

# USER'S MANUAL

IGBT Inverter type  
Multifunction (MIG/MMA/Lift TIG)  
Welding Power Source

**GORILLA POCKETMIG 235 DP**  
**GORILLA POCKETMIG 240 DP XL**

## Introduction

First of all, thank you for choosing an IWELD welding or cutting machine!

Our mission is to support your work with the most up-to-date and reliable tools both for DIY and industrial application.

We develop and manufacture our tools and machines in this spirit.

All of our welding and cutting machines are based on advanced inverter technology, reducing the weight and dimensions of the main transformer.

Compared to traditional transformer welding machines the efficiency is increased by more than 30%.

As a result of the technology used and the use of quality parts, our welding and cutting machines are characterized by stable operation, impressive performance, energy efficient and environmentally friendly operation.

By activating the microprocessor control and welding support functions, it continuously helps maintain the optimum character of welding or cutting.

Read and use the manual instructions before using the machine please!

The user's manual describes the possible sources of danger during welding, includes technical parameters, functions, and provides support for handling and adjustment but keep in mind it doesn't contain the welding knowledge!

If the user's manual doesn't provide you with sufficient information, contact your distributor for more information!

In the event of any defect or other warranty event, please observe the „General Warranty Terms”.

The user manual and related documents are also available on our website at the product data sheet.

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## WARNING!

Welding is a dangerous process! The operator and other persons in the working area must follow the safety instructions and are obliged to wear proper Personal Protection Items. Always follow the local safety regulations! Please read and understand this instruction manual carefully before the installation and operation!

- The switching of the machine under operation can damage the equipment.
- After welding always disconnect the electrode holder cable from the equipment.
- Always connect the machine to a protected and safe electric network!
- Welding tools and cables used with must be perfect.
- Operator must be qualified!

### **ELECTRIC SHOCK: may be fatal**

- Connect the earth cable according to standard regulation.
- Avoid bare hand contact with all live components of the welding circuit, electrodes and wires. It is necessary for the operator to wear dry welding gloves while he performs the welding tasks.
- The operator should keep the working piece insulated from himself/herself.

### **Smoke and gas generated while welding or cutting can be harmful to health.**

- Avoid breathing the welding smoke and gases!
- Always keep the working area good ventilated!

### **Arc light-emission is harmful to eyes and skin.**

- Wear proper welding helmet, anti-radiation glass and work clothes while the welding operation is performed!
- Measures also should be taken to protect others in the working area.

### **FIRE HAZARD**

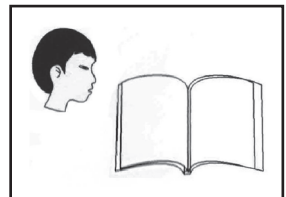
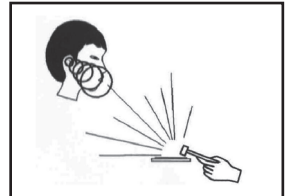
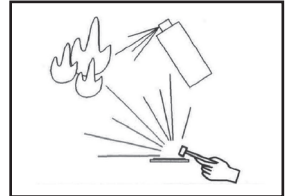
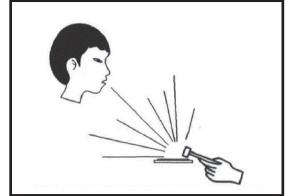
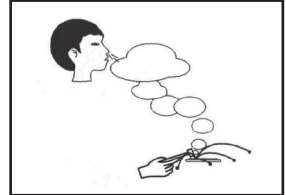
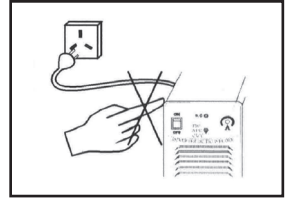
- The welding spatter may cause fire, thus remove flammable materials from the working area.
- Have a fire extinguisher nearby in your reach!

### **Noise can be harmful for your hearing**

- Surface noise generated by welding can be disturbing and harmful. Protect your ears if needed!

### **Malfunctions**

- Check this manual first for FAQs.
- Contact your local dealer or supplier for further advice.



# 1. THE MAIN PARAMETERS

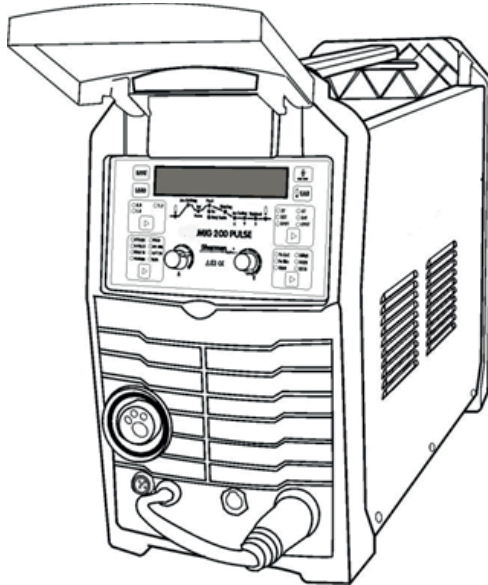
GORILLA		POCKETMIG 235 DP	POCKETMIG 240 DP XL
		800MIG235DP	800MIG240DP
GENERAL	Inverter type	IGBT	IGBT
	Water Cooling System	✗	✗
	Digital Display	LED	LED
	Number of Programs	35	35
MIG	Synergic Control	✓	✓
	Pulse	✓	✓
	Double Pulse	✓	✓
	Reverse Polarity - FCAW	✓	✓
	2T/4T	✓	✓
	2ST/4ST	✓	✓
	SPOT	✓	✓
	Number of Wire Feeder Rolls	4	4
DC TIG	LT TIG	✓	✓
	Pulse TIG	✓	✓
MMA	Arc Force	✓	✓
	Adjustable Arc Force	✓	✓
	Pulse MMA	✓	✓
Accessories MIG Torch		IGrip 240	IGrip 240
Optional MIG Torch		✗	✗
Phase number		1	1
Rated input Voltage		230V AC±15%, 50/60 Hz	230V AC±15%, 50/60 Hz
Max./eff. input Current	MMA	33A/16A	33.7A/16.5A
	MIG	26A/18.6A	26.5A/18.6A
Power Factor (cos φ)		0.7	0.7
Efficiency		85%	85%
Duty Cycle (10 min/40 °C)		210A@60% 160A@100%	220A@60% 170A@100%
Welding Current Range	MMA	40A-209A	20A-220A
	MIG	40A-210A	20A-220A
Output Voltage	MMA	15.6V-22V	20.8V-28V
	MIG	15.6V-22V	15.4V-22V
No-Load Voltage		58V	56V
Insulation		F	F
Protection Class		IP21S	IP21S
Welding Wire Diameter		0.6-1.0mm	0.6-1.0mm
Size of Coil		Ø200 mm, 5kg	Ø300 mm, 15kg
Weight		14kg	19.5 kg
Dimensions (LxWxH)		580x250x440mm	665x260x435 mm

## 2. GENERAL DESCRIPTION

The GORILLA POCKETMIG 235 DP and GORILLA POCKETMIG 240 DP XL welding machines is used for manual welding of steel and non-ferrous metals. Allows welding with MMA (coated electrode), MMA with pulse, TIG Lift, TIG Lift with pulse, and MIG/MAG methods. MIG/MAG welding can be carried out using single and double pulse. The MIG/MAG method can be used in manual and synergic mode, simplifying its operation and allowing the use of the welder by people with less experience and hobbyists. By changing the polarity, the device allows MIG/MAG welding using both standard shielded wires and self-shielding powder wires.

The device allows you to connect a Spool Gun (SG) with a mini wire feeder installed in it and a steel or colored wire spool D100.

The device is made in IGBT technology that allows a significant reduction in the weight and dimensions of the welder and an increase in efficiency while reducing energy consumption. The welder is used in closed or roofed rooms, not exposed to direct weather conditions.



### Duty cycle

The work cycle is based on a 10-minute period. A 60% duty cycle means a 4-minute break is required after 6 minutes of operation. A 100% duty cycle means that the device can work continuously without interruptions.

**WARNING! Heating tests were carried out at ambient air temperature. The duty cycle at 20°C was determined by simulation.**

### Level of security

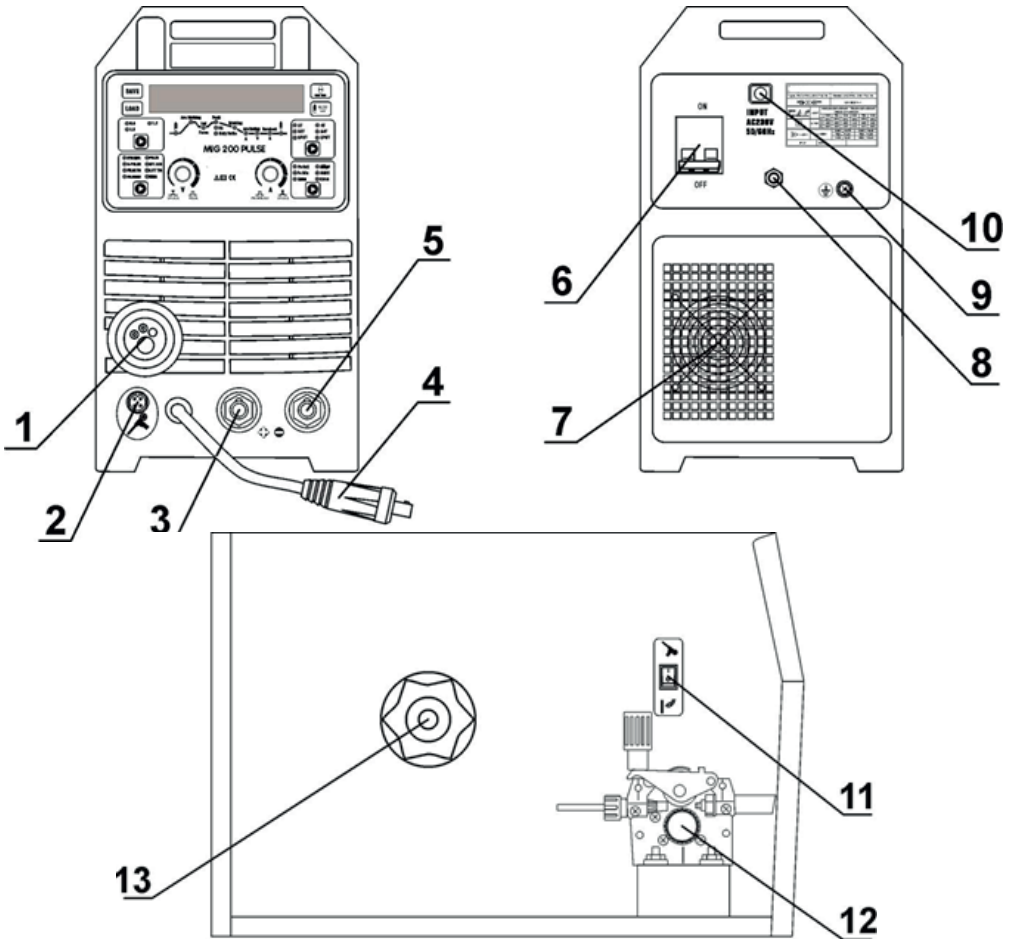
IP determines the degree to which the device is resistant to the penetration of solid and water pollutants. IP21S therefore means that the design of the device provides protection against the ingress of foreign bodies larger than 12.5 mm or the ingress of dripping water vertically, so that the device is at rest during the test.

### Overheat protection

The IGBT module is protected against overheating by a protective installation that shuts off the power supply to the welding machine. After a few minutes, the device cools down to a temperature that allows it to switch on again automatically. Do not disconnect the power supply during this time, because the continuously operating fan cools the internal heat sinks of the device in order to lower the temperature faster. After restarting, remember to limit welding parameters for continued continuous operation of the device.

### 3. PREPARING THE MACHINE FOR WORK

If the device is stored or transported in cold conditions, the device should be brought to a temperature above zero before work begins.

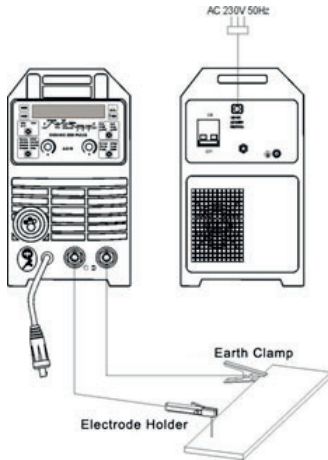


1. MIG torch socket
2. Remote control / Spool Gun socket
3. "+" socket
4. Polarity change plug
5. "-" socket
6. Power switch
7. Cooling Fan
8. Shield gas connection
9. Grounding clamp
10. Power cable
11. Spool Gun switch
12. Wire feeder
13. Wire spool pin

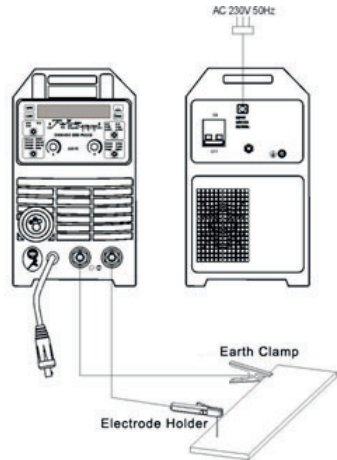
## 3.1 Cable connection

### 3.1.1 Methods for MMA

The ends of the welding cables should be connected to the sockets (3) and (5) on the front panel so that the correct pole for the electrode is on the electrode holder. The polarity of the welding cable connection depends on the type of electrode used and is indicated on the electrode packaging (DCEN negative or DCEP positive). The return hose clamp should be securely attached to the workpiece. Connect the device's plug to a 230V 50Hz wall socket.



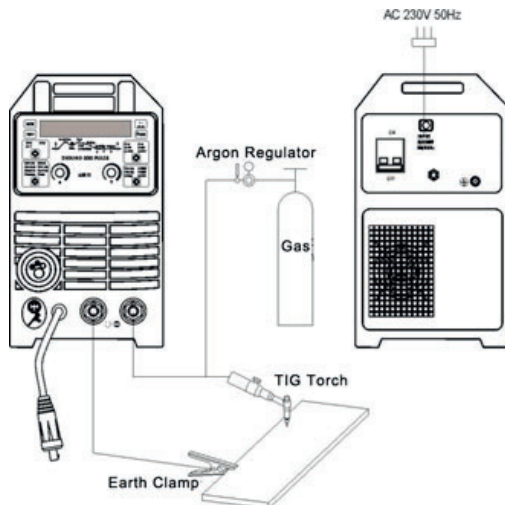
DCEN



DCEP

### 3.1.2 Methods for TIG

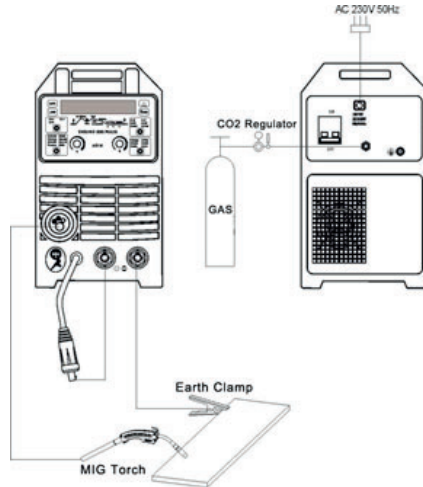
For welding with this method it is necessary to use an additional TIG torch. A gas-cooled handle with a current carrying capacity of 200A, equipped with a shielding gas control valve, is required. The clamp's current clamp should be connected to the socket with negative polarity (5) and the gas line to the regulator on the gas cylinder. Connect the positive pole of the source (3) with the workpiece using a cable with a clamp. Connect the device's plug to a 230V 50Hz wall socket



### 3.1.3 MIG method and braze welding

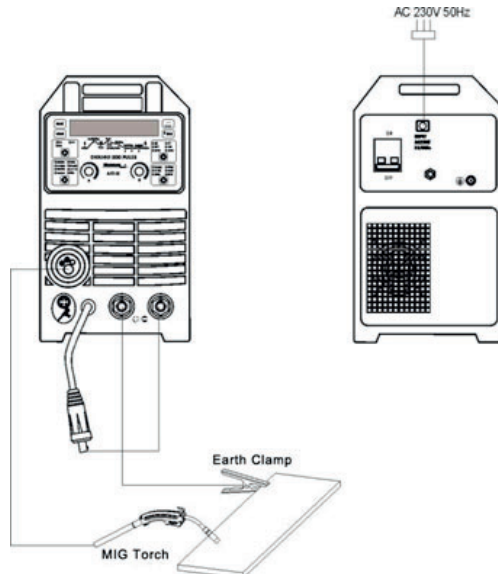
#### 3.1.3.1 Welding and braze welding in shielding gases

The torch current clamp should be connected to the MIG torch socket (1). The gas line from the regulator should be connected and secured to the gas connector (8) on the back of the device. Insert the polarity change plug (4) in the socket (3). Connect the negative pole of the source (5) to the workpiece using a cable with a clamp. Connect the device's plug to a 230V 50Hz wall socket.



#### 3.1.3.2 Welding with steel self-shielding wire

The torch current clamp should be connected to the MIG torch socket (1). Insert the polarity change plug (4) into the socket (5). Connect the positive pole of the source (3) with the workpiece using a cable with a clamp. Connect the device's plug to a 230V 50Hz wall socket.





### 3.1.3.3 Welding with Spool Gun (option)

The torch current clamp should be connected to the MIG torch socket (1). Insert the polarity change plug (4) in the socket (3). Connect the negative pole of the source (5) to the work-piece using a cable with a clamp. Connect the device's plug to a 230V 50Hz wall socket. Switch (11) located inside the feeder chamber set to the Spool Gun position.

### 3.2 Connection of shielding gas

1. Fasten the cylinder and secure it against falling over.
2. Unscrew the cylinder valve momentarily to remove any impurities.
3. Mount the regulator on the cylinder.
4. Connect the regulator with a gas hose (8) on the rear of the welder.
5. Unscrew the cylinder valve and regulator.

### 3.3 Connection to the mains

1. The device should be used only in single-phase, three-wire power supply system with earthed zero point.
2. The POCKETMIG 235 DP inverter rectifier is adapted to cooperate with 230V50 Hz network protected with 25A fuses with time delay. The power supply should be stable, without voltage drops.
3. The device is equipped with a power cord and plug. Before connecting the power supply, make sure that the power switch (6) is in the OFF position.

### 3.4 Inserting the wire spool

1. Open the side cover of the housing.
2. Make sure the drive rollers are suitable for the type and diameter of the wire. If necessary, install the correct roller. For steel wires, rolls with V-shaped grooves should be used, and for aluminum wires with U-shaped grooves.
3. Insert the wire spool onto the mandrel.
4. Secure the spool against falling.
5. Release the feed rollers.
6. Dull the end of the wire.
7. Insert the wire through the feed roller into the holder.
8. Press the wire into the grooves of the drive roller.
9. Unscrew the contact tip from the holder, turn on the power of the welder and pull the wire into the welder's holder using the quick wire feed function.
10. After the wire appears in the handle outlet, release the button and screw on the contact tip.
11. Adjust the feed roller pressure by turning the pressure knob. Too low pressure will cause the drive roller to slide, too much pressure will increase the feed resistance, which may lead to wire deformation and damage to the feeder.

### 3.5 Preparing the MIG gun for work

Depending on the type of material to be welded and the diameter of the wire, insert the correct contact tip and wire guide insert into the MIG torch.

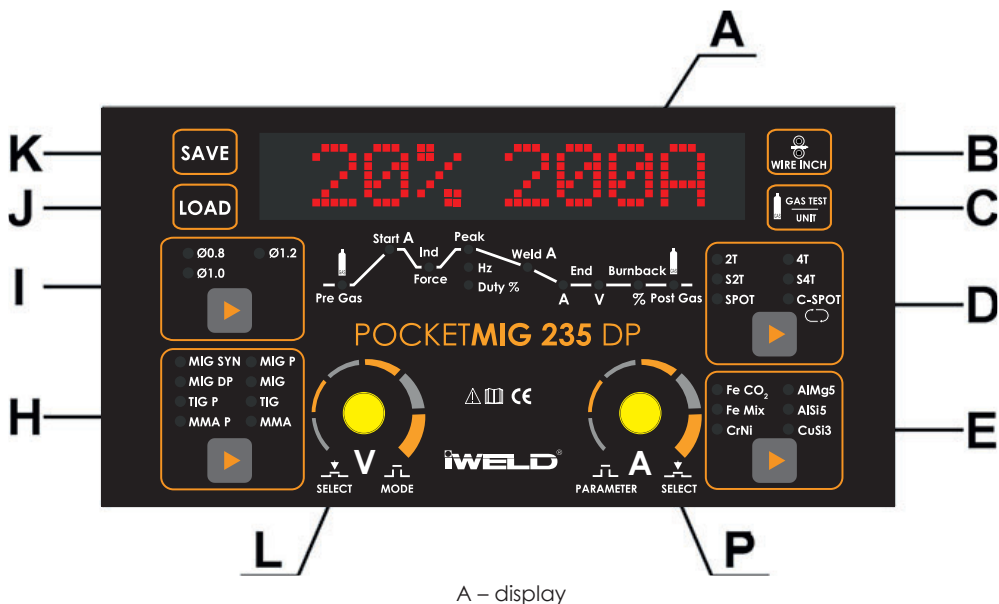
For welding steel use steel welding terminals and steel insert. When welding aluminum, use aluminum welding terminals and a Teflon insert.

#### 3.5.1 Quick wire feed

The device has a quick wire feed function. Pressing the button (B) causes quick wire feed, enabling easy insertion into the holder.

## 4. OPERATION

### 4.1 Front panel



A – display

The display shows the names and values of the parameters, the numbers of the sets of settings saved in the memory and the error codes.

BU	The voltage (arc length) of the base current. Only for the D-PULSE MIG method. Adjustment range: -50 - 50%.
Burn	Wire burning - the time for which the wire feed continues after the arc is extinguished.
Cur	Adjustment range: -50 - 50% of the factory settings.
Duty	Pulse width - pulse duration, allows you to adjust the depth of penetration. The increase in width increases the depth of penetration, the reduction limits the amount of heat introduced into the material, reducing the risk of burning thinner sheets or smaller elements. Lower pulse width values should be used for higher currents. A larger pulse width should be used for small currents, for example a width above 50% should be used for currents below 100A. Only for the D-PULSE MIG, PULSE TIG and PULSE MMA methods. Adjustment range: PULSE TIG, PULSE MMA: 5 - 95%; D-PULSE MIG: 20 - 80%.
Endl	Final current (crater filling) Only for the MIG/MAG method in S2T and S4T modes. The adjustment range depends on the type of welded material and wire diameter.
Endt	The duration of the final current (crater filling). Only for the MIG method in S2T mode Adjustment range: 0 - 50 s

EndU	The voltage (arc length) of the final current (crater filling). Only for the MIG method in S2T and S4T modes. Adjustment range: -50 - 50%
FORC	ARC FORCE function. Only for the MMA and PULSE MMA methods. Adjustment range: 0 - 100%.
Freq	Pulse frequency. Only for the D-PULSE MIG, PULSE TIG and PULSE MMA methods. Adjustment range: PULSE TIG, PULSE MMA: 0.1 - 99 Hz; D-PULSE MIG: 0.5 - 5 Hz.
HotI	HOT START (MMA) / starting current (MIG/MAG) function
MMA:	HOT START function The HotI parameter is used to adjust the current by which the welding current will be increased. The adjustment range depends on the type of welded material and wire diameter. MIG/MAG: Starting current. Only in S2T and S4T modes. The adjustment range depends on the welding method, type of welded material and wire diameter.
Hott	Duration of the HOT START (MMA) function / initial current time (MIG/MAG) MMA: Duration of the HOT START function. Adjustment range: 0 - 99 ms. MIG/MAG: Initial current duration. Only in S2T mode. Adjustment range: 0 - 50 s.
HotU	Initial voltage (arc length). Only for the MIG/MAG method in S2T and S4T modes. Adjustment range: -50 - 50%.
IND	Inductance - its adjustment allows you to optimize the arc characteristics depending on the thickness of the workpiece as well as the welding method and conditions. Only for the MIG/MAG method. Adjustment range: -99 - 50%.
Ip-p	Peak current. Only for D-PULSE MIG, PULSE TIG and PULSE MMA Adjustment range: MIG/MAG 5 - 50%, PULSE TIG 1 - 500%, PULSE MMA 1 - 50%.
Load	Number of the parameter set being loaded.
Post	Gas post-flow - the time at which shielding gas flow continues after arc extinguishing. Only for the MIG/MAG method. Adjustment range: 0.1 - 50 s.
Preg	Gas pre-flow - time during which the shielding gas flows before the arc ignites. Only for the MIG/MAG method. Adjustment range: 0 - 10 s.
PU	Voltage (arc length) of peak current. Only for the D-PULSE MIG method. Adjustment range: -50 - 50%.
Save	Number of the saved parameter set
Slop CC	Arc characteristics - DC mode. Only for the MMA method.
Slop CP	Arc characteristics - constant power mode. Used when welding with cellulose electrodes. Only for the MMA method.
Sptt	Duration of spot welding. Only for the MIG/MAG method in spot welding mode SPOT and CPOT. Adjustment range: 0.1 - 9.9 s.
StFd	Wire feed speed before arc ignition. Adjustment range: 1 - 15 m.
Stop	Pause time between cyclic arc strikes. Only for the MIG/MAG method in continuous CPOT spot welding mode Only for the MIG/MAG method in continuous CPOT spot welding mode Adjustment range: 0.1 - 25.5 s

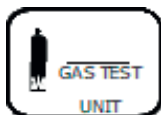
Tick	Welded material thickness. Only for the MIG/MAG method in SYN MIG modes. PULSE and D-PULSE. The adjustment range depends on the type of welded material and wire diameter.
VRD	VRD function - reduces the voltage in the no-load state. Only for the MMA method. Adjustment range - On (On) / Off (Off).

### B – Quick wire feed button



The pressure of the button causes the electrode wire to slide out quickly. It can be used when installing a wire spool to quickly insert it into the welding gun.

### C –Shielding gas button / changing the way of displaying MIG/MAG parameters

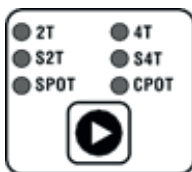


The button is active only during MIG/MAG welding

Pressing and holding the button will cause shielding gas to flow out, releasing it will terminate the flow of gas.

In synergic modes, briefly pressing the button will switch to current adjustment and welding voltage correction, and the display will show welding current (on the right) and information about percentage correction of welding voltage compared to factory synergic settings.

### D – Source control button



The button is active only in the MIG/MAG method. Allows you to select the source control mode. Choosing the right mode is indicated by the lighting of the correct diode.

## 2T



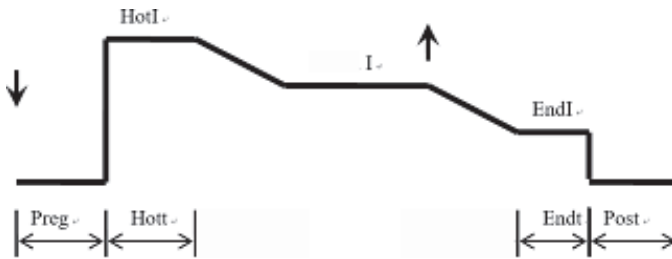
Pressing the welding gun button will cause gas to flow, and then to the arc to start welding. After releasing the button, the arc will be extinguished and gas will flow out.

## 4T



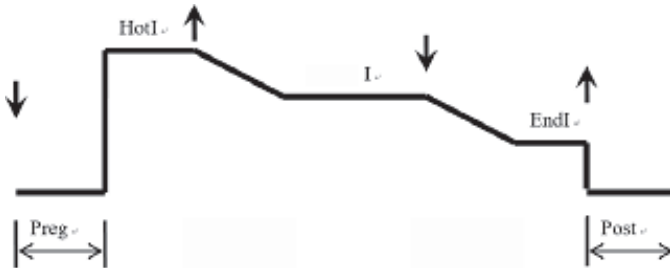
Pressing and releasing the welding gun button will cause gas to flow, and then to the arc to start welding. After pressing and releasing the button again, the arc will be extinguished and gas will flow out.

## S2T



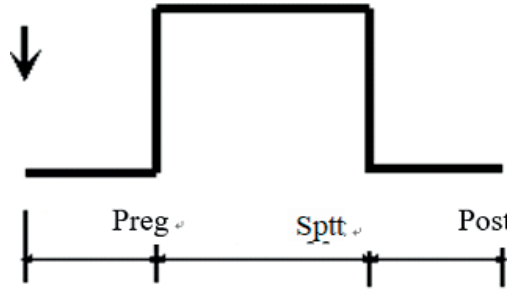
Pressing the welding gun button will cause pre-gas flow, then arc ignition and welding start with HotI current. After the HOTT time has elapsed, the welding current will change to the set value. Releasing the torch button will change the welding current to EndI, and after the Endt time the arc will be extinguished and the gas flow

## S4T



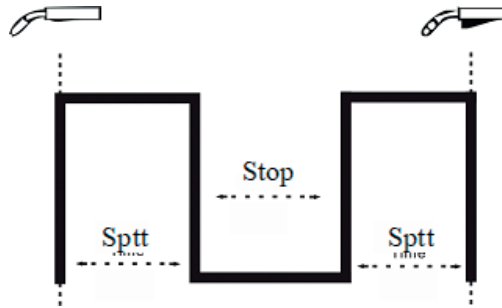
Pressing the welding gun button will cause pre-gas flow, then arc ignition and welding start with "HotI" current. Releasing the button will change the welding current to the set value. Pressing the torch button again will change the welding current to EndI, and when the button is released, the arc will be extinguished and the gas will flow.

## SPOT



Spot welding. Pressing the welding gun button will cause gas to escape and the arc to ignite. After the Sptt time has elapsed, the arc will be extinguished and the gas will leak. An earlier release of the handle button will immediately extinguish the arc and cause a gas leak.

## C-SPOT



Continuous spot welding. Pressing the welding gun button will cause gas to escape and the arc to ignite. After the Sptt time expires, the arc will be extinguished. After the Stop time has elapsed, the arc will ignite again and the cycle will continue until the handle button is released, then the arc will extinguish and gas will flow.

## E – Welding material selection button.



The button is active only during MIG/MAG welding in modes SYN MIG, PULSE D-PULSE Used to select the welded material. Choosing the right mode is confirmed by the lighting of the control diode.

In mode SYN MIG all types of material are available in modes  
In mode PULSE, D-PULSE is not available Fe Co2.

- **Fe Co2**- CO<sub>2</sub> carbon steel welding.
- **AlMg5** - welding aluminum magnesium alloys in an argon shield.

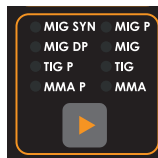
- **Fe Mix** -welding of carbon steels in a shield of Ar / CO<sub>2</sub> mixture.  
The recommended mix ratio is 82% Ar 18% CO<sub>2</sub>
- **-AlSi5** -welding of silicon alloys in argon.
- **CrNi** - welding stainless steels in a shield of Ar / CO<sub>2</sub> mixture.  
The recommended mix ratio is 98% Ar 2% CO<sub>2</sub>.
- **CuSi3** -MIG brazing in pure argon.

## L, P – Control knobs / buttons and parameter chart



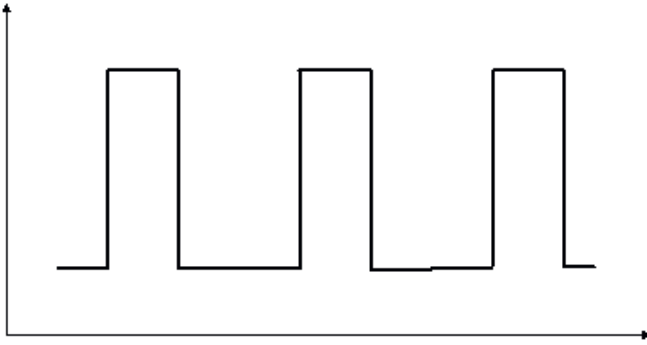
The (L-left) and (P-right) knobs are used to adjust the welding parameters. Turning the knobs to the left decreases, and turning to the right increases the parameter value. Pressing the knob (P) saves the currently set parameter and moves to the next parameter or group of parameters. The currently set parameter or group of parameters is indicated by the lighting of the corresponding LED on the parameter chart. In the case of a group of parameters, pressing the (L) button switches between the individual parameters in the group. With the knob (P) most parameters are adjusted, with the knob (L) you can only adjust the welding current during welding using the SPL MIG method or the voltage correction during welding using MIG methods using synergic settings.

## H – Welding method selection button

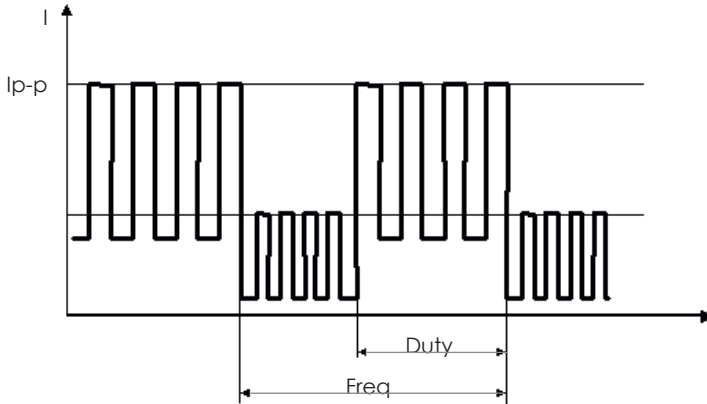


The button is used to select the welding method. Choosing the right mode is confirmed by the lighting of the control diode.

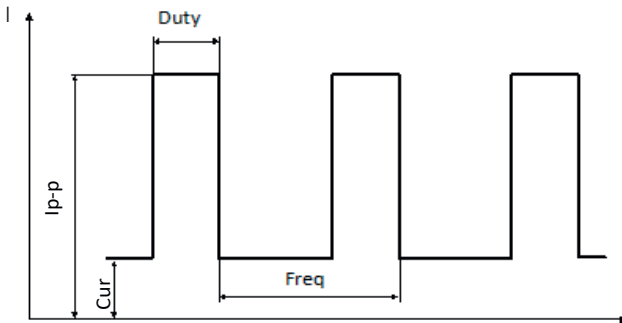
- **MIG SYN** -MIG/MAG welding using synergic settings. The device selects welding parameters depending on the selected type and thickness of the material. These parameters can be changed by the user.
- **MIG P** MIG/MAG welding with pulse. This is an advanced form of welding using the best form of transfer of molten electrode wire material to the welded material. Significantly reduces the formation of chips and allows welding in all positions. Smaller heat input eliminates burning of thin materials. This method uses synergic settings.



- **MIG DP** -MIG/MAG welding with double pulse. This is the most advanced welding method in which current pulses occur in two ranges. It combines the benefits of welding with a single pulse, and also allows you to achieve a very high aesthetics of the weld face - the so-called husk effect. Welding with this method is very efficient, causes small deformations and at the same time allows you to get a perfect weld appearance. This method uses synergic settings.

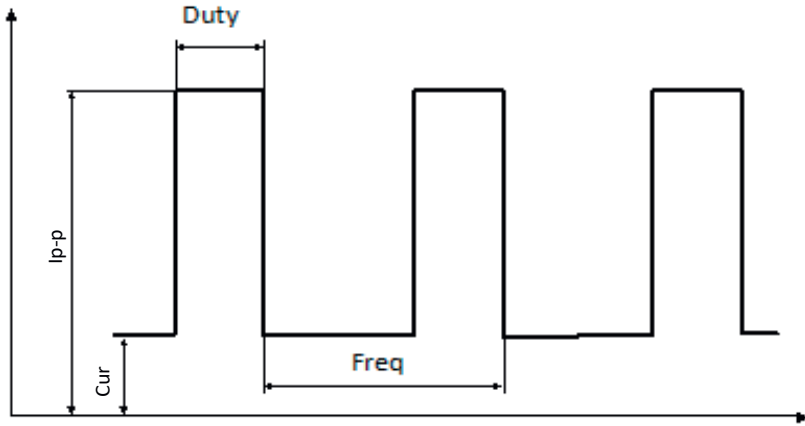


- **MIG** - MIG welding with manual selection of settings.
- **TIG P** - TIG lift welding with pulse.



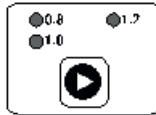


- **LIFT TIG**-TIG lift welding.
- **PULSE MMA** - MMA welding (coated electrode) with pulse.



- **MMA** MMA welding (coated electrode).

I – Button for selecting the wire diameter



The button is active only during MIG/MAG welding mode. Used to select the diameter of the wire. Choosing the right mode is confirmed by the lighting of the control diode.

J – Settings loading button



The button is used to load parameter sets previously saved in the device's memory. After pressing the button, the display will show LOAD and a flashing number of the parameter set to be loaded. The set number can be changed by turning the knob (P). After pressing the knob (P) the display will show Load Data and the selected one will be loaded parameter set. To exit the settings loading mode and enter the parameter adjustment, press the (L) button.

K – Save settings button



The button is used to save currently set parameters. You can save 35 sets of parameters. After pressing the button, the display will show SAVE and a flashing number of the parameter set under which the current parameters will be saved. The set number can be changed by turning the knob (P). After pressing the knob (P), the display will show Save Data and the current parameters will be saved in the device's memory.

## 5. PARAMETER SETTINGS

### 5.1 Methods MMA and PULSE MMA

After choosing the MMA or PULSE MMA method, the parameters can be adjusted according to the table below. The welding current can be adjusted by the adjustment knob immediately after switching on the machine or switching the welding method.

MMA		PULSE MMA	
Arc Striking	HotI HotF	Arc Striking	HotI HotF
Force	Force	Force	Force
Welding	Cur	Peak	Ip-p
	Slop	Welding	Cur
	VRD		VRD

#### VRD function

The VRD function reduces the voltage in no-load condition. The correct voltage value is not restored until just before the arc strikes. This minimizes the risk of electric shock, however, in some cases it can hinder the ignition of an arc.

#### ARC FORCE function

The ARC FORCE function allows you to adjust the dynamics of the welding arc. The shortening of the arc length is accompanied by an increase in the welding current, which stabilizes the arc. Decreasing the value gives a soft arc and a smaller penetration depth, while increasing the value causes deeper penetration and the possibility of short arc welding. When the ARC FORCE function is set to high, you can weld while maintaining the arc with minimum length and high electrode melting speed

#### HOT START function

The HOT START function is popularly called hot start. It works when the arc ignites, temporarily increasing the welding current above the value set by the welder. HOT START is aimed at preventing the electrode from sticking to the material and is a great help during ignition of the arc. When welding small parts, it is recommended to disable this function, as it may cause burnout.

### 5.2 TIG and TIG P methods

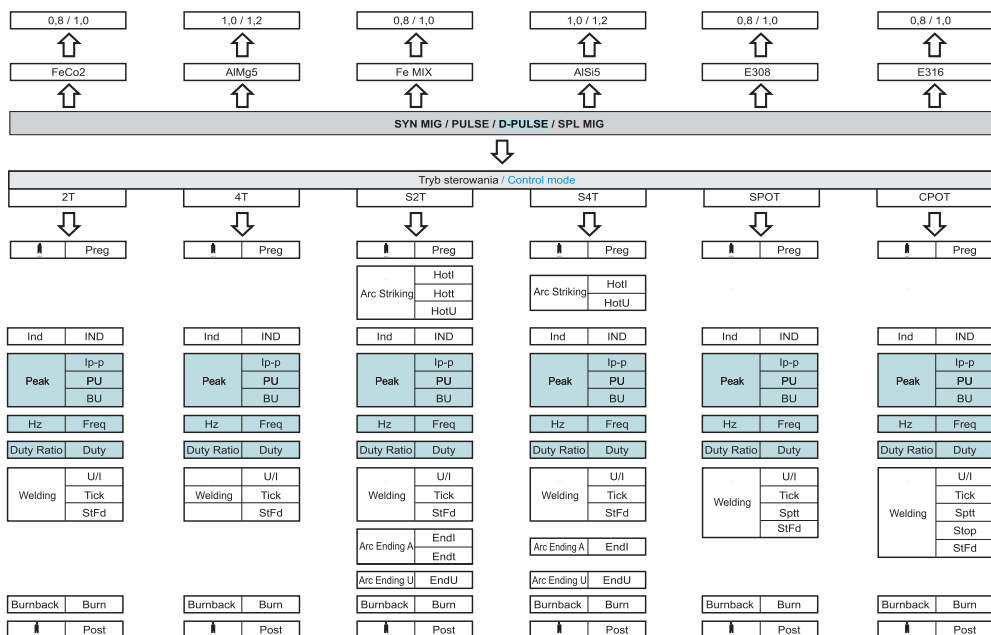
After choosing the TIG or TIG P method, the parameters can be adjusted according to the table below. The welding current can be adjusted by the adjustment knob immediately after switching on the machine or switching the welding method.

LIFT TIG		PULSE TIG	
Welding	Cur	Peak	Ip-p
Serial number		Hz	Freq
		Duty Ratio	Ip-p
		Welding	Cur

### 5.3 MIG, MIg P, MIG DP and manual MIG methods

During MIG welding, the device can operate in synergic (SYN MIG, PULSE, D-PULSE) and manual (SPL MIG) modes. The synergic mode allows welding parameters to be selected for less

The manual mode allows the user to select the welding voltage and wire feed speed as needed. Depending on the selected control mode and welding method, adjustment according to the table below is possible.



**WARNING! In MIG mode it is not possible to select the material to be welded or the wire diameter.**

### Welding voltage correction in synergic modes

After setting the welding current in synergic modes, welding voltage correction is possible. After setting the welding current with the knob (P), the welding voltage can be corrected with the knob (L). To check the percentage change in voltage in relation to the value set according to the synergic program, press the GAS (C) button. By turning the knob (L) further voltage correction is possible. To return to the voltage display, press the GAS (C) button again.

### Inductance regulation

Adjusting the inductance allows optimization of the arc characteristics depending on the thickness of the workpiece as well as the welding method and conditions. This function is useful when MIG/MAG welding of thin elements, preventing burn-out and during braze welding of galvanized elements.

Changing the inductance value also reduces the amount of welding spatter when welding in a CO<sub>2</sub> shield. The higher the inductance value (+), the amount of spatter decreases, when the value is negative (-), the amount of spatter increases. The optimal setting of the inductance value depends on several factors and may differ from standard recommendations, therefore it should be chosen experimentally during welding tests.

Adjusting this parameter also allows braze welding of thin (up to 3 mm) galvanized elements made of copper alloy CuSi3 wires in a pure argon sheath or in some cases Ar / CO<sub>2</sub> mixtures (82/18).

### Pulse width

The pulse width is the duration of the pulse, allows you to adjust the depth of penetration. The increase in width increases the depth of penetration, the reduction limits the amount of heat introduced into the material, reducing the risk of burning thinner sheets or smaller elements. Lower pulse width values should be used for higher currents. A larger pulse width should be used for small currents, for example a width above 50% should be used for currents below 100A.

The welder has built-in synergic programs for selected materials, wire diameters and shielding gases according to the table below:

stuff	Mark	Type	Wire - diameter	Shielding gas - recommended
Ordinary steel	Fe Co2		0.8/1.0	CO2
	Fe Mix		0.8/1.0	Ar+CO2 (82/18)
Aluminum	AlMg5	ER5356	1.0/1.2	Argon
	AlSi5	ER4043	1.0/1.2	Argon
stainless steel	E308	ER308LSi	0.8/1.0	Ar+CO2 (98/2)
	E316	ER316LSi	0.8/1.0	Ar+CO2 (98/2)

- Use high quality argon: recommended 4.8 and above

In addition, depending on the operating conditions, you can set the inductance value, which affects the shape of the weld, the depth of penetration and the number of splashes during welding. It should be taken into account that the recommended welding parameters in synergic mode apply to typical welding materials from the selected group and recommended shielding gases. When welding various alloy materials, the operating parameters may not be optimal and require adjustment of the settings. For this reason, the synergic mode should not be treated as a universal parameterization proposal, but as an output basis for precise adjustment of settings.

The SPL MIG manual function, i.e. manual selection of parameters, is especially useful for braze welding. Using the three welding parameters, set the optimal set to achieve the correct weld. When selecting parameters, select low voltage values and high wire feed speeds. It is recommended to use argon as a shielding gas, but the use of a mixture of argon and CO2 (82/18) also gives good results. Due to the required shape of the weld, the inductance should be selected experimentally depending on the thickness and type of material being welded. Copper-based binders are most often used as an additional material. These are wires labeled CuSi3 or SG -CuAl.

It is recommended to use a handle no more than 3 m long equipped with a Teflon insert.

## 6. ALUMINUM ALLOY WELDING

In synergic mode you choose AlMg5 or AlSi5 program for welding aluminum.

Welding aluminum is not a simple task, it requires the welder to have experience, knowledge and certain practices that will facilitate the welding of aluminum elements. The device in the synergic program selects the output parameters for the appropriate type of materials and types of wires. Depending on the needs, appropriate voltage and inductance corrections should be made to achieve the desired effect.

First of all, there are a few important things to remember that significantly affect the appearance of the weld and have an impact on the proper course of the welding process.

Before starting welding work on aluminum elements, the following operations must be performed:

**Device:**

- Make sure the feed rollers are designed for use with aluminum: the groove is letter-shaped
- "U" and are dedicated to the correct diameter of the welding wire. Using the wrong rollers will cause wire deformation and welding problems.
- Make sure the feed rollers are not too tight. Excessive wire tension can cause a feeding problem.
- Make sure the handle is equipped with a Teflon guide insert designed for aluminum. Using steel elements used to feed the steel wire will cause feeding problems.
- Make sure the contact tip is the right size and is for aluminum wire
- It is worth replacing part of the wire guide insert in the feeder with a Teflon version, which improves wire feeding as it does in the welding gun.

**Workplace:**

- Pay attention to proper preparation of the welding work site: the hall should be clean, well ventilated and the humidity should be kept low. The presence of iron oxide dust or dust after steel erosion is unacceptable.
- The aluminum welding station should be vacuumed with industrial vacuum cleaners once a day, after finishing work.
- Welders' clothing should be clean, gloves must not be greasy.

**Material preparation:**

- The welding spot should be cleaned and degreased just before welding.
- Aluminum elements should be degreased by wiping with a clean cloth soaked in a degreasing agent, e.g. acetone (Alcohol is not a good degreasing agent, we advise against using it when cleaning aluminum).
- Remove heavy oxide residues before welding. As a standard, this is done manually or mechanically with a steel wire brush. In the event that the material has been heavily contaminated, you may need to use a grinder.
- When the surface is properly prepared, the welding process should be carried out as quickly as possible.
- If the part needs to remain unwelded for a longer period of time, protect it with brown wrapping paper and cover it with adhesive tape.

**Correct storage of the welding wire**

- Aluminum welding wire should be stored in a clean, dry environment, preferably in its original packaging.
- The wire does not have to be stored in air-conditioned rooms, it is best to store it in low humidity. Do not wet the wire in water.
- If the wire, which is relatively cold, is introduced into the room on a hot, humid day and opened immediately, it is possible that moist air will contaminate the wire. Therefore, when storing the wire in an air-conditioned room, remember not to unpack the wire until it warms up and adjusts to the ambient temperature.
- After finishing work, the wire should be removed from the feeder and secured in a plastic bag until next use

For welding aluminum alloys, as a shielding gas, pure argon of high quality grade should be used, not less than 4.8 recommended. The gas flow should be selected according to the thickness and welding speed. Good welding results are achieved when the process direction is to the left.

## 7. BRAZING

In synergistic mode, select CuSi3 for brazing. For brazing, the working temperature is above 450 °C. Areas of application: repair of galvanized body parts, in construction, air conditioning and household appliances.

## 8. STAINLESS STEEL WELDING

The synergistic program in the device has been developed for welding the most popular 308LSi and 316LSi stainless steels and the 98/2 argon + CO<sub>2</sub> gas mixture used. Welding parameters of other high-alloy steels and other shielding gas mixtures used may require correction of welding parameters.

## 9. ARC INITIATION

### 9.1 Methods for MMA

1. Touch the electrode to the workpiece, rub briefly and tear off.
2. In the event of arc initiation with electrodes whose coating forms a non-conductive slag after solidification, pre-clean the tip of the electrode by hitting the hard surface several times until metallic contact with the welded material is achieved.

### 9.2 Methods for TIG

1. Unscrew the valve on the TIG torch so that shielding gas flows out.
2. Lightly touch the workpiece with the electrode, detach the electrode from the workpiece by tilting the handle so that the gas nozzle touches the workpiece.
3. After ignition of the arc, straighten the handle and start welding.

### 9.3 Methods for MIG/MAG

1. Move the handle closer to the work pieces so that the distance between the nozzle and the work pieces is approx. 10 mm.
2. Press the welding gun button and start welding.

## 10. TABLE OF RECOMMENDED PARAMETER VALUES

### 10.1 Methods for MMA

The diameter of the electrode	2,5	3,2	4,0	5,0
Welding current	70 – 100A	110 – 140A	170 – 220A	230 – 280A

### 10.2 Methods for TIG

Thickness (mm)	Electrode diameter (mm)	Wire diameter (mm)	Welding current (A)	Shielding gas flow (l / min)
0,8	1,0	1,0	35 – 45	4 – 6
1,0	1,6	1,6	40 – 70	5 – 8
1,5	1,6	1,6	50 – 85	6 – 8
2,0	2,0 – 2,4	2,0	80 – 130	8 – 10
3,0	2,4 – 3,2	2,4	120 - 150	10 – 12

### 10.3 Methods for MIG

	Sheet thickness (mm)	Wire diameter (mm)	Interval (mm)	Welding current (A)	Welding voltage (V)	Welding speed (cm/min)	Free electrode outlet (mm)	Gas flow (l/min)
Butt weld Low welding speed	0.8	0.8,0.9	0	60~70	16~16.5	50~60	6	10
	1.0	0.8,0.9	0	60~85	17~17.5	50~60	6-8	10~15
	1.2	0.8,0.9	0	60~90	16~16.5	50~60	6-8	10~15
	1.6	0.8,0.9	0	65~105	17~18	45~50	6-8	10~15
	2.0	1.0,1.2	0~0.5	80~120	18~19	45~50	6-8	10~15
	2.3	1.0,1.2	0.5~1.0	80~130	19~19.5	45~50	6-8	10~15
	3.2	1.0,1.2	1.0~1.2	90~150	20~21	45~50	6-8	10~15
	4.5	1.0,1.2	1.0~1.5	120~180	22~23	45~50	8-16	15
		1.2	1.2~1.6	160~260	24~26	45~50	8-16	15~20
		1.2	1.2~1.6	160~260	24~26	45~50	8-16	15~20
		1.2	1.2~1.6	180~340	32~34	45~50	8-16	15~20
		1.2	1.2~1.6	180~340	32~34	45~50	8-16	15~20

	Sheet thickness (mm)	Wire diameter (mm)	Welding current (A)	Welding voltage (V)	Welding speed (cm/min)	Free electrode outlet (mm)	Gas flow (l/min)
Fillet weld	1.6	0.8,0.9	60~80	16~17	40~50	10	6
	2.3	0.8,0.9	80~100	19~20	40~55	10	6-9
	3.2	1.0,1.2	90~160	20~22	35~45	10~15	8-10
	4.5	1.0,1.2	120~180	21~23	30~40	10~15	8-12

Wire diameter	Contact tip diameter	Wire guide insert
0.8	0.8	Blue
1.0	1.0	Blue / red
1.2	1.2	Red
1.6	1.6	Yellow

# 11. TROUBLESHOOTING

Symptoms	Cause	Procedure
No power, failure signal or device malfunction	No connection or loose plug inside device	Check and correct the connections of all electrical plugs inside the device
No wire feed (feeder motor running)	Too low roller pressure	Set the correct pressure
	Incorrect roller groove diameter lead	Install the correct guide roller
	Dirty wire guide in the handle	Clean the wire liner
	The electrode wire is blocked current	Replace the contact tip
Irregular wire feed	Damaged contact tip	Replace the contact tip
	The feed roller groove is dirty or damaged	Clean the roller groove or replace the roller
	The wire spool rubs against the cover walls welders	Secure the wire spool correctly
The Arc does not light	Lack of proper ground terminal clamp contact	Improve the ground terminal contact
	Damaged switch in MIG gun	Replace the switch
	Incorrect connection of the MIG torch to the device	Check the condition of the electrical connections handle, check that the pins in the socket are not broken or are not jamming
The Arc is too long and irregular	Welding voltage too high	Reduce welding voltage
	Wire feed speed too low	Increase wire feed speed
The Arc is too short	Welding voltage too low	Increase welding voltage
	Wire feed speed too high	Reduce wire feed speed
Displays after turning on the power and the LEDs are off	No power supply	Check the fuses on the connection network
The fan is not working	The fan has been blocked by a folded cover	Straighten fan cover
Unsatisfactory weld quality with MIG welding	Inadequate or poor quality materials or consumables used,	Replace consumable parts. Change the welding wire or gas cylinder for materials adequate or higher quality
	Shielding gas flows out of inadequate intensity.	Check gas supply hose, improve hose connection with fittings and condition of quick couplings Check cylinder regulator
Unsatisfactory weld quality when MMA welding, the electrode glues to the welded material	Incorrect connection polaritywelding wires	Connect the welding leads correctly
	Damp electrode.	Replace the electrode
	The welder is powered by a power generator or through a long one extension cord with too small cable cross section	Connect the device directly to the mains
Unsatisfactory weld quality for TIG welding	Check the quality of materials and consumables used, especially the electrode tungsten and shielding gas	Replace consumable parts, replace shielding gas with higher quality
	Shielding gas does not flow or flows with insufficient intensity	Check cylinder regulator, hose gas supply, improve hose connection with fittings and condition of quick couplings

Error code	Description
OverTemp	Overheat protection. Wait a few minutes until the device cools down to a temperature that allows it to switch on again automatically. Do not disconnect the power supply during this time, because the continuously operating fan cools the internal heat sinks of the device in order to lower the temperature faster. After restarting, remember to limit welding parameters for continued continuous operation of the device.



# Precautions

## Workspace

1. Welding equipment free of dust, corrosive gas, non-flammable materials, up to 90% humidity for use!
2. Avoid welding outdoors unless protected from direct sunlight, rain, snow, work area temperature must be between -10 °C and +40°C.
3. Wall to position the device at least 30 inches away.
4. Well-ventilated area to perform welding.

## Safety requirements

Welding provides protection against overvoltage / overcurrent / overheating. If any of the above events occurs, the machine stops automatically. However, over-stress damage to the machine, keep the following guidelines:

1. Ventilation . When welding a strong current going through the machine, so the machine is not enough natural ventilation for cooling . The need to ensure adequate cooling, so the distance between the plane and any object around it at least 30 cm . Good ventilation is important to normal function and service life of the machine.
2. Continuously, the welding current does not exceed the maximum allowable value. Current overload may shorten its life or damage to the machine .
3. Surge banned ! Observance of tension range follow the main parameter table . Welding machine automatically compensates for voltage, allowing the voltage within permissible limits of law. If input voltages exceed the specified value, damaged parts of the machine .
4. The machine must be grounded! If you are operating in a standard, grounded AC pipeline in the event of grounding is provided automatically . If you have a generator or foreign, unfamiliar, non-grounded power supply using the machine, the machine is required for grounding connection point earth to protect against electric shock .
5. Suddenly stopping may be during welding when an overload occurs or the machine overheats . In this case, do not restart the computer, do not try to work with it right away, but do not turn off the power switch, so you can leave in accordance with the built-in fan to cool the welding machines .

## WARNING!

If the welding equipment is used with the welding parameters above 180 amperes, the standard 230V electrical socket and plug for 16 amp circuit breaker is not sufficient for the required current consumption, it is necessary to use the welding equipment with 20A, 25A or even to the 32A industrial fuses! In this case, both the plug and the plug socket fork have to be replaced to 32A single phase fuse socket in compliance with all applicable rules. This work may only be carried out by specialists!

## Maintenance

1. Remove power unit before maintenance or repair!
2. Ensure that proper grounding!
3. Make sure that the internal gas and electricity connections are perfect and tighten, adjust if necessary, if there is oxidation, remove it with sandpaper and then reconnect the cable.
4. Hands, hair, loose clothing should be kept away under electric parts, such as wires, fan.
5. Regularly dust from the machine clean, dry compressed air, a lot of smoke and polluted air to clean the machine every day!
6. The gas pressure is correct not to damage components of the machine.
7. If water would be, for example. rain, dry it in the machine and check the insulation properly! Only if everything is all right, go after the welding!
- 8 When not in use for a long time, in the original packaging in a dry place.

## CERTIFICATE OF EUROPEAN STANDARD

Manufacturer: IWELD Ltd.  
2314 Halásztelek  
II. Rákóczi Ferenc street 90/B  
Tel: +36 24 532-625  
info@iweld.hu  
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Item: **GORILLA POCKETMIG 235 DP,**  
**GORILLA POCKETMIG 240 DP XL**  
IGBT Inverter type  
Multifunction (MIG/MMA/Lift TIG)  
Welding Power Source

Applied Rules (1): EN 60204-1:2005  
EN 60974-10:2014,  
EN 60974-1:2018

Country of Origin PRC

(1) References to laws, rules and regulations are to be understood as related to laws, rules and regulations in force at present.


Manufacturer declares that the above specified product is complying with all of the above specified rules and it also complying with the essential requirements as specified by the Directives 2014/35/EU, 2014/30/EU, 2006/42/EU and 2011/65/EU

Serial No.:



Halásztelek (Hungary),

14/03/20



Managing Director:  
András Bódi