

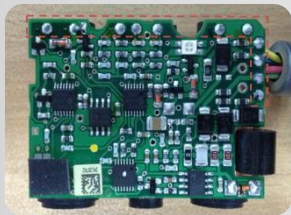
SELECTIVE SOLDERING SYSTEM FLEX400/600

Fully Automatic Inline System



Selective Soldering System FLEX400/600

- Ideal for fully automated Selective soldering tasks
- Compact Inline System
- PCB's up to 400x400mm (FLEX400) or 600x600mm (FLEX600)
- Titanium Solder pot with 15 kg capacity
- Standard and customized selective soldering nozzles
- N2 heating system as a standard for best soldering results
- Integrated spray fluxer
- Integrated Preheatig System
- X/Y/Z precision movement system
- Industrial PC with Windows 7 Software for easy programming and operation
- Optional Drop Jet Fluxer, Fiducial recognition, Soldering Live Camera, Wave calibration, Offline Software



Wire Soldering



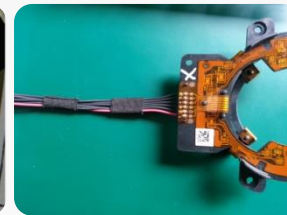
Mixed PCB



Automotive Sensor



Mini SUB Connector



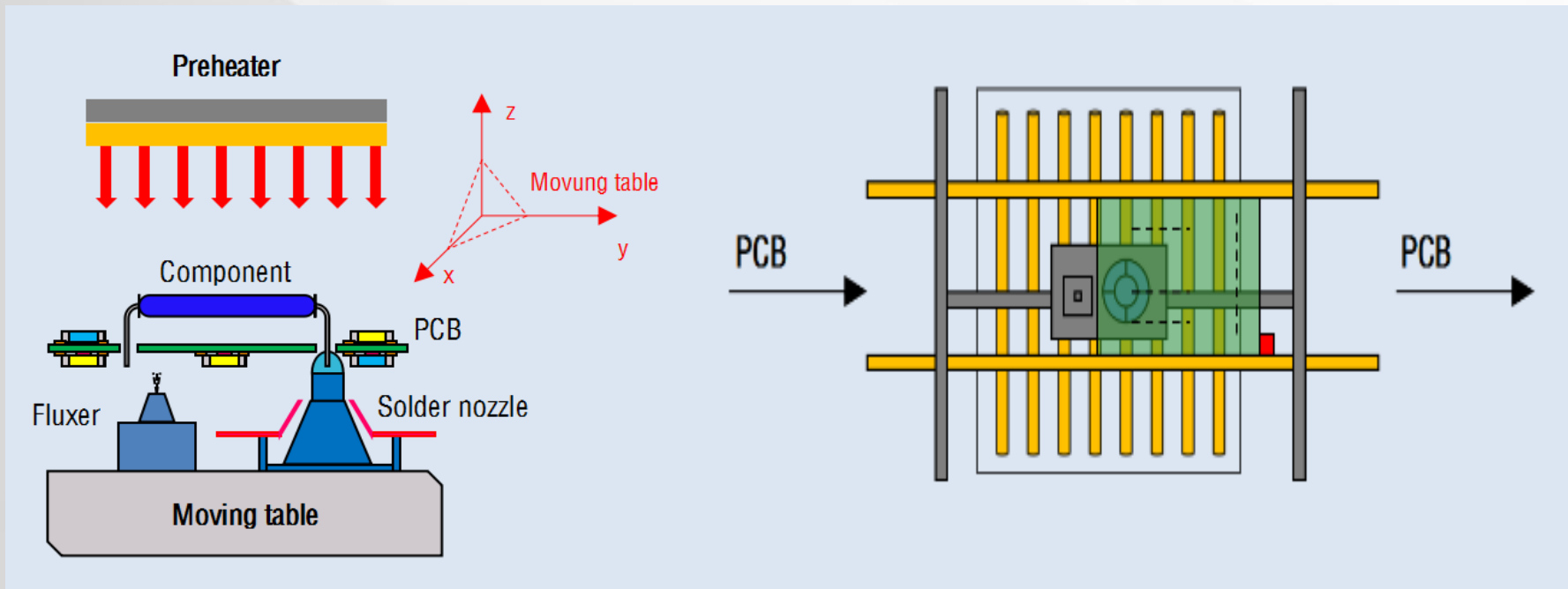
Flex PCB to plastic cover



Mixed PCB, tall components beside soldering pad

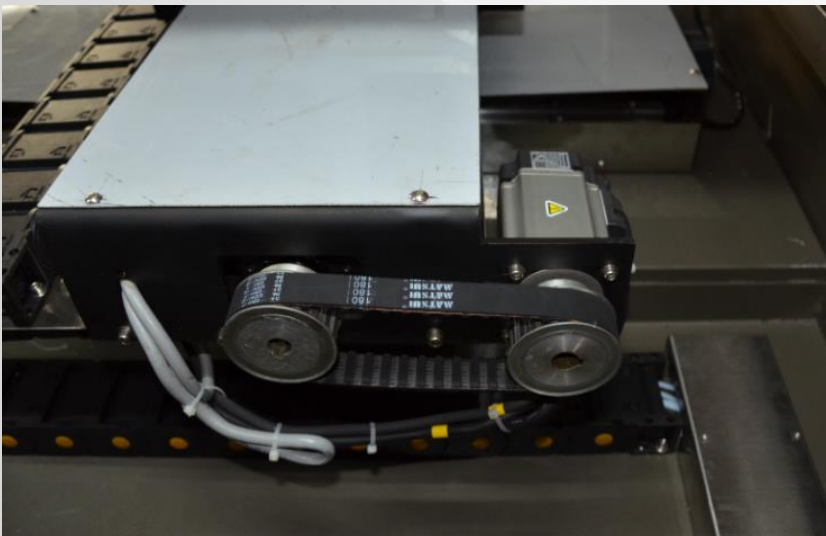
Machine Functions FLEX400/600

- PCB is moved into machine with conveying system
- it will be stopped by stopper and clamped by side clamber cylinder
- optional Fiducial camera is checking two fiducial marks for high precision positioning
- XYZ table is moving fluxer to do spray (or optional jet) fluxer to programmed path
- XYZ table is moving solder pot to do selective soldering for programmed path
- During the whole process, the top preheater can be on to keep the PCB's temperature.



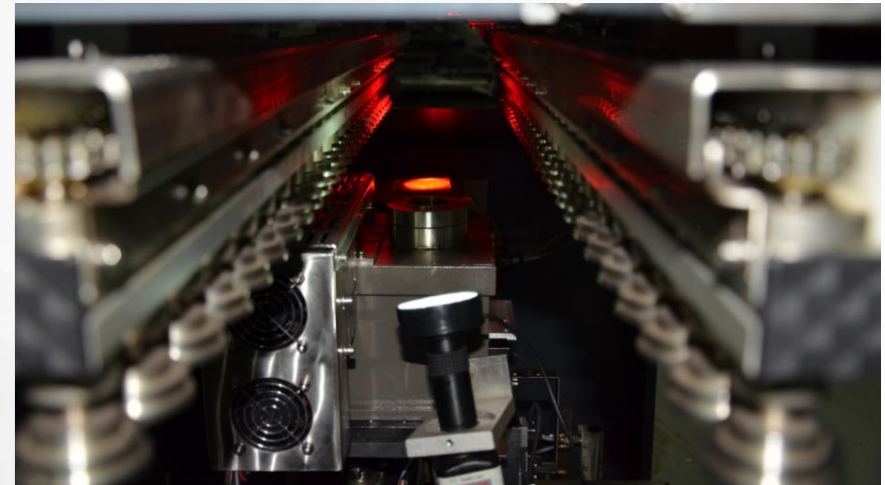
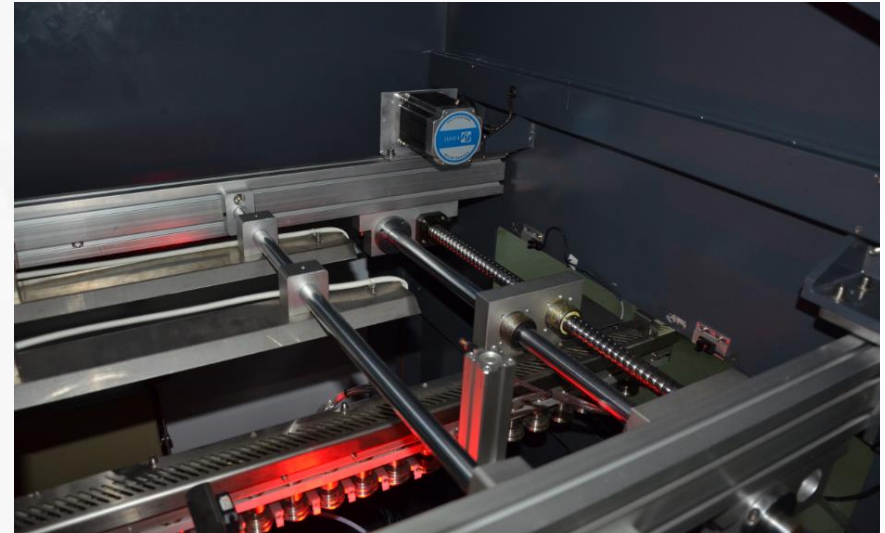
Precision Machine Base FLEX400/600

- High precision X/Y/Z movements by Panasonic servo motor & drivers
- X/Y/Z axis HIWIN Taiwan high-precision ball screws and linear guide rails,
- Working accuracy of up to $+ / - 0.05$ mm
- Aluminum casted platform for all elements



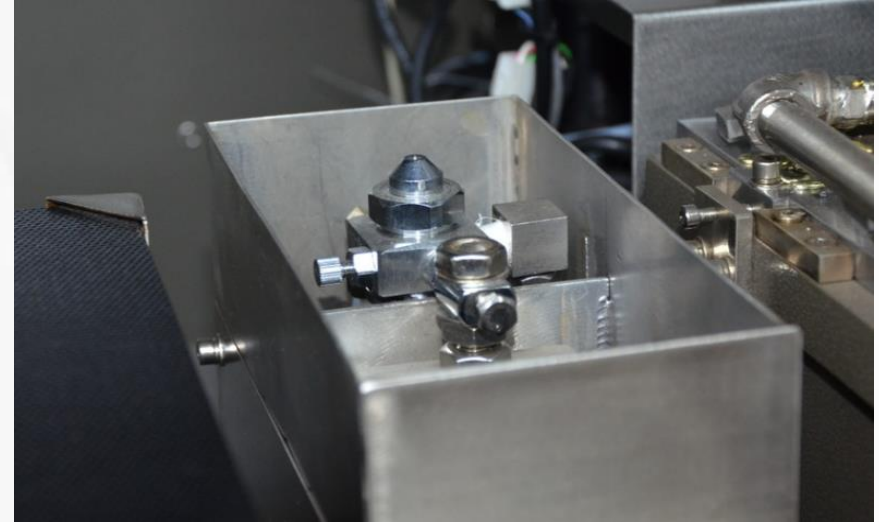
Selective Soldering Conveyor

- Motorized ball screw System for automatic width adjustment and fast change over
- SMEMA Interface
- Roller conveyor for smooth and reliable transport and high positioning accuracy
- Only 3mm edge clearance
- Side Clamping by pneumatical cylinders for high repeatbilty



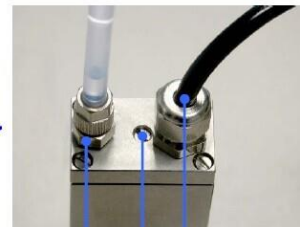
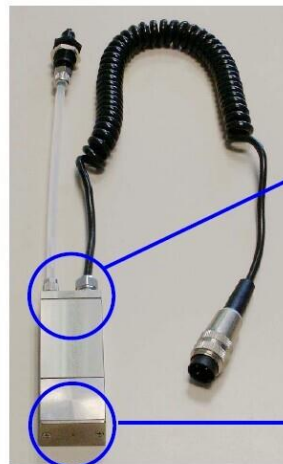
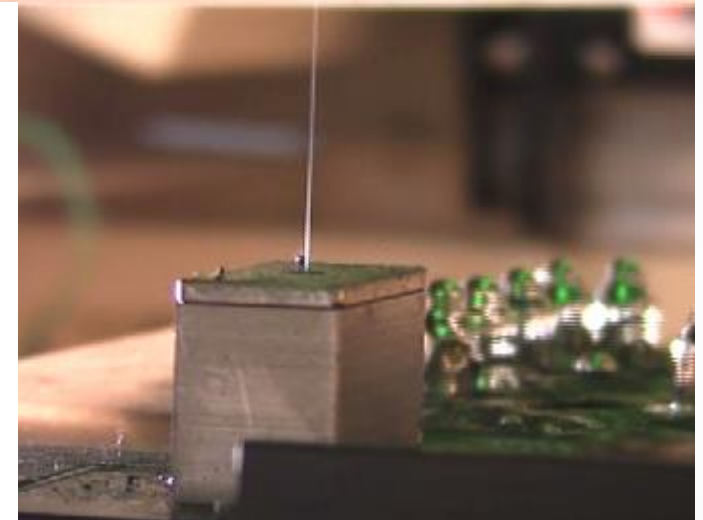
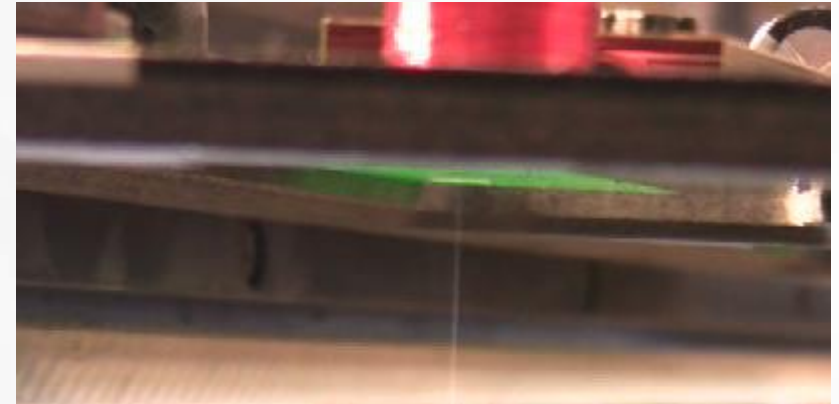
FLEX400/600 Fluxing Systems

- Standard equipped with precision spray nozzles (Made in Japan) for dot sizes down to 10mm
- Pressure flux tank with regulating valve to make sure flux is always under same pressure, so to provide stable fluxing performance.



Drop Jet Fluxing Systems

- Optional with REA drop jet flux valve which (Made in Germany)
- For high precision applications or for flux with solid content lower than 5%.



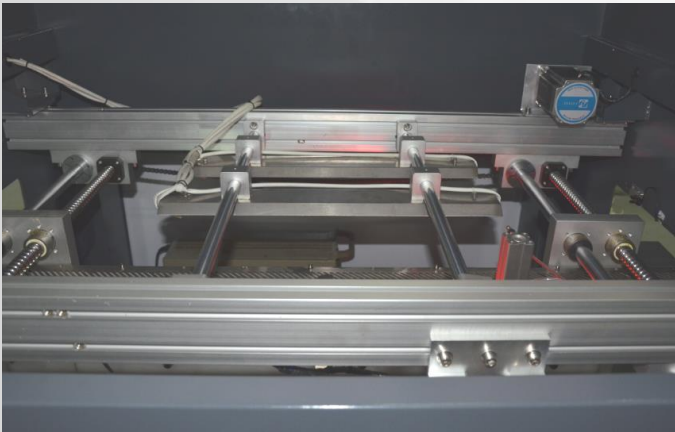
Nozzle plate screws
Nozzle plate



Connecting cable
Adjusting screw
Media connection

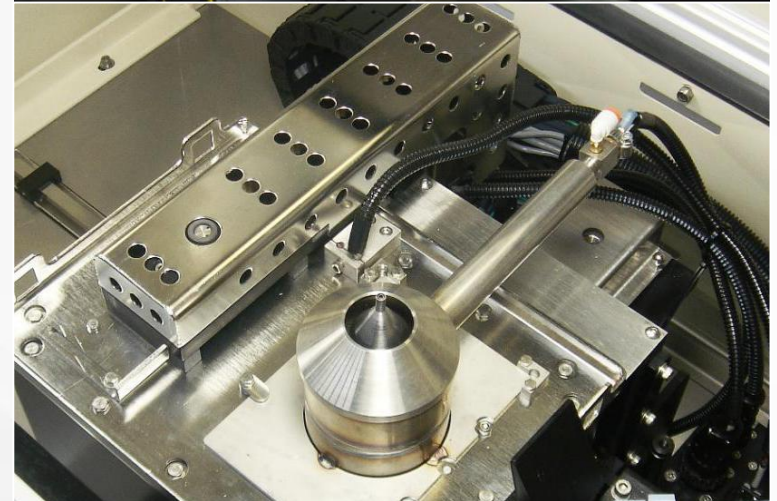
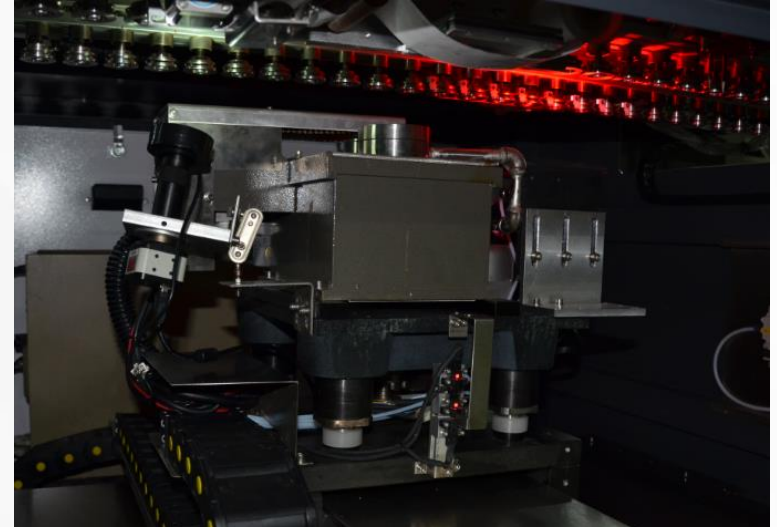
Preheating System

- Standard equipped with top preheater
- The position of two group heaters can be adjusted manually.
- PCB with width less than 200mm, possibility to switch off one group of heater to save energy
- Preheating time & heating ratio (%) programmable in the Software



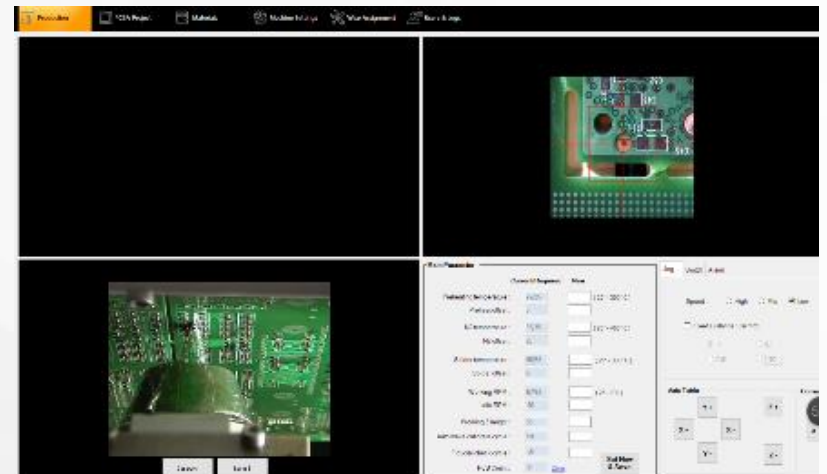
Soldering System

- Solder tank is made of Titanium with 15 kgs solder capacity
- Optional exchangeable solder pots for fast changeover of different type of solder
- N2 direct heat up system, with close loop temperature control for N2. N2 pressure & flow monitoring included in the operating software.
- Panasonic servo motor & driver for wave controlling.
- Optional Wave Height Calibration System (X/Y/Z table will move solder pot to required position. Wave on and keep increase until meet the height probe)



Live Camera System

- Live Camera System to supervise the soldering process in real time
- Ideal for set up and process surveillance



FLEX400/600 Soldering Nozzles

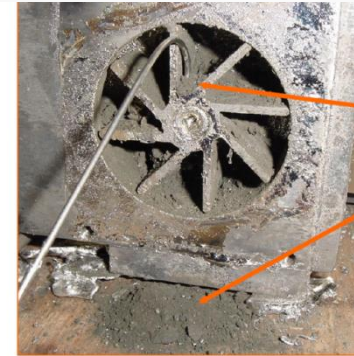
- High quality Soldering Nozzles
- Customized solder nozzle's for specific applications
- Special nozzles with grooves to get high and stable solder head for fine pitch soldering tasks (can handle 0.5mm clearance pad).

Talk to our specialist for your specific application.



Low Maintenance Efforts

- Special mechanical pump design to minimize cleaning time
- Competition:
 - requires cleaning of solder bath weekly (5days x 8hours/day = 40 hours)
- Lavortec:
 - our pump needs cleaning of solder bath only monthly (5 days x 8 hours/day x 5 = 200 hours).
- Lavortec:
 - 5 times less cleaning



Remove oxides from in between the impeller vanes

7. Re-Assemble Pump

- With impeller-shaft assembly and pulley in place, insert shim gauge (perpendicular to shaft) between pulley support bearing and bronze washer. Refer to the picture

MAINTENANCE

SCHEDULED MAINTENANCE

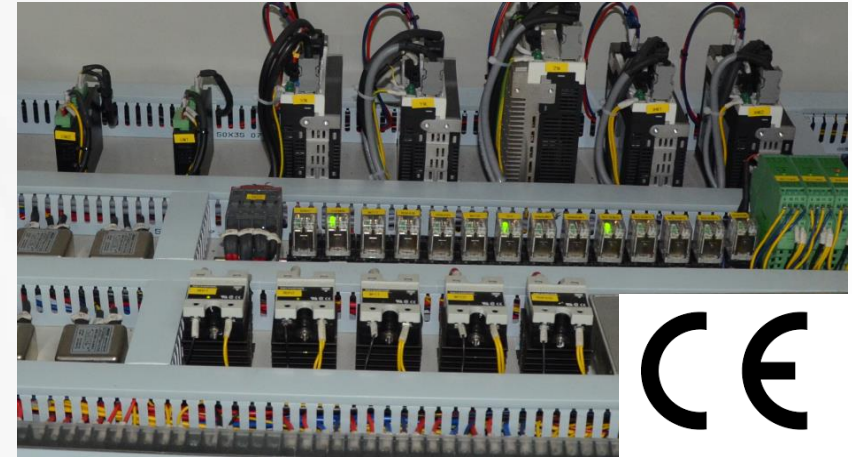
The Recommended Maintenance Schedule for the machine is detailed below. It includes Daily, Weekly and Monthly tasks which are simple to execute by an experienced engineer.

IMPORTANT NOTE: Where more than one Shift is worked per day, it is recommended that all Daily Scheduled Maintenance Tasks are implemented once per Shift. Also dependent upon machine usage and nozzle selection, some daily tasks such as tuning the nozzle may have to be monitored periodically during production and undertaken when necessary.

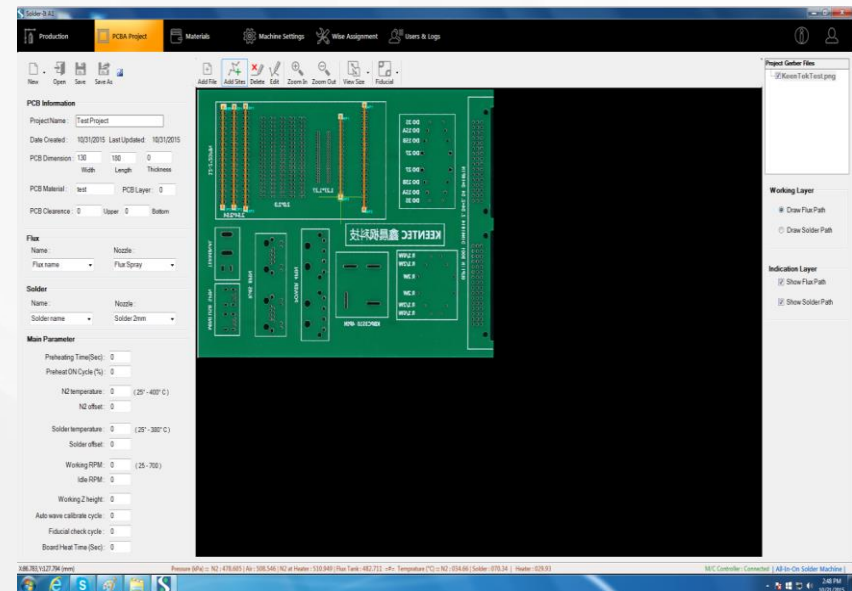
TASK	DAILY	WEEKLY	MONTHLY	INSTRUCTIONS	ESTIMATED TIME
Solder nozzle	X			Clean Surface and re-tin if necessary	5 MINS
Solder bath (Quick)	X			Clean Surface dross by removing nitrogen shroud	5 MINS
Clean nozzle sleeve	X			Remove nozzle and clean dross from sleeve	2 MINS
Flux head	X			Using a cotton bud and alcohol to clean the top of the fluxer	1 MIN
Solder bath (Thorough)		X		Remove pump body from bath and de-dross entire bath	20 MINS
Camera lens		X		Clean off flux residue with lens cleaner and lint free cloth	1 MIN
Solder bath temperature			X	Calibrate Solder Temperature at Nozzle (make sure the pump has run for at least 15 minutes)	20 MINS
X & Y axis			X	Check for debris on racks and grease with super lube, check rails and oil with PTFE spray.	15 MINS
Flux nozzle			X	Remove nozzle and clean	10 MINS

SELECT450 Control and Operation System

- High quality brand electrical systems (Panasonic servo and drivers, ABB relay and contact, Swiss Carlos SSR, fully CE Certified)

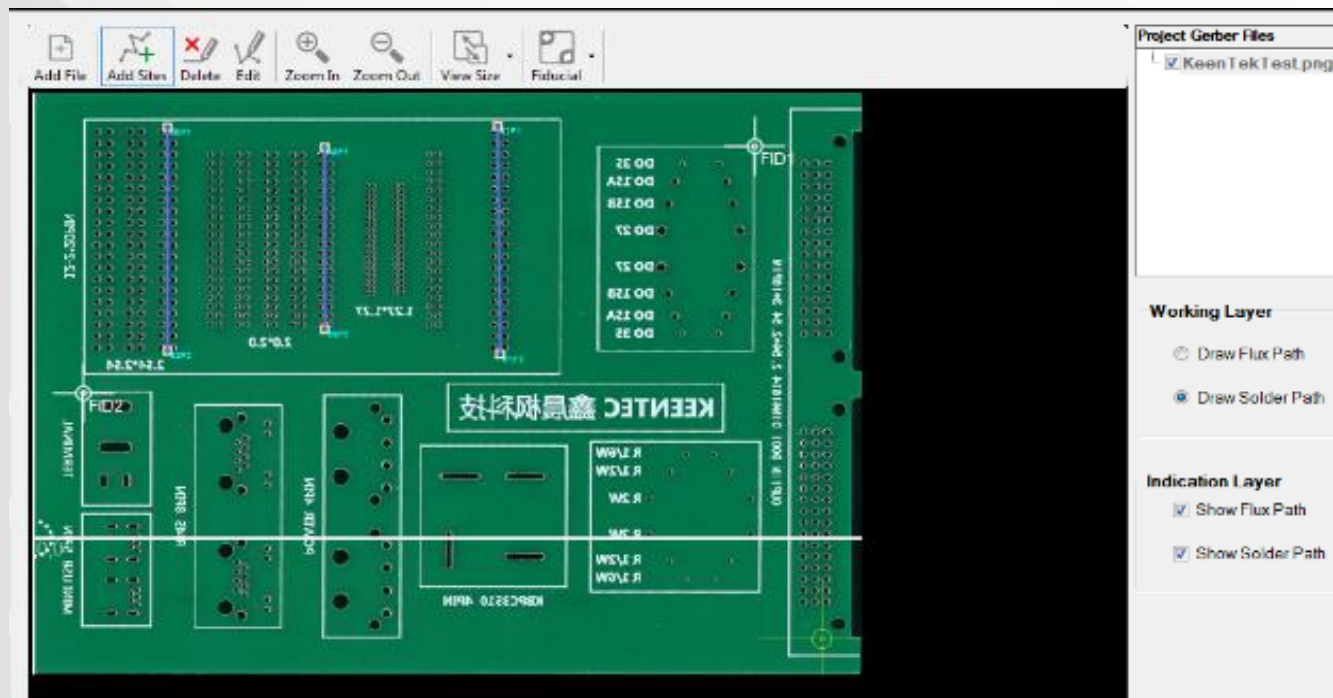


- Easy to operate Software
 - Programming from scanned PCB image
 - Draw line or dot in scanned board picture for path programming
 - All soldering parameters can be stored in a library
 - Windows based Software



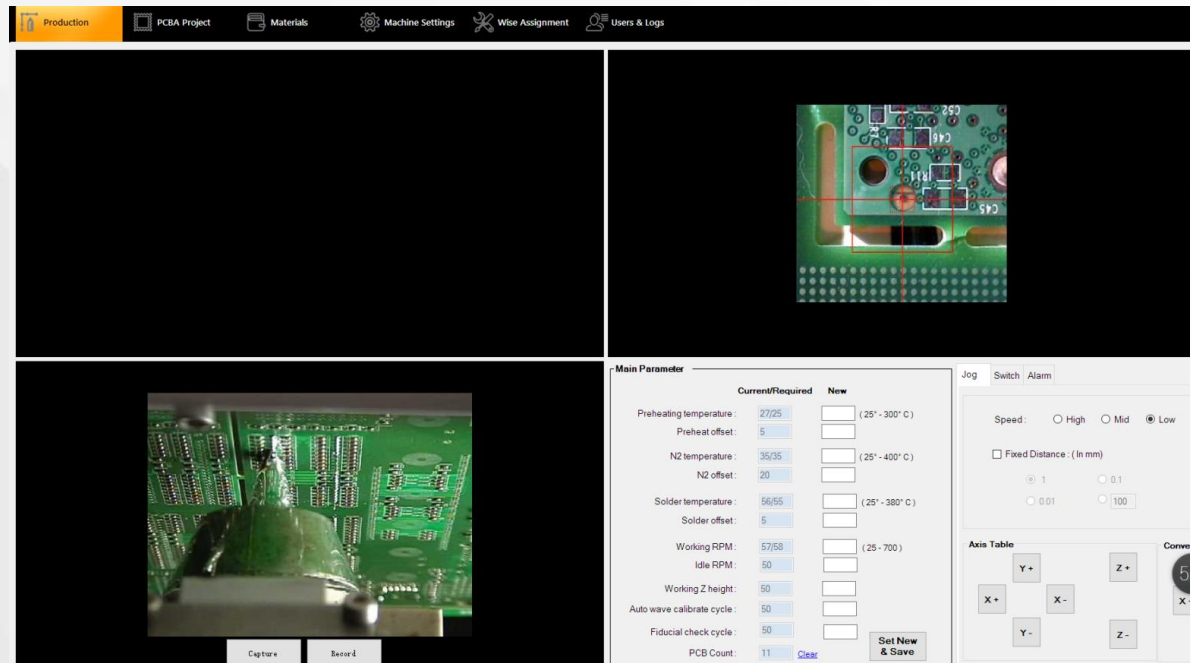
Easy to Operate and Program

- User Friendly Software – based on years of customer experience in operating selective soldering systems
- Edit moving path, lines or dots directly on the PCB's picture. Adjust motion start & stop positions, soldering speed, empty moving speed, different Z height, different wave height, wave stop speed within the program.



Production Software

- In the production overview, the software shows:
 - in real-time the working progress
 - Fiducial Camera alignments and results
 - The main parameters
 - The soldering process
- During the process pictures and video sequences can be stored additionally



Integrated Process Control (SPC)

- The integrated SPC Software can store all the information of the PCB, include PCB's brief explanation, flux type, fluxing nozzle, solder type, solder nozzle, fluxing path, soldering path & wave height, solder temperature, IR setting etc.
- Key parameter like temperature, speed, air pressure, air flow, N2 pressure & N2 flow are all monitored.
- Optionally with the automatic wave height calibration the auto check function is activated and monitored as well to check the wave height after a definable number of PCB's
- Optionally with automatic Fiducial recognition an automatic fiducial check can be effected additionally.

The screenshot displays the SPC software interface with the following sections:

- PCB Information:** Project Name: TestProject; Date Created: 00/00/00; Last Updated: 00/00/00; PCB Dimension: Width: 0, Length: 0, Thickness: 0; PCB Material: test; PCB Layer: 0; PCB Clearance: Upper: 0, Bottom: 0.
- Flux:** Name: Flux name; Nozzle: Flux Jet.
- Solder:** Name: Solder name; Nozzle: Solder 2mm.
- Main Parameter:** Preheating temperature: 0 (25° - 300° C); Preheat offset: 0; N2 temperature: 0 (25° - 400° C); N2 offset: 0; Solder temperature: 0 (25° - 380° C); Solder offset: 0; Working RPM: 0 (25 - 700); Idle RPM: 0; Working Z height: 0; Auto wave calibrate cycle: 0; Fiducial check cycle: 0; Board Heat Time (Sec): 0.

FLEX-400/600 Machine Features ---Software :

New User

User Name :

Password :

User Type :

Activity Logs

Show Todays Log

Show log from Date :

Logs

User Name	Date Time	Type	Message Text
admin	2015-11-09 17:40:55	Info	User Login
admin	2015-11-09 17:40:55	Error	In MachineSolderSettings...
admin	2015-11-09 17:40:55	Info	All DB file loaded

Manage Users

User Name	User Type	Created On Date	Delete
user2	Operator	16-02-2015 10:54:53	Delete
new	Engineer	16-02-2015 11:30:38	Delete
new1	Operator	16-02-2015 11:31:35	Delete

8. Log function. Can set 3 level different users. All logs will be saved and customer can check who use the machine and what happen.

TECHNICAL DATA

FLEX-400 / FLEX-600

General

Operating power/Max power	2-5KW/8KW	
Machine dimension	1400(L)*1450(W)*1700(H) / 1600(L)*1650(W)*1700(H)	
Net weight	700KGS / 900KGS	
Power supply	1PH 220V 50HZ	
Exhausting required	500-800M3/h	

Robotic Platform

Axes of Motion	X, Y, Z
Motion Control	Closed Loop Servo
Position Accuracy	+ / - 0.05 mm
Frame Type	Welded Steel

Conveyor

Inline SMEMA Auto Load Conveyor	Standard	
Conveying height	900±30 mm	
Max conveying load	5 Kgs	
PCB thickness	1.5-4mm	
Minimum Board Size	50 x 50mm	
Maximum Board Size	W400 x L400 mm / W600 x L600mm	
Edge Clearance	3 mm	
Max top PCB component height	50 mm	
Max bottom PCB component height	30 mm	
Conveyor direction	Left to right	
Width adjustment	Auto	
Conveyor type	Rollers	

Solder Management

Standard Solder Stations	1
Solder Pot Capacity	15 kgs
Solder Temperature Control	PID
Heat-Up Time	35 Minutes
Max Temperature	350 C
Solder Pot heater	3kw
Wave height close loop control	standard

Solder Nozzles

MiniWave Nozzles	Dia 2.0mm ----5mm
Customized nozzle	Available
Nozzle Material	Proprietary Alloy

Nitrogen (N2) Inertion Management

N2 heater	standard equipped
N2 Temp PID Control Range	0 - 350 C
N2 Consumption per Nozzle	0.5-1.5m3/H
Required N2 Purity Oxygen	99.998 %

Preheating

Preheating method	Top IR preheating
Preheating Power	3 kw
Preheating temperature range	Room temperature -240 °C

Flux Management (Standard)

Spray Flux Nozzle	4mm - 10mm Coverage
Spray Flux Durability	High Durability Stainless Steel
Flux Capacity	1L
Flux Tank	Constant pressure tank

SELECT450 Selective Soldering System - Summary

- Compact fully automatic Inline Selective Soldering Systems
- PCB's up to 400 x 400mm or 600 x 600mm
- Titanium Solder pot with selective soldering nozzle
- N2 Heating Systems for perfect soldering results
- Integrated Dual Zone Preheating System
- Industrial PC with Windows Software for easy programming and operation
- Soldering moving speed, wave height and soldering temperature are programmable for different components
- High precision X/Y/Z movements by Panasonic servo motor & drivers
- Standard equipped with spray flux
- Different diameter standard soldering nozzle available
- Customized nozzle for specific request additionally available
- Optional
 - Drop Jet Fluxing Systems
 - Automatic Wave Height Calibration
 - Fiducial recognition
 - Soldering Live Camera
 - Offline Programming Station
 - Exchangeable Solder Pots for different Leads



Renting instead of buying

Get your Selective Soldering Equipment with low monthly rates and the full flexibility to react to changing production demands.

- Adjust your equipment to changing market requirements
- Keep your production flexible and be ready whatever technology or demand is next
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About Lavortec

- Lavortec is a **Company based in Switzerland** being in the business of electronic manufacturing equipment for **over 11 years**
- Our team in Shenzhen/China carefully **selects and qualifies proven** suppliers with a **large installed base** in Asia and a **good reputation** from world wide known users.
- **Process evaluation Center** to test and set up the process for your specific product
- **Product Adaptation** for European requirements can be effected
- All products are **CE tested and certified** by our own team
- All products have to pass a **Quality Check** before they are shipped to Europe
- A **European network** of sales and after sales partner guarantee you **local support**
- In our Hub in Switzerland we arrange **all payments in full safety** as well as taking care of the **import administrations** and the **transport arrangements**



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