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SIPLACE V platform: Industry expertise meets KPI optimization

Entering the SIPLACE V era

Raising performance and quality to new levels, the SIPLACE V platform, which ASMPT unveiled at the Productronica trade fair (booth A3.377), is much more than the next generation of placement machines. It offers performance increases of up to 30 percent while combining maximum speed with maximum flexibility. Optimized for practice-oriented KPIs, the SIPLACE V opens up new perspectives for the key industries of the future in intelligent manufacturing fields such as automotive and industry, consumer electronics, smartphones, IT, and network infrastructure.

SIPLACE placement machines such as the SIPLACE SX or SIPLACE TX are now firmly established in many SMT production facilities and are technology and market leaders. They stand for high processing speed and placement accuracy, stable placement processes, and maximum flexibility. ASMPT's hardware portfolio is complemented by DEK solder paste printers and the SPI system Process Lens for comprehensive coverage of almost all process steps in intelligent SMT production.

The new SIPLACE V platform fits seamlessly into this highly efficient ASMPT manufacturing system while taking it to a new level. The innovative placement platform is based on feedback from countless manufacturing facilities worldwide and has been developed to meet the requirements of today and tomorrow.

A key improvement is the expansion of the platform's flexibility into the high-speed range. Even in its fastest version, the SIPLACE V processes an exceptionally wide range of components and PCBs, combining maximum speed with maximum flexibility.

Speed boost for the placement heads

The three proven placement heads from ASMPT have been redesigned and further improved. An innovative machine stand now enables even higher accelerations and thus up to 30 percent faster placement speeds. This applies not only in benchmarks that are often far removed from practical applications, but also under real production conditions.

- The SIPLACE CP20 placement head now places up to 52,500 cph, with increased accuracy of 25 µm @ 3 σ. The SIPLACE CP20 is the high-speed solution for standard components.
- The SIPLACE CPP placement head now processes up to 28,000 cph with a maximum placement force of 15 N. The SIPLACE CPP can switch between Collect & Place, Pick & Place, and Mixed placement modes via software control.
- The SIPLACE TWIN VHF placement head now has a capacity of up to 6,000 cph. The SIPLACE TWIN VHF is the leading pick-and-place twin head for end-of-line placements of large and heavy components with a placement force of up to 100 N.

ASMPT achieves all this in a footprint of just 1.1 by 2.4 meters. The new SIPLACE V platform thus offers the best floor space productivity in the entire ASMPT portfolio.

Specifically optimized for the key industries of the future

SIPLACE placement machines are now used in countless smart manufacturing facilities around the globe. Through constant, intensive customer contact, ASMPT has gained knowledge of the requirements and needs of important key industries like no other manufacturer. This wealth of experience has been consistently used to optimize the SIPLACE V platform for the most important industries.

Automotive:

This industry manufactures both control and power electronics under the highest requirements for quality, process reliability, and traceability.

The SIPLACE V consistently meets these requirements. It fits seamlessly into the data-based concept of intelligent manufacturing and supports comprehensive inline quality management and complete process documentation.

The new placement machines also offer Smart Pin Support without taking up feeder positions — a decisive advantage for complex product designs and flexible setup concepts. In combination with the 3D Coplanarity Module, which is now also available for the high-speed range, the SIPLACE V ensures reliable coplanarity testing even at maximum placement speeds. Proven functions such as the processing of odd-shaped components (OSCs) have been further improved and expanded.

A decisive factor for consistently high placement quality — not only in this industry, but in many others — is closed-loop sensor technology. Through real-time detection and intelligent linking of component height and PCB profiles, SIPLACE placement machines ensure that the placement force is always optimally adjusted.

Consumer electronics:

Consumer electronics manufacturing is characterized by high production volumes, short cycle times, and maximum line utilization. The SIPLACE V can fully demonstrate its strengths in the high-speed range here with its exceptional placement rates, stable real performance, and quick adjustability to product changes.

Thanks to its component flexibility and intelligent component handling, the SIPLACE V can accommodate both classic high-volume products and complex bills of materials efficiently and reliably.

The SIPLACE V also ensures high overall equipment effectiveness (OEE) — i.e., optimal availability, performance, and quality. At the same time, it lowers to total cost of ownership (TCO) by consistently reducing operating costs and maintenance requirements.

Smartphones:

Smartphone manufacturing focuses on highly integrated, densely packed components with complex layouts and many special components. This requires not only maximum placement speed, but above all high positioning accuracy, process stability, and reliable processing of even the most demanding component types, such as particularly small, sensitive 016008 metric components measuring just 0.16 × 0.08 mm or odd-shaped components such as shields, connectors, or antenna modules.

The SIPLACE V platform impresses in such applications with its high component flexibility and precise placement performance. Even at maximum cycle rates, its process quality remains stable.

IT & Network Infrastructure:

In the manufacture of IT, server, and infrastructure systems — including 5G technology and edge computing applications — large-format PCBs, complex layouts, and the use of special components such as those for the transition between electrical and optical signal transmission, place particularly high demands on placement technology. The SIPLACE V supports the processing of PCBs up to 400 mm long in any machine configuration, offering the flexibility required for these demanding designs.

Since many electronics manufacturers process component mixes from different application areas on a single line, the SIPLACE V platform also impresses with its wide range of components and performance. It enables quick adjustments to changing product requirements while offering exceptional investment protection. This makes the SIPLACE V ideally equipped for the challenges of an increasingly diversified and dynamic electronics manufacturing industry.

Designed for the most important KPIs

Investing in placement machines is a long-term decision. Depreciation usually takes place over several years, and the machines are often being used much longer. Costs are incurred not only at the time of purchase, but also during their ongoing operation. The total cost of ownership is a decisive factor here, with the acquisition costs accounting for only a small part. A precise assessment of overall equipment effectiveness (OEE) is crucial for a successful investment. It is influenced by five specific key performance indicators:

- Real Performance: Does the machine actually achieve the maximum values determined in standardized benchmarkings?
- Quality: Does the actual product quality achieved meet customer requirements?
- Flexibility: How quickly and easily can the production equipment be adapted to different products?
- Availability: How long is the machine actually in productive use?
- Ease of use: How much effort is required to operate the machine?

Systematic KPI optimization is another reason for the superiority of the new SIPLACE V platform.

One example is the Real Performance KPI. It is particularly relevant under difficult production conditions, for example in high-mix/low-volume manufacturing, which is widespread in this country, in the processing of complex special components, as well as in mixed production with family setups. With many conventional placement machines, the following still applies: the more difficult and complex the production conditions are, the more the actual performance lags behind the benchmark values. This drop in performance has been significantly reduced with the SIPLACE V platform. It offers a significant speed boost — especially under real-life production conditions. This was achieved through, among other things:

- A new machine design and highly efficient linear drives
- SIPLACE high-speed placement heads
- Component cameras integrated into the placement heads
- SIPLACE placement heads that can handle a wide range of components

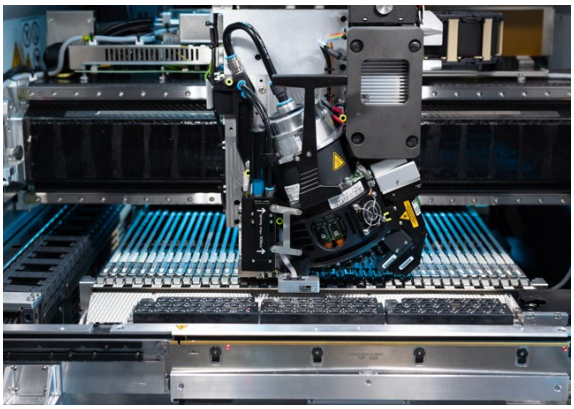
- Optimized SIPLACE vision systems
- A wide range of OSC features

The result: Significant performance increases in important application areas and key industries (see box).

Hybrid-optimized for the future

Combined optimization, both from a practical industry perspective and according to precisely defined KPIs, was crucial for the quantum leap in SMD placement technology that ASMPT's new SIPLACE V platform undoubtedly represents. It is already delivering a noticeable increase in performance on the shop floor while at the same time its robust and future-oriented design forms the basis for further planned innovations in terms of placement heads and automation. Although highly innovative, the new machine generation remains compatible with existing ASMPT hardware and software in all important areas. This makes the SIPLACE V not only a powerful solution for current needs, but above all a future-proof investment for intelligent manufacturing.

High performance in a small footprint: The new SIPLACE V platform from ASMPT stands for up to 30 percent higher placement rates, maximum flexibility, and consistent KPI optimization.
(Image credit: ASMPT)



Maximum speed for key industries: The SIPLACE CP20 placement head achieves up to 52,500 cph at 25 µm @ 3 σ — ideal for demanding high-speed production applications.
(Image credit: ASMPT)

Combination of tray unit and odd-shaped component feeder: The SIPLACE V platform offers maximum flexibility for demanding high-mix production requirements.
(Image credit: ASMPT)

Typical line configurations		**Performance increase compared to conventional configurations**
Automotive and industry	 SIPLACE V platforms in combination with the DEK TQ L solder paste printer and the SPI Process Lens system ensure consistent process reliability, traceability, and maximum quality. The SIPLACE VL for longer PCBs with tray unit takes over OSC placements as an end-of-line machine and enables an optimally balanced line.	up to 30%
IT and network infrastructure	 DEK TQ XL, Process Lens, and eight SIPLACE V platforms — including one SIPLACE V with a tray unit at the end of the line — form a high-precision, high-performance SMT line for complex, large-format PCBs.	up to 30%
Consumer electronics	 DEK TQ, Process Lens, and three SIPLACE V platforms — including a tray unit at the end of the line — form a compact, flexible high-speed SMT line for high volumes and frequent product changes.	up to 30%
Smartphones	 DEK TQ, Process Lens, and eight SIPLACE V platforms — including a tray unit at the end of the line — create a precise high-performance SMT line for extremely dense assembly layouts and ultra-small components.	up to 30%

(Image credit: ASMPT)