspection Technology	Camera	CMOS Mono Camera -Global shutter spec.-			
	Inspection Principle	Phase Shift + Hybrid Inspection - 2D Ring light and 3D Projector(s)			
	Inspection Item	Volume, Projection, Dimness, Area, Shift, Average Height, Bridging, No Solder, Coplanarity, Foreign Material, Glue (Option)			
Mechanical Technology	Clamping Method	Side, Top and Bottom Simultaneous Clamping			
	PCB Stop	Sensor Control System (No Stopper)			
	PCB Load/Transfer	Double Side PCB Loading/Transfer System			
	PCB Warpage	±5mm (Original Mechanical Adjustment System)			
Performance	Inspection Resolution (Multiple Resolution Switch Function)	25/12.5/8.5μm	20/10/7μm	15/7.5/5μm	10/5μm
	Solder Paste Height (Standard)	Less than 400μm	Less than 300μm	Less than 300μm	Less than 150μm
	Solder Paste Height (Option)	Less than 600μm	Less than 450μm	Less than 450μm	Less than 225μm
	Max. Inspection Speed	9400mm ² /sec	6000mm ² /sec	3300mm ² /sec	1400mm ² /sec
	FOV Size	50 x 50mm	40 x 40mm	30 x 30mm	20 x 20mm
	Min. Solder Paste Pitch	50μm (Stencil thickness: 100um)			
	Height Resolution	1μm			
	Accuracy (3σ)	Within 2% (Dual Projection)/Within 3% (Single Projection)			
	GR & R	Within 10%			
Software	Inspection Program	CKD VPDS Programing System (Program Creation Time Min. 3 mins) ePM Programing Software (Option)			
	SPC	CKD Realdata Software System (Real Time Histogram, X bar & R Chart, CP/CPK Chart, Real Time SPC, SPC Alarm, SPC Report)			
Optional	Closed Loop				
	ePM				
	Auto Program Launch				
	Area Standard Jig				
	Height Standard Jig				
	ITAC				
	Q-up Opti				
	Dual Projection				
	CE Compliance				

Over view



If the goods and their replicas, or the technology and software in this catalog are to be exported, laws require the exporter to make sure they will never be used for the development or the manufacture of weapons for mass destruction.

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●Specifications are subject to change without notice.

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