

Model ID	NPM-GH					
PCB dimensions	Single lane mode L 50 mm × W50 mm to L 510 mm × W 590 mm *1 Dual lane mode L 50 mm × W50 mm to L 510 mm × W 300 mm *1					
PCB exchange time	2.3 s ( L 350 mm or less ) 5.0 s ( L 350 mm or over to L 510 mm or less ) May differ depending on PCB specifications.					
Electric source	3-phase AC 200 , 220 , 380 , 400 , 420 , 480 V 2.1 kVA					
Pneumatic source*2	Min.0.5 MPa to Max. 0.8 MPa, 100 L / min ( A.N.R. )					
Dimensions*3	W 975 mm × D 2 473 mm × H 1 444 mm *4 / W 975 mm × D 2 315 mm × H 1 444 mm *5					
Mass	2 330 kg *4 / 2 300 kg *5					
Placement head	FC16 head ( Per head )		FC08 head ( Per head )		FC03 head ( Per head )	
	High production mode	High-accuracy mode 1	High-accuracy mode 2*6	High production mode	High-accuracy mode 1	High production mode
Max. speed *7	55 500 cph*8 ( 0.065 s / chip )	51 000 cph ( 0.071 s / chip )	20 000 cph ( 0.180 s / chip )	30 500 cph ( 0.118 s / chip )	28 000 cph ( 0.129 s / chip )	11 300 cph ( 0.318 s / chip ) 10 800 cph ( 0.333 s / QFP )
Placement accuracy ( Cpk≥1 ) *7	± 25 μm / chip	± 15 μm / chip *9	± 10 μm / chip *9	± 25 μm / chip	± 15 μm / chip *9	± 25 μm / chip ± 20 μm / QFP *10
Component dimensions ( mm )	0201 chip *11 *12 / 03015 chip *11 ~ L 10 × W 10 × T 6 *13		0402 chip *11 ~ L 45 × W 45 or L 100 × W 40 × T 12		0603 chip ~ L 120 × W 90 or L 150 × W 25 × T 30	
Component supply	Taping	Tape: 4 / 8 / 12 / 16 / 24 / 32 / 44 / 56 mm		Tape: 4 to 56 / 72 mm		Tape: 4 to 56 / 72 / 88 / 104 mm
		Max. 80 ( 4, 8 mm tape )				
	Stick	—		Max. 10 ( SF3 *14 )		
	Tray	—		Max. 24		

Please refer to the specification booklet for details.

\*1 : L > 350 mm is optional.  
\*2 : Only for main body  
\*3 : Excluding the monitor and signal tower  
\*4 : Machine dimensions and mass for standard configuration ( NPM-GH and ITF\*15 cart ( 17-slot ) × 2 ).  
They differ depending on the optional configuration.  
\*5 : Dimensions and mass of the machine and two ASF\*16 carts ( 34-slot ).  
They differ depending on the optional configuration.  
\*6 : High accuracy mode 2 is applicable only when ASF\*16 is used.  
\*7 : Values such as the maximum takt time and placement accuracy  
may differ slightly depending on conditions.

\*8 : Under optimal operating conditions for the machine with dual lane mode.  
\*9 : Accuracy valid for components 6 mm square or smaller.  
\*10 : The placement angle recognition setting needs to be enabled.  
\*11 : 0201 / 03015 / 0402 component requires a specific nozzle / tape feeder.  
\*12 : 0201 component placement is optional.  
( Under conditions specified by Panasonic )  
\*13 : T 6 needs dedicated short nozzles and is □ 6.5 mm or less.  
\*14 : Stick Feeder 3-slot  
\*15 : Intelligent Tape Feeder  
\*16 : Auto Setting Feeder

### ⚠ 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.

Panasonic Group products are built with the environment in mind.

For details  
here



Panasonic GREEN IMPACT

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● Changes in specifications and appearance may be made without notice for product improvement.

● Please contact us via our website at [connect.panasonic.eu](http://connect.panasonic.eu)

Model ID

# NPM-GH

Model No.  
NM-EJM8E



# NPM G

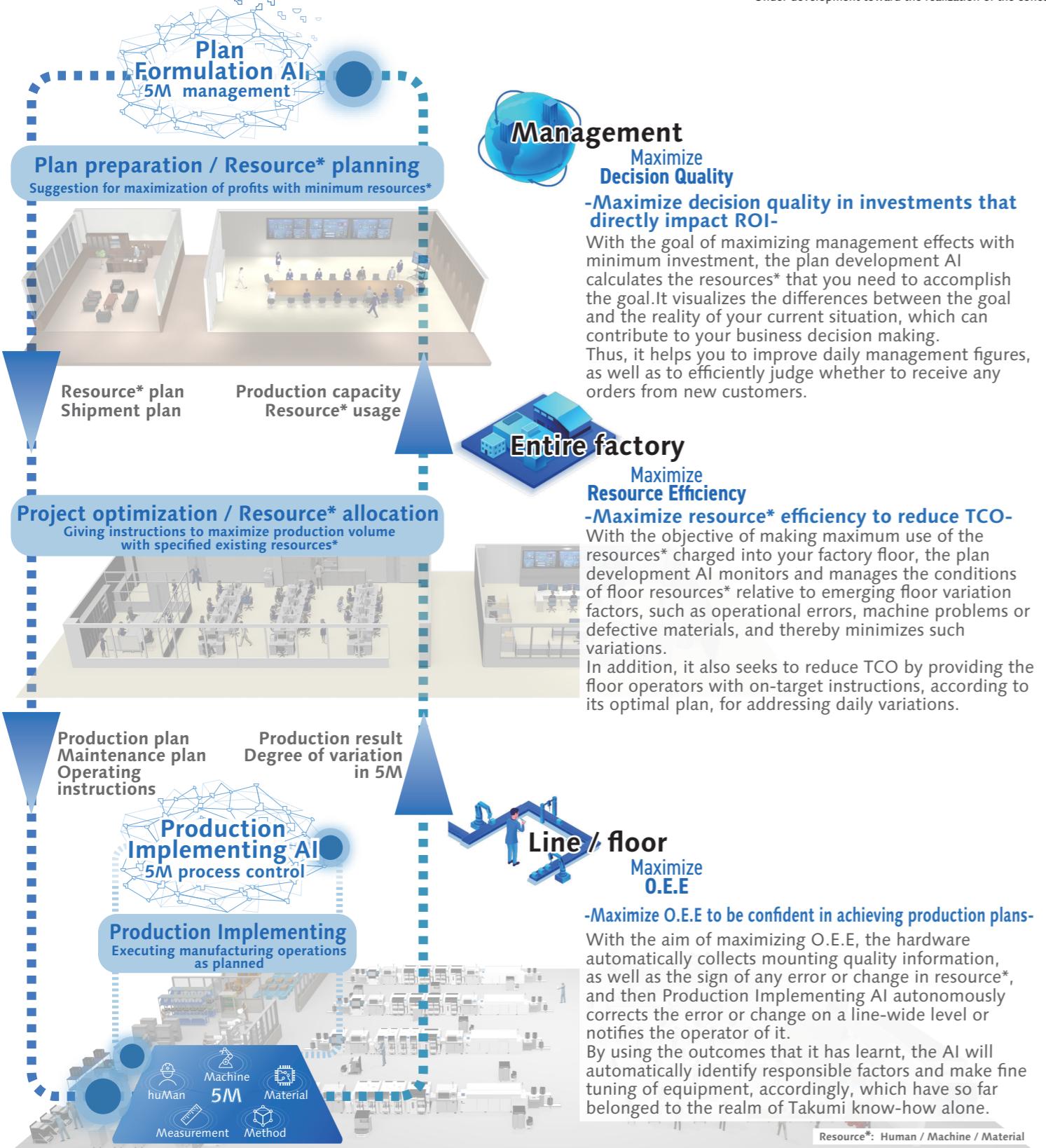


\*It may not conform to Machinery Directive and EMC Directive in case of optional configuration and custom-made specification.

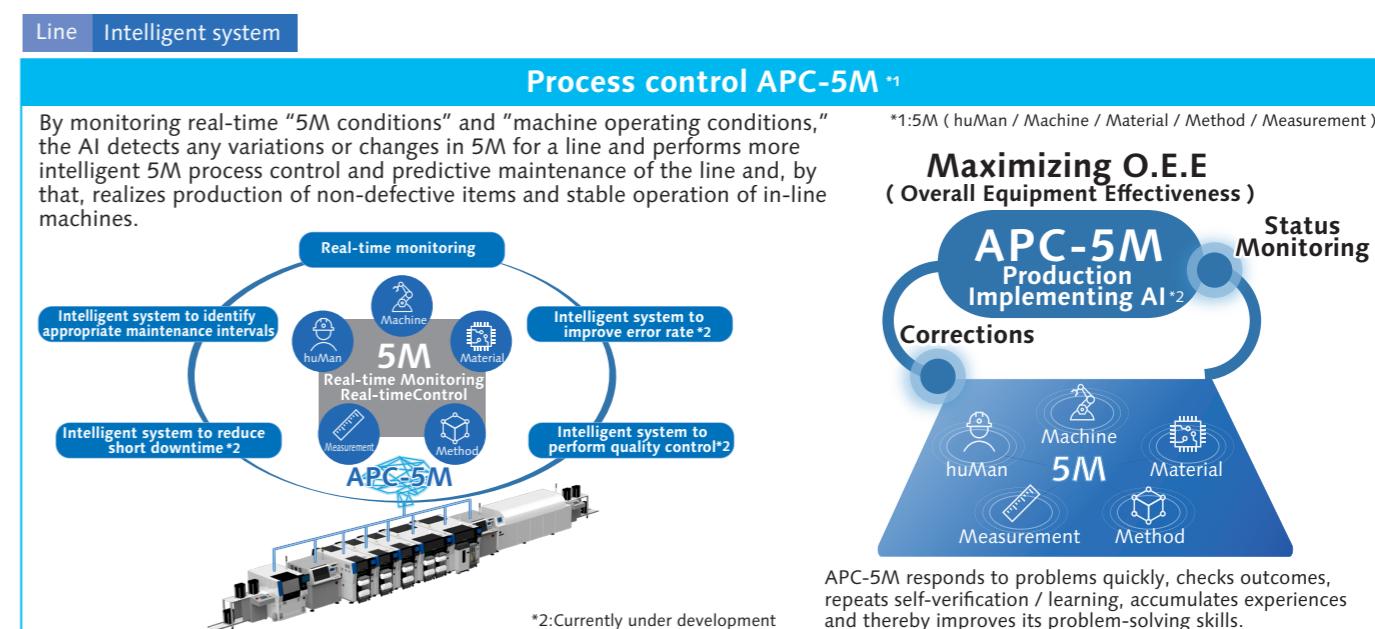
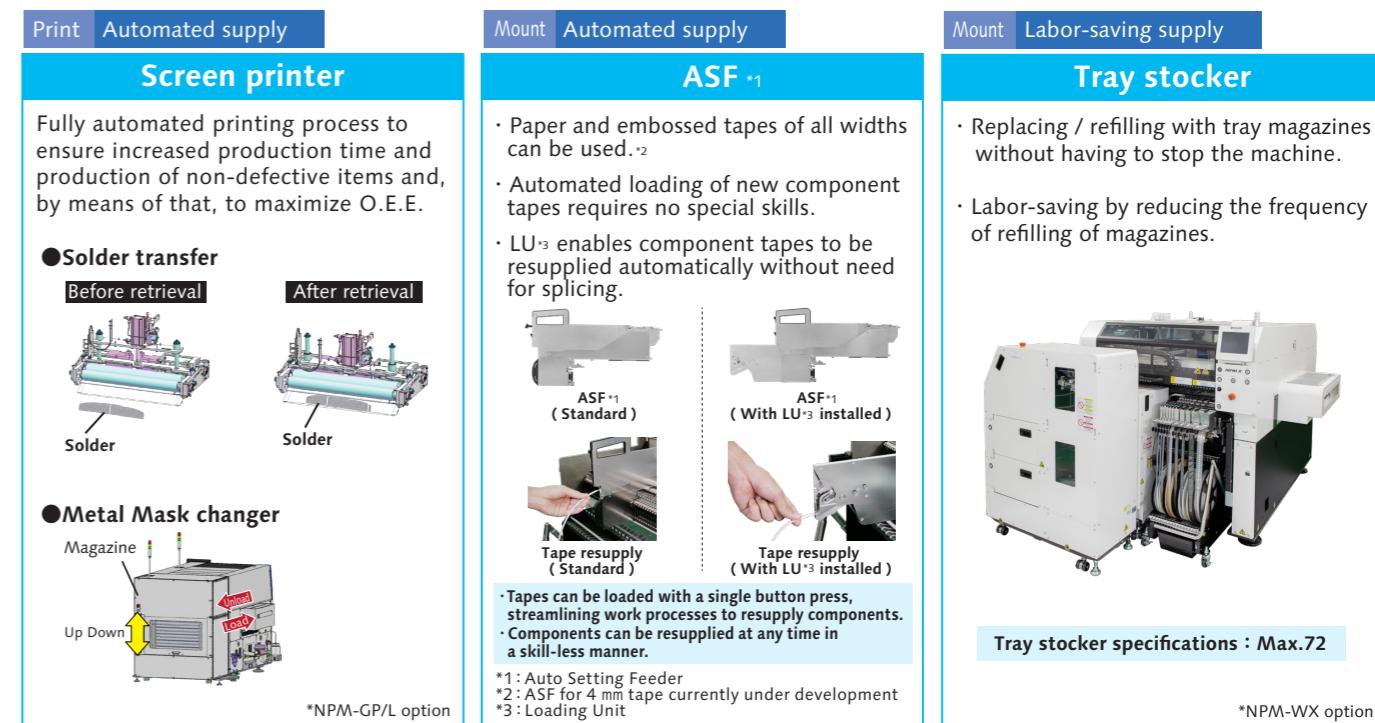
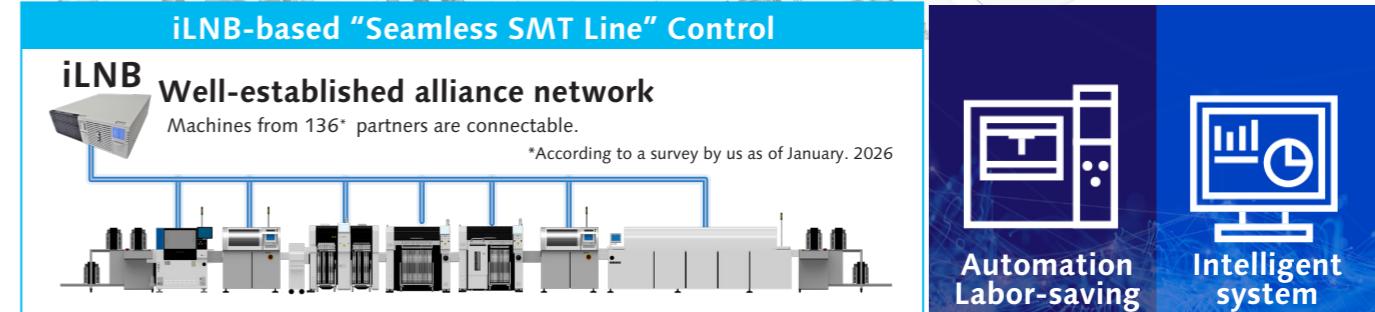
# "Autonomous Factory" Concept \*

A factory that immediately responds to every situation and continues to evolve autonomously

Ensuring the production of non-defective items through the integrated control of autonomous uninterrupted mounting lines and floors independent of any human intervention and judgment



Automation / Labor-saving Solution + Intelligent system Solution to Achieve Manufacturing That Is Further in Line with Production Plan



Realization of Autonomous Mounting Line

### NPM-GH's features

#### New platform to realize "Autonomous Factory"



NPM-GH

##### 1 Basic performance improved through core unit upgrade



##### 2 Autonomous control of variations in 5Ms

##### 3 Departure from skill-based operations

##### 1 Basic performance improved through core unit upgrade

###### Increased productivity / quality

###### 【 High production mode 】

Max.speed : 111 000 cph\*1

IPC9850 ( 1608 ) : 77 000 cph\*1

Placement accuracy :  $\pm 25 \mu\text{m}$

###### 【 High-accuracy mode 1 】

Max.speed : 102 000 cph\*1

IPC9850 ( 1608 ) : 65 000 cph\*1

Placement accuracy :  $\pm 15 \mu\text{m}$

###### 【 High-accuracy mode 2 】\*2

Max.speed : 40 000 cph\*1

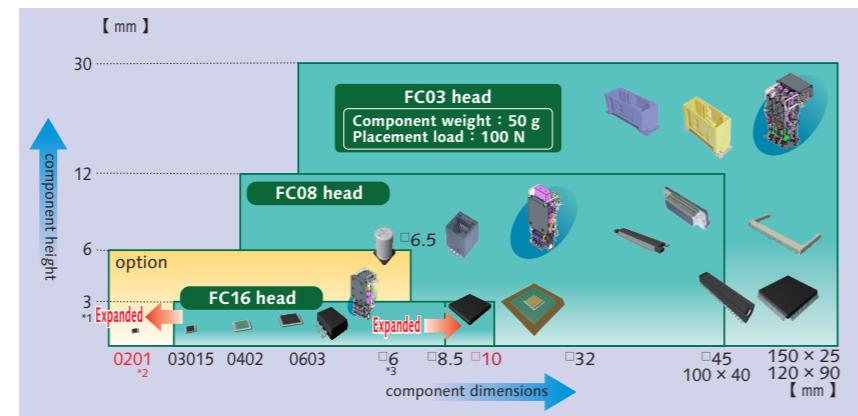
IPC9850 ( 1608 ) : 25 000 cph\*1

Placement accuracy :  $\pm 10 \mu\text{m}$

\*1 : Tact time for the machine with FC16 x 2 heads  
( The tact time in high production mode varies based on the optimal conditions of dual lane mode. )

\*2 : High accuracy mode 2 is applicable only when  
ASF ( Auto Setting Feeder ) is used.

###### Improved ability to support components



\*1 : For a part with a height of 3 mm or more, the dimensions of the part must be  $\leq 6.5 \text{ mm}$  or less and a special nozzle is required.

\*2 : Supporting option.

\*3 : For parts with  $\geq 6 \text{ mm}$  or more, the use of simultaneous pickup is limited to certain ones.

##### Plug & play unit layout

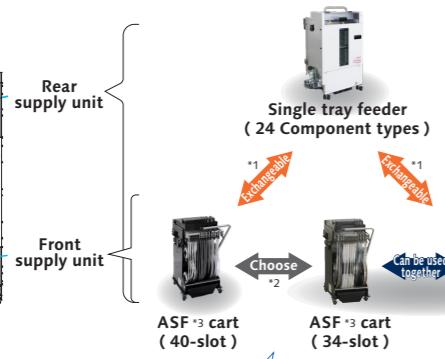
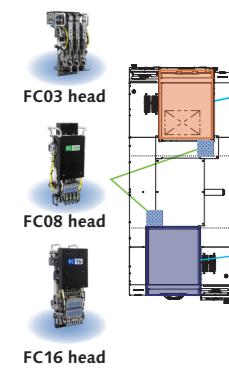
Head : You can choose from three different types of heads.

Supply unit : The availability of three different types of supply units allows for various supply unit layouts.

###### Machine configuration

###### Supply unit

###### Supply unit layout



Layout 1	Layout 2	Layout 3	Layout 4
8 mm taping : 68 Tray : 0	8 mm taping : 80 Tray : 0	8 mm taping : 34 Tray : 24	8 mm taping : 40 Tray : 24
ASF*3 cart ( 34-slot ) ITF*4 cart ( 17-slot )	ASF*3 cart ( 40-slot )	Tray feeder	Tray feeder

ASF\*3 cart ( 34-slot )  
ITF\*4 cart ( 17-slot )

ASF\*3 cart ( 40-slot )  
ITF\*4 cart ( 17-slot )

ASF\*3 cart ( 34-slot )  
ITF\*4 cart ( 17-slot )

ASF\*3 cart ( 40-slot )

###### Compatible with ASF\*3 cart



###### Compatible with ITF\*4 cart



\*1 : Swithcover between tray feeder / cart is available as an option. \*2 : ASF\*3 cart ( 40-slot ) cannot be used together, or mixed, with ASF\*3 cart ( 34-slot ) or ITF\*4 cart ( 17-slot ).

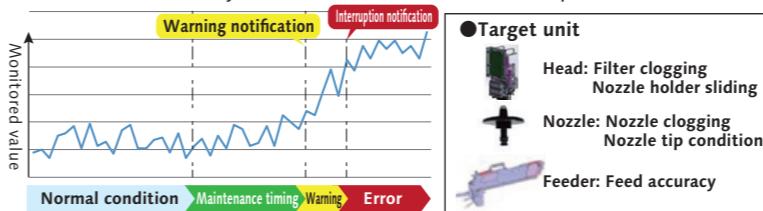
\*3 : Auto Setting Feeder \*4 : Intelligent Tape Feeder \*5 : Loading Unit \*6 : Stick Feeder 3-slot \*7 : Dipping Unit

##### 2 Autonomous control of variations in 5Ms

###### APC system

###### APC-5M : Real-time unit monitoring

APC-5M monitors the conditions of target units in real time and provides notification of the timing of maintenance of each unit or any error condition that could interrupt production, depending on variations in monitored unit values. This function enables you to conduct maintenance at optimal times.



Machine screen

LPC screen

###### APC-FB \*1 Feedback to the printing machine

Based on the analyzed measurement data from solder inspections, it corrects printing positions. (  $X, Y, \theta$  )

Shifted solder

Correction data of shifted solder

###### APC-FF \*1 Feedforward to the placement machine

It analyzes solder position measurement data, and corrects component placement positions (  $X, Y, \theta$  ) accordingly.

Chip components ( 0402C / R ~ )  
Package component ( QFP, BGA, CSP )

Post-printing inspection  
Standard solder placement  
Standard placement inspection

###### APC-MFB2 Feedforward to AOI / Feedback to the placement machine

Inspect part location based on APC offset correction position.

The system analyzes AOI component position measurement data, corrects placement position (  $X, Y, \theta$  ), and thereby maintains placement accuracy.

Compatible with chip components, lower electrode components and lead components \*2

Before MFB correction  
After MFB correction  
Shift in center of distribution  
Shift in placement position  
After MFB correction  
Shift in center of distribution  
Basic concept regarding MFB correction  
lead component  
Chip component  
Lower electrode component  
MFB-ready components

##### Automatic recovery option

When pickup / recognition error occurred, the machine automatically corrects the pickup position without stopping, and resumes production. That improves machine operation rate.

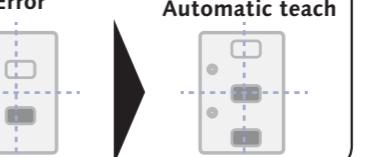
( Components : 4 mm embossed ( black ) / 8 mm paper / embossed ( black ) tape component. \*Embossed tape ( transparency ) is not supported. )

###### Automatically resume production after pickup position teach

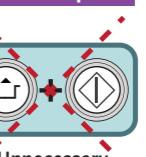
###### In production



###### Automatic feed Automatic teach



###### Nonstop



###### Production resume



##### Evolved automatic recovery ( predicted control )

LNB automatically analyzes the variation of pickup / recognition error rate and instructs the machine to perform teaching to prevent machine error stop.

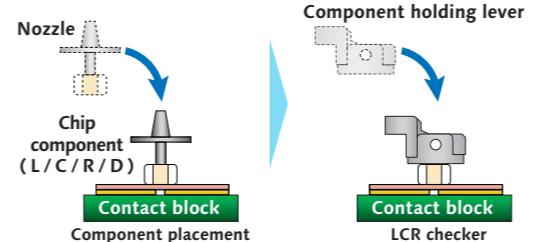
###### Automatic trend analysis



###### Automatic recovery / teach



##### LCR checker



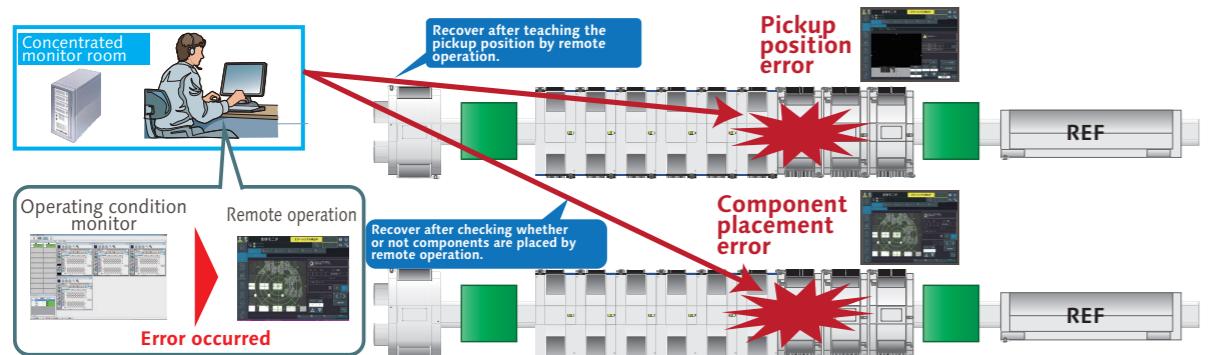
An LCR check is performed on mounted components at the start of production, or during component supply or product changeover. It helps detect wrong reels loaded and defective components. In addition, because verified data is output to a file on LNB ( FA PC ), the data can also be used for trace management.

Component size	0402 to $\leq 6 \text{ mm}$
Component	Resistance, Capacitor, Inductor, Diode

## 3 Departure from skill-based operations

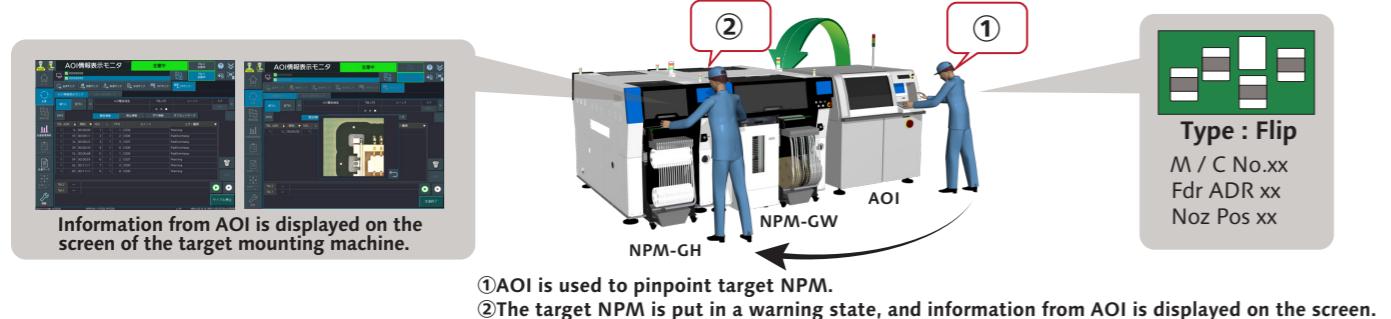
## Remote operation option

Recovery by remote operation is available for the error of which recovery can be made based on human judgment alone. This enables concentrated on-the-floor monitoring, eliminating the time lost for the operator to detect error and take appropriate action, reducing the error recovery time, and thus achieving labor saving and improved operating rate.



## AOI Info Display option

Information on components judged NG by AOI is displayed both on AOI and NPM.



## Feeder setup navigator option

It is a support tool to navigate efficient setup procedure. The tool factors in the amount of time it takes to perform and complete setup operations when estimating the time required for production and providing the operator with setup instructions. This will visualize and streamline setup operations during setup for a production line.

## Placement head maintenance

Good use is made of the machine's self-diagnosis function to automatically detect the maintenance timing of the placement head. In addition, the maintenance unit can be used to keep the placement head in working condition without requiring skills.

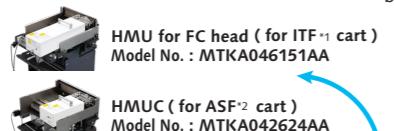
## Load checker

Measures the "indentation load" imposed by placement head and has the machine and LNB displayed the measurement result (possible to measure even a low load of 0.5 N as well).



## Head maintenance unit

To automate the inspection and maintenance of the placement head.



## Parts supply navigator option

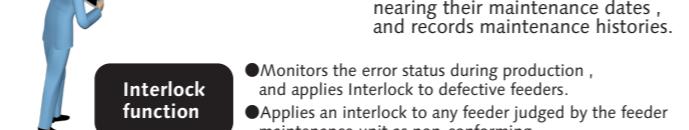
It is a parts supply support tool to present an efficient sequence of parts supply. Taking into account the length of time before parts shortage occurs and the least time-wasting moving path possible, the tool provides the operator with instructions for parts supply. This makes parts supply more efficient.

## Feeder maintenance

Independent of operator skill, the feeder maintenance unit automatically performs feeder performance inspections and calibrations. Its combined use with the PanaCIM maintenance module can automatically prevent the inclusion of non-conforming feeders into production.

## Feeder maintenance unit

It automates an inspection of major parts affecting the feeder's performance and calibrates the pickup position to prevent short-time stoppages and maintain quality. For FMU (exclusive to ASF<sup>①</sup>), the judgment accuracy has been improved and the X-directional adjustability has been automated.



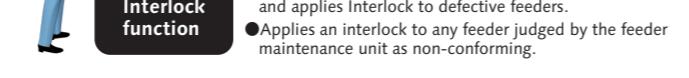
## Head diagnosis function

Checks the pneumatic circuit condition.



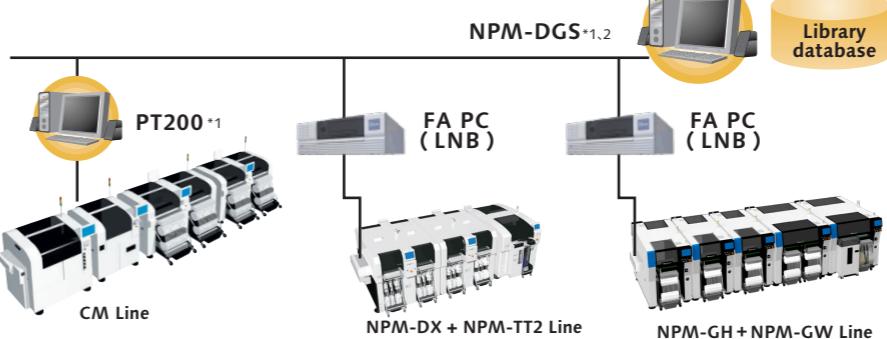
## Blow error detection

Checks the placement blow status.



## Data Creation System

This is a software package that provides integrated management of component library and PCB data, as well as production data that maximizes mounting lines with high-performance and optimization algorithms.



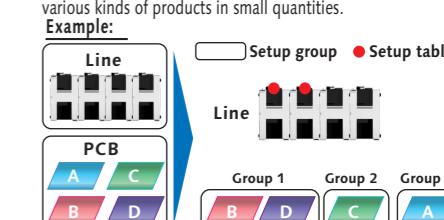
\*1 : A computer must be purchased separately.

\*2 : NPM-DGS has two management functions of floor and line level.

## NPM-DGS (Model No.NM-EJS9A)



In production involving multiple models, setup workloads are taken into account and optimized. For more than one PCB sharing common component placement, multiple setups may be required due to a shortage of supply units. In order to reduce the required setup workloads in such a case, this option divides PCBs into similar component placement groups, selects a table (s) for setup and thus automates component placement operation. It contributes to improving setup performance and reducing production preparation time for customer manufacturing various kinds of products in small quantities.



## Offline Camera unit V2

New component data can be created offline without relying on an individual operator's skill and proficiency, thus contributing to quality improvement and O.E.E maximization.

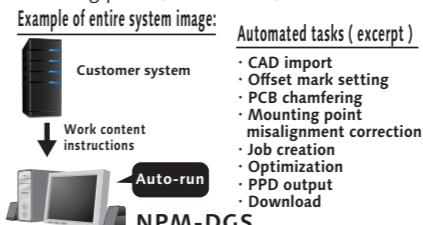
Thanks to adoption of a new component recognition camera and a wider variety of dedicated software functions, it now enables you to create component data more efficiently.



## Offline Camera unit V2

## DGS Automation option

Automated manual routine tasks reduce operation errors and data creation time. Manual routine tasks can be automated. By collaborating with the customer system, the routine tasks for creating data can be reduced, so it contributes to a significant reduction in production preparation time. It also includes the function to automatically correct the coordinates and angle of the mounting point (Virtual AOI).

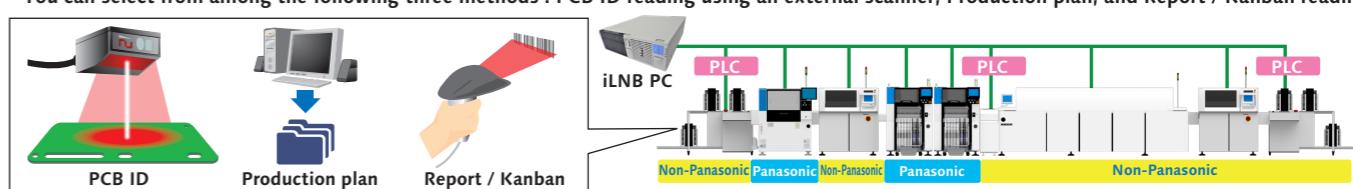


## Changeover ability

All machines, including NPM, in SMT line are connected via iLNB, which allows automatic changeovers to be performed sequentially, starting from the first machine in the line.

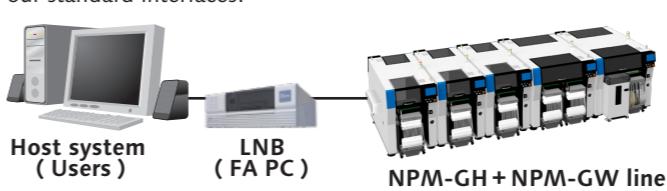
## Trigger for changeover

You can select from among the following three methods : PCB ID reading using an external scanner, Production plan, and Report / Kanban reading.



## Open interface

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



## Host communication option

## 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\* and PCB information.

\*Entry of component information with PanaCIM material verification or other company's component verification (this option) is required.