The Kawasaki Pant of Nippon Yakin Kogyo.

The Kawasaki Plant in 1942

Built to Last: Nippon Yakin Kogyo celebrates 100 years of materials excellence

Celebrating nearly a century of expertise, Nippon Yakin Kogyo continues to be a trusted name in stainless steel innovation. Since 1925, this Japanese manufacturer has supplied a wide spectrum of high-quality strips and plates - from everyday stainless grades like 304 and 316L to advanced materials such as super austenitics and nickel alloys - supporting critical applications across industries worldwide. Stainless Steel World met with Mr Shigemi Urata, President and Representative Director, to learn about how the company is celebrating its centenary and the company's ongoing ambitions.

By Kiyo Ichikawa & Joanne McIntyre, Stainless Steel World

Nippon Yakin's story began in 1925 with the manufacture of fire extinguishers. This initial focus soon expanded into pyrotechnics and metallurgy - an evolution driven by the company's technical expertise in handling explosives and dispersing fire-suppressant agents. By 1935, Nippon Yakin had produced its first batch of stainless steel, setting the stage for its long-term presence in advanced materials.

Recognising early on the emergence of China's stainless steel industry in the late 1990s, Nippon Yakin made a strategic shift. Drawing on its technological strengths, the company expanded its focus to high-performance materials, particularly super austenitic stainless steels and nickel alloys. Today, it is a major supplier of both general-purpose stainless steel and high-performance flat products, including plates and strips. With annual shipments exceeding 10,000 tons of nickel alloy flat products, Nippon Yakin ranks among the world's leading producers in this niche.

As the company celebrates its centenary in 2025, it has launched a dedicated anniversary website and is marking the occasion through various media campaigns, including features in industry publications. A commemorative logo has also been introduced across company materials.

Looking ahead, Nippon Yakin has outlined its 2030 vision with a focus on resilience and sustainability. This forward-looking approach highlights the importance of diverse raw materials, inclusive teams, and adaptable product offerings in navigating global challenges.

"This year marks our 100th anniversary, but the journey has had many twists and turns. We are deeply grateful to our business partners who have supported us along the way," says Mr. Urata.

Mid-term management plan 2023-2025

As Nippon Yakin approaches its centennial milestone, the company is advancing its Mid-term Management Plan 2023 (FY2023–FY2025) with the goal of securing resilient and sustainable growth beyond 2025. This strategic roadmap is shaped by a recognition of the rapidly evolving global landscape and the need for adaptability in the face of ongoing uncertainty.

The plan centers on diversification—both in product offerings and raw material sourcing—while emphasising the company's commitment to environmental responsibility. As a leading player in the nickel alloy and stainless steel markets, Nippon Yakin has identified three core strategies:

1. Seek to meet the needs of increasingly advanced markets by developing and supplying industrial materials that create new value.
2. Build an efficient production framework to increase our technical advantage and adapt to changes in our market environment.
3. Establish a sustainable management foundation that is resilient to changes in our environment.

To realise these goals, the company is undertaking several key initiatives:

- Expanding sales of high-performance materials in growth sectors and strategic markets.
- Broadening its product demensions range through deeper collaboration, particularly via its joint venture in China.
- Advancing manufacturing technologies to support stable, scalable production of diverse high-performance materials.
- Securing leadership in next-generation technologies aligned with carbon neutrality targets, including low-emission nickel smelting.
- Executing long-term plans for human capital development, R&D, and capital investment.

Through these focused efforts, Nippon Yakin is positioning itself to lead in a future defined by innovation, sustainability, and global collaboration.

Ongoing investments

Nippon Yakin continues to strengthen its operations through targeted capital investments in advanced technologies and international expansion. One key development is the installation of a new cold rolling mill at the Kawasaki Plant. Commissioned in 2024 and fully operational by December, the mill has delivered a more stable and efficient production system. It has also improved workplace conditions, reduced labour needs, and enhanced the quality of coil products—particularly in response to growing market demand for cold rolled materials.

Another major initiative is the construction of a cutting-edge material evaluation test facility designed for hydrogen environments, scheduled for completion by the end of fiscal year 2025. This facility, equipped with the latest testing systems, is expected to begin operations in March 2026, supporting the development of next-generation materials for the energy transition.

In line with its strategy to expand high-performance material sales in international growth markets, Nippon Yakin plans to establish a local corporation in India in 2025. Once operational, the Indian entity will merge with the company's Singapore subsidiary, forming a regional hub serving India, ASEAN countries, and the Middle East. This move is aimed at supporting increasing demand in the energy and environmental sectors across these dynamic markets.

Further investment is being made in green manufacturing through the installation of a carbonless nickel smelting system at the Oheyama Plant, which is progressing on schedule.

FY2024 market insights

Reflecting on 2024, Mr Urata noted several challenges facing the special stainless steel sector, including project delays due to labour shortages in construction and slower-than-expected recovery in semiconductor-related demand. However, he highlighted sustained demand for high-performance

"Nippon Yakin offers an extensive range of high-performance alloys, each with unique characteristics,"

Mr Shigemi Urata, President and Representative Director

[Cover Story]

A message from the President

"This year marks the 100th anniversary of Nippon Yakin Kogyo—a milestone made possible by the enduring support of our valued business partners. On behalf of the entire company, I extend our deepest gratitude."

"Rather than a destination, we view this centenary as a stepping stone toward an even more dynamic future. Guided by our core values of strength, adaptability, and resilience, we remain committed to contributing to a sustainable society while pursuing sustainable growth of our own."

Mr Shigemi Urata, President and Representative Director, Nippon Yakin Kogyo

The building housing Nippon Yakin Kogyo's headquarters in Tokyo has been decorated with a large banner celebrating its 100th anniversary.

materials in environmental and energy applications—particularly flue gas desulfurisation equipment for thermal power plants in India.

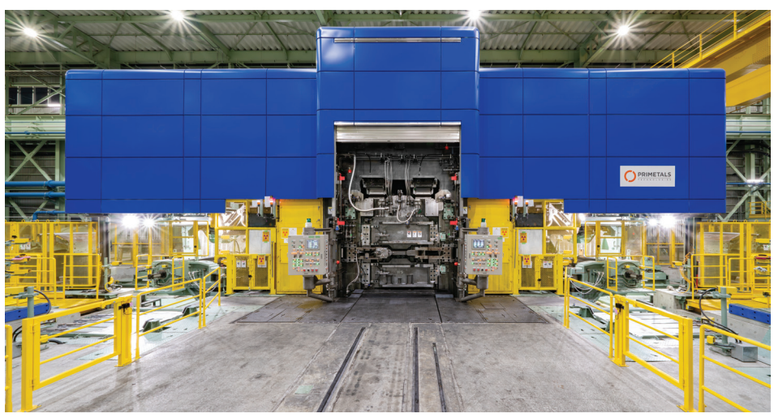
Progeress from inventory adjustments in the consumer goods sector, especially for sheath heater materials used in home appliances, also had a stabilising effect. Meanwhile, solar-related projects in China experienced a slowdown, contributing to a generally subdued demand environment.

Despite these headwinds, Nippon Yakin continued to execute its Mid-term Management Plan 2023, focusing on growth opportunities in transportation equipment, home appliances, oil and gas, and carbon-neutral applications. As a result, the company achieved year-on-year growth in sales volume. But profits have slightly decreased compared to the previous year, due to the impact of sales structure of high-performance materials and so on.

Expanding sales of high-performance materials

A defining strength of Nippon Yakin's high-performance materials business is the breadth and versatility of its product lineup. These materials offer superior corrosion resistance, heat resistance, mechanical strength, and magnetic properties - making them suitable for demanding environments where general-purpose stainless steels fall short. They are especially valued in highly corrosive or high-temperature applications and areas requiring enhanced mechanical performance.

"Nippon Yakin offers an extensive range of high-performance alloys, each with unique characteristics. By leveraging these individual strengths, we are able to meet a wide variety of customer needs," says Mr. Urata. "This diversity also allows us to mitigate the risk of overdependence on any one sector by balancing demand across multiple applications."



A new cold rolling mill at the Kawasaki Plant has delivered a more stable and efficient production system.

Real-world applications

Consumer Products - One everyday example is the sheathed heater, used in products such as electric water heaters, coffee machines, and cooking appliances. These components support modern living while contributing to decarbonisation through electrification. Sheathed heaters are made by encasing a heating element (e.g., nichrome wire) in a metal tube filled with insulating powder. Nippon Yakin supplies sheath materials, including NAS800 (Alloy 800), NASH840 (Alloy 840), and NAS825 (Alloy 825), selected based on the required level of heat and corrosion resistance.

Oil & gas sector - In oil and gas operations, the presence of CO_2 and H_2S demands materials with high corrosion resistance for pipelines, risers, and other components. Depending on environmental severity, nickel alloys like NAS825 (UNS N08825) or the more corrosion-resistant NAS625 (UNS N06625) are used. In less aggressive environments, super austenitic stainless steel NAS185N (UNS S31254) or super duplex NAS74N (UNS S32750) may be more appropriate.

Environmental applications - In the environmental sector, particularly in flue gas desulfurisation (FGD) systems for coal-fired power plants, materials must withstand acidic conditions with high chloride content. Nippon Yakin provides a range of suitable materials, including NAS254N (UNS S32053), NAS254NM (UNS N08367), NAS74N (UNS S32750), and NAS NW276 (UNS N10276), selected according to specific design and performance requirements.

By continuing to broaden the use of its high-performance materials across diverse sectors, Nippon Yakin not only supports critical industries but also advances its long-term strategy for sustainable growth.

A cutting-edge material evaluation test facility for hydrogen environments will be completed by the end of fiscal year 2025.

Hydrogen energy initiatives

As the push toward carbon neutrality accelerates, hydrogen has emerged as a key enabler of decarbonisation due to its ability to generate energy without CO_2 emissions. Across the hydrogen value chain—from production and transport to storage and end-use—technological development is rapidly advancing, opening new opportunities for materials innovation.

Nippon Yakin's materials are already being used in hydrogen production systems and in heat exchangers for hydrogen refuelling stations. As new applications continue to emerge, the company's Solutions Sales Department is proactively identifying trends, engaging with industry experts, and expanding its knowledge base. These efforts include participation in hydrogen-focused exhibitions and outreach to both existing and prospective customers.

In October 2024, Nippon Yakin made its debut at the Hydrogen Technology Expo in Hamburg, Germany. Building on this momentum, the company will exhibit at the Hydrogen Technology Expo North America in Houston, Texas, in June 2025, further reinforcing its commitment to the hydrogen sector.

In parallel, Nippon Yakin is making a significant R&D investment in hydrogen-related materials. A dedicated test facility for evaluating material performance in hydrogen environments is set to be completed this year. The first phase includes the installation of equipment to measure tensile and fatigue properties under high-pressure hydrogen gas. Future phases will incorporate testing in liquid hydrogen environments, addressing known challenges such as reduced ductility and fatigue strength. In-house testing capabilities will not only accelerate the selection of candidate materials but also support the development of next-generation alloys tailored for hydrogen applications.

Expanding global presence through industry exhibitions

Exhibiting at major international events remains a key component of Nippon Yakin's strategy to promote its high-performance materials, connect with customers, and strengthen global relationships.

Since first exhibiting at the Stainless Steel World Expo in 2004, Nippon Yakin has maintained a strong presence at this flagship event for the stainless steel and speciality alloys sector.

The event attracts a wide spectrum of professionals—including material manufacturers, pipe producers, and distributors—from across Europe, the U.S., and Asia. The company will once again participate in the 2025 edition, to be held in Maastricht, the Netherlands, with activities coordinated through Nippon Yakin Europe Limited (Nippon Yakin's European subsidiary in London).

Expanding beyond traditional markets, the company made its first appearance at ADIPEC 2024 (Abu Dhabi International Petroleum Exhibition and Conference), one of the world's largest gatherings for the energy sector. The event provided valuable exposure not only to Middle Eastern oil and gas players but also to manufacturers and suppliers from India, China, and Europe.

Recognising the value of this platform, Nippon Yakin plans to return to ADIPEC 2025, bringing together teams from its international offices to further its presence in this vital region. ▲

Facts & Figures

Name:	Nippon Yakin Kogyo Co., Ltd.
Founded:	1925
Employees:	1,171
Headquarters:	Tokyo, Japan
Offices outside Japan:	London, Chicago, Singapore, Shanghai, Nanijing
Products:	Plates, sheets and coils
Materials:	Stainless steels, super stainless steels, nickel alloys and iron-nickel alloys
Website:	www.nyk.co.jp/en/