ASMPT enabling the digital world

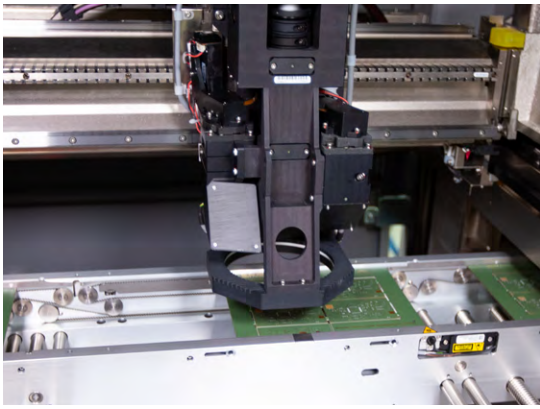


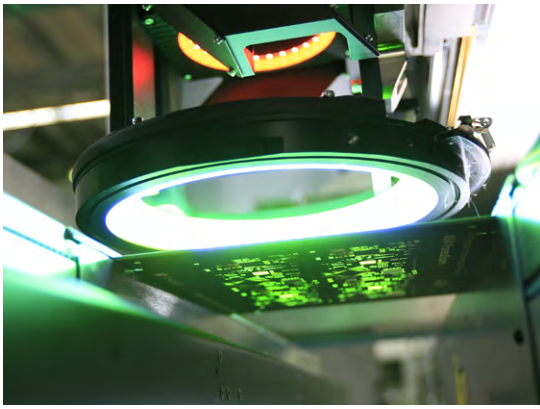
Process Lens

Measure what matters – with exceptional precision, speed and reliability

PROCESS LENS
MEASURE WHAT MATTERS







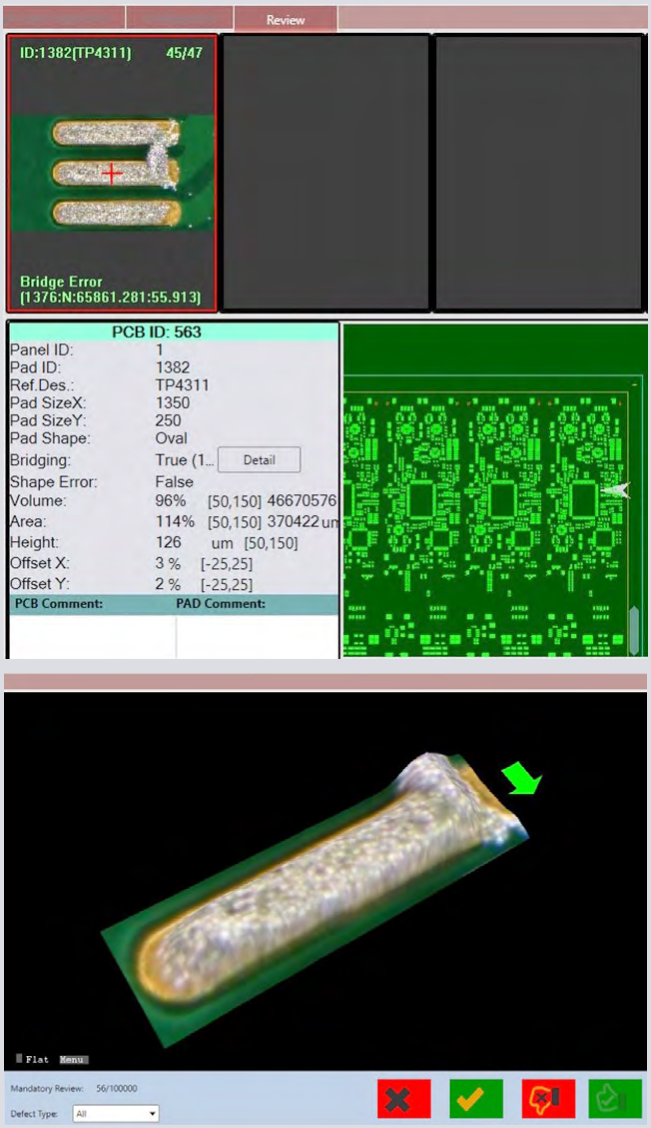
More precision, speed, and investment protection

Process Lens is a highly precise, flexible, state-of-the-art 5D inline SPI system with on-the-fly 3D compensation for PCB warping. Designed for high-throughput environments, it delivers fast, accurate measurements without impacting cycle time. Thanks to its smart algorithms, Process Lens understands what it measures and interprets results intelligently. It focuses on what matters: solder paste deposits, glue, contamination, dust, and more – all while suppressing measurement noise from the circuit board.

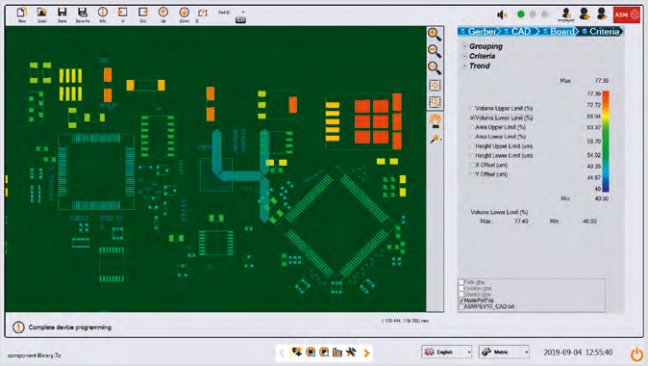
The choice is yours: the Process Lens has a DLP chip with individually controllable micro-mirrors and a scanning field of 30 x 30 millimeters, while the Process Lens HD features independently controllable micro-mirrors and a scanning field of 50 x 50 millimeters. The Process Lens HD is up to 70 percent faster than traditional systems while maintaining a very high measurement accuracy, but with 80 percent fewer false calls. It also offers full flexibility, where users can switch between high-speed and high-resolution modes through software.

The bottom line: more stable printing processes, higher throughput rates, and significantly better yields. Unmatched and unbeatable by the competition – combined with maximum machine reliability.

TOTALLY UNIQUE
PROCESS LENS



2D and 3D images of solder paste deposits



Fast programming: Component library recommends inspection criteria

Process Lens utilizes the full potential of a highly connected and highly automated intelligent factory.

Data is viewed holistically and processes are analyzed, integrated and optimized at all levels. With open industry standards, machine learning and artificial intelligence, manufacturing becomes even more productive and resilient.

THE MOST INNOVATIVE MEASUREMENT SYSTEM

Moiré phase shifting with individually controllable micro-mirrors

MAXIMUM ACCURACY

Precise X/Y/Z positioning, combined 2D/3D measurements and on-the-fly compensation of board warpage

UNMATCHED VISBILITY

Uniform 3D projection and advanced 2D segmentation enable best-in-class solder measurements.

COMPREHENSIVE

True color 2D & 3D visualization of position, area, height, volume and shape of all solder deposits; checks for coplanarity and bridging

MAXIMUM SPEED

Optimized for high-speed inline inspection

EASY OPERATION

Quick programming with component library and recommendations of inspection criteria

LOWEST COST OF OWNERSHIP

Stable machine performance with very high Mean Time Between Failure

INVESTMENT PROTECTION

Software-upgradeable with WORKS Optimization to inline expert system for autonomous process optimization

THE FUTURE AWAITS
INTELLIGENT PROCESS OPTIMIZATION

Easy retrofit for existing SMT lines

- **Absolutely unique:** With the optional expert software WORKS Optimization you can upgrade your 5D SPI to the world's first self-learning inline expert system for optimizing your printing process.
- **Self-learning:** The WORKS Optimization printing solution optimizes your printing process proactively with virtual prints, trend analyses and direct DEK printer control. The expert software learns from each print cycle 24/7, 365 days a year, and never forgets a detail.
- **Data-driven:** The WORKS Optimization application forms closed loops with printers. Using its advanced inspection capabilities, Process Lens delivers feedback to printing, placement, and AOI processes, improving quality, driving line efficiency, and supporting continuous, data-driven process improvement.
- **Decision support:** Process Lens empowers AOI operators decisions supplying inspected images and data to decide whether defects have occurred in the printer or placement processes.



WORKS
SOFTWARE SUITE

All systems go: The WORKS Optimization application of the WORKS Software Suite ensures a consistently stable printing process.

Process Lens (SPI) + **WORKS Optimization** (Software) + **DEK** (Printer)

Printing module for automated process optimization (Self-learning Expert System)

More about Process Lens

PROCESS LENS
TECHNICAL SPECIFICATIONS



Specifications	Process Lens	Process Lens HD
System	**Description**	
DLP chip	individually controllable micro-mirrors	individually controllable micro-mirrors
Camera system	4 MP / Field of view 30 × 30 mm	25 MP / Field of view 50 × 50 mm
Pixel size	15 µm × 15 µm	10 µm × 10 µm (high-resolution mode) 20 µm × 20 µm (high-speed mode)
Vertical resolution	0.37 µm	
Height accuracy with calibration target	≤ 1 µm	
Paste height (max.)	1,000 µm	
Paste deposit size	90 µm × 130 µm	70 µm × 125 µm (high-resolution mode) 130 µm × 200 µm (high-speed mode)
X/Y gantry accuracy	± 12.5 µm (at ± 3σ)	
Inspection speed	Up to 30 cm²/s	90 cm²/s (high-speed mode)
Measurement	Shadow-free with 2D solder paste segmentation	
Solder paste measurements	Volume, area, height, X- and Y-offset, shape, bridging, coplanarity	
PCBs		
Dimensions – single lane	50 × 50 mm to 610 × 560 mm (L × W)	50 × 50 mm to 540 × 560 mm (L × W)[1]
Thickness	0.5 mm to 4.5 mm[2]	
Minimum edge clearance	3 mm	
Maximum weight	3 kg[2]	
Maximum PCB warpage compensation range	-6.5 mm to +6.5 mm	
Conveyors		
Loading/unloading time – single lane	< 2.5 s	
Machine-to-Machine communication	IPC-SMEMA-9851, IPC-HERMES-9852, IPC-2591 CFX	
Machine dimensions		
Length × Width	1.15 × 1.3 m	
Height (conveyor height: 950 mm)	1.6 m	
Weight	780 kg	

[1] Increased dimensions available on request
[2] Increased thickness and weight options are available upon request

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