

High-accuracy technology for "ultra-small" 0402 (01005) chip

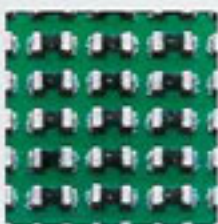
► Accurate

Highly reliable head unit and high-resolution axis control

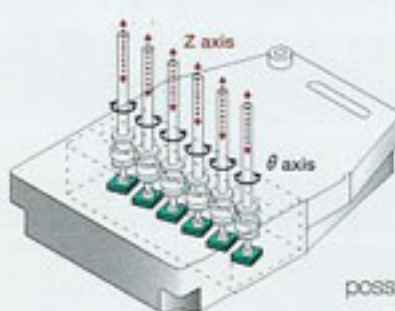
The head unit has a laser sensor and control system for Z and θ motors designed for efficiency and ease of maintenance. High speed serial communication is used for data transfer. The simple design reduces the number of cables, even with the increased number of nozzles, and increases reliability.



Improved resolution on all axes results in more accurate placements, time after time. The KE-2070 and KE-2080 feature 1 μ m linear encoders on the X and Y axes. New encoders employed for the Z and θ axes have a resolution of 260,000 pulses per revolution, a significant improvement in precision. These enhancements combined result in an improvement of the placement accuracy to $\pm 50\mu$ m (Cpk ≥ 1)



Independent Z / θ control



Each nozzle has independent Z and θ motors for high reliability and high accuracy. Precise control of each nozzle is possible without affecting components on other nozzles.

► High quality

No-blow placement technology

JUKI's original vacuum self-calibration function eliminates the need for a vacuum "blow-off" during placement, which can disturb neighboring components or solder paste.



High density placement without "blow-off"



Possible effects of "blow-off"

Highly versatile vision system for a wide range of components

► Flexible

Vision centering technology

Centering method can be selected based on component type, shape, size and material. Laser centering is used for high speed placement of smaller components. Vision is used when lead or ball inspection is needed or when the component is too large for the laser. Many nozzles are available for odd-shaped components providing unsurpassed component handling.



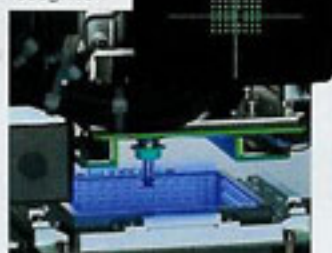
Nozzles for odd-shaped components

Bottom and side recognition



Vision recognition

Bottom and side recognition

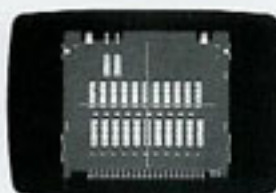


Back light recognition



General Vision

General vision function is used to support a wide variety of today's unusual vision centered components. After programming is complete, the data can be verified by picking and test centering a component.

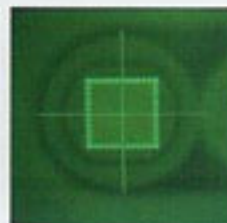
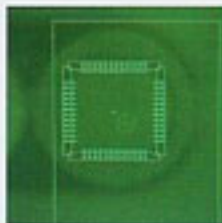


► High speed vision placement

MNVC (Multi-Nozzle Vision Centering)

Vision centering by the multi-nozzle head nearly doubles the placement rate for smaller components, including CSPs, BGAs, and smaller QFPs. (Option)

※ MNVC is also available on the KE-2070.



User-friendly design

► Ease of operation

Graphical user interface

Easy to use and easy to learn programming and operations make the KE series a great choice for new or experienced operators. Add the optional touch panel or rear side operation panel for even greater convenience.



Operation unit

Familiar Windows XP software is as easy to use and the PC on your desk. A new USB 2.0 port simplifies the transfer of production files and other data between machines.



► Easy maintenance

New head unit design

The head unit is designed specifically for easy maintenance. Vacuum filters have been moved for better access and require no adjustments or calibrations after replacement.



JUKI original technology for high-density placement

Laser centering technology

► High accuracy, high-speed mounting

High-speed, on-the-fly centering



A high resolution laser is mounted on the head to center components in all directions including angle. Centering is done on-the-fly, allowing high speed placement of components from small chips to SOPs.

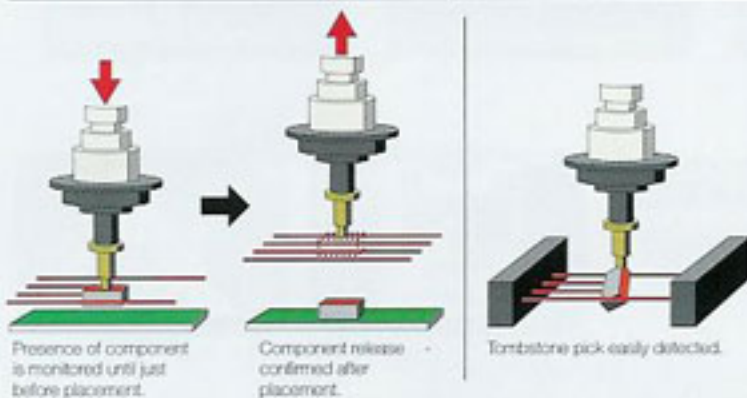
► Adaptable centering

Centering accommodates component variations

Laser centering measures the components on the side. It is not affected by variations of component color or width / length so, unlike vision centering, there is no need to edit component data for different component vendors.

► Low loss ratio

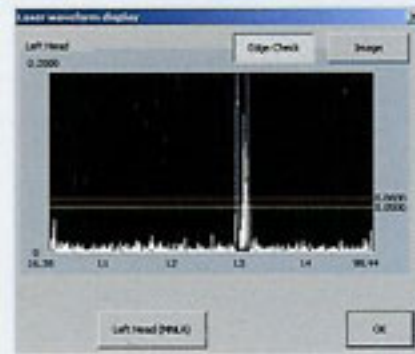
Component check function improves placement reliability



Since the laser is mounted on the head, it can be used to monitor the presence of components the entire time from pick to placement. This is difficult to accomplish with vacuum detection only. The placement reliability is also improved because the release of the component is confirmed after placement.

► High reliability

Centering errors prevented by self check

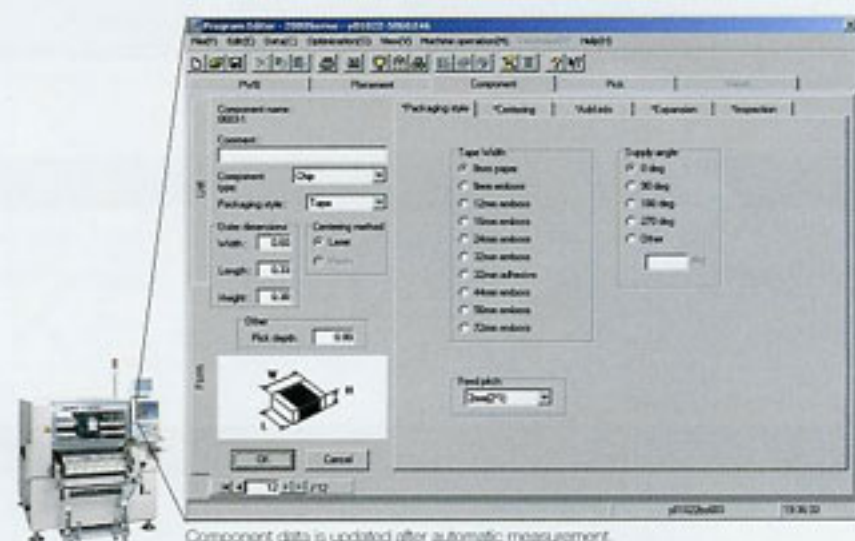
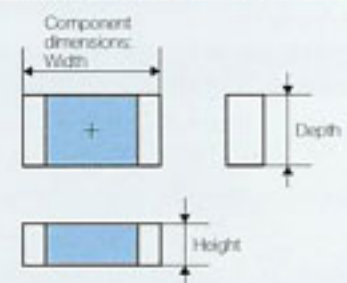


Laser contamination is checked prior to the production. If contamination is detected, an alarm is given to prevent centering errors.

► Simplified data entry

Ease-of-use improved by automatic component measurement

Component data can be completed entering just approximate dimensions, type and packaging information. The exact dimensions and lead count / pitch are measured by the machine and automatically entered into the component data.



Component data is updated after automatic measurement.

Modular concept introduced by JUKI in 1993

Our products continuously evolve to meet the needs of the ever-changing SMT industry.

Economical

+

Easy to use

+

Expandable

=

Flexible machine modules can be configured in a wide variety of lines to meet the exact production needs with minimal investment.

Simple software layout, graphical interface, and intelligent mechanical design make the machines easy to use and easy to maintain.

Machines can easily be added or removed from a line to suit changing production requirements. Re-balancing and optimization of production lines takes just seconds. Compatibility of software and feeders makes it easy to add new machines to existing assembly lines.



Advanced features for increasingly sophisticated and diversified applications

► High quality

FCS (Flex Calibration System)



JUKI's highly regarded easy maintenance just got even easier! The optional FCS calibration jig is a simple to use system to re-calibrate placement accuracy. The machine automatically picks and places jig components, then measures the error and adjusts all necessary calibrations. (optional)

► Fast and easy setup, Low defect ratio

Auto Teaching of Pick Position



Auto teaching of pick position reduces changeover time and mis-picks.

HMS (Height Measurement System)



The HMS is used to quickly and accurately measure the component pick height. A laser sensor measures the distance instantly without any physical contact.

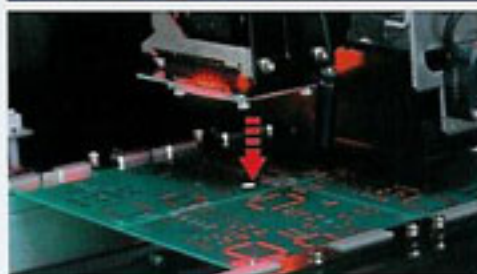
► Flexible

Fiducial recognition



OCC lighting system supports wide variety of board materials including FPC (Flexible Printed Circuit board). Programmable brightness and directional lighting improves fiducial recognition.

Camera Bad Mark Detection



Bad mark detection is performed using the machine's standard downward looking camera (also used for fiducials and teaching). This system accurately detects a wide range of marks on various substrates, including flex circuits.

► Maximum throughput

Simultaneous Pick Priority Mode

Users can now select the best pick mode to suit their production requirements. For the maximum possible throughput, simultaneous pick priority mode will try to pick as many components as possible in a single pick sequence.

► High density placements

Pick Position Priority Mode

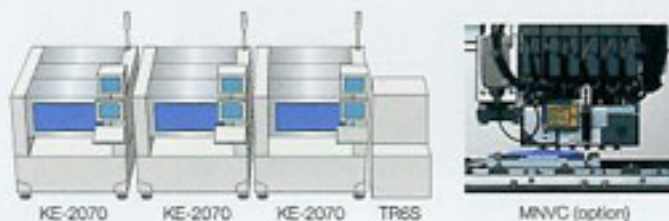
For high density component placement, pick position priority always picks components at the taught pick location.

Sample production line with FX and KE series

Compact line for small electronics

High density placement / High-speed, highly accurate placement of small components including fine pitch or odd-shaped devices

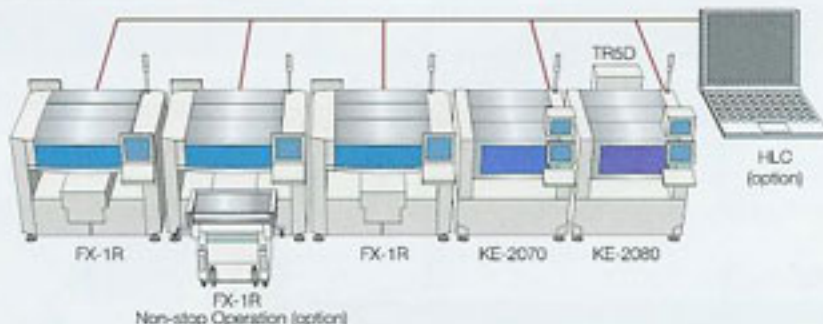
The KE-2070 is ideal for applications with only smaller components. The MNVC option can be easily added to increase the flexibility of the KE-2070 even further.



High speed, general use line

High throughput / Place virtually any SMT component

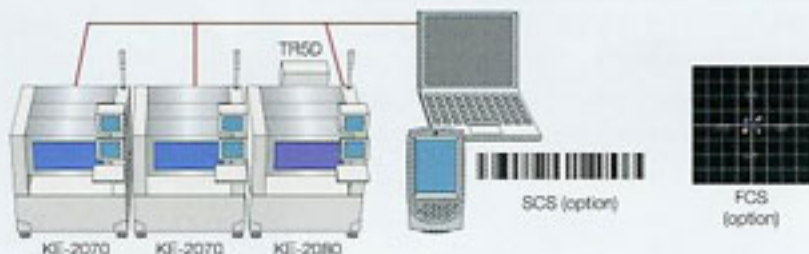
Full-function high speed line with the ability to place all components from small chip to large BGAs, QFPs and connectors. Non-stop Operation allows feeders to be changed on-the-fly without stopping the machines. Productivity is maximized using the HLC (Host Line Computer) for line balancing and optimization.



Quality control line for automotive or medical applications

Setup verification / Traceability / Small lot, high changeover production

Designed for situations where verification and product traceability are required. FCS (Flex Calibration System) to perform periodic recalibrations or accuracy certification. Traceability to record lot number/manufacturing codes of components placed on all boards. Setup Control System (SCS) to verify feeder setup prior to production and new reel replacement during production.



High value added system aiming at the quality management which is one step ahead of today

SCS (Setup Control System)

SCS is a feeder barcode verification package that confirms operator accuracy and provides related value-added functions. There are four modules available: Barcode Parts Verification (standard), Off-Machine Setup (optional), Traceability (optional) and Component Balance Management (standard).

Improved accuracy, productivity and reduced operator workload

Barcode Parts Verification

The main module of SCS is the barcode parts verification. This system confirms that the correct component has been placed in the correct location when a reel or feeder is replaced. An interlock prevents production from continuing until the component and location are successfully verified using a handheld wireless data terminal.

Off-Machine Setup Module (option)

The off-machine setup module allow an operator to verify the placement of all feeders on a feeder trolley before it is installed on a machine. This ensures all feeders are present and accurately placed for a quick changeover.



Lot No.	Part No.	Lot No.	Lot No.	Lot No.
200-1000-001	000001	Lot1	200-1102 14700	
200-1000-001	000002	Lot2	200-1102 14701	
200-1000-001	000003	Lot3	200-1102 14702	
200-1000-001	000004	Lot4	200-1102 14703	
200-1000-001	000005	Lot5	200-1102 14704	
200-1000-001	000006	Lot6	200-1102 14705	
200-1000-001	000007	Lot7	200-1102 14706	
200-1000-001	000008	Lot8	200-1102 14707	
200-1000-001	000009	Lot9	200-1102 14708	
200-1000-001	000010	Lot10	200-1102 14709	
200-1000-001	000011	Lot11	200-1102 14710	
200-1000-001	000012	Lot12	200-1102 14711	
200-1000-001	000013	Lot13	200-1102 14712	
200-1000-001	000014	Lot14	200-1102 14713	
200-1000-001	000015	Lot15	200-1102 14714	
200-1000-001	000016	Lot16	200-1102 14715	
200-1000-001	000017	Lot17	200-1102 14716	
200-1000-001	000018	Lot18	200-1102 14717	
200-1000-001	000019	Lot19	200-1102 14718	
200-1000-001	000020	Lot20	200-1102 14719	

Lot No.	Part No.	Lot No.	Lot No.	Lot No.
200-1000-001	000001	Lot1	200-1102 14700	
200-1000-001	000002	Lot2	200-1102 14701	
200-1000-001	000003	Lot3	200-1102 14702	
200-1000-001	000004	Lot4	200-1102 14703	
200-1000-001	000005	Lot5	200-1102 14704	
200-1000-001	000006	Lot6	200-1102 14705	
200-1000-001	000007	Lot7	200-1102 14706	
200-1000-001	000008	Lot8	200-1102 14707	
200-1000-001	000009	Lot9	200-1102 14708	
200-1000-001	000010	Lot10	200-1102 14709	
200-1000-001	000011	Lot11	200-1102 14710	
200-1000-001	000012	Lot12	200-1102 14711	
200-1000-001	000013	Lot13	200-1102 14712	
200-1000-001	000014	Lot14	200-1102 14713	
200-1000-001	000015	Lot15	200-1102 14714	
200-1000-001	000016	Lot16	200-1102 14715	
200-1000-001	000017	Lot17	200-1102 14716	
200-1000-001	000018	Lot18	200-1102 14717	
200-1000-001	000019	Lot19	200-1102 14718	
200-1000-001	000020	Lot20	200-1102 14719	

Identify boards with defective components

Traceability Module (option)

Traceability records the serial number of all boards assembled by each machine along with the part number and lot codes of every component placed. This information can be used to identify potentially "bad" boards resulting from a defective lot of components.

Rationalization to component management

Component Balance Management

The component balance management is included with SCS to provide basic stock and location information. The stock information is automatically updated as reels are used for production.

© 2D barcode reading for traceability.

視覚認識装置付全自動高速スクリーン印刷機

MK-MARK II

FULL AUTOMATIC PRINTER WITH SUPER VISION



MINAMI従来の機能を残した 高性能汎用スクリーン印刷機が新登場

既保持MINAMI原有的印刷機機能・又實現了高性能汎用印刷機的新登場
Multi-purpose screen printer debut. High performance with Minami's existing capability.

MK-MARK II

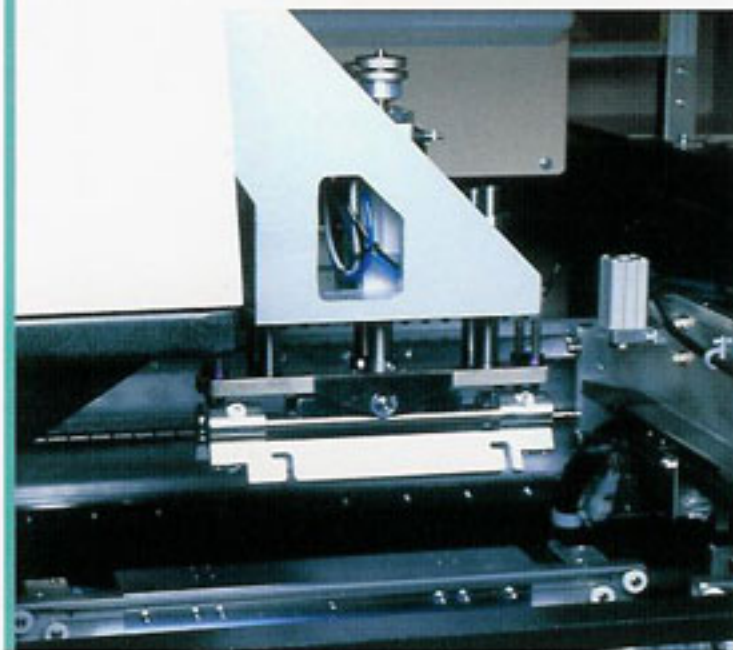
FULL AUTOMATIC PRINTER WITH SUPER VISION



充実の標準装備

自動印圧調整機能

自動施圧機構
Printing Pressure Auto-adjustment



サーボクリーニングユニット

伺服清潔系統
Servo Cleaning Unit

クリーニングタクト大幅短縮
清潔時間大幅度縮短
Drastic Reduction of Cleaning Time
データを品種ごとに設定可能
不同的品種不同的設定
Data can be set according to format



基板反り矯正ユニット

防止基板反翹装置
Warp Corrective Unit



磁石固定式治具
Magnetic Buck-up Jigs

M/L選択可能フレーム オプション

M/L可選型網框
M/L Selectable Frame (Option)



1. 世界最高クラスの印刷位置合せ繰り返し精度(±0.020mm以下画像認識使用時)でCSP bumps Φ0.2mm、QFP 0.3リードピッチ及びCHIP0603に対応します。
2. 8軸のサーボ・モーターを搭載し、高精度が必要な基幹動作の安定性を確保しました。
3. シンプルな構造、シンプルな操作はオペレータの熟練が不要。
4. 基板の搬送方向、ライン構成基準(固定側コンベア)、製版基準は、それぞれ無償選択を用意しており、ユーザーの設備計画や既存機に対応します。全てのマウンタとの連結・稼働が可能です。
5. OSにはオペレータフレンドな「Windows XP」を採用、同一OS内での複数言語対応(日本語、英語、中国語)を実現。

1. Bump in Φ0.2mm diameter, QFP in 0.3mm lead-pitch, and CHIP0603 can be formed with the world top level accuracy in repetitive positioning (±0.020mm or below).
2. 8-axis servo motors ensure the stability of the key actions required high accuracy.
3. Simple configuration and easy operability eliminate operator's experience.
4. Each of the board carrying direction, configuration origin (fixed-side conveyor), and mask origin has charge-free options to meet users' equipment planning or spec of their existing machines. Connection and operation with all types of mounter is possible.
5. OS is operator-friendly Windows XP. Multilingual operation (Japanese, English, Chinese) in one OS is realized.

1. 世界最高レベルの印刷重複精度±0.020mm以下(使用画像認識系統)に対応CSP BUMP Φ0.2mm、QFP 0.3mm、CHIP0603。
2. 8軸的伺服駆動軸及馬達的使用,確保了高精度的印刷及良好的穩定性。
3. 緊湊的設計、簡單的操作。
4. 基板的傳送方向、生產線的構成(傳送帶的固定方向)、製版基準等可根據客戶的要求進行設計,可與各種不同品牌、型號的貼片機連結。
5. OS採用了「Windows XP」,實現了多種語言(日本語、英語、中國語)的表現。

仕様 Specifications

A Type

网版尺寸 Frame size	(X) 650 × (Y) 550mm Et (X) 750 × (Y) 650mm Et (X) 29' × (Y) 29' (T)25~30mm	画像処理方法 Image function method	多値化制御 Multivalued control system
基板尺寸 PWB size	最小Minimum(X)50 × (Y)50mm (T)0.4~2.5mm 最大Maximum(X)330 × (Y)250mm	基板固定方式 PWB fixing	真空吸着及外形固定 Combined use of vacuum sticking(air ejector) and "Y" side clamping
外形寸法・重量 Dimensions, weight	(D)1235 × (W)1570 × (H)1497mm (Without Signal tower) 600Kg	電源規格 Power supply	単相AC200VAC 2KVA 50/60Hz AC 200VAC, Single-phase, 2KVA, 50/60HZ
機器的印刷重複精度 Printing repeatability accuracy	±0.020mm以下(画像認識系統) ±0.020mm on using image recognition	可選仕様 Option	刮刀駆動為SERVO Servo for Moving of SQ.
印刷の基本周期 Basic cycle time	M型為8秒(不包刮刮刀的移動時間及脫離網版) 8 sec.(M) level excluding the time required for SQ.movement and plate separation		

L Type

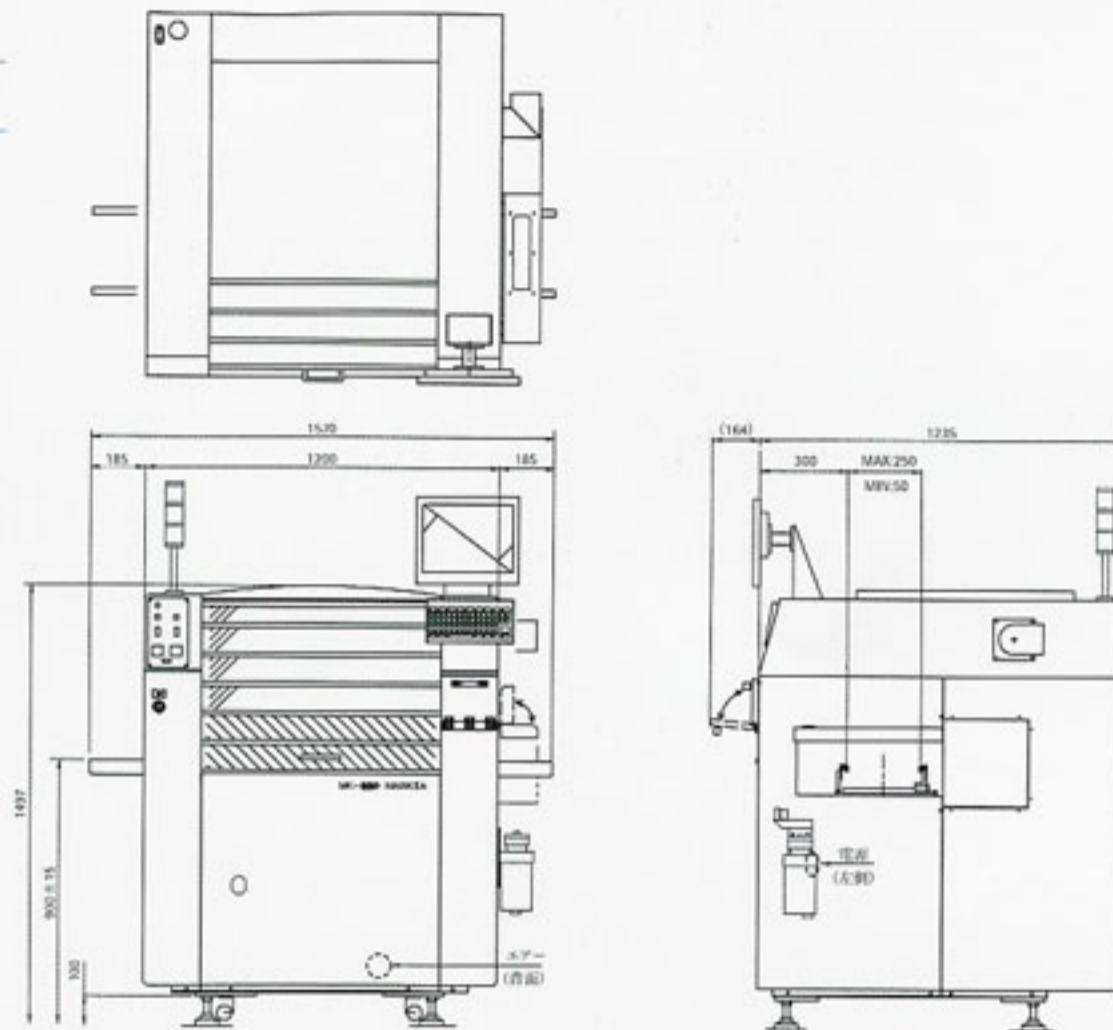
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基板尺寸 PWB size	最小Minimum(X)50 × (Y)50mm (T)0.4~2.5mm 最大Maximum(X)460 × (Y)300mm	基板固定方式 PWB fixing	真空吸着及外形固定 Combined use of vacuum sticking(air ejector) and "Y" side clamping
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B Type

网版尺寸 Frame size	(X) 650 × (Y) 550mm (T)25~30mm	画像処理方法 Image function method	多値化制御 Multivalued control system
基板尺寸 PWB size	最小Minimum(X)50 × (Y)50mm (T)0.4~2.5mm 最大Maximum(X)330 × (Y)250mm	基板固定方式 PWB fixing	真空吸着及外形固定 Combined use of vacuum sticking(air ejector) and "Y" side clamping
外形寸法・重量 Dimensions, weight	(D)1235 × (W)1570 × (H)1497mm (Without Signal tower) 550Kg	電源規格 Power supply	単相AC200VAC 2KVA 50/60Hz AC 200VAC, Single-phase, 2KVA, 50/60HZ
機器的印刷重複精度 Printing repeatability accuracy	±0.020mm以下(画像認識系統) ±0.020mm on using image recognition	可選仕様 Option	刮刀駆動為SERVO Servo for Moving of SQ.
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外觀寸法図 Machine dimension

MK MARK II
A Type / L Type



MK MARK II
B Type

