

# INSTRUCTION MANUAL FOR ARC WELDING MACHINE

**IMPORTANT:** BEFORE STARTING THE EQUIPMENT, READ THE CONTENTS OF THIS MANUAL, WHICH MUST BE STORED IN A PLACE FAMILIAR TO ALL USERS FOR THE ENTIRE OPERATIVE LIFE-SPAN OF THE MACHINE. THIS EQUIPMENT MUST BE USED SOLELY FOR WELDING OPERATIONS.

## 1 SAFETY PRECAUTIONS

WELDING AND ARC CUTTING CAN BE HARMFUL TO YOURSELF AND OTHERS. The user must therefore be educated against the hazards, summarized below, deriving from welding operations. For more detailed information, order the manual code 3.300.758

**ELECTRIC SHOCK** - May be fatal.



- Install and earth the welding machine according to the applicable regulations.
- Do not touch live electrical parts or electrodes with bare skin, gloves or wet clothing.
- Isolate yourselves from both the earth and the workpiece.
- Make sure your working position is safe.

**FUMES AND GASES** - May be hazardous to your health.



- Keep your head away from fumes.
- Work in the presence of adequate ventilation, and use ventilators around the arc to prevent gases from forming in the work area.

**ARC RAYS** - May injure the eyes and burn the skin.



- Protect your eyes with welding masks fitted with filtered lenses, and protect your body with appropriate safety garments.
- Protect others by installing adequate shields or curtains.

**RISK OF FIRE AND BURNS**



- Sparks (sprays) may cause fires and burn the skin; you should therefore make sure there are no flammable materials in the area, and wear appropriate protective garments.

**NOISE**



- This machine does not directly produce noise exceeding 80dB. The plasma cutting/welding procedure may produce noise levels beyond said limit; users must therefore implement all precautions required by law.

**PACEMAKERS**

- The magnetic fields created by high currents may affect the operation of pacemakers. Wearers of vital electronic equipment (pacemakers) should consult their physician before beginning any arc welding, cutting, gouging or spot welding operations.

**EXPLOSIONS**



- Do not weld in the vicinity of containers under pressure, or in the presence of explosive dust, gases or fumes.
- All cylinders and pressure regulators used in welding operations should be handled with care.

**ELECTROMAGNETIC COMPATIBILITY (Art.249-250.00)**

This machine is manufactured in compliance with the instructions contained in the harmonized standard EN50199, **and**

**must be used solely for professional purposes in an industrial environment. There may be potential difficulties in ensuring electromagnetic compatibility in non-industrial environments.**

IN CASE OF MALFUNCTIONS, REQUEST ASSISTANCE FROM QUALIFIED PERSONNEL.

## 2 GENERAL DESCRIPTIONS

### 2.1 SPECIFICATIONS

This welding machine is a constant current generator built using INVERTER technology, designed to weld with covered electrodes and for TIG procedures, with contact starting.

### 2.2 EXPLANATION OF THE TECHNICAL SPECIFICATIONS LISTED ON THE MACHINE PLATE.

N°. Serial number, which must be indicated on any type of request regarding the welding machine.



Downslope.

SMAW. Suitable for welding with covered electrodes..

U0. Secondary open-circuit voltage (peak value)

X. Duty cycle percentage. % of 10 minutes during which the welding machine may run at a certain current without overheating.

I2. Welding current

U2. Secondary voltage with current I2

U1. Rated supply voltage

The machine has an automatic supply voltage selector.

1~ 50/60Hz 50- or 60-Hz single-phase power supply

I1. Absorbed current at the corresponding current I2.

IP23 Protection grade of the housing, approving the equipment as suitable for use outdoors in the rain.

**[S]** Suitable for hazardous environments.

NOTES: The welding machine has also been designed for use in environments with a pollution rating of 3.

(See IEC 664).

### 2.3 DESCRIPTION OF PROTECTIVE DEVICES

#### 2.3.1 Thermal protection

This equipment is protected by a thermostat. When the thermostat is tripped, the machine stops delivering current but the fan continues to run. The yellow led (**B**) lights to indicate when it is tripped.

Do not shut off the welding machine until the led has gone off.

#### 2.3.2 Protection against incorrect supply voltages.

If the voltage is greater than 270V when the switch (**F**) is turned on, the yellow led will flash briefly twice, with a brief pause between flashes, and the machine will not deliver current (Art. 250 is not equipped with this protection).

In this situation the electric circuits are protected, but the fan may burn out after a few minutes.

If the voltage low during welding, the yellow led flashes every 0.5 seconds and the machine does not deliver current.

#### 2.3.3 Motor-driven generators

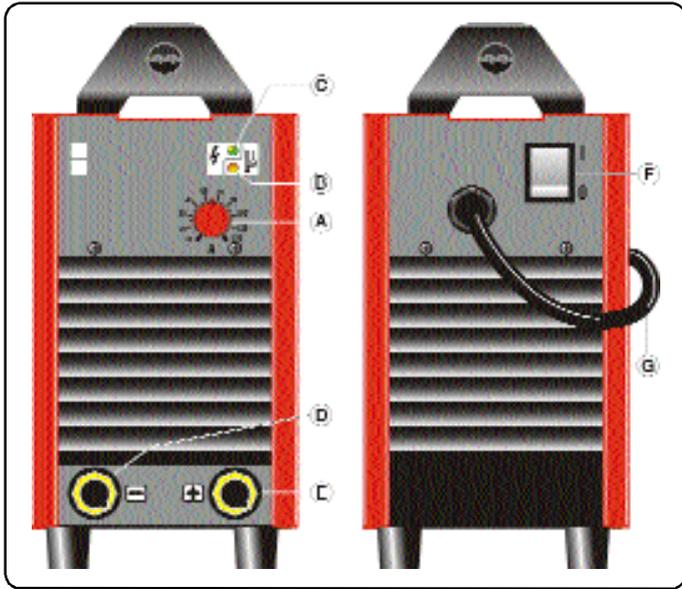
These must have a power equal to or greater than 6KVA, and must not deliver a voltage greater than 260V.

### 3 INSTALLATION

This must be carried out by skilled personnel. All connections must be carried out according to current regulations, and in full observance of safety laws (regulation CEI 26-10 - CENELEC HD 427).

- Make sure that the supply voltage matches the voltage indicated on the specifications plate.
- When mounting a plug, make sure it has an adequate capacity, and that the yellow/green conductor of the power supply cable is connected to the earth pin.

#### 3.1 DESCRIPTION OF THE EQUIPMENT



- A) Current adjustment.    B) Yellow led (see 2.3).  
 C) Power ON led.        D) Output terminal (-).  
 E) Output terminal (+).    F) Switch.  
 G) Mains cable.

#### 3.2 MMA WELDING

- This welding machine is suitable for welding all types of electrodes, with the exception of cellulosic (AWS 6010).
- Make sure that the switch (F) is in position 0, then connect the welding cables, matching the polarity required by the manufacturer of the electrodes you will be using.

VERY IMPORTANT: Connect the terminal of the grounding cable to the workpiece, making sure that contact is good to ensure smooth equipment operation and avoid voltage dips with the workpiece.

- Do not touch the torch or electrode clamp simultaneously with the mass terminal.
- Turn the machine on using the switch (F).
- Adjust the current based on the diameter of the electrode, the welding position and the type of joint to be made. **Always remember to shut off the machine and remove the electrode from the clamp after welding.**

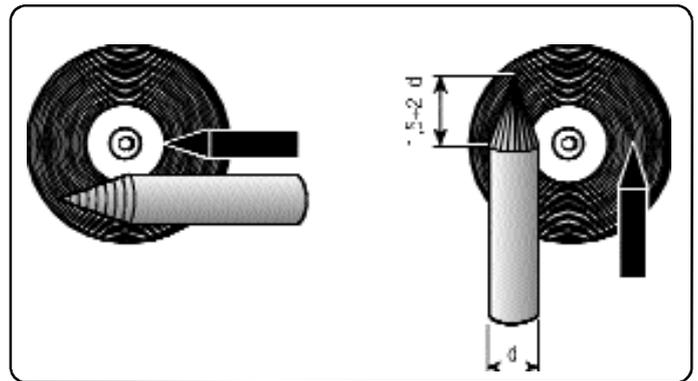
#### 3.3 TIG WELDING

- This welding machine is suitable for welding the following materials using the TIG procedure: stainless steel, iron, copper.

- Make sure that the switch (F) is in position 0.
- Connect the mass cable connector to the positive pole (+) of the welding machine, and the clamp to the workpiece as close as possible to the welding point.
- Use the torch type T150 (art. 1567.01) and connect the power connector to the negative pole (-) of the welding machine.
- Connect the gas hose to the outlet of the pressure regulator, connected to an ARGON cylinder.
- Press the torch trigger and adjust the gas flow.
- Inside the torch is a valve that blocks the gas flow when the trigger is released.
- Use a 2% thorium-covered tungsten electrode (red strip), diameter 1.6 (1/16").
- Do not touch the electrode and mass terminal simultaneously.
- Turn the machine on using the switch (F).
- Adjust the current, then press the torch trigger to allow gas to escape.
- Strike the arc by contact using a firm, rapid stroke.
- Remember to shut off the machine and close the gas cylinder valve when you have finished welding.

#### 3.3.1 Preparing the electrode

Grind the electrode tip so that it has vertical grooves as shown in the figure.



- To profile the tungsten, use a hard, fine-grained abrasive grinding wheel used solely for this purpose.
- Be careful with metal particles.

### 4 ERRORS AND SOLUTIONS

ERROR	PROBABLE CAUSE	SOLUTION
The welding machine does not deliver them. current.	Switch set to 0	Set it to 1.
	Mains fuses burnt.	Replace
Completely inoperative.	Plug not correctly inserted in the power socket.	Insert the plug.
The welding machine does not deliver current, but the fan works.	Incorrect supply voltage: yellow lamp lit.	See 2.3.2
	Thermostat open: yellow lamp lit.	Wait approximately 5/6 min. See 2.3.2