

The hidden, yet indispensable value of *monozukuri*

Characterized by high quality, craftsmanship, constant innovation and an acute understanding of customer needs, Japan's reputed *monozukuri* manufacturing is generally associated with major corporations such as Toyota, Honda and Sony. However, it is the lesser-known manufacturers that truly represent Japan's industrial prowess. Working behind the scenes to produce high-quality parts, components, tools, machinery and materials that are essential to several industries, these companies are known as the "hidden champions" of Japanese manufacturing and they have built up their expertise as leaders in often specialized and niche fields.

"The result of different Japanese companies specializing and focusing on a particular area is the achievement of a lot of success worldwide. Toyo Tanso's philosophy is creating something that cannot be found anywhere else, which has been the beginning of our business and the secret to our success," says Naotaka Kondo, president of Toyo Tanso, which manufactures carbon-based products for several industries, including the semiconductor, transportation and medical sectors.

Another hidden champion, HARDLOCK, manufactures high-quality nuts and bolts that are used in various settings and situations, including in bridges, buildings, high-speed trains, aerospace applications, nuclear plants and semiconductor manufacturing tools. "Our nuts are predominantly used in applications

which require safety at higher levels in extreme conditions and environments, including Shinkansen trains, rail tracks, amusement park rides, construction machinery, and especially mining equipment that is subject to excessive vibrations," says chairman Katsuhiko Wakabayashi.

"Our HARDLOCK Nut offers unique advantages in terms of reusability, self-locking capability, versatility with different materials, and stability in various environments. We continue to focus on research and development to provide innovative solutions for our customers in a wide range of industries."

A company mainly active in the automotive sector, Kohyei Trading also supplies solutions to the semiconductor manufacturing industry through its subsidiary Zippertubing Japan. Moving forward, this hidden champion aims to leverage its expertise in both fields to develop essential parts for electric vehicles (EVs). "Kohyei Trading has its strengths in its relationships with automotive manufacturers, while Zippertubing Japan specializes in semiconductor manufacturing equipment and has strong connections to semiconductor machinery companies," explains president Yoshihiko Tsuchihashi. "As a result, we have established relationships with major Japanese semiconductor machinery producers. With the support of the government and its active push in the semiconductor industry, we anticipate significant growth in our business."

Japanese *monozukuri* is synonymous with high quality. To ensure the highest quality of its products, kitchenware manufacturer Fuji Enamel goes out of its way to source the best materials. "We procure the most suitable special steel for making enamel products from leading Japanese steel manufacturers," says president Minoru Kanehira. "Our core strength is that we are particular about the quality of the steel materials we use, and the glass material, enamel, is also manufactured using our own firing method, which is managed to produce stable products of the same standard," he adds. "The choice of special materials is important for the production of stable products, but our strength is also that we produce hard enamel products through the special pre-treatment technology we have accumulated over the years for these materials."

A manufacturer of high precision tools for several industries, Eight Tool's products are characterized by what president Yasuhiro Oka calls "Eight Quality", which encompasses product quality, material quality, processing precision, the product line, and environmental consciousness. "I would like users to view our tools as something precious. They are not just ordinary tools. I want them to be used with care and passion," he says. "Although our price range may be higher than average, we make sure to provide products that are of great quality and last longer."

New factory propelling Eight Tool's growth in tools for new segments and markets

With the opening of its new Tottori factory, Eight Tool is now targeting a wide range of markets, from the bicycle to the space industries.



New factory opened in Jan 2023

Companies that focus on high-quality products can often struggle to meet high-volume demand. Japanese tool manufacturer Eight Tool has managed to bridge the gap between quality and increasing demand with the construction of its new purpose-built facility.

Founded in 1958, the company has built its reputation on its specialization in hexagon wrenches and its focus on what president Yasuhiro Oka calls 'Eight Qual-



"This new building has increased our production capacity to meet the growing demand from customers."

Yasuhiro Oka, President, Eight Tool Co., Ltd.

ity': "product quality, material quality, processing precision, the product line, and environmental consciousness." The company is making the leap into the bicycle market and its KPH-1 multitool

hexagonal wrench made a splash at the Cycle Mode Tokyo 2023 exhibition.

This new tool, which features a range of wrenches

to fit cyclists' needs - along with the expansion of Eight Tool's international customer base - has seen an increase in demand which the company has met with the opening of its new Tottori facility in January 2023.



New multi-tool product "KPH-1"

Eight Tool boosted its reputation with its groundbreaking EL/ARMOUR plating, which is free of hexavalent chromium. The plating pro-



Eight Tool's 2,000+ product lines include color sets

vides wear and rust resistance while being environmentally friendly, and as Mr. Oka says: "we consider ourselves pioneers in this regard. The impact of this new product has been significant in the industry."

The company has been expanding its operations with visits to the United States, East and Southeast Asia, Europe, and South Africa, and Mr. Oka is aware of the importance of tailoring products to each market's needs. While the products may be customized, one thing that won't change is Eight Tool's commitment to quality and longevity.



www.eight-tool.co.jp/en



"The popularity of enamel comes down to its excellent durability – it lasts for a century and beyond."

Minoru Kanehira,
President, FUJIHORU
ENAMEL Co., Ltd.



Built to last: the FUJIHORU difference

For over 75 years, FUJIHORU's expertise in enamel has seen the Japanese brand create kitchenware of unparalleled quality.

Founded in 1947, FUJIHORU has established itself as one of Japan's leading manufacturers of kitchenware. Specializing in enameled-steel cooking vessels such as pots, pans and casseroles, the Tokyo-based company boasts an extensive range of outstanding products that are sold both at home and abroad.



Character products

"Our core strength is that we're particular about the quality of the steel materials we use," says FUJIHORU's president, Minoru Kanehira. "We procure the most suitable special steel from leading Japanese manufacturers. The best products cannot be produced without using steel plates specially designed for enameling. What's more, the glass material, enamel, is manufactured using a FUJIHORU firing method that leads to consistently first-class products. Our production process also involves special pre-treatment technology that we've developed over a number of years."

Among FUJIHORU's major product lines is its EX series of long-lasting, efficient cookware. "These pans are particularly suitable for induction cooktops," Mr.

Kanehira says. "They're extremely energy efficient, so you can cook quickly with the minimum amount of electricity required. In addition, the good heat conduction means that heat is transferred from various directions, which makes cooking tastier."

"EX series products are durable and can be used for more than 100 years, which means less waste and makes them very environmentally friendly. Instead of consuming large quantities, you make one thing last longer."

In addition to its domestic factory in Tsukuba, FUJIHORU has operated a production plant in Thailand since 1988. With Japan feeling the effects of population decline, the manufacturer's Thai base is expected to have a key role to play in the years to come, as FUJIHORU pursues its target of becoming a century-old company.



Solid series

"The fusion of steel sheets and glass, which is at the heart of our manufacturing, requires special chemical knowledge," Mr. Kanehira says. "However, there's a growing shortage of researchers in inorganic chemistry in Japan who can understand this. To com-

pensate for this, we have set up a technical development team at our plant in Thailand and recruited excellent Thai university students in inorganic chemistry.

"We will continue to develop new products at the Tsukuba plant, but at the same time we have an R&D center in Thailand as well, where Japanese engineers are teaching young, talented local professionals and passing on the technology."



Thai factory since 1988

FUJIHORU is likewise looking beyond Japan's borders as it seeks to grow its client base – and the firm's efforts to strengthen its international presence go hand in hand with a drive to boost its e-commerce sales volume. "Of the countries we export to, 60% are in Asia, but we still want to expand more in Malaysia, Indonesia and other Asian countries," Mr. Kanehira says. "Our focus is to provide enriching food culture, through our high-quality products, to those who have a deep affiliation with food. Currently, we export to 22 countries, and we'd like to add more. We want to have a big network."

He continues: "E-commerce has been doing very well during the covid-19 pandemic, so we now see it as a growing sales channel both domestically and overseas. E-commerce in the United States is particularly attractive. We're currently attempting to penetrate the U.S. market through the Amazon route."



Japanese factory since 1947

Having already collaborated on special product ranges with global brands such as Disney, FUJIHORU is also out to grow its international reach by establishing tie-ins with more major companies. "We're actively seeking partners," Mr. Kanehira says. "Our uniqueness is being able to offer not only design expertise, but also one-of-a-kind manufacturing technology – and reduced costs. New molds have to be developed to create these collaborative products, but we can now make the molds ourselves instead of outsourcing the process. This cuts initial costs for our partners."

FUJIHORU

JAPAN

www.fujihorouusa.com

A trusted partner across a range of industries



Yoshihiko Tsuchihashi,
President,
Kohyei Trading Co., Ltd.

A trading company that specializes in supplying chemicals, Kohyei Trading is a go-to partner to businesses from a whole host of sectors. Established in 1949, the Japanese firm boasts a portfolio of major clients from the automotive, rubber and electronics industries, as well as fields such as agriculture and construction.

"Our business model is both import and export," says Kohyei

A chemicals specialist, Kohyei Trading offers a comprehensive service.

Trading's president, Yoshihiko Tsuchihashi. "We mainly import chemical products from overseas companies and act as their agent, stocking and selling their products to our domestic customers. Simultaneously, we engage in transactions involving domestically manufactured products, with 90% of sales directed towards the domestic market and 10% for export.

"Our strength lies in our ability to adapt to disruptions in the supply chain. We hedge risks by providing alternative chemicals to our customers, thereby establishing enduring, trusted relationships."

Clients also turn to Kohyei Trading when they need a company to run long-term product-development processes involving multiple stakeholders. "A major example of this is a collaboration to create biodegradable sheets that cover up fields in sweet potato farms," Mr. Tsuchihashi reveals. "They're

made from the residue left behind after juice is extracted from sweet potatoes to make the Japanese drink shochu.

"There's no need to remove the sheet after use – since it's biodegradable, it goes back to the soil, so it's a 100% circular economy. We've been working on this project for about 20 years, acting as a bridge between a chemical company, a shochu manufacturer, an agricultural association and farmers."

Kohyei Trading's knack for building long-running partnerships will likewise be key as it accompanies automobile makers through the transition to electric vehicles (EVs). Combined with its know-how in the industry, the firm is out to leverage its experience in the electronics sector – a field that's becoming increasingly integral to vehicle design. Notably, it will look to capitalize on the expertise that one of

its subsidiaries, Zippertubing Japan, has in the semiconductor industry.

Kohyei Trading is also ready to adapt to automotive manufacturers' changing needs. "The transition to EVs will likely be a long-term process, and various alternative proposals, such as fuel-cell vehicles, will be considered," Mr. Tsuchihashi explains. "With our experience in a range of fields, our approach will be to listen closely to our customers' intentions and proposals."

Having in recent years established a network of overseas bases across Asia, Kohyei Trading is a company that is seeking to strengthen its international presence. "Our focus is on areas with growing populations, namely Thailand, Indonesia and India," Mr. Tsuchihashi says. "We also see Vietnam as a potential growth market."

 **Kohyei Trading Co., Ltd.**

kohyei.com/en

Zippertubing Japan: Supporting the creation of cutting-edge tech with reliable EMI countermeasures, cable bundling and anti-heat solutions



Shiro Takeuchi,
President,
Zippertubing Japan, Ltd.

A subsidiary of Kohyei Trading, Zippertubing Japan is a manufacturer that works with companies from a range of industries, supplying them with electromagnetic-interference (EMI) countermeasures; wire and cable bundling; heat shrink; and heat shielding.

The firm boasts particular expertise in crafting high-quality products that are used by cus-

The company specializes in supporting semiconductor manufacturers.



Aerial view

tomers in the semiconductor-manufacturing sector.

Having last year celebrated its 50th anniversary, Zippertubing Japan has marked the milestone by opening a new, state-of-the-art production site in Kobe, where the company is based. "It's three times larger than our existing factory," President Shiro Takeuchi explains. "In terms of floor size, it's twice as large as the previous factory."

"We have products that have been used since our foundation, as well as products developed in the past five or 10



Entrance

years. Currently, we're working on new products to cater to existing and new markets. That's why we've established a new factory."

As part of its drive for innovative creations, Zippertubing Japan has teamed up with its parent company to develop a product that harnesses both firms' know-how.

"Kohyei Trading has its strengths, particularly in its relationships with automotive manufacturers," Mr. Takeuchi explains. "On the other hand, we at Zippertubing Japan excel in manufacturing and have



Manufacturing site

strong connections to semiconductor machinery companies.

"In line with the shift towards electric vehicles (EVs), we're aiming to leverage the strengths of both entities by creating a new product specifically tailored to the EV market. We hope to achieve this within three years and are in the R&D phase right now. It's Zippertubing Japan's semiconductor expertise combined with Kohyei Trading's automotive experience."

 **ZIPPERTUBING(JAPAN), LTD.**

ztj.co.jp/en

Total High Tech Integration

A trading company specializing in industrial materials, Suzuko's original products, with their super heat-resistance polyimide shape, have outstanding performance in a variety of areas.



Cepla

As misconceptions about the competitive edge of Japanese companies persist, Suzuko Corporation stands as an example of how success comes with having unique strengths and core competencies.

"Japanese people possess vast knowledge in specific fields and fantastic corporate ethics," says company president Kentaro Suzuki, before turning his attention to the factory automation challenges of more nuanced processes.

"Digital transformation plays a crucial role in remolding the automation field by leveraging the dedi-

cation and hunger for knowledge exhibited by Japanese craftsmen," he explains. "The sophisticated robots produced by renowned Japanese companies such as FANUC, Denso, and Yaskawa reflect the nation's inherent unwavering commitment to perfection."



Super micro torque sensor

As a system integrator, Suzuko not only supplies robots to manufacturers, but also provides comprehensive solutions and support to ensure the seamless integration and optimal utilization of robots within production systems. Over its 150-year history, the company has evolved significantly.

"In the Meiji era, we started by trading metal," reflects Mr. Suzuki. "After WWII we tried hand tools

such as hammers and around the 1980s, the entire company shifted from metallic products to system integration for automation."



Polymond

While Suzuko primarily focuses on the domestic market, its manufacturing capabilities enable it to approach global giants such as Tokyo Electron and Sony, expanding its reach. Involvement in the Hayabusa2 asteroid explorer project also demonstrated its technological expertise, providing heat-resistant polymers, including CEPLA Polyimide resin shape, to protect the vulnerable antennas from space matter. And looking toward the



"Tackling new industries and developing new products and ideas is vital to pushing the company forward."

Kentaro Suzuki, President, Suzuko Corporation

future, Mr. Suzuki emphasized the company's sustainability goals.

"Fostering and motivating human capital, while tackling new industries and product development are vital."

SUZUKO

www.suzuko.co.jp/english

TSK CO., LTD. : A trusted partner to automobile manufacturers

For nearly 50 years, TSK CO., LTD. has played a key role in the manufacturing of car parts, offering expert mold manufacturing and product design.

Founded in 1977, TSK CO., LTD. has established itself as a go-to manufacturer of molds for rubber and plastic automobile parts, with specialization in component design. Based in Komaki City, the Japanese company boasts particular expertise in rubber weatherstrips, the protective seals fitted around the edges of vehicle doors, windows, windshields and trunk lids.

With overseas factories in China, Indonesia, Mexico, and Thailand, TSK has a strong international presence. To counteract Japan's population decline, the company is increasingly expanding its operations abroad. "To cope with the shrinking domestic market, we're trying to expand our market share overseas," says TSK's president, Toshio Sakoda. "In 2018, we started operations in India. We're also considering expanding into African markets such as Nigeria."

Mr. Sakoda continues: "Japan's decreasing population has resulted in a shrinking labor force. To address this, we're automating our manufacturing processes. Additionally, we're considering hiring foreign workers to overcome the shortage, but automation is our current priority."

As TSK CO., LTD. charts its course for the future, the company is committed to playing its part in achieving Japan's goal of carbon neutrality by 2050. "We strive to contribute to a better society," Mr. Sakoda says. "As part of our push for carbon neutrality, we're certified by the Science Based Targets initiative until 2044, and we've created a roadmap based on activities that work towards becoming carbon neutral."

Alongside electrification, the use of lightweight materials is a key focus of the automobile industry's efforts to make ve-



"Prioritizing customer satisfaction over making a profit is a recipe not only for a happy customer, but also a happy company."

Toshio Sakoda, President, TSK CO., LTD.

hicles more environmentally friendly. TSK CO., LTD. remains dedicated to meeting its clients' needs when it comes to moving away from rubber, Mr. Sakoda says, but he adds that manufacturers face a challenge to make equally effective weatherstrips from lighter materials.

"Rubber has traditionally been used for weatherstrips, but it's heavy and difficult to recycle and reuse," he explains. "Resin, on the other hand, is lightweight and easy to mold. However, in terms of the performance of the product itself, rubber still has several advantages."

In addition to its drive to promote a greener future, TSK CO., LTD. is focused on developing equipment that allows it to manufacture its products with greater and greater precision. "We receive an R&D grant from the Japanese government," Mr. Sakoda says, "and we've been using it to invest heavily in innovating our processing technology. The accuracy our clients demand is increasing day by day."

TSK

www.kktsk.com

Meichu to play a key role in the automation of industrial furnaces

Utilizing its accumulated know-how and core technology, Meichu is looking to ensure that the furnaces of tomorrow can contribute to an automated industry.



"In the casting industry, there are still many dangerous jobs that people have to carry out."

Mitsukane Nakashima, President (left), Hisaaki Nakashima, Director (right), Meichu Co., Ltd.

Since its establishment in 1987, Meichu has provided casting equipment centered on aluminum melting furnaces as well as material production, sales and supplies. Quality is

seen as a key factor in its success, with some of its technology differentiating it from other companies.

"Our *monozukuri* process in manufacturing keeps us competitive," says company president Mitsukane Nakashima. "Our biggest strengths are the quality of our molten metals and our temperature control technology. Our furnaces can be used more frequently and maintenance is easier."

One major shift in the industry, and globally, is the evolution of artificial intelligence and Mr. Nakashima sees this as a huge opportunity, with unmanned factory operations including autonomous driving.

"Engineers and factory workers will be doing more of the brain work rather than working in the factory and doing the actual labor," he predicts.

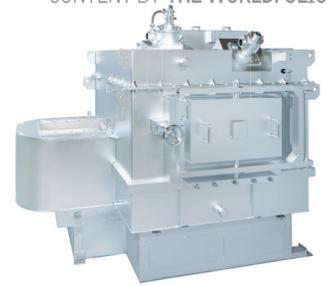
Collaboration is an important part of Meichu's outlook and, along

with technical alliances in Thailand and China, a world-leading autonomous factory with Mino Industry is currently in development.



Auto Ingot Divider

"It will become a model factory around the globe. We are also introducing energy-saving furnaces and manpower auxiliary equipment such as the automatic ingredient loader for the furnace. This increases the efficiency and quality of the molten metal," explains Mr. Nakashima, who adds that Meichu



Flat Homel Furnace

is looking at Vietnam and India as new locations for bases, starting small with local companies.

With thoughts on the years ahead, which includes the commercialization of a hydrogen gas burner, the president says he has two clear missions: environmental contribution and employee satisfaction.

"I would like to contribute back to the Earth as much as possible, with energy-saving products and reduced energy waste. In the casting industry, I want to see automation reduce the dangers faced by workers in the field and provide further opportunities to pursue more creative jobs."



Katayama focusing on fields of the future

As it pursues growth in a changing automotive industry, the screw and rivet maker is also targeting other key sectors such as energy.

A Japanese company with a 109-year history, Katayama is a go-to manufacturer of fastening parts such as screws and rivets, supplying domestic and international customers from several industries.

"Our technical capabilities are at the heart of everything we do," says president Shuji Katayama. "We maintain a first-class level of quality. What's more, this is allied with excellent responsiveness towards customer requests."

In recent decades, Katayama has traditionally focused on producing fastening parts for hard-disk manufacturers. Over the past few years, though, the firm has increasingly sought to penetrate the automobile market.

"World production of traditional hard disks is decreasing," Mr. Ka-



Shuji Katayama, President, Katayama Rivet & Screw Co., Ltd.



www.katayama-screw.co.jp/en

tayama says. "We see a reduction in sales for hard-disk applications. The automotive industry was something we looked to start supplying, and we began doing so seven or eight years ago. We mostly supply screws and rivets for engine-related parts."

As the shift towards electric vehicles brings about a revolution in engine design, demand for fastening parts in this area of automobile manufacturing has begun to fall. However, Katayama is responding by developing new products for other vehicle components, with an emphasis on using lightweight materials.

"Making vehicles lightweight has become of paramount importance to many automotive makers, and it is rapidly becoming a key trend in the industry as batteries take over," Mr. Katayama says.

Katayama is also working to branch out into new fields. "We're targeting the medical sector, as well as the energy-related industry," the company president explains. "When it comes to energy, we're talking about equipment that's becoming vital as the world pushes towards carbon neutrality."

"We are trying to challenge ourselves because we live in an environment that is evolving pretty much every day. New opportunities are constantly presenting themselves and we don't need to just rely on conventional products and means. Needless to say, we are trying to perform our best efforts in R&D activities and our company is trying out new solutions for our customers beyond the conventional product lineup we have. The thought is that we can potentially expand into these markets and use these new cutting-edge materials to diversify our product portfolio, thus capturing a wider range of industries."



Lithium battery parts for HV and EV cars



Automotive battery parts



HDD parts



Diesel engine fuel filter parts



In-vehicle brake mount parts

HARDLOCK: the ultimate fastener for safety critical applications

From indispensable industrial machinery to towering bridges, the HARDLOCK Nut has an unbeatable track record in tough operational environments.



Shinkansen E7 series

Founded half a century ago, HARDLOCK Industry has a mission and vision to contribute to people, companies, and the industry by providing unparalleled self-locking nuts, or solutions incorporating them, that ensure safety and assurance. To give just two examples: the company's nuts have been used on Japan's Shinkansen high-speed trains for over 30 years, boasting a zero-percent failure rate, and have remained



securely in place on The Great Seto Bridge since 1988.

"Our HARDLOCK Nut, applying the wedge method, offers unique advantages in terms of self-locking capability, reusability, versatility with different materials, and stability in various environments," explains company chairman Katsuhiko Wakabayashi. "We continue to focus on research and development to provide innovative solutions for our customers across a wide range of industries."



"For fail-safe fastening performance in the most demanding vibration environments, trust HARDLOCK."

Katsuhiko Wakabayashi,
Chairman, HARDLOCK
Industry Co., Ltd.

That focus includes global infrastructure growth, particularly in developing nations, where expertise and experience in maintenance are vital for overcoming challenges and expanding reach," Mr. Wakabayashi says. "We are seeking local partners to jointly grow the market, aiming to create a safe and sustainable society while supporting infrastructure growth, encompassing both hardware and software."



Shinkansen underfloor devices

The chairman's vision is to eliminate any issues caused by bolt loosening by increasing partnerships with companies that share HARDLOCK's goals, in order to provide safe and reliable bolted joint mechanisms for the international society.

"We are focused not only on pursuing profits for our company, but also thinking globally about how we can contribute and support society altogether," he adds. "In five years' time, we envision that the high tensile resin fastener mechanism will be established and it will revolutionize the worldwide industry."

"Within this framework, we aim to continue our global contribution."



The pierce nuts behind next-generation industries

Since its foundation, Shinjo has continued to provide technology and products that can respond to any situation.

As the company celebrates 70 years, Shinjo is not striving to increase its size but instead maintain its place among the top of its field.

"Our specialty and core focus is on the type of fasteners that pierce a sheet and clinch and allow you to mount and stabilize items in place, with no need for a pilot hole," explains company president Isao Shinjo. "We listen to the needs of our customers and increase our efficiency through a strict production design and control process."

The automotive sector is



Isao Shinjo, President,
Shinjo Manufacturing Co., Ltd.



www.shinjo-int.co.jp/en

where Shinjo has its core activity, and it's a rapidly evolving one as electric vehicles play an ever greater role. Collaboration, however, is on the president's mind.

"Our partnership with Arnold Umformtechnik GmbH & Co. KG has been very successful in expanding our business, and we have contracts with distributors across the U.S. and EU for pierce nuts. There are possibilities to develop in Asia, but conventional nuts are still the major market so we need to consider how best to progress."

Innovation and sustainability form a crucial aspect of the company's goals, with a unique press machine and their smokeless pierced nut good examples of each.

"The product is called Miracress, which was inspired by construction companies looking for a nut in a square pipe, and we are identifying applications for this with our automotive customers. For all our production we aim to minimize energy consumption."

Looking ahead, Mr. Shinjo points to the continued transition to electric vehicles.

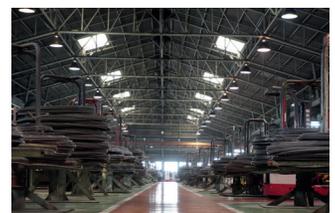
"It is more likely that the number of screws and fasteners will be reduced significantly. We will change the product mix and follow the shift to EVs."



Pierce nut: a handy tool for small-sized applications



Various nuts for various functions



Clean and organized production

Sekiso's Sound Management System making waves across industries

With the end users' expectations in mind, Sekiso supplies high-quality products offering the best cost-performance through the overall optimization system, SSMS.



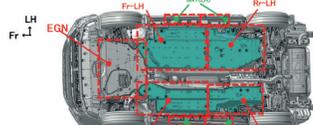
Anechoic car testing room with chassis dynamometer

Sound control in vehicles is becoming increasingly more important, not only for conventional engine vehicles, which are currently mainstream, but even more so for electric vehicles (EVs). This is because sounds that are not heard in a conventional engine vehicle may be noticeable in a quieter EV.

At Sekiso, we are aware of the end users' expectations from the early development stage, and theoretically analyze, clarify, and evaluate (including sensorial evaluation) all sources of sound and how they are transmitted.

To create a "comfortable car sound", we are aggressively working on new material development, parts

development, system development, and "monozukuri" development. In addition to improving the function and performance of each part, we are proposing a system called SSMS (SEKISO SOUND MANAGEMENT SYSTEM) that manages sound through the combination of sound control performance of various parts. SSMS is a solution that considers the overall optimization of the system by analyzing sound source information, transmission paths, timbre, and much more. Sekiso is a supplier that works closely with customers from the early stages of development to provide high-quality,



Underbody silencers optimized by SSMS development

best cost-performance systems that will meet end-users' expectations around the world.

For example, for the SSMS-Air inlet duct, we are developing a product that absorbs sound inside the air cleaner and rectifies the turbulent airflow on the wall surface. In addition,



Porous duct for good sound quality (left: inlet; right: HVAC)

By combining the original non-woven fabric duct that eliminates resonance, it is possible to reduce the sound in the entire frequency range and create a smoother acceleration sound. By optimizing the airflow in the intake duct, the noise is reduced without reducing the engine performance. This system can also be applied to HVAC air blow noise that becomes more noticeable in EVs.

In addition, Sekiso is now trying to find a way to contribute



"We aim to be a top manufacturer that can design sound and vibration-related products."

Masaya Yamada, President, SEKISO Co. Ltd.

to carbon neutrality with our products. Our original business was manufacturing paper parts for automobiles. We hope to contribute to carbon neutrality with paper parts made from environmentally-friendly, lightweight and highly recyclable non-woven fabric materials.



Nagatsu: indispensable parts of unrivaled quality

Since its founding in 1950, NAGATSU has pursued thorough quality control and advanced technology as a parts manufacturer focused on collaboration.



"We do not simply supply products. We consider our company to be a place of creation and challenge."

Yasuaki Tsuda, President, Nagatsu Group

As the world becomes ever more interconnected, collaboration will drive innovation. Japanese firm Nagatsu Industry Co. is pushing the manufacturing of construction machinery forward through its collaborations and a focus on automation.

Founded in 1960, Nagatsu has grown into a multinational company that provides parts for construction and mining equipment, such as un-

dercarriages, transmissions, hydraulic parts, and sensors for vehicles.

The company's success has been propelled by its two main pillars: increasing efficiency through automation and overseas production.



Five-axis machining center

The first of these pillars has been aided by its collaboration with construction giant Komatsu. Nagatsu has worked with Komatsu closely in all aspects of its work, from designing components to manufacturing and technology development. For example, the two companies worked together to create the quality and cost guidelines for Nagatsu's successful sensor business.

Collaboration has also aided the automation of procedures in Na-

gatsu's smart factories, from time scheduling to labor-saving machinery such as automatic changers and measuring devices.

Company president Yasuaki Tsuda reveals Nagatsu is also planning on implementing two new production systems: "We plan to have the Flexible Manufacturing System (FMS) and four cells called Flexible Manufacturing Cells (FMC), which will optimize our production using multi-purpose machinery."



3D-CAM

The company's growth has enabled it to expand into Thailand and Vietnam, where it has factories. Mr. Tsuda says Nagatsu

understands the importance of collaboration in these markets as well, adding: "We are looking to expand these facilities further and we hope to strengthen our relationships with suppliers there."



Undercarriage

Nagatsu is always on the lookout for like minded companies and human resources to collaborate with as its digital transformation and international expansion continue, understanding that interconnectivity is the future of industry.





"We've got to continue to forge and polish the power of innovation."

Toru Ichimiya,
President,
Nissen Chemitec Corporation

Super-engineered plastics for high-performance applications

Leveraging the power of synergy and collaboration – internally, externally and as part of the Ichimiya Group – Nissen Chemitec produces high-performance plastics for ever-evolving applications and is also engaged in the recycling of industrial plastic waste.

As we veer towards a sustainable, carbon-neutral world, the recycling of industrial plastic waste and the shift towards vehicle electrification (two major aspects of the environmental movement) are having a direct influence on the business direction of Nissen Chemitec Corporation, a leading manufacturer of high-performance plastic parts for the automotive and other industries.

Fortunately thanks to its long-cultivated know-how and collaborative synergies among the many divisions of the group, and as part of the wider Ichimiya Group, Nissen Chemitec is well positioned to support both movements, with its focus areas being recycling, automotive parts, and highly functional plastic components.



Raw material resin

Nissen Chemitec is also 25% owned by Sumitomo Chemical, with whom it is collaborating on initiatives to convert plastic scraps of automotive origin back into automobile parts, creating a so-called "car-to-car recycling cycle". "In addition to producing new (virgin) plastic raw materials,

we are also working to create new businesses, areas and opportunities by recycling and reusing plastics," says president Toru Ichimiya.



CVT welding line

As a company whose main business is the supply of exterior and interior automotive parts, adapting to the emerging CASE (connected, autonomous, shared, electric) era is both a major challenge and opportunity for Nissen Chemitec. "We believe that the functions required will change significantly in the future due to automated driving and vehicle network connectivity," adds Mr. Ichimiya. "This means providing the entire interior environment, including lighting and entertainment systems, as a package. It is very difficult for a company of our size to cover such equipment on its own, so we are collaborating with external partners to fulfill our customers' requirements."

Nissen Chemitec already manufactures parts for oil pipes for transmissions in hybrid vehicles and by leveraging its expertise in resins and various manufacturing

techniques, the company aims to expand into areas such as batteries and motors for electric vehicles (EVs).

Launched in 2019, the super engineering plastics division is the latest Nissen Chemitec business pillar, targeting the highly functional parts sector. This division is working with raw material manufacturers and other companies on various initiatives in the areas of raw materials, development and manufacturing, with its first success being a super-engineered plastic oil pipe used in transmissions for Toyota's hybrid vehicles. In recognition of this world-first technology, Toyota handed Nissen Chemitec a technical award in 2020.



Front bumper safety plate

The semiconductor industry is another important focus area for Nissen Chemitec, which has a trading division for semiconductor products and display materials. Mr. Ichimiya says the semiconductor industry in particular holds great business opportunities for the company in the future, particularly in Japan with the new fab established by Sony and TSMC in Kumamoto. "We would like to



Door visor assembly line



Front bumper safety plate assembly line



Pipe for oil delivery



Door trim

expand our business with regard to the new TSMC plant," he adds.

As it adapts to a new era in the automotive industry and beyond, Mr. Ichimiya stresses the ongoing importance of synergies, collaboration and knowledge sharing. "The expansion of EVs and automated driving will undoubtedly change the automotive industry. Demands on suppliers will also change significantly, and it will be difficult for us to meet all of these demands on our own. In the future, we will naturally continue to hone our own technological capabilities, but we will also continue to cooperate with external partners as necessary. This applies not only to the automotive parts business, but also to other business areas, such as the recycling raw materials business, semiconductor and the super engineering plastics business."



<https://nissen-chem.jp/>

Handa Heavy Industrial: cooperation through collaboration

From advanced, low-cost products for SMEs around the world to human resource recruitment and development, Handa Heavy Industrial goes above and beyond in support of its clients.



"Handa Heavy Industrial's goal is to become a global company that attracts people, goods, and information from around the world."

Akitaka Niimi, President, Handa Heavy Industrial Co., Ltd.

Founded in 1937, Handa Heavy Industrial provides AI and IoT products and services for small

and medium-sized businesses around the world, and is willing to actively promote cross-border transactions, not only locally in Japan.

"Japan's manufacturing industry remains among the world's best in terms of concentration, diversity, and sales scale," explains company president Akitaka Niimi. "On the other hand, the country, like other developed nations, is struggling with a declining birthrate and an aging population, resulting in an aging workforce.

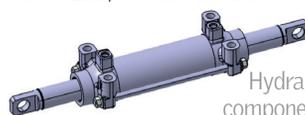
"This means that Japan's manufacturing industry has a great



Image inspection system with AI

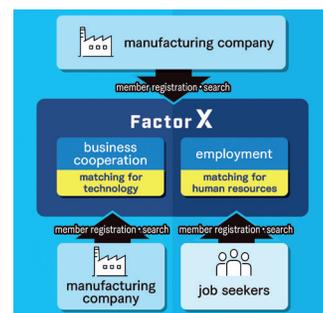
need for automation and human resource recruitment, and its growth potential is immeasurable, with products and services for this industry a promising opportunity. Therefore we developed a new Image Inspection Systems and Factor X recruiting service."

The company manufactures hydraulic cylinders for forklifts and mainly supplies these to TOYOTA L&F, which has the world's



Hydraulic components

highest market share. In addition to the cylinders, it is currently working on the development of electric pumps and considering



Factor X: a cross-border factory transaction promotional service

proposing a total solution for the entire hydraulic unit.

Turning to his next midterm strategy plan, Mr. Niimi concludes that: "There is much more ahead for us, so we will continue to work hard to reach our new goals for the company," adding, "I deeply appreciate all our employees."



<https://en.hanju.co.jp>

Daimei Plastic: sustainable innovation for more than a century

Daimei is looking to continue its model of sustainably creating plastic products of unrivaled quality.



Healthy Foot Washer

A molded plastic parts manufacturer first established over 100 years ago, Daimei Plastic is a leading light when it comes to sustainable innovation.

Daimei has had a long relationship with major home appliance manufacturers since the mid-1950s, and has earned their trust. However, today, it has become a company that has earned the trust of not only home appliances, but also automobile manufacturers who are strict about quality. And president Toru Yamaguchi has no



"Daimei is a company that considers the global environment, grasps market trends, and continues to innovate."

Toru Yamaguchi, President, Daimei Plastic Co., Ltd.

doubt that customer satisfaction is at the heart of the firm's success.

"We regard our ability to meet the demands of our customers as our core competence," he explains, highlighting how prioritizing the customer has led to the development of magnesium alternative plastics and gas-assisted injection molding technology. Daimei's status as a top vendor in a number of fields – a status which, in turn, is linked back to the company's creative output.



We succeeded in significantly reducing the weight by applying gas-assisted injection molding technology in a new way, which has improved the appearance of thick plates with sink marks and dents on the surface.

In addition to B2B products, Daimei has also begun developing and marketing B2C products such as SOEM, which uses environmentally friendly materials, to expand all options.

"Moving forward," Mr. Yama-



SOEM

guchi says, "we would like to address new markets and add a third or fourth pillar for our business.



Gas Assist Injection Molding (interior)

To achieve that, we would like to approach and collaborate with various customers, regardless of the size of the company or the length of its history." In the future, Daimei intends to strengthen its presence overseas, with Asia and North America as important targets.



<https://daimei.jp>

Yamato Gokin: unique materials manufacturer continues to support global industry

As a leading firm in the manufacture of thermally conductive materials, Yamato Gokin is now looking to tackle the global market.



"The company as a whole has a wealth of experience in making all sorts of different alloys."

Genjiro Hagino, President,
Yamato Gokin Co., Ltd.

First established more than 80 years ago, Yamato Gokin now supplies more than 100 different copper alloys and is looking to expand its customer base around the world.

The firm already counts Honda among its clients, and has the

capacity to supply its products to an increasingly diverse range of industries.



Yamato Gokin begins by melting its special copper alloys

While the company has become "very successful" in making products for fusion reactors, president Genjiro Hagino states that Yamato Gokin is "still conducting research in other industries, for applications in hydrogen industries, powders and even 3D printing."

Of those mentioned above, it is the hydrogen industry that appears to offer the most potential. Copper alloys, Dr. Hagino explains,

are resistant to hydrogen embrittlement, making them suitable for parts of the heat exchangers under the high pressure of hydrogen in hydrogen stations.

As well as growing its existing presence in Portugal, the firm is keen to target the U.S. and Canadian markets. Dr. Hagino adds: "Currently we are exporting our materials to Europe for use in aerospace and fusion energy industries, as I believe our technical capabilities are higher than those of local companies."



Copper chrome zirconium

With the applications for the firm's materials potentially "end-



Bushings from Yamato Gokin's alloys used in airplanes

less", however, Dr. Hagino is equally focused on employee wellbeing. A yearly music concert and barbecue for all Yamato Gokin employees, subcontractors, and locals provides the opportunity for them to exchange views on the way the company is run, a process which Dr. Hagino himself describes as "very important".

As for the future, the goal is to have as many global branches as possible so that Yamato Gokin's reputation continues to flourish in the years to come.



www.yamatogokin.com/en

Unique industrial challenges require unique pipe milling solutions

For over a century, Kusakabe Electric & Machinery has developed pipe mills for customers in fields that range from the automotive to the nuclear power industry.



"We have been to different countries to address different markets and were willing to take on difficult challenges that our competitors were not."

Ryouji Kusakabe, President, Kusakabe Electric & Machinery Co., Ltd.

With a company history stretching back over 100 years, Kusakabe Electric & Machinery is an important behind-the-scenes presence in a number of different industries.

Working in a variety of sectors means that partnerships are

key, as company president Ryouji Kusakabe explains: "We cannot just copy our technology from one place to another. We have to customize and fine tune it in line with different conditions and technologies."

Such an approach has brought clear dividends in product terms. Mr. Kusakabe again: "In the process of partnering with clients to come up with the best solutions, we mutually advance our technologies."



Automotive stabilizer tube mill

One such technology is the DNC shear-type cut-off press, a motor-driven press whose method causes no pipe deformation, leading to higher yields.

Other well-known products include the automotive stabilizer tube mill, which is used to manufacture manganese boron steel and is the first choice of manu-



DNC shear-type cutoff

facturers all around the world.

Looking to the future, the company has identified a number of areas for further expansion. With an existing presence in the USA and EU, the next target could be South America, India or even the Middle East.

But as Mr. Kusakabe is keen to point out, size isn't the be-all and end-all: "Our goal is not to enlarge the size of our business, but to obtain recognition from the market. The aim is not necessarily to achieve returns on our investments, or higher revenues, but to add value to our clients."



www.kusakabe.com/eng