

shindaiwa®

DGW400DMK-S2V

Demonstration Manual



E181226

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1. Introduction : Purpose of the manual

Product demo is a crucial step in your sales process. During a demo, you have your prospect's full attention ; it is your time to prove Shindaiwa's real value. This manual is written to make sure you have all the information to run a deal closing demo, and get the most out of time.

2. How to maximize the opportunity

Increase your persuasive power by following 4 tips

Check the check box when you get prepared.

1. Talk your experience

You can be more persuasive when you talk based on your experience.



Use the machine by yourself, so that you can talk what you actually perceived about how the machine actually performs.

2. Show a profit

Capture customer's interest by talking a profit the customer can enjoy.



Examine the industry the customer works in, and identify a profit the machine can offer to them.

3. Ensure preparation

Don't waste an opportunity.



Reconfirm appointment on the previous day.

Don't sacrifice precious time of the customer.



Make sure every demo item is in your bag.

4. Talk the truth

Shindaiwa's high performance is promised within the range shown in the product specifications. Remember that exaggeration may result in complaint and mistrust.












Understand a product specification, and be prepared what Shindaiwa can and can not when you are asked.

3. Guide to welding safety

a) Protective gear

The chart below summarizes the personal protective equipment that can be used when welding.

Check	Items	Protects from
	Welding helmet	Radiation Flying particles, debris Hot slag, sparks
	Goggles	Intense light Irritation and chemical burns
	Respirators	Fumes and oxide
	Fire resistant clothing	Heat, fires Burns Radiation
	Fire resistant aprons	
	Ear muffs	Noise
	Ear plugs	
	Boots	Electrical shock Heat
	Gloves	Burns Fire

b) Avoid high risks

Protect yourself against potential hazards.

1) Protect your eyes and body; arc rays can burn eyes and skin

Wear approved safety glasses with side shields under your helmet.

Wear protective clothing made from flame-resistant materials.

Warn others not to watch the arc.

2) Perform welding in an area with ventilation; fumes and gases can be hazardous to your health.

Work in a confined space only if it is well ventilated.

Be sure the breathing air is safe.

4. Demonstration

a) Shielded metal ark welding: Single/Dual

i) Single

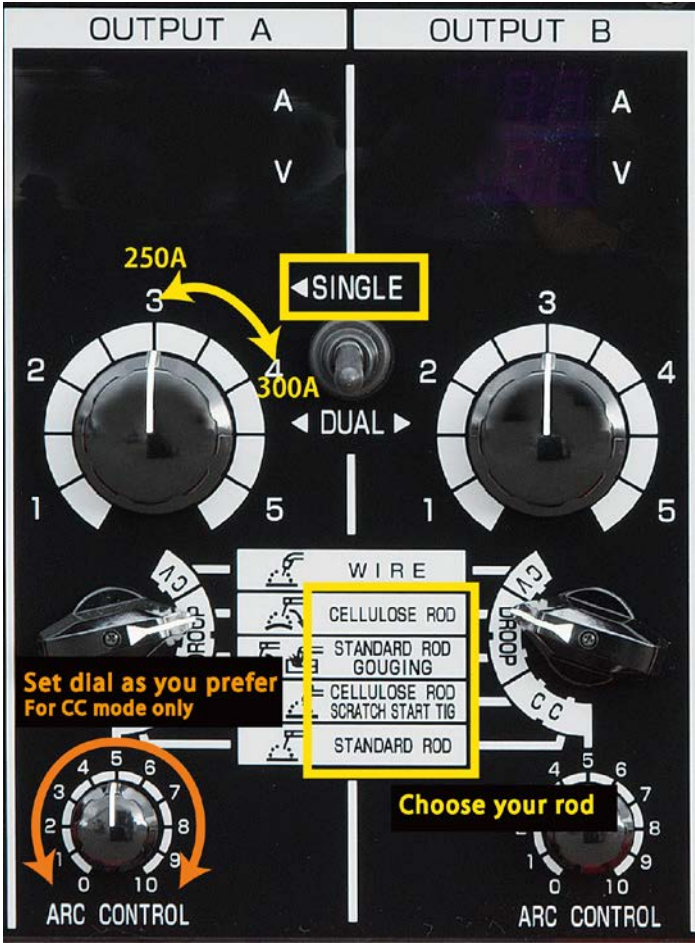
A. Purpose of demo

Show the maximum welding output

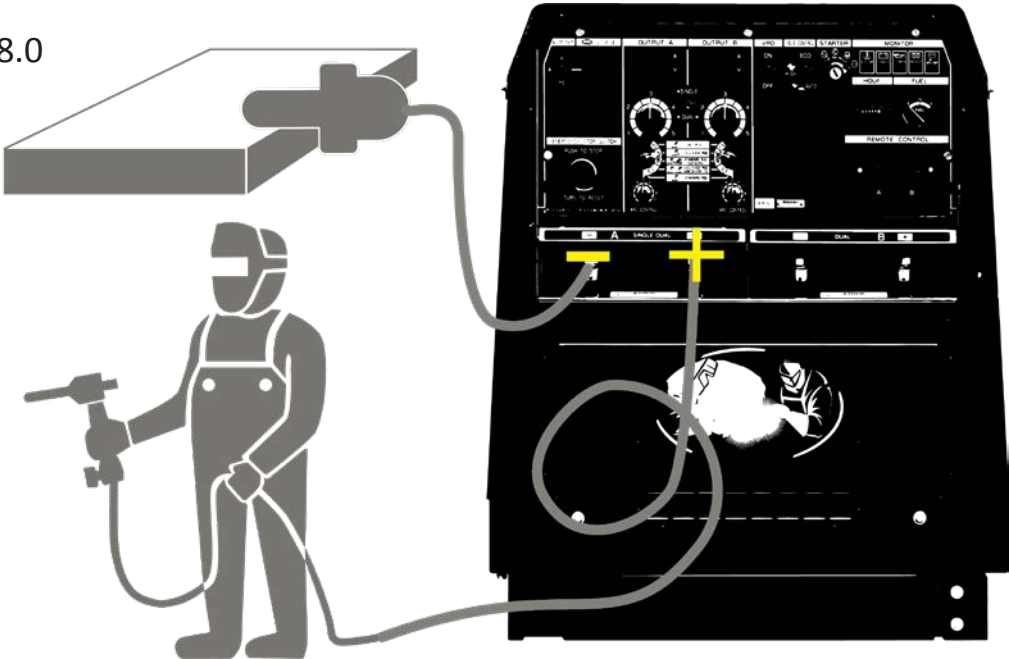
Is everything in your bag? Did you ask your client to prepare these items?

Check	Items	Specification
<input checked="" type="checkbox"/>	Welding cable, holder, earth	38sq, 10m x 2
<input checked="" type="checkbox"/>	Steel plate	SS400 flat bar
<input checked="" type="checkbox"/>	Pipe (Beveling)	SS400, T11 x ϕ 165 x L120
<input checked="" type="checkbox"/>	High cellulose stick (6010)	up to ϕ 5.0
<input checked="" type="checkbox"/>	Low hydrogen stick (7016)	up to ϕ 6.0
<input checked="" type="checkbox"/>	Lime- titania (6013)	up to ϕ 6.0

Control panel setting



Stick: $\phi 2.6$ - $\phi 8.0$



4. Demonstration

a) Shielded metal ark welding: Single/Dual

ii) Dual

A. Purpose of demo

- 1) Show the maximum welding output
- 2) Show that two welding outputs does not interfere each other

👉 Reference P25 a. RealDual®

B. Demonstration procedure

- 1) Set a partation between welder A and B, so that they can not see each other.
- 2) Welder A repeats ON/OFF every 10 seconds to show that A does not interfere output B.
- 3) Show the versatility

👉 Reference P27 b. Multi task



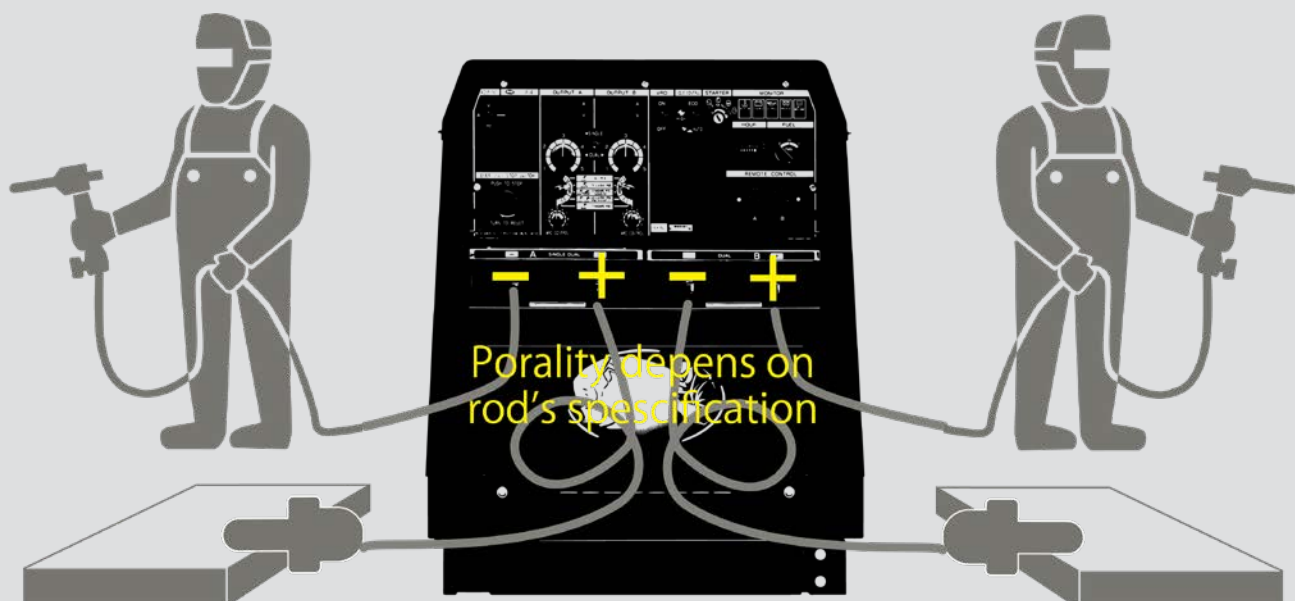
Control panel setting



Is everything in your bag? Did you ask your client to prepare these items?

Check	Items	Specification
<input checked="" type="checkbox"/>	Welding cable, holder, earth	38sq, 10m x 2
<input checked="" type="checkbox"/>	Steel plate	SS400 flat bar
<input checked="" type="checkbox"/>	Pipe (Beveling)	SS400, T11 x ϕ 165 x L120
<input checked="" type="checkbox"/>	High cellulose stick (6010)	up to ϕ 4.0
<input checked="" type="checkbox"/>	Low hydrogen stick (7016)	up to ϕ 4.0
<input checked="" type="checkbox"/>	Lime- titania (6013)	up to ϕ 4.0






Cable and stick



b) Self shield: Single/Dual

A. Purpose of demo

- 1) Show stable arc against the wind
- 2) Show work efficiency; no need to change rod
- 3) Show easy toach operation

Check	Items	Specification
	Welding cable, holder, earth	38sq, 10m x 2
	Steel plate	SS400 flat bar
	Pipe (Beveling)	SS400, T11 x ϕ 165 x L120
	Wire feeder	up to ϕ 2.0
	Wire	ϕ 1.2-1.6

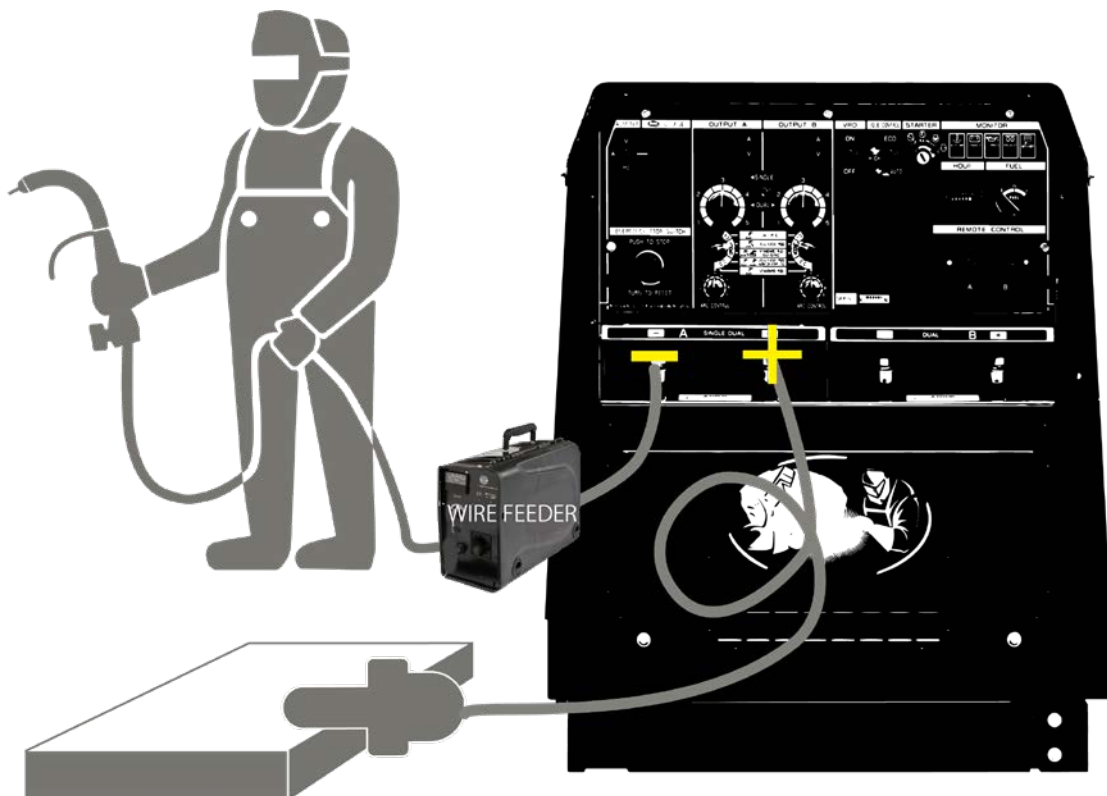
i) Single

Control panel setting



Cable and wire

Wire
 $\phi 1.2 - \phi 1.6$



3. Demonstration

b) Self shield: Single/Dual

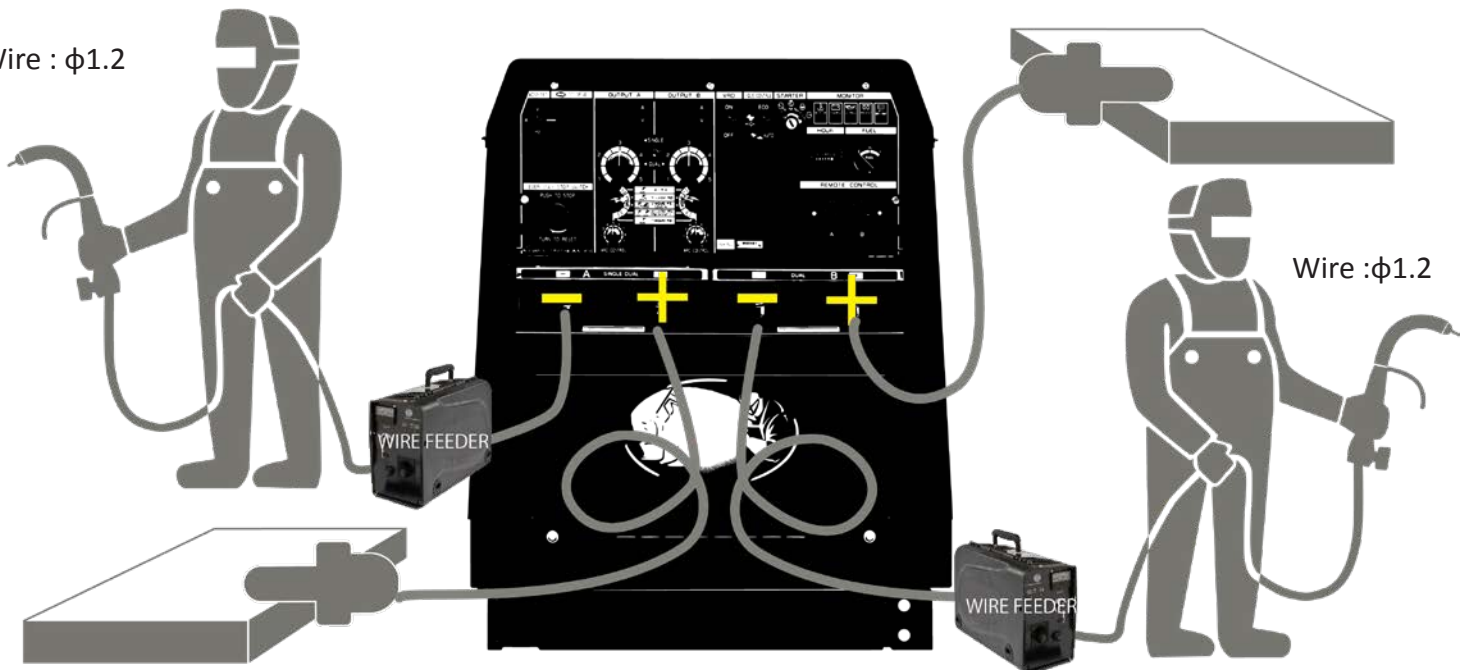
ii) Dual

Control panel setting



Cable and wire

Wire : $\phi 1.2$



c) Gouging

A. Purpose of demo

1) Show shielded metal arc welding (SMAW) by output B right after gouging by output A

 Reference P16 c) Gouging

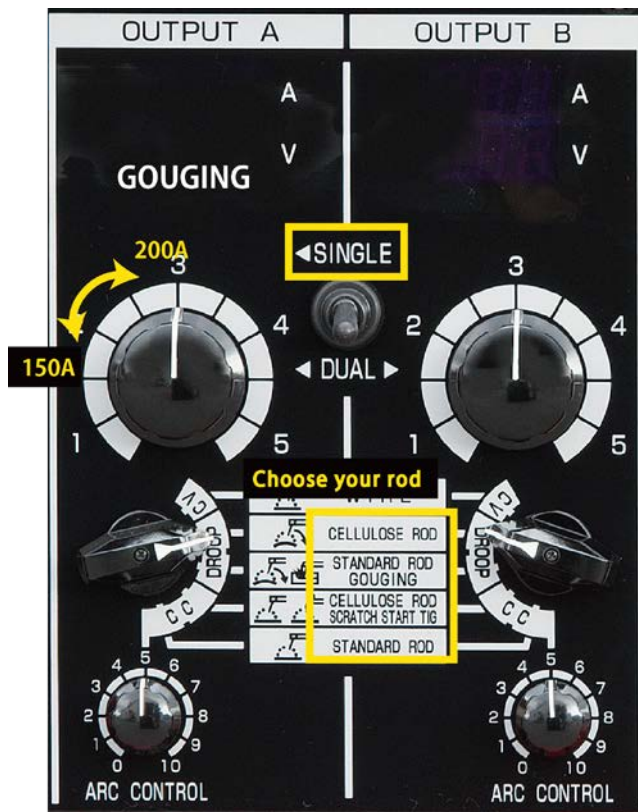
B. Procedure



Is everything in your bag? Did you ask your client to prepare these items?

Check	Items	Specification
<input checked="" type="checkbox"/>	Gouging rod	$\phi 5.0$
<input checked="" type="checkbox"/>	Steel plate	SS400 flat bar
<input checked="" type="checkbox"/>	Gouging holder	SS400, T11 x $\phi 165$ x L120
<input checked="" type="checkbox"/>	Air hose	up to $\phi 6.0$
<input checked="" type="checkbox"/>	Compressor	Air pressure 5-7kg/cm ² Air flow 0.6-0.8m ³ /min
<input checked="" type="checkbox"/>	Power Source for compressor	1.4kW

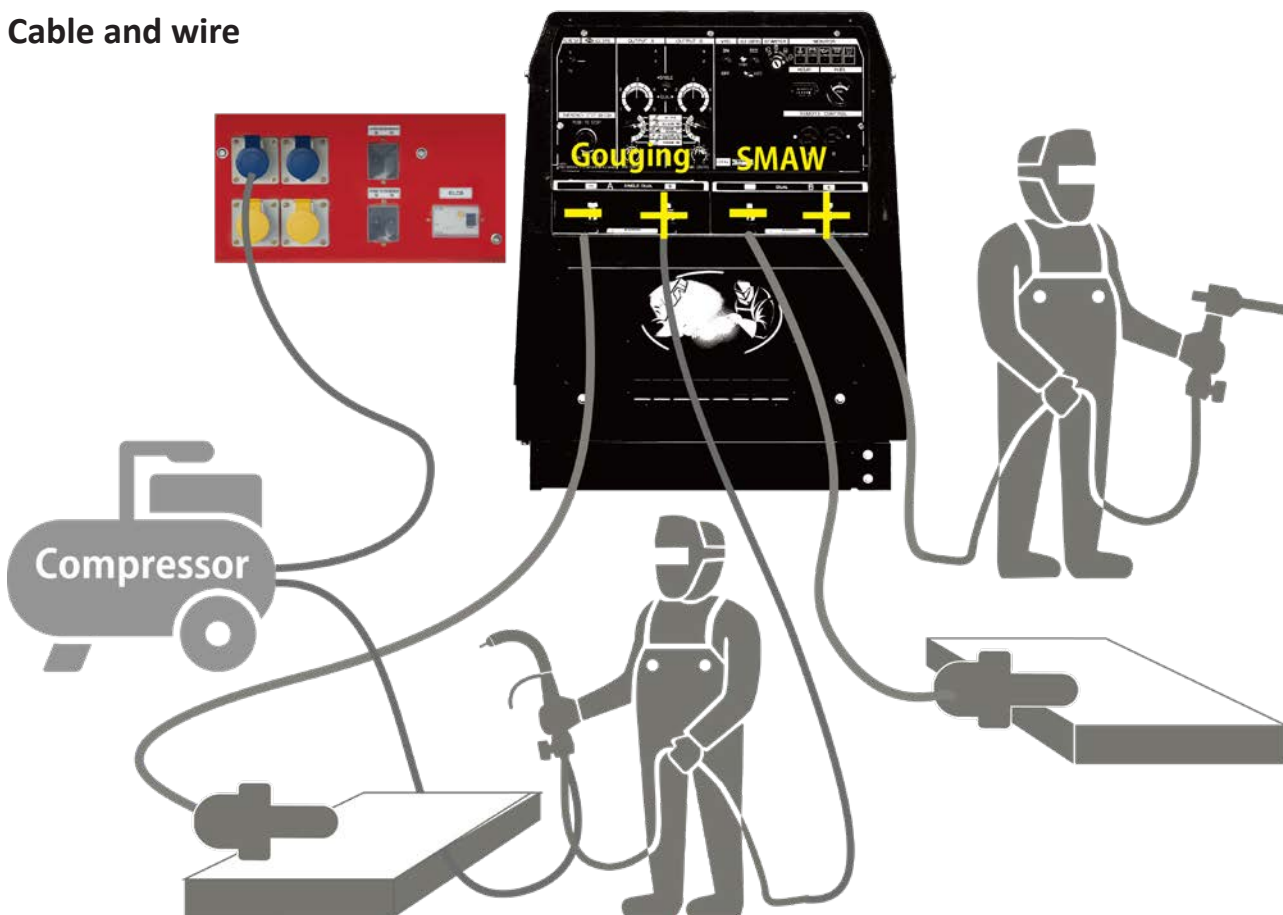
Control panel setting for GOUGING



Control panel setting for SMAW



Cable and wire















a. Specifications

Model		DGW400DMK-S2V		
Generating Method		Rotating Field		
Welding Generator	Operation		Single	Dual
	CC DROOP	Rated Current (A)	370 / 390	180 / 200
		Rated Voltage (V)	34.8 / 35.6	27.2 / 28.0
		Duty Cycle (%)	60	100
		Current Adj. Range (A)	95 – 390 / 110 – 400	50 – 200 / 60 – 210
		Welding Rod (φ)	2.6 – 8.0	2.0 – 4.0
		Gouging Rod (φ)	3.2 – 8.0	3.2 – 5.0
	CV	Rated Current (A)	330 / 340	180 / 200
		Rated Voltage (V)	31.5 / 32.0	20.0 / 21.0
		Duty Cycle (%)	100	100
		Voltage Adj. Range (V)	14 – 34.5 / 14.5 – 35	14 – 21 / 14.5 – 23.5
		Welding Wire (φ)	0.6 – 2.0	0.6 – 1.6
	Rated Speed (min ⁻¹)		3000 / 3600	
	No Load Voltage (V)		MAX 85	
AC Generator	Rated Frequency (Hz)		50 / 60	
	Rated Speed (min ⁻¹)		3000 / 3600	
	Phase		1 Phase	
	Rated Voltage (V)		110 / 115	230 / 240
	Rated Current (A)		15Ax2	15Ax2
	Rated Output (kVA)		3.3 / 3.5	6.9 / 7.2
	Power Factor		1.0	
	Rating		Continuous	
	Model		Kubota D902	
Engine	Type		Vertical, Water-Cooled 4-Cycle Diesel Engine	
	Displacement (L)		0.898	
	Rated Output (kW/min ⁻¹)		15.0 / 3000	17.6 / 3600
	Fuel		ASTM No.2-D Diesel Fuel or Equivalent	
	Lubricant Oil		API Class CD or better	
	Lubrication Oil Volume (L)		3.6 (Effective 1.7)	
	Cooling Water Volume (L)		4.0 (Sub Tank Capacity 0.6 L included)	
	Starting Method		Starter Motor	
Battery		46B24L (Japanese Industrial Standard)		
Fuel Tank Capacity (L)		37		
Dimension	Length (mm)		1435	
	Width (mm)		700	
	Height (mm)		848	
Dry Weight (kg)		453		

b. Field of applications

 Excellent




 Good

Construction		Rental	
Fabrication		Civil engineering	
Piping		Service truck	
Mining		Maintenance	
Rail road		Repair	
Offshore		Farming	

c. Welding mode

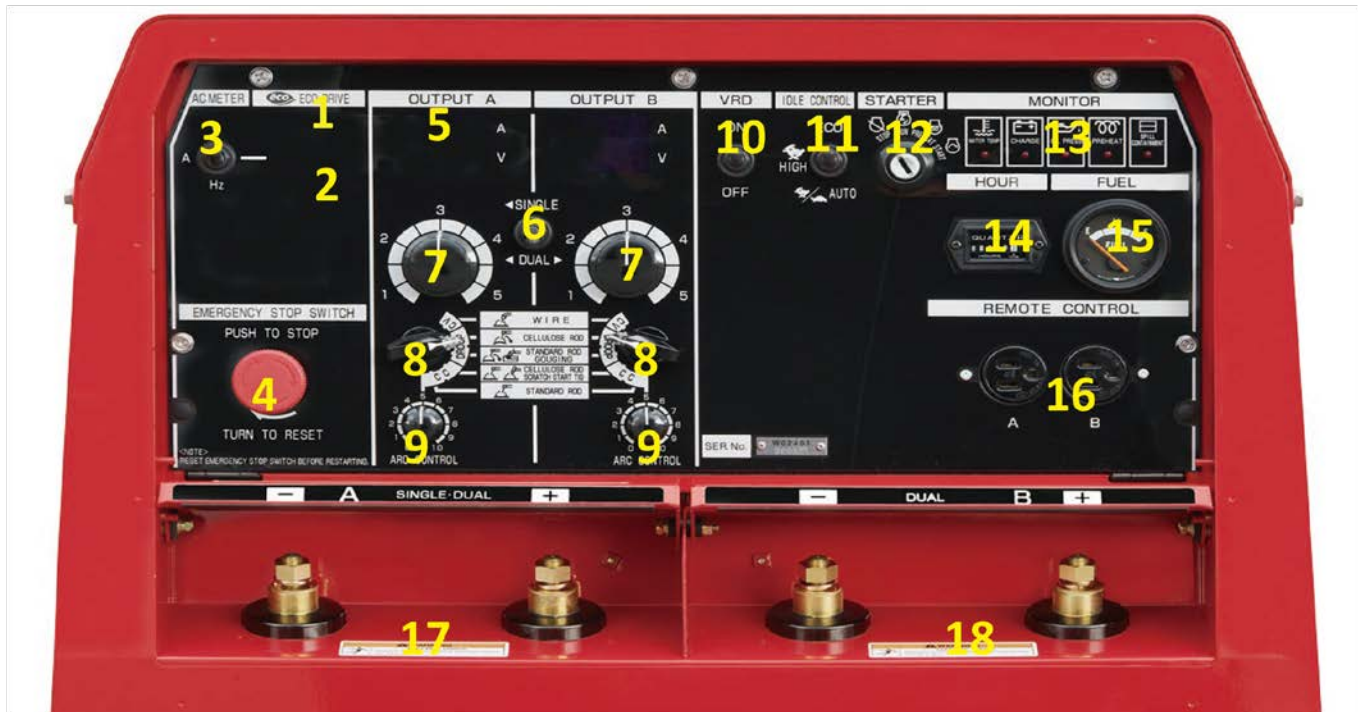
 Excellent

 Good

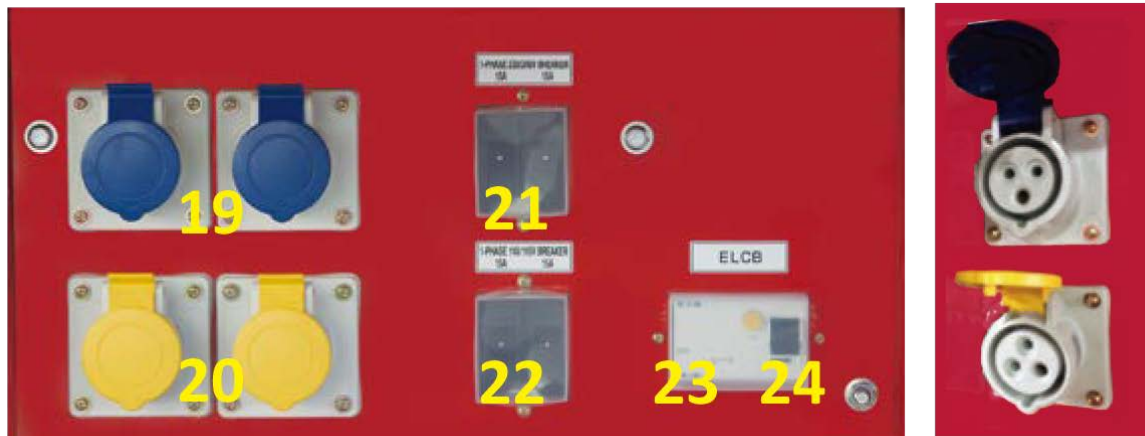
Cellulose rod	Low hydrogen rod	Scratch TIG	Gouging
			Up to 8.0mm

d. Part name

i) Control panel

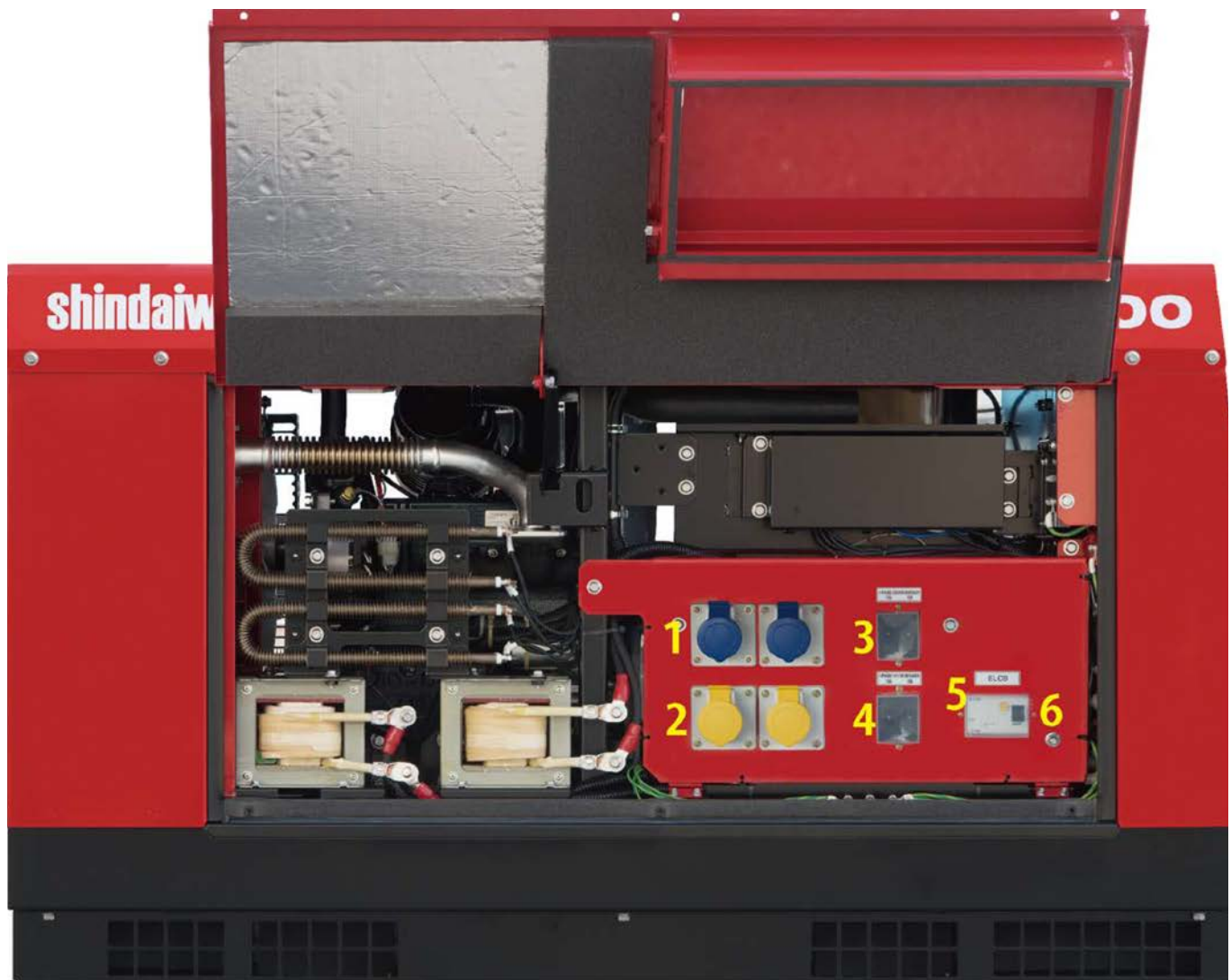


- | | |
|--------------------------------|-------------------------------|
| 1. ECO Mode Display | 10. VRD Switch |
| 2. AC Meter | 11. Idle Control Switch |
| 3. AC Meter Selector | 12. Starter Switch Key |
| 4. Emergency Stop Switch | 13. Warning Monitor Lamp |
| 5. DC Welding Current Meter | 14. Hour Meter |
| 6. Single/Dual Selector Switch | 15. Fuel Meter |
| 7. Output Control Dia | 16. Remote Control Receptacle |
| 8. Weld Mode Selector | 17. Welding Terminal A |
| 9. Arc Force Adjusting Dial | 18. Welding Terminal B |

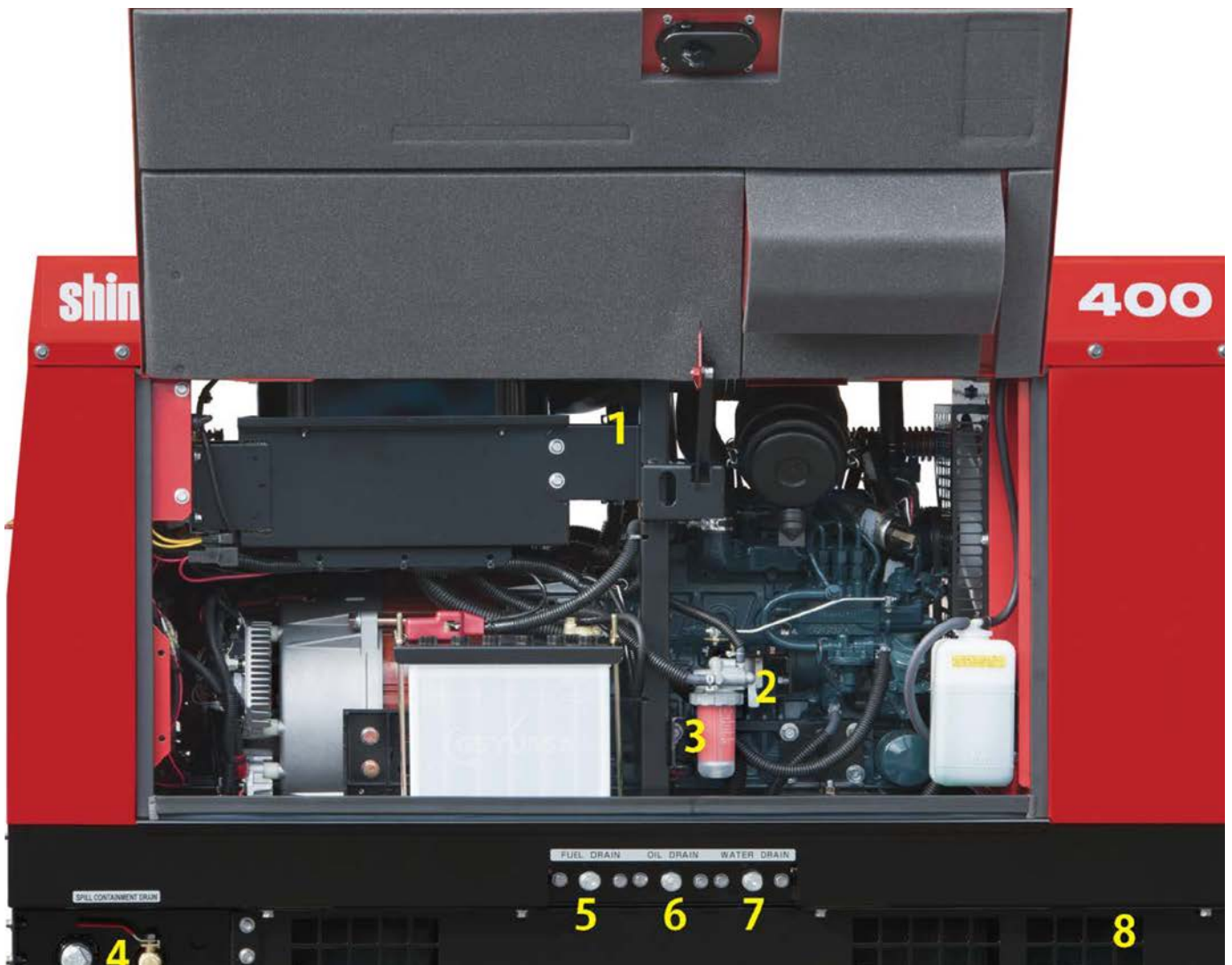
ii) AC output panel

- 19. 1-Phase 230/240V Receptacle (IP44)
- 20. 1-Phase 110/115V Receptacle (IP44)
- 21. 1-Phase 230/240 V Breaker
- 22. 1-P 110V/115V Breaker
- 23. Earth Leakage Circuit Breaker (ELCB)
- 24. Bonnet Grounding Terminal

iii) Right side



1. 1P 230/240V Receptacle
2. 1P 110/115V Receptacle
3. 1P 230/240V Breaker
4. 1P 110/115V Breaker
5. Earth Leakage Circuit Breaker (ELCB)
6. Bonnet Gousing Terminal

iv) Left side

1. Air Cleaner
2. Fuel Lever
3. Fuel Filter
4. Spill Containment Drain
5. Fuel Drain Plug
6. Oil Drain Plug
7. Water Drain Plug
8. Spill COntainment

a. RealDual®



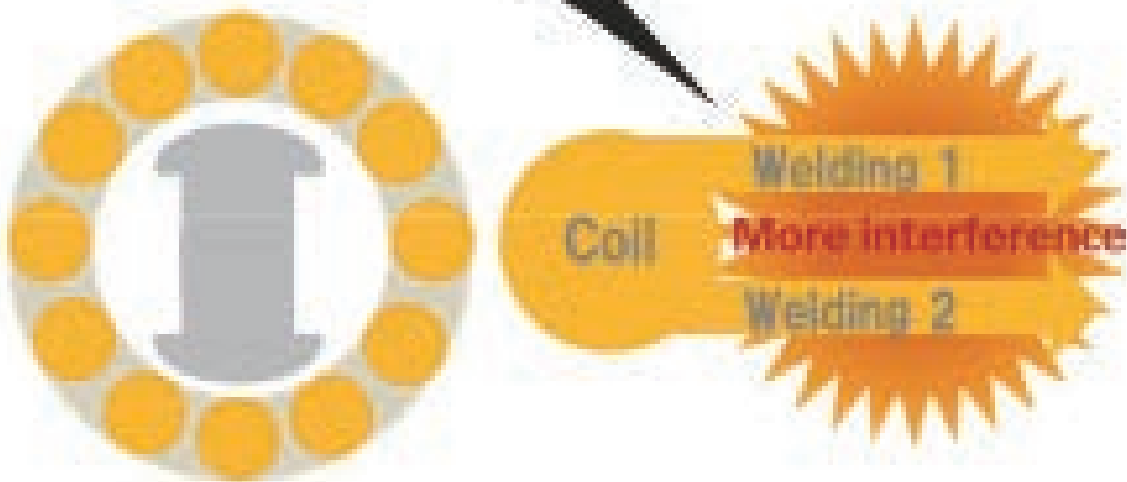
RealDual®

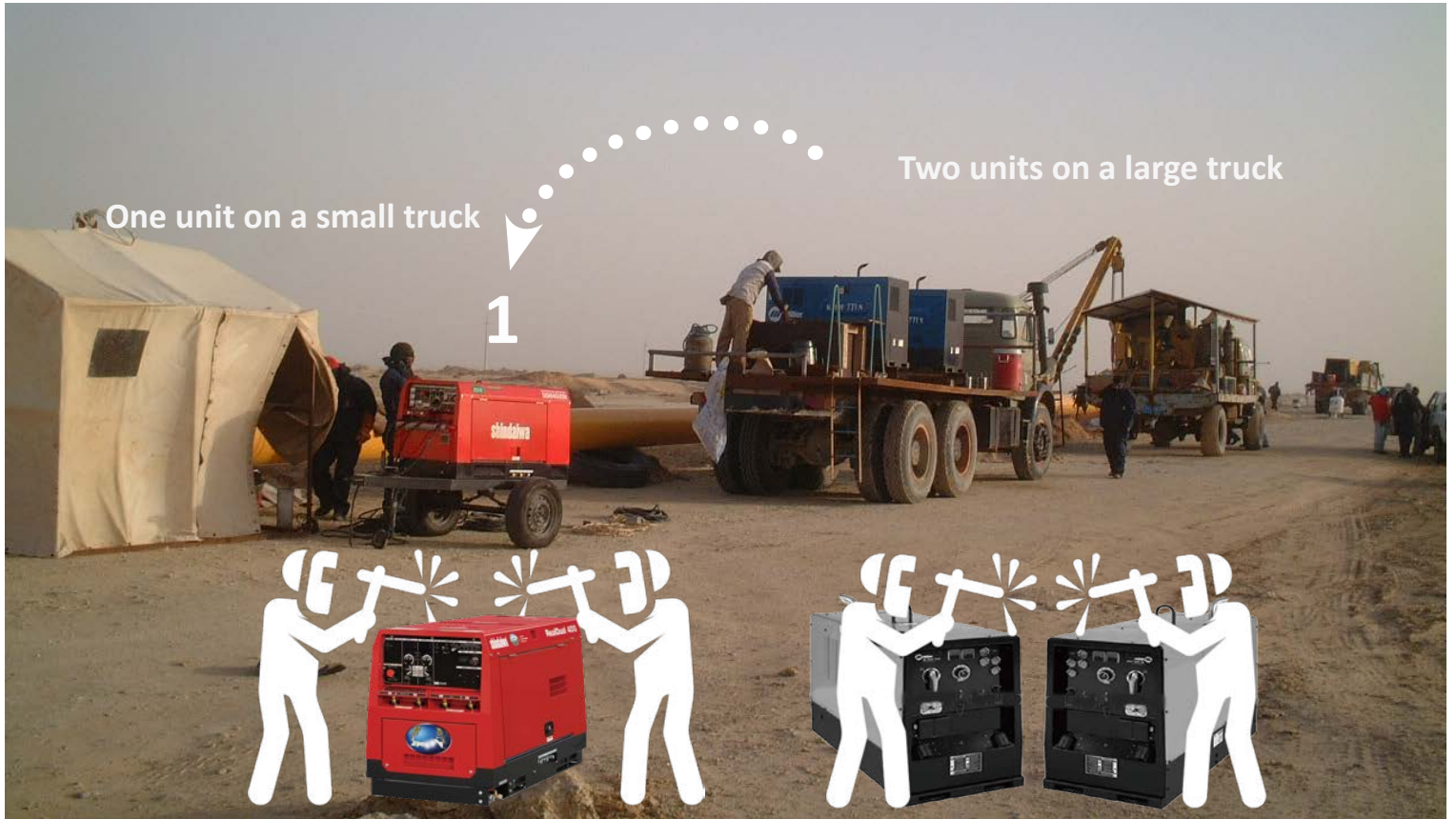
Shindaiwa can deliver two welding arcs in one machine, allowing two operators to perform welding tasks at the same time.

Shindaiwa's alternator delivers two independent welding output.



Other Brands: Dual welding output interferes with each other.





b. Multi task

i) Multiple power supply



iii) SMAW right after gouging



Gouging

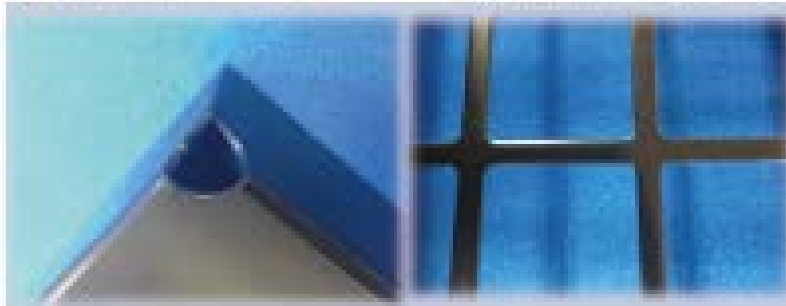
ii) Two welding output in one machine



Change to SMAW

SMAW

d. Surface coating: Electro deposit & powder coating



Electrodeposition Coating

Best solution for covering edges with uniform thickness, which has been difficult with previous technologies.

Excellent as basecoat and improves corrosion-resistance of the products.



Powder Coating

External colors are applied by spraying powder over the base layer, creating a hard finish that is tougher than conventional paint.

Corrosion-resistance is further reinforced, and the quality of external appearance preserves even in the extremely harsh environment.



Two welding machines being used on a rig located offshore for about two years. Shindaiwa welder (upper) is almost free from rust whereas the other brand (under) is spotted with rust.

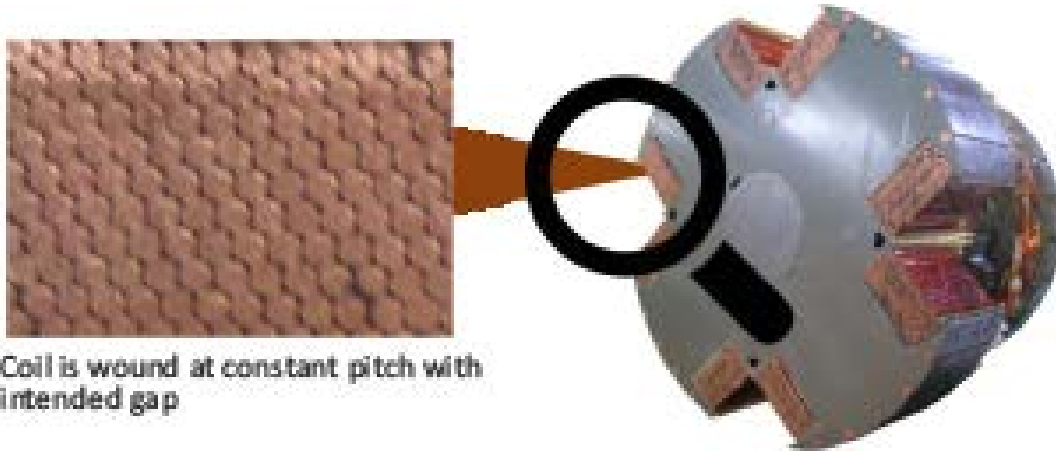


Two machines exposed offshore for two years.

Shindaiwa endures in a humid environment

d. Reliable alternator

i) Coil winding



Coil is wound at constant pitch with intended gap

Appropriate gap is intentionally given so that varnish completely coats wound wire, thereby increasing durability against high rotation speed.

ii) Varnish application



**The 1st protection
Deep to the center**
Fill winding interlayer with varnish deep to the center. Varnish bundles the coils together and improves durability.



**The 2nd protection
The surface of coil layer**
Coat the surface of coil layer. The second varnish reinforces the rotor, and offers protection against environmental factors such as dust and moisture.



**The 3rd protection
The entire alternator**
Finish coat to the entire alternator. The final varnish further enhances durability against moisture and water, and ensures excellent performance under extreme weather conditions.

iii) R&D history

SHINDAIWA ALTERNATOR R&D HISTORY

2000

Several years of field tests, many failures, and frequent reported trouble



Alternator trouble




DUSTY

Improvement

Concentrated R&D efforts for three directions:









Now

Structural improvement, special coating, built to withstand the harshest conditions



almost ZERO trouble




DUSTY

iv) Accumulated technology

Over 50 years of R&D history



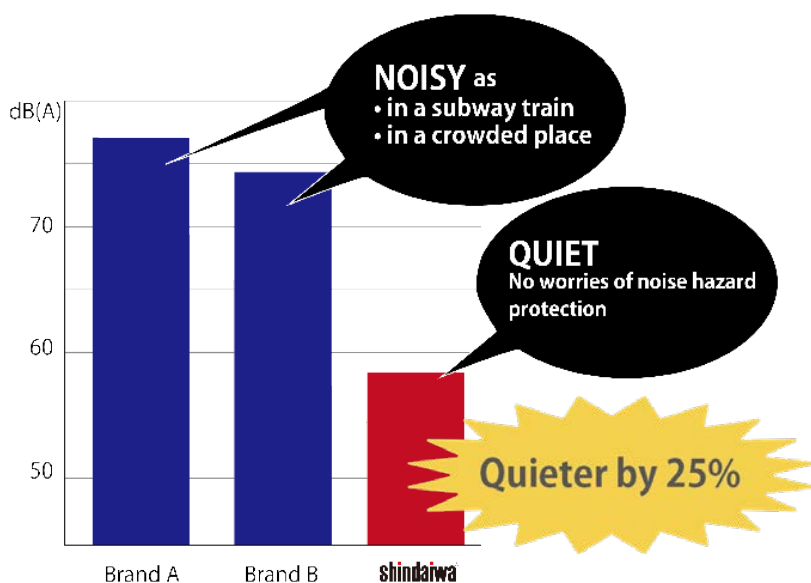
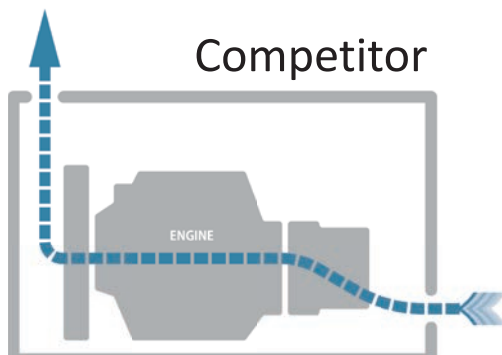
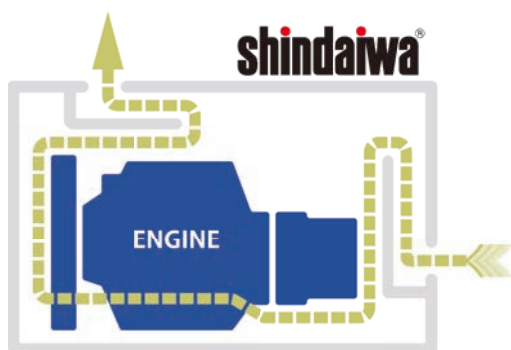
Alternator Technology emerged in 1962

e. Quiet



WHY QUIET?

Skillfully designed airflow in the machine offers ULTRA QUIET operation.



f. Compact

shindaiwa®

Save logistic cost!

The diagram illustrates a single truck carrying a compact generator. A green arrow points from a ship to a truck, and another green arrow points from the truck to a person with tools. A world map is in the background.

Competitor

More than double logistic cost!

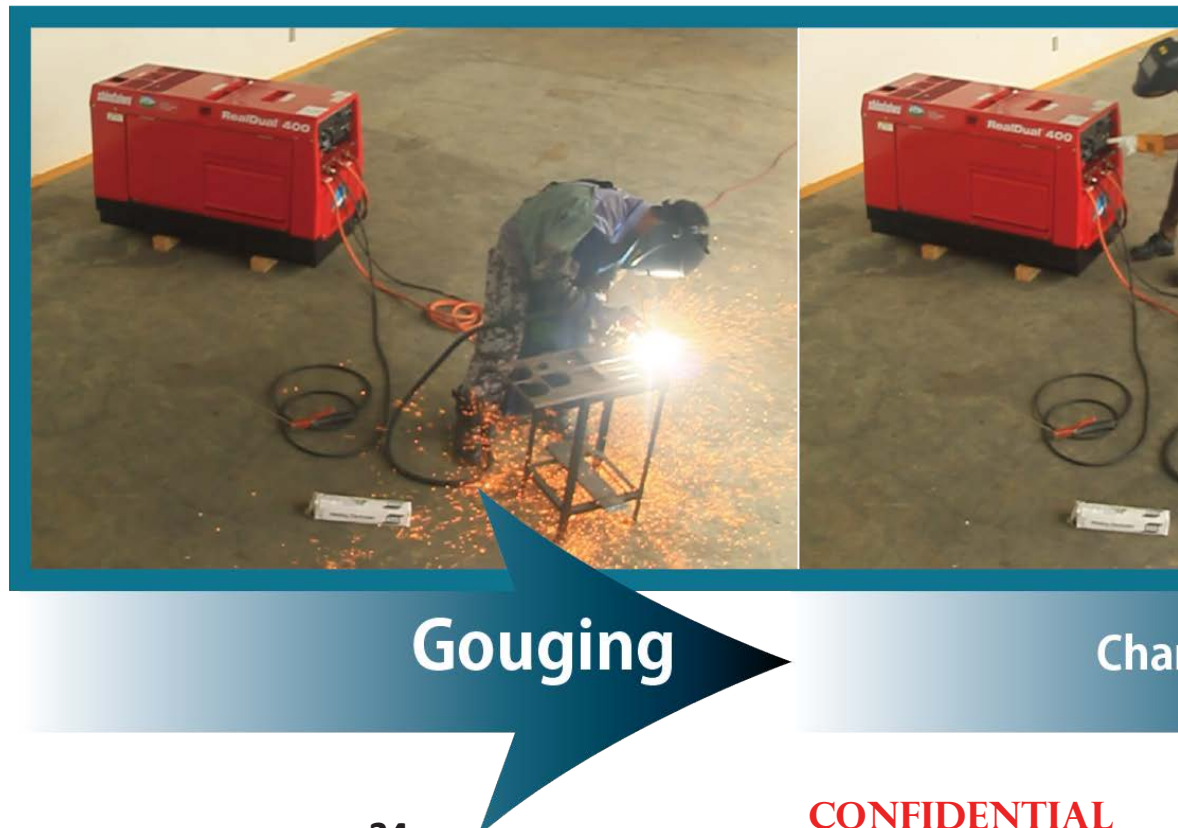
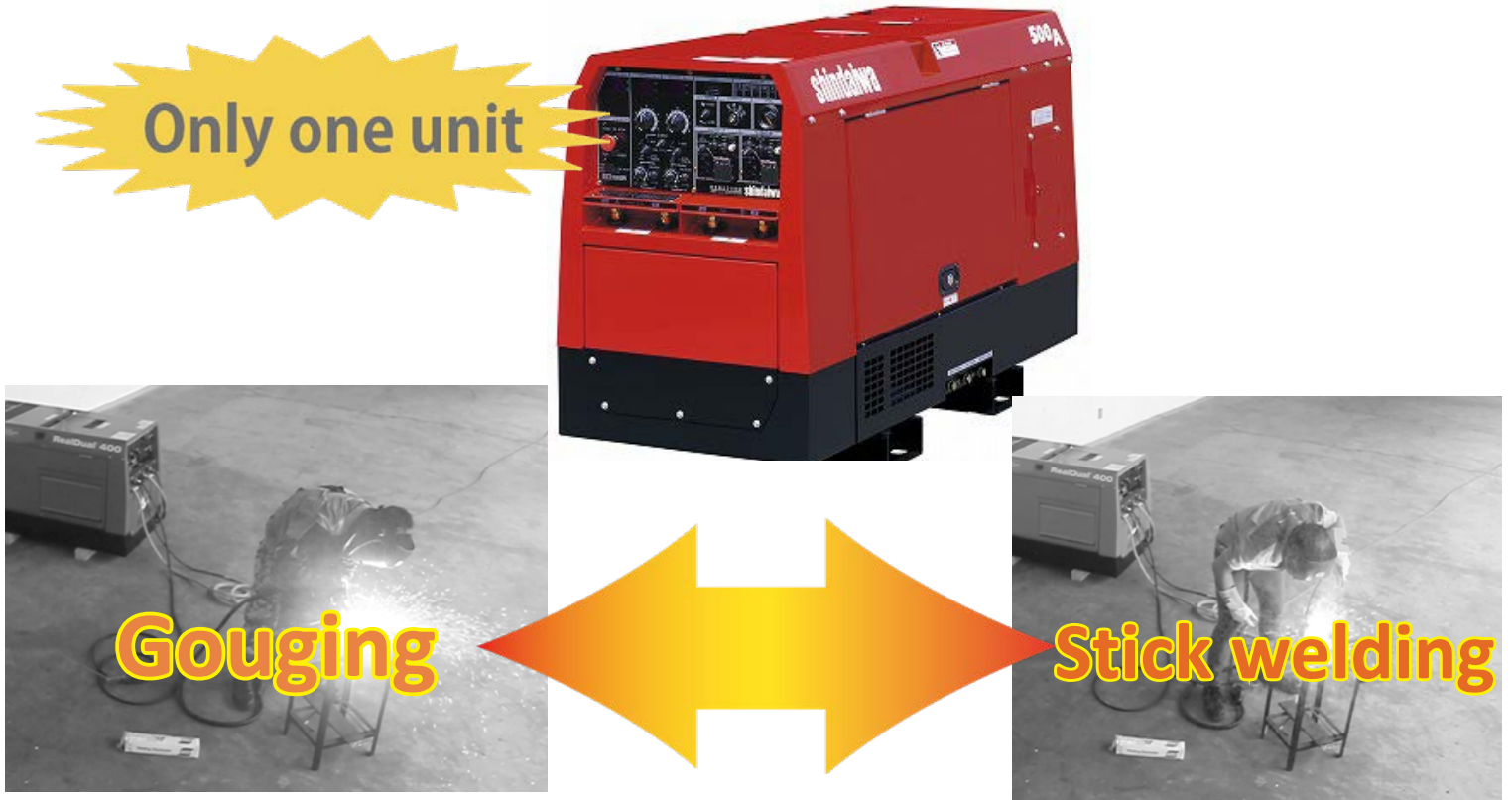
The diagram shows a larger generator being shipped by multiple trucks. A green arrow points from a ship to several trucks, and another green arrow points from the trucks to a person with tools. A world map is in the background.



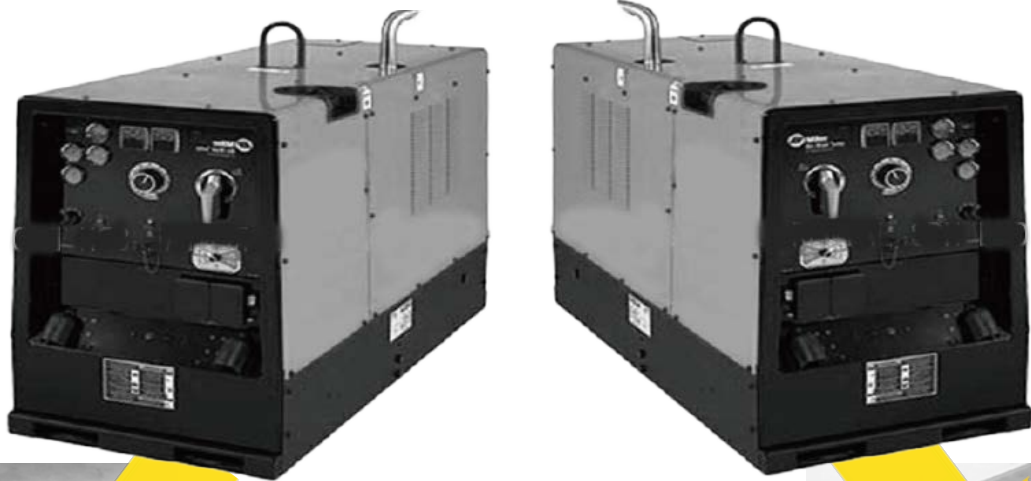
Chapter 3. User Benefit

a. Gouging capability

shindaiwa[®] Shindaiwa delivers shielded metal arc/stick welding arc/ SMAW even right after gouging. It means that one Shindaiwa can assume double functions.



COMPETITOR Competitor can hardly afford to deliver shielded metal arc/stock welding arc/SMAW right after performing gouging. It means that you need two units to perform each task.



Need 2 units!!

Difficult to perform stick welding right after gouging



change to SMAW

SMAW

b. Shorter construction period

i) Great work efficiency brought by quiet work environment



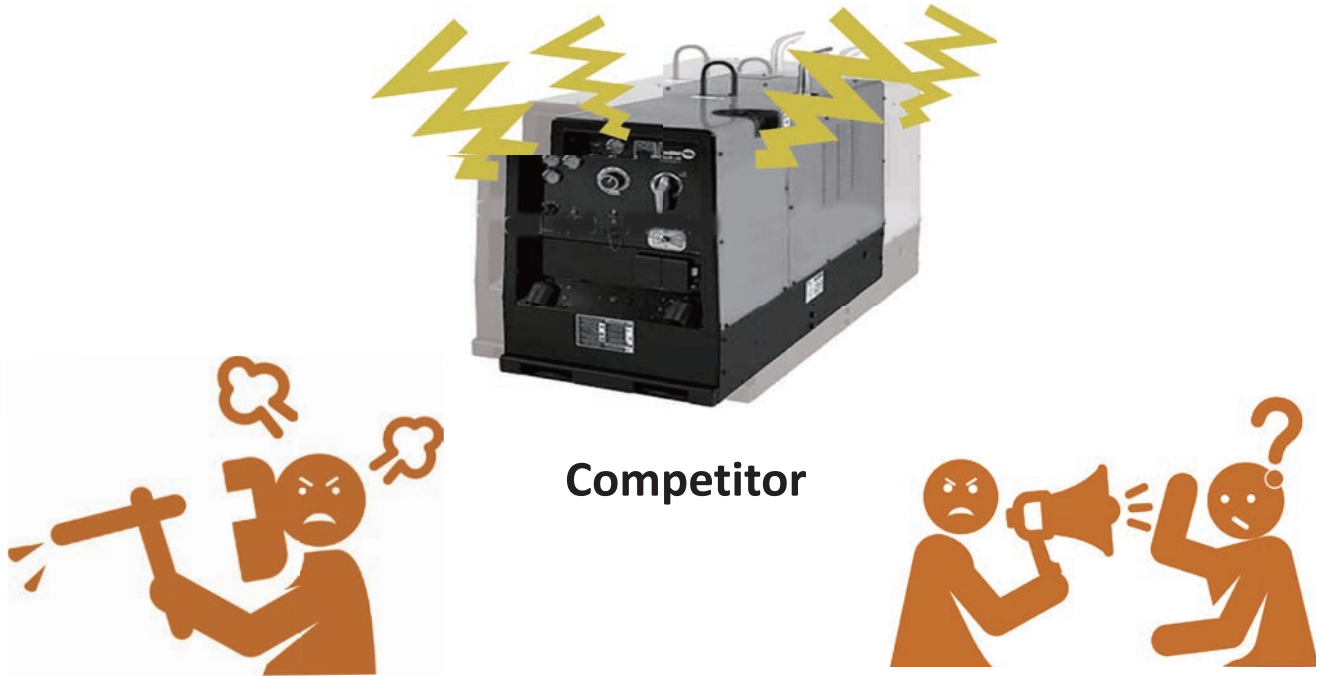
ii) No worries about complaint



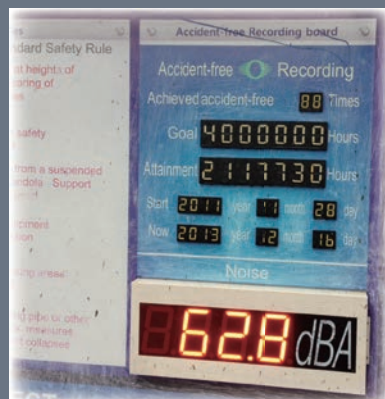
Increasing demand for quiet operation

Construction sites are more often near existing residential accommodation, where construction companies are more and more required to control any nuisance caused by noise by using quieter machinery or sound insulation walls.

Shindaiwa machinery can relieve anxiety about complaints from the residents or extra effort for sound attenuation.



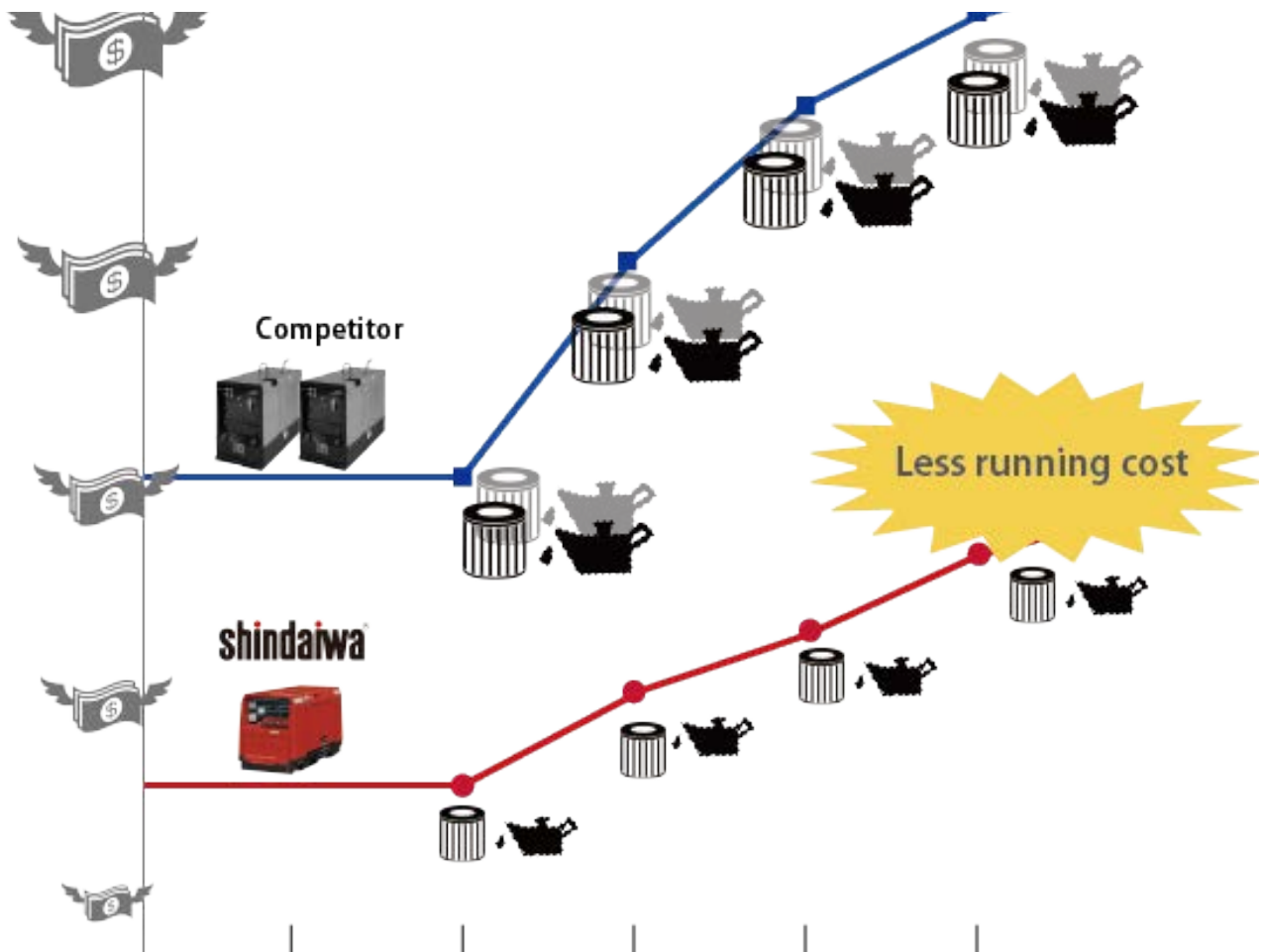
A noise monitor installed in a construction site in Singapore



c. Less initial cost



d. Less running cost



e. Save logistic cost

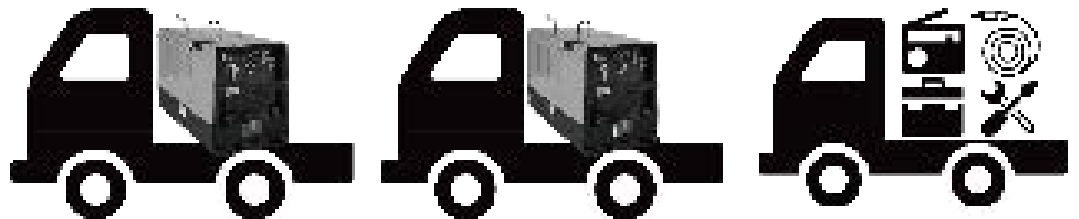
Less truck

Less logistic cost

shindaiwa



Competitor



Less storage space



FOOTPRINT



FOOTPRINT

Chapter 4. Comparison with the competitors

Spec comparison chart		DGW400DMK-S2V	Denyo DLW-400LSW	Miller BigBlue 500X	Lincoln Big Red 500
CC	Single	Rated Current	370/390A	450A	500A
		Rated Voltage	34.8/35.6V	34.8/35.6V	30V
		Duty Cycle	60%	100%	60%
		Current Adj. Range	95-390/110-400	60 - 380/60 - 400A	55-500A
		Welding Rod	φ2.6-8.0mm	φ2.6-8.0mm	φ2.6-8.0mm
	Gouging Rod	φ3.2-8.0mm	No data	up to φ8mm	
	Dual	Rated Current	180/200A	185/195A	N/A
		Rated Voltage	27.2/28.0V	27.4/27.8V	N/A
		Duty Cycle	100%	100%	N/A
		Current Adj. Range	50-200/60-210	30 - 190/30 - 200A	N/A
Welding Rod		φ2.0-4.0mm	2.0-4.0mm	N/A	
CV	Single	Gouging Rod	φ3.2-5.0mm	No data	N/A
		Rated Current	330/340A	N/A	Option
		Rated Voltage	31.5/32.0V	N/A	Option
		Duty Cycle	100%	N/A	Option
		Volatage Adj. Range	14-34.5/14.5-35V	N/A	Option
	Dual	Welding Wire	φ0.6-2.0mm	N/A	Option
		Rated Current	180/200A	N/A	N/A
		Rated Voltage	20.0/21.0V	N/A	N/A

	Duty Cycle	100%	N/A	N/A	N/A
	Volatage Adj. Range	14-21/14.5-23.5V	N/A	N/A	N/A
	Welding Wire	φ0.6-1.6mm	N/A	N/A	N/A
AC Generator	Rated Output	N/A	15kVA	N/A	N/A
	Voltage	N/A	200-240V or 380/400V	N/A	N/A
	Outlet	N/A	N/A	N/A	N/A
1 Phase (50Hz)	Rated Output	10.2kVA	9.0kVA	4.0kVA	2.4/3.6KVA
	Voltage	110/230V	100V	120/240V	120/240V
	Outlet	Round 3 pin x 4	N/A	GFCI x1	NEMA/EURO
Engine	Model	Kubota D902	Kubota D1105-K3B	Perkins 404D-22	Deutz D2011L3i
	Output	898CC	1123CC	2216cc	2800cc
	Fuel Tank Capacity	17.6kW/3600rpm	20.7kW/3600rpm	24.5kW	32HP
Others	Length	37L	42L	95L	76L
	Width	1435mm	1520mm	1654mm	1654mm
	Height	700mm	700mm	724mm	718mm
	M3	848mm	770mm	1092mm	937mm
	Dry Weight	0.8518M3	0.8193M3	1.1768M3	1.113M3
	VRD	453kg	471kg	726kg	697kg
	Emergency Stop Botton	✓	✓	N/A	N/A
Hotstart	✓	N/A	✓	✓	
Preset	✓	N/A	N/A	N/A	
Arc Force	✓	✓	✓	✓	
Spill Containment	✓	N/A	N/A	N/A	
Control System	Thyristor	IGBT	IGBT	IGBT	Not IGBT

a. Japanese Rental Company



	shindaiwa[®]	COMPETITOR
Control	Thyristor	IGBT (Inverter)
Heat-resistance	Strong	Sensitive
Parts structure	Simple	Complicated
Parts price	Less expensive	More expensive

b. Indonesia-Piping



SHINDAIWA REPLACEMENT HISTORY

Several years ago Now

More than 200 units of Shindaiwa

WAREHOUSE

WAREHOUSE

Chapter 7. Service Training

a. Qualified skill of service staff

After sales service such as repair and maintenance are provided by qualified staff who are trained by Yamabiko Corporation, Shindaiwa brand manufacturer.

Service training program



Certificate of the completion of the training

Details of Bronze (basic) training



THE PROGRAM

Trustful MONOZUKURI or Japanese Craftsmanship: 4 hours

Yamabiko, who started business in 1962 as a manufacturer of a small motor, is proud of extensive know-how and experience with over 50 years of history behind it. A guided factory tour shows you where YAMABIKO's reliability comes from.

● Factory Tour 1 : Yamabiko Engineering (YBE)

YBE is a production base of the components for Shindaiwa branded products which includes top cover and front cover of the welder and generator. With a guided tour, visitors can see that the accuracy in component production is realized by integration of accumulated experience and state-of-the-art appliances.

● Factory Tour 2 : Yamabiko Hiroshima Factory (YBK)

YBK has in-house production system. Components manufactured in YBE are routed to YBK for surface treatment, assembly and down to quality inspection. As you explore such sections as *Alternator Production*, *Surface Treatment*, and *Assembly*, you will find our initiatives for quality improvement and quality management.

Pursue of Customer Satisfaction: 5 hours

The expected learning outcome is quick and correct service delivery to the customer. A classroom lecture covers topics listed below, ensuring that the participants will be able to carry out his/her mission in accordance with Yamabiko service policy.

- Service framework and policies for industrial machinery
- Daily and regular scheduled check-ups / maintenances
- Parts supply: Delivery time and recommended stock quantity
- Basic operation
- Quality defect report
- Spare parts: Receiving and placing order system

Basic Structure of Industrial Machinery: 12 hours

A "hands-on" approach to 'learn by doing'. By disassembling/reassembling machines, participants will get an insight into the unit in terms of its function and product characteristics.

- Using real model in practical exercises, this session ensures acquisition of comprehensive knowledge about basic structure of the unit and trouble shooting.
- This session also offers opportunities for participants to talk directly to an instructor to clear their uncertainty related to sales and services, enabling everyone in the classroom to share questions and experiences.

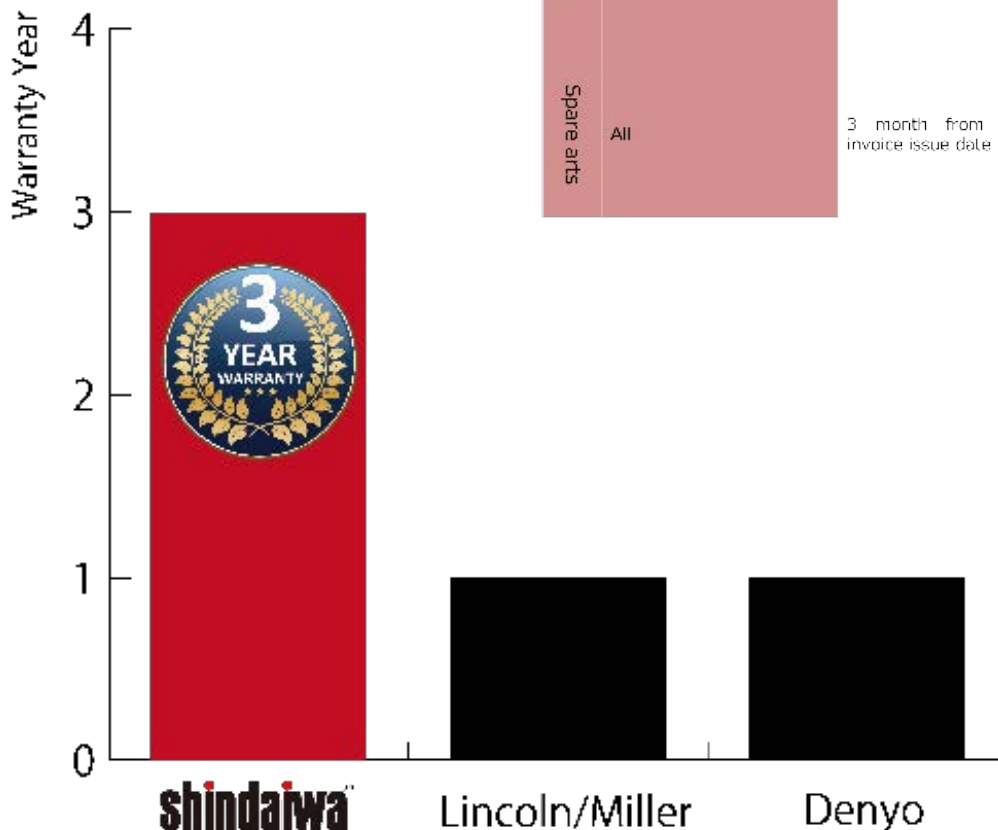
b. 3 year warranty



3-Year Warranty means our confidence in the quality

Quality of Shindaiwa brand product is endorsed by 3-year warranty.

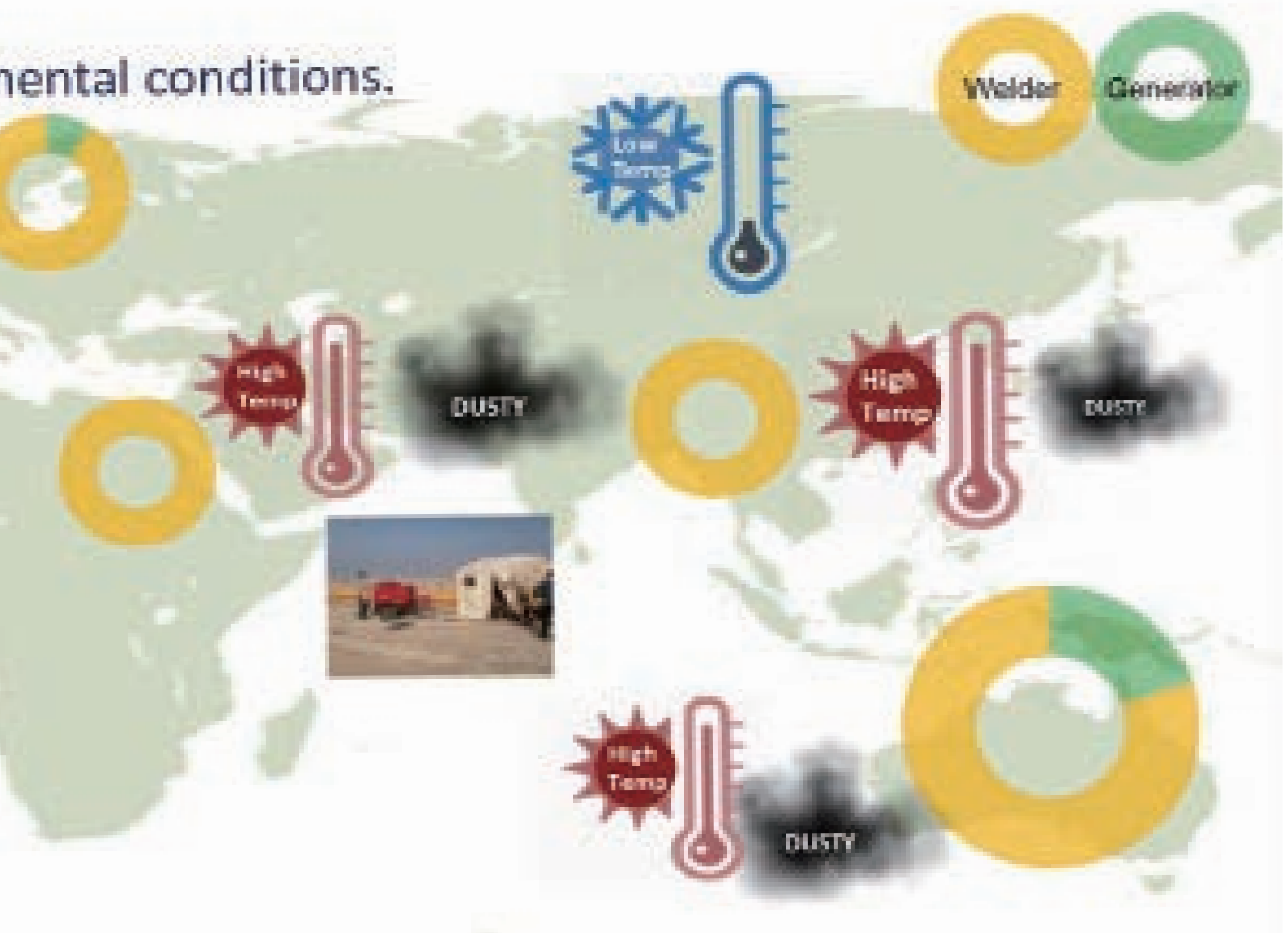
	Applicable Model	Warranty Term	Applicable Parts
Component except for engine parts	shindaiwa Diesel Generator Diesel Welder	3 yeals (or 3,000 hours)	<ul style="list-style-type: none"> ➤ Rotor ➤ Exciter rotor ➤ Stator ➤ Exciter stator ➤ Print circuit board ➤ Reactor ➤ Rectifier ➤ Thyristor ➤ Earth leakage circuit breaker ➤ Main breaker ➤ Switched ➤ Sensors ➤ Body parts ➤ Control panel
Engine Components	Kubota Kubota Engine components	2 years (or 2,000 hours)	All engine components
	ISUZU Isuzu Engine components	1 year (or 1,000 hour)	All engine components
Spare arts	All	3 month from the invoice issue date	All except for consumable parts defined by the warranty contract



a. World map



Environmental conditions.



b. Products in the market

i) Singapore

Singapore • Tropical rainforest climate, always hot and humid with a regular rainfall.
• Day time temperature is around 30 degree C or more.



ii) Qatar

Qatar • Daily maximum temperature in the summer reaches 50 degrees C or more.
• Dust-laden strong wind blows in the spring and summer.



Maintenance of construction machinery



Welder exposed to the burning heat



Sand storm blowing in to the city



Oil pipeline construction

iii) Australia

Australia

- Temperature varies widely between day and night.
- Less precipitation throughout the year

Sandstorm



Extremely hot



iii) Saudi Arabia

Saudi Arabia

- High temperature during the day and low temperature at night
- Desert climate

Sandstorm

Desert climate

Over 50°C



iv) Philippines

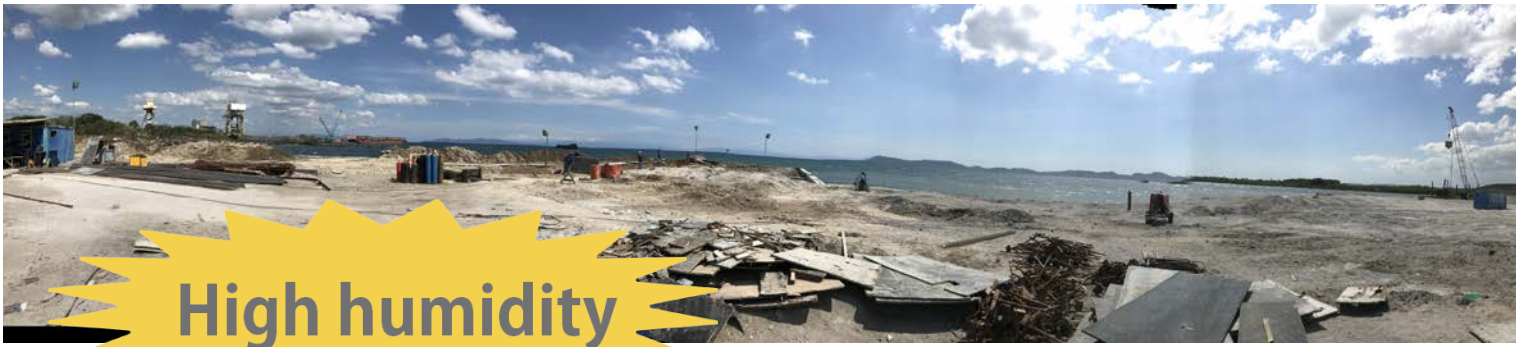
Philippines

- High temperature during the day and low temperature at night
- Desert climate

Dusty



Hot temperature



High humidity





a. Questions about design

- Q1: I prefer air-cooled engine because water-cooled engine requires periodical LLC replacement,
- A1: Water-cooled engine advantages over air-cooling in terms of power efficiency. Air-cooled engine loses a lot of power by heat radiation. I believe you will be certain which is better if you think of how often your car requires LLC replacement.
- Q2: Can the engine be more cooled with the side doors being opened?
- A2: No. The cooling system is designed based on the assumption that the doors are fully closed. Operation with doors being left open may result in over heat of the electrical components.
- Q3 The sound level does not matter.
- A3 Everyone who says so changes his/her mind once he/she stands beside the working unit. Sound attenuated machine is getting more and more sought-after, because jobsite especially in the central city requires sound-sensitive machines
- Q4 How do you measure noise level?
- A4 Designated noise level is mentioned in the operation manual at 7m distance under no load condition.
- Q5 Competitor model also has dual welding mode.
- A5 It has interference on welding and generating. For example, on the competitor machine welder feels big output fluctuation at the moment another guy starts to weld or use auxiliary output on the competitor machine. We are aggressively promoting RealDual® performance worldwide.
- Q6 What is the difference between Japan-made welding machines and those from other countries?
- A6 We use thyristor to convert AC to DC. Other brands use IGBT. The advantage of thyristor is simplified structure, less expensive and heat-resistant. On the other hand, IGBT is vulnerable against heat and very expensive. Many customers who used competitor's machines were not satisfied with machines with IGBT because they required high operation/repair cost.

- Q7 Shindaiwa machine produces high frequent noise from a welding rod.
A7 The noise comes from thyristor. It does not degrade welding performance, reliability, and welding quality.
- Q8 Does Shindaiwa allow gouging right after welding? Major Asian machines does not allow welding after gouging.
A8 With Shindaiwa, you can perform gouging right after welding. As distributor of Miller admits, most of the other brand does not allow you gouging right after welding.
- Q9 Can we use bio-diesel?
A9 B5 quality is allowed up to 5%, according to Kubota. We have never heard any troubles caused by bio diesel.
- Q10 What is the ambient temperature/altitude in which Shindaiwa machine offers best performance?
A10 Shindaiwa is resistant against the temperature between minus 15 and 40 degree Celsius, at more than 300m high above sea level. The output could be degraded, or you may face over heat earlier if you operate the machine out of such conditions.
- Q11 Actual welding/auxiliary output voltage is different from the ones that meter on the control panel shows.
A 11 The meter shows the output from the alternator. The length of the cable affects on the actual output.
- Q12 What is spill containment?
A12 It prevents oil, fuel, or LLC leaking out of the machine. This kind of prevention is more and more required for the jobsite in the countries such as U.S. and Japan,
- Q13 Made in Japan?

b. Questions about service

A13 Main components including engine, alternator, and PCB are made in Japan.

Q1 Where do you offer service for the engine?

A1 Kubota service center in your region offers after sales service.

Q2 Do we have to follow the maintenance chart?

A2 Manufacturer point of view, the answer is yes. Sales point of view, the answer could be that it is up to you. The point is that warranty cannot cover troubles caused by inadequate maintenance.

c. Questions about warranty

Q1 When does warranty period start?

A1 It starts for 3 years from the day on the invoice, or 3000 hours.
Consumable items are excluded.

Q2 What happens if customer uses non-genuine parts?

A2 Genuine parts are highly recommended. Non-genuine parts voids warranty terms and condition.

d. Questions about welding functions

Q1 What is arc control?

A1 You can adjust the arc strength. Below is recommendation;
Root path, Gouging: Set to Maximum for less arc-cut
Scratch start TIG: Set to Minimum for stable arc and less spatters

Q2 What is pre-set?

A2 Welding current in CC mode can set by control dial. You can adjust it without coming back to the machine if you use remote controller.

Q3 What is hot-start?

A3 It is an arc characteristic that allows easy arc start while avoiding electrode from sticking to the work.

Q4 Can I use Scratch start TIG?

A4 Yes. Set welding mode to CC. However, some says that it is not good. Try it by yourself, just in case.

Q5 How long can I extend a welding cable?

A5 Refer to owner's manual, page XX.

Q6 What is the allowance of the gouging rod?

A6 It is up to 9.5mm for single operator mode. However it depends on user's request, tastes and parameter. Some says 9.5mm is adequate while some other say that 8mm is good.

e. Others

Q1 How about fuel consumption?

A1 Roughly speaking, you can operate single or dual welding for 10 hours. Ask your sales for detail, or refer to fuel consumption chart offered by YBK.

Q2 What is the recommended battery specification?

A2 Always use standard specification with ventilated type. Sealed battery offers less starting capacity and less battery life.

Q3 How does idle control switch work?

A3 AUTO mode offers better fuel consumption and less noise.

Set it to HIGH when you use high capacity motor, precision instruments or AC load with an attached magnetic switch.

Q4 How long can we extend cable of each remote control?

A4 Up to 90m.

Q5 What happens if you connect different devices to the remote control receptacle?

A5 It does not work.

Q6 What should we do if monitor lamp flash?

A6 Refer to page XX on operation manual.

Q7 Engine does not start again after engaging emergency stop.

A7 Reset the switch. Refer to page 15.

Chapter 11. Yamabiko Corporation

a. Overview

Company Name	YAMABIKO CORPORATION
Date Founded	December 1, 2008
Headquarters	Tokyo, Japan
Net Sales	113,348 mil. Yen/ 1,020 mil. USD (as of March 31, 2015 Consolidated)
Capital	6,000 mil. Yen
Fiscal Year End	March 31
Number of Subsidiaries	17 (10 in Japan, 7 outside Japan as of March 31)
Number of Employees	2,684 (as of March 31, 2015 Consolidated)
Stock Listing	Tokyo Stock Exchange, First Section
Securities Code	6250
Total Number of Issued Stock	11,027,107 (as of March 31, 2016)
Number of Share Trading Unit	100

b. Production site in Japan



e. Chronology of the products



g. Shindaiwa brand introduction video

Shindaiwa brand introduction video can be watched here;

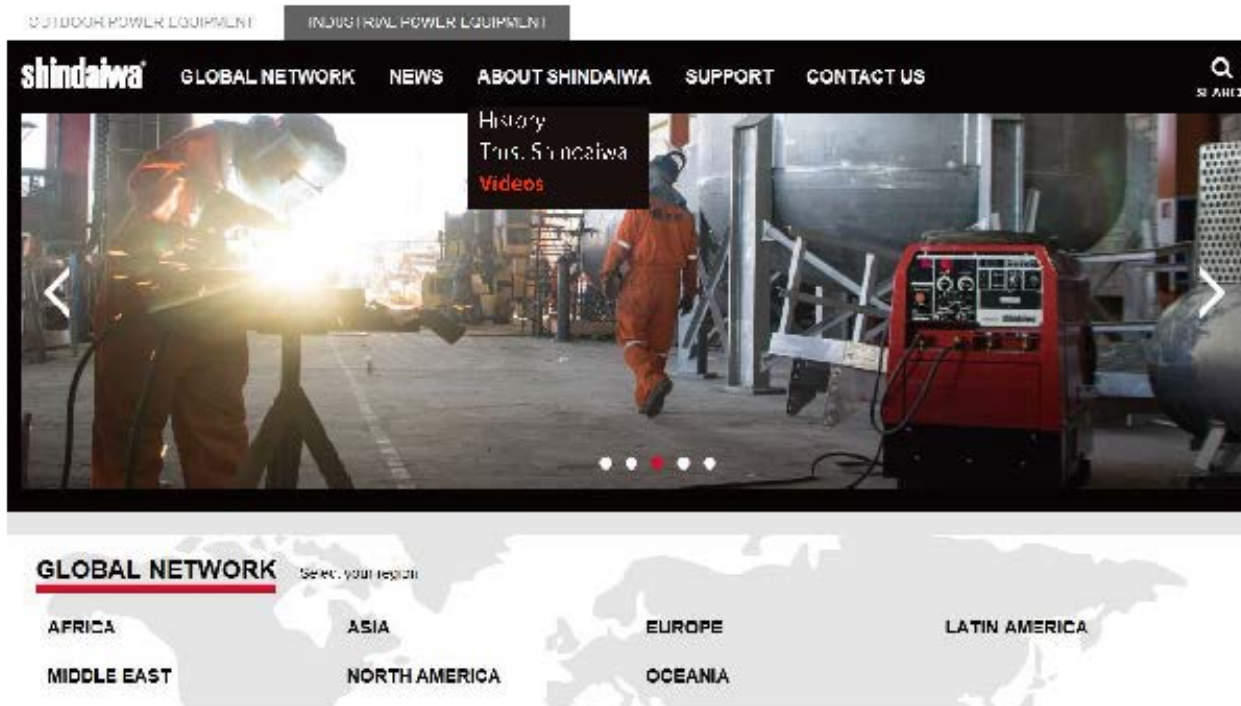
1) YouTube:

English <https://youtu.be/LNG7PI1Z-VQ>

Russian https://youtu.be/L_uJlVVVzA

Spanish <https://youtu.be/W8rtN38E0F8>

2) Shindaiwa Website http://www.yamabiko-corp.co.jp/shindaiwa_global/ipe/
Go to **ABOUT SHINDAIWA**>**Videos**



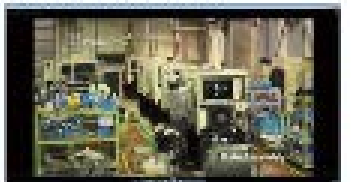
1) Introduction

Shindaiwa brand is strong against harsh weather conditions



2) JAPAN Technology

A driving force behind every production process that brings about global competitiveness



3) Shindaiwa products around the world

Welder and generator used in a variety of jobsite around the world



4) Testimonials

What distributor and end users are saying about Shindaiwa brand



13. Appendix

a. Proper cable cross-selection area

Proper Cable Cross-Sectional Area (Units: mm²)

Weld Current \ Return Length	Return Length					
	20m	30m	40m	60m	80m	100m
400A	38	50	60	100	125	200
350A	30	50	60	80	125	150
300A	30	38	50	80	100	125
250A	22	30	38	60	80	100
200A	22	30	30	50	60	80
150A	22	22	22	38	50	60
100A	22	22	22	30	30	38

b. Capabilities usable simultaneously

Overview of Capacities Usable Simultaneously (50/60Hz)

Weld Output		PLUS	AC Power Output (Power factor : 1.0)	
Amount of Personnel	Current			
Used by 1 Person [SINGLE] or [DUAL]	50A		8.5/10.0 kW	
	100A		7.0/9.0 kW	
	150A		5.5/7.5 kW	
	200A		4.0/6.0 kW	
	250A		2.0/4.0 kW	
	300A		0.0/2.0 kW	
	350A		0 kW	
	400A		0 kW	
Used by 2 Persons [DUAL]	50A x2		7.5/9.5 kW	
	100A x2		5.0/7.0 kW	
	150A x2	2.0/4.0 kW		
	200A x2	0 kW		

*AC power output is the total output of four receptacles.

<Note>

- Do not use as an AC power source simultaneously with welding if it is necessary to perform high-quality welding.

c. Periodic inspection and maintenance table

	Inspection Item	Pre-Operation Inspection	Inspection Period					Every 2,000 hours
			50th hour	Every 100 hours	Every 200 hours	Every 400 hours	Every 1,000 hours	
1	Inspect/Add Fuel	○						
2	Inspect/Add Engine Oil	○						
3	Change Engine Oil		1st time ○	2nd time and after ○				
4	Change Oil Filter		1st time ○		2nd time and after ○			
5	Inspect/Add Cooling Water	○						
6	Change Cooling Water							○ or 1 year
7	Clean Fuel Strainer		1st time ○	2nd time and after ○				
8	Replace Fuel Element					○		
9	Drain Water from/Clean Fuel Tank				○			
10	Inspect for Fuel/Oil/Cooling Water Leakage	○						
11	Inspect/Add Battery Fluid	○						
12	Clean Air Element		1st time ○	2nd time and after ○				
13	Replace Air Element					○		
14	Drain Liquid from Spill Containment	○						
15	Adjust V-belt Tension		1st time ●	2nd time and after ●				
16	Replace V-belt					● or 2 years		
17	Clean Radiator Fin (External)					●		
18	Clean Radiator (Internal)					●		
19	Replace Fuel/Cooling Water/Oil Hoses and Anti-Vibration Rubber							● or 2 years
20	Adjust/Lap Clearance of Air Intake/Release Valves						● Adjustment	● Lapping
21	Inspect/Adjust Clearance of Fuel Injection Valves					●		
22	Inspect/Adjust Fuel Injection Pump							●
23	Clean/Inspect Spill Containment					● or 1 year		

d. Major trouble shooting

Symptom	Possible Causes	Remedy
Starter motor does not start.	<ol style="list-style-type: none"> 1. Battery has a low charge. 2. Battery is deteriorated. 	<ol style="list-style-type: none"> 1. Recharge the battery. 2. Replace the battery.
Engine does not start.	<ol style="list-style-type: none"> 1. Fuel lever is "CLOSE". 2. Emergency stop switch is "ON". 3. No fuel. 4. Water or foreign material is mixed in with the fuel. 5. Blown fuse. 	<ol style="list-style-type: none"> 1. Turn the fuel lever to "OPEN". 2. Release the emergency stop switch. 3. Add fuel. 4. Drain water from and clean the fuel tank and fuel strainer. 5. Replace the fuse.
Engine starts but quickly stops.	<ol style="list-style-type: none"> 1. Insufficient oil. 2. Overheating of water temperature. 3. Battery recharging fault. 	<ol style="list-style-type: none"> 1. Add oil. 2. Comply with rated outputs/Add cooling water. 3. Repair.
Black or white smoke is continuously exhausted from the muffler.	<ol style="list-style-type: none"> 1. Overloaded. 	<ol style="list-style-type: none"> 1. Comply with the rated outputs.
Engine does not stop.	<ol style="list-style-type: none"> 1. Stop solenoid fault. 	<ol style="list-style-type: none"> 1. Turn the fuel lever to "CLOSE" to stop the engine.
Weak welding arc	<ol style="list-style-type: none"> 1. Single/Dual selector is set to "DUAL". 2. Faulty cable connection. 3. Improper cable. (excessively thin) 4. Faulty connection with base material. 5. Using simultaneously as AC power source. 6. Welding cable short circuit. 7. Frequency selector is wrong setting. 	<ol style="list-style-type: none"> 1. Set to "SINGLE". 2. Connect securely. 3. Replace with cable according to "Welding Cable Selection". 4. Connect securely. 5. Do not use as AC power source. 6. Remove the cause of the short circuit. 7. Set to proper frequency.
Strong welding arc	<ol style="list-style-type: none"> 1. Single/Dual selector is set to "SINGLE". 2. Arc control setting is excessively strong. 	<ol style="list-style-type: none"> 1. Set to "DUAL". 2. Turn the arc control dial to the left.
Wire feeder cannot be used.	<ol style="list-style-type: none"> 1. "DROOP" or "CC" weld mode has been selected. 2. Poor connection of the wire feeder connector. 	<ol style="list-style-type: none"> 1. Set to "CV-WIRE". 2. Securely connect the wire feeder connector.
Weld output cannot be adjusted.	<ol style="list-style-type: none"> 1. Remote controller is connected. 	<ol style="list-style-type: none"> 1. Disconnect the remote controller. Or, adjust using the remote controller.
No AC power output	<ol style="list-style-type: none"> 1. Breaker is "OFF". 	<ol style="list-style-type: none"> 1. Turn the breaker to "ON".
AC power output is weak.	<ol style="list-style-type: none"> 1. Frequency selector is wrong setting. 2. The current of devices using the equipment exceed the rated current. 3. Using simultaneously for welding. 	<ol style="list-style-type: none"> 1. Set to proper frequency. 2. Refer to "Usable Device Capacities". 3. Stop welding.
Engine cannot obtain high speed.	<ol style="list-style-type: none"> 1. Idle control switch is set to "ECO". 2. Current of device using the equipment as AC power source is 0.5A or less. 	<ol style="list-style-type: none"> 1. Set to "HIGH" or "AUTO". 2. Set the idle control switch to "HIGH".
Engine cannot obtain low speed.	<ol style="list-style-type: none"> 1. Idle control switch is set to "HIGH". 2. Welding cable short circuit 	<ol style="list-style-type: none"> 1. Set to "ECO" or "AUTO". 2. Remove the cause of the short circuit.
VRD does not work.	<ol style="list-style-type: none"> 1. VRD switch is set to "OFF" . 	<ol style="list-style-type: none"> 1. Set to "ON" .

e. Error code display

Error Code	Symptom	Remedy
E01	Overheating of control parts for welding	Set the idle control switch to "AUTO" or "ECO". Run the engine to cool it down at idle under no-load until the "E01" display disappears. * This error is automatically resolved when temperature of the control parts lowered to normal.
E02	Fault/Malfunction of control parts for welding	Stop the engine and repair the location of the fault. * DO NOT restart the engine unless the fault is repaired.
E03	Short circuit of the weld output	Stop the engine. Return the short circuit of the weld output and restart the engine.
E07	Overheating of alternator	As the engine continue to run even after "E07" is displayed, remain the engine run for approx. 10 minutes to cool the alternator down. Display will change "E07" to "... " after engine run for approx. 10 minutes. Then, stop and restart the engine. * When the alternator will not cool down insufficiently, "E07" is displayed again and repeat the remedy. * Engine rpm remains the same when this failure happens although position of the idle control switch is changed. The rpm is unchanged after the sensor detects overheat until it is fixed.
...	Starter Switch is kept at ON	Turn the starter switch to "STOP" position. Restart the engine once the switch is turned to "STOP". * "... " is also displayed when "E07" is displayed and engine run for approx. 10 minutes.

f. Fuel consumption

Welding Load

	Consumption (L/Hr)	Continuous operating Hr
Rated output 370A Duty cycle 60%	3.3	11

Generating Load

	Consumption (L/Hr)	Continuous operating Hr
Rated output 9.6kVA Continuous	4.1	9

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