

BOZHON SEMICONDUCTOR

Precision mounting and inspection equipment manufacturer

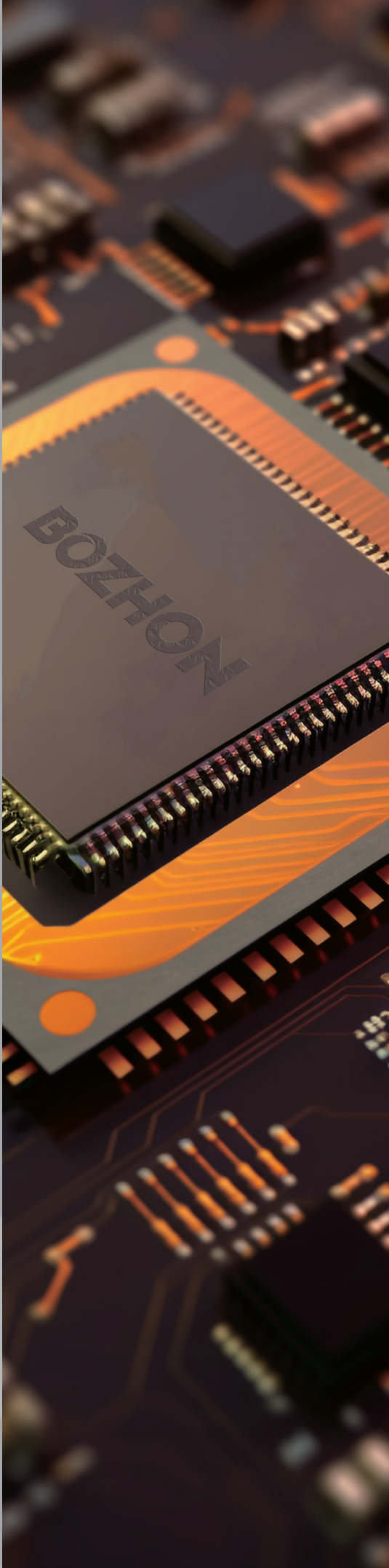
Product Manual

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Go tech! Go core!

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BOZHON SEMICONDUCTOR

Committed to becoming a leader of precision mounting and inspection equipment

Suzhou Bozhon Semiconductor Co., Ltd. is a wholly-owned subsidiary of Bozhon Precision Technology Co., Ltd. (stock code: 688097), relying on Bozhon Precision Technology's more than 20 years of technological accumulation and focusing on semiconductors. And through industry university research cooperation with well-known domestic universities such as Tsinghua University and Harbin Institute of Technology, we provide high-precision, high-speed, and stable semiconductor mounting equipment that meets advanced packaging requirements for customers in fields such as AI and optical communication, as well as efficient chip AOI inspection equipment.

60 %⁺

R&D personnel ratio

10⁺

Global regional layout

400,000m²

Production base

Service Industry

Optical
Communication



Semiconductor



Consumer
Electronics



Automotive



Medical



Semiconductor
cosystem



Advanced
Manufacturing



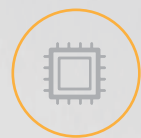
Aerospace



MicroStar—Fully Automatic High Precision Eutectic Die Bonding Machine

The MicroStar Series is a series of leading multifunctional Die Attach Equipments with high efficiency (12-50s/pcs) and high precision ($\pm 0.5 \sim \pm 3 \mu\text{m}$). This series serves functions of eutectic bonding, dipping glue bonding and flip chip bonding. It is also able to meet the needs of multi-chip bonding. Its modular design enables the equipment to have highly flexible manufacturing capability. Also, equipped with an intelligent calibration and data management system, the MicroStar Series is capable to trace and manage process.

► Application Scenarios



Optical module



Sensor



RF devices



Power semiconductor



Lidar



Microwaves and Antennas

Four reasons to choose MicroStar series :

High precision

High efficiency

High flexibility

High expandability



MicroStar EF8622

Eutectic die bonding machine

EF8622 is a fully automatic high-precision die bonder designed for COC, COS, and Gold-Box process applications. It integrates both epoxy die bonding and eutectic die bonding capabilities, meeting the needs of complex multi-chip assembly processes.

● $\pm 1.5\mu\text{m}$ @ 3σ Placement accuracy	● Eutectic Adhesive dipping Placement process	● 25-35s (Eutectic) 12-15s (Adhesive dipping) Efficiency
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MicroStar EF9722

Eutectic die bonding machine

The EH9722 eutectic die bonder provides versatile die bonding solutions, supporting both process verification and development during the R&D phase as well as mass production for a variety of packaging scenarios. It is widely applicable to processes such as COC, COB, COS, and Flipchip, and provides modular configurations to meet different production requirements.

● $\pm 1.5\mu\text{m}$ @ 3σ Placement accuracy	● Eutectic/UV Adhesive dipping Placement process	● 40-50s (Eutectic) 15-20s (Adhesive dipping) Efficiency
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High Precision:
The repeated accuracy of the mounting air flotation platform is 0.1um

High Efficiency of Eutectic:
The eutectic temperature rising from 200 to 340 °C only takes 3.2s and the cooling from 340 and 200 °C only takes 6.5s

Intelligent Design:
Streamlined design, compatible with AGV docking
12 tool holders for fully automatic dynamic tool changing

Dual View Module:
Free switching of high and low magnification lenses (1&5x)

Versatile Die Bonding Processes:
Supports eutectic bonding, epoxy stamping, UV curing, and flip chip (FC) bonding

High efficiency:
<130 seconds per piece (for 400G–1.6T optical transceiver chips)

Flexible Material Loading:
8 intermediate stations for free switching

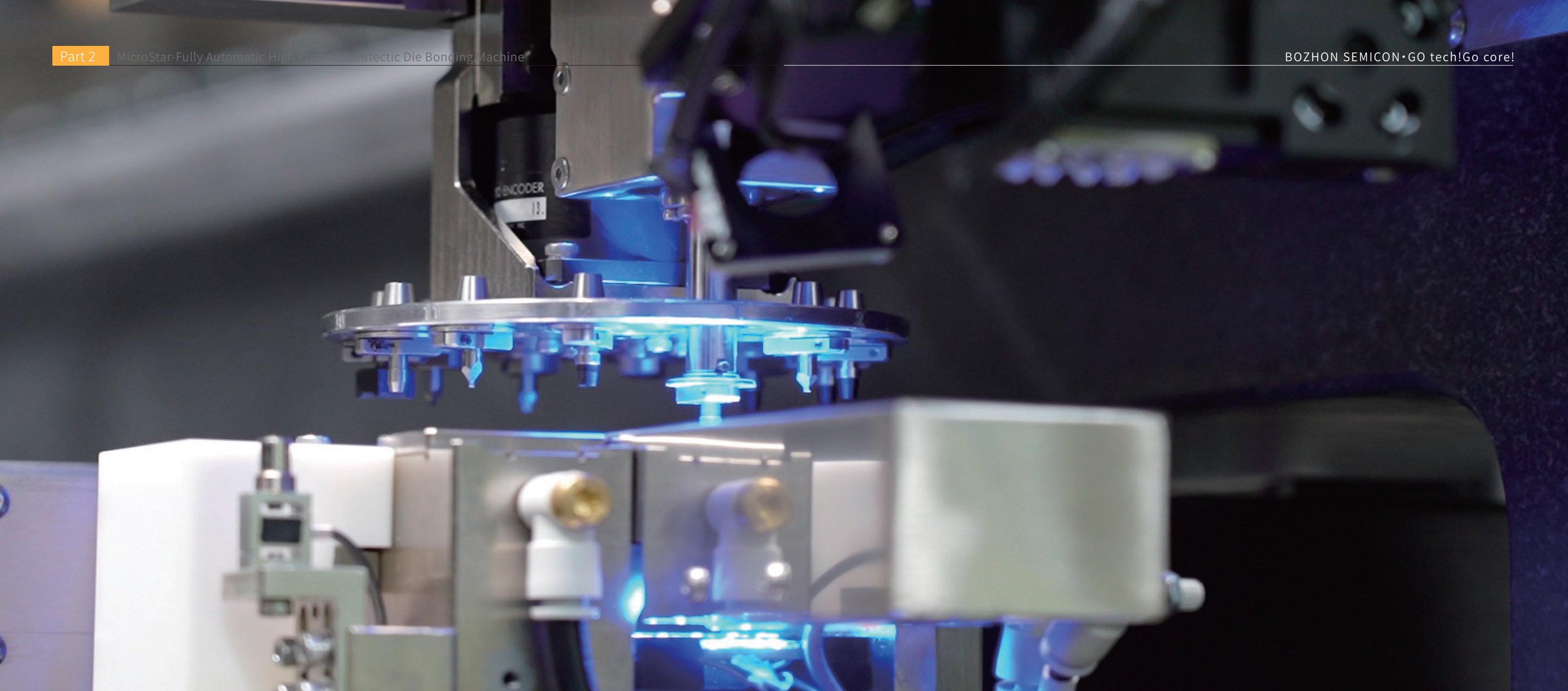
Specialized Drive Structure:
Patented dual-drive gantry design

Product Specifications

Placement angle		$\pm 0.1.5^{\circ}$
Application		COC,COS,GOLD-BOX
Chip size		0.15x0.2mm-5x5mm
Substrate Size		16×16mm
Carrier Size		Length: 160–200mm / Width: 80–100mm
Dimensions		1900mmx1100mmx2100mm
Weight		2300Kg
Bonding System	Nozzle	12 nozzles per head, with dynamic toolchange
	Force control	(10-100g) $\pm 2\text{g}$, (10-300g) $\pm 3\%$
Loading/Unloading System	Connectivity	Cassette loading/unloading, AGV compatible
	Barcode Scanning	Supports carrier barcode binding
Eutectic module	Working table	2
	Transfer table	8 single workbench (max)
	Heating method	Pulse heating
	Temperature range	25–450°C
	Heating Rate	80°C/s (adjustable heating/cooling rate)
Feeding mode	Wafer	6-inch, standard with 2 holders
	Waffle Pack/Gel-Pak	2-inch, standard with 6 holders

Product Specifications

Placement angle		$\pm 0.1.5^{\circ}$
Application		COC, COS, COB, Flipchip, Gold-Box
Chip size		0.15x0.2mm-5x5mm
Substrate Size		16×16mm
Carrier Size		Length: 160–250mm / Width: 65–110mm
Dimensions		1850mm × 1800mm × 1850mm
Weight		2300Kg
Bonding System	Nozzle	12 nozzles per head, with dynamic toolchange
	Force control	(10-100g) $\pm 2\text{g}$, (10-500g) $\pm 3\%$
Loading/Unloading System	Connectivity	Magazine loading/unloading, AGV docking
	Barcode Scanning	Supports carrier barcode binding
Eutectic module	Working table	1
	Transfer table	8 single workbench (max)
	Heating method	Pulse heating
	Temperature range	25–450°C
	Heating Rate	80°C/s (adjustable heating/cooling rate)
Feeding mode	Wafer	6-inch, standard with 4 holders
	Waffle Pack/Gel-Pak	2-inch, standard with 18 holders



Modular Architecture for Rapid Adaptation to Flexible and Diverse Process Requirements

From the laboratory to the factory, the MicroStar series eutectic die bonders are widely applied across various scenarios. With a rich selection of process and functional modules, they meet the needs of both process development during the R&D stage and mass production.

Bonding process

- Eutectic
- Epoxy
- Dispensing
- UV Curing
- Flip Chip

Modular workbench

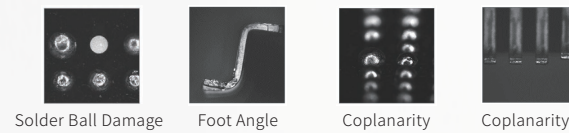
- Large configurable workspace
- Advanced assembly force control
- Advanced machine vision
- Quality software, computers and motion control
- Turnkey integrated production line
- Programmable multi-color lighting

CesiStar—AOI Inspection Machine

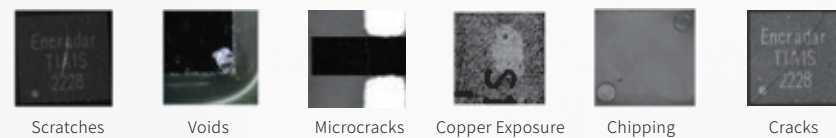
The CesiStar Series AOI Inspection machine provides high performance, fully automated optical inspection of packaged integrated circuit(IC) components. It leverages high sensitivity with 2D/3D inspection and measurements to determine final package quality for a wide range of device types and sizes.

► Defect inspection range

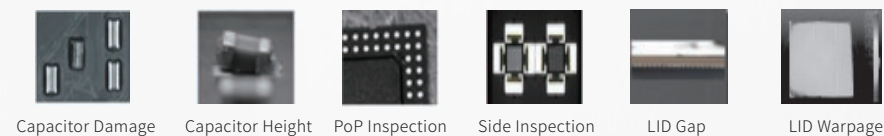
2D/3D/Ball/Lead/ Pad Measurement



Surface Defect Inspection



Optional Specialized Inspection Items



Four reasons to choose CesiStar series :

High Compatibility

High-Speed Inspection
and Sorting

Advanced Inspection
Capabilities

High Usability

► Application scenarios



QFP/SOP



LGA



FCBGA/CSP/WLP



QFN



POP



CesiStar TV6-15T

AOI Inspection Machine

The TV6-15T AOI Inspection System is mainly used in product fields such as QFN, QFP, and FCBGA. It provides six-side optical inspection for chips with high accuracy and efficiency.

● 7.5μm	● 2x2mm-68x68mm	● BGA/QFN/QFP
3D Inspection Accuracy	Chip Size	Supported Chip Package Types



CesiStar TV6-15T

AOI Inspection Machine

The TV6-10T AOI Inspection System is mainly used in high-end processes such as FCBGA, Memory, and PoP. It features high-precision microcrack detection and Top 3D inspection modules, ensuring outgoing quality for advanced packaging customers.

● 5μm	● 2x2mm-120x120mm	● CSP/WLP/POP/Memory
3D Inspection Accuracy	Chip Size	Supported Chip Package Types



- High-Accuracy 3D Inspection: Accuracy and repeatability up to $\pm 7.5\mu\text{m}$
- High-Performance and User-Friendly Software: Recipe creation time <1 hour
- Fast Product Changeover Time: <20 minutes
- Intelligent Defect Classification: Smart defect classification algorithm engine

- High-Accuracy 3D Inspection: Accuracy and repeatability up to $\pm 5\mu\text{m}$
- Comprehensive Inspection Capabilities: 6-Side, Top 2D/3D, Bottom 2D/3D, Microcrack Detection, and Passive Component Inspection
- Modular Configuration: Equipped with Top 3D and High-Precision Microcrack Modules
- Intelligent Defect Classification: Smart defect classification algorithm engine

► Product Specifications

		TV6-15T	TV6-15TR
Loading and Unloading		Tray to Tray	Tray to Reel
Resolution		15μm	15μm
Chip Size		2x2-68x68mm	2x2-68x68mm
P&P Nozzle		2x14	2x14
Sorting		1x4	1x4
Inspection Workstation	Bottom 2D&3D	√	√
	Top 2D	√	√
	4-Side	√	√
	Top 3D	/	/
	Top AUX	/	/
	Bottom AUX	/	/
	Large Size: 120 × 120 mm	/	/
	Double Unit	√	√

► Product Specifications

		TV6-10T	TV6-10T-TC	TV6-10T-Plus
Loading and Unloading		Tray to Tray	Tray to Tray	Tray to Tray
Resolution		10μm	10μm	10μm
Chip Size		2x2-58x58mm	2x2-58x58mm	2x2-120x120mm
P&P Nozzle		2x14	2x14	2x14
Sorting		1x4	1x4	1x4
Inspection Workstation	Bottom 2D&3D	√	√	√
	Top 2D	√	√	√
	4-Side	√	√	√
	Top 3D	/	√	√
	Top AUX	/	√	0
	Bottom AUX	/	0	0
	Large Size: 120 × 120 mm	/	0	√
	Double Unit	√	√	√

FastStar-High Speed High Precision Epoxy Die Bonder

FastStar series die bonders are high-speed, high-precision equipment designed for multi-chip packaging, offering accuracy up to $\pm 7\mu\text{m}@3\sigma$. Featuring an open architecture and modular design, they provide exceptional on-demand customization capabilities, supporting wafers up to 12 inches. The system accommodates various packaging processes such as die bonding, SiP, and UV curing.

► Application Scenarios



IC Chips



Electronic Modules



Power semiconductor

Four reasons to choose FastStar series :

High Precision

High Flexibility

Multi-Functionality

Modular Design



FastStar DU9721

High Speed High Precision Epoxy Die Bonder

The DU9721 die bonder achieves placement accuracy of $\pm 7\mu\text{m}@3\sigma$ through self-developed motion control technology. By integrating dispensing, automatic tool changing, die bonding, and other functions, the equipment is compatible with wafers of various sizes. Its open architecture and modular design provides extreme efficiency and on-demand customization capabilities for customers.

● $\pm 7\mu\text{m}$

X/Y Placement Accuracy

● $\pm 0.2^\circ$

Theta (θ) Placement Accuracy



High Precision:
Meeting micron-level placement accuracy requirements, enabling exceptional bonding efficiency.



High Flexibility:
Supporting various material feeding methods; compatible with die bonding, SiP, UV curing, and other packaging processes.



Integrated Multi-Functionality:
Compatible with die bonding and multi-chip packaging.



Modular Design:
Meets the development needs of different product categories; allows flexible customization based on customer requirements.

► Product Specifications

Machine Dimensions	1346x1426x2130mm
Machine Weight	2300kg
Bonding Force	20-500g (programmable)
Bonding Angle	0° - 360° rotation
Wafer Size	8" - 12" (200 mm - 300 mm)
Compatible Chip Size	0.5 mm - 5 mm (programmable)
Compatible Carrier Size	Width: 50mm-110mm /Length: $\leq 240\text{mm}$

Service creates the ultimate

7x24 hours after-sales service

The after-sales service team provides uninterrupted service and responds quickly to your needs.

Regular equipment health checks

A senior technical team protects and provides professional technical support and regular inspection services, helping the customers to get the maximum benefits with minimum resource investment.

Technical training

Through systematic technical training, client technicians can fully understand product performance and configure the functions better.

Technical consultant

The technical team can provide professional solutions and services based on customer product characteristics and application scenarios.



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