



EN Instruction Manual

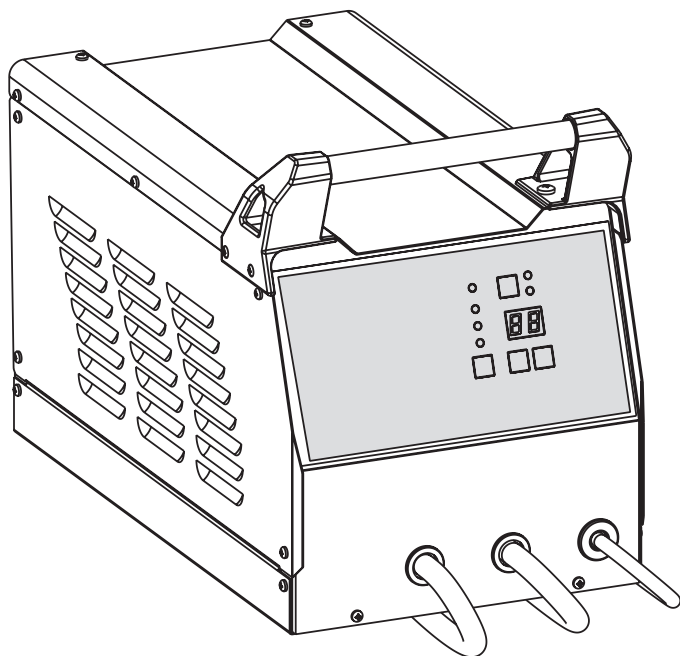


Fig.1

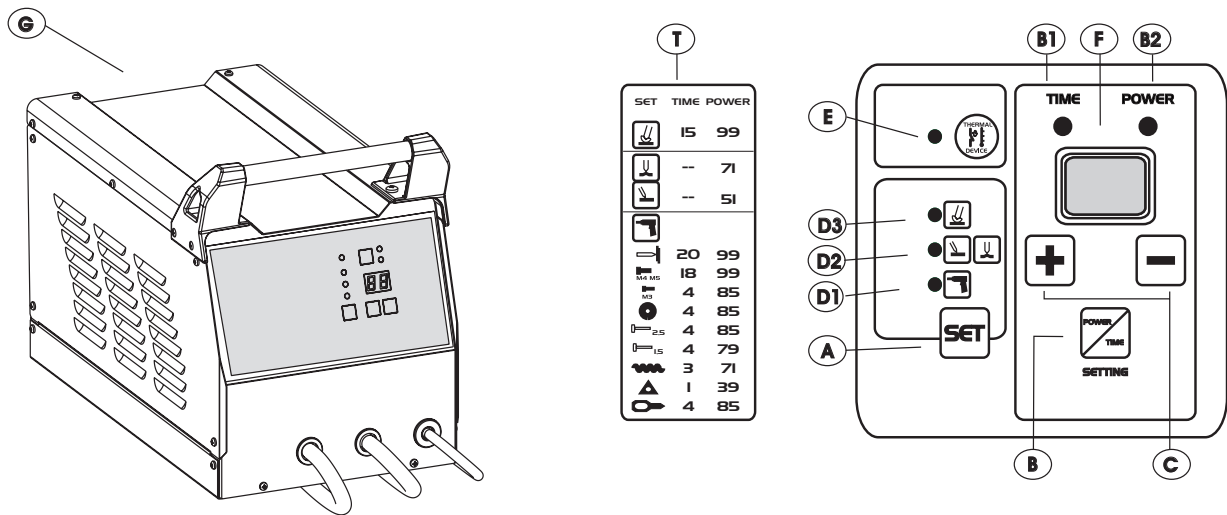


Fig.2

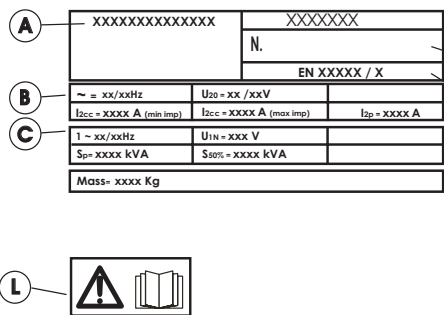


Fig.3

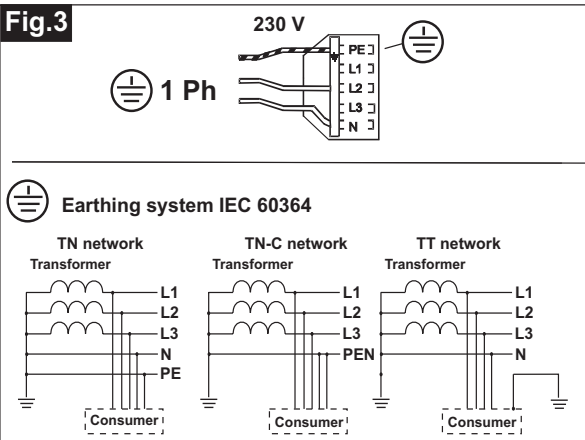


Fig.4

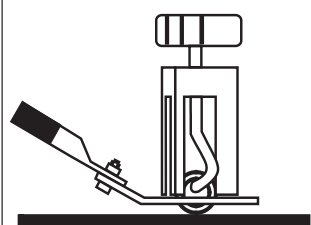
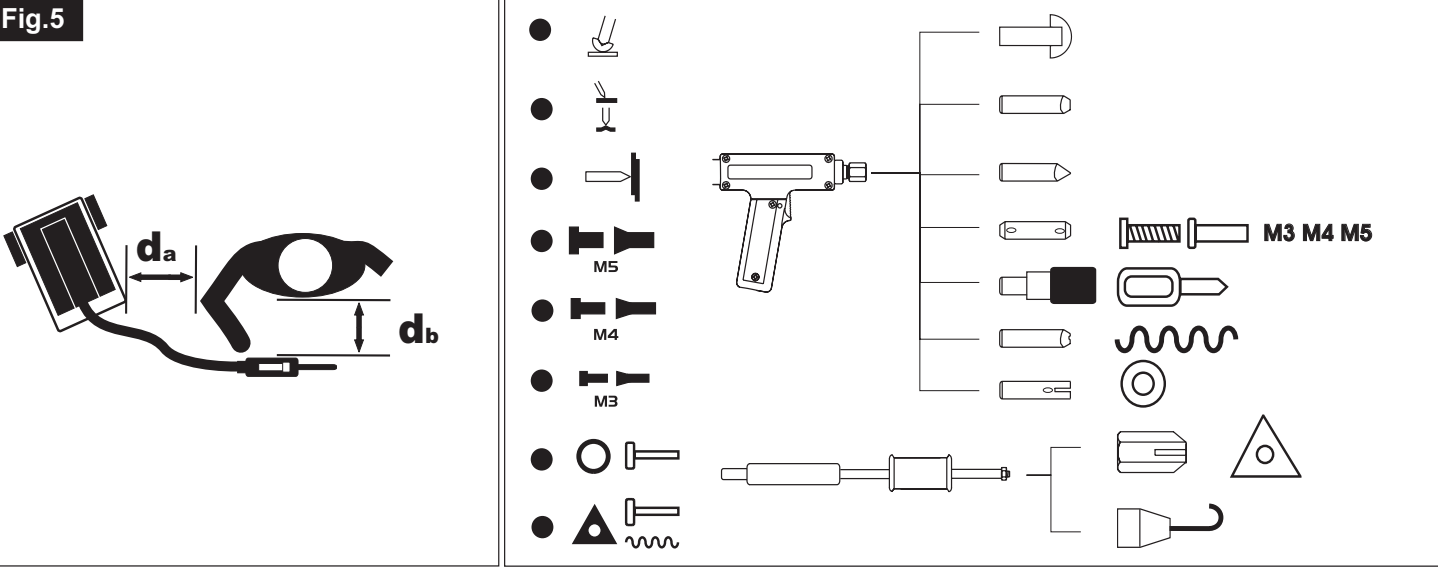


Fig.5





GENERAL DANGER



DANGER OF ELECTRIC SHOCK



DANGER OF WELDING FUMES



DANGER OF ULTRA VIOLET RADIATION



DANGER OF BURNING SPLASHES



DANGER OF FIRE



DANGER OF EXPLOSION



DANGER OF CRUSHING HANDS IN GEARS



DANGER OF NON-IONIZING RADIATION



DANGER OF STRONG MAGNETIC FIELD



DANGER OF BURNS



PROTECTIVE BREATHING APPARATUS MUST BE WORN



PROTEPROTECTIVE MASKS MUST BE WORN



PROTECTIVE GLOVES MUST BE WORN



PROTECTIVE GOGGLES MUST BE WORN



PROTECTIVE CLOTHING MUST BE WORN



ENTRY NOT PERMITTED TO PERSONS FITTED WITH PACEMAKER

EN**Instruction Manual**

Read this instruction manual carefully before using the welding machine.

Resistance welding equipment, hereafter referred to as "welding machine", is used for industrial and professional applications.

Make sure that the welding machine is installed and repaired only by qualified persons or experts, in compliance with the law and with the accident prevention regulations.

These instructions refer to the machine as delivered. In case instructions are not strictly followed or not recommended accessories and/or tools are used, the user shall be responsible for assessing the risks and consequences of such acts.

The operator should be properly trained to use the spot-welder safely and should be informed of the risks connected with resistance welding procedures, related protection measures and of emergency procedures.

Safety warnings

- Make sure that the power socket to which the welding machine is connected is protected by suitable safety devices (fuses or automatic switch) and that it is grounded.
- Make sure that the plug and power cable are in good condition.
- Before plugging into the power socket, make sure that the welding machine is switched off.
- Switch the welding machine off and pull the plug out of the power socket as soon as you have finished working.
- Switch the welding machine off and pull the plug out of the power socket before: connecting the welding cables, installing the continuous wire, replacing any parts in the torch or wire feeder, carrying out maintenance operations, or moving it (use the carrying handle on the welding machine).
- Do not touch any electrified parts with bare skin or wet clothing. Insulate yourself from the electrode, the piece to be welded and any grounded accessible metal parts. Use gloves, footwear and clothing designed for this purpose and dry, non-flammable insulating mats.
- Use the welding machine in a dry, ventilated space. Do not expose the welding machine to rain or direct sunshine.
- Use the welding machine only if all panels and guards are in place and mounted correctly.
- Do not use the welding machine if it has been dropped or struck, as it may not be safe. Have it checked by a qualified person or an expert.



- Eliminate any welding fumes through appropriate natural ventilation or using a smoke exhauster. A systematic approach must be used to assess the limits of exposure to welding fumes, depending on their composition, concentration and the length of exposure.
- Do not weld materials that have been cleaned with chloride solvents or that have been near such substances.



- Use a welding mask with adiacinic glass suited for welding. Replace the mask if damaged; it may let in radiation.
- Wear fireproof gloves, footwear and clothing to protect the skin from the rays produced by the welding arc and from sparks. Do not wear greasy garments as a spark could set fire to them. Use protective screens to protect people nearby.
- Some parts of the spot-welder (electrodes arms and nearby areas) may reach

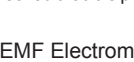
temperatures of over 65°C: suitable protective clothing must be worn.

- Metal-working gives off sparks and splinters. Wear safety goggles with protective side eye guards.



- Welding sparks can trigger fires.

- Do not weld or cut anywhere near inflammable materials, gasses or vapours.
- Do not weld or cut containers, cylinders, tanks or piping unless a qualified technician or expert has checked that it is possible to do so, or has made the appropriate preparations.

**EMF Electromagnetic Fields**

Welding current creates electromagnetic fields (EMF) near the welding circuits and the welder. Electromagnetic fields may interfere with medical prostheses such as pacemakers.

Suitable and sufficient measures should be implemented to protect those operators having such aids. For instance, they should not be allowed to enter that area where welding equipment is used. Any operator having such aids should consult their doctor before coming close to an area where welding equipment is used.

This device meets the specific requirements of the product technical standard and is intended for professional use in an industrial environment only. Compliance to expected limits for human exposure to electromagnetic fields at home is not ensured.

Follow these strategies to minimise exposure to electromagnetic fields (EMF):

- Do not place your body between the welding cables. Both welding cables should be on the same side of your body.
- Twist both welding cables together and secure them with tape when possible.
- Do not wrap the welding cables around your body.
- Connect the earth cable to the workpiece as close as possible to the area to be welded.
- Keep your head and trunk as far as possible from the welding circuit. Do not work close to the welder, or seated or leaning on it. Minimum distance: **Fig. 5 Da** = cm 50; **Db** = cm.20

**Class A equipment**

This equipment has been designed to be used in professional and industrial environments. If this equipment is used in domestic environments and those directly connected to a low voltage power supply network which supplies buildings used for domestic purposes, it may be difficult to ensure compliance to electromagnetic compatibility as the result of conducted or radiated disturbances.

**Welding in conditions of risk**

- If welding needs to be done in conditions of risk (**electric discharges, suffocation, the presence of inflammable or explosive materials**), make sure that an authorised expert evaluates the conditions beforehand. Make sure that trained people are present who can intervene in the event of an emergency. Use the protective equipment described in 5.10; A.7; A.9 of the IEC or CLC/TS 62081 technical specification.
- If you are required to work in a position raised above ground level, always use a safety platform.

**Additional warnings**

- It is dangerous to use the spot-welder for any other purpose than that for which it is designed (spot resistance welding).
- Place the welding machine on a flat stable surface, and make sure that it cannot move. It must be positioned in such a way as to allow it to be controlled during use but without the risk of being covered with welding sparks.
- Do not lift the welding machine. No lifting devices are fitted on the machine.
- Do not use cables with damaged insulation or loose connections.

Description of the welding machine

Movable resistance welding system (spot-welder) with digital microprocessor control. It allows numerous types of hot working and spot-welding on sheet metal and is made

specifically for the vehicle bodyshop and sectors with similar types of working.

Main parts Fig.1

- A) Tool-function selector.
- B) Timer/power switch on display.
- C) Timer/power increasing/decreasing values
- D1) Studder.
- D2) Plate heater.
- D3) Patching.
- E) Heat cut-out signal (resets automatically).
- B1) Timer display
- B2) Power display
- F) Timer/power display
- G) ON / OFF switch

Technical data

A data plate is affixed to the welding machine. **Fig. 2** shows an example of this plate.

- A) Constructor name and address
- E) European reference standard for the construction and safety of welding equipment.
- B) Symbol of delivered current: alternate / frequency.
 - U20** Minimum and maximum open circuit voltage (open welding circuit).
 - I2cc (min imp)** Current delivered by the welding machine. (minimum impedance).
 - I2cc (max imp)** Current delivered by the welding machine. (maximum impedance).
 - I2p** Current delivered by the welding machine. (duty cycle 100%).
- C) Input power required: 1" alternate single phase voltage, frequency.
 - U1N** Input voltage.
 - Sp** Installation power (duty cycle 100%).
 - S50** Installation power (duty cycle 50%).

Mass Weight

- D) Serial number.
- L) Safety symbols: [Refer to Safety Warnings](#)

Starting up



- Connections to the mains must be made by expert or qualified personnel.
- Make sure that the welding machine is switched off and the plug is not in the power socket before carrying out this procedure.
- Make sure that the power socket that the welding machine is plugged into is protected by safety devices (fuses or automatic switch) and grounded.
- The device must be connected only to a supply system, with an earthed 'neutral' lead.

Assembly and electrical connections

- Assembly the detached parts found in the packaging.
- Check that the electrical supply delivers the voltage and frequency corresponding to the welding machine and that it is fitted with a delayed fuse suited to the maximum delivered rated current

TN systems Fig.3

- Protect by means of automatic circuit breaker (D curve) rated: 25A for 1Ph220/230. The disconnection time in case of fault must not be higher than 0.4sec (for supply network having a nominal voltage to earth of 230V) and should be evaluated at the installation: if, due to installation conditions, the fault current becomes too low to properly operate the circuit breaker, the use of an additional RCD (residual current device) may become necessary (not on TN-C systems).

TT systems Fig.3

- According to IEC 60364-4-41 the installation must be protected by an RCD which sensitivity depends upon the earth connection resistance of each installation, IEC 60364-4-41 also requires that the RCD tripping time is lower than 1sec.
- The earth connection resistance of the installation must be considered for the selection of the RCD sensitivity; the maximum resistance of the protective bonding circuit of the welding equipment is: 0.19 Ohm
- The requirements set out in the IEC/EN61000-3-12 standard do not apply to this equipment. If this equipment is connected to low voltage power supply network, either the installer or the user is responsible for checking that this can be done (consult the distribution system operator if required).

- ❗ The requirements set out in the IEC/EN61000-3-12 standard do not apply to this

equipment. If this equipment is connected to low voltage power supply network, either the installer or the user is responsible for checking that this can be done (consult the distribution system operator if required).

- ❗ In order to comply with the requirements set out in EN61000-3-11 (Flicker), it is advisable to connect the welder to the supply mains interface points with a service current capacity of $\geq 100A$ per phase.
- ❗ Either the installer or the user is responsible for checking that the welder can be properly connected; (consult the electrical grid operator if required).
- **Plug.** If the welding machine is not fitted with a plug, fit a normalised plug (**2P+T for 1Ph**) of suitable capacity to the power cable **Fig.3**.

Welding process

Once you have put the welding machine into operation, switch it on and carry out the adjustments following the order shown in the description of the controls **FIG.1**

Studder: technique for use

- Firmly connect the copper bar to a part of the element being repaired, screwing or clamping it on or welding a washer to the piece and using the terminal clamp as in the **fig. 4**.
- ❗ For repairing doors or cases, it is necessary to connect the copper bar to the part, to prevent current from passing through the hinges.
- Adjust power and time (**C**) for the desired operation following the values given in table (**T**) on **fig.1**

Spot welding and washer, nail, rivet traction (**D1**)

Sheet heating and overturning (**D2**)

Patching (**D3**)

- ❗ In this function the pause time is fixed (approx. 0.5 sec.)

Thermal cutout signal (**E**)

The warning light switched on means that the thermal protections of the welder or of the studder torch are running.

Maintenance



Switch off the welder and remove the plug from the power socket before carrying out any maintenance operations.

STUDDER.

Torch = check that there are no cuts or abrasions in the cable that bare the internal conductors.

Earth = check the efficiency of connections and terminal.

Extraordinary maintenance to be carried out by expert staff or qualified electrical mechanics periodically depending on use.

- Inspect the inside of the welder and remove any dust deposited on the electrical parts (using compressed air) and the electronic cards (using a very soft brush and appropriate cleaning products).
- Check that the electrical connections are tight and that the insulation on the wiring is not damaged.