i-PULSE

M2 MOUNTING CENTER

i-PULSE CO.,LTD.

M2 MOUNTING CENTER

The Model M2 is a super mid-range machine that integrates the speed of a chip shooter and the multi-function of an IC mounter in one unit. Further enhanced, the standard mid-range model M1 / M1plus, the M2 has achieved great improvement in its speed, accuracy, and the function.

Max.CHIP placement speed **0.13** sec/CHIP

Max. TSOP placement speed **0.38** sec/TSOP32

Max. QFP placement speed **0.54** sec/QFP100

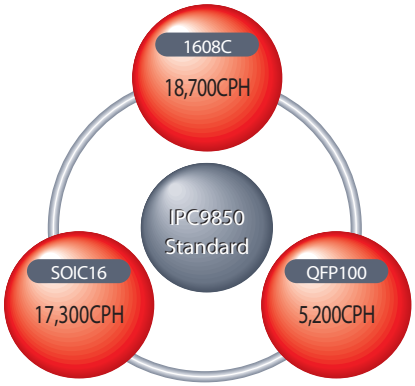
Feeder inputs **120** lanes

CHIP placement accuracy **50** µm

QFP placement accuracy **30** µm

Component height **15** mm (Option: 20mm)

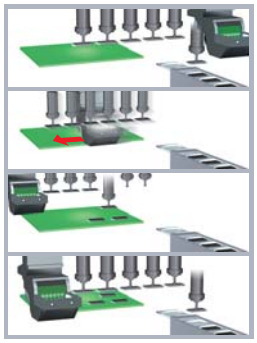
This photograph includes optional items.



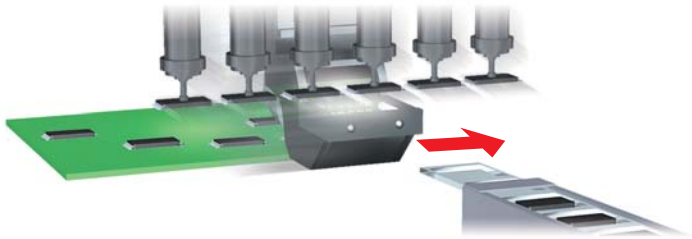
New two-way scanning for faster vision processing

On-the-fly Scanning

Tact time 0.13 sec/CHIP
Placement Accuracy ±0.05mm



On-the-fly scanning, the specialty of i-PULSE, provides high-speed vision processing for max. 20mm square (22×17mm rectangle) components including BGA and CSP while the head travels from the pickup point to the placement point. The new two-way scanning method has improved the placement speed remarkably. The drawback check can be done also by on-the-fly vision.



Free control of height and speed, and maintenance free

6-axis Full Servo, Belt-less Head

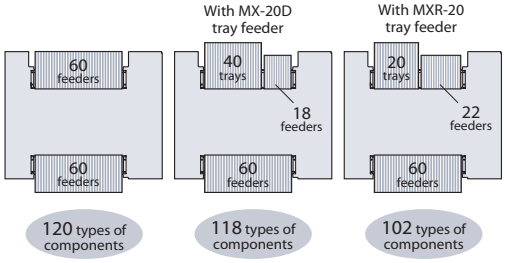
Z-axis 6, Rotation 3, Scan 1, total 10-servo head

The 6-head independent Z-axis drive provides free control of placement height and speed. The head layout at 30mm pitch allows 6-head consecutive processing for max. 20mm square components by using optional fixed camera. The rotation axis employs gear drive to prevent loss of accuracy with aging.

Next is i Feeder.
Intelligent

High feeder capacity to increase the productivity

120 feeder lanes, the top of its class



60 feeders each on front and rear (8mm tape conversion), total 120 feeders can be installed. The feeder capacity is the top of its class.
The feeders can be changed in a batch of 60 lanes by using the optional feeder bank changer.

Zero defect, Zero inventory

Intelligent Feeder System

(Option)

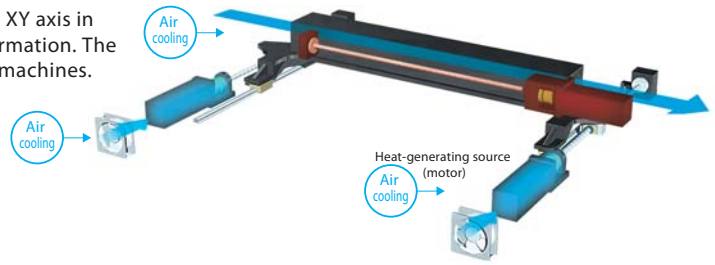
Component Setup Verifier
The component setup verifier checks wrong feeder setting and assists inexperience workers to install feeders correctly.

Feeder Relocatability
Regardless of the actual feeder location, the machine automatically recognizes each feeder and component. It reduces the changeover time.

High specifications support speed, accuracy, and reliability.

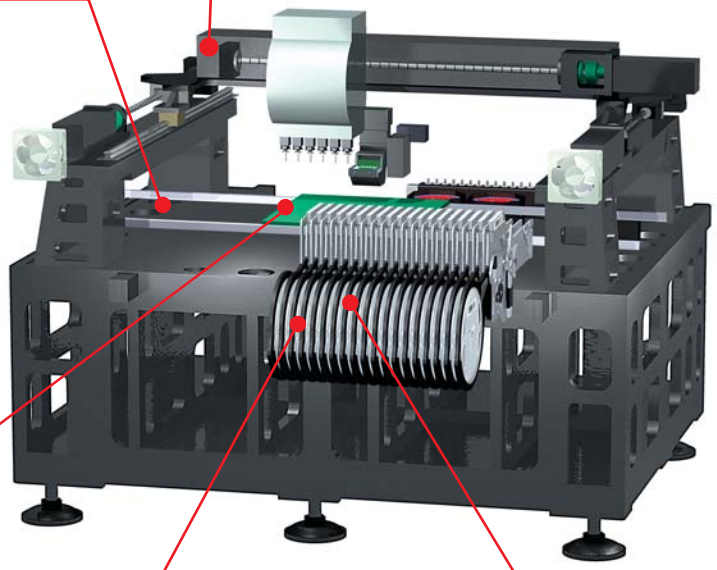
Frame cooling

Air cooling is employed on XY axis in consideration of heat deformation. The world's first for mid-range machines.



To minimize board transfer time

The optional buffer stopper can change its position according to the board size in order to minimize board transfer time. (Not available when the Board Clamp Conveyor option is installed.)



Component height 15mm

The maximum allowable component height is 15mm. (Custom order: 20mm)

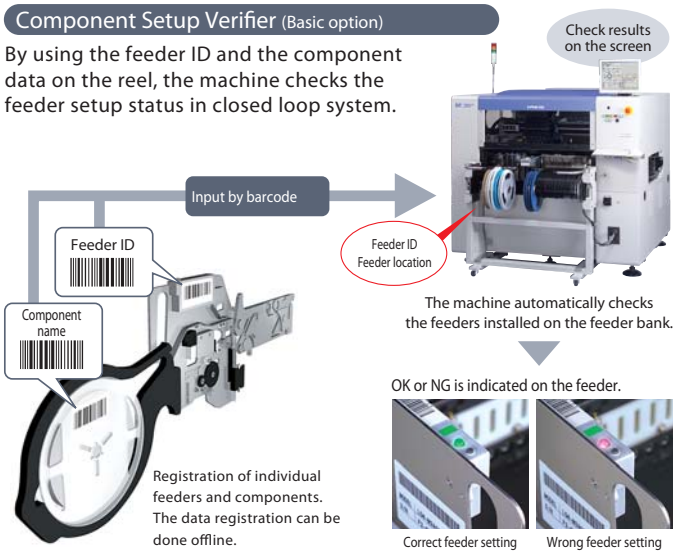
Flexible reel holder

Component names and barcodes can be checked easily without removing feeders from the feeder bank. (8mm tape feeder)

Intelligent Feeder

Component Setup Verifier (Basic option)

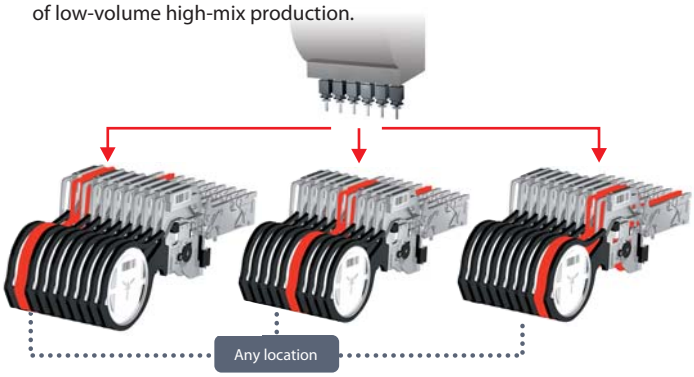
By using the feeder ID and the component data on the reel, the machine checks the feeder setup status in closed loop system.



Feeder Relocatability (Enhanced option)

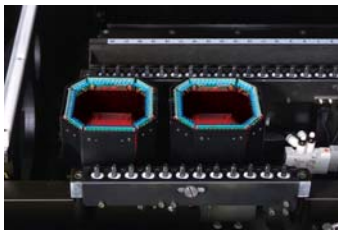
The machine follows actual feeder locations.

Regardless of the actual feeder location, the machine recognizes the location of components on the feeder bank and the pickup head automatically follows the actual component locations. It reduces the feeder changeover time and increases the productivity of low-volume high-mix production.

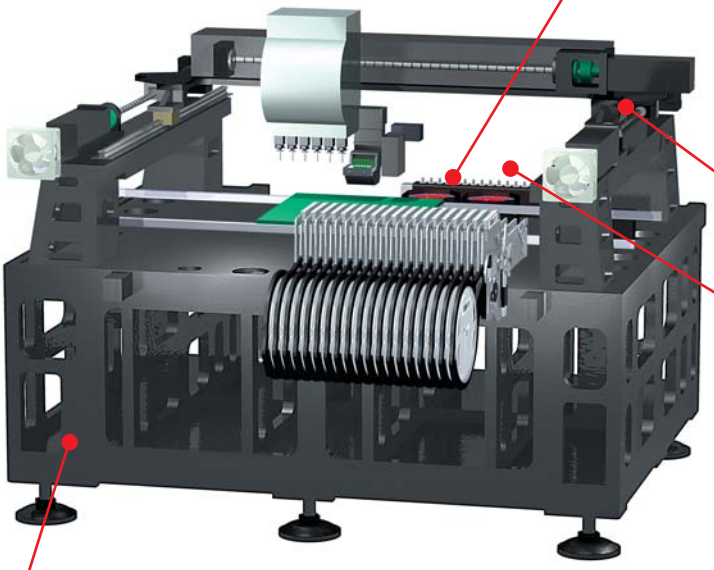


Fixed camera (option) of non-stop recognition

Tact time 0.54 sec/WFP100
Placement accuracy ± 0.03mm
(QFP, FC03 camera)
The fixed camera employs non-stop recognition. It improves the placement speed for large components remarkably by single-frame processing.

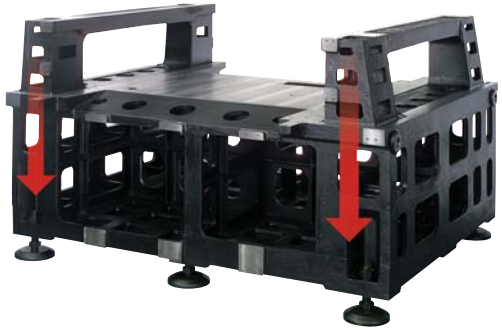


FC02 fixed camera handling 0603 (0201) chip and 0.2mm ball is newly added to the lineup.



Low-vibration, one-piece cast-iron bed

The machine structure is a one-piece cast-iron bed. It absorbs vibration by dispersing the reaction force and assures the high rigidity and low vibration that exceeds the common practice of surface mounters.



Precision assembling of micron order

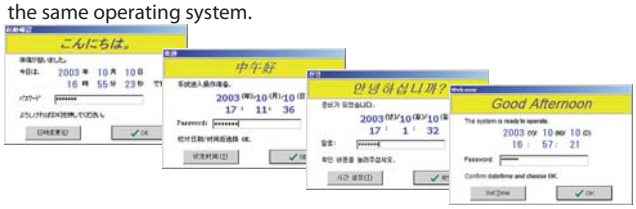
Without using shims, the veteran workers pursue precision assembling of micron order by means of scraping and lapping techniques.

scraping

lapping

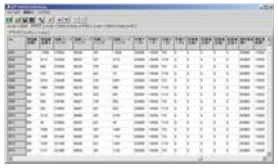
Windows XP

The multi-language operating system Windows XP is installed. In addition to the multi-task and network abilities of usual Windows, the multi-language (Japanese, Chinese, Korean, English) can be used in the same operating system.



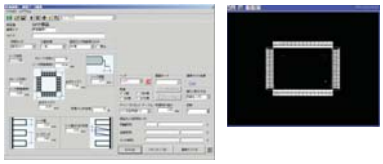
Log file in hard disk

All machine actions are real-time logged in hard disk. It allows a step-by-step study of machine operation in service field.



ADA assists vision data programming.

Automatic Data Acquisition (ADA) is accommodated to assist vision data setting and reduce the programming task.



Nozzle changer

With the 20-nozzle changer and the optional 12-nozzle changer, it accommodates a maximum of 32 nozzles per machine.

Enhanced machine software

Basic optimizer, tact simulator, and basic CAD converter are featured inside the machine software for on-the-machine use.

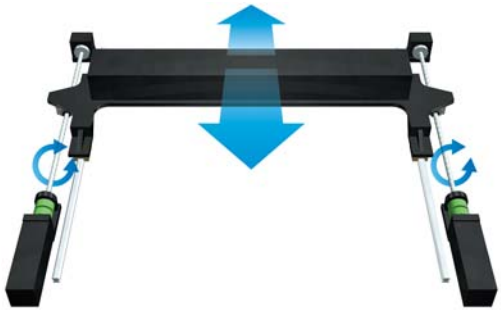
Offline Software iOSII (option)

The offline software iOSII facilitates programming of placement programs on a PC. Windows applications support the programming task to boost the operation rate of the machine.

Function	IP-14E Program edit & optimizer (Basic software)
	IP-11E Line balance & optimizer (maximum 5 units)
	IP-12E Tact simulator
	IP-13E CAD converter
	IP-15E Net manager
	IP-16E Basic CAD converter

Dual drive system reduces residual vibration.

To reduce the vibration when stopping at pickup and placement points, a dual drive system is introduced in Y-axis that controls a pair of servo motors through a fully synchronous circuit.



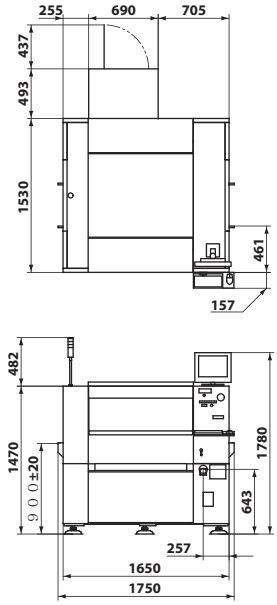
Specifications

Board size	L 50 x W 50mm – L 460 x W 410mm
Board thickness	0.5 – 2.0mm
Flow direction	Left-to-right
Conveyor speed	Maximum 420mm/sec., speed variable, soft stop function
Placement speed A	0.13 sec/CHIP (NB1), 0.38 sec/TSOP32 (NB2)
Placement speed B	0.54 sed/QFP100 (when using the optional fixed camera FC05) (NB3)
Placement accuracy A ($\mu + 3\sigma$)	CHIP ±0.05mm
Placement accuracy B ($\mu + 3\sigma$)	QFP ±0.03mm (when using the optional fixed camera FC03)
Placement angle	±180° , resolution 0.015°
Z-axis control	6-head independent servo motors, resolution 0.006mm
Component height	15mm (preplaced components maximum 10.5mm)
Components applicable	0603 (option), Sop, PLCC, QFP, BGA, CSP, connector, and odd-form components
Component carriers	8 – 56mm tape, stick, tray
Drawback check	Vacuum check and vision check
Multi-language display	Japanese, Chinese, Korean, and English
Board locating method	Board edge or tooling hole (option), front reference
Component types	120 types (8mm tape conversion)
Board transfer height	900 ± 20mm
Dimensions, weight	L 1,750 x D 1,530 x H 1,510mm, approximately 1,950kg
Power, max. consumption, capacity	3 phase 200V (option: 208, 200, 240, 380, 400, 415, 440V) ±10% 50/60Hz, 1.5kW, 4.0kVA
Air and consumption	0.5Mpa, 69ℓ/min A.N.R.

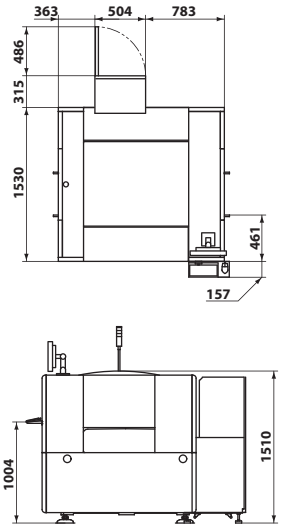
NB1: Simultaneous pickup by 6 heads with scan camera under optimum conditions
NB2: Consecutive pickup by 6 heads with scan camera under optimum conditions (Tray)
NB3: Consecutive pickup by 6 heads with fixed camera under optimum conditions.

External dimensions

With MX-20D

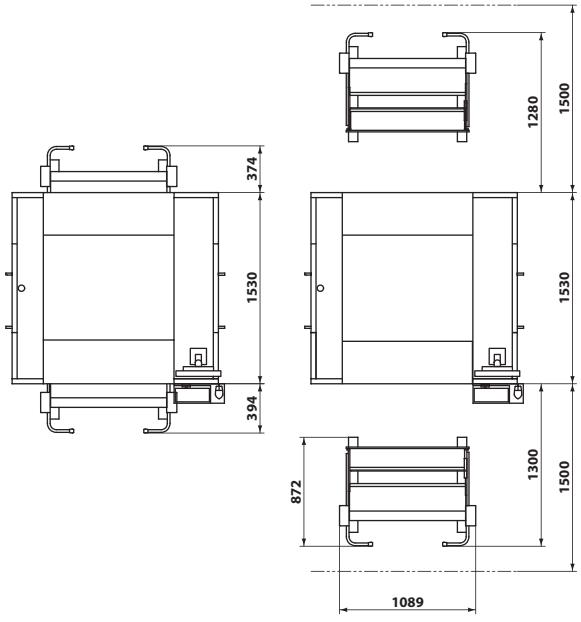


With MXR-20



Floor space

When using CFB-2



Amistar Automation INC.
1269 Linda Vista Drive
San Marcos, CA 92078-2698
Tel: 760-471-1700 Fax: 760-471-9065
www.amistarautomation.com

i-PULSE
i-PULSE CO.,LTD.
1-9-3 Shinmiyakoda, Hamamatsu-city,
Shizuoka-pref., 431-2103 Japan
Telephone 81-53-484-1876
Facsimile 81-53-484-1870
www.ipulse.co.jp

0018E-0606-2C-C1