

Exhibit Concept: KNITify™ the World

Leading computerized knitting machine manufacturer SHIMA SEIKI MFG., LTD. of Wakayama, Japan, is participating in the International Textile Machinery exhibition (ITMA 2019) in Barcelona, Spain. SHIMA SEIKI's unswerving tradition of introducing new technology at ITMA remains intact for 2019. The 566 square meter booth located at Hall 8.0, Stand B106 features a comprehensive lineup of its products including new WHOLEGARMENT® knitting machines, computerized flat knitting machines, and computer graphic design systems as well as various digital solutions making their debut at ITMA. Details of machines can be found in "Machine Details" as part of this Press Kit.

KNITify the World™ *Smart Solutions in Textiles*

SHIMA SEIKI is exhibiting at ITMA 2019 under the theme "KNITify™ the World—Smart Solutions in Textiles." The theme illustrates the flexibility of SHIMA SEIKI products for catering to various industries in addition to its traditional customer base in the apparel industry. In its approach to proposing knitting as an alternative manufacturing solution for non-fashion related industries, SHIMA SEIKI demonstrates what was impossible to knit in the past can be knit now, and what was never even considered for knitting is now made just as well—if not better—with KNITification.

Through combined application of its patented core technology that is widely accepted as the benchmark of the industry, SHIMA SEIKI disrupts the conventional perception of knitting, offering its benefits to prospective customers who are as yet unaware of the true and current potential that knitting possesses. To this end, the latest technological contributions aimed at promoting knitted applications in various fields ranging from fashion, sports, shoes and accessories to medical, automotive, aeronautical and other wearable and industrial textile applications are on display at ITMA.

Knitting offers great potential for technical textiles with its inherent characteristics: stretch and compression. Flat knitting provides further potential with its capability to shape fabric on the machine. New knitting techniques such as inlay made possible with special loop pressers featured on our new N.SVR-SP series machines add further value to knitting and have gained particular attention for its ability to produce hybrid knit-weave fabrics that allow insertion of technical yarns heretofore considered incompatible with knitting, into existing knit fabrics. These include carbon fiber, monofilament and even metallic yarns. SHIMA SEIKI has even developed a special Yarn Unwinding Device for unwinding spools of technical yarn to ease yarn feed for such difficult-to-handle material.

WHOLEGARMENT® knitting maximizes the benefits of shaped knitting even further by expanding that potential to 3 dimensions. WHOLEGARMENT® knitting is capable of producing knitted items in their entirety on the machine, and allows 3D preforms and tubing to be produced without sewing. Elimination of sewing allows for faster turnaround and high potential for on-demand knitting. The seam-free nature also ensures continuity of the fabric, allowing functional yarns such as those made from conductive fibers to wrap around the entire body without interruption for applications in

smart garments and wearable technology. 3D knitting provides fit, comfort, lightness and mobility—key factors that make seam-free WHOLEGARMENT® knitwear ideal as wearable technology platforms. Three WHOLEGARMENT® machines are on display, including the new MACH2VS machine making its debut at ITMA.

The benefits of WHOLEGARMENT® knitting are furthermore showcased in its ultimate form in the MADE2FIT™ area of the SHIMA SEIKI booth, demonstrating mass-customization as only on-demand knitting technology can provide.

SHIMA SEIKI is also speaking on smart textiles and wearable technology at the ITMA Speakers Platform as part of the ITMA Innovation Lab. The presentation is scheduled at 11:45 - 12:05 on Sunday, 23rd June in Room 7.1, Congress Centre CC7 at the Fira Barcelona ITMA venue.

In addition to machine technology the latest evolution of SHIMA SEIKI's SDS-ONE APEX series 3D design system debuts at ITMA as an equally important factor in modern knit production. Flexible knit manufacturing begins with flexible design, and the new SDS-ONE APEX4 offers a fully comprehensive set of tools and functions, as well as the capability for ultra-realistic simulation that realizes Virtual Sampling. In whatever field, when countless variations must be evaluated before arriving at a final design, virtual product samples can be used to streamline the decision-making process by minimizing the enormous amount of resources—time, cost and material—normally associated with producing actual samples for each variation. This allows for more designs and design variations to be considered with much less waste. When approved, the same data can be used to program machines for immediate knitting, significantly reducing lead time.

Aside from the technological innovations in hardware and software that make up the company's lineup of knitting machines and design systems, SHIMA SEIKI also provides various IT solutions for assisting its customers in establishing a smart supply chain. All such solutions are organized into a one-stop website called SHIMA SEIKI Online Services ("SHIMA online" for short) and consists of the following digital solutions: staf® (shima trend archive and forecast) web-based product planning tool with trend archive; Shima KnitPLM® product data management, production management and monitoring system; FAQ; Users' Site customer support site; yarnbank™ yarn sourcing website; and E-learning tutorial website. With SHIMA online, SHIMA SEIKI sheds its traditional role of manufacturer and becomes a truly full-featured solutions-provider for the knitting industry.

With a fully comprehensive collection of the latest innovative products and services, SHIMA SEIKI technology at ITMA 2019 demonstrates smart, speedy and sustainable production that further secures its leading role in KNITifying the World.

Description of Main Exhibits

MADE2FIT™ by WHOLEGARMENT® NEW

The on-demand production capability of WHOLEGARMENT® knitting technology that can knit an entire garment in one piece on the machine without the need for sewing is naturally suited to production that is customized to the individual. At ITMA SHIMA SEIKI is showcasing mass-customization as it is applied with WHOLEGARMENT® knitting, called MADE2FIT™ by WHOLEGARMENT®. There is an entire area dedicated to presenting the concept, beginning with scanning a body using a smartphone app, then sending that data to a server that automatically adjusts preloaded data categories such as size, length, sleeve length, color, etc., and knitting on the MACH2XS103 WHOLEGARMENT® knitting machine.

MACH2XS103 15L

A short-needle bed version of SHIMA SEIKI's flagship WHOLEGARMENT® machine, MACH2XS103 features the company's original SlideNeedle™ on four needle beds of 40-inch (100cm) knitting width. High-quality WHOLEGARMENT® production in all needles is possible, at high speeds thanks to quick carriage returns with the R2CARRIAGE® combined with a maximum speed of 1.6m/sec for high productivity. i-DSCS+DTC® Digital Stitch Control System with Intelligence and Dynamic Tension Control allows consistent, high-quality production with a variety of yarns. Equipped with a spring-type moveable sinker system, dimensional fabrics and flechage can be knit with ease, expanding the range of knitting. It is also equipped with the Air Splicer option for supporting multi-color knitting by splicing together yarns at high-speed. MACH2XS103 is also equipped with the dual takedown prototype option that allows waste knitting for short-sleeve pullovers to be practically eliminated, further contributing to the sustainable nature of WHOLEGARMENT® knitting.

MACH2XS123 15L

MACH2XS123 is slightly larger than MACH2XS103, with a 50-inch (125cm) knitting width. SlideNeedle™ mounted on 4 needle beds and spring-type moveable sinkers all contribute to highly efficient and versatile production of high-quality WHOLEGARMENT® products. MACH2XS123 is also equipped with the dual takedown prototype option, as well as the optional tension control device that measures the stretch characteristic of yarn beforehand and uses that data to control yarn feed at the machine. At ITMA, stretch characteristic is measured and controlled while knitting stretch leggings. The 15L machine features large-hook SlideNeedle™ mounted in 15-gauge pitch for production of fabrics in the 10~15 gauge range.

MACH2VS 14G NEW

The flexible and versatile MACH2VS is evolved from MACH2S machines and carries on the capability to knit in a range of production styles. As a conventional shaping machine, it is capable of all-needle knitting in its available range of 8 to 16 gauge, while WHOLEGARMENT® knitwear can be produced in half-gauge fabrics. The range of usable yarn and material has increased as well, thanks to i-DSCS+DTC® as standard equipment. The R2CARRIAGE® system that yields quicker carriage returns for greater efficiency, now features a lighter carriage for even higher productivity. For versatility, MACH2VS is even capable of gaugeless knitting whereby a number of different gauges can be knit into a single garment. A new full-color touch-screen monitor improves operability over the

previous monochromatic one. At ITMA, MACH2VS features a number of prototype options, including motorized auto yarn carriers that do not require extra carriage courses for yarn carrier placement. The lacy intarsia dress with vertical strip pattern being knit at the booth demonstrates the advantages of this function. Another prototype option is the needle bed gap adjustment function for further easing switching between conventional shaping and WHOLEGARMENT® production.

SWG091N2 5G

Affectionately referred to as “SWG-Mini,” SHIMA SEIKI's compact line of WHOLEGARMENT® machines allows customers to take advantage of the same short lead times and versatile production capacity exclusive to WHOLEGARMENT® knitting as with their larger MACH2® series counterparts, but with minimal investment. SWG091N2 with its 36-inch (90cm) knitting width is especially suited to knitting a wide variety of items. At ITMA it uses schedule knit to knit matching gloves, socks and caps consecutively.

N.SVR123SP-SV 14G NEW

SHIMA SEIKI's benchmark SVR-series computerized shaping machines have undergone an overhaul resulting in the new N.SVR series. The SVR123SP likewise adds adopts the "N." designation becoming the N.SVR123SP. A special loop presser bed mounted above the rear needle bed makes it capable of unique designs in knit fabrics—especially inlay patterns—which allow hybrid textiles that combine both knit and weave characteristics in the same fabric. In addition, the i-Plating® option can alternate yarn colors in any pattern, producing jacquard-like designs using plain jersey stitch. Plating can be performed within the same course and for individual needles. In combination with the loop presser and patented spring-type moveable sinker system even greater diversity in knit design is possible. Meanwhile a lighter, more compact carriage combines with high-speed carriage turnaround of the R2CARRIAGE® system as well as a maximum knitting speed of 1.4m/sec to yield higher productivity. N.SVR123SP carries over other established SHIMA SEIKI technology such as the Digital Stitch Control System (DSCS®), stitch presser, takedown comb and yarn gripper and cutter system as well as WideGauge® knitting capability. An all-new full-color LCD touch-screen control panel greatly improves on the previous monochromatic display as well. At ITMA N.SVR123SP is shown knitting chair fabric using velvet-like tape yarn which has a natural tendency to twist. Otherwise impossible to knit correctly, it is fed into the machine with the aid of the special Yarn Unwinding Device which helps to handle such challenging material.

N.SVR122SP-SV 14G Prototype

The triple-knitting system N.SVR093SP/N.SVR123SP/N.SVR183SP lineup is joined by the newcomer N.SVR122SP which features a double KNITRAN® cam system. Like the N.SVR123SP also shown at ITMA, N.SVR122 also features a special loop presser bed capable of inlay technique which allow hybrid textiles that combine both knit and weave characteristics in the same fabric. In addition, the i-Plating® option allows alternating yarn colors to be knit in any pattern, producing jacquard-like designs using plain jersey stitch. i-Plating® is used to knit a pullover that also combines sinker patterns made possible with the patented spring-type moveable sinker system for even greater diversity in knit design.

N.SIR183-SV 18G NEW

SHIMA SEIKI's global standard for intarsia shaped knitting—the SIR series—has undergone renewal and is joined by the long-bed N.SIR183 featuring a 72-inch (183cm) knitting width. Improvement in productivity is achieved with a lighter, more compact carriage combined with a maximum knitting speed of 1.4 meters per second and the R2CARRIAGE® System that improves efficiency in each course through quicker carriage returns. It also carries over proven SHIMA SEIKI technology such as our renowned Digital Stitch Control System (DSCS®), spring-type moveable sinker system, stitch presser, takedown comb and yarn gripper and cutter, as well as an all-new full-color LCD touch-sensitive control panel. With a maximum capacity for 30 intarsia carriers, N.SIR183 at ITMA uses 10 carriers to produce an ultrafine gauge one-piece dress that is knit while oriented on its side featuring flechage, pintuck and other techniques. The machine also features a top tension device that automatically adjusts tension as a prototype option.

SDS-ONE APEX4 NEW

SHIMA SEIKI debuts its latest design system SDS®-ONE APEX4 at ITMA. SDS®-ONE APEX4 continues as a comprehensive all-in-one system that offers complete support of the knit supply chain, from planning and design to production and sales promotion. As such, SDS®-ONE APEX4 provides all the functions you need in taking advantage of the integrated workflow that is the Total Fashion System. Not limited to the knit apparel industry, textile design and production requires the diversity to support ever-changing market needs, with increasing emphasis placed on speed from design to market and sustainability. SDS®-ONE APEX4 responds to such requirements by providing up to a 5x increase in programming and simulation speeds as compared to SDS®-ONE APEX3. As part of its full support of planning and design needs, SDS®-ONE APEX4 features the latest search functions using Artificial Intelligence (AI). High-quality virtual sampling for circular knitting, flat knitting, weaving and pile weaving reduces waste of time, cost and material associated with sampling. It can furthermore be used for e-commerce as well as pre-ordering to forecast demand and optimize inventory through smart, speedy and sustainable production. Demonstrations are held daily at 9 locations throughout the SHIMA SEIKI booth.

SHIMA SEIKI Online Services

"SHIMA online" for short, this is a new portal site opened this month along with the launching of SHIMA SEIKI's new website. The portal site collectively introduces the company's various web-based services. Taking advantage of IoT technology, SHIMA SEIKI supports its users in all stages of the product supply chain through various web-based services, ranging from fashion trend information and archive of knit samples to production management and training support. SHIMA online and its services are open for viewing at the SHIMA SEIKI booth. A number of services are introduced below.

Site URL: <https://online-services.shimaseiki.com/>

Shima KnitPLM®

The Shima KnitPLM® website features the world's first PLM system dedicated to the flat knitting industry. Shima KnitPLM® connects SHIMA SEIKI products with the customer's core systems such as ERP and SCM using the latest IoT technology, and ensures traceability and improved productivity throughout the value chain. In addition, seamless data link among software eliminates the need for data input at each stage, achieving workflow automation and labor savings.

URL: <https://online-services.shimaseiki.com/shimaknitplm/>

staf®

A web service for inspiring creativity in the fashion industry, staf® features an impressive volume of archive data including collection photos, fabrics, designs, illustrations, patterns and more. Information can be organized using tools that are intuitive and easy to operate for effective product planning. New to staf® is knit content based on trend and market information for the next season. Data that can be used with the SDS®-ONE APEX series design system is available, such as knit designs, patterns and 3D simulation data, enabling faster product development.

URL: <https://staf.shimaseiki.com/>

yarnbank™ Sample Exhibit

yarnbank™ is a website for searching and downloading digital yarn data that can be used for virtual sampling on the SDS®-ONE APEX series 3D design system, free of charge. Downloading yarn data reduces the need for scanning yarns manually, while accuracy of simulations and efficiency of product planning is improved. For the yarn company, yarnbank™ provides a brand new channel for sales promotion. With yarnbank™, the entire supply chain from yarn companies and apparel companies to knit manufacturers can be connected digitally. Although actual launch of yarnbank™ is yet to be announced, a preview demonstration is available at ITMA.

