

# Product Introduction

Model : HW-T6-64F

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# The Introduction of Company

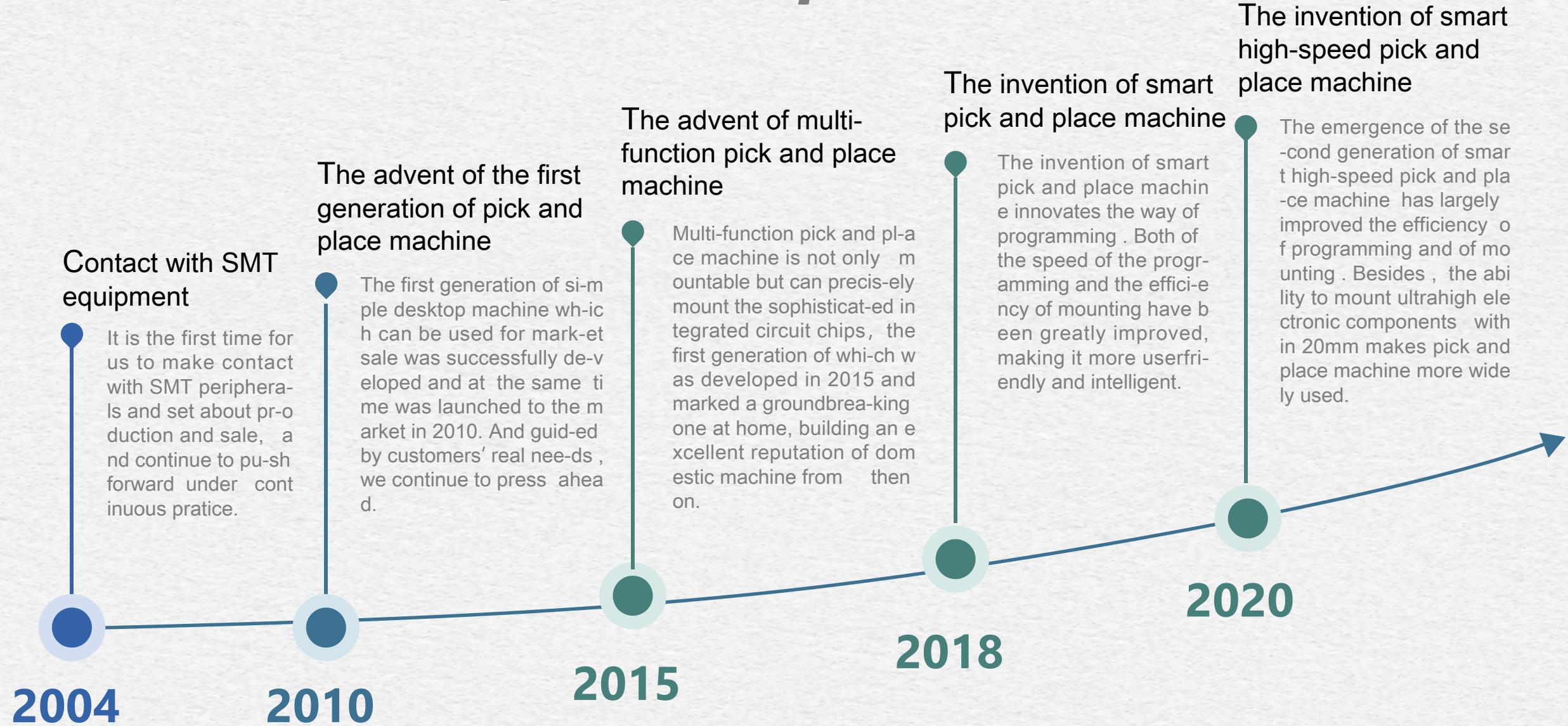
Beijing HuaweiGuochuang Electronic Technology Co. Ltd. is a Chinese high-tech enterprise with integrated research and development (R&D), production and sales operations. The pick and place machine, SMT's main equipment, is our key research and development equipment.

Our vision is to become an enterprise which makes cost-effective domestic pick and place machine of our own and we intend to break the current situation of international monopoly.

We have maintained the philosophy of being patriotic, pragmatic, innovative as well as serving the society. The products of pick and place machine on sale are not only appreciated by small and medium-sized enterprises at home, but also very well received by consumers abroad.

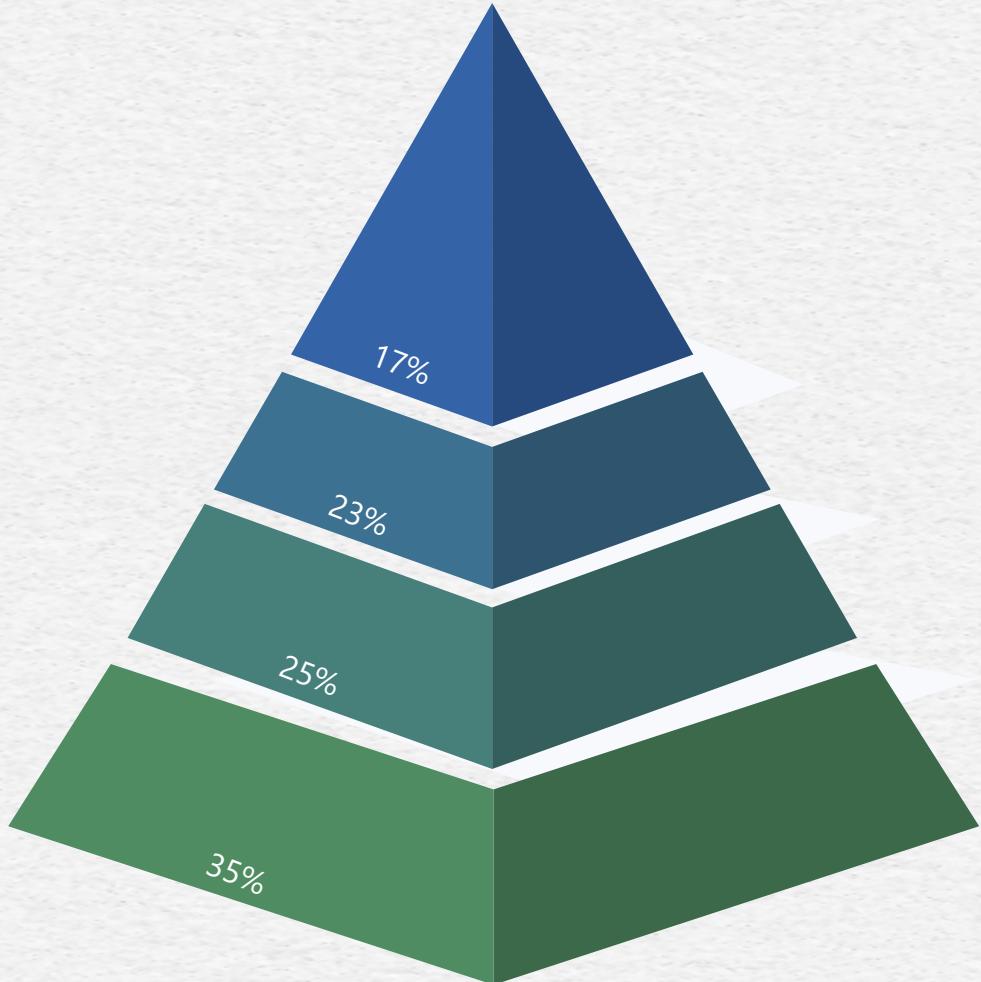


# *The Course of Development*



# An Overview of Current Models

Universality,high-precision,high-efficiency and high-smartness



### **Pick and Place Machine with Four Heads**

It is the main machine for PCB proofing in small volume of production.



### **Pick and Place Machine with Six Heads**

This type of machine runs at a medium speed and is of high precision, and it is universal for different requirements.



### **Pick and Place Machine with Eight Heads**

This high-precision, universal machine can be applied to the demand for mass production according to different requirements.



### **Innovative DU Series—Universal Pick and Place Machine at a High Speed**

In addition to meeting the basic needs, this type of machine is able to mount ultra-high electronic components up to 20mm.



# **Basic Elements of SMT Pick and Place Machine**

Several core elements you must know for purchasing machines



# The Most Essential Elements of A Qualified Pick and Place Machine

Before purchasing a machine, we must carry out a reasonable appraisal and consideration of the most essential performance. The quality and price varies vastly due to the multiple brands, so customers can't even figure out how to choose one which is most suitable for him-self. And it is very necessary for you to make full preparation before purchasing.

Then how can we choose a machine suitable for ourselves?



mounting accuracy



mounting stability



mounting Intelligence



mounting efficiency

The resistor and capacitor above 0402 can not represent the accuracy of the machine. The mounting accuracy and repeated mounting accuracy referred mean whether the precision chip with the lead pitch of 0.3mm can be accurately mounted. And the process can be completed without a second adjustment in a row for ten times.

After adjusting the program, the rate of finished products is higher than 99.5% under the condition of continuous 24-hour mounting.

The degree of manual involvement in the process of programming is less than 15%, most of the work is undertaken by the software part of the machine and completed automatically.

It refers to the mounting efficiency of the equipment per hour, namely the number of components to mount in unit time under the premise of ensuring the stability, for example, with stopwatch timing, the mounting efficiency of the machine is  $100 / 25 * 3600 = 14400$  pc/h based on the calculation of 25 seconds for 100 pieces.

# Introduction of Accuracy Unit

**0.05mm**

Mounting Accuracy

**0.01mm**

Positioning Accuracy

**0.02mm**

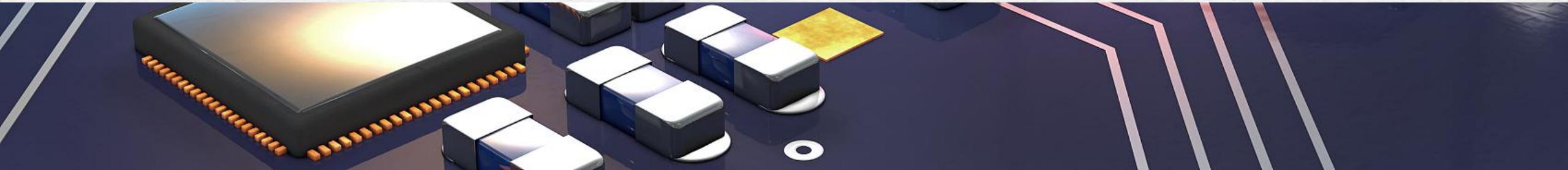
Repeated Accuracy

**24h**

Non-stop Work

# **HW-T6-64F**

Independent high-speed multi-function machine with six heads which can hold 64 feeders





The Real Shot from the  
**Front**





External

# Structure of the Machine





华维国创  
Huawei Guocre

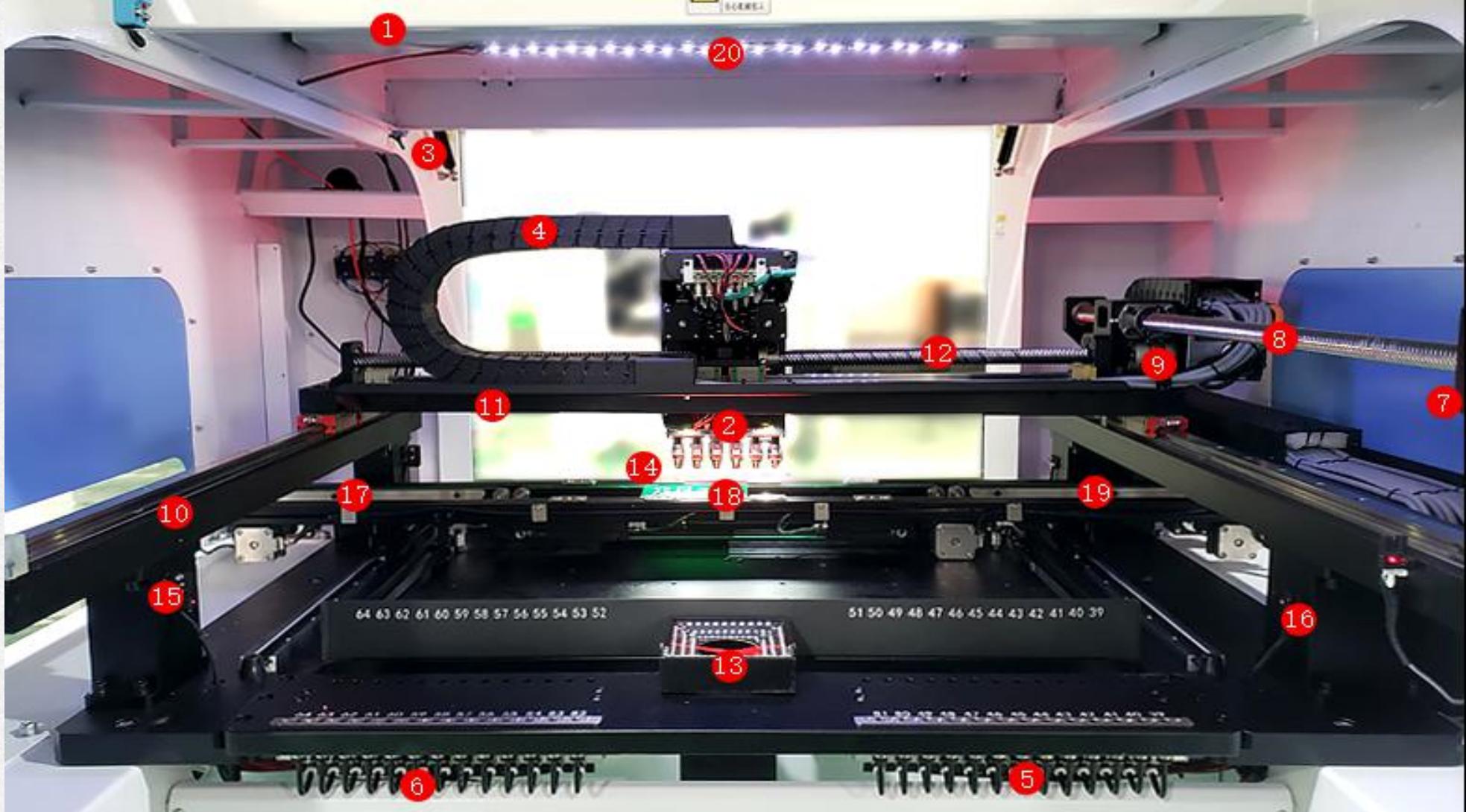
# Dimension of the Machine





Internal

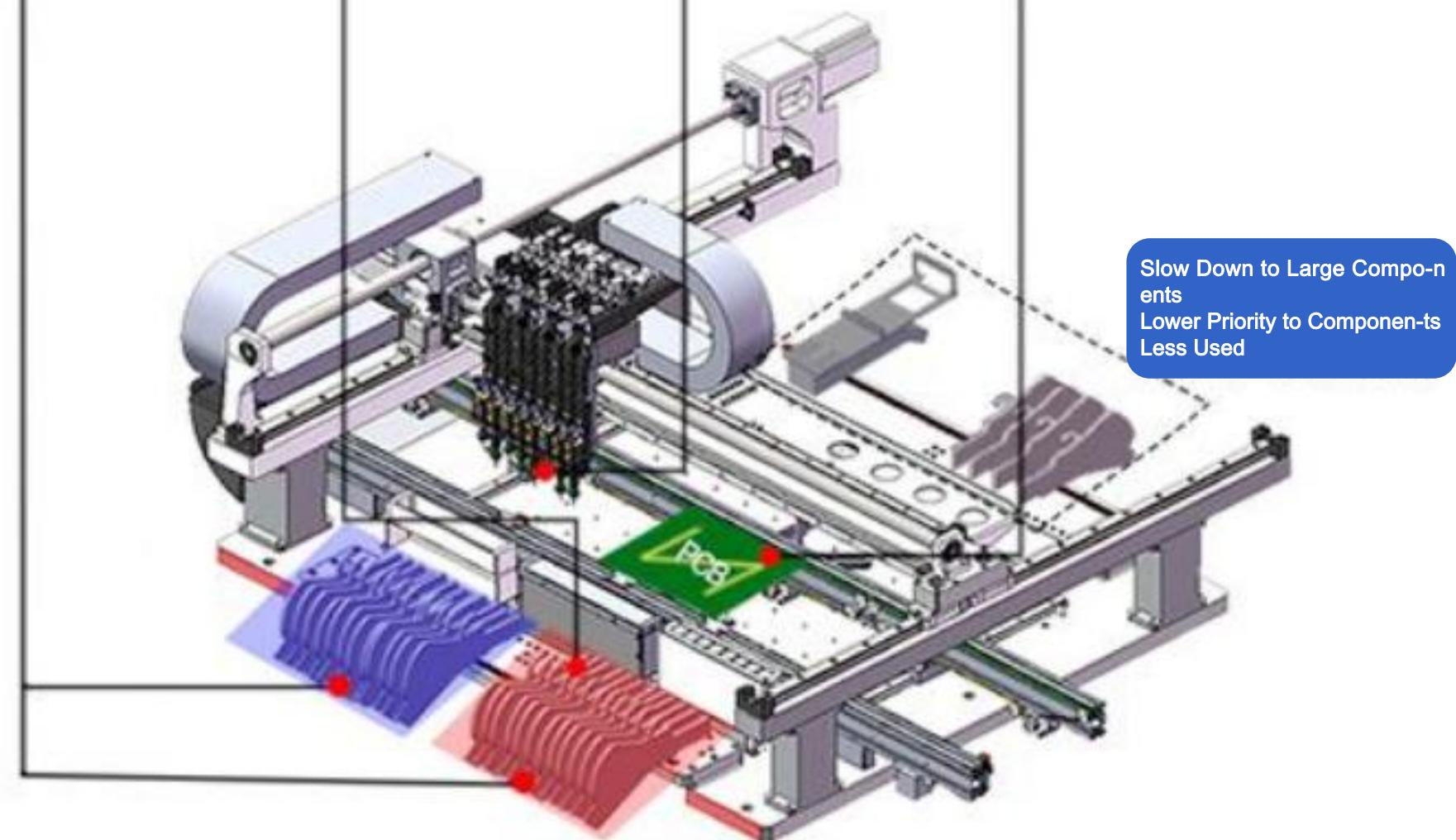
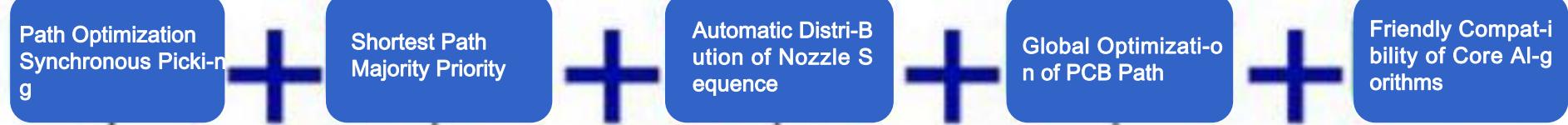
# Structure of the Machine

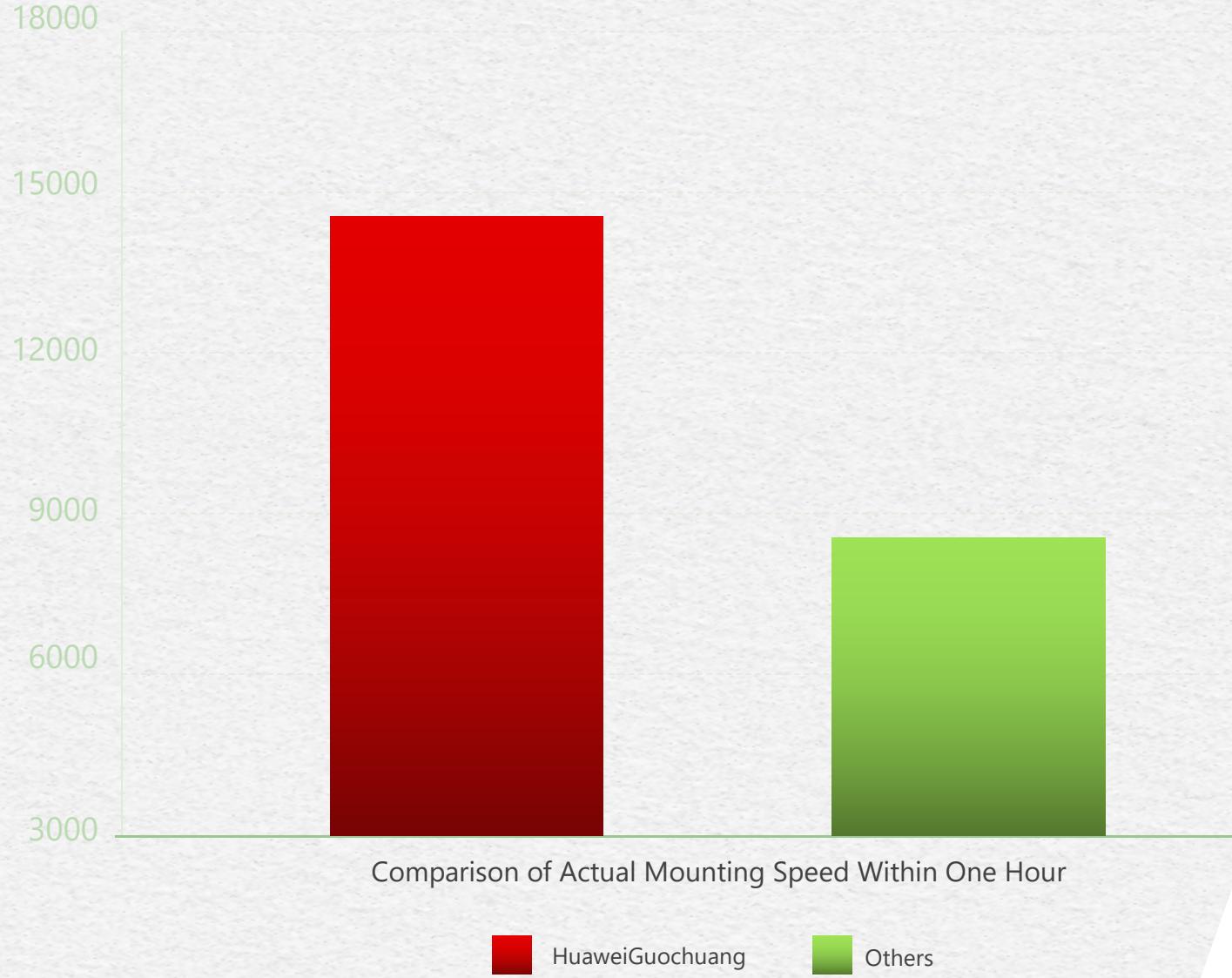


- 1.Housing 2.Placement Heads 3.Pneumatic Support Bar 4. Flexible Silent Cable Carrier
- 5.6.Feeder Slots 7.Servo Motor of Y Axis 8.Ground Ball Screw of Y Axis 9.Servo Motor of X Axis
- 10.Linear Motion Guide of Y Axis 11.Linear Motion Guide of X Axis 12.Ground ball screw of X axis
- 13. 5MP HD Camera 14.1MP Fast HD Camera 15.16.Anti-Collision Sensor 17.Waiting Area
- 18.Mounting Area 19. Exiting Area



# Mounting Project Optimization System





\*The speed is the actual mounting speed calculated by manual hand-held stopwatch within one hour, so as to eliminate the possibility of exaggerating the data with false mark in the software.

# Competitive Comparison

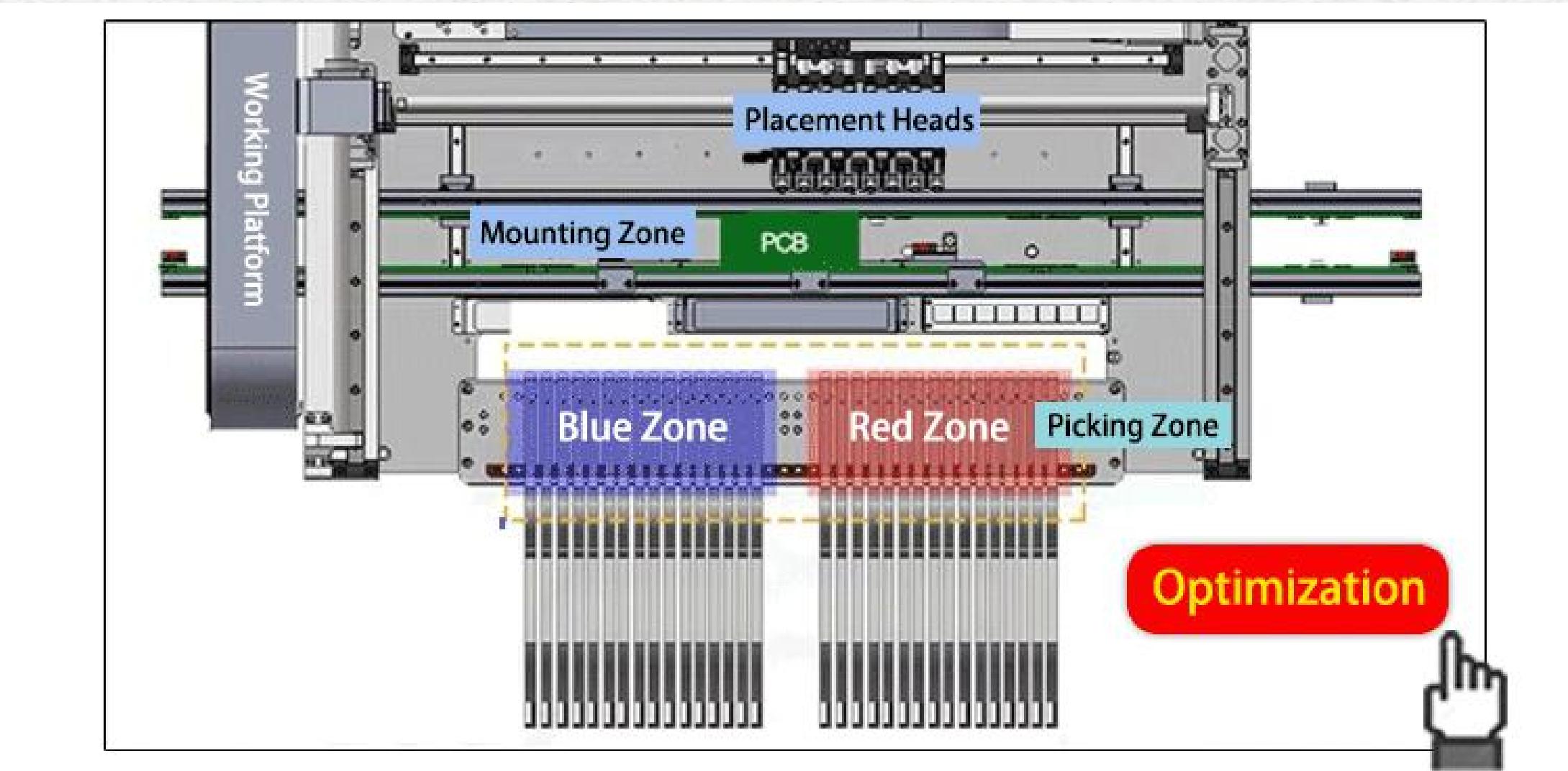
## of Mounting Efficiency



# Product Advantages

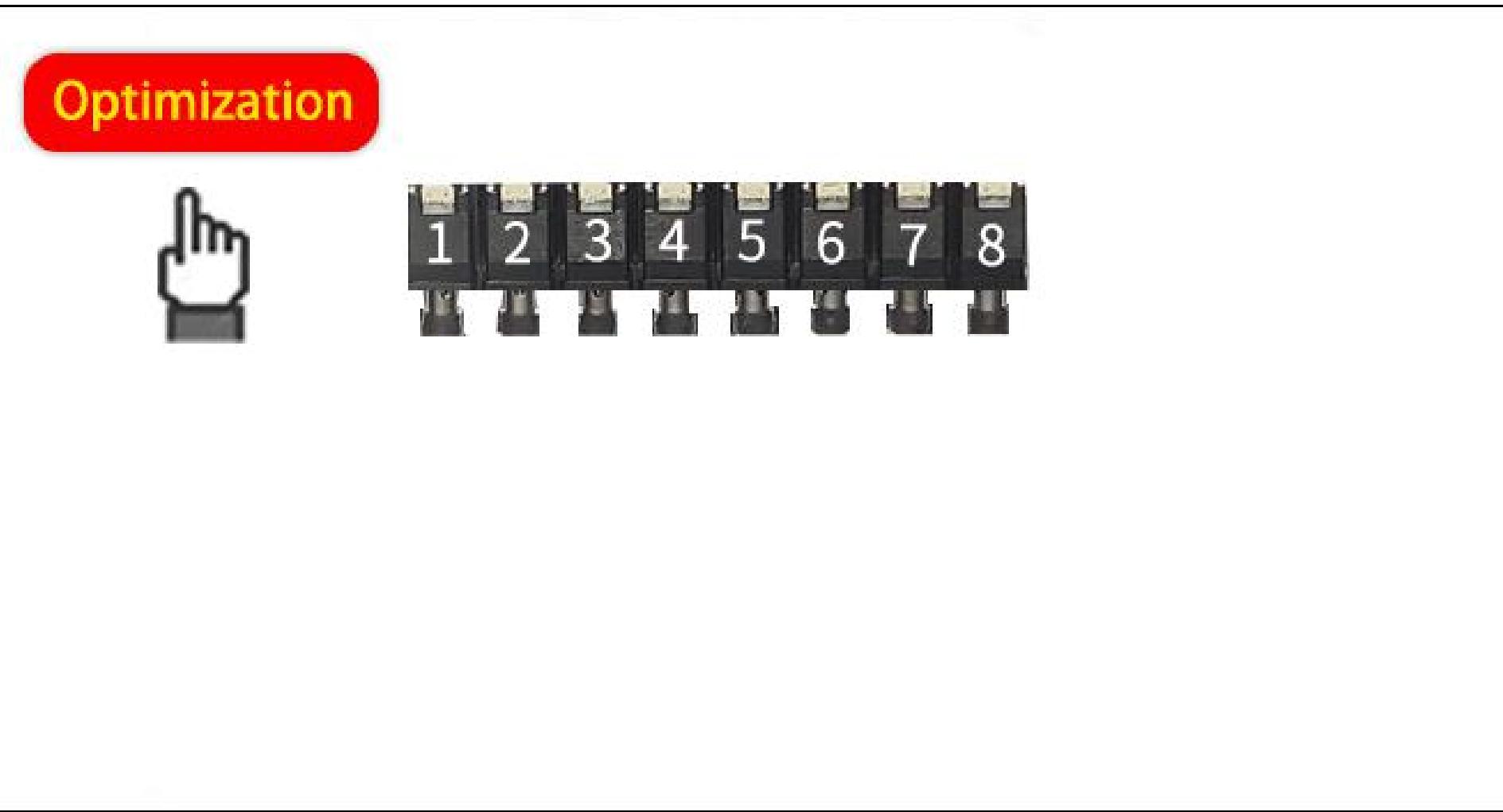
Software

Intelligent optimization makes the troublesome distribution of multiple components' feeding more efficient and logical, compared with the traditional manual method.



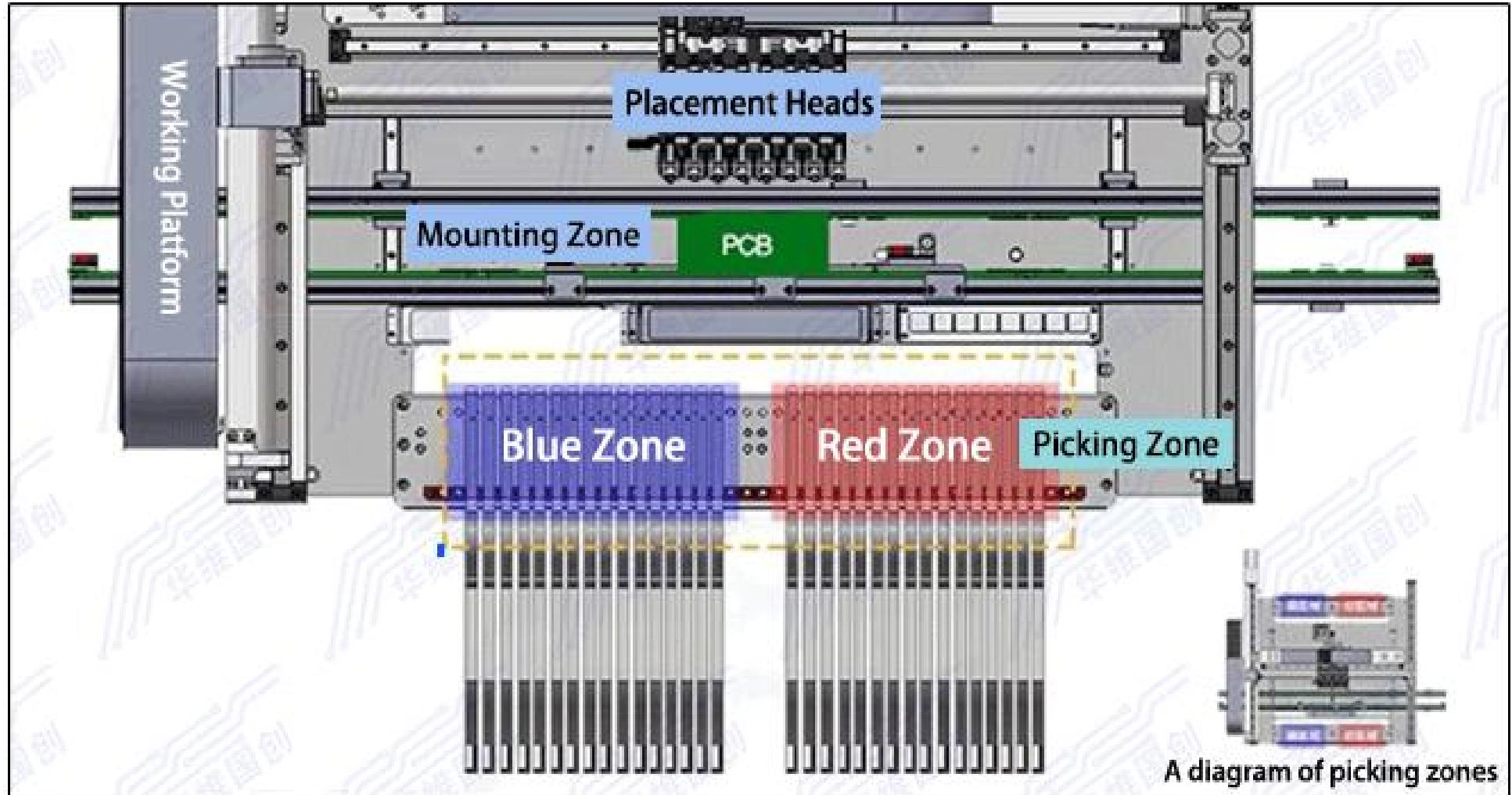
Automatic optimization of feeders' installation positions tackles the problem of tedious manual distribution perfectly

Select nozzle models intelligently according to BOM, and update the position number of corresponding nozzle in the program synchronously.



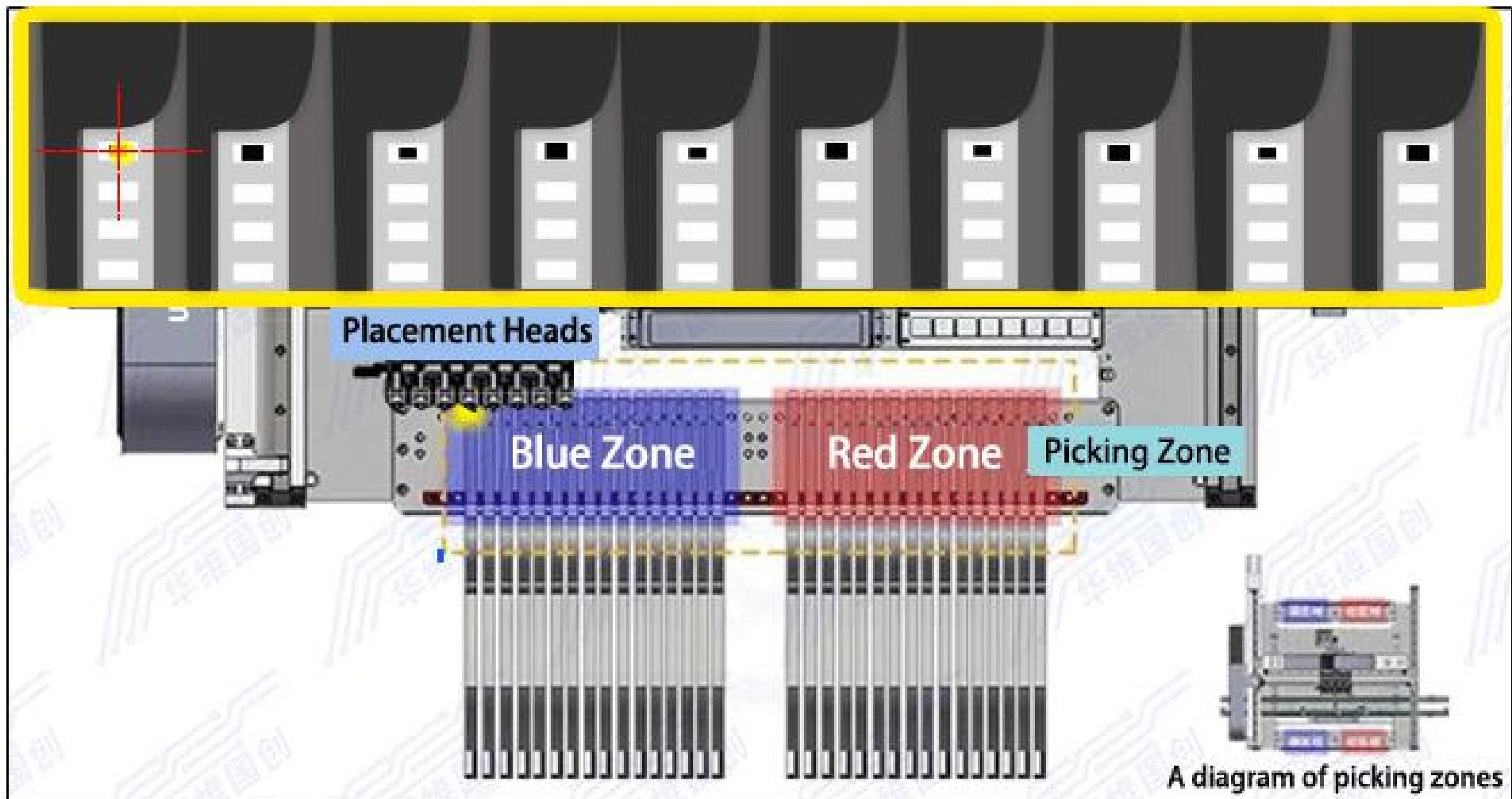
**Automatic optimization of nozzles' installation sequence**

The seamless connection between feeding and picking is achieved by the one-click optimization implemented by intelligent algorithms.



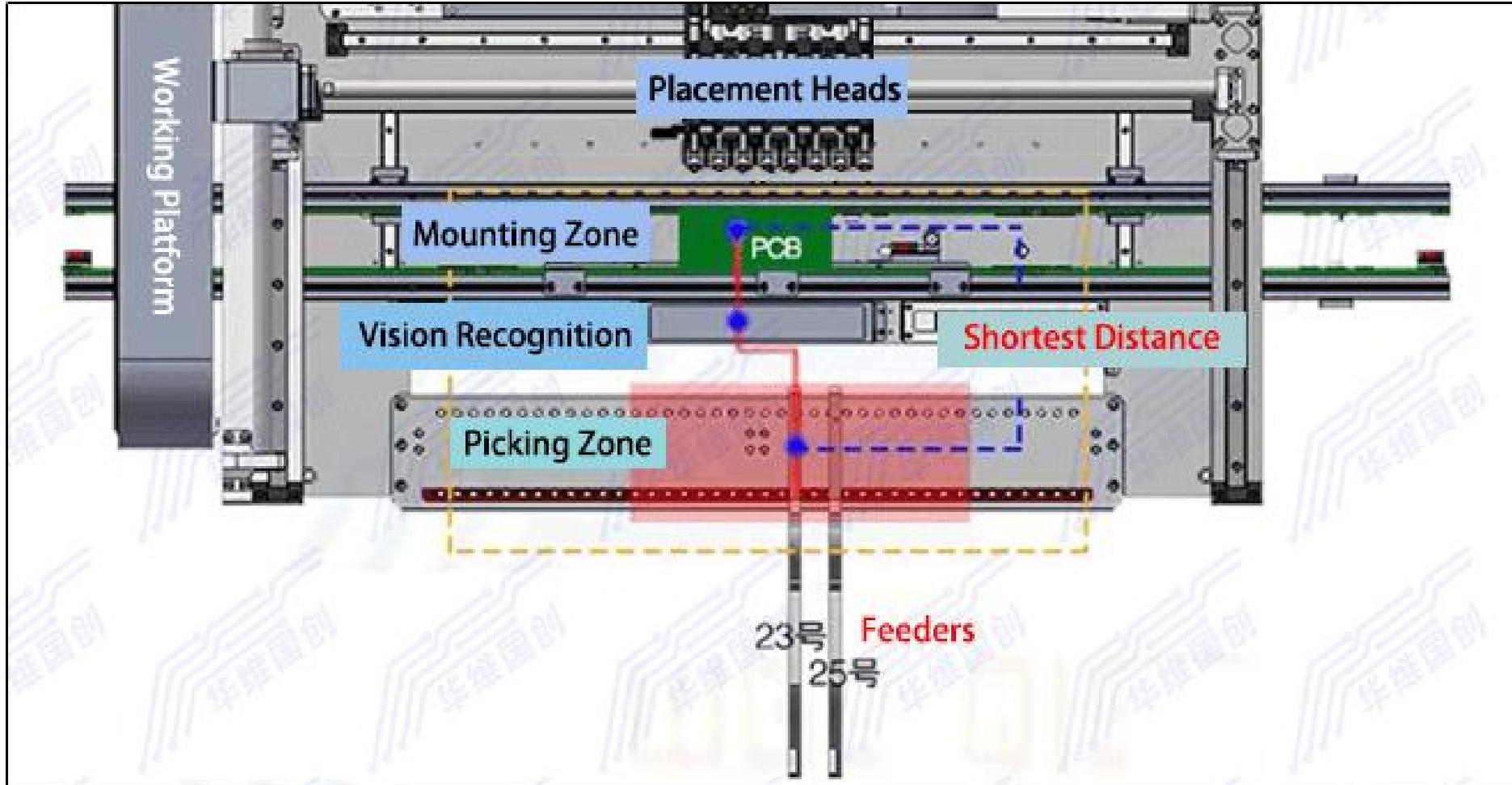
Concurrent picking with multiple heads, which maximize the efficiency of picking

The meaning of this function: It can save 30% programming time costs and greatly improve efficiency by fast, efficient and accurate one-click operation.



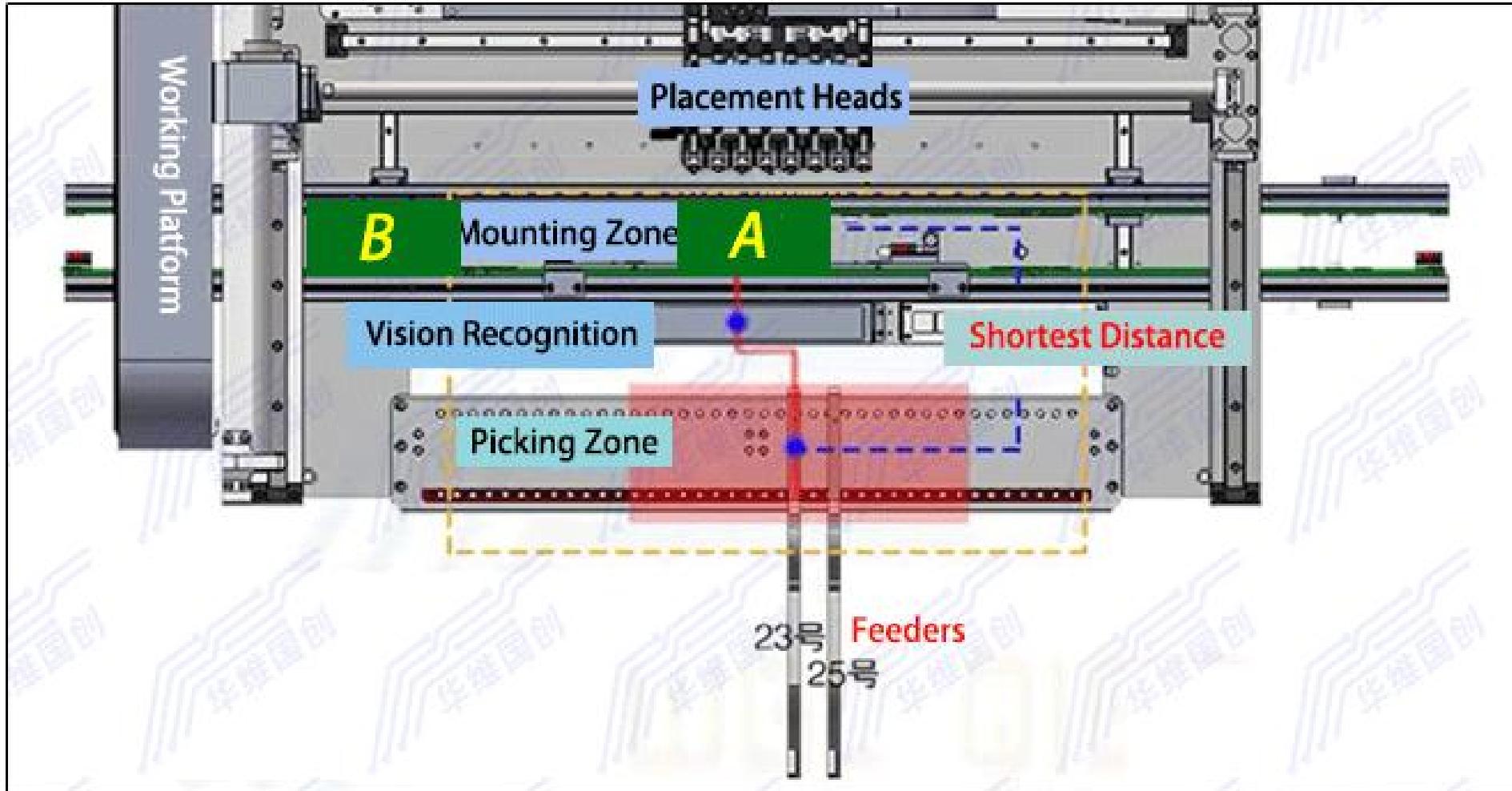
Automatic calibration of feeder picking coordinates

Using the system's intelligent algorithm, HuaweiGuochuang mounting system can help you make it with just one click instead of conducting tests and distributing the complex and massive layout by hand.



Full automatic layout of the shortest path for mounting

In order to save time costs as much as possible and realize high energy efficiency, we divide the entry process into three stages including waiting stage, mounting stage and exiting stage for finished products.



Three-stage entry

# Details of Products

True precision, true high-efficiency and true smartness

# Industrial Computer

17-inch display, keyboard and mouse.

User-friendly OS already installed, supports WinXP / Win7, vision programming and PCB file importing etc.

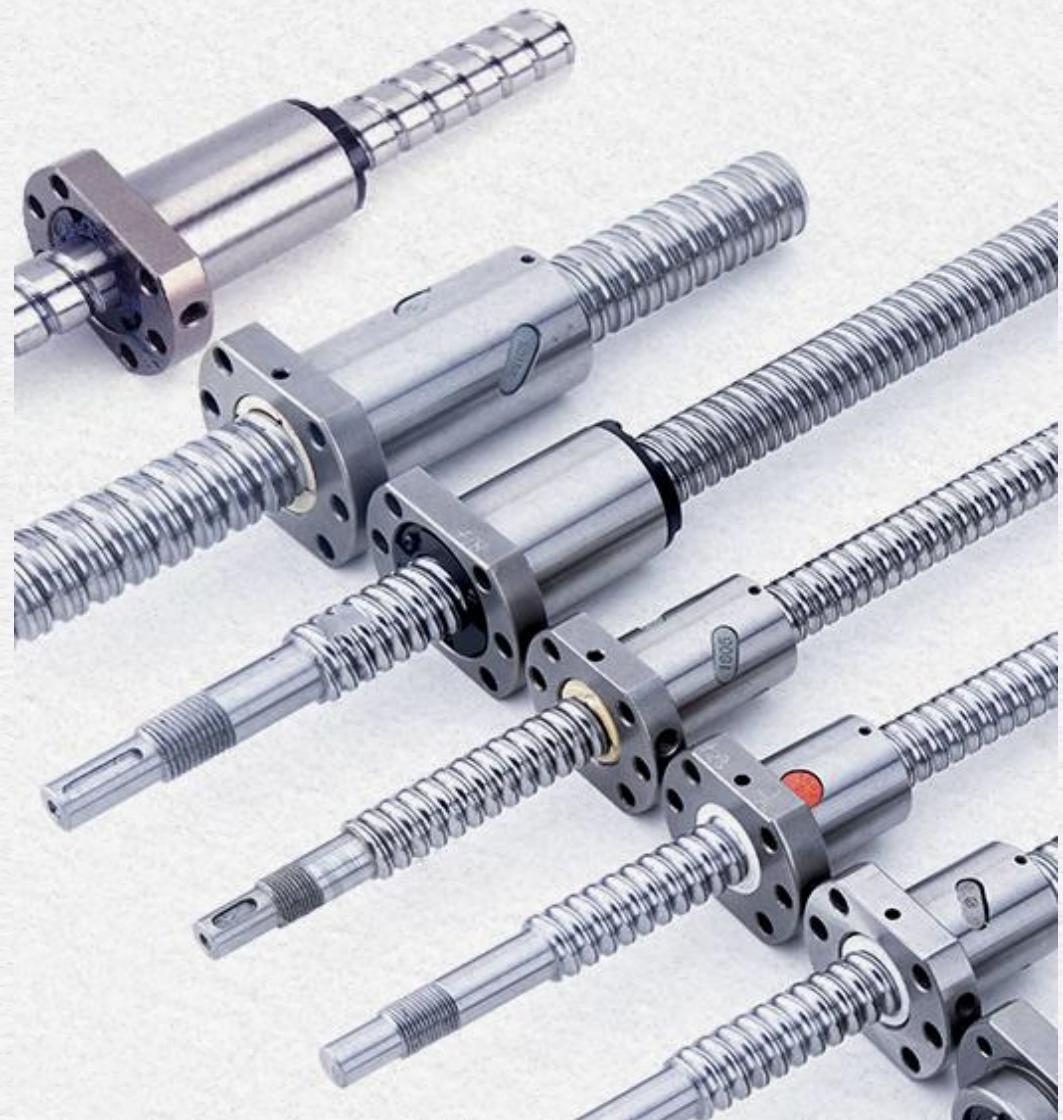


# Precision Ball Screw and Linear Motion Guide

The use of imported precision ball screw and linear motion guide, will bring long term maintenance-free operation, high accuracy and noise-free running, improves the machine performance effectively.

Guarantee the mounting accuracy of 0201-0402,QFN,QFP and BGA.

Achieve high stability of 24-hour continuous work without downtime, considerably improving the productivity.



# High Durable Cable Carrier and Flexible Cable

Use the same type of cable carriers bearing up to 10 million constant motions as imported machines.

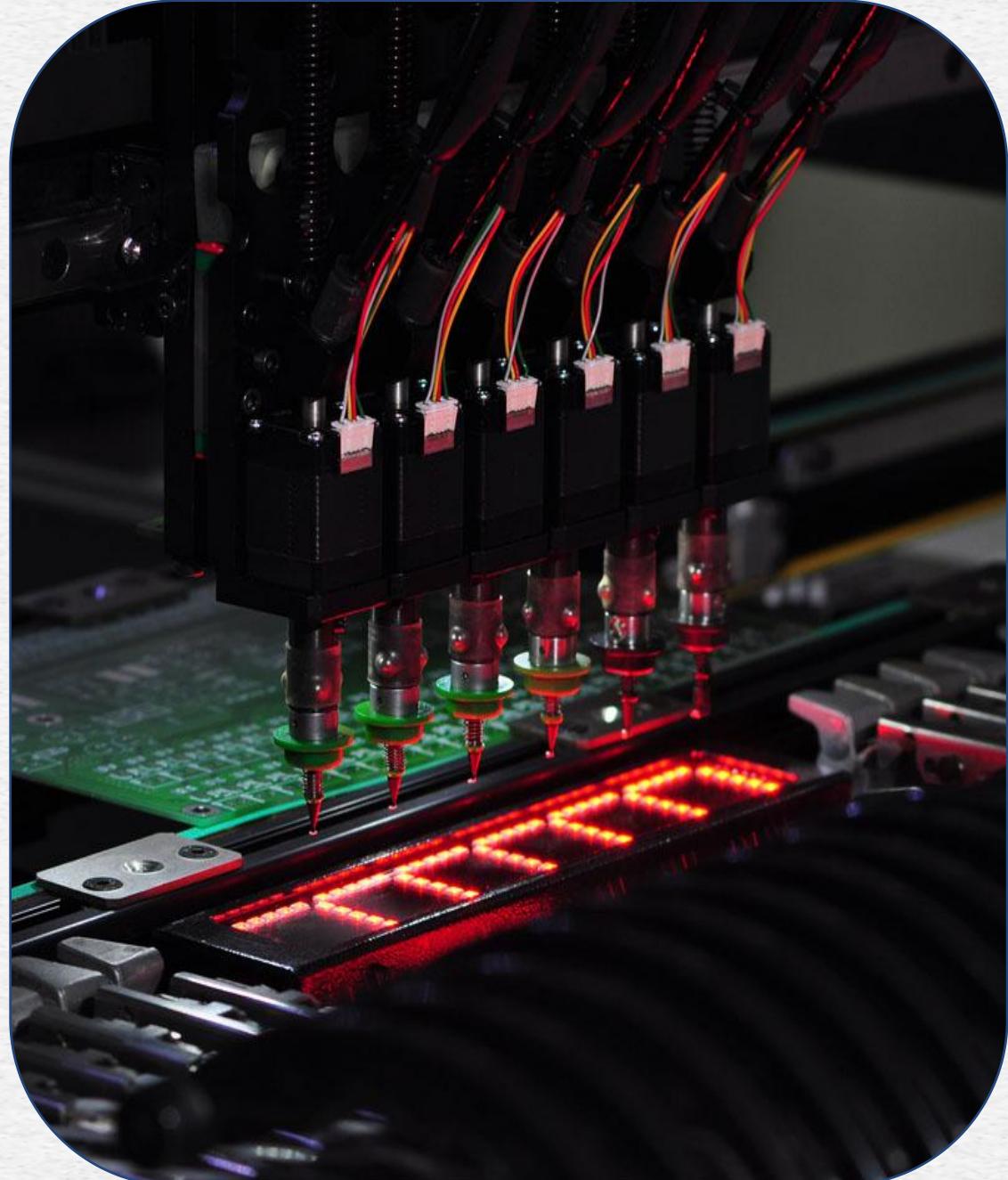
Igus flexible cables designed for industrial motion application, which can resist a range of dangerous conditions, like extreme temperatures and oil, and can handle any type of motion, including horizontal, torsional or high speed, ensure the reliable connection of the electrical circuit in high-speed reciprocating motion.



# HD Camera

Professional imported 5MP industrial calibration HD camera used for mounting chips and its supporting 5MP distortion-free industrial vision HD lens.

Six 1MP industrial fast recognition cameras which can increase efficiency significantly by simultaneous recognition of 6 placement heads.



# Product Specification

Software part

Model	HW-T6-64F
Number of Placement Heads	6(high-accuracy)
Number of IC Trays	48
Number of Feeders	64(subject to 8mm feeder)
Positioning Accuracy	0.01mm
Repeated Mounting Accuracy	0.02mm
Range of Mounting Speed	9000-10000Pcs/h
Applicable Components	resistor, capacitor, chip, lamp bead etc.
Supported Maximum Area of PCB	500*370mm
Feeders	electric feeder, pneumatic feeder, vibrating feeder, IC tray etc.
Recognition Devices	mark camera x1, fast recognition camera x6, high-precision camera x1
Maximum Height of Applicable Components	≤7mm
Recognition Methods	simultaneous recognition and picking with six heads
PCB Convey Mode	three-stage entry, automatic connection from left to right, automatic PCB positioning
Mark Positioning	manual / automatic
Programming Method	automatic programming after manually importing files of PCB coordinates
Control System	HuaweiGuochuang control system
Maximum Step Length of XY Axis	629mm*679mm
Tracks of XY Axis	double linear motion guide + double ground ball screw
Motion Mode of XY Axis	intelligent linkage of acceleration and deceleration of curve and line, integrated linear interpolation algorithm.

Price	
Control Computer	industrial control computer with Intel high-performance processor
Adjusting Method of Tracks	electric
Range of Nozzle Buffer	4.5mm
Maximum Step Length of Z Axis	20mm
Range of Angle for Components	±180°
Air Supply Requirements	oil water filter,≥ 60L,dust filter and air pressure stabilizer etc.
Vacuum Supply of Nozzle	Japanese CKD vacuum generator integrating the high-speed vacuum burst function
Range of Air Supply Pressure	0.5-0.6mp
OS	Independent research and development SMT intelligent OS based on Windows
Vision Display	17-inch industrial control display
Cable	German Igus durable flexible cable ( 10 million times )
Power Supply	220V 50/60Hz
Average Power	600W
Machine Dimensions	1316*1360*1340mm
Weight	438kg

# Software Operation

Reduction of errors caused by manual edit and achievement of intelligent programming

# Operating Manual

1

## Create production project and set mark points

Import the .CSV file exported from PCB files, generate project coordinates through four corner coordinate positioning, and automatically generate mark points. Through the packaging library, the layout of material station and nozzle can be generated intelligently, and the picking parameters and mounting parameters can be generated at the same time, greatly improving programming speed.

2

## Install feeder / nozzle

Install the corresponding feeders of electronic components and nozzles according to the assigned station of the system.

3

## Calibrate feeder picking coordinates intelligently

One-click operation without manual work. It can automatically calibrate installed feeder picking coordinates. Originally, it took an hour, but through the function of automatic scanning, it could be completed in a few minutes.

4

## Start mounting

After a short manual adjustment and efficient automatic programming, the process quickly enters the first board trial, then you can start mass production if it runs smoothly.



# **Automatic Assignment of Mark Points**

# **of Mark Points**

This screenshot shows the user interface of the Huahuike SMT贴片机智能版控制系统 V2.0 (2020智能版). The interface is divided into several sections:

- Top Bar:** Includes "DISCONNECT", "Project Create/Open", "Project Close", "DU800\_96F\_EE Registered", "System Setting", "Device Calibration", and a "64" button.
- Project Information:** Displays "PROJECT: D:\Smt\Customer\2020\_new4\黄典盛\RH0120210129.qn".
- Tool Buttons:** "PCB Edit", "SMT Run", "PCB Standard Mode", "Feeder Para", "PCB Edit", "Optimize", "Feeder Plug", "Feeder Para", "Diagnosis", and "SMT Run".
- Import PCB Section:** Contains "Import PCB", "Import Coord", "Import BOM", "0/41", "Search", "PCB", "Check", and "Angle" buttons. A context menu is open over a table of component data, showing options like "Label", "Chip Value", "Footprint", "X", "Y", "Angle", "Re-Write", "Hidden Current Column", "Show All Columns", and "Optional".
- Control Panel:** Features "MarkCam", "FastCam", and "HighCam" buttons. Below them are buttons for "Noz 1" through "Noz 8", "Mark Para", "Mark Light", "Mark Led", "Fcam Led", "Hcam Led", "Zoom x2", "Visual Debug", and "Throw".
- Movement and Debugging:** Includes buttons for "Back", "Up", "In-Board", "PCB-fix", "Out-Board", "PCB-rs", "Zero", "Cir", "Down", "Vacuum On", "Track+", "Track-", "Vacuum-Off-all", "Rst", "Right", "Left", "Fwd", and "PCB".
- Positioning:** Displays "XY Step" (10000), "Z Step" (100), "A Step" (78.00), and "Track Step" (64) with corresponding speed sliders (59, 60, 64, 56).
- Sign Placement:** Shows "Sign in PCB XY (mm)" and "Sign in Machine XY (step)" sections. It lists four signs (Sign 1, Sign 2, Sign 3, Sign 4) with coordinates and color-coded boxes (orange, cyan, purple, blue). Buttons include "Save", "goto", "Auto Get Sign", "Pricise Mode", and "Generate PCB data".



# Automatic Creation

## of Mounting Program After Manually Importing the File of Coordinates

PCB Edit → Optimize → Feeder Plug → Feeder Para → Diagnosis → SMT Run

PCB Edit

Import PCB Import Coord Import BOM 0/41 Search PCB Check Angle X

n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
R17	a0603	3.4	32.7	90	100K									
R20	a0603	21.3	45.2	180	100K									
R3	a0603	29....	49....	360	100K									
R25	a0603	21....	38....	180	100K									
R26	a0603	21....	40....	180	100K									
R27	a0603	21....	36....	360	100K									
R28	a0603	21....	41....	360	100K									
R32	a0603	26....	43....	270	100K									
R10	a0603	1.9244	46....	90	100K									
C5	a0603	18....	91....	0	100nF									
C7	a0603	28....	91....	0	100nF									
C12	a0603	5.3	32.73	90	100nF									
C13	a0603	6.8554	32....	90	100nF									
C14	a0603	8.4	47.3	270	100nF									
C17	a0603	23....	36....	90	100nF									
C20	a0603	22.319	32....	270	100nF									
C23	a0603	18....	32....	90	100nF									
C24	a0603	18	47.3	270	100nF									
C21	a0603	21....	35....	180	100nF									

Sign in PCB XY (mm)

Sign in Machine XY (step)

旋转180放置

Auto Get Sign  Precise Mode

Sign 1	X 31.4757	Y 113.698	X50000 Y50000	Save goto	Save goto	X50411 Y70245
Sign 2	X 17.606	Y 2.8071				
Sign 3	X 32.9	Y 43.5				
Sign 4	X 1.7	Y 32.7	X41416 Y73360	Save goto	Save goto	X46001 Y81981

PCB

Generate PCB data

The diagram illustrates the mapping between signs defined in the PCB and their corresponding coordinates in the machine. It shows four signs (Sign 1, Sign 2, Sign 3, Sign 4) with their XY coordinates in mm on the left, and their corresponding step coordinates (X, Y) on the right. Arrows indicate the transformation from the PCB signs to the machine signs.



# One-click

Intelligent Optimization of  
Mounting Program

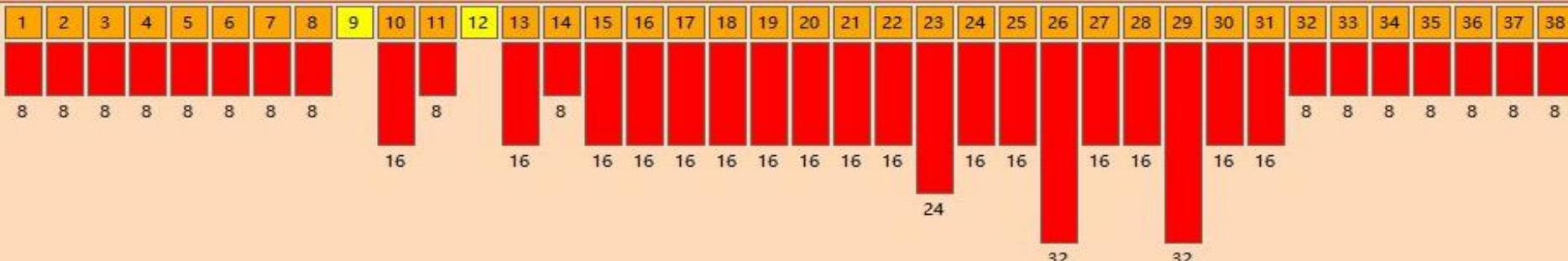
## 分类设置 优化生成贴装列表

来自封装库	料槽吸嘴禁用设置	<input type="checkbox"/> 开启备用吸嘴	一键生成	本地料站库									
删除选定	从其他工程导入料站号	2/2	优化结果										
	型号	封装	数量	供料	料站号	多组供料	吸嘴	同取容差(毫米)	相机	视觉算法	识别模式	降速搬运	高度(毫米)
	2	402	48	CL8-4	自动	1	502	0	快速相机	标准视觉	二...	<input type="checkbox"/>	0
▶	5	LQFP1...	1	料盒	自动	1	505	0	高清相机	标准视觉	精...	<input checked="" type="checkbox"/>	0



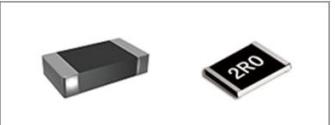
# Automatic Optimization for the Layout of Nozzles and Feeders

## **Feeder Installation Chat**



# Applicable Components

Resistor and capacitor



Resisto capacito

Lamp bead



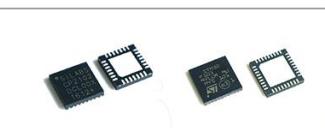
Lamp bead Lamp bead Lamp bead

SOP TO



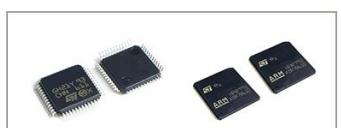
SOP SOP TO

QFN



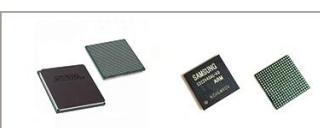
QFN28 QFN36

LQFP



LQFP48 LQFP144

BGA



BGA BGA

Pin header connector



Pin header connector Pin header connector

\*0201 , 0402 , 0603 , 0805 , 1206 , diode , triode, SOT and QFP , BGA with lead pitch  $\geq 0.3\text{mm}$  (subject to dimension of 40\*40 mm and lead center distance 0.5mm) etc.

# Honors

With the development of intelligent motion control system, visual recognition system, image processing system and other core technologies, our patch technology is becoming more and more mature.

In terms of hardware manufacturing, the core parts are imported brands to ensure more stable, reliable and long-term product performance. After winning a variety of invention patents, utility model patents and software copyright, the current mounting standard has reached the international level.

We not only have a stable customer base in China, but also get more and more favor overseas.





## Installation Requirements

- Air Pressure: range of 0.55Mpa-0.65Mpa  
Air Quantity: according to the scale of production line  
Air Condition: oil water removal  
Voltage: 220V for pick and place machine  
380V for reflow oven  
Temperature: 17°C ~ 28°C  
Humidity: 45% ~ 70%RH



**Customers in North of China**



**Customers in East of China**



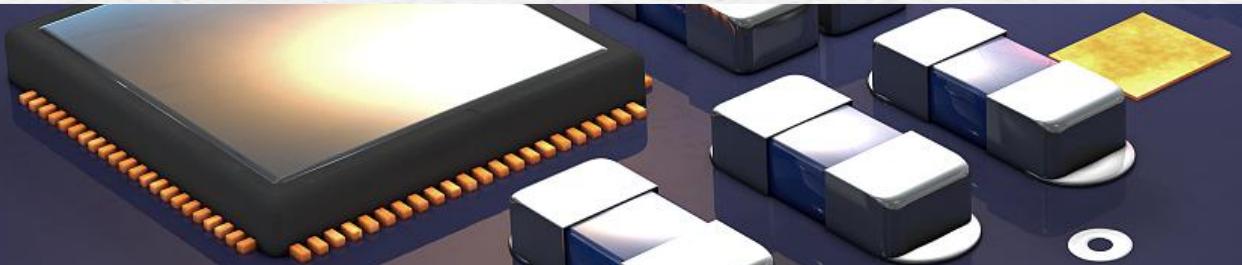


**Customers in South of China & Overseas**



# Common Production Line Configuration

The production line will be different according to different mounting needs, the following is for reference only



北京华维国创电子科技有限公司

Beijing Huaveiguochuang electronic science and technology Co., LTD.

## 六头贴片机生产线方案

Scheme of 6-nozzles chip mounter production line

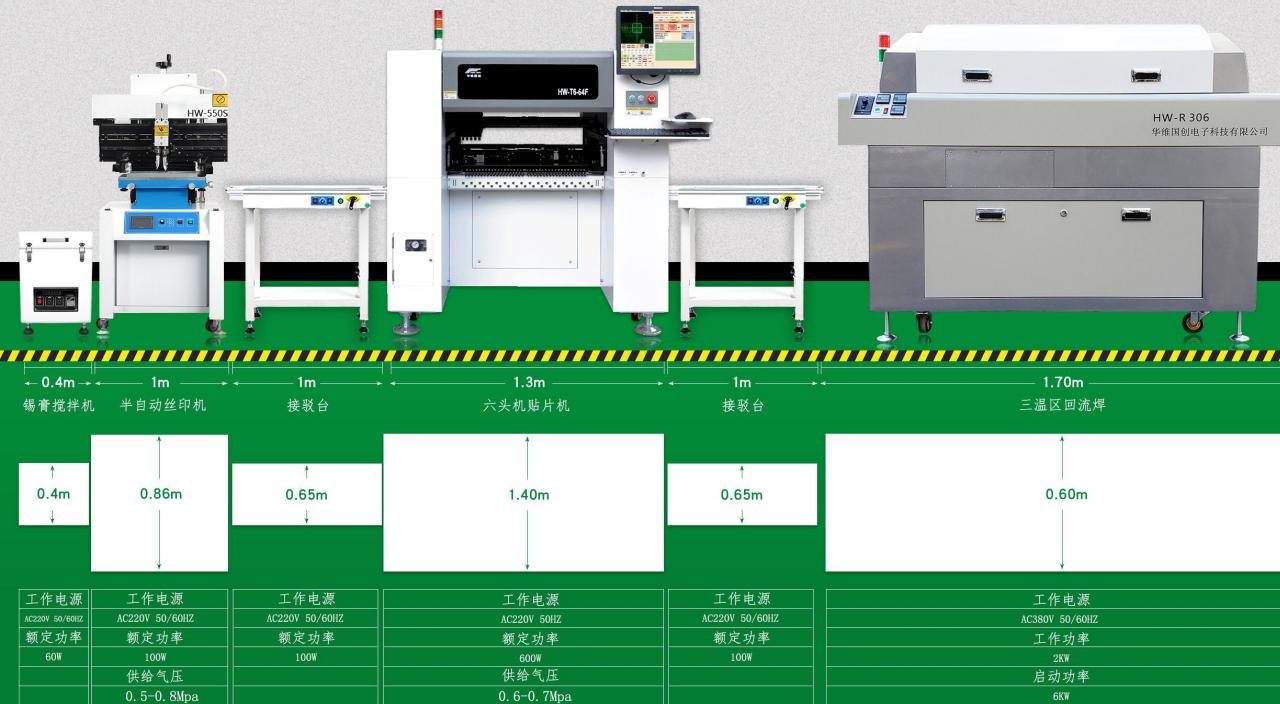
### 贴装速度区间

Interval of mounting speed

9000-11000Pcs/H

生产线总长度（6.4）米

建议配备生产人员1-2名



A production line plan which combines an six-head machine and a reflow oven with three heating zones

北京华维国创电子科技有限公司

Beijing Huaweiguochuang electronic science and technology Co., LTD.

## 六头贴片机生产线方案

Scheme of 6-nozzles chip mounter production line

### 贴装速度区间

Interval of mounting speed

9000-11000Pcs/H

生产线总长度（7.7）米

建议配备生产人员1-2名



正面长度  
Product name

侧面宽度  
Product width

产品参数  
Product parameters

锡膏搅拌机 半自动丝印机 接取台 六头机贴片机 接取台 六温区回流焊



工作电源	工作电源	工作电源	工作电源	工作电源	工作电源
AC220V 50/60HZ	AC220V 50/60HZ	AC220V 50/60HZ	AC220V 50HZ	AC220V 50/60HZ	AC380V 50/60HZ
额定功率	额定功率	额定功率	额定功率	额定功率	工作功率
60W	100W	100W	600W	100W	4KW
供给气压			供给气压		启动功率
0.5-0.8Mpa			0.6-0.7Mpa		13KW

A production line plan which combines an six-head machine and a reflow oven with six heating zones

北京华维国创电子科技有限公司

Beijing HuaweiGuochuang electronic science and technology Co., LTD.

## 六头贴片机生产线方案

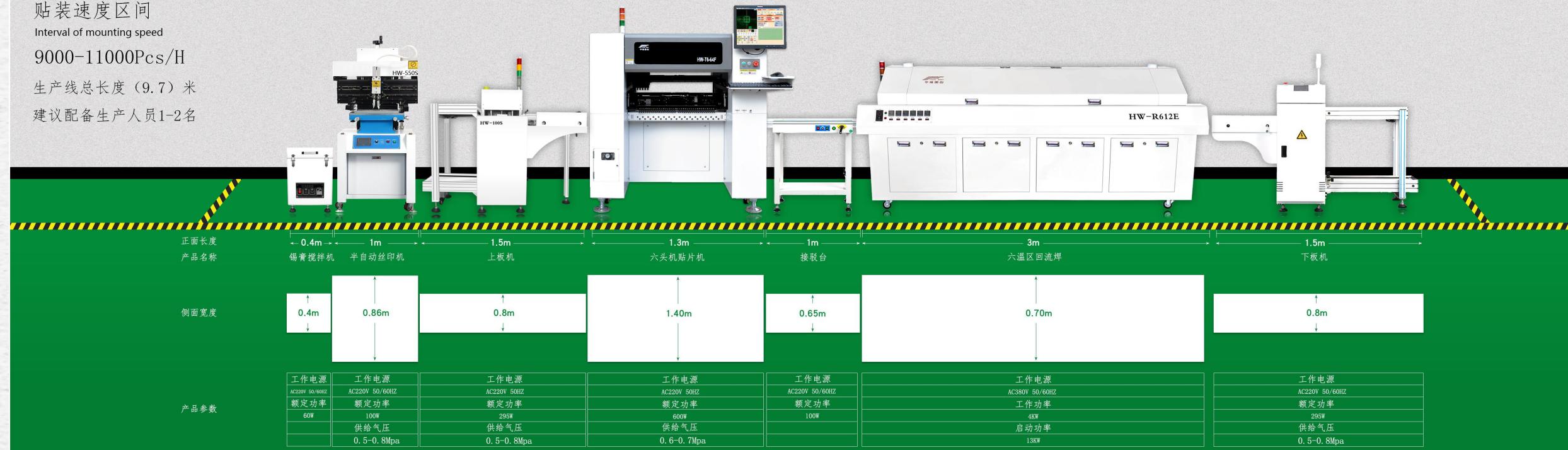
### Scheme of 6-nozzles chip mounter production line

贴装速度区间

### Interval of mounting speed

9000–11000 Pcs/H

生产线总长度 (97) 米



A production line plan which combines an six-head machine and a reflow oven with six heating zones

北京华维国创电子科技有限公司

Beijing Huaveiguochuang electronic science and technology Co., LTD.

## 八头贴片机生产线方案

Scheme of 6-nozzles chip mounter production line

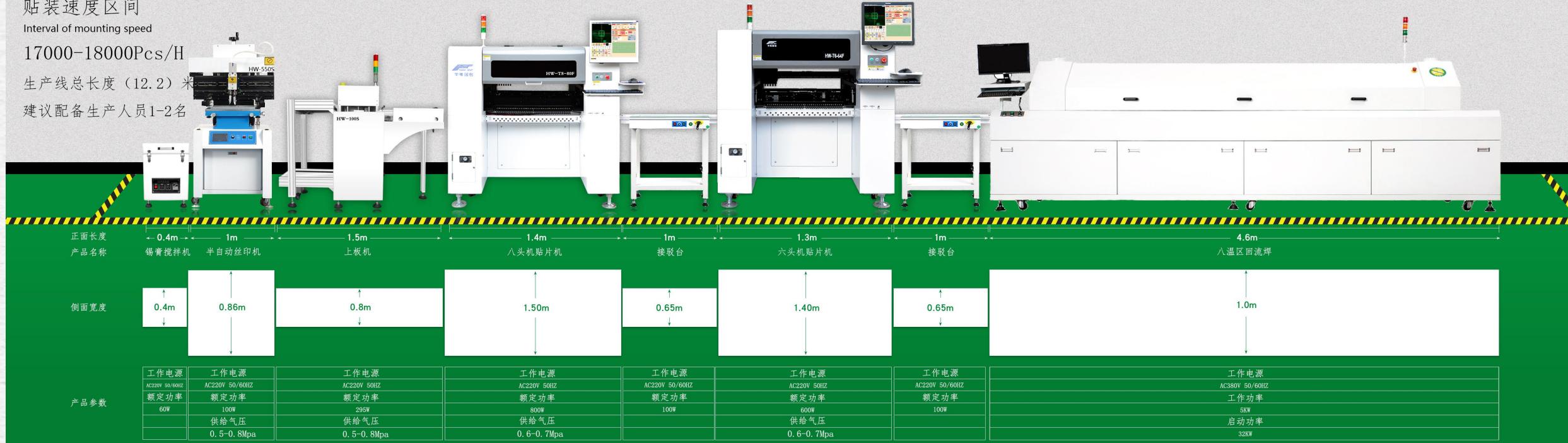
### 贴装速度区间

Interval of mounting speed

17000–18000Pcs/H

生产线总长度 (12.2) 米

建议配备生产人员1-2名



A production line plan which combines an eight-head machine, an six-head machine and a reflow oven with eight heating zones

# Order Process

Understand customers' demand, quotation, negotiation and contract signing

# Order Process



## Visit the Exhibition Hall

Carry materials for actual mounting test.



## Make a Plan

According to each customer's mounting needs, make a corresponding plan to the mounting production line.



## Sign the Contract

Finalize the plan and sign the order agreement.



## Product Delivery

Door to door installation training service.

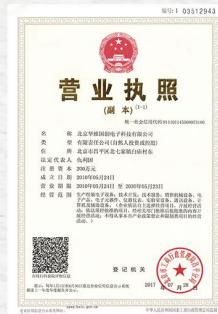
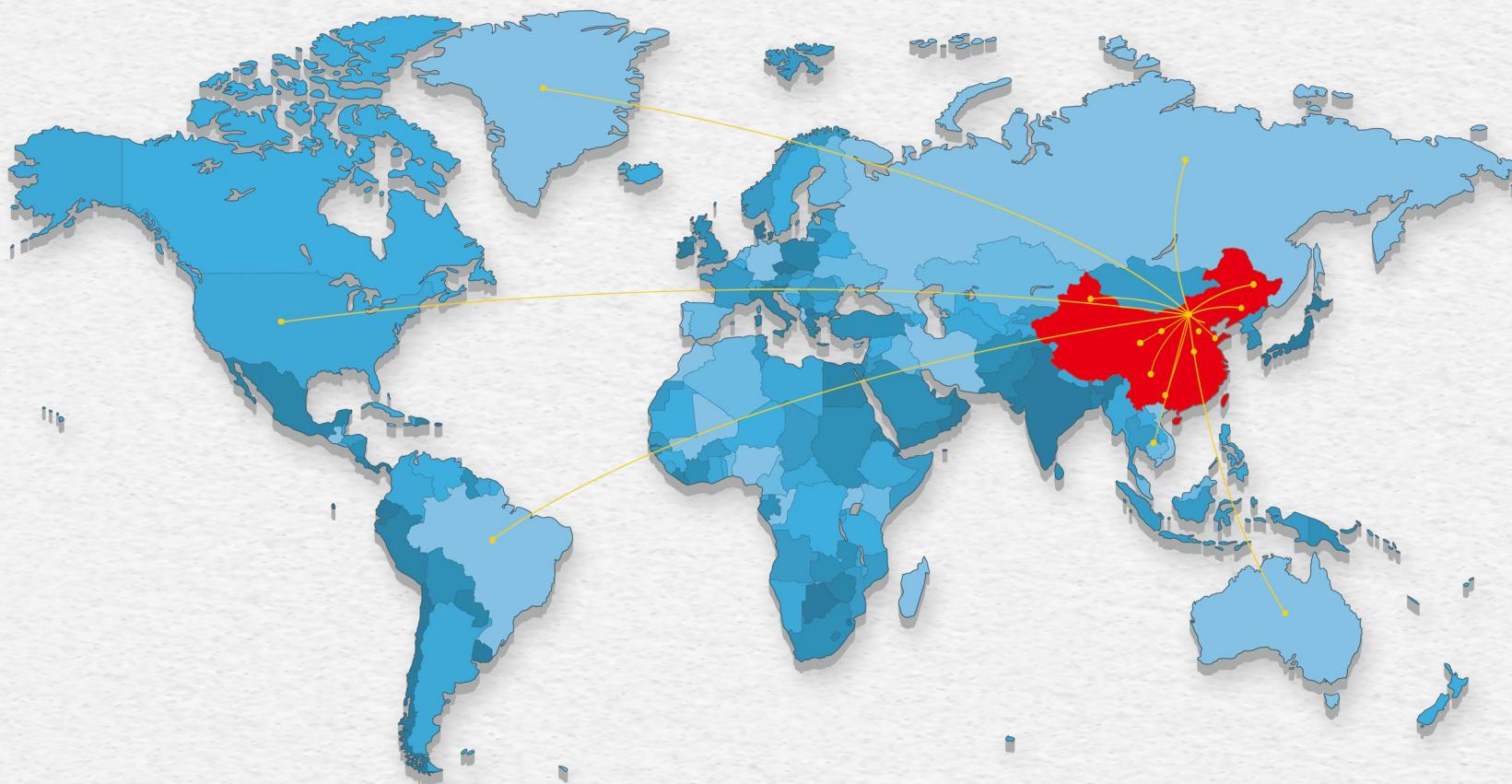
The R & D Department of the company is in Beijing with offices in Hangzhou and Shenzhen. In addition, we have a wide range of domestic users, and Based on the international market, we have a professional foreign trade sales team, our international market share is growing year by year.

Facing the market, we do not inflate parameters, and do not exaggerate the publicity; Facing the customers, we are practical and responsible for the products.

The pick and place machine produced by HuaweiGuochuang is high-end equipment used in electronic processing industry, and is mechatronics equipment which integrates motion system and software control system. Its main function is to mount the components on the circuit board. Product design is aimed at user groups who are in need of batch processing, and in order to achieve 24-hour non-stop work and continuous profitability of products, we consider the long-term non-stop work demand from the material selection, life, durability and other aspects.

HuaweiGuochuang is one of the few domestic manufacturers with R & D capability. We have been engaged in SMT equipment manufacturing for ten years.

Company R & D team: Software Engineer, architect, algorithm engineer, with more than 10 years of SMT R & D experience under master's degree.



# Thank you

for your attention to HuaweiGuochuang

HuaweiGuochuang takes scientific and technological innovation as its core competitiveness, aiming to realize the full intelligence of SMT production line and "zero" interval line change which means the maximum reduction of PCB switching time.

We have strict requirements on products, and will continue to follow up, develop and upgrade SMT equipment more suitable for industrial production, so as to meet different production needs and help each partner's long-term development.

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