

Model ID	NPM-VF	
	Standard conveyor	Anvil conveyor (Option)
PCB dimensions	L 50 mm × W 50 mm ~ L 510 mm × W 460 mm	L 50 mm × W 50 mm ~ L 460 mm × W 400 mm
Max. PCB mass *1	Up to 3kg	
PCB thickness	0.3 ~ 8 mm	
PCB flow	Left ← Right / Left → Right (Flow direction is selectable)	
Insertion direction	360° (± 180°) *1 degree unit	
Insertion push force	Up to 100 N	
PCB Exchange time	4.5 s	5.5 s
Clinch specifications	Clinch angle: 60 degrees outward clinch Clinch pitch: 2.5 to 40 mm Lead bend angle : 10 ~ 40° Lead diameter : φ 0.4 mm ~ φ 1.0 mm (soft copper) φ 0.4 mm ~ φ 0.8 mm (hard copper / CP wire)	
Applicable components	Max. dimensions : L 130 mm × W 35 mm × H 60 mm · L 150 mm × W 38 mm × H 29 mm / Max. component mass : 200g	
Electric source	3-phase AC 200, 220, 380, 400, 420, 480 V 2.7 kVA	
Pneumatic source	0.5 ~ 0.8 MPa, 200 L /min (A.N.R.)	
Dimensions	W 1 866 mm × D 2 332 mm × H 1 554 mm(Main body only) <small>Note: Excluding the monitor, signal tower and ceiling fan cover.</small> W 2 166 mm × D 2 332 mm × H 1 554 mm(When downstream extension conveyor is connected)	
Mass	2 590 kg (Only for main body: This differs depending on the option configuration)	

Head Configurations		
3-station head	Body chuck + Nozzle + Nozzle	Tact: Max. 0.65 s / component *2,3,6
	Body chuck + Nozzle + Swing nozzle	
	Body chuck + Nozzle + Lead chuck	
	Body chuck + Swing nozzle + Lead chuck	
2-station head	Body chuck + Body chuck	Tact: Max. 0.9 s / component *2,3

Component Supply						
Stick	S	Max. component dimension: W 20 × L 80 × H 20 mm / Max. stick width : 24 mm / Max. component mass : 2 kg in total(including stick mass)				
	L	Max. component dimension: W 60 × L 80 × H 45 mm / Max. stick width: 64 mm / Max. component mass: 2 kg in total(including stick mass)				
Radial tape	Max. body dimension: Max. φ 20 × H 30 mm / Lead pitch: 2.5 / 5.0 / 7.5 / 10.0 mm					
Tray	Max. tray dimension: L 230 × W 335 × D 69 mm / Max. pallets per feeder: 20 / Max. mass: 20 kg (magazine + pallet + tray + components)					
Bulk*4	Customized spec					
Machine Configuration		Max. number of products to be loaded	Stick S	Stick L	Radial	Tray
	Front	30-slot fixed supply unit *5	15	7	10	—
		30-slot fixed supply unit	15	7	10	—
	Rear	13-slot fixed supply unit + single tray feeder	6	3	4	20
		Twin tray feeder	—	—	—	40
		Single tray feeder + Bowl feeder × 2 *4	—	—	—	20
Bowl feeder × 4 *4		—	—	—	—	

System		
Programming and Software	NPM-DGS · AM-LNB · LNB, Option : PanaCIM, iLNB <small>Note: Max. 3 NPM-VF can be connected to AM-LNB Up to 15 machines of the NPM series (including NPM-VF) or the SP series can be connected to LNB.</small>	
Optional functions	Component verification, Traceability, Automatic changeover, Host communication, iLNB line control including other company's machine	
SMT components *7		
Applicable components	Min. dimensions: L 5 mm × W 5 mm or larger (For tape, embossed tape of 12 mm or larger)	
Placement specs	Head: Nozzle only Placement accuracy: QFP ±0.05 mm (Cpk ≥ 1) Max. tact time: 3000 cph (per head)	
Supply unit(embossed tape)	Tape feeder width	12/16 mm 24/32 mm 44/56 mm 72 mm 88 mm 104 mm
	30-slot supply unit	30 15 10 7 6 5
	13-slot supply unit	13 6 4 3 2 2

### ⚠ 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.

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# Panasonic

## BUSINESS

2021  
Electronics Assembly System  
catalog  
Odd-form Component Insertion Machine



# NPM

NEXT PRODUCTION MODULAR

## Manufacturing Process Innovation



Model Name **NPM-VF**  
Model No. NM-EJR9A



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

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● Homepage [industrial.panasonic.com/ww/fa-jisso](http://industrial.panasonic.com/ww/fa-jisso)

# NPM-VF Innovating PCB assembly process via automation of odd-form components insertion

# process via automation of odd-form

## Features and aims of NPM-VF

- 1** Automation of odd-form components insertion process. In addition, SMT specifications\* are also supported.  
\*supports both SMT placement + odd-form insertion (developing)
- 2** Versatile and flexible: various configuration of head tools and machine feeder configuration to adapt to different types of components
- 3** Contribute to manpower reduction and stable production with high productivity, flexibility, high quality insertion

## Applicable Components

### Tape

2~3 pins

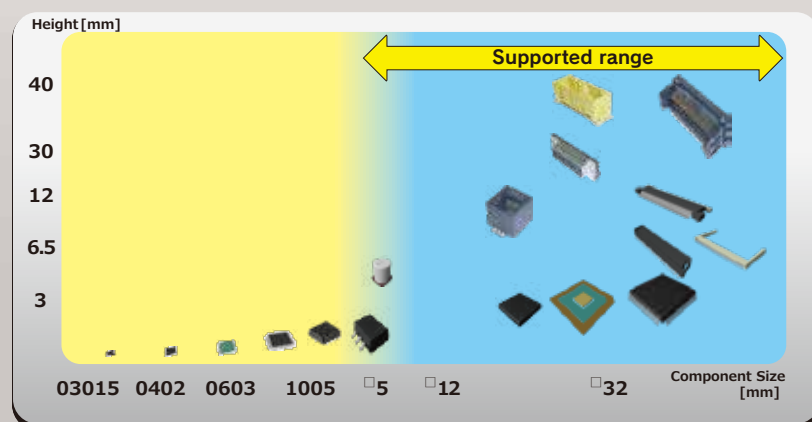
### Stick, Tray, Bulk

4 pins and more

Automation supported (up to 26 mm height)  
Automation not supported (above 26 mm height)

Automation supported by current insertion machines (RL132/RG131)  
Automation target of NPM-VF

## Support for SMT components



Supported range of the tape feeder  
Embossed tape: 12 to 104 mm

Intelligent tape feeder

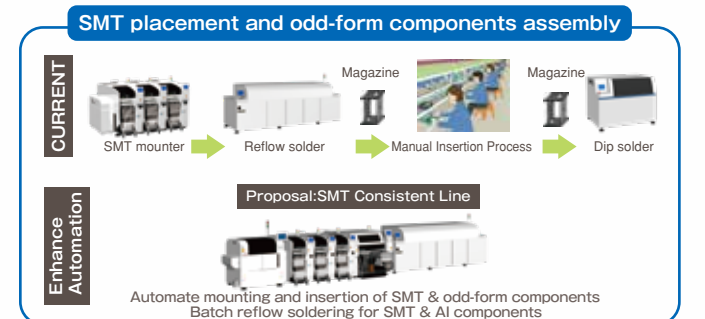
The multi-recognition camera is selectable from both types 1 (standard specs) and 3 (3D measurement function-ready). (Option)

Examples of applicable components	Outline	Height	Minimum lead pitch / minimum ball pitch	Minimum lead width / minimum ball diameter	Minimum ball height
QFP-SOP	5 mm ~	1.0 mm ~	0.5 mm	0.2 mm	—
BGA-CSP	5 mm ~	0.3 mm ~	0.5 mm	0.3 mm	0.25 mm

## Line Solution

Reduce manual insertion assembly process  
Prevent human errors, improve quality

Convert manual insertion process to SMT inline process  
Reduce processes / dip solder investment

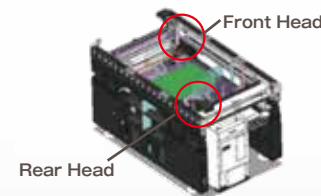


## High Productivity

### High speed insertion

Maximum tact of 0.65 s\* is achieved by 2-beam 2-head structure. Compared to manual insertion, 1 NPM-VF is able to replace 3 to 5 operators. In addition, each head can hold up to 3 tools (chucks, nozzles), enabling effective movement of the insertion heads.

\*Note: Under condition specified by Panasonic



### Non-stop Production

**[Stackable stick feeder]**  
Sticks can be loaded during machine operation, reducing machine down time due to component exhaust



**[Tray feeder]**  
Tray pallets can be replenished during machine operation

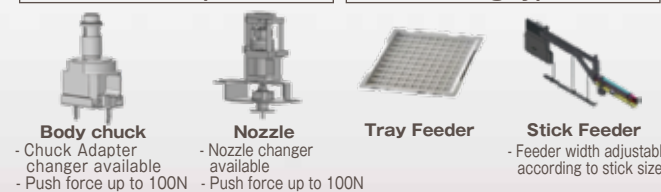
**[Variable pitch body chuck]**  
Motorized body chuck varies chuck opening according to component size, greatly reducing dead space, chuck exchange time and increasing productivity.



**Adapters**  
Adapters can be attached to chuck tips for better gripping of components

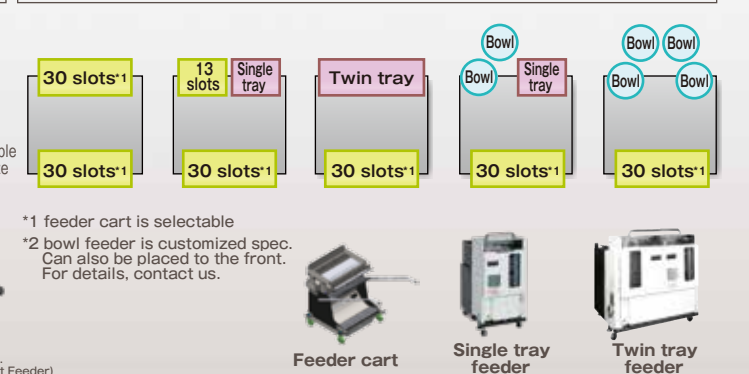
## Versatility

### Various tools to cater to different components



### Various component feeding types

### Flexible feeder configuration



## Quality Insertion

### Recognition correction and component inspection function

NPM-VF is equipped with 2 cameras (head camera and component camera) to scan PCB holes, PCB marks and component leads, ensuring high quality and stable insertion.

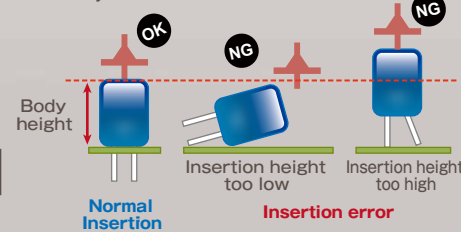


### Component verification & Traceability (Option)

Prevents setting mistakes when exchanging parts and supports fabrication history management.

### Insertion error detection system

Component height will be detected via sensor after insertion to determine if it is inserted correctly.



\*It may not be possible to detect when component lead is too soft and would not support itself.

### Recovery Operation

In the case of insertion error, PCB will automatically be flowed to the upstream extension conveyor for the operator to remove the error components.



### Cut & Clinch Function (Option)

Function: prevent protrusion of components after insertion, improving insertion stability  
Features: variable pitch clinch (2.5~40 mm) with piezoelectric detection system for insertion errors

