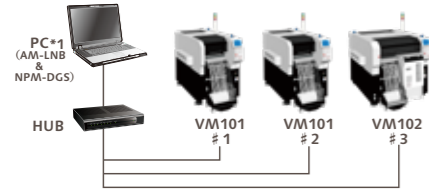


Panasonic CONNECT

System configuration (minimum)

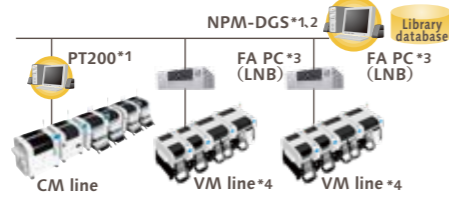
For three machines or less, minimum system configuration is available, with both AM-LNB and NPM-DGS on a single PC.*2



*1: Prepare a PC for AM-LNB on your own.
 *2: Depending on the option you select, you may need an FA PC for LNB.

Data creation (NPM-DGS)

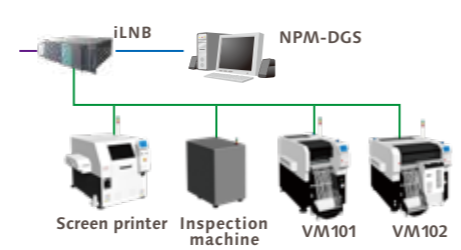
Software package to create, edit or simulate production data, or integratedly manage the library.



*1: A PC must be purchased separately.
 *2: NPM-DGS has two functions; the floor level control and line level control.
 *3: LNB (Line Network Box)
 Line is created with several machines to centralize and control information.
 *4: For connection with NPM series in VM line, contact your local sales representative.

Integrated line management (iLNB)

Connecting via a PC to other vendors' machines allows for collective line control over changeover, operation performance, quality control or process support, etc.



Model ID	VM101	VM102
Model No.	NM-EJM3E	NM-EJM4E
PCB dimensions	L 50 mm × W 50 mm ~ L 330 mm × W 250 mm (Single-lane)	
Electric source	3-phase AC 200, 220, 380, 400, 420, 480 V 1.3 kVA	
Pneumatic source	0.5 ~ 0.8 MPa	
	100 L / min (A.N.R.)	200 L / min (A.N.R.)
Dimensions *1	W 830 mm*2 × D 1 969 mm*3 × H 1 500 mm	W 1 515 mm × D 2 070 mm*3 × H 1 500 mm
Mass	1 500 kg (Front : Fixed supply unit, Rear : Fixed supply unit without cutting unit)	1 910 kg (Front : Fixed supply unit plus tray, Rear : Fixed supply unit without cutting unit)
Component supply	Tape : 4 ~ 56 / 72 / 88 / 104 mm	
	Max.80 components*4 (4 / 8 mm tape)	
	Max.160 components*4 (4 / 8 mm tape)	
	Max.20 *5	Max.40*5
	Max.20	Max.20

Model ID	VM101		VM102	
Placement head	Lightweight 16-nozzle head V2	Lightweight 8-nozzle head	4-nozzle head	14-nozzle head
Max. speed *6	42 000 cph (0.086 s / chip)	22 500 cph (0.160 s / chip)	8 200 cph (0.439 s / chip) 6 500 cph (0.554 s / QFP)	32 100 cph (0.112 s / chip) 10 500 cph (0.343 s / QFP)
Placement accuracy (Cpk ≥ 1)	± 30 μm / chip	± 30 μm / chip ± 50 μm / QFP □12 mm Under ± 30 μm / QFP □12 mm ~	± 30 μm / QFP	± 40 μm / chip ± 50 μm / QFP □12 mm Under ± 30 μm / QFP □12 mm ~
Component dimensions (mm)	0402 chip ~ L 6 × W 6 × T 3	0402 chip ~ L 45 × W 45 × T 12 or L 100 × W 40 × T 12	0603 chip ~ L 120 × W 90 × T 30 or L 150 × W 25 × T 30	0402 chip *7 ~ L 120 × W 90 × T 28 or L 150 × W 25 × T 28

*Placement tact time and accuracy values may differ slightly depending on conditions.
 *Please refer to the specification booklet for details.
 *1: The machine dimensions differ depending on specifications.
 *2: For the safety of transport openings, you need to select extension conveyor specifications for any VM101 located at the far right/left of a line.
 *3: The dimensions of VM101 with the fixed supply unit selected for its front and rear sides are the same as the ones of VM102 with the tray feeder and the fixed supply unit selected for its front and rear sides, respectively. The reel holder and reel box are not included in the dimensions.
 *4: When the double feeder is used as tape feeder.
 *5: The number of stick model types available for the machine equipped with the single stick feeder.
 *6: Under our optimal conditions
 *7: Support for 0402 placement is optional.

⚠ 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.

Please check the homepage for the details.
panasonic.com/global/corporate/sustainability

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Model ID **VM101**
 Model No. NM-EJM3E

Model ID **VM102**
 Model No. NM-EJM4E



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

VM series concepts

Compact, high-performance entry-level model capable of offering a wide assortment of variations and flexibly coping with various production modes, ranging from high-speed production to high-mix low-volume / prototype production



VM101

Delivery of a mounting accuracy of $\pm 30 \mu\text{m}$
Max. speed* 42 000 cph
Max. no. of component types 80 components, on a 8 mm tape basis
Placement head 16- / 8- / 4-nozzle head
Supply unit specs Fixed supply unit, feeder cart, tray feeder



VM102

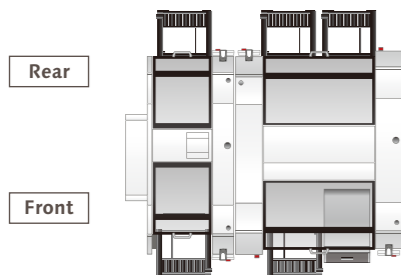
Versatile one-head solution
Max. speed* 32 100 cph
Max. no. of component types 160 components, on a 8 mm tape basis
Placement head 14-nozzle head
Supply unit specs Fixed supply unit, feeder cart, tray feeder

* Under our optimal conditions

A wide range of variations to flexibly cope with a wide assortment of production modes

High-speed chip line

- VM101 mounts chip components at high speed
- VM102 mounts various components ranging from chips to odd-shaped parts.



VM101 VM102

Placement accuracy $\pm 30 \mu\text{m}$ (VM101) / $\pm 40 \mu\text{m}$ (VM102)

Max. no. of component types 200 + 20 tray part types

Max. speed* 71 000 cph

Head configuration 16-nozzle + 14-nozzle

* Under our optimal conditions

High-mix low-volume line

- Coupling of VM102 machines together ensures a large number of supply slots.
- Common sequence operation promotes efficiency in model changeover.



VM102 VM102

$\pm 40 \mu\text{m}$

280 + 20 tray part types

61 100 cph

14-nozzle + 14-nozzle

Front operation

- The installation of tray feeders to the front side allows for the layout of the supply unit based on one-sided operation



VM101 VM101 VM101

$\pm 30 \mu\text{m}$

80 + 20 tray part types

70 100 cph

16-nozzle + 8-nozzle + 4-nozzle

Supply unit specs

Fixed supply unit

- With cutting unit *1
- Reel holder
- Without cutting unit
- Reel box

12 pieces of 8-mm small reels can be housed per box.

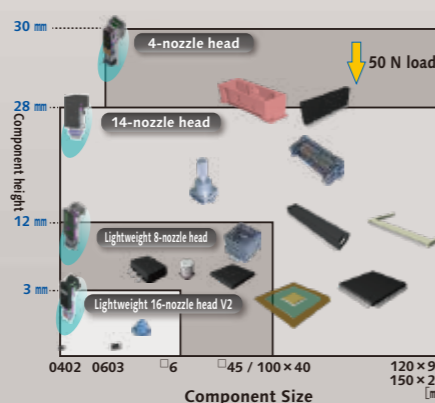
Feeder cart *2

- With cutting unit *1

Feeder cart installable to the front-side supply unit. Inclusion of the cutting unit in the machine helps reduce/improve the weight/workability of the feeder cart.

*1: The cutting unit is included in the machine.
 *2: It cannot be used for AM100/NPM series.

Part adaptability



Component Size

Front operation

The installation of tray feeders to the front side of machine enables the operator to grasp the progress of product changeover or the operating status of the machine within her / his field of view. (It is also possible to select the machine without rear supply unit.)



SPI VM101

Compact size

Rotary Head Mounter Line
(HT122+BM221)

1900
9060
2470

VM series line
(VM101 × 2 + VM102)

2372
3365
Unit (mm)

Line name	Rotary Head Mounter Line	VM series line
Max. speed *	84 545 cph	93 500 cph
Max. no. of component types	8 mm Tape 420 components Tray 80 components	8 mm Tape 280 components Tray 20 components
Line dimensions	W 9 060 mm × D 2 470 mm × H 1 800 mm	W 3 365 mm × D 2 372 mm × H 1 500 mm
Component size	0402 ~ □55 mm or 150 × 25 mm	0402 ~ 120 × 90 mm or 150 × 25 mm
Placement accuracy	$\pm 50 \mu\text{m}$	VM101 : $\pm 30 \mu\text{m}$ VM102 : $\pm 40 \mu\text{m}$

* Under our optimal conditions

High performance

Placement head

VM101 Equipped with the head for NPM X series, it delivers a mounting accuracy of $\pm 30 \mu\text{m}$ (Cpk ≥ 1).

VM102 Equipped with the 14-nozzle head capable of mounting various parts ranging from miniature to odd-shaped parts, it can be independent of PCB conditions and thus achieve an optimal line balance.



Multi-recognition camera

Type 1	Type 2	Type 3
<p>Multi-camera (type 1) *Standard installation</p> <p>Equipped with camera with the same performance as NPM X series to improve component recognition. Possible to build up to type 2 or 3 to realize high-quality placement.</p>	<p>Flip detection Checks components with lead for face</p> <p>Component thickness measurement Measures component thickness and reflects the result in the placement height</p> <p>Nozzle tip check Checks the nozzle height regularly for any error</p> <p>Ejection detection Checks any foreign matters adhered onto nozzle tips during component ejection</p>	<p>Lifted lead detection Possible to detect the coplanarity of any leads of QFP, SOP, etc., and the presence/absence of any ball on BGA, CSP, etc.</p> <p>Ball defect detection</p>

Useful functions for changeover

Common sequence and cut tape

- Pre-installation of feeders used for each product PCB (common sequence) permits efficient production of multi-product PCBs.
- Auto load feeder enables even the supply of cut tape* (Prototype/low-volume production)

1-step action (Component pickup)

Moving the placement head step by step permits you to make adjustments while checking pickup actions.

Possible to adjust component pickup position and height while visually checking pickup.

Automatic replacement of support pins

Automates the support pin place exchange, and contributes to saving labor, or reducing errors, during changeover.

Production support using system software

Feeder setup navigation	Component verification	Automatic changeover
<p>The time required for production is estimated while considering the amount of time it takes to perform and complete setup operations and setup instructions are provided to the operator.</p>	<p>Erroneous setup of components can be prevented by checking downloaded production data against the barcode data of the components to be replaced.</p>	<p>It assists changeover (change of production data, rail width, etc.), and minimizes work losses.</p>
Component supply navigation	APC system	Mounting MES software (PanaCIM-EE Gen2)
<p>In consideration of the time to the shortage of components and the least wasted traveling path, instructions for components supply are provided to the operator.</p>	<p>Feeds forward the correction value calculated from printed solder positions to the placement head.</p> <p>Applicable components: Chip components (0402C/ R~) Package components (QFP/BGA/CSP)</p>	<p>Helps improve productivity and quality by, in collaboration with Panasonic equipment or host systems (LNB/DGS), keeping track of and managing entire mounting floor, and providing appropriate support/instructions for operators.</p>