

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) 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				
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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Ver.January 1, 2021

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INDUSTRY

2021

Electronics Assembly System

catalog

Odd-form Component Insertion Machine



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.

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

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

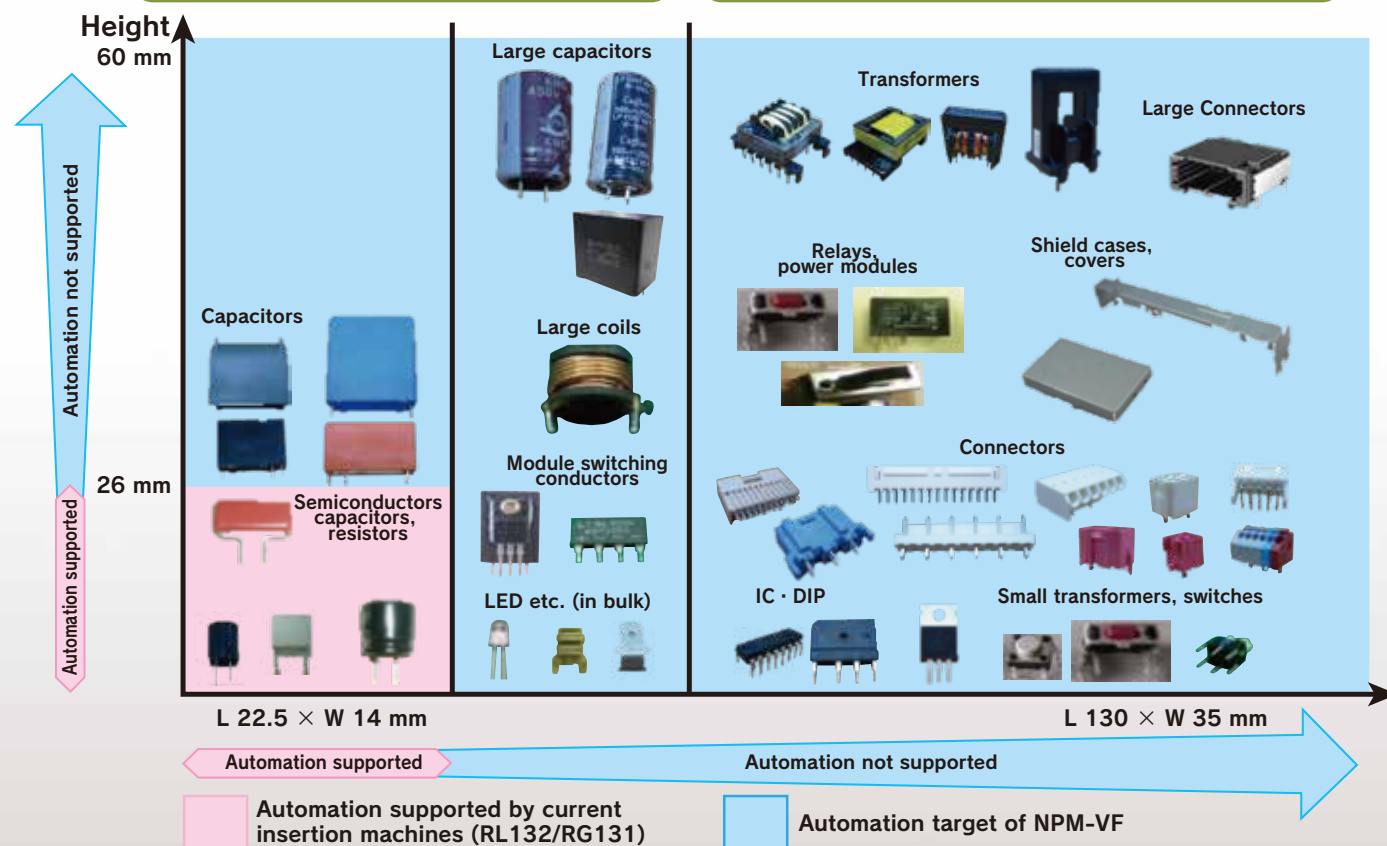
Applicable Components

Tape

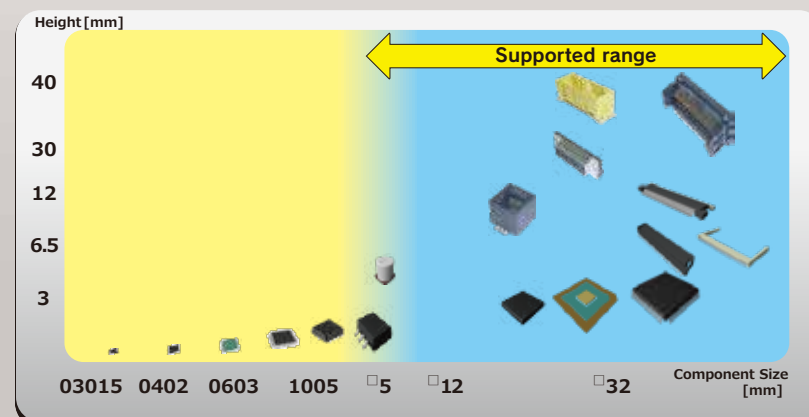
2~3 pins

Stick, Tray, Bulk

4 pins and more



Support for SMT components



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



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

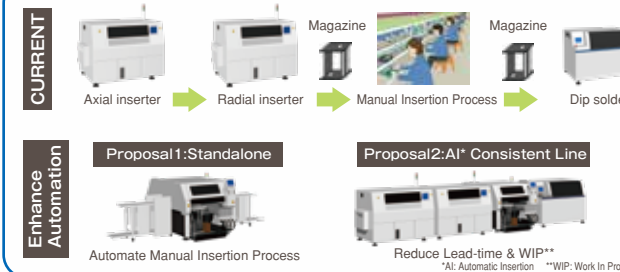
Examples of applicable components	Outline	Height	Minimum lead pitch / minimum ball pitch	Minimum lead width / minimum ball diameter	Minimum ball height
QFP-SOP	5 mm ~	1.0 mm ~	0.5 mm	0.2 mm	—
BGA-CSP	5 mm ~	0.3 mm ~	0.5 mm	0.3 mm	0.25 mm

Line Solution

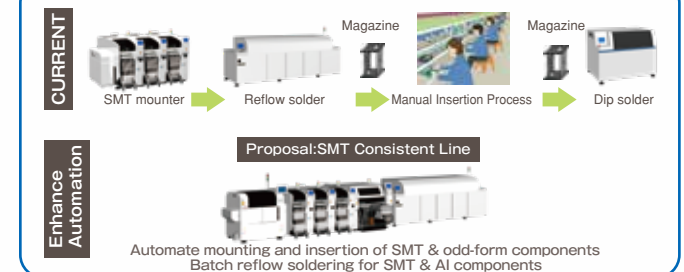
Reduce manual insertion assembly process
Prevent human errors, improve quality

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

Discrete Components Assembly



SMT placement and odd-form components assembly

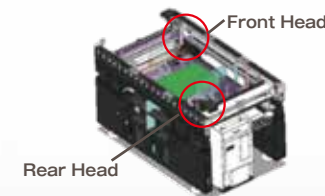


High Productivity

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



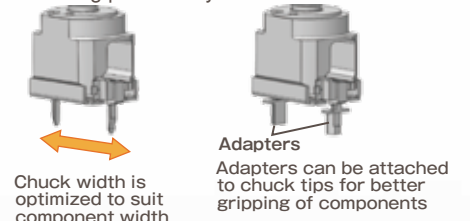
Non-stop Production

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



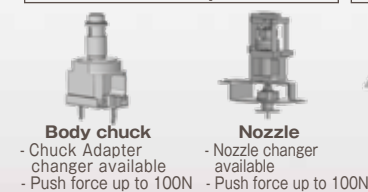
[Tray feeder]
Tray pallets can be replenished during machine operation

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



Versatility

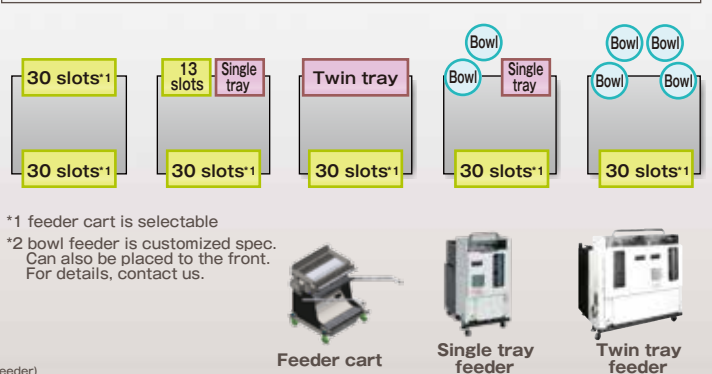
Various tools to cater to different components



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.

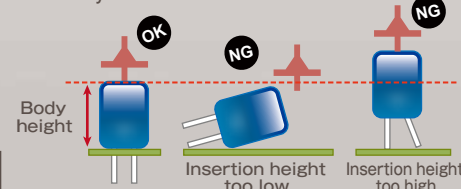


Component verification & Traceability (Option)

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

