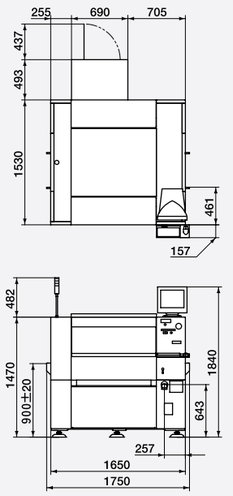
## Specifications

| | |
|---|---|
| Board size | L50×W50mm - L460×W410mm |
| Board thickness | 0.5 - 2.0mm |
| Flow direction | Left to right |
| Conveyor speed | Max. 420mm/sec, speed variable, soft stop fuction |
| Placement speed A (NB1) | 0.13 sec/CHIP, 0.38 sec/TSOP32 |
| Placement speed B (NB2) | 0.54 sec/QFP100 (when using the optional fixed camera FC05) |
| 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 max. 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 | L1,750×D1,530×H1, 510mm, approx. 1,950Kg |
| Power, consumption, capacity | 3phase 200V (Option: 208, 220, 240, 380, 400, 415, 440V) ±10% 50/60Hz, 4.0KVA, 6.0KVA |
| Air and consumption | 0.5MPa, 69ℓ/min A.N.R. |

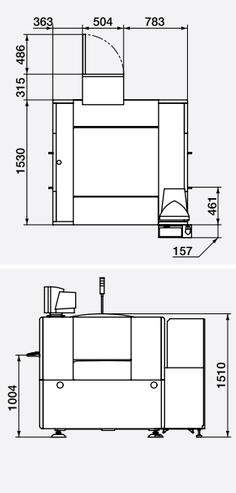
NB1: Simultaneous pickup by 6 heads with scan camera under optimum conditions. NB2: Consecutive pickup by 6 heads with fixed camera under optimum conditions.

## External dimensions

With MX-20D

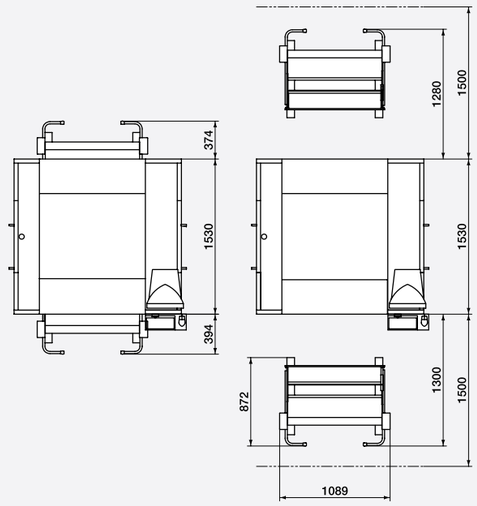



With MXR-20




## Floor space

When using CFB-2




DISTRIBUTOR


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

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i-PULSE

# M2 MOUNTING CENTER

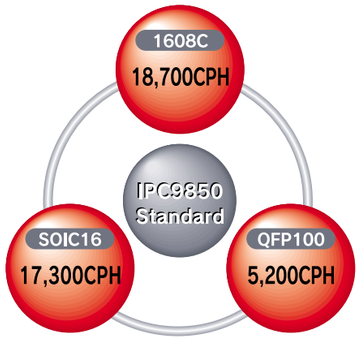

i-PULSE CO.,LTD.

# M2 MOUNTING CENTER

**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 (custom order: 20mm)

The photograph includes optional items.

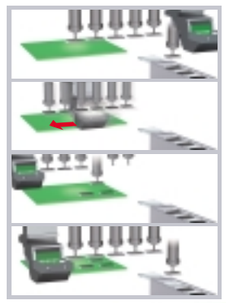



Next is i Feeder.
Intelligent

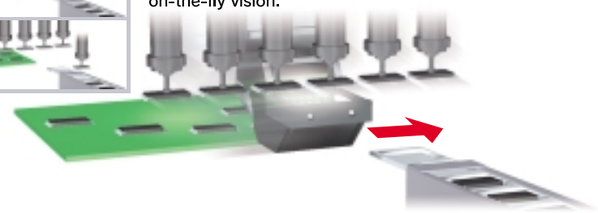
## New two-way scanning for faster vision processing

## 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. 20×18mm components including BGA and CSP while the head travels the shortest distance between the pickup point and 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

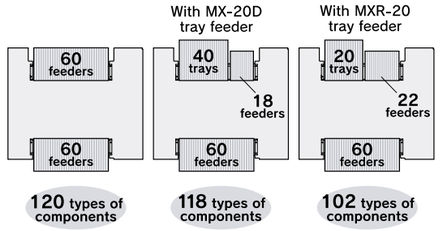
## 6-axis Full Servo, Belt-less Head

**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.

## High feeder capacity to increase the productivity

## 120 feeder lanes, the top of its class



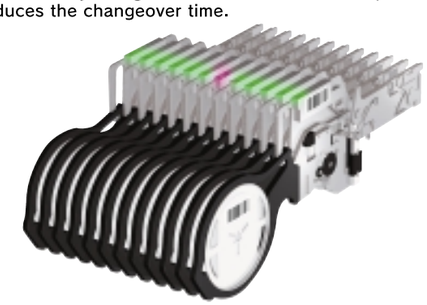

60 feeders each on front and rear (8mm tape conversion), total 120 feeders can be installed. The feeder capacity is the top of its class.
The feeders can be changed in a batch of 60 lanes by using the optional feeder bank changer.

## 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.

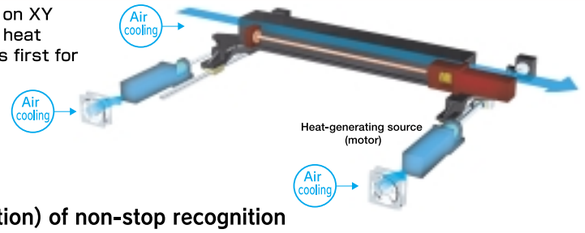
●Feeder Relocatability
Regardless of the actual feeder location, the machine automatically recognizes each feeder and component. It reduces the changeover time.



# High specifications support speed, accuracy, and reliability.

## Frame cooling

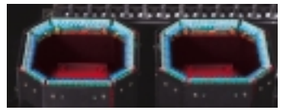
Air cooling is employed on XY axis in consideration of heat deformation. The world's first for mid-range machines.




## Fixed camera (option) of non-stop recognition

**Tact time 0.54 sec/QFP100**
**Placement accuracy ±0.03mm (QFP, FC03 camera)**

The fixed camera now employs non-stop recognition. It improves the placement speed for large components remarkably in single-frame processing.



## Nozzle changer

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

## 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.)

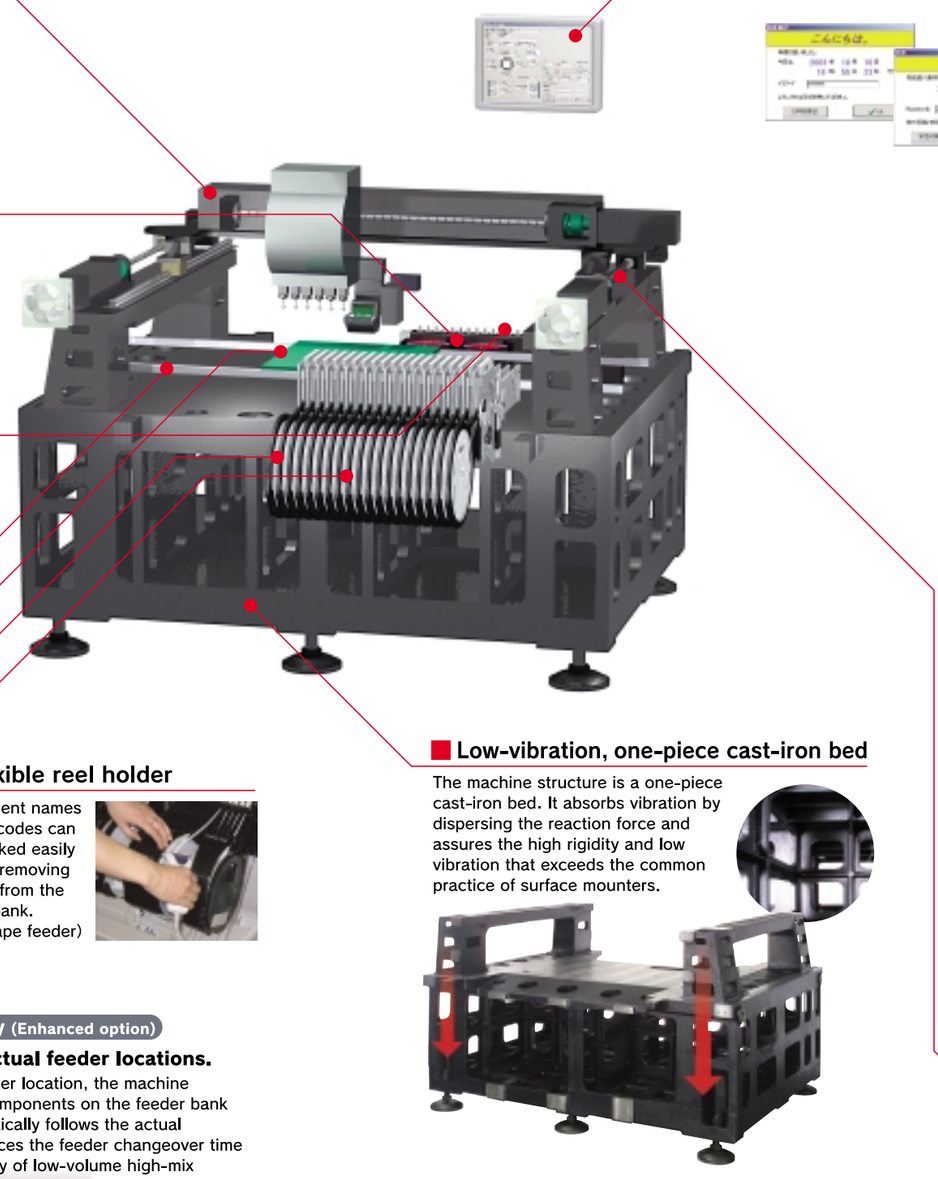
## Component height 15mm

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

## Flexible reel holder

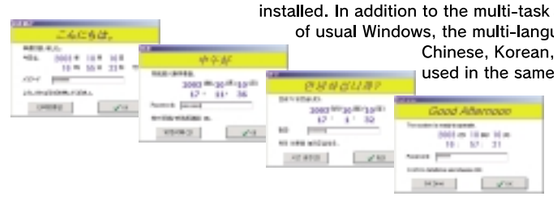
Component names and barcodes can be checked easily without removing feeders from the feeder bank.
(8mm tape feeder)





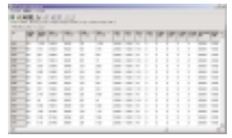
## Windows XP

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, and 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.

### 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 (max. 5 units)
- IP-12E Tact simulator
- IP-13E CAD converter
- IP-15E Net manager
- IP-16E Basic CAD converter

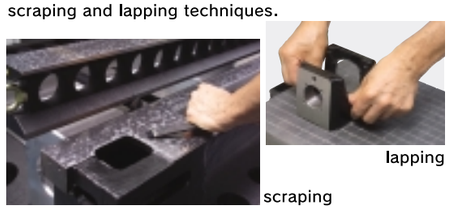
## Low-vibration, one-piece cast-iron bed

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.

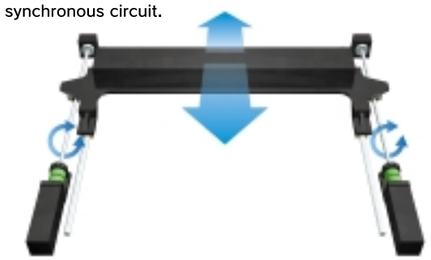


lapping

scraping

## Dual drive system reduces residual vibration.

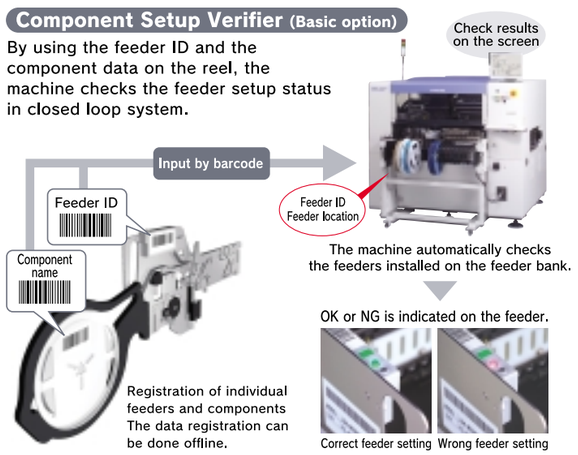
To reduce the vibration when stopping at pickup and placement points, a dual drive system is introduced in Y-axis that controls a pair of servo motors through a fully synchronous circuit.



## Intelligent Feeder

### Component Setup Verifier (Basic option)

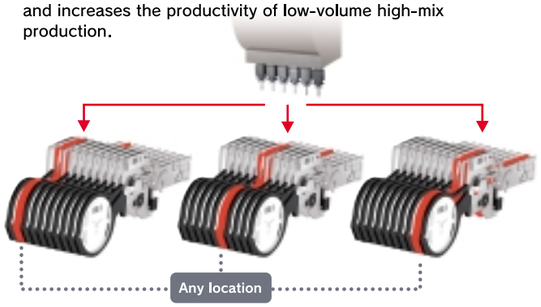
By using the feeder ID and the component data on the reel, the machine checks the feeder setup status in closed loop system.




### Feeder Relocatability (Enhanced option)

**The machine follows actual feeder locations.**

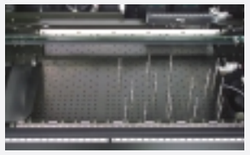
Regardless of the actual feeder location, the machine recognizes the location of components on the feeder bank and the pickup head automatically follows the actual component locations. It reduces the feeder changeover time and increases the productivity of low-volume high-mix production.



Option

## Matrix Backup Clamp (standard in export model)

Recommended for the board to be clamped at a high level of flatness. Magnet pin is also usable.



## Board Clamp Conveyor

The board is clamped with its edges from top and bottom.

## PCB Locating Pins

The fixed locating pin has a pin position fixed at 5mm from board edge. The adjustable locating pin can adjust the pin position in Y direction to accommodate irregular tooling-hole position.

Fixed pin

Adjustable pin

## Tape Splicer

Non-stop reel replenishment by splicing tapes (8mm paper tape)

## Feeder Setting Bench

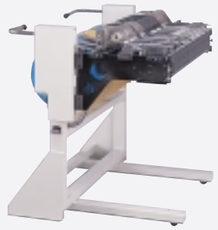
A bench for setting reels on tape feeders

## Reject Conveyor RC-54

A conveyor installed on the feeder bank to collect rejected IC components.

## Feeder Bank Changer CFB-2

A trolley to change feeders of entire 60 lanes in a batch



## Feeder Stocker PFS-3

The feeder stocker can stock 120 feeders (8mm tape conversion). It can check the feeder operation when the extra drive unit is installed.

## Parts Feeders

**Self-drive feeders ensure accurate tape feeding.**

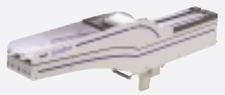
8mm

Accommodates either paper or plastic tape. (F1-84, F2-84)

12mm

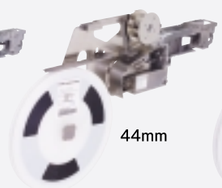
16mm

24mm



Multi stick

32mm



44mm

56mm

Single stick

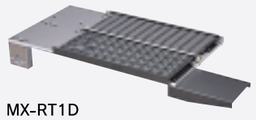
### Feeder models

| Model | Component Carrier | Remarks | Intelligent Feeder |
|---|---|---|---|
| F1-82-0603 | 8mm tape | 2mm index for 0603 (0201) | F2-82-0603 |
| F1-82-1005 | 8mm tape | 2mm index for 1005 (0402) | F2-82-1005 |
| F1-84 | 8mm tape | 4mm index | F2-84 |
| F1-12 | 12mm plactic tape | 4-12mm index | F2-12 |
| F1-16 | 16mm plastic tape | 4-16mm index | F2-16 |
| F1-24 | 24mm plastic tape | 4-24mm index | F2-24 |
| F1-32 | 32mm plastic tape | 4-32mm index | F2-32 |
| F1-44 | 44mm plastic tape | 4-44mm index | F2-44 |
| F1-56 | 56mm plastic tape | 4-56mm index | F2-56 |
| PS-32A | 32mm adhesive paper tape | 4-32mm index | |
| PS-T1S | Stick (single) | Max. component W13xL19xT4.5mm | |
| PS-T1M | Stick (single) | Max. component W31xL31xT4.5mm | |
| PS-MS3 | Stick (multi) | A number of sticks can be set. | |
| MX-ST2 | Tray | 1 tray or 2 JEDEC trays | |
| MX-RT1D | Tray | 1 tray or 2 JEDEC trays | |
| MXR-20 | Tray | 20 pallets, 20 trays | |
| MX-20D | Tray | 20 pallets, 40 trays (JEDEC) | |

## Tray Feeder

MX-ST2 ····· 1 pallet, 2 trays (JEDEC)
MX-RT1D ····· 1 pallet, 2 trays (JEDEC)
MXR-20 ····· 20 pallets, 20 trays
MX-20D ····· 20 pallets, 40 trays (JEDEC)

MX-ST2



MX-RT1D

MXR-20

MX-20D

## Tape Cutter TCM-1B

The tape cutter cuts and stores tapes discharged from feeders.

## Waste Tape Box

The waste tape box stores tapes discharged from feeders.

### Options

| Prod. Code / Part No. | Description |
|---|---|
| M2E-FC05 | Fixed camera for 0.5mm lead pitch |
| M2E-FC03 | Fixed camera for 0.3mm lead pitch |
| M2E-BSIO | Buffer stoppers, input and output |
| M2E-CXEN | 200mm conveyor extension, input |
| M2E-CXEX | 200mm conveyor extension, output |
| M2E-AN12 | 2nd nozzle changer of 12 holes |
| M2E-0603 | 0603 (0201) recognition |
| M2E-CSVF | Component setup verifier (Closed loop system) |
| M2E-FRLF | Feeder relocatability (M2-CSVF is required.) |
| LC1-M5T00-00 | Extra barcode reader |
| LC1-M3700-00 | Feeder bank changer CFB-2 |
| LC1-M3700-10 | Feeder bank changer CFB-2, SMEMA height |
| M2E-UPS2 | Uninterrupted power supply |
| M1E-FP30/FP35/FP40 | Fixed PCB locating pin 3.0/3.5/4.0mm |
| M1E-AP30/AP35/AP40 | Adjustable PCB locating pin 3.0/3.5/4.0mm |
| M2E-MXBC | Matrix backup clamp (Standard in export model) |
| M2E-T200/T400 | Power transformer for 208,220,240V/380,400,415,440V (Standard in export model) |
| M2E-CEMK | CE marking on M2 without MXR20/MX20D |
| M2E-CEMT | CE marking on M2 installed with MXR20/MX20D |
| M2E-BCCV | Board clamp conveyor |
| M2E-ACWA | Auto conveyor width adjustment |
| M2E-RTOL | Right to left flow conveyor |
| M2E-RRCV | Rear reference conveyor |
| M2E-LCDM | 15-inch LCD monitor |
| M2E-RSOP | Rear side operation |
| M2E-RSSW | Rear side switches |
| LG0-M5D00-00 | Feeder presetter FPS-1 |
| LC0-M5P00-00 | Feeder setting bench |
| LG0-M5S00-00 | Tape splicer for 8mm paper tape |
| LG4-MM100-00 | Reject conveyor RC-54 |
| LG4-MN100-00 | Reject conveyor RC-54, CE spec. |
| LG0-M5E01/2/3/4/5-00 | Waste tape box TB-2A/4/5A/6/8 |
| LG0-M5F00-10 | Tape cutter TCM-1B |
| M1E-PFS3 | Feeder Stocker PFS-3 |
| LG0-M5C00-00 | Set master PCJ-1 |
| LC1-M5500-00 | SMEMA riser for M2 (a set of 6 pieces) |
| LG1-M1140-00 | SMEMA riser for MX-20D (×4) |
| See another page | Offline software iOSII |
| See another page | Parts feeders / Tray feeders |