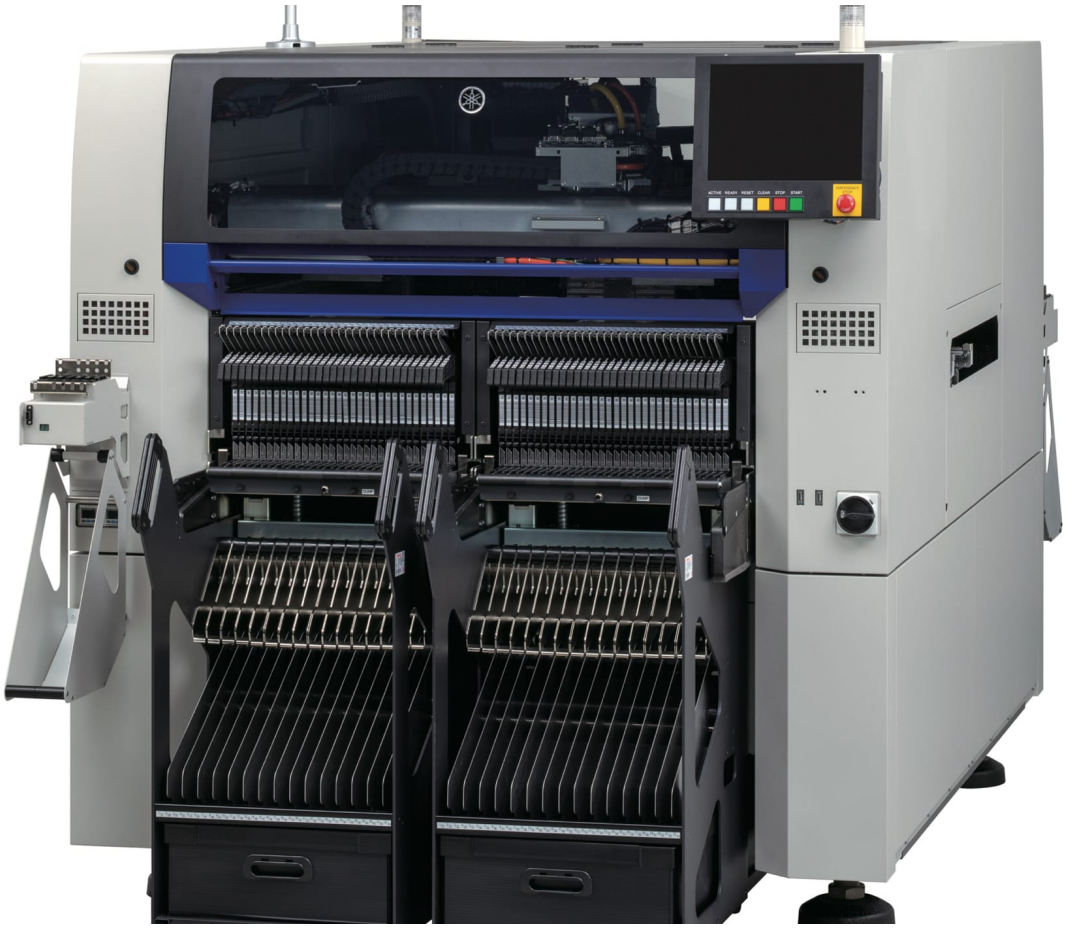

The YRM20 Premium, High-Efficiency Modular

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Yamaha Motor Launches YRM20 Premium High-Efficiency Surface Mounter - Delivering World Class-Leading Performance with New Platform and High-Speed Rotary Head -

IWATA, January 10, 2020 - Yamaha Motor Co., Ltd. (Tokyo:7272) announced today that the new *YRM20* surface mounter*[1] will launch on April 1, 2020. Built on an all-new next-generation platform which embodies the intelligent factory, this high-efficiency premium modular mounter utilizes two head

types: A newly-developed high-speed, multi-purpose rotary (RM) head that, when combined with the new high-speed feeder, delivers world class-leading mounting performance (under optimal conditions)*2 of 115,000CPH*3, as well as a 1-head solution via the newly-designed in-line (HM) head which combines high speed and high versatility.
With high mounting accuracy of ±25µm (Cpk ☒ 1.0), it supports 0201 (0.25×0.125mm) sized microchip component mounting.
In addition, the newly developed conveyor can handle a maximum board width of 510mm, an optimized layout improves the transfer speed, and greatly reduces the time required for board replacement. The adoption of the overdrive motion inherited from the premium modular ☒ series, which has realized high-efficiency production, reduces head entry restrictions when front and rear tables interfere, and also improves productivity.
In addition, the GUI (Graphical User Interface) on the operation screen has been renewed, making intuitive operations easy.
Yamaha Motor is set to exhibit the new *YRM20* at the 34th INTERNEPCON JAPAN trade show for electronics manufacturing and surface-mounting technology. This will be held from January 15-17 at the Tokyo Big Sight (Koto-ku, Tokyo).

*1: Surface mounters: Production equipment designed to mount various electrical components onto PCB's (Printed Circuit Boards), which are then incorporated into electronic products.

*2: Comparative mounting capacity (CPH) under optimal conditions for surface mounters in the 2-Beam, 2-Head Class. Yamaha Motor survey, January 10, 2020

*3: CPH (Chips Per Hour): Total number of chips that can be mounted per hour (unit time). Indicates processing capacity under various conditions.

Model	Launch Date	Target Sales
YRM20	April 1, 2020	500 Units (first full year from release, both within Japan and internationally)

Market Background and Product Outline

In recent years, miniaturization, high-densification, high functionality, and diversification as well as shortened product cycles have increasingly accelerated for a variety of products such as consumer electronics, personal computers, and mobile telephones. As a result, manufacturing sites need the flexibility and efficiency to accommodate the innovations, changes, and upgrades that production facilities require.
As labor shortages and personnel expenses intensify, productivity improvement, increase in operating ratios, and reductions in labor requirements by automating factories through robotics, AI, and IoT have been promoted.

Yamaha Motor has developed a completely new generation of mounter platforms for the increasing amounts of data traffic produced by future developments in automation and meet requirements in the era of high-speed, high-volume communication with accelerated data sharing. Furthermore, we have taken an approach that uses completely different head mechanisms to develop the *YRM20*, a new, premium, high-efficiency modular. This machine combines the two unique technologies, both represent the best of traditional Yamaha Motor technology, of the rotary head Sigma series, and the in-line head focused YSM, which achieved a 1-head solution to handle everything from ultra-small chip components to large components without head replacement.

We fully utilize our strengths through a full lineup of mounting equipment such as surface mounters, printers, dispensers, and inspection equipment. These are based on being highly efficient in mounting process productivity, with a view to linking with other equipment, especially in the mounting line. We are promoting the Intelligent Factory, a system that can be realized comprehensively.

Product Features

1) A new, next-generation platform that embodies the intelligent factory

The *YRM20* uses a new machine-control system ready to handle a new era of escalating data speed and volume requirements at production sites. Our new speedy and robust application software interacts with peripheral systems and software seamlessly, securely, and without waste.
The new machine uses a unique and effective design created with our UP!

(Unique and Proven) SMT (Surface Mount Technology) business concept.

2) A 2-head unit that combines a rotary head with a multi-purpose in-line head for world-leading productivity speed

- Next-generation, high-speed rotary (RM) head combined with Sigma technology

A newly-developed rotary head tailored to the next-generation platform works with a durable new, high-speed feeder with improved tape feeding speed to achieve outstanding productivity reaching speeds of 115,000 CPH, the fastest speed in its class in the world.

- An in-line (HM) head with a refreshed control system delivers high speed and amazing versatility

The combination of a new servo system and ever-evolving in-line head achieves a blazing fast speed of 98,000 CPH (under Yamaha Motor's optimum conditions). Tailored to the concept of a 1-head solution, this machine can deal with ultra-small components, large components, and everything in between with one type of head in a lightning-fast, versatile package.

3) High precision, high quality mounting for miniature chips

The new design of the X beam reduces heat distortion for high-precision mounting at ±25μm (Cpk ☒1.0). This allows the machine to handle 0201-sized miniature chip components.
Mountable component sizes range from 0201 to 12 x 12 mm for the RM head and W 55 x L 100 mm for the HM head.
The new component recognition camera of the machine switches between line and area images for flexible, faster, higher-quality recognition.
In addition, new ID-linked nozzles deliver high-speed, low-impact mounting via lighter tip slides. Maintenance is also more efficient than ever because nozzles work with an auto-nozzle changer.

4) Faster production speed

The newly developed conveyor, which can handle a maximum board width of 510 mm, features an optimized layout and quicker transport speeds,

significantly cutting print circuit board replacement time improving effective production tact.
The machine also uses overdrive motion, which features Sigma technology for highly efficient production. Reducing head entry restrictions when front and rear tables interfere further enhances real productivity.

5) Operating screen GUI with improved controllability and visibility via a newly designed application

The new GUI features an advanced design and an easy-to-read layout, enabling intuitive user control. The new Operator Mode enables the user to operate only the necessary controls, enhancing controllability at production sites.
Furthermore, thanks to the new vision system and interface, the time required to create parts data for components with complex shapes has been reduced significantly.

***YRM20* Basic Specifications**

	High-speed, Multi-purpose Rotary Head	**In-line HM Heads**
Nozzles (1 per head)	18	10
Applicable Components	0201 – 12 x 12 mm, height of 6.5 mm or less	0201 – W 55 mm x L 100 mm, height of 15 mm or less
Mounting Capacity (In high-productivity mode)	115,000 CPH	98,000 CPH
Mounting Accuracy (In high-precision mode)	Yamaha Motor Optimum Conditions: ±0.025 mm Cpk≧1.0	
Number of Component Types	Batch Exchange Trolley: Max 128 types = 32× 4 (8mm Tape Feeder Conversion)	
Applicable Circuit Board Dimensions	Dual-Stage Specifications: L 810 x W 510 mm - L 50 x W 50 mm)	
Power Supply	3-phase AC 200/208/220/240/380/400/416 V ±10% 50/60 Hz	
Air Supply	0.45 MPa or more, clean and dry state	
External dimensions (not including projected parts)	L 1,374 x W 1,948 x H 1,445 mm	
Weight	2,250kg	

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