

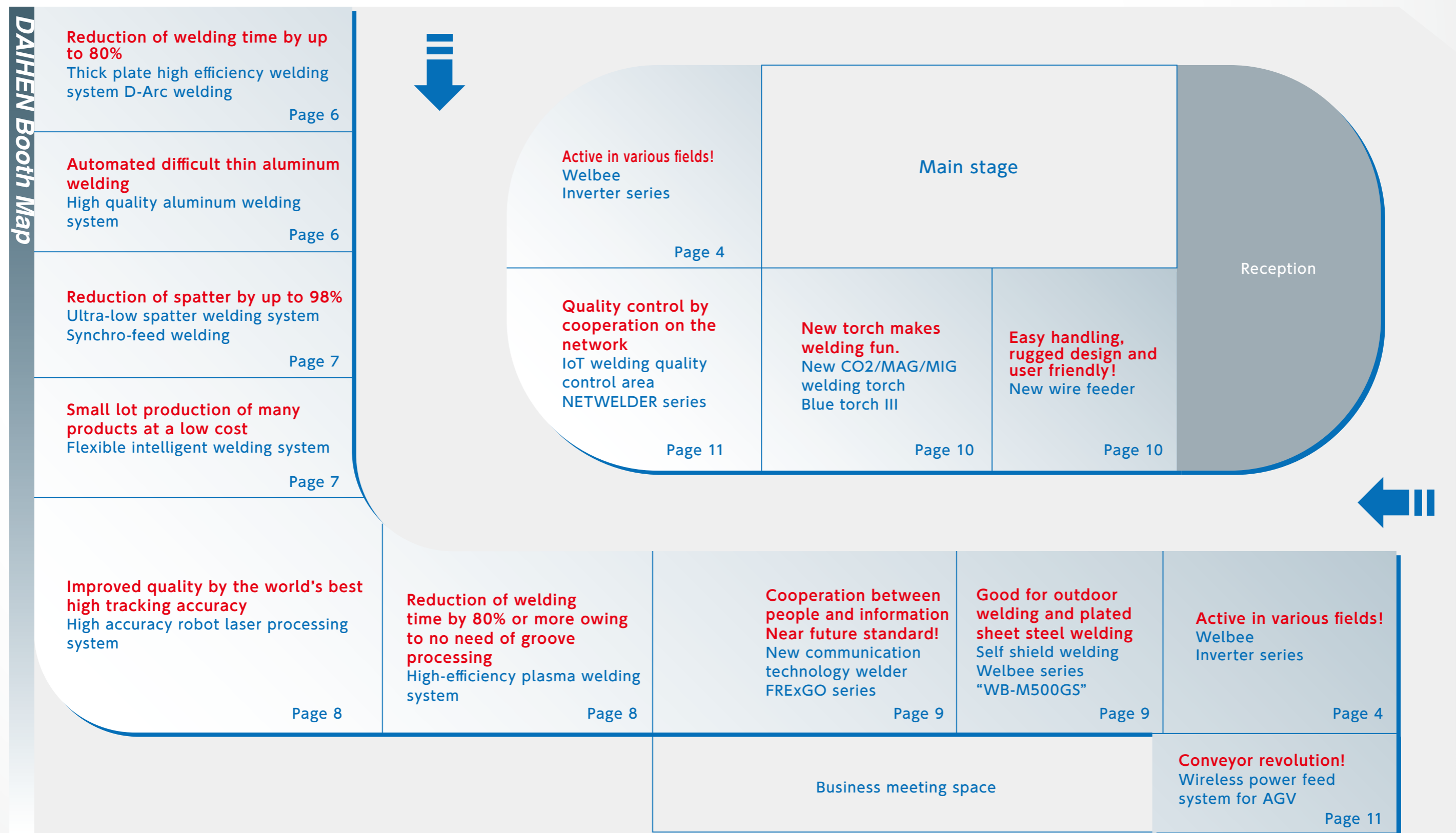


**Daihen welding technology,  
Creating your manufacturing of the future!**

**DAIHEN Corporation**  
**Booth Guide**

Japan International Welding Show 2016

## Daihen Booth Map



# Welbee series products realize superior quality and high efficient welding result

**Automotive industry**

Applications: Welding of auto parts and bodies in galvanized steel and high tension steel sheets

**Shipbuilding industry**

Applications: Automatic welding of shipyard blocks and plumbing fixtures. Welding of the LNG aluminum tank.

**Train car industry**

Applications: Welding of railroad carriage in steel and aluminum

**Pressure vessel industry**

Applications: Welding of Plumbing and pipes in chemical plants.

**Construction machinery**

Applications: Welding of arm, main body, cabin.

**Building and housing industry**

Applications: Welding of steel frames and plating steel sheets.

**Construction industry**

Applications: Welding of U-ribs

Active in various fields! **Welbee**

# Almega Friendly series

High quality arc welding packages for everyone!



- Intuitive Operation**  
Touch panel and jog dial ensure easier operation.
- Extensive Quality Control Functions**  
Easier quantitative management of welding procedures
- Compact & Eco-friendly**  
A streamlined, space-saving design contributes to energy efficiency by reducing standby power consumption

Note: Depictions of some models in this publication may differ from the actual products.

Enjoy seeing Welbee's true ability with excellent performance!

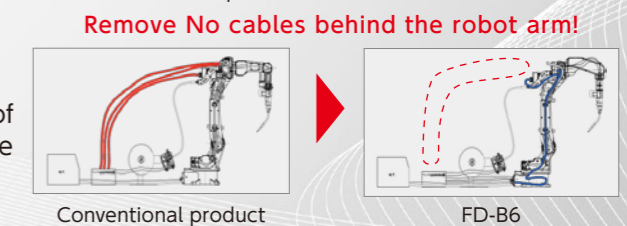
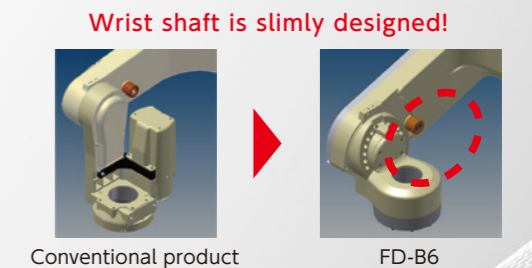
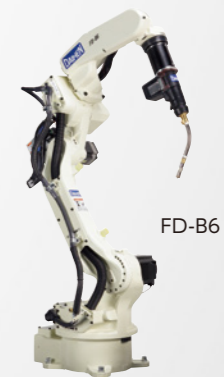
## The extensive lineup of 10 models in total contributes to quality improvement of manufacturing and cost reduction.

- Difficult thin plate welding and gap welding enabled  
**WB-W350**
- Reduction of welding time by 80% owing to the key hole welding  
**WB-F300P**
- Anybody can realize one rank improved welding quality  
**WB-M350/M500**
- A single Welbee for a wide range of applications from thin plates to thick plates  
**WB-T500P**
- Reduction of spatter by 80% at the maximum thanks to CO2/MAG welding  
**WB-M350L**
- Wind-resistant self shield welding function equipped  
**WB-M500GS**
- Cost reduction of the welding process by pulse welding  
**WB-P350/P500L**
- Gouging is available in addition to high performance welding  
**WB-M500G**

## Faster, Slimmer, More Durable Evolution in every performance!

### COMING SOON New arc welding robot FD-B6

- Faster**  
The maximum speed of each axis has increased by 15%. The industry's top motion speed is applied to drastically reduce takt time.
- Slimmer**  
The wrist motor and the arm are built inside to avoid interference with the jig or the workpiece. Optimal welding posture can be achieved even for narrow spaces.
- More Durable**  
The number of built-in cables has been increased to 24, which is the largest number in the industry. All cables are protectively stored for even high end processes such as synchro-feed welding. No cables at the back of the arm to interfere with surroundings.
- Lightweight**  
The body weight is 144 kg, which is the industry's lightest weight. Equipment installation costs for ceiling-type and wall-type systems have been reduced.
- More Powerful**  
The payload capacity is 6 kg, which is 1.5 times of that of conventional models. Various torches and sensors are mountable to expand the scope of application.



# Products Line-up

Reduction of welding time by up to **80%**



## Thick plate high efficiency welding system D-Arc Welding

Reduction of welding time by 80% by one pass welding

[For plate thickness 19 mm butt weld, welding length: 1 m]

One pass welding of thick plates realized by newly developed high current welding process D-Arc.

Drastic reduction of groove processing time

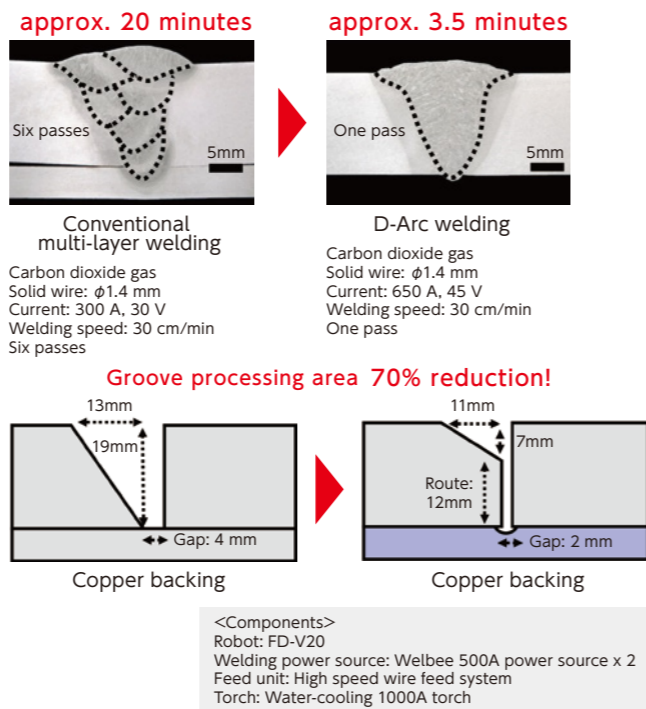
One pass welding leads to less groove processing, resulting in processing cost reduction.

Significant wire consumption reduction

Realize reduction of wire consumption by 70% due to edge preparation space reduction.

Applications

Thick plate welding users for steel frames, bridge, ship building, plant piping, etc.



Reduction of spatter by up to **98%**

## NEW Ultra-low spatter welding system Synchro-feed welding

Challenging the limit of low spatter

Ultra-low spatter is realized by current waveform control of the super high speed wire feed system and Welbee.

Optimized for welding of medium thick plates

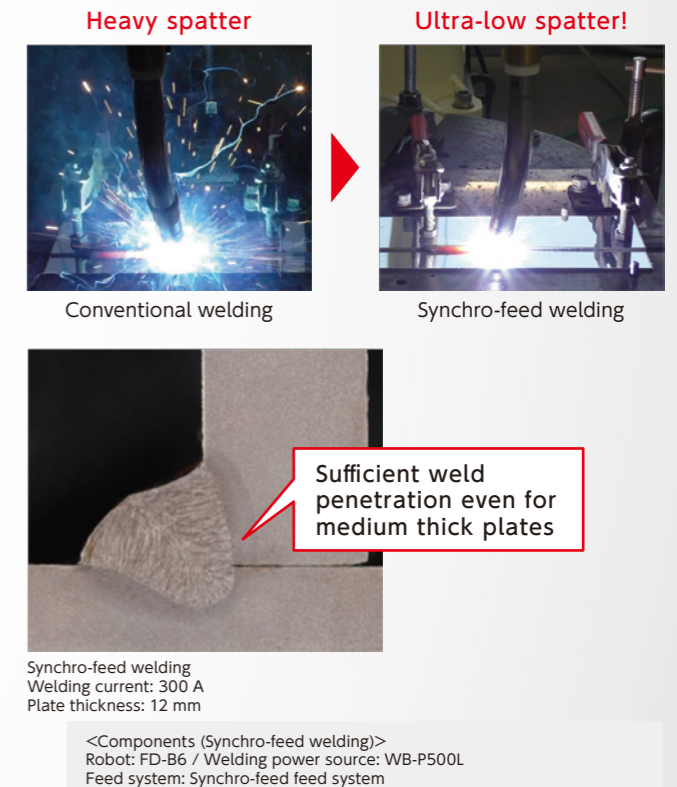
Both sufficient weld penetration and Ultra-low spatter are achieved in the 300 A current range. Realize a 100% use rate using 300 A for continuous high quality welding.

Expanded range of applicable materials

For car body parts, and galvanized steel plates used for construction  
For exhaust parts, and stainless steel plates used in chemical plants

Applications

Automobiles, bicycles, steel frames, construction equipment, chemical plants, etc.



## Automated difficult thin aluminum welding

### High quality aluminum welding system

Automated welding is enabled without melting thin plate.

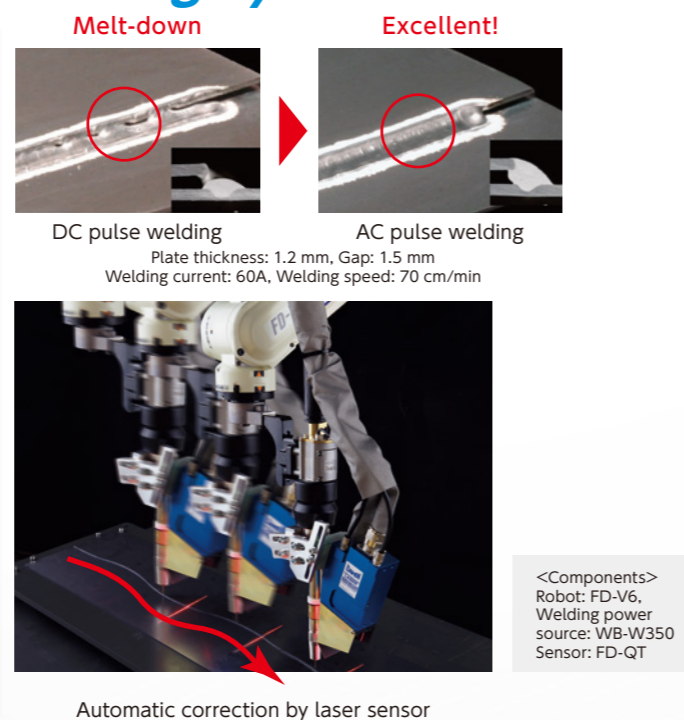
This system enables stable automatic welding by AC pulse heat input control, so realizing difficult welding that used to be enabled by only skilled workers.

Real-time automatic correction of welding conditions and torch positions

New laser sensors detect target misalignment and gap changes that occur during welding and correct them automatically. Stable high quality welding realized

Applications

Aluminum frames of rail cars and automobiles, etc.



## Small lot production of many products at a low cost

### Flexible intelligent welding system

Small lot production of many products at a low cost

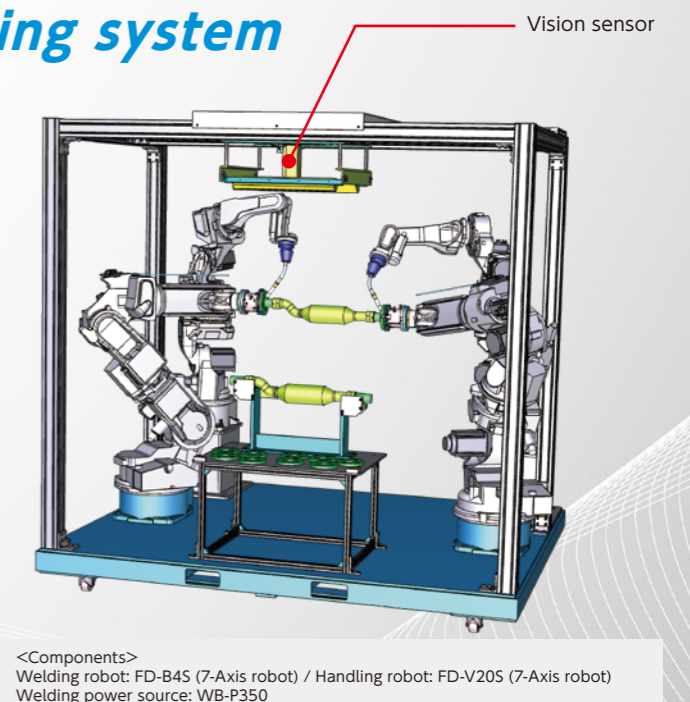
No need to change jigs for each workpiece because of coordinated motions of the handling robot and the welding robot. This contributes the drastic reduction of setup time.

Reduction of hand working

The robot picks up randomly arranged workpieces using vision sensors. Work setting that used to be dependent on hand working has been automated.

Space saving

The flexible seven-axis robot enables both optimal welding posture and high density installation.



# Products Line-up

COMING SOON

## Improved quality by the world's best high tracking accuracy High accuracy robot laser processing system

### World's best high accuracy robot

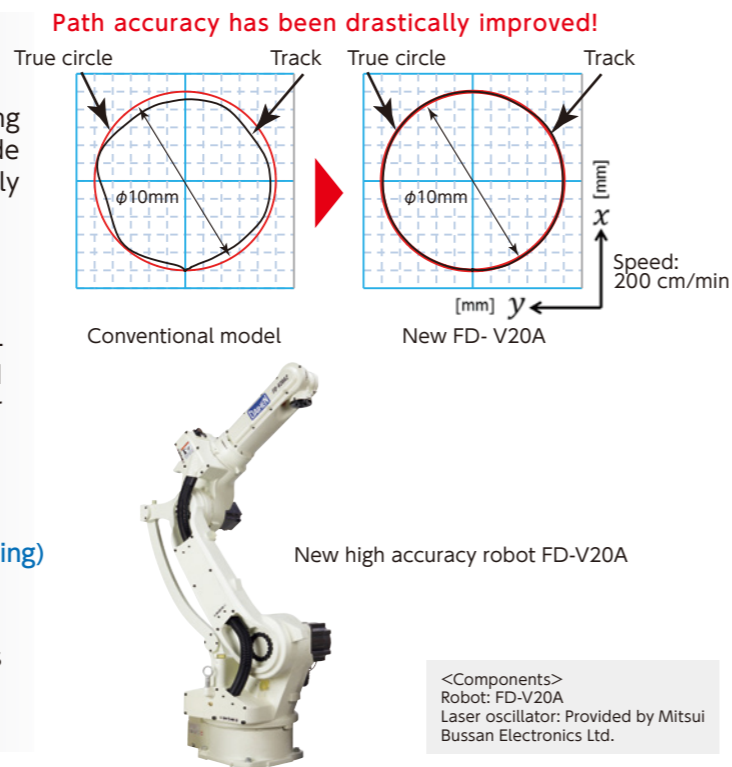
Straight line tracking accuracy and circular tracking accuracy have been drastically improved in a wide range. Circles smaller than  $\phi 10$  mm are precisely attainable.

### Drastic equipment cost reduction

Thanks to this high accuracy robot, capital equipment costs are drastically reduced compared with those of expensive three dimensional laser processing machines.

### Applications (Precise processing such as laser welding/cutting, TIG welding, and plasma welding)

Automotive High-strength steel  
Stainless steel exhaust parts  
Heat exchanger piping, metallic furniture, gas piping, air conditioners, etc.



## Reduction of welding time by 80% or more owing to no need of groove processing

### High-efficiency plasma welding system

### One pass welding is enabled even when there is no groove processing. Welding time is reduced by 80% or more.

[Comparison of weld penetration depth for square butt weld, stainless steel 9 mm]

Keyhole (penetration) by concentrated plasma arc.

One pass welding is enabled.

For medium thick plates, welding time will be drastically reduced compared with multi-layer welding by TIG.

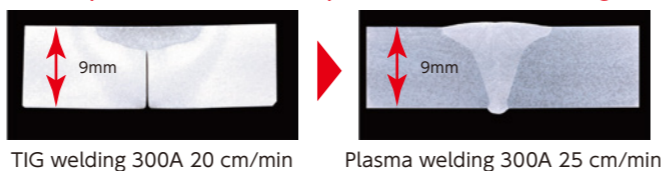
### High speed thin plate welding is enabled.

Combination with the automatic vertical welding system realizes high speed and high quality welding.

### Applications

Exhaust parts of automobiles, pipe manufacturing, large tanks, etc.

### Full penetration can be possible in one welding!



<Components>  
Welding power source: WB-F300P, Feed system: AFT-4211, Robot: FD-V6



<Components>  
Welding power source: WB-F300P, Torch: PTPW-2001, Automatic vertical welding system

## Cooperation between people and information Near future standard!

Reference exhibit

### New communication technology welder FReXGO series

### Easy to carry and operate the feed system

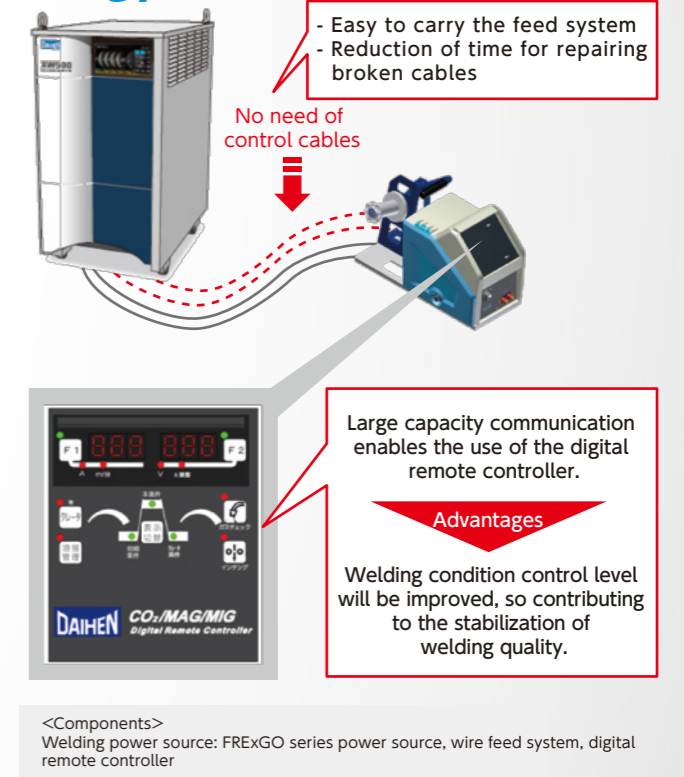
Owing to the D.connect (power line communication) technology, no need to use the control cable that weights 25 kg per 50 m  
Work load for carrying the feed system is less, so reducing the load of workers.

### Large capacity communication is enabled between the feed system and the welding power source without the control cable.

You can set this condition, crater conditions and select crater ON or OFF using a remote controller. So, you do not need to move to the welding power source for condition setting. Furthermore, if you use a digital remote controller, you can use the welding condition memory function and the welding condition control function, which will contribute to quality control. Of course, there is no need to add control cables.

### Applications

Large size structures such as ship building and cylinder manufacturing, etc.



## Good for outdoor welding and plated sheet steel welding

NEW

### Self shield welding Welbee series "WB-M500GS"

### Welding defects will be prevented.

This welding causes less welding defects than CO2 welding under the windy environment. Welding is very efficient because the welding time is about half of manual welding.

### High quality galvanized steel plate welding realized

In welding of galvanized steel plates, it generates less blow holes, thus improving welding quality.

### Applications

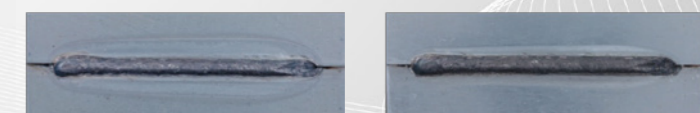
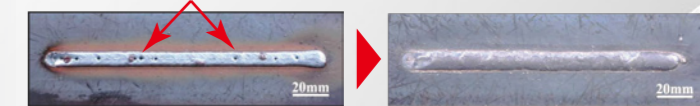
Steel pipe piles, outdoor construction sites, pipe lines, poling boards, light-gauge steels, etc.



<Components>  
Welding power source: WB-M500GS  
Feed system: CMN-7402  
Torch: WTNJ3510-SD

### Welding result with the wind speed of 5 m/s

Generation of blow holes



Welding current: 250 A Arc voltage: 20.5 V Welding speed: 60 cm/min

# Products Line-up

## New torch makes welding fun.

### NEW New CO2/MAG/MIG welding torch Blue torch III

#### Easy-to-grip, no fatigue

Easy to weld because of the ergonomically easy-to-grip handle and the optimal torch shape based on the digital motion analysis during welding.

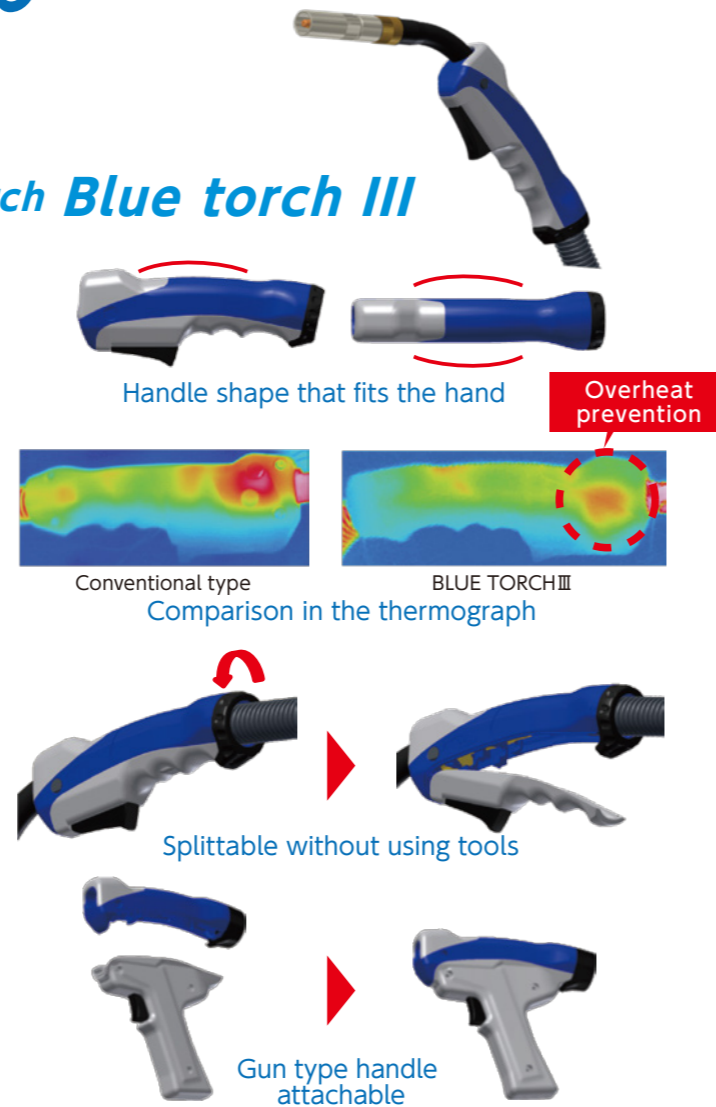
#### Heat protection

Heat transmitted to the worker is drastically reduced by reducing the contact area between the heat generating conductor and the handle resin.

User friendly design includes heat protection

#### Easily customized by the split handle structure

Gun handle type and long trigger type are available for easy handling with changing tool free



Handle shape that fits the hand

Overheat prevention

Conventional type

BLUE TORCH III

Comparison in the thermograph

Splittable without using tools

Gun type handle attachable

## Easy handling, rugged design and user friendly!

### COMING SOON New wire feeder

#### Transportability of the feed system improved

Good balance and easy-to-grip  
Excellent transportability realized thanks to the handle grip

#### Improved durability and toughness

Excellent durability thanks to the high-strength frame structure  
Excellent dustproof and waterproof structure (for IP23)

#### Easily replaceable consumable parts

Parts such as the feed roll are replaceable without any tools.



No tool is required for replacement  
Less setup time

## Quality control by cooperation on the network

### IoT welding quality control area NETWELDER series

You can control welders and robots intensively in the plant. You can control welding including the control of operation state, prevention of defects, preventive maintenance, etc.

#### Batch control of multiple welders and robots.

You can collect, record, and batch control the operation state of welders and robots.



Welbee Welding monitor

#### Welder information is monitored at hand.

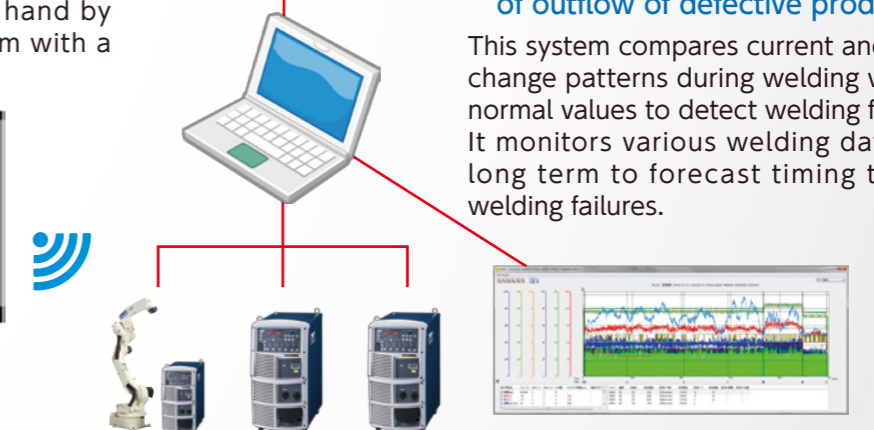
Welders are operated at hand by wirelessly connecting them with a tablet PC.



Welbee remote controller

#### Detection of welding failures, which contributes to the prevention of outflow of defective products

This system compares current and voltage change patterns during welding with their normal values to detect welding failures. It monitors various welding data in the long term to forecast timing to cause welding failures.



Welding quality control system FD-AM

## Conveyor revolution! Achieving 24-hour movement

### NEW Wireless power feed system for AGV

#### Perfect automation of transportation lines

Workers do not need to spend time for "charging" and "rechargeable battery replacement." Reduces labor cost and provides high productivity

#### Effective use of plant space

No charging space is required because transporters are charged on the production lines. The plant space is effectively used.

#### Maintenance-free environment realized

No risk of causing defects due to wear of parts (charging cables, connectors, etc.), dirt contamination, etc.

#### Safety improved

No risk of electric shock or spark accidents since workers do not need to contact transporters during charging.

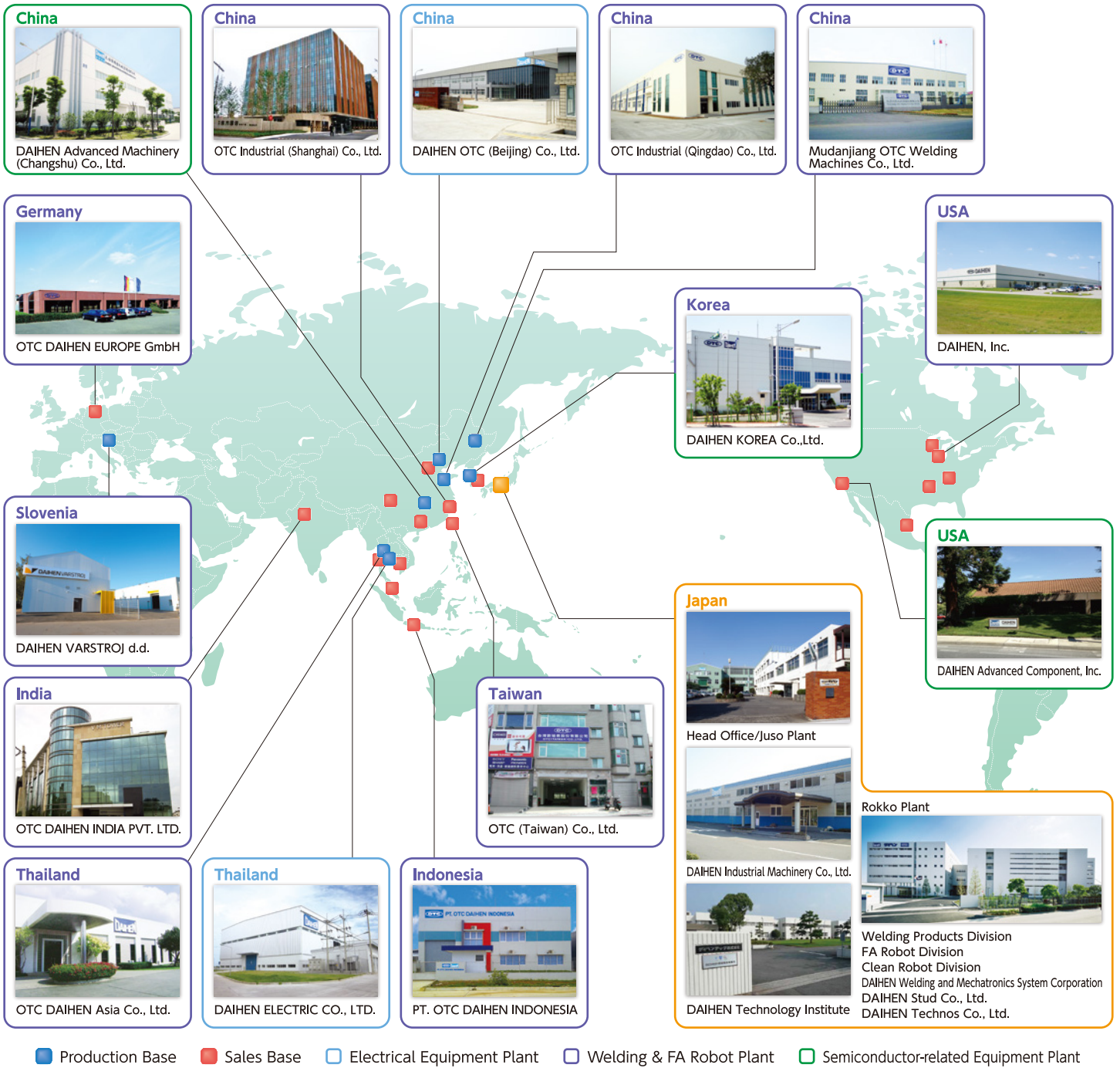


D-Broad CORE



# DAIHEN Global Network

Global scale synergy that interweaves humans, technology, and the market



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Osaka Transformer Co., Ltd. "OTC" is DAIHEN's brand name outside of Japan.

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