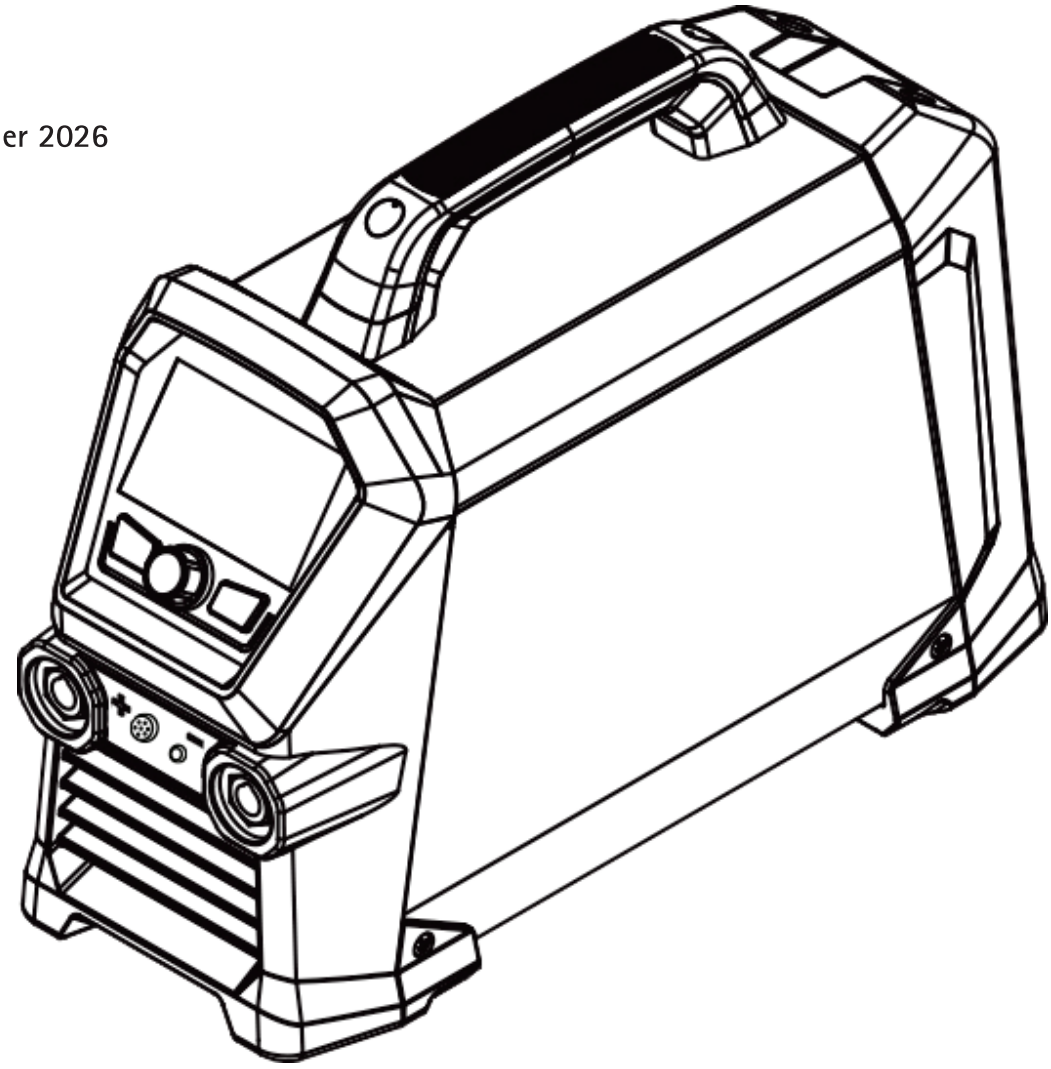
böhler
welding by voestalpine

Lasting Connections

CORE 185 TIG

reddot winner 2026



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ENGLISH. 7
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Lasting Connections

CORE 185 TIG

USER MANUAL

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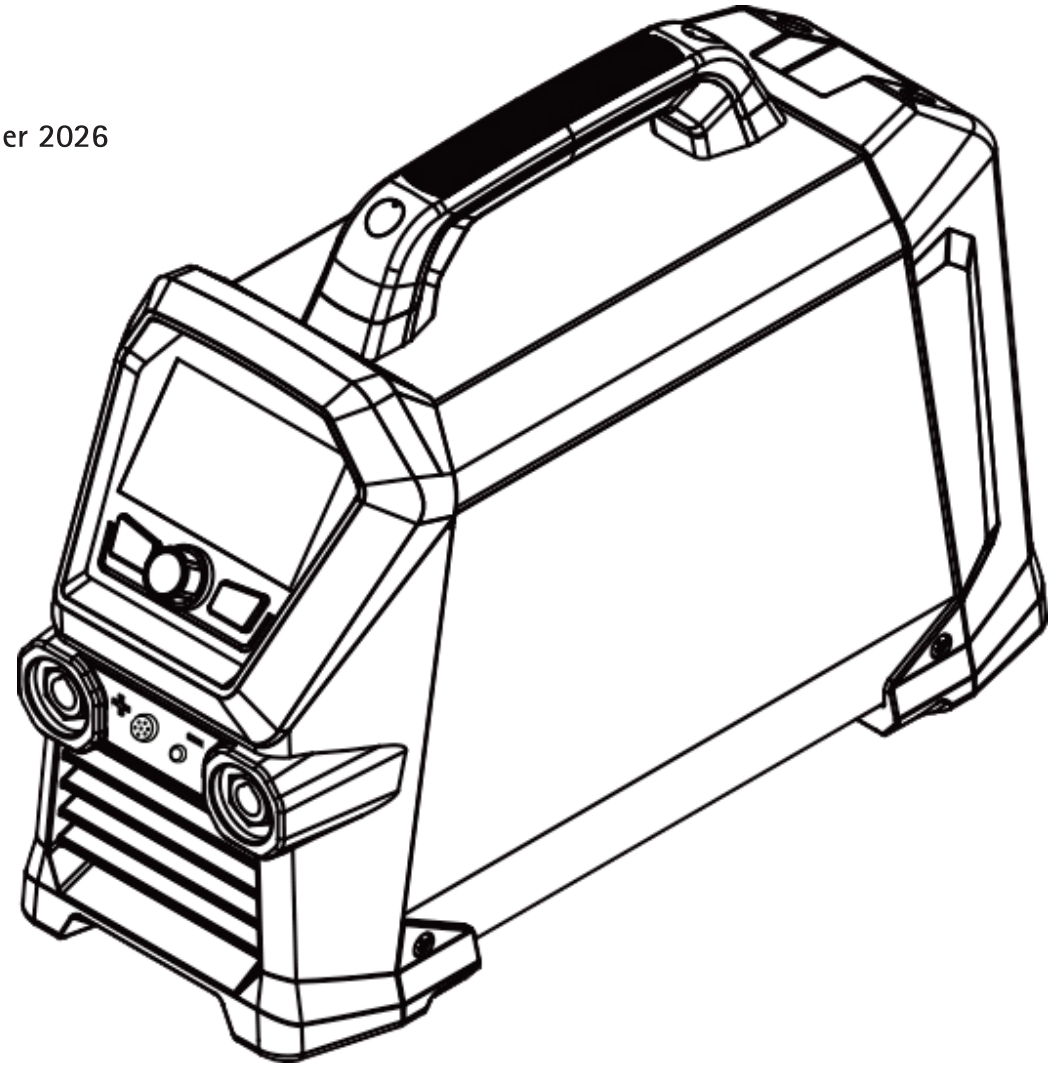

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ONE STEP AHEAD.

Code 91.08.611 Date 08/05/2026 Rev. A

91.08.611
08/05/2026
Rev. A

CORE 185 TIG

UKCA - DECLARATION OF CONFORMITY

The builder
voestalpine Böhler Welding Arc Technology S.r.l.
Via Palladio, 19 - 35019 Onara di Tombolo (PD) - ITALY
Tel. +39 049 9413/111 - Fax +39 049 9413/311 - www.voestalpine.com/welding

declares under its sole responsibility that the following product:

CORE 185 TIG **55.27.001**

is in conformity with the relevant UK Statutory Instruments (and their amendments):

2017 No. 1206 Radio Equipment Regulations 2017

2012 No. 3032 The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012

2021 No. 745 The Ecodesign for Energy-Related Products and Energy Information Regulations 2021

References to the relevant designated standards used or references to the other technical specifications in relation to which conformity is declared:

EN 50445:2008
EN IEC 63000:2018
EN IEC 60974-1/A1:2019 WELDING POWER SOURCE
EN IEC 60974-3:2019 ARC STRIKING AND STABILIZING DEVICES
EN 60974-10/A1:2015 ELECTROMAGNETIC COMPATIBILITY REQUIREMENTS
EN IEC 62311:2008
EN IEC 62368-1:2014 + A11:2017
ETSI EN 301 489-1 v2.2.3 (2019-11)
ETSI EN 301 489-17 v3.3.1 (2024-09)
ETSI EN 300 328 v2.2.2 (2019-07)

The documentation certifying compliance with the directives will be kept available for inspection at the aforementioned manufacturer.

Any operation or modification that has not been previously authorized by **voestalpine Böhler Welding Arc Technology S.r.l.** will invalidate this certificate.

Onara di Tombolo, 08/05/2026

voestalpine Böhler Welding Arc Technology S.r.l.

Mirco Frasson **Pawel Dawid Lipinski**

Managing Directors

EN

EU DECLARATION OF CONFORMITY

The builder
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declares under its sole responsibility that the following product:

CORE 185 TIG **55.27.001**

conforms to the EU directives:

2014/53/EU RED DIRECTIVE
2011/65/EU + 2015/863/EU RoHS DIRECTIVE
2019/1784/EU EcoDesign
2009/125/EU EcoDesign

and that following harmonized standards have been duly applied:

EN IEC 60974-1/A1:2019 WELDING POWER SOURCE
EN IEC 60974-3:2019 ARC STRIKING AND STABILIZING DEVICES
EN 60974-10/A1:2015 ELECTROMAGNETIC COMPATIBILITY REQUIREMENTS
EN 50445:2008
EN IEC 63000:2018
EN IEC 62311:2008
EN IEC 62368-1:2014 + A11:2017
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voestalpine Böhler Welding Arc Technology S.r.l.

Mirco Frasson **Pawel Dawid Lipinski**

Managing Directors

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 Warning

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 Mandatory

 General conditions

EN

1. WARNING LABEL

1.1 Protection from electrical shock

Electric shocks can kill you.

- Avoid touching live parts both inside and outside the welding system while this is active (torches, guns, earth cables, electrodes, wires, rollers and spools are electrically connected to the welding circuit).
- Make sure that the welding system and the welder are electrically isolated by using dry bases and floors that are adequately isolated from earth.
- Ensure the system is connected correctly to a socket and a power source equipped with an earth conductor.
- Do not touch two torches or two electrode holders at the same time.
- If you feel an electric shock, interrupt the welding operations immediately.

The arc striking and stabilizing device is designed for manual or mechanically guided operation.

Increasing the length of torch or welding cables more than 8 m will increase the risk of electric shock.

1.2 Protection against fumes and gases

Fumes, gases and powders produced during the welding process can be noxious for your health.

Under certain circumstances, the fumes caused by welding can cause cancer or harm the foetus of pregnant women.

- Keep your head away from any welding gas and fumes.
- Provide proper ventilation, either natural or forced, in the work area.
- In case of poor ventilation, use masks and breathing apparatus.
- In case of welding in extremely small places the work should be supervised by a colleague standing nearby outside.
- Do not use oxygen for ventilation.
- Ensure that the fumes extractor is working by regularly checking the quantity of harmful exhaust gases versus the values stated in the safety regulations.
- The quantity and the danger level of the fumes depends on the parent metal used, the filler material and on any substances used to clean and degrease the pieces to be welded. Follow the manufacturer's instructions together with the instructions given in the technical data sheets.
- Do not perform welding operations near degreasing or painting stations.
- Position gas cylinders outdoors or in places with good ventilation.

1.3 User's and other persons' protection

The welding process is a noxious source of radiation, noise, heat and gas emissions.

Position a fire-retardant shield to protect the surrounding welding area from rays, sparks and incandescent slags.

Advise any person in the area of welding not to stare at the arc or at the incandescent metal and to get an adequate protection.

Avoid touching items that have just been welded: the heat could cause serious burning or scorching.

Follow all the precautions described above also in all operations carried out after welding since slag may detach from the items while they are cooling off.

Wear masks with side face guards and a suitable protection filter (at least NR10 or above) for the eyes.

EN

1.4 Prevention when using gas cylinders

Inert gas cylinders contain pressurized gas and can explode if the minimum safe conditions for transport, storage and use are not ensured.

- Cylinders must be secured in a vertical position to a wall or other supporting structure, with suitable means so that they cannot fall or accidentally hit anything else.
- Screw the cap on to protect the valve during transport, commissioning and at the end of any welding operation.
- Do not expose cylinders to direct sunlight, sudden changes of temperature, too high or extreme temperatures. Do not expose cylinders to temperatures too low or too high.
- Keep cylinders away from naked flames, electric arcs, torches or electrode guns and incandescent material sprayed by welding.
- Keep cylinders away from welding circuits and electrical circuits in general.
- Keep your head away from the gas outlet when opening the cylinder valve.
- Always close the cylinder valve at the end of the welding operations.
- Never perform welding operations on a pressurized gas cylinder.
- A compressed air cylinder must never be directly coupled to the machine pressure reducer! Pressure might exceed the capacity of the reducer which could consequently explode!

1.5 Electromagnetic fields and interferences

The current passing through the internal and external system cables creates an electromagnetic field in the proximity of the welding cables and the equipment itself.

- Electromagnetic fields can affect the health of people who are exposed to them for a long time (the exact effects are still unknown).
- Electromagnetic fields can interfere with some equipment like pacemakers or hearing aids.
- Persons fitted with pacemakers must consult their doctor before undertaking arc welding operations.

1.6 Fire/explosion prevention

The welding process may cause fires and/or explosions.

- Clear the work area and the surrounding area from any flammable or combustible materials or objects.
- Flammable materials must be at least 11 metres (35 feet) from the welding area or they must be suitably protected.
- Sparks and incandescent particles might easily be sprayed quite far and reach the surrounding areas even through minute openings. Pay particular attention to keep people and property safe.
- Do not perform welding operations on or near containers under pressure.
- Do not perform welding or cutting operations on closed containers or pipes. Pay particular attention during welding operations on pipes or containers even if these are open, empty and have been cleaned thoroughly. Any residue of gas, fuel, oil or similar materials might cause an explosion.
- Do not weld in places where explosive powders, gases or vapours are present.
- Do not cut in places where explosive powders, gases or vapours are present.
- When you finish welding, check that the live circuit cannot accidentally come in contact with any parts connected to the earth circuit.
- Position a fire-fighting device or material near the work area.

2. WARNING

Before performing any operation on the machine, make sure that you have thoroughly read and understood the contents of this booklet. Do not perform modifications or maintenance operations which are not prescribed. Do consult qualified personnel for any doubt or problem concerning the use of the machine, even if not described herein.

Do not perform modifications or maintenance operations which are not prescribed. The manufacturer cannot be held responsible for damages to persons or property caused by misuse or non-application of the contents of this booklet by the user.

The operating instructions must always be at hand wherever the device is being used. In addition to the operating instructions, attention must also be paid to any generally applicable and local regulations regarding accident prevention and environmental protection.

voestalpine Böhler Welding Arc Technology S.r.l. reserves the right to modify this booklet at any time without notice.

The directions provided herewith are of vital importance and therefore necessary to ensure the warranties.

The manufacturer accepts no liability in case of misuse or non-application of the directions by the users.

All persons involved in commissioning, operating, maintaining and servicing the device must:

- be suitably qualified
- have sufficient knowledge of welding
- read and follow these operating instructions carefully

Please consult qualified personnel if you have any doubts or difficulties in using the equipment.

2.1 Work environment

All equipment shall be used exclusively for the operations for which it was designed, in the ways and ranges stated on the rating plate and/or in this booklet, according to the national and international directives regarding safety. Other uses than the one expressly declared by the manufacturer shall be considered totally inappropriate and dangerous and in this case the manufacturer disclaims all responsibility.

This unit must be used for professional applications only, in industrial environments. The manufacturer will accept no responsability for any damages caused by use in domestic environments.

The equipment must be used in environments with a temperature between -10°C and +40°C (between +14°F and +104°F).

The equipment must be transported and stored in environments with a temperature between -25°C and +55°C (between -13°F and 131°F).

The equipment must be used in environments free from dust, acid, gas or any other corrosive substances.

The equipment shall not be used in environments with a relative humidity higher than 50% at 40°C (104°F).

The equipment shall not be used in environments with a relative humidity higher than 90% at 20°C (68°F).

The system must not be used at an higher altitude than 2,000 metres (6,500 feet) above sea level.

Do not use this machine to defrost pipes.

Do not use this equipment to charge batteries and/or accumulators.

Do not use this equipment to jump-start engines.

EN

2.2 User's and other persons' protection

The welding process is a noxious source of radiation, noise, heat and gas emissions. Position a fire-retardant shield to protect the surrounding welding area from rays, sparks and incandescent slags. Advise any person in the area of welding not to stare at the arc or at the incandescent metal and to get an adequate protection.

Wear protective clothing to protect your skin from the arc rays, sparks or incandescent metal. Clothes must cover the whole body and must be:

- intact and in good conditions
- fireproof
- insulating and dry
- well-fitting and without cuffs or turn-ups

Always use regulation shoes that are strong and ensure insulation from water.

Always use regulation gloves ensuring electrical and thermal insulation.

Wear masks with side face guards and a suitable protection filter (at least NR10 or above) for the eyes.

Always wear safety goggles with side guards, especially during the manual or mechanical removal of welding slag.

Do not wear contact lenses!

Use headphones if dangerous noise levels are reached during the welding. If the noise level exceeds the limits prescribed by law, delimit the work area and make sure that anyone getting near it is protected with headphones or earphones.

Always keep the side covers closed while welding. The system must not be modified in any way.

Avoid touching items that have just been welded: the heat could cause serious burning or scorching.

Follow all the precautions described above also in all operations carried out after welding since slag may detach from the items while they are cooling off.

Check that the torch is cold before working on or maintaining it.

Ensure the cooling unit is switched off before disconnecting the pipes of the cooling liquid. The hot liquid coming out of the pipes might cause burning or scorching.

Keep a first aid kit ready for use.
Do not underestimate any burning or injury.

Before leaving work, make the area safe, in order to avoid accidental damage to people or property.

2.3 Protection against fumes and gases

Fumes, gases and powders produced during the welding process can be noxious for your health.

Under certain circumstances, the fumes caused by welding can cause cancer or harm the foetus of pregnant women.

- Keep your head away from any welding gas and fumes.
- Provide proper ventilation, either natural or forced, in the work area.
- In case of poor ventilation, use masks and breathing apparatus.
- In case of welding in extremely small places the work should be supervised by a colleague standing nearby outside.
- Do not use oxygen for ventilation.
- Ensure that the fumes extractor is working by regularly checking the quantity of harmful exhaust gases versus the values stated in the safety regulations.
- The quantity and the danger level of the fumes depends on the parent metal used, the filler material and on any substances used to clean and degrease the pieces to be welded. Follow the manufacturer's instructions together with the instructions given in the technical data sheets.
- Do not perform welding operations near degreasing or painting stations.
- Position gas cylinders outdoors or in places with good ventilation.

2.4 Fire/explosion prevention

The welding process may cause fires and/or explosions.

- Clear the work area and the surrounding area from any flammable or combustible materials or objects.
- Flammable materials must be at least 11 metres (35 feet) from the welding area or they must be suitably protected.
- Sparks and incandescent particles might easily be sprayed quite far and reach the surrounding areas even through minute openings. Pay particular attention to keep people and property safe.
- Do not perform welding operations on or near containers under pressure.
- Do not perform welding or cutting operations on closed containers or pipes. Pay particular attention during welding operations on pipes or containers even if these are open, empty and have been cleaned thoroughly. Any residue of gas, fuel, oil or similar materials might cause an explosion.
- Do not weld in places where explosive powders, gases or vapours are present.
- When you finish welding, check that the live circuit cannot accidentally come in contact with any parts connected to the earth circuit.
- Position a fire-fighting device or material near the work area.

2.5 Prevention when using gas cylinders

Inert gas cylinders contain pressurized gas and can explode if the minimum safe conditions for transport, storage and use are not ensured.

- Cylinders must be secured in a vertical position to a wall or other supporting structure, with suitable means so that they cannot fall or accidentally hit anything else.
- Screw the cap on to protect the valve during transport, commissioning and at the end of any welding operation.
- Do not expose cylinders to direct sunlight, sudden changes of temperature, too high or extreme temperatures. Do not expose cylinders to temperatures too low or too high.
- Keep cylinders away from naked flames, electric arcs, torches or electrode guns and incandescent material sprayed by welding.
- Keep cylinders away from welding circuits and electrical circuits in general.
- Keep your head away from the gas outlet when opening the cylinder valve.
- Always close the cylinder valve at the end of the welding operations.
- Never perform welding operations on a pressurized gas cylinder.
- A compressed air cylinder must never be directly coupled to the machine pressure reducer! Pressure might exceed the capacity of the reducer which could consequently explode!

EN

2.6 Protection from electrical shock

Electric shocks can kill you.

- Avoid touching live parts both inside and outside the welding system while this is active (torches, guns, earth cables, electrodes, wires, rollers and spools are electrically connected to the welding circuit).
- Make sure that the welding system and the welder are electrically isolated by using dry bases and floors that are adequately isolated from earth.
- Ensure the system is connected correctly to a socket and a power source equipped with an earth conductor.
- Do not touch two torches or two electrode holders at the same time.
- If you feel an electric shock, interrupt the welding operations immediately.

The arc striking and stabilizing device is designed for manual or mechanically guided operation.

2.7 Electromagnetic fields and interferences

Persons fitted with pacemakers must consult their doctor before undertaking arc welding operations.

The current passing through the internal and external system cables creates an electromagnetic field in the proximity of the welding cables and the equipment itself.

- Electromagnetic fields can affect the health of people who are exposed to them for a long time (the exact effects are still unknown).
- Electromagnetic fields can interfere with some equipment like pacemakers or hearing aids.

2.7.1 EMC classification in accordance with: EN 60974-10/A1:2015.

Class B equipment complies with electromagnetic compatibility requirements in industrial and residential environments, including residential locations where the electrical power is provided by the public low-voltage supply system.

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 of class A equipment in those locations, due to conducted as well as radiated disturbances.

For more informations, check the chapter: RATING PLATE or TECHNICAL SPECIFICATIONS.

2.7.2 Installation, use and area examination

This equipment is manufactured in compliance with the requirements of the harmonized standard EN 60974-10/A1:2015 and is identified as "CLASS A" equipment. This unit must be used for professional applications only, in industrial environments. The manufacturer will accept no responsability for any damages caused by use in domestic environments.

The user must be an expert in the activity and as such is responsible for installation and use of the equipment according to the manufacturer's instructions. If any electromagnetic interference is noticed, the user must solve the problem, if necessary with the manufacturer's technical assistance.

In any case electromagnetic interference problems must be reduced until they are not a nuisance any longer.

Before installing this equipment, the user must evaluate what electromagnetic problems it might cause in the surrounding area, with specific regard to the health of persons nearby, pace-maker and hearing aid users, for example.

EN

2.7.3 Mains power supply requirements

The high current draw of high-power equipment can affect the quality of mains electrical energy. Connection restrictions or requirements regarding maximum permissible mains impedance (Zmax) or minimum supply capacity (Ssc) at the point of interface with the public grid (point of common coupling, PCC) may apply for certain types of equipment (see technical data). In this case it is the responsibility 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. In case of interference, it may be necessary to take further precautions like the filtering of the mains power supply.

It is also necessary to consider the possibility of shielding the power supply cable.

For more informations, check the chapter: TECHNICAL SPECIFICATIONS.

2.7.4 Precautions regarding cables

To minimise the effects of electromagnetic fields follow the following instructions:

- Never coil the cables around your body.
- Do not place your body in between the earth and power cables (keep both on the same side).
- The cables must be kept as short as possible, positioned as close as possible to each other and laid at or approximately at ground level.
- Position the equipment at some distance from the welding area.
- The cables must be kept away from any other cables.

2.7.5 Earthing connection

The earth connection of all the metal components in the welding (cutting) equipment and in the close aerea must be taken in consideration. The earthing connection must be made according to the local regulations.

2.7.6 Earthing the workpiece

When the workpiece is not earthed for electrical safety reasons or due to its size and position, the earthing of the workpiece may reduce the emissions. It is important to remember that the earthing of the workpiece should neither increase the risk of accidents for the user nor damage other electric equipment. The earthing must be made according to the local regulations.

2.7.7 Shielding

The selective shielding of other cables and equipment present in the surrounding area may reduce the problems due to electromagnetic interference.

The shielding of the entire welding equipment can be taken in considered for special applications.

2.8 IP Protection rating

IP23S

- Enclosure protected against access to dangerous parts by fingers and against ingress of solid bodies objects with diameter equal or greater than 12.5 mm.
- Enclosure protected against rain at an angle of 60°.
- Enclosure protected against harmful effects due to the ingress of water when the moving parts of the equipment are not operating.

2.9 Disposal

Do not dispose of electrical equipment together with normal waste!

In conformity to European Directive 2012/19/EU on Waste Electrical and Electronic Equipment and its implementation according to national law, electrical equipment must be collected separately and disposed of through an authorised recovery and disposal centre at the end of its life cycle. The owner of the equipment is required to identify authorised collection centres on the basis of the information provided by Local Authorities. By applying this European Directive you will improve the environment and human health!

» For further information, refer to the website.

EN

3. INSTALLATION

Installation should be performed only by expert personnel authorised by the manufacturer.

During installation, ensure that the power source is disconnected from the mains.

The multiple connection of power sources (series or parallel) is prohibited.

3.1 Lifting, transport & unloading

- The equipment is supplied with an extendible belt which can be used to move it in the hand or on the shoulder.
- The equipment is not equipped with specific lifting elements.
- Use a fork lift truck paying attention during operations in order to prevent the generator from tipping over.

Do not underestimate the weight of the equipment: see technical specifications.

Do not move or position the suspended load above persons or things.

Do not drop or apply undue pressure on the equipment.

3.2 Positioning of the equipment

Keep to the following rules:

- Provide easy access to the equipment controls and connections.
- Do not position the equipment in very small spaces.
- Do not place the equipment on surfaces with inclination exceeding 10° from to the horizontal plane.
- Position the equipment in a dry, clean and suitably ventilated place.
- Protect the equipment against pouring rain and sun.

» Consult the "Prevention when using gas cylinders" section.

3.3 Connection

The equipment is provided with a power supply cable for connection to the mains.

The system can be powered by:

- single-phase 115V
- single-phase 230V

Operation of the equipment is guaranteed for voltage tolerances up to ±15% with respect to the rated value.

To prevent injury to persons or damage to the equipment, the selected mains voltage and fuses must be checked BEFORE connecting the machine to the mains. Also check that the cable is connected to a socket provided with earth contact.

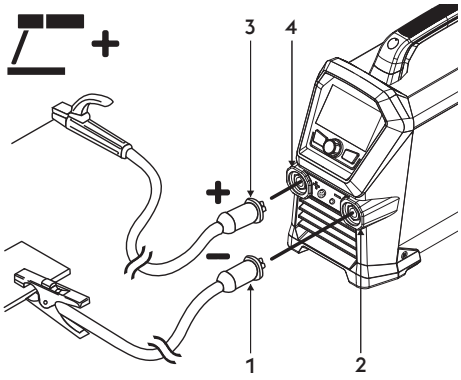
The equipment can be powered by a generating set provided it guarantees a stable power supply voltage of ±15% with respect to the rated voltage declared by the manufacturer, under all possible operating conditions including at maximum rated power. Normally we recommend the use of generating sets with twice rated power of a single phase power source or 1.5 times that of a three-phase power source. The use of electronic control type generating sets is recommended.

In order to protect users, the equipment must be correctly earthed. The power supply voltage is provided with an earth lead (yellow - green), which must be connected to a plug provided with earth contact. This yellow/green wire shall NEVER be used with other voltage conductors. Verify the existence of the earthing in the equipment used and the good condition of the sockets. Install only certified plugs according to the safety regulations.

The electrical connections must be made by skilled technicians with the specific professional and technical qualifications and in compliance with the regulations in force in the country where the equipment is installed.

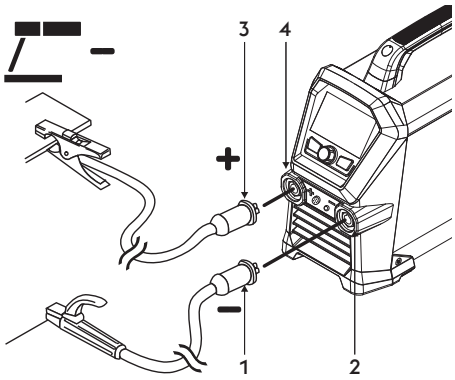
3.4 Installation

3.4.1 Connection for MMA welding



1 **Earth clamp connector**
2 **Negative power socket (-)**
3 **Electrode holder clamp connector**
4 **Positive power socket (+)**

- Connect the earth clamp to the negative socket (-) of the power source. Insert the plug and turn clockwise until all parts are secured.
- Connect the electrode holder to the positive socket (+) of the power source. Insert the plug and turn clockwise until all parts are secured.



1 **Electrode holder clamp connector**
2 **Negative power socket (-)**
3 **Earth clamp connector**
4 **Positive power socket (+)**

- Connect the electrode holder cable connector to the negative (-) socket of the generator. Insert the plug and turn clockwise until all parts are secured.
- Connect the earth clamp to the positive socket (+) of the power source. Insert the plug and turn clockwise until all parts are secured.

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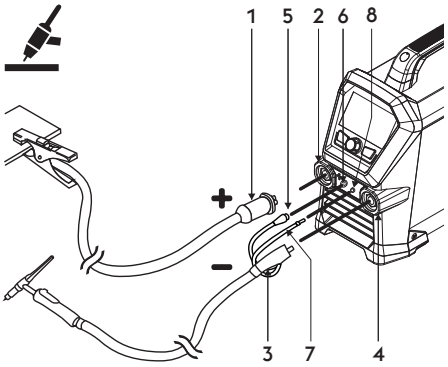
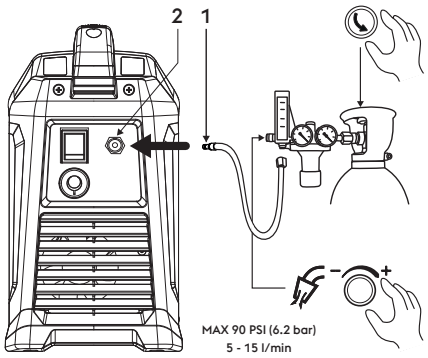
3.4.2 Connection for TIG welding

- Separately connect the torch gas hose connector to the gas main.



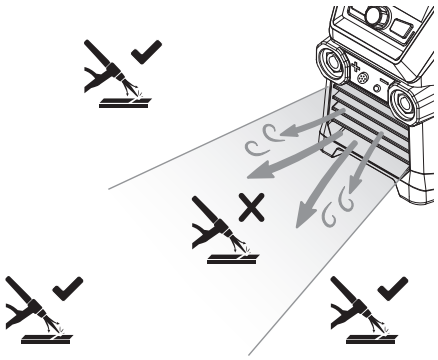
1 **Earth clamp connector**
2 **Positive power socket (+)**
3 **TIG torch fitting**
4 **Torch socket**
5 **Torch signal cable**
6 **Connector**
7 **Torch gas tube**
8 **Connection-union**

- Connect the earth clamp to the positive socket (+) of the power source. Insert the plug and turn clockwise until all parts are secured.
- Connect the TIG torch connector to the negative socket (-) of the power source. Insert the plug and turn clockwise until all parts are secured.
- Connect the signal cable of the torch to the appropriate connector.
- Connect the gas hose of the torch to the appropriate union/connection.



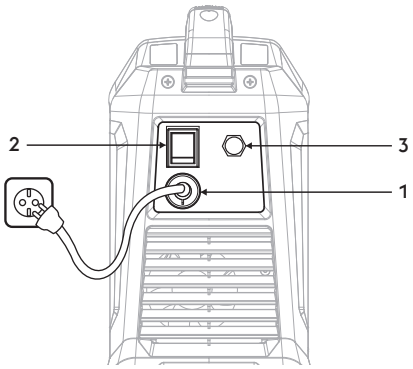
1 **Gas tube**
2 **Rear gas connection**

- Connect the gas hose from the cylinder to the rear gas connection. Adjust the gas flow from 5 to 15 l/min.



- The machine's front airflow may interfere with the TIG torch gas flow.

4. SYSTEM PRESENTATION



1 **Power supply cable**

Connects the system to the mains.

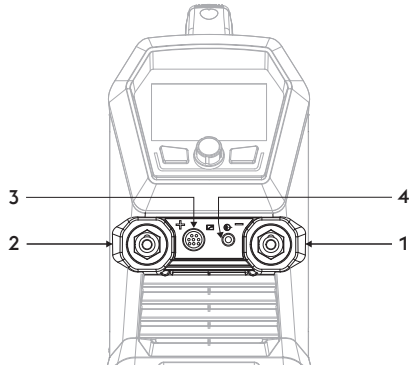
2 **Off/On switch**

Turns on electric power.

It has two positions, "O" off, and "I" on.

3 **Gas fitting**

4.1 Sockets panel



1 **Negative power socket (-)**

Process **MMA:** Connection earth cable

Process **TIG:** Torch connection

2 **Positive power socket (+)**

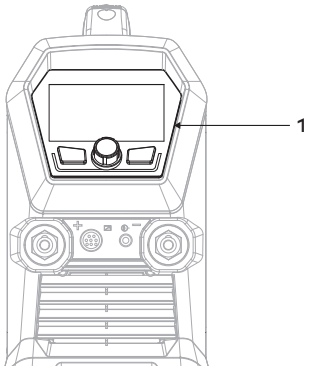
Process **MMA:** Connection electrode torch

Process **TIG:** Connection earth cable

3 **Torch button connection**

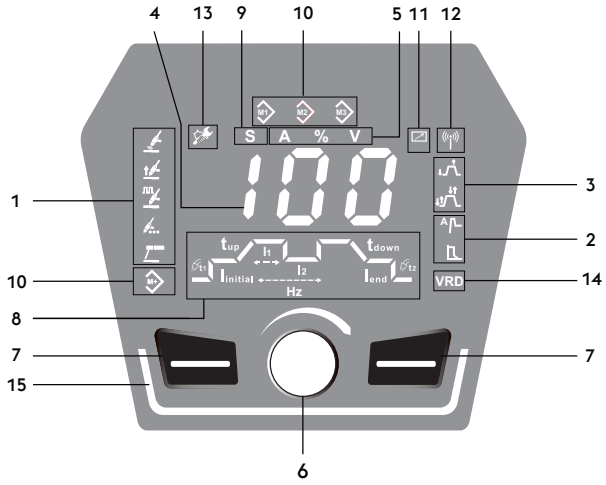
4 **Gas fitting**

4.2 Front control panel



1 **Front control panel**

EN



1 **Selector of the welding process**

Allows the selection of the welding procedure.

- TIG welding process
- TIG LIFT welding process
- Pulsed TIG welding process
- TIG Spot welding process
- MMA welding process

2 **Functions**

Let you select the various system functions:

- Hot start
- Arc force

3 **Welding methods**

Allows selection of the desired welding mode.

- 2 Step
- 4 Step

4 **7-segment display**

Allows the general welding machine parameters to be displayed during start-up, settings, current and voltage readings, while welding, and encoding of the alarms.

5 **Measurements selector**

Allows to view the actual welding current or voltage on the display.

- **A** Amperes
- **%** Percentage value
- **V** Volts

6 **Main adjustment handle.**

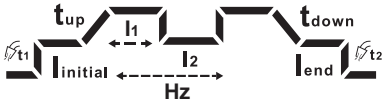
Allows the welding current to be continuously adjusted.

7 **Function keys**

Let you select the various system functions:

8 **Welding parameters**

The graph on the panel allows the selection and adjustment of the welding parameters.



9 **Seconds selector**

Parameter setting: seconds (s).

S

10 **Program storage**

Allows the storage and management of 3 jobs which can be personalised by the operator.

11 **External devices (RC)**

12 **External devices (wireless)**

13 **Maintenance warning**

14 VRD **VRD (Voltage Reduction Device)**

Voltage Reduction Device
Allows output voltage to be reduced within the limits set by regulations for use in harsh environments.
Active function (Green)
Default:OFF (icon light off)
Contact the Service Dpt. to request activation instructions (eq-service@voestalpine.com).

15 **LED bars**

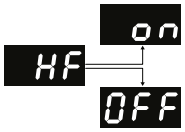
System in standby (White)
System switched on and arc ignited (Green)
System in error alarm (Red)
System in warning alarm (Orange) (=25% duty cycle remaining)
System in wireless configuration (Blue)

EN

EN

5. EQUIPMENT USE

5.1 Starting Screen

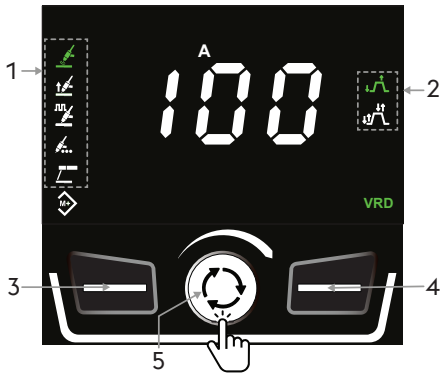


Starting Screen

When switched on, the generator informs you whether the high frequency discharge is active.

HF=on/HF=off

5.2 Main Screen



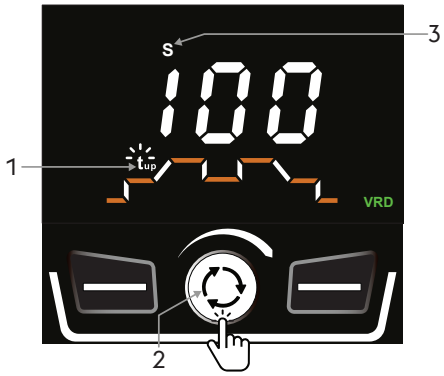
Main Screen

1. Welding process symbol
   - Process selected (Green).
   - Process available (White).
2. Function symbol
   - Function enabled (White).
   - Active function (Green).
3. Selector of the welding process.
4. Welding function selector.

When JOB recall mode M+ is active, press and hold the button for 3 seconds to scroll through the available welding functions.

5. They allow adjustment of the welding parameters (press to scroll and select the parameters to change).
   - Allows the regulation of the welding current (turn to change the value).

5.3 Main Screen



Parameter setting

The graph on the panel allows the selection and adjustment of the welding parameters.

Press the encoder button to display the graphic.

To keep the graphic continuously visible, set the Setup parameter SEC=yes.

The graphic is not available in MMA mode.

1. One parameter is displayed at a time.
2. Select the required parameter by rotating the encoder.
   - Press the encoder button to modify the parameter (icon flashing).
   - Turn the encoder to set the new value
3. The indicator shows the parameter's unit of measurement.
   - Press the encoder button to confirm (icon steady).
   - Welding current adjustment becomes available again after 3 seconds.

EN

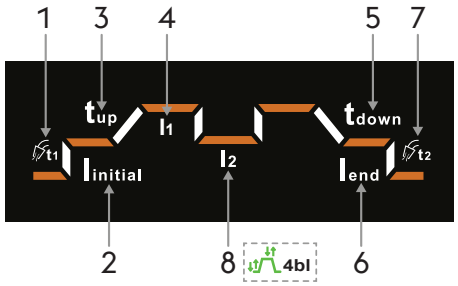
5.4 HF TIG process main screen

Welding process selection

1. Select the desired process by pressing the button.
2. Process selected (Green).
3. Function symbol
   - Function enabled (White).
   - Active function (Green).
4. Allows selection of the available welding functions (press to scroll through and select the functions).
5. They allow adjustment of the welding parameters (press to scroll and select the parameters to change).
   - Allows the regulation of the welding current (turn to change the value).

Welding current

Minimum	Maximum	Default
5 A	Imax	100 A



Parameter setting

1. Pre-gas.

Minimum	Maximum	Default
0.0s	3.0s	0.2s

2. Start current.

Minimum	Maximum	Default
10%	200%	20%

3. Slope-up.

Minimum	Maximum	Default
0.0s	10.0s	0.5s

4. Welding current. I1

Minimum	Maximum	Default
5A	Imax	100A

5. Slope-down.

Minimum	Maximum	Default
0.0s	10.0s	0.5s

6. Final current.

Minimum	Maximum	Default
10%	200%	20%

7. Post-gas.

Minimum	Maximum	Default
0.5s	20.0s	0.6s

Parameter I2 is active and can be selected only if the belevel function is also active and has been selected.

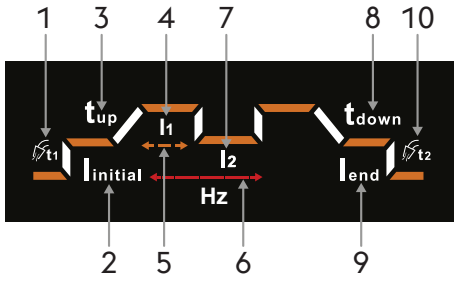
Set up 4t =4bl

8. Welding current. I2

Minimum	Maximum	Default
10%	95%	20%

EN

5.5 Pulsed TIG HF process main screen



Welding process selection

1. Select the desired process by pressing the button.
2. Process selected (Green).
3. Function symbol
   - Function enabled (White).
   - Active function (Green).
4. Allows selection of the available welding functions (press to scroll through and select the functions).
5. They allow adjustment of the welding parameters (press to scroll and select the parameters to change).
   - Allows the regulation of the welding current (turn to change the value).

Welding current

Minimum	Maximum	Default
5 A	Imax	100 A

Parameter setting

1. Pre-gas.

Minimum	Maximum	Default
0.0s	3.0s	0.2s

2. Start current.

Minimum	Maximum	Default
10%	200%	20%

3. Slope-up.

Minimum	Maximum	Default
0.0s	10.0s	0.5s

4. Peak welding current. I1

Minimum	Maximum	Default
5A	Imax	100A

5. Duty cycle.

Minimum	Maximum	Default
10%	90%	50%

6. Pulse frequency.

Minimum	Maximum	Default
0.2Hz	300Hz	1.0Hz

7. Base welding current. I2

Minimum	Maximum	Default
10%	95%	20%

8. Slope-down.

Minimum	Maximum	Default
0.0s	10.0s	0.5s

9. Final current.

Minimum	Maximum	Default
10%	200%	20%

10. Post-gas.

Minimum	Maximum	Default
0.5s	20.0s	0.6s

EN

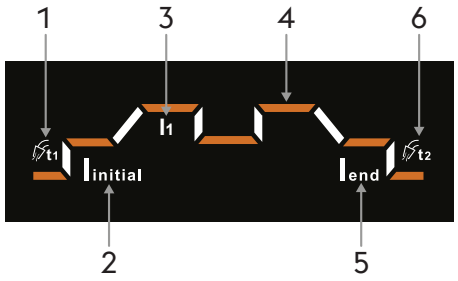
5.6 TIG HF spot welding process main screen

Welding process selection

1. Select the desired process by pressing the button.
2. Process selected (Green).
3. Function symbol
   - Function enabled (White).
   - Active function (Green).
4. Allows selection of the available welding functions (press to scroll through and select the functions).
5. They allow adjustment of the welding parameters (press to scroll and select the parameters to change).
   - Allows the regulation of the welding current (turn to change the value).

Welding current

Minimum	Maximum	Default
5 A	Imax	100 A



Parameter setting

Welding parameters

1. Pre-gas.

Minimum	Maximum	Default
0.0s	3.0s	0.2s

2. Start current.

Minimum	Maximum	Default
10%	200%	20%

3. Welding current. I1

Minimum	Maximum	Default
5A	Imax	100A

4. Welding time.

Minimum	Maximum	Default
0.0s	20.0s	0.5s

5. Final current.

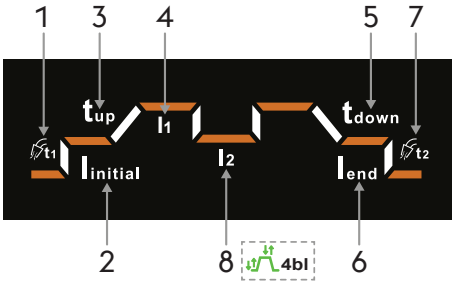
Minimum	Maximum	Default
10%	200%	20%

6. Post-gas.

Minimum	Maximum	Default
0.5s	20.0s	0.6s

EN

5.7 TIG Lift process main screen



Welding process selection

1. Select the desired process by pressing the button.
2. Process selected (Green).
3. Function symbol
   - Function enabled (White).
   - Active function (Green).
4. Allows selection of the available welding functions (press to scroll through and select the functions).
5. They allow adjustment of the welding parameters (press to scroll and select the parameters to change).
   - Allows the regulation of the welding current (turn to change the value).

Welding current

Minimum	Maximum	Default
5 A	Imax	100 A

Parameter setting

1. Pre-gas.

Minimum	Maximum	Default
0.0s	3.0s	0.2s

2. Start current.

Minimum	Maximum	Default
10%	200%	20%

3. Slope-up.

Minimum	Maximum	Default
0.0s	10.0s	0.5s

4. Welding current. I1

Minimum	Maximum	Default
5A	Imax	100A

5. Slope-down.

Minimum	Maximum	Default
0.0s	10.0s	0.5s

6. Final current.

Minimum	Maximum	Default
10%	200%	20%

7. Post-gas.

Minimum	Maximum	Default
0.5s	20.0s	0.6s

Parameter I2 is active and can be selected only if the belevel function is also active and has been selected.

Set up 4t =4bl

8. Welding current. I2

Minimum	Maximum	Default
10%	95%	20%

EN

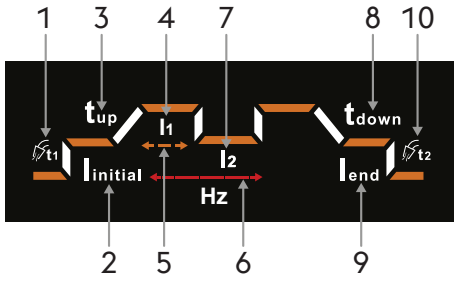
5.8 Pulsed TIG LIFT process main screen

Welding process selection

1. Select the desired process by pressing the button.
2. Process selected (Green).
3. Function symbol
   - Function enabled (White).
   - Active function (Green).
4. Allows selection of the available welding functions (press to scroll through and select the functions).
5. They allow adjustment of the welding parameters (press to scroll and select the parameters to change).
   - Allows the regulation of the welding current (turn to change the value).

Welding current

Minimum	Maximum	Default
5 A	Imax	100 A



Parameter setting

1. Pre-gas.

Minimum	Maximum	Default
0.0s	3.0s	0.2s

2. Start current.

Minimum	Maximum	Default
10%	200%	20%

3. Slope-up.

Minimum	Maximum	Default
0.0s	10.0s	0.5s

4. Peak welding current. I1

Minimum	Maximum	Default
5A	Imax	100A

5. Duty cycle.

Minimum	Maximum	Default
10%	90%	50%

6. Pulse frequency.

Minimum	Maximum	Default
0.2Hz	300Hz	1.0Hz

7. Base welding current. I2

Minimum	Maximum	Default
10%	95%	20%

8. Slope-down.

Minimum	Maximum	Default
0.0s	10.0s	0.5s

9. Final current.

Minimum	Maximum	Default
10%	200%	20%

10. Post-gas.

Minimum	Maximum	Default
0.5s	20.0s	0.6s

EN

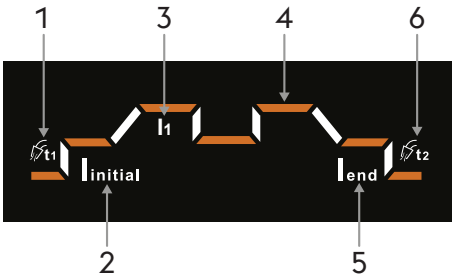
5.9 TIG LIFT spot welding process main screen

Welding process selection

1. Select the desired process by pressing the button.
2. Process selected (Green).
3. Function symbol
   - Function enabled (White).
   - Active function (Green).
4. Allows selection of the available welding functions (press to scroll through and select the functions).
5. They allow adjustment of the welding parameters (press to scroll and select the parameters to change).
   - Allows the regulation of the welding current (turn to change the value).

Welding current

Minimum	Maximum	Default
5 A	Imax	100 A



Parameter setting

Welding parameters

1. Pre-gas.

Minimum	Maximum	Default
0.0s	3.0s	0.2s

2. Start current.

Minimum	Maximum	Default
10%	200%	20%

3. Welding current. I1

Minimum	Maximum	Default
5A	Imax	100A

4. Welding time.

Minimum	Maximum	Default
0.0s	20.0s	0.5s

5. Final current.

Minimum	Maximum	Default
10%	200%	20%

6. Post-gas.

Minimum	Maximum	Default
0.5s	20.0s	0.6s

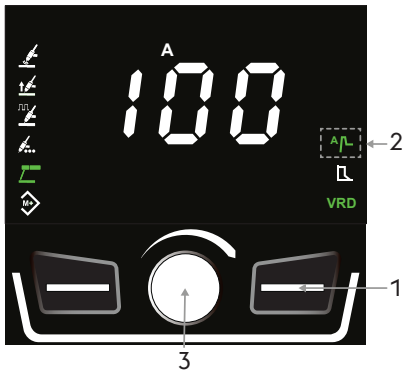
5.10 MMA process main screen

Welding process selection

1. Select the desired process by pressing the button.
2. Process selected (Green).
3. Function symbol
   - Function enabled (White).
   - Active function (Green).
4. They enable welding parameter selection.
5. They allow adjustment of the welding parameters (press to scroll and select the parameters to change).
   - Allows the regulation of the welding current (turn to change the value).

Welding current

Minimum	Maximum	Default
20 A	Imax	100 A



Parameter setting: Hot start

1. Select the required parameter by pressing the encoder button.
2. Selected function for parameter adjustment (Green).
3. Adjust the value of the selected parameter by rotating the encoder.

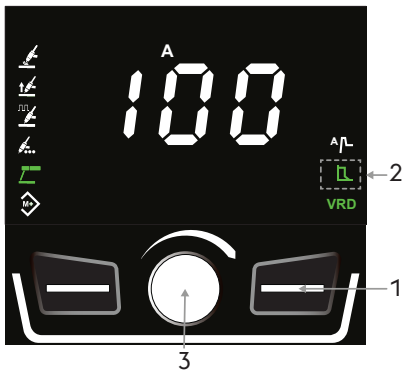
Welding parameters

Start current

Minimum	Maximum	Default
50%	200%	120%

Start time

Minimum	Maximum	Default
0s	3s	0.5s



Parameter setting: Arc force

1. Select the required parameter by pressing the encoder button.
2. Selected function for parameter adjustment (Green).
3. Adjust the value of the selected parameter by rotating the encoder.

Welding parameters

Arc force

Minimum	Maximum	Default
-10	+10	0

EN

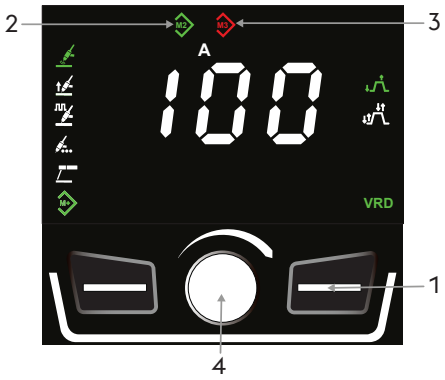
5.11 Programs screen (JOB POINT)

Main Screen

1. Press and hold the button for 3 seconds.
2. Function enabled (Green).
3. Memory empty (White).
4. Program stored (Green).

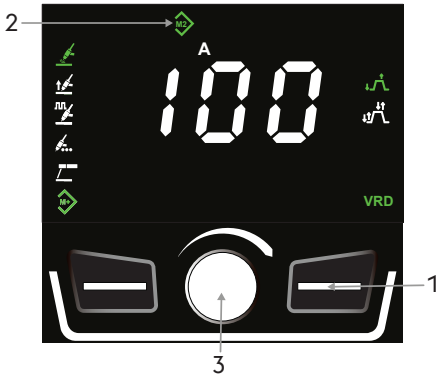
Program storage

1. Press the button to select the desired memory slot.
2. Memory empty (White).
3. Press the encoder button to store the welding parameters (3 seconds).The colour of the memory slot icon changes from white to green.



Program retrieval

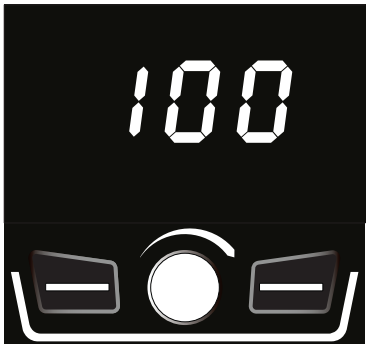
1. Select the required program by pressing button..
2. Program stored (Green).
3. Changing the welding parameters or changing the welding process is signalled by the colour of the memory slot icon changing to red.
4. Press the encoder button until the slot icon turns green again to restore the initial stored parameters (3 seconds).



Deleting a program

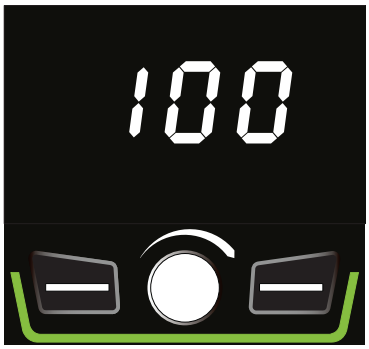
1. Select the required program by pressing button..
2. Program stored (Green).
3. Press the encoder key until the slot icon turns white to delete the job (3 seconds).

5.12 LED bar



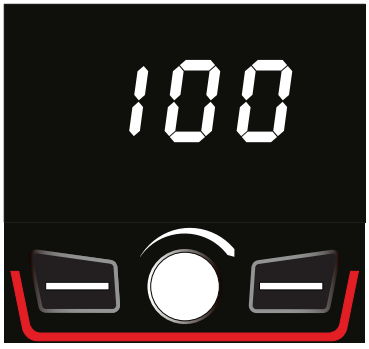
White light LED bar

- Indicates the presence of voltage at the system's output connectors.
- System ready to weld.



Green light LED bar

- Indicates that the system is working and the arc ignited.



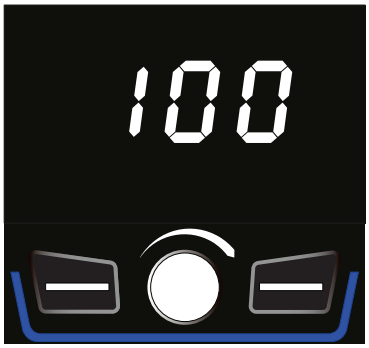
Red light LED bar

- Indicates the possible intervention of protection devices such as the temperature protection.

Orange light LED bar

- Indicates that during welding the system has reached 75% of its duty cycle.

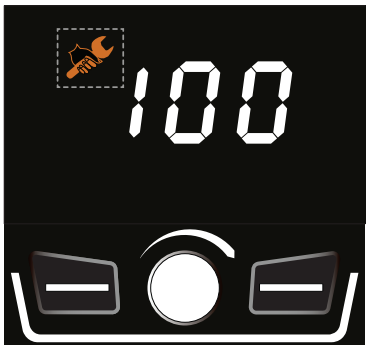
☞ Momentarily stop welding to prevent the system triggering a thermal alarm.



Blue light LED bar

- Indicates that the system is connected to a wireless device.

5.13 Adaptive maintenance



Adaptive maintenance

- Indicates that the system has already worked with the arc ignited for the set number of hours.

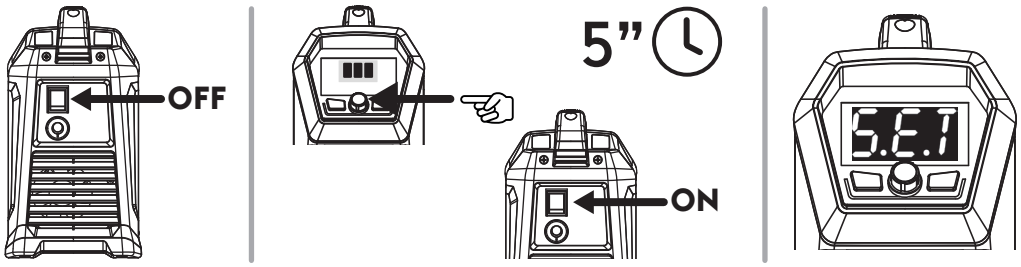
Perform ordinary maintenance.

Consult the "Set up" section in your generator manual.

6. SETUP

Permits set-up and adjustment of a series of additional parameters for improved and more accurate control of the welding system.

Entry to set up



- Set the switch lever to "0" to switch off the generator.
- Switch on the generator while holding down the encoder key.
- Press and hold the encoder button for 5 sec.
- The entry will be confirmed by the writing SEt on the display

Selection and adjustment of the required parameter

- Rotate the encoder until you display the numerical code for the required parameter.
- If the encoder key is pressed at this point, the value set for the parameter selected can be displayed and adjusted.

Exit from set up

- Press the encoder button for 5 seconds to exit setup.

6.13.1 List of set up parameters (TIG)

Hf **High frequency**

Allows high frequency discharge to be enabled or disabled for TIG welding arc ignition.

Value	Function	Default
OFF	Not active	
ON	Active	X

t1 **Initial current time**

Allows setting of the time for which the initial current is maintained.

Minimum	Maximum	Default
0.0 s	10.0 s	0.2 s

t2 **Final current time**

Makes it possible to set the time for which the final current is maintained.

Minimum	Maximum	Default
0.0 s	10.0 s	0.2 s

UA **Type of measure**

Allows the welding current or voltage reading to be set on the display.

Hod **Hold Last Parameter**

If active, the values of the last welding parameters will be shown on the display for five seconds after the arc is extinguished.

EN

4t **4-time welding mode configuration**

4Fs Fast stop

Arc ignition in Lift mode

- Touch the workpiece with the electrode.
- Press the torch button to start the pre-gas phase.
- Arc ignition in Lift mode. Lifting the torch off the workpiece ignites the arc with the pre-set dynamics. The arc remains ignited if the torch button is released.
- Releasing the button before completion of the dynamics extinguishes the arc immediately.
- Press the button again to extinguish the arc with the arc extinguishing dynamics. Gas continues to flow for the post-gas time.
- Releasing the button before the end of the shutdown sequences extinguishes the arc immediately.

Trigger of the arc in HF mode

- Position the electrode 2/3mm from the piece to be welded.
- Press the torch button to start the pre-gas phase.
- The discharge starts which helps the arc to be struck with the preset dynamics. The arc remains ignited if the torch button is released.
- Releasing the button before completion of the dynamics extinguishes the arc immediately.
- Press the button again to extinguish the arc with the arc extinguishing dynamics. Gas continues to flow for the post-gas time.
- Releasing the button before the end of the shutdown sequences extinguishes the arc immediately.

4bl Bilevel

- In bilevel mode, you can weld using the two current levels set previously.
- The first pressure on the button leads to the pre-gas time, the striking of the arc and welding with the initial current.
- The first release leads to the current slope-up "I1".
- If the welder presses and releases the button quickly, there is a change to "I2".
- Pressing and releasing the button quickly returns to "I1" and so on.
- If you press the button for a longer time, the lowering ramp for the current starts, thus reaching the final current.
- Releasing the button extinguishes the arc while the gas continues to flow for the post-gas time.

Fn **System configuration menu**

Allows access to the system configuration menu.

- Press the encoder button to access the submenu.
- Turn the encoder to select the desired configuration.
- Press the encoder button to confirm.
- The available configurations are as follows.

F1 **System configuration**

System configuration: F1

- TIG HF welding process
- TIG LIFT welding process
- Function enabled: 2 Step
- Function enabled: 4 Step
- MMA welding process
- Function enabled: Hot start
- Function enabled: Arc force

F2 **System configuration**

System configuration: F2

- TIG HF welding process
- Pulsed TIG HF welding process
- TIG LIFT welding process
- TIG LIFT spot welding process
- Function enabled: 2 Step
- Function enabled: 4 Step
- MMA welding process
- Function enabled: Hot start
- Function enabled: Arc force

F3 **System configuration**

System configuration: F3

- TIG HF welding process
- Pulsed TIG HF welding process
- TIG HF spot welding process
- TIG LIFT welding process
- Pulsed TIG LIFT welding process
- TIG LIFT spot welding process
- Function enabled: 2 Step
- Function enabled: 4 Step
- MMA welding process
- Function enabled: Hot start
- Function enabled: Arc force

F4 **System configuration**

System configuration: F4

- TIG HF welding process
- Pulsed TIG HF welding process
- TIG HF spot welding process
- TIG LIFT welding process
- Pulsed TIG LIFT welding process
- TIG LIFT spot welding process
- Function enabled: 2 Step
- Function enabled: 4 Step
- MMA welding process
- Function enabled: Hot start
- Function enabled: Arc force
- Function enabled: Programs (JOB POINT)

Ser **Adaptive maintenance**

If active, illumination of the maintenance symbol on the display indicates that maintenance is recommended.
Consult the "Set up" section in your generator manual.

Value	Function	Default
OFF	Not active	X
ON	Active	
RST	Reset	

EN

SLP **Sleep**

If active, the machine switches off after the selected seconds of inactivity.
Set a time value within the range

Value	Inactive time	Default
OFF	Not active	X
180	180s	
300	300s	
600	600s	
900	900s	

AbU **Absolute value**

Allows the absolute value of the relative currents $I_{initial}$, I2, I_{end} to be set as a percentage or in amps.

Value	Function	Default
Per	%	X
A	Amperes	

SEC **Welding parameter sequence graphic**

Enables or disables continuous display of the welding parameter sequence graphic.

Value	Default
OFF	X
YES	

rt **Selection of welding current control mode available on the TIG torch**

Allows the welding current control mode to be selected between:

- analog (by potentiometer)
- incremental (by buttons)

Select the mode to suit the remote control devices available on the TIG torch.

Value	Function	Default
Pot	Potentiometer	X
but	Push button	

rSt **Reset**

Allows you to reset all the parameters to the default values.

- ▸ Press the encoder button to start the procedure.
- ▸ Turn the encoder to the value: ON
- ▸ Press the right function key for 5 seconds.

7. MAINTENANCE

Routine maintenance must be carried out on the system according to the manufacturer's instructions. When the equipment is working, all the access and operating doors and covers must be closed and locked. The system must not be modified in any way. Prevent conductive dust from accumulating near the louvers and over them.

Any maintenance operation must be performed by qualified personnel only. The repair or replacement of any parts in the system by unauthorised personnel will invalidate the product warranty. The repair or replacement of any parts in the system must be carried out only by qualified personnel.

Disconnect the power supply before every operation!

7.1 Carry out the following periodic checks on the power source

7.1.1 System

Clean the power source inside by means of low-pressure compressed air and soft bristle brushes. Check the electric connections and all the connection cables.

7.1.2 For the maintenance or replacement of torch components, electrode holders and/or earth cables:

Check the temperature of the component and make sure that they are not overheated.

Always use gloves in compliance with the safety standards.

Use suitable wrenches and tools.

7.2 Responsibility

Failure to carry out the above maintenance will invalidate all warranties and exempt the manufacturer from any liability. The manufacturer disclaims any responsibility if the user fails to follow these instructions. For any doubts and/or problems do not hesitate to contact your nearest customer service centre.

EN

8. ALARM CODES

ALARM

Activation of an alarm or the passing of any critical limit causes a visual signal to appear on the control panel and the immediate shut-down of welding operations.

CAUTION

Exceeding a guard limit causes a visual signal on the control panel but allows the welding operations to continue.

All the alarms and all the guard limits relating to the system are listed below.

E01	Overtemperature	E05	Overcurrent
E07	Wire feeder motor power supply fault	E13	Communication error
E36	Torch button pressed during system power-up	E50	Wire stuck (Automation and robotics)

9. TROUBLESHOOTING

EN

System does not switch on	
Cause	**Solution**
» No mains voltage at the socket.	» Check and repair the electrical system as needed. » Use qualified personnel only.
» Faulty plug or cable.	» Replace the faulty component. » Contact the nearest service centre to have the system repaired.
» Line fuse blown.	» Replace the faulty component.
» Faulty on/off switch.	» Replace the faulty component. » Contact the nearest service centre to have the system repaired.
» Faulty electronics.	» Contact the nearest service centre to have the system repaired.

No output power (the system does not weld)	
Cause	**Solution**
» Faulty torch trigger button.	» Replace the faulty component. » Contact the nearest service centre to have the system repaired.
» System overheated (thermal alarm - red LED bar).	» Wait for the system to cool down without switching it off.
» Incorrect earth connection.	» Earth the system correctly. » Read the paragraph "Installation ".
» Faulty electronics. (System in standby - white LED bar)	» Contact the nearest service centre to have the system repaired.

Incorrect output power	
Cause	**Solution**
» Incorrect selection in the welding process or faulty selector switch.	» Select the welding process correctly.
» System parameters or functions set incorrectly.	» Reset the system and the welding parameters.
» Faulty potentiometer/encoder for the adjustment of the welding current.	» Replace the faulty component. » Contact the nearest service centre to have the system repaired.
» Mains voltage out of range.	» Connect the system correctly. » Read the paragraph "Connections ".
» Faulty electronics.	» Contact the nearest service centre to have the system repaired.

EN

10. OPERATING INSTRUCTIONS

10.1 Manual Metal Arc welding (MMA)

Preparing the edges

To obtain good welding joints it is advisable to work on clean parts, free from oxidations, rust or other contaminating agents.

Choosing the electrode

The diameter of the electrode to be used depends on the thickness of the material, the position, the type of joint and the type of preparation of the piece to be welded.

Electrodes of large diameter obviously require very high currents with consequent high heat supply during the welding.

Type of coating	Property	Use
Rutile	Easy to use	All positions
Basic	High quality of joint	All positions
Cellulosic	Better penetration	All positions

Choosing the welding current

The range of welding current related to the type of electrode used is specified by the manufacturer usually on the electrode packaging.

Striking and maintaining the arc

The electric arc is produced by scratching the electrode tip on the workpiece connected to the earth cable and, once the arc has been struck, by rapidly withdrawing the electrode to the normal welding distance.

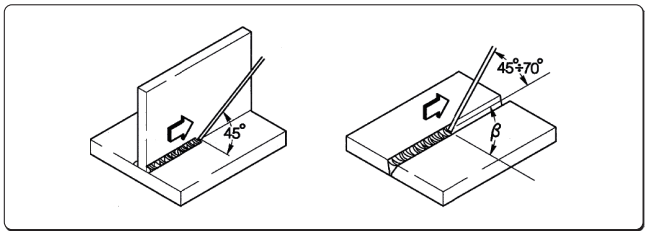
Generally, to improve the arc striking behaviour a higher initial current is given in order to heat suddenly the tip of the electrode and so aid the arc establishing(Hot Start).

Once the arc has been struck, the central part of the electrode starts melting forming tiny globules which are transferred into the molten weld pool on the workpiece surface through the arc stream.

The external coating of the electrode is being consumed and this supplies the shielding gas for the weld pool, ensuring the good quality of the weld.

To stop droplets of molten material short-circuiting the electrode to the weld pool and extinguishing the arc if the electrode accidentally approaches the pool too closely, it is useful to increase welding current (Arc Force) temporarily in order to break a short circuit.

If the electrode sticks to the workpiece, the short circuit current should be reduced to the minimum (antisticking).



Carrying out the welding

Electrode angle depends on the number of runs. The electrode should normally be moved in a weaving motion with pauses at the sides of the bead to avoid an excessive accumulation of filler material at the centre.

Removing the slag

Welding using covered electrodes requires the removal of the slag after each run.

The slag is removed by a small hammer or is brushed away if friable.

EN

10.2 TIG welding (continuos arc)

Description

The TIG (Tungsten Inert Gas) welding process is based on the presence of an electric arc struck between a non-consumable electrode (pure or alloyed tungsten with an approximate melting temperature of 3370 °C) and the workpiece. An inert gas (argon) atmosphere protects the weld pool.

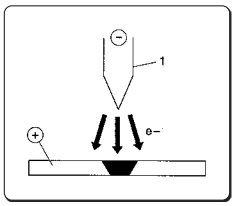
To avoid dangerous inclusions of tungsten in the joint, the electrode must never come in contact with the workpiece; for this reason the welding power source is usually equipped with an arc striking device that generates a high frequency, high voltage discharge between the tip of the electrode and the workpiece. Thus, thanks to the electric spark, ionizing the gas atmosphere, the welding arc is struck without any contact between electrode and workpiece.

Another type of start is also possible, with reduced tungsten inclusions: this is the lift start. Lift starts do not require high frequency, but only an initial low current short circuit between the electrode and the workpiece. When the electrode is lifted, the arc is established and the current increases to the set welding value.

To improve the quality of the filling at the end of the welding bead it is important to control carefully the down slope of the current and it is necessary that the gas still flows in the welding pool for some seconds after the arc is extinguished.

Under many operating conditions, it is useful to be able to use two preset welding currents and to be able to switch easily from one to the other (BILEVEL).

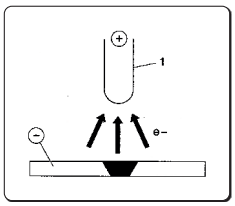
Welding polarity



D.C.S.P. (Direct Current Straight Polarity)

This is the most used polarity and ensures limited wear of the electrode (1), since 70% of the heat is concentrated in the anode (piece).

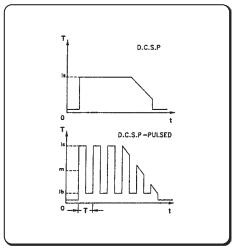
Narrow and deep weld pools are obtained, with high travel speeds and low heat supply.



D.C.R.P. (Direct Current Reverse Polarity)

The reverse polarity is used for welding alloys covered with a layer of refractory oxide with higher melting temperature compared with metals.

High currents cannot be used, since they would cause excessive wear on the electrode.



D.C.S.P.-Pulsed (Direct Current Straight Polarity Pulsed)

The use of pulsed direct current allows better control, in particular operating conditions, of the welding pool width and depth.

The welding pool is formed by the peak pulses (Ip), while the base current (Ib) keeps the arc ignited. This makes it easier to weld thinner metal with less deformation, a better form factor and consequently a reduced risk of hot cracks and gas inclusion.

Increasing the frequency (MF) the arc becomes narrower, more concentrated, more stable and the quality of welding on thin sheets is further increased.

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Characteristics of TIG welds

The TIG procedure is very effective for welding both carbon and alloyed steel, for first runs on pipes and for welding where good appearance is important.

Straight polarity is required (D.C.S.P.).

Preparing the edges

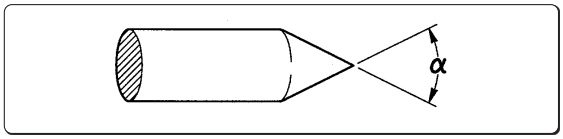
Careful cleaning and preparation of the edges are required.

Choosing and preparing the electrode

You are advised to use cerium or lanthanum electrodes, alternatively electrodes of mixed rare earth oxides with the following diameters:

Current range			Electrode	
(DC-)	(DC+)	(AC)	Ø	α
3-20 A	-	3-20 A	0,5 mm	30°
15-80 A	-	20-30 A	1,0 mm	30-60°
70-150 A	10-20 A	30-80 A	1,6 mm	60-90°
150-250 A	15-30 A	60-130 A	2,4 mm	90-120°
250-400 A	25-40 A	100-180 A	3,2 mm	120-150°
400-500 A	40-55 A	160-240 A	4,0 mm	150-180°
500-750 A	55-80 A	190-300 A	4,8 mm	150-180°
750-1100 A	80-125 A	325-450 A	6,4 mm	150-180°

The electrode must be sharpened as shown in the figure.



Filler metal

The filler rods must have mechanical characteristics comparable to those of the parent metal.

Do not use strips obtained from the parent metal, since they may contain working impurities that can negatively affect the quality of the welds.

Shielding gas

Typically, pure argon (99.99%) is used.

Current range			Gas	
(DC-)	(DC+)	(AC)	Nozzle	Flow
3-20 A	-	3-20 A	n° 4	5-6 l/min
15-80 A	-	20-30 A	n° 5	6-8 l/min
70-150 A	10-20 A	30-80 A	n° 6	7-10 l/min
150-250 A	15-30 A	60-130 A	n° 7	8-12 l/min
250-400 A	25-40 A	100-180 A	n° 8	10-14 l/min
400-500 A	40-55 A	160-240 A	n° 8	12-16 l/min
500-750 A	55-80 A	190-300 A	n° 10	15-20 l/min
750-1100 A	80-125 A	325-450 A	n° 12	20-25 l/min

11. TECHNICAL SPECIFICATIONS

Electrical characteristics **CORE 185 TIG**			U.M.
Power supply voltage U1 (50/60 Hz)	1x115 (±15%)	1x230 (±15%)	Vac
Zmax (@PCC) *	498	498	mΩ
Slow blow line fuse (MMA)	30	30	A
Slow blow line fuse (TIG)	30	30	A
Maximum input power (MMA)	3.10	6.21	kVA
Maximum input power (MMA)	2.68	5.10	kW
Maximum input power (TIG)	2.70	3.96	kVA
Maximum input power (TIG)	2.20	3.21	kW
Power consumption in standby	10	20	W
Power factor (PF) (MMA)	0.99	0.99	
Power factor (PF) (TIG)	0.99	0.99	
Efficiency (μ) (MMA)	87.3	83.0	%
Efficiency (μ) (TIG)	82.0	82.2	%
Cos φ	0.99	0.99	
Max. input current I1max (MMA)	27	27	A
Max. input current I1max (TIG)	23.5	17.2	A
Effective current I1eff (MMA)	13.5	13.5	A
Adjustment range (MMA)	20-110	20-185	A
Adjustment range (TIG)	5-140	5-185	A
Open circuit voltage (MMA)	76	76	Vdc
Open circuit voltage (TIG)	76	76	Vdc
Open circuit voltage Ur (MMA)	15	15	Vdc
Open circuit voltage Ur (TIG)	15	15	Vdc
Peak voltage Up (TIG)	10.1	10.1	kV

Open circuit voltage: Upon initial system startup or after waking up from idle, the open-circuit voltage should be expected to be approximately 10 Vdc lower than the expected value.

The operating value will be reached after the first arc ignition.

Duty cycle **CORE 185 TIG**	1x115	1x230	U.M.
Duty cycle TIG (40°C)			
(X=25%)	140	185	A
(X=60%)	90	120	A
(X=100%)	70	93	A
Duty cycle MMA (40°C)			
(X=25%)	110	185	A
(X=60%)	71	120	A
(X=100%)	55	93	A

Physical characteristics **CORE 185 TIG**		U.M.
IP Protection rating	IP23S	
Insulation class	H	
Radio frequency	[2402-2480]	MHz
Transmission power	+8.5	dBm
Dimensions (lxdxh)	429x172x316	mm
Weight	10.3	Kg
Power supply cable section	3x2.5	mm^2
Length of power supply cable	3	m
Power plug type	16A 250V Type F	
Air flow	yes	
Manufacturing Standards	EN IEC 60974-1/A1:2019 EN IEC 60974-3:2019 EN 60974-10/A1:2015	

** This equipment conforms to the requirements of EN / IEC 61000-3-11 provided maximum permissible mains impedance at the point of interface with the public grid (point of common coupling, PCC) is below or equal to the declared Zmax value. If it is connected to a public low voltage system, it is the responsibility 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 complies with EN / IEC 61000-3-12.*

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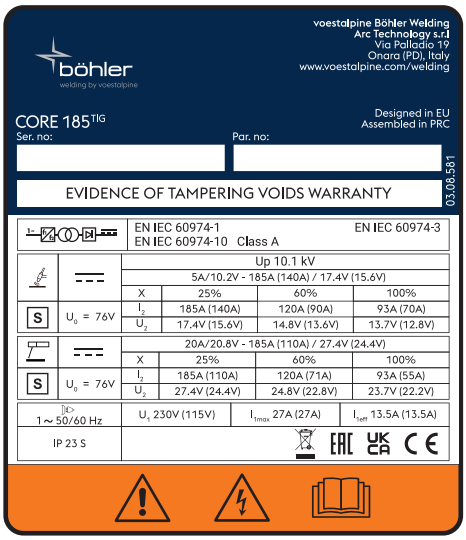
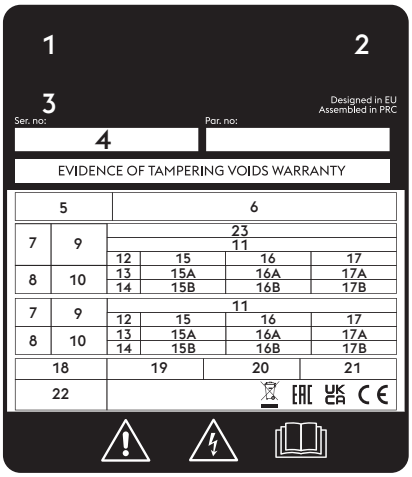
12. RATING PLATE



13. MEANING RATING PLATE



CE EU declaration of conformity
EAC EAC declaration of conformity
UKCA UKCA declaration of conformity

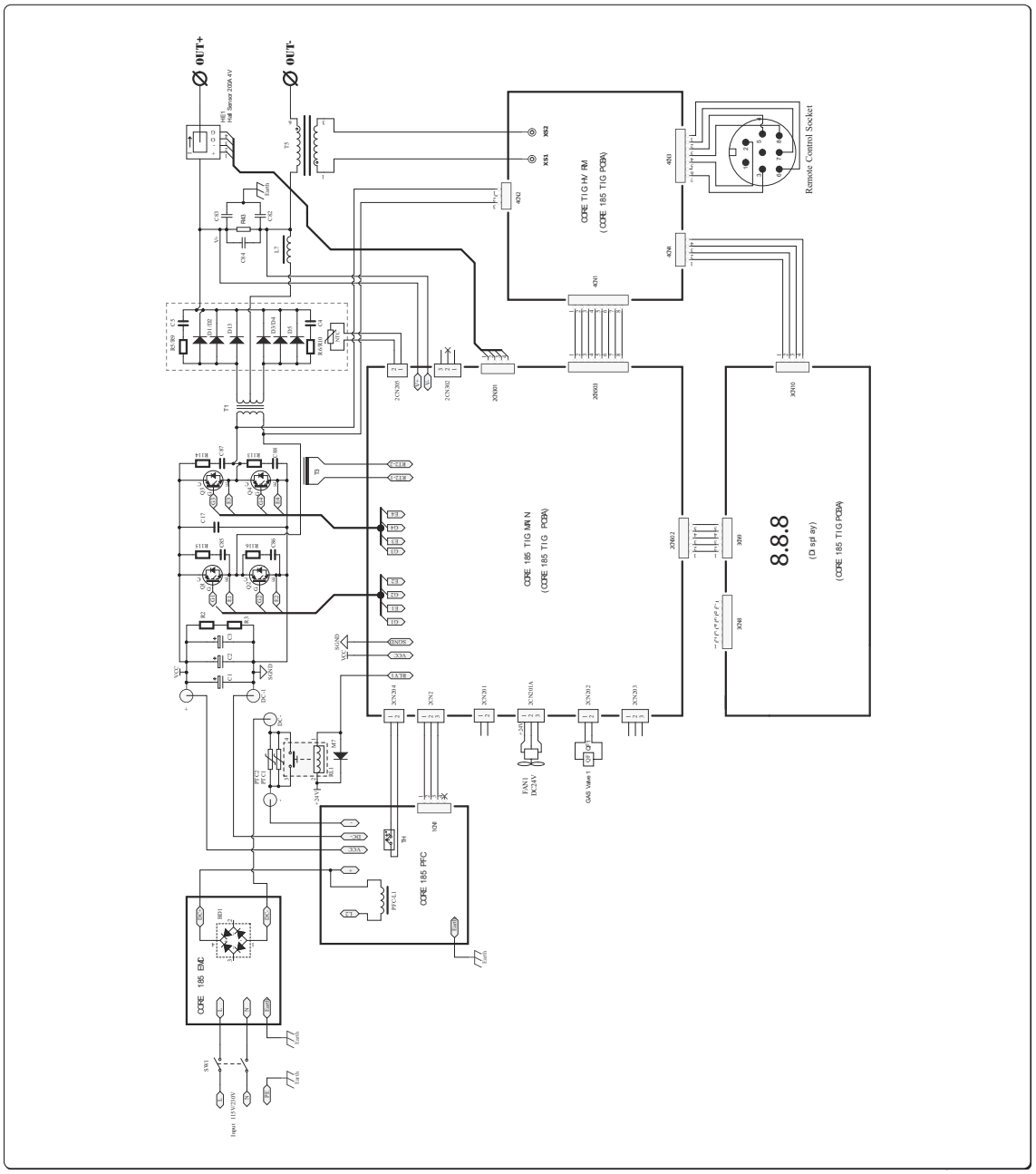
1 Trademark
2 Name and address of manufacturer
3 Machine model
4 Serial no.
XXXXXXXXXX Year of manufacture
5 Welding unit symbol
6 Reference to construction standards
7 Welding process symbol
8 Symbol for equipments suitable for operation in environments with increased electrical shock risk
9 Welding current symbol
10 Rated no load voltage
11 Max-Min current range and corresponding conventional load voltage
12 Duty cycle symbol
13 Rated welding current symbol
14 Rated welding voltage symbol
15 Duty cycle values
16 Duty cycle values
17 Duty cycle values
15A Rated welding current values
16A Rated welding current values
17A Rated welding current values
15B Conventional load voltage values
16B Conventional load voltage values
17B Conventional load voltage values
18 Power supply symbol
19 Rated power supply voltage
20 Maximum rated power supply current
21 Maximum effective power supply current
22 Protection rating
23 Rated peak voltage

EN

EN

14. DIAGRAM

CORE 185 TIG 1x115V 1x230V (55.27.001)



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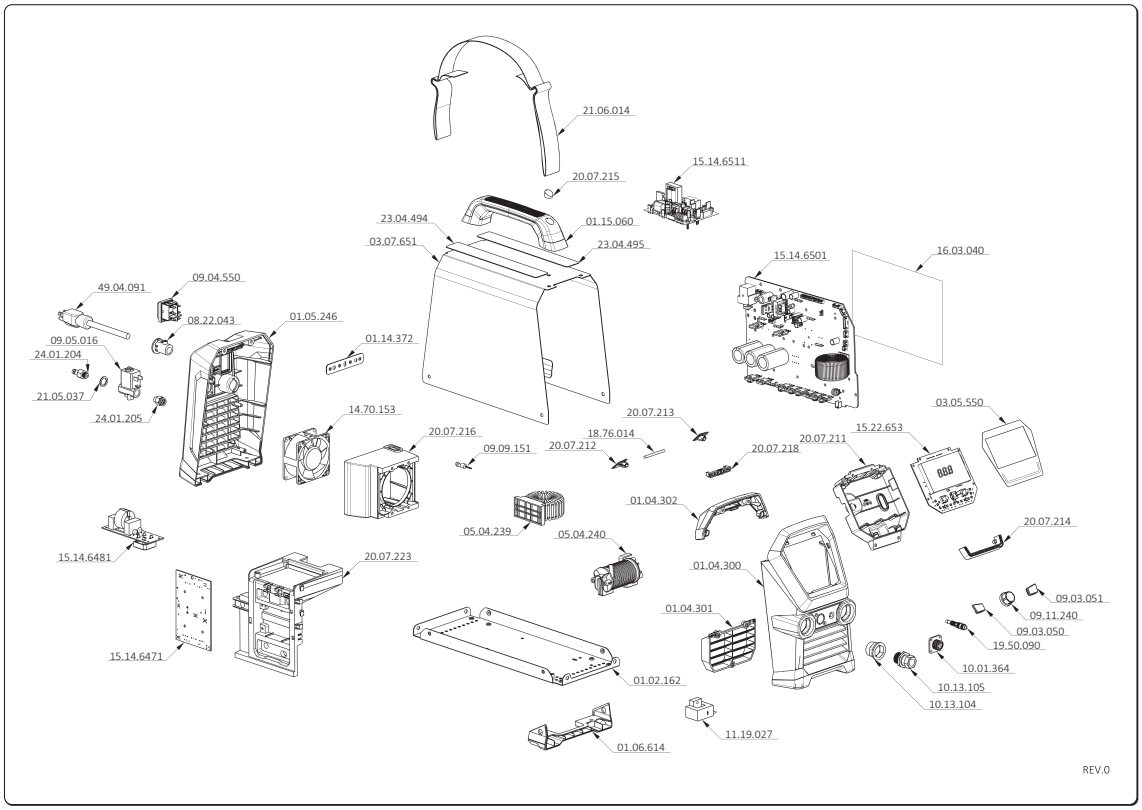
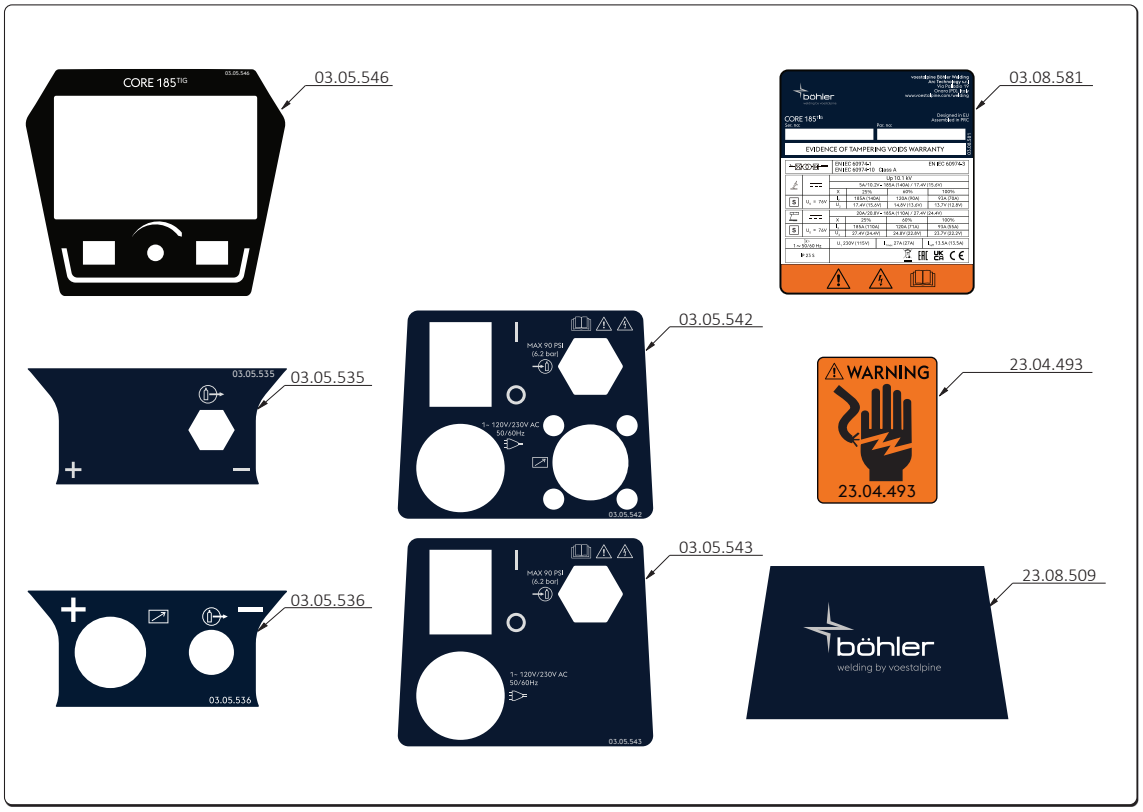
15. SPARE PARTS LIST

CORE 185 TIG 1x115V 1x230V (55.27.001)



PART NO.	DESCRIPTION
01.02.162	Metal base
01.04.300	Front frame (plastic)
01.04.301	Front grid (plastic)
01.04.302	Front grid (plastic)
01.05.246	Rear frame (plastic)
01.06.614	Bottom frame (plastic)
01.14.372	Grounding bar
01.15.060	Handle
03.05.550	Nameplate
03.07.651	Wraparound - locked cover
05.04.239	Inductance
05.04.240	Inductance
08.22.043	Cable clamp
09.03.050	Push button
09.03.051	Push button
09.04.550	Switch
09.05.016	Solenoid valve
09.09.151	Relay
09.11.240	Knob
10.01.364	Line socket
10.13.104	Current socket holder
10.13.105	Current socket (panel) - 50-70mm^2
11.19.027	Hall sensor

PART NO.	DESCRIPTION
14.70.153	Cooling fan
15.14.6471	P.C. Board
15.14.6481	P.C. Board
15.14.6501	P.C. Board
15.14.6511	P.C. Board
15.22.653	User panel
16.03.040	Insulation sheet
18.76.014	Pin
19.50.090	Fitting 1/8"
20.07.211	Control panel cover
20.07.212	Front left cap
20.07.213	Front right cap
20.07.214	Front led frame
20.07.215	Cap
20.07.216	Fan holder
20.07.218	Holder
20.07.223	P.C. Board support
21.05.037	Gasket
21.06.014	Carrying strap
23.04.494	Electrode parameters label
23.04.495	Information label
24.01.204	Fitting G1/8"
24.01.205	Fitting G1/8"
49.04.091	Input line cord. 3.8m



PART NO.	DESCRIPTION
03.05.535	Front nameplate
03.05.536	Front nameplate
03.05.542	Rear nameplate
03.05.543	Rear nameplate
03.05.546	Front nameplate
03.08.581	Rating plate
23.04.493	Warning label
23.08.509	Side hood label