

600X900 CCD Film Laminator

Equipment Specifications V1.0

Demander confirmation (customer)	Supplier confirmation (Jiutu)	
【 】	Sales center	R&D center

The data shown in the equipment specification are general model specifications/parameters. If the customer specifies requirements, the two parties will communicate and attach the "Technical Agreement" to confirm and take effect together with the specification.

1.Equipment appearance



2. Equipment Configuration List

N O	Product Name	Model	Quantity	Unit	Remarks
1	CCD Laminating Machine	600*900	1	unit	

3. Equipment Introduction

The automatic alignment medium and large size screen CCD laminating machine is specially used for laminating soft film to hard board and soft film to soft film in the production process of touch screen and LCD, such as laminating upper and lower ITO films of touch screen, laminating touch screen to hard protective plate, laminating polarizer to glass, laminating OCA, SCA, COF, CCF.

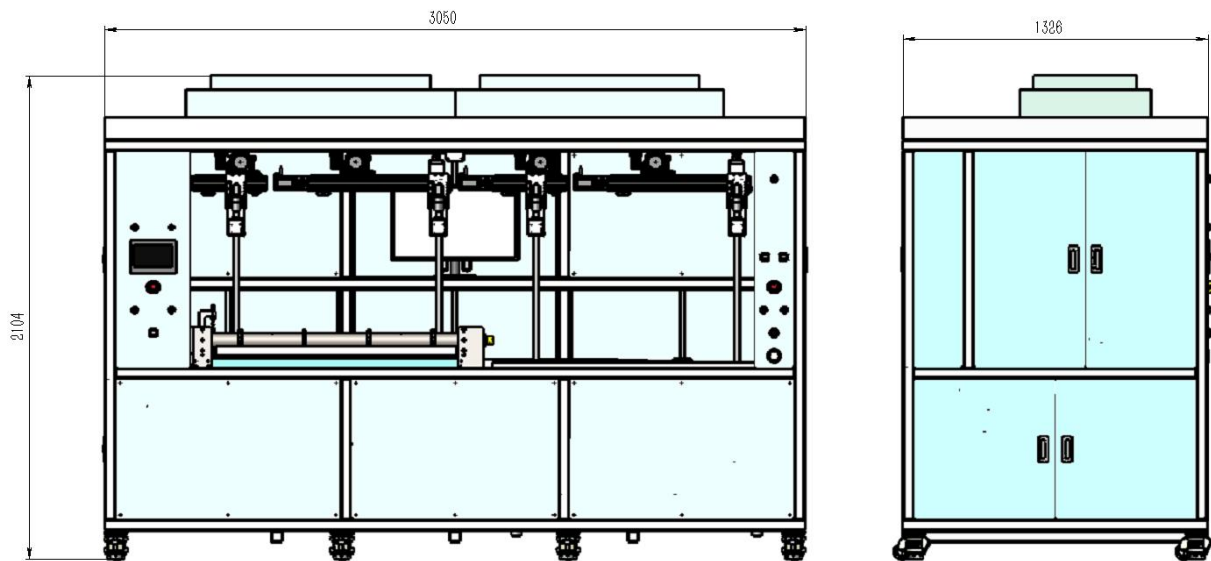
The equipment uses CCD laminating to effectively solve the tensile deformation and bubble generation of soft film during laminating, which is efficient and stable; it adopts industrial computer + PLC automatic control, with high laminating yield, fast speed and good stability.

4. Equipment features

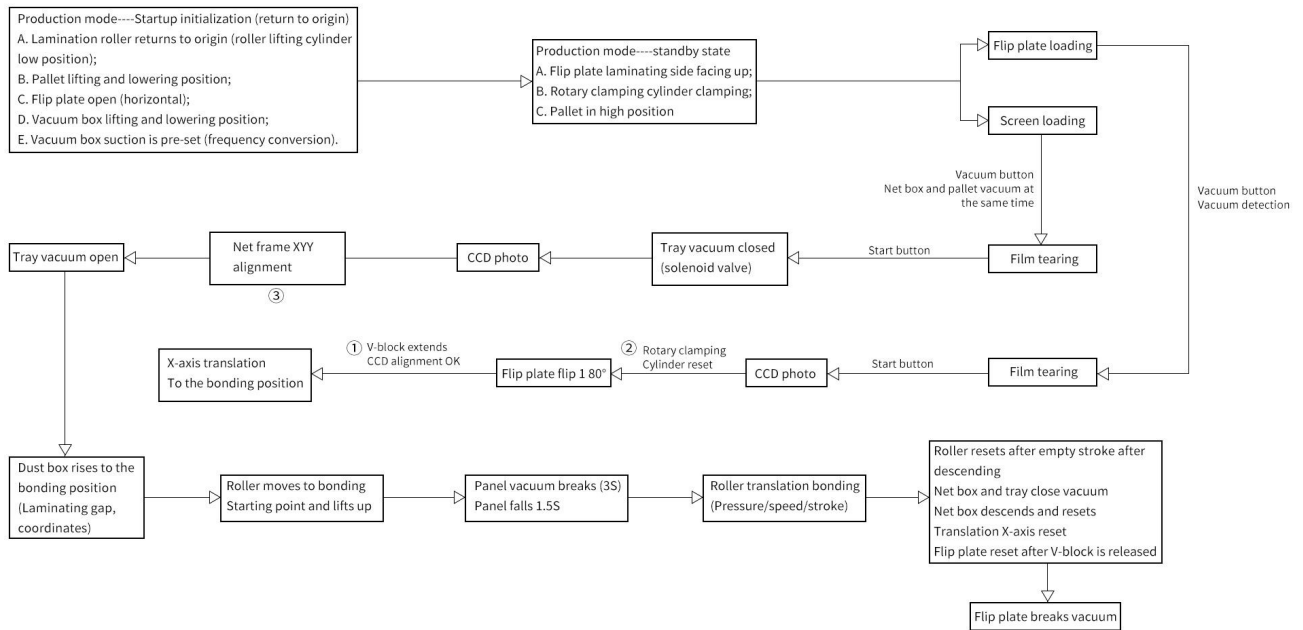
- The equipment adopts steel structure machine with good structural rigidity
- The selected materials and brands of equipment parts are excellent and have a long service life
- The materials used for the equipment fixture platform have excellent performance and no deformation, and the equipment accuracy does not decrease
- The equipment movement is mainly based on the control axis, with stable operation and high accuracy
- The pneumatic system of the equipment regulates pressure and throttles, with stable control and low gas consumption
- The equipment motion module has high repeatability positioning accuracy and good product consistency
- The equipment control system has strong anti-interference ability, the system is stable, fast and has high production efficiency
- The equipment operation interface is simple and easy to understand
- The flip plate and mesh plate are configured directly above the platform CCD, captures two feature points through image recognition
- The automatic alignment execution part adopts a unique mesh box XY alignment module
- The mesh box automatically rises and falls to meet the needs of products of different thicknesses and multi-layer lamination

- The mesh box automatically rises and falls, and the lamination gap and lamination angle are set by parameters to achieve product process flexibility
- The roller lifting lamination has good rigidity, high straightness, and precise adjustment of lamination pressure
- Unique large-size vacuum plate platform design, high flatness accuracy, stress relief without deformation, and strong vacuum adsorption capacity
- Applicable to G+F, F+F lamination, TP+LCD full lamination

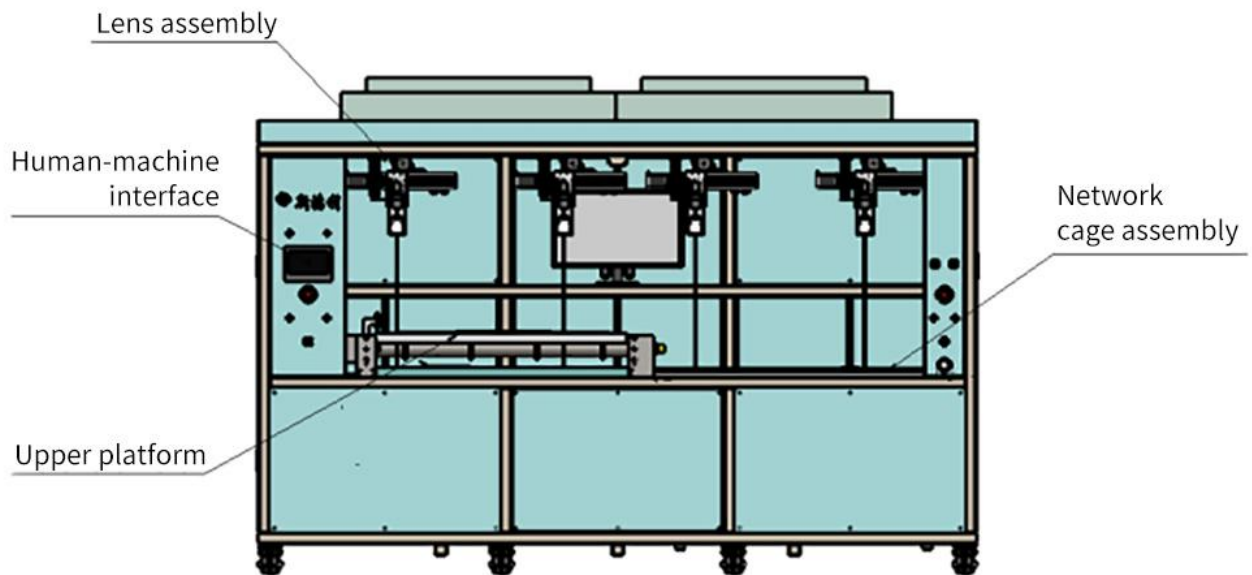
5. Equipment CAD layout drawing



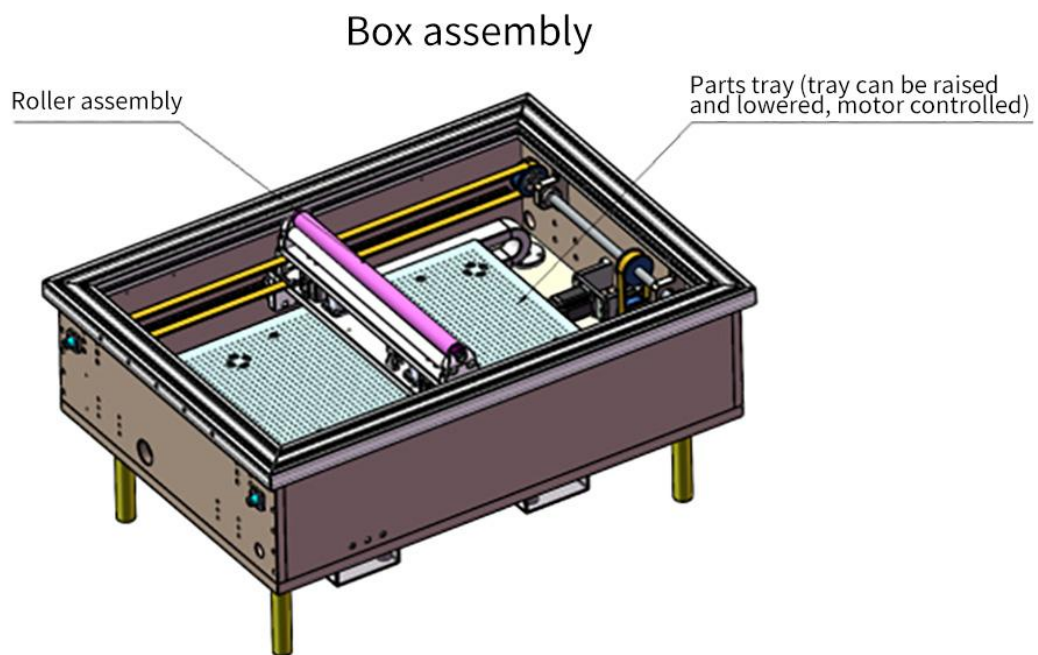
6. Equipment process flow chart



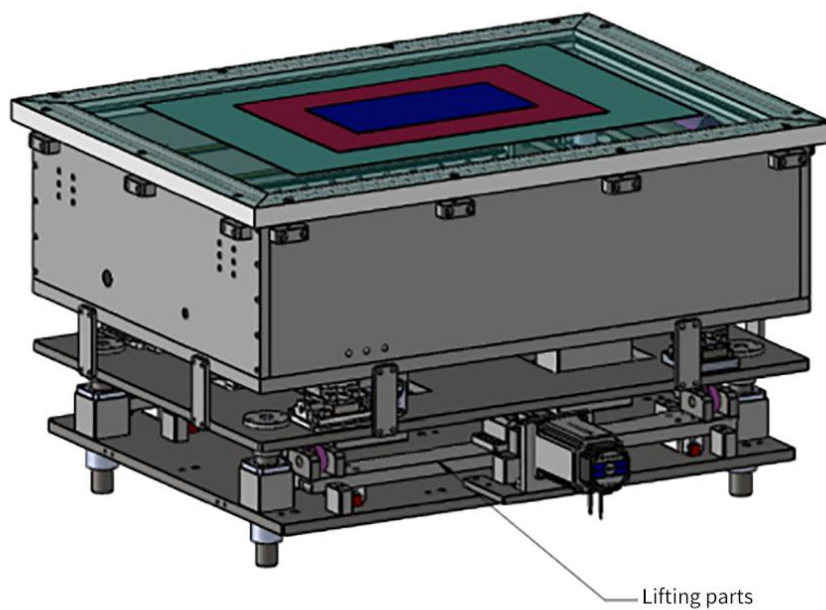
7. Equipment functional structure diagram



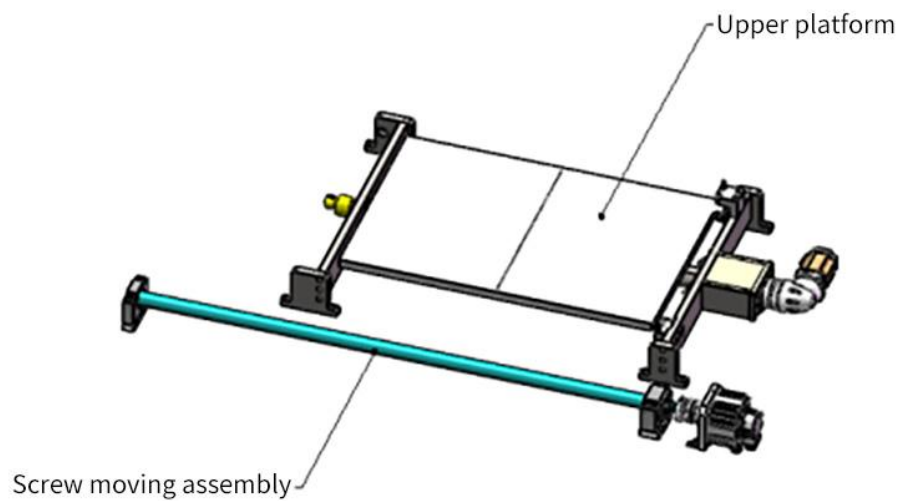
7.1 Key function configuration diagram



7.2 Key function configuration diagram



7.3 Key function configuration diagram

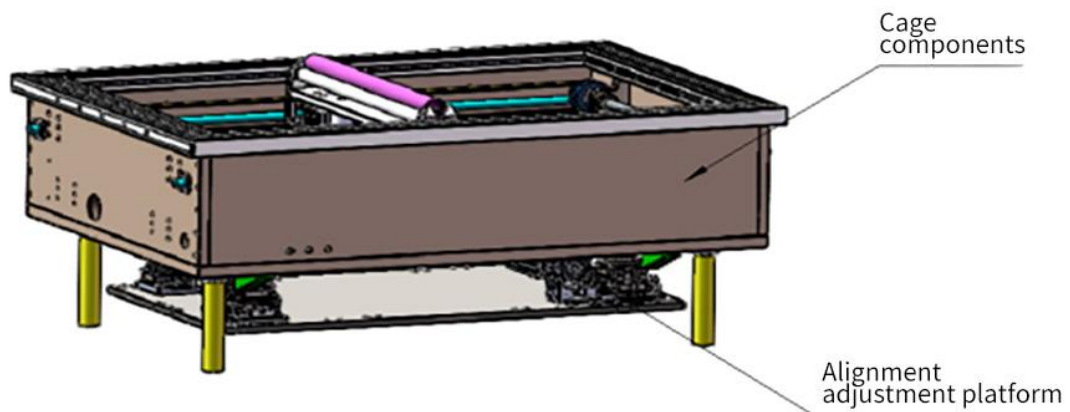


7.4 Key function configuration diagram



7.5 Key function configuration diagram

Cage alignment adjustment components



8. Equipment Specifications

Machine Specifications		
1	Working environment	Temperature $25 \pm 5^{\circ}\text{C}$, humidity $60 \pm 5\%$, cleanliness level 1000
2	Equipment power supply	AC380V 50Hz
3	Equipment gas supply	$5 \sim 7 \text{ kg/cm}^2$, pipe $\varnothing 12$ with quick plug
4	Equipment power	7Kw
5	Equipment gas consumption	800L/min
6	Vacuum system	Machine comes with (blower)

7	Control system	PLC + touch screen
8	Working height	840±50mm
9	Operation interface	Button operation panel + human-machine interface
10	Equipment dimensions	L3050xW1326xH2104mm (including FFU)
11	Equipment weight	1500Kg
12	Machine color	Standard computer white
Equipment applicable product specifications		
13	Applicable products	L900xW600
14	Effective fitting size	L900xW600mm (Minimum size 400x300mm)
15	Platform size	L1050xW930mm
16	Roller size	L620x $\varnothing$ 40mm(Material: PU rubber, hardness 45)
17	Roller effective length	L=620mm
18	Effective fitting stroke	900mm
Equipment accuracy		
19	Control axis repeatability accuracy	±0.03mm
20	Working platform flatness	0.20mm
21	Positioning system accuracy	±0.01mm
22	Equipment repeatability accuracy	±0.05mm
23	Fitting accuracy	±0.1mm (Excluding material error)
Equipment Specifications		
24	Upper platform vacuum hole	$\varnothing$ 0.8, 10x10□

25	Upper platform surface treatment	Hard anodized
26	Upper platform control mode	Servo motor control
27	Upper platform vacuum source	High-speed fan, digital pressure gauge vacuum detection
28	Upper platform working mode	Servo drive, 180° center flip, horizontal movement
29	CCD film mesh	200/300 mesh, 16~24N/cm, polyester, yellow/white
30	Net vacuum source	High-speed fan, vacuum degree variable frequency adjustable
31	Laminating process settings	Z-axis control (product thickness, bonding gap, bonding angle, etc.)
32	Net Z axis control mode	Servo motor control, stroke 20mm
33	Roller	Φ 30×L650mm polyurethane, Shore A55 ~ 60 (can be specified according to product process)
34	Support roller	Intermediate support (length 100mm), triangle correction method
35	Roller lifting stroke	10mm
36	Laminating output range	≤40Kg
37	Laminating speed	<500mm/s
38	Laminating starting position	The starting point of the lamination is fixed, and the lamination length parameters are set.
39	Laminating direction	Parallel to the long side of the CG or film
40	Net support plate	Yes
41	Laminating mode	Soft to hard or soft to soft, partial lamination method (roller lamination)
42	Alignment mode	Angle positioning□ CCD automatic alignment□
43	Automatic alignment principle	Mesh XYY alignment adjustment
44	Automatic alignment adjustment stroke	X/Y ±10mm, θ±1°
45	Alignment method	Two Marks for automatic correction

46	CCD configuration	Digital camera, 6 million pixels
47	CCD position adjustment method	CCD position manual adjustment ☐ automatic adjustment ☐
48	Parameter debugging method	Touch screen parameter setting interface to modify data
49	Product line change method	For existing specifications, the switching time is less than 15 minutes; for new specifications, the switching time is less than 30 minutes.
50	Production rhythm	30S (excluding manual operation time)
51	Loading and unloading method	Manual CG casting and cleaning Manual flim casting and tear-off film
Safety protection		
52	Emergency stop button	After pressing the emergency stop button, the device needs to find the origin again after manually resolving the fault.
53	Electrical protection	The circuit is equipped with short-circuit protection;The control has an electrical interlocking design to prevent misoperation; The function is equipped with signal feedback such as vacuum detection
54	Safety grating	1set
55	Safety door switch	No conditions of use
56	Safety sign	Locations with AC30V or above, DC60V or above, and 240VA or above;Locations with surface temperature exceeding 50°C; Locations with mechanical movement
Anti-static device		
57	FFU	2set
58	Ion fan	Optional accessories
59	Static grounding	Optional

9. Visual system configuration

No.	Item	Specification	Brand	Quantity	Remark
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1	Industrial camera	MV-A3600MG18	Dahua	4	Resolution 3072x2048
2	Industrial lens	C7528-5M	OPT	4	
3	Industrial lens	C5024-5M	OPT	4	
4	Coaxial light source	COS60-B	Dahua	4	
5	Camera network cable	Category 5e grid cable 5M	Dahua	4	
6	Power cord	6-core aviation connector 5M	CST	5	
7	Magnifier	Double-lens	Haibo Intelligent	4	
8	Light source extension cable	SM24-L5	CTS	1	
9	Digital controller	MDPS2496B-4TDP	CTS	1	
10	Vision system	HBvision-S1	Haibo Intelligent	1	
11	Industrial computer	HDM-1506-128G	Haibo Intelligent	1	
12	Motion control card	HB-GAS-4-ADDA	OPT	1	
13	Field of view	30x22/37x27			
14	Pixel accuracy	0.0115mm			

10. Main parts brands

No.	Item	Specification	Brand	Quantity
1	Linear guides	HIWIN	HIWIN/PMI/CSK/THK or equivalent brand	
2	Ball screws	TBI	TBI/HIWIN/THK or equivalent brand	
3	Servo motors	XINJIE	YASKAWA/Panasonic/Leisai/Yankong/Xinjie/Huichuang or equivalent brands	
4	Stepper motor	LISAN	Leisai/Yankong/Shinano or equivalent brands	

5	Drive motor		Zhongda Lide/TCG/SPG or equivalent brands	
6	Pneumatic actuator	XINGCHEN	SMC/MAXAIR/AirTAC/Xingchen or equivalent brands	
7	Vacuum pump		dlt/ ORION/leybold or equivalent brands	
8	High-speed fan	Aired	Shenghong/Lion Song/Hank or equivalent brands	
9	Vacuum generator		Schmalz/piab/SMC/AIRBEST or equivalent brand	
10	Vacuum suction cup		Schmalz/piab/SMC/AIRBEST/Nos on or equivalent brands	Using different types of materials
11	Touch screen	XINJIE	Kinco/WEINVIEWor equivalent brands	
12	PLC	XINJIE	OMRON/Panasonic/MITSUBISHI/KEYENCEor equivalent brands	
13	Inverter		MITSUBISHI/INVT or equivalent brand	
14	Sensor	HUAYIFENG	OMRON/Panasonic/KEYENCE/SICK/Leuze/Autonic sor equivalent brand	Using different types of materials
15	Electrical control element	CHNT	SCHNEIDER/CHNTor equivalent brand	Using different types of materials
		Mean Well	Mean Well, Izumi or equivalent brands	
16	Pneumatic control element		SMC/CKD/FESTOor equivalent brands	
17	Digital pressure gauge		SMC/MAXAIRor equivalent brands	
18	Electrical proportional valve		SMC/MAXAIRor equivalent brands	

11. Items and information included with the device

No.	Type	Item	Available or Not	Remark
1	Items comes with machine	Special tools	No	
2		Equipment spare parts	No	Provide spare parts list, separate purchase
3		Equipment wearing parts	No	Provide a list of wearing parts, separate purchase

4	Documents comes with machine	Equipment operation manual	Yes	Paper/electronic version, including electrical wiring diagram
5		Equipment usage video	Yes	Equipment operation, debugging, product line change

12. After-sales service

1	Equipment warranty regulations	The whole machine is guaranteed for one year from the date of delivery, and there is no time limit for after-sales service; if the equipment is resold, it is not covered by the warranty.
2	Free warranty part	Under normal use conditions, damage caused by poor processing and manufacturing will be repaired free of charge for an unlimited period of time.
3	Paid service part	The vacuum pump and high-speed fan are only warranted for 3 months, which means that the user must bear the repair costs if the damage is caused by overload use; Equipment consumable parts are not covered by the warranty except for quality issues.
4	Disclaimer	Damages caused by force majeure such as natural disasters; Damages caused by malfunctions due to your company's transformation; Damages caused by malfunctions due to improper use and poor maintenance; Compensation for secondary losses such as production line stoppage and property damage, including production guarantees; Material-related costs required for equipment trial operation.

13. Equipment Use Training Plan

Training Program List					
No.	Project Name		Training Time	Number of Trainees	Remark
1	Equipment operation	Use Operation	30min	2	Equipment operator Engineering (debugging) Technology (manufacturing) Equipment (manager)
		Debugging parameters	45min	2	
		Product change production line	30min	2	
2	Safety precautions		15min	All	
3	Equipment maintenance		15min	2	Equipment (Management)

4	Equipment Troubleshooting	30min	2	Engineering (debugging personnel) Equipment (manager)
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14. Equipment acceptance

After the equipment enters the factory, we will immediately confirm that the equipment meets the "Equipment Specification" and usage requirements in terms of structure, performance, accuracy, operation, safety, etc., and then accept and implement them one by one under the condition that your company's inspection personnel are present.