Nippon Yakin Kogyo Co Ltd - High-performance materials specialist

The Kawasaki plant of Nippon Yakin Kogyo.

As a specialist in stainless steel manufacturing, Nippon Yakin Kogyo Co Ltd is moving toward next-generation fields as it challenges the possibilities of stainless steel with new technologies. The Japanese company specializes in high performance materials and continues to innovate and invest in further improving both the product range it offers, and the level of service it provides to customers. Stainless Steel World spoke to company CEO Mr. Hajime Kimura about how the global market for high end nickel alloys is performing, and the areas in which the company is excelling.

By Kiyo Ichikawa & Joanne McIntyre

This year Nippon Yakin Kogyo Co. celebrated the 90th anniversary of its founding as a Japanese manufacturer of standard stainless steels and high performance materials such as super stainless steels and nickel alloys. The company is particularly proud of its annual turnover of more than 10,000 tons in flat nickel alloy products, a sales volume which places it among the top three producers in the world. In addition, the company has achieved a sales surplus for the second consecutive year.

Mr. Hajime Kimura, CEO stated: "In the short term there are headwinds to be faced, such as the decline of customer's purchasing momentum due to a downturn in the nickel price, and the delay of oil & gas projects due to the depressed oil price. However

we fully expect the market to improve in 2016. Therefore we have no plans to change our company policy of focusing on expanding sales of high-performance materials as outlined in our medium-term management plan. We will also continue with the integration of various types of equipment and market developments. By expanding the sales of high-performance materials we will continue to enhance the value of our company in the world, for the future."

Sales of high-performance materials

The business development team at Nippon Yakin is focusing on expanding sales of high-performance materials. "In order to be a partner for Japanese companies involved in both domestic and international projects, it's important to secure orders overseas in areas where those companies are active and investing," explains Mr. Kimura. "Our team obtains information from both our domestic branches and overseas subsidiaries (London, UK, Chicago, U.S.A., Shanghai, China and Singapore) to expand our operating activities rapidly and in a timely manner by scrutinizing and sharing this information."

"In the research of new and demanding fields where high-performance materials are applied we have close contact with key players to keep them informed about the superiority of our products. We've also done PR for our customers by cooperating with the R&D department and the manufacturing sector. Examples are for instance our involvement in the chemical industry in fields such as acrylic acid and VCM (vinyl chloride monomer) plants; nuclear applications such as the disposal of equipment after the nuclear accident in Fukushima and transportation & storage equipment for spent nuclear fuel; and the oil and gas industry. In addition, as a commitment to the domestic Japanese market, we are assisting in flood control systems such as water gates and reservoir tanks."

Investments in improved technology

As part of the company's medium-term management plan, the annealing and picking line for cold-rolled products was recently remodelled. Mr. Kimura continues: "By adding a pickling pre-treatment device, high-performance materials and standard stainless steels can be separately pre-treated. Three types of pickling tanks can be selected at any time according to the type of alloy.

Company CEO Mr. Hajime Kimura: "Our goal is to continue innovating with nickel alloys and other high-performance materials."

This has improved production efficiency, reduced energy costs and shortened delivery times."

High performance metal sheath heaters and oil & gas production-related tubing are also key products produced for Nippon Yakin. "These are produced using a narrow-width coil and the high quality of the slit section is required for the laser welding of small diameter pipe. In March 2015 we invested in a precision slitter for high-performance materials in order to meet this demand. The precision slitter has enabled us to reduce delivery times while also improving cutting accuracy, and has contributed to increased sales for sheath heaters."

Application of high-performance materials

During the 2015 ISSF General Assembly Nippon Yakin was awarded the New Applications Award in the Best New Technology Award Category for a joint

The annealing-pickling line for cold rolled products was was recently remodelled.

project carried out with NSSC. The award was given for the lining jackets made of the super stainless steel NAS185N (UNS S31254) and NAS354N (UNS N08354), used to cover piles standing in the sea for Haneda Airport D Runway. "The concept of it is to last for 100 years," explains Mr. Kimura. "Following this award we expect the use of this stainless steel grade to expand; it has already been adopted for use in various port facilities. For example it was used for a port in Tohoku, where a quay was submerged following an earthquake. This material was used for a new pier in a highly corrosive environment."

The company's highly corrosion-resistant alloys have also been successfully applied in the environmental field. "We installed a flue gas desulfurization unit at a coal-fired power plant in order to prevent pollution. The environment inside this facility is too harsh for all-purpose stainless steel, so specialty grades such as NAS254NM (UNS N08367) or highly corrosion-resistant Ni alloy such as NASNW 276 (UNS N10276) is specified. We are focusing on expanding sales in China as this has a strong market for these products, as well as Southeast Asia where we expect to see growing demand."

Mr. Hajime Kimura, CEO of Nippon Yakin (left), receiving the ISSF New Applications Award from Mr. Edwin Basson, Director General of the World Steel Association.

Heat-resistant alloys

In addition to highly corrosion resistant materials, heat-resistant alloys are also one of main high-performance materials produced by Nippon Yakin. Mr. Kimura explains: "These include grades with excellent carburization resistance such as NASH 330 (UNS N08330). NAS800H (UNS N08810) and NAS800T (UNS N08811) also have excellent high-temperature corrosion resistance and high-temperature strength. NAS601 (UNS N06601) has excellent cyclic oxidation resistance, while NASHX (UNS N06002) has special strength at extremely high temperatures. All of these grades are used both domestically and overseas. In recent years, we have developed NASH38X (UNS N08120) plate which is applicable for more severe high-temperature environments to strengthen our lineup. We are prepared to respond to the diverse needs of customers in various high-temperature applications."

Low thermal expansion alloy

The field of aircraft manufacturing requires materials with very low thermal expansion, and alloy NAS36 excels in this application, continues Mr. Oikawa. "The heat expansion rate of NAS36 (Fe-36% Ni alloy) is one-tenth of carbon steel. It is typically used as a mold for carbon fiber composite aircraft components because they have minimal shape change during heat molding. NAS36 has very low thermal expansion properties. In the past large amounts of this alloy was used for shadow mask of cathode-ray tubes in televisions. Our company has manufactured this alloy for over 30 years and with our accumulated technical know-how in producing

Acquisition of NORSOK

The company has undertaken a number of the concrete measures to implement its high-performance materials sales strategy with the aim of strengthening sales in the oil and gas sector. One of the most important was the acquisition of NORSOK certification for duplex stainless steel S31803/S32205, super duplex stainless steel S32750 and super austenitic stainless steel S31254. "The NORSOK standard was introduced in the mid-1990's by the Norwegian oil industry to ensure the safety of work and facilities involved in oil drilling and production in the North Sea," explains Mr. Kimura. "Although oil & gas projects have suffered delays or postponement recently, we expect an increase of sales as a result of our NORSOK acquisition. We are currently in the process of adding to the steel grades qualified and expanding the application size for qualification."

Polka Plate

The sale of so-called Polka Plate made from type 304 is and expanding market for Nippon Yakin. The plates are durable and the 'dots' on the surface prevent slipping while making it easy to clean. Compared with conventional checkered plates such as ASTM A3 pattern B, Polka Plates are easier to both move and walk over.

Mr. Sato explains: "The aesthetic appeal of the dot textured plates makes them an excellent choice, particularly when a pleasant appearance is required. We've had inquiries from Europe while in Japan, it's already a popular product. It was chosen for the elevator floors of Kansai-kan of the National Diet Library and for the openable gate for the Nagoya University of Commerce & Business (pictured).

Nippon Yakin Europe (left to right) : Shingo Tanno, Senior Manager of technical sales engineering and marketing; Toshiyuki Nagaiwa, Managing Director; Camilla Megumi Hensenius, Secretary

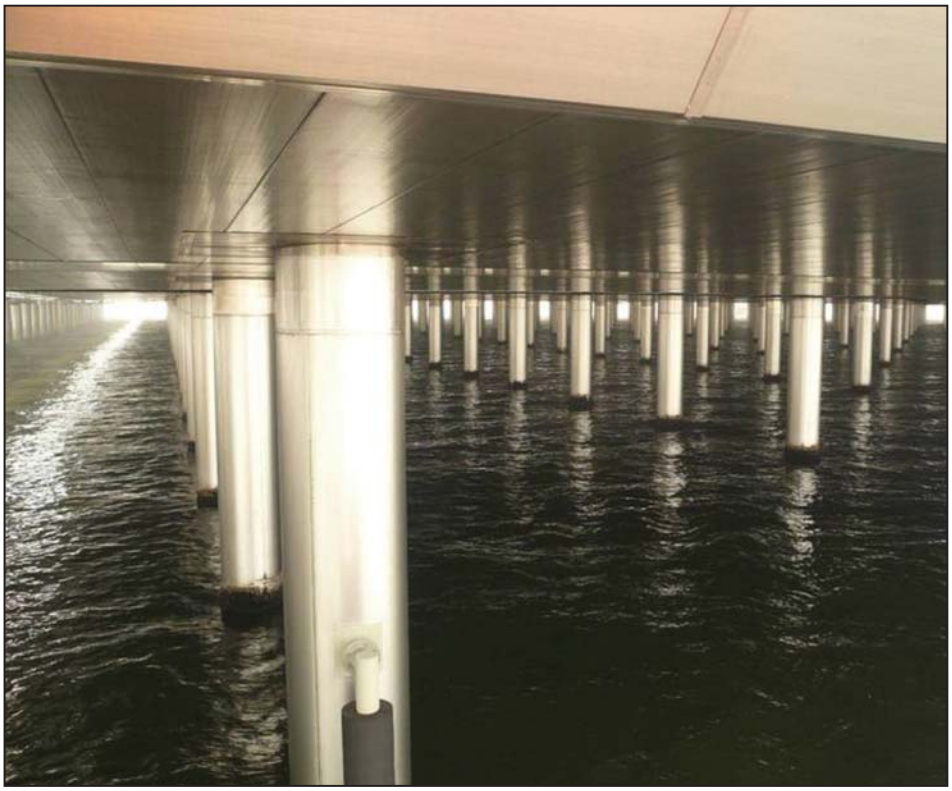
NAS36 we expect increased sale in the aircraft industry. There is already strong demand from clients who make the body and wings of Boeing 787 aircraft."

Introduction of European subsidiary

Nippon Yakin Europe Limited is located in London, UK and was established as the company's European business location in 2012. "We're making new customers and following up with existing customers, while research of the information we received from the London office has been played an important role for our other overseas offices in the US, China and Singapore," explains Mr. Kimura. Mr. Nagaiwa, managing director of Nippon Yakin Europe says: "From our London office we provide sales and technical support based on Japanese standards to our customers all over Europe. In the European market, our high-performance materials are used in the manufacturing of high tech products in various industries such as oil & gas, energy, chemical, automotive and home appliances. We will continue to cooperate with our reliable customers for our mutual growth in future."

Conclusion

"Three years have passed since I became the president of this company," says Mr. Kimura. "Every year I travel abroad 3-4 times to meet with end-user customers. It's very important to us as a company that we constantly strive to make our customers 100% satisfied. If any problem occurs, we need to solve it with great sincerity. How one solves problems is an important key for any manufacturer because the way in which we communicate and handle ourselves in these situations can deepen trust in relationships. Looking ahead, our goal is to continue innovating with alloys and other high-performance materials to meet the needs of industry for a better today and a better tomorrow."



Super stainless steels with high corrosion resistance in sea water environment,NAS185N and NAS354N, are used for lining jacket at Haneda Airport D runway.NAS185N covers the piles mainly, but NAS354N, which has superior corrosion resistance than NAS185N, covers the upper parts of the piles where is very severe environment for stainless steel.

Facts & Figures

Name:	Nippon Yakin Kogyo Co., Ltd.
Established:	1925
Employees:	1,067
Headquarters:	Tokyo, Japan
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Products:	Plates, sheets and coils
Materials:	Stainless steel, super stainless steel, nickel alloys and iron-nickel alloys
Website:	www.nyk.co.jp/en