

User Manual

IGBT Inverter FLUX/ MMA Welder

DL-9950-01

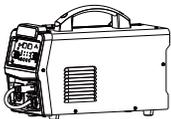


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FOR YOUR SAFETY

Read and understand this manual before use. Keep this manual for future reference.

1. INTRODUCTION

This is an inverter-style MIG/MMA 2-in-1 welding machine suitable for both hobby and professional use. Before using or doing any maintenance work on the machine, please read the operating manual and keep it for future reference.

1.1 PROPERTIES

The welding machine is small, efficient and extremely light. It is easy to carry. The machine is suitable for a range of different purposes and the possibility to use a long extension cord eases operation in various sites. It is also suitable for generator use on construction sites.
Welding voltage and wire feeding speed are adjusted with knobs connected according to the thickness of the welded sheet. Thus, selecting the right parameters is easy. The machine's welding parameters are optimum with a 3.0/6 / Flux core wire of 0.8 or 1.0 mm diameter. Also, 0.8 mm and 0.9 mm wires can be used with optional wire feed roller with suitable size.

1.2 ABOUT WELDING

In addition to the welding machine, welding outcome is influenced by the piece being welded and the welding environment. Therefore, recommendations in this manual must be followed.

During welding electric current is fed with the welding gun's current nozzle to the filler wire and via that to the welded piece. Earth cable attached to the workpiece guides the current back to the machine, forming the needed closed circuit. Uninterrupted current flow is possible when the earth clamp is properly attached to the workpiece and the facing point of the clamp on the work piece is clean, painless

and rust-free.

Shielding gas must be used during gas mode during welding in order to prevent arc from cooling with the work spot. Carbon dioxide or a mixture of carbon dioxide and argon is suitable for shielding gas. Some filler wires from a shielding gas from the wire's filling as it melts thus eliminating the need for a separate shielding gas.

2. SAFETY INSTRUCTIONS

The machine is safe to use due to its protective cover which does not conduct electricity. The welding gun has an overheat protector which prevents over-rotation when the machine is overheated. The machine is also protected from too low or too high supply voltage.
However, there are some risk factors connected to welding. You should therefore read and follow the following safety instructions carefully.

2.1 USE OF PROTECTIVE ACCESSORIES

The arc and its reflecting radiation damage unprotected eyes. Always protect your eyes and face with an appropriate welding mask. The arc and welding spatters burn unprotected skin. When welding always use protective gloves and clothing.

2.2 SAFE USE OF THE WELDING GUN

Parts of the machine, such as the end of the filler wire and welding gun become burning hot during use. The wire also sharp and moves quickly, so be careful when handling it to place.
Never carry the machine on your shoulder during welding, but place it on an

even surface. Also, do not store the machine by hanging it from the shoulder strap. The shoulder strap is for carrying only.
Do not keep the machine near or on hot objects, as the plastic cover may melt.

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Always close the gas bottle after use.

2.3 FIRE SAFETY

Welding is always classified as hot work so pay attention to fire safety regulations. Protect the environment from welding spatters. Remove inflammable material, such as burning fluids, from the vicinity of the welding site and supply the site with adequate fire-fighting equipment.
Take into account dangers caused by special workpieces, such as fire risk and danger of explosion, when welding container-like pieces.

NOTE: Fire caused by sparks may break out even after several hours.
CAUTION: Welding in inflammable and explosive sites is strictly forbidden!

2.4 HIGH VOLTAGE

- Do not take the welding machine inside a workshop, for example in to a container or a car.
- Do not place the welding machine on a wet surface.
- Change faulty cables immediately for their are fire-breathing and may cause a fire.
- Ensure that cables are not squeezed or in contact with sharp edges of a hot workpiece.

2.5 SHORT CIRCUIT

• Insulate yourself from the welding circuit by using dry and undamaged protective clothing.

- Do not work on a wet surface.
- Do not use damaged welding cables.

• Do not place the welding gun or earth clamp on the working machine or other electrical device.

2.6 WELDING TIMES

Make sure ventilation is sufficient. Take special precautions when welding metals containing lead, cadmium, zinc, mercury or beryllium.
Supply of sufficient clean air must also be ensured with the use of a fresh air mask.

3. MACHINE USE

The machine is delivered as optimized set for 0.8 / 1.0 mm diameter filler wire under spray mode.
If you use different filler wire, make sure that the feed roll groove welding gun contact tip and machine polarity are suited for the used wire size and type.

3.1 BEFORE IMPLEMENTATION

The products are packed to climate packages especially designed for them. However, always make sure before use that the products have not been damaged during transportation. Check if you have received the products you ordered, and the instruction manuals are present.

Transportation

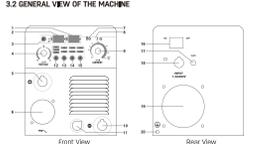
The machine should be transported in an upright position.
NOTE: Always move the welding machine by lifting it from the handle.
Never pull it from the welding gun or other cables.

Environment

The machine is suitable for both indoor and outdoor use. But it should be protected from heavy rain and sunlight. Store the machine in a dry and clean environment and protect it from sand and dust during use and storage. The recommended operating temperature range is 20 °C to +40 °C.

Place the machine in such a way that it does not come in contact with hot surfaces, sparks and spatters.
Make sure the air flow in the machine is unobstructed.

3.2 GENERAL VIEW OF THE MACHINE



1	Digital display for welding current
2	Digital display for welding voltage
3	Wire moving button
4	IMH Voltage regulator
5	Touch switch cable connector
6	MIG welding torch connector

7	Power input indicator
8	Amplifier indicator
9	IMH Wire feeding speed (BPM) welding current regulator
10	± Negative output connector
11	IMH Polarity switching cable
12	MIG/MMA mode selector
13	GAS/FLUX mode selector
14	0.8/1.0 mm wire size selector
15	ENERGY/MANUAL mode selector
16	Power ON/OFF switch
17	Gas filler
18	Power control knob
19	Cooling fan
20	Grounding screw

3.3 CABLE CONNECTIONS

Connection to the mains

The machine is equipped with power supply cables and plug. Connect the supply voltage cable to the mains. NOTE: The fuse size needed IKA at least. If you use an extension cord, its cross-sectional area should be at least as large as the power supply cable's (x 2.5 mm²). The maximum length for the extension cord is 50m.

The machine can also be used with a generator. The minimum power for the generator is 5.5 kVA. And the recommended power 8 kVA in order for the machine to be used at maximum capacity.

Earth

The earth cable is already connected to the machine. Clean the workpiece surface and fix the earth cable clamp to the piece in order to create a closed and interference-free circuit needed for welding.

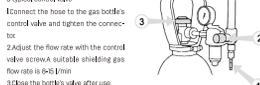
Welding gun

The welding gun is already connected to the machine. The welding gun leads the filler wire, welding gas and electric current to the work. When you press the welding gun trigger, shielding gas flow and wire feed begin. The arc ignites when the filler wire touches the workpiece.
The gun neck can be rotated 360 ° when turning the neck, always make sure that the neck is rotated about at the way to the bottom. This prevents damaging and overheating the neck.
NOTE! If you use other than 0.8 mm diameter filler wire, change the welding gun contact tip to match the wire thickness.

Shielding gas

The shielding gas used for steel wires is carbon dioxide or a mixture of argon and carbon dioxide which reduces arc in the arc area. Thickness of the welded sheet and welding power define the flow rate of the shielding gas.
Connect the heavier socket of the shielding gas hose to the machine's hose connector and the other connector and to the gas bottles control valve.

Figure 3.2 Connecting the gas hose to a typical control valve.



- Adjust the compression pressure with the pressure controller. Never go higher than to the middle of the scale. If the pressure is too high, it causes metal fragments from the wire surface and may damage the wire. On the other hand, if the pressure is too low, the feed gear slips and the wire does not run smoothly.
- Press the welding gun trigger and wait for the wire to come out.
- Close the reel housing cover.

CAUTION

When driving the wire in to the gun, do not point the gun at yourself or others or put, for example, your hand in front of the tip, because the cut wire ends extremely sharp. Also, do not put your fingers near the feed roll, because they might get squeezed between the rolls.

3.4 Reversing polarity

Some filler wires are recommended to be welded with the gun in the + mode. So the polarity should be reversed. Check the recommended polarity from the filler wire package.

- Disconnect the machine from the mains.
- Send the rubber cover of the earth cable's plug in such way that the cable can be disconnected.
- Remove poles tightening nuts and washers. Note the correct order of the washer.
- Reconnect the cables.
- Install the washers in place and close the tightening nuts to spanner tightness.
- Put the rubber cover of the earth cable's pole firmly in place. The rubber cover must always protect the earth cable's pole.

Welding power adjustment

Adjusting the welding power according to sheet thickness affects simultaneously both wire feed speed and amount of current lead to the wire. This is a good starting point for welding in different operating situations. However, connection type and not opening may influence the amount of welding power needed.
Select the correct parameter with the welding power control according to the welded filler wire's sheet thickness. If the filler wire's sheets are of different thickness, use the average as a default parameter.

Sheet thickness scale has been given in millimeters and it is based on 0.8 / 1.0 mm wire diameter. When using a other size like 0.6 mm wire, you need to adjust about the welding power control than the optimized setting.

4. MAINTENANCE

When servicing the machine, its utilization degree and environmental circumstances should be taken into account. If you use the machine appropriately and electric cables regularly, you will experience fewer unnecessary malfunctions.
CAUTION: Disconnect the machine from the mains before handling the electrical cables.

4.1 DAILY MAINTENANCE

- Remove welding spatters from the welding gun's tip and check the condition of the parts. Change damaged parts to new ones immediately.
- Check that the insulating tips of the welding gun's neck are undamaged and in place. Change damaged insulation parts to new ones immediately.
- Check the tightness of the welding gun's earth cables' connections.
- Check the condition of the supply voltage and welding cable and replace faulty cables.

4.2 MAINTENANCE OF THE WIRE FEED MECHANISM

- Service the wire feed mechanism at least every three to six months.
- Check the wear of the feed roll grooves and change the feed roll when necessary.
- Clean the welding gun wire guide with compressed air.

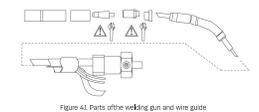


Figure 4.1 Parts after welding gun and wire guide

Cleaning the wire guide

Pressure of the feed roll increases metal dust from the filler wire's surface which then finds its way to the wire guide. If the wire guide is not clean, gradually chips up and causes wire feed malfunctions. Clean the wire guide in the following manner:

- Remove the welding gun's nozzle, contact tip and contact tip's adapter.
- Use a pneumatic air tool to clean compressed air through the wire guide.
- Use the wire feed mechanism and reel housing clean with compressed air.

4. Reattach the welding gun's parts, tighten the contact tip and contact tip's adapter or spanner tightness.

Changing the wire guide

If the wire guide is too worn or totally changed, change it to a new one according to the following instructions:

- Disconnect the welding gun from the machine.
- Disconnect the cable ends of the gun's power cable by opening the screws.
- Disconnect the gun's power cable from the machine's pole.
- Disconnect the connector of the trigger conductors from the machine.
- Open the gun's mounting nut.
- Detach the gun's parts from the machine whereupon all parts come through the front parts' cable hole.

- Open the mounting nut of the wire guide which exposes the end of the wire guide.
- Withdraw the welding gun's cable and withdraw the wire guide from the gun.
- Push a new wire guide in to the gun. Make sure that the wire guide enters all the way into the contact tip's adapter and that there is an overlap at the mesh-work of the guide.
- Tighten the wire guide's cable with the mounting nut.
- Close the wire guide 2 mm from the mounting nut and flatten the sharp edges of the cut wire.
- Reattach the gun in place and tighten the parts to spanner tightness.

5. TROUBLESHOOTING

PROBLEM	CAUSE
The wire does not move or wire feed is irregular.	<ul style="list-style-type: none"> Feed rolls wire conduct at contact tips are defective Check that feed rolls are not too tight or too loose Check that the feed roll grooves is not too worn Check that the wire contact is not blocked Check that there are no spatters on the contact tip and that the hole is not compact or worn loose
Main switch indicator light does not switch on.	<ul style="list-style-type: none"> The machine has no supply voltage Check supply voltage fuses Check supply voltage cable and plug

PROBLEM	CAUSE
Welding is not good	<ul style="list-style-type: none"> Welding outcome is influenced by several factors Check the welding voltage and wire speed setting Check that the earth clamp is fixed properly. Fusing part is clean, and both cable and its connections are undamaged Check the flow of shielding gas from the tip of the welding gun Supply voltage is uneven, too low or too high

The machine is over-heat.

- Check that cooling air can flow without obstructions
- Machine's utilization capacity ratio has been exceeded
- Use the indicator light to switch on
- The supply voltage is too low or too high

Over-heating indicator light up

6. TECHNICAL DATA

MODEL	DL-9950-01	
Function	MIG	MMA
Power supply voltage	230V	
Frequency	50/60Hz	
Rated input power	6.2kVA	
Max input current	25A	25A
Output current range	20-60A	20-60A
No-load voltage	65V	65V
Rated duty cycle	30%	40%
Welding wire dia.	0.8/1.0mm	1.6-4.0mm
Efficiency	80%	
Power factor	0.7	
Protection grade	IP23	
Inhalation grade	F	

Product Warranty Card

Dear users,
Thank you for buying our products. In order to ensure your profit, users who buy our products can contact local distributors or Specified repair stations with invoice and warranty cards if the product fails due to quality problems.

Warranty Notice:
If from _____ (Year/Month/Day) to _____ (Year/Month/Day),

if the failure happen in normal use, our company will provide free warranty parts replacement and other services according to the failure situation.

2) This warranty card and purchase invoice are the voucher of after-sales service provided by our company to customers. The card must be detailed only after filling in the following form and affixing the official seal with the distributor.

3) In one of the following cases, free warranty service will be invalid, and maintenance fees will be required:

- Exceeded the expiration date.
- Failure or damage caused by not following the requirements of the product manual, maintenance or improper storage.
- Failure or damage caused by disassembling, repairing or modification of the product without the permission of our company.
- Machine breakdown or damage caused by force majeure.
- Consumable accessories.

This card is issued with the product. One card for one machine, to ensure that you can fully enjoy the right to free warranty service provided by the company, please keep this card properly, lost will not be replaced.

Purchase Date: _____ (Year/Month/Day)

Product Certificate

Inspector:

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Date of manufacture:

