ESE CO.,LTD

Economic & Smart Printer

Scale up – PCB 550mm x 510mm

E2

The model E2 from US-2000X & 2000XQ is designed for a high performance of quality and a scaled-up capacity

ESE best cost-effective model with much more enhanced standard features integrated

Much stable solid frame & Table structure for a cost-saving and 3 stages conveyor system for high throughput

Technological Cleaning system – Easy & Fast Convertible cleaning system for Paper and Paperless
*Wipe roll paper cleaning or Paperless cleaning can be applied together

Standard E2 Wet print accuracy is 25 microns @ 6 sigma, Cpk ≥ 2 by 3rd party measurement system

A high-level **E2+** of standard E2 with 20 microns @ 6 sigma can be delivered for much precise printing performance

Enhanced standard Features

* 2D inspection for solder excess, less, short and position error

* SPI closed loop with Kohyong, Parmi, TRI, Pemtron, Cyberoptics

* Production programming by network

* Auto stencil loading & positioning

* Auto camera calibration

* Auto Alignment before production

* Auto stencil inspection & cleaning for a containment area

* Auto Squeegee center position calibration

* Auto Alignment accuracy measuring for table & camera

* ESE standard MES data

* Program for Auto PCB support tooling for Gridlock, Quik-Tool

* PCB barcode traceability by vision camera

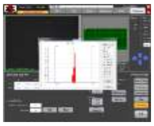
2D inspection
Less, Excess, Bridge, Position

SPI close loop

Program by network

Auto Camera calibration

Auto Stencil Inspection



Auto Alignment
Accuracy measuring

Auto Alignment

PCB barcode traceability

ESE standard MES data

Hybrid Cleaning system :
Easy convertible cleaning mode to
Standard paper cleaning or Paperless cleaning

PCB size	50mm x 50mm - 550mm x 510mm
PCB Thickness	0.3mm to 6mm
Stencil size	550mm, 584mm, 650mm, 736mm
Cycle time	10sec / under optimized condition
Alignment accuracy	±12.5 um @ 6 sigma
Printing repeatability	±25 um @ 6 sigma , Cpk ≥2.0 [****E2+ : ±20 um @ 6 sigma , Cpk ≥2.0**]

Much Flexible Printer

Scale up – PCB 700mm x 610mm

E7

The model E7 from US-7000X is designed for a flexible printing capacity of PCB 700mm by 610mm based on E2's stable printing repeatability

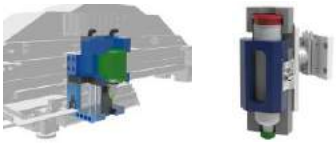
With enhanced standard features integrated on E2, standard 3 stages conveyor system for high throughput

and a high printing performance - alignment repeatability is ± 12.5 microns @ 6 sigma, Cpk ≥ 2 by 3rd party measurement tooling and Wet print accuracy is 25 microns @ 6 sigma, Cpk ≥ 2

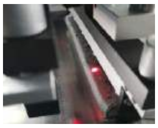
Retrofit Options

To improve productivity, a retrofit option applicable

- Touch screen monitor (22")
- Inside Temperature & Humidity display
- Auto solder paste dispenser[JAR or Tube type]
- Solder paste roll height check system
- Automatic Support Pin placemt
- Glue Dispenser
- Programmable Y (Side) Clamp pressure
- Easy clip Squeegee system (one-touch)
- Barcode Management (*RFID management available)
- Side vacuum clamp tool
- Side lifter for PCB edge support
- Real Squeegee pressure closed loop
- Real time squeegee pressure closed loop
- Ionizer(Anti-Static) PCB cleaning
- Air conditioner
- Temperature controller
- Center Table vacuum pressure sensor
- Area sensor for satefy [Door both side]



Auto solder paste dispenser (JAR, Syringe)



Solder roll height check

Glue dispenser

Auto support pin placement

Barcode management (RFID management workable)

Inside temperature & humidity display

Programmable Y (side) clamp pressure

Side vacuum clamp

Side lifter for PCB edge support

**Real squeegee pressure closed loop*
**Real time squeegee pressure closed loop*

Area sensor for safe
[Door both side]

Customizing Vacuum nest

Additional optional item request, please contact ESE

PCB size	50mm x 50mm - 700mm x 610mm
PCB Thickness	0.3mm to 6mm
Stencil size	650mm, 736mm, 800mm, 850mm, 900mm
Cycle time	12sec / under optimized condition
Alignment accuracy	±12.5 um @ 6 sigma
Printing repeatability	±25 um @ 6 sigma , Cpk ≥2.0

Ultimate speed & Smart performance
Back-to-Back Printer

Integrated shuttle on conveyor

Single printer or Back-to-Back configured line

H1

Ultimate cycle time [core 5sec] and Qualified printing quality & repeatability printer [20um@6sigma] for single or back-to-back configurable printer

Much high productivity for single products – Top & Bottom printing together on each lane

Much flexible production for each different product for much faster productivity

All advanced & enhanced standard features of E2 & E7 applicable

Linear motor applied for stable & fast camera and 3 stages conveyor system as standard

Optional output conveyor integrated shuttle system for Back to Back line

Input conveyor shuttle applicable as Optional

Enhanced standard Features

* 2D inspection for solder excess, less, short and position error

* SPI closed loop with Kohyong, Parmi, TRI, Pemtron, Cyberoptics

* Production programming by network

* Auto stencil loading & positioning

* Auto camera calibration

* Auto Alignment before production

* Auto stencil inspection & cleaning for a containment area

* Auto Squeegee center position calibration

* Auto Alignment accuracy measuring for table & camera

* ESE standard MES data

* Program for Auto PCB support tooling for Gridlock, Quik-Tool

* PCB barcode traceability by vision camera

2D inspection
Less, Excess, Bridge, Position

SPI close loop

Program by network

Auto Camera calibration

Auto Stencil Inspection

Auto Alignment
Accuracy measuring

Auto Alignment

PCB barcode traceability

ESE standard MES data

Hybrid Cleaning system :
Easy convertible cleaning mode to
Standard paper cleaning or Paperless cleaning

PCB size	50mm x 50mm - 350mm x 250mm [* Optional 380mm x 280mm]
PCB Thickness	0.3mm to 6mm
Stencil size	550mm, 584mm (23"), 650mm
Core Cycle time	5sec / under optimized condition
Alignment accuracy	±12.5 um @ 6 sigma
Printing repeatability	±25 um @ 6 sigma , Cpk ≥2.0

Super cycle time and High productivity

H2

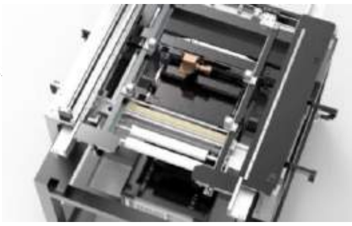
H2 realizes super cycle time based on ESE own technology
[core cycle time – 5.5~6 sec and including cleaning – 10sec under ESE optimized condition]

The most stable mechanical structure and printing performance with machine alignment 10microns and repeatability 20microncs will make you cut down sharply your production time and much higher productivity

Technological Cleaning system – Easy & Fast Convertible cleaning system for Paper and Paperles

Linear motor applied for stable & fast camera and 3 stages conveyor system as standard

Back-to-Back configurable modification available for medium size PCB production

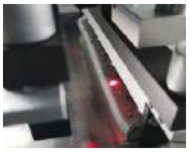


Retrofit Options

To improve productivity, Below retrofit options are recommended

- Touch screen monitor (22")
- Inside Temperature & Humidity display
- Auto solder paste dispenser[JAR or Tube type]
- Solder paste roll height check system
- Programmable Y (Side) Clamp pressure with Y clamp
- Easy clip Squeegee system (one-touch)
- Barcode Management (*RFID management available)
- Side lifter for PCB edge support
- Real Squeegee pressure closed loop
- Real time squeegee pressure closed loop
- Ionizer(Anti-Static) PCB cleaning
- Air conditioner
- Temperature controller
- Center Table vacuum pressure sensor
- Area sensor for sate [Door both side]

Auto solder paste dispenser (JAR, Syringe)



Solder roll height check

Programmable Y (side) clamp pressure

Side lifter for PCB edge support

Inside temperature & humidity display

**Real squeegee pressure closed loop*
**Real time squeegee pressure closed loop*

Area sensor for safe
[Door both side]

Barcode management
(RFID management workable)

Additional optional item request, please contact ESE

PCB size	50mm x 50mm - 550mm x 510mm
PCB Thickness	0.3mm to 6mm
Stencil size	550mm, 584mm (23"), 650mm, 736mm(29")
Core Cycle time	6sec / under optimized condition
Alignment accuracy	±12.5 um @ 6 sigma
Printing repeatability	±25 um @ 6 sigma , Cpk ≥2.0

Qualitied professional large Printer

PCB up to 850mm

E8

The automatic stencil printing system E8 based on Standard E2 & E7 platform was developed to cover LED, LCD and much larger substrate up to 850mm.

As a qualified professional large printer by a leading LED, LCD customers, E8 includes all standard E2 & E7 printer features & function and most flexible system in this industry field.

Up to 10kgs* substrate weight on E8 can be handled and flexible design allows customer mask stencil size loading including ESE standard configuration (Optional)

Including Standard clamping system, special designed side vacuum clamp tool kit supports much perfect board clamping and printing result from a warpage

Enhanced standard Features

* 2D inspection for solder excess, less, short and position error

* SPI closed loop with Kohyong, Parmi, TRI, Pemtron, Cyberoptics

* Production programming by network

* Auto stencil loading & positioning

* Auto camera calibration

* Auto Alignment before production

* Auto stencil inspection & cleaning for a containment area

* Auto Squeegee center position calibration

* Auto Alignment accuracy measuring for table & camera

* ESE standard MES data

* Program for Auto PCB support tooling for Gridlock, Quik-Tool

* PCB barcode traceability by vision camera

2D inspection
Less, Excess, Bridge, Position

SPI close loop

Program by network

Auto Camera calibration

Auto Stencil Inspection

Auto Alignment
Accuracy measuring

Auto Alignment

PCB barcode traceability

ESE standard MES data

PCB size	70mm x 70mm - 850mm x 610mm
PCB Thickness	0.3mm to 6mm
Stencil size	736mm(29''), 800mm, 850mm, 980mm, 1050mm x 850mm
Cycle time	17sec
Alignment accuracy	±12.5 um @ 3 sigma
Printing repeatability	±25 um @ 3 sigma , Cpk ≥1.33

Qualitied professional large Printer

PCB up to 1000mm
X direction Printing & Cleaning

LX1

The automatic stencil printing system L1 based on Standard E8 platform was developed to cover LED, LCD and much larger substrate up to 1000mm.

As a qualified professional large printer by a leading LED, LCD customers, L1 includes all standard E8 printer features & function and most flexible system in this industry field.

Up to 10kgs* substrate weight on E8 can be handled and flexible design allows customer mask stencil size loading including ESE standard configuration (Optional)

Including Standard clamping system, special designed side vacuum clamp tool kit supports much perfect board clamping and printing result from a warpage

Effective X direction printing & cleaning direction applied

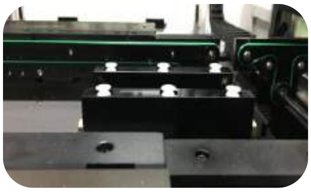
Enhanced standard Features

* 2D inspection for solder excess, less, short and position error
* SPI closed loop with Kohyong, Parmi, TRI, Pemtron, Cyberoptics
* Production programming by network
* Auto camera calibration
* Auto Alignment before production to reduce human error and production time
* Auto stencil inspection & cleaning for a containment area
* Auto Squeegee calibration for new squeegee, blade change and squeegee center position before production
* Auto Alignment accuracy measuring for printer table & camera accuracy
* ESE standard MES data
* Program for Auto PCB support tooling for Gridlock, Quik-Tool, GemiXlock
* Production data collect
* PCB barcode traceability by vision camera
* Side vacuum clamp kit

Standard 3 stages conveyor system

Standard X direction cleaning system

Standard X direction printing system



Standard side vacuum clamp

PCB size	100mm x 80mm - 1000mm x 650mm
PCB Thickness	0.3mm to 6mm
Stencil size	736mm(29"), 980mm, 1300mm x 800mm
Cycle time	35sec / 1000mm PCB
Alignment accuracy	±12.5 um @ 3 sigma
Printing repeatability	±25 um @ 3 sigma , Cpk ≥1.33

Qualitied professional large Printer

PCB up to 1300mm
X direction printing & cleaning

LX3

The automatic stencil printing system L3 based on Standard E8 platform was developed to cover LED, LCD and much larger substrate up to 1300mm.

As a qualified professional large printer by a leading LED, LCD customers, L3 includes all standard E8 printer features & function and most flexible system in this industry field.

Up to 10kgs* substrate weight on E8 can be handled and flexible design allows customer mask stencil size loading including ESE standard configuration (Optional)

Including Standard clamping system, special designed side vacuum clamp tool kit supports much perfect board clamping and printing result from a warpage

Effective X direction printing & cleaning direction applied

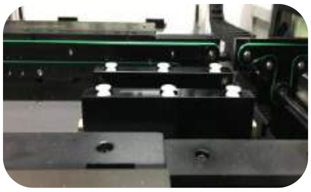
Enhanced standard Features

* 2D inspection for solder excess, less, short and position error
* SPI closed loop with Kohyong, Parmi, TRI, Pemtron, Cyberoptics
* Production programming by network
* Auto camera calibration
* Auto Alignment before production to reduce human error and production time
* Auto stencil inspection & cleaning for a containment area
* Auto Squeegee calibration for new squeegee, blade change and squeegee center position before production
* Auto Alignment accuracy measuring for printer table & camera accuracy
* ESE standard MES data
* Program for Auto PCB support tooling for Gridlock, Quik-Tool, GemiXlock
* Production data collect
* PCB barcode traceability by vision camera
* Side vacuum clamp kit

Standard 3 stages conveyor system

Standard X direction cleaning system

Standard X direction printing system



Standard side vacuum clamp

PCB size	100mm x 80mm - 1300mm x 650mm
PCB Thickness	0.3mm to 6mm
Stencil size	736mm(29"), 980mm, 1500mm x 800mm
Cycle time	40sec / 1000mm PCB
Alignment accuracy	±12.5 um @ 3 sigma
Printing repeatability	±25 um @ 3 sigma , Cpk ≥1.33

Qualitied professional
Super large Printer

PCB up to 1500mm
X direction printing & cleaning

LX5

The automatic stencil printing system L5 based on Standard E8 platform was developed to cover LED, LCD and much larger substrate up to 1300mm.

As a qualified professional large printer by a leading LED, LCD customers, L5 includes all standard E8 printer features & function and most flexible system in this industry field.

Up to 10kgs* substrate weight on E8 can be handled and flexible design allows customer mask stencil size loading including ESE standard configuration (Optional)

Including Standard clamping system, special designed side vacuum clamp tool kit supports much perfect board clamping and printing result from a warpage

Effective X direction printing & cleaning direction applied

Enhanced standard Features

* 2D inspection for solder excess, less, short and position error

* SPI closed loop with Kohyong, Parmi, TRI, Pemtron, Cyberoptics

* Production programming by network

* Auto camera calibration

* Auto Alignment before production to reduce human error and production time

* Auto stencil inspection & cleaning for a containment area

* Auto Squeegee calibration for new squeegee, blade change and squeegee center position before production

* Auto Alignment accuracy measuring for printer table & camera accuracy

* ESE standard MES data

* Program for Auto PCB support tooling for Gridlock, Quik-Tool, GemiXlock

* Production data collect

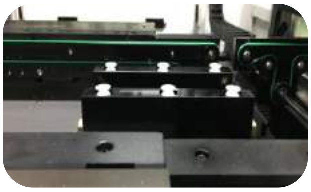
* PCB barcode traceability by vision camera

* Side vacuum clamp kit

Standard 3 stages conveyor system

Standard X direction cleaning system

Standard X direction printing system



Standard side vacuum clamp

PCB size	100mm x 80mm - 1500mm x 650mm
PCB Thickness	0.3mm to 6mm
Stencil size	736mm(29"), 980mm, 1800mm x 800mm
Cycle time	45sec / 1000mm PCB
Alignment accuracy	±12.5 um @ 3 sigma
Printing repeatability	±25 um @ 3 sigma , Cpk ≥1.33

ESE CO.,LTD

Stencil Auto Changeover Printer

FA1

FA1 s made with ESE strong R&D and the fruit of ESE's passion integrated a state of the art and advanced technology

As the leading for industry 4.0, it has been upgraded from US-2000FA and XF which had been developed by a closed cooperation between Samsung Electronics & ESE in 2012.

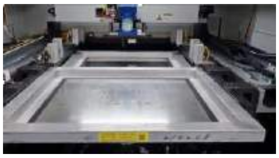
FA1 is the unique functional printer and should facilitate Mask stencil automatic change), fully integrated PCB support tools and hybrid cleaner(*),
Auto solder paste dispenser, traceable ESE standard format of MES, SPI closed loop, software managed by barcode etc the built in various and innovated options included.

The active and advanced intelligent FA1 can realize your production line of becoming much more Smart line based on two way communication between manager and production line and it will guide much high productivity,

Maximize managing efficiency and help you to implement a real Industry 4.0 and Smart factory.

Enhanced standard Features

- * 2D inspection for solder excess, less, short and position error
- * SPI closed loop with Kohyong, Parmi, TRI, Pemtron, Cyberoptics
- * Production programming by network
- * Auto stencil loading & positioning
- * Auto camera calibration
- * Auto Alignment before production
- * Auto stencil inspection & cleaning for a containment area
- * Auto Squeegee center position calibration
- * Auto Alignment accuracy measuring for table & camera
- * ESE standard MES data
- * Program for Auto PCB support tooling for Gridlock, Quik-Tool
- * PCB barcode traceability by vision camera



Stencil mask Auto changeover(2 stencil)

Barcode management

Hybrid Cleaning system
- Paper and Paperless

PCB Auto support tooling

Auto solder paste dispenser

PCB size	50mm x 50mm - 350mm x 250mm
PCB Thickness	0.3mm to 6mm
Stencil size	584mm (23") or 736mm (29")
Cycle time	12sec (* Stencil Changeover – within 2min)
Alignment accuracy	±12.5 um @ 6sigma
Printing repeatability	±25 um @ 6 sigma , Cpk ≥2.0