

A Nation of Creative Innovation

Japanese companies in a variety of sectors are contributing to society through sophisticated R&D.

SMART SURVIVAL TECHNOLOGY

Yabushita Co., Ltd.

Company President **Tadahiro Mori** explains the basis behind his new product: “The AT Barrier EVO is Japan’s first underground ventilation system that not only blocks nuclear and biological hazards, but also chemically decomposes deadly carbon monoxide from fires, ensuring safe sheltering.”

BUILDING SOLID FOUNDATIONS

INOAC Housing & Construction Materials Co., Ltd.

Company President **Nobuaki Suzuki** said: “Local governments often wish to widen small mountain-side roads. In the past, this was done with soil, which is heavy, cumbersome and can affect the local ecosystem. Moving soil between regions in Japan is also against regulations. Polyurethane foam, however, is much lighter, up to 1/50th the weight of soil, and easier to install.”

TURNING WASTE INTO WARMTH

Nippon Aqua Co., Ltd.

President **Fumitaka Nakamura** explains: “An area we have been innovating in is waste collection. As urethane insulation foam needs to be trimmed, we need to find a suitable solution outside of landfill for the excess scraps left over. We are one of the only companies to have developed a way to collect, pulverize and reuse these trimmings to create new products, namely our Aquablow.”

STRONG SHELF SOLUTIONS

Sanshin Metal Working Co., Ltd.

Senior Managing Director **Hiroyuki Arai** said: “Since the 2011 earthquake, we have aimed to develop new anti-seismic products to prevent injuries caused by falling items, eliminating the risk of employees getting hurt in the event of another crisis. We have set very strict standards for R&D, ensuring our products meet the highest levels of data-backed quality.”

INOAC Housing & Construction



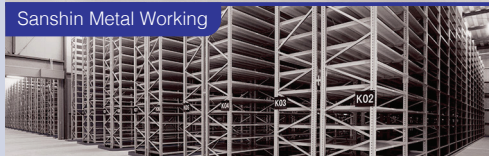
Shinkawa Electric



Yabushita



Sanshin Metal Working



Nippon Aqua



SENSORS IN SPACE

Shinkawa Electric Co., Ltd.

President **Fumito Shinkawa** said: “Our hardware-related developments pursue sensors for use in special and harsh locations and for ultra-low temperatures, such as those used for aerospace projects. Shinkawa’s proprietary in-house technology has enabled us to develop the next generation of sensors, which are currently used to measure the axial vibration of pumps that feed liquid hydrogen and liquid oxygen to rocket engines in cryogenic environments below minus 253 degrees Celsius. Our sensors are also used in the HII and H3 rocket projects developed by the Japan Aerospace Exploration Agency (JAXA).”

FINDING A GLOBAL REACH

President of Yutaka Engineering Corporation, **Kazuaki Toyokawa** explains his basis for overseas partnerships and automation: “Design is being handled in a way that takes advantage of the strengths of the global division of labor. The scope of our business has definitely expanded in recent years, and we have started joint R&D with overseas partners for the first time. The final goal is to achieve complete robotization of the assembly process.”

SMART HEATING

President of Japan Groundwater Corporation, **Masahiko Katsuragi** describes how sustainable groundwater heating systems can be used to benefit large groups of people: “Currently, aquifer systems provide energy to a single household, with a pair of wells handling the input and output. We are looking to expand this to an entire community, with a single well system serving several houses, lowering the overall costs needed for drilling.”

STABLE AND SECURE

President of Sanshin Electronics Co., Ltd., **Toshiro Suzuki**, illustrates the importance of modern edge computing in critical applications: “So far, data processing has been confined to local area networks (LAN), however, now everything is moving towards wide-area networks (WAN). We can connect dozens of manufacturing factories belonging to one company into a single network space, allowing for edge computing across all locations, while creating a closed system with a high level of security.”

A Breath of Fresh Air in the Ventilation Industry

Air conditioning and filter company Yabushita is developing innovative new systems to provide the best air supply for homes, offices and underground shelters.



Tadahiro Mori
President
Yabushita Co., Ltd.

Clean air is more than just a product or a service for Japanese company Yabushita Co., Ltd. This hard-working team's mission is to help protect people and improve their quality of life. Whether it is developing devices to support domestic air conditioning systems or filtration vents for underground bunkers, the same dedication and meticulous attention to detail goes into every product. This commitment has allowed the SME to compete in the same arena as much larger firms in terms of research and innovation. According to the firm's president, Tadahiro Mori, their flagship product, AT Barrier, is the first of its type developed in Japan.

The system protects an air supply against chemical, biological or nuclear contamination, with the latest version of the product also filtering out deadly carbon monoxide gas. This can help protect underground bunkers from fires and hazardous emissions following natural disasters or missile attacks. "When talking about the ventilation of bunkers and how to prevent varying materials from entering the safe zone, it is necessary to have several prevention systems integrated in order to catch it all," said Mori. "The current version of the AT Barrier meets the standards set by the U.S. military. An activated charcoal filter in the new products also follows this standard," he added. The AT Barrier was developed in collaboration with research teams at Nagoya University, a working relationship that is key to the firm's growth. The firm has close ties to the Nagoya University Graduate School of Engineering and the Yamauchi-Asakura Laboratory. It works with Professor Yusuke

"To expand globally and succeed, we need products that stand out and become a must-have"

Tadahiro Mori



Yamauchi, Nagoya University's first distinguished professor and renowned expert, Yusuke Asakura. Research includes developing a highly efficient multilayer filtering system that utilizes superior porous carbon analysis technology, essential to the development of the underground shelter ventilation systems and the first of its kind brought to market in Japan. "Although we are an SME, we have been successful in partnering with renowned professors. We will continue to pursue technological improvement through partnerships in the future," said Mori. In addition to shelter systems, the firm also specializes in snow covers to protect external ventilation systems during heavy winter weather, and its Air Shade guards against excess temperatures. Soundproofing equipment is vital in this industry, as is directing ventilated heat properly outside of an air-conditioned building. With game-changing products, it's no surprise that the company also has major international ambitions.

Executives have been consulting with stakeholders all over the world to determine customer needs and product suitability, while working to export the firm's expertise to new markets. "We participate in international expositions, especially military ones, where we can showcase our technology to a global audience. We have also inspected countries such as the U.K., Poland, Qatar and Indonesia to identify targets and compare our technology with competitors," said Mori.



Insulation Meets Innovation

Japanese insulation company Nippon Aqua supports more environmentally friendly construction in a range of sectors and now has international ambitions.



Fumitaka Nakamura
President
Nippon Aqua Co., Ltd.



The fight against climate change is taking place on many different fronts. For Japanese insulation and waterproofing firm Nippon Aqua Co., Ltd., it's all about working to improve energy and heat efficiency with an innovative range of services for homes, offices and factories.

With insulation a key sustainability driver for the Japanese government, the Tokyo-based business is working to supply the construction industry with essential foam-based products to help upgrade building projects and premises. As the economy moves to adopt the Sustainable Development Goals (SDGs), Nippon Aqua President Fumitaka Nakamura said his firm is doing whatever it can to support clients. "Energy saving is a key policy for the Japanese government, so many housing providers are aiming to focus on high-quality materials as well as construction techniques that produce energy-efficient homes," said Nakamura. The firm's approach to green issues and renewable resources also extends to waste management. Nippon Aqua recycles its own excess byproduct, urethane foam, to be processed into new materials. "We are one of the only companies to have developed a system to collect, pulverize and reuse these trimmings to create new products," said Nakamura. Founded just 20 years ago, the company has already made a

significant impact in the foam insulation sector and plans to increase its international presence. The firm currently has strong links with South Korea. However, it is targeting Southeast Asia in particular, establishing local recruitment strategies to lay the foundations of its business there. "With the strong reputation of Japanese quality, we hope to have a solid presence alongside other housing providers there," Nakamura said. The regional differences across Southeast Asia need to be factored into any plans. Although nations such as Indonesia face extreme heat, insulation has been less popular in construction, meaning there is great scope for growth in such markets. "We are actively recruiting staff from the Philippines, Indonesia and Myanmar while paying a salary equal to that of our Japanese employees," said Nakamura.

As the company spreads its wings, with expansion in North America also mooted, the business relies on the quality and innovation of its product range to maintain growth. Waterproofing is an essential part of the firm's offerings

as it seeks to find diverse applications for its signature urethane materials. The company hopes to further develop this business strand by expanding operations to include automobile part factories and other manufacturing plants.

The company also aims to replace the extensive use of asphalt as a waterproofing material with its polyurea other waterproofing compound. In addition to its products, such as Aquafoam Lite, Aquablow and their most in-demand material, Aquafoam NEO, the company's R&D team has also developed a new, high-grade range. The flagship product, Aqua MOEN NEO, is of great importance to Japan's powerful tech industries due to its very specific properties.

"Our product is particularly useful for locations such as semiconductor plants, given its fireproof nature. As we have had a number of large fire accidents in recent years, it has become more of a standard for construction projects where safety is critical," said Nakamura.

Nippon Aqua's products reinforce train depots.



Nippon Aqua's foam products support efficiency.



Scan to learn more



Racking up Wins in Different Industries

Sanshin Metal Working has enjoyed great success with its diverse product line, ranging from shelves and lab equipment to car parks and digital logistics.



Hiroyuki Arai
Senior Managing Director
Sanshin Metal Working Co., Ltd

In Japan, manufacturing of the highest quality is a matter of tradition and standards—there are no shortcuts or easy answers. For Sanshin Metal Working Co., Ltd., pursuing these standards for over 60 years has helped propel the firm to success in a wide range of industries with its diverse products and services. The company’s reputation may have been built on its storage systems and rack products, but the agile SME is also now building on its logistics expertise by developing digital solutions and constantly innovating to stay ahead of the competition. According to Senior Managing Director Hiroyuki Arai, this commitment to success is inspired by the Japanese business tenet *monozukuri*, which means prioritizing the best possible quality and customer service. The company’s output includes metal shelving, stacking racks, laboratory systems and equipment, as well as architectural components, including multistorey car park sections. “Monozukuri allows us to create customized solutions tailored to each client’s specific requirements. Our management is consistently focused on meeting the unique needs of the few rather than just catering to the majority,” said Arai. With its specialized shelving and storage products, the business has long been closely tied to logistics developments in Japan and further afield. With that industry enjoying a massive surge in business due to post-COVID digitization, Sanshin has been helping steer the sector through its digital evolution. As the largest steel rack manufacturer in Japan, the firm produces upwards of 50,000 tons of equipment per year, well ahead of its rivals. Its developments include DX (Digital Transformation) with smart and movable racks, processing and inventory items with AI and IoT (Internet of Things) connected technology. “The logistics industry has become a cornerstone for Japanese businesses, ensuring efficient handling and

shipping. It has been instrumental in advancing the digital shift by embracing DX initiatives,” said Arai. “We provide cutting-edge rack management systems for our warehouses, and safety remains a top priority,” he added. With the region’s history of natural disasters, such as the 2011 Tohoku earthquake, seismic safety is a major factor in the firm’s R&D. While many buildings in Japan are built to withstand such events, there remains significant danger from falling and tipping racks and containers. Sanshin has spent years developing resilience solutions. “The safety and security of both products and operations are vitally important, which is why we’ve focused on implementing anti-seismic equipment to protect our employees, facilities and inventory,” said Arai. “We have experienced these needs firsthand after being present at the Fukushima factory during the devastating 2011 earthquake. We have set very strict standards for R&D, ensuring that our products meet the highest levels of data-backed quality,” he added. This innovative, cutting-edge technology is just the start for a company with grand ambitions. These include sustainable practices for “green plant farms” developed with agricultural clients that come with solar power options. Given its successful work in hardware and real-world solutions, Sanshin is also pioneering digital processes that can help make logistics even smoother. The firm has developed warehouse automation systems Xaicoss and 5S KeePer to help clients manage their stock and delivery concerns. This has also led to the development of a new remote maintenance system, which monitors equipment and services. “In our case, we have expertise in both hardware and software, and by combining those capabilities, we want to collaborate with major companies like SAP to provide the best solutions for SMEs in the logistics industry. Thanks to these innovations, we have gained a strong reputation for delivering tailored, reliable solutions to our customers,” said Arai.



Sanshin’s storage racks are in huge demand.

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Space Control
SANSHIN



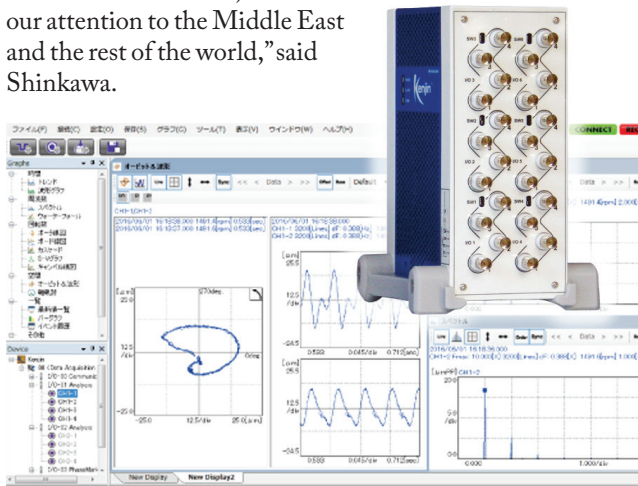
Sensing a Bright Future

Japanese firm Shinkawa Electric is supporting connectivity advances with its sensor range.



The future of business success will be built on connectivity. Next-generation technologies, such as AI, automation and the Internet of Things (IoT), are changing the way the world lives and works, and Japanese firm Shinkawa Electric Co., Ltd. is playing an essential role in it. The sensor manufacturer works with cutting-edge businesses in a wide range of sectors, from automotive to energy, food and pharmaceuticals, helping to further the digital revolution and enjoying the biggest market share in certain fields.

Shinkawa's developments include its infiSYS product, a vibration analysis and diagnostic system for rotating machinery. The firm is also investing in AI systems research that predicts and prevents failures through remote monitoring. Additionally, its innovative technology has produced vibration sensors that can be used in extremely low temperatures. According to President Fumito Shinkawa, this kind of pioneering work is vital for the firm's future. "Our products are attracting interest from a wide variety of clients, including JAXA's aerospace projects and the Shinkansen bullet train," said Shinkawa. Decades of success have led to massive market penetration for the company in Japan, particularly in the energy sector. The firm now has even greater global ambitions. "Our company has a 90% share of the domestic market for turbine generator vibration sensors, and we also have a large share in Taiwan, China, South Korea and India. We will first focus on Asia, then turn our attention to the Middle East and the rest of the world," said Shinkawa.



Caring About Healthcare

Japan's healthcare sector is thriving in the face of unprecedented challenges.

Japan's world-renowned healthcare sector is used to meeting challenges. Now, in a nation with one of the world's longest life expectancies, the industry is working hard to address the impact of an acutely aging population. With 33% of people over the age of 60, medical firms are focusing on innovative technologies to help improve elderly care. "Japan has already gained much experience in dealing with an aging society, and now Asian countries are learning from Japan's know-how," said Yamamoto Norio, president and CEO of Medical Care Service Inc. Akitaya Honten Co., Ltd. President Hiroyasu Nakamura agreed that caring for this demographic is critical. "Japan is one of the biggest markets for functional food, due in part to the aging population, with a 434% increase from 2015 until the beginning of the pandemic," said Nakamura. Atsushi Iwasaki, president of Seiko Optical Products Co., Ltd., is driving R&D with this demographic shift in mind. "Our company has incorporated cutting-edge technologies to cater to the needs of the aging population and provide superior products for the elderly," said Iwasaki. In the manufacture of medical equipment to treat all ages, Arte Co., Ltd. President Seiji Shimazaki prioritizes quality and craftsmanship. "Rather than shifting into automation, we have been placing an emphasis on manpower and human resources," said Shimazaki.

Leading Clients Forward



"AI will become standard for businesses in the future and is vital for our growth."

Toshiro Suzuki

President

Sanshin Electronics Co., Ltd.

A Japanese electronics firm is looking to help clients step into the future with AI and connected technologies. Trading company Sanshin Electronics Co., Ltd. is renowned for specializing in fields such as semiconductors and works hard to stay ahead of industry trends. The business also supports their clients' real-world and digital resilience. This includes earthquake-proof data centers, while also developing IoT and AI systems to monitor and respond to natural disasters. President Toshiro Suzuki said the firm's track record has forged vital bonds with suppliers and customers. "As a semiconductor trading house, it is crucial to have trusted relationships—not just understanding individual customer needs, but analyzing the entire industry," said Suzuki.



Regulating Tech Success



“With AI as a new driver, the semiconductor field’s growth and development will continue.”

Kazuaki Toyokawa
President
Yutaka Engineering Corporation

Almost seventy years ago, Yutaka Engineering Corporation was established to produce welding and measurement instruments. Today, the firm’s products, such as pressure regulators and flowmeters, are vital contributors to the manufacture of semiconductors powering the world’s digital systems. With the sector set to grow into a trillion-dollar market by the end of the decade, increasing year-on-year, President Kazuaki Toyokawa said it’s crucial that his company plans and innovates based on the markets of tomorrow. “In order to grasp the growth trend, we need to be aware of trends for the next five to seven years. To respond quickly to changes, we have established a flexible response, moving from a focus on in-house production to collaboration with partner companies in Japan and overseas,” said Toyokawa.



Sustainable Ground Solutions



“We have been addressing the challenges we face regarding the natural environment.”

Masahiko Katsuragi
President, Ph.D.
Japan Groundwater Development Co., Ltd.

A Japanese drilling company is leading a green revolution to help support cleaner energy, conserve water and fight climate concerns. Japan Groundwater Development Co., Ltd. is advancing exciting ground source energy plans and specializing in sustainable snow melting systems to help communities across snowy regions in Japan. The company has pioneered innovative solutions using the heat energy of groundwater to naturally clear massive snowfalls, mitigating demographic and environmental challenges. The firm’s services also include managing soil and groundwater contamination and developing hot springs. “We need to be able to solve human problems, work on carbon neutrality and improve quality of life for communities, specifically in snowy regions,” said President Masahiko Katsuragi.



Finding Innovative Solutions for a Sustainable Future

Japanese construction and civil engineering materials firm INOAC is a leader in integrating environmental conservation policies into R&D strategies, with executives aiming to drive the industry forward.



Nobuaki Suzuki
President
INOAC Housing & Construction Materials Co., Ltd.



In modern business, sustainability is a vital part of any company’s strategy—although some take it more seriously than others. At INOAC Housing & Construction Materials Co., Ltd., it is literally at the heart of the firm’s identity, with its Japanese name translated as “Living Life and Environment.” It’s no surprise then that the company seeks to position itself as an industry leader, prioritizing the Sustainable Development Goals (SDGs) through its operations, products and practices. This includes developing bio-plastic pipes, geothermal energy technology and utilizing cutting-edge equipment to produce more efficient materials. “All of our products are related to tackling environmental issues through different

means. The SDGs and carbon neutrality are a strong tailwind for us, and it is important for our company to contribute to good health and life in society,” said President Nobuaki Suzuki. Essential to this is the company’s innovation, which helped it evolve from a company founded more than 60 years ago to provide chemicals for the civil engineering and construction fields. Suzuki believes his firm is so advanced in its R&D that competitors will struggle to catch up, never mind match it. “As each product has been developed uniquely, in-house, it is difficult for others to know how to design, install and receive government approval for it. By doing everything ourselves, without any outsourcing, it is difficult for competitors to match the level of service—that’s a big advantage,” said Suzuki.

