Japan's Manufacturers Navigate Global Shifts

By Antoine Azoulay

Japan's manufacturing industry, celebrated for its high quality and advanced technology, today faces a dynamic global landscape shaped by economic shifts, competition and evolving market demands.

Masato Oda, president of BEMAC, acknowledges the complexities introduced by the weakened Japanese yen against the U.S. dollar. "The depreciation of the yen has both positive and negative effects," Oda explains. While increased material, import and labor costs have led to inflation and higher commodity prices, the BEMAC president views the low exchange rate as an opportunity. "It has become easier for Japanese companies, including ours, to compete price-wise with Korean and Chinese companies," he says. This competitive edge is crucial for the shipbuilding industry, where global markets are highly interconnected.

Chinese shipyards have been dominant for more than a decade, but Japanese shipyards like Onomichi Dockyard still play a significant role, accounting for about 20 percent of new orders. However, Takashi Nakabe, president of Onomichi Dockyard, highlights the looming labor shortage. "China, Korea and Japan dominate more than 90 percent of commercial shipbuilding capacity, but all face an aging problem at a similar speed," Nakabe observes. The industry's future is uncertain, with fewer young people interested in heavy industries. "I'm not sure who is going to build vessels in the future, and this is quite a big problem," he states. Nakabe predicts increased delivery delays due to reduced building capacity and labor shortages. He emphasizes the need for the industry to acknowledge and adapt to these realities, unlike some competitors who may be in denial.

Despite the intense regional competition, Japanese firms have maintained their leadership in specialized B2B fields. Shinji Shimoda, president of Shimoda Iron Works, attributes this success to the inherent trustworthiness and reliability of Japanese companies. "Japanese firms have been able to sustain their leadership because they are very trustworthy and reliable," Shimoda states. This reputation for quality and dependability has allowed Japanese manufacturers to hold their ground in niche markets, even as competitors offer cheaper alternatives.

However, the Japanese economy's maturation and declining population pose significant challenges for businesses. Katsushi Ishida, president and CEO of JES, highlights the difficulty of growing a business solely within Japan. He sees substantial opportunities in the elevator maintenance market. "We estimate there are about 1.1 million elevators installed in Japan," Ishida notes. With current regulations requiring regular maintenance, the market is substantial but dominated by manufacturers and their affiliates. Ishida aims to increase the market share of independent service providers to 50 percent, similar to the split seen outside Japan. "Currently, we service about 100,000 elevators, translating into about JPY 50 billion in sales," he says, indicating the potential for significant growth.

Digital transformation (DX), meanwhile, has progressed slowly in Japan compared to other advanced countries. Tadashi Ito, representative director and president of NTT-AT, identifies several factors hindering this transition. "Japan's business environment is very analog and based on the principle of fine-tuning," Ito explains. Additionally, the craftsmanship-based working style and rigid recruitment standards complicate the integration of digital solutions. However, Japan has reached a critical point where digitalization is no longer optional. "Many firms are now attracted to robotic process automation software, which has become popular within the industry," Ito says. The motivation behind Japan's digital transformation differs from that of the U.S., focusing more on necessity than efficiency. Despite these challenges, Ito sees the next stage as an opportunity to use technology creatively to add value to businesses.

The Japanese manufacturing industry stands at a pivotal juncture, navigating economic fluctuations, maintaining leadership in niche markets, adapting to domestic changes, embracing digital transformation and addressing labor shortages.

Strategic Positioning for Global Influence

Taking historical strengths and embracing innovative partnerships, Abe Shokai strides forward positively.

By Bernard Thompson

"A fundamental principle is bringing a different European parts and accessories culture to Japan."

Fumiyasu Abe, CEO, Abe Shokai Co., Ltd.

ABE SHOKAI

https://abeshokai.jp

Abe Shokai, a major player in the importation and distribution of aftermarket automotive parts, targets international expansion as it looks to make connections. Actively working on enhancing its market presence and diversifying its product offerings, the company is emphasizing transition technologies in related markets.

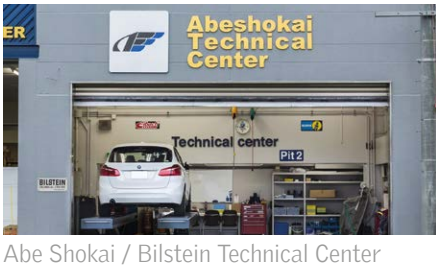
"In the mid-term, for the next 10 years or so, hybrids will be the most rational system globally," company CEO Fumiyasu Abe says, highlighting the strategic positioning of the company amidst evolving market dynamics. Abe Shokai's adaptation to industry trends and consumer preferences has ensured it remains at the forefront of the automotive aftermarket sector.

The company's strategy to cultivate new partnerships and deepen existing ones is reflected by the development of its "Amsechs" brand products for BMW Mini. Another is its collaboration with Evoltz. Abe Shokai has supported the development and manufacturing of the Evoltz vibration control device, specifically designed for wooden houses, marking a pivotal step in its technical partnership with BILSTEIN and exhibiting its commitment to innovation and links abroad.

"We started importing European parts for the aftermarket because the Japanese automobile market was closed," Abe explains. And while this gives the company a unique market niche focusing on foreign quality and performance parts, the local door is certainly not closed.

"If there is any reliable and interested maker in the Japanese market, we would be open to partnering with them," the CEO states.

Abe Shokai takes a proactive stance in expanding its network and product portfolio, ensuring its continued relevance in a highly competitive industry.



Abe Shokai / Bilstein Technical Center

Evoltz / Vibration Dampers for Wooden Houses

LA STRADA / AVENTURA

THULE / Roof Rack System

Shimoda Iron Works: Pioneering Sustainable Manufacturing

Shimoda Iron Works leverages cutting-edge forging technologies and sustainable practices, driving innovation in various industries, from oil and gas to aviation. *By Sean McBride*

Shimoda Iron Works, established in 1946, has grown into a pivotal player in the global manufacturing landscape, specializing in forged flanges and fittings. With annual sales reaching $34 million, the company operates from its head office and main plant in Aioi City, Hyogo Prefecture, Japan, employing around 100 people. Its group company, Shimoda Manufacturing Technology Centre Co., Ltd., and business partner, Yamashita Forging Co., Ltd., together run three plants, all located within Hyogo Prefecture.

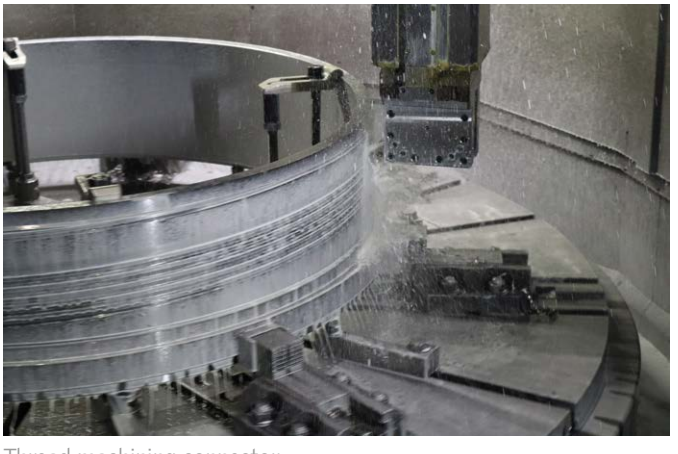
"Our standard manufacturing processes involve different types of forging such as ring rolling, stamp forging and open-die forging. Heat treatment, machining and final machining are also standard processes of ours," explains Shinji Shimoda, president of Shimoda Iron Works.

The company's products, primarily flanges and forged fittings, are integral to various industries, including oil and gas, chemical plants, power generation facilities, semiconductor manufacturing, aviation, construction and civil engineering. This diverse application spectrum underscores Shimoda Iron Works' capacity to adapt and innovate continually. Advanced technologies like closed-die forging, ring rolling mill forging, and 3D machining have propelled the company's growth, significantly contributing to Japan's industrial development.

Six-axis robots for WAAM

Seamless flange elbow

In alignment with global sustainability goals, Shimoda Iron Works has integrated several innovative processes aimed at reducing environmental impact. "Our flanges and our technology contribute to Sustainable Development Goals and carbon neutrality. Our three new processes are HIP processing, cold drawing and WAAM 3D printing," says Shimoda. The company's HIP (Hot Isostatic Pressing) technology, developed with subsidies from Japan's Ministry of Economy, Trade and Industry (METI), is already making significant strides, particularly in the oil and gas sector. Cold-drawing technology targets small quantities with high variety, crucial for industries like nuclear power and semiconductors. The latest addition, WAAM (Wire Arc Additive Manufacturing) systems, includes two new machines from the Netherlands and Germany, aimed at sectors such as buildings, architecture and defence.



Thread machining connector

Shimoda Iron Works' innovative spirit is further exemplified by its ongoing projects and partnerships. The company collaborates extensively with academic institutions and other businesses to leverage cutting-edge technologies. "We received many subsidies and have been working with Osaka University. Our next plan is to introduce a large-sized 3D printer at our plant next year," notes Shimoda. This advanced printer, equipped with a six-axis robot and a two-axis positioner, will enable the production of large parts for industries such as architecture and aviation.

The company's HIP processing, a collaboration with Metal Technology Co. Ltd. (MTC), exemplifies its commitment to overcoming industry challenges. "The barriers to entry into oil and gas upstream are very high. We have just passed the process with MTC of acquiring European HIP manufacturing certification. We are currently waiting for the results and plan to take the next step in January of next year," reveals Shimoda.

Strategic partnerships extend beyond Japan's borders, highlighting Shimoda Iron Works' global outlook. Collaborations with companies like Euskal Forging from Spain enhance the company's capabilities in sectors such as offshore wind turbines, which are crucial for Japan's energy future.

Despite challenges posed by Japan's aging population and shrinking workforce, Shimoda Iron Works remains resilient by focusing on innovation and strategic collaborations. The introduction of new technologies like HIP and 3D printers aims to attract young talent and ensure a healthy work-life balance. "We believe that embedding digital transformation technologies and ideas will create a healthy work-life balance, helping us employ more people and increase interest in our company," states the president.

Looking forward, Shimoda Iron Works plans to maintain its domestic operations, focusing on high-quality, niche products that cater to the specific needs of its partners.

> "My dream is to make our business more sustainable and use sustainable materials."
>
> **Shinji Shimoda**, president, Shimoda Iron Works

WAAM metal 3D printer

"We are not considering building a plant overseas. We want to preserve and improve our operations here in Japan," asserts Shimoda.

As the company approaches its 80th anniversary in 2028, President Shimoda envisions a sustainable future. "My dream as the president is to make our business more sustainable. Earlier this year, we trademarked the word 'susterial,' combining 'sustainable' and 'material.' I want our company to be a susterial company by being more sustainable and using sustainable materials," he concludes.

JES: Leading the Way in the Elevator Maintenance Industry

Providing 24-hour support and expertise for all major elevator brands at a competitive price, JES's service is second to none.

By Cian O'Neill

> "We are committed to the safety of elevators 24/7, 365 days a year, and building a relationship of trust with our customers."
>
> **Katsushi Ishida**, president and representative director CEO, JES

Established in Tokyo in 1994, Japan Elevator Service (JES) is an independent maintenance service provider for elevators. With an estimated 1.1 million elevators installed in Japan and the Building Standard Law requiring building owners to regularly maintain them, there is a big market for elevator maintenance providers. According to president and representative director CEO, Katsushi Ishida, elevator manufacturers and their affiliates control 80 percent of the market, whilst independent maintenance service providers like JES make up just 20 percent of the market.

Ishida points out that "there used to be a misconception that independent maintenance companies were cheap but low quality, so we knew that we had to do our job really well to change this perception." Despite this misconception, the company has achieved the highest quality services while maintaining an affordable price for its customers.

24/7 control center

Ishida believes that one of the factors that sets JES apart from its competitors is its remote inspection system, PRIME. PRIME enables the remote monitoring of elevators and diagnosis of their faults. The system reduces inspection time and allows the company to spot faults before they occur. In the case of a fault, PRIME can diagnose the cause before technical personnel arrive on site, allowing for a smoother repair process.

PRIME remote monitoring unit

JES Innovation Center

Research lab with test tower

Innovation Center Kansai

JES has facilities located in Wako and Takarazuka that house a control center and a parts warehouse. Ishida highlights the advantage of these facilities as they "enable us to maintain the largest stock of genuine parts, a disciplined team of technical personnel and monitor elevators 24/7, 365 days a year, to ensure a quick and quality maintenance service for our customers all over Japan."

In terms of the future, by 2027 the company aims to have a profit margin of 20 percent. Ishida is optimistic about this target given the fact that building owners and building maintenance companies are starting to switch from original equipment manufacturers (OEMs) to JES, which he puts down to being the only independent maintenance service provider in Japan to establish a combination of affordable price and high quality. On top of this, modernization is growing fast with the need to replace outdated elevator systems. In such cases, Ishida explains that JES replaces OEM equipment with its own, resulting in not only attracting new customers but also locking in contracts with existing customers.

Savvy past investments in technologies such as PRIME as well as a series of acquisitions that created a network that reaches every region of Japan have enabled JES to improve productivity whilst increasing maintenance contracts. Such investments have put the company in good stead against its competitors.

Overseas, JES currently operates in Indonesia, Malaysia and Vietnam and is looking for more opportunities in Southeast Asia in the future.

japan elevator service

www.jes24.co.jp/en

NTT Advanced Technology Corporation: Leading Japan's Tech Revolution

From the super water-repellent material HIREC to high-heat-shielding paint SurfCool, NTT Advanced Technology Corporation pioneers the innovation driving Japan's digital transformation and global technological advancement.

By Sasha Lauture

In the realm of technology and innovation, Japan stands as a beacon of excellence, continually pushing boundaries and setting new standards. At the forefront of this movement is NTT Advanced Technology Corporation (NTT-AT), a company dedicated to bridging the gap between cutting-edge research and practical business applications. Led by Representative Director and President Tadashi Ito, NTT-AT is not just a company; it's a visionary force driving Japan's digital transformation and global technological advancement.

NTT-AT's mission is clear: to transform NTT Laboratories' groundbreaking research into tangible business solutions. With a focus on marketing and business development, NTT-AT aims to unleash the full potential of NTT Laboratories' products and technologies. As Ito states: "We believe that we must create an ecosystem of services for the entire lifecycle of that technology and how it can be useful to our clients."

One of the key products driving NTT-AT's vision is HIREC, a super water-repellent material with diverse applications. Developed through cutting-edge research, with super-hydrophobic properties that make it difficult for water droplets to remain on the painted surface (Fig. 1), HIREC offers exceptional durability and environmental compatibility and is ideal for use in various industries. Compared with other products, the contact angle of droplets on the HIREC surface remains higher during the exposure period (Fig.2). From coating telecommunication towers to enhancing automotive displays, HIREC epitomizes NTT-AT's commitment to innovation and sustainability.

Other groundbreaking products in NTT-AT's arsenal are SurfCool and SAP0E5000, both surface-coating technologies with properties ranging from anti-heat to anti-corrosion. The high-heat-shielding paint SurfCool can decrease the temperature of outdoor equipment

Fig. 1: Ball-shape droplets form on HIREC surface

Fig. 5: Kirameki Display (sample image)

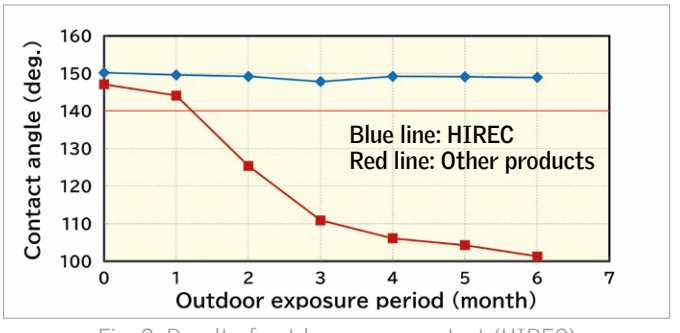


Fig. 2: Result of outdoor exposure test (HIREC)

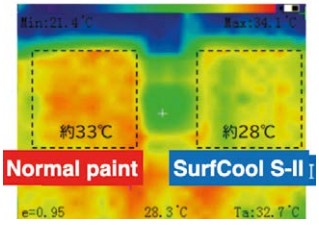


Fig. 3: High-heat-shielding paint SurfCool

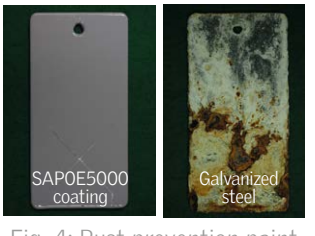


Fig. 4: Rust prevention paint SAP0E5000

(Fig. 3), while SAP0E5000 can prevent rust even after a 2,000-hour salt spray test (Fig. 5). With original applications in civil engineering and potential in automotive and aerospace, these products showcase NTT-AT's prowess in developing distinctive and practical solutions while their ability to withstand extreme conditions and protect vital infrastructure highlights the company's commitment to innovation and societal impact. Ito stresses the importance of raising awareness about such technologies: "One of our key initiatives is to increase awareness of these fascinating and distinctive technologies at our disposal."

NTT-AT doesn't stop at coating technology; it also offers Kirameki Display, an image display system revolutionizing the way light reflects upon images. Kirameki means "sparkle," and the ultra-real-definition display technology offers a new visual experience (Fig. 4).

By collaborating with companies like Innolux Japan, NTT-AT has created innovative solutions that redefine industry standards. Moreover, NTT-AT is positioned as a leader in disaster management and community resilience, leveraging technology for societal benefit.

In a rapidly evolving global landscape, NTT-AT recognizes the need to adapt and innovate. Reflecting on past experiences, the company president and CEO acknowledges the importance of showcasing solutions rather than just selling products: "It is not just about selling parts and components." By focusing on collaboration, ecosystem development and global partnerships, NTT-AT is poised to lead Japan's technological resurgence on the world stage.

Looking ahead, Ito envisions a future where NTT-AT continues to be a game changer in the industry. With a focus on core technologies and resilient business models, NTT-AT aims to drive innovation and shape the future of technology. As Ito concludes: "In addition to our business model, we believe we need a definitive key technology that bears our core competitiveness within the next three years."

Innovation, collaboration and vision—these are the pillars upon which NTT-AT stands. As Japan embraces digital transformation, NTT-AT remains steadfast in its commitment to pioneering new frontiers and shaping a brighter tomorrow.

NTT AT

www.ntt-at.co.jp

BEMAC Corporation Leads Innovation in Marine and EV Sectors

BEMAC Corporation advances marine and EV technology through global talent, sustainability and cutting-edge battery innovations, positioning itself as a leader in these industries.

By Sean McBride

> "We aim for the ship that never stops, using the power of electricity, DX and AI to achieve high efficiency and safety."
>
> **Masato Oda**, president & group CEO, BEMAC

BEMAC Corporation—formerly Uzushio Electric, founded in 1946—stands at the forefront of innovation in the shipbuilding and electric vehicle (EV) sectors.

Permanent magnet generator

With more than 2,000 employees, including 34 percent international staff, the company exemplifies a blend of traditional and forward-thinking strategies that are shaping the future of marine and mobility industries.

Pioneering Battery Technology

The transition from Uzushio Electric to BEMAC in 2019 marked the company's venture into the EV market. This move aligns with the company's goal of integrating digital and IT solutions into marine and mobility sectors. Masato Oda, president and group CEO of BEMAC, explains: "We have entered the EV field with the aim of strengthening the ship business by improving the operation of lithium-ion batteries and technological advances in battery management."

BEMAC is today heavily invested in the development of power control units (PCUs) for EVs. Oda foresees lithium-ion batteries continuing to dominate for the next five years but stresses the importance of envisioning future advancements. "Finding a new formula that would result in high performance and less risk while also not being dependent on rare-earth metals is important," Oda states. The company is exploring alternatives like manganese and zinc to enhance safety and recyclability.

BEMAC will use electricity, DX, and AI to solve vessel issues

Sustainability and Innovation

Sustainability is a core focus for BEMAC, especially with the shipping industry's goal of carbon neutrality by 2050. The company is developing technology to handle the substantial power demands of battery charging and discharging for electric ships. "We are focusing on miniaturizing and enhancing the efficiency of high-power converters by utilizing silicon carbide power semiconductors for their superior performance," says Oda.

BEMAC's strategic location in Imabari City, a hub for the marine industry, provides a robust ecosystem for innovation and rapid growth. The company offers comprehensive power generation and operational systems for various plants, integrating artificial intelligence (AI) and digital transformation (DX) to enhance efficiency and safety. Oda highlights: "We aim for the ship that never stops with the power of electricity, DX and AI, and we have over 1,000 specialists in those areas."

Principal office and factory in Imabari City, Ehime Prefecture

Future Vision

BEMAC's long-term vision includes becoming the world's largest marine IT company by minimizing greenhouse gas emissions and creating safe, efficient and continuously operating ships. Its MaSSA (Maintenance System for Soundness Sailing Ability) initiative aims to leverage data for optimal ship operations, reducing accidents and enhancing efficiency.

Power electronics research laboratory

In conclusion, BEMAC Corporation is poised to lead the marine and EV sectors through strategic innovation, global talent acquisition, and a strong commitment to sustainability. Under Oda's leadership, the company is navigating economic challenges and technological advancements to secure a prominent position in the global market.

BEMAC

www.bemac-jp.com/en

Onomichi Dockyard at the Forefront of Shipbuilding

The Japanese shipbuilder looks to innovation as a means of attracting new recruits to plug domestic labor shortages.

By Cian O'Neill

A producer and distributor of bulk carriers, tankers and cargo ships, which also provides repair and design services, Onomichi Dockyard was established in 1943 and recently celebrated 81 years in the shipbuilding industry.

As with other companies in the sector, however, life at Onomichi Dockyard is becoming more and more complex. Reduced building capacity along with a shrinking domestic labor force have serious implications for the future, not least when it comes to the intergenerational transfer of knowledge.

Onomichi Dockyard President Takashi Nakabe takes up the thread: "All sorts of industries are facing what we call a technical inheritance issue. Within the next 10 years, predictions suggest that we will lose around 20 percent of our workers due to age. Meanwhile, fewer and fewer young people are entering our industry in comparison with IT industries or other tech fields."

Onomichi office

Other challenges include the push to reach global CO_2 reduction targets set by the International Maritime Organization, which is exerting pressure on shipbuilders to convert from diesel to alternative fuel sources such as ammonia, methanol and hydrogen before all the details have been properly thought through.

If the picture looks bleak, then it is worth noting that Nakabe has a clear solution for at least some of these problems in mind.

D/W 110,000
M.T. Type Product Tanker

"Onomichi Dockyard," he confirms, "has recently invested in a U.K. company called Core Power, which is planning on producing a floating nuclear power station. They are also looking to produce nuclear power for shipping."

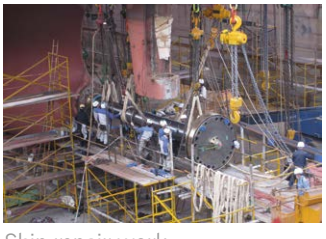
Key here would be the floating nuclear power station's ability to produce the electricity necessary to run a data center or store liquid hydrogen as alternative fuel, which requires a huge amount of electricity.

But Nakabe's ambition does not stop there. "At the same time as the floating nuclear power plant," he states, "we are also planning a floating data center for cloud computing and AI applications, which use large amounts of data. My aim is to connect the shipbuilding business with the data center business to attract more young people to shipbuilding."

In addition to investing in Core Power, Onomichi began a collaborative project to develop a multipurpose vessel powered by hydrogen in October 2023. The vessel is to be equipped with a large low-speed, two-stroke hydrogen dual fuel engine; the project, which encompasses Onomichi Dockyard, other Japanese domestic manufacturers and shipping companies, is scheduled for delivery in early 2028.

It is proof, if proof were needed, that the shipping industry can be just as innovative as other supposedly more trailblazing sectors. This factor will be instrumental in Onomichi Dockyard securing overseas partners in the future.

"It all comes down to attracting the younger generation," Nakabe concludes. "This has been the number one problem in recent years, and it's time we changed our approach."



Ship repair work

> "It all comes down to attracting the younger generation. This has been the number one problem in recent years, and it's time we changed our approach."
>
> **Takashi Nakabe**, president, Onomichi Dockyard, Co., Ltd.

Rice wax

"In 10 years, we hope to have a more diverse portfolio of natural and synthetic waxes, supplying our customers in a stable and sustainable manner."

Takuya Konno,
past president, Nippon Seiro

Nippon Seiro: Japanese Leader in Wax Production

Nippon Seiro leads the wax industry with innovative, eco-friendly products, focusing on diversification and sustainability under President Takuya Konno's guidance. *By Sean McBride*

Nippon Seiro, a specialized wax manufacturer, has a remarkable legacy that dates back to its founding in 1927. Under the leadership of Takuya Konno, the company maintained its role as a crucial player in the wax industry, producing a wide range of high-quality waxes for diverse applications.

"Wax is, by definition, a hydrocarbon composite consisting of a mixture of hydrocarbon molecules containing between 20 and 40 carbon atoms that stays solid at room temperature," Konno explained in 2022. This versatile material's unique properties—such as humidity and temperature retention, water repellency and electrical insulation—make it indispensable across various industries.

The applications of wax extend far beyond the commonly known uses like shoe polish, hair wax or car wax. One of the simplest yet most significant uses is in candles. While the demand for candles in Japan decreased, the international market remains robust, a trend that continued even during the COVID-19 pandemic.

Wax's utility spans numerous sectors. It is used to coat car tires, preventing deterioration, and in the paper and packaging industry to repel water and enhance durability. In the food industry, wax is essential for wrapping paper and gum production. The construction industry uses wax for boards that consolidate small chips, while the medical field relies on it for ointments and surgical applications. Wax's ability to retain heat also makes it valuable for rehabilitation purposes.

"Our competitive advantage over rival companies lies in our ability to produce wax with varying melting points, ranging from 115 degrees Fahrenheit to 240 degrees Fahrenheit, in increments of five degrees," said Konno. This precision allows Nippon Seiro to meet specific customer requirements with unparalleled accuracy. Additionally, the company prides itself on reducing oil content in its wax to as little as 0.1 percent, setting a benchmark in the industry.

The environmental impact of fossil fuel-based wax is a significant concern, given the global push toward carbon neutrality. Japan, aiming for carbon neutrality by 2050, presents both a challenge and an opportunity for Nippon Seiro. The company is committed to mitigating environmental impact by producing biodegradable waxes and reducing oil content in its fossil fuel-based products. Konno emphasized in the 2022 interview: "It is crucial that we get out of this carbon-based society and reduce our dependency on fossil fuels. However, as long as there is demand, we will continue to provide high-quality wax."

Emulsion

One of the promising areas for Nippon Seiro is the development of plant-based waxes, such as rice wax. This innovation aligns with the company's strategy to diversify its product portfolio and reduce reliance on fossil fuels. "Rice wax development has been a key focus for us and may even replace fossil fuel wax entirely," Konno stated.

Wax emulsions present another growth opportunity. These emulsions, which combine wax with water, have high demand in the construction industry for surface sprays. Despite the high demand, Nippon Seiro is working to expand its production capacity to meet market needs.

Research and development are at the heart of Nippon Seiro's operations. The company is dedicated to innovating and improving its products, focusing on natural and synthetic waxes. Konno said that in 2022, "90 percent of our business depends on fossil fuel wax, but we are conducting research to diversify and meet our customers' needs with non-fossil fuel sources."

Looking to the future, Konno envisioned a company that continues to provide high-quality, innovative wax products while significantly reducing its environmental footprint. "In 10 years, we hope to have a more diverse portfolio of natural and synthetic waxes, supplying our customers in a stable and sustainable manner," he concluded.

As Nippon Seiro approaches its 100th anniversary in 2029, it stands at the forefront of the wax industry, poised to lead with innovation and sustainability.

NOTE: The interview was held on June 2, 2022. At that time Takuya Konno was the president of Nippon Seiro Co., Ltd. As of July 2024, the president is Johei Takimoto.

Trailblazing Takeuchi Targets U.S. Success

The creator of the TNF and T-BAGS foundation-building methods, the Hiroshima-based construction firm is constantly updating its technology—and is eager to expand its overseas presence. *By Bernard Thompson*

> "Our low-cost technology is suitable for U.S. buildings that are both large-scale and low-story."
>
> **Kinji Takeuchi**, CEO, Takeuchi Construction

A construction company founded in 1990, Takeuchi has established itself as a developer of pioneering methods for laying building foundations.

As it looks forward to its 35th anniversary, the Japanese firm is focused on the continuous evolution of its techniques—and on growing its international reach. "I'm always saying we'd like to expand to the U.S.," says CEO Kinji Takeuchi.

Takeuchi has two flagship technologies: the Tender Net Foundation (TNF) and T-BAGS Seismic Isolation methods. Currently used for low-rise buildings, they are particularly effective at protecting against earthquake damage—a crucial consideration in Japan, where such natural disasters are common. The techniques also guard against foundation settlement, which occurs when a building sinks into the soil below it.

Shallower than their conventional counterparts, TNF and T-BAGS foundations are more economical and have a lower environmental impact than traditional methods as they require fewer materials and cause less ground damage.

Since releasing TNF, Takeuchi's commitment to R&D has seen it roll out two updated versions, TNF2.0 and TNF-DD; moreover, the company is now developing an iteration of the technology that's suitable for mid-rise buildings.

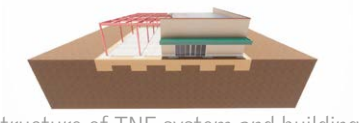
"We're also developing the T-BAGS Seismic Isolation method," Mr. Takeuchi notes. "We've conducted computer simulations to apply the system to five-story buildings, demonstrating that it functions effectively even in such constructions."

What's more, Takeuchi wants to extend the scope of its methods beyond single buildings. "We'd like to develop earthquake-proofing and settlement-prevention technology for entire blocks," the CEO says. "That'd be a world first."

And as Takeuchi targets overseas expansion, a priority is to establish partnerships in the

Little damage with TNF method

Serious damage with pile system



Structure of TNF system and building

States. "We need local companies involved in developing buildings to gain an understanding of our methods," explains Mr. Takeuchi, who adds that the firm is working hard to spread the word about its trailblazing methods. "This summer, we've been attending international conferences to present our research. There are people who've shown interest in our technology."

株式会社 タケウチ建設
Takeuchi Construction Inc.
www.takeuchi-const.co.jp

G-Place Innovates in Wastewater Treatment

The company's Bio-Frontier advanced biofilter media enhances water quality and supports sustainability, promoting economic growth in emerging markets. *By Sasha Lauture*

> "Providing benefits to society is the mission we have."
>
> **Teruo Furukawa**, director, G-Place Corporation

G-Place, a prominent Japanese company known for its diverse business portfolio, is making significant strides overseas with its innovative environmental solutions. Led by Director Teruo Furukawa, G-Place is addressing social and environmental issues not just in Japan, but also in emerging markets, focusing on sustainable growth and environmental preservation.

One of the company's notable overseas projects is in Vietnam, where it has established a subsidiary, Vietnam Green Packs Co., Ltd. (VGP). Since its inception in 2015, VGP has been pivotal in promoting recycled plastic products and, more recently, in introducing advanced wastewater treatment technologies. The highlight of this expansion is the sales and implementation of Bio-Frontier, a biofilter media developed using Japanese wastewater treatment technology.

"Bio-Frontier is recognized for its high performance in nitrification, denitrification, phosphorus removal and biochemical oxygen demand [BOD] removal, making it highly effective for purifying circulating water in recirculating aquaculture systems [RAS]," explains Furukawa. This technology is already widely used in Japan for aquaculture, including whiteleg shrimp and salmon farming.

The advantages of RAS are manifold. Unlike conventional pond aquaculture, RAS uses circulated water, minimizing water consumption and supporting sustainability. It also enhances production efficiency by maintaining water quality, mitigating health problems among farmed animals and reducing the need for antibiotics. This system allows for more efficient land and water resource use, and has great potential in Southeast Asia, where the aquaculture industry has started to focus on efficient farming without the use of antibiotics.

In June 2024, G-Place and VGP initiated a joint research project with Can Tho University in Vietnam. This project aims to experiment with Bio-Frontier in RAS pilot plants, focusing on shrimp farming. "Our goal is to leverage the research results to implement sustainable RAS business models and introduce this system to more countries in need," Furukawa states.

Left: Biofilter media "Bio-Frontier"
Right: Whiteleg shrimp farm using RAS

G-Place's commitment to environmental sustainability and social contributions positions the company as a pioneer in applying advanced technologies to emerging markets.

G-Place
https://g-place.co.jp/english

Toyo Kensetsu Kohki: Innovating for a Safer, Automated Future

Toyo Kensetsu Kohki innovates with high-quality rebar processing and automation, emphasizing human resource education and global service excellence.

By Paul Mannion

Yasuo Tanaka, president, Toyo Kensetsu Kohki Co., Ltd.

Toyo Kensetsu Kohki, a leading name in Japan's rebar processing industry, is dedicated to high-quality standards and innovative solutions to meet the diverse needs of an earthquake-prone nation. Yasuo Tanaka, the company's president, underscores its commitment to excellence: "We have confidence in our products and services based on the high-quality standards and diverse needs required in earthquake-prone Japan."

A cornerstone of Toyo Kensetsu Kohki's success is its focus on human resource education. Tanaka highlights the importance of this: "We value human resource education, and although it requires time and patience to develop personnel who can provide both technical services and sales, it is something we have placed great importance on since our foundation." This approach ensures that its technicians can respond swiftly and appropriately, prioritizing customer satisfaction.

The company's latest innovations include advanced automation technology such as the sorting and feeding device, and tailored solutions for various business scales and budgets. One notable addition is the Gorilla, a new model of rebar-bending machine that is more user-friendly and integrates the TLINKS service for remote management of processing status. Tanaka shares: "The newly integrated TLINKS service allows for remote management of the processing status, and we plan to further expand its functions in the future, continuing to contribute to solving industry challenges."

Expanding beyond Japan, Toyo Kensetsu Kohki collaborates with local distributors to maintain high service standards overseas. Its strategic partnerships ensure localized support in key Asian markets, helping the company to address both market-specific needs and the global demand for Japanese construction technology.

Sorting and feeding device for cutting machine

Tanaka is optimistic about the future; particularly as global awareness of disaster prevention grows. "We believe that at some point in time, in any country or region, quality will prevail over price," he asserts. By continuing to innovate and adapt, Toyo Kensetsu Kohki aims to remain at the forefront of the construction industry, offering solutions that emphasize sustainability, reliability and safety.

Upgraded double bender for D16-D41

TOYO

www.toyokensetsukohki.co.jp

Narika: Empowering Children with Vital Skills for Uncertain Times

Narika's equipment brings excitement and hands-on science learning to students around the world. *By Cian O'Neill*

Narika Corporation stands out in the Japanese education sector not only for its innovative hands-on science equipment and commitment to fulfilling the needs of each customer but also for its progressive employment policies. Distinct from the local corporate landscape, the family-run company's culture of inclusion and equality means it views its staff as family.

"We are very particular about scientific precision by designing and making products that reproduce theoretically correct experiment results," company president Yuka Nakamura says. This dedication ensures that students and teachers receive reliable equipment essential for understanding and experimenting with science.

Biological microscope Atoma II

Speed measurement photogate (lightgate) BeeSpi V

High-accuracy Monkey & Hunter Set

"We ensure that teachers are the star of the classroom by taking on the role of supporting cast. We listen to teachers' needs and continuously refine our products and services accordingly," Nakamura explains. "This enhances the learning experience for students and gives our work a sense of pride and purpose."

This commitment to continuous development also extends to their relationship with distributors. "We aim to be recognized as the source of products and services that meet teachers' needs," Nakamura says. "Through our work in science and education, we foster a shared pride in nurturing the children who will build the future world."

Supporting the next generation is becoming increasingly important in Japan as the declining number of children in the country—due to population shift—means there will be fewer schools while an aging society sees an increased burden of support put on the young.

To inspire children and spark their interest in science, Narika focuses on developing engaging hands-on products that energize students with the goal of inspiring their interest and curiosity throughout their lives. "We want to make children feel excited and enthusiastic during science classes, so they can think, 'Science classes are so much fun!'" Nakamura explains.

With this and the rapidly changing landscape of an increasingly globalized society in mind, Narika is highlighting the need for a world where students are unafraid to challenge their perceptions and are inspired by science. Nakamura emphasizes that, "In today's world filled with misinformation, having a concrete knowledge of science is important to survive and thrive."

"Science is the common language around the globe."

Yuka Nakamura, president, Narika Corporation

NaRiKa SCIENCE IS JUST THERE

https://global.narika.jp

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