

Nippon Yakin Kogyo Co. Ltd.: offering worldwide

Nippon Yakin Kogyo Co. Ltd. (Nippon Yakin) is a Japanese stainless steel and nickel alloy manufacturer that was founded in 1925. As a company it supplies many different types of flat products made of materials ranging from general-purpose stainless steel, such as type 304, to high-performance materials like super stainless steel and nickel alloys, etc. It sells more than 10,000 tons of nickel alloy flat products per year, making them one of the world's leading stainless steel and high-performance alloy manufacturers.

During the 2016 fiscal year, Nippon Yakin posted a profit for the fourth consecutive year. This past May, a *Medium-Term Management Plan 2017* (including the fiscal years of 2017 to 2019), was drawn up to respond to the intensification of competition in the global market for high-performance materials as well as changes in the structure of the stainless steel market due to industry reorganization in Japan.

By Candace Allison

Straight forward planning

The detailed *Medium-Term Management Plan 2017* lays out a straight forward plan for the fiscal years ahead and includes the following three company objectives:

(1). Establishing Nippon Yakin Kogyo's position as the leading supplier in the high-performance materials market in Asia through superior quality, cost and delivery (QCD) competitiveness.

(2). Establishing Nippon Yakin Kogyo's position as a reliable and trust-worthy supplier in the domestic stainless steel market.

(3). Continuing to establish Nippon Yakin Kogyo as a company that contributes to society by considering the local environment, recycling, resource saving, and energy conservation.

In order to follow through on these important objectives, Nippon Yakin has formulated a range of policies that will help it better serve clients all over the world. The main policies include the following mandates:

- In order to further develop its high-performance materials business, Nippon Yakin will continue to strengthen the competitiveness of speciality products, and expand product line-ups to uncover the demand in key sectors and markets for the expansion of high-performance materials sales. The company will also expand global sales and production systems and strengthen efforts in the Asian market along with other emerging markets.

- Through strategic capital investment, Nippon Yakin will concentrate on manufacturing process innovation to help strengthen the QCD competitiveness of high-performance materials and to help expand the product size with improving the added value.

- Nippon Yakin will also develop systems to respond to structural changes in the domestic stainless steel market.

Superior high-performance materials

Nippon Yakin offers its worldwide clients a whole range of reliable high-performance materials that feature corrosion-resistance and heat-resistance properties. Customers can greatly benefit from using these highly engineered materials that are competitively priced and can be delivered anywhere in the world within a reasonable timeline.

Corrosion resistant materials

Nippon Yakin Kogyo manufactures super austenitic stainless steels with excellent corrosion resistance, such as UNS S31254, UNS S32053, UNS N08367, and UNS N08354. These are typically used in flue gas desulfurization units and installed as air pollution prevention devices in coal-fired power plants. As a result of the recent environmental measures currently being enforced in China, sales of these corrosion resistance materials are expected to increase over the next few years.

Another target field for Nippon Yakin's corrosion-resistant materials is the oil & gas sector. In order to strengthen competitiveness in this field, the company has obtained NORSOK certification. The NORSOK standard was introduced by the Norwegian oil



Nippon Yakin's four foot-wide coils of highly corrosion resistant nickel alloy UNS N10276.



The annealing process at the Kawasaki Plant.

industry when it was developing North Sea oil in the mid-1990s and is now one of the main standards in oil and gas development. These certifications ensure adequate safety and cost effectiveness for the petroleum industry's developments and operations.

In March 2015, it obtained NORSOK certification for its general-purpose duplex stainless steels UNS S31803/S32205, super duplex stainless steel UNS S32750, and super austenitic stainless steel UNS S31254 in thick plate form. Then in December 2015 certification was acquired for these types of steel in hot rolled coil form. A year later in November 2016, certification was completed for expanded guaranteed range of plate thickness for UNS S32750 thick plate type and for UNS S32760 thick plate type as a new steel type. Although stagnation in oil & gas projects has continued into 2017, some investments have been made in maintenance renewals, etc., and in the future when demand in the field recovers Nippon Yakin will be able to support customer demand with its NORSOK certified materials.

Nickel alloys

Nippon Yakin also produces nickel alloys UNS N06625, UNS N06022, and UNS N10276 as superior materials than super austenitic stainless steels, which are used in a range of extremely severe corrosive environments. In recent years, the need for wide-width coil products has increased, however, these alloys are difficult to hot roll into wide coils due to their high strength capabilities in high temperature ranges. As a result of investments in technological developments, in December 2015 Nippon Yakin succeeded in manufacturing UNS N10276 in four-foot-wide coils. In April 2016, Nippon Yakin succeeded in also manufacturing UNS N06625 in four-foot-wide coils. Currently, there are few manufacturers of four-foot-wide coils in these alloys, and Nippon Yakin will work to strengthen the corresponding sales as speciality products in the *Medium-Term Management Plan 2017*.

Heat resistant materials

Nippon Yakin's heat-resistant materials occupy a large share of the sheathed heater market. Sheathed heaters comprise a heating element such as nichrome wire wrapped in an insulating material, like magnesium oxide, and enclosed in a metal pipe. These are widely used in residential homes as cooking heaters and electric water heaters and in industrial applications. With their high quality and price competitiveness, Nippon Yakin's Alloy 800, Alloy 840, and Alloy 825 are widely used around the world as materials for metal piping. Recently added to the line-up is the new alloy H880 (25Ni - 24Cr - Mo, Al, Ti), which is superior in corrosion resistance to alloy 800 and is lower in cost than alloy 825. The company is expanding sales activities with electrical water heaters as the main target.

Nickel alloys UNS N08810 and UNS N08811, which have excellent strength and corrosion resistance in high temperatures, are used for reaction vessels in plants producing polycrystalline silicon, which is a material used in solar cells. Sales with these two alloys are strong, especially to China. Thick plate in UNS N08120, which is superior to these two alloys, has recently been developed and sales are already increasing.

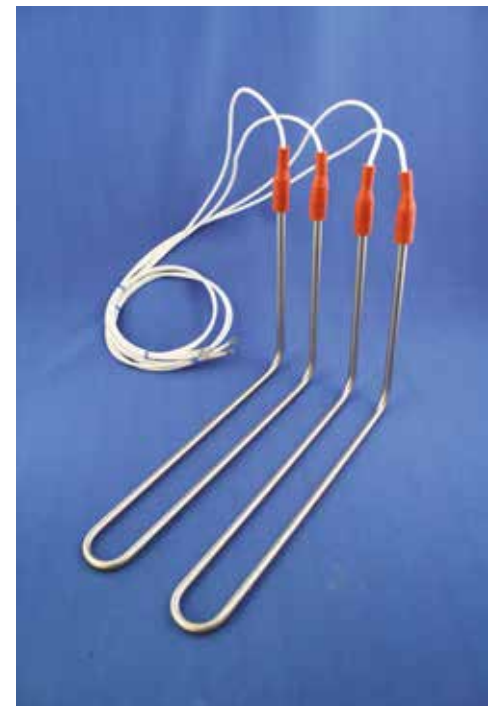
Another of Nippon Yakin's markets for



The steelmaking process at Nippon Yakin Yogyo's Kawasaki Plant.



The hot rolling process at the Kawasaki Plant.



The exterior of a sheathed heater.

clients superior high-performance materials



The New Technology Prize 2017 Silver Award.

heat resistant material is in industrial furnaces. The nickel alloy UNS N06600, with excellent oxidation resistance and nitridation resistance, and nickel alloy UNS N06601, with excellent cyclic oxidation resistance, are used both domestically and abroad. Also, the nickel alloy UNS N06002, which is particularly strong in high temperatures is often used for constructing gas turbine components.

Along with the above-mentioned heat-resistant alloys, the line-up of Nippon Yakin's heat-resistant materials also includes UNS N08330, which has excellent carburization resistance and is set to become a competitive speciality product.

Aesthetic stainless steel

In addition to its broad range of high-performance materials, Nippon Yakin also offers customers high-quality aesthetic stainless steel. For instance, POLKA PLATE is a 304 stainless steel plate for flooring made with protrusions in a polka-dot style pattern. Since it has excellent anti-slip properties and is easy to clean, it has traditionally been used for factory floors and staircases in the food, chemical, and pharmaceutical industries. For example, it helps prevent workers from falling in areas like food factory wash up areas

where cooking utensils such as pots and pans are frequently washed and water can be easily splashed onto floors. The material is so innovative that even if it becomes wet it does not get slippery. This is why it has received a lot of attention from a safety viewpoint, and sales of it are ever increasing.

Nippon Yakin also supplies modified type 316L, which is an improved material with excellent hydrogen embrittlement resistance. This helps to contribute to a clean society. Generally, when materials such as stainless steel are exposed to an environment that is high in hydrogen, hydrogen embrittlement occurs. This is a very big problem in the industry. So the hydrogen embrittlement resistance of this steel is improved by optimizing the steel's chemical compositions and in turn greatly benefits clients. It is currently being used in heat exchangers at hydrogen stations for fuel cell vehicles. It even won the 2017 Silver Award for the Best New Applications featuring New Technology at ISSF 21, the ISSF Conference held in Tokyo, Japan this past in May.

The importance of exhibitions

Nippon Yakin continues to have a booth presence at international exhibitions to im-

prove name recognition, to provide PR to promising new customers, and to negotiate and interact with existing customers.

Special emphasis is placed on the Stainless Steel World exhibitions as they are one of the largest exhibitions in the field of stainless steels and nickel alloys. At the Stainless Steel World Americas 2016 Conference and Exhibition held in Houston, Texas in November 2016, a booth was run mainly by staff from Nippon Yakin America, Inc. (Nippon Yakin's American subsidiary), which helped to raise awareness of Nippon Yakin and Nippon Yakin America, Inc.

The company will also be part of the Stainless Steel World Conference and Exhibition 2017, which will be held in Maastricht, The Netherlands this upcoming November. Nippon Yakin will be at booth S155 right near the entrance of the venue and is planning to run activities mainly with staff from Nippon Yakin Europe Limited (Nippon Yakin's UK subsidiary).

Nippon Yakin America, Inc.

Nippon Yakin would like to introduce its US subsidiary, Nippon Yakin America, Inc. This branch is yet another way the company is able to strengthen the sales of its high performance materials through a network of

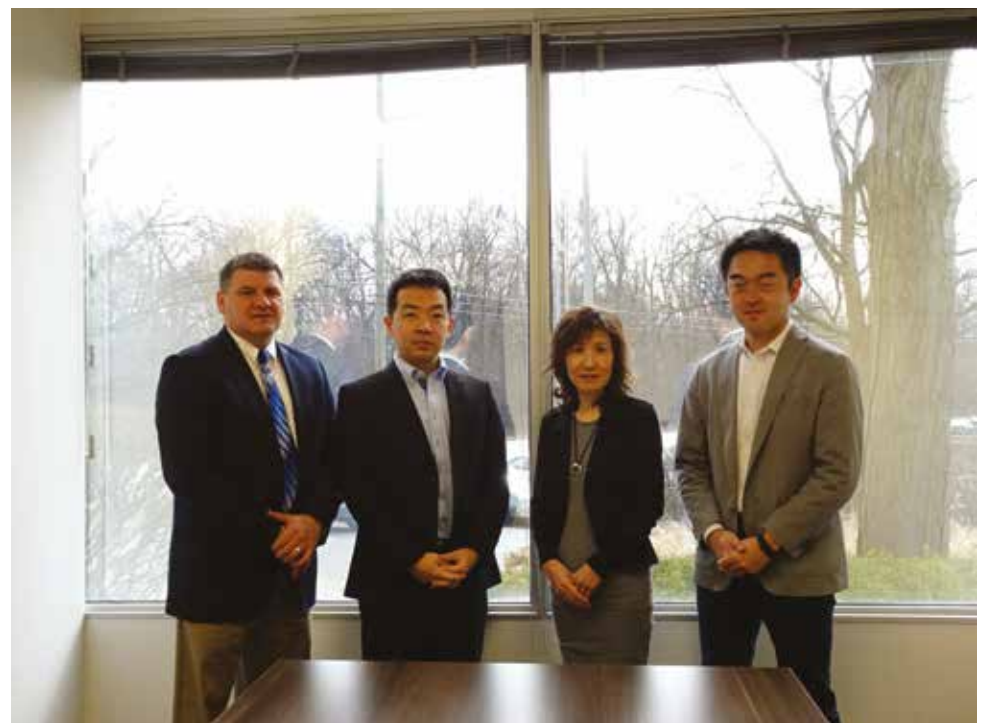
four centres around the world: Japan; the United States (Chicago); Europe (London); and Asia (Shanghai and Singapore).

Regarding this American subsidiary, President Kobayashi commented,

"We have been based in Chicago, USA, since 2011 and are mainly engaged in sales and technical support for customers in North, Central, and South America. Nippon Yakin's high-performance materials, through Japan's technologies and services, are used in a wide range of fields, and our growth continues to be led by solid US demand, particularly in fields related to residential and home electronics. In addition, our materials are used in the energy and industrial fields and the aviation industry. We have received high appraisal from our customers as a leading Japanese high-performance materials manufacturer, and every day we see the steady penetration achieved by the Nippon Yakin brand."

Nippon Yakin, through a range of practical policies and superior products, will continue to enhance its enterprise value as a special stainless-steel manufacturer with competitive strength both domestically and internationally, on its two pillars of high-performance materials and general-purpose stainless steel.

Interview conducted in early May 2017



Nippon Yakin America: (from right to left) Kobayashi, President; Sue, Administrative Secretary; Tsutsumi, Senior Manager Technical Sales; and Perry, Sales Manager.



The Nippon Yakin Booth that was at the Stainless Steel World Americas Exhibition in November 2016 in Houston, Texas.

► Nippon Yakin Kogyo at a glance

Company name:	Nippon Yakin Kogyo Co., Ltd.
Established:	1925
Employees:	1,091
Headquarters:	Tokyo, Japan
Overseas offices:	<ul style="list-style-type: none"> • Nippon Yakin America, Inc. (Chicago, USA) nya@yakin-america.com • Nippon Yakin Europe Limited (London, UK) nyklondon@yakin.co.uk • Nippon Yakin Shanghai Co., Ltd. (Shanghai, China) info@nyk-sh.cn • Nippon Yakin Asia Pte. Ltd. (Singapore) yakin@yakin-asia.com
Products:	Plates, sheets, and coils
Materials:	Stainless steels, super stainless steels, nickel alloys, and iron-nickel alloys
Website:	www.nyk.co.jp/en