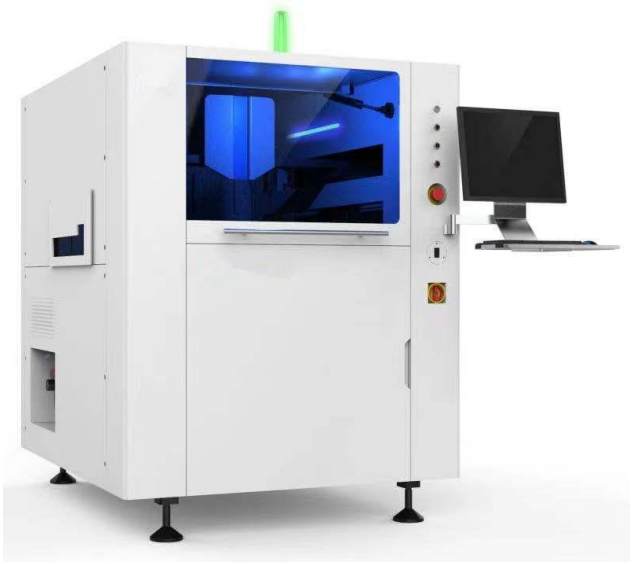
ND1 Full-automatic Vision Printing Machine



Product Overview

With simple and reliable, accurate positioning and easy to adjust structure, ND1 has the characteristics of high precision, high stability, high performance price ratio and so on.

ND1 Function and Characteristic

1. Precision

ND1 Special model of arithmetic computation, repeat accuracy of ± 12.5 micron (±0.0005")@6σ, Cp ≥ 2.0。

2. Special Adjustment Platform

ND1 Special high rigidity of UVW module drive mechanism and triangle Z – shaft lifting mechanism to effectively improve the platform tuning stability; realize ultra-fine drive under the micro-motion adjustment and printing complying with higher precision requirements. The structure was simple and reliable, easy adjustment and fast implementation different PCB plate as the PIN jacking height of self-regulation.

3. Programmable suspension self-adjusting stepper motor drive printing head

Independent direct stepper motor control, built-in accurate pressure control system, able to accurate determination of the scraper original pressure value without scraper type, length, weight and thickness vary. Programmable implementation for flexible printing process, designed for different requirements for front and rear scraper pressures and stability of the lifters. Scraper flexible clamping design and prevent the external discharge of solder paste. Scraper pressure, lifters speed, print speed and print range those are adjustable.

We provide customers multiple mode removal methods to adapt different solder paste requirements of PCB plate and provide a good print control platform.

4. printing machine of PCB orientation system

Flat belt drive is effectively improved the guide rail transport capacity and speed. Stepper motor drive can programmable for different transport speeds and action. New concepts of lead rail seamless transmission for ensure the PCB transportation reliability; Auto adaptation PCB plate thickness, simpler process; software available adjustable an elastic lateral pressure; Configurable the bottom overall suction control vacuum and bottom multi-point partial vacuum.

5. Cleaning system

Automatic cleaning structure, vacuum of high-power fan plus device; dry, wet and vacuum three cleaning methods and you can choose any combination for those methods. User can set the cleaning cycle, parameters of time and speed, etc. according to the actual requirements. Long and length wipe paper universal and easy access for disassembly for save resources. Soft and durable rubber wipe plate for clean it up thoroughly and easy access for disassembly.

6. High adaptive steel frame clamp system

Implement the printing of mesh frames for various sizes (370mm x 470m; 737mm x 737mm) and replacement models during production; Y auto positioning.

7. Electric control system

Self-developed modular integrated circuits, it was safety and convenient for maintenance; adopt the industry's most advanced control system and able the machine to modify the parameters during the operation.

8. Image and optical-path system

New optical path system, uniform annular light and high-brightness coaxial light; furthermore, configure the brightness adjustment function for good identification mark points of each type (include rugged mark points), adapt tinplating, copper facing, gilding, tin spray and FPC for PCB different types of colors. Four-way light source is adjustable, remote lens, upper and lowers stencil and PCB board.

9. Simple Operation with chart, CN/ EN operation interface

Using windows XP operation system, independent research and developed graphical human-machine interface, especially the navigation effect during operate the program file. It was convenience and quick familiar operation for all operators; menu available change CN/ EN; operation log, error record, fault self-diagnosis, failure analysis prompt, optical alarm function and others.

10. 2D solder paste printing quality inspection and SPC analysis

2D fast detection function will be directed against the poor printing like shifting, less solder paste, missing the printing and stick the solder paste and etc. Increase the detection points arbitrarily; SPC software will able to analyze the machine CPK through the samples collected by the machine.

Technical Parameters and Specifications

A. Product Model: ND1 Full-automatic Vision Printing Machine

B. Machine specification and parameters:

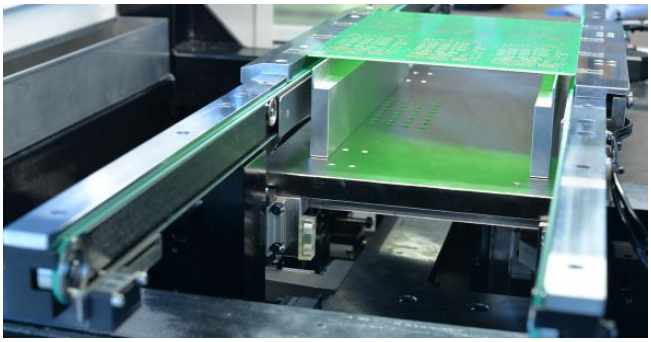
ND1 Specification	
PCB parameters	
Max. plate size (X x Y)	450mm x 350mm
Minimum plate size (Y x X)	50mm x 50mm
PCB thickness	0.6mm ~ 14mm
Warping quantity	Max. PCB diagonal 1%
Max. plate weight	10KG
Plate edge clearance	Configuration to 3mm
Maximum bottom clearance	20mm
Transmission speed	1500mm /second(Max)
Transfer height from the ground	900 ± 40mm
Transfer track direction	Left–Right, Right–Left, Left–Left, Right–Right
Transmission mode	Section-type track
PCB clamp mode	Software adjustable pressure of the elastic side pressure Option: 1. Overall bottom suction chamber vacuum 2. Bottom multipoint partial vacuum 3. Edge lock clamping plate
Board support method	Magnetic thimble, special work holding device(option: Grid-Lok)
Print parameters	
Print head	Closed-loop print head straight line motor
Template frame size	370mm x 470mm ~ 737mm x 737mm
Max. print area (X x Y)	450mm x 350mm
Scraper type	Steel scraper/ Rubber scraper (Angle 45º / 55 º/ 60 º match selection by print process)
Scraper length	220mm ~ 500mm
Scraper height	65 ± 1mm
Scraper blade thickness	0.25mm Diamond-like carbon coating
Print mode	Single or Twin scraper print
Mold unloading length	0.02mm to 12mm
Print speed	0 ~ 200mm /second
Print pressure	0.5KG to 10 KG
Printing process	± 200mm (from center)
Image parameter	
Image view (FOV)	6.4mm x 4.8mm
Platform adjustment range	X, Y: ±7.0mm, θ: ± 2.0 º
Base point type	Standard shape reference point (SMEMA standard), solder paste /open hole
Camera system	individual camera, up or down individual imaging vision system, geometrical matching positioning
Performance parameter	
Image calibration repeat	± 12.5 micron (± 0.005") @6 σ, Cp < or = 2.0

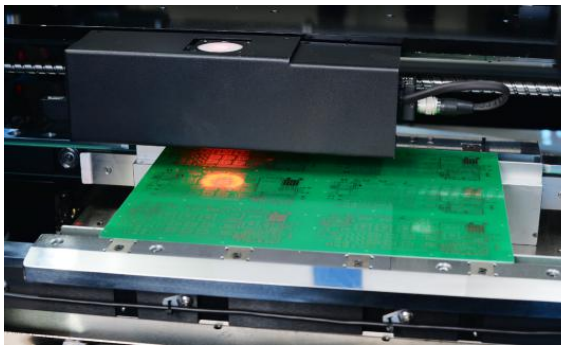
accuracy	
Printing repeatability	± 25 micron (±0.001") @6 σ, Cp < or = 2.0
Loop time	> 7 second
Line change time	> 5 minute
Equipment	
Power	AC220V ± 10%, 50/ 60HZ, 15A
Compressed air	4 ~ 5KG /cm2, 10.0 diameter pipe
Operating system	Windows XP
Exterior size	L (1140mm) x W (1400mm) x H (1480mm)
Machine weight	1000KG
Temperature and humidity control module	
Ambient temperature	23 ± 3 ºC
Relative humidity	45 ~ 70% RH4

Main Features

1. Simple and reliable PCB positioning system

Adaptive PCB board thickness, software tunable flexible side pressure and magnetic supporting device



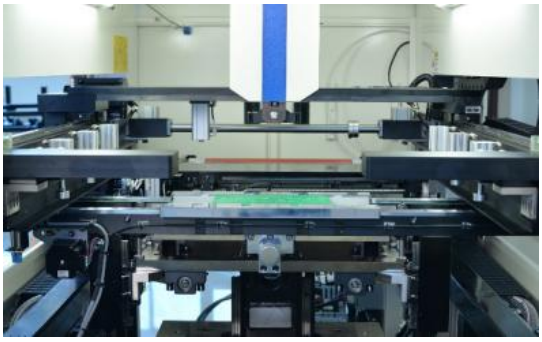


2. High stability CCD camera system

Four-way light source adjustable, with uniform illumination and the perfect image collection, making the various types of mark points can be a very good identification(including the rugged mark point), to meet the tin-plated, gold-plated, spray tin, FPC, and other types of different colors of the PCB

3. Intelligent scraper system

Programmable and independent direct-coupled stepper motor control, built-in precision pressure control system



4. High efficiency stencil cleaning system

The new wiping system ensures full contact with the stencil, and the increased vacuum suction ensures that the solder paste remaining in the mesh is effectively removed, and the effective automatic cleaning function is achieved