

Put forward preliminary
scheme



2016

8mm special SMT Auto
splicing machine completes
the engineering prototype



2017

General CCD version 8-16mm
completes the engineering
prototype, and the error
proof function is preliminarily
formed



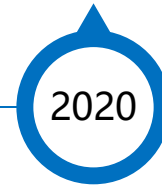
2018

General CCD & measurement
version 8-16mm is tested to
verify its stability



2019

The first General CCD &
measurement version 8-
16mm in the industry



2020

Product background introduction

01

SMT manufacturing enterprises mainly rely on MES system for error prevention by manual verification. Even if the factory has an advanced, scientific and perfect MES system, the problem of SMT wrong material can not be solved, which is mainly reflected in the inconsistency between the bar code and the physical object, and the employees take the wrong material tray and connect the wrong track number after checking the bar code. Factories with MES system also have sampling and measured value verification links, but timeliness and supervision are difficult to control. The probability of manual material receiving is low and requires high staff skills. Affect production efficiency.

In view of these pain points, Southern Machinery developed the SMT Auto splicing machine . There are no requirements for employees' skills. They learn to operate in two minutes and improve the probability. Connect with MES to form a closed loop to prevent wrong materials and greatly improve production efficiency.



How to improve efficiency



02

Automatic material receiving replaces manual material receiving, which has a higher probability of passing and improves the equipment transfer rate

Automatic verification replaces manual verification, which does not require manual sampling and measurement, which is more foolproof and more efficient.

Reduce the labor intensity of employees, reduce the production process of customers, and improve the work efficiency of employees.

Reduce management costs, staff turnover, increase automation, do not rely on labor, and the material receiving status is unified.

Control the risk of wrong material in the last kilometer and confirm it one second before receiving.



It supports material belts of different materials (paper tape, black tape, transparent tape, etc.), the machine automatically adjusts the width, which width is suitable for materials, supports empty material detection, and can support components of 01005 specification at least.

It can automatically measure the values on both sides (various specifications above 01005) and automatically identify the specifications.

For IC and other components that cannot be measured, automatic screen printing comparison is made to ensure that the old and new materials are consistent with MES.

Connect with the customer's MES system and close the system stroke to prevent wrong material. It can be used in incoming inspection, warehouse and other stations.

Whether it is online material receiving or small inventory consolidation in the warehouse, the automatic material receiving function can save a lot of time and manpower.

Variable orbit

**Bilateral
measurement**

OCR identification

MES docking

Automatic coiling



1

Standard CCD
(SYC-525)
8mm

8mm Splicing
MES Integrated



2

CCD & measurement
(SYC-540)
8mm

8mm Splicing
MES Integrated
one side LCR Measurement



3

General CCD
(SES-525)
8-16

8~16mm Splicing
MES Integrated



4

General CCD & measurement
(SES-540)
8-16

8~16mm Splicing
MES Integrated
Dual LCR Measurement
Dual IC Silk screen

Basic function

Pre stripping function

MES docking

Automatic belt recovery

Tray induction system

Autominduction
scissorsatic

Paper tape general
purpose

Automatic
identification spacing

CCD empty material
detection



Function introduction:

1. Support various material tapes (paper tape, black tape, transparent tape, etc.)
2. The machine automatically adjusts the width, which is suitable for 8mm material belt
3. Support different spacing strips (2 / 4 mm)
4. It supports different thickness strips, and the strips with thickness of 0.1mm-1.5mm are compatible
5. Support empty material detection, and at least support 01005 components
6. Support wireless scanning bar code checking and error proofing
7. Interface with customer MES system
8. Off line machine, free to move
9. Simple interface operation

Basic function

Pre stripping function

MES docking

Automatic belt recovery

Tray induction system

Autominduction
scissorsatic

Paper tape general
purpose

Automatic
identification spacing

CCD empty material
detection

Resistance capacitance
measurement



Function introduction:

1. Support various material tapes (paper tape, black tape, transparent tape, etc.)
2. The machine automatically adjusts the width, which is suitable for 8mm material belt
3. Support different spacing strips (2 / 4 mm)
4. It supports different thickness strips, and the strips with thickness of 0.1mm-1.5mm are compatible
5. Support empty material detection, and at least support 01005 components
6. Automatically detect the resistance value, capacitance value and sensing value, and automatically check the silk screen printing to prevent wrong materials
7. Support wireless scanning bar code checking and error proofing
8. Interface with customer MES system
9. Off line machine, free to move
10. Simple interface operation

basic function

Pre stripping function

MES docking

Automatic belt recovery

Tray induction system

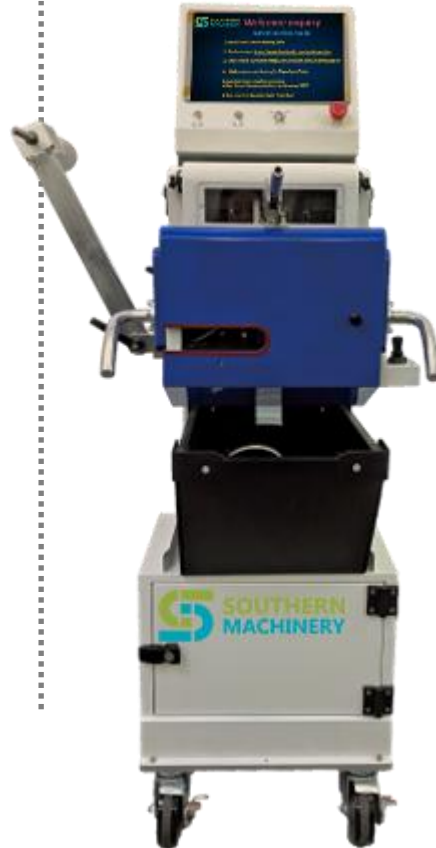
Autominduction
scissorsatic

Paper tape general
purpose

Automatic
identification spacing

CCD empty material
detection

Variable track 8-24



Function introduction:

1. Support various material tapes (paper tape, black tape, transparent tape, etc.)
2. The machine automatically adjusts the width, which is suitable for 8mm, 12mm, 16mm or 24mm material belt
3. Support different spacing strips (2 / 4 / 8 /12/ 16mm or 20mm)
4. It supports different thickness strips, and the strips with thickness of 0.1mm-1.5mm are compatible
5. Support empty material detection, and at least support 01005 components
6. Support wireless scanning bar code checking and error proofing
7. Interface with customer MES system
8. Off line machine, free to move
9. Simple interface operation

basic function

Pre stripping function

MES docking

Automatic belt recovery

Tray induction system

Autominduction
scissorsatic

Paper tape general
purpose

Automatic
identification spacing

CCD empty material
detection

Variable track 8-16

LCR bilateral
measurement

IC silk screen
identification



Function introduction:

1. Support various material tapes (paper tape, black tape, transparent tape, etc.)
2. The machine automatically adjusts the width, which is suitable for 8mm, 12mm, 16mm material belt
3. Support different spacing strips (2 / 4 / 8 / 16mm)
4. It supports different thickness strips, and the strips with thickness of 0.1mm-1.5mm are compatible
5. Support empty material detection, and at least support 01005 components
6. Automatically detect the resistance value, capacitance value and sensing value, and automatically check the silk screen printing to prevent wrong materials
7. Support wireless scanning bar code checking and error proofing
8. Interface with customer MES system
9. Off line machine, free to move
10. Simple interface operation

Machine parameter comparison

	Description	Standard CCD version 8mm	CCD & measurement version 8mm	General CCD version 8-24mm	General CCD & measurement version 8-16mm
	model	SYC-525	SYC-540	SES-525	SES-540
appearance	size	500*470*1300mm	450*400*1100mm	440*470*1400mm	360*310*1320mm
track	Track height	900mm	900mm	960mm	950mm
	Track accuracy	±0.05mm	±0.05mm	±0.05mm	±0.05mm
Material belt	Strip width	8mm	8mm	8mm、12mm、16mm、24mm	8mm、12mm、16mm
	Strip spacing	2/4	2/4	2/4/8/12/16/20	2/4/8/12/16
	Empty material detection	CCD mode	CCD mode	CCD mode	CCD mode
Battery	Power supply mode	lithium battery	lithium battery	lithium battery	lithium battery
	Standard power supply time	14h-16h	14h-16h	14h-16h	14h-16h
	Voltage	48V DC	24V DC	48V DC	48V DC
	capacity	100Ah	100Ah	100Ah	100Ah
Motion structure	Film Precision	±0.05mm	±0.05mm	±0.05mm	±0.05mm
	Repeat positioning accuracy	±0.05mm	±0.05mm	±0.05mm	±0.05mm
efficiency	Fastest material receiving	5s / time	10s / time	6-12s / time	6-12s / time
	Passing rate	≥99%	≥99%	≥99%	≥99%
Receiving	Automatic receiving	YES	YES	YES	YES
Bar code check	Bar code check of new and old material trays	YES	YES	YES	YES
	System barcode check	YES	YES	YES	YES
System docking	MES docking	YES	YES	YES	YES
Industrial control	Industrial computer	YES	YES	YES	YES
Image module	brand	Medvedev	Medvedev	HIKVISION	HIKVISION
	OCR identification	N/A	support	N/A	YES
Measured value module	Bilateral measurement	N/A	N/A	N/A	YES
	Unilateral measurement	N/A	support	N/A	N/A
	frequency	N/A	20Hz-300KHz	N/A	20Hz-300KHz
	accuracy	N/A	0.05%	N/A	0.05%



Built in Bridge

LCR bridges of different brands and models can be selected according to different requirements of customers

Long life probe

Custom tungsten steel probe, indestructible, almost no need to replace

High success rate

CR measured value, once successful

high-precision

The measured value accuracy reaches 0.05%, and the CR value of the real reaction material

Bilateral measurement

The old and new tray materials shall be measured at the same time and compared with the MES system to eliminate wrong materials



IC solutions

Because some non LCR components such as IC cannot be measured by electric bridge, the comparison scheme of silk screen text on the component surface is adopted



High success rate

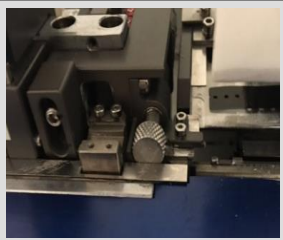
The recognition rate reaches 99%, which can not only be automatically recognized by the machine, but also be manually confirmed by enlarging the image, and there is no possibility of wrong material connection



Tripartite comparison

Screen printing comparison between new and old material tray components and material modeling comparison with MES system

Pre stripping mechanism



The knurled gear is used to peel the covering film at the front end of the material belt, which is convenient for the smooth tearing of the covering film of the material belt.

Success case 1



Paper tape with different thickness can tear the covering film smoothly

Success case 2



Plastic tape, covering film can be torn off smoothly

Failure case 1

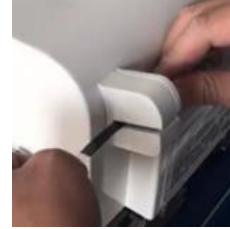


If there is no pre stripping mechanism, the strip film will break or cannot be torn

Patent certificate



The patent of pre stripping mechanism is only one of dozens of patents of our company



Fast and
conveni
ent

Safe and
fast

reduce labor
intensity

Patent
function

Automatic sensing scissors - when the operator extends the material belt into the scissors mouth, the scissors can automatically start cutting, Reduce the operation intensity of employees, safe and fast.

SOUTHERN MACHINERY Material tray induction system



Material induction

Cooperate with MES docking system to further prevent stupidity in hardware, and force employees to scan the materials before receiving them

Anti stupidity treatment

The material tray must be hung on the machine to receive scanning information, otherwise the MES input window cannot be activated

Avoid wrong materials

If the material is removed before receiving, the system requires re scanning to further ensure the correctness of the material

Eliminate artificial

Prevent employees from sweeping materials in tray A but receiving materials in tray B



Material receiving interface



Alignment interface

We have a dedicated R & D team to customize according to different customer requirements.



1: The customer has MES system

A: Directly install the original MES system client of the factory for error proofing and material management.

B: The factory provides MES system interface, and we design the material interface of the receiving machine to seamlessly connect with the original MES system.



2: The customer does not have an MES system

We have specially developed an independent material matching system, which can prevent errors in material matching, loading and receiving,

Right receiving mechanism



1

The right coiling mechanism is added, which can be used to handle the work from small material tray to large material tray

2

Change the large amount of material from 7-inch small material tray to 13 inch large material tray. Generally, a large material tray can roll 5-6 rolls of small material.

3

For example, the original 10 minutes need to be refueled, but it takes at least 1 hour after changing to a large material tray, which greatly reduces the online refuelling frequency.

4

Reduce the refueling frequency and reduce the refueling operators. One employee can take care of the refueling work of 2-3 production lines at the same time



1

When receiving materials online, it is often necessary to receive materials in advance, resulting in a lot of material belts scattered outside the machine.

2

Using the automatic reclaiming mechanism of the material belt, the material belt can be quickly recycled instead of manual coiling, saving time and labor

2mm spacing



4mm spacing



4mm spacing



4mm spacing



8mm SMD material belt, and the material spacing is divided into 2mm and 4mm

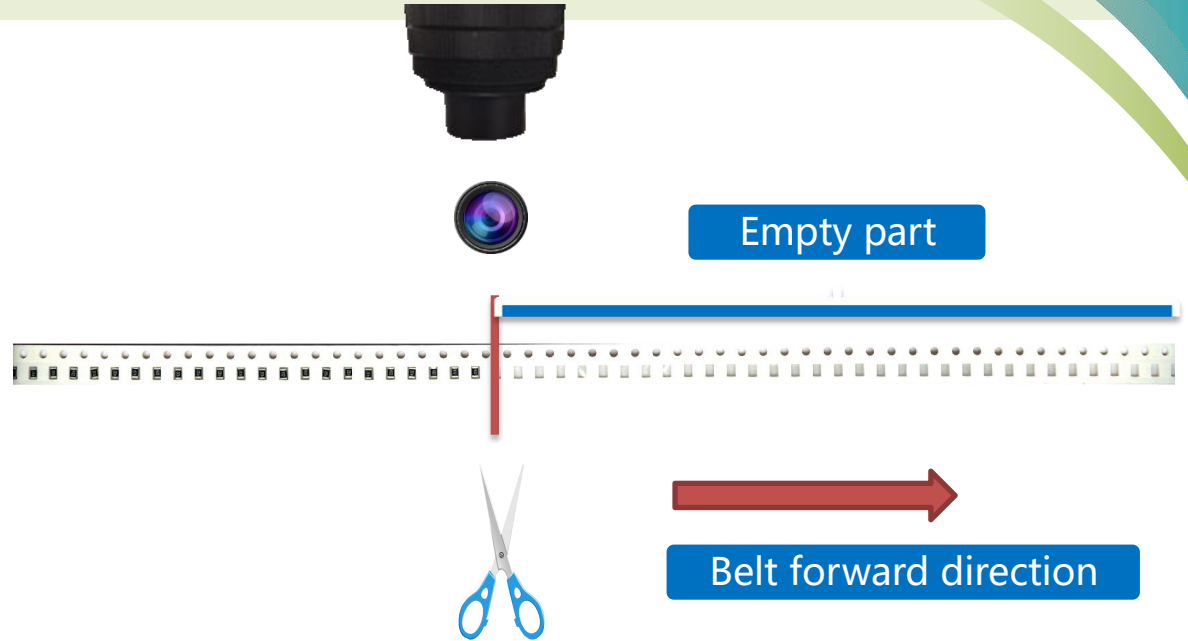
While splicing the material strips, it is necessary to ensure that the material spacing on both sides of the interface is kept at 2mm or 4mm

Therefore, the incision must be kept in the middle of the two materials.

The feeder takes the hole as the identification benchmark, so the forward position of the belt is different with different belt spacing

Our equipment uses optical fiber or CCD image to automatically identify the material spacing, and uses servo motor pulse counting to drive the material belt to the set position for accurate cutting, so as to maintain the material spacing

Empty material detection



When there is a section of empty material at the front end of a roll of material belt, the receiving machine uses optical fiber or CCD to automatically identify the empty material part at the front end, so as to make the material belt advance to the position where there is just material for automatic cutting, so as to avoid material loss

Online material receiving and sample retention label

A label printer is attached to the receiving machine to print labels on demand in cooperation with the material matching software, so as to save employees' copying time

料号: 1234567890 机器: NXT456
数量: 5000 站位: 11
换料操作员工号: 458
换料时间: 2020-10-16 10:05



The small material tray is transferred to the large material tray to generate a new barcode label

物料条码: INV_10006362252006200276559701

条形码: 

供应商名称: 深圳市****科技有限公司

供应商编码: 1000636225

物料编码: 703146761

物料描述: 1K 5% 1/16W 0402

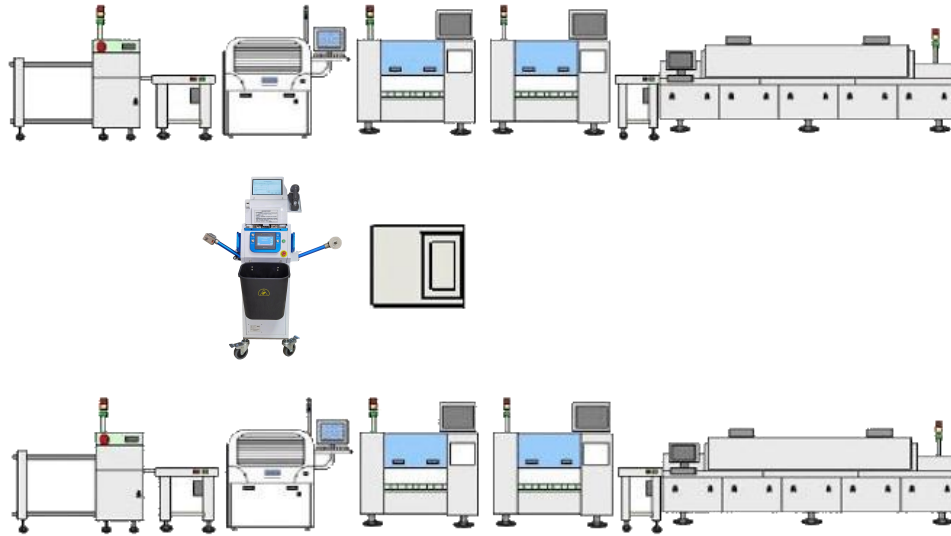
物料数量: 50000

物料名称: 贴片电阻

LOT NO: 11999319

Data Code: 200413-Z

Online material receiving

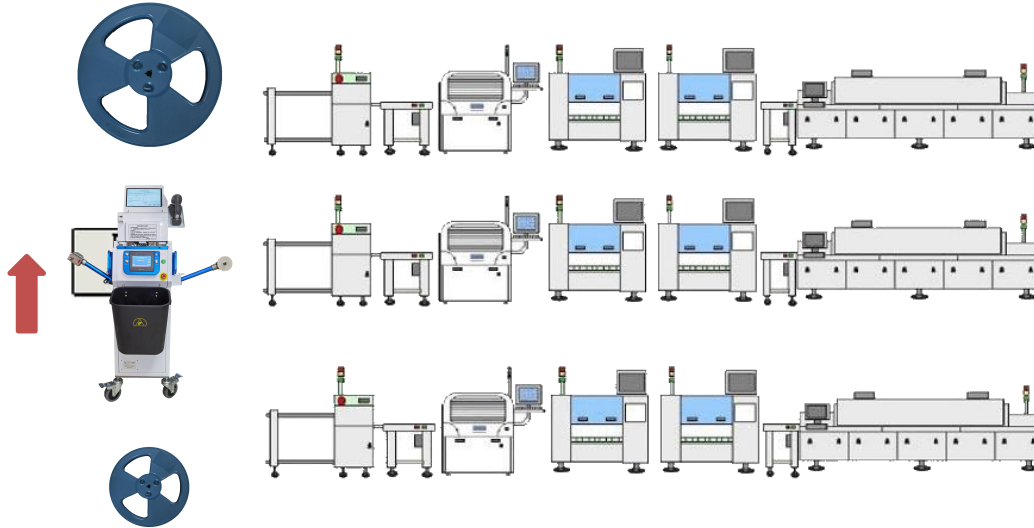


The receiving machine is placed in the middle of the production line, which can receive both left and right materials

The machine is placed between the two lines

1. At present, at least two employees are required to be responsible for the material receiving of one production line, and the labor intensity is still very high.
2. After the introduction of automatic material receiving machine, due to the high material receiving efficiency and less machine alarm, we can use a material receiving machine in the middle of the corridor of the production line. Only one employee can fully control the material receiving of the two production lines, and the labor intensity is low, so the employees will feel relaxed and comfortable.

Conclusion: every two production lines can save one employee.



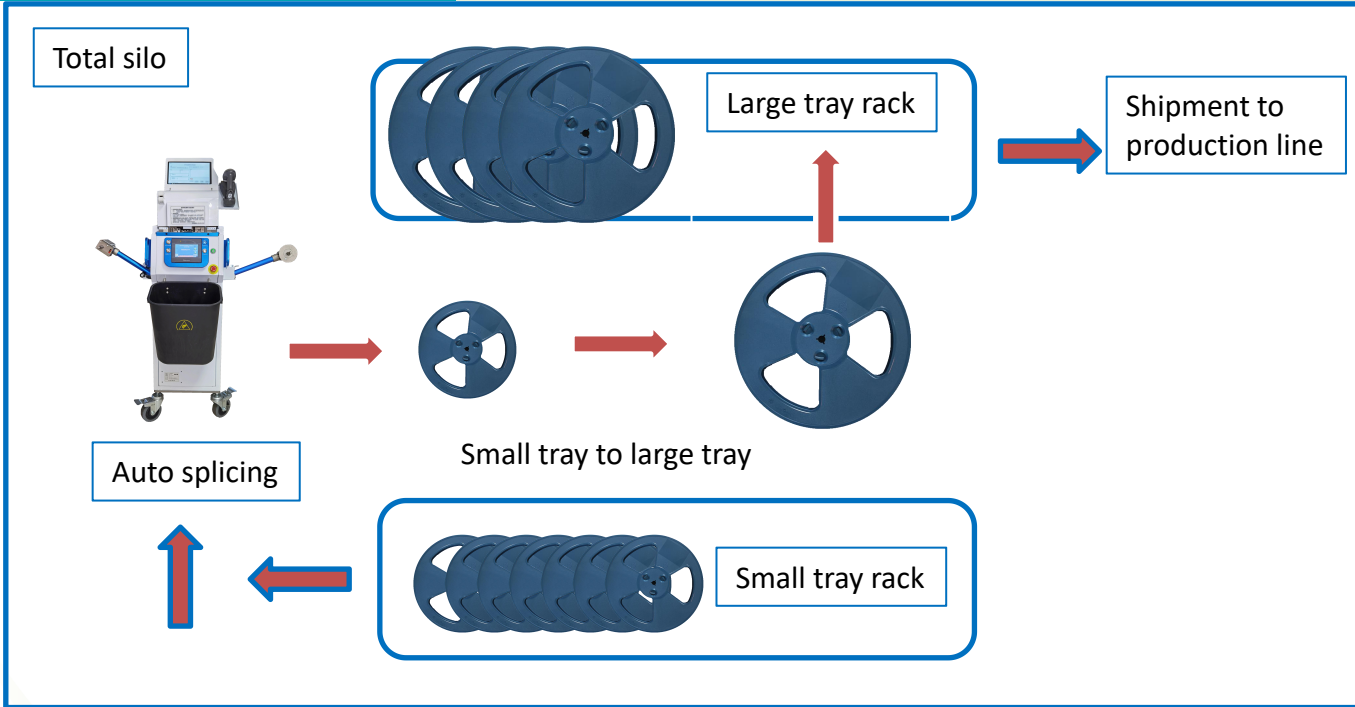
Change from small tray to large tray to reduce the refueling frequency of the production line

The machine is placed near several production lines

1. According to the system prompt, change the large amount of material from 7-inch small material tray to 13 inch large material tray. Generally, a large material tray can roll 5-6 rolls of small material.
2. For example, the original 10 minutes need to be refuelled, but it takes at least 1 hour after changing to a large material tray, so the online refuelling frequency can be greatly reduced.
3. The line patrol receiving personnel shall send the connected large material tray to the corresponding production line.
4. According to this configuration, three production lines can be arranged with 1-2 employees

Conclusion: it is more labor-saving than the first on-line material receiving

SMT storage application



The receiving machine is placed in the main silo

1. In the general silo, the 7-inch small market of customers' incoming materials is changed to the 13 inch large market.

2. Large tray materials are issued to the workshop for use;

Conclusion: it is more labor-saving than the first two

In the main silo, the small tray is changed to the large tray to reduce the refueling frequency of the production line

Bringing value to customers is our value!



With error proof system

Built in material comparison system, and Comparison of material strip and material number with wireless bar code gun
The material receiving can be unlocked only after the consistency is passed.

MES error proof system

1. It can be directly connected with MES system.
2. The original material alignment operation procedure is not changed, and the operator does not need to train the material alignment operation



Please visit

www.smthelp.com

Find us more

<https://www.facebook.com/autoinsertion>

Know more our team

<https://cn.linkedin.com/in/smtsupplier>

Welcome to our factory in Shenzhen China

See more machine working video, please Youtube

Auto Insertion

Google

Auto+insertion, to get more information

Looking forward to your email

info@smthelp.com