



LED video module production solution



24小时不间断服务

1、 Manufacturing speed of each product

1. LED module product actual production efficiency;

Various pitch LED display, machine assembly LED efficiency comparison									
No.	Model	LED	Resolution/M2	Total quantity of module bulbs	LED module size	Yamaha YSM20R	Panasonic D3A	Speed for 2 machines	Speed for 2 machines
						About 60000 CPH	About 57000 CPH	57000*2=114000CPH	57000*2*10h=1140000CPH
						pcs/hour	pcs/hour	pcs/hour	Square meters/20 hours
1	P1.25	1010	640000	32768	320mm*160mm	1.83	1.74	3.48	3.56
2	P1.53	1212	422753	21632		2.77	2.63	5.27	5.40
3	P1.86	1515	288906	14792		4.06	3.85	7.71	7.89
4	P1.86	1515	288906	14792		4.06	3.85	7.71	7.89
5	P2	1515	250000	12800		4.69	4.45	8.91	9.12
6	P2.5	2121	160000	8192		7.32	6.96	13.92	14.25
7	P3.91	1921	65536	4096	250*250	14.65	13.92	27.83	34.79
8	P1.25	1010	640000	36864	320mm*180mm	1.63	1.55	3.09	3.56
9	p1.33	1010	565323	32400		1.85	1.76	3.52	4.05
10	P1.53	1212	422753	24336		2.47	2.34	4.68	5.40
11	P1.86	1515	289048	16512		3.63	3.45	6.90	7.95
12	P2.0	1515	250000	14400		4.17	3.96	7.92	9.12
13	P2.5	2121	160000	9216		6.51	6.18	12.37	14.25
14	P1.25	1010	640000	129600	600mm*337.5mm	0.46	0.44	0.88	3.57
15	P1.5625	1212	409600	82944		0.72	0.69	1.37	5.57
Speed formula: 1 pcs machine hourly capacity / total LED module LED number Example: P2.5 LED8192 320*160mm The actual speed of the machine is 57000C per hour. 57000/8192=6.958 PCS/hour								1.P2.5 modules are manufactured using 2 machines, the actual speed is 13.92 modules per hour 2.14.25 square meters/day (20 hours)	

1、 Manufacturing speed of each product

2. Actual production efficiency of the back-end production line;

Back-end production line production capacity						
Back end production line	No.	Machine name	model	Machine production time	Machine production quantity in 1 day	Remark
				PCS/sec	PCS/Hour	
P2.5 LED module back-end manufacturing cycle	1	PCB conveyor	BC-080L	8 S	450 pcs	Only PCB transfer time
	2	Selective coating machine	BL26/3	26 S	138 pcs	
	3	PCB conveyor	BC-080L	8 S	450 pcs	Only PCB transfer time
	4	UV infrared curing oven	BL27/2	15 S	240 pcs	Only PCB transfer time
	5	PCB conveyor	BC-150L	manual operation	/	Manual operation takes about 20 seconds
	6	automatic PCB shuttle	4.5M-DC	20 S	180 pcs	Only PCB transfer time
	7	PCB conveyor	BC-080L	manual operation	/	Manual operation takes about 20 seconds
	8	Online 2P screw machine	2P-ZXS320	32 S	112.5 pcs	It takes about 0.9 to 1.2 seconds to assemble one screw. The maximum value for assembling module bottom shell screws is 50PCS, 50*1.0S=50. Because the machine is assembled with dual working heads at the same time, it only takes 25 seconds + manual switching of products.
	9	glue machine	G820	28 S	128 pcs	It can support multiple modules to be glued together at the same time.
	10	Automatic drying system	BL10/6	16 S	225 pcs	Only PCB transfer time
	11	PCB conveyor	BC-150L	manual operation	/	Manual operation takes about 20 seconds
	12	Offline 2P screw machine	2P-LXS500	32 S	112.5 pcs	1. It takes about 0.9 to 1.2 seconds for the screw machine to assemble one screw. 2. The maximum number of assembly module mask screws is 100 PCS, 100*1.0=100. Because dual working heads are assembled at the same time, it takes 50 seconds.
	13	Offline 2P screw machine	2P-LXS500	32 S	112.5 pcs	3. The maximum time for this production line to manufacture 1 PCS module is 32 seconds, so it is recommended to add two screw machines, each of which takes only 25 seconds. +Manual switching of products
	14	Offline 2P screw machine	2P-LXS500	25 S	144 pcs	This machine is designed to cope with small orders, temporary expedited processing of orders or other orders, and to provide an emergency supplement to the production line.
	15			manual operation	/	
Remark	In 1 day, the production capacity of the machine production module is 112.5PCS*10 hours=1125PCS					

2、 Production line machine introduction

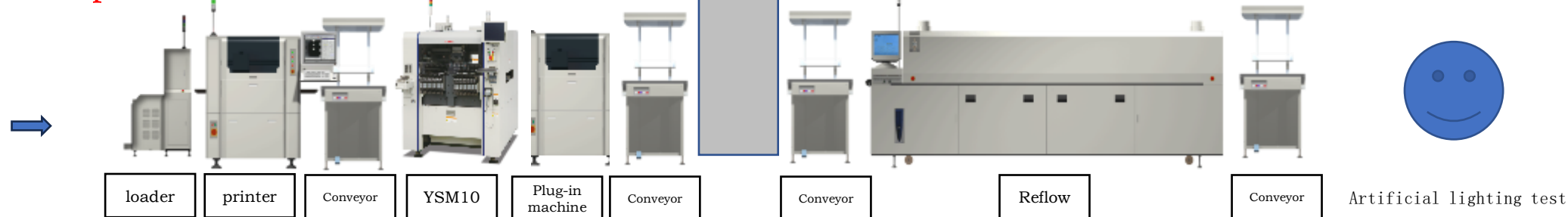
Introduction to LED module SMT production line

2、Production Line Planning

LED panel fully automatic production line



IC panel fully automatic production line



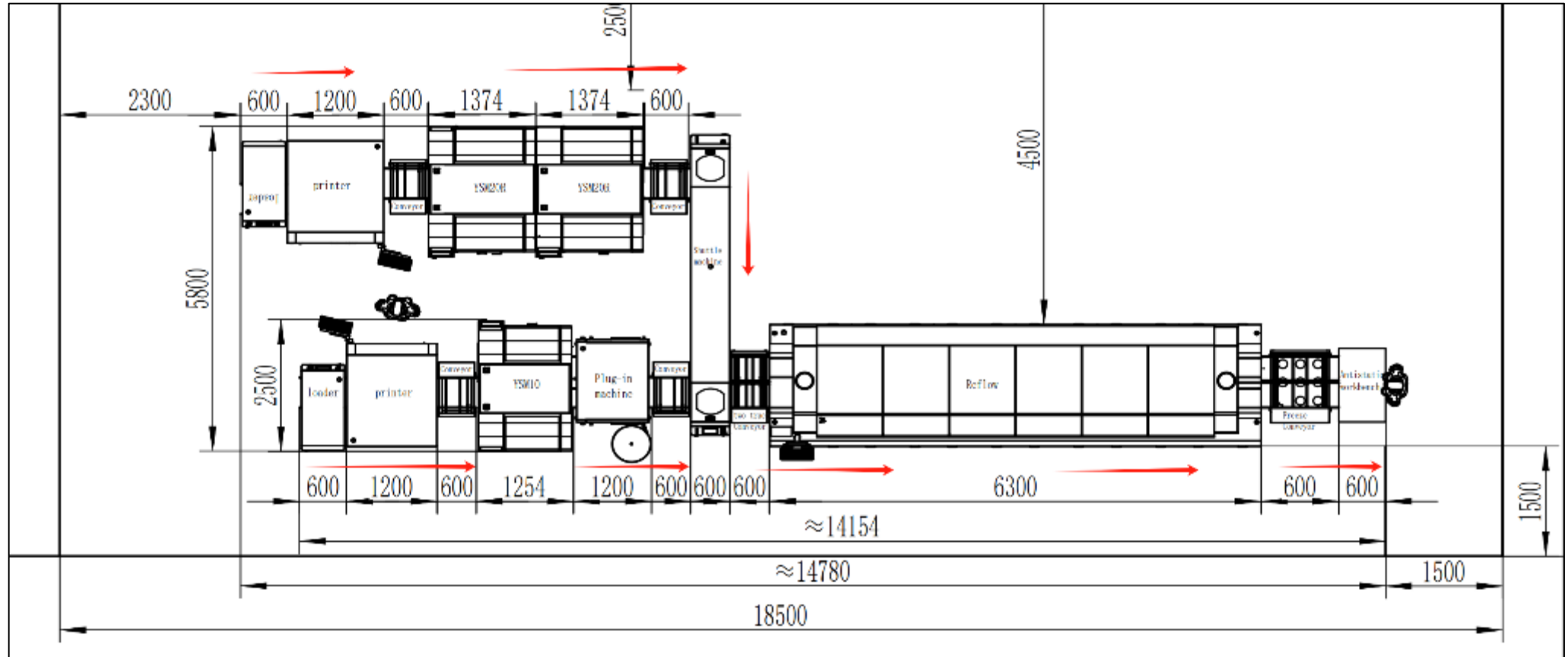
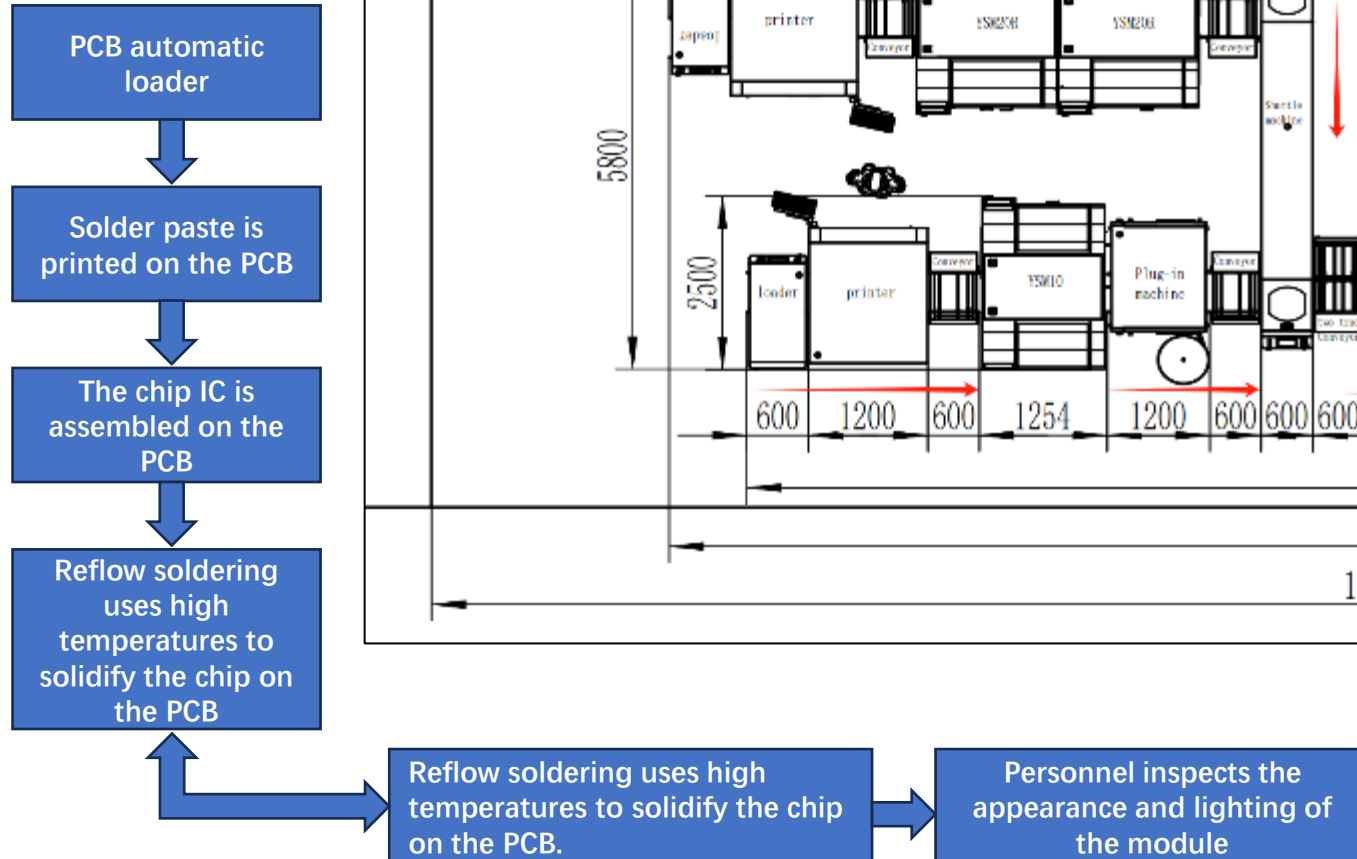
Production line features:

- This production line is a high-precision, high-speed, fully-automatic production line that processes LED panels and IC driver panels at the same time, occupying less space and reducing labor and machine costs.
- LED panel, the actual manufacturing speed is $57000 \times 2 = 114000$ CPH,
- For the IC driver side, the actual manufacturing speed is about 20,000CPH.

2、 Production Line Planning

1. Front-end production line layout and assembly line direction;

Front-end manufacturing process



2、 Production Line Planning

1. SMT production line front-end machine size and power details;

SMT Line													
gaps between machines	Front-end production line	No.	Machine name	Flow direction	model	Machine dimensions (mm)			weight (kg)	Rated voltage	power	Air pressure (0.42Mpa)	Remark fulfil requirements: PCB length 480mm*width 320mm
						L	W	H		(AC/V)	(KVA)		
615	LED production line	1	automatic loader	L to R	L350	600	550	1300	180	220V	0.5	0.45-0.6Mpa	Using a PCB magazine loader
1235		2	automatic printing machine	L to R	HG5	1220	1355	1500	1000	220V	3	0.45-0.6Mpa	
615		3	PCB conveyor	L to R	BC-060L	600	700	900	50	220V	0.15	/	With lighting stand
1389		4	pick and place machine	L to R	YSM20R	1374	1857	1445	2050	220/380V	13.9	0.55Mpa	1.79kW under standard operating conditions
1389		5	pick and place machine	L to R	YSM20R	1374	1857	1445	2050	220/380V	13.9	0.55Mpa	1.79kW under standard operating conditions
615		6	PCB conveyor	L to R	BC-060L	600	700	900	50	220V	0.15	/	With lighting stand
615	IC control surface production line	7	automatic loader	L to R	DB390	600	850	1150	100	220V	0.15	0.45Mpa	
1235		8	automatic printing machine	L to R	HG5	1220	1355	1500	1000	220V	3	0.45-0.6Mpa	
615		9	PCB conveyor	L to R	BC-060L	600	700	900	50	220V	0.15	/	With lighting stand
1269		10	pick and place machine	L to R	YSM10	1254	1440	1445	1270	220/380V	7	0.55Mpa	
1215		11	Socket pick and place machine	L to R	CJ20	1200	1485	1650	400	220V	0.7	/	PCB length exceeded, customized machine
615		12	PCB conveyor	L to R	BC-060L	600	700	900	50	220V	0.15	/	With lighting stand
615		13	automatic PCB shuttle	L to R	4.5M-PT	600	4500	1200	350	220V	0.7	/	PCB length exceeded, customized machine
615		14	Dual Channel PCB Conveyor	L to R	BC-060L-D	600	1150	920	100	220V	0.25	/	
6315		15	Dual channel reflow soldering	L to R	R10-D	6300	1550	1550	3950	380V	75	/	starting power 75KW, normal operating power 15-25KW
615		16	Dual Channel PCB Conveyor	L to R	BC-060L-D	600	1150	920	100	220V	0.25	/	
600	Summary	Total length of production line		Total production line width		The total width of the two lines			The distance between the middle areas of the production line		Total power of 2 production lines		
Actual length													
14618		13868		2500mm		5800mm			800mm		The power supply power is not less than 150KVA		

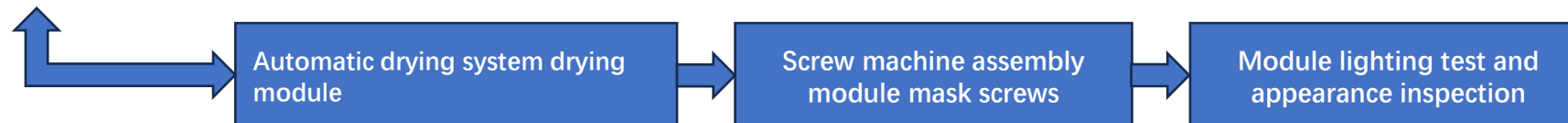
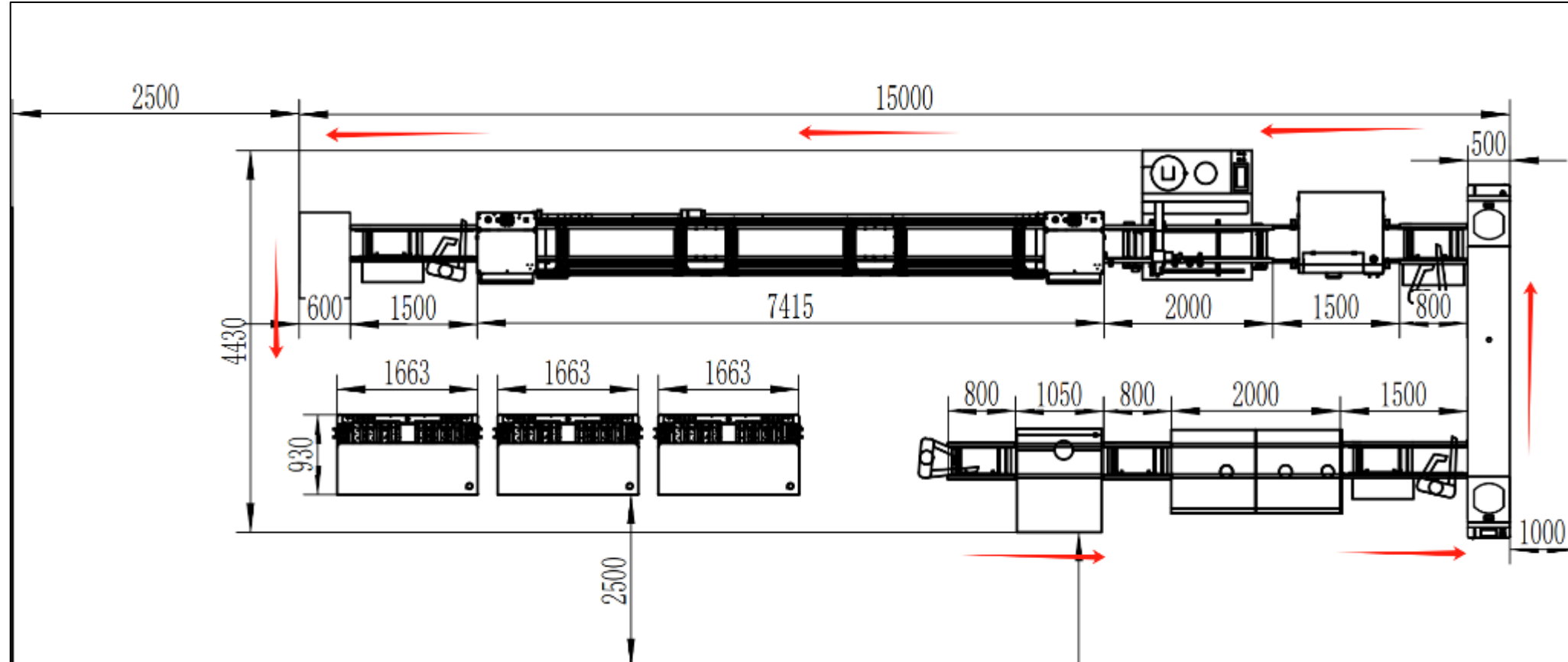
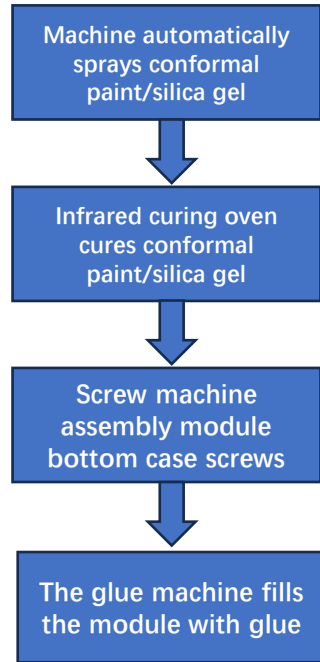
Remark:

1. The power of all machines in the production line is calculated based on the maximum, and is higher than the maximum power supply of the machine.
2. There will be a spacing between machines on the production line. Usually there is 10mm between machines. So the total length of the production line is only for reference.

2、 Production Line Planning

1. Back-end production line layout and assembly line direction;

Back-end manufacturing process



2、 Production Line Planning

1. Back-end production line layout and assembly line direction;

gaps between machines	Back end production line	No.	Machine name	model	Machine dimensions (mm)			weight (kg)	Rated voltage	power	Air pressure (0.42-0.6Mpa)	Remark fulfil requirements: PCB length 480mm*width 320mm
					L	W	H		(AC/V)	(KVA)		
820	IC control surface protection production line	1	PCB conveyor	BC-080L	800	700	900	50	220V	0.15	/	With lighting stand
1080		2	Selective coating machine	BL26/3	1060	1300	1700	550	220V	1.8	0.5	PCB length exceeded, customized machine
820		3	PCB conveyor	BC-080L	800	700	900	50	220V	0.15	/	With lighting stand
2020		4	UV infrared curing oven	BL27/2	2000	930	1650	420	380V	6	/	
1520		5	PCB conveyor	BC-150L	1500	700	900	50	220V	0.15	/	With lighting stand
620	LED surface glue filling assembly production line	6	automatic PCB shuttle	4.5M-DC	600	4500	1200	350	220V	0.7	/	PCB length exceeded, customized machine
820		7	PCB conveyor	BC-080L	800	700	900	50	220V	0.15	/	With lighting stand
1520		8	Online 2P screw machine	2P-ZXS320	1500	1100	1800	350	220V	1	0.5	
2020		9	glue machine	G820	2000	1350	1700	550	220V	1.5	0.5	
7435		10	Automatic drying system	BL10/6	7415	770	2100	500	220V	4	/	
1520		11	PCB conveyor	BC-150L	1500	700	900	50	220V	0.15	/	With lighting stand
1683		12	Offline 2P screw machine	2P-LXS500	1663	930	1750	350	220V	1	0.5	
1683		13	Offline 2P screw machine	2P-LXS500	1663	930	1750	350	220V	1	0.5	
1683		14	Offline 2P screw machine	2P-LXS500	1663	930	1750	350	220V	1	0.5	
820		15	stainless steel worktop	/	800	1000	600	/	/	/	/	Personnel work tables
Actual length	Summary		Total length of production line	Total production line width	The total width of the two lines			The distance between the middle areas of the production line			Total power of 2 production lines	
14755			14615	1400	4433mm			1200mm			The power supply power is not less than 40KVA	

3、 Production line machine introduction

1. Peripheral machine summary information;

LED module front-end machine introduction

3、 Production line machine introduction

1. Solder paste printer ;



automatic high precision solder printer

- Ergonomic design
- Wide range of application and versatility
- Unique spraying automatic cleaning system
- Energy efficient wipe paper saving structure
- Unique image processing system
- Printing range: 400*340mm/510*340mm
- Universal UVW 3-axis platform Machine size: 1220X1355X1500mm
- Machine options Automatic tin adding function Automatic stencil plugging detection function Automatic glue dispensing function, squeegee pressure feedback function
- Automatic MSE/SPI inline function Automatic temperature and humidity control function

Automatic solder printer

3、 Production line machine introduction

1.YAMAHA Technical data of the machine.



YAMAHA pick & place machine technical parameters comparison

Model	YSM10	YSM20R
Minimum Chip	0805 Metric mm units	0805 Metric mm units
Maximum Chip	35mm*100mm	35mm*100mm
Fastest assembly speed	4000CPH	6000CPH
Flying camera recognition range	0000-120mm(20mm*4.5mm)	0000-120mm(20mm*4.5mm)
Large camera recognition range	0400-55mm(100mm*15mm)	0000-55mm(100mm*15mm)
PCB size manufacturing range	510mm*400mm	850mm*400mm
Conveyor track load-bearing	1200mm*100mm	360mm*400mm
	10KG	10KG
Type of working head	HML3PC3	HML3PC3
	HML3PC3	HML3PC3
	HML4000CPH	700000CPH
Workhead assembly speed	0.050/0.05mm	0.050/0.05
Chip assembly accuracy	0.050/0.05mm	0.050/0.05
Number of feeder interfaces	48PCS	148PCS
Number of trays	35	36.39
Machine Form Factor	1125*4014*1445mm	1378*1851*1445mm
Machine weight	1.27ton	2.05ton

YAMAHA pick & place machine

3、 Production line machine introduction

1. Reflow soldering



Large dual-channel ten-temperature zone lead-free reflow soldering

Feature:

- 1.Fully meet various lead-free soldering process requirements.
- 2.Windows 7 operating system, Chinese and English interface, easy to operate.
- 3.It comes standard with 10 upper and lower air furnaces and a patented hot air management system, which makes hot air convection conduction more efficient and captures heat faster.
- 4.PLC ten-bit PID closed-loop control, stable and reliable performance, high temperature control and curve repeatability.
- 5.Dual temperature sensors, dual safety control modes, overspeed abnormal alarm, and floor falling alarm.
- 6.Fully modular design makes maintenance convenient and quick, reducing maintenance time and costs.
- 7.The guide rails are specially hardened and durable.
- 8.The guide wheel adopts a single chain buckle for debugging, which is simple and practical.
- 9.PLC+ modular control, stable and reliable performance, higher repeatability accuracy.

Model number: R10-D

Double track large reflow soldering

3、 Production line machine introduction

1. LED module socket pick and place machine



Technical parameters;

Assembly of this machine: X, Y, Z, R (rotary axis) four-axis manipulator is used for assembly operation, and transportation adopts: online transportation and automatic control system of pneumatic device. Feeding adopts: vibrating bowl automatic feeder device.

1. The product flows in and blocks the positioning of the cylinder (the conveying device adopts a single guide rail to convey online, and when producing different products, the width of the conveying guide rail can be automatically adjusted with one button and the operation is simple).

2: The vibrating bowl automatically sends the material to the positioning groove.

3: The manipulator clamps the socket and moves to the assembly position, the Z-axis descends the assembly socket to complete the first socket assembly, and reciprocates three times to assemble the three sockets (the time for assembling one socket is adjustable in about 4-6 seconds). Assembled product size specifications: maximum width 350mm.

This machine adopts manipulator assembly operation and greatly improves the production efficiency, and at the same time improves the assembly dimensional accuracy. According to the products of different specifications, the corresponding programs are preset and saved, and can be imported when producing different products.

Model number: CJ20

Special shape pick and place machine

3、 Production line machine introduction

1. Small automatic loader ;



Name: Small automatic loader

model number L350

Body size:1350*450*1650mm

Functionality The purpose of the PCB loader is to receive the signal from the solder printer loaded and automatically transport the PCB circuit board to the solder printer.

PCB board size (L*W):50*60MM-450*350mm

Configuration Bread

Track running height:850-950MM

PLC sensor

Quantity of stored boards:50PCS (cyclic, add as you go)

Stagger motor, drive Omron

Feeding speed: less than 65 /pcs

Linear guide rail, slider Best

Transfer direction: left → right or right → left

Bull screw rod ZB Zhongho

PLC programmable controller control touchscreen ZB Zhongho

Operation control panel for the shoe pull true switching power supply Jin Xi

Power supply: 220V 50HZ 6.3KW

relay Mingwei

Height: 100KG

Control board Omron

Model number: L350

Production line auxiliary machines

3、 Production line machine introduction

1. Peripheral machine summary information;

LED module **back-end** machine introduction

SHENZHEN JING HE TECHNOLOGY CO., LTD.



LED module automatic line solution

Back-end production line machines

3、 Production line machine introduction

1. 2 Meters UV infrared curing oven



Model number: BL27/2

Technical features

Frame part: 40*40mm square bracket, equipped with M16mm adjustable load-bearing foot cup and universal pulley at the bottom, surrounded by 1.5mm iron plate;

Power part: 120WRD speed regulating motor;

Lamp part: 3 temperature zones, 6 lamps in each zone;

Conveying part: special aluminum alloy guide rail, all stainless steel chain, special manual amplitude adjustment mechanism;

Furnace body part: movable opening type, the outer shell is cut and folded with a 1.5mm iron plate, and the inner tank is made of a 1.5mm cold plate;

Control part: independent control electrical box with overload protection device and thermostat.

Surface treatment: electrostatic spraying (gray wrinkle ZM7343W).

2 Meters UV infrared curing oven

3、 Production line machine introduction

1. 4.5m PCB parallel shuttle machine

Product introduction

The parallel transfer machine is a parallel transition conveying equipment used between the two ends of an automated production line or between two conveying lines with deviations in the center line. It can save one reflow soldering machine and save labor and electricity costs.

- 1) Overall dimensions are 600' long by 4500 wide by 1200 mm high.
- 2) The frame is made of thickened metal plate.
- 3) The rail is made of special aluminum material.
- 4) Single rail 50-390mm,
- 5) Width adjustment is manual
- 6) The working platform is single track, double transfer trolley. Model4.5M-DC is single transfer trolley.
- 7) Working height: 920±20mm.
- 8) Track drive power adopts stepping motor
- 9) Translating power adopts stepping motor
- 10) Parallel transfer device, imported synchronous belt + linear guide, the fastest front out 14S/PCS
- 11) Operation panel with touch screen display
- 12) PLC programmable controller control

Model number: 4.5M-DC

Production line auxiliary machines

3、 Production line machine introduction

1. Automatic Three-proof paint spray machine



Model number: BL26/3

Technical Specification

a) X, Y, Z three-axis motion accurately realizes the selective spraying process of various circuit boards to avoid non-coating areas such as connectors.

b) Accurately realize selective area spraying of various circuit boards.

c) It can realize multi-trajectory spraying such as dot coating, linear spraying, and curved spraying, and can complete high-density and complex circuit board spraying processes.

d) It can effectively and evenly coat the edge of the device and eliminate the spray shadow effect.

e) System accuracy is ±0.02 mm.

f) Transmission and control system with high speed, high reliability and high stability.

g) The standard equipment is equipped with 3 precision atomization valves at the same time, and the spacing is manually adjustable, which can realize high-density and complex circuit board spraying process.

h) Programming method: The software program has data input and manual teaching programming.

i) Whole line docking: The equipment is equipped with the SMT industry standard SMEMA interface, which can be used for signal docking with other equipment.

Three-proof glue coating machine

3、 Production line machine introduction

1. Automatic high-precision glue coating machine



Model number: G820

Applicable industries:

capacitors, power supplies, transformers, high voltage packs, ignition coils, ballasts, inductance coils, circuit boards

Applicable glue:

two-component (AB) glue, silicone, epoxy resin, PU polyurethane glue

Features and advantages

1. Strong versatility, one machine with multiple functions
2. Rich configuration
3. High production capacity
4. High precision
5. Easy to use

working principle

1. Put the AB glue into the AB barrels respectively, and the AB barrels are equipped with corresponding functions to ensure that the glue is stored in good condition;
2. Precise glue pumping through two metering pumps to ensure that the AB glue is evenly released according to the corresponding weight ratio;
3. Then through the mixing device, the AB glue is evenly mixed; finally, the corresponding glue filling track is edited by the manipulator to realize automatic positioning;
4. By setting the corresponding glue volume and the corresponding program, the automatic position and automatic quantitative glue can be realized to meet the glue filling process of the corresponding product.

high-precision glue coating machine

3、 Production line machine introduction

1. Peripheral machine summary information;

Auxiliary machines around the
production line



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3、 Production line machine introduction

1. Peripheral machine summary information;

Auxiliary machines around the production line



1. Mainly used for indoor module product assembly, to solve the small pitch module can not use screws to fix the module mask.



1. Measure the pushing and pulling force of lamp beads, ic and chips to check whether it meets the process requirements of the products?



1. The main function is to measure and record the temperature profile of each heating zone in reflow soldering, and whether it conforms to the temperature consistency in industrial processes.

4、 Machine configuration price details

1. Price configuration and parts list details of each machine

Good machines, create good quality

Good quality determines a good future

