



GLOBAL MANUFACTURING AND SALES BASES

ASIA

JAPAN:
KOBELCO STEEL, LTD., Welding Business
Marketing Dept., International Sales & Marketing Sec.
Tel. (81) 3 5739 6331 Fax. (81) 3 5739 6960

KOREA:
KOBELCO WELDING OF KOREA CO., LTD.
Tel. (82) 55 292 6886 Fax. (82) 55 292 7786

KOBELCO WELDING MARKETING OF KOREA CO., LTD.
Tel. (82) 51 329 8950 to 8952 Fax. (82) 51 329 8949

CHINA:
KOBELCO WELDING OF SHANGHAI CO., LTD.
Tel. (86) 21 6191 7850 Fax. (86) 21 6191 7851

KOBELCO WELDING OF TANGSHAN CO., LTD.
Tel. (86) 315 385 2806 Fax. (86) 315 385 2829

KOBELCO WELDING OF QINGDAO CO., LTD.
Tel. (86) 532 8098 5005 Fax. (86) 532 8098 5008

SINGAPORE:
KOBELCO WELDING ASIA PACIFIC PTE. LTD.
Tel. (65) 6268 2711 Fax. (65) 6264 1751

THAILAND:
THAI-KOBELCO WELDING CO., LTD.
Tel. (66) 2 636 8650 to 8652 Fax. (66) 2 636 8653

KOBELCO WELDING (THAILAND) CO., LTD.
Tel. (66) 2 324 0588 to 0591 Fax. (66) 2 324 0797

MALAYSIA:
KOBELCO WELDING (MALAYSIA) SDN. BHD.
Tel. (60) 4 3905792 Fax. (60) 4 3905827

INDONESIA:
P.T. INTAN PERTIWI INDUSTRI
(Technically Collaborated Company)
Tel. (62) 21 639 2608 Fax. (62) 21 649 6081

INDIA:
KOBELCO WELDING INDIA PVT. LTD.
Tel. (91) 124 4010063 Fax. (91) 124 4010068

EUROPE

NETHERLANDS:
KOBELCO WELDING OF EUROPE B.V.
Tel. (31) 45 547 1111 Fax. (31) 45 547 1100

AMERICA

USA:
KOBELCO WELDING OF AMERICA INC.
Tel. (1) 281 240 5600 Fax. (1) 281 240 5625

KOBELCO WELDING TODAY

Vol.19
2016 No.3

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



ARCMAN™ robotic welding system business in North America

In April 2016, we started a new business: the sales and delivery of the ARCMAN™ robotic welding systems, power sources, and parts for the North American market. The operation is based at Kobelco Welding of America Inc. (KWAI) located in Houston, Texas.

Although our daily work still consists of trial and error, we are determined to do our best, along with the full cooperation of KWAI staff members, who have a long history and experience in the welding consumable business in the USA.

A new organization, the Robotic & Equipment Division, has been formed at KWAI and will eventually have three staff members. I have been in charge of sales and marketing from the start, while Greg Smith has overseen delivery service since July. An engineer from Japan to be in charge of technical and after service will be stationed here from the second half of 2016.

At the end of August, a robotic system, featuring an ARCMAN™-MP welding robot and a SENSARC™-AB500 power source that has had excellent sales results worldwide,

together with the new CB type controller that was launched in April, 2016, was installed for live demonstration purposes on the KWAI premises. Because it can cope with both single - and tandem-electrode welding as well as large current MIG welding, diverse work tests and live demonstrations for various customers can be performed. In particular, it enables us to respond to customers involved in welding heavy steel plates, which Kobe Steel's robotic system particularly excels at.

The targeted industries include construction and agricultural machineries, rolling stock, steel frame fabrication and bridge construction, to which many ARCMAN™ welding robots have been delivered in Japan as well as Asian countries.

Furthermore, Kobe Steel has been developing a new robotic welding system in combination with a new welding consumable aimed exclusively at the North American steel frame fabrication market. We will launch it into the market as soon as it is ready.

While we do understand that the North American market is highly competitive with a number of robot manufacturers, we will do our best to serve our customers by proposing the best - suited total solutions that combine welding robots and consumables with satisfying sales and after services.

We hope that KWT readers will extend your kindest patronage to the new business of robotic welding systems at KWAI.

Reported by :
Ichiro(J.D.) Taniguchi,
Sales and Marketing Manager,
Robotic & Equipment Division, KWAI



Members of KWAI



Robotic Team (Greg, J.D)



KWAI Demo Robot
(Its display is planned at FABTECH 2016.)

Focus on welding system business and human resource development

Dear KWT readers! I'd like to express my heartfelt gratitude for your continuous patronage of Kobelco group products.

This year, we have taken steady steps to remain "The world's most reliable welding solutions company" especially by focusing on the expansion of the welding system business. As the needs for automation and high efficiency continue to increase globally, we have launched a comprehensive welding system business in the USA, by allocating resources for engineering, sales and marketing, as well as a live demonstration robot. This follows on from the sales bases established earlier in China, Korea, ASEAN countries, Europe and India. The industries that the welding system business targets include steel frame fabrication, which we are good at, bridge construction, construction machinery and shipbuilding and will be gradually expanded to others, such as trailer and railway vehicles, harbor cargo cranes and energy related construction work.

The welding system is the key to total welding solutions that contribute to maintaining welding quality and improving the working environment, while also boosting productivity. Therefore, we will bring about higher product quality by pursuing the best combination of new controllers and market-oriented welding consumables as we market the new systems.

Human resource development is also essential in promoting total welding solutions. We have been training sales people to become more familiar with both welding consumables and welding systems so that customers can be sure to rely on them with their inquiries and support needs.

Inside the company, what we think is important for welding solutions is to keep an eye on some aspects not directly related to welding procedures, such as timely fulfillment of deliveries and improvement of packing forms. And outside the company, one example of how we promote safe and efficient welding is that in response to a request from a region, we will hold a short course as well as cooperate with a vocational training school. Dear KWT readers, please let us know your requests through our local sales networks!

It is always our pleasure to be able to see you and exchange opinions at Kobelco booths at the many exhibitions held worldwide. We particularly thank you for your attendance at the exhibition held last April in Osaka, Japan. Next year, the world-largest Essen Fair (held every four years like the Olympics) is going to be held in Germany. We look forward to seeing you there as we'll be exhibiting the latest technologies and products that will definitely be useful to you.

As for the Olympics held in Rio de Janeiro this year, I believe that you have enjoyed it and cheered your country's athletes. It will be held in Tokyo four years later, and we will welcome you with O-Mo-Te-Na-Shi hospitality. I look forward to seeing you then!

Koichi (Jay) Sugiyama
General Manager
International Sales & Marketing Section
Welding Business
Kobe Steel, Ltd.



KOBELCO WELDING TODAY No.3 2016

CONTENTS

page 1

ARCMAN™ robotic welding system business in North America

page 3

The new "CB type" controller for the ARCMAN™ robotic welding system

page 8

KOBELCO Technical Seminar in Riyadh, Saudi Arabia

page 9

The 2016 Beijing Essen Fair

page 10

Metaltech Malaysia 2016

KOBELCO WELDING TODAY is published by Sales & Marketing Department Welding Business, Kobe Steel, Ltd. URL : <http://www.kobelco.co.jp/english> Email : ISMS@kobelco.com

The new “CB type” controller for the ARCMAN robotic welding system

1. Preface

A new controller, called the “CB type,” for the ARCMAN™ series robotic arc welding system has recently been developed by Kobe Steel under the concept that “welding can be carried out from start to finish anywhere in the world.”

How well a robotic welding system performs often depends on the controller, which controls the movement of the robots and peripheral equipment and also has functions that preserve and edit welding procedure data.

For welding work comprised of medium and heavy plate thicknesses, such as steel frame and bridge construction, construction machinery and rolling stock, it is necessary to perform multi-pass welding involving repeated instances of overlap welding over long periods of time. The ARCMAN™ series robot enables high quality welding due to a well-designed system that utilizes arc sensor as well as vibration control technologies, and, thus, is able to trace any work distortions caused by welding heat.

However, since 2005 when the conventional “CA type” controller was developed, requirements for welding quality and efficiency have tightened, leading us to develop a robot with more complex movements, and a larger capacity for storing and using welding procedure data and history.

The CB type controller, therefore, features high performances as well as simplified programs that respond to the needs of more advanced automated welding. Because teaching can be a time-consuming process, particularly for welding large-sized structures, the pendant has been redesigned to allow easy and comfortable teaching of the robot. Figure 1 shows the CB type controller with the redesigned teaching pendant.

Table 1 shows the main specifications of the CB type controller and new teaching pendant for the controller. See Tables 2 and 3 for a comparison of specifications between the conventional CA type and CB type controllers and their teaching pendants, respectively.



Figure 1 : CB controller

2. Features of the CB type controller

2.1 High performance required for medium and heavy-thick plate welding

Compared with the conventional type, the controlling capacity of the CB type controller is three times higher or more, thanks to faster computing speed and a more accurate arc sensor, and this is expected to increase more in the future.

The internal memory has drastically increased, both in terms of the number of teaching programs it can store (from no. 999 to no. 9,999) as well as the size of the data bank (welding parameter file).

The CB type controller can cope with small lot sizes of various kinds, because while the teaching programs have been subdivided, the optimum welding parameters can be preserved in the controller.

Sensing time has been reduced by 20% (based on an internal test result), while the accuracy of the touch sensing function has been improved, by utilizing a high grade of model-based control technology. Finally, the CB type controller responds to customer needs by improving productivity with shorter tact time.

2.2 Good operability

The teaching pendant (see Figure 2) has been designed to be light in weight, to have an easily viewable screen and to maintain excellent operability and responsiveness. These are the factors that customers rate most highly.



Figure 2 : New teaching pendant for CB type controller

The teaching pendant weighs 0.95 kg, 15% lighter than the conventional one. As the lightest and best-optimized in terms of weight balance in the robotic industry, it is easy to carry and reduces an operator’s load.

Furthermore, the interface offers a user-friendly operating environment, even for beginners, with an intuitive touch panel with icons and commands in easily distinguishable colors based on functions, as shown in Figure 3. The touch panel screen can display Japanese, English or Chinese by a simple command. Korean language will be available soon.

Figure 4 shows how the remote function keys for robot movements are arranged in a cross pattern that matches the key locations with the directions of robot movement, improving operability during inching and reducing operation error.

2.3 High functions that meet diverse welding demands

2.3.1 Efficient horizontal fillet welding

A new back-and-forth weaving pattern along with conventional right-left weaving (see Figure 5), used in combination with a function that sets arc voltage at both vertical and flat member sides independently, enables a robot to achieve 6 mm leg length with a 1.2 mm dia. solid wire, current as high as 450 amperes, and 700 mm/min speed, while maintaining high quality welds without undercut or overlap. Such work can be applied to welding of small-sized construction machinery, agricultural machinery and truck beds.

Figure 6 compares the bead shapes obtained when welded by the new weaving function described above or by the conventional method.

While similar horizontal fillet welding can be carried out by the conventional ARCMAN™ series robotic welding systems by utilizing the arc sensor function, slower welding speeds are required (applicable leg length from 4 to 8 mm).

2.3.2 More automatic welding functions

The CB type controller comes pre-installed with more than 350 welding parameters and pass-sequence patterns that have been proven useful in actual welding. Therefore, even beginners can safely set up welding parameters. Since users may also add their own parameters, they can build up know-how that can expand to other robotic welding systems.



Figure 3 : Touch panel screen (upper part)

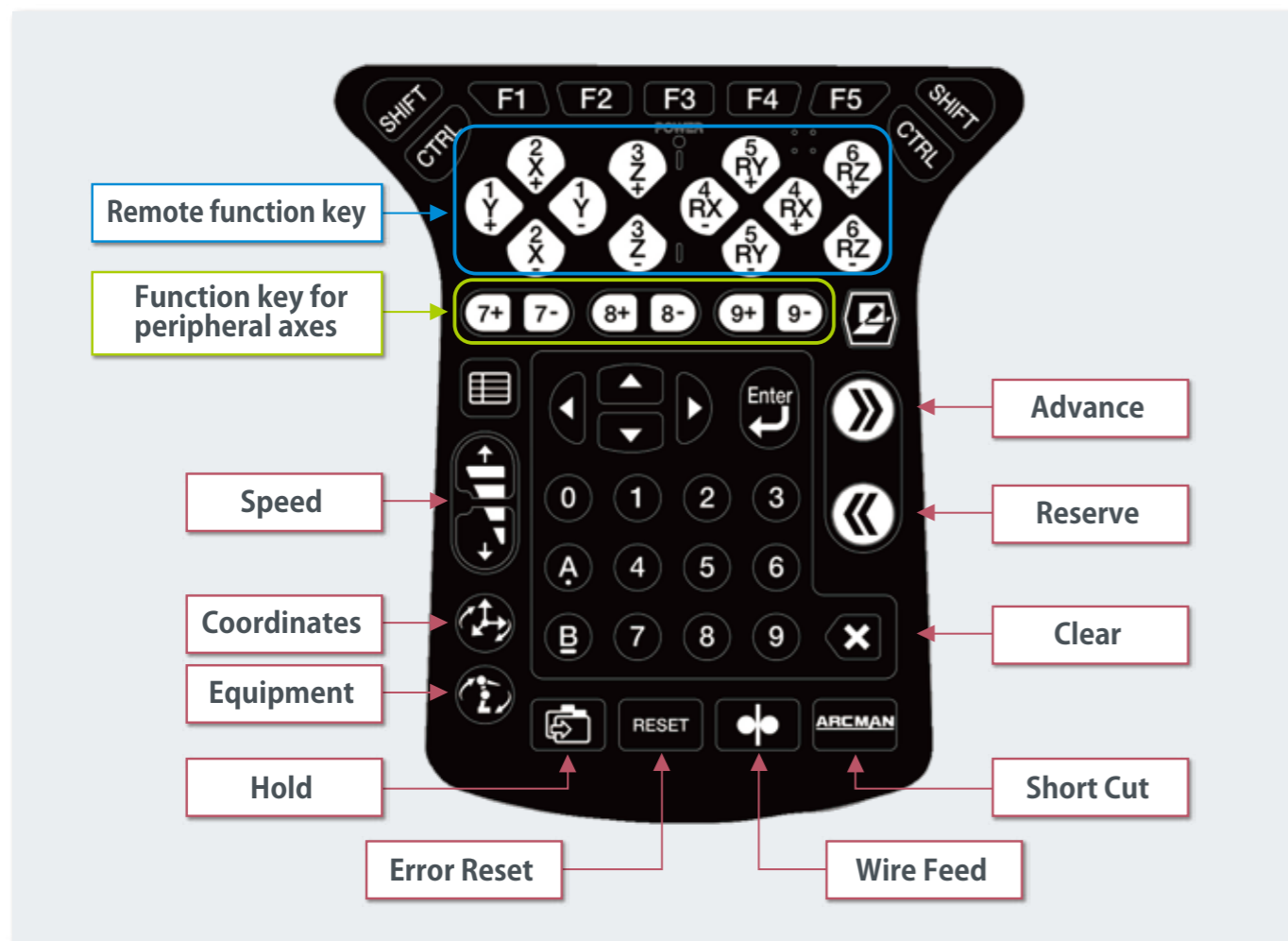


Figure 4 : New touch panel operation keys (bottom part)

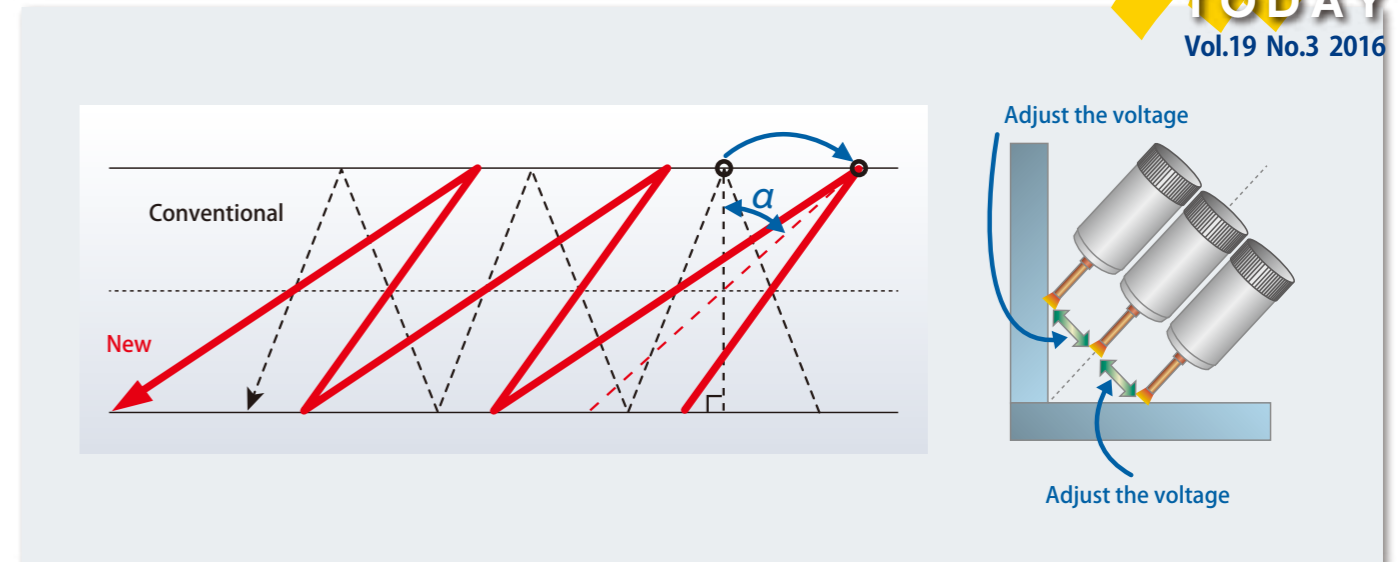


Figure 5 : Horizontal fillet welding with high welding speed

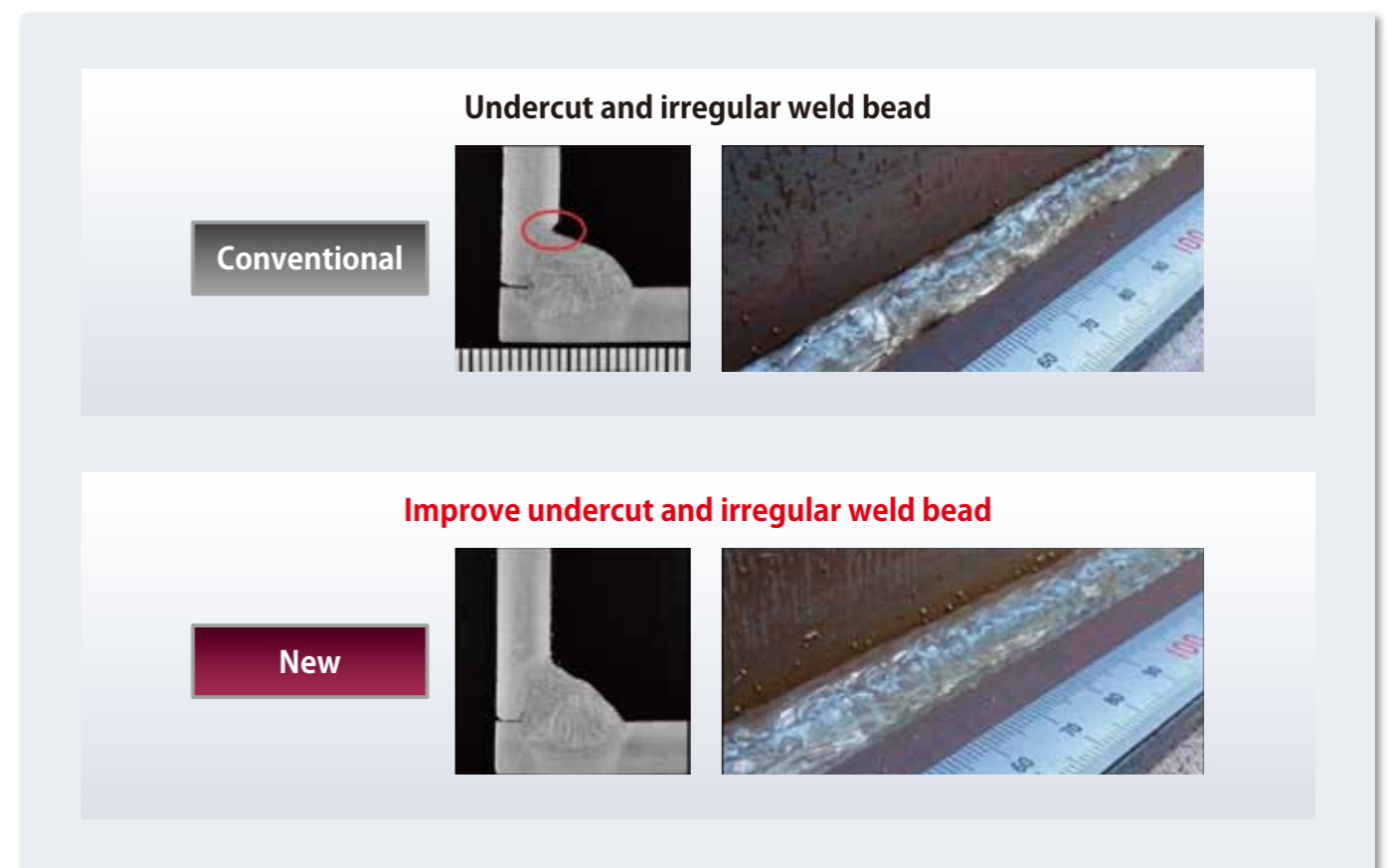


Figure 6 : Results of horizontal fillet welding at high welding speed

2.3.3 Support for visualized production

The new controller can store 20 times the number of robot movements and welding result logs than the conventional one. And it greatly improves productivity by preventing moment stops and by incorporating AP-SUPPORT™, which is the production support software developed by Kobe Steel that visualizes causes of production failure. This system greatly contributes in promoting informatization and visualization in the manufacturing industries.

Teaching programs and welding parameters in the CB type controller provide full backward compatibility to conventional type controllers. Therefore, customers who have already been utilizing the ARCMAN™ series welding systems can update to the latest model in the shortest time.

Table 1 : Main specifications

CB type controller	
External dimension	600W x 950H x 400D (mm)
Operating condition	Temp : 0-45° C ; Humidity : 20-90%
Power source	AC200V/220V ; 3 phase ; 50/60Hz
No. of axes to be controlled	18 axes
No. of built-in axes	3 axes max. ; Total 3.6 kw or less (Slider : 3 axes / Positioner : 2 axes)
Generic Ext. I/O	Standard input : 38 points (156 max.) Standard output : 18 points (136 max.) Analog I / O can be connected.
Internal memory	Program : up to #9,999 ; Data bank : up to #9,999
Equipment to be connected	Manipulator : ARCMAN™MP & GS Power source : SENSARC™AB500 & CS500 (available from Oct. 2016)

Teaching pendant	
Liquid crystal display	Color-touch panel ; 640 x 480 (pixels) ; 5.7 inch
Cable connection	Connector connection
Key durability	Coating and protective sheet
External memory	SD
Weight	0.95 kg
Language	Japanese ; English ; Chinese and Korean (planned)

Table 2 : Comparison of specifications between CB type and conventional controller (CA type)

	CB type controller	Conventional type
External dimension (mm)	600W x 950H x 400D	600W x 1100H x 400D
Operating condition	Temp : 0-45° C ; Humidity : 20-90%	Same
Power source	AC200V / 220V ; 3 phase ; 50 / 60Hz	Same
Protective class	IP54 (IP4X for fan protection)	Same
No. of axes to be controlled	18 axes	13 or 18 axes
No. of built-in axes	3 axes max. ; Total 3.6 kw or less (Slider : 3 axes / Positioner : 2 axes)	Same
Generic Ext. I/O	Standard input : 38 points (156 max.) Standard output : 18 points (136 max.) Analog I/O can be connected.	Standard input : 48 points (96 max.) Standard output : 48 points (96 max.) Analog I/O cannot be connected.
No. of built-in axes	Program : up to #9,999 ; Data bank : up to #9,999	Program : up to #999 ; Data bank : up to #999

Table 3 : Comparison of specifications between CB type and conventional (CA type) teaching pendant

	CB type teaching pendant	Conventional pendant
Liquid crystal display	Color-touch panel ; 640 x 480 (pixels) ; 5.7 inch	Black & white ; 320 x 240 (pixels) ; 5.7 inch
Switch	Emergency stop	Yes
	Enable	2 Nos. max. (right-hand side optional)
	Servo "ON"	Yes
	Arc "ON/OFF"	Yes
	Pause	Yes
Forward verification on rear side	Yes	NIL
No. of keys	57	53
Cable connection	Connector connection	Connected directly to printed circuits
Key durability	Coating & protective sheet	No
External memory	SD	CF
Weight	0.95 kg	1.1 kg
Language	Japanese, English, Chinese and Korean (planned)	Japanese, English and Chinese

3. Postscript

In this article, the features of the newly developed CB type controller were discussed, together with an example of welding results.

It is expected that welding procedure technology will develop in parallel with further developments of robotic welding systems including controllers, welding power sources and peripheral equipment, leading to the total welding solutions that Kobe Steel always pursues.



KOBELCO Technical Seminar in Riyadh, Saudi Arabia

On June 3, 2016, the KOBELCO Technical Seminar was held at the Marriott Hotel Convention Center in Riyadh, Saudi Arabia. Four years have passed since the last seminars were held in three other Saudi cities, Jeddah, Jubail and Dammam.

The capital of Saudi Arabia, Riyadh is located at the center of the kingdom and has a population of more than 7 million (out of Saudi Arabia's total population of over 30 million).

Kobe Steel has been selling a wide range of welding consumables for everything from carbon to high alloy steels to Saudi Arabia thanks to the support of many loyal customers.

In this seminar, two engineers from Japan and one engineer from Singapore, introduced Kobelco products that have drawn interest in the market to nearly 200 Kobelco agents and end users. The seminar provided a good opportunity for Kobelco fans to get together and share experiences. Afterwards, the dinner party allowed mutual relationships to deepen further.

The engineer from Kobelco Welding Asia Pacific Pte., Ltd. (KWAP) presented his company's products, like RB-26, LB-52-18, and LB-7018-1 covered electrodes and vacuum-packed electrodes, as well as those ade by Thai-Kobe Welding Co.,

Ltd. (TKW)/Kobe Mig Wire (Thailand) Co., Ltd. (KMWT), such as LB-55U and LB-8018 covered electrodes and TG-S70S2 and TG-S70S3 TIG wire rods. Then the engineers from Kobe Steel, Ltd. (KSL) discussed KSL's line-up of pipe welding consumables corresponding to the API specification, DW-100V: flux cored wire (FCW) for vertical position welding, submerged arc welding consumable with direct current (SAW-DC), and consumables for normal, super and lean duplex stainless steel.

Among the presentations, what attracted the most interest were DC-SAW, which was recently introduced in the region, pipe welding consumables selected for particular welding processes and duplex stainless steel consumables that are applicable in sea water desalination plants.

The seminar convinced us that we have to cultivate the Saudi Arabian market with new and distinctive products, listen to the users, and set up opportunities for KOBELCO fans to contact us through seminars and/or exhibitions.

Reported by:
Shunji Oki,
Manager, International Sales and Marketing Section,
Sales and Marketing Department, The Welding Business



The scene at the KOBELCO Technical Seminar



KOBELCO fans pose for a photo



Riyadh is shown in the map of Saudi Arabia



Delivering a lecture at the KOBELCO Technical Seminar is KSL's engineer



The 2016 Beijing Essen Fair

From June 14 to 17, 2016, the 21st Beijing Essen Welding and Cutting Fair attracted 974 exhibitors and 23,333 visitors from more than 60 countries and regions at the New China International Exhibition Center in Beijing, China.

As compared with the last fair held in Shanghai in 2015, the number of visitors decreased about 47% due, perhaps, to increasing economic stagnation around the world, especially in China, and a delay in the upgrading of transportation and infrastructure systems in Beijing.

Nevertheless, China continues to rank as the world's largest market of steels and welding consumables, which is why competition among welding-related manufacturers in this market has been so fierce over the past several years.

Furthermore, the Chinese Ministry of Industry and Information Technology (MIIT) has recently established a national project known as "Made-In-China 2025" in order to encourage greater efficiency and lower production costs. As a result, even fabricators who utilize our products have started applying the new guidelines and are looking to reduce their material and labor costs and upgrade to automated welding.

Under such situations, the booth organized by Kobe Steel,

with the support of Kobe Welding of Shanghai Co., Ltd. (KWSH), had two purposes: to respond to our customers' needs for high efficiency and stable quality with Kobelco welding consumables and robotic welding systems as well as to maintain the presence and market share of the KOBELCO brand in China.

Our information panels and displays of state-of-the-art products and bead samples focused on products for automotive, construction machinery, chemical plants, offshore structures and shipbuilding. Those, as well as a video presentation of the ARCMAN™ robotic welding systems, drew much interest from the many visitors to the Kobelco booth.

With the Chinese market attracting worldwide attention, we aim to become the "Asian number one brand," in line with our mid-term management plan in The Welding Business. However, in order to realize this goal, it is clear that we must not only maintain but also expand our market share.

As "The world's most reliable welding solutions company" we will reinforce our sales competitiveness and technical service capabilities, together with our sales partners in the

Chinese market, by fully utilizing the networks of the China-Shinyokai (Kobe Steel's Welding-Related Partners' Association in China) as well as sales agents in order to further expand the sales of Kobelco products.

Reported by :
Kazuma Tanabe,
International Sales and Marketing Section,
Welding Business



The 21th Beijing Essen Welding & Cutting Fair



Metaltech Malaysia 2016

The 22nd Metaltech, Malaysia's largest exhibition for the metalworking and machine tool industries, was held at the Putra World Trade Center in Kuala Lumpur from May 25 to 28, 2016. Inside the 35,000m² exhibition hall, about 1,400 companies displayed their products and welcomed almost 27,000 visitors from all over the world.

It was the first time for Kobelco Welding Asia Pacific (KWAP) and Kobe Welding (Malaysia) Sdn. Bhd. (KWM) to exhibit at this event. The joint exhibit targeted users and projects mainly in the oil-drilling rig industries, highlighting such new products as DC-SAW, DW-71T1, LB-55U, LB-8018, TG-S70S2, TG-S70S3, KOBE-350R and KOBE-600R.

Among the various displays, what attracted the most attention were the vacuum-packed LB-52NS covered electrodes that were displayed inside a water tank.

Many customers visited the Kobelco booth, and we could exchange name cards and market information with them.

I believe we successfully promoted the Kobelco brand even though so many welding-related companies exhibited their products. And we will continue to publicize up-to-date information regarding our welding consumables and technologies throughout the world, in order to realize "The world's most reliable welding solutions company"

Reported by :
Shogo Matsuura,
Sales and Marketing Planning
Manager, KWAP



Vacuum-packed LB-52NS on display in a water tank



The Kobelco booth at Metaltech Malaysia 2016



TG-S70S2, TG-S70S3, KOBE-350R and KOBE-600R on display