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SYL

Sharing Your Life

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Sharing Your Life
Muratec Customer Magazine June 2020

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First of all, we would like to thank you for your patronage to the textile machineries of Muratec.

As Muratec engineers, we aim to advance our key technologies and provide excellent machines for your production activities and other expectations.

We will also refine these key technologies in line with the globally declared SDGs (Sustainable Development Goals), so that we can manufacture machines that will contribute to the “enhancement of production, quality, labor saving, automation, and flexibility.”

The first focal point in our product development efforts is “labor saving.”

We direct our development efforts towards reducing energy requirement for machine operation, increasing production volumes by expediting manufacturing processes, efficiently processing bobbins and slivers provided by our customers to reduce material loss. Through these efforts, we aim to increase both sustainability and productivity.

Moreover, as represented by VORTEX Spinning Machines that are designed to shorten processes, we are promoting technology development that maximizes the effective use of customers' resources, keeping in mind the processes before and after each customer's factory. We will promote these efforts in cooperation with equipment manufacturers in the upstream and downstream processes.

The second point is “automation.”

Due to worker shortage and the difficulty of passing on skills and techniques to younger generations, the need for automation is growing day by day, not only in the textile machinery industry alone, but in all the other industries as well. Regarding to Muratec Automatic Winder, we devote our development efforts to automation and streamlining the customers’ processes that still rely on human interventions.

The third point is “flexibility.”

With the dramatic advancement of information technologies (IT), the textile industry faces the need to make effective use of AI, big data, and IoT. Many of our customers already use the Muratec Smart Support (MSS) System. To allow the customers to use our machines more safely and comfortably, we will continue development efforts to improve MSS functions, such as production support by simplifying customers’ production management, machine efficiency enhancement by automatically upgrading systems’ versions, automatic diagnostics of machines, and predictive maintenance.

In combination with our second focus area “automation,” we will carry out product development in a way that will let the machines do what they can do and help customers to concentrate on more creative works.

Emphasising on the above key points, we will always listen to our customers’ voices and provide what they need at the earliest. As a technology provider, through such day-to-day activities, we are committed to make untiring developmental efforts not only towards streamlining and optimizing our customers processes in short terms, but also towards contributing to their sustainable production activities on long term basis.

We will appreciate your continued guidance and support.

Osamu Hirao

Operating officer,
Chief Manager of Technical Department,
Textile Machinery Division

Making the Textile Market MORE SUSTAINABLE

The textile industry produces upto 10% of the total CO2 emissions of all industries, and also consumes a large volume of water resources. Climate change, microplastics, and other issues have become serious global concerns. Also, the consumer awareness have gone up in recent years. This has resulted in taking initiatives for changing the current scenario around mass production and large scale consumption of apparel, and also focusing on sustainability.

As people have sought solutions at various levels of the textile industry supply chain, Muratec has worked to achieve lower energy consumption through automation and reduction of spinning processes. In addition, we are also working to find ways to contribute even more to improved sustainability including realizing small lot production and reducing lead times by expanding usability ranges (yarn types and yarn counts), easier lot switching, and promotion of technical innovations related to high speed production. And these initiatives are not just for machinery products, spinning yarns themselves can also be said to be contributing to sustainability. Yarns produced using VORTEX spinning technology have received high appreciation for their low hairiness, especially for printing purposes, as well as their pilling resistance, which allows for longer usable lives for finished products.

These initiatives are not only confined to our own company but also we carry out continuous collaboration with manufacturers of machinery for downstream & upstream processes. We also work together with a diverse range of partners to achieve optimal processing for each type of products and raw materials. Since ITMA-ASIA 2016, we have exhibited samples created through collaborations between our company's VORTEX technology, other machinery and material manufacturers. There has been a growing interest in collaboration in recent years, allowing us to build up numerous unique examples and achievements.

Amongst these collaboration partners, we will be introducing marketing collaboration with Cotton Council International through the COTTON USA program and research and development activities with Cotton Incorporated., introducing the Refibra recycled Tencel material of Austria's Lenzing, and introducing some of the unique initiatives and activities of Japanese partners JEPLAN Inc.(Japan Environment Planning) and Shima Seiki Mfg., Ltd.

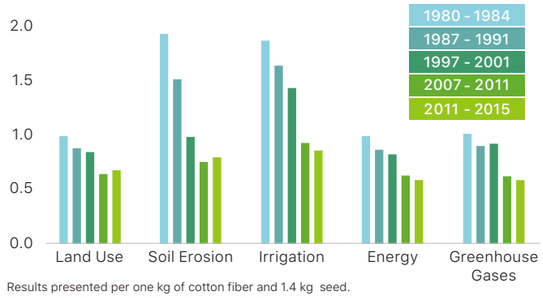
Cotton USA *Cotton Incorporated*

Sustainability in US Cotton Industry

The US Cotton industry has been successful in sustainability. Furthermore, US cotton producers and industry organizations are setting new environmental targets to keep pushing the frontier of sustainability and leading the worldwide effort in responsible cotton production.

U.S. COTTON CONTINUOUS IMPROVEMENT

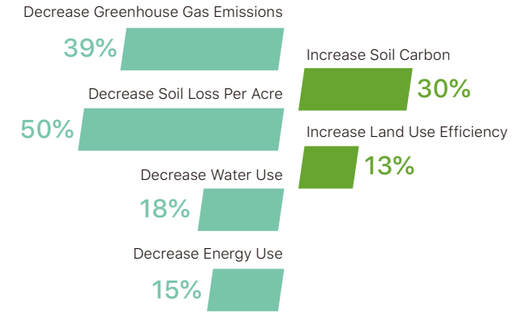
In U.S. Cotton Resource Efficiency From 1980 to 2015



Results presented per one kg of cotton fiber and 1.4 kg seed.
Source: Field to Market: The Alliance for Sustainable Agriculture

SETTING SCIENCE BASED TARGETS

10 Years Goals for U.S. Cotton

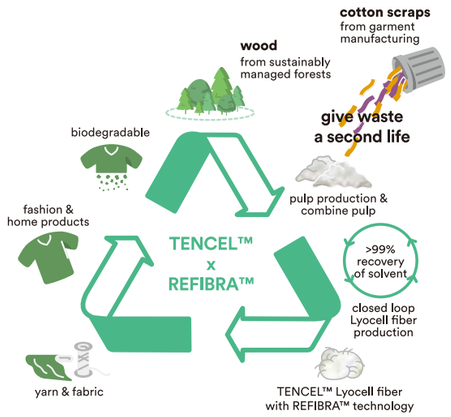


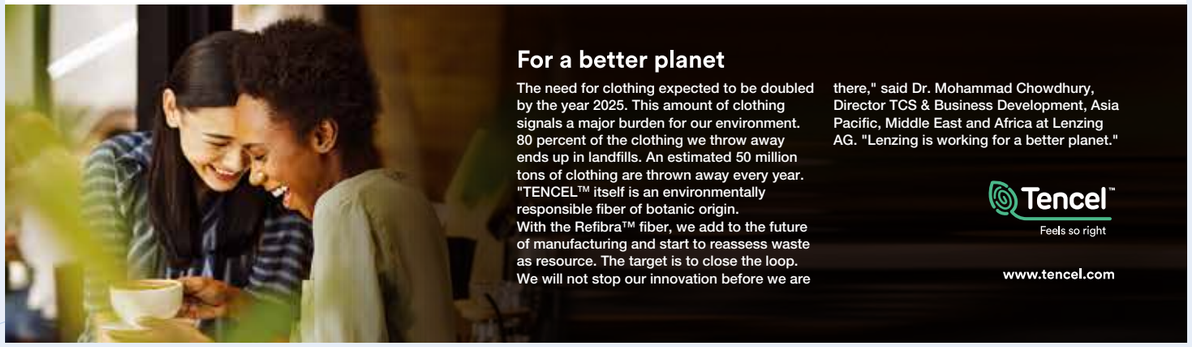
Since 1980, from the start of development in Murata Jet Spinner, Cotton Incorporated has supported Muratec, especially to develop cotton spinning in VORTEX. In addition to that, promotional support and opportunities have been provided by Cotton USA. This is why, when we demonstrated VORTEX in 1997 OTEMAS, we exhibited three VORTEX machines, with spinning of 100% Cotton in all the machines. Still our collaboration continues and Cotton Incorporated uses VORTEX Ⅲ 870 machine in its facility. Cotton USA also gives us chances to co-promote in many areas.

Lenzing AG

TENCEL™ with REFIBRA™ technology

REFIBRA, produced in eco-responsible closed-loop production process, the new fibers are 100% biobased, and are produced of wood pulp from sustainably managed forests and an increase of up to 30% of pulp made from upcycled cotton scraps collected from garment manufacturing process.





"BRING" by JEPLAN Inc.
(Japan Environment PLANning)

Realizing a consumer-focused circular economy

I like VORTEX material BRING clothing not only because it provides a cotton-like skinfeel, but also because of its durability, which allows it to stand up to machine washing and maintain its shape.

Aiko Okita
Public Relations Staff,
JEPLAN Inc.

JEPLAN Inc. was established in 2007 by the company's current chairperson (Michihiko Iwamoto), who was an employee of a textile trading company, and the company's current CEO (Masaki Takao), who specialized in chemistry at the time of the foundation of the company. The company began with a project where cotton fibers were saccharified and then fermented to produce bio-fuel. When Mr. Iwamoto worked at a trading company, he often witnessed the repeated production and disposal of the uniforms the company sold, which motivated him to realize a reduction cycle where waste clothing was collected and then recycled. In order to collect used clothing from as many people as possible, the company began placing collection boxes at retail stores throughout the country, and later held a promotional event where the DeLorean time machine from Back to the Future was used to recreate a scene from the movie where the time machine used garbage for fuel by using bio-fuel recycled from cotton fibers. Coverage of this event by both domestic and overseas media resulted in an increased awareness of the company's projects throughout the industry.

However, polyester fibers are used much more often than cotton fibers for clothing material, making up approximately 60% of all materials. Thinking about this in terms of reducing the impact on the environment resulting the manufacturing process and disposal of products made of polyester materials made it apparent to the company that they should also focus on recycling of those materials, and began a project at its own company plant where polyester from collected clothing was recycled into polyester resin. The company also started producing and selling clothing products made from recycled polyester resin through collaborations with apparel brands as well as through the company's own brand and EC site. The company named its waste clothing collection project "BRING", and named its recycled material brand "BRING Material", and is developing a consumer participation model circular economy. In order for this cycle to be successful, it is necessary to develop a desire in consumers to purchase recycled materials and also work towards recycling of waste clothing. The company is moving forward with the belief that shifting from the current model where everything is left to the self-reliance of the producers, to a place where the focus is on the consumers themselves, will help changing the society and also result in faster turnaround.

The company uses a honey bee, which brings nectar as it moves from flower to flower, as the BRING character. Recently, one can find the waste apparel collection boxes, featuring the honey bee character, at more and more shopping malls, apparel shops, and similar locations throughout the country and it is increasing continuously. One of the locations at which the honey bee character can be found is at the Muji stores developed by Ryohin Keikaku Co., Ltd., which has participated in the project since it first began demonstration testing in 2009. When the company researched on customer attraction and other aspects before and after the implementation of recycling, it found that the project was generally viewed favorably by the consumers, and the shops which carried out recycling experienced an increased number of repeat customers. At another major departmental store, when customers who brought in waste clothing were given coupons which they could redeem inside the store. The redeemtion rate on the coupons was over 80%. Thus the project became an example of a successful way of contributing to both social contribution through promotion of recycling as well as to improved business performance.

One of the leading BRING Material products is 100% polyester simple T-shirts, which is sold based on its "dry fabric which recreates the feel of cotton". The everyday, easy to use, simple T-shirt design utilizes VORTEX yarn, giving the material "water adsorption and fast drying", "pilling prevention", and other functional characteristics while maintaining a cotton-like feel. In addition to this, the structure of VORTEX yarn also doesnot allow the threads coming out from the fabric, which in turn reduces the discharge of microfibers, which is one of the cause of ocean pollution. It is another important aspect for a sustainable material.

The company has also worked on numerous collaborations with famous apparel brands. One such brand is Snow Peak, to whom the company delivered BRING Material yarns made using VORTEX technology, which Snow Peak then used to produce knits using the Shima Seiki Mfg., Ltd. WHOLEGARMENT knitting machines installed at its headquarters. As the outdoor segment, who are the target audience for the brand's products, tend to have a high level of sustainability awareness, the collection of clothing for recycling has also proven popular at the brands stores.

The company has also begun making inroads into the European market, where consumers have much higher environmental awareness. In order to increase awareness with outdoor sports brands, the company also exhibited at ISPO Munich (January 26-29th, 2020). The collection of waste clothing at shops was also implemented at all of the branches of Picture, a French eco-friendly outdoor products brand. The company is also progressing with tie-ups with local partners in Lyon, France, with an aim towards starting a business there including having a local factory and starting commercial production in 2021.

It might just be that you yourself may soon see the honey bee mark fluttering about freely at locations all over the world.

The event was held on October 21, 2015, the date at which the main characters from the movie Back to the Future are said to have arrived in the future.

Shima Seiki Mfg., Ltd.'s sustainability initiatives

SHIMA SEIKI

Starting a revolution in apparel production QCD

Shima Seiki Mfg., Ltd.'s original WHOLEGARMENT knitting technology has been turned into a brand as unique knit products which offer comfortable fits with no seams and three dimensional designs. Products with the WHOLEGARMENT tag are not only found on products in Japan, but are also becoming increasingly common among the products of major overseas apparel brands as well. A total of 16 million of the WHOLEGARMENT tags have been issued by Shima Seiki Mfg., Ltd. The company is working to expand the scope of applications of its WHOLEGARMENT brand through collaborations with top brands, as well as expansion into the aeronautical and functional fabrics industry, and through other new challenges.

WHOLEGARMENT knitting differs from standard knitting machines in a way where there is no separate formation of the front, back, sleeves, and other parts of the garment; rather the garments are made using a knitting method where the entire garment is knitted in a three dimensional shape at a time. This eliminates part cutting losses and seam allowance losses, which can reduce material costs by approximately 30% over a normal pullover. Not only this saves resources, but it also eliminates the need for later processes such as cutting and sewing, which in turn reduces both lead times and costs. In addition, the large scale disposal of excess stock resulting from large orders overseas aimed at reducing costs by apparel manufacturers has had significant impacts on the environment, but WHOLEGARMENT production allows for on-demand production suited to demand, as well as additional production at small-scale factories in the region where the products will be consumed, which allows for reduction of both stock inventory and resulting waste.

This makes the WHOLEGARMENT technology a sustainable knitting method, however Shima Seiki Mfg., Ltd.'s sustainability initiatives do not stop there. The virtual samples made using the company's original SDS-ONE APEX 3D design system drastically improve product design efficiency in not just knitting processes, but throughout the apparel industry, including textiles.

In normal apparel design, planning and design are carried out over several months before production for the AW/SS season, and during this time sampling is carried out multiple times for each element of a garment, including materials, colorings, patterns, and shapes. Creating an actual sample takes approximately 1 month, and the more times sampling is carried out, the more material waste is there, and the more shipping times and costs increase. Virtual samples created through SDS-ONE APEX high-definition simulations provide a degree of reality that makes actual, physical samples almost completely unnecessary, which also eliminates the need for sampling, allowing for the materials, costs, and lead times required for these processes to be drastically reduced. Allowing for speedy planning, production, and sales close to the demand season allows for more accurate determination of current market needs and contributed to eliminating mass disposal of excess stock.

The concept of manufacturing using virtual samples began in the late 1980's, before the concept of sustainability took place, however it took a long time to change the common way of thinking in the apparel industry in which physical samples were the norm. At present, the increased interest in mass disposal issues and labor environment issues has served as a catalyst to promote change throughout the industry, and virtual samples are now used by the majority of apparel manufacturers from fast fashion, all the way to top designer brands.

In 2019, yarnbank was introduced as a function for the SDS-ONE APEX system. Yarnbank is a digital catalog of products from participating yarn manufacturers. It allows for downloading of digital data for candidate yarns while creating virtual samples. This system has increased sales of yarn manufacturers, and proven very popular, and has also made it possible to connect different processing and supply chain levels from spinning to downstream apparel processes through virtual samples. Shima Seiki Mfg., Ltd. has created the TOTAL FASHION SYSTEM which is built on the core of the SDS-ONE APEX and carries out reciprocal exchanges of information from each process among all of the planning, production, and sales processes, and offers the system as a groundbreaking solution for sustainability problems such as mass disposal issues, labor environment issues, and improvement of production efficiency.

This system, developed by Shima Seiki Mfg., Ltd. over many years, is expected to create a revolution in QCD for the entire apparel industry.

Creation of a dress using WHOLEGARMENT technology. The white sections are the "waste course" which would have been necessary in conventional knitting processes, however the development of these machines eliminates this, allowing for almost total elimination of material loss.

Toru Ekawa

Planning and Administration Group Manager
Joint Sales Division, Shima Seiki Mfg., Ltd.

WHOLEGARMENT products can also be reused by unravelling the yarn. This allows for adult clothing to be remade, and for yarn to be added to resize children's clothing as they grow. "This is the ultimate mass customization that will change the very concept of apparel and allows for order-made and small lot production."

CG preview

Real Sample

Comparing Social/Environmental/Economic Impact

On the Traditional Development Process vs Process with SHIMA SEIKI Technology

SOCIAL

Minimize the amount of labor-intensive processes, while decreasing overtime and overcrowding at factories.

ENVIRONMENT

Reduce carbon footprint, raw material consumed and textile waste with the APEX & WHOLEGARMENT.

ECONOMY

With the APEX and the WHOLEGARMENT knitting machines, garments can be produced in real-time, reducing the overall timeline. Minimizing overproduction and excess inventory.

Are you ready to STRETCH?

INNOVATIVE CHANGES OF MATERIALS

Jeans are loved around the world as a perennial favorite casual fashion item. After being created as clothing for manual labor workers in the United States in the 1870's, the silhouette, material, and processing methods became a trend and continued to evolve in significant ways.

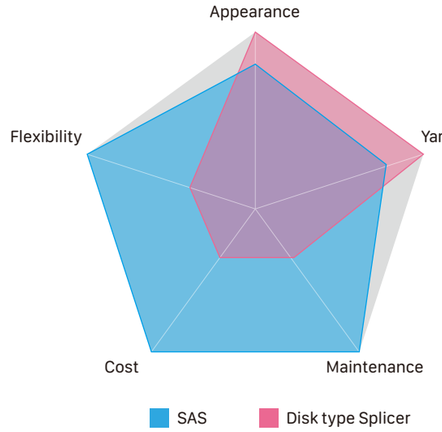
The "change of materials" in particular resulted in innovative changes in the currents of the global jeans market. With the popularity of the skinny jeans which went on to become trendy in the latter half of the 2000's, there came to be greater demand for better comfort and fit, which had not been the main priorities up until then. This led to the stretch jeans which appears in the early 2010's become a major hit. Stretch jeans themselves have existed since around 1995, however in the 2010's jeans were developed which featured functionality, design, and other "never before" innovations which advanced the reconsideration of stretchability more than any other factors. The addition of the slim figure, ease of working, and other functional aspects while still maintaining the fashionable aspects of jeans, such as their fading colors, caused these products to be a major hit which still continue to be popular today.

Going forward, the global denim market is expected to continue to maintain gradual growth. Have you completed your preparations to satisfy the large demand for stretch denim?

Find the best BALANCE!

In March 2020, Muratec began mass production of the "S.A.S." (Stretch Air Splicer), the new splicer for core spandex yarn. This new splicer improved the yarn strength and splice joint quality that had previously resulted in plagued production. Overlapping cores in the splice joint locations to maintain sufficient elasticity to prevent breaks allows for flexible provision of the quality required for final products. In addition, this splicer is easier to maintain compared to other types of CSY splicers, and also suffers less amount of damage to the parts.

S.A.S. maintains a good balance of yarn quality, final product quality, machine maintainability, yarn type versatility, and other factors, making it the smart choice for satisfying a wide range of requirements!



What is CSY?

CSY overcomes the previous commonly held belief that "knit products can maintain elasticity, but woven products cannot", by using an elastic yarn, filament yarn as a core, then using short fiber such as cotton, rayon, polyester, wool, etc. around it as a covering. Using CSY with a polyurethane core, which has rubber-like elasticity, makes it possible to produce "flexible woven products". Recently, dual core spandex yarn has also been developed which uses 2 filaments as a core: polyurethane for its outstanding flexibility, and polyester for its outstanding elastic recovery. This allows for products with long lasting elasticity, better shape maintenance than conventional CSY.

Core Spandex Yarn

Dual Core Spandex Yarn

Division: *Textile Machinery*

Establishment of a facebook account

Muratec has established an official facebook account. We post the latest information on our products, exhibitions, and seminars, as well as Muratec activities, initiatives, and more.

We look forward to all of you following us!

Division: *Textile Machinery*

Development of the FPRO EX – Cone to Cone type Model-SR

Muratec has developed the Model-SR, a new Cone to Cone type model of its FPRO EX arm traverse type automatic winder series.
The Cone to Cone types which we have handled until now have consisted only of models aimed at improving package quality as it was equipped with clearer and splicer, however this new Model-SR, which only carries out rewinding, without clearer and splicer has been added to our lineup to satisfy the need where "re-clearing is not required for rewinding". In addition, it is able to handle the doffing for the whole machine with just one auto doffer. This new model provides required functionality while sticking to the minimum requirements in order to control costs while contributing to automation.

Division: *Textile Machinery*

SYL previous issues can be found here

SYL previous issues are provided on the official Muratec website.

https://www.muratec.net/tm/customermagazine/

©Kyoto Concert Hall

The Kyoto Concert Hall is the largest classical music dedicated concert hall in Kyoto, where our head office is located. It consists of a 1,833 seats main hall and a 510 seats small hall, and the small hall is named "Ensemble Hall Murata". Our company provided a portion of the construction costs for this hall when it was constructed in 1995, and our company name was used to commemorate our donation.

The highest quality music enjoyed in a small, outer space evoking setting

The October 2019 "Kitayama Classic Club Series" Ensemble Wien-Berlin performance (an ensemble formed by principal players of the Vienna Philharmonic, Berlin Philharmonic, and other artists)

©Kyoto Concert Hall

©Kyoto Concert Hall

Ensemble Hall Murata interior, Kyoto Concert Hall exterior

The hall features an interior design that evokes a feeling of outer space - stellar constellations on the ceiling, a huge stage lighting platform reminiscent of a hovering alien spacecraft, and lines of light that point to magnetic north. In addition, the acoustic space of the hall is designed to provide optimal acoustics for performances by small orchestras or for chamber music, and was designed by Nagata Acoustics - Acoustical Consulting for the Performing Arts, who have also worked on other halls around the world and the hall has been highly praised by many famous performers.
Muratec contributes to the stimulus of regional society cultural arts through the concert series held in this hall where top artists from various classical genres are invited to perform.

muratec

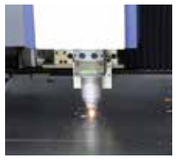
Continually creating innovative tecnologies for the fulfillment of a prosperous society

Textile Machinery
-Automatic Winder
-VORTEX Spinning System

Logistics Systems / Factory Automation Systems
-Automated Storage & Retrieval Systems (AS/RS)
-Sorting System

Automated Material Handling Systems for Clean Rooms
-AMHS for Semiconductor Fab.
-MCS (Material Control Systems)

Machine Tools
-Twin spindle CNC chucker
-In-line opposed twin spindle CNC turning machine



Sheet Metal Machinery
-Laser punch press
-Press brake
-Fiber Laser cutting machine

Communication Equipment
-MFP (Multifunctional Peripheral)
-Facsimile

Temari

手鞠球

Temari are small embroidered balls that are generally sized to be able to be cupped in both hands (in Japanese "Te" means "hand" and "mari" means "ball"), which originated as toys used in games played by nobles during Japan's Heian Period (which occurred during the years 794 to 1185).

During the middle of Edo Period (around the years from 1700 to 1750), cotton cultivation grew, and cotton thread became easier to obtain, which led to temari also spreading among the common people as a children's toy.

Soon, brightly colored silk thread and cotton yarn were used to make different geometric shapes and create beautiful temari, and they went from being a toy to an object of appreciation and decoration. They also became a common and popular gift given to young girls during celebrations such as New Year's and Hinamatsuri (Doll's/Girl's day).

Different unique ways of darning the yarn and distinctive designs came to develop in different regions and are still passed on today, and temari can now be found as a traditional Japanese folk art in areas throughout Japan.

There are also numerous candies, sushi, Japanese confectionaries, fu (wheat cakes), accessories, and other items that are patterned after the adorably cute "temari". Temari have over 1,000 years of history and could be said to be an item which symbolizes Japan's "Kawaii" culture.

手鞠球是一种可以用双手捧住的球，据传其起源于平安时代（794-1185年）广受欢迎的一种贵族玩具。

从棉花种植业快速发展、更容易买到棉线的江户时代中期（1700-1750年前后）开始，手鞠球作为一种儿童玩具，在老百姓中广泛流行起来。

不久，就出现了各种漂亮的手鞠球，用色彩鲜艳的丝线和棉线缠绕成几何图案，慢慢由玩具发展为观赏品。在正月、女儿节等节日时也是送给女孩子的珍贵礼物。

各地区独特的缠线方法以及特色设计一直流传至今，作为日本的传统工艺品可以在日本各地见到。

因其样子可爱，诞生了很多以“手鞠球”为主题的糖果、寿司、日式点心、面筋、饰品等。拥有1000多年历史的“手鞠球”可能就是象征日本“卡哇伊”文化的一种商品吧。