

HW-T4-50F

Independent High-Speed

Multi-Function SMT

Pick-and-Place Machine

Product Documentation



Beijing HuaweiGuochuang Electronic Technology Co., Ltd.

Model: HW-T4-50F | Desk machine

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Overview

Independent high-speed multi-function pick-and-place machine with four heads

The HW-T4-50F is a desktop independent SMT pick-and-place machine designed for small to medium production runs, prototyping and electronic-processing workshops that need professional placement quality at a reasonable price.

It carries four high-precision placement heads, holds up to 50 feeders (or 44 in the 44FX layout) and supports an extensive component range — from 0201 chip resistors and capacitors to QFN, LQFP and BGA packages with a lead pitch ≥ 0.3 mm.

The machine combines imported precision ball screws, linear motion guides, AC servo motors and Igus durable flexible cables, and is driven by HuaweiGuochuang's intelligent control system with vision recognition.

Key facts at a glance

Placement heads	Mounting speed	Positioning accuracy
4 high-accuracy	7000 - 8000 pcs/h	0.01 mm
Repeated accuracy	Max. PCB area	Feeder slots
0.02 mm	350×280 mm (44FX)	50 / 44 (8 mm)



External

Structure

of the machine

Components labelled:

- Warning light
- Housing
- Width-adjustable tracks
- Emergency stop
- Power switch
- Electric control box
- Heavy-load anchors
- Safety shield
- Keyboard & mouse
- Feeder slots
- USB ports
- Computer switch



Machine Dimensions

Footprint and weight overview

Desk Machine

Dimensions (W × D × H):

1140 × 900 × 900 mm

Weight:

210 kg

Standalone tabletop unit; ideal for small workshops and labs.

Power: 220 V, 50/60 Hz · Avg. 600 W

Air pressure: 0.55 – 0.65 MPa

Vertical Machine

Dimensions (W × D × H):

900 × 1140 × 1340 mm

Weight:

280 kg

Floor-standing variant for production-line integration.

Power: 220 V, 50/60 Hz · Avg. 600 W

Air pressure: 0.55 – 0.65 MPa

Internal Hardware

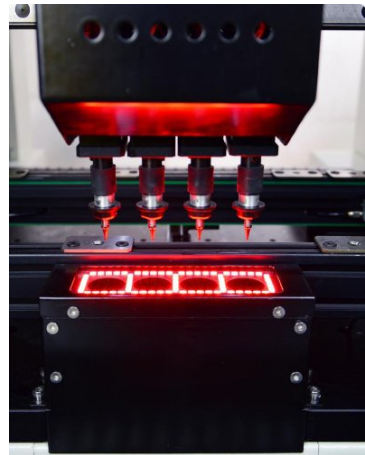
Industrial computer, cameras and motion system

Industrial Computer



17-inch industrial display with keyboard and mouse. User-friendly Windows-based OS pre-installed. Supports vision programming and PCB file import out of the box.

HD Cameras



Imported 5 MP industrial calibration HD camera with matching distortion-free lens, plus four 1 MP industrial fast-recognition cameras that recognise all four placement heads simultaneously.

Cable Carrier & Flex Cable



Cable carriers rated for 10 million constant motions. German Igus flexible cables resist extreme temperatures and oil, handle horizontal, torsional and high-speed motion.

Precision Ball Screw & Linear Motion Guides

The HW-T4-50F uses imported precision ball screws and linear motion guides on both the X and Y axes — together with double ground ball-screw assemblies, this gives long maintenance-free operation, high accuracy and noise-free running.

Mounting accuracy is guaranteed for 0201-0402 chip components, QFN, QFP and BGA packages. The structure is rated for 24-hour continuous duty without downtime, substantially improving real-world productivity.

X/Y motion uses an intelligent linkage of acceleration and deceleration curves with integrated linear interpolation, allowing the placement heads to reach maximum travel speed while still arriving at the placement point smoothly and without vibration.

Motion-system specifications

- | | |
|----------------------|---|
| · X/Y tracks | double linear guide + ground ball screw |
| · X/Y max. step | 629 mm × 679 mm |
| · X/Y motion mode | intelligent accel/decel + interpolation |
| · Z-axis max. step | 20 mm |
| · Nozzle buffer | 4.5 mm |
| · Component rotation | ±180° |
| · Motor | AC servo with high-speed DSP driver |

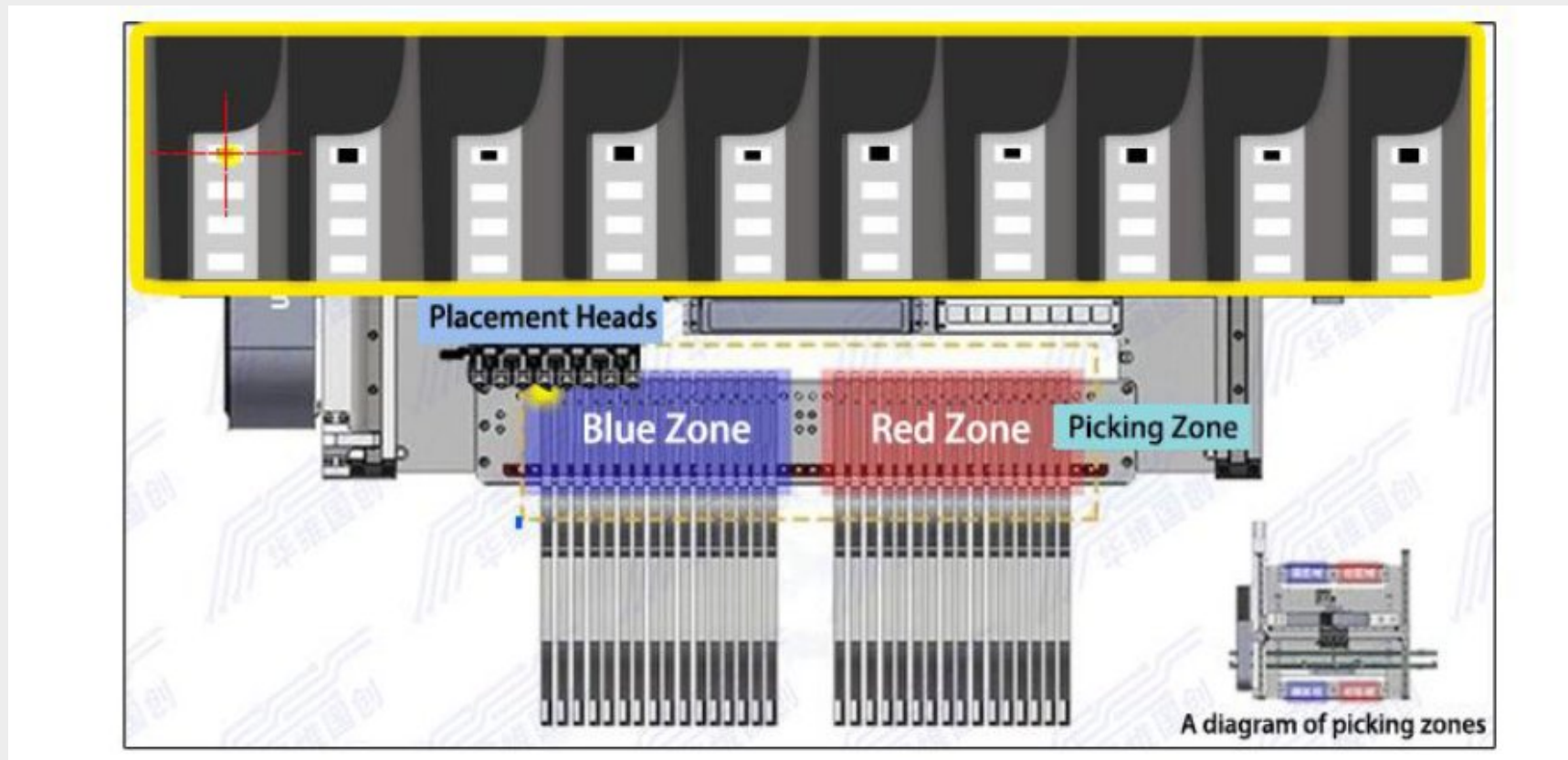


Software Features

Intelligent programming, one-click optimisation, three-stage entry

Automatic Optimisation of Feeder Positions

Intelligent optimisation makes the distribution of multiple components' feeding more efficient and logical than the traditional manual method. The software assigns each feeder to the correct picking zone in a single click.



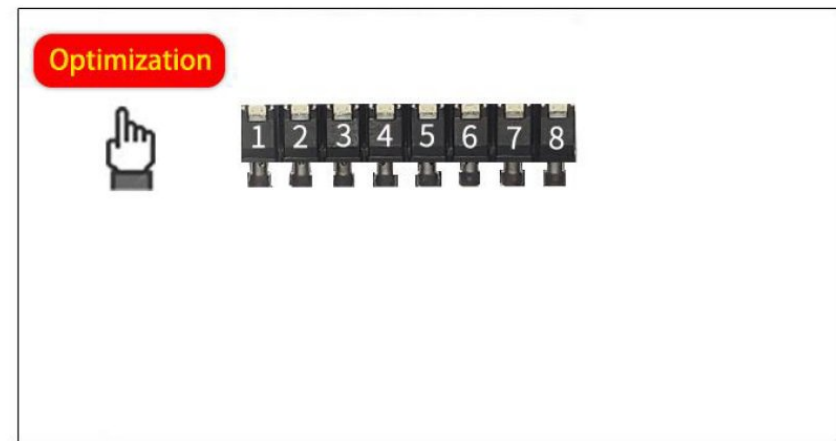
Concurrent picking with multiple heads from blue & red picking zones.

Automatic Optimisation of Nozzle Sequence

Nozzle models are selected intelligently based on the BOM, and the position number of each nozzle is updated in the program at the same time. This eliminates manual book-keeping and prevents wrong-nozzle errors.

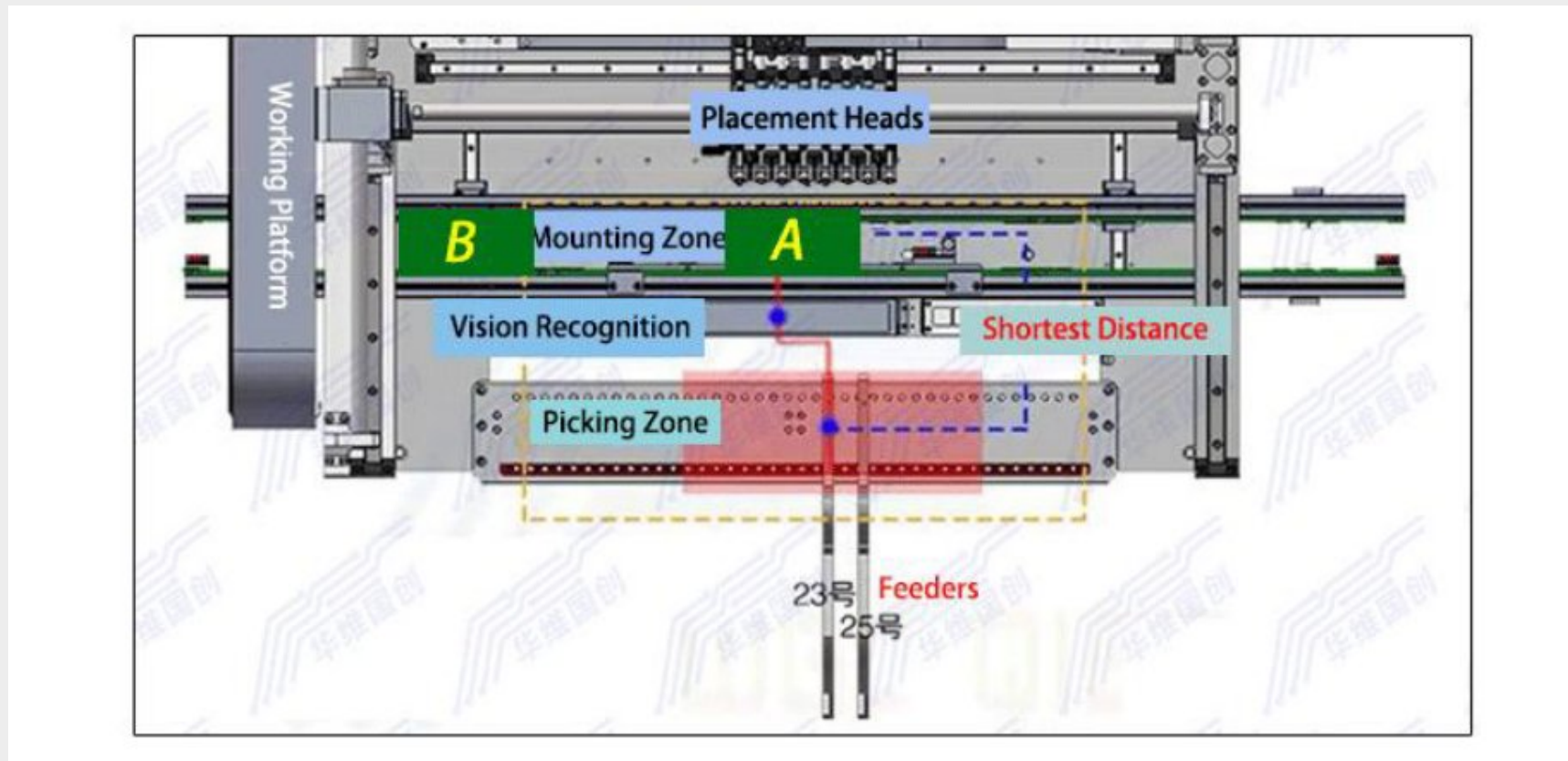
Benefits

- Automatic mapping from BOM packages to nozzle types
- Position numbers updated in the running program
- Manual override available for special components
- Reduces setup time and nozzle-mismatch errors
- Compatible with electric, pneumatic and vibrating feeders



Shortest-Path Layout & Three-Stage Entry

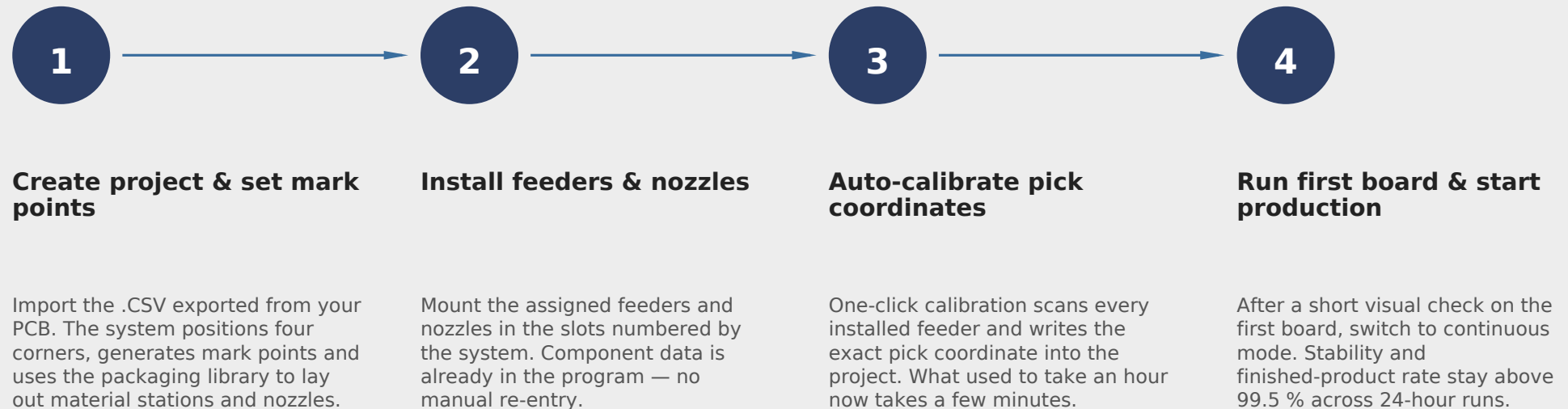
The HuaweiGuochuang mounting software builds the full mounting layout with one click — no manual trial-and-error distribution. The PCB conveyance is split into three stages (waiting, mounting, exiting) so that the next board is already in place when the current one finishes.



Vision recognition + shortest-distance planning between picking zone and mounting zone.

Operating Workflow

From PCB file to running production in four steps



Specifications

Part 1 of 2 — placement, motion and vision

Parameter	Model: HW-T4-50F / HW-T4-44FX
Number of placement heads	4 (high-accuracy)
Number of IC trays	48
Number of feeders	50 / 44 (8 mm feeder reference)
Positioning accuracy	0.01 mm
Repeated mounting accuracy	0.02 mm
Mounting speed range	7000 – 8000 pcs/h
Supported PCB area (max.)	(50F) 350 × 190 mm / (44FX) 350 × 280 mm
Max. component height	≤ 7 mm
Feeder types	electric, pneumatic, vibrating, IC tray, etc.
Recognition devices	mark cam × 1, fast cam × 4, high-precision cam × 1
Programming method	auto programming after manual import of PCB coords
Control system	HuaweiGuochuang control system
Max. X/Y step length	629 mm × 679 mm
X/Y tracks	double linear motion guide + double ground ball screw

Specifications

Part 2 of 2 — power, software, dimensions

Parameter	Model: HW-T4-50F / HW-T4-44FX
Control computer	industrial PC, Intel high-performance processor
Track adjustment	electric
Z-axis max. step	20 mm
Component rotation	±180°
Motor	AC servo motor
Driver	high-speed DSP driver
Air-supply requirements	oil-water filter, ≥ 50 L, dust filter, pressure stabiliser
Nozzle vacuum	Japanese CKD generator with high-speed vacuum burst
Air pressure range	0.5 – 0.6 MPa
Operating system	in-house SMT smart OS based on Windows
Display	17-inch industrial display
Cable	German Igus flexible cable (10 million cycles)
Power supply	220 V, 50/60 Hz · avg. 600 W
Dimensions	desk 1140×900×900 mm / vertical 900×1140×1340 mm
Weight	desk 210 kg / vertical 280 kg

Applicable Components

Supported package types and footprints

Range 0201, 0402, 0603, 0805, 1206 chip resistors and capacitors; diodes, triodes, SOT and QFP packages; BGA with lead pitch \geq 0.3 mm (within 40 × 40 mm and a lead-centre distance of 0.5 mm).

Resistor & capacitor <ul style="list-style-type: none">· 0201· 0402· 0603· 0805· 1206	Lamp bead (LED) <ul style="list-style-type: none">· Small· Medium· Large / power LED	SOP / TO <ul style="list-style-type: none">· SOP· SOP wide· TO package	QFN <ul style="list-style-type: none">· QFN28· QFN36· Other lead-pitch \geq 0.3 mm
LQFP <ul style="list-style-type: none">· LQFP48· LQFP144· Other \leq 40 × 40 mm	BGA <ul style="list-style-type: none">· BGA small· BGA large· Lead pitch \geq 0.3 mm	Pin header connector <ul style="list-style-type: none">· Straight· Right-angle	Triode / Diode / SOT <ul style="list-style-type: none">· SOT-23· SOT-89· SOT-223

Installation Requirements

Site preparation for HW-T4-50F

Air pressure:	0.55 - 0.65 MPa
Air quantity:	according to production-line scale
Air condition:	oil and water removed
Voltage (machine):	220 V, 50/60 Hz
Voltage (reflow oven):	380 V (if used in same line)
Average power:	600 W
Temperature:	17 °C - 28 °C
Humidity:	45 % - 70 % RH
Floor:	level, vibration-free, load \geq 300 kg/m ²
Network:	optional LAN port for production logging

Installation & Training

- Door-to-door delivery, machine installation and calibration on-site.
- Operator training included — programming, calibration, daily maintenance.
- Remote support and software updates available after commissioning.
- Standard warranty on hardware; consumables and nozzles sold separately.
- Spare-parts kit recommended for production lines running 24/7.

Order Process & Contact

From first enquiry to running line

1

Enquiry & test

Send component samples for an actual mounting test in our showroom or by remote demo.

2

Production-line plan

We design a configuration around your boards, throughput target and budget.

3

Contract & build

Finalise the spec and sign the order. Lead time is shared in writing.

4

Delivery & training

On-site installation, calibration and operator training are included.

Contact

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