FIREBOX By JT

The Perfect Combination for Efficiency and Resilience in your PCBs.

created and designed by MADigital marketing+desing

FIREBOX By JT

Peripherals of wave soldering

- Linkable with soldering machine to be integrated soldering system.
- PLC and LCD touch panel operation, digitally setting and display for flux value.
- Equipped with high quality stepping motor to assure conveying speed stability & reliably and the uniformity of flux spraying.

Model	FS-450B- Ⅲ	FS-610S- Ⅲ
Dimension	1300x 1400x 1600 mm	1400X 1560X 1600mm
PCB Width	50-450mm	50-610mm
Conveyor Height	750 ± 20mm (Option：950 ± 20mm)	
Conveyor Direction	L → R (option：R →L)	
Conveyor Speed	0～1.8m/min	
Capacity of Flux Tank	20L	

External Spray fluxer module

- External independent spray module, which physically blocks flux from entering the preheating zone, improving safety
- Reduce maintenance frequency for wave soldering
- Optimezed structure, large and clean space, convenient for daily maintenance
- The automatic cleaning function of the external nozzle makes maintenance easier and time-saving

Nozzle Clean Automatically

Spray module exhause hood

- V Type desinged exahuse hood to prevent flux dripping onto the board
- Exhause hood open hinge, easy to maintenance
- The exhause pipe and centrifugal fan are connected with sealed joint pipe to avoid the rosin from overflowing to rear electric box area, replace the filter to reduce the maintenance intensity

Optimize the layout

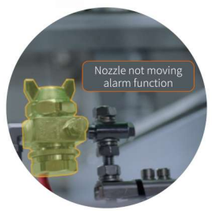
- The exhaust fan is isolated from the spray area, the interface is sealed
- The rear electric box, fan and cleaning device are isolated from the front spray area to prevent rosin from entering
- In - built flux bucket, and add the tray under the bucket, more safe and environment friendly
- The claw washing liquid tank, pneumatic diaphragm pump, and water pump are centrally installed on the rear side, which is cleaner and easier to maintain.

System promotion

- Can be equipped with large-stroke spray selective spray system, the nozzle can be sprayed back and forth, pronote the capacity and save-energy by 50%-80%
- Compatible with ultrasonic spray system, better uniformity, saving 40-70% of flux

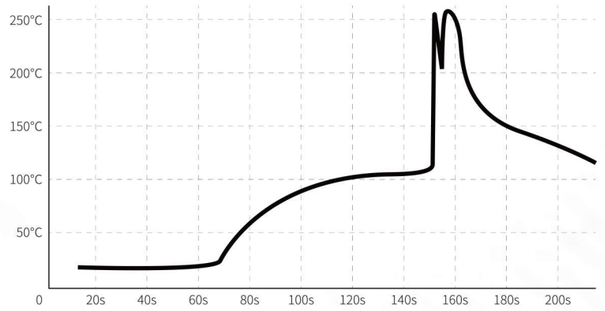
Nozzle alarm function

- When the nozzle stop moving on the production, it will point out and alarm.
- In order to avoid the missing flux because the nozzle stop moving.



Prehating Zone

- Hot air preheating adopts naked heating wire and end riveting process to improve the life of heating wire.
- Widen the convntion duct desing area, the thermal uniformity of the furnance space is better.
- Ir infrared preheating adopts medium and short wave heating tube, which has fast response, strong heat penetration ability, energy saving and environmental protection.



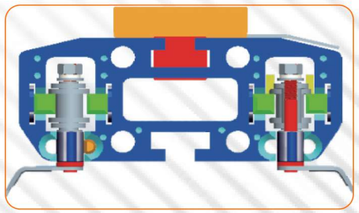
Stable preheating performance

- Stable preheating performance, according to the standard process of set temperature deviation +/- 3°C, fixed-point calculation of CPK > 2.
- Soomther process curve, smaller fluctuation, the heating shock from preheating zone solder pot is ⩽ 130°C.
- The drop temperaturw between thw first and second wave is within 60° C.

Transmission part

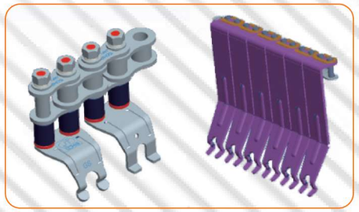
Transport systerm

- Innovative rolling conveyor structure technology
- Less frictional resistance for transportation
- Transmission is smoother
- Extend the lifetine of the rails
- The stansard load capacity is 60 kg (max option is 120kg)
- Heavy duty claw configuration are available: all V, 2V+L, 3V+L
- Automatic lubricator system



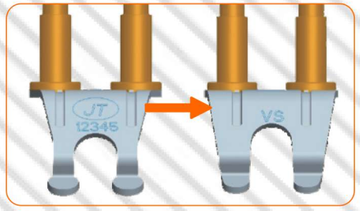
Selective of claw

- L type mainly used for heavy fixture.
- L type mainly used for heavy bare PCB with edgy.
- V+L are compatible with jigs and bare boards.
- Commen dual caw are maily for bare board.



Upgrade of new Vclaw

- New and old models can be replaced universally
- Optimize the tin adhesion of chain
- Smooth arc reduces the probability of contact with tin.

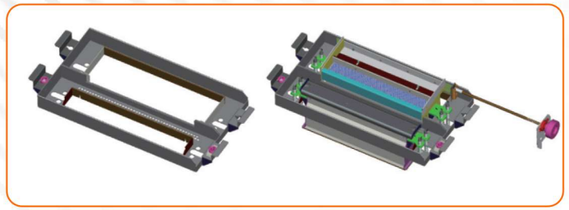


Heating tube structure

- U-shaped metal heating tube desing
  Use three-sided heating structure to ensure the uniform of heating
- The metal heater is directly attached to the furnance wall, with higher heat
- transfer efficiency, faster response and more enetgy saving
- Solve the problem of bad heating plate (Zero fault rate with 2 years testing)

Nozzle structure introduction

- Add adjustable spout horizontal structire based in the quick- release nozzle structure, improve the nozzle process adjustment
- The plate between the second wave can adjust the trapezoidal wave width and height, adjust the soldering time
- Anti-oxidation slow*flow fence structure, optimize the estructure of the slow-flow fence around the nozzle, reduce the generation of tin dross
  Surround the nozzle, reduce the flow rate of solder falling, and reduce the generation of tin droos.

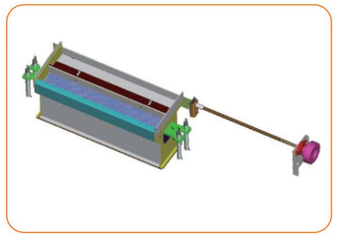


First wave structure

- The nozzle come with 4 row holw covwr
- Two side lug use a quick release structure, and add a horixontal screw to adjust yhe nozzle.

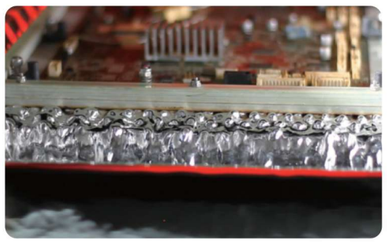
Second wave nozzle structure

- The baffle desing change to back and rear adjustable, can adjust the width of wave
- Add nozzle wave nozzle level adjustment device, convenient for process adjustment.



Excellent smooth advective waves

- Use a glass plateto test the flatness. The measured maximum wave peak width difference is 5 mm, and the height deviation is 0.5 mm.

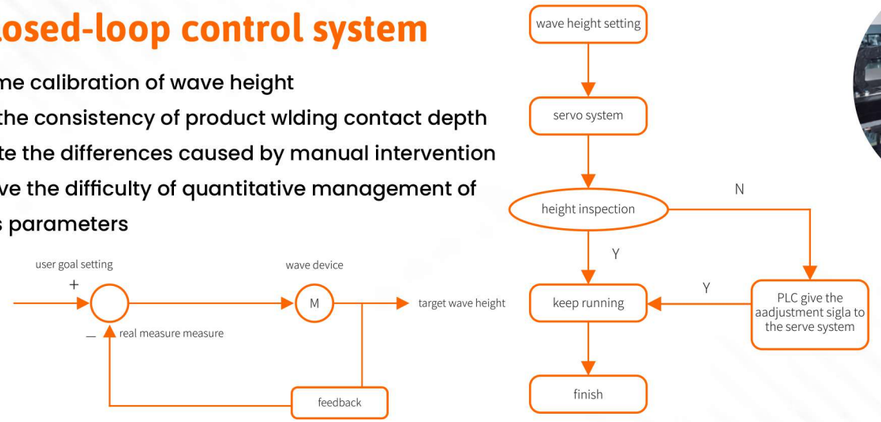


Solde pot energy - saving design

- The surriunding of pot is wrapped with insulation cloth, heat preservation and insulation that can reduce the power consumption.

Wave Closed-loop control system

- Real-time calibration of wave height
- Ensure the consistency of product wlding contact depth
- Eliminate the differences caused by manual intervention and solve the difficulty of quantitative management of process parameters



Wave closed-loop control system

Tin overflow function

- Added tin overdlow alarm above the tin box on both sides of the tin pot
- When the tin overflow from the pot, the software interfacepops up a warning message of overflowing tin, and stop the wave motor output avoid the larger area of tin overflow risky.

Quick release tin pot anti-oxidation sleeve

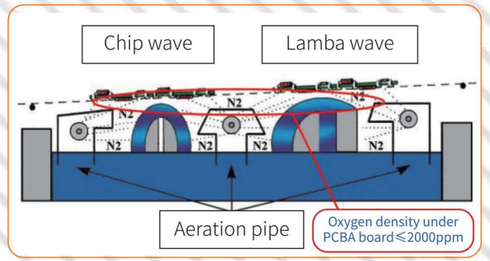
- Without removing the motor mounting plate, the tin slag in the anti-oxidation sleeve can be cleaned out, saving the maintenance time of the anti-oxidation sleeve.

Tin furnance tin level detection function

- Floating ball type tin level detection device
- The tin pot detection adopt titanium dloat type, the height of the floating ball can be adjusted according to the needs of customers to detect the tin level, the sensor can detect the height of the floating ball, if low tin is sensed, the software interface will pop up a low tin warning message

Nitrogen system

- GXS series nitrogen system (option) adopt standard open diffuse nitrogen filling structure
- Special nano nitrogen tube, ensure uniform and controllable airflow in the soldering area of the tin furnance, save nitrogen consumption Easy disassembly and assembly, simple maintenance



Wind pressure alarm function (option)

- Exhaust detection is to detect the spray volumn by the differnt presuure, the stardard is 12m/min
- On the normal production, when the filer and external pipe was block, the exahust is less then 12m/min, it will alarm.

Preheating board drop alarm function (option)

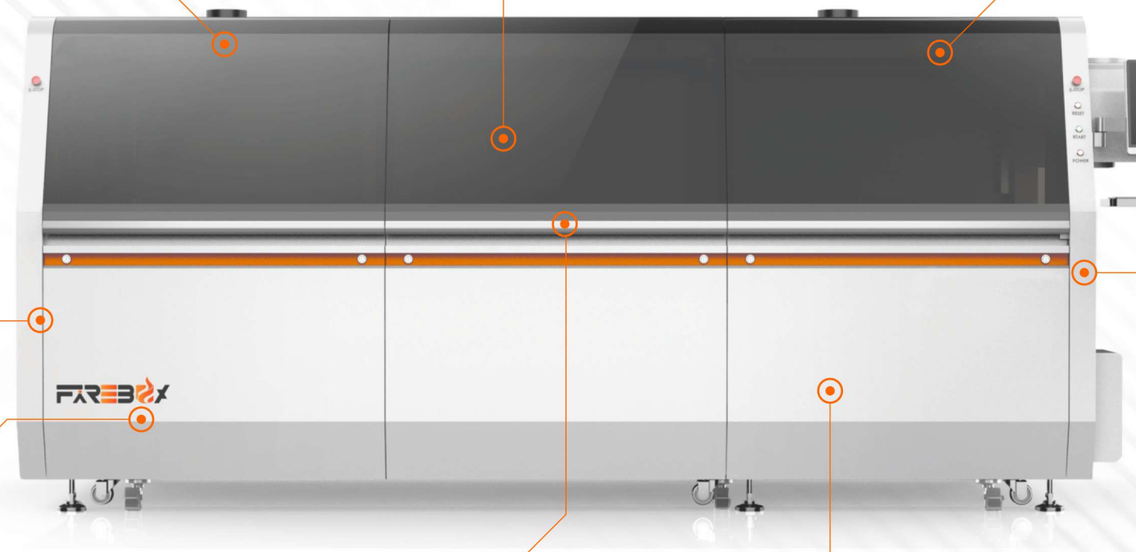
- Real-time physical induction in the whole preheating zone sound and ligth will alarm wwhen the board is dropped solve the dealay problem caused by traditional software timing calculation to determine whether the board is dropped.

Solder pot heating abnormal alarm

- When the solder pot starts heating normally, if the air switch trips or heating tube is damaged, the temperature cannot be heated normally, and the equipment will alarm after 15 minutes
- To deal with the risk of delaying the production progress due to abnormal heating during the tin melting process when the tin melting is started regularly Can be solve the problem earlier.

Mixed board function (option)

- The different products with same width, after the scan the code, the corresponding product formila file can be retrieved
- Condition: When the customer PCBS have same width, flux soldering process angle, the can be indetified by scanning the code and soldering
- Orocess conditions: Conveyor speed (mm/min), preheating temperature (°C), preheating motor rate (Hz), wave rate (Hz), solder pot height (mm), flux nozzle speed (mm/s), flux type (-xx) , flux flow (mL/min)



Tin furnance height, one-key entry and exit function (option)

- Automatically control: one key move in, one key move out,
- The intelligent height display of the solder pot can automatically adjust the input value, and the accuracy error is +/- 0.02 mm. Its is saved in the recipe file and retrieved with one key

AI recognition function (option)

- Through face recognition, automatically enter the relevant authority account operating software

Upgraded version of the whole steel wire knife function (option)

- Its is intalled on the entrance an exit side door panels, and the height of
- the wire support can be adjusted
- Solve the products of customers with bare boards and large PCB size to prevent PCB deformation

Preheating, tin pot heating inspection protection function (option)

- This function inspects whether the heating wire is dry due to the non-rotation of the motor in each temperature zone . The maximum setting is 400°C. This function is a secondary independent protection function of the equipment.

Satey door function(option)

- When opening the door, the machine will automatically alarm, the PC sofware
- will pop up the security door opening alarm prompt, and buzzer will prompt
- Prevent dangerous operation when the machine is running
- Follow the production principle of people-oriented, safety first.

Hot air preheating, wave motor speed detection function (option)

- Monitor preheating motor, wav motor speed in real -time
- The speed r/min can be directly addesd to the recipe file
- When the mmotor fails and does not rotate, in can alarm and respond in time

Software System

Software interface optimization, simple and clear, build-in a variety of intelligent modules

IO signal monitor function

- The input and output status of circuit signal ca be viewed on the software, which is convenient for quickly finding line problems

Real time temp control monitor

- Solder pot, preheating temp control profile real time monitor system, can be know the dynamics freely

Software OTA line update and remote monitor

- Automatically update the software by internet
  Through the remove monitor system, can check the PLC program by real-time, and provide tchnology support

Statics on producction capacity and equipment operation status

- It can generate the daily, monthly yearly report by idetity real PCB quiality (Histogram or graph)
- Monitor the usage status of the equipment, and can calcualte the equipment usage rate by running, waiting, alarming and stopping the current machine, which in convenient for production query management

Smart maintenance and accessory remplacement tips

- Customized the maintenance item, interval time, automatic reminders at the scheduled time and upload in to the MES system, so that customers can reasonably arrange production capacity
  Acoording to the operating status of the equipment, the software automatically counts the services life of key components and automatically prompts maintenance and remplacement, helping customers reduce downtime losses caused by parts problems

Electrical Control System

Optimized the control system, the whole system adopts the PLC-compatible structure design of mitsubishi and inovance ect brand.

Optimized the control system

- Mitsubishi PLC equipped with Dalian institute temperature control system, and the operation is satble and raliable Optional Mitsubishi PLC and megmeet temperature control module, strong configuration compatibility, Mitsubishi PLC with RKC temperature control system makes thermal management more perfect

I/O Compatibility structure design of control system

- Compatible with inovance PLC Dalian ligog temperature control module, the control system can be switched lfrely without modification

Peripherals of Wave Soldering

FS Series Selective Fully-Auto Spray Fluxer

(Selective spray, Ultro sonic full spray, ultro sonic +selective spray)

- Wave Soldering periphreal Equipment
- It can be connected online with wave soldering machine equipment to ralize fully automated
- Use PLC+PC computer, fully digital setting and display
- Driven by famous stepping motor, and the transmission speed is stable realiable to ensure uniform spraying of flux

① Optional flux spray stop alarm, over-limit alarm function
② Optional flux flow electronic monitor function
③ Optional flux flow closed-loop control system, the minimum control can achieve +/- 2ml
④ Optional of nozzle are available: meijiST-6, spree air pressure nozzle, electronics spray guns
⑤ Optional X-axis large stroke mode to achieve round-trip spraying along the transport direction (selective spraying)

Model	FS-450S-IV	FS-610S-IV
Dimension(L×W×H)	1300*1400*1600 mm	1400*1560*1600mm
PCB Width	50-450mm	50-610mm
Conveyor Height	750 ± 20mm （Option:950±20mm）	
Conveyor Direction	L→R （Option:R→L）	
Conveyor Speed	0 ~ 1.8m/min （Selective spray according to the solder point）	
Capacity of Flux Tank	20L	

INLET Conveyor

- Wave soldering periphreal equipment
- Used to connect the front of wave soldering machine between the production line

Model	INC-350A/B	INC-450A/B
Dimension	1000×700×750(mm)	1000×800×750(mm)
PCB Width	50 ~ 350mm	50 ~ 450mm
PCB Direction	L→R （Option:R→L）	
Speed	0 ~ 2000mm/min	
Transmission Length	1000mm	
Conveyor Hight	750 ± 20mm	
Belt Material	A is Antistatic ESD belt , B is chain	

OUTLET Conveyor

- Wave Soldering periphreal equipment
- Three-row cooling fan design to minimize PCB and component temperature
- Optional conveyor: belt and steel mesh belt

Model	OUC-400A/B	OUC-500A/B	OUC-650A/B	OUA-500/650
Dimension	1300×555×1200(mm)	1300×655×1200(mm)	1300×805×1200(mm)	2000×985/1135×1200(mm)
PCB Width	400mm	500mm	650mm	50 ~ 500mm 50 ~ 650mm
PCB Direction	L→R （Option:R→L）			
Conveyor Speed	0 ~ 2000mm/min			
Conveyor Length	430mm+870mm			370mm+1100mm+550mm
Height Adjustable	750 ~ 1200mm			

GXS Series wave soldering specification

Model	GXS-350M/450M	GXS-350H/450H	GXS-610H
Dimension (L×W×H)	3885×1661×1710mm(3 preheating zones)	4385×1661×1710mm(4 preheating zones)	4585×1821×1710mm(4 preheating zones)
External device dimension	1300×1370×1595mm	1300×1370×1595mm	1400×1510×1595mm
Weight	1700KG	1800KG	2100KG
Power supply	3P5W 380V AC 50/60Hz 63A	3P5W 380V AC 50/60Hz 85A	3P5W 380V AC 50/60Hz 120A
Total power	37KW (+6KW/PCS add one preheating)	43KW (+6KW/PCS add one preheating)	63KW (+10KW/PCS add one preheating)
Operating power	⩽8KW /⩽9KW	⩽10KW /⩽11KW	⩽13KW
Spray mode	External air pressure full spray (Option:sleective/ultrasonic spray)		
Spray suction mode	PCB up/bottpm with strong centrifugal fan		
Spray flow	10~100ml/min		
Flux automatic addition	Equipped with corrosion-resistant air-operated diaphragm pump		
Needle valve pressure	0.2Mpa~0.3Mpa		
Flux nozzle	ST-6 lumina Imported atomizing nozzle(1.3mm) Option:ultrasonic nozzle/Electronic nozzle (with atomization)		
Nozzle drive	Stepper + Linear Bearing Module		
Air consumption	1-6m³/h		1-7.2m³/h
Preheat mode	Hot air IR		
Preheater heating pipe	380VAC 3KW×2 下3KW×2 上 (Hot air) —380VAC 1.2KW×6 下1.2KW×5 上 (350红外) 380VAC 1.5KW×6 下1.2KW×5 上 (450 IR)		380VAC 5KW×2下/3KW×2上 380VAC 2KW×6下/2KW×5上
Preheat zones number	3 option(TOP MAX 3PCS)	4 option(TOP MAX 4PCS)	4 option(TOP MAX 4PCS)
Preheat zone length	1800mm	2300mm	
Preheat temperature	Room~230°C	Room~250°C	
Preheating temperature control mode	PID+SSR mode		
Control accuracy	±5°C		
Preheating temperature rise time	⩽15min		
Furnace liner materia	cast iron + enamel process (Option:full titanium alloy)		
Power of heating tube of tin furnace	18KW		21KW
Tin furnace capacity	480KG / 550KG	480KG / 550KG	800KG
MAX temp of tin furnace	MAX: 300°C		
Temp control method	PID+SSR		
control accuracy	±2°C		
Wave driving powe	1/4 HP×2 3P 220VAC (350) —1/2 HP×2 3P 220VAC (450)		1/2HP×1+1HP×1 3P 220VAC
Peak height adjustment mode	Inverter		
Wave height	0-15mm Option:15-20mm		
Tin furnace trolley	Manual+electronic solder pot trolley		
Inlet connection device	connection inlet device (length 300mm)		connection inlet device (length 500mm)
Width range of PCB	50-350mm(350) / 50-450mm(450)		50-610mm
PCB board component height	Up 120mm,Bottom 25mm (Hot air top 110mm)		
PCB inlet transport height	750±20mm （Option:addtion 100mm 150mm 200mm 250mm）		
Transport guide rail inclination	setting：5.5°±0.5° (4°—7°adjsutable)		
PCB transmission speed	300~1800mm/min		
Speed regulation mode	closed-loop inverter		
Width adjustment mode	Manual+electronic adjsutment		
Track bearing capacity	heavy duty finger 60KG (V/L finger) Option:commen 30KG (V/L finger)		
Transportation accuracy	±5%		
Cooling mode	forced air cooling		
Exhaust air volume requirements	15 m³/ min x 2 diameter Φ200mm	15 m³/ min x 3(channel) Exhausts diameter Φ200mm	
Flux flow over limit alarm	Optionthe flow over/lower the setting value will be alarm		
Flux closed loop control	Option (only the exteral spray fulx) Accurate control of flux amount for each board		
Bar code gun	Option Bind PCB board data upload, switch PCB program		
Energy saving management	Option		
Nitrogen system	Option		

*The above contents are subject to change without further notice!

EXS Series wave soldering specification

Model	EXS-350	EXS-450
Dimension (L×W×H)	4385×1661×1710mm	4385×1661×1710mm
Weight	1700KG	1700KG
Power Supply	3P5W 380V AC 50/60Hz 63A	3P5W 380V AC 50/60Hz 63A
Total power	37KW (+6KW/PCS add one preheating)	37KW (+6KW/PCS add one proheating)
Operating power	⩽8KW	⩽8.5KW
Spray Mode	In-build full air spray (Option:inbuild ultrasonic spray)	
Flux Automatic Addition	Equipped with corrosion-resistant air-operated diaphragm pump	
Needle Valve Pressure	0.2Mpa~0.3Mpa	
Flux Nozzle	ST-6 lumina Imported atomizing nozzle(1.3mm)Option:Ultrasonic nozzle	
Nozzle Drive	Stepper + Linear Bearing Module	
Air Knife For Spray Box	The front and rear of the spray box are equipped with air knives, and the air knives at the spray outlet are equipped with ventilation slots.	
Preheat mode	Hot air IR	
Preheater heating pipe	380VAC 3KW×2 bottom 3KW×2 Up (Hot air) 380VAC 1.2KW×6 botom 1.2KW×5 up (IR)	380VAC 3KW×2 Bottpm 3KW×2 Up hot air 380VAC 1.5KW×6 bottom 1.2KW×5 up IR
Preheat zones number	3 Option:Top heating (MAX 3PCS)	
Preheat zone length	1800mm	
Preheat temperature	Room~230°C	
Preheating temperature control mode	PID+SSR	
Control accuracy	±5°C	
Furnace liner materia	Castiron+Enamel processing (Option:full titanium alloy)	
Power of heating tube of tin furnace	18KW	
Tin furnace capacity	480KG	550KG
MAX temp of tin furnace	MAX: 300°C	
Temp control method	PID+SSR	
control accuracy	±2°C	
Wave driving powe	1/4 HP×2 3P 220VAC	1/2 HP×2 3P 220VAC
Wave height	0-15mm Option:15-20mm	
Inlet connection device	Inlet connection device (length 300mm)	
Width range of PCB	50-350mm	50-450mm
PCB board component height	up 120mm,bottom 25mm	
PCB inlet transport height	750±20mm Option: addtion:100mm 150mm 200mm 250mm	
Transport guide rail inclination	出厂：5.5°±0.5° (4°—7°adjustable)	
PCB transmission speed	300~1800mm/min	
Speed regulation mode	closed-loop inverter	
Width adjustment mode	Manual (Option:manul+electronic)	
Track bearing capacity	Heavy duty finger 60KG (V/L finger) Option: 30KG (V/L finger)	
Transportation accuracy	±5%	
Cooling mode	forced air cooling	
Exhaust Volume	15 m³/ min x 3 (channel) Exhausts diemeter Φ200mm	

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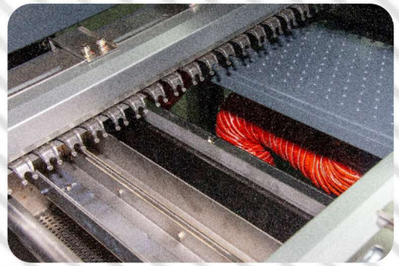
Wave Solder

- Closed loop with inverter control system to keep the stability and accuracy of the conveyor speed
- The assistant pressure device nearby the entrance to prevent the PCB from slipping
- Spray nozzle driving by stepping motor is to make sure the coating uniformly
- Module desing of spray fluxer system and the desing of nozzle always be perpendicular to rail, which can make sure the flux penetrates PCB easily
- Forced air cooling system to attain the cold-down slope as per lead-free required
- Conveyor angle can easily be adjusted by manual
- Standard with hot air heating for preheating zones
- Module desing suitable for SMT & THT components soldering
- Exhaust adopt centrifugal fan with double filters to avoid any flux drop to PCB
- The level of flux container is controlled by non-contact sensors to ensure no corrision and longer life
- Flux spray nozzle with self-cleaning system
- Standard with air knives to prevent flux expand to preheat zone
- Wave height control adopted with inverter, it can be set individually
- 1/4 HP high power mechanical pump to meet the wave as high as 15 mm
- Light & sound alarm, emergency stop and over-load protection.

Model No.	WS-350	WS-450
Dimensions (L×W×H)	4401*1582*1735mm	4401*1582*1735mm
Weight	Approx. 1800KG	
Source Power	AC 380V3Φ5W 50/60Hz; 37kw （Option: AC 220V 3Φ5 50/60Hz ）	
Operating Power	Operating Power ⩽9KW	Operating Power ⩽10KW
Preheating Time	⩽ 18min	
Temperature Range	Room temperature-230°C	
PCB Width	50~350mm	50~450mm
PCB Clearance	上 120mm/ 下 25mm top 120mm / bottom 25mm	
Conveyor Direction	L to R （Option : R to L ）	
Conveyor Height	750±20 mm (Entrance)	
Conveyor Speed	300-1800mm/min	
Device Layout		
Heating Zones	3 bottom hot air preheating zones	
Temp. Control Mode	PID + SSR	
Control System	PC+PLC	
Spray System	Internal Stepping motor spray	
Conveyor Finger	(60KG) Heavy duty double -hook finger claw	
Pot Capacity	480kg	550kg
Pot Operation Mode	Mechanical Pump	
Pot Material	Cast iron + Enamel processing	
Cooling Method	Forced Air Cooling	



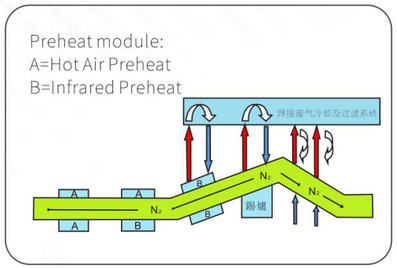
Wave Solder

- The hot air preheating u-shaped heater, long service life, reduce maintenance dowtime
- Internal reinforcement insulation plus optional external protection device can effectively reduce the heat loss, energy saving up to 20% compare with traditional equipment
- Low equipment surface temperature can optimize the working environment
- External spray fluxer, safety, cost, space and maintenance problems resolved.
- External spray fluxer combined the advantages of inner and independent spray, the spray and machine can be integrated control, no increase in cost.
- Spray fluxer away from preheating zone, and ensure safety and clean
- Transportation of new type titanium allow heavy duty claw, sectional guide rail desing, stainless steel strip supported in guide rail, long life.
- The solder pot adopts special materials. Anti corrosion coating on surface
- Adopt imported precision nozzle, atomization uniformity, high efficient.
- The large promotion of solder pot
- Nozzle quick released, reduce maintenance time, 2 hours to few minutes
- Grid type of mesh, reduce the mesh block by solder dross monthly
- Optional solder supply device, reduce the influence of wave height caused by the change of tin solder level.

Model No.	350 Series		450 Series		610 Series
	SMART-350-M	SMART-350-H	SMART-450-M	SMART-450-H	SMART-610-H
Dimension(L×W×H) mm	3945*1582*1735	4445*1582*1735	3945*1582*1735	4445*1582*1735	4645*1742*1735
Spray Fluver Dimensions	1300*1350*1595mm				1400*1510*1595mm
Power Supply	AC 380V 3Φ5W 50/60Hz （Option ：AC 220V3P 50/60Hz）				
Initial/Operating Power	45KW/≤9KW	65KW/≤11KW	45KW/≤10KW	65KW/≤12KW	90KW/≤13.5KW
Starting power	30KW	30KW	30KW	30KW	40KW
Air Source	0.5-0.8Mpa				
Control System	PC+PLC				
Flux Flow	10～100ml/min				
Exhaust Tube Diameter	ф 200 mm				
Exhaust Mode.	Upward				
Preheat Mode	IR/Hot Air				
Preheat Zone Number	3 zones/1800mm	4 zones/2300mm	3 zones/1800mm	4 zones/2300mm	4 zones/2300mm
Preheat Temp. Range	230 ℃	250 ℃	230 ℃	250 ℃	280 ℃
Temp. Control Mode	PID+SSR				
Solder Pot Type	Mechanical Pump				
Pot Capacity	Approx. 480kg		Approx. 550kg		Approx. 800kg
Max. Soldering Temp.	MAX ：300 ℃				
Wave Driving Power	1/4 HP X2		½ HP X2		½ HP X1+1HP X1
Wave Height Control	Inverter				
Heat Up Time	Approx . 140min (265 ℃)		Approx . 150min (265 ℃)		Approx160min:265℃)
PCB Conveying Speed	300～1800mm/min				
The Width Of PCB	50-350mm		50-450mm		50-610mm
Component Height	Top： 120mm Bottom ：25mm				
Transport Height	750±20mm (Entrance)				
Conveyor Angle	4～7°Adjustable				
Conveyor Finger	（60KG） Heavy duty double -hook finger claw				
Speed Control Mode	Inverter				
Cooling Method	Forced Air Cooling (Opiton:chiller)				
N2 System	SMART-350-M-N	SMART-350-H-N	SMART-450-M-N	SMART-450-H-N	SMART-610-H-N
Nitrogen Consumption	$15m^3/h$ 2000ppm				$18m^3/h$ 2000ppm
Pressure Nitrogen Source	0.5～0.8Mpa				
Oxygen Nitrogen Source	≤10PPM				
Oxygen Analyzer	Option				

Wave Solder

- Nitrogen closed-loop control A real-time monitoring nitrogen concentration and PID closed-loop nitrogen flow to realize the stable PPM value
- Increase Solder Stability by nitrogen protecting can improve the wetting of wave infiltration and promote solder penetration rate to make sure the stable quality
- Reduce solder defect The tunnel-based entire nitrogen wave soldering can reduce solder defect and improve production efficiency with less oxygen content.
- Save cost the equipment maintenance cost could be decreased effectively by a closed preheating environment



Model		NXS-450	NXS-610
Parameters	Dimension(L×W×H)	5920 x1620x1735mm	5920 x1795x1735mm
	Supply Power (3 phases 5 wires)	3P5W 380V AC,50/60Hz 100A	3P5W 380V AC,50/60Hz 130A
	Required Initial Power	75KW	85KW
	Required Air Source Power	0.5-0.8MPa	
	Total Power	60KW	73KW
	Operating Power	⩽13KW	⩽15KW
	Control Method	PC+PLC	
Spray System	Flux Flow	10-100ml/min	
	Spray Pressure	0.25MPa-0.4MPa	
Preheating System	Preheating Method	Hot air/IR for option (module)	
	Speed Adjustment Mode	Hot air Inverter	
	Quantity	Optional (preheating multi zone sectional control)	
	Length	2250mm (Option:1950mm)	
	Temp.Range	Room temperature ~ 280 ℃	
	Temp. Control Mode	PID+SSR	
Soldering System	Wave Peak Operation Mode	Mechanical pump	
	Power for Heating Tube	18KW	20KW
	Pot Capacity	Approx 550KG	Approx 780KG
	Ultimate Bearing Temperature	MAX:300 ℃	
	Ultimate Usage Temperature	MAX:280 ℃	
	Wave Peak Driven Power	0.75KW x 2	1.0KW x 2
	Height Adjustment Mode	Closed loop servo control speed	
	Heating Time	约130min（设定温度:265℃）	约160min（设定温度:265℃）
	Wave Peak Select	Dual-wave: spoiler+flat or spoiler+spoiler	
	Wave Height	0~15mm	
PCB Conveyor System	Conveying Speed	500-1800mm/min	
	Width Range of PCB	50-450mm	50-610mm
	Length Range of PCB	120-600mm	120-1000mm
	Height of PCB Component	Top:150mm Bottom:8 ~ 25mm	
	Conveyor Height	900±20mm	
	Angle of Rail	5.5°±0.2° fixed	
	Motor Rotation Mode	Sectional transimmission/control	
	Conveyor Motor Power	0.75KW x 3	
	Conveyor Mode	fragment conveyor: chain→fingers (V+L/full V/full L)→ chain	
	Conveyor Motor Speed Adjustment	Closed loop servo control speed	
Gas Paramters	Nitrogen Source Pressure	0.5-0.8MPa	
	Nitrogen Source Oxygen Content	⩽10PPM	
Others	No. of Nitrogen Flowmeter	7pcs	
	Exhaust Fan	220VAC 750W	
	Diameter of Exhaust Duct	ϕ200mm	

Integrated Selective Soldering

- Spray Fluxer + Preheating + Soldering module, integrated desing, flexible configuration and free expansion.
- The point soldering module and the soldering module arw freely matched and combined.
- The most efficient selective soldering module.
- Sectional modular transmission structure.

Model	SH-3D-450	SH-3D-610
Parameters		
Dimension L×W×H	2600×1800×1650mm (1-2pot)	3350×1950×1650mm
Transporting System		
PCB Width	60-450mm	60-610mm
PCB Length	120-500mm	120-700mm
PCB Top Space	Max：120mm	
PCB Bottom Space	Max：50mm	
PCB Edge Size	4mm	
Conveyor Height	900±20	
Conveying Speed	0.2-10m/min	
PCB Weight	Max：5kg	
Fluxer Module		
Flux Capacity	2L	
The Size of Flux Nozzle Tube	130um	
Flux Width	2-8mm	
Preheating Module		
Bottom movable Infrared Heater	Max：14KW	Max：18KW
Temperature Range	Room Temperature-250℃	
Top Air Heater	Max：6KW	Max：8KW
Soldering Module		
Min Diameter of Solder Nozzle	Φ 2.5/4	
Wave Height	3～5mm	
Solder Pot Capacity	8KG/13KG	
Soldering Temperatu re	Max： 350℃	
Heating Time	40min/(300℃)/75min/(300℃)	
Pot Heating Power	1KW/Single pot	
Location Speed	X/Y：2-200mm/s	
Temp.Control Accuraey	±2℃	
Soldering Accuraey	±0.5mm	
Control System		
PC Operating System	Windows 10	
Process Visualization	CCD Visual	
Software Language	Chinese and English Changeable	
Programming Mode	Inline/Offline Programming	
Data Import	Gerber Image Introduction	
Air System		
Air Supply	N2/O2	
Required Pressure	0.4-0.8Mpa	
N2 Consumption	Each consumes about 1.5-2 m^3/h	
N2 Concentration	⩾ 99.999%	
Electrical Parameter		
Power Supply	AC 380V 3Φ5W 50/60Hz	
Consumption	35KW	
Air Exhaust		
Air Duct Diameter	Φ 200mm	
Exhaust Air Rate	360～900 m^3/h	

Smartcell-400

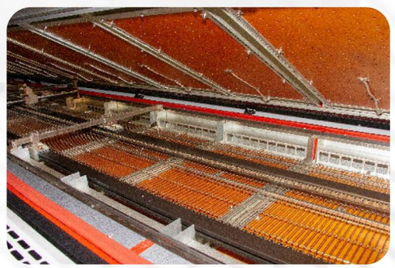
- The soldering for double-side PCB can be applied automatically
- Offline programming function/ Gerber file can be applicable
- Without any initial PCB data, the figure can be loaded quickly with simple & fast graphic programming; Selective flux spraying can control the flux processing accurately as well as keeping the clear surface of PCB with extremely low flux consumption.
- The temperature controls for top and bottom preheating is independent Infrared heating can improve heating efficiency and keep temperature uniformity
- Transmission speed of wave nozzle is adjustable, inline wave height monitoring system and automatic calibration function
- Adopted CCD camera to monitor solder processing, the soldering quality can be traced in whole processing.

MIS-300/450

Model	Smartcell-400	MIS-300	MIS-450
Parameters			
Dimension(L×W×H)	1650×1800×1650mm	800×1400×1400mm	1000×1550×1400mm
Transporting System			
PCB Width	60-400 mm	60-300 mm	60-450 mm
PCB Length	120-400 mm	120-330 mm	120-530 mm
PCB Top Side Clearance	Max.120 mm		
PCB Bottom Side Clearance	Min.50 mm	Min.30 mm	
PCB Edge Clearance	4 mm		
Conveyor Height	900±20		
Conveying speed	0.2-10M/min		
Pallet/PCB weight	Max:5kg		
Flux Module			
Flux Capacity	2L		
The Size of Flux Nozzle Tube	130um (Double Nozzle is option)	130um	130um (Double Nozzle is option)
Flux Width	2-8mm		
Preheat Module			
Bottom Dynamic Infrared Heater	Max:9KW	——	
Temperature Range	RT~250°C	——	
Top Air Heater	Max:6KW	——	
Temp. Control Accuracy	±5°C	——	
Soldering Module			
Min Diameter of Solder Nozzle	Φ2.5/4		
Wave Height	Max.5mm		
Solder Pot Capacity	8KG/pot		
Soldering Temperatu re	Max ：350 ℃		
Heating Time	40min/(300 ℃)		
Pot Heating Power	1KW/Single pot		
Location Speed	X/Y 2-200mm/s Z：2-50mm/s		
Soldering Accuraey	±0.5mm		
Control System			
PC Operating System	Windows 10		
Process Visualization	CCD Visual		
Software Language	Chinese and English Changeable		
Data Import	Gerber Image Import		
Programming Mode	Inline/Offline Programming		
Electrical Parameter			
Power Supply	AC,380VAC 3Φ 5W 50/60Hz		
Consumption	22KW	4.5KW	
Air Exhaust			
Air Duct Diameter	Φ200mm		Φ150mm
Exhaust Air Rate	360 M^3/ h		
N2 Technology			
Pressure	0.4-0.8 Mpa		
N2 Consumption	Each onsumes about 1.5~2 M^3 / h		
Concentration	≥99.999%		

Reflow Oven

- Reinforced main hanging bracket to avoid rail deformation and board jamming.
- Multi-layer thermal insulation desing. The surface temperature of the oven body is reduced by 10 to 20 degrees, reducing the temperature of the working environment effectively.
- New cooling configuration to make the filtered or reclaimed air back to oven chamber, it can reduce the thermal loss as well as get better flux collection.
- 15% heat transferring efficiency was improved to deal with the lead free process with more complicated and large products.
- The dual rails conveyor is able to improve the production efficiency as well as save power and cost.
- Use the full protection of the sealed oven desing to prevent nitrogen losing. So the lowest concentration of oxygen can be reached to 150ppm
- Nitrogen consumption is only 20-22 M/H^3 with the oxygen level 300-800ppm
- Nitrogen closed-loop control system is optional, energy saving and environmental protection.



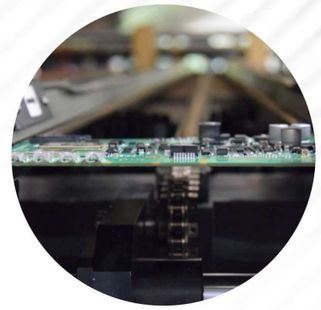
Model No.	JTR-800/JTR-800-N	JTR-1000/JTR-1000-N	JTR-1200/JTR-1200-N
Heated Length	3110mm	3890mm	4640mm
Dimensions (L×W×H)	5520 x 1430 x 1530mm	6300 x 1430 x 1530mm	7050 x 1430 x 1530mm
Net Weight	Approx. 2400KG /2500KG	Approx. 2700KG /2800KG	Approx. 3000KG/3100KG
Exhaust Volume	10m^3 /min×2 Exhausts		
Source Power	AC 380V3Φ5w 50/60Hz(optional AC220V3Φ)		
Power	Starting: 30KW/32KW Operating: 9KW/10KW	Starting: 36KW/38KW Operating: 10KW/11KW	Starting: 40KW/42KW Operating: 11KW/12KW
Heat up Time	Approx. 25min		
Temp. Range	Room temperature -300°C		
Max. Width of PCB	400mm（ Option: 460mm ）		
Component Height	30mm/ 25mm Top 30mm/Bottom 25mm		
Conveyor Direction	Option: Left to Right（ Option:Right to Left ）		
Fixed Rail Side	Option: Front Rail Fixed（Option:Rear Rail Fixed ）		
Conveyor Height	900±20 mm		
Conveyor Speed Range	300-2000mm/min		
Data Storage	Various prameters and status are storable		
Abnormal Alarm	Abnormal Temp. (Over/under Heat.) Sound&light		
Device Layout			
No.of heating zones	8\8 Top 8, Bottom 8	10\10 Top 10, Bottom 10	12\12 Top 12, Bottom 12
No.of cooling zones	3\3 Top 3, Bottom 3		
Control System	WIN10+PLC WIN10+Computer+PLC		
Temp. Control Method	PID+SSR		
Thermocouple Wire	4 wires		
Conveyor System	Rail+ Mesh		
Conveyor Control Mode	Inverter+Import Conveyor Motor		
Chain Structure	Dual-link avoid block		
Width Adjustment	Electric adjustable		
Cover Open Way	Electric open for easy maintenance.		
UPS Power	Backup power supply to ensure PCB production finish normally.		
Cooling System	Forced Air Cooling ; For “-N” Model:Forced water cooling		
Other Extend Models	JTR-800D /JTR-800D-N JTR-800L/JTR-800L-N	JTR-1000D /JTR-1000D-N JTR-1000L/JTR-1000L-N	JTR-1200D /JTR-1200D-N JTR-1200L/JTR-1200L-N
Dimensions (L×W×H)	5520 x 1660 x 1530mm	6300 x 1660x 1530mm	7050 x 1660 x 1530mm
Net Weight	Approx. 2750KG /2850KG Approx. 2700KG /2800KG	Approx. 3050KG /3150KG Approx. 3000KG /3100KG	Approx. 3350KG /3450KG Approx. 3300KG /3400KG
Heat up Time	Approx. 30min		
Range of Rail Width	50-270mm; "L" 50-610mm For “-D” Model: adjustable 50-270mm; For "-L" Model: adjustable 50-610mm		
For -N Model	-N : Nitrogen		
Nitrogen Consumption	300-1000PPM at 20M^3 /hr (standard) / 500-1000PPM at 25-30M^3 /hr (“-D" or "-L" models)		

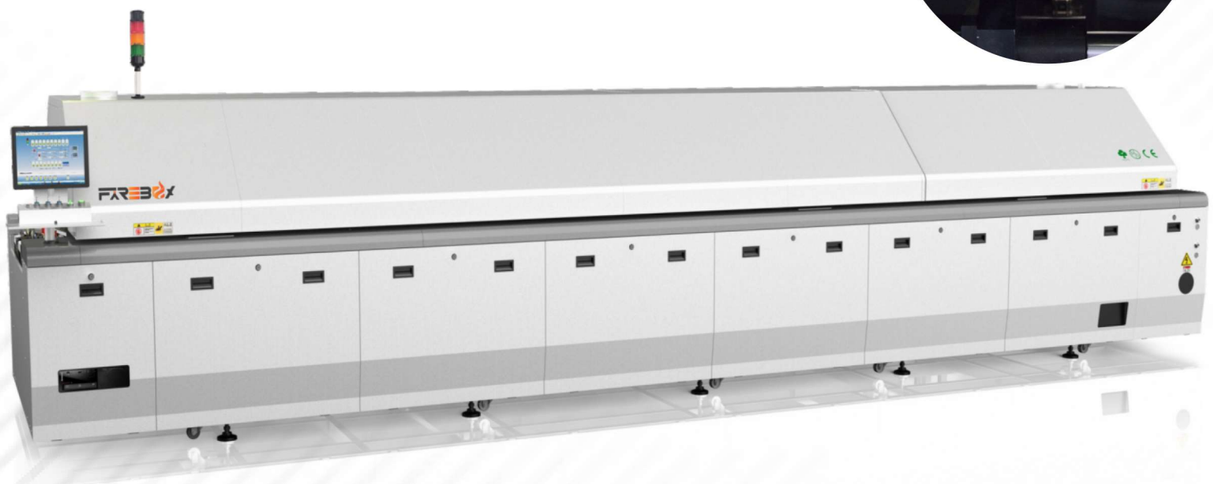
Reflow Oven

The conveyor offers a speed of up to 160 cm/min and consumes little energy, ideal for the fast and dense production of PCBA. Temperature control allows precision of +/-1°C, with a maximum difference of 100°C between zones. Improved oven insulation maintains the surface at +5°C above ambient temperature. The process controls and Nitrogen volume and oxygen density (50-200ppm) independently in each zone. Plus, the two-level flux collection system reduces maintenance. and improves efficiency.

MODEL	KTS-0804/KTS-0804-N	KTS-1004/KTS-1004-N	KTS-1204/KTS-1204-N
Dimensions (L×W×H)	5900 x 1495 x 1630mm	6622 x 1495 x 1630mm	7313x 1495 x 1630mm
Standard Color	Computer Grey	Computer Grey	Computer Grey
Net Weight	Approx. 2800KG /2950KG	Approx. 3250KG /3400KG	Approx. 3700KG/3850KG
Electric Supply	AC380V3Φ5W 50/60Hz (Optional : AC,220VΦ3 50/60Hz)		
Electric Power	65KW / 69KW	81KW / 85KW	93KW / 97KW
Power For Starting	30KW / 32KW	32KW / 34KW	37KW / 39KW
Power Consumption	7.5KW / 8.5KW	8.5KW / 9.5KW	10.5KW / 11.5KW
Components Clearance	PCB 30mm / 25mm,Top 30mm / Bottom25mm of PCB		
MODEL	KTD-0804/KTD-0804-N	KTD-1004/KTD-1004-N	KTD-1204/KTD-1204-N
Dimensions (L×W×H)	5900 x 1725 x 1630mm	6622 x 1725 x 1630mm	7313x 1725 x 1630mm
Standard Color	Computer Grey	Computer Grey	Computer Grey
Net Weight	Approx.3150KG /3300KG	Approx. 3650KG /3800KG	Approx. 4150KG/4300KG
Electric Supply	AC,380V 3Φ 5W 50/60Hz (Optional : AC,220V3Φ 选配)		
Electric Power	71KW / 74KW	89KW /92KW	101KW / 105KW
Power For Starting	33KW / 35KW	35KW / 37KW	40KW / 42KW
Power Consumption	9KW / 9.5KW	10KW /11KW	11.5KW / 13KW
Components Clearance	PCB 30mm /25mm,Top 30mm / Bottom25mm of PCB		
MODEL	KTS-0804L/KTS-0804L-N	KTS-1004L/KTS-1004L-N	KTS-1204L/KTS-1204L-N
Dimensions (L×W×H)	5900 x 1725 x 1630mm	6622 x 1725 x 1630mm	7313x 1725 x 1630mm
Standard Color	Computer Grey		
Net Weight	Approx.3100KG /3250KG	Approx. 3600KG /3750KG	Approx. 4100KG/4250KG
Electric Source	AC,380V 3Φ5W50/60Hz (Optional: AC,220V 50/60Hz 选配)		
Electric Power	71KW /74KW	89KW / 92KW	101KW / 105KW
Power For Starting	32KW / 34KW	34KW / 36KW	39KW /41KW
Power Consumption	8KW /9KW	9.5KW /10KW	11KW / 12KW
Component Clearance	PCB板上30mm / 下 25mm, Top 30mm / Bottom25mm of PCB		

- High capacity, normal working conveyor speed reached 160 cm/min. Low energy consumption, low cost. Special for the high-speed production and high density PCBA technology.
- Powerful temperature control, setting and actual temperature difference with in 1.0°C, unload and load temperature fluctuates with in 1.5°C; Rapid temperature raising ability, temperature diferrence between neighboring zone 100°C.
- The newest insulation technique and new chamber desing ensured that surface temperature is room temperature +5°C.
- N^2 volume controllable in whole process, O^2 density closed-loop contorlled independently at 50-200 ppm in every zone.
- The newest cooling technology, optional doble side multi-cooling zone, the effective cooling length is 1500 mm, make sure fast cooling of the product the lowest output temperature.
- New two level flux collection system with multi-point collection which make separation throughly, so that the maintenance time and frequency was reduced significantly
- Dual line in different speed, one set cost, double capacity, energy saving 65%

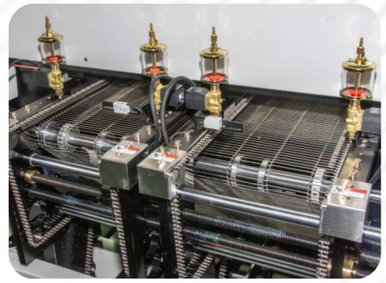


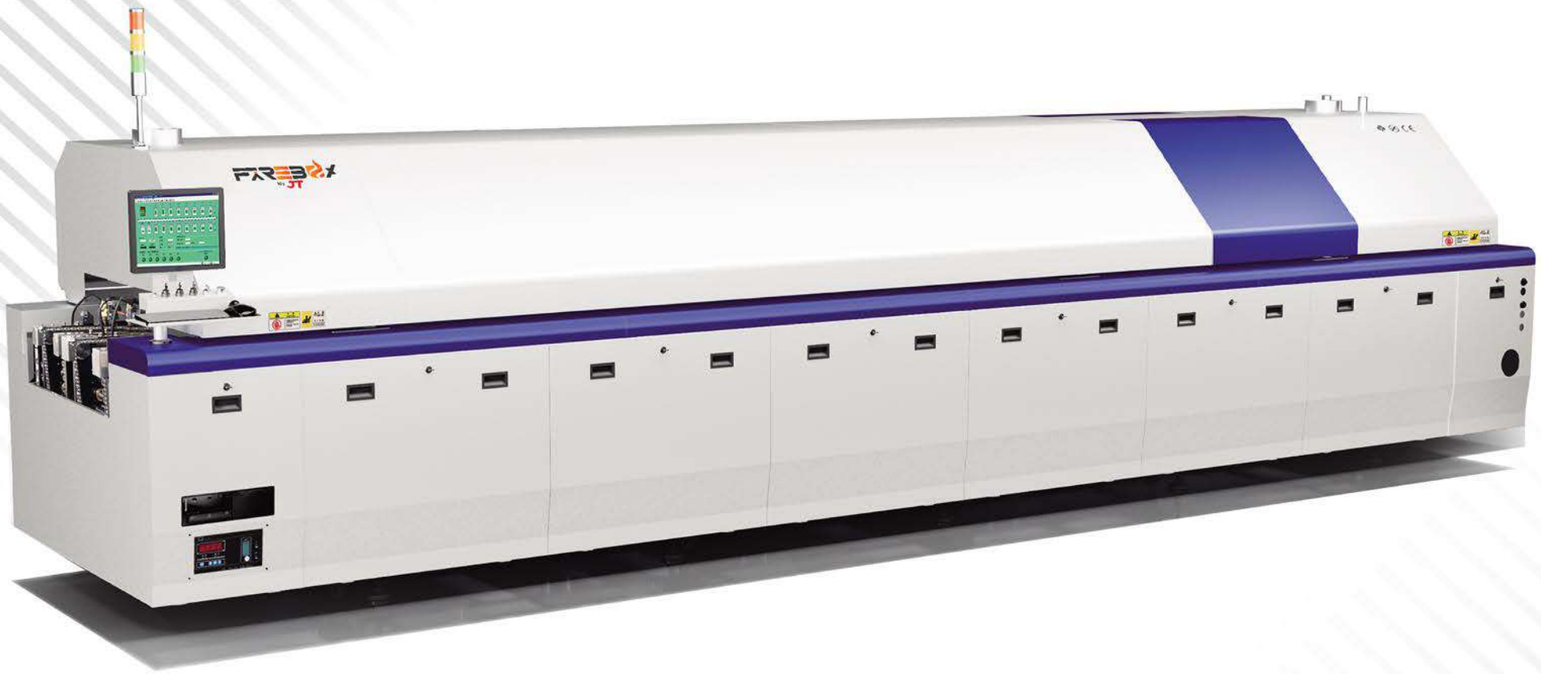


Reflow Oven

Model No.	TEA-800	TEA-1000	TEA-800D	TEA-1000D
Heated Length	3110mm	3890mm	3110mm	3890mm
Dimensions (L×W×H)	5220 x 1430 x 1530mm	6000 x 1430 x 1530mm	5220 x 1660 x 1530mm	6000 x 1660 x 1530mm
Net Weight	Approx.2250kg	Approx. 2600KG	Approx.2600KG	Approx. 2950KG
Exhaust Volume	10m3/min×2 Ducts			
Supply Power	AC; 380V 3Φ5w 50/60HZ;(Option: 220V 50/60HZ)			
Power	Starting: 30KW Operating: 9KW	Starting: 36KW Operating: 10KW	Starting: 32KW Operating: 10KW	Starting: 38KW Operating: 11KW
Heat up Time	Approx. 25min		Approx. 30min	
Temp. Range	Room temperature -300°C			
Max. Width of PCB	400mm (Option: 450mm)		270mm×2 (Single Rail 50-490mm)	
PCB Top Height	30mm/25mm Top 30mm/Bottom 25mm			
Conveyor Direction	Left to Right (Option:Right to Left)			
Fixed Rail Side	Front Rail Fixed (Option:Rear Rail Fixed)		1st & 4rd Rails Fixed (Option:1st&3th Rails Fixed)	
Conveyor Height	900±20 mm			
Conveyor Speed Range	300-2000mm/min			
Data Storage	Various parameters and storable			
Abnormal Alarm	Abnormal Temp. (Over/under-heat.) Sound & Light Alarm			
Device Layout				
NO.of heating zones	8 Top 8, Bottom 8	10 Top 10, Bottom 10	8 Top 8, Bottom 8	10 Top 10, Bottom 10
NO.of cooling zones	Top 2 Cooling Zones			
Control System	WIN10+Computer+PLC			
Temp. Control Method	PID+SSR			
Thermocouple Wire	4 wires			
Conveyor System	Single Rail+ Mesh		Dual-Rail + Mesh	
Conveyor Control Mode	Inverter+Import Conveyor Motor			
Chain Structure	Single side link avoid block			
Width Adjustment	Electric adjustable			
Cover Open	Electric open for easy maintenance.			
UPS Power	Backup power supply to ensure PCB production finish normally.			
Cooling System	Forced Air Cooling			

- Rail conveyor system
- Rail adopts special hardening treatment, more rigid and extend the service life
- conveyor chain adopts stainless flanged chain more stable conveying
- Dual-Rail Conveyor system
- The dual-rail system can enchance productivity, reduce consumption and save cost
- Reinforced main hanging bracket to avoid rail deformation and board jamming.

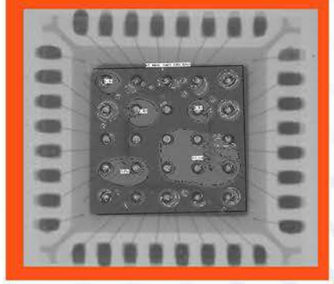




VA Excellent Award

Therlicon online vacuum assisted reflow oven can realize the mass production of vacuum soldering, vaauum module equipped, reduce the voids in a solder join by 99%, and to meer high capacity production and directly use profile from non-vacuum reflow.

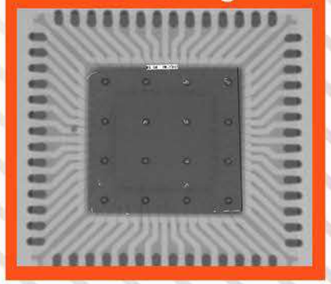
Nitrogen soldering



Void area may reach about 25%

VS

N2+Vaccum soldering



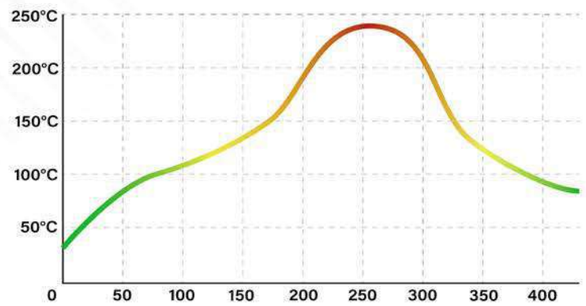
Under N2&vacuum unit applied void area can be reduced to 1-5%, also 0.5% is posible.

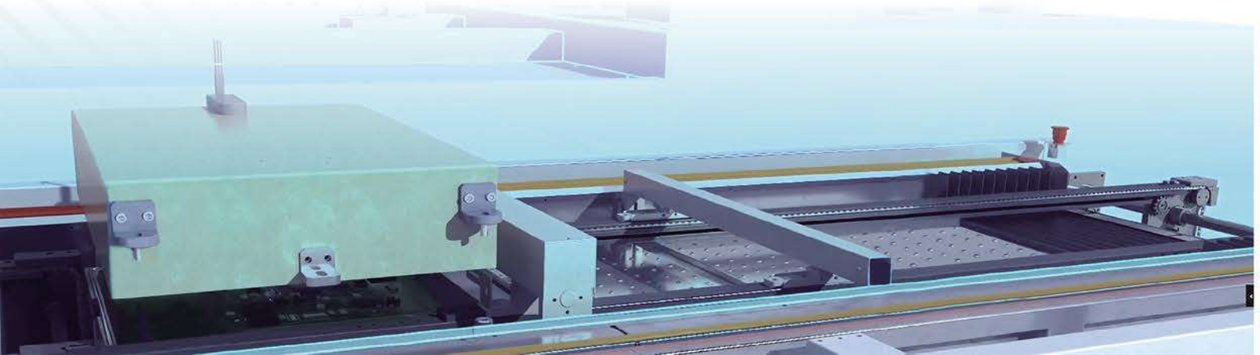
High efficiency, No voids, Low maintenance cost

Equipped TRV vacuum reflow oven can solve the blowhole, void, and gap ect problem effectively, the void rate can be lower 1% when the vacuum pressure reach 10mbar-5mbar;vacuum pressure and vacuum rate can be set separately, and save as the profile parameter. This integrated solution can make the process more stale and efficient. Avoid re-soldering or scrapping PCB boards due to high void rate, and reduce production costs.

High accurate vacuum level and temperature profile

As the same as standart reflow oven, Thermal insulation between individual heating zones, and each heating zone temperature can be adjustable individually, make sure the flexible temperature profile and soldering process. When start the vacuum process, the temperature profile can reach the setting value under the 10mbar pressure; With the help of the internal heating function of the chamber, the temperature of the components in the vacuum chamber unit can reach the conventional standart setting, ensuring an efficient and stable production process.





TRV Series Vacuum Assisted Reflow Oven Specification

MODEL	TRV-800-N	TRV-800D-N	TRV-1000-N	TRV-1000D-N	TRV-1200-N	TRV-1200D-N
Dimension	5520x1430x1530	5520x1660x1530	6300x1430x1530	6300x1660x1530	7050x1430x1530	7050x1660x1530
Color	Gray					
Weight	2500KG	2900KG	2800KG	3200KG	3100KG	3500KG
Heating zone No.	Top 8 (1 IR) / Bottom 7		Top 10 (1 IR) / Bottom 9		Top 12 (1 IR) / Bottom 11	
Heating zone length	3110mm		3890mm		4640mm	
Cooling zone No.	Top 3 / Bottom 3 (cool air convection)					
Exhaust volume	$10M^3$ / min x 2					
Electric required	AC, 380V 3ϕ 50/60Hz (Option: AC, 220V 3ϕ 50/60Hz)					
Power required	67KW	67KW	83KW	83KW	105KW	105KW
Stard-up power	32KW	34KW	38KW	40KW	42KW	44KW
Normal power	10KW	11KW	11KW	12KW	12KW	13KW
Vacum level	⩾5mbar					
Warming time	Approx 30 minute					
Temp-range	RT~350°C (Vacuum zone: RT~280°C)					
Temp-control	PID closed loop + SSR					
Temp-accuracy	±1.0°C					
PCB Temp Deviation	±1.5°C					
Heater	Especial long life heating elements					
Plate structure	Aluminum alloy plate					
Date storage	Process Date and status storage					
Abnormal Temp	Temperature abnormal alarm					
PCB drop alarm	Tricolor Signal tower					
Conveyor	Chain					
Rail structure	3 step, heating/vacuum/cooling					
PCB width (mm)	80~400	80~400 (Double guide rail) 80~420 (Single guide rail)	80~400	80~250 (Double guide rail) 80~420 (Single guide rail)	80~400	80~250 (Double guide rail) 80~420 (Single guide rail)
PCB length	Min150mm~Max300mm					
Chiller	Standard					
Flux recycle	Standard					
N^2 protection	Standard					
Oxygen analyser	Option					

The above contents are subjects to change without further notice!

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