

Tom Foley

# Siemens' Siplace X Series

The new placement platform features a 20-nozzle head and 'smart' feeders.

*Ed.: This new section spotlights significant advances in equipment and materials for electronics manufacturing.*

Siemens this month introduces Siplace X Generation placement equipment. Built from a common base frame, the X series comes in four-gantry (X4), three-gantry (X3) and two-gantry (X2) versions. The speed increases with the number of gantries. The positioning system is linear-motor-driven for reliability (>99.9% uptime) and placement accuracy (30  $\mu\text{m}$  at 4 sigma). Borrowing from technology found in Formula One racing, the placement gantry is constructed from carbon fiber composite material. Unwanted weight is significantly reduced without compromising strength and stability – or accuracy.

Each gantry is equipped with a placement head suited to the specific production needs of the manufacturer. If the application calls for maximum output per square foot, a key measure for cellphone and submodule manufacturing, the gantries are configured with a new 20-nozzle revolver head (VHS head). The X4 machine configured with four VHS heads places components down to 01005 at a speed of up to 80,000 cph. The VHS head incorporates on-the-fly digital vision with direct drive component rotation.

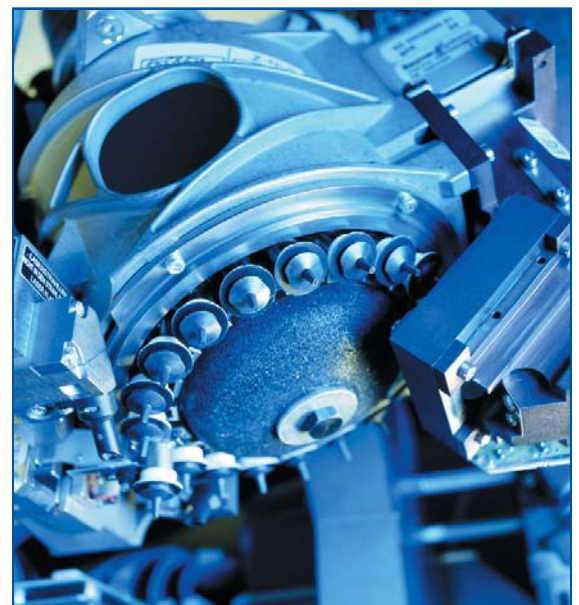
For applications that require medium speeds three other placement heads are offered. The 12- and six-nozzle revolver heads are now equipped with on-the-fly digital vision, for vision and lighting specific to each unique component, with no lighting bleed from neighboring components. Over 98% of components on the board can be placed using the high-speed revolver heads. All components are placed at the same takt time, regardless of component size, which translates to less speed derate. The remaining 2% of placements are typically odd-shaped components like connectors, electrolytics and BGAs. These parts can be as tall as 1", and require high placement force or mechanical gripping. For these requirements, a wise configuration would be one gantry with a flexible twin head. Placement volumes, batch sizes and component mix are continually changing. By offering two-, three- or four-gantry machines with four interchangeable placement heads the Siplace X Generation can be scaled to specific volumes as required.

To reduce nonproductive time and boost line efficiency, the Siplace X Generation is introduced with a

new "smart" feeder. Each feeder has a unique ID code that can be related to a specific component type during setup. All traceability information – reel quantity, lot code, part number, and so on – is related to the feeder ID and stored in a database. When the feeder is loaded, it is identified wirelessly by the machine controller, which checks feeder setup for accuracy. LEDs on the feeder notify the operator of any mistakes in the setup that must be corrected before the machine starts operating. The index pitch and speed profile are automatically programmed to the feeder based on the optimized placement program. The feeders have an LCD display for supplying text instructions to the operator and support multiple languages.

The Siplace X Generation has 160 feeder positions, ideal for high-mix environments. A dual machine solution with 320 feeders provides an opportunity for single feeder setup to build a variety of boards, thus cutting changeover times. Siplace Pro advanced line scheduling software advises the best order to run jobs to shorten changeover times and increase line utilization.

The Siplace X Generation is compatible with previous "S" feeders. This permits users to transition to the latest feeder generation on their timetable. ■



The new 20-head nozzle can place up to at 20,000 parts (01005 or larger) per hour.

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