

Fully Automatic Screen Printer

ELS650(ON-LINE SYSTEM)



- Flexible Auto Clamp system.
- Stable machined cast structure.
- Auto conveyor width adjustment.
- Adjustable width/thickness for stencil frames.
- Stencil position memory function for easy and quick change over.
- Auto stencil cleaning(Dry/Wet/Vacuum).
- Automatic 2D paste inspection.



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Key points to get a good printing quality:

The screen printing process is one of the key processes in surface mount technology that controls manufacturing yield, and it's also the station caused most of the failure in the SMT line. So to choose a right printer, we need to be careful about below points:

- **Vision system:** vision system with fiducious camera will determine whether the stencil & PCB aligned preciously, with small tolerance it will be desaster for final printing result.
- **Stencil cleaning:** without a nice cleaning system to keep stencil in sharp, the stable printing performance is unexpected.
- **Precision mechanical system:** It's the foundation of a stable machine.
- **Clean & Clear software.**
- **Stable electrical system.**

1, Arch bridge type suspending direct-connected squeegee.

2, Print head with the programmable and suspending self-adjusting stepper motor drive.

3, Four wheel positioning slide type with bilateral double sliders ensures the moving accuracy and stability when scraper is running back and forth.

4, Unique belt transmission system avoids being stuck or fall-off of PCB.

5, Programmable motor controls transport speed and puts PCB in the precise position.

6, The unit to clean is separated from CCD camera, which can minimize the load of motor and impulse, improve the positioning precision and speed and extend the service life.

7, With servo motor and lead screw, the direct connection UVW platform is featured with high precision, high rigidity and compact structure.

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Top Clamping(Option)

Top clamping system can ensure PCB flatness before printing, 2 piece tableting press the edge of the PCB ,twist and warpage would be eliminated.

Vacuum Clamping (Option)

Vacuum clamping is an option configuration of H6, thin and flex PCB can be clamped by vacuum to ensure the quality of printing . During production, PCB will be supported by magnetic tooling pins and vacuum module, this system can hold the PCB to keep it evenly, this function is useful for thin, twist and flex PCB.



Programmable print head

It is designed to meet the need of different pressure at the front and rear squeegee and the requirement of squeegee's leveling stability, to prevent solder paste leakage and squeegee blade with certain flexibility clamping. Squeegee pressure can be independently programmed. This provides a stable leveling of the squeegees for precise solder paste transfer.



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Stable Electrical System

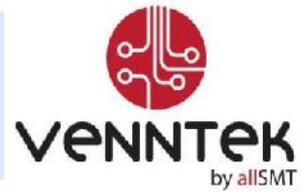
All electrical parts with labels, customer can find out the problem depends on error message of PC and electrical drawing soon. ELS650 can detect the fault by red indicating light from I/O cards, bright is normal condition, dark is abnormal. Integrated circuit and upgraded movement control card to make operation and maintenance more convenient ELS650 can modify printing parameter during production process .



Linear slide rail

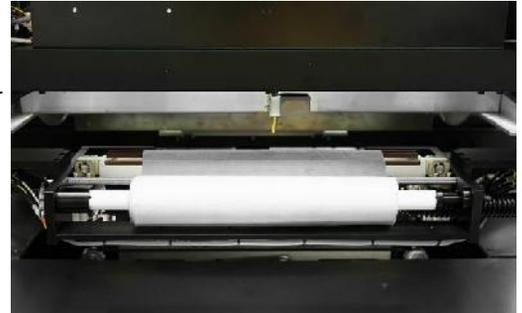
Use THK linear slide rail to provide higher printing accuracy

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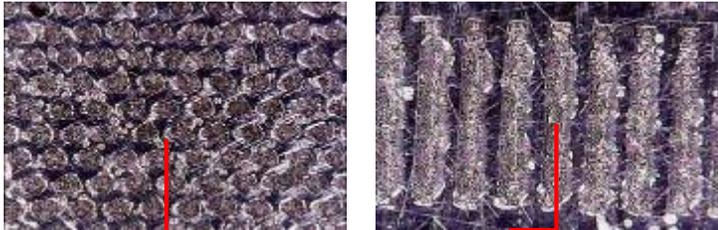


Stencil Cleaning System

3 types of under stencil cleaning: dry, wet and vacuum. These 3 modes can be individually selected or combined for using. System allows manual cleaning within its operation menu which shortens cleaning time and improves production efficiency.

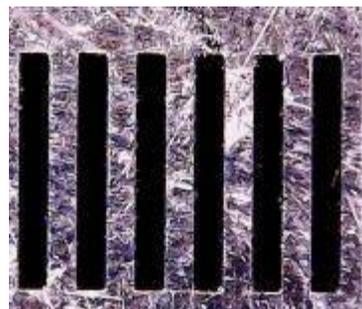
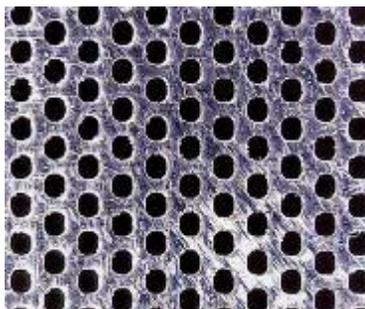


BEFORE CLEANING



Blocked the opening of stencil by solder paste and choose 2 areas (IC and BGA) to check cleaning result.

CLEANING RESULT



Conclusion: blocked holes and IC can be cleaned completely. Customer could set up cleaning module (wet, dry and vacuum modes) depends on difficulty of stencil to improve productivity and ensure cleaning quality.

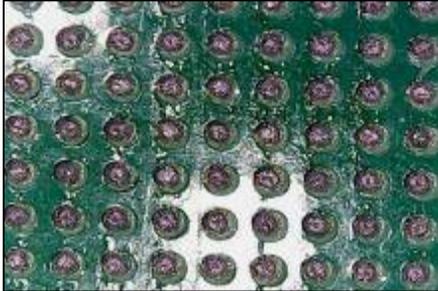
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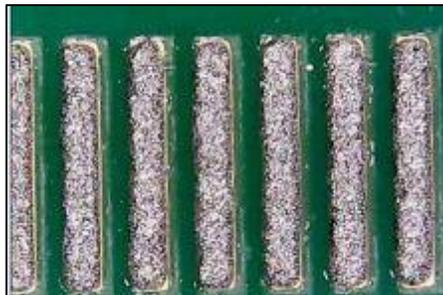
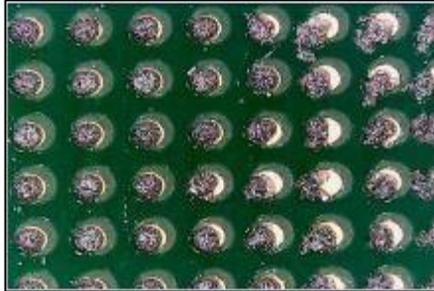
Printing Result Comparison

500X Microscope Inspection

ELS650



Other

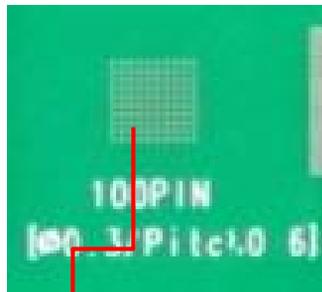
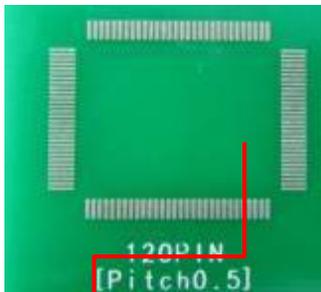


**Solder paste were covered
BGA & IC completely**

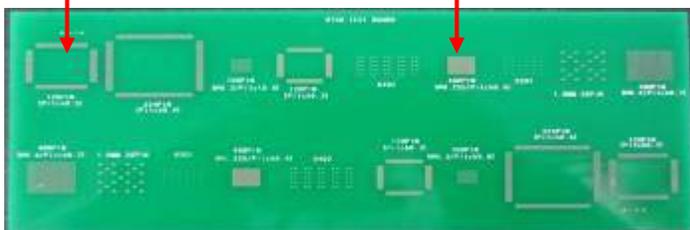


**Solder paste were shifted
on BGA and lacked on IC**

Conclusion: Printing result is perfect , no misalignment , shift , solder bridge, lack solder , etc.



Use same sample to test ELS650 and other brand to check IC and BGA



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Printing Result Comparison (SPI)

SPI inspection



SPI inspection result:

Production QTY:	192PCS
Pass QTY:	189PCS
Defective QTY:	3PCS
Pass rate:	98.438%
Defective rate:	1.562%



Conclusion: This PCB has many difficult IC and small pads , after inspection, result is good , H6 can ensure printing quality and accuracy in production line

Specification



Specifications		
Screen Frames	Min Size	650×650mm
	Max Size	850×850mm
	Thickness	25~40mm
PCB Min Size		80×50mm
PCB Max Size		650×610mm
PCB Thickness		0.4~6mm
PCB Warpage		<1%
Transport Height		900±40mm
Transport Direction		Left-Right;Right-Left;Left-Left;Right-Right
Transport Speed		Max 1500mm/s (Programmable)
Board Location PCB	Support System	Magnetic Pin/Up-down table adjusted /support block
	Clamping System	Side clamping,vacuum nozzle, Automation retractable Z pressure
Printer Head		Two independent motorised printhead
Squeegee Speed		6~200mm/sec
Squeegee Pressure		0~15kg
Squeegee Angel		60°/55°/45°
Squeegee Type		Stainless steel (standard) ,plastic
Stencil Separation Speed		0.1~20mm/sec (Programmable)
Cleaning System		Dry 、 Wet、 Vacuum (Programmable)
Table Adjustment Ranges		X:±10mm;Y:±10mm;θ:±2°
Solder Inspection	Paste	2D Inspection(Standard)
Repeate Position Accuracy		±0.01mm
Printing Accuracy		±0.025mm
Cycle Time		<11s (Exclude Printing & Cleaning)
Product Changeover		<5Min
Air Required		4.5~6kg/cm2
Power Input		AC:220±10%,50/60HZ,3KW
Control Method		PC Control
Machine Dimensions		1330 (L) ×1530 (W) ×1500 (H) mm
Machine Weight		Approx:1200kg

Options

:

- Automatic Dispensing
- Stencil Detection
- PCB Top Clamping
- Stencil
- Stencil Frame Adaptor
- Solder Paste Adding
- Constant Temperature and Humidity



All different types stencil can be used by stencil adaptor, suitable dimension is between 650*650mm to 850*850mm