

# Profit-making welding process

**MYSPOT, Table Spot Welder**

**Complete catalogue**

MACHINE DESIGN & PRODUCT DEVELOPMENT  BUSINESS ENTITY  
**koyo giken**





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### Clean and Strong

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A spot welder with multiple-joint arms.

One day, a customer called us and said “Our workers have to work in an uncomfortable postures while welding, and are exhausted by the end of the day, which affects welding quality seriously. Could you please help us solve this problem?”

After that phone call, we wondered;  
If the workpiece was placed on a stable surface, one single worker should be able to weld it easily and aim the required welding point effortlessly.

At that time, we had acquired knowledge in resistance welding when designing jigs for automotive companies. So, we started to develop a new technology to help the customer improve their inefficient and stressful welding operations.

Two years after we conceived the basic idea, we completed the first machine, the MYSPOT table spot welder.

For more than 100 years in spot welding, people believed that they must hold a workpiece and move it to weld with a fixed gun. MYSPOT has introduced a new practice:  
The workpiece is placed on the table electrode, and is welded by one worker moving the gun freely.

Vertical gun



This gun moves vertically. Therefore it aims easily at the bottom of the deep box which is enclosed on four sides. Because of its vertical angle to the surface, it is also suitable for welding nuts and screws.

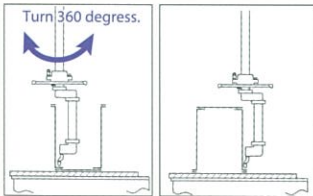
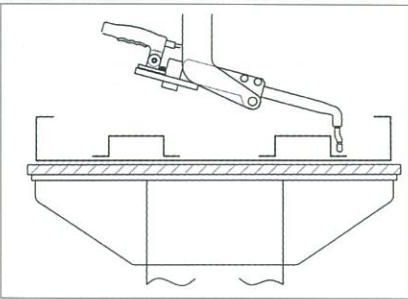


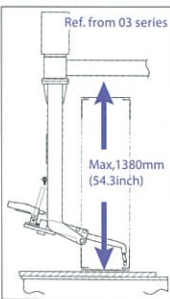
Table electrode



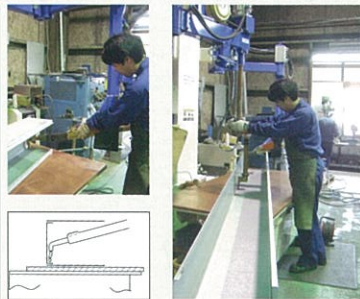
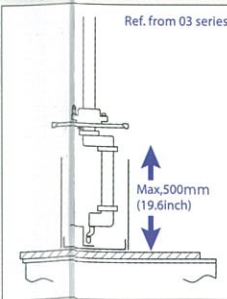
Ex.1 Place a workpiece and move the gun to the welding point.



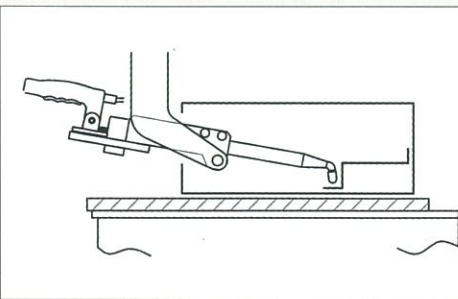
Ex.2 Easy to weld tall workpieces.



Ex.3 Large and long workpiece welded by both guns.



Ex.4 Easy to aim deep and narrow weldpoints.



Easy Setting -Welding Parameter mgmt.



“Easy Setting” is a smart preprogrammed computer which automatically selects the optimum welding parameters by just entering “Material” and “Thickness” on the touch screen. The functions include more. See the following pages for details.



LED light ※optional

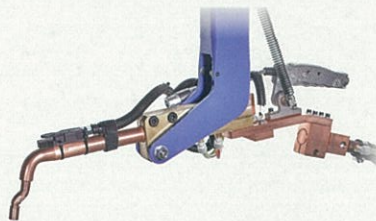


Attached to H gun

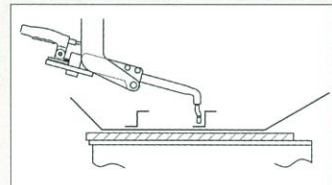


Attached to the upper part of the gun

Horizontal gun



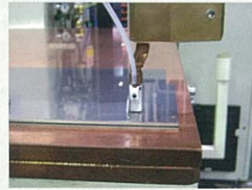
Unlike the conventional welding guns, this gun moves horizontally and reaches depths of various shapes of workpieces. By moving the gun over the table electrode, people can spot weld easily. Welding nuts can be welded by this gun.



Anti-Oxidation system



The removal of burn mark on stainless steel fabrications using brush-on pastes or gels is cumbersome!  
Here, Anti-Oxidations system gives you oxidation-free spot weld results for stainless steel.



※This system works only for the welded side, not the cosmetic side.



# What is Easy Setting ?

SINCE 2002

## Simply choose "Material" and "Thickness".

The table spot welder gradually became popular. At the same time, we had to simplify the input of welding parameters and needed to review the production process which was highly dependent on skilled workers.

What if the optimum parameters are automatically set up simply by entering the material and the thickness? This would enable anyone to do welding without special skills....  
We wanted to make this idea come true.

First, we listed the types of materials mainly used in the sheet-metal industry and optimum parameters. With the help of universities and research institutes, we sought ease of operation, good visibility of images on the screen and other details.

In 2002, three and a half years after the launch of development, we completed Easy Setting, a welding parameter management system.

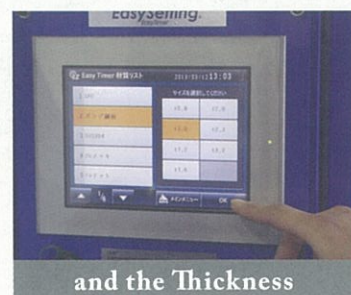
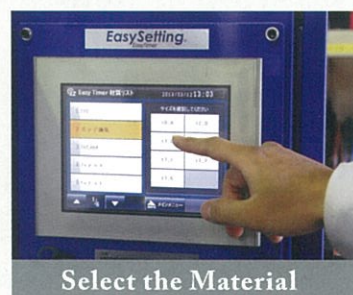
Easy Setting enables even a new employee who has just joined the company to play a useful role like a skilled welding worker.



Function  
1

## Setting welding parameter

Choose "Material" and "Thickness"



The welding parameters can be set by simple touch-screen operation. Set up time is about 90% shorter than that of the conventional method.

TABLE SPOT WELDER  
MYSLOT

Conventional  
method  
(referring to the manual)

About 4 minutes 30 seconds quicker!

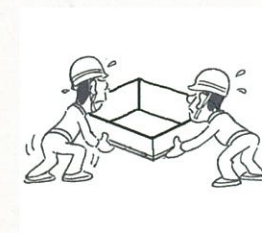
About 5 minutes

Set up time is  
reduced by 90%.

Function  
2

## Counting the number of spot welds

Keep your electrodes dressed



Their products are large in size and have many places to be welded. Workers are very busy during the welding process.



Therefore, the tips are worn out and deformed easily. But they feel tip dressing is bothersome and don't know exactly when to do it. Some products may unknowingly cause defects.



Easy setting counts the number of welding points and will let them know when to dress the tip.

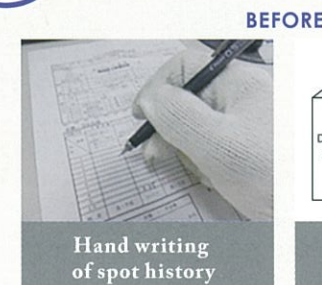


MYSLOT's fixed tip dresser (option) is easy to perform tip dressing any time and make it a routine. Weak welds will be prevented, and the defect rate will be reduced.

Option

## Managing welding parameters and data

Traceability for quality control and ISO compliance



Quality control of spot welding is essential for factories producing a wide variety of products in small quantities. People may enter incorrect parameters and make a mistake when welding parameters need to be changed several times manually within the same project. This barcode system will solve such situation. Simply, scan the preset barcode of the name of the operator, the project and the drawing. The series of welding parameters are set automatically and all the scanned data are stored as a welding history. In case of defects, it is easy to look into the matter and identify what was wrong.

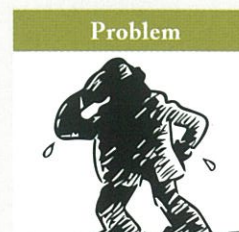
※ This system is currently for Japanese domestic market only (as of 2016).

Story

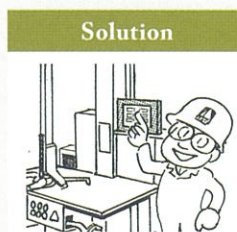
## Anyone can do spot welding



The spot welding process is highly depending on skilled workers. For quality maintenance, it is desirable to train new workers for our future.



Welding work has a tough image and it takes time to obtain the skills. If this goes on, it is difficult for us to maintain the quality.



Using Easy Setting, simply choose the material and the thickness for welding parameter. No prior knowledge is required.



Product quality is ensured and training cost is reduced. High quality can be maintained even if the workers are alternated.



# What is High-Speed Spot Welding Technology?

SINCE 2012

## Our original inverter power source

With an increase in the use of the table spot welder, finishing work after spot welding has been drastically improved. However, if burns and distortion are reduced much further, the finishing process, such as sanding, will be shorter and productivity will be enhanced. If a thin material is welded neatly, it will help reduce the product weight and cost.

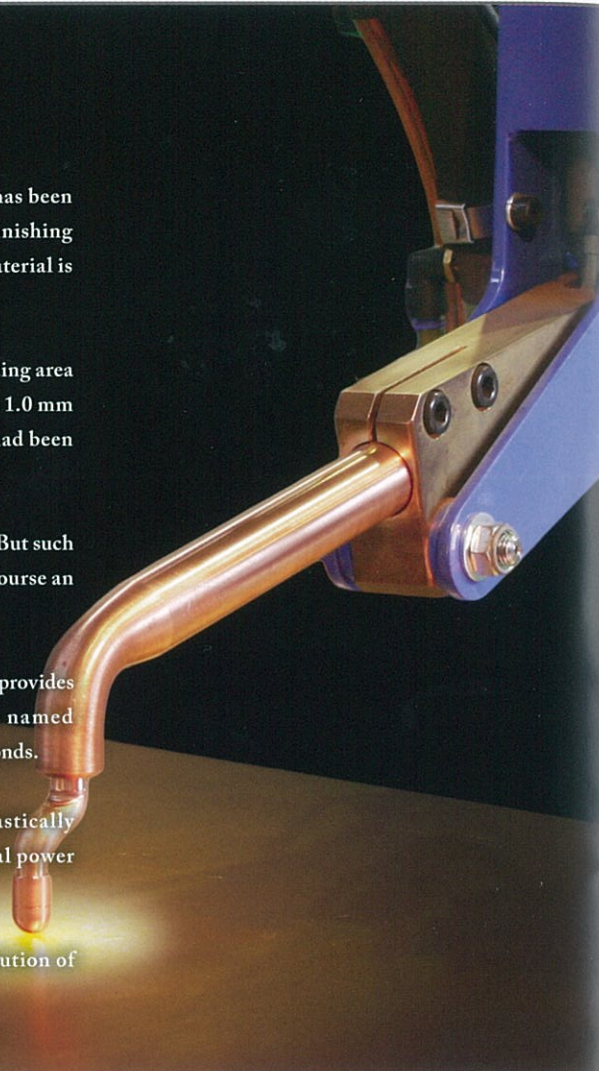
In spot welding, generally, it takes 10 to 15 cycles to pass an electric current. The surrounding area is gradually heated and burn mark or a dent is often caused. When a thin material (0.8 to 1.0 mm thick) is welded, creases or distortions called "sheet separation" are caused. And they had been thought to be unavoidable.

If a large current could be passed momentarily, burns and distortion might be minimized. But such welding power was not available in the market ... we needed to develop one. It was of course an unprecedented challenge for us.

In 2012, after four years of efforts, we succeeded in developing a welding power supply that provides a large current for milliseconds and controls it. Our original welding power was named "High-Speed Spot Welding Technology" because the current rises quickly in only 0.01 seconds.

Thanks to this new power supply, not only burn marks, distortion, and dents are drastically reduced, but also the power consumption is lowered to 1/7 of that of our conventional power supplies. The new power supply has turned out to be energy-saving and eco-friendly.

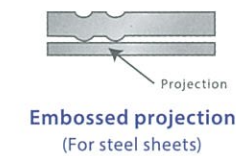
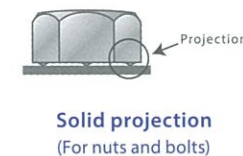
We will continue to drive progress in innovation and to challenge in the further evolution of MYSPOT.



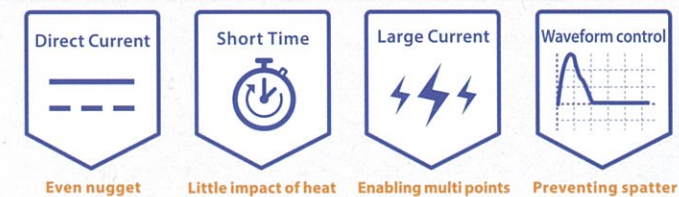
Note

projection + **HIGH SPEED**  
SPOT WELDING TECHNOLOGY

### ■ Type of projection

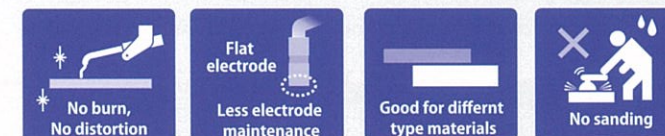


### ■ Essential elements to ensure successful projection welding

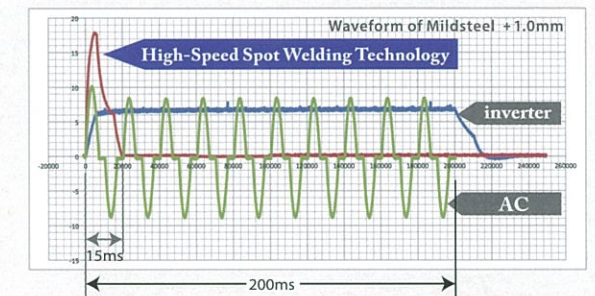


The welding power of our High-Speed Spot Welding Technology is capable of passing a large current in a very short period of time (0.01 seconds). Unlike capacitor-discharge type power, the current waveform is controllable as it is inverter-type power supply.

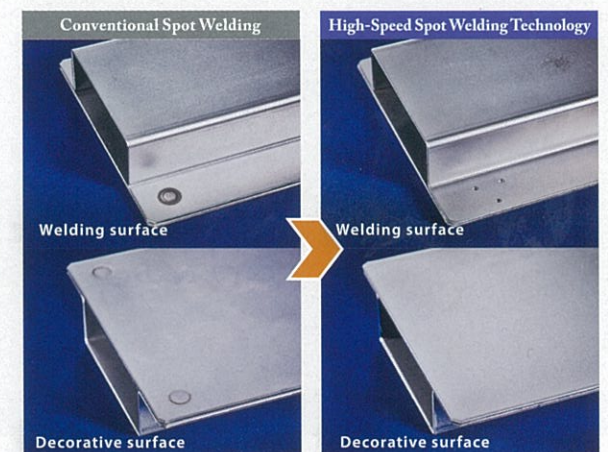
### ■ projection + **HIGH SPEED** SPOT WELDING TECHNOLOGY achieve the followings:



### ■ Waveform of High-Speed Spot Welding Technology



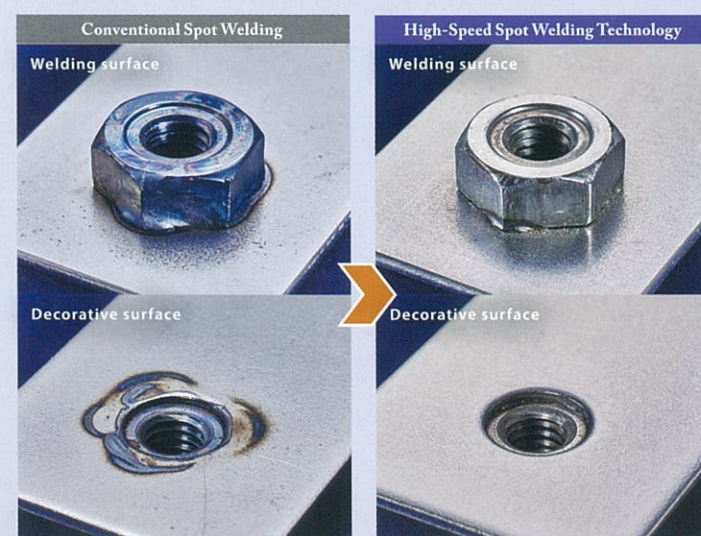
### ■ Comparison in finish



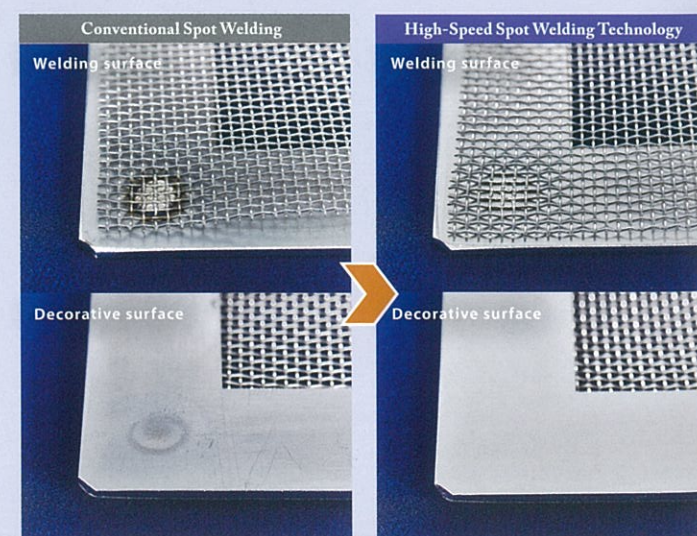
Causing no burns or dents on the decorative surface. Neat in appearance and high in strength.

## High-Speed Spot Welding Technology achieves:

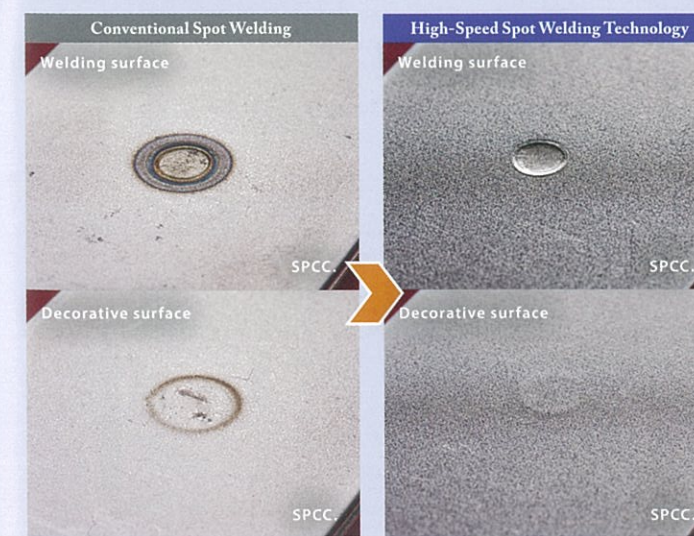
### 1 Clean Nut Welding



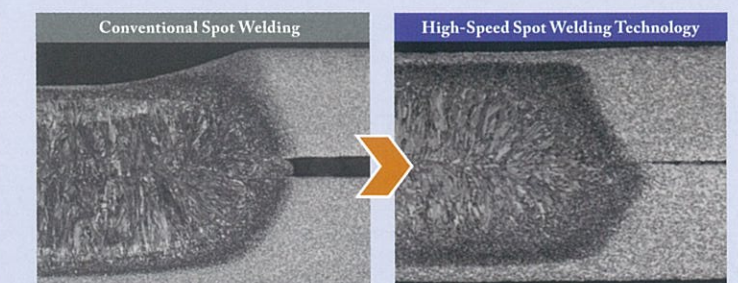
### 2 Clean Mesh Welding



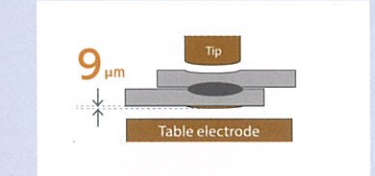
### 3 Less weld mark



### 4 No distortion



### 5 Minimum size of rise



### 6 Energy-saving



※ Please note that High Speed Spot Welding Technology works only with Horizontal gun, not Vertical gun.



## Simplified Tensile Tester

### How do you judge your weld ?

Are you sure your weld is strong enough ?  
How can you explain how good your weld is ?

In general, to measure the strength of a spot-welded product without destroying it, large testing equipment, large space, and considerable cost are required.

Some manufacturers take short cuts, such as twisting the weld with hands or striking it with hammer. However, we all know this is not the best solution.

Our simplified tensile tester can measure weld strength not only the regular weld on plate, but also nuts and screws. The digital screen indicates the weld strength with numerical value. And of course, you can print out the result. It shows various testing data as well as statistical data, such as maximum, minimum and mean values and standard deviations.

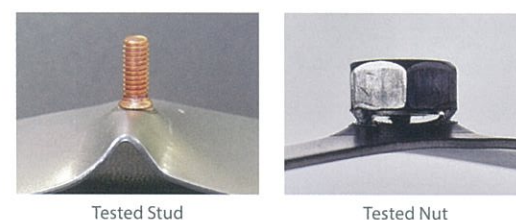
You can give presentations or explanations to your customer while giving actual numerical weld strength data.

Grasping the weld strength and meeting the requirement are essential when high welding quality is demanded.



### Simplified Tensile Tester PT-3000DG-P

Max. measuring capacity : 30kN(measurable range: 2 kN to 30 kN)  
Accuracy :  $\pm 10\%$   
Load indication : Digital  
Clamping method : Top/bottom clamps (tightened with M10 hex socket head bolt)  
Pressing method : Manual lever (with a hydraulic jack)  
Test sample dimensions : JIS 3136 for single point (30 mm x 100 mm)  
Weight : 68kg  
Dimensions : H800 x W460 x D400 mm, desktop



- Max. measuring capacity: 30 kN (measurable range: 2 kN to 30 kN)
- Space-saving design.
- Quality control will become routine.

#### Procedure

- 1 Place a spot-welded sample on the machine.
- 2 Pull it until the welded surface comes apart.
- 3 The shear strength is shown as a numeral. Press the print button to print the result.



## Welding consumables

### One single electrode can make a difference to the welding process.

The correct usage of the electrode can make a big difference to the welding process. Sometimes, changing one single electrode can simplify tough welding work or enhance the weld quality.

What is more, it may also reduce the finishing work or eliminate redundancy in production processes.

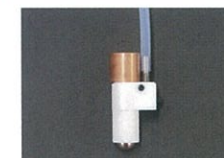
Making the most of our advantages in mechanical designing, we offer various shapes and types of electrodes and our original welding consumables.

Our wide selections of welding consumables are for sure to improve your welding process.

Please ask your distributor for more information.



#### Anti-Oxidation for SUS

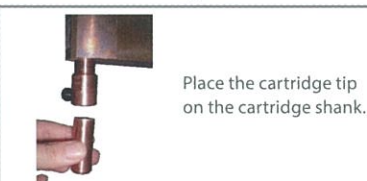


or



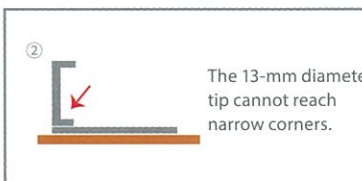
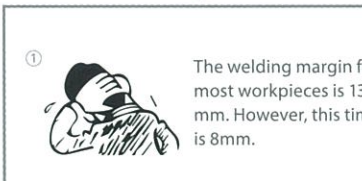
The process for removing burn marks on the welded side can be eliminated.

#### Cartridge shank and tip



Stud weld completed.

#### Special-type offset tip



The welding margin for most workpieces is 13 mm. However, this time is 8mm.

The 13-mm diameter tip cannot reach narrow corners.

The special-type offset tip is 6 mm at its end and it reaches narrow corners. Because it is off-center, shunt current is prevented.

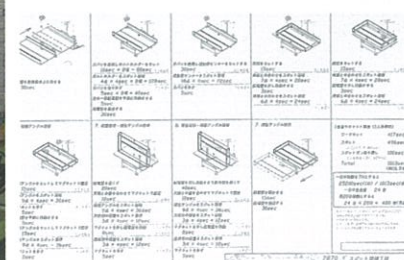
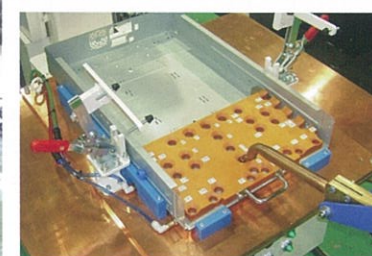
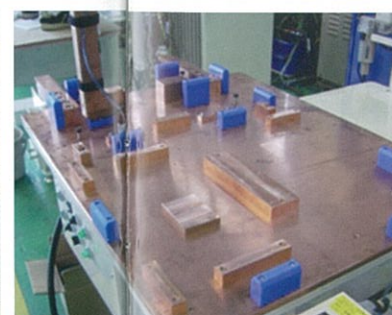
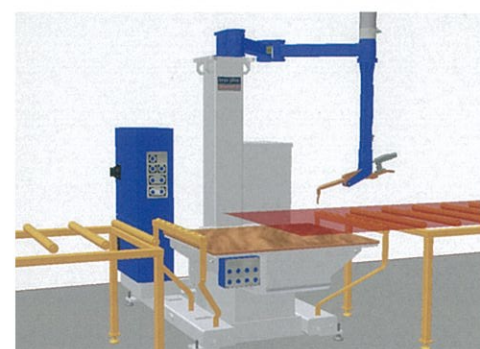


## Evolving MYSPOT



**koyo giken**  
TABLE SPOT WELDER  
**MYSPOT**

Please contact your local distributor for the most suitable specifications of your MYSPOT.





## Standard table spot welder

### NK-21 SERIES

**NK-21HEV810-M-WKG-EZ** (High Speed + Aluminum)

Input voltage rating : 80kVA  
Primary voltage : 3-phase, 200/400 V  
Gun type : H (horizontal) gun and V (vertical) gun  
Max. current : H : 24000A, V : 22000A  
Max. welding pressure : H : 3.8 kN and V : 3.8 kN (air pressure 0.6 MPa)  
H gun length : 320mm  
V gun stroke : 350mm  
Duty cycle : 7%  
Table size : t20x800x1000mm(Motorized)  
Coolant flow : 8.5 L/min or more  
Electrode tip : 13 mm or 16 mm in diameter (taper: 1/10)  
Dimensions : W1065xD1705xH2460mm  
Weight : 1330kg  
Ref. welding ranges : Mild steel (t3.2 x 3.2 mm)  
Stainless steel (t2.5 x 2.5 mm)  
Galvanized (t2.3 x 2.3 mm)  
Galvanneal (t3.2 x 3.2 mm)  
**Aluminum (t2.0 x 2.0 mm)**

○Table size: 800×1000 mm

※ The weldable ranges may vary depending on the shape and plating even if the material is the same. We guarantee the capacity of the machine; we do not guarantee the capacity for different materials and thicknesses.

※ Please note that High Speed Spot Welding Technology works only with Horizontal gun, not Vertical gun.

## Suitable for large workpieces

### NK-03 SERIES

**NK-03HV100-15-WKG-EZ** (High Speed + Aluminum)

Input voltage rating : 80kVA  
Primary voltage : 3-phase, 200/400 V  
Gun type : H (horizontal) gun and V (vertical) gun  
Max. current : H : 24000A, V : 22000A  
Max. welding pressure : H : 3.8 kN and V : 3.8 kN (air pressure of 0.6 MPa)  
H gun length : 690mm  
V gun stroke : 500mm  
Duty cycle : 7%  
Table size : t15x1000x1500mm(Not Motorized)  
Coolant flow : 8.5L/min or more  
Electrode tip : φ13 or φ16 (taper: 1/10)  
Dimensions : W1500xD1715xH2595mm  
Weight : 1680kg  
Ref. welding ranges : Mild steel (t3.2 x 3.2 mm)  
Stainless steel (t2.5 x 2.5 mm)  
Galvanized (t2.3 x 2.3 mm)  
Galvanneal (t3.2 x 3.2 mm)  
**Aluminum (t2.0 x 2.0 mm)**

○Table size: 1000×1500 (2000) mm

※ The weldable ranges may vary depending on the shape and plating even if the material is the same. We guarantee the capacity of the machine; we do not guarantee the capacity for different materials and thicknesses.

※ Please note that High Speed Spot Welding Technology works only with Horizontal gun, not Vertical gun.



## Static-pressure spot welder

### NK-08 SERIES

**NK-08-WKG-EZ** (High Speed + Aluminum)

Input voltage rating : 80kVA  
Primary voltage : 3-phase, 200/400V  
Max. current : 24000A  
Max. welding pressure : 3.8kN(air pressure of 0.6 MPa)  
Duty cycle : 7%  
Coolant flow : 8.5 L/min or more(option)  
Electrode tip : 13 mm or 16 mm in diameter (taper: 1/10)  
Dimensions : W545xD1200xH1650mm  
Weight : 230kg  
Ref. welding ranges : Mild steel (t3.2 x 3.2 mm)  
Stainless steel (t2.5 x 2.5 mm)  
Galvanized (t2.3 x 2.3 mm)  
Galvanneal (t3.2 x 3.2 mm)  
**Aluminum (t2.0 x 2.0 mm)**

- Fix the position by the foot lever first, then pressurization starts. Easy to aim the weld point.
- No chance to pinch your finger.

※ The weldable ranges may vary depending on the shape and plating even if the material is the same. We guarantee the capacity of the machine; we do not guarantee the capacity for different materials and thicknesses.

## Compact table spot welder

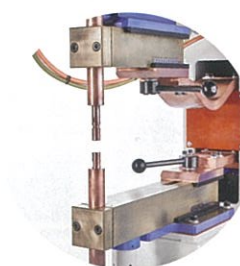
### NK-71 SERIES

**NK-71HE-WKG-EZ** (High Speed + Aluminum)

Input voltage rating : 80kVA  
Primary voltage : 3-phase, 200/400V  
Max. current : 24000A  
Max. welding pressure : 3.8kN(air pressure of 0.6 MPa)  
Duty cycle : 7%  
Table size : t 15x400x250mm  
Coolant flow : 8.5 L/min or more(option)  
Electrode tip : 13 mm (taper: 1/10)  
Dimensions : W645xD1137xH1423mm  
Weight : 250kg  
Ref. welding ranges : Mild steel (t3.2 x 3.2 mm)  
Stainless steel (t2.5 x 2.5 mm)  
Galvanized (t2.3 x 2.3 mm)  
Galvanneal (t3.2 x 3.2 mm)  
**Aluminum (t2.0 x 2.0 mm)**

- Ideal for smaller products.
- Space-Saving design.
- Foot switch available.

※ The weldable ranges may vary depending on the shape and plating even if the material is the same. We guarantee the capacity of the machine; we do not guarantee the capacity for different materials and thicknesses.



Quick set-up by the square-shaped horn.



Fix the position by the foot lever first, then pressurization starts.



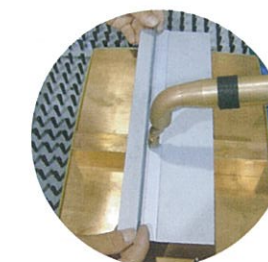
The gun can be fixed.



Comfortable welding position.



Tip of the gun moves easily and precisely.

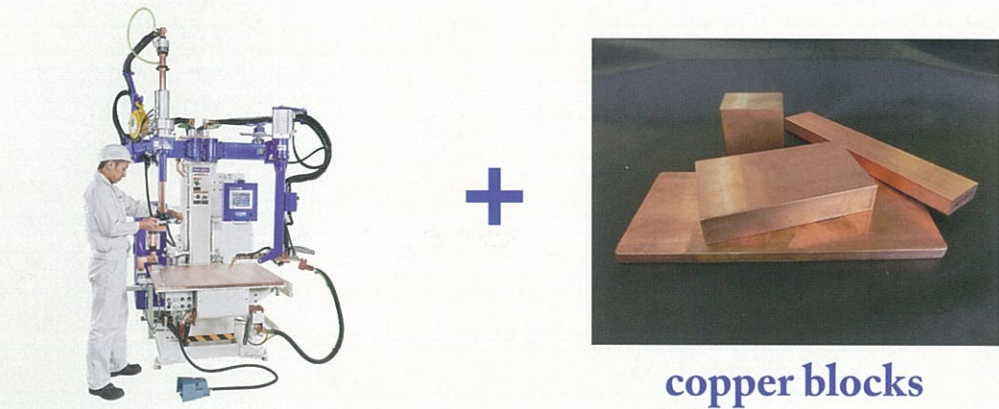


Hold your workpiece by both hands.

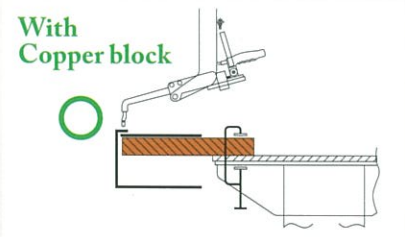
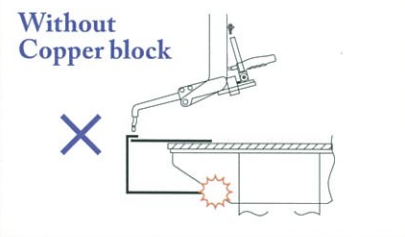
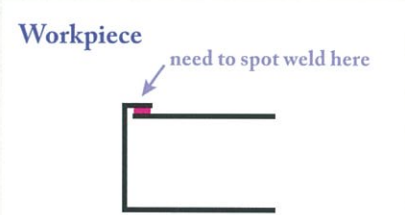


# MYSPOT with copper blocks

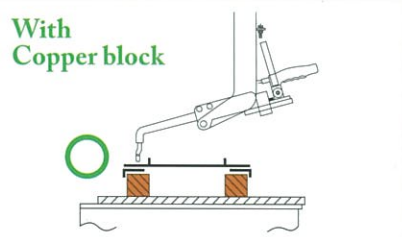
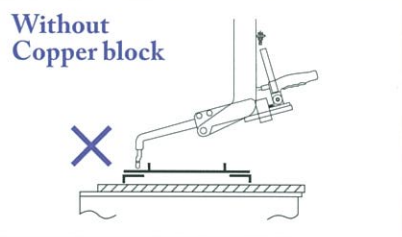
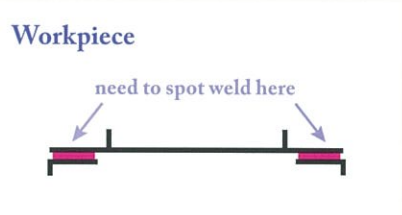
By combining the copper blocks with a little creativity, you can weld complexed shape workpieces effortlessly.



## Usage example 1







## Usage example 2



# Specifications by series

## Compatible power supplies by series

<div> <div>koyo giken</div> <div>TABLE SPOT WELDER</div> <div>MYSPOT</div> </div>		 NK-21 SERIES	 NK-03 SERIES	 NK-08 SERIES	 NK-71 SERIES
Type of power supply	AC	●		●	●
	DC	●	●		
	Inverter	HIGH SPEED SPOT WELDING TECHNOLOGY	●	●	●
		HIGH SPEED SPOT WELDING TECHNOLOGY + aluminum	●	●	●

## Specifications by power supply type

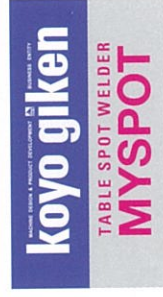
	Type of power supply			
	AC	DC	Inverter	
			HIGH SPEED SPOT WELDING TECHNOLOGY	HIGH SPEED SPOT WELDING TECHNOLOGY + aluminum
Maximum welding pressure	2.2 kN	2.2 kN	2.2 kN	3.8 kN
Capacity rating	30 kVA	80 kVA	40 kVA	80 kVA
Maximum short-circuit current	10000A	11000A	12000A	24000A
Mild steel	t2.3x2.3mm	t2.3x2.3mm	t2.3x2.3mm	t3.2x3.2mm
Galvanized, Galvanneal	t2.3x2.3mm	t2.3x2.3mm	t2.3x2.3mm	Galvanized : t2.3x2.3mm Galvanneal : t3.2x3.2mm
SUS	t2.5x2.5mm	t2.5x2.5mm	t2.5x2.5mm	t2.5x2.5mm
Aluminum	×	×	×	t2.0x2.0mm

※The specifications above may slightly differ depending on the gun used.

※The weldable ranges may vary depending on the shape and plating even if the material is the same. We guarantee the capacity of the machine; we do not guarantee the capacity for different materials and thicknesses.

※Inverter type without High-Speed Spot Welding Technology is also available.





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**Patent**

[ MYSPOT: Pat. No. JP4785502 / JP5105305 / JP5278880 / JP4487178 ] [ Anti-Oxidation: Pat. No. JP4326164 ] [ High Speed Spot Welding Technology: Pat. No. JP5199493 / JP5220931 / JP5491560 ] [ Simplified Tensile Tester: Pat. No. JP5887954 ]