

# 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**

This machine is manufactured in compliance with the instruc-

tions 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. IT MUST NOT BE USED TO DEFROST PIPES.

### 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.
-  Drooping characteristic.
- SMAW. Suitable for welding with covered electrodes.
- TIG. Suitable for TIG welding.
- U0. Secondary open-circuit voltage
- 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 max. This is the maximum value of the absorbed current.
- I1 eff. This is the maximum value of the actual current absorbed, considering the duty cycle.
- IP23C Protection grade of the housing, approving the equipment as suitable for use outdoors in the rain.
- C:** The additional letter C means that the equipment is protected against access to the live parts of the power circuit by a tool (diameter 2.5 mm ).
- 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.

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 270V.

### 2.3.4 Protection against short-circuits (antistick)

If a short-circuit occurs lasting more than two seconds when welding with coated electrodes, the current is reduced to harmless levels.

## 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).

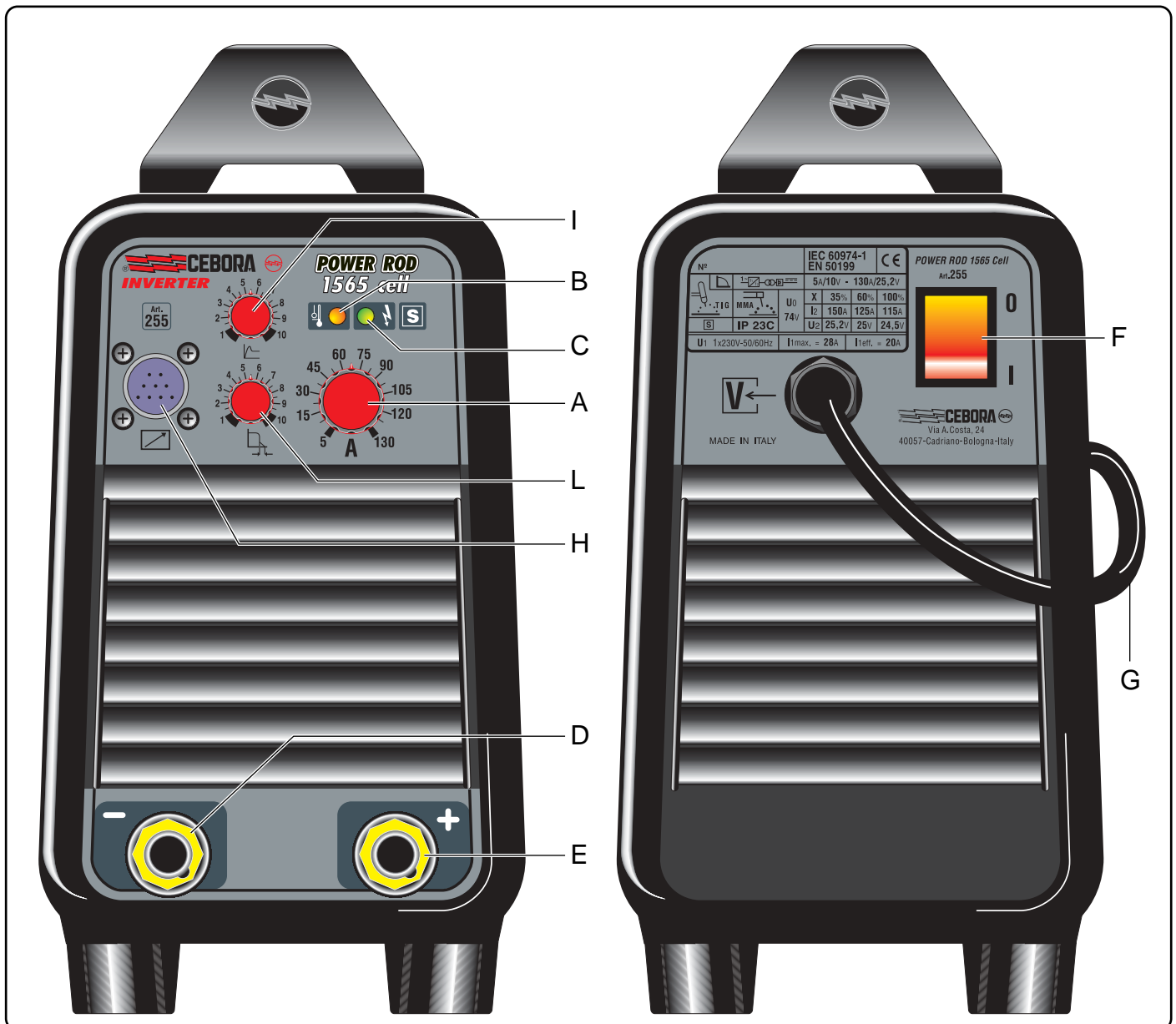
- Make sure that the supply voltage matches the voltage indicated on the specifications plate.

- 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.

**WARNING!** Extension cords of up to 30m must have a cross-section of at least 2.5 mm<sup>2</sup>.

### 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.
- H) Connector.
- I) Adjusts an overcurrent that may be inserted to aid in striking the arc. This function is active in both MMA and TIG modes.
- L) Adjusts an overcurrent that makes it possible to maximize transferring the electrode drop to the workpiece. This function is not active in TIG welding.



### 3.2 MMA WELDING

- This welding machine is suitable for welding all types of electrodes.
  - 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 welding current using the knob (A), the hot start using the knob (I), and the arc force using the knob (L). We recommend adjusting the arc force to between 0 and 2 for rutile electrodes, between 2 and 4 for basic electrodes, and between 4 and 8 for cellulosic electrodes.
- 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 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").
  - Turn the machine on using the switch (F).
  - Adjust the welding current using the knob (A) and the hot start using the knob (I).
  - 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.
- Note: The machine will set itself for TIG welding only if the required accessories are connected to the adapter H.  
This machine is intended for use with the following accessories:
- a) torch type T 150 Art. 1567-20 with gas valve and start trigger,
  - b) torch type T 150 Art. 1567-02 with gas valve, start trigger and current setting potentiometer,
  - c) Art. 181 pedal with potentiometer for current adjustment,
  - d) Art. 1180 adapter to simultaneously attach the torch Art. 1567-20 or 1567-02 and the pedal Art. 181.

### 4 ERRORS AND SOLUTIONS

ERROR	PROBABLE CAUSE	SOLUTION
The welding machine does not deliver 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