Our Solutions, Your Value

Model ID		NPM-W					
Front head \ Rear head		16-nozzle head	12-nozzle head	8-nozzle head	3-nozzle head	Dispensing head	No head
16-nozzle head		NM-EJM2D				NM-EJM2D-MD	NM-EJM2D
12-nozzle head							
8-nozzle head							
3-nozzle head							
Dispensing head		NM-EJM2D-MD				———	NM-EJM2D-D
Inspection head		NM-EJM2D-MA					NM-EJM2D-A
No head		NM-EJM2D				NM-EJM2D-D	———
PCB dimensions	Single-lane*1 Batch mounting	L 50 mm × W 50 mm ～ L 750 mm × W 550 mm		PCB exchange time	Batch mounting	4.4 s (With no component mounted on the reverse side of PCB)	
	Single-lane*1 2-positin mounting	L 50 mm × W 50 mm ～ L 350 mm × W 550 mm		PCB exchange time	2-positin mounting	2.3 s (With no component mounted on the reverse side of PCB)	
	Dual-lane*1 Single transfer	L 50 mm × W 50 mm ～ L 750 mm × W 510 mm		PCB exchange time	Single transfer	4.4 s (With no component mounted on the reverse side of PCB)	
	Dual-lane*1 Dual transfer	L 50 mm × W 50 mm ～ L 750 mm × W 260 mm		PCB exchange time	Dual transfer	0 s* *No 0s when cycle time is 4.4 s or less	
Electric source		3-phase AC 200, 220, 380, 400, 420, 480 V 2.5 kVA					
Pneumatic source*2		0.5 MPa、100 L /min (A.N.R.)					
Dimensions*2		W 1 280 mm*3 × D 2 332 mm*4 × H 1 444 mm*5					
Mass		2 250 kg (Only for main body:This differs depending on the option configuration.)					
Placement head		16-nozzle head (With Dual Heads)	12-nozzle head (With Dual Heads)	8-nozzle head (With Dual Heads)		3-nozzle head*7 (With Dual Heads)	
Placement speed	Max. speed	70 000 cph (0.051 s/chip)	62 500 cph (0.058 s/chip)	40 000 cph (0.090 s/chip)		11 000 cph (0.33 s/QFP)	
IPC9850(1608)		53 800 cph*8	48 000 cph*8	—		—	
Placement accuracy (Cpk≧1)		±40 μm/chip	±40 μm/chip	±40 μm/chip ±30 μm/QFP □12 mm ～ □32 mm ±50 μm/QFP □12 mm Under		±30 μm/QFP	
Component dimensions (mm)		(01005") 0402 chip*6 to L 6 × W 6 × T 3	(01005") 0402 chip*6 to L 12 × W 12 × T 6.5	(01005") 0402 chip*6 to L 32 × W 32 × T 12		(0201") 0603 chip to L 150 × W 25 (diagonal152) × T 28	
Component supply	Taping	Tape : 8 / 12 / 16 / 24 / 32 / 44 / 56 mm Max.120 (8 mm tape : double feeder, (small real))		Tape : 8 to 56 / 72 mm Front/rear feeder cart specifications : Max.120 (Tape width and feeder are subject to the conditions on the left) Single tray specifications : Max.86 (Tape width and feeder are subject to the conditions on the left) Twin tray specifications : Max.60 (Tape width and feeder are subject to the conditions on the left)		Tape : 8 to 56 / 72 / 88 / 104 mm	
	Stick	———		Front/rear feeder cart specifications : Max.14 Single tray specifications : Max.10 Twin tray specifications : Max.7			
	Tray	———		Single tray specifications : Max.20 Twin tray specifications : Max.40			
Dispensing head		Dot dispensing		Draw dispensing			
Dispensing speed		0.16 s/dot (Condition : XY=10 mm, Z=less than 4 mm movement, No θ rotation)		3.75 s/component (Condition: 30 mm x 30 mm corner dispensing)			
Adhesive position accuracy (Cpk≧1)		± 75 μm/dot		± 100 μm/component			
Applicable components		1608 chip to SOP, PLCC, QFP, Connector, BGA, CSP		SOP, PLCC, QFP, Connector, BGA, CSP			
Inspection head		2D inspection head(A)		2D inspection head(B)			
Resolution		18 μm		9 μm			
View size		44.4 mm × 37.2 mm		21.1 mm × 17.6 mm			
Inspection processing time	Solder Inspection*10	0.35s/ View size					
	Component Inspection*10	0.5s/ View size					
Inspection object	Solder Inspection *10	Chip component : 100 μm × 150 μm or more (0603 / 0201" or more) Package component : φ150 μm or more		Chip component : 80 μm × 120 μm or more (0402 / 01005" or more) Package component : φ120 μm or more			
	Component Inspection *10	Square chip (0603 / 0201" or more), SOP, QFP (a pitch of 0.4mm or more), CSP, BGA, Aluminum electrolysis capacitor, Volume, Trimmer, Coil, Connector, Network resistor, Transistor, Diode, Inductor, Tantalum capacitor, Melf		Square chip (0402 / 01005" or more), SOP, QFP (a pitch of 0.3mm or more), CSP, BGA, Aluminum electrolysis capacitor, Volume, Trimmer, Coil, Connector, Network resistor, Transistor, Diode, Inductor, Tantalum capacitor, Melf			
Inspection items	Solder Inspection*10	Oozing, blur, misalignment, abnormal shape, bridging					
	Component Inspection*10	Missing, shift, flipping, polarity, foreign object inspection *9					
Inspection position accuracy (Cpk≧1)*11		± 20 μm		± 10 μm			
No. of inspection	Solder Inspection*10	Max. 30 000 pcs./machine (No. of components : Max. 10 000 pcs./machine)					
	Component Inspection*10	Max. 10 000 pcs./machine					

*Placement tact time,inspection time and accuracy values may differ slightly depending on conditions
*Please refer to the specification booklet for details.

*1 : Please consult us separately should you connect it to NPM-D. It cannot be connected to NPM-TT and NPM.
*2 : Only for main body
*3 : 1 880 mm in width if extension conveyors (300 mm) are placed on both sides.
*4 : Dimension D including tray feeder : 2 570 mm
Dimension D including feeder cart : 2 465 mm
*5 : Excluding monitor and signal tower
*6 : The 0402 chip requires a specific nozzle/feeder.
*7 : 3-nozzle head cannot be installed to NPM-D.
*8 : It is the reference value of an IPC9850-compliant tact time estimated in the dual conveyor/independent mode.
*9 : Foreign object is available to chip components.
*10 : One head cannot handle solder inspection and component inspection at the same time.
*11 : This is the solder inspection position accuracy measured by our reference using our glass PCB for plane calibration. It may be affected by sudden change of ambient temperature.

⚠ Safety Cautions

●**Please read the User's Manual carefully to familiarize yourself with safe and effective usage procedures.**

●**To ensure safety when using this equipment all work should be performed according to that as stated in the supplied Operating Instructions. Read your operating instruction manual thoroughly.**

eco ideas Panasonic Group products are built with the environment in mind.
http://panasonic.net/eco/

ISO 14001 **Panasonic Group builds Environmental Management System in the factories of the world and acquires the International Environmental Standard ISO 14001:2004.**

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All data as of April 1, 2013

Ver.April 1, 2013

●Changes in specifications and appearance may be made without notice for product improvement. ●Recycled paper is used this Catalog.
●Homepage http://panasonic.net/pfsc/

Panasonic

2013
Electronics Assembly System catalog
PRODUCTION MODULAR

NPM
NEXT PRODUCTION MODULAR

Manufacturing Process Innovation

Model Name **NPM-W**

Model No.NM-EJM2D
Model No.NM-EJM2D-MD *Model No.NM-EJM2D-D*
Model No.NM-EJM2D-MA *Model No.NM-EJM2D-A*

*Photograph is NM-EJM2D

CE *It may not conform to Machinery Directive and EMC Directive in case of optional configuration and custom-made specification.

NPM NEXT PRODUCTION MODULAR System evolution according to mounting changes NEW CONCEPT MACHINE

1 High area productivity with total mounting lines

Higher productivity and quality with printing, placement and inspection process integration

2 For larger boards and larger components

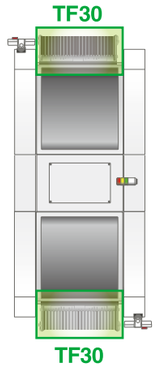
PCBs up to a size of 750 × 550 ㎜ with component range up to 150 × 25 ㎜

3 Higher area productivity through dual lane placement (Selection spec.)

Depending on the PCB you produce, you can select an optimal placement mode – “Independent” “Alternate” or “Hybrid”

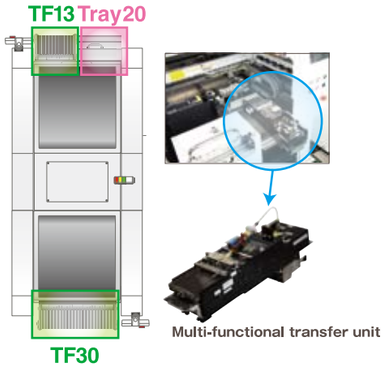
Machine Configuration

Rear & Front Feeder Layout



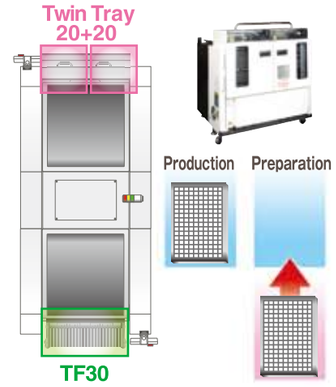
60 different components can be mounted from 16mm tape feeders.

Single Tray Layout

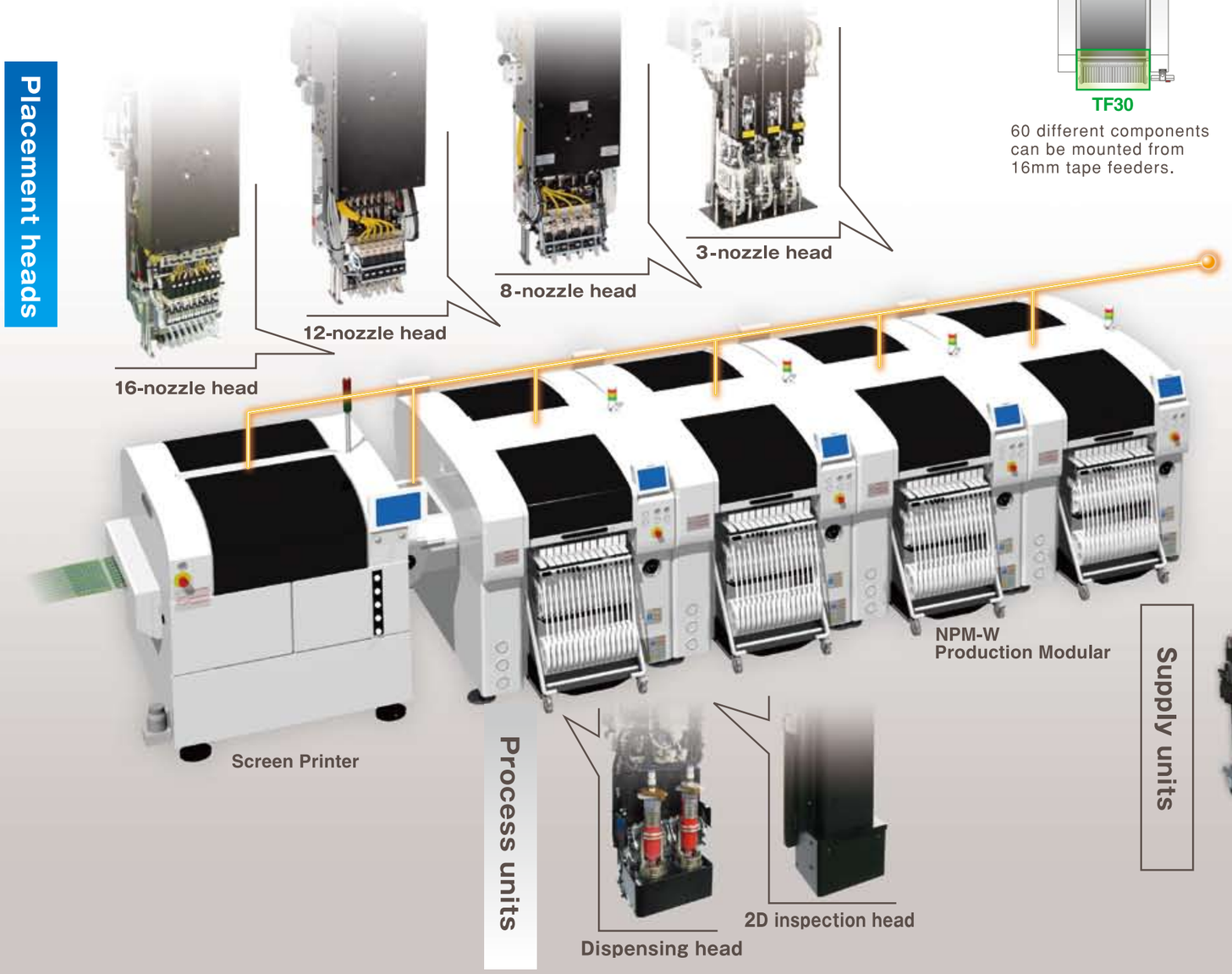


13 fixed feeder slots are available. PoP tray mounting is possible via a transfer unit.

Twin Tray Layout



While one tray is used for production, the other tray can simultaneously be used to setup the next production in advance.



System software

- Placement height control system
- Operation navigation system
- APC system
- Component Verificaton option
- Automatic changeover option
- Host communication option

● NPM-DGS
Data Creation System

Feeder cart
(30 inputs)

Single
Tray feeder
(20 Component types)

Twin
Tray feeder
(40 Component types)

NPM NEXT PRODUCTION MODULAR
Highly-versatile head & wide platform
Placement Heads

Multi-functionality

Large Board

Single-lane specifications(Selection spec.)

Large Board up to 750 × 550 ㎜ can be handled

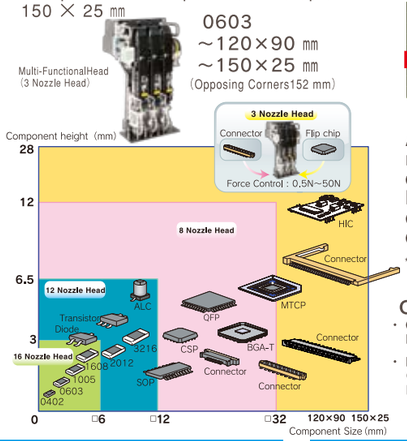
Dual-lane specifications(Selection spec.)

Large boards(750 × 260 ㎜) can be handled collectively.
Boards(up to a size of 750 × 510 ㎜) can be handled collectively during single transfer.

Large Components

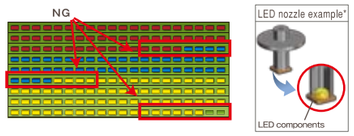
Compatible to component sizes up to 150 × 25 ㎜

0603
～120×90 ㎜
～150×25 ㎜
(Opposing Corners152 ㎜)



LED Placement

Brightness Binning



Avoid mixing of brightness and minimizes component and block disposal.
Monitors remaining component count to avoid component exhaust during operation.

*Please ask us for nozzles that support LED components of various shapes

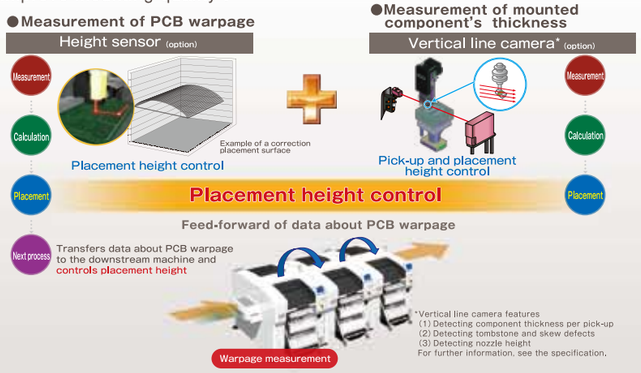
Other functions

- Global bad mark recognition function
  Reduces in travel/recognition time to recognize bad marks
- PCB standby between machines
  (with the extension conveyor attached)
  Minimizes the PCB(750 mm)change time

Quality improvement

Placement height control function

Based on PCB warpage condition data and thickness data of each of the components to be placed, the control of placement height is optimized to improve mounting quality .



*Vertical line camera features
(1) Detecting component thickness per pick-up
(2) Detecting tombstone and skew defects
(3) Detecting nozzle height
For further information, see the specification.

Operating rate improvement

Feeder location free

Within same table, feeders can be set anywhere. Alternate allocation as well as setting of new feeders for next production can be done while the machine is in operation.

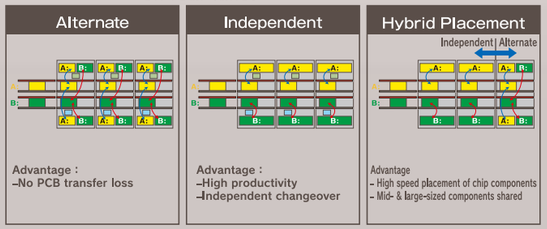
Feeders will require off-line data input by support station (option).

Productivity

Alternate,Independent & Hybrid Placement

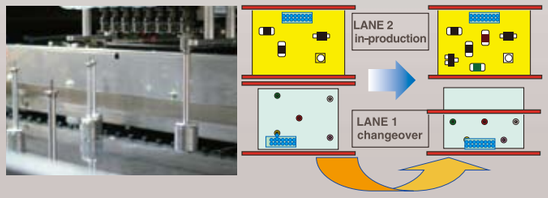
Selectable "Alternate" and "Independent" dual placement method allows you to make good use of each advantage.

- Alternate:Front and rear heads execute placement on PCBs in front and rear lanes alternately.
- Independent:Front head executes placement on PCB in front lane and rear head execute placement on rear lane.



Automatic replacement of support pins (option)

Automate position change of support pins to enable non-stop changeover and help save man-power and operation errors.



Automatic allocation of support pins

NPM NEXT PRODUCTION MODULAR
In-line dispensing,inspection achieve high-quality mounting
Dispense & Inspection Head

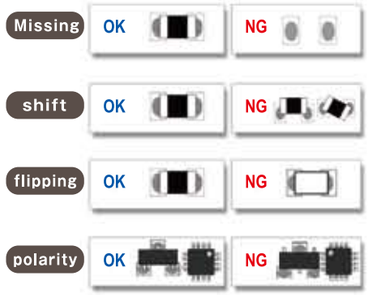
Solder Inspection (SPI)・Component Inspection (AOI) Inspection head

Solder Inspection

・Solder appearance inspection

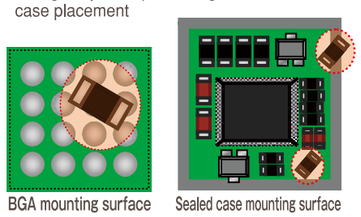
Mounted component Inspection

・Appearance inspection of mounted components



Pre-mounting foreign object*1 inspection

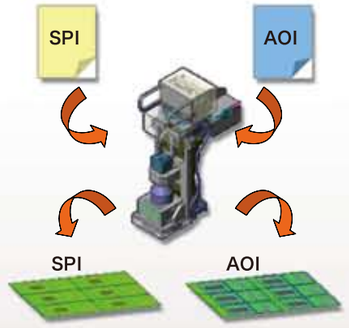
- Pre-mounting foreign object inspection of BGAs
- Foreign object inspection right before sealed case placement



*1: Foreign object is available to chip components.

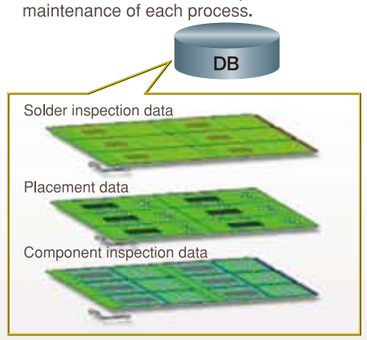
SPI and AOI automatic switching

・Solder and component inspection is switched automatically according to production data.



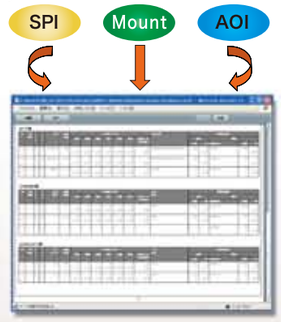
Unification of inspection and placement data

・Centrally managed component library or coordinate data does not require two data maintenance of each process.



Automatic link to quality information

・Automatically linked quality information of each process assists your defect cause analysis.



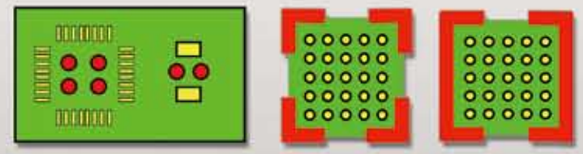
Adhesive Dispensing Dispensing head

Screw-type discharge mechanism

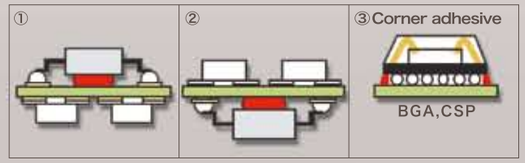
・Panasonic's NPM has the conventional HDF discharge mechanism, which ensures the high-quality dispensing.

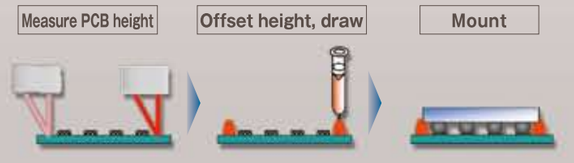
①Misalignment prevention of the large-sized component at board transferring
②Drop prevention of the back side component at reflowing
③Adhesive reinforcement of BGA and CSP*

Supports various dot/drawing dispensing patterns



・High accuracy sensor (option) measures local PCB height to calibrate dispensing height, which allows for non-contact dispensing on PCB.





* Pre-demonstration is required.

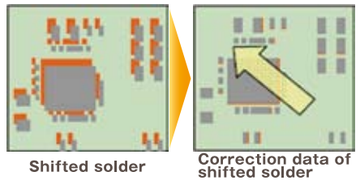
NPM NEXT PRODUCTION MODULAR

Total management by system software
System Software

High-quality mounting　APC system*

Feedback to the printing machine

・Based on the analyzed measurement data from solder inspections, it corrects printing positions. (X,Y, θ)

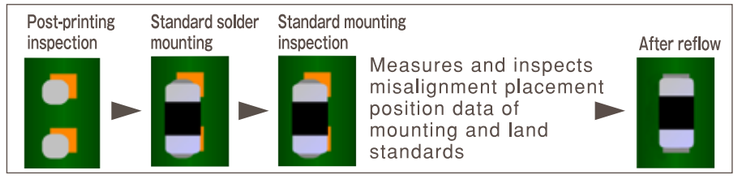


Feedforward to mounting heads

・Solder position measurement and feedforward
Chip components(0402C/R ～)
Package component (QFP, BGA, CSP)

Feedforward to AOI

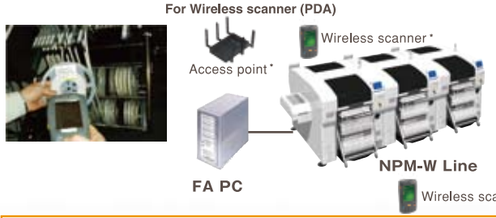
・Position inspection on APC offset position



*3D inspection equipment of another company can be also connected.
Please inquire with your sales representative for more details.

Component Verification option

Prevents setup errors during changeover Provides an increase of production efficiency through easy operation



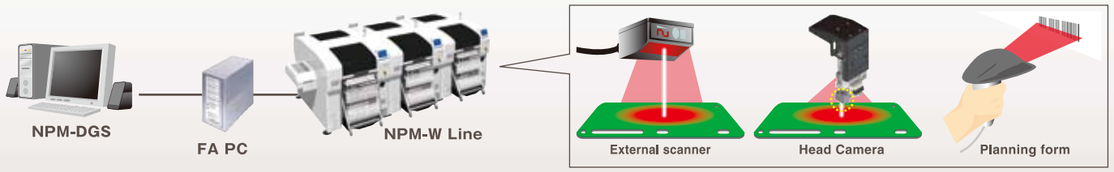
●Component setup error prevention
Prevents setup errors through verifying the NPM-W downloaded production data and component barcode data
●Array data activesync function
There's no need to select array data; data is verified with the NPM-W
●Interlock function
Equipment stops when it has an incorrect and/or incomplete verification
●Navigation function
Clearly provide a verification task with data display and Intelligent feeder performance in sync
●Scanner selection
Users can choose either a wired or wireless scanner (PDA)

*Please prepare a wireless scanner and related accessories by yourself

High productivity　Automatic changeover option

Supporting changeover (production data and rail width adjustment) can minimize time loss

●PCB ID read-in type
PCB ID read-in function is selectable from among 3 types of external scanner, head camera or planning form



Off-line setup support station

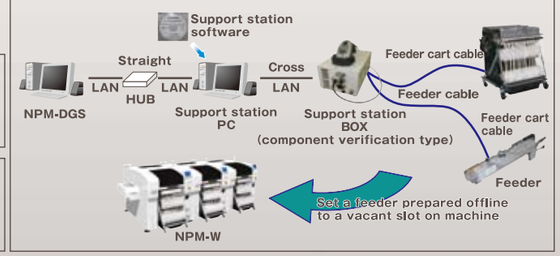
With the support stations, offline feeder cart setup is possible anywhere even outside of the manufacturing floor.

●Two types of Support Stations are available.

①Power Supply Station:
Batch Exchange Cart Setup – Provides power to all feeders in cart. Feeder Setup – provides power to individual feeders.

②Component Verification Station:
Additional to the power supply station, Component Verification feature is added to this model.
The station will navigate you to the location where feeders need exchange.

Example of system configuration)



Open interface　Host communication option

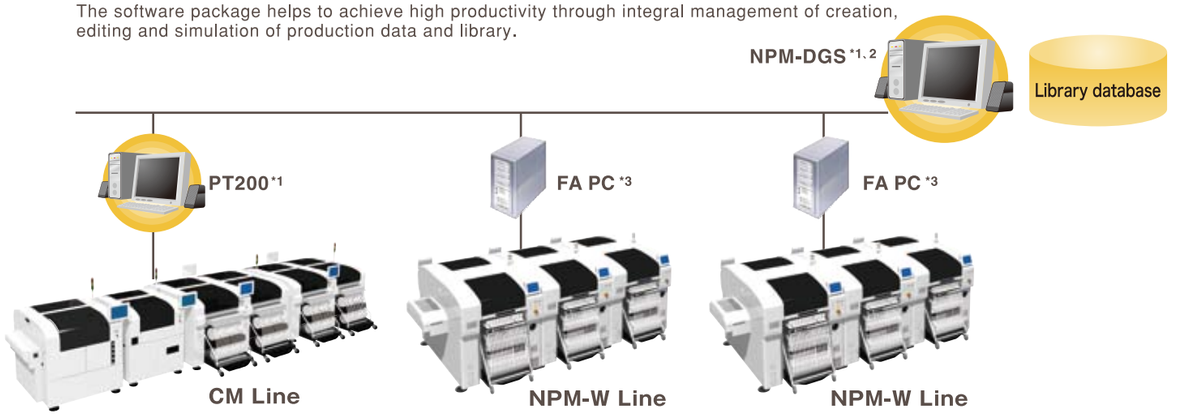
Able to standardize the interfacing with your systems currently used. Provides data communication with our standard interfaces.

●Events
Outputs a real-time event of equipment
●Other company's component verification
Communicates with your component verification systems
●Component management data
・Component remaining quantity data: Outputs component remaining quantity data
・Trace data: Outputs data linked with component information (*1) and PCB information (*2)

(*1) Requires input of component information with a component verification option or an other company's component verification system I/F
(*2) Requires input of PCB information with automatic changeover option

Data Creation System　NPM-DGS (Model No.NM-EJS9A)

The software package helps to achieve high productivity through integral management of creation, editing and simulation of production data and library.



*1 : A computer must be purchased separately.
*2 : NPM-DGS has two management functions of floor and line level.
*3 : LNB (Line Network Box) used to connect the machine to NPM-DGS will be installed in FA PC

Multi-CAD import

Almost all CAD data can be retrieved by macro definition registration. Properties, such as polarity,also can be confirmed on screen in advance.

Simulation

Tact simulation can be confirmed on screen in advance so that line total operation ratio can increase.

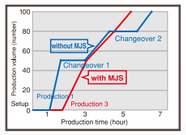
PPD／LWS Editor

With quickly and easily compiling placement and inspection head data on the PC display during operation, time loss can be minimized

Component library

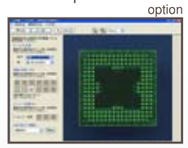
A component library of all placement machines including the CM series on floor can be registered to unify data management.

Mix Job Setter (MJS)



Production data optimization allows the NPM-D to commonly arrange feeders.Feeder replacement time reduction for changeover can improve productivity

Off-line component data creation option

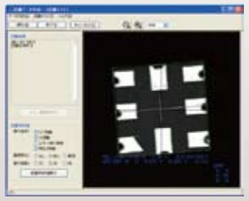


With creating off-line component data using a store-bought scanner,productivity and quality can be improved.

Offline Camera Unit (option)

Minimizes time on machine for parts library programming and assists equipment availability and quality.

Parts library data is generated using the line camera for NPM-W.
Conditions not possible on a scanner such as Illumination conditions, and recognition speeds, can be checked offline assuring quality enhancements and equipment availability.

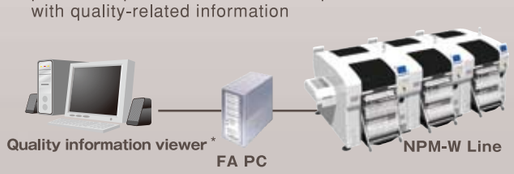


Recognition test/Evaluation screen

Offline Camera Unit

Quality improvement　Quality information viewer

This is software designed to support a grasp of changing points and analysis of defect factors through the display of quality-related information (e.g., feeder positions used, recognition offset values and parts data) per PCB or placement point. In case of our inspection head introduced, the defect locations can be displayed in association with quality-related information



*PC is required for every line.
It cannot be shared with the NPM-DGS.

Quality information viewer window

Example of use of quality information viewer

Identifies a feeder used for mounting of defect circuit boards. And if, for example, you have many misalignments after splicing, the defect factors can be assumed to be due to;
1) splicing errors (pitch deviation is revealed by recognition offset values)
2) changes in component shape (wrong reel lots or venders)
So you can take quick action to the misalignment correction.