

KOBELCO

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WELDING TODAY



KOBELCO Puts the Customer First with All-in-One Product and Service

Enhancing the Total Welding Solution and Building Stronger Relationships with Customers Worldwide

A happy new year to dear KWT readers! One month has already passed since we rang in the New Year's Day of 2011. How did you receive your new year? Well-rested and ready for the first-quarter business I hope.

Regarding business at the start of the New Year, we are determined to enhance “the total welding solution of our products and services” through the development of products that satisfy a wide range of customer needs. Our business strategy is ultimately to support and improve manufacturing and production at the end users. So, I hope, more than ever, to receive your continued patronage for Kobelco's welding consumables and equipment.

I would like to describe Kobelco's new organization, which has been designed to meet the challenge of implementing our vision for global business development. The new organization has been developed to carry out two strategies. First, we will strengthen marketing and sales around the world by uniting the domestic and overseas sales and marketing departments into one Marketing Department with a form and purpose suitable for globalization. Second, we will execute research and development of products from the standpoint of providing customers with more integrated technologies; for this, the new Technical Development Department has been reorganized to pursue the development of welding consumables and welding equipment as a total solution of products and services.

For me, the underlying principles for business development are to focus on solving any welding issues peculiar to individual industries and to build stronger and more reliable relationships with customers all over the world. The new business organization is now squarely aimed at accelerating our managing strategy, thereby making our global operations more active around the world. You can expect a range of innovative technical proposals from the new KOBELCO that is dedicated to the advancement of welding technology.

And last but not least, I would like to wish all of you good health as well as prosperity and success in business.



Tsuyoshi Kasuya
Managing Director
Welding Business
Kobe Steel, Ltd.

New Marketing Department Aims to Strengthen Global Operations

Dearest KWT readers! I am Toshihiro Nakamura, the General Manager of the new Marketing Department, reorganized as of October 1, 2010. I would like to express my heartfelt gratitude for your continuous patronage of our welding consumables, robotic systems and equipment.

Since I joined Kobe Steel, I have been in the welding related business for 30 years, with most of that time spent in the marketing and sales of robotic welding systems and equipment. My particular focus was on the **ARCMAN™** series, the robotic welding systems that are used widely in the construction machinery industries in Japan, China and the Southeast Asia. I also worked on the **FCB™** one-sided welding process and equipment, which is preferred in shipyards in Japan and China in particular.

These Kobelco robotic welding systems and equipment are well-regarded in such niche applications where thick steel works must be welded efficiently; the welding of heavy steel plates specifically requires sophisticated procedures to prevent weld defects. To meet such customer requirements, Kobe Steel supplies an integrated set of products and services including welding parameter setup, consumables, power sources, controlling devices, and auxiliary equipment. Such an all-in-one business style satisfies our customers and keeps them loyal.

I would like to describe two of my views related to our marketing and sales. First, I believe that “customers want neither a welding robot, nor a welding consumable, but good quality weld beads by using an efficient welding procedure.” We tend to believe that we are in the business of selling welding consumables or welding robots, but customers actually see our products as a means to an end. With this sense in mind, the newly organized Marketing Department is ready to tackle the more essential task of helping customers solve problems. Second, “market circumstances and customer needs vary according to country or location.” Therefore, our research & development and marketing & sales of welding consumables and equipment must suit individual circumstances and diversified needs.

All of us in the Marketing Department will always remind ourselves to execute our global operations following these two viewpoints. This is my policy and the key issue. We would like to support and advance the welding process that is indispensable to production in cooperation with customers. I am looking forward to seeing you in the very near future.



Toshihiro Nakamura
General Manager
Marketing Department
Welding Business
Kobe Steel, Ltd.

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Figure 5: TRIFARC™ process in operation at Sumitomo Heavy Industries Marine & Engineering Co., Ltd., Japan.

STATE-OF-THE-ART AUTOMATIC ARC WELDING PROCESSES MEET THE LATEST SHIPBUILDING REQUIREMENTS



Figure 10: RF™ process setup for one-sided submerged arc welding of a steel plate joint with a tapered transition.

A wide variety of cargo ships ply the world's seas and oceans in great numbers. These bulk carriers, oil tankers, and container ships must be strong enough to travel safely through typhoons, harsh weather, and rough seas that may batter their hulls with large stresses. On the other hand, construction costs must be controlled to make shipping economical. Welding fabrication plays a role in cutting costs because freighters are built by welding an enormous amount of steel (35000 MTN or more for a 300 thousand DWT class VLCC). Transportation economy can also be achieved by lightening ship hulls with high strength steels. This article discusses the recent technical trends in building cargo vessels and the advanced welding consumables and processes that Kobe Steel has developed to meet the recent shipbuilding requirements.

New coating requirements and the use of thicker steel plates

In recent years, the international specification for the protective paint coating of the ballast tanks of bulk carriers and oil tankers has become more stringent ever since the Performance Standard for Protective Coating (PSPC) was enacted. Specifically, to meet this requirement, the coating substrate of fillet weld surfaces must be free of porosity to assure dense coating. If any porosity exists in the fillet weld bead surfaces after shotblasting, it has to be repaired before painting. However, such large-scale repair work of fillet welds is inefficient and impractical. Therefore, it is better to improve the fillet welding process so that welds are deposited at high speeds without porosity.

According to the Common Structural Rules (CSR) adopted internationally, ship hull components must be designed with thicker margins to prevent corrosion and increase safety. Hence, thicker plates are increasingly

utilized, and joining them requires larger fillet welds. On the other hand, hull weights need to be kept as low as possible in order to cut the costs of traveling by sea. This is achieved by using both thick and thin plates, which tend to be joined by tapered butt joints.

The need for large — but light — container ships

In the early 1990s, the typical size of a container ship was about 4000 Twenty-foot Equivalent Units (TEU). As container transportation has expanded in tandem with economic development, especially in Asia, ever larger container ships have been built. Modern container ships can carry over 10000 TEU. On the other hand, the shipping industry desires container ships that are lighter in weight, so they can move cargo across the seas at higher speeds.

Container ships have wide-open decks that allow efficient loading and unloading of containers. However, this design requires thicker steels to ensure that hulls have adequate structural strength; 50 mm or thicker YP390 and YP460 class steel plates are currently preferred and the appropriate welding procedures have been developed.

Welding consumables and welding processes suitable for shipbuilding

As shown in Figure 1, in comparison with other industries in Japan, shipbuilding sees the highest relative consumption of flux-cored wires (FCWs). This is because FCW offers higher deposition rates over other types of filler metals, thereby improving welding efficiency. FCW also offers high usability in all positions, which benefits ship hull fabrication as hulls consist of large components with flat, vertical, overhead, and

curved welding lines. Because hull structures have many confined areas that are difficult to access, one-sided welding by FCW is common.

Submerged arc welding (SAW) consumables are also used at a high ratio for one-sided welding of butt joint of large shell plates.

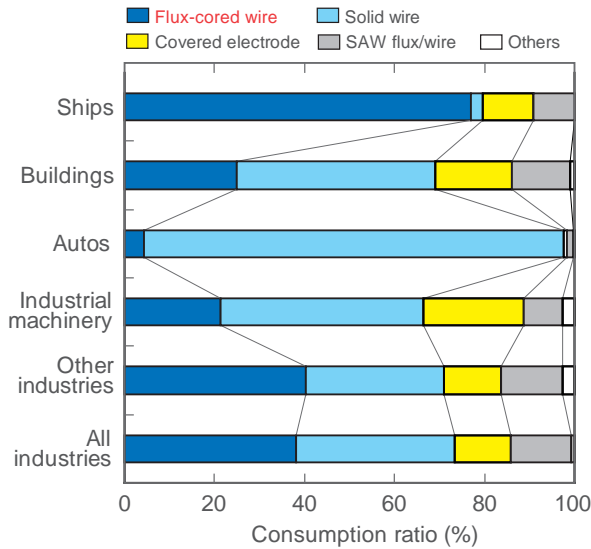


Figure 1: Relative consumption of welding consumables by industry in Japan in 2009.

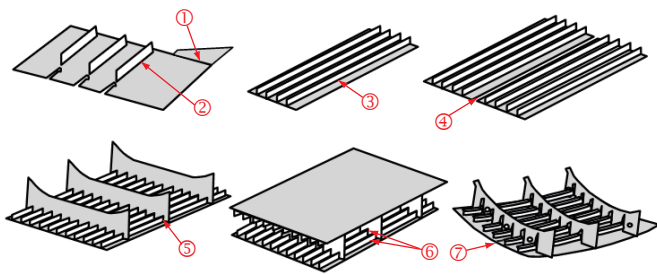


Figure 2: Typical assemblies and the major welding lines at the sub-assembly and assembly stages.

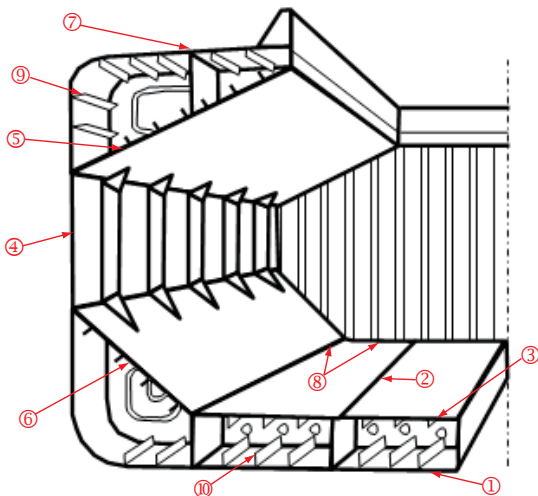


Figure 3: The typical cross sectional structure of a bulk carrier and the major welding lines at the erection stage.

Figure 2 and Table 1 show the typical welding assemblies and procedures for major welding joints at the sub-assembly and assembly stages. Figure 3 and Table 2 show the cross sectional structure of a bulk carrier and the typical welding procedures for major welding joints at the erection stage.

Table 1: Welding procedures used in sub-assembly and assembly (Refer to the joint Nos. in Fig. 2)

Joint No.	Assembly stage	Component, Joint type	Welding position	Welding process
①	Sub-assembly	Flat plate, Butt joint	Flat	Double-sided SAW
②		Stiffener, Fillet joint	Horizontal	FCAW
③	Assembly	Longitudinal member, Fillet joint	Horizontal	FCAW
④		Panel plate, Butt joint	Flat	One-sided SAW
⑤		Slot/transverse member, Fillet joint	Horizontal, Vertical	FCAW
⑥		Double bottom inside, Fillet joint	Horizontal, Vertical	FCAW
⑦		Curved plate, Butt joint	Flat	One-sided SAW One-sided FCAW

Table 1 (Continued)

Joint No.	FAMILIARC™ welding consumables		Remarks
	For D-grade steel	For E-grade steel	
①	US-36/PF-H55E		Automatic
②	•MX-200 •DW-200	•MX-200E •DW-200	Portable welder
③	•MX-200 •MX-200H •MX-200HS	•MX-200E •MX-200H •MX-200HS	Line welder
④	US-36/PF-I55E/PF-I50R US-36/PH-I55E/RF-1		FCB™ process RF™ process
⑤	DW-100V	DW-55E	Robotic
⑥	DW-100	DW-55E	Semi-automatic
⑦	US-36/PF-I52E/FA-B1 DW-100/FB-B3		FAB™ process Semi-automatic

Table 2: Welding procedures used in erection of bulk carriers (Refer to the joint Nos. in Fig. 3)

Joint No.	Block name, Type of joint	Welding position	Welding process
①	Bottom shell, Butt joint	Flat	One-sided FCAW
②	Tank top, Butt joint (longitudinal)	Flat	One-sided SAW One-sided GMAW
③	Tank top, Butt joint (transverse)	Flat	One-sided FCAW + SAW
④	Side shell, Butt joint	Vertical	EGW FCAW
⑤	Top side tank's bottom plate, Butt joint	Flat	One-sided FCAW
⑥	Bilge hopper, Butt joint	Horizontal, Vertical	One-sided FCAW
⑦	Upper deck, Butt joint (transverse)	Flat	One-sided FCAW + SAW
⑧	Tank top, Fillet joint	Horizontal	FCAW
⑨	Longitudinal member, Butt joint	Flat	One-sided FCAW
⑩		Vertical	One-sided FCAW

Table 2 (Continued)

Joint No.	FAMILIARC™ welding consumables		Remarks
	For D-grade steel	For E-grade steel	
①	DW-100/FB-B3T	DW-55E/FB-B3T	Semi-automatic
②	US-36/PF-152E/RR-2/FA-B1		FAB™ process
	MG-50D/FB-B3		Automatic GMAW
③	DW-100/FB-B3 + US-36/PF-H55E	DW-55E/FB-B3 + US-36/PF-H55E	Semi-automatic + SAW
④	HS-42G or DW-S43G/KL-4		Automatic
	DW-100V		—
⑤	DW-100/FB-B3	DW-55E/FB-B3	Semi-automatic
⑥	DW-100/FB-B3 DW-100V/FB-B3	DW-55E/FB-B3	Semi-automatic
⑦	DW-100/FB-B3 + US-36/PF-H55E	DW-55E/FB-B3 + US-36/PF-H55E	Automatic FCAW + SAW
⑧	MX-200	MX-200E	Portable welder
⑨	DW-100/FB-B3	DW-55E/FB-B3	Semi-automatic
⑩	DW-100/FB-B3	DW-55E/FB-B3	Semi-automatic

State-of-the-art welding processes and consumables

TRIFARC™ Process

The TRIFARC™ process is an advanced three-electrode fillet welding process that was developed to respond to customer needs for higher speeds as well as higher resistance to porosity in fillet welding. As shown in Figure 4, the TRIFARC™ process uses three electrodes, wherein the middle one carries DCEN current while the others carry DCEP. The middle electrode generates no arc but a specific magnetic field whose direction is opposite to those of the other two electrodes. The inverse magnetic fields can reduce the arc interference between the right and left electrodes, thereby allowing the two electrodes to carry higher welding currents and offer higher deposition rates. The magnetic effect of the central electrode can also stabilize both the droplet transfer of the other two electrodes and the molten pool. This mechanism consistently enables welding speeds of up to 2 m/min. and excellent porosity resistance.

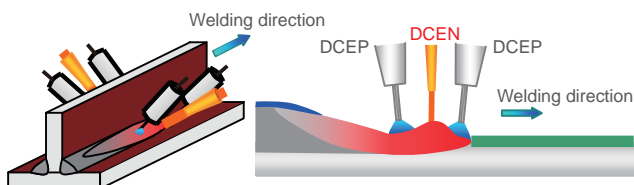


Figure 4: Schematic TRIFARC™ process and typical fillet weld bead appearance (Welding wire: FAMILIARC™ MX-200HS; 1.6 mmØ; Filler wire: FAMILIARC™ MG-1HS; 1.2 mmØ; Plate thickness: 12 mm; Welding speed: 2.0 m/min; Shop primer thickness: 30 µm).

The TRIFARC™ process uses a dedicated FCW, FAMILIARC™ MX-200HS, which offers higher deposition rates at the same welding current as compared with traditional FCWs. A new welding procedure that combines this advanced process and consumable results in welding speeds that are 1.2-1.5 times higher than conventional fillet welding procedures, and repair welding is unlikely due to excellent porosity resistance. This outstanding fillet welding procedure was first put into practice by a leading shipbuilder in May 2008 (Figure 5, above), and, since then, has been expanding into other shipyards while gaining a high reputation.

Tandem-Electrode SEGARC™ Process

With the size of container ships getting ever larger, thicker steel plates are required for the hull components where high stresses concentrate: a maximum thickness of 80 mm for sheer strakes and hatch-combing side plates. For welding thicker steel joints at higher welding speeds with larger deposition rates, the tandem-electrode SEGARC™ process has been developed. This is a two-wire electrogas arc welding (EGW) process, which was developed from the single-electrode SEGARC™ process that has long been used in vertical upward welding in hulls due to its high efficiency and consistent weld joint properties.

As shown in Figure 6, the tandem-electrode SEGARC™ process uses two dedicated FCWs: FAMILIARC™ DW-S50GTF for the face side of the joint and FAMILIARC™ DW-S50GTR for the root side.

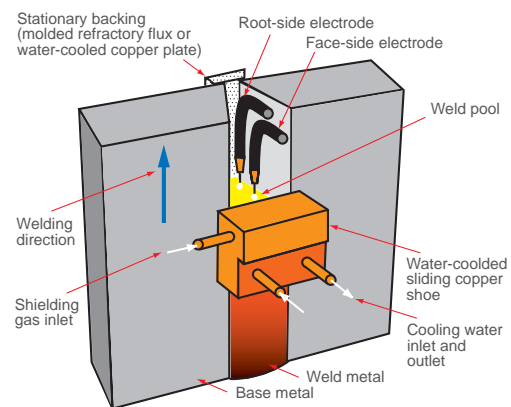


Figure 6: Schematic of the tandem-electrode SEGARC™ process with the root-side FCW and the face-side FCW.

With this welding procedure, the weld metal possesses sufficient tensile strength equivalent to or higher than that of the base metal and offers consistent notch toughness and fracture toughness at high heat input. Figure 7 shows the cross sectional macrostructures of the weld joints. Table 3 shows the mechanical test results of the weld metals.

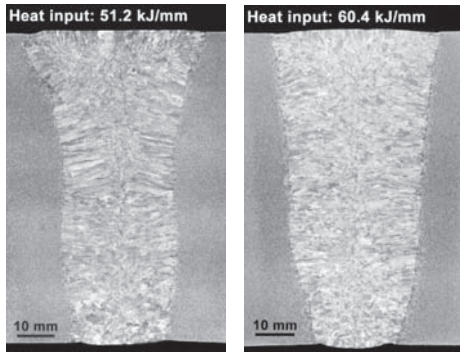


Figure 7: Cross sectional macrostructures of EGW welds made with **FAMILIARC™ DW-S50GTF + FAMILIARC™ DW-S50GTR** (Plate thickness: 80 mm).

Table 3: Typical mechanical properties of EGW weld metal by **FAMILIARC™ DW-S50GTF** and **FAMILIARC™ DW-S50GTR** *1

Gap (mm)	Heat input (kJ/mm)	0.2% OS (MPa)	TS (MPa)	EI (%)	IV *2 (J at -20°C)
8	51.2	503	644	24	123 (135, 115, 119)
10	60.4	474	622	24	107 (86, 108, 127)

*1: Plate thickness is 80 mm and V-groove angle is 20 degrees.

*2: Test specimens were removed from the weld metal center.

RF™ Process

The **RF™** process is a highly efficient one-sided SAW process used for tapered joints, in particular those combining thicker and thinner steel plates. As the use of tapered joints increases to meet the CSR rules, the **RF™** one-sided SAW process, one of Kobe Steel’s “Only-One”— unique and highly reputed — technologies stands out. A diagram of the **RF™** process is shown in Figure 8.

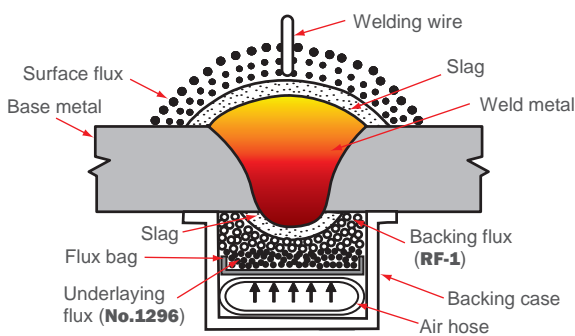


Figure 8: Diagram of the **RF™** one-sided SAW process.

Figure 9 shows how to set up the welding joint and the cross sectional macrostructure of the weld joint. In Figure 10 (above) the entire set-up of the process equipment is displayed. As shown in Figure 8, the **RF™** process uses a flexible flux backing that can maintain tight contact with the reverse surface of a weld joint even with a tapered transition. In addition to tapered joints,

this process excels in welding thinner plates that are apt to be distorted by excessive heat.

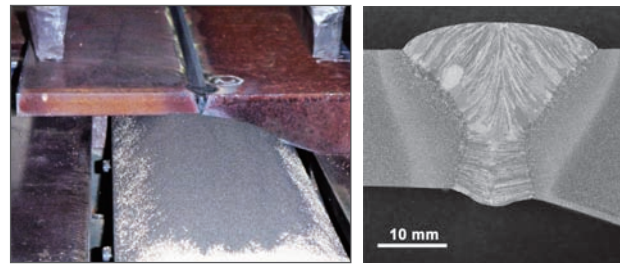


Figure 9: How to set up a tapered joint on the backing flux in the **RF™** process (left). The cross sectional macrostructure of the weld joint (right) produced under the following conditions:

- Plate thickness combination: 20 and 50 mm
- Welding process: **RF™** one-sided SAW with 3 wires
- Welding wire: **FAMILIARC™ US-36** (4.8 and 6.4 mmØ)
- Welding flux: **FAMILIARC™ PF-155E**
- Backing flux: **FAMILIARC™ RF-1**

YP460-Class Filler Metals

In order to produce high-strength hull components while reducing hull weight, thinner steel plates are required. Instead of conventional YP390 class steels, YP460 class steels (with a minimum yield strength of 460 MPa) are now being used for this purpose. The YP460-class filler metals, **TRUSTARC™ DW-460L** (for semi-automatic FCAW) and **TRUSTARC™ DW-S460LG** (for the **SEGARC™** process) meet the needs for welding components made of these steels.

Table 4 shows the typical mechanical properties of **DW-460L** and **DW-S460LG**. **DW-S460LG** provides sufficient strength as compared with the base metal and offers excellent notch toughness and fracture toughness even at high heat input. Both FCWs feature welder-friendly usability, which makes them easy to work with.

Table 4: Typical mechanical properties of weld metals produced by **TRUSTARC™** flux-cored wires for FCAW and EGW *1

Trade designation (Wire dia.)	DW-460L (1.2 mmØ)	DW-S460LG (1.6 mmØ)
Steel grade (Thickness)	EH47 (60 mm) *2	EH47 (60 mm)
Groove preparation	40°V, Gap: 6 mm	20°V, Gap: 10 mm
Welding process	FCAW (CO ₂)	EGW (CO ₂)
Welding position	Flat	Vertical
Heat input (kJ/mm)	2-3	2-3
0.2% OS (MPa)	573	630
TS (MPa)	630	681
EI (%)	23	20
IV (J) at -20°C *3	136	119

*1: Test specimens were removed from the weld metal center.

*2: Preheat and interpass temperature: 100-120°C.

*3: The average value of three individual values.



KWE Celebrates 15 Years and Looks Ahead to Expanding its Presence in the European Market

On October 15th 2010, Kobelco Welding of Europe B.V. (KWE) celebrated fifteen years of producing and selling flux-cored wires (FCWs) for the European market. Besides the customary planting of a Japanese maple tree and freeing of some Koi fish in our pond, we welcomed our colleagues from the Welding Business of Kobe Steel: Tsuyoshi Kasuya (Managing Director) and Toshiyuki Okuzumi (General Manager of the International Sales & Marketing Section).



Memorial planting of a Japanese maple tree on KWE's property (left)

Marking the anniversary by freeing Japanese Koi fish into KWE's pond (right)



ing them to find solutions to welding issues. Our goal is to become number one in Europe: a reliable company that can solve diverse welding issues and provide the best quality products for special steels used in offshore structures and other energy related equipment.



KWE's many filler metals can be great challengers in the European market.

FCWs for stainless steels and low temperature steels are great contenders for promoting the European business strategy, in which the most important component are FCWs produced at KWE. Becoming the world's number one producer of specialty FCWs will allow us to play a key role in KOBELCO's success in Europe.

Mr. Kasuya described the principles guiding the management and the future vision for the Welding Business of Kobe Steel and expressed his high expectations of KWE in the future. "KWE is playing such an important role," he stressed and also pointed out that one of the key points is working with our customers and help-

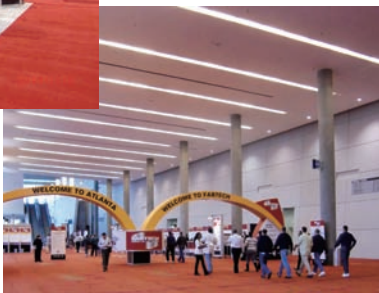
Reported by
John Wijnands
Manager, Administration Dept., KWE

KOBELCO at 2010 FABTECH Learning How Near the USA Really Is to Japan

The 2010 FABTECH Show, North America's largest metal forming, fabricating, finishing and welding event, was held at the Georgia World Congress Center in Atlanta from November 2-4, 2010. I was dispatched from Japan for the first time in order to assist at the booth of Kobelco Welding of America (KWAI). I've heard that as many as 22,000 visitors attended. It seemed the show was a good opportunity for them to talk business and create new commercial relationships with the more than 1,100 exhibitors.



KWAI exhibits flux-cored wires in ways that are easy-to-access (left).



Visitors enter the event floor to explore cutting-edge technologies (right).

Before attending the show, I was not expecting much, but stepping into the exhibition hall, I noticed it was totally different from my picture. Looking over the event area, I could see not only the welding consumables but also many varieties of large and small welding-related equipment and auxiliary devices, including colorful helmet shields on display. This stunning atmosphere made me realize that the welding industries are becoming more fashionable.



Bead samples of duplex stainless steel and Ni-based alloy weldments catch the eyes of visitors.

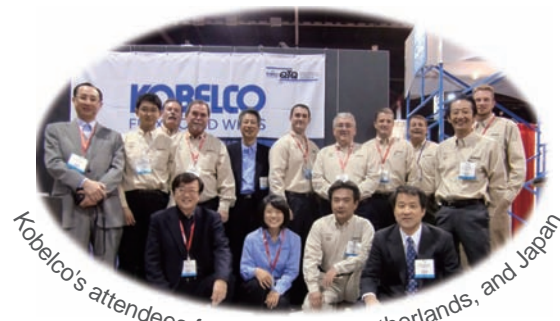
Huge, eye-catching decorations and performances at some big European manufacturers' booths attracted many visitors. By contrast, KWAI, although its booth was smaller, highlighted Kobelco's prominent flux-cored wires for lean duplex stainless steel (**PREMIARC™ DW-2101**), super duplex stainless steel (**PREMIARC™ DW-2594**) and Ni-based alloy (**PREMIARC™ DW-N625**), which have been used in demanding applications for a long time. **FAMILIARC™ SE-A50FS** for thin steel sheets and **FAMILIARC™ MX-A70C6LF** for fillet welding were also displayed.

When I saw the Kobelco booth visitors examining the bead and overlay weld samples in their hands and heard them saying "Beautiful!" or "Wonderful!" I was proud of Kobelco's display concept, which stood out in contrast to those of some other producers nearby. It seemed that few makers exhibited weld bead samples; live demonstrations of, say, submerged arc welding, were more common. I was convinced that displaying weld bead samples was quite effective for advertising the products.



The welding show is a good chance to renew old relationships; talking with customers is KWAI's Ex-President Tojo (left).

Through my participation at the show, it struck me that KWAI staff members are confident in the strength of Kobelco's unique and high quality products against those of other global competitors. Also, while my involvement in the show was modest, it was a wonderful way to learn that the distant USA is much closer to Japan than I thought because we are all same associates of the Kobelco group companies.



Reported by Aya Kuboki ISMS, KSL

Congratulations to Everyone at KWAI on reaching the 20th anniversary!

On the 2nd of November 2010, Kobelco Welding of America (KWAI) celebrated its 20th anniversary at the occasion of FABTECH in Atlanta.

KWAI was established, in Texas in 1990, as Kobe Steel's sales base for supplying welding consumables to the North American market. Operations began with a mere staff of five whereas nowadays 17 associates take care of sales and technical services for a wider set of markets that includes Mexico, Peru, and Brazil.

At the celebration party, Tsuyoshi Kasuya, the Managing Director of the Welding Business of Kobe Steel, offered his congratulations on KWAI's reaching this milestone. Jay Sugiyama, the President of KWAI presented awards and anniversary gifts to longtime workers. In a convivial atmosphere at the party, everybody vowed to aim for the 30th and even the 40th anniversaries. With business roaring at the FABTECH exhibition, everybody at KWAI felt a sense of economic rebound.



A toast given by MD T. Kasuya.



Two associates receiving awards and gifts in recognition for longtime by President Jay Sugiyama.

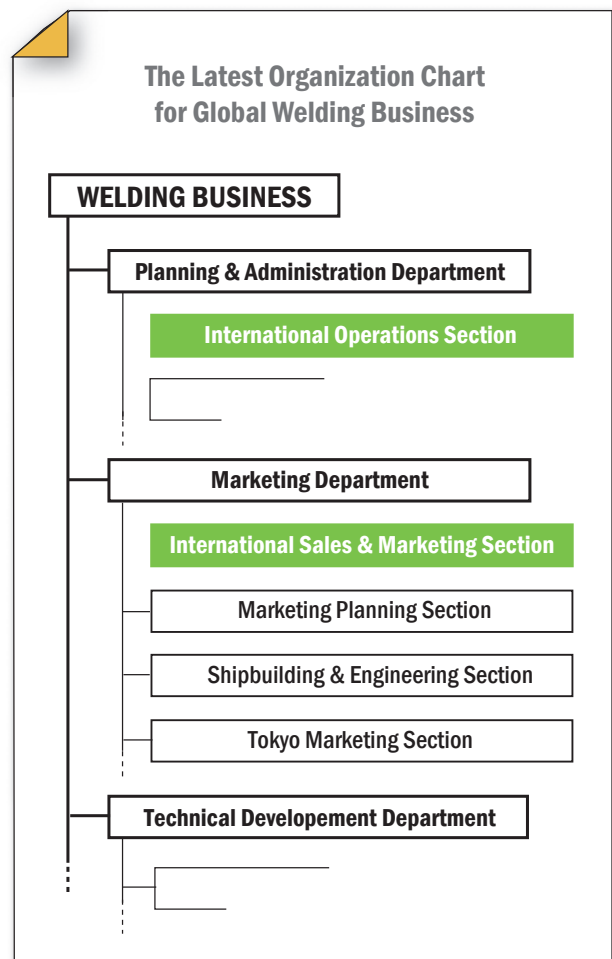


All staff members enjoying a happy, commemorative occasion at the party.

Reorganization of Business for More Efficient and Diversified Global Operations

Kobe Steel's global welding business is executed by the Tokyo Head Office in cooperation with the 11 production and/or sales bases in Korea, China, Thailand, Malaysia, Singapore, Indonesia, the Netherlands, and the USA. In order to improve efficiency and diversify global operations, the former International Operations Department (IOD) has been reorganized as a section belonging to the Planning & Administration Department, while the former International Sales & Marketing Department (ISMD) has been reorganized as a part of the Marketing Department, as of the first of October 2010. Please refer to the latest organization chart shown below.

Although this reorganization should not affect your communication with the Tokyo office, do not hesitate to ask any questions.



*Heartfelt greetings from new members in
International Sales & Marketing Section (ISMS)*



Dear KWT readers! My name is Masaki Sugimoto.

I have been in charge of the European, American and Russian markets since October 2010. However, this is my second opportunity to serve the overseas business, for I was posted to Thailand as the marketing general manager of Thai-Kobe Welding (TKW) and Kobe MIG Wire Thailand (KMWT). It was a wonderful time when I could develop friendly relationships with members of the Thai Shinyokai association of pro-Kobelco welding distributors.

After my transfer from TKW/KMWT, I was engaged in the domestic sales in Niigata Prefecture in the north-eastern Japan. My customers were spread over such a wide area that I had to drive as much as 30,000 km a year (sometimes on snowy, slippery winter roads) in order to visit all the customers in my territory. As you may know, Niigata is a rice-producing district and well known for good sake or rice wine that I enjoyed very much there. So, I'd like to be able to say "Niigata sake is done and Russian vodka comes next" if I have a chance to visit Russia in the near future. Nowadays my job is to keep good communication with the overseas customers and Kobelco production/sales bases in my territory that is incomparably wider than in Niigata.

Since my childhood, I have loved playing baseball as well as watching it. If I get a chance to visit the US, my dream would be to enjoy watching an MLB game at a stadium in which a giant KOBELCO ad would flash across the video screen. I will make my best efforts to contribute to strengthening the Kobelco brand's fame worldwide. I sincerely hope for your continuous patronage and look forward to meeting you soon.



Masaki Sugimoto
Manager

Hello! My name is Tan Wee How. I am presently responsible for the marketing and exporting of Kobelco's **ARCMAN™** robotic welding systems. I joined Kobe Steel in 1986 and was assigned to the former En-

gineering Division. In 2001, I took up a new post in the former IOD of the previous Welding Company, where I was in charge of the sales of welding consumables until 2007, when I was transferred to my current position.

ARCMAN™ robots are highly reputed especially in the field of construction machinery due to superior performance and reliable durability. **ARCMAN™** robots are most popular in their class in Japan and are also renowned in Korea and China. Although our robot business is focused largely on China, we plan to enter the emerging markets in India and the ASEAN countries, as well as



Tan Wee How
in charge of
Robotic Systems

mature markets in the EU and the USA, aiming on customer demand for replacing old robots.

I will do my best to expand our sales in cooperation with my colleagues, thereby responding to the trust and support from all our esteemed customers. It is my hope to see you in the very near future.

How do you do! I am Tsuyoshi Ochi. I have been assigned to the ISMS since October 1, 2010. I joined Kobe Steel in 2001 and worked in marketing and sales of **ARCMAN™** robotic welding systems in the Japanese domestic market until this past autumn. My present duty is to market and expand sales of the **ARCMAN™** robotic welding systems in China and the ASEAN countries as well as to increase the penetration of the Kobelco brand throughout these markets.

I am determined to do my utmost to make my dream come true and see the Kobelco's **ARCMAN™** robotic welding systems used in all parts of the world. If you find fault with any of my marketing and sales activities, please do not hesitate to let me know. I will try to further motivate myself to fulfill your satisfaction. I trust that users will have the best advice for the robotization of their welding processes. I hope I can see you soon in the course of business.



Tsuyoshi Ochi
in charge of
Robotic Systems

KOBELCO

THE WORLDWIDE MANUFACTURER

GLOBAL MANUFACTURING AND SALES BASES

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KOBELCO

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