parweld

WELDING THE FUTURE

User Manual

DP231C

DANGER
(Indicating a hazard that could cause injury or damage)

ELECTRIC SHOCK
(Indicating the danger of electric shock)

DANGER
OF FIRE OR EXPLOSION.

Indicating that eye protection is required to avoid burns and eye damage.

TOXIC GAS
Indicating the risk of toxic gas hazards

HOT SLAG
Indicating the risk of being burned by hot slag

EYE PROTECTION
Indicating that eye protection is required to avoid flying debris

READ THE INSTRUCTION MANUAL

DANGER COMPRESSED GAS
Indicating the risk of injury or death in the event of improper handling or maintenance of compressed gas cylinders or regulators

FIRE
PRECAUTIONS

IMPORTANT INFORMATION
Indicating the precautions to be taken when installing and using the unit.

DISPOSAL
INFORMATION

INSTALLATION
INSTRUCTIONS

OPERATING
INSTRUCTIONS

UNPACKING
INSTRUCTIONS

SUITABLE FOR ENVIRONMENT WITH INCREASED HAZARD OF ELECTRIC SHOCK

CAUTION

SAFETY WARNINGS

This equipment is designed solely for industrial or professional use. As such, only experienced or fully-trained people should use the equipment. The user and/or owner is responsible for ensuring inexperienced personnel does not have access to the equipment.

The constructor declines all responsibility for injury or damage caused by inexperienced, improper or neglectful use of its equipment.

A workman must look after his tools carefully ! Remember that any tool or equipment can become a hazard if it is not looked after properly.
Equipment in a state of disrepair or neglect can be dangerous. If it does not operate properly or overheats, the electricity supply should be removed immediately and the unit should be returned to the supplier for repair.

Read this manual carefully before using your Welder. You can then do a better and safer job.
By reading this manual you will learn more about the possibilities, limitations and potential dangers of welding.
Retain this manual for the entire life of the equipment. It should be kept within the operator's reach at all times.

The safety information contained in this manual is a guide to ensure you are not subjected to unnecessary risks. However, the operator must be competent and careful at all times.

All equipment connected to electric power supplies can be dangerous if the manufacturers instructions are not read and observed. Read, understand and observe these safety instructions to reduce the risk of death or injury from electric shock. Ensure that even bystanders are aware of, and understand, the dangers that exist in the welding area.

Fires and explosions can seriously injure or cause damage ! Read, understand and observe all safety warnings to reduce the risk of death or injury from fire or explosion. Pay particular attention to the fact that even bystanders should be aware of, and understand, the dangers existing in the welding area. Remember that welding, by nature, produces sparks, hot spatter, molten metal drops, hot slag and hot metal parts that can cause fires, can burn skin and damage eyes.

Arc rays can damage your eyes and burn your skin ! Read, understand and observe all safety warnings to avoid damage from arc rays. Pay particular attention to the fact that even bystanders should be aware of, and understand, the dangers existing in the welding area. Wear a protective mask and make sure bystanders do the same.

Fumes, toxic gases and vapours can be harmful ! Read, understand and observe all safety warnings to avoid harm from toxic welding gases. Pay particular attention to the fact that even bystanders should be aware of, and understand, the dangers.

Carelessness while using or maintaining the compressed gas cylinders or regulators can injure or kill the operator and/or bystanders ! Read, understand and observe all safety warnings to avoid the dangers of compressed gas. Pay particular attention to the fact that even bystanders should be aware of, and understand, the dangers.

HIGH VOLTAGE
The unit carries potentially lethal voltage.
The high voltage areas of the equipment have been segregated and can be reached only by using tools that are not provided with the Welder.
All maintenance or repair operations requiring access to such areas may only be performed by constructor-trained technicians.

FOREIGN OBJECTS
Never block the air vents with foreign objects and avoid any contact with liquids. Clean using just a dry cloth. These safety precautions apply even when the unit is switched off.

WEIGHT LOADS
The upper part of the Welder was not designed to withstand heavy loads. Never stand on the unit.

CABLE GAUGES
Check that all cables are appropriately gauged for the input power required by your specific Welder. This precaution applies also to extension cables, if used. All extension cables must be straight. Coiled cables can overheat, becoming dangerous. Twisted or coiled cables can also cause Welder malfunction.

OVERLOAD PROTECTION

Check that the power source supplying the Welder carries the correct voltage and is safety-protected. The power switch must open all the power supply circuits. (If a single-phase connection is used, both the live and the neutral poles must be open. If a three-wire connection is used , all three poles must be open. Four-wire circuits require all poles and neutral open). Time-delayed fuses or K-standard circuit breakers should be used.

EARTHING

If the Welder was not already supplied with a plug, connect the earth wire first. When removing the plug, disconnect the earth wire last.

PLUG AND POWER SUPPLY

If the Welder already has a plug attached, check that it is appropriate for the wall-socket you intend using. Never tamper with the power cable.

CABLE COLOURS

The green-yellow wire is for earthing. (Don't use it for anything else !)

RELOCATION 1

Some Welders are extremely heavy therefore care should be taken when relocating the unit. Check the floor or platform weight load limitations before relocating the unit if the Welder is to be used, even only temporarily, in a non-industrial environment

RELOCATION 2

Never store or move the Welder in an inclined position or on its side.

INSTALLATION ENVIRONMENT

The equipment is not suitable for use in washrooms, shower cubicles, pool areas or similar environments. If you are obliged to use the unit in such areas, turn off all water supplies and check the area has been evacuated.

OPERATING AND/OR INSTALLATION ENVIRONMENT 1

The Welder was not designed for installation or use in areas where it could be subject to blows or vibration, such as road-vehicles, railway carriages, cable-cars, aircraft, ships or boats or similar environments (including cranes, conveyor-carriers or any other mobile equipment prone to vibration)

OPERATING AND/OR INSTALLATION ENVIRONMENT 2

The Welder should never be used or stored in the rain or in snow.

OPERATING AND/OR INSTALLATION ENVIRONMENT 3

Never use the Welder in an explosive, corrosive, abrasive or saline environment.

EXTINGUISHER

Always place an approved fire extinguisher in the immediate vicinity of the work area. Fire extinguishers should be checked regularly.

LOCATION

Place the Welder well away from heat sources. Place the Welder in a well-ventilated environment. Place the Welder in a safe, protected area. It must not be installed outdoors. Do not install the Welder in dusty environments. Dust can get into the inner parts of the unit and inhibit cooling. The Welder must be positioned on a flat, stable surface that extends further than the units own dimensions in all directions.

CLEAN LOCATIONS

The installation area must be kept clean and dry to be sure the Welder fans do not draw in small objects or liquids. Not only could the equipment malfunction but a serious risk of fire outbreak could be created.

REPAIRS

Never attempt to repair the Welder yourself. Always refer to the manufacturer or an authorized repairer. All warranty provisions will immediately become null and void if any repair, or attempt to repair, not specifically authorized in writing or handled by the constructor is carried out. Furthermore, the constructor will accept no responsibility for any malfunction or damage resulting as a consequence of such unauthorized action.

TECHNICAL ASSISTANCE

The Welder must be taken to an authorized Technical Assistance Centre if the equipment has been damaged in any way or if any one of the following events occurs : liquid infiltration; damage caused by falling objects; exposure to rain or humidity (exceeding the specified limits); malfunction; performance failure or if the equipment has been dropped.

SPARE PARTS

Use only manufacturer-recommended spare parts. Other spare parts could cause equipment malfunction. The use of non-original spare parts will also result in the warranty provisions becoming null and void, releasing the manufacturer from any responsibility for malfunction or damage resulting as a consequence of such action.

WELDING OPERATION SAFETY INSTRUCTIONS

CAUTION !

Welding processes can be dangerous for the operator and bystanders if the safety warnings and instructions are not heeded.

PERSONNEL PROTECTION

Together with the previous instructions, the following precautions should be strictly observed

PROTECTION MASK

Wear a protective non-flammable welding mask to protect your neck, your face and the sides of your head. Keep the front lens clean and replace it if it is broken or cracked. Place a transparent protection glass between the mask and the welding area.

CLOTHING

Wear close-fitting, closed, non-flammable, pocketless clothing.

VENTILATION

Weld in a well-ventilated environment that does not have direct access to other work areas.

EYE PROTECTION

NEVER look at the arc without appropriate eye protection.

FUMES AND GASES 1

Clean away paint, rust or any other dirt from the item to be welded to avoid the creation of dangerous fumes.

FUMES AND GASES 2

NEVER weld on metals containing zinc, mercury, chromium, graphite, heavy metals, cadmium or beryllium unless the operator and the bystanders use appropriate air-supplied respirators.

HIGH VOLTAGE PROTECTION

Together with the previous instructions, the following precautions should be strictly observed

CONFINED SPACES

When welding in small environments, leave the power source outside the area where welding will take place and attach the grounding clamp to the part to be welded.

HUMIDITY

Never weld in wet or humid environments.

DAMAGED CABLES

Never use damaged cables. (This applies to both the power and the welding cables.)

DAMAGED CABLES

Never remove the unit side panels. If the side panels can be opened, always checked they are closed tightly before starting any work.

FIRE PREVENTION

Together with the previous instructions, the following precautions should be strictly observed.
Welding operations require high temperatures therefore the risk of fire is great.

WORK-AREA FLOORING

The work-area flooring MUST be fireproof.

WORK-AREA SURFACES

Work benches or tables used during welding MUST have fireproof surfaces.

WALL AND FLOOR PROTECTION
The walls and flooring surrounding the welding environment must be shielded using non-flammable materials. This not only reduces the risk of fire but also avoids damage to the walls and floors during welding processes.

EXTINGUISHER
Place an approved and appropriately-sized fire extinguisher in the work environment.
Check its working order regularly (carry out scheduled inspections) and ensure that all parties involved know how to use one.

CLEAN ENVIRONMENT
Remove all flammable materials away from the work environment.

SERIOUS DANGER ! 1
NEVER weld in confined spaces (e.g. in a container vehicle, a cistern or a storeroom etc.) where toxic, inflammable or explosive materials are, or have been, located or stored. Cisterns, in particular, may still contain toxic, flammable or explosive gases and vapours years after they have been emptied.

SERIOUS DANGER ! 2
NEVER weld a cistern that contains (or has stored) toxic, inflammable or explosive materials. They could still contain toxic, flammable or explosive gases and vapours years after they have been emptied. If you are obliged to weld a cistern, ALWAYS passivate it by filling it with sand or a similar inert substance before starting any work.

SERIOUS DANGER! 3
NEVER use the Welder to melt frozen water pipes.

VENTILATION

Together with the previous instructions, the following precautions should be strictly observed

WELDING ENVIRONMENT VENTILATION
Ventilate the welding environment carefully. Maintain sufficient air-flow to avoid toxic or explosive gas accumulation. Welding processes on certain kinds or combinations of metals can generate toxic fumes. In the event of this happening, use air-supply respirators. BEFORE welding, read and understand the welding alloy safety provisions.

PROTECTIVE WELDING GASES

Together with the previous instructions, the following precautions should be strictly observed when welding with protective gases

GAS TYPES
These welders use only inert (non-flammable) gases for welding arc protection. It is important that the appropriate type of gas is chosen for the type of welding being performed.

UNIDENTIFIED GAS CYLINDERS
NEVER use unidentified gas cylinders.

PRESSURE REGULATOR 1
NEVER connect the cylinder directly to the Welder. Always use a pressure regulator.

PRESSURE REGULATOR 2
Check the regulator is performing its function properly. Read the regulator instructions carefully.

PRESSURE REGULATOR 3
Never lubricate any part of the regulator.

PRESSURE REGULATOR 4
All regulators are designed for a specific type of gas. Check the regulator is appropriate for the protective gas to be used.

DAMAGED GAS CYLINDERS
NEVER use damaged or faulty cylinders.

CYLINDER RELOCATION
NEVER lift a gas cylinder by holding the regulator.

GAS CYLINDERS
Do not expose gas cylinders to excessive heat sources, sparks, hot slag or flames.

GAS HOSE 1
Check the gas hose is not damaged.

GAS HOSE 2
Always keep the gas hose well away from the work area.

ELECTRIC SHOCK

Together with the previous instructions, the following precautions should be strictly observed to reduce the risk of electric shock

ELECTRIC SHOCK INJURY
DO NOT touch a person suffering from electric shock if he/she is still in contact with the cables. Switch the mains power source off immediately THEN provide assistance.

CABLE CONTACT
Do not tamper with power cables if the mains power is still switched on. Do not touch the welding circuitry. Welding circuitry is usually low voltage, however, as a precaution, do not touch the welder electrodes.

CABLE AND PLUG PRECAUTIONS
Check the power supply cable, plug and wall-socket regularly. This is particularly important if the equipment is relocated often.

REPAIRS
Never attempt to repair the Welder yourself. The result would not only cause warranty cancellation but also high danger risks.

MAINTENANCE PRECAUTIONS
Always check that the electric power supply has been disconnected before performing any of the maintenance operations listed in this manual (e.g. before replacing any of the following: worn electrodes, welding wires, the wire feeder etc.)

Never point the welding gun or the electrode towards yourself or others.

ELECTROMAGNETIC COMPATIBILITY

Check no power supply cables, telephone cables or other electrical items (e.g. computer cables, control lines etc.) are in the vicinity of the Welder.

Check there are no telephones, televisions, computers or other transmission devices close to the Welder.

Make sure that people with pace-makers are not in the immediate vicinity of the Welder.

Do not use the Welder in hospitals or medical environments (including veterinary surgeries). Make especially sure there is no electrical medical equipment being used close to where welding is being done.

Should the Welder interfere with other apparatus, take the following precautionary measures:

1. Check the Welder's side panels are securely fastened.
2.Shorten the power supply cables.
Place EMC filters between the Welder and the power source.

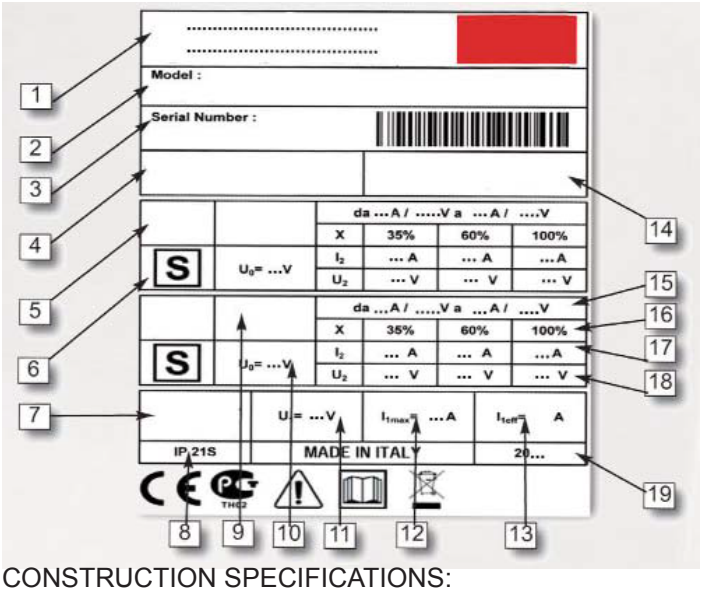
EMC compatibility : CISPR 11, Group 2, Class A.

This Class A equipment is not intended for use in residential locations where the electrical power is provided by the public low-voltage supply system. There may be potential difficulties in ensuring electromagnetic compatibility in those locations, due to conducted as well as radiated disturbances.

This equipment does not comply with IEC 61000-3-12. If it is connected to a public low voltage system, it is the responsability of the installer or user of the equipment to ensure, by consultation with the distribution network operator if necessary, that the equipment may be connected.

This equipment is suitable for using in industrial environments with mains power protected by residual current operated circuit-breaker (time delay), Type B and tripping current of >200 mA

DATA PLATE



1. MANUFACTURER'S NAME, ADRESS AND COMPANY LOGO
2. MODEL
3. SERIAL NUMBER
4. BLOCK DIAGRAM
5. WELDING OUTPUT
6. SUITABLE FOR ENVIRONMENT WITH INCREASED HAZARD OF ELECTRIC SHOCK
7. POWER SUPPLY
8. DEGREE OF PROTECTION
9. TYPE OF WELDING OUTPUT CURRENT
10. INPUT VOLTAGE
11. RATED INPUT VOLTAGE
12. MAXIMUM RATED INPUT CURRENT
13. MAXIMUM EFFECTIVE INPUT CURRENT
14. APPLICABLE STANDARDS
15. RANGE OF WELDING VOLTAGE-CURRENT
16. DUTY CYCLE
17. RATED WELDING CURRENT
18. CONVENTIONAL LOAD VOLTAGE
19. YEAR OF CONSTRUCTION

CONSTRUCTION SPECIFICATIONS:
WEIGHT [Kg]: 23
Dimensions:
Width [mm]: 220
Depth [mm]: 560
Height [mm]: 480
Protection rating: IP 21S
Height S.L.M. [m]: 1000
Usage temp. [°C]: -10/+40
Storage temp. [°C]: -20/+55 T
est temp. [°C]: 40
Applicable standards: EN.60974-1 EN.60974-10
Group/Class: Gruppo 2 Classe A
Thermal protection: Termostato Incorporato
ELECTRICAL INPUT :
Line voltage: 230
No. phases: 1
Frequency [Hz]: 50/60
Effective line current [A]: 21,6
Maximum line current [A]: 40,3
Input Power [kVA]: 5
Circuit protection: Time-delay fuses or Co K magnetothermal curve

OUT-PUT CHARACTERISTICS:
Static characteristics: Cadente
Fill Diameter: 0.6-0.8-1.0-1.2

Welding mode: MIG/MAG
Weld current range: from 15A / 14,75V to 235A / 25,75V
Open circuit voltage [V]: 55
Output current and tension: Duty [%]: 35 60 100
I2 [A]: 220 160 130
U2 [V]: 25 22 20,5
Welding mode: TIG
Weld current range: from 15A / 10,6V to 235A / 19,4V
Open circuit voltage [V]: 55
Out-put current and tension: Duty [%]: 35 60 100
I2 [A]: 220 160 130
U2 [V]: 18,8 16,4 15,2
Welding mode: MMA
Weld current range: from 15A / 10,6V to 185A / 17,4V Open circuit voltage [V]: 55
Duty [%]: 35 60 100
I2 [A]: 185 138 109
U2 [V]: 27,4 25,52 24,36 6 1.

GENERAL SPECIFICATIONS AND NOTES FOR CONSULTING THIS MANUAL

The “DP231C” welders are made using INVERTER technology. They are extremely compact and versatile devices that can be used in all those situations that require minimum obstruction, combined with the highest performance.

These welders use both manual and synergic MMA, TIG and MIG/MAG (short arc, pulse or double pulse).

The innovative operator interface system, which uses a large 5,7” TFT colour screen, allows for simple and intuitive use of the equipment, without renouncing on the possibility to personalise all of the welding settings.

All of the main parameters of the machine are stored on a memory card (SD-Card), keeping the equipment constantly up-dated with the latest welding developments. If the memory card is removed the equipment will cease to function, providing an optimal antitheft system and safeguard against inappropriate use. Thanks to the advanced control techniques adopted, the product is extremely reliable and easy to use. This instruction manual provides detailed information on the machine settings: reading the entire manual will allow you to appreciate the extreme flexibility and practicality of use.

Caution: the device must only be used in the manner and for the purpose described in this manual. Never use inappropriately or for any other purpose.

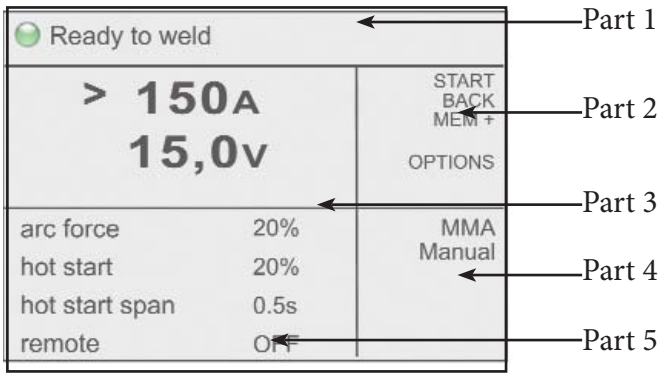
2. DESCRIPTION OF THE EQUIPMENT

Fig.1

using this selector you can choose the gas outlet dedicated for each welding process

INTERNA L TAP

Fig.2



Graphic display: The display 5.7 inch color'' shows different screens depending on whether the machine is in welding mode or setting mode. In welding mode, the display is divided into five main parts:
Part 1: State of the machine
Part 2: Meaning of the active buttons (buttons 2, 3, 4, 5 of fig. 1)
Part 3: Value of the measurements set
Part 4: Type of process selection
Part 5: Indicates the values set for the various welding parameters (to change the set value, highlight the value with knob 10 and press to confirm; the value is highlighted as a contrast. Change the value by turning the knob and confirm the new value by pressing knob 10 again).
Highlighted value: Indicates the welding parameter that is being changed with knob 10.

VIEWS: - At start-up, the Parweld logo and the Firmware revision are displayed.
CONTROL BUTTONS: (2, 3, 4, 5,6 in fig.1) Each control button is associated with a specific function shown on the display.
7.SD slot: This slot, covered by a special plastic cover, must contain the SD-Card supplied with the machine; without this card, the machine remains inactive and a special signal is reported on the display.

8. USB port: only for technical assistance.
9. Knob for setting the main welding parameter: the main welding parameter can be set with this knob: Welding MMA/TIG: sets the welding current.
11. Air grills (must never be obstructed).
12. "-" dinse front connector: negative pole inlet. Connection socket TIG torch mode. MMA Mode: Ground clamp MIG Mode: Ground clamp
13. Connector for remote control.
14. "+" dinse front connector: positive pole inlet. MMA Mode:Electrode holder TIG Mode:Ground clamp MIG Mode with gas: Not used
15. Gas Outlet: MMA Mode: inactive TIG Mode: Gas connection to the welding torch (Internal tap positioned on TIG GAS) MIG Mode with gas: inactive (internal tap positioned on MIG GAS) 16. EUROCONNECTOR (SEPARATED TROLLEY): quick connector for welding torch. This connector is used to supply welding gas to the torch, the electrical contacts of the torch button and the welding current.

FIGURE 2:
17. ON-OFF switch: turns the machine on and off.
18. Input cable: connection cable to the mains power equipped.
19. Welding gas inlet MMA Mode: Not used TIG Mode: GAS connection to the cylinder MIG Mode with gas: GAS connection to the cylinder
20. Fuse
21.Connector for supplying power to the liquid cooling system (Optional): Warning the connector contains dangerous voltages: NEVER use it for purposes other than those for which it was specifically designed.

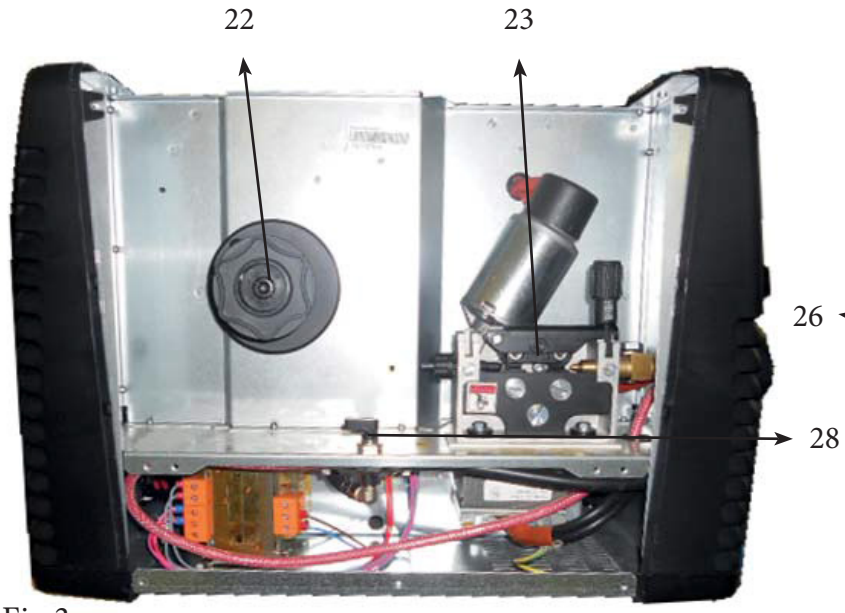


Fig.3

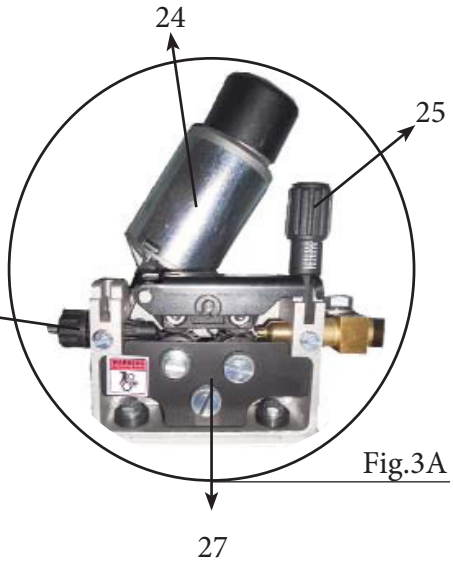


Fig.3A

FIGURE 3: 22. WIRE SPOOL SUPPORT The 300mm MIG welding spool requires an external support

23. WIRE FEEDER SYSTEM: see figure 3A for a more detailed image.

24. WIRE-FEEDER MOTOR

25. WIRE TENSION REGULATOR: Adjusts the tension of the welding wire.

26. INLET OF THE WIRE FEEDER MOTOR

27. WIREFEEDER SPOOLS

28. GAS VALVE: The Gas Valve can be rotated in three positions.

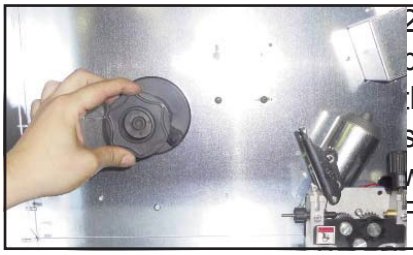
GAS MIG Position: The tap feeds the Euroconnector with the gas from the cylinder connection (19) (For MIG with GAS welding).

GAS TIG Position: The tap feeds the front connection (14) with the gas from the cylinder connection (19) (For TIG welding).

WELDING WIRE

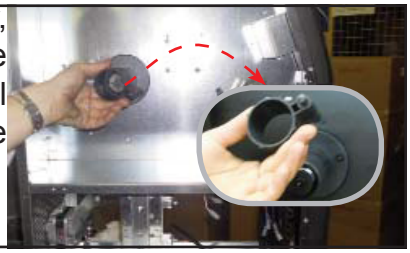
To load the welding wire, follow these instructions carefully, in the order described below. Warning: before inserting the wire, always remove the gas nozzle and the wire feeder tip from the welding torch.

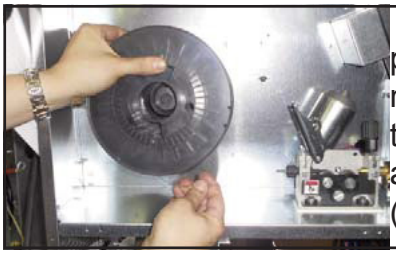
1. Disconnect the cable from the power supply (18 of Fig. 2).



2. Unscrew the ball-grip knob in the centre of the spool support of the welding wire (22 of Fig. 3).

3. If necessary, depending on the size of the spool used, remove the bearing spool.



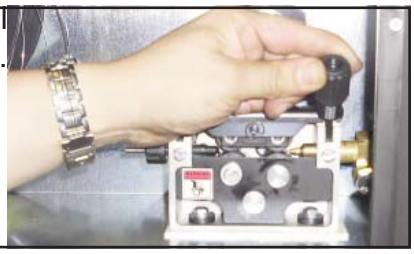


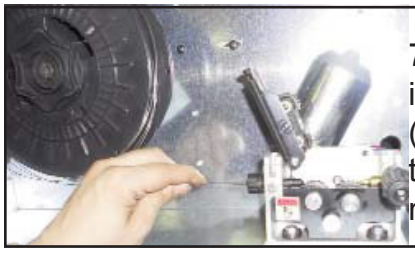
4. Remove the plastic wrap from the new spool and place the spool on the appropriate support (22 of Fig. 3).

4. Replace the ball-grip knob.

5. Please note that the hex socket (M8) situated in the centre of the spool support is part of the wire tension system.

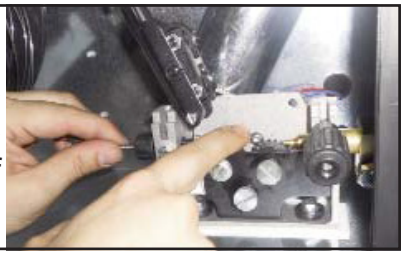
6. Lower the roll feeder (25 of Fig. 3A)

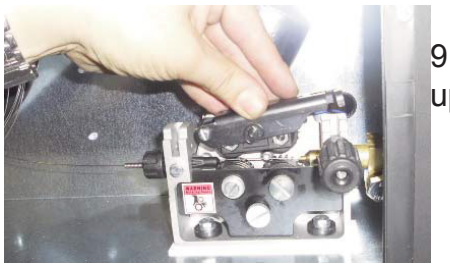




7. Insert the wire into the inlet tube (26 of Fig. 3A) of the wire feeder motor. .

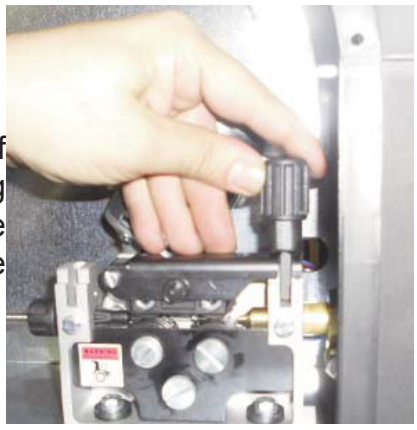
8. Run the wire under the wire feeder spools all the way to the out-let of the Euroconnector.





9. Lower the upper spools

10. Lift the knob of plastic (25 of Fig 3A) of the pressure regulator of the wire.

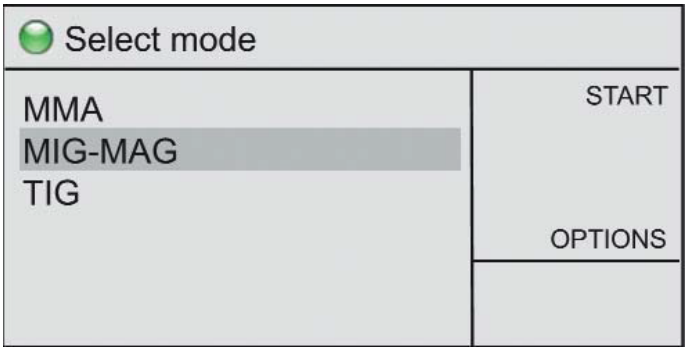


Caution: before proceeding with the next step, make sure the torch cable (Fig. 4) is well extended and that the welding wire does not have any bends or burrs. Failure to follow these precautions could damage the wire-feeding tube inside the torch. Once the wire has been threaded through the torch, attach the wire-feeder tip and the gas nozzle.

N.B. When changing the diameter of the wire, make sure that the correct cable of the wire-feeder spool is facing towards the inside of the machine. To do so, ensure that the diameter and type of wire is legible (facing towards the outside of the machine) Remember that the spools with

a ‘V’ cable are suitable for feeding iron and steel wire. The spools with a ‘U’ are suitable for aluminium wire.

4. MIG/MAG WELDING To choose this welding mode use switch 10, select MIG and press confirm.



MIG/MAG welding (Metal Inert Gas and Metal Active Gas) is continuous wire feed welding that provides a higher current density compared to welding with a fluxcovered electrode; this allows increased penetration and speed and the joint can be filled with less strokes. Welding is carried out by melting a metallic electrode, consisting of a continuous wire, in a welding pool at a constant speed, controlled by the welding torch. When the wire starts to feed, it touches the area that requires welding, creating an electric arc; the arc melts the wire, which is then deposited on the workpiece.

This welder can be used with the following types of wire:
1. Solid wire: must always be used with a gas shield.
2. Flux cored for gas welding: the centre of the wire contains a mineral product that improves the quality of the weld (this must always be used with gas).

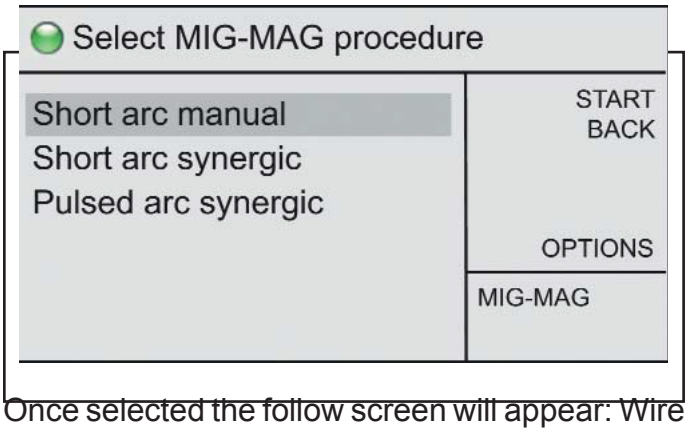
The correct method for connecting the torch and the earth cable can be seen in the table below:

WELDING PROCESS	Euroconnettor 16 of Fig.1	‘+’ Front socket 14 of Fig.1	‘-’ Front socket 12 of Fig.1
MIG/MAG	TORCH CABLE	NOT USED	EARTH CABLE

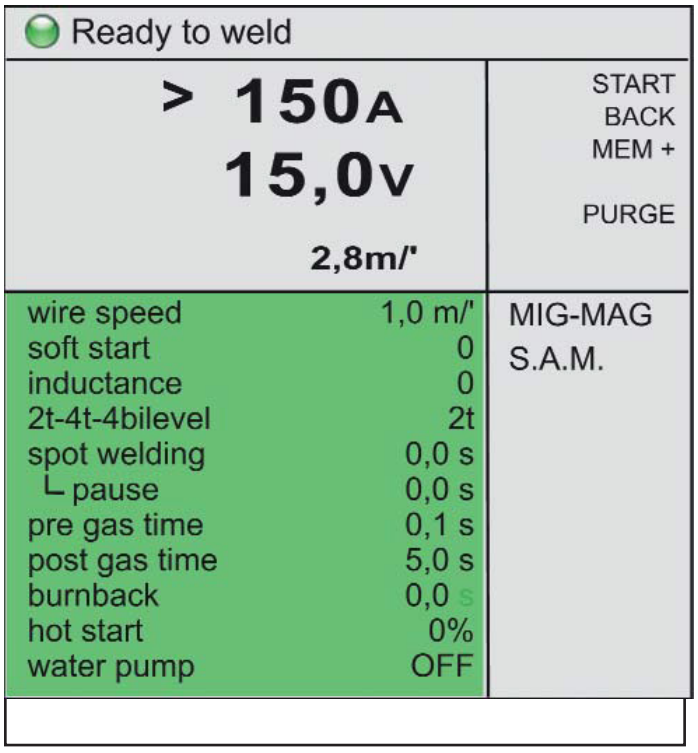
Switch 9 adjusts the machine power.
There are three principal MIG-MAG welding modes:
1.Manual short arc
2.Synergic short arc
3.Pulsed arc synergic

4.1 Manual Short Arc MIG Welding

By turning switch 10 it is possible to choose from the different MIG-MAG welding modes; press the switch to select the desired option.



Once selected the follow screen will appear: Wire



speed: This sets the speed of the welding wire. The welding current and the wire speed must be adjusted, taking into consideration the thickness of the workpiece. Larger pieces will require a higher wire speed.

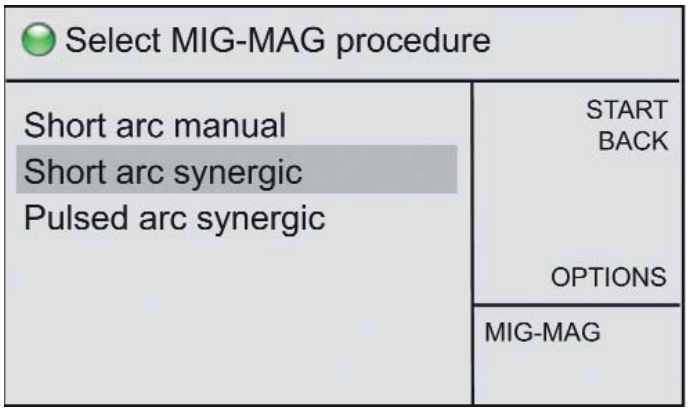
For best results, the wire speed must be adjusted during welding.

soft-start: This adjusts the contact speed of the wire, creating a softer weld spark; the higher the level the lower the contact speed.

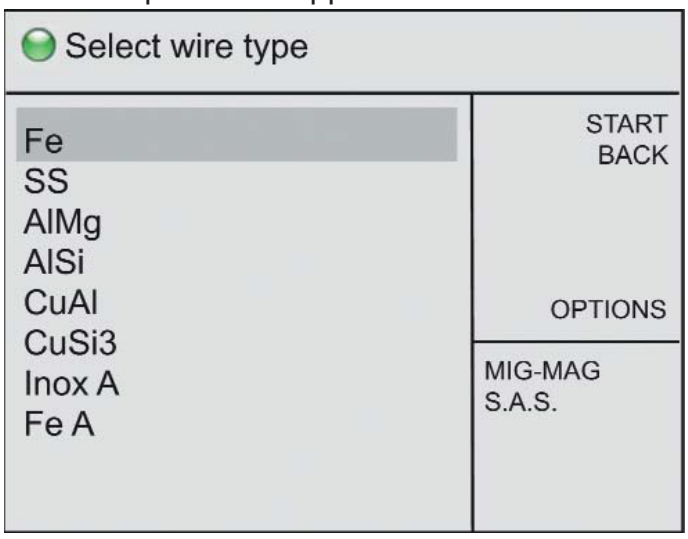
Inductance: This adjusts the variation speed of the welding current for a sharper (low levels) or softer arc (high levels).
2t-4t-4Bi-level: This allows the user to set the 2 step or 4 step functions
2t: : In 2 step mode, the machine will weld for as long as the torch trigger is held down.
4t: In 4 step mode, one press of the torch trigger will start the welding process; press the button again and the welder will stop.
4Bi: NIn 4 step bi-level mode, one press of the torch trigger will start the welding process; successively, brief pressure on the trigger (for a duration of less than 1s) will make the welder pass from the welding current to the second level and vice versa. Pressing the torch trigger for lengthy periods of time will halt the welding process.
Spot welding: This allows the user to set (when different to 0) the maximum welding duration in seconds.
Pause: This allows the user to set (when different to 0) the duration of the pause between two successive tacks.
Pre gas time: This allows the user to set the time of the gas supply, before feeding the welding current.
Post gas time: This allows the user to set the time of the gas supply, when the welding current stops.
Burnback: This allows the use to adjust the length of the wire at the end of the torch when the welding process ends.
Hot start : This allows the user to set the welding ignition current to create a soft weld spark; this is generally used with the softstart setting.
Water pump: This turns the water system ON or OFF, if present.

4.2 Synergic Short Arc MIG WELDING Synergic MIG welding allows the user to easily adjust the weld settings, according to the different materials that require welding. During synergic welding, switch 9 of Fig 1 simultaneously adjusts the tension or the speed of the wire. The other parameters are automatically adjusted to the set power, according to the diameter and type of wire selected. The percentage of the length of the arc can be varied using the ‘welding tension’ setting. Welding quality can be further improved by adjusting the ‘electronic inductance’ and ‘deposit’ settings.

Turn switch 10 to choose from the different MIG-MAG welding options; press the switch again to confirm the chosen option.

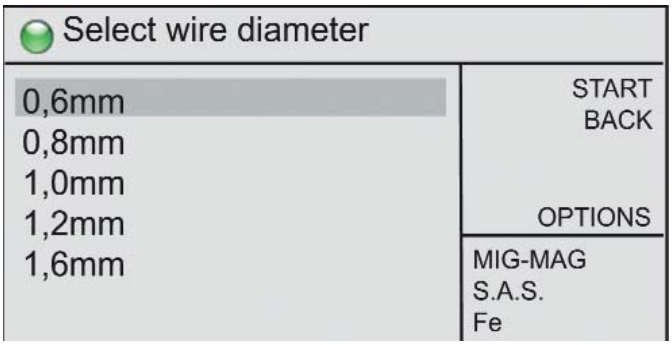


Once selected, the screen with the welding wire material options will appear:

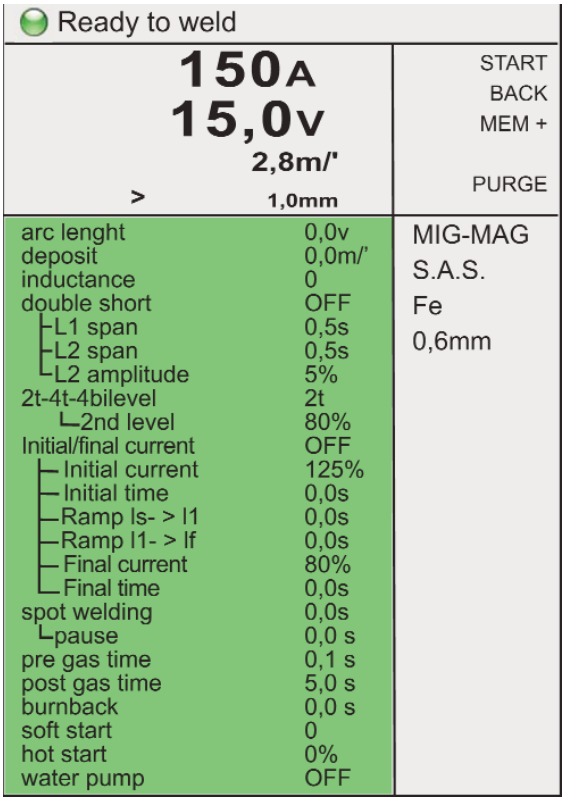


Settings that do not appear on the screen are accessible by turning switch 10.

Once the type of wire has been selected (using switch 10), the settings page for the welding wire diameter will appear.



Selecting this option will take you to the welding screen:



Arc length: This changes the length of the electric weld arc with respect to the pre-set synergic values.
Deposit: This modifies the deposit of the filler material (velocity of the wire) with respect to the pre-set synergic values. I
nductance: This changes the variation speed of the welding current to achieve a sharper (low values) or softer arc (high values).
Double short: This activates (ON) or deactivates (OFF) the two level option, i.e. the continuous switching between two different welding tension levels.
L1 span: When the two level mode is active the duration of the first power level can be set.
L2 span: When the two level mode is active the duration of the second power level can be set.
L2 amplitude: When the two level mode is active the second power level (L2) can be set with respect to the set power (level L1).
2t-4t-4bilevel: This function adjusts the 2 step or 4 step settings.
2t: In 2 step mode, the machine will weld for as long as the torch trigger is pressed down.
4t: : In 4 step mode, press the trigger once to start the torch, press again to stop the torch.
4Bi: In 4 step Bi- Level mode, press the trigger once to start the torch, successively, briefly pressing the trigger (for less than 1s) will cause the set welding current to pass to second level and vice versa. Prolonged pressure on the torch trigger will halt the welding process.
2nd level: This option is for setting the values the wire speed, corresponding to the second power level, which is active when the values of the 2t-4t-4bi-level is set to 4bi.
Initial/final current: it allows to switch up (ON) or down (OFF) mode with starting/final current.
Initial current: allows setting the value at which the welding current is brought to immediately after the striking of the electric arc
Initial time: allows setting the time of the current established by the Initial Current parameter. In 4t/4bi mode this time is irrelevant and the initial current is kept for as long as the torch button is held down.
Ramp Is- > I1: allows setting the duration of the upslope of the welding current.
Ramp I1- > If: allows setting the duration of the downslope of the welding current
Final current: allows setting the value at which the welding current is brought to on completion of the downslope
Final time: allows setting the time of the current established by the Final Current parameter. In 4t/4bi mode, this time is irrelevant and the final current is kept for as long as the torch button is held down.
Spot welding: This sets the maximum welding duration (when different to 0), in seconds.
Pause: This sets the duration of the pauses (when different to 0), between two successive tacks.
Pre gas time: This sets the gas supply time before the welding current is supplied.
Post gas time: This sets the gas supply time after the welding current supply ends. 13
Burnback: This adjusts the length of the wire in

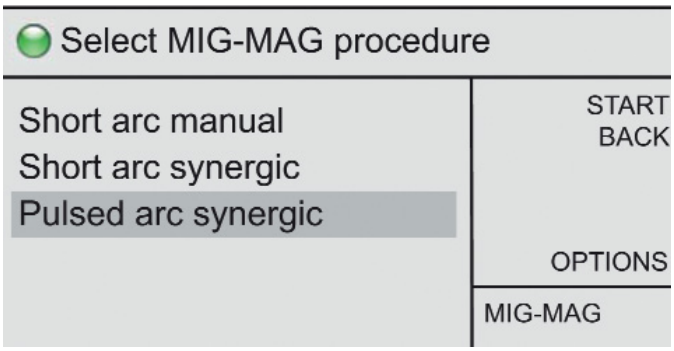
the tip of the torch, when the welding process comes to an end. Soft-start: this adjusts the contact speed of the wire, to obtain a soft weld spark; the higher the values the lower the contact speed. Hot-start: This sets the weld ignition current, in order to achieve a softer weld spark; this is generally used with the soft-start option. Water pump: When present, this turns the water system ON or OFF.

4.3 Pulse synergic MIG WELDING

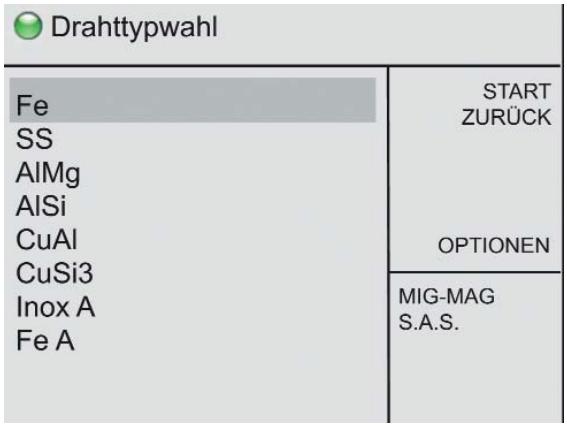
Pulse synergic MIG welding allows obtaining a relatively cold welding bead and good penetration.

The low energy input makes this welding process particularly suitable for thin layers and for materials such as stainless steel and aluminium. During welding with synergic adjustment, the wire speed (i.e. welding power) can be adjusted with knob 9 shown in Fig.1.

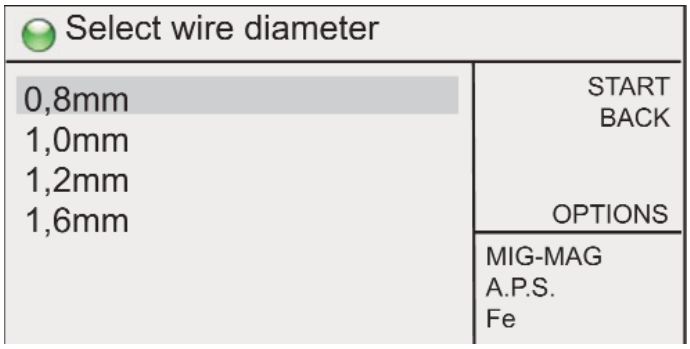
The other parameters are automatically adjusted to the set power depending on the type and diameter of the wire selected. By turning switch 10 it is possible to choose from the different MIG-MAG welding modes;press the switch to select the desired option. Once selected, the screen with the welding wire material options will appear



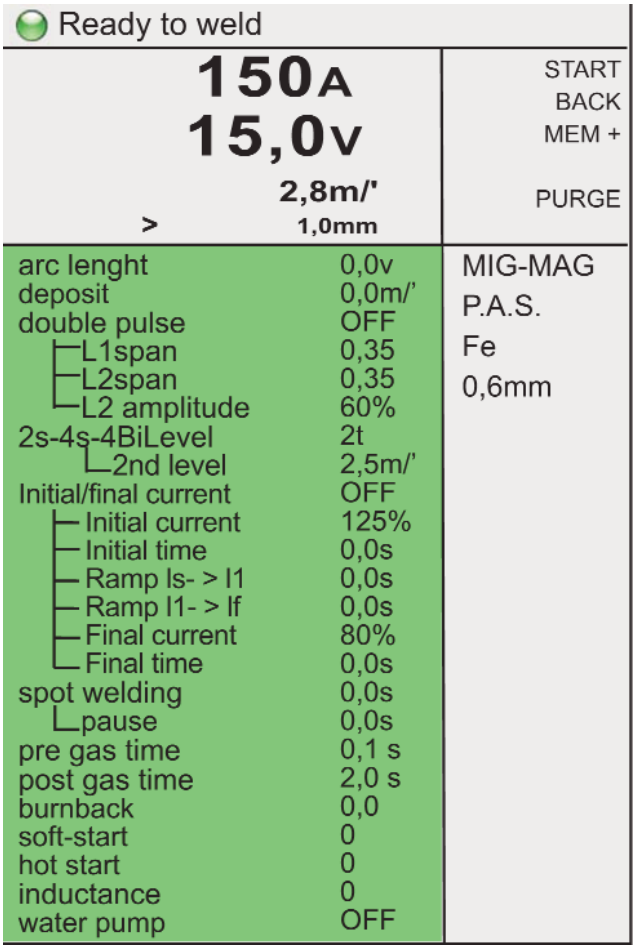
Settings that do not appear on the screen are accessible by turning switch 10.



Once the type of wire has been selected(using switch 10), the settings page for the welding wire diameter will appear. The wire's diameters could not be available for all models.



Selecting this option will take you to the welding screen:



Arc length: This changes the length of the electric weld arc with respect to the pre-set msynergic values.

Deposit: This modifies the deposit of the filler material (velocity of the wire) with respect to the pre-set synergic values.

Double pulse: This activates (ON) or deactivates(OFF) the two level option, i.e. the continuous switching between two different welding tension levels.

L1 span: When the two level mode is active the duration of the first power level can be set.
L2 span: When the two level mode is active the duration of the second power level can be set.
L2 amplitude: When the two level mode is active the second power level (L2) can be set with respect to the set power (level L1).
2t-4t-4bilevel: This function adjusts the 2 step or 4 step settings.
2t: In 2 step mode, the machine will weld for as long as the torch trigger is pressed down.
4t: : In 4 step mode, press the trigger once to start the torch, press again to stop the torch.
4Bi: In 4 step Bi- Level mode, press the trigger once to start the torch, successively, briefly pressing the trigger (for less than 1s) will cause the set welding current to pass to second level and vice versa. Prolonged pressure on the torch trigger will halt the welding process.
2nd level: This option is for setting the values the wire speed, corresponding to the second power level, which is active when the values of the 2t-4t-4bi-level is set to 4bi.
Initial/final current: it allows to switch up (ON) or down (OFF) mode with starting/final current.
Initial current: allows setting the value at which the welding current is brought to immediately after the striking of the electric arc
Initial time: allows setting the time of the current established by the Initial Current parameter. In 4t/4bi mode this time is irrelevant and the initial current is kept for as long as the torch button is held down.
Ramp Is- > I1: allows setting the duration of the upslope of the welding current.
Ramp I1- > If: allows setting the duration of the downslope of the welding current
Final current: allows setting the value at which the welding current is brought to on completion of the downslope
Final time: allows setting the time of the current established by the Final Current parameter. In 4t/4bi mode, this time is irrelevant and the final current is kept for as long as the torch button is held down.
Spot welding: This sets the maximum welding duration (when different to 0), in seconds.
Pause: This sets the duration of the pauses (when different to 0), between two successive tacks.
Pre gas time: This sets the gas supply time before the welding current is supplied.
Post gas time: This sets the gas supply time after the welding current supply ends. 13
Burnback: This adjusts the length of the wire in the tip of the torch, when the welding process comes to an end. Soft-start: this adjusts the contact speed of the wire, to obtain a soft weld spark; the higher the values the lower the contact speed. Hot-start: This sets the weld ignition current, in order to achieve a softer weld spark; this is generally used with the soft-start option.
Water pump: When present, this turns the water system ON or OFF.

WORK-PIECE THICK-NESS	WIRE DIAMETER	WELDING CURRENT	ARC
mm	mm	A	
0.8 - 1.0	0.6 - 0.8	60-100	Short-Arc
1.5 - 2.0	0.8 - 1.0	80-120	Short-Arc
2.0 - 3.0	1.0 - 1.2	100-130	Short-Arc
3.0 - 4.0	1.2	120-200	Short-Arc
> 4.0	1	150÷200	Spray-Arc
> 4.0	1.2	200÷300	Spray-Arc

5. MIG WELDING CONECTOR
The connector for the welding cables comes with a quick connect system that uses appropriate connectors.
5.1. MIG TORCH We would advise you to carry out regular controls on the condition of the welding torch;in particular, always check the nozzle the wire feeder tip and the internal liner of the torch. These parts must be kept well-cleaned and intact. If the wire stops threading correctly. replace the liner. N.B. Each wire and diameter corresponds to an appropriate wire feeder tip and liner. Always make sure you are using the correct type.

5.2 CONNECTOR FOR MIG WELDING with a traditional torch
1) Connect the earth cable to the appropriate '-' socket on the front of the device (12 of Fig 1).Insert the connector by lining up the key with the groove and turn in a clockwise direction until it stops. Do not fasten too tightly!
2) Connect the torch to the appropriate socket in the front of the device (16 di Fig 1),turning the connector in a clockwise direction until it stops. Do not fasten too tightly!

Warning: the machine is provided with sockets

for the MIG welding torch (Fig 4) This accessory has a long life-time if periodical controls of the gas nozzle and the wire feeder tip are carried out (Fig 4A) (Fig 4B).These parts must be kept well-cleaned and intact. Replace the wire liner when the wire no longer threads correctly.

5.3 CONNECTOR FOR MIG WELDING with a Spool or Push-Pull torch

1) Connect the earth cable to the appropriate '-' socket. (12 of figure 1). Insert by lining up the key with the groove and turn in a clockwise direction until it stops. Do not fasten too tightly!

2) Connect the torch to the appropriate socket on the front of the device (16 of Fig 1),turning in a clockwise direction until it stops. Do not fasten too tightly!

3) Insert the connector of the torch into the appropriate female socket.

MIG WELDING: Connect the pressure regulator to the cylinder, after which attach the gas tube of the torch to the latter. MIG welding is usually carried out with a constant current, with a positive pole ("+ "see fig.5).

The MIG torch cable is connected to the Euroconnector(16 offig.1), whilst the earth cable of the work piece is connected to the '-'socket on the front(12 di fig.1).

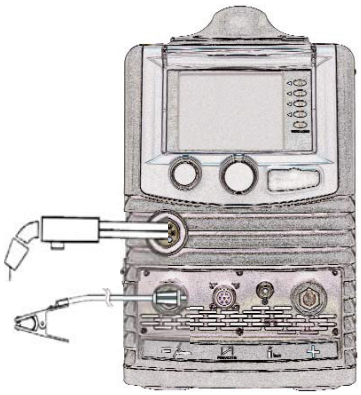
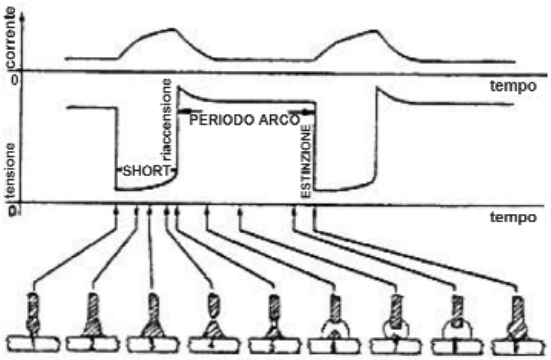


Fig.5

At this stage adjust the welding current using the potentiometer (9 of Fig.1), situated on the front panel. The diameter of the electrode and the welding current settings must be selected according to the thickness of the workpiece.

6. STRIKING AN ARC IN MIG WELDING The MIG-MAG welding process is when an electric arc is created between a consumable wire and the workpiece, protected within a gas atmosphere. This atmosphere can be either inert (Argon) or active (CO_2 or a mixture of Argon and CO_2).The wire is continuously fed through a torch by a wire feeder to the weld pool. A solid wire or flux-cored wire can be used. The transfer methods of the filler material define different arc types:

SHORT ARC (short-circuit transfer):this brings the electrode into direct contact with the weld pool, which creates a short-circuit that extinguishes the arc, after which the arc reignites and the cycle is repeated.



SPRAY ARC (spray transfer):
this allows the droplets to detach from the tip of the electrode, which successively reach the weld pool.
The fact the arc is visible, reduces the need for the operator to strictly observe the adjustment tables, allowing for direct control of the welding pool.

. - the tension directly influences the appearance of the welding seam, but the dimensions of the welding surface can be varied, according to requirements, by manual movement of the torch to obtain variable deposits with a constant tension.

- the speed of the movement of the wire is in relation to the welding current.

7. ADJUSTING THE WELDER

Once the welding tension has been set, maintain the length of the electric arc between 5 and 10 mm and adjust the wire speed to achieve the best welding results. Initially, carry out a welding test on a well-cleaned sample, free of any coating, rust or paint.

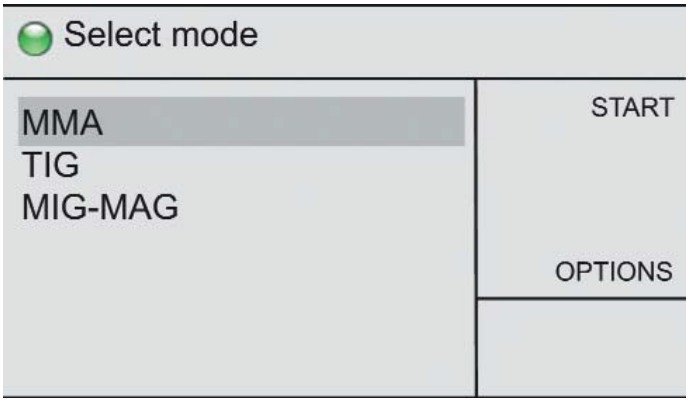
NOTE The torch trigger controls the following functions:

- gas flow
- wire movement
- welding current

8. HOW TO ACHIEVE THE BEST WELDING RESULTS

Hold the torch at an angle of 45° from the workpiece. Keep the gas nozzle (Fig. 4A) at a distance of approximately 6 mm from the workpiece.
2. Move the torch with a continuous movement, using a push, not pull, motion. This will guarantee the gaseous shield of the arc.
3. Avoid welding in high winds. If the wind is too strong it could carry the gas away from the welding pool, creating a porous (weak) weld.
4. Keep the wire clean: never use rusty wire.
5. Make sure the torch cable is free of dents or coils, which could compromise the correct movement of the wire.
6. When changing the wire spool, always clean the wire feed tube with compressed air.

9. MMA WELDING To select this welding mode, use switch 10, select MMA and press confirm.

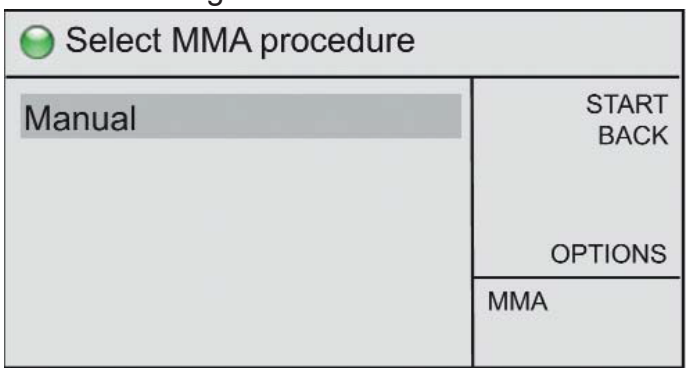


Electric arc welding with a covered MMA (Metal Manual Arc) electrode or SMAW (Shielded Metal Arc Welding) is a manual welding procedure that takes advantage of the heat generated by the electric arc, which strikes between a covered earthed electrode and the workpiece. This procedure allows for the creation of joints in any position, in the workshop, outdoors, in confined areas or places that are difficult to access.
With the DP231C it is possible to weld any type of electrode and diameter. The spark of the arc occurs by placing the electrode close to the workpiece. The correct connection of the electrode clamp holder and the earth cable can be seen in the table below:

WELDING PROCESS	Front Socket + 14 di Fig.1	Front Socket - 12 di Fig.1
MMA	ELECTRODE CLAMP HOLDER	EARTH CABLE

Always make sure that the earth and the electrode clamp holder are kept far apart.

9.1 MMA WELDING Manual This mode can be accessed using switch 10.



Selecting this option will take you to the welding screen: Switch 9 in fig. 1 adjusts the welding current (very thick workpieces require a higher current).

Furthermore, switch 10 adjusts the parameters shown in the figure below:

Arc Force: This sets the current increase ratio in relation to the welding current, that the welder can force, in order to keep the arc appropriately ignited in any position.
Hot Start: This sets the current increase ratio in relation to the welding current, that the welder can force when the arc is ignited, to improve the quality of the same.
Hot start span: This sets the time period when the jot start current is forced.
Remote: This switches the remote control (which connects to socket 13 of fig.1) of the current intensity ON or OFF.

10 WELDING TABLE Use the table below to calculate the welding current, according to the type of electrode used:

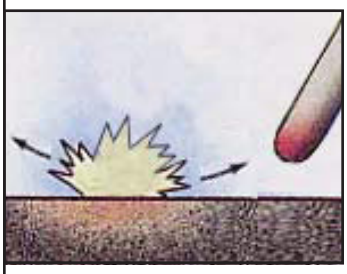
ELECTRODE DIAMETER	WELDING CURRENT	ELECTRODE LENGTH
mm	A	mm
2.0	45-60	300
2.5	60-100	300
3.25	90-140	450
4.0	140-170	450
5.0	190-230	450

11. CONNECTION FOR MMA WELDING

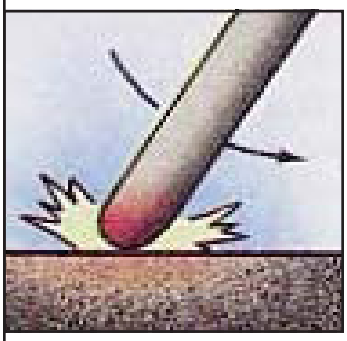
The Dinse connector is inserted by lining-up the key with the groove and turning the connector in a clockwise direction until it stops. The electrode clamp holder and earth must be connected to the '+' and '-' terminals, according to the specifications of the electrodes used.

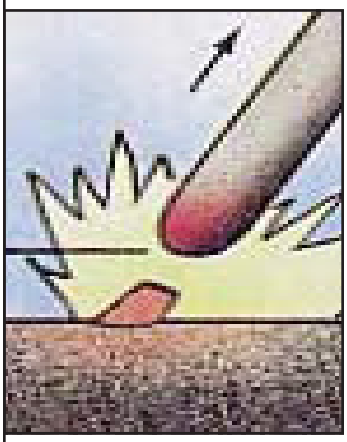
. IGNITING THE MMA ARC

welding. 4Bi:

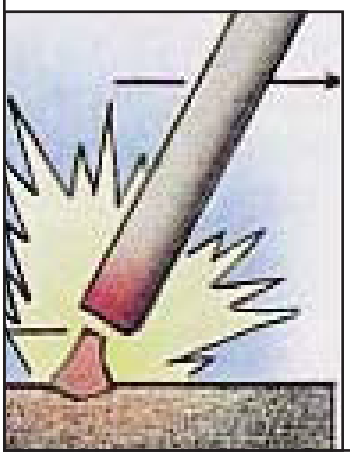


Create the contact for igniting the arc at a distance of approximately 5 cm from the initial welding point. Immediately move the electrode towards the workpiece, without touching it, in order to keep the arc ignited.





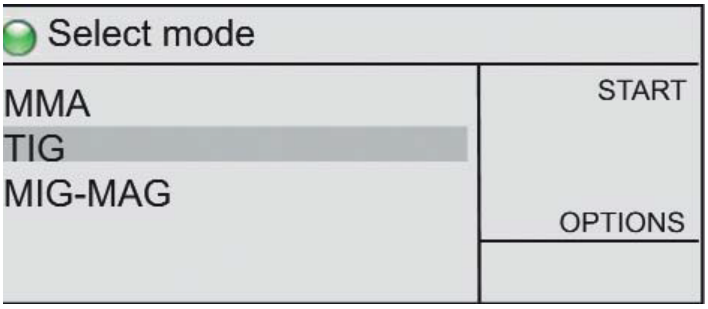
Quickly bring the electrode, without turning off the arc, towards the point where the welding seam will begin.



Begin welding, advancing slowly. The distance between the tip of the electrode and the workpiece must be as identical as possible to the diameter of the electrode in use. process; press the button again to stop

This is carried out by stopping a while over the last crater (i.e. the end of the welding seam), returning slowly on the previously deposited seam for approximately two centimetres and, only at this point, moving the electrode away from the workpiece to turn off the arc.

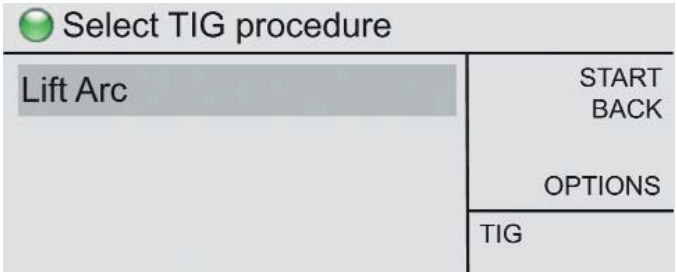
13. TIG WELDING To select this welding mode : turn switch 10, select TIG and press confirm.



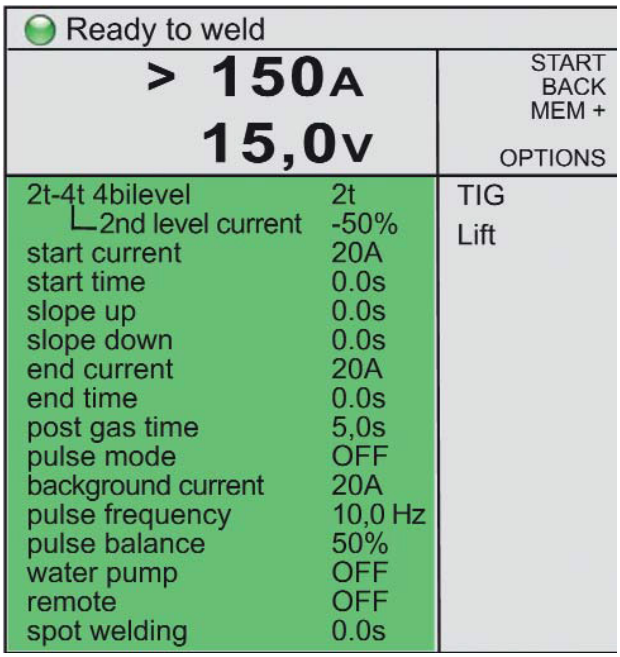
Inert gas (Argon) welding with an infusible Tungsten electrode and arc (often call TIG (Tungsten Inert Gas) for short, is a welding procedure whereby the heat is produced by an arc that strikes between a tungsten electrode (which is not consumable) and the workpiece. The welding is carried out by fusing the edges of the workpiece or by adding other filler material using specific types of rod to create a joint. The torch is ignited by touching the workpiece with the electrode and then lifting. The TIG procedure can be adapted to any work position and can also be applied to very thin sheets of metal (0,2-0,3 mm). The TIG procedure is distinguished by the ease with which the arc can be controlled, a powerful and concentrated thermal source and the simple manner in which the filler material can be controlled. This makes the TIG procedure particularly suitable for precision welding on a wide variety of thicknesses, in difficult positions and on pipes which require full penetration. The TIG procedure can be used on various types of metals, such as, ferrous materials, alloys, nickel, copper, titanium, magnesium. During welding, potentiometer 9 in fig. 1, for example, regulates the welding current. The correct connection of the torch and earth cable is shown in the following table:

WELDING PROCESS	Front socket + 14 di Fig.1	Front socket - 12 di Fig.1
TIG	CAVO MASSA	CAVO TORCIA

13.1 TIG WELDING (Lift-Arc) Button 9 controls the current and the machine power.



Select this option and the welding screen will appear:



Make sure that the pulse setting is switched off. If not, use the menu and set the option PULSE to OFF, as shown in the above figure. During welding it is possible to adjust the current using button 9 in fig. 1. Both the welding current values and the relative arc tension used will be displayed continually on the screen.

ADJUSTMENTS AND SETTINGS:
Button 10 adjusts the welding settings on the screen: prolonged pressure on the torch trigger will stop the welding process.
2t-4t-4bilevel: This function sets the 2 tempi or 4 tempi mode.
2t: In 2 tempi mode, the machine welds for the entire time the torch trigger is pressed down.
4t: In 4 step mode, pressing the torch trigger once starts the welding process; press the button again to stop welding.
4Bi: In 4 step Bi-Level mode, press the torch trigger once to start welding. Successively, brief pressure on the trigger (less than 1s) makes the

initial current settings.
slope up: This sets the upslope of the welding current.
slope down: This sets the duration of the down-slope time of the welding current.
end current: this sets the values of the welding current on completion of the downslope.
end time: This sets the time period when the current established in the end current settings is applied.
post gas time: This sets the gas supply time at the end of the supply of the welding current.
pulse mode: This allows for the activation (ON) or deactivation (OFF) of the pulse welding mode; when the pulse welding mode is active, for a certain period of time, the machine will supply the welding current and for another period of time the current defined in the I background settings will be supplied. The number of current pulses for a set period of time are based on the values of the frequency settings.
background current: This sets the base current used during pulse mode.
pulse frequency: This sets the pulse frequency when pulse welding mode is active.
pulse balance: When pulse welding mode is active, this sets the ratio between the time the welding current and the base current is applied.
water pump: Where present, this turns the water system ON or OFF.
remote: This turns the remote control of the current intensity supplied ON or OFF.
spot welding: This sets the maximum welding duration (if different to 0), in seconds.

14. CONNECTOR FOR TIG WELDING

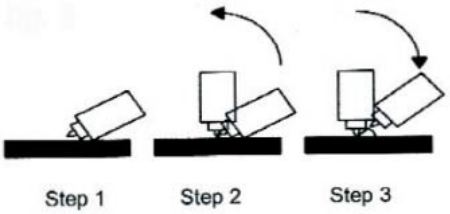
1) Connect the earth cable to the appropriate '+' socket on the front of the device (18 of fig 1). Insert by lining-up the key with the groove and turn in a clockwise direction until it stops. Do not fasten too tightly!
2) Connect the torch to the appropriate '-' socket on the front of the device (17 of fig 1).
3) Insert by lining-up the key with the groove and turn in a clockwise direction until it stops. Do not fasten too tightly!
4) Insert the torch pulse signal connector into the socket (part 2 of the display);

TIG WELDING: Before connecting the gas make sure the cylinder contains pure Argon gas. Never use any other type of gas. Connect the pressure regulator to the cylinder, after which, connect the latter to the gas tube of the torch. TIG welding is usually carried out with a constant current, with a negative pole ('-' see fig.6).

The cable of the TIG torch is then inserted into the negative socket (12 of fig.1), whilst the earth cable of the workpiece is connected to the positive socket. (14 of fig.1). At this stage it is possible to adjust the welding current using the potentiometer (9 of fig. 1) on the front panel.

The diameter of the electrode and the welding current settings must be selected according to the thickness of the workpiece.

15. IGNITION OF THE TIG ARC Rest the ceramic of the TIG torch on the workpiece (step 1 of fig.7); bring the tungsten electrode into contact with the workpiece, then press the torch trigger, whilst moving in a circular motion where the ceramic is positioned (see step 2 of fig.7).

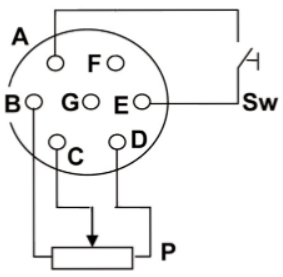


At this stage, ignite the arc by moving the electrode away from the workpiece a few millimetres (step 3 of fig.7). While maintaining the same distance from the weld pool, whilst keeping the torch trigger held down. Release the button to interrupt the welding process.

16.POWER CONNECTOR

Before connecting the machine check the tension, number of phases and the power supply frequency. The admissible power supply is indicated in the 'Specific Techniques' section on page 5 of this manual and on the information plate on the machine. Check that the earth of the welder has been connected correctly. Furthermore, make sure that the plug provided with the equipment is compatible with the local grid sockets. Make sure that the power supply provides sufficient power for the machine to function (tension ranges) The power supply grid protection devices to be used are listed in the 'Specific techniques' section of the present manual. The machine is provided with a specific power cable that does not usually require an extension lead; in the event an extension lead is required, use one of the same capacity [length? sezione?] or higher than the machine in use, according to the length of the cable. A 2.5 mm² three-pole cable + earth, of the same size or larger.

17. REMOTE CONNECTION Figure 8 shows the connections of the remote connector (13 of fig 1).



Where: Sw is the torch trigger
P is the potentiometer for controlling the current.

17.1 REMOTE CONTROL OF THE WELDING CURRENT With remote connector 13 in Fig. 1, it is possible to adjust the current near to the point where the welding is being carried out. To do so, it is necessary to create a connection with potentiometer P, shown in figure 8. The value of the potentiometer is not a critical factor: between 2.2kOhm and 10kOhm 1/2W can be used.

Turn the potentiometer and select the welding current in a range between zero and the set value.

18. CONNECTING THE OUTPUTS
Connection of the welding cables occurs via a Dinse quick-connect system with appropriate connectors.

19. CONNECTING THE GAS CYLINDER AND THE GAS REGULATOR For TIG and MIG welding only. For MMA welding, skip this paragraph entirely.

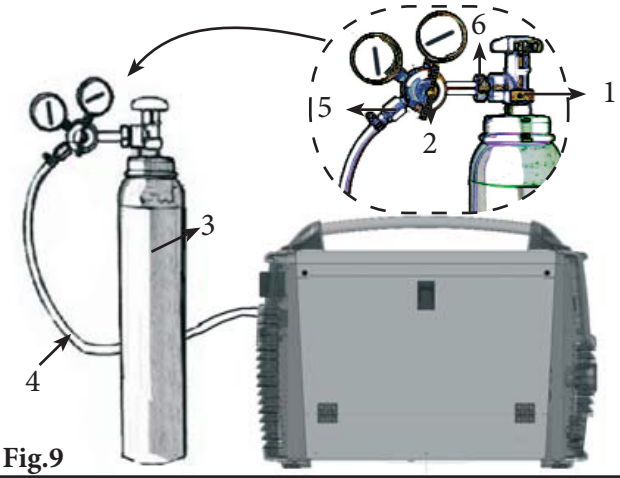


Fig.9

1. Connect the pressure regulator (2) to the cylinder (3). Make sure the regulator is suitable for the cylinder pressure. Attach the connector nut (6) of the regulator (2) to the cylinder (3). (Do not screw too tightly; excessive force could damage the valve (1) of the cylinder (3).)
2. Connect the gas tube (4) to the regulator (2) and secure with a cable tie (5).
3. Make sure that the gas tube is connected to the welder correctly.

Inappropriate handling and use could cause serious accidents. Never stack the cylinders or expose to excessive heat, flames or sparks. Do not bash the cylinders together. Contact your supplier for further information on the use and maintenance of the cylinders.

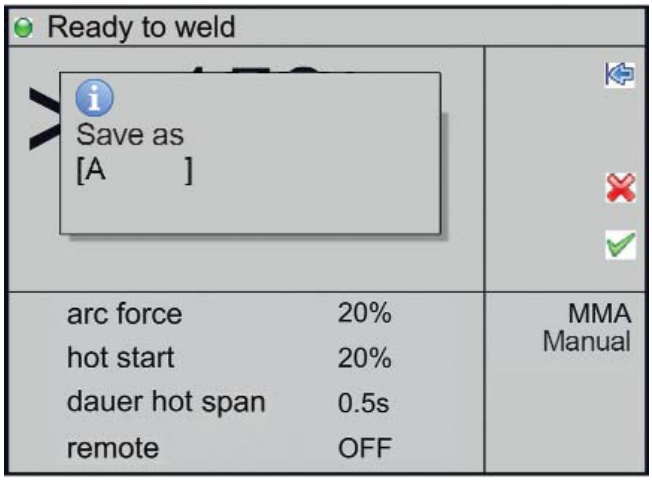
Warning: Never use damaged cylinders: in this case, advise your supplier immediately.

20. ORDINARY MACHINE MAINTENANCE Every three months periodically remove dust from the suction nozzle using compressed air. Always direct the air from the inside towards the outside of the machine to avoid blowing dirt inside the welder. When carrying out this operation, always make sure the machine is not connected to the power supply.

22. MEMORISING THE WORK POINT As illustrated in the previous paragraphs, the welder allows for a notable personalisation of the work point (when used both manually and synergically). The work point for a workpiece can be saved in the memory and rapidly recalled at a later date. To save a work point follow the instructions below:

1. Select ready to weld on the display.
2. Set the appropriate parameters for the welding mode required.

3- Press the MEM+ button (4 of fig 1).
4- Turn switch 10 (fig 1), chose the first letter of the name with which you want to save the work point.



5- Press switch 10 to confirm the selected letter.
6- Repeat steps 2 and 3 to complete the name.
7- Confirm the name by pressing the TICK button again . From this moment onwards the work point will be memorised with its own name and displayed with the other welding procedures.

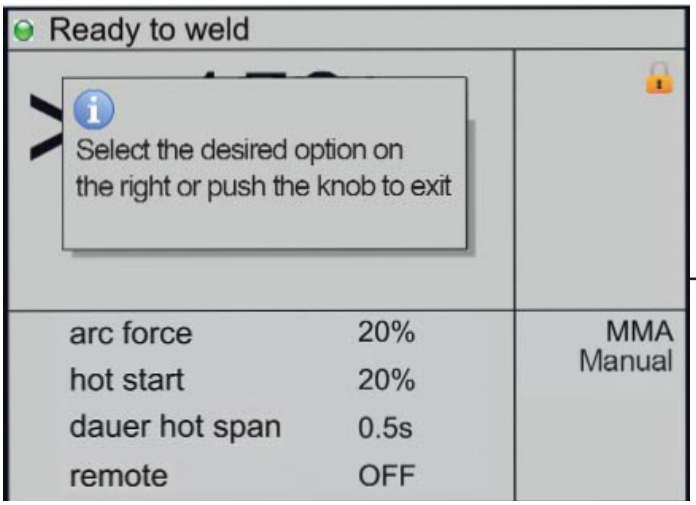
Meaning of the back :

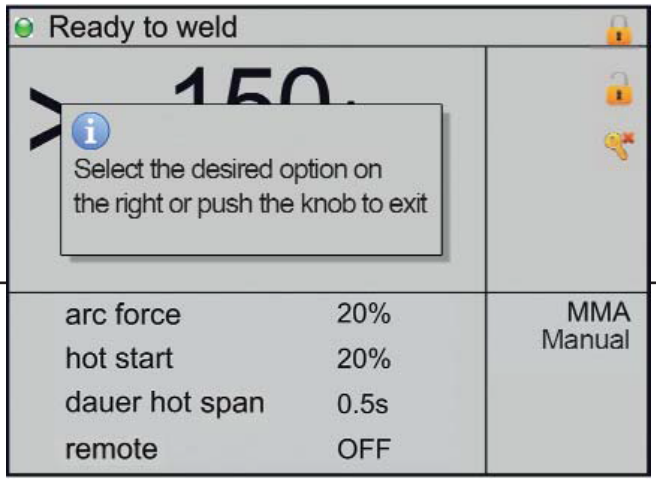
 sp button: cancels the previous letter inserted.

 Cancel: cancels the operation.

 OK: confirms the name of the work point

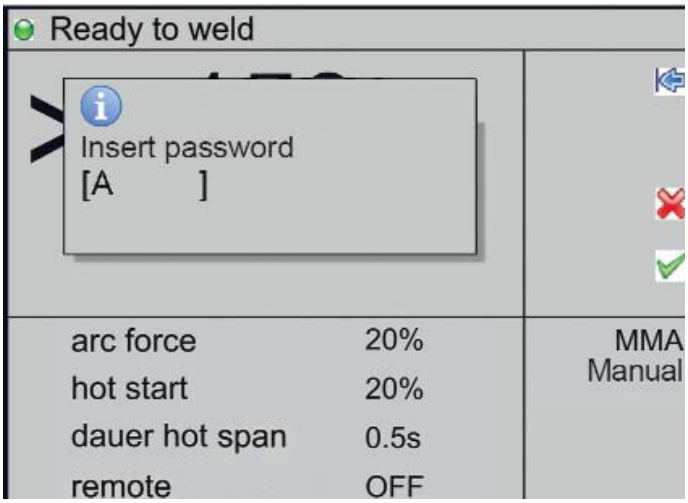
. 23. LOCKING A WORK POINT
The welder can lock the functions of switch 9 and 10, so that once a work point has been saved it cannot be changed, unless modified by a member of staff with a password, which can be defined at the discretion of the user. To proceed with locking a work point, it is necessary to first enter the necessary parameters for the required welding settings. Once this has been done, proceed as follows:
1. Press switch 9 of fig. 1 for approximately 5 seconds; the message in Fig. A will appear.





After which, select button 1 of fig. A, with the name ‘Lock’ on the black and white display and the symbol for the colour display.

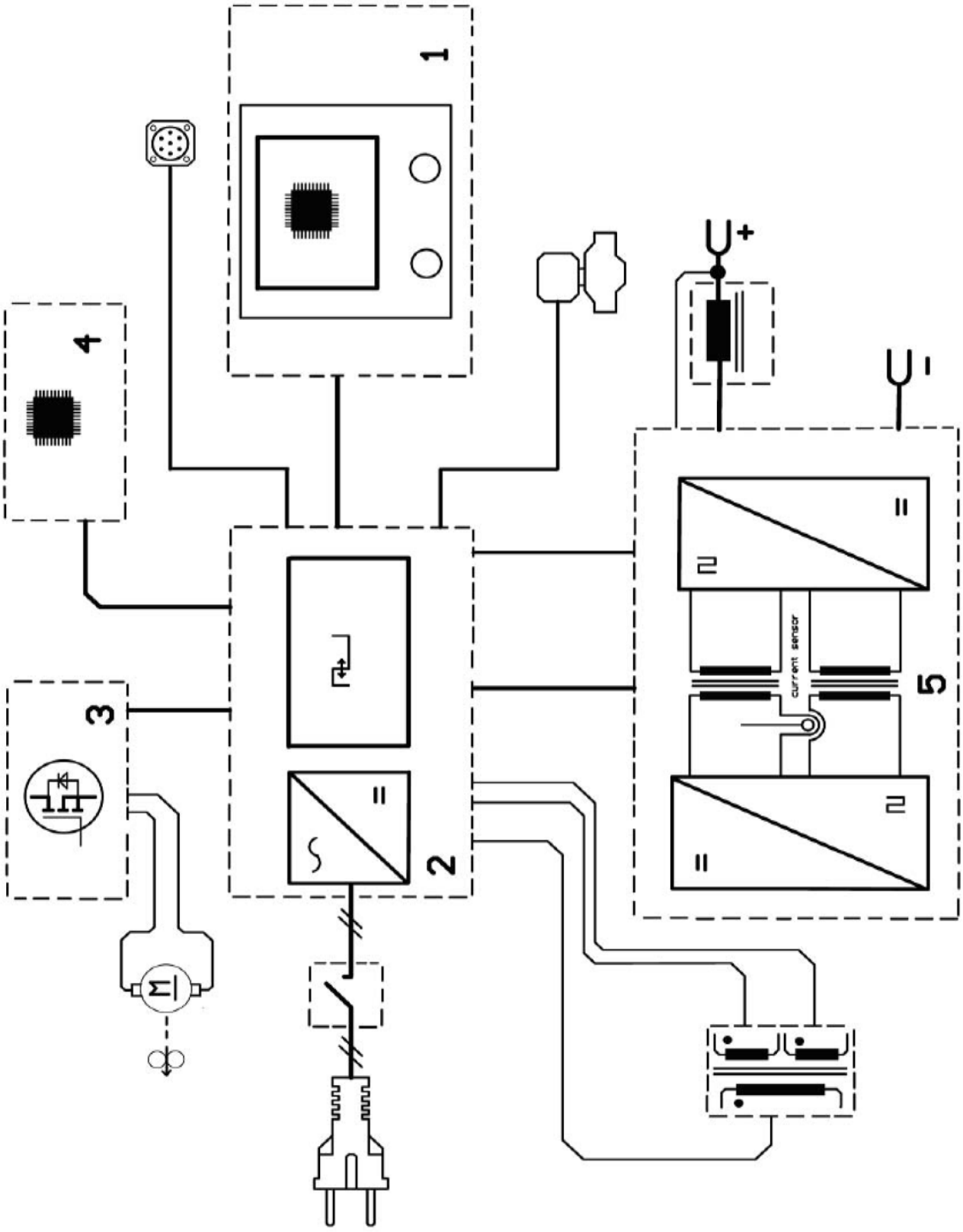
2. You will then be asked to enter the password, which must be kept safe to make future modifications of the work point, should the need arise.



To enter the password, proceed as follows:
1- Turn switch 10 (fig 1) and select the first letter of the password.
2- To confirm the selection press switch 10.
3- Repeat steps 2 and 3 to complete the password.
4- Confirm by pressing the switch again. Fig.A Fig.B 24
3. Once the password has been confirmed the display will show the message in Fig. C, a lock symbol in the area 1 of the display and the functions Unlock and Reset pw (reset password) which correspond to buttons 2 and 3 (fig. 1) respectively, in area 2 of the display;

4. To exit the lock option of the work stage, briefly press switch 9 in fig. 1;
5. Should the need to modify the work stage arise, activate the ‘Unlock’ option by pressing the function button. The unlock function will require the user to enter the password that was set and activated as described above.
6. The reset password option can be activated by pressing the (Reset pw) button.

WARNING: The Reset Password option should only be used when there is no way of tracing the work stage and when the Lock/ Unlock password has been lost. To use this function contact the constructor technical support department directly.



1. Control panel
2. Power control board
3. Motor control board
4. Welding process control panel
5. Power Inverter
6. Auxiliary transformer

EC declaration of conformity

Hereby we declare that the machines as stated below

Type: DP231C

Conform to the EC Directives: 73/23/EEC and 89/336/EEC

European standard: EN/IEC 60974-1

This is to certify that the tested sample is in conformity with all provisions of the above detailed EU directives and product standards.

RoHS Compliance Declaration

Directive 2002/95/ec of the European Parliament

Restriction of use of certain hazardous substances in electrical and electronic equipment

Type: DP231C

The above listed products are certified to be compliant with the rohs directive with all homogeneous component parts being controlled to ensure material contents as per the list below.

Cadmium 0.01% by weight
Lead 0.1% by weight
Mercury 0.1% by weight
Hexavalent chromium 0.1% by weight
Polybrominated biphenyl's (pbbs) 0.1% by weight
Polybrominated diphenyl ethers (pbdes) 0.1% by weight

It should be noted that under specific exempted applications, where lead is used as an alloying element the following limits are applied in accordance with the regulations.

Copper and copper alloy parts use less than 4% by weight of each homogeneous component.

Steel and steel alloy parts use less than 4% by weight of each homogeneous component.

Aluminium and aluminium alloy parts use less than 4% by weight of each homogeneous component.

Only dispose off in authorised sites for electrical and electronic waste do not dispose of with general refuse or landfill waste.

WEEE Statement

WEEE (Waste Electrical & Electronic Equipment) 2002/96/EC

In relation to implementing the legislation, Parweld has established relevant recycling and recovery methods. We have been fully compliant against the marking requirements since August 2005. Parweld is registered in the UK with the Environment agency as detailed below. For WEE compliance outside the UK please contact your supplier/Importer

Parweld is registered with a compliance scheme Official registration number is WEE/FD0255QV

When your equipment reaches the end of its service life you should return it to Parweld where it will be reconditioned or processed for recycling.

Statement of warranty

Limited Warranty:

Parweld Ltd, hereafter, “Parweld” warrants its customers that its products will be free of defects in workmanship or material. Should any failure to conform to this warranty appear within the time period applicable to the Parweld products as stated below, Parweld shall, upon notification thereof and substantiation that the product has been stored, installed, operated, and maintained in accordance with Parweld’s specifications, instructions, recommendations and recognized standard industry practice, and not subject to misuse, repair, neglect, alteration, or accident, correct such defects by suitable repair or replacement, at Parweld’s sole option, of any components or parts of the product determined by Parweld to be defective.

Parweld makes no other warranty, express or implied. This warranty is exclusive and in lieu of all others, including, but not limited to any warranty of merchantability or fitness for any particular purpose.

Limitation of Liability:

Parweld shall not under any circumstances be liable for special, indirect or consequential damages, such as, but not limited to, lost profits and business interruption. The remedies of the purchaser set forth herein are exclusive and the liability of Parweld with respect to any contract, or anything done in connection therewith such as the performance or breach thereof, or from the manufacture, sale, delivery, resale, or use of any goods covered by or furnished by Parweld whether arising out of contract, negligence, strict tort, or under any warranty, or otherwise, shall not, except as expressly provided herein, exceed the price of the goods upon which such liability is based. No employee, agent, or representative of Parweld is authorized to change this warranty in any way or grant any other warranty.

Purchaser’s rights under this warranty are void if replacement parts or accessories are used which in Parweld’s sole judgement may impair the safety or performance of any Parweld product.

Purchaser’s rights under this warranty are void if the product is sold to purchaser by non-authorized persons.

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